**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 2

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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

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION RDT - 245

1. Preparer: Rhodes, Donald W.
2. Date prepared: 06/20/94
3. Generator: ALE
(area or contractor - use code from attached list)
4. Particular facility: 317
(building number - use code from attached list)
5. Number of waste stream from this facility:
1R
6. Waste stream:
Biological waste.
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 1987
9. Waste stream volume:
Amount 3.4000 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):

2. Details on physical form (particularly confinement related)
Tissue, feces, and other waste from small animals (dogs and mice).

4. Inner packaging: ☐ plastic bag ☐ plastic liner
☐ metal liner ☐ none ☒ other (specify)
 Three and/or 5-gallon paint cans.

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	Liquid absorbed in animal fluid.	Tritiated water.	T 746.10000000000	CI	1987	1987	N	-50%	+50%	Professional judgment.
C-14	Bound in animal tissues.	Constituent of animal cells.	T .00010000000000	CI	1987	1987	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 biological samples were either analyzed directly or, in some cases, the values may have been obtained as a difference between the intake and the amount excreted, both of which would have been determined by analytical methods. The method of activity determination is not known for certain.

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:

The method used to determine the
concentration of H-3 was not known.

2. Details concerning source (names, report no., dates, etc.)
RWMIS printout; Report WM-F1-82-010, ANL Laboratory East,
Low-level Waste Sources and Forms, L.S. Kee, June 1982.
Argonne National Laboratory Institutional Plan, FY 1986-FY
1991, November 1985. Telephone interview with M. Sodaro,
Waste Management manager for ANL-E, on 06/15/94.

4. If other than best estimate, explain why:

6. If yes, explain why:

8. Key assumptions used to deal with the unknowns:

Assumed that analytical methods were used to determine the
concentration of H-3.

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION RDT - 246

1. Preparer: Rhodes, Donald W.
2. Date prepared: 06/20/94
3. Generator: ALE
(area or contractor - use code from attached list)
4. Particular facility: 317
(building number - use code from attached list)
5. Number of waste stream from this facility:
2R
6. Waste stream:
General plant waste from research and development
operations and waste from general upgrading of
facilities.
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 1988
9. Waste stream volume:
Amount 1547.4000 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):
6. Some substandard temporary buildings were demolished, other facilities were upgraded and
substantial rehabilitation of laboratory and other research facilities occurred.

<p>1. General physical form (see attached list)
<u>Combustibles (paper, cloth, wood, etc.)</u>
<u>[] other (specify)</u></p> <p>3. Chemical form:
<u>Cellulose, metallic, and plastic.</u></p> <p>5. Waste container type (see attached list)
<u>Bin.</u></p> <p>7. Comments (specify number of pertinent question):
<u>1. Also 42, 44, and 10.</u></p> | <p>2. Details on physical form (particularly confinement related)
<u>Includes cloth, paper, wood, plastic, cut-up scrap, cut-up</u>
<u>glove boxes and other undefined general plant waste.</u></p> <p>4. Inner packaging: <u>[] plastic bag [] plastic liner</u>
<u>[] metal liner [X] none [] other (specify)</u></p> <p>6. Other characteristics of interest:</p> |
|--|--|

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
Cs-137	Imbedded/absorbed in the solid waste constituents.	Probably oxides or nitrates.	T 78.8000000000000	CI	1984	1988	N			
Sr-90	Imbedded/absorbed in the solid waste constituents.	Probably oxides or nitrates.	T 7.60000000000000	CI	1984	1988	N			
Co-60	Imbedded/absorbed in the solid waste constituents.	Probably oxides or nitrates.	T 8.90000000000000	CI	1984	1988	N			
H-3	Imbedded/absorbed in the solid waste constituents.	Probably oxides or nitrates.	T 80.0000000000000	CI	1984	1988	N	-50%	+50%	Professional judgment.
Cs-134	Imbedded/absorbed in the solid waste constituents.	Probably oxides or nitrates.	T .100000000000000	CI	1984	1988	N			
Pu-239	Imbedded/absorbed in the solid waste constituents.	Probably oxides or nitrates.	T .230000000000000	CI	1984	1988	N	-50%	+50%	
Pu-241	Imbedded/absorbed in the solid waste constituents.	Probably oxides or nitrates.	T .020000000000000	CI	1984	1988	N	-50%	+50%	
U-232	Imbedded/absorbed in the solid waste constituents.	Probably oxides or nitrates.	T 2.21000000000000	CI	1984	1988	N	-50%	+50%	
U-238	Imbedded/absorbed in the solid waste constituents.	Probably oxides or nitrates.	T .010000000000000	CI	1984	1988	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)

Sample data were not available, but it is likely that some sort of analytical examination was made. The large volume of waste and the low concentrations of radionuclides suggest the reliability of the analyses may not be very high. The method of measurement is not known for certain. The U-234 quantity was estimated assuming that the uranium was 50% enriched, a common enrichment for EBR-II fuel.

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
Ra-226	Imbedded/absorbed in the solid waste constituents.	Probably oxides or nitrates.	T 1.10000000000000	CI	1984	1988	N	-50%	+50%	
Th-228	Imbedded/absorbed in the solid waste constituents.	Probably oxides or nitrates.	T 8.20000000000000	CI	1984	1988	N	-50%	+50%	
Fe-59	Imbedded/absorbed in the solid waste constituents.	Probably oxides or nitrates.	T .360000000000000	CI	1984	1988	N			
Eu-152	Imbedded/absorbed in the solid waste constituents.	Probably oxides or nitrates.	T .100000000000000	CI	1984	1988	N			
Eu-154	Imbedded/absorbed in the solid waste constituents.	Probably oxides or nitrates.	T .260000000000000	CI	1984	1988	N			
Am-241	Imbedded/absorbed in the solid waste constituents.	Probably oxides or nitrates.	T .160000000000000	CI	1984	1988	N	-50%	+50%	
C-14	Imbedded/absorbed in the solid waste constituents.	Probably oxides or nitrates.	T .003000000000000	CI	1984	1988	N	-50%	+50%	
U-234	Imbedded/absorbed in the solid waste constituents.	Probably oxides or nitrates.	T .710000000000000	CI	1984	1988	N	-50%	+50%	
U-235	Imbedded/absorbed in the solid waste constituents.	Probably oxides or nitrates.	T .030000000000000	CI	1984	1988	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)

Sample data were not available, but it is likely that some sort of analytical examination was made. The large volume of waste and the low concentrations of radionuclides suggest the reliability of the analyses may not be very high. The method of measurement is not known for certain. The U-234 quantity was estimated assuming that the uranium was 50% enriched, a common enrichment for EBR-II fuel.

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:
The method used to determine the concentrations of radionuclides is not known.

2. Details concerning source (names, report no., dates, etc.)
RWMIS printout 1984-93. Argonne National Laboratory Institutional Plan, FY 1986-FY 1991, November 1985.
Telephone interview with M. Sodaro, Waste Management manager for ANL-E, on 06/15/94. Report WM-F1-82-010, ANL Laboratory East, Low-level Waste Sources and Forms, L.S. Kee, June 1982.

4. If other than best estimate, explain why:

6. If yes, explain why:

8. Key assumptions used to deal with the unknowns:
It is assumed the variability in the concentration may be due to the large volume of waste from various sources and the inherent difficulty in measuring low concentrations in a large volume of waste.

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION RDT - 247

1. Preparer: Rhodes, Donald W.
2. Date prepared: 06/21/94
3. Generator: ALE
(area or contractor - use code from attached list)
4. Particular facility: 317
(building number - use code from attached list)
5. Number of waste stream from this facility:
3R
6. Waste stream:
Filters.
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 1988
9. Waste stream volume:
Amount 384.0000 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) HEPA filters.
[] other (specify) _____

2. Details on physical form (particularly confinement related) HEPA and other types of filters. Generally not compacted.

3. Chemical form: Fiberglass.

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

5. Waste container type (see attached list) Bin.

6. Other characteristics of interest:

7. Comments (specify number of pertinent question):
1. Also 23.

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	Absorbed on particulate matter.	Probably oxides.	T .100000000000000	CI	1984	1988	N			
Pu-238	Absorbed on particulate matter.	Probably oxides.	T .200000000000000	CI	1984	1988	N	-50%	+50%	Professional judgment.
Pu-239	Absorbed on particulate matter.	Probably oxides.	T .400000000000000	CI	1984	1988	N	-50%	+50%	
Pu-240	Absorbed on particulate matter.	Probably oxides.	T .020000000000000	CI	1984	1988	N	-50%	+50%	
U-238	Absorbed on particulate matter.	Probably oxides.	T .080000000000000	CI	1984	1988	N	-50%	+50%	
C-14	Absorbed on particulate matter.	Probably oxides.	T .010000000000000	CI	1984	1988	N	-50%	+50%	
H-3	Absorbed on particulate matter.	Probably oxides.	T 18.8000000000000	CI	1984	1988	N	-50%	+50%	
Cs-137	Absorbed on particulate matter.	Probably oxides.	T 24.7000000000000	CI	1984	1988	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)

No actual sample data were available, but it was assumed that an analysis had to be done to obtain the Pu, U, C and H-3 isotopes.

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:
The major part of the radioactivity was
MFP.

2. Details concerning source (names, report no., dates, etc.)
RWMIS printout. Report, ANL-E Low-level Waste Sources and
Forms, WM-F1-82-010, L.S. Kee, June 1982. RWMIS printout
1984-93. Argonne National Laboratory Institutional Plan, FY
1986-FY 1991, November 1985. Telephone interview with M.
Sodaro, Waste Management manager for ANL-E on 06/15/94.

4. If other than best estimate, explain why:

6. If yes, explain why:

8. Key assumptions used to deal with the unknowns:
This was assumed to be Cs-137, the only fission product that
was reported in significant quantities in the analysis.

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION RDT - 248

1. Preparer: Rhodes, Donald W.
2. Date prepared: 06/21/94
3. Generator: ALE
(area or contractor - use code from attached list)
4. Particular facility: 317
(building number - use code from attached list)
5. Number of waste stream from this facility:
4R
6. Waste stream:
Paving, roofing, concrete, soil, and brick.

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 1988
9. Waste stream volume:
Amount 136.0000 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):

<p>1. General physical form (see attached list)
<u>Concrete, brick, and asphalt.</u>
<u>[] other (specify)</u></p> <p>3. Chemical form:
<u>Silicates, cellulose, and aluminates.</u></p> <p>5. Waste container type (see attached list)
<u>Bin.</u></p> <p>7. Comments (specify number of pertinent question):
<u>1. Also 43.</u>
<u>4. Due to the type of waste, it was assumed that it would not have been placed in paint cans, but placed in the bins directly.</u></p> | <p>2. Details on physical form(particularly confinement related)
<u>Generally loose material from replacement of roads and buildings.</u></p> <p>4. Inner packaging: ☐ plastic bag ☐ plastic liner
☐ metal liner ☒ none ☐ other (specify)</p> <p>6. Other characteristics of interest:</p> |
|--|--|

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	Liquid imbedded in dry material.	Tritiated water.	T 19.300000000000	CI	1987	1988	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)

No contaminants other than H-3 were listed. It is not known which of the materials disposed of contained the H-3, but it is likely that it was not in a form that could be considered "contained".

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:
It is not known what part of the waste the
H-3 was in.

2. Details concerning source (names, report no., dates, etc.)
RWMIS printout 1984-93. Report, ANL-East Low-level Waste
Sources and Forms, L.S. Kee, WM-F1-82-010, June 1982.
Argonne National Laboratory Institutional Plan, FY 1986-FY
1991, November 1985. Telephone interview with M. Sodaro,
Waste Management manager for ANL-E on 06/15/94.

4. If other than best estimate, explain why:

6. If yes, explain why:

8. Key assumptions used to deal with the unknowns:
It was assumed that the H-3 was in a form that was readily
leachable.

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION RDT - 249

1. Preparer: Rhodes, Donald W.
2. Date prepared: 06/21/94
3. Generator: ALE
(area or contractor - use code from attached list)
4. Particular facility: 317
(building number - use code from attached list)
5. Number of waste stream from this facility:
5R
6. Waste stream:
Absorbed liquids, sludge, and evaporator bottoms.

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 1987
9. Waste stream volume:
Amount 139.2000 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) Vermiculite and other sorbents.
[] other (specify)
2. Details on physical form (particularly confinement related)
Liquids from laboratory studies were absorbed in dry
materials, such as vermiculite. Likewise sludge and
evaporator bottoms contaminated with low-level radionuclides
were absorbed in dry materials and packaged in 3 or 5-gallon
paint cans for shipment.
3. Chemical form:
Nitrates and/or oxides.
4. Inner packaging: ☐ plastic bag ☐ plastic liner
☐ metal liner ☐ none ☒ other (specify)
Paint cans.
5. Waste container type (see attached list) Bin.
6. Other characteristics of interest:
7. Comments (specify number of pertinent question):
1. Also 11.

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	Contained in dry solids.	Nitrates and/or oxides.	T .010000000000000	CI	1984	1987	N			
Fe-59	Contained in dry solids.	Nitrates and/or oxides.	T .010000000000000	CI	1984	1987	N			
H-3	Contained in dry solids.	Nitrates and/or oxides.	T .020000000000000	CI	1984	1987	N	-50%	+50%	Professional judgment.
Mn-54	Contained in dry solids.	Nitrates and/or oxides.	T .010000000000000	CI	1984	1987	N			
Na-22	Contained in dry solids.	Nitrates and/or oxides.	T .010000000000000	CI	1984	1987	N			
Pu-239	Contained in dry solids.	Nitrates and/or oxides.	T .040000000000000	CI	1984	1987	N	-50%	+50%	
Pu-240	Contained in dry solids.	Nitrates and/or oxides.	T .020000000000000	CI	1984	1987	N	-50%	+50%	
U-238	Contained in dry solids.	Nitrates and/or oxides.	T .020000000000000	CI	1984	1987	N	-50%	+50%	
V-48	Contained in dry solids.	Nitrates and/or oxides.	T .400000000000000	CI	1984	1987	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)

No sample data were available, but it was assumed that some analysis was made, because of the detailed radionuclide concentrations 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	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Cs-137	Contained in dry solids.	Nitrates and/or oxides.	T 13.700000000000	CI	1984	1987	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)

No sample data were available, but it was assumed that some analysis was made, because of the detailed radionuclide concentrations reported.

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:

The majority of the curies was reported as
MFP.

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

RWMIS printout 1984-93. Report ANL-E Low-level Waste

Sources and Forms, WM-F1-82-010, L.S. Kee, June 1982.

Argonne National Laboratory Institutional Plan, FY 1986-FY

1991, November 1985. Telephone interview with M. Sodaro,

Waste Management manager for ANL-E, on 06/15/94.

4. If other than best estimate, explain why:

6. If yes, explain why:

8. Key assumptions used to deal with the unknowns:

The MFP value was assigned to Cs-137, the only fission

product reported to be present in significant quantities.

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION RDT - 250

1. Preparer: Rhodes, Donald W.
2. Date prepared: 06/21/94
3. Generator: ALE
(area or contractor - use code from attached list)
4. Particular facility: 317
(building number - use code from attached list)
5. Number of waste stream from this facility:
6R
6. Waste stream:
Ferrous and non-ferrous metals, metal combinations,
and assemblies.
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 1987
9. Waste stream volume:
Amount 40.8000 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) Other scrap metals.
[] other (specify)
2. Details on physical form (particularly confinement related)
Metals from experiments related to fuel cycle facility
development and IFR feasibility related experiments. Metals
reduced in size to fit into a bin for transport.
3. Chemical form:
Probably stainless steel components (Fe,
Ni, Cr).
4. Inner packaging: [] plastic bag [] plastic liner
[] metal liner [X] none [] other (specify)
5. Waste container type (see attached list) Bin.
6. Other characteristics of interest:
7. Comments (specify number of pertinent question):
It was assumed that the size and configuration of the metal pieces prevented them from being
packaged in paint cans, so they were probably packaged loosely in the bins.

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	Imbedded in metal.	Unknown, assume atomic oxide.	T 28.9000000000000	CI	1987	1987	N	-50%	+50%	Professional judgment.
Cs-137	Imbedded in metal.	Unknown, assume atomic oxide.	T .200000000000000	CI	1987	1987	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)
No sample analysis was available, but it was assumed that the indicated concentrations were obtained by radiochemical analysis.

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:

The method of determining the radionuclide content was not known. Activation products could be present in the metal, but none were identified in the record.

2. Details concerning source (names, report no., dates, etc.)
RWMIS printout 1984-93. Report, ANL-E Low-level Waste Sources and Forms, WM-F1-82-010, L.S. Kee, June 1982.
Argonne National Laboratory Institutional Plan, FY 1986-FY 1991, November 1985. Telephone interview with M. Sodaro, Waste Management manager for ANL-E, on 06/15/94.

4. If other than best estimate, explain why:

6. If yes, explain why:

8. Key assumptions used to deal with the unknowns:

It was assumed that the activity of tritium was determined by radiochemical analysis.

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION RDT - 325

1. Preparer: Roy Grant
2. Date prepared: 09/14/94
3. Generator: ANL
(area or contractor - use code from attached list)
4. Particular facility: 704
(building number - use code from attached list)
5. Number of waste stream from this facility:
1R
6. Waste stream:
Contact-handled nonprocessable fuel fabrication
waste generated during the manufacturing of metallic
fuels.
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 1846.0000 Units Cubic feet.
Check box: ☐ annual or ☒ total over all years
Check box: ☒ container volume or ☐ waste volume
10. Comments (specify number of pertinent question):
4. The ANL-W Fuel Manufacturing Facility (FMF) and Fuel Assembly and Storage Building (FASB)
contribute to this waste stream.
9. Eighty-eight percent of the total volume of waste was generated at the FMF over the ten year
period. The remaining 12 percent was generated at the FASB during the years 1984 to 1986.

1. General physical form (see attached list) 2. Details on physical form (particularly confinement related)
Other scrap metals. All waste is in solid form.

[X] other (specify)

9, 16, 21, 42. See 7 below.

3. Chemical form:

Various metal alloys, elemental metals,
metal oxides, glass, yttrium and zirconium
oxides.

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

5. Waste container type (see attached list)
Metal barrel.

6. Other characteristics of interest:

7. Comments (specify number of pertinent question):

1. Also neoprene and latex gloves, yttrium oxide and zirconium oxide.

4. Waste is packaged in one quart cans or polyethylene sleeves or bags before being placed in the
final outer container. The metal drums have either a 90 or 110 mil rigid polyliner. The wooden
boxes have an 8 mil plastic liner.

5. Also BXW. Approximately 55 percent of the waste volume is packaged in 55-gallon metal drums and
45 percent in various sized wooden boxes.

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
1314-23-4 Zirconium Oxide	Solid.	Oxide.	T 10.000000000000	LB	1984	1993	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 zirconium oxide is used as a paint-type mixture to coat glass tubes for fuel pin casting. Typical annual usage of the zirconium oxide paint was 1 lb./year.

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	Contamination on waste solids.	Oxides.	T .25600000000000	CI	1984	1993	N	-25%	+25%	See comment below.
U-235	Contamination on waste solids.	Oxides.	T .05120000000000	CI	1984	1993	N	-25%	+25%	See comment below.
U-234	Contamination on waste solids.	Oxides.	T 1.2100000000000	CI	1984	1993	N	-25%	+25%	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)

Total curies = 1.52E+00. Curie content is determined from laboratory analysis of smear samples. The data is used to develop an mR/hr to curie content conversion factor to account for all isotopes present in the waste. The +/- 25% uncertainty is due to measurements on the waste package with G-M instruments.

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

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

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:

2. Details concerning source (names, report no., dates, etc.)
ANL-WCR-033-93 prepared by Tim Miller (Waste
Characterization Report). Total volume, curies and
container types were determined using the ANL-W shipping
records and database system. Isotopic breakdown was
determined using the most current method and waste stream
analysis. The RWMIS was used only for comparison.

4. If other than best estimate, explain why:

6. If yes, explain why:

The RWMIS data curie content does not match ANL-W shipping
database. The shipping database tracks containers by
facility, but does not separate low-level and transuranic
waste types as well as RWMIS. The error in curie content
(+1.45Ci) is probably due to a transuranic container being
misentered as a low-level waste container. The volume is
correct to within 3%, so records were not retrieved from
archive storage to determine the source of the discrepancy.

8. Key assumptions used to deal with the unknowns:

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION RDT - 326

1. Preparer: Roy Grant
2. Date prepared: 09/14/94
3. Generator: ANL
(area or contractor - use code from attached list)
4. Particular facility: 752
(building number - use code from attached list)
5. Number of waste stream from this facility:
1R
6. Waste stream:
Contact-handled nonprocessible dry active waste
generated by facility operations, monitoring,
maintenance and modifications. This waste stream
includes waste from the Lab and Office Building
Analytical Laboratory Upgrades which began in 1992
and are expected to be completed in 1994.
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 4970.0000 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):
6. The waste streams ANL-752-01 and ANL-752-02 that were reported in the 1952-1983 INEL RWMC SDA
Inventory Reports have now been combined for the 1984 to 1993 time period and are reported here as
ANL-752-01.

1. General physical form (see attached list) 2. Details on physical form(particularly confinement related)
Other scrap metals. All waste is in solid form.

[X] other (specify)

21.

3. Chemical form:

Various metal alloys, elemental metals,
asbestos, glass, concrete, soil, plastic
and cellulose.

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

5. Waste container type (see attached list)
Metal barrel.

6. Other characteristics of interest:

7. Comments (specify number of pertinent question):

4. Waste is packaged in plastic bags before being placed in the final outer container. Metal drums
have either a 90 or 110 mil rigid polyliner. The wooden boxes have an 8 mil plastic liner.

5. Also wooden boxes. Seventy percent of the waste volume was shipped in various sized wooden
boxes, and 30 percent in 55-gallon metal drums.

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
1332-21-4 Asbestos	Solid.	Fiber.	T 55680.000000000	GM	1984	1993	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)

It is assumed that the total volume of asbestos containing materials (ACM) disposed of over the ten year period is one percent of the total waste volume disposed of (50 ft³). Asbestos was present in the waste stream periodically in various forms such as embedded in lab counter tops, insulation, and pipe lagging. A conversion factor of 16 lb/ft³ ACM was used (Table D-1, Appendix D, EGG-10903, June 1994). Then 800 lb x 0.15 asbestos /lb ACM x 464 g/lb = 55,680 g asbestos.

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	Contamination on waste solids.	Elemental.	T 2.51000000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Ru-106	Contamination on waste solids.	Elemental.	T 3.29000000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Cs-134	Contamination on waste solids.	Elemental.	T .79500000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Cs-137	Contamination on waste solids.	Elemental.	T 33.4000000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Sr-90	Contamination on waste solids.	Elemental.	T 85.2000000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Y-90	Contamination on waste solids.	Elemental.	T 85.2000000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Sb-125	Contamination on waste solids.	Elemental.	T .387000000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Eu-155	Contamination on waste solids.	Elemental.	T .709000000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Mn-54	Contamination on waste solids.	Elemental.	T .021500000000000	CI	1984	1993	N	-25%	+25%	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)

Total curie = 2.15E+02. Curie content is determined from laboratory analysis of smear samples. The data is used to develop an mR/hr to curie content conversion factor to account for all isotopes present in the waste. The +/- 25% uncertainty is due to measurements on the waste package with G-M instruments.

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	Contamination on waste solids.	Elemental.	T .258000000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Co-60	Contamination on waste solids.	Elemental.	T .344000000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Pu-239	Contamination on waste solids.	Oxides.	T 1.55000000000000	CI	1984	1993	N	-25%	+25%	See comment below.
U-234	Contamination on waste solids.	Oxides.	T 1.33000000000000	CI	1984	1993	N	-25%	+25%	See comment below.
U-235	Contamination on waste solids.	Oxides.	T .056000000000000	CI	1984	1993	N	-25%	+25%	See comment below.
U-238	Contamination on waste solids.	Oxides.	T .272000000000000	CI	1984	1993	N	-25%	+25%	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)

Total curie = 2.15E+02. Curie content is determined from laboratory analysis of smear samples. The data is used to develop an mR/hr to curie content conversion factor to account for all isotopes present in the waste. The +/- 25% uncertainty is due to measurements on the waste package with G-M instruments.

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

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

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:

2. Details concerning source (names, report no., dates, etc.)
ANL-WCR-040-93 prepared by Tim Miller (Waste
Characterization Report). Total volume, curies and
container types were determined using the ANL-W shipping
records and database system. Isotopic breakdown was
determined using the most recent method and waste stream
analysis. The RWMIS was used for comparison only.

4. If other than best estimate, explain why:

6. If yes, explain why:

The curie content for ANL-725-1R was assumed to be correct,
but the isotopic contributions were changed to account for
curies listed as MFP/MAP. The ANL-752-1R volume estimate
exceeds the RWMIS value by 20% (839 ft³). This difference
is due to waste from other minor sources being included as
Lab and office waste.

8. Key assumptions used to deal with the unknowns:

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION RDT - 327

1. Preparer: Roy Grant
2. Date prepared: 09/14/94
3. Generator: ANL
(area or contractor - use code from attached list)
4. Particular facility: 765
(building number - use code from attached list)
5. Number of waste stream from this facility:
1R
6. Waste stream:
Contact-handled nonprocessable dry active waste
generated in facility monitoring, operations,
maintenance and modifications from Fuel Cycle
Facility (ANL-765).
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 32177.0000 Units Cubic feet.
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)
Other scrap metals.
[X] other (specify)
15.

2. Details on physical form(particularly confinement related)
All waste is in solid form.
3. Chemical form:
Elemental metals, metal alloys, glass,
plastic, rubber, solidified oils, asbestos,
and cellulose.

4. Inner packaging: [X] plastic bag [] plastic liner
[] metal liner [] none [X] other (specify)
Plastic liner.
5. Waste container type (see attached list)
Metal barrel.

6. Other characteristics of interest:
7. Comments (specify number of pertinent question):
4. Waste is packaged in cans or plastic bags before being placed in the final outer container.
Metal drums have 90 or 110 mil rigid polyliners. Wooden boxes have an 8 mil plastic liner.
5. Also BXW. Ninety-five percent of the total volume is packaged in various sized wooden boxes,
and five percent in 55-gallon metal drums.

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
1332-21-4 Asbestos	Solid.	Fiber.	T 358231.00000000	GM	1984	1993	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)

It is assumed that the total volume of asbestos containing materials (ACM) disposed of over the ten year period is one percent of the total waste volume disposed of (321.7 ft³). Asbestos was present in the waste stream periodically in various forms such as insulation and pipe lagging. A conversion factor of 16 lb/ft³ ACM was used (Table D-1, Appendix D, EGG-10903, June 1994). Then 5147 x 0.15 asbestos/lb ACM x 464 g/lb = 358,231 g asbestos.

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	Contamination on waste solids.	Elemental.	T 53.9000000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Y-90	Contamination on waste solids.	Elemental.	T 53.9000000000000	CI	1984	1993	N	-25%	+25%	See comment below.
H-3	Contamination on waste solids.	Elemental.	T 2.51000000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Mn-54	Contamination on waste solids.	Elemental.	T .960000000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Co-58	Contamination on waste solids.	Elemental.	T .717000000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Co-60	Contamination on waste solids.	Elemental.	T 8.37000000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Cs-137	Contamination on waste solids.	Elemental.	T 10.8000000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Eu-155	Contamination on waste solids.	Elemental.	T .771000000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Zr-95	Contamination on waste solids.	Elemental.	T .500000000000000	CI	1984	1993	N	-25%	+25%	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)

Total curies = 1.35E+02. Curie content is determined from laboratory analysis of smear samples. The data is used to develop an mR/hr to curie content conversion factor to account for all isotopes present in the waste. The +/- 25% uncertainty is due to measurements on the waste package with G-M instruments.

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
Nb-95	Contamination on waste solids.	Elemental.	T .14900000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Ta-182	Contamination on waste solids.	Elemental.	T .62200000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Na-22	Contamination on waste solids.	Elemental.	T .04060000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Eu-154	Contamination on waste solids.	Elemental.	T .14900000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Ce-144	Contamination on waste solids.	Elemental.	T 1.74000000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Pu-239	Contamination on waste solids.	Oxides.	T .01350000000000	CI	1984	1993	N	-25%	+25%	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)

Total curies = 1.35E+02. Curie content is determined from laboratory analysis of smear samples. The data is used to develop an mR/hr to curie content conversion factor to account for all isotopes present in the waste. The +/- 25% uncertainty is due to measurements on the waste package with G-M instruments.

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

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

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:

2. Details concerning source (names, report no., dates, etc.)
ANL-WCR-038-93 prepared by Bruce A. Jensen (Waste Characterization Report). Total volume, curies and container types were determined using the ANL-W shipping records and database system. Isotopic breakdown was determined using the most recent method and waste stream analysis. The RWMIS was used for comparison only.

4. If other than best estimate, explain why:

6. If yes, explain why:
The ANL-W shipping database and RWMIS do not match. The ANL-W database assigns container numbers to facility contacts. The Fuel Cycle Facility (FCF) and Hot Fuel Examination Facility (HFEF) container numbers were issued through one person who could have interchanged the facility numbers. When both curie content and volume for HFEF and FCF are added, they match RWMIS values to within 3%. Curie isotopic contents were revised to account for MFP/MAP listings.

8. Key assumptions used to deal with the unknowns:

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION RDT - 328

1. Preparer: Roy Grant
2. Date prepared: 09/14/94
3. Generator: ANL
(area or contractor - use code from attached list)
4. Particular facility: 765
(building number - use code from attached list)
5. Number of waste stream from this facility:
2R
6. Waste stream:
Remote-handled nonprocessable subassembly waste
generated during nuclear fuel and material
experiments.
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 308.0000 Units Cubic feet.
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) Other scrap metals.
[X] other (specify)
42, 43, 7.
2. Details on physical form (particularly confinement related)
All waste is in solid form.
3. Chemical form:
Various metal alloys, elemental metals,
glass and lead.
4. Inner packaging: [] plastic bag [] plastic liner
[X] metal liner [] none [X] other (specify)
See 7 below.
5. Waste container type (see attached list)
Insert.
6. Other characteristics of interest:
7. Comments (specify number of pertinent question):
4. Remote handled waste is packaged in 5 cubic foot steel welded cans with metal inserts for secondary containment. The waste cans contain a shield plug inserted on the top of the inner metal insert. Lead shield plugs were used until 1988 when they were replaced by steel shield plugs.

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
7439-92-1 Lead	Lead plug for shielding inside inserts.	Metal.	T 11524.000000000	LB	1984	1987	N	-10%	+10%	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)

Lead plug shields were used in the inserts until 1988, when steel shield plug use began. Each lead shield plug weighed 268 pounds, for a total of 11,524 pounds.

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	Incorporated in metal.	Elemental.	T 53600.000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Co-58	Incorporated in metal.	Elemental.	T 80400.000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Co-60	Incorporated in metal.	Elemental.	T 509000.000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Cr-51	Incorporated in metal.	Elemental.	T 20400.000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Fe-59	Incorporated in metal.	Elemental.	T 6700.000000000	CI	1984	1993	N	-25%	+25%	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)

Total curies = 6.70E+05. Curie content is determined from laboratory analysis of smear samples. The data is used to develop an mR/hr to curie content conversion factor to account for all isotopes present in the waste. The +/- 25% uncertainty is due to measurements on the waste package with G-M instruments.

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

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

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:

2. Details concerning source (names, report no., dates, etc.)
Total volume, curies and container type was determined using the ANL-W shipping records and database system. Isotopic breakdown was determined using the most recent method and waste stream analysis. The RWMIS was used for comparison only.

J.D. Wells letter to K.L. Falconer, "Hazardous Materials in the SDA", JDW-02-86, January 15, 1986.

4. If other than best estimate, explain why:

6. If yes, explain why:

The ANL-W shipping database and RWMIS do not match. The ANL-W database assigns container numbers to facility contacts. The Fuel Cycle Facility (FCF) and Hot Fuel Examination Facility (HFEF) container numbers were issued through one person who could have interchanged the facility numbers. When both curie content and volume for HFEF and FCF are added, they match RWMIS values to within 3%. Curie isotopic contents were revised to account for MFP/MAP listings.

8. Key assumptions used to deal with the unknowns:

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION RDT - 329

1. Preparer: Roy Grant
2. Date prepared: 09/14/94
3. Generator: ANL
(area or contractor - use code from attached list)
4. Particular facility: 785
(building number - use code from attached list)
5. Number of waste stream from this facility:
1R
6. Waste stream:
Remote-handled nonprocessable subassembly waste
generated during nuclear fuel and material
experiments.
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 436.0000 Units Cubic feet.
Check box: ☐ annual or ☒ total over all years
Check box: ☒ container volume or ☐ waste volume
10. Comments (specify number of pertinent question):
6. In the 1952-1983 INEL RWMC SDA Inventory Report both the contact and remote-handled Hot Fuel
Examination Facility (HFEF) wastes were included in waste stream number ANL-785-01. These have been
split, for the 1984-1993 time period, into ANL-785-02 for contact-handled and ANL-785-01 for
remote-handled.

1. General physical form (see attached list) <u>Other scrap metals.</u> <u>[X] other (specify)</u> <u>42, 43, 7.</u>	2. Details on physical form(particularly confinement related) <u>All waste is in solid form.</u> <u></u> <u></u>
3. Chemical form: <u>Various metal alloys, elemental metals,</u> <u>glass and lead.</u>	4. Inner packaging: [] plastic bag [] plastic liner [X] metal liner [] none [X] other (specify) <u>See 7 below.</u>
5. Waste container type (see attached list) <u>Insert.</u>	6. Other characteristics of interest: <u></u>
7. Comments (specify number of pertinent question): <u>4. Remote-handled waste is packaged in 5 cubic foot steel welded cans with metal inserts for</u> <u>secondary containment. The waste cans contain a shield plug inserted on the top of the inner metal</u> <u>insert. Lead shield plugs were used until 1988 when they were replaced by steel shield plugs.</u>	

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
7439-92-1 Lead	Lead plug for shielding inside inserts.	Metal.	T 9380.0000000000	LB	1984	1987	N	-10%	+10%	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)
Lead shield plugs were used in the inserts until 1988, when steel shield plug use began. There were 35 inserts sent to the RWMC with lead shield plugs. Each lead shield plug weighed 268 pounds, for a total of 9380 pounds.

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	Incorporated in metal.	Elemental.	T 95500.000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Co-60	Incorporated in metal.	Elemental.	T 605000.000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Cr-51	Incorporated in metal.	Elemental.	T 23900.000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Fe-59	Incorporated in metal.	Elemental.	T 7960.000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Mn-54	Incorporated in metal.	Elemental.	T 63700.000000000	CI	1984	1993	N	-25%	+25%	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)

Total curie = 7.96E+05. Isotope curie content is determined by hot-cell scanning. The +/- 25% uncertainty is due to measurement system error.

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

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

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:

2. Details concerning source (names, report no., dates, etc.)
ANL-WCR-001-92 prepared by Kenneth P. Guay (Waste Characterization Report). Total volume, curies and container type(s) were determined using the ANL-W shipping records and database system. Isotopic breakdown was determined using the most recent method and waste stream analysis. The RWMIS was used for comparison only.

J.D. Wells letter to K.L. Falconer, "Hazardous Materials in the SDA", JDW-02-86, January 15, 1986.

4. If other than best estimate, explain why:

6. If yes, explain why:
The ANL-W shipping database and RWMIS do not match. The ANL-W database assigns container numbers to facility contacts. The Fuel Cycle Facility (FCF) and Hot Fuel Examination Facility (HFEF) container numbers were issued through one person who could have interchanged the facility numbers. When both curie content and volume for HFEF and FCF are added, they match RWMIS values to within 3%. Curie isotopic contents were revised to account for MFP/MAP listings.

8. Key assumptions used to deal with the unknowns:

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION RDT - 330

1. Preparer: Roy Grant
2. Date prepared: 09/14/94
3. Generator: ANL
(area or contractor - use code from attached list)
4. Particular facility: 785
(building number - use code from attached list)
5. Number of waste stream from this facility:
2R
6. Waste stream:
Contact-handled nonprocessable dry active waste
generated in facility monitoring, operations,
maintenance and modifications.
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 3194.0000 Units Cubic feet.
Check box: ☐ annual or ☒ total over all years
Check box: ☒ container volume or ☐ waste volume
10. Comments (specify number of pertinent question):
6. In the 1952-1983 INEL RWMC SDA Inventory Report both the contact-handled and remote-handled Hot Fuel Examination Facility (HFEF) wastes were included in waste stream number ANL-785-01. They have been split up into ANL-785-01 for remote-handled and ANL-785-02 for contact-handled in this report.

1. General physical form (see attached list)
Other scrap metals.
[X] other (specify)
13, 15, 21, 23, 42, 44, 45. See 7 below.

2. Details on physical form(particularly confinement related)
All waste is in solid form.
3. Chemical form:
Elemental metals, metal alloys, glass,
solidified oils, absorbents and cellulose.

4. Inner packaging: [X] plastic bag [] plastic liner
[] metal liner [] none [X] other (specify)
Plastic liner.
5. Waste container type (see attached list)
Wooden box.

6. Other characteristics of interest:
7. Comments (specify number of pertinent question):
1. Also wood, paper and solidified oils (motor, mineral, vacuum pump and hydraulic).
4. Waste is packaged in cans or plastic bags before being placed in the final outer container.
Metal drums have either a 90 or 110 mil rigid polyliner. Wooden boxes have an 8 mil plastic liner.
5. Also BLM and BIN. Eighty-six percent of the waste volume is packaged in various sized wooden
boxes and twelve percent in 55-gallon metal drums. One 48 cubic foot BIN was shipped in 1992.

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
Ce-144	Contamination on waste solids.	Elemental.	T 11.000000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Co-57	Contamination on waste solids.	Elemental.	T 1.530000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Co-58	Contamination on waste solids.	Elemental.	T 4.220000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Co-60	Contamination on waste solids.	Elemental.	T 65.900000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Cs-134	Contamination on waste solids.	Elemental.	T 4.390000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Cs-137	Contamination on waste solids.	Elemental.	T 92.100000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Eu-155	Contamination on waste solids.	Elemental.	T 2.600000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Mn-54	Contamination on waste solids.	Elemental.	T 1.940000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Nb-95	Contamination on waste solids.	Elemental.	T .055300000000	CI	1984	1993	N	-25%	+25%	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)

Total curies = 1.84E+02. Curie content is determined from laboratory analysis of smear samples. The data is used to develop an mR/hr to curie content conversion factor to account for all isotopes present in the waste. The +/- 25% uncertainty is due to measurements on the waste package with G-M instruments.

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	Contamination on waste solids.	Elemental.	T .55300000000000	CI	1984	1993	N	-25%	+25%	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)
Total curies = 1.84E+02. Curie content is determined from laboratory analysis of smear samples. The data is used to develop an mR/hr to curie content conversion factor to account for all isotopes present in the waste. The +/- 25% uncertainty is due to measurements on the waste package with G-M instruments.

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

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

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:

2. Details concerning source (names, report no., dates, etc.)
ANL-W-005-92 Prepared by Kenneth P. Guay (Waste
Characterization Report). Total volume, curies, and
container types were determined using the ANL-W shipping
records and database system. Isotopic breakdown was
determined using the most recent method and waste stream
analysis. The RWMIS was used for comparison only.

4. If other than best estimate, explain why:

6. If yes, explain why:

The ANL-W shipping database and RWMIS do not match. The
ANL-W database assigns container numbers to facility
contacts. The Fuel Cycle Facility (FCF) and Hot Fuel
Examination Facility (HFEF) container numbers were issued
through one person who could have interchanged the facility
numbers. When both curie content and volume for HFEF and
FCF are added, they match RWMIS values to within 3%. Curie
isotopic contents were revised to account for MFP/MAP
listings.

8. Key assumptions used to deal with the unknowns:

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION RDT - 331

1. Preparer: Roy Grant
2. Date prepared: 09/14/94
3. Generator: ANL
(area or contractor - use code from attached list)
4. Particular facility: 793
(building number - use code from attached list)
5. Number of waste stream from this facility:
1R
6. Waste stream:
Contact-handled nonprocessable dry active waste
generated in facility operations, monitoring,
maintenance and modifications.
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 3961.0000 Units Cubic feet.
Check box: ☐ annual or ☒ total over all years
Check box: ☒ container volume or ☐ waste volume
10. Comments (specify number of pertinent question):
4. The ANL-W Sodium Components Maintenance Shop (SCMS), EBR-II, TREAT, and ZPPR facilities
contribute to this waste stream. This waste stream has replaced ANL-767-01 which was reported in
the 1952-1983 INEL RWMC SDA Inventory Report.
9. SCMS generated 50% of the total waste volume and ZPPR and TREAT generated 44% of the volume.
EBR-II generated waste only during the time period 1984-1987 and contributed six percent of the
total waste volume.

1. General physical form (see attached list) 2. Details on physical form (particularly confinement related)
Other scrap metals. All waste is in solid form.
[X] other (specify)
21.
3. Chemical form: 4. Inner packaging: [X] plastic bag [] plastic liner
Plastic, elemental metals, metal alloys, [] metal liner [] none [X] other (specify)
cellulose and asbestos. Plastic liner.
5. Waste container type (see attached list) 6. Other characteristics of interest:
Wooden box.
7. Comments (specify number of pertinent question):
4. Waste is packaged in cans or plastic bags before being placed in the final outer container. The metal drums have either a 90 or 110 mil rigid polyliner. Wooden boxes have an 8 mil plastic liner.
5. Also BLM. Eighty-seven percent of the waste volume is packaged in various sized wooden boxes, and thirteen percent in 55-gallon metal drums.

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
Au-198	Contamination on waste solids.	Elemental.	T .02390000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Ba-140	Contamination on waste solids.	Elemental.	T .00178000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Nb-95	Contamination on waste solids.	Elemental.	T .00178000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Ag-110m	Contamination on waste solids.	Elemental.	T .00178000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Co-58	Contamination on waste solids.	Elemental.	T .09750000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Co-60	Contamination on waste solids.	Elemental.	T 17.400000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Cs-134	Contamination on waste solids.	Elemental.	T 1.390000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Cs-137	Contamination on waste solids.	Elemental.	T 7.450000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Eu-154	Contamination on waste solids.	Elemental.	T .14900000000000	CI	1984	1993	N	-25%	+25%	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)

SCMS total curies = 1.14E+02. EBR-II total curies = 1.65E+00. TREAT total curies = 1.71E+01. ZPPR total curies = 1.73E-01. Curie content is determined from laboratory analysis of smear samples. The data is used to develop an mR/hr to curie content conversion factor to account for all isotopes present in the waste. The +/- 25% uncertainty is due to measurements on the waste package with G-M instruments.

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	Contamination on waste solids.	Elemental.	T 8.4800000000000	CI	1984	1993	N	-25%	+25%	See comment below.
H-3	Contamination on waste solids.	Elemental.	T 79.4000000000000	CI	1984	1993	N	-25%	+25%	See comment below.
I-131	Contamination on waste solids.	Elemental.	T .037500000000000	CI	1984	1993	N	-25%	+25%	See comment below.
La-140	Contamination on waste solids.	Elemental.	T .139000000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Mn-54	Contamination on waste solids.	Elemental.	T .474000000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Na-22	Contamination on waste solids.	Elemental.	T .479000000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Sb-124	Contamination on waste solids.	Elemental.	T .004460000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Sb-125	Contamination on waste solids.	Elemental.	T .011400000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Sn-113	Contamination on waste solids.	Elemental.	T .096400000000000	CI	1984	1993	N	-25%	+25%	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)

SCMS total curies = 1.14E+02. EBR-II total curies = 1.65E+00. TREAT total curies = 1.71E+01. ZPPR total curies = 1.73E-01. Curie content is determined from laboratory analysis of smear samples. The data is used to develop an mR/hr to curie content conversion factor to account for all isotopes present in the waste. The +/- 25% uncertainty is due to measurements on the waste package with G-M instruments.

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-89	Contamination on waste solids.	Elemental.	T .00099000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Sr-90	Contamination on waste solids.	Elemental.	T 17.100000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Te-132	Contamination on waste solids.	Elemental.	T .00528000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Zr-95	Contamination on waste solids.	Elemental.	T .01730000000000	CI	1984	1993	N	-25%	+25%	See comment below.
U-238	Contamination on waste solids.	Oxides.	T .00346000000000	CI	1984	1993	N	-25%	+25%	See comment below.
In-113m	Contamination on waste solids.	Elemental.	T .08200000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Sn-117m	Contamination on waste solids.	Elemental.	T .05200000000000	CI	1984	1993	N	-25%	+25%	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)

SCMS total curies = 1.14E+02. EBR-II total curies = 1.65E+00. TREAT total curies = 1.71E+01. ZPPR total curies = 1.73E-01. Curie content is determined from laboratory analysis of smear samples. The data is used to develop an mR/hr to curie content conversion factor to account for all isotopes present in the waste. The +/- 25% uncertainty is due to measurements on the waste package with G-M instruments.

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

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

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:

2. Details concerning source (names, report no., dates, etc.)
ANL-WCR-018-93, Contact: Everett A Clifton (Waste
Characterization Report). Total volume, curies and
container types were determined using the ANL-W shipping
records and database system. Isotopic breakdown was
determined using the most recent method and waste stream
analysis. The RWMIS was used only for comparison.

4. If other than best estimate, explain why:

6. If yes, explain why:

This waste stream compiles waste volume and curie contents
from several ANL-W facilities. ANL-W shipping database and
RWMIS don't match for each facility, but waste generation
volume and curie content totals for all the facilities match
RWMIS values within 10% of the volume and 1% of the curie
content. The individual facility differences can be
attributed to facility waste container number assignments
diverted to use at other facilities. The isotopic curie
contents were revised to account for MFP/MAP entries.

8. Key assumptions used to deal with the unknowns:

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION RDT - 336

1. Preparer: Roy Grant
2. Date prepared: 09/14/94
3. Generator: ANL
(area or contractor - use code from attached list)
4. Particular facility: 798
(building number - use code from attached list)
5. Number of waste stream from this facility:
1R
6. Waste stream:
Contact-handled nonprocessable waste generated
during the evaporation of low-level liquid waste in
the Shielded Hot Air Drum Evaporators (SHADES).
SHADE Units contain dried solid residue and are
disposed of as containers. Small volumes of Dry
Active Waste are also generated in the Radioactive
Liquid Waste Treatment Facility from operation and
maintenance.
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 2031.0000 Units Cubic feet.
Check box: ☐ annual or ☒ total over all years
Check box: ☒ container volume or ☐ waste volume
10. Comments (specify number of pertinent question):
4. This waste stream has replaced ANL-752-03 which was reported in the 1952-1983 INEL RWMC SDA
Inventory Report. The low-level liquid evaporation process was moved from the Lab and Office
Building to the Radioactive Liquid Waste Treatment Facility in June of 1983.
6. Low-level liquid waste is generated at various ANL-W facilities. The Lab and Office Building,
the Fuel Cycle Facility and the Hot Fuel Examination Facility pipe radioactive liquid waste directly
to the Radioactive Liquid Waste Treatment Facility (RLWTF) for evaporation.

<div>1. General physical form (see attached list) Shade units. [X] other (specify) 10.</div>	<div>2. Details on physical form(particularly confinement related) SHADE units consist of evaporator structural components and radioactive solids. All waste is in solid form, encased in a steel and concrete structure.</div>
<div>3. Chemical form: Elemental metals, metal alloys, glass, concrete, plastic and cellulose.</div>	<div>4. Inner packaging: [X] plastic bag [] plastic liner [] metal liner [] none [X] other (specify) Plastic liner.</div>
<div>5. Waste container type (see attached list) Other.</div>	<div>6. Other characteristics of interest:</div>
<div>7. Comments (specify number of pertinent question): 4. Waste is packaged in cans or plastic bags before being placed in the final outer container. Metal drums have either a 90 or 110 mil rigid polyliner. Wooden boxes have an 8 mil plastic liner. SHADE units are disconnected from the evaporation system and capped with concrete before shipping to RWMC. The radioactive dry solid residue is contained within the steel structural unit and encased with concrete. (The waste is not mixed within the concrete.) 5. Also BLM and BXW. Ninety-five percent of the waste stream volume is from SHADE units and five percent from waste packaged in 55-gallon drums and wooden boxes.</div>	

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
7439-92-1 Lead	Solid.	Elemental.	T .90100000000000	GM	1984	1993	N	-50%	+50%	See comment below.
7440-47-3 Chromium	Solid.	Elemental.	T .08200000000000	GM	1984	1993	N	-50%	+50%	See comment below.
7440-43-9 Cadmium	Solid.	Elemental.	T 1.73800000000000	GM	1984	1993	N	-50%	+50%	See comment below.
7439-97-6 Mercury	Solid.	Elemental.	T .00900000000000	GM	1984	1993	N	-50%	+50%	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)
These metals have been detected during EP toxicity and TCLP testing, but have consistently been at levels below 40 CFR 261.24 limits for the total volume of waste disposed of. The total quantity was extrapolated directly from sample analysis results using the total number of SHADE units disposed of. Because sample analysis results are not available for every SHADE unit shipped, a representative sample analysis was used to determine approximate total quantities of metals.

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	Contamination on waste solids.	Elemental.	T .04960000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Co-60	Contamination on waste solids.	Elemental.	T .31900000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Cs-134	Contamination on waste solids.	Elemental.	T .06020000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Cs-137	Contamination on waste solids.	Elemental.	T 2.4200000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Ce-144	Contamination on waste solids.	Elemental.	T .51000000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Eu-154	Contamination on waste solids.	Elemental.	T .02120000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Eu-155	Contamination on waste solids.	Elemental.	T .05660000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Mn-54	Contamination on waste solids.	Elemental.	T .08850000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Na-22	Contamination on waste solids.	Elemental.	T .01060000000000	CI	1984	1993	N	-25%	+25%	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)

Total Curie = 3.54E+00. Curie content is determined from laboratory analysis of dry solid samples. The data is used to develop an mR/hr to curie content conversion factor to account for all isotopes present in the waste. The +/- 25% uncertainty is due to measurements on the waste package with G-M instruments.

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	Contamination on waste solids.	Oxides.	T .00550000000000	CI	1984	1993	N	-25%	+25%	See comment below.
Pu-240	Contamination on waste solids.	Oxides.	T .00006690000000	CI	1984	1993	N	-25%	+25%	See comment below.
U-235	Contamination on waste solids.	Oxides.	T .00018000000000	CI	1984	1993	N	-25%	+25%	See comment below.
U-238	Contamination on waste solids.	Oxides.	T .00001400000000	CI	1984	1993	N	-25%	+25%	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)

Total Curie = 3.54E+00. Curie content is determined from laboratory analysis of dry solid samples. The data is used to develop an mR/hr to curie content conversion factor to account for all isotopes present in the waste. The +/- 25% uncertainty is due to measurements on the waste package with G-M instruments.

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

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

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:

2. Details concerning source (names, report no., dates, etc.)
ANL-WCR-016-93, contact: Everett A. Clifton (Waste Characterization Report). Total volume, curies and container types were determined using the ANL-W shipping records and database system. Isotopic breakdown was determined using the most recent method and waste stream analysis. RWMIS was used only for comparison.

4. If other than best estimate, explain why:

6. If yes, explain why:

RWMIS incorrectly lists 17.9 curies shipped in 1988, where the ANL-W shipping database lists none. The ANL-W database tracks container number and facility origin. It is not known why RWMIS lists more curies. If the 17.9 curie from 1988 is subtracted, the total for the years 1984-1993 is within 4%. Isotopic curie contents were revised to account for MFP/MAP entries.

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 - 332

1. Preparer: Roy Grant
2. Date prepared: 09/14/94
3. Generator: ANL
(area or contractor - use code from attached list)
4. Particular facility: 704
(building number - use code from attached list)
5. Number of waste stream from this facility:
1P
6. Waste stream:
Contact-handled nonprocessable fuel fabrication
waste generated during the manufacturing of metallic
fuels.
7. Type of radioactive waste (check box):
☐ TRU or suspect TRU
☒ LLW
☐ non-radioactive
8. Actual years disposed of at SDA:
Starting year 1994 Ending year 2003
9. Waste stream volume:
Amount 400.0000 Units Cubic feet.
Check box: ☐ annual or ☒ total over all years
Check box: ☒ container volume or ☐ waste volume
10. Comments (specify number of pertinent question):
4. The Fuel Manufacturing Facility (FMF) only contributes to this waste stream. The Fuel Assembly and Storage Building (FASB) is not expected to generate waste to be sent to RWMC in the future.

<p>1. General physical form (see attached list) <u>Other scrap metals.</u>
<u>[X] other (specify)</u>
<u>16, 21.</u></p> <p>3. Chemical form:
<u>Various metal alloys, elemental metals,</u>
<u>metal oxides, glass, plastics and paper.</u></p> <p>5. Waste container type (see attached list) <u>Round drum lined.</u></p> <p>7. Comments (specify number of pertinent question):
<u>5. Fifty-five gallon 17C drum with liner.</u></p> | <p>2. Details on physical form(particularly confinement related)
<u>All waste is in solid form.</u></p> <p>4. Inner packaging: [] plastic bag [X] plastic liner
[] metal liner [] none [] other (specify)</p> <p>6. Other characteristics of interest:</p> |
|--|--|

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.										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)

* Redirected ANL-W missions have resulted in no new fuel pin production, therefore, no ZrO₂ will be used.

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-238	Contamination on waste solids.	Oxides.	T .00016896000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
U-235	Contamination on waste solids.	Oxides.	T .00088704000000	CI	1994	2003	Y	N	-25%	+25%	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)

Total curies = 1.0560E-03. Curie content is determined from laboratory analysis of smear samples. The data is used to develop an mR/hr to curie content conversion factor to account for all isotopes present in the waste. The +/- 25% uncertainty is due to measurements on the waste package with G-M instruments.

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:

2. Details concerning source (names, report no., dates, etc.)
Waste Characterization Report, ANL-WCR-033-93, prepared by
Tim Miller. ANL-W Letter, R.P. Grant to V.C. Randall
12/20/93, "Radioactive Waste Forecasts for 1994".

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 RWM SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION PDT - 333

1. Preparer: Roy Grant

3. Generator: ANL
(area or contractor - use code from attached list)

5. Number of waste stream from this facility:
1P

7. Type of radioactive waste (check box):
☐ TRU or suspect TRU
☒ LLW
☐ non-radioactive

8. Actual years disposed of at SDA:
Starting year 1994 Ending year 2003

10. Comments (specify number of pertinent question):

2. Date prepared: 09/14/94

4. Particular facility: 752
(building number - use code from attached list)

6. Waste stream:
Contact-handled nonprocessable dry active waste
generated by facility operations, monitoring,
maintenance and modifications.

9. Waste stream volume:
Amount 2430.0000 Units Cubic feet.
Check box: ☐ annual or ☒ total over all years
Check box: ☒ container volume or ☐ waste volume

1. General physical form (see attached list) 2. Details on physical form(particularly confinement related)
Other scrap metals. All waste is in solid form.
[X] other (specify)
21.
3. Chemical form: 4. Inner packaging: [] plastic bag [X] plastic liner
Various metal alloys, elemental metals, [] metal liner [] none [] other (specify)
asbestos, glass, concrete, soil, cellulose
and plastics.
5. Waste container type (see attached list) 6. Other characteristics of interest:
Wooden box.
7. Comments (specify number of pertinent question):
5. Also PB2 and 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
1332-21-4 Asbestos	Solid.	Fiber.	T 26726.000000000	GM	1994	2003	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)
It is assumed that the total volume of asbestos containing materials is one percent of the total waste volume expected to be disposed of at RWMC SDA (24 ft3). A conversion factor of 16 lb/ft3 ACM was used (Table D-1, Appendix D, EGG-10903, June 1994). Then 24 ft3 x 16 lb/ft3 x 0.15 asbestos/lb ACM x 464 g/lb = 26,726 g asbestos.

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
Ce-144	Contamination on waste solids.	Elemental.	T .00291000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Ru-106	Contamination on waste solids.	Elemental.	T .00380000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Cs-134	Contamination on waste solids.	Elemental.	T .00092000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Cs-137	Contamination on waste solids.	Elemental.	T .03860000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Sr-90	Contamination on waste solids.	Elemental.	T .09860000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Y-90	Contamination on waste solids.	Elemental.	T .09860000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Sb-125	Contamination on waste solids.	Elemental.	T .00044700000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Eu-155	Contamination on waste solids.	Elemental.	T .00082000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Mn-54	Contamination on waste solids.	Elemental.	T .00002490000000	CI	1994	2003	Y	N	-25%	+25%	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)

Total curies = 2.4856E-01. Curie content is determined from laboratory analysis of smear samples. The data is used to develop an mR/hr to curie content conversion factor to account for all isotopes present in the waste. The +/- 25% uncertainty is due to measurements on the waste package with G-M instruments.

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
Eu-154	Contamination on waste solids.	Elemental.	T .000298000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Co-60	Contamination on waste solids.	Elemental.	T .000398000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Pu-239	Contamination on waste solids.	Oxides.	T .001790000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
U-235	Contamination on waste solids.	Oxides.	T .001620000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
U-238	Contamination on waste solids.	Oxides.	T .000298000000000	CI	1994	2003	Y	N	-25%	+25%	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)

Total curies = 2.4856E-01. Curie content is determined from laboratory analysis of smear samples. The data is used to develop an mR/hr to curie content conversion factor to account for all isotopes present in the waste. The +/- 25% uncertainty is due to measurements on the waste package with G-M instruments.

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:

2. Details concerning source (names, report no., dates, etc.)
Waste Characterization Report, ANL-WCR-040-93, prepared by
Tim Miller. ANL-W Letter, R.P. Grant to V.C. Randall
12/20/93, "Radioactive Waste Forecasts for 1994".

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 - 334

1. Preparer: Roy Grant

3. Generator: ANL
(area or contractor - use code from attached list)

5. Number of waste stream from this facility:
1P

7. Type of radioactive waste (check box):
☐ TRU or suspect TRU
☒ LLW
☐ non-radioactive

8. Actual years disposed of at SDA:
Starting year 1994 Ending year 1994

10. Comments (specify number of pertinent question):

4. Leaching Pit (EBR-II).

6. This waste stream also includes 18 various sized concrete pieces of total approximate volume 529 cubic feet. The concrete pieces are contaminated on the surface only and have been painted and wrapped. All waste generated has been shipped, and there will be no future generation. The EBR-II Leach Pit was used between 1959 and 1973 for the disposal of ANL-W generated liquid industrial waste, and liquid sanitary and radioactive effluents.

2. Date prepared: 09/02/94

4. Particular facility: 763
(building number - use code from attached list)

6. Waste stream:
Contact-handled sludge removed from the ANL-W EBR-II
Leach Pit during an ANL-W Environmental Restoration
Project in 1993. The waste was generated in 1993
and shipped in 1994.

9. Waste stream volume:
Amount 3217.0000 Units Cubic feet.
Check box: ☐ annual or ☒ total over all years
Check box: ☒ container volume or ☐ waste volume

1. General physical form (see attached list) Concrete, brick, and asphalt.
[X] other (specify) 21.
2. Details on physical form (particularly confinement related)
All waste is in solid form. All sludge has been solidified with grout.
3. Chemical form:
Concrete, rocks, and soil etc.
4. Inner packaging: [X] plastic bag [] plastic liner
[] metal liner [] none [X] other (specify)
Plastic liner.
5. Waste container type (see attached list) Other.
6. Other characteristics of interest:
7. Comments (specify number of pertinent question):
5. Also PB2 and PB3. Fourteen PB2's and 14 PB3's were disposed of at the RWMC SDA in 1994.
Eighteen concrete pieces of various sizes were painted to fix contamination and wrapped in polyethylene or herculite and disposed of at the RWMC SDA in 1994.

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
7440-38-2 Arsenic	Solid.	Elemental.	T .21000000000000	GM	1994	1994	N	-50%	+50%	Professional judgment.
7440-39-3 Barium	Solid.	Elemental.	T 7.32000000000000	GM	1994	1994	N	-50%	+50%	Professional judgment.
7440-43-9 Cadmium	Solid.	Elemental.	T 4.86000000000000	GM	1994	1994	N	-50%	+50%	Professional judgment.
7440-47-3 Chromium	Solid.	Elemental.	T 18.90000000000000	GM	1994	1994	N	-50%	+50%	Professional judgment.
7439-92-1 Lead	Solid.	Elemental.	T .630000000000000	GM	1994	1994	N	-50%	+50%	Professional judgment.
7439-97-6 Mercury	Solid.	Elemental.	T .003000000000000	GM	1994	1994	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)

These total quantities were determined using sample analysis from samples taken of the sludge before grout was added for solidification. The total volume of sludge was approximated assuming each box was 2/3 full and that one half the volume of each box was sludge and one half grout. There were a total of 14 - 64 cubic foot boxes containing the sludge/grout mix. Other waste from this waste stream contained no nonradiological contaminants.

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
Co-60	Contained in solidified sludge &/or on waste solid	Elemental.	T .00391170000000	CI	1994	1994	N	N	-25%	+25%	See comment below.
Sr-90	Contained in solidified sludge &/or on waste solid	Elemental.	T .03336000000000	CI	1994	1994	N	N	-25%	+25%	See comment below.
Y-90	Contained in solidified sludge &/or on waste solid	Elemental.	T .03336000000000	CI	1994	1994	N	N	-25%	+25%	See comment below.
I-129	Contained in solidified sludge &/or on waste solid	Elemental.	T .00149090000000	CI	1994	1994	N	N	-25%	+25%	See comment below.
Cs-134	Contained in solidified sludge &/or on waste solid	Elemental.	T .00002878400000	CI	1994	1994	N	N	-25%	+25%	See comment below.
Cs-137	Contained in solidified sludge &/or on waste solid	Elemental.	T .65757000000000	CI	1994	1994	N	N	-25%	+25%	See comment below.
U-234	Contained in solidified sludge &/or on waste solid	Oxides.	T .00094472000000	CI	1994	1994	N	N	-25%	+25%	See comment below.
U-235	Contained in solidified sludge &/or on waste solid	Oxides.	T .00005092600000	CI	1994	1994	N	N	-25%	+25%	See comment below.
U-238	Contained in solidified sludge &/or on waste solid	Oxides.	T .00008856700000	CI	1994	1994	N	N	-25%	+25%	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)

Total Curies = 7.38E-01. Curie content is determined from laboratory analysis of smear and sludge samples. The data is used to develop an mR/hr to curie content conversion factor to account for all isotopes present in the waste. The +/- 25% uncertainty is due to measurements on the waste package with G-M instruments.

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
Np-237	Contained in solidified sludge &/or on waste solid	Elemental.	T .00723300000000	CI	1994	1994	N	N	-25%	+25%	See comment below.
Pu-238	Contained in solidified sludge &/or on waste solid	Oxides.	T .00000254630000	CI	1994	1994	N	N	-25%	+25%	See comment below.
Pu-239	Contained in solidified sludge &/or on waste solid	Oxides.	T .00003461000000	CI	1994	1994	N	N	-25%	+25%	See comment below.
Am-241	Contained in solidified sludge &/or on waste solid	Elemental.	T .00001092300000	CI	1994	1994	N	N	-25%	+25%	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)

Total Curies = 7.38E-01. Curie content is determined from laboratory analysis of smear and sludge samples. The data is used to develop an mR/hr to curie content conversion factor to account for all isotopes present in the waste. The +/- 25% uncertainty is due to measurements on the waste package with G-M instruments.

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

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

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:

2. Details concerning source (names, report no., dates, etc.)
Waste Characterization Report ANL-WCR-037-93, prepared by
Nancy Stewart. Informal interview with Nancy Stewart who was
the project manager/generator for the Leach Pit clean-up
project.

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 - 335

1. Preparer: Roy Grant2. Date prepared: 09/14/943. Generator: ANL
(area or contractor - use code from attached list)4. Particular facility: 765
(building number - use code from attached list)5. Number of waste stream from this facility:
1P6. Waste stream:
Contact-handled nonprocessable dry active waste
generated by facility monitoring, operations,
maintenance and modifications.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 21923.0000 Units Cubic feet.
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)
Other scrap metals. All waste is in solid form.

[X] other (specify)

15.

3. Chemical form:

Elemental metals, metal alloys, glass,
plastics, solidified oils, rubber asbestos
and cellulose.

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):

1. Also solidified oils (hydraulic fluid, vacuum pump oil, and lubricating oils).

5. Also RDL, PB2, and PB3. Metal box is 128 cubic feet capacity.

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
1332-21-4 Asbestos	Solid.	Fiber.	T 24499.000000000	GM	1994	2003	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)

It is assumed that the total volume of asbestos containing materials (ACM) that will be disposed of over the 10 year period will be one-tenth of one percent of the total FCF-CH waste volume (to RWMC SDA) (22ft3). A conversion factor of 16 lb/ft3 ACM was used (Table D-1, Appendix D, EGG-10903, June 1994). Then 22 ft3 x 16 lb/ft3 x 0.15 asbestos/lb ACM x m464 g/lb = 24,449 g asbestos.

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	Contamination on waste solids.	Elemental.	T 10.2780000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Y-90	Contamination on waste solids.	Elemental.	T 10.2780000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
H-3	Contamination on waste solids.	Elemental.	T .479140000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Mn-54	Contamination on waste solids.	Elemental.	T .182900000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Co-58	Contamination on waste solids.	Elemental.	T .136530000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Co-60	Contamination on waste solids.	Elemental.	T 1.59450000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Cs-137	Contamination on waste solids.	Elemental.	T 2.05050000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Eu-155	Contamination on waste solids.	Elemental.	T .146830000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Zr-95	Contamination on waste solids.	Elemental.	T .095312000000000	CI	1994	2003	Y	N	-25%	+25%	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)

Total curies = 2.5760E+01. Curie content is determined from laboratory analysis of smear samples. The data is used to develop an mR/hr to curie content conversion factor to account for all isotopes present in the waste. The +/- 25% uncertainty is due to measurements on the waste package with G-M instruments.

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
Nb-95	Contamination on waste solids.	Elemental.	T .02833600000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Ta-182	Contamination on waste solids.	Elemental.	T .11850000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Na-22	Contamination on waste solids.	Elemental.	T .00772800000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Eu-154	Contamination on waste solids.	Elemental.	T .02833600000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Ce-144	Contamination on waste solids.	Elemental.	T .33230000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Pu-239	Contamination on waste solids.	Oxides.	T .00257600000000	CI	1994	2003	Y	N	-25%	+25%	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)

Total curies = 2.5760E+01. Curie content is determined from laboratory analysis of smear samples. The data is used to develop an mR/hr to curie content conversion factor to account for all isotopes present in the waste. The +/- 25% uncertainty is due to measurements on the waste package with G-M instruments.

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:

2. Details concerning source (names, report no., dates, etc.)
Waste Characterization Reports ANL-WCR-036-93 and
ANL-WCR-038-93 prepared by Bruce Jensen. ANL-W Letter, R.P.
Grant to V.C. Randall 12/20/93, "Radioactive Waste Forecasts
for 1994".

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 - 337

1. Preparer: Roy Grant2. Date prepared: 09/14/943. Generator: ANL
(area or contractor - use code from attached list)4. Particular facility: 765
(building number - use code from attached list)5. Number of waste stream from this facility:
2P6. Waste stream:
Remote-handled nonprocessable subassembly waste
generated during nuclear fuel and material
experiments.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 1271.0000 Units Cubic feet.
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)
Other scrap metals. All waste is in solid form.

[X] other (specify)

23.

3. Chemical form:

Various metal alloys, elemental metals and
glass.

4. Inner packaging: ☐ plastic bag ☐ plastic liner

☒ metal liner ☐ none ☐ other (specify)

5. Waste container type (see attached list)
Insert.

6. Other characteristics of interest:

7. Comments (specify number of pertinent question):

5. Inserts are 3.5 ft³ stainless steel or carbon steel remote handled waste cans.

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
Sr-90	Incorporated in metal.	Elemental.	T 13.981000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Y-90	Incorporated in metal.	Elemental.	T 13.981000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
H-3	Incorporated in metal.	Elemental.	T .65174000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Mn-54	Incorporated in metal.	Elemental.	T .24878000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Co-58	Incorporated in metal.	Elemental.	T .18571000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Co-60	Incorporated in metal.	Elemental.	T 2.16900000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Cs-137	Incorporated in metal.	Elemental.	T 2.78920000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Eu-155	Incorporated in metal.	Elemental.	T .19973000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Zr-95	Incorporated in metal.	Elemental.	T .12965000000000	CI	1994	2003	Y	N	-25%	+25%	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)

Total curies = 3.5040E+01. Curie content is determined from laboratory analysis of smear samples. The data is used to develop an mR/hr to curie content conversion factor to account for all isotopes present in the waste. The +/- 25% uncertainty is due to measurements on the waste package with G-M instruments.

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
Nb-95	Incorporated in metal.	Elemental.	T .03854400000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Ta-182	Incorporated in metal.	Elemental.	T .16118000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Na-22	Incorporated in metal.	Elemental.	T .01051200000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Eu-154	Incorporated in metal.	Elemental.	T .03854400000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Ce-144	Incorporated in metal.	Elemental.	T .45202000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Pu-239	Contamination on waste solids.	Oxides.	T .00350400000000	CI	1994	2003	Y	N	-25%	+25%	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)

Total curies = 3.5040E+01. Curie content is determined from laboratory analysis of smear samples. The data is used to develop an mR/hr to curie content conversion factor to account for all isotopes present in the waste. The +/- 25% uncertainty is due to measurements on the waste package with G-M instruments.

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:

2. Details concerning source (names, report no., dates, etc.)
ANL-W Letter, R.P. Grant to V.C. Randall 12/20/93,
"Radioactive Waste Forecasts for 1994".

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 - 338

1. Preparer: Roy Grant2. Date prepared: 09/14/943. Generator: ANL
(area or contractor - use code from attached list)4. Particular facility: 785
(building number - use code from attached list)5. Number of waste stream from this facility:
1P6. Waste stream:
Remote-handled nonprocessable subassembly waste
generated during nuclear fuel and materials
experiments.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 636.0000 Units Cubic feet.
Check box: ☐ annual or ☒ total over all years
Check box: ☒ container volume or ☐ waste volume

10. Comments (specify number of pertinent question):

<p>1. General physical form (see attached list)
<u>Other scrap metals.</u>
<u>[X] other (specify)</u>
<u>23.</u></p> <p>3. Chemical form:
<u>Various metal alloys, elementals and glass.</u></p> <p>5. Waste container type (see attached list)
<u>Insert.</u></p> <p>7. Comments (specify number of pertinent question):</p> | <p>2. Details on physical form(particularly confinement related)
<u>All waste is in solid form.</u></p> <p>4. Inner packaging: [] plastic bag [] plastic liner
<u>[X] metal liner [] none [] other (specify)</u></p> <p>6. Other characteristics of interest:</p> |
|---|---|

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-58	Incorporated in metal.	Elemental.	T 388800.00000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Co-60	Incorporated in metal.	Elemental.	T 2462400.00000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Cr-51	Incorporated in metal.	Elemental.	T 97200.000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Fe-59	Incorporated in metal.	Elemental.	T 32400.000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Mn-54	Incorporated in metal.	Elemental.	T 259200.00000000	CI	1994	2003	Y	N	-25%	+25%	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)

Total curies = 3.2400E+06. Isotope curie content is determined by hot-cell scanning. The +/- 25% uncertainty is due to measurement system error.

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:

2. Details concerning source (names, report no., dates, etc.)
Waste Characterization Report, ANL-WCR-001-92, prepared by
Kennith P. Guay. ANL-W Letter, R.P. Grant to V.C. Randall
12/20/93, "Radioactive Waste Forecasts for 1994".

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 - 339

1. Preparer: Roy Grant

3. Generator: ANL
(area or contractor - use code from attached list)

5. Number of waste stream from this facility:
2P

7. Type of radioactive waste (check box):
☐ TRU or suspect TRU
☒ LLW
☐ non-radioactive

8. Actual years disposed of at SDA:
Starting year 1994 Ending year 2003

10. Comments (specify number of pertinent question):

2. Date prepared: 09/14/94

4. Particular facility: 785
(building number - use code from attached list)

6. Waste stream:
Contact-handled nonprocessable dry active waste
generated in facility monitoring, operations,
maintenance and modifications.

9. Waste stream volume:
Amount 3021.0000 Units Cubic feet.
Check box: ☐ annual or ☒ total over all years
Check box: ☒ container volume or ☐ waste volume

<p>1. General physical form (see attached list)
Other scrap metals.
[X] other (specify)
13, 15, 21, 23, 42, 44, 45. See 7 below.   3. Chemical form:
Elemental metals, alloy metals, glass,
absorbents, solidified oils and cellulose.   5. Waste container type (see attached list)
Wooden box.</p>	<p>2. Details on physical form (particularly confinement related)
All waste is in solid form.   4. Inner packaging: [X] plastic bag [] plastic liner
[] metal liner [] none [X] other (specify)
Plastic liner.</p>   <p>6. Other characteristics of interest:</p>
7. Comments (specify number of pertinent question): 1. Also solidified oils (motor, mineral, vacuum pump, and hydraulic). 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
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
Ce-144	Contamination on waste solids.	Elemental.	T 2.3737000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Co-57	Contamination on waste solids.	Elemental.	T .33001000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Co-58	Contamination on waste solids.	Elemental.	T .91050000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Co-60	Contamination on waste solids.	Elemental.	T 14.226000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Cs-134	Contamination on waste solids.	Elemental.	T .94629000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Cs-137	Contamination on waste solids.	Elemental.	T 19.864000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Eu-155	Contamination on waste solids.	Elemental.	T .56062000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Mn-54	Contamination on waste solids.	Elemental.	T .41748000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Nb-95	Contamination on waste solids.	Elemental.	T .01192800000000	CI	1994	2003	Y	N	-25%	+25%	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)

Total curies = 3.9760E+01. Curie content is determined from laboratory analysis of smear samples. The data is used to develop an mR/hr to curie content conversion factor to account for all isotopes present in the waste. The +/- 25% uncertainty is due to measurements on the waste package with G-M instruments.

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	Contamination on waste solids.	Elemental.	T .11928000000000	CI	1994	2003	Y	N	-25%	+25%	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)

Total curies = 3.9760E+01. Curie content is determined from laboratory analysis of smear samples. The data is used to develop an mR/hr to curie content conversion factor to account for all isotopes present in the waste. The +/- 25% uncertainty is due to measurements on the waste package with G-M instruments.

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:

2. Details concerning source (names, report no., dates, etc.)
Waste Characterization Report, ANL-WCR-005-92, prepared by
Kenneth P. Guay. ANL-W Letter, R.P. Grant to V.C. Randall
12/20/93, "Radioactive Waste Forecasts for 1994".

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 - 340

1. Preparer: Roy Grant

3. Generator: ANL
(area or contractor - use code from attached list)

5. Number of waste stream from this facility:
1P

7. Type of radioactive waste (check box):
☐ TRU or suspect TRU
☒ LLW
☐ non-radioactive

8. Actual years disposed of at SDA:
Starting year 1994 Ending year 2003

10. Comments (specify number of pertinent question):

4. This waste stream includes waste generated at the ANL-W Sodium Components Maintenance Shop (SCMS), EBR-II, TREAT, and ZPPR facilities.

2. Date prepared: 09/02/94

4. Particular facility: 793
(building number - use code from attached list)

6. Waste stream:
Contact-handled nonprocessable dry active waste
generated in facility monitoring, maintenance and
operation.

9. Waste stream volume:

Amount 4894.0000 Units Cubic feet.

Check box: ☐ annual or ☒ total over all years

Check box: ☒ container volume or ☐ waste volume

1. General physical form (see attached list) 2. Details on physical form (particularly confinement related)
Other scrap metals. All waste is in solid form.

[X] other (specify)

21.

3. Chemical form:

Elemental metals, plastic, metal alloys and
cellulose.

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):

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
1332-21-4 Asbestos	Solid.	Fiber.	T 54455.000000000	GM	1994	2003	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)

It is assumed that the total volume of asbestos containing materials (ACM) that will be disposed of is one percent of the total waste volume to be disposed of at the RWMC SDA (48.9 ft³). Asbestos will be present in this waste stream periodically in pipe lagging and insulation. The conversion factor of 16 lb/ft³ ACM was used (Table D-1, Appendix D, EGG-10903, June 1994). Then 48.9 ft³ x lb/ft³ x 0.15 asbestos/lb ACM x 464 g/lb = 54,455 g asbestos.

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
Au-198	Contamination on waste solids.	Elemental.	T .05220000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Ba-140	Contamination on waste solids.	Elemental.	T .00387000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Nb-95	Contamination on waste solids.	Elemental.	T .00387000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Ag-110m	Contamination on waste solids.	Elemental.	T .00387000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Co-58	Contamination on waste solids.	Elemental.	T .05436000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Co-60	Contamination on waste solids.	Elemental.	T .55232000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Cs-134	Contamination on waste solids.	Elemental.	T .05508000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Cs-137	Contamination on waste solids.	Elemental.	T .28440000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Eu-154	Contamination on waste solids.	Elemental.	T .00552000000000	CI	1994	2003	Y	N	-25%	+25%	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)

Total curies = 7.9100E+00. Curie content is determined from laboratory analysis of smear samples. The data is used to develop an mR/hr to curie content conversion factor to account for all isotopes present in the waste. The +/- 25% uncertainty is due to measurements on the waste package with G-M instruments.

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	Contamination on waste solids.	Elemental.	T .34164000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
H-3	Contamination on waste solids.	Elemental.	T 4.93090000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
I-131	Contamination on waste solids.	Elemental.	T .081720000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
In-113m	Contamination on waste solids.	Elemental.	T .178920000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
La-140	Contamination on waste solids.	Elemental.	T .008190000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Mn-54	Contamination on waste solids.	Elemental.	T .067560000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Na-22	Contamination on waste solids.	Elemental.	T .308880000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Sb-124	Contamination on waste solids.	Elemental.	T .009720000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Sb-125	Contamination on waste solids.	Elemental.	T .024840000000000	CI	1994	2003	Y	N	-25%	+25%	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)

Total curies = 7.9100E+00. Curie content is determined from laboratory analysis of smear samples. The data is used to develop an mR/hr to curie content conversion factor to account for all isotopes present in the waste. The +/- 25% uncertainty is due to measurements on the waste package with G-M instruments.

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
Sn-113	Contamination on waste solids.	Elemental.	T .21024000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Sn-117m	Contamination on waste solids.	Elemental.	T .11340000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Sr-89	Contamination on waste solids.	Elemental.	T .00216000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Sr-90	Contamination on waste solids.	Elemental.	T .54360000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Te-132	Contamination on waste solids.	Elemental.	T .01152000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Zr-95	Contamination on waste solids.	Elemental.	T .05100000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
U-238	Contamination on waste solids.	Oxides.	T .01020000000000	CI	1994	2003	Y	N	-25%	+25%	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)

Total curies = 7.9100E+00. Curie content is determined from laboratory analysis of smear samples. The data is used to develop an mR/hr to curie content conversion factor to account for all isotopes present in the waste. The +/- 25% uncertainty is due to measurements on the waste package with G-M instruments.

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:

2. Details concerning source (names, report no., dates, etc.)
Waste Characterization Reports, ANL-WCR-017-93 and
ANL-WCR-018-93, contact: Everett A. Clifton. ANL-W Letter,
R.P. Grant to V.C. Randall 12/20/93, "Radioactive Waste
Forecasts for 1994".

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 - 341

1. Preparer: Roy Grant

3. Generator: ANL
(area or contractor - use code from attached list)

5. Number of waste stream from this facility:
1P

7. Type of radioactive waste (check box):
☐ TRU or suspect TRU
☒ LLW
☐ non-radioactive

8. Actual years disposed of at SDA:
Starting year 1994 Ending year 2003

10. Comments (specify number of pertinent question):

6. The low-level liquid is generated in various ANL-W facilities. The Lab and Office Building (L&O), Fuel Cycle Facility (FCF) and Hot Fuel Examination Facility (HFEF) pipe liquid waste directly to the Radioactive Liquid Waste Treatment Facility (RLWTF) for evaporation.

2. Date prepared: 09/14/94

4. Particular facility: 798
(building number - use code from attached list)

6. Waste stream:
Contact-handled nonprocessable waste is generated during the evaporation of low-level liquid waste in the Shielded Hot Air Drum Evaporators (SHADES). SHADE units contain dry solid residue and are disposed of as containers. Small volumes of Dry Active Waste (DAW) are also generated in the Radioactive Liquid Waste Treatment Facility (RLWTF) during facility operations, maintenance and monitoring.

9. Waste stream volume:
Amount 2120.0000 Units Cubic feet.
Check box: ☐ annual or ☒ total over all years
Check box: ☒ container volume or ☐ waste volume

1. General physical form (see attached list) Shade units.
[X] other (specify) _____
10. _____
2. Details on physical form (particularly confinement related) SHADE units consist of evaporator structural components contaminated with radioactive waste solid residue.

3. Chemical form: Elemental metals, metal alloys, glass, concrete, plastic and cellulose.
4. Inner packaging: [X] plastic bag [] plastic liner
[] metal liner [] none [X] other (specify) _____
Plastic liner.
5. Waste container type (see attached list) Other.
6. Other characteristics of interest: _____
7. Comments (specify number of pertinent question):
1. The majority of waste generated will be SHADE units.
4. SHADE units are disconnected from the evaporator system and capped with concrete before shipping to RWMC. Note - the solid residue waste is contained within the concrete shell but not blended with the concrete. The concrete is used only as a cap for containment purposes.
5. Also BLM and 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
7440-43-9 Cadmium	Solid.	Elemental.	T .990000000000000	GM	1994	2003	N	-50%	+50%	See comment below.
7440-47-3 Chromium	Solid.	Elemental.	T .090000000000000	GM	1994	2003	N	-50%	+50%	See comment below.
7439-97-6 Mercury	Solid.	Elemental.	T .010000000000000	GM	1994	2003	N	-50%	+50%	See comment below.
7439-92-1 Lead	Solid.	Elemental.	T .960000000000000	GM	1994	2003	N	-50%	+50%	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)

Because these metals have been present in the past in this waste stream, it is projected that they will be present in the future. The quantities have been at levels below the 40 CFR 261.24 limits. The future total quantity was estimated based on one SHADE set per year and using past sample analysis data.

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-58	Contamination on waste solids.	Elemental.	T .03920000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Co-60	Contamination on waste solids.	Elemental.	T .25200000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Cs-134	Contamination on waste solids.	Elemental.	T .04760000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Cs-137	Contamination on waste solids.	Elemental.	T 1.91800000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Ce-144	Contamination on waste solids.	Elemental.	T .40320000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Eu-154	Contamination on waste solids.	Elemental.	T .01680000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Eu-155	Contamination on waste solids.	Elemental.	T .04480000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Mn-54	Contamination on waste solids.	Elemental.	T .07000000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Na-22	Contamination on waste solids.	Elemental.	T .00840000000000	CI	1994	2003	Y	N	-25%	+25%	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)

Total curies = 2.8000E+00. Curie content is determined from laboratory analysis of smear samples. The data is used to develop an mR/hr curie content conversion factor to account for all isotopes present in the waste. The +/- 25% uncertainty is due to measurements on the waste package with G-M instruments.

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	Contamination on waste solids.	Oxides.	T .00613000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
Pu-240	Contamination on waste solids.	Oxides.	T .00007430000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
U-235	Contamination on waste solids.	Oxides.	T .00020000000000	CI	1994	2003	Y	N	-25%	+25%	See comment below.
U-238	Contamination on waste solids.	Oxides.	T .00001560000000	CI	1994	2003	Y	N	-25%	+25%	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)

Total curies = 2.8000E+00. Curie content is determined from laboratory analysis of smear samples. The data is used to develop an mR/hr curie content conversion factor to account for all isotopes present in the waste. The +/- 25% uncertainty is due to measurements on the waste package with G-M instruments.

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:

2. Details concerning source (names, report no., dates, etc.)
Waste Characterization Report, ANL-WCR-016-93. Contact:
Everet Clifton. ANL-W Letter, R.P. Grant to V.C. Randall
12/20/93, "Radioactive Waste Forecasts for 1994".

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 - 343

1. Preparer: Roy Grant2. Date prepared: 09/30/943. Generator: ANL
(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:
1P6. Waste stream:
Compactible low-level waste generated from the
handling of radioactive materials in maintenance and
facility operations.

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 19959. Waste stream volume:
Amount 216.0000 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 waste is currently stored at ANL-W in 7 cargo containers waiting for shipment to WERF. The
waste was generated during 1991, 1992, 1993 and 1994.

1. General physical form (see attached list) 2. Details on physical form (particularly confinement related)
Other scrap metals. Solid.

[X] other (specify)

21.

3. Chemical form:

Metal (stainless steel, carbon steel,
aluminum), halogen-containing plastics, and
cellulose (wood).

4. Inner packaging: [] plastic bag [] plastic liner
[] metal liner [] none [X] other (specify)
See 7 below.

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

6. Other characteristics of interest:

7. Comments (specify number of pertinent question):

1. Also shoe covers, air hoods, filters, metal parts, rubber, plastic, paper and cloth.

4. Eight cubic foot boxes, 4 cubic foot or 2 cubic poly waste bags.

4, 5. Waste is packaged in yellow poly bags or poly-lined cardboard boxes, stored and shipped in
cargo 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
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	Contamination on waste solids.	Elemental.	T 2.4200000000000	CI	1995	1995	N	N	-25%	+25%	See comment below.
Co-58	Contamination on waste solids.	Elemental.	T .19800000000000	CI	1995	1995	N	N	-25%	+25%	See comment below.
Mn-54	Contamination on waste solids.	Elemental.	T .16100000000000	CI	1995	1995	N	N	-25%	+25%	See comment below.
Sr-90	Contamination on waste solids.	Elemental.	T 2.4800000000000	CI	1995	1995	N	N	-25%	+25%	See comment below.
Y-90	Contamination on waste solids.	Elemental.	T 2.0000000000000	CI	1995	1995	N	N	-25%	+25%	See comment below.
Eu-154	Contamination on waste solids.	Elemental.	T .01110000000000	CI	1995	1995	N	N	-25%	+25%	See comment below.
H-3	Contamination on waste solids.	Elemental.	T 2.3900000000000	CI	1995	1995	N	N	-25%	+25%	See comment below.
Ru-106	Contamination on waste solids.	Elemental.	T .00832000000000	CI	1995	1995	N	N	-25%	+25%	See comment below.
Cs-134	Contamination on waste solids.	Elemental.	T .15400000000000	CI	1995	1995	N	N	-25%	+25%	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)

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.

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	Contamination on waste solids.	Elemental.	T 3.07000000000000	CI	1995	1995	N	N	-25%	+25%	See comment below.
Eu-155	Contamination on waste solids.	Elemental.	T .335000000000000	CI	1995	1995	N	N	-25%	+25%	See comment below.
Sb-125	Contamination on waste solids.	Elemental.	T .016600000000000	CI	1995	1995	N	N	-25%	+25%	See comment below.
Au-198	Contamination on waste solids.	Elemental.	T .002770000000000	CI	1995	1995	N	N	-25%	+25%	See comment below.
Ba-140	Contamination on waste solids.	Elemental.	T .013900000000000	CI	1995	1995	N	N	-25%	+25%	See comment below.
Ce-141	Contamination on waste solids.	Elemental.	T .012500000000000	CI	1995	1995	N	N	-25%	+25%	See comment below.
Co-57	Contamination on waste solids.	Elemental.	T .038800000000000	CI	1995	1995	N	N	-25%	+25%	See comment below.
I-131	Contamination on waste solids.	Elemental.	T .004160000000000	CI	1995	1995	N	N	-25%	+25%	See comment below.
In-113m	Contamination on waste solids.	Elemental.	T .008320000000000	CI	1995	1995	N	N	-25%	+25%	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)

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.

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
La-140	Contamination on waste solids.	Elemental.	T .01660000000000	CI	1995	1995	N	N	-25%	+25%	See comment below.
Na-22	Contamination on waste solids.	Elemental.	T .02360000000000	CI	1995	1995	N	N	-25%	+25%	See comment below.
Nb-95	Contamination on waste solids.	Elemental.	T .00555000000000	CI	1995	1995	N	N	-25%	+25%	See comment below.
Pu-239	Contamination on waste solids.	Oxides.	T .00416000000000	CI	1995	1995	N	N	-25%	+25%	See comment below.
Sn-113	Contamination on waste solids.	Elemental.	T .00970000000000	CI	1995	1995	N	N	-25%	+25%	See comment below.
Sn-117m	Contamination on waste solids.	Elemental.	T .00555000000000	CI	1995	1995	N	N	-25%	+25%	See comment below.
Ta-182	Contamination on waste solids.	Elemental.	T .02080000000000	CI	1995	1995	N	N	-25%	+25%	See comment below.
Zr-95	Contamination on waste solids.	Elemental.	T .08180000000000	CI	1995	1995	N	N	-25%	+25%	See comment below.
Ce-144	Contamination on waste solids.	Elemental.	T .37300000000000	CI	1995	1995	N	N	-25%	+25%	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)

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.

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

- ☐ RWMIS ☒ other database
☒ sample analysis data
☒ operating records ☐ interview
☐ expert judgment ☐ reports
☐ generator forecasts
☒ other
Cargo container log sheets.

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:

2. Details concerning source (names, report no., dates, etc.)
Each compactible container stored in cargo containers is
inventoried. Data for each container, weight, volume,
origin and radiation reading is entered into a database
maintained by ANL-W Waste Management (Roy Grant). The
radiation readings are converted to curie contents by
conversion factors for each source of waste.

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 - 342

1. Preparer: Roy Grant

3. Generator: ANL
(area or contractor - use code from attached list)

2. Date prepared: 09/30/94

4. Particular facility: INC
(building number - use code from attached list)

5. Number of waste stream from this facility:
1P

6. Waste stream:
Incinerable low-level waste generated from the
handling of radioactive materials in maintenance and
facility operations.

7. Type of radioactive waste (check box):
☐ TRU or suspect TRU
☒ LLW
☐ non-radioactive

8. Actual years disposed of at SDA:
Starting year 1995 Ending year 1995

9. Waste stream volume:
Amount 550.0000 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. ANL-W currently has 30 cargo containers waiting to be shipped to SEG for incineration. The
waste was generated during 1992, 1993 and 1994. This 550 cubic meters of incinerable waste is
stored at ANL-W.

1. General physical form (see attached list) Combustibles (paper, cloth, wood, etc.)
[X] other (specify)
44.
2. Details on physical form (particularly confinement related)
Solid.
3. Chemical form:
Cellulose and plastic.
4. Inner packaging: ☐ plastic bag ☒ plastic liner
☐ metal liner ☐ none ☒ other (specify)
See 7 below.
5. Waste container type (see attached list)
Cardboard box.
6. Other characteristics of interest:
7. Comments (specify number of pertinent question):
1. Also gloves, coveralls, blotting paper, rags, wood, terry towels, plastic and rubber gloves.
4. Eight cubic foot incinerable waste boxes.
4, 5. The poly-lined cardboard boxes are shipped and stored in cargo 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
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	Forecast	Samples?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Co-60	Contamination on waste solids.	Elemental.	T .13300000000000	CI	1995	1995	N	N	-25%	+25%	See comment below.
Co-58	Contamination on waste solids.	Elemental.	T .01090000000000	CI	1995	1995	N	N	-25%	+25%	See comment below.
Mn-54	Contamination on waste solids.	Elemental.	T .01360000000000	CI	1995	1995	N	N	-25%	+25%	See comment below.
Sr-90	Contamination on waste solids.	Elemental.	T .72400000000000	CI	1995	1995	N	N	-25%	+25%	See comment below.
Y-90	Contamination on waste solids.	Elemental.	T .71900000000000	CI	1995	1995	N	N	-25%	+25%	See comment below.
Eu-154	Contamination on waste solids.	Elemental.	T .00210000000000	CI	1995	1995	N	N	-25%	+25%	See comment below.
Ru-106	Contamination on waste solids.	Elemental.	T .00019100000000	CI	1995	1995	N	N	-25%	+25%	See comment below.
Cs-134	Contamination on waste solids.	Elemental.	T .00191000000000	CI	1995	1995	N	N	-25%	+25%	See comment below.
Cs-137	Contamination on waste solids.	Elemental.	T .17800000000000	CI	1995	1995	N	N	-25%	+25%	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)

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 the backlog 30 cargo container waste only.

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
Ce-144	Contamination on waste solids.	Elemental.	T .02750000000000	CI	1995	1995	N	N	-25%	+25%	See comment below.
Eu-155	Contamination on waste solids.	Elemental.	T .01360000000000	CI	1995	1995	N	N	-25%	+25%	See comment below.
Sb-125	Contamination on waste solids.	Elemental.	T .00038200000000	CI	1995	1995	N	N	-25%	+25%	See comment below.
Au-198	Contamination on waste solids.	Elemental.	T .00019100000000	CI	1995	1995	N	N	-25%	+25%	See comment below.
Ba-140	Contamination on waste solids.	Elemental.	T .00057300000000	CI	1995	1995	N	N	-25%	+25%	See comment below.
Ce-141	Contamination on waste solids.	Elemental.	T .00057300000000	CI	1995	1995	N	N	-25%	+25%	See comment below.
Co-57	Contamination on waste solids.	Elemental.	T .00057300000000	CI	1995	1995	N	N	-25%	+25%	See comment below.
I-131	Contamination on waste solids.	Elemental.	T .00038200000000	CI	1995	1995	N	N	-25%	+25%	See comment below.
In-113m	Contamination on waste solids.	Elemental.	T .00076500000000	CI	1995	1995	N	N	-25%	+25%	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)

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 the backlog 30 cargo container waste only.

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
La-140	Contamination on waste solids.	Elemental.	T .00057300000000	CI	1995	1995	N	N	-25%	+25%	See comment below.
Na-22	Contamination on waste solids.	Elemental.	T .00191000000000	CI	1995	1995	N	N	-25%	+25%	See comment below.
Nb-95	Contamination on waste solids.	Elemental.	T .00191000000000	CI	1995	1995	N	N	-25%	+25%	See comment below.
Pu-239	Contamination on waste solids.	Oxides.	T .00019100000000	CI	1995	1995	N	N	-25%	+25%	See comment below.
Sn-113	Contamination on waste solids.	Elemental.	T .00095600000000	CI	1995	1995	N	N	-25%	+25%	See comment below.
Sn-117m	Contamination on waste solids.	Elemental.	T .00057300000000	CI	1995	1995	N	N	-25%	+25%	See comment below.
Ta-182	Contamination on waste solids.	Elemental.	T .00822000000000	CI	1995	1995	N	N	-25%	+25%	See comment below.
Zr-95	Contamination on waste solids.	Elemental.	T .00669000000000	CI	1995	1995	N	N	-25%	+25%	See comment below.
H-3	Contamination on waste solids.	Elemental.	T .06380000000000	CI	1995	1995	N	N	-25%	+25%	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)

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 the backlog 30 cargo container waste only.

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

- ☐ RWMIS ☒ other database
☒ sample analysis data
☒ operating records ☐ interview
☐ expert judgment ☐ reports
☐ generator forecasts
☒ other
Cargo container log sheets.

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:

2. Details concerning source (names, report no., dates, etc.)
Each incinerable container is inventoried when placed in the
cargo container for storage prior to shipment. Data for
each container includes weight, volume, origin and radiation
reading. The radiation reading is converted to curie
content by conversion factors by the database maintained by
ANL-W Waste Management (Roy Grant).

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 RDT - 253

1. Preparer: Rhodes, Donald W.2. Date prepared: 06/21/943. Generator: ARA
(area or contractor - use code from attached list)4. Particular facility: 626
(building number - use code from attached list)5. Number of waste stream from this facility:
2R6. Waste stream:
Hot cell waste, laboratory waste, cloth, paper,
plastic and wood.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 19879. Waste stream volume:
Amount 54.3000 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):

6. A variety of waste types were produced as a result of clean-up operations. No waste was sent to
the RWMC after 1987.

<p>1. General physical form (see attached list)
<u>Combustibles (paper, cloth, wood, etc.)</u>
<u>[] other (specify)</u>   3. Chemical form:
<u>Plastic, cellulose, and silica.</u>   5. Waste container type (see attached list)
<u>Metal barrel.</u></p>	<p>2. Details on physical form (particularly confinement related)
<u>Generally loose waste packaged in the barrels or boxes. The</u>
<u>low amounts of radionuclides suggest that no special</u>
<u>packaging would be considered necessary.</u>   4. Inner packaging: [] plastic bag [] plastic liner
[] metal liner [X] none [] other (specify)</p>   <p>6. Other characteristics of interest:</p>
7. Comments (specify number of pertinent question): <u>1. Also 42 and 44.</u> <u>5. Also BLX and BXW.</u>	

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
Ce-144	Dried solution.	Oxide.	T .390000000000000	CI	1984	1987	N			
Co-60	Dried solution.	Oxide.	T 1.13000000000000	CI	1984	1987	N			
Cs-137	Dried solution.	Oxide.	T 4.75000000000000	CI	1984	1987	N			
Cs-134	Dried solution.	Oxide.	T .590000000000000	CI	1984	1987	N			
Nb-95	Dried solution.	Oxide.	T .540000000000000	CI	1984	1987	N			
Zr-95	Dried solution.	Oxide.	T .280000000000000	CI	1984	1987	N			
U-235	Dried solution.	Oxide.	T .000030000000000	CI	1984	1987	N	-50%	+50%	Professional judgment.
U-238	Dried solution.	Oxide.	T .002000000000000	CI	1984	1987	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 MAP curies were added to the reported Co-60 curies and the MFP curies were added to the Cs-137. It is assumed that the uranium was determined by radiochemical analysis, but the other constituents were determined by a radiation measurement.

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:

It was not known how the amounts of
radionuclide were determined.

2. Details concerning source (names, report no., dates, etc.)
RWMIS printout 1984-93. Interview with W.D. Hanson who
served as a health & safety engineer at the facility.

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 uranium was determined by analysis, but
that the other gamma emitting radionuclides were determined
by a radiation measurement.

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION PDT - 282

1. Preparer: Rhodes, Donald W.
2. Date prepared: 07/21/94
3. Generator: ARA
(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:
1P
6. Waste stream:
Consists primarily of rubble waste resulting from
the disassembly and removal of facilities at ARA I,
II, and III.
7. Type of radioactive waste (check box):
☐ TRU or suspect TRU
☒ LLW
☐ non-radioactive
8. Actual years disposed of at SDA:
Starting year 1994 Ending year 1996
9. Waste stream volume:
Amount 1600.0000 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):
8. This project has been subject to significant delays due to extensive revision and review
requirements.

<p>1. General physical form (see attached list)
<u>Concrete, brick, and asphalt.</u>
<u>[] other (specify)</u>

_____</p> <p>3. Chemical form:
<u>Metal (stainless steel), carbon steel,</u>
<u>calcium silicate (concrete), plastic, and</u>
<u>asbestos.</u>
_____</p> <p>5. Waste container type (see attached list)
<u>Wooden box.</u>
_____</p> <p>7. Comments (specify number of pertinent question):
<u>1. Also 10, 43, and 47.</u>
_____</p> | <p>2. Details on physical form (particularly confinement related)
<u>Generally will be large pieces of concrete, etc. resulting</u>
<u>from the physical destruction of existing facilities.</u>

_____</p> <p>4. Inner packaging: ☐ plastic bag ☒ plastic liner
☐ metal liner ☐ none ☐ other (specify)
_____</p> <p>6. Other characteristics of interest:
_____</p> |
|--|---|

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
1332-21-4 Asbestos	Solid insulation.	Magnesium silicate.	T 1000000.0000000	GM	1995	1995	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 amount of insulation was estimated to be 26 M3. This was converted to weight of asbestos by, 26 cu meters = 918 cuft. Then 918 cuft. x 16 lbs/cuft. x 0.15 asbestos x 464 g/lb = 1.0E+06g.

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	Sorbed on waste solids.	Probably oxides.	T 30.000000000000	CI	1994	1997	Y	N			
Sr-90	Sorbed on waste solids.	Probably oxides.	T 30.000000000000	CI	1994	1997	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 waste forecast estimated a total of 30 curies from ARA-I was equally divided between Cs-137 and Sr-90. The estimate for ARA-II and ARA-III was listed as unknown.

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:

Radiological contamination level not known
for ARA II.

2. Details concerning source (names, report no., dates, etc.)
Solid Radioactive Waste Forecast prepared by J.J. Ellison,
Nov. 5, 1993. Discussion with J.J. Ellison. Report, INEL
D+D Long-Range Plan, R.J. Buckland, D.J. Kenoyer, and D.H.
Preussner, EGG-WM-10924, October 1993.

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 unknown radiological contamination levels
for ARA II would be small like ARA III.

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION RDT - 252

1. Preparer: Rhodes, Donald W.
2. Date prepared: 06/21/94
3. Generator: CEG
(area or contractor - use code from attached list)
4. Particular facility: CEG
(building number - use code from attached list)
5. Number of waste stream from this facility:
1R
6. Waste stream:
Waste is from the "crushed heat extraction process"
following the irradiation of a lithium target to
produce tritium.
7. Type of radioactive waste (check box):
☐ TRU or suspect TRU
☒ LLW
☐ non-radioactive
8. Actual years disposed of at SDA:
Starting year 1993 Ending year 1993
9. Waste stream volume:
Amount 22.2000 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):
6. This was a "one-time" waste produced in the NPR project. It will not be produced again, because
the NPR project has been discontinued.
3. CEG = Combustion Engineering-General Atomic.

1. General physical form (see attached list) Glass.
[X] other (specify)
5.
3. Chemical form:
Silicon carbide and Li.
5. Waste container type (see attached list)
Other*.
2. Details on physical form (particularly confinement related)
A powder formed by crushing small silicon carbide particles
containing the Li target material and Tritium. The powder
was placed in plastic or glass bottles and solidified in
aquasets or Hi-Lite.
4. Inner packaging: ☐ plastic bag ☒ plastic liner
☐ metal liner ☐ none ☒ other (specify)
Plastic bag.
6. Other characteristics of interest:
The bottles were contained in a plastic bag. This was
placed in a carbon steel box that was lined with Roto-mold,
a thick plastic.
7. Comments (specify number of pertinent question):
1. Also 44. Physical form #53 is a powder that was mixed as immobilizing agent and allowed to set
up.
5. The TX4 box is a standard size box approximately (4'x4'x8'), made of carbon steel and totally
lined with Roto-mold, a rigid plastic coating formed in-place.

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	Contained in solidifying agent.	Tritiated water.	T 1965.0000000000	CI	1993	1993	N	-25%	+25%	Professional judgment.
Th-228	Contained in solidifying agent.	Oxide.	T 2.00000000000000	CI	1993	1993	N	-25%	+25%	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 amount of tritium reported as being in the waste was considered to be reasonably accurate, because of close control of the total inventory and radiochemical analysis of the waste.

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:

No actual analytical records were found.

2. Details concerning source (names, report no., dates, etc.)
Curie values were obtained from RWMIS. The description and
method of handling the waste was obtained from interviews
with R.E. Korenke who was the manager in charge of the
project and J.A. Cook who was directly involved with the
processing and disposal of the waste.

4. If other than best estimate, explain why:

6. If yes, explain why:

8. Key assumptions used to deal with the unknowns:

Interviews with personnel who were directly involved in the
project suggested that the uncertainty of the analytical
results was low. Therefore a +/-25% uncertainty was
assumed.

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION RDT - 251

1. Preparer: Rhodes, Donald W.
2. Date prepared: 06/22/94
3. Generator: CFA
(area or contractor - use code from attached list)
4. Particular facility: 617
(building number - use code from attached list)
5. Number of waste stream from this facility:
2R
6. Waste stream:
Liquids in vermiculite, sludge, plastic, paper,
cloth, carbon steel, and wood.
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 149.8000 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. Includes 91 M3 of waste disposed of from buildings designated as 665, 669, 674, 690, 691, EBR
and EFS but this waste contained <1 Ci of total radionuclides and no apparent hazardous materials.
The waste consisted of general laboratory waste, biological waste, a metal tank, soil, gravel,
brick, concrete, and rubble. This waste is not reported separately.

1. General physical form (see attached list) Vermiculite and other sorbents.
[] other (specify) _____
2. Details on physical form (particularly confinement related) Material was generally packed in a wooden box, but it is possible that the box may have been lined with plastic.
3. Chemical form: Liquid absorbed in vermiculite, cellulose, and carbon steel constituents (principally Fe and C).
4. Inner packaging: [] plastic bag [X] plastic liner
[] metal liner [] none [X] other (specify)
See 7 below.
5. Waste container type (see attached list) Wooden box.
6. Other characteristics of interest: _____
7. Comments (specify number of pertinent question):
4. This is not known for sure, but it was common practice to line a box with plastic, especially if one of the waste constituents was sludge.
1. Also 11, 44, 10, and 21.
5. Also BLX 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.

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	Absorbed in or on dry materials.	Oxide.	T 1.80000000000000	CI	1984	1993	N			
Cs-137	Absorbed in or on dry materials.	Oxide.	T 1.80000000000000	CI	1984	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 radiochemical contamination was reported as MAP and MFP. The curies were assigned to Co-60 for the MAP and to Cs-137 for the MFP. The amount was very likely determined by a radiation reading.

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:

Radioactivity was reported as MAP and MFP.

2. Details concerning source (names, report no., dates, etc.)
RWMIS printout 1984-1993. Waste descriptions were obtained
from content codes given in RWMIS.

4. If other than best estimate, explain why:

6. If yes, explain why:

8. Key assumptions used to deal with the unknowns:
The values for radioactivity were assigned to Co-60 and
Cs-137. The amount for each was small (1.8 Ci) and thus did
not justify trying to assign values to other radionuclides.
The values were probably obtained by a radiation reading.

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION PDT - 284

1. Preparer: Rhodes, Donald W.
2. Date prepared: 07/21/94
3. Generator: CFA
(area or contractor - use code from attached list)
4. Particular facility: 625
(building number - use code from attached list)
5. Number of waste stream from this facility:
1P
6. Waste stream:
Principally protective clothing and personnel
protective equipment.
7. Type of radioactive waste (check box):
☐ TRU or suspect TRU
☒ LLW
☐ non-radioactive
8. Actual years disposed of at SDA:
Starting year 1994 Ending year 2003
9. Waste stream volume:
Amount 1000.0000 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):
4. Also includes other CFA facilities.

<p>1. General physical form (see attached list)
<u>Combustibles (paper, cloth, wood, etc.)</u>
<u>[] other (specify)</u></p>	<p>2. Details on physical form (particularly confinement related)
<u>Waste would be in the form of coveralls, respirators and</u>
<u>other protective items.</u></p>
<p>3. Chemical form:
<u>Cloth, plastic, and possibly some rubber.</u></p>	<p>4. Inner packaging: [] plastic bag [X] plastic liner
[] metal liner [] none [] other (specify)</p>
<p>5. Waste container type (see attached list)
<u>Wooden box.</u></p>	6. Other characteristics of interest:
7. Comments (specify number of pertinent question): <u>1. Also 23.</u> <u>5. Also BXC, PB3, and O.</u>	

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
Ni-63			T .01500000000000	CI	1994	2003	Y	N			
Cs-137			T .02400000000000	CI	1994	2003	Y	N			
Co-60			T .02400000000000	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:
Normal uncertainties with respect to
long-range projects.

2. Details concerning source (names, report no., dates, etc.)
Solid Radioactive Waste Forecast prepared by D. Miller and
G. Lewis-Kido, September 1993. Conversation with G.
Lewis-Kido.

4. If other than best estimate, explain why:

6. If yes, explain why:

8. Key assumptions used to deal with the unknowns:
Assumed that changes in long-range programs would have
little effect, because the total radiological contamination
is expected to be low (<1Ci).

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION RDT - 260

1. Preparer: Rhodes, Donald W.
2. Date prepared: 07/11/94
3. Generator: CPP
(area or contractor - use code from attached list)
4. Particular facility: 601
(building number - use code from attached list)
5. Number of waste stream from this facility:
8R
6. Waste stream:
Waste resulting from the replacement and/or removal
for disposal of equipment and decontamination of the
facility.
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 1992
9. Waste stream volume:
Amount 630.8000 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):
6. The primary purpose of this facility was to reprocess Navy and test reactor fuels to recover the
unburned uranium. The processing of fuel at the ICPP was discontinued in 1992.

1. General physical form (see attached list) Other scrap metals.
[] other (specify)

2. Details on physical form (particularly confinement related) Waste materials were generally loose material placed in boxes.

3. Chemical form:
Metal, ferrous and non-ferrous, silica (glass), silicates (concrete and brick), aluminosilicates (soil and gravel), and asbestos.

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):
1. Also 21, 23, 41, 42, 44, and 47.
6. Also 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.

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
1332-21-4 Asbestos	Solid insulation.	Magnesium silicate.	T 285000.00000000	GM	1991	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)

The asbestos was reported on the waste disposal forms as a percentage of the total volume. The total insulation for 7 shipments was 256ft³. 256ft³ x 16lb/ft³ x 0.15 asbestos x 464g/lb = 2.85E+05g asbestos. The other 85% of the lagging was magnesia and magnesium carbonate.

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	Sorbed on waste solid surfaces.	Probably oxide.	T 34.200000000000	CI	1984	1992	N			
Cs-137	Sorbed on waste solid surfaces.	Probably oxide.	T 11.900000000000	CI	1984	1992	N			
Nb-95	Sorbed on waste solid surfaces.	Probably oxide.	T 5.300000000000	CI	1984	1992	N			
Pr-144	Sorbed on waste solid surfaces.	Probably oxide.	T 33.600000000000	CI	1984	1992	N			
Rh-106	Sorbed on waste solid surfaces.	Probably oxide.	T 17.200000000000	CI	1984	1992	N			
Ru-106	Sorbed on waste solid surfaces.	Probably oxide.	T 17.200000000000	CI	1984	1992	N			
Sb-125	Sorbed on waste solid surfaces.	Probably oxide.	T 7.600000000000	CI	1984	1992	N			
Sr-90	Sorbed on waste solid surfaces.	Probably oxide.	T 17.200000000000	CI	1984	1992	N			
Y-90	Sorbed on waste solid surfaces.	Probably oxide.	T 17.200000000000	CI	1984	1992	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)

Although no radiochemical analysis was made, the values for the radionuclides were determined by taking a radiation reading, then entering this value into a computer program that determines the total amount for each radionuclide, including Sr-90 and Y-90.

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
Zr-95	Sorbed on waste solid surfaces.	Probably oxide.	T 5.30000000000000	CI	1984	1992	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)

Although no radiochemical analysis was made, the values for the radionuclides were determined by taking a radiation reading, then entering this value into a computer program that determines the total amount for each radionuclide, including Sr-90 and Y-90.

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:

The exact volume of the asbestos is not
known, because the volume was estimated by
the shipper and varied from 5% to 100% of
the total for a given shipment.

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. Conversation with
K.L. Miller and R.L. Smith, WINCO employees.

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 shipper's estimate was reasonably correct.
It may be a high estimate, because the box would have a
considerable amount of void space that would be difficult to
estimate.

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION RDT - 261

1. Preparer: Rhodes, Donald W.
2. Date prepared: 07/11/94
3. Generator: CPP
(area or contractor - use code from attached list)
4. Particular facility: 604
(building number - use code from attached list)
5. Number of waste stream from this facility:
2R
6. Waste stream:
The waste consisted of pieces of equipment that were
replaced; insulated piping, contaminated soil, and
general cleaning materials, such as cloth, paper,
plastic and filters.
7. Type of radioactive waste (check box):
☐ TRU or suspect TRU
☒ LLW
☐ non-radioactive
8. Actual years disposed of at SDA:
Starting year 1988 Ending year 1992
9. Waste stream volume:
Amount 233.4000 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):
6. This building houses the PEW evaporator and the Rare Gas plant, which are waste treatment units.

<p>1. General physical form (see attached list) <u>Other scrap metals.</u> <u>[] other (specify)</u> _____ _____</p> <p>3. Chemical form: <u>Metal (stainless steel), fiberglass</u> <u>(filters), silica (glass), aluminosilicates</u> <u>(soil), and plastic.</u> _____</p> <p>5. Waste container type (see attached list) <u>Wooden box.</u> _____</p> <p>7. Comments (specify number of pertinent question): <u>1. Also 21, 22, 41, 42, 43, 44, and 47.</u> <u>5. Also PB3.</u> _____ _____</p>	<p>2. Details on physical form(particularly confinement related) <u>The waste materials were placed in boxes lined with plastic.</u> <u>No special effort was made to produce a non-leachable waste.</u> _____ _____</p> <p>4. Inner packaging: <u>[] plastic bag [X] plastic liner</u> <u>[] metal liner [] none [] other (specify)</u> _____</p> <p>6. Other characteristics of interest: _____ _____</p>
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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.

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
1332-21-4 Asbestos	Solid insulation.	Magnesium silicate.	T 228000.00000000	GM	1988	1992	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 shipments containing the insulation were reported to contain from 70% to 90% insulation. The asbestos was determined by taking the total volume of insulation and calculating the amount of asbestos as follows: 205ft³ insulation x 16lb/ft³ x 0.15 asbestos x 464 glb = 2.28E+05g asbestos. The other 85% of the pipe insulation was magnesita and magnesium carbonate.

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	Sorbed on waste solid surface.	Probably oxide.	T 9.10000000000000	CI	1988	1992	N			
Cs-137	Sorbed on waste solid surface.	Probably oxide.	T 5.90000000000000	CI	1988	1992	N			
Nb-95	Sorbed on waste solid surface.	Probably oxide.	T 1.40000000000000	CI	1988	1992	N			
Pr-144	Sorbed on waste solid surface.	Probably oxide.	T 9.10000000000000	CI	1988	1992	N			
Rh-106	Sorbed on waste solid surface.	Probably oxide.	T 4.60000000000000	CI	1988	1992	N			
Ru-106	Sorbed on waste solid surface.	Probably oxide.	T 4.60000000000000	CI	1988	1992	N			
Sb-125	Sorbed on waste solid surface.	Probably oxide.	T 2.00000000000000	CI	1988	1992	N			
Sr-90	Sorbed on waste solid surface.	Probably oxide.	T 4.60000000000000	CI	1988	1992	N			
Y-90	Sorbed on waste solid surface.	Probably oxide.	T 4.60000000000000	CI	1988	1992	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)

Although no radiochemical analysis was done, the radiation reading was entered into a computer program that determines the amount of each radionuclide present, including Sr-90 and Y-90.

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
Zr-95	Sorbed on waste solid surface.	Probably oxide.	T 1.4000000000000	CI	1988	1992	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)

Although no radiochemical analysis was done, the radiation reading was entered into a computer program that determines the amount of each radionuclide present, including Sr-90 and Y-90.

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:
The amount of insulation containing asbestos was estimated by the shipper.

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. Conversation with K.L. Miller and R.L. Smith, WINCO employees.

4. If other than best estimate, explain why:

6. If yes, explain why:

8. Key assumptions used to deal with the unknowns:
Assumed that estimate of the amount of pipe insulation was reasonably accurate.

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION RDT - 262

1. Preparer: Rhodes, Donald W.
2. Date prepared: 07/11/94
3. Generator: CPP
(area or contractor - use code from attached list)
4. Particular facility: 605
(building number - use code from attached list)
5. Number of waste stream from this facility:
1R
6. Waste stream:
HEPA filters, metal, soil and concrete, and cleanup
materials, such as paper, cloth, and plastic.
7. Type of radioactive waste (check box):
☐ TRU or suspect TRU
☒ LLW
☐ non-radioactive
8. Actual years disposed of at SDA:
Starting year 1988 Ending year 1992
9. Waste stream volume:
Amount 88.8000 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 facility contains the blowers for cleanup of the off-gas before it is released through the
stack.
6. In addition to normal off-gas cleanup, replacement and modification of equipment contributed to
the waste.

1. General physical form (see attached list) HEPA filters.
[] other (specify)
2. Details on physical form (particularly confinement related)
Individual waste items were placed in plastic lined boxes
for transport to the RWMC.
3. Chemical form:
Fiberglass (filters), plastic,
aluminosilicates (soil), and metal
(stainless steel).
4. Inner packaging: ☐ plastic bag ☒ 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):
1. Also 21, 41, 44, and 10.
5. Also 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.

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
Ce-144	Sorbed on surfaces of waste solids.	Probably oxides.	T 20.100000000000	CI	1988	1992	N			
Cs-137	Sorbed on surfaces of waste solids.	Probably oxides.	T 10.200000000000	CI	1988	1992	N			
Nb-95	Sorbed on surfaces of waste solids.	Probably oxides.	T 3.200000000000	CI	1988	1992	N			
Pr-144	Sorbed on surfaces of waste solids.	Probably oxides.	T 2.000000000000	CI	1988	1992	N			
Rh-106	Sorbed on surfaces of waste solids.	Probably oxides.	T 10.200000000000	CI	1988	1992	N			
Ru-106	Sorbed on surfaces of waste solids.	Probably oxides.	T 10.200000000000	CI	1988	1992	N			
Sb-125	Sorbed on surfaces of waste solids.	Probably oxides.	T 4.500000000000	CI	1988	1992	N			
Sr-90	Sorbed on surfaces of waste solids.	Probably oxides.	T 10.200000000000	CI	1988	1992	N			
Y-90	Sorbed on surfaces of waste solids.	Probably oxides.	T 10.200000000000	CI	1988	1992	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 values for the radionuclides were obtained by entering a radiation reading into a computer program that determined the value for each radionuclide, including Sr-90 and Y-90.

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
Zr-95	Sorbed on surfaces of waste solids.	Probably oxides.	T 3.2000000000000	CI	1988	1992	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 values for the radionuclides were obtained by entering a radiation reading into a computer program that determined the value for each radionuclide, including Sr-90 and Y-90.

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:

No analytical analysis was made for the radiological contaminants.

2. Details concerning source (names, report no., dates, etc.)
RWMIS printout 1984-1993. Tech Note data compiled from RWMIS by C.J. Barnard and M.J. Schlafman. Conversation with K.L. Miller and R.L. Smith, WINCO employees.

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 computer program for converting the radiation readings to individual radionuclides was reasonably accurate.

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION RDT - 263

1. Preparer: Rhodes, Donald W.2. Date prepared: 07/11/943. Generator: CPP
(area or contractor - use code from attached list)4. Particular facility: 610
(building number - use code from attached list)5. Number of waste stream from this facility:
1R6. Waste stream:
This waste stream originated from CPP-610 building
which was used as a collection point for waste from
several areas at CPP. The RWMIS printout contained
38 content codes that included building materials,
various types of equipment, general cleanup
materials, metals, filters and many other items.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 19929. Waste stream volume:
Amount 4474.0000 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):

6. The 610 building was used to collect waste materials that were removed periodically and
transported to the RWMC during the period 1984 to 1992. In 1992, the building itself was demolished
and the building materials buried at the RWMC. The waste from CPP-610 made up 62% of the total
volume and 46% of the total curies received at the RWMC from the ICPP during the period of
1984-1993.

1. General physical form (see attached list) Other scrap metals.
[] other (specify)
2. Details on physical form (particularly confinement related)
Waste included metallic equipment used at CPP-603, such as
fuel racks and yokes. Also construction materials, cleanup
materials, filters, fuel charging casks, and liquids
solidified in Portland cement. Also lead in bricks and
sheets.
3. Chemical form:
Metals (stainless steel, carbon steel, and
aluminum), fiberglass (filters),
aluminosilicates (soil), asphalt (roofing
material), lead, and plastic.
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):
1. Also 7, 21, 22, 23, 41, 42, 43, and 44.
5. Also BXM, I, O, 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.

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
7439-92-1 Lead	Sheets and bricks.	Metal.	T 15000000.000000	GM	1984	1984	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 lead was undoubtedly used for shielding and was in the form of both sheets and bricks. It was contained in wooden boxes and was buried in the time period 02/03/84 to 05/23/84. It was only slightly contaminated (total of 0.4 Ci).

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	Sorbed on waste solids.	Probably oxides.	T 96.1000000000000	CI	1984	1992	N			
Co-60	Sorbed on waste solids.	Probably oxides.	T .200000000000000	CI	1984	1992	N			
Cs-134	Sorbed on waste solids.	Probably oxides.	T .100000000000000	CI	1984	1992	N			
Cs-137	Sorbed on waste solids.	Probably oxides.	T 126.9000000000000	CI	1984	1992	N			
Eu-152	Sorbed on waste solids.	Probably oxides.	T 6.200000000000000	CI	1984	1992	N			
Eu-154	Sorbed on waste solids.	Probably oxides.	T 4.300000000000000	CI	1984	1992	N			
Eu-155	Sorbed on waste solids.	Probably oxides.	T .900000000000000	CI	1984	1992	N			
Nb-95	Sorbed on waste solids.	Probably oxides.	T 15.1000000000000	CI	1984	1992	N			
Pr-144	Sorbed on waste solids.	Probably oxides.	T 96.1000000000000	CI	1984	1992	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)

99.4 Ci was reported as MFP. This was divided equally between Cs-137 and Sr-90 in the above table.

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
Rh-106	Sorbed on waste solids.	Probably oxides.	T 48.800000000000	CI	1984	1992	N			
Ru-106	Sorbed on waste solids.	Probably oxides.	T 48.800000000000	CI	1984	1992	N			
Sb-125	Sorbed on waste solids.	Probably oxides.	T 23.800000000000	CI	1984	1992	N			
Sr-90	Sorbed on waste solids.	Probably oxides.	T 100.200000000000	CI	1984	1992	N			
Y-90	Sorbed on waste solids.	Probably oxides.	T 51.200000000000	CI	1984	1992	N			
Zr-95	Sorbed on waste solids.	Probably oxides.	T 15.100000000000	CI	1984	1992	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)

99.4 Ci was reported as MFP. This was divided equally between Cs-137 and Sr-90 in the above table.

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:

The radionuclide inventory included nearly
100 Ci of MFP.

2. Details concerning source (names, report no., dates, etc.)
RWMIS printout 1984-1993. Tech Note data compiled from
RWMIS by C.J. Barnard and M.J. Schlafman. Conversation with
R.D. Denny, WINCO employee.

4. If other than best estimate, explain why:

6. If yes, explain why:

8. Key assumptions used to deal with the unknowns:

The MFP was assumed to be 50% Cs-137 and 50% Sr-90, both of
which are common constituents of CPP waste.

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION RDT - 264

1. Preparer: Rhodes, Donald W.2. Date prepared: 07/12/943. Generator: CPP
(area or contractor - use code from attached list)4. Particular facility: 649
(building number - use code from attached list)5. Number of waste stream from this facility:
1R6. Waste stream:
This waste is produced in the facility that contains
the atmospheric protection system for treating the
off-gas from the plant.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 19929. Waste stream volume:
Amount 89.9000 Units Cubic meters.
Check box: ☐ annual or ☒ total over all years
Check box: ☒ container volume or ☐ waste volume10. Comments (specify number of pertinent question):
A major upgrade of this facility was completed in 1984. Approximately 98.7% of the total curies
sent from this facility to the RWMC was shipped in 1984.

1. General physical form (see attached list) Other scrap metals.
[] other (specify)

2. Details on physical form (particularly confinement related)
Contaminated construction materials were disposed of during
the installation of a new atmospheric protection system.
Filters were disposed of routinely.

3. Chemical form:
Metal (stainless steel), fiberglass
(filters), cellulose (paper),
aluminosilicates (soil), and calcium
silicate (concrete).

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):
1. Also 12, 21, 22, 23, 41, 42, 43, and 44.
5. Also 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.

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
Ce-144	Sorbed on waste solids.	Probably oxides.	T 39.1000000000000	CI	1984	1992	N			
Cs-137	Sorbed on waste solids.	Probably oxides.	T 19.9000000000000	CI	1984	1992	N			
Nb-95	Sorbed on waste solids.	Probably oxides.	T 6.2000000000000	CI	1984	1992	N			
Pr-144	Sorbed on waste solids.	Probably oxides.	T 39.1000000000000	CI	1984	1992	N			
Rh-106	Sorbed on waste solids.	Probably oxides.	T 19.9000000000000	CI	1984	1992	N			
Ru-106	Sorbed on waste solids.	Probably oxides.	T 19.9000000000000	CI	1984	1992	N			
Sb-125	Sorbed on waste solids.	Probably oxides.	T 8.7000000000000	CI	1984	1992	N			
Sr-90	Sorbed on waste solids.	Probably oxides.	T 19.9000000000000	CI	1984	1992	N			
Y-90	Sorbed on waste solids.	Probably oxides.	T 19.9000000000000	CI	1984	1992	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)

Most of this contamination was probably contained in a prefilter system that was replaced with a removable system in 1984.

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
Zr-95	Sorbed on waste solids.	Probably oxides.	T 6.20000000000000	CI	1984	1992	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)

Most of this contamination was probably contained in a prefilter system that was replaced with a removable system in 1984.

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:

Not clear from the published data why the
radioactive contamination was produced
predominately in 1984.

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. Conversation with F.S.
Ward, a WINCO employee.

4. If other than best estimate, explain why:

6. If yes, explain why:

8. Key assumptions used to deal with the unknowns:
Resolved this in a conversation with F.S. Ward, who was
responsible for the operation of this system.

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION RDT - 265

1. Preparer: Rhodes, Donald W.2. Date prepared: 07/15/943. Generator: CPP
(area or contractor - use code from attached list)4. Particular facility: 659
(building number - use code from attached list)5. Number of waste stream from this facility:
1R6. Waste stream:
This waste was produced at the New Waste Calcining
Facility. It consists of metals, construction
materials and cleanup materials resulting from
modifications, operation, and decontamination of the
facility.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 19929. Waste stream volume:
Amount 397.8000 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) Other scrap metals.
[] other (specify)

2. Details on physical form (particularly confinement related)
Waste consisted of materials from upgrading of the facility,
such as metals, concrete, filters and cleanup materials.

3. Chemical form:
Metal (stainless steel and aluminum),
cellulose (paper), plastic, and calcium
silicate (concrete).

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):
1. Also 21, 22, 41, 42, 43, and 44.
5. Also BXM, O, 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.

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
Ce-144	Sorbed on waste solids.	Probably oxides.	T 11.000000000000	CI	1984	1992	N			
Co-60	Sorbed on waste solids.	Probably oxides.	T .00000580000000	CI	1984	1992	N			
Cs-134	Sorbed on waste solids.	Probably oxides.	T .00000027000000	CI	1984	1992	N			
Cs-137	Sorbed on waste solids.	Probably oxides.	T 5.30000000000000	CI	1984	1992	N			
Eu-154	Sorbed on waste solids.	Probably oxides.	T .00000050000000	CI	1984	1992	N			
Nb-95	Sorbed on waste solids.	Probably oxides.	T 1.70000000000000	CI	1984	1992	N			
Pr-144	Sorbed on waste solids.	Probably oxides.	T 10.000000000000	CI	1984	1992	N			
Rh-106	Sorbed on waste solids.	Probably oxides.	T 5.30000000000000	CI	1984	1992	N			
Ru-106	Sorbed on waste solids.	Probably oxides.	T 5.30000000000000	CI	1984	1992	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)

No radiochemical analysis was available. The amounts of radiochemical contaminants were determined by entering radiation readings into a computer program that produced the amounts of radionuclides present, including Sr-90 and Y-90.

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	Sorbed on waste solids.	Probably oxides.	T 2.40000000000000	CI	1984	1992	N			
Sr-90	Sorbed on waste solids.	Probably oxides.	T 5.30000000000000	CI	1984	1992	N			
Y-90	Sorbed on waste solids.	Probably oxides.	T 5.30000000000000	CI	1984	1992	N			
Zr-95	Sorbed on waste solids.	Probably oxides.	T 1.70000000000000	CI	1984	1992	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)

No radiochemical analysis was available. The amounts of radiochemical contaminants were determined by entering radiation readings into a computer program that produced the amounts of radionuclides present, including Sr-90 and Y-90.

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:

Seemed to be relatively low radiochemical
contamination for a facility that handles
very high curie material.

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. Interview with K.L.
Miller, a WINCO employee.

4. If other than best estimate, explain why:

6. If yes, explain why:

8. Key assumptions used to deal with the unknowns:

Verified that most of the contamination produced at this
facility is picked up by acid decontamination washes and
returned to the waste storage tanks for calcination.

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION RDT - 266

1. Preparer: Rhodes, Donald W.2. Date prepared: 07/13/943. Generator: CPP
(area or contractor - use code from attached list)4. Particular facility: 666
(building number - use code from attached list)5. Number of waste stream from this facility:
1R6. Waste stream:
This waste stream was assumed to be one stream made
up of waste from 16 different buildings, none of
which contained significant amounts of radioactivity
compared to the streams from other buildings at the
ICPP. (See 10.)

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 19929. Waste stream volume:
Amount 1110.5000 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. Includes the following facilities: CPP-602, 603, 608, 617, 627, 633, 637, 640, 663, 672, 749,
DCF, S21, S71, and TFA.6. The total waste contained only about 3% of the total radioactivity produced at the ICPP during
the time period 1984-1993.

<p>1. General physical form (see attached list)
<u>Combustibles (paper, cloth, wood, etc.)</u>
<u>[X] other (specify)</u>
<u>7.</u>   3. Chemical form:
<u>Metal (stainless steel, carbon steel, and</u>
<u>aluminum), cellulose, (paper), plastic,</u>
<u>aluminosilicates (soil), and calcium</u>
<u>silicate (concrete).</u>   5. Waste container type (see attached list)
<u>Wooden box.</u></p>	<p>2. Details on physical form (particularly confinement related)
<u>Generally construction materials, cleanup materials, fuel</u>
<u>charging casks, and liquids solidified in Portland cement.</u>   4. Inner packaging: ☐ plastic bag ☒ plastic liner
☐ metal liner ☐ none ☐ other (specify)</p>   <p>6. Other characteristics of interest:</p>
7. Comments (specify number of pertinent question): <u>1. Also 10, 41, 42, 43, and 47.</u> <u>5. Also PB3, O, BXM, and I.</u>	

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
1332-21-4 Asbestos	Insulation.	Magnesium silicate.	T 710000.00000000	GM	1991	1991	N			
7439-92-1 Lead	Fuel charging casks.	Metal.	T 63000000.000000	GM	1984	1984	N	-10%	+10%	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 asbestos disposed of at the RWMC was produced by a laboratory renovation and asbestos removal project that was ongoing at the ICPP (primarily the 602 building) during the year 1991. The amount of asbestos was calculated assuming the insulation was 15% asbestos and the rest was magnesia and hydrated magnesium carbonate.

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	Sorbed on waste solids.	Probably oxides.	T 9.2000000000000	CI	1984	1992	N			
Cs-137	Sorbed on waste solids.	Probably oxides.	T 3.2000000000000	CI	1984	1992	N			
Nb-95	Sorbed on waste solids.	Probably oxides.	T 1.4000000000000	CI	1984	1992	N			
Pr-144	Sorbed on waste solids.	Probably oxides.	T 9.1000000000000	CI	1984	1992	N			
Rh-106	Sorbed on waste solids.	Probably oxides.	T 4.6000000000000	CI	1984	1992	N			
Ru-106	Sorbed on waste solids.	Probably oxides.	T 4.6000000000000	CI	1984	1992	N			
Sb-125	Sorbed on waste solids.	Probably oxides.	T 2.1000000000000	CI	1984	1992	N			
Y-90	Sorbed on waste solids.	Probably oxides.	T 4.6000000000000	CI	1984	1992	N			
Zr-95	Sorbed on waste solids.	Probably oxides.	T 1.4000000000000	CI	1984	1992	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 curies for the individual radionuclides were determined by assuming that the distribution was the same as that for CPP-601, the fuel processing facility. The total curies for all of the 16 buildings was then divided up according to that distribution.

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	Sorbed on waste solids.	Probably oxides.	T 4.60000000000000	CI	1984	1992	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 curies for the individual radionuclides were determined by assuming that the distribution was the same as that for CPP-601, the fuel processing facility. The total curies for all of the 16 buildings was then divided up according to that distribution.

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:

The total amount for each radionuclide was not known, but the total curies were known.

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.

J.D. Wells letter to K.L. Falconer, "Hazardous Materials in the SDA", JDW-02-86, January 15, 1986.

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 distribution for the radionuclides in this stream was the same as the distribution reported for CPP-601 building, the fuel processing facility. This is probably a reasonable assumption, because the total radioactivity for this stream was only 3% of the total for all of the CPP during the time period 1984-92.

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION RDT - 267

1. Preparer: Rhodes, Donald W.2. Date prepared: 07/12/943. Generator: CPP
(area or contractor - use code from attached list)4. Particular facility: 684
(building number - use code from attached list)5. Number of waste stream from this facility:
1R6. Waste stream:
This waste stream originated from the Remote
Analytical Facility and consisted of metal,
construction materials, and cleanup materials.

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 19929. Waste stream volume:
Amount 145.0000 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):

6. Most of the radioactive waste (96%) was produced in 1988 during startup of the facility.

<p>1. General physical form (see attached list)
<u>Other scrap metals.</u>
<u>[] other (specify)</u></p> <p>3. Chemical form:
<u>Metal (stainless steel), cellulose (paper),</u>
<u>silica (glass), and plastic.</u></p> <p>5. Waste container type (see attached list)
<u>Wooden box.</u></p> <p>7. Comments (specify number of pertinent question):
<u>1. Also 21, 41, and 42.</u></p> | <p>2. Details on physical form (particularly confinement related)
<u>Final construction and testing of the facility produced</u>
<u>metals and construction materials as waste. Routine</u>
<u>operation produced very little.</u></p> <p>4. Inner packaging: ☐ plastic bag ☒ plastic liner
☐ metal liner ☐ none ☐ other (specify)</p> <p>6. Other characteristics of interest:</p> |
|---|---|

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
Ce-144	Sorbed on waste solids.	Probably oxides.	T 23.300000000000	CI	1987	1992	N			
Cs-137	Sorbed on waste solids.	Probably oxides.	T 13.900000000000	CI	1987	1992	N			
Nb-95	Sorbed on waste solids.	Probably oxides.	T 3.500000000000	CI	1987	1992	N			
Pr-144	Sorbed on waste solids.	Probably oxides.	T 21.400000000000	CI	1987	1992	N			
Rh-106	Sorbed on waste solids.	Probably oxides.	T 11.400000000000	CI	1987	1992	N			
Ru-106	Sorbed on waste solids.	Probably oxides.	T 11.400000000000	CI	1987	1992	N			
Sb-125	Sorbed on waste solids.	Probably oxides.	T 5.000000000000	CI	1987	1992	N			
Sr-90	Sorbed on waste solids.	Probably oxides.	T 11.400000000000	CI	1987	1992	N			
Y-90	Sorbed on waste solids.	Probably oxides.	T 11.400000000000	CI	1987	1992	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	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Zr-95	Sorbed on waste solids.	Probably oxides.	T 3.50000000000000	CI	1987	1992	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
☐ 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:

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.

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 - 281

1. Preparer: Rhodes, Donald W.2. Date prepared: 07/19/943. Generator: CPP
(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:
This waste stream includes waste, such as
construction materials and cleanup materials, from
all areas at the CPP that will be shipped directly
to the RWMC for burial.7. Type of radioactive waste (check box):
☐ TRU or suspect TRU
☒ LLW
☐ non-radioactive9. Waste stream volume:
Amount 57000.0000 Units Cubic meters.
Check box: ☐ annual or ☒ total over all years
Check box: ☒ container volume or ☐ waste volume8. Actual years disposed of at SDA:
Starting year 1994 Ending year 200310. Comments (specify number of pertinent question):
9. Over the period of 1994-2003, the smallest annual volume was estimated to be 435 M3 per year and
the largest volume 944 M3 per year.

1. General physical form (see attached list) Concrete, brick, and asphalt.
[] other (specify) _____

2. Details on physical form (particularly confinement related) Construction materials and cleanup materials.

3. Chemical form:
Probably metal, silicates, aluminates, fiberglass, and plastic. _____
4. Inner packaging: [] plastic bag [X] plastic liner
[] metal liner [] none [X] other (specify)
See 7 below. _____
5. Waste container type (see attached list) Wooden box. _____
6. Other characteristics of interest: _____
7. Comments (specify number of pertinent question):
1. Probably also 10, 22, 23, 42, 43, and 44.
4. Assumed that the wooden boxes will be lined with plastic, which is a common practice now. _____

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
Cs-137	Sorbed on waste solids.	Probably oxides.	T 414.200000000000	CI	1994	2003	Y	N			
Ce-144	Sorbed on waste solids.	Probably oxides.	T 15.1000000000000	CI	1994	2003	Y	N			
Pr-144	Sorbed on waste solids.	Probably oxides.	T 15.1000000000000	CI	1994	2003	Y	N			
Eu-154	Sorbed on waste solids.	Probably oxides.	T 3.80000000000000	CI	1994	2003	Y	N			
Eu-155	Sorbed on waste solids.	Probably oxides.	T 2.50000000000000	CI	1994	2003	Y	N			
H-3	Sorbed on waste solids.	Probably oxides.	T .250000000000000	CI	1994	2003	Y	N	-50%	+50%	Professional judgment.
Co-60	Sorbed on waste solids.	Probably oxides.	T .250000000000000	CI	1994	2003	Y	N			
Sr-90	Sorbed on waste solids.	Probably oxides.	T 389.100000000000	CI	1994	2003	Y	N			
Y-90	Sorbed on waste solids.	Probably oxides.	T 389.100000000000	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)

These estimates are based on existing or planned future programs of the ICPP which could be changed significantly at some future date. Waste was listed as being produced each year during the time period 1994-2003.

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
Ru-106	Sorbed on waste solids.	Probably oxides.	T 2.50000000000000	CI	1994	2003	Y	N			
Rh-106	Sorbed on waste solids.	Probably oxides.	T 2.50000000000000	CI	1994	2003	Y	N			
Sb-125	Sorbed on waste solids.	Probably oxides.	T 3.23000000000000	CI	1994	2003	Y	N			
I-129	Sorbed on waste solids.	Probably oxides.	T .040000000000000	CI	1994	2003	Y	N	-50%	+50%	Professional judgment.
Cs-134	Sorbed on waste solids.	Probably oxides.	T 17.6000000000000	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)

These estimates are based on existing or planned future programs of the ICPP which could be changed significantly at some future date. Waste was listed as being produced each year during the time period 1994-2003.

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:
The projects that will produce the waste
are tentative and could change in the
future.

2. Details concerning source (names, report no., dates, etc.)
Values obtained from Radioactive Waste Forecast (RLS-018-93)
prepared by J.R. Hitz and approved by R.L. Skinner,
11/15/93. Conversation with J.P. Hitz, a WINCO employee.

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 projects existing, or planned for the
future, are valid.

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION RDT - 254

1. Preparer: Rhodes, Donald W.
2. Date prepared: 07/01/94
3. Generator: D+D
(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:
1R
6. Waste stream:
Includes waste produced by the Decontamination and
Decommissioning organization at 11 different
locations as shown below in 10.

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 952.0000 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):
4. Includes waste produced at MTR-605, ARA, ARV, BRX, CFA, CTF, HTR, IET, MTR, PER, and SPT.

1. General physical form (see attached list) Other scrap metals.
[] other (specify)
2. Details on physical form (particularly confinement related)
The total curie content was low (~4 Ci), so no special
effort was made to reduce leachability. The waste was
generally piping, valves, evaporators, pumps, concrete,
electrical fixtures, rags, paper, HEPA filters, mop heads,
soil, anti-c clothing and fence materials.
3. Chemical form:
Metal (stainless and carbon steel),
cellulose (paper & wood), cast iron,
aluminosilicates (soil), and copper wire.
4. Inner packaging: ☒ plastic bag ☐ plastic liner
☐ metal liner ☐ none ☒ other (specify)
See 7 below.
5. Waste container type (see attached list) Wooden box.
6. Other characteristics of interest:
7. Comments (specify number of pertinent question):
1. Also 41, 43, 47, 11, and 44.
3. The copper was in the form of electrical cable connected to heaters.
4. Some of the material was placed in plastic bags and sometimes the boxes were lined with plastic.
5. Also O, Pb3, and Rd5.

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
1332-21-4 Asbestos	Insulation.	Magnesium silicate.	T 75000.000000000	GM	1984	1993	N			
7440-38-2 Arsenic	Sludge.	Hydrous oxide.	T .500000000000000	GM	1992	1992	N	-50%	+50%	Professional estimate. See continuation page.
7440-43-9 Cadmium	Sludge.	Hydrous oxide.	T .030000000000000	GM	1992	1992	N	-50%	+50%	Professional estimate. See continuation page.
7440-47-3 Chromium	Sludge.	Hydrous oxide.	T 29.0000000000000	GM	1992	1992	N	-50%	+50%	Professional estimate. See continuation page.
7439-97-6 Mercury	Sludge.	Hydrous oxide.	T 2.00000000000000	GM	1992	1992	N	-50%	+50%	Professional estimate. See continuation page.
7440-50-8 Copper	Electrical cable.	Metal.	T 22680.000000000	GM	1992	1992		-50%	+100%	Professional estimate. See comment below.
7439-92-1 Lead	Sludge.	Hydrous oxide.	T 4.00000000000000	GM	1992	1992	N	-50%	+50%	Professional estimate. 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)

Asbestos was disposed of from 3 facilities. One facility reported a total volume of waste of 1024 ft³ of which 35 ft³ (.3%) was reported to be asbestos. The same percentage was assumed to apply to the other two facilities to make a total volume of 64 ft³ asbestos. This volume was converted to grams by, 67 ft³ X 16 lb/ft³ X 0.15 asbestos X 464 g/lb = 7.5E+04 g. The remainder is magnesia and magnesium carbonate. For information on other chemicals, see last page. Copper is assumed to be no more than 100 lbs. (45,360 g).

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	Contained in SS metal.	Metal.	T 1.70000000000000	CI	1984	1993	N			
Cs-137	Sorbed on metal.	Oxide.	T 1.70000000000000	CI	1984	1993	N			
Sr-90	Sorbed on metal.	Oxide.	T .00560000000000	CI	1984	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)

MAP and MFP values were converted to Co-60 and Cs-137 respectively. This radioactivity was associated with D+D of MTR-605. The Sr-90 value was provided by H.K. Peterson, which value he obtained from log books for the IET.

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:

- (a) The actual amount of asbestos insulation was not known.
(b) The chemical form of the hazardous chemicals in the sludge was not known.

2. Details concerning source (names, report no., dates, etc.)
RWMIS printout 1984-93. Nineteen published D+D Reports listed in #8 Continuation Part. Input from H.K. Peterson.

4. If other than best estimate, explain why:

6. If yes, explain why:

8. Key assumptions used to deal with the unknowns:

- (a) One facility reported the amount of asbestos and the amount of total waste. This ratio was assumed to apply to the other two facilities that reported asbestos.
(b) The chemicals were assumed to be hydrous oxide which would have low solubility and thus could be present as solids.

Continuation of Part C _____ Column or Question Number or Title Information in table

The chemicals listed were contained in sludge from the Waste Holdup Tank at SPERT-IV. The chemical form is not known, but it was assumed that the chemicals were present as hydrous oxides, which would have low solubility, thus the chemicals could be present as solids. The sludge was solidified with Portland cement before disposal to meet the "non-leachable" requirement. Therefore, at disposal, the chemicals may have been in the form of silicates. The concentrations of these chemicals were determined by a chemical analysis. However, the homogeneity of the sludge, the number of samples taken, and the uncertainty of the analysis is not known. A variation of +/- 50% was assumed.

E 2. Moser, C.L., 1986; Final Report - Decontamination and Decommissioning of RALA Off-Gas and Storage Tank, WINCO-1036, Feb. 1986; Schoonen, D.H., 1984; Reactor Vessel Decommissioning Project Final Report, EGG-2298, Sept. 1984; Kaiser, L.L., 1984; Decontamination and Decommissioning MTR-657 Plug Storage Facility, EGG-2286, Jan. 1984; Suckel, R.A., Final Report-Decontamination and Decommissioning of the SPERT-I Seepage Pit at the INEL, EGG-2291, Nov. 1984; Smith, D.L., 1984; Decontamination and Decommissioning of the TAN/TSF-3 Concrete Pad, EGG-2292, April 1984; Smith, D.L., 1985; Decontamination and Decommissioning of the BORAX-V Leach Pond, EGG-2300, Jan. 1985; Smith, D.L. and Scott, J.G., 1984; Final Report - Decontamination and Decommissioning of CPP-601 Process Cells "A,B,C,D, and L", EGG-2304, Sept. 1984; Bradford, J.D., 1984; Final Report - Decommissioning of the SPERT-III Large Leach Pond at the INEL, EGG-2306, EGG-2275, April 1984; Smith, D.L., 1985; Final Report-Decontamination and Decommissioning of the MTR-603 HB-2 Cubicle EGG-2431, Dec. 1985; Stoll, F.E., 1987; Final Report-Decontamination and Decommissioning of the Initial Engine Test Facility and the IET Two-Inch Hot Waste Line. EGG-2468, April 1987; Browder, Lofthouse and Willis, E.L., 1985; Decommissioning of the MTR-605 Process Water Building at the INEL, EGG-2361, Jan. 1985; McCusker, T.K., 1989; Final Report-Decontamination and Decommissioning of Heat Transfer Reactor Experiment Test Assemblies HTRE-2 and HTRE-3, EGG-2575, Sept. 1989; Arave, A.E. and Rodman, G.R., 1992; Final Report of the Decontamination and Decommissioning of the BORAX-V Facility Turbine Building, EGG-2683, Dec. 1992; Evans, T.A. and Perry, E.F., 1993; Final Report of the Remedial Action Taken for the TAN Building 616 Liquid Waste Treatment Facility, EGG-2714, Sept. 1993; Moser, C.L., 1984; Final Report-ICPP-BIF Filter Room Decontamination and Decommissioning, WINCO-1028, Dec. 1984; Moser, C.L., Final Report-CPP-603 Chloride Removal System Decontamination and Decommissioning, WINCO-1124, Feb. 1993; Hansen, C.B., 1993; Final Report for the Decontamination and Decommissioning of the SPERT-IV Waste Holdup Tank Ancillaries, EGG-ER-11000, Sept. 1993; Dolenc, M.R., 1986; Final Report-Decontamination and Decommissioning of the APERT-I Reactor Building at the INEL, EGG-2399, Feb. 1986; Rhoades, W.A., Final Report-Decontamination and Decommissioning of the Auxiliary Reactor Area IV Facility, EGG-2518, March 1988.

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION PDT - 283

1. Preparer: Rhodes, Donald W.2. Date prepared: 07/25/943. Generator: D+D
(area or contractor - use code from attached list)4. Particular facility: ARVFS
(building number - use code from attached list)5. Number of waste stream from this facility:
1P6. Waste stream:
This waste stream consists of the material that will
be produced by the disassembly and disposal of the
ARVFS underground bunker and the NaK (after it is
treated) that is stored in the bunker.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 19959. Waste stream volume:
Amount 1.0000 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):

6. This bunker is an ARMCO multiplate arch building with a concrete floor about 9 ft. below grade.
The entrance is sealed by a semicircular steel plate, which is welded shut. NaK from EBR-I is
currently stored in four containers inside the bunker. When the NaK, which is contaminated with
radionuclides, is treated for disposal, the bunker materials and the treated NaK will be disposed of
at the RWMC.

1. General physical form (see attached list) Concrete, brick, and asphalt.
[] other (specify)
2. Details on physical form (particularly confinement related) Rubble from destruction of the facility.
3. Chemical form: Calcium silicate (concrete), steel (carbon and stainless), Pb metal, aluminosilicate (soil), sodium hydroxide, and potassium hydroxide.
4. Inner packaging: [] plastic bag [X] plastic liner
[] metal liner [] none [] other (specify)
5. Waste container type (see attached list) Round drum conserve.
6. Other characteristics of interest:
7. Comments (specify number of pertinent question):
1. Also 7, 10, and 43.
3. The NaK is to be reacted with water, and the water evaporated to produce sodium and potassium hydroxide solids.

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
Cs-137	Sorbed on waste solids.	Probably oxides.	T 8.90000000000000	CI	1995	1995	Y	N			
Ba-137m	Sorbed on waste solids.	Probably oxides.	T 8.50000000000000	CI	1995	1995	Y	N			
Sr-90	Sorbed on waste solids.	Probably oxides.	T 1.20000000000000	CI	1995	1995	Y	N			
Y-90	Sorbed on waste solids.	Probably oxides.	T 1.20000000000000	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)
The radionuclides are essentially all in the NaK.

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:

Unclear whether the radionuclide
contaminants were associated with the
structure or contained in the NaK, and
whether or not the NaK would be disposed of
at the RWMC.

2. Details concerning source (names, report no., dates, etc.)
Solid Radioactive Waste Forecast, A.L. Luptak, 11/15/93.
Report, Final RCRA Interim Status Waste Analysis Plan for
ARVFS NaK Storage Facility, June 26, 1990. Conversation
with A.L. Luptak.

4. If other than best estimate, explain why:

6. If yes, explain why:

8. Key assumptions used to deal with the unknowns:

Verified, that most of the radionuclides are contained in
the NaK and that both the treated NaK and the construction
materials will be disposed of at the RWMC, in a conversation
with A.L. Luptak.

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION PDT - 293

1. Preparer: Amaro, C.2. Date prepared: 07/18/943. Generator: D+D
(area or contractor - use code from attached list)4. Particular facility: TRA603
(building number - use code from attached list)5. Number of waste stream from this facility:
1P6. Waste stream:
Construction material, such as soil, concrete and
rubble.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 7979.0000 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):

4. Also 604, 605, 610, 611, 657, 626, 630, 635, 706, 710, 711, 712, 730, 607, 612, 636, 641, 651,
758, 885, 642, 643, 644, 645, 647, 648, 654, 663, 752, 655, and 753.

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

[X] other (specify)

Soil, concrete and rubble.

3. Chemical form:

Unknown.

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

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

5. Waste container type (see attached list)

Bale.

6. Other characteristics of interest:

7. Comments (specify number of pertinent question):

5. Also probably 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
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
H-3	Unknown.	Unknown.	T 5.8860000000000	CI	1994	2003	N	N			
C-14	Unknown.	Unknown.	T 1.0320000000000	CI	1994	2003	N	N			
Co-60	Unknown.	Unknown.	T 47.7800000000000	CI	1994	2003	N	N			
Ni-63	Unknown.	Unknown.	T 35.5500000000000	CI	1994	2003	N	N			
Sr-90	Unknown.	Unknown.	T .286700000000000	CI	1994	2003	N	N			
Tc-99	Unknown.	Unknown.	T .022170000000000	CI	1994	2003	N	N			
I-129	Unknown.	Unknown.	T .009556000000000	CI	1994	2003	N	N			
Cs-137	Unknown.	Unknown.	T 17.2000000000000	CI	1994	2003	N	N			
Ce-144	Unknown.	Unknown.	T 5.5420000000000	CI	1994	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	Forecast	Samples?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Pu-238	Unknown.	Unknown.	T .006689000000000	CI	1994	2003	N	N			
Pu-239	Unknown.	Unknown.	T .006996000000000	CI	1994	2003	N	N			
Pu-241	Unknown.	Unknown.	T 1.0320000000000	CI	1994	2003	N	N			
Am-241	Unknown.	Unknown.	T .003417000000000	CI	1994	2003	N	N			
Cm-242	Unknown.	Unknown.	T .007415000000000	CI	1994	2003	N	N			
Cm-244	Unknown.	Unknown.	T .003325000000000	CI	1994	2003	N	N			
Eu-152	Unknown.	Unknown.	T .000058980000000	CI	1994	2003	N	N			
Eu-154	Unknown.	Unknown.	T .000205900000000	CI	1994	2003	N	N			
Eu-155	Unknown.	Unknown.	T .814900000000000	CI	1994	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
Nb-94	Unknown.	Unknown.	T .00014700000000	CI	1994	2003	N	N			
Ni-59	Unknown.	Unknown.	T .04043000000000	CI	1994	2003	N	N			
Np-237	Unknown.	Unknown.	T .00010620000000	CI	1994	2003	N	N			
Pu-240	Unknown.	Unknown.	T .00116300000000	CI	1994	2003	N	N			
Sb-125	Unknown.	Unknown.	T .95340000000000	CI	1994	2003	N	N			
U-234	Unknown.	Unknown.	T .00017300000000	CI	1994	2003	N	N			
U-235	Unknown.	Unknown.	T .00000386700000	CI	1994	2003	N	N			
U-236	Unknown.	Unknown.	T .00006904000000	CI	1994	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) was
unknown.

2. Details concerning source (names, report no., dates, etc.)
"INEL D+D Long-Range Plan", EGG-WM-10924, October 1993 was
used.

4. If other than best estimate, explain why:

6. If yes, explain why:

8. Key assumptions used to deal with the unknowns:

U-B-G was determined by EPRI-NP-5077 for PWRs dry waste.
The PWR was chosen because it is similar to the reactor at
TRA. The radionuclides chosen were based on a combination
of the following: cross section, half-lives, and fission
product. The Ci content was determined by averaging the
present data (1984-1993) to determine Ci/m3, then
multiplying it by the m3 reported in EGG-WM-10924.

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION PDT - 294

1. Preparer: Amaro, C.
2. Date prepared: 07/11/94
3. Generator: D+D
(area or contractor - use code from attached list)
4. Particular facility: TRA603
(building number - use code from attached list)
5. Number of waste stream from this facility:
2P
6. Waste stream:
Metal, such as aluminum, stainless steel, etc.
7. Type of radioactive waste (check box):
☐ TRU or suspect TRU
☒ LLW
☐ non-radioactive
8. Actual years disposed of at SDA:
Starting year 1994 Ending year 2003
9. Waste stream volume:
Amount 2427.0000 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):
4. Also 604, 605, 610, 611, 657, 626, 630, 635, 706, 710, 711, 712, 730, 607, 612, 636, 641, 651,
758, 885, 642, 643, 644, 645, 647, 648, 654, 663, 752, 655, and 753.

<p>1. General physical form (see attached list)
<u>Other scrap metals.</u>
<u>[] other (specify)</u></p> <hr/> <p>3. Chemical form:
<u>Unknown.</u></p> <hr/> <p>5. Waste container type (see attached list)
<u>Insert.</u></p> <hr/> <p>7. Comments (specify number of pertinent question):
<u>5. Probably also PB3, BXM, BXW, RD5, BLX, BLM and O.</u></p> <hr/> | <p>2. Details on physical form(particularly confinement related)
<u>Metal, such as piping, rods, and various other forms, made</u>
<u>from aluminum and stainless steel, etc.</u></p> <hr/> <p>4. Inner packaging: [] plastic bag [X] plastic liner
[] metal liner [] none [] other (specify)</p> <hr/> <p>6. Other characteristics of interest:</p> <hr/> |
|---|--|

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
H-3	Metallic.	Unknown.	T 38.150000000000	CI	1994	2003	N	N			
C-14	Metallic.	Unknown.	T 6.688000000000	CI	1994	2003	N	N			
Co-60	Metallic.	Unknown.	T 309.600000000000	CI	1994	2003	N	N			
Ni-63	Metallic.	Unknown.	T 230.400000000000	CI	1994	2003	N	N			
Sr-90	Metallic.	Unknown.	T 1.858000000000	CI	1994	2003	N	N			
Tc-99	Metallic.	Unknown.	T .14370000000000	CI	1994	2003	N	N			
I-129	Metallic.	Unknown.	T .06194000000000	CI	1994	2003	N	N			
Cs-137	Metallic.	Unknown.	T 111.400000000000	CI	1994	2003	N	N			
Ce-144	Metallic.	Unknown.	T 35.920000000000	CI	1994	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-238	Metallic.	Unknown.	T .04335000000000	CI	1994	2003	N	N			
Pu-239	Metallic.	Unknown.	T .04534000000000	CI	1994	2003	N	N			
Pu-241	Metallic.	Unknown.	T 6.68800000000000	CI	1994	2003	N	N			
Am-241	Metallic.	Unknown.	T .02215000000000	CI	1994	2003	N	N			
Cm-242	Metallic.	Unknown.	T .04806000000000	CI	1994	2003	N	N			
Cm-244	Metallic.	Unknown.	T .02155000000000	CI	1994	2003	N	N			
Eu-152	Metallic.	Unknown.	T .00038220000000	CI	1994	2003	N	N			
Eu-154	Metallic.	Unknown.	T .00133400000000	CI	1994	2003	N	N			
Eu-155	Metallic.	Unknown.	T 5.28200000000000	CI	1994	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
Nb-94	Metallic.	Unknown.	T .00095260000000	CI	1994	2003	N	N			
Ni-59	Metallic.	Unknown.	T .26210000000000	CI	1994	2003	N	N			
Np-237	Metallic.	Unknown.	T .00068830000000	CI	1994	2003	N	N			
Pu-240	Metallic.	Unknown.	T .00753800000000	CI	1994	2003	N	N			
Sb-125	Metallic.	Unknown.	T 6.1790000000000	CI	1994	2003	N	N			
U-234	Metallic.	Unknown.	T .00112100000000	CI	1994	2003	N	N			
U-235	Metallic.	Unknown.	T .00002506000000	CI	1994	2003	N	N			
U-236	Metallic.	Unknown.	T .00044740000000	CI	1994	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) was
unknown. The Ci content was unknown.

2. Details concerning source (names, report no., dates, etc.)
"INEL D+D Long-Range Plan" EGG-WM-10924, October 1993, was
used.

4. If other than best estimate, explain why:

6. If yes, explain why:

8. Key assumptions used to deal with the unknowns:
U-B-G was identified from EPR1 NP-5077 for dry active waste
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 product. The average Ci/m3 was determined over
1984-1993 (present date) then the m3 from EGG-W-10924 was
multiplied to determine the Ci content.

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION PDT - 295

1. Preparer: Amaro, C.
2. Date prepared: 07/18/94
3. Generator: D+D
(area or contractor - use code from attached list)
4. Particular facility: TRA603
(building number - use code from attached list)
5. Number of waste stream from this facility:
3P
6. Waste stream:
Non-compactible waste, such as glass and metal.

7. Type of radioactive waste (check box):
☐ TRU or suspect TRU
☒ LLW
☐ non-radioactive
8. Actual years disposed of at SDA:
Starting year 1994 Ending year 2003
9. Waste stream volume:
Amount 54.5000 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, 605, 610, 611, 657, 626, 630, 635, 706, 710, 711, 712, 730, 607, 612, 636, 641, 651,
758, 885, 642, 643, 644, 645, 647, 648, 654, 663, 752, 655, and 753.

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

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
H-3	Unknown.	Unknown.	T .15020000000000	CI	1994	2003	N	N			
C-14	Unknown.	Unknown.	T .02633000000000	CI	1994	2003	N	N			
Co-60	Unknown.	Unknown.	T 1.21900000000000	CI	1994	2003	N	N			
Ni-63	Unknown.	Unknown.	T .90720000000000	CI	1994	2003	N	N			
Sr-90	Unknown.	Unknown.	T .00731700000000	CI	1994	2003	N	N			
Tc-99	Unknown.	Unknown.	T .00056560000000	CI	1994	2003	N	N			
I-129	Unknown.	Unknown.	T .00024380000000	CI	1994	2003	N	N			
Cs-137	Unknown.	Unknown.	T .43880000000000	CI	1994	2003	N	N			
Ce-144	Unknown.	Unknown.	T .14140000000000	CI	1994	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-238	Unknown.	Unknown.	T .00017070000000	CI	1994	2003	N	N			
Pu-239	Unknown.	Unknown.	T .00017850000000	CI	1994	2003	N	N			
Pu-241	Unknown.	Unknown.	T .02633000000000	CI	1994	2003	N	N			
Am-241	Unknown.	Unknown.	T .00008719000000	CI	1994	2003	N	N			
Cm-242	Unknown.	Unknown.	T .00018920000000	CI	1994	2003	N	N			
Cm-244	Unknown.	Unknown.	T .00008485000000	CI	1994	2003	N	N			
Eu-152	Unknown.	Unknown.	T .00000150500000	CI	1994	2003	N	N			
Eu-154	Unknown.	Unknown.	T .00000525300000	CI	1994	2003	N	N			
Eu-155	Unknown.	Unknown.	T .02079000000000	CI	1994	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
Nb-94	Unknown.	Unknown.	T .00000375000000	CI	1994	2003	N	N			
Ni-59	Unknown.	Unknown.	T .00103200000000	CI	1994	2003	N	N			
Np-237	Unknown.	Unknown.	T .00000271000000	CI	1994	2003	N	N			
Pu-240	Unknown.	Unknown.	T .00002968000000	CI	1994	2003	N	N			
Sb-125	Unknown.	Unknown.	T .02433000000000	CI	1994	2003	N	N			
U-234	Unknown.	Unknown.	T .00000441400000	CI	1994	2003	N	N			
U-235	Unknown.	Unknown.	T .00000009870000	CI	1994	2003	N	N			
U-236	Unknown.	Unknown.	T .00000176200000	CI	1994	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) was unknown. The Ci content was unknown.

2. Details concerning source (names, report no., dates, etc.)
"INEL D+D Long-Range Plan," EG&G-WM-10924, October 1993 was used.

4. If other than best estimate, explain why:

6. If yes, explain why:

8. Key assumptions used to deal with the unknowns:

U-B-G was determined from EPR1 NP-5077 for dry active waste from PWRs. PWR was chosen because it is similar to TRA's reactor. The radionuclides chosen were based on a combination of the following: cross section, half lives, and fission product. The future waste was to determine Ci/m³ then this was multiplied by the m³. The m³ was determined from EG&G-WM-10924.

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION PDT - 291

1. Preparer: Rhodes, Donald W.2. Date prepared: 08/02/943. Generator: ERP
(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:
This waste is primarily soil, sludge or debris
resulting from the remediation of contaminated
sites.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 19999. Waste stream volume:
Amount 255.2000 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 waste represents waste produced by EG&G ER units and also by MK Ferguson Co.

<p>1. General physical form (see attached list) Soil.
[] other (specify)

_____</p> <p>3. Chemical form:
Aluminosilicates (soil), cellulose (paper, wood), and plastic.
_____</p> <p>5. Waste container type (see attached list) Wooden box.
_____</p> <p>7. Comments (specify number of pertinent question):
1. Also 11 and 21.
5. Also BLM, RDC, and PB3.
_____</p> | <p>2. Details on physical form (particularly confinement related) Waste will be placed in plastic lined containers for transport to the RWMC.

_____</p> <p>4. Inner packaging: [] plastic bag [X] plastic liner
[] metal liner [] none [] other (specify)
_____</p> <p>6. Other characteristics of interest:
_____</p> |
|---|--|

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 .60000000000000	CI	1994	1999	Y	N			
Cs-137	Sorbed on waste solids.	Probably oxides.	T .09000000000000	CI	1994	1999	Y	N			
Ag-108	Sorbed on waste solids.	Probably oxides.	T 1.30000000000000	CI	1994	1999	Y	N			
U-238	Sorbed on waste solids.	Probably oxides.	T .05000000000000	CI	1994	1999	Y	N	-50%	+50%	Professional judgment.
U-234	Sorbed on waste solids.	Probably oxides.	T .08000000000000	CI	1994	1999	Y	N	-50%	+50%	Professional judgment.
Pu-239	Sorbed on waste solids.	Probably oxides.	T .00030000000000	CI	1994	1999	Y	N	-50%	+50%	Professional judgment.
Pu-240	Sorbed on waste solids.	Probably oxides.	T .00030000000000	CI	1994	1999	Y	N	-50%	+50%	Professional judgment.
Am-241	Sorbed on waste solids.	Probably oxides.	T .00400000000000	CI	1994	1999	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)

Additional curies will be present but the amounts are listed as "unknown" in the waste forecast. However, the amounts are expected to be very low, probably in the picocurie range.

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:
Uncertain whether the forecasts prepared in
Nov. 1993 were still valid.

2. Details concerning source (names, report no., dates, etc.)
Solid Radioactive Waste Forecast submitted Nov. 5, 1993 and
prepared by J.J. Ellison, C.M. Hiaring of EG&G, and W.
Malone of MK-FIC ERP. Also discussions with C.M. Hiaring
and T.J. Meyer.

4. If other than best estimate, explain why:

6. If yes, explain why:

8. Key assumptions used to deal with the unknowns:
Discussions with C.M. Hiaring and T.J. Meyer revealed that
several changes had occurred due to findings that have been
made since the report was prepared. Appropriate corrections
were made.

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION RDT - 285

1. Preparer: M.E.HUTCHISON2. Date prepared: 07/07/943. Generator: NRF
(area or contractor - use code from attached list)4. Particular facility: 617
(building number - use code from attached list)5. Number of waste stream from this facility:
1R6. Waste stream:
Low level compactible and non-compactible waste
resulting from operation of the prototype reactors
and related activities.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 20662.0000 Units Cubic feet.
Check box: ☐ annual or ☒ total over all years
Check box: ☒ container volume or ☐ waste volume

10. Comments (specify number of pertinent question):

4. Also includes NRF-601, 630, 631, 633, 636, 616, and 619.

<p>1. General physical form (see attached list)
<u>Combustibles (paper, cloth, wood, etc.)</u>
<u>[X] other (specify)</u>
<u>10.</u></p> <hr/> <p>3. Chemical form:
<u>Activated corrosion and wear products.</u></p> <hr/> <p>5. Waste container type (see attached list)
<u>Wooden box.</u></p> <hr/> <p>7. Comments (specify number of pertinent question):
<u>5. Also BXC and BXM.</u></p> <hr/> | <p>2. Details on physical form (particularly confinement related)
<u>Most of this material would be in particulate form with the</u>
<u>majority being mobile. Some larger objects, such as valves,</u>
<u>pipes, etc., would have fixed contamination.</u></p> <hr/> <p>4. Inner packaging: ☐ plastic bag ☒ plastic liner
☐ metal liner ☐ none ☐ other (specify)</p> <hr/> <p>6. Other characteristics of interest:
<u>None.</u></p> <hr/> |
|--|---|

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	Particulate.	Oxide.	T 2.81300000000000	CI	1984	1993	N			
Fe-55	Particulate.	Oxide.	T .633000000000000	CI	1984	1993	N			
Ni-63	Particulate.	Oxide.	T .049200000000000	CI	1984	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)

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

- ☒ RWMIS ☒ other database
☐ sample analysis data
☒ operating records ☐ interview
☐ expert judgment ☒ reports
☒ other
NRFEM-RR-1122.

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:

2. Details concerning source (names, report no., dates, etc.)
Letter NRFEM-RR-1122, from R.W. Nieslanik (NRF) to T.H.
Smith (EG&G), contained information on the radionuclide
distributions in various waste streams. The distribution
used here was the same distribution used in the historical
(1952-1983) phase of this work. Shipping records from 1984
through 1993 were compared to the RWMIS database and no
discrepancies were noted. An internal NRF database was also
used to verify data. Historically, the quarterly RWMIS
report was verified each quarter by comparison to actual
shipping records.

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 RDT - 286

1. Preparer: M.E.HUTCHISON2. Date prepared: 07/07/943. Generator: NRF
(area or contractor - use code from attached list)4. Particular facility: 617
(building number - use code from attached list)5. Number of waste stream from this facility:
2R6. Waste stream:
Lead and asbestos.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 532.0000 Units Cubic feet.
Check box: ☐ annual or ☒ total over all years
Check box: ☐ container volume or ☒ waste volume

10. Comments (specify number of pertinent question):

4. Also includes NRF-601, 630, 631, 633, 636, 616, 618, and 619.

<p>1. General physical form (see attached list)
<u>Lead.</u>
<u>[X] other (specify)</u>
<u>47.</u></p> <hr/> <p>3. Chemical form:
<u>Lead - metal; asbestos - fiber.</u></p> <hr/> <p>5. Waste container type (see attached list)
<u>Wooden box.</u></p> <hr/> <p>7. Comments (specify number of pertinent question):
<u>5. Also metal drum.</u></p> <hr/> | <p>2. Details on physical form(particularly confinement related)
<u>Asbestos was loose, friable thermal insulation removed from</u>
<u>piping. Lead was radioactively contaminated shielding.</u></p> <hr/> <p>4. Inner packaging: [X] plastic bag [] plastic liner
[] metal liner [] none [] other (specify)</p> <hr/> <p>6. Other characteristics of interest:
<u>None.</u></p> <hr/> |
|--|---|

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
7439-92-1 Lead	Solid metal.	Metal.	T 643000.00000000	GM	1984	1987	N	-10%	+10%	Professional judgment.
1332-21-4 Asbestos	Fiber.	Fiber.	T 577000.00000000	GM	1984	1993	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)

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	Particulate.	Oxide.	T .27690000000000	CI	1984	1993	N			
Fe-55	Particulate.	Oxide.	T .06230000000000	CI	1984	1993	N			
Ni-63	Particulate.	Oxide.	T .00480000000000	CI	1984	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)

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:

Quantities of contaminants were not recorded anywhere. Estimates were made of the likely content of the shipments.

2. Details concerning source (names, report no., dates, etc.)
This information was obtained from shipping records. These records indicated that one drum contained lead shielding and some wooden boxes contained asbestos insulation removed from piping.

4. If other than best estimate, explain why:

6. If yes, explain why:

8. Key assumptions used to deal with the unknowns:

Lead: One drum was shipped to RWMC for burial with lead shielding in the drum. The drum was listed as 8 ft³ and the lead content was estimated at 25% of that volume, or 2 ft³ +/- 10%. Density of lead was taken from the Radiological Health Handbook at 11.25gm/cm³.

Asbestos: Some 4x4x8 wooden boxes were noted in the records to contain some asbestos. The asbestos content was estimated to be 25% of the volume, or 530 ft³ +/- 50%. Asbestos density was assumed to be 16lb/ft³ (taken from Table D-1, Appendix D, EGG-WM-10903, June 1994.)

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION RDT - 287

1. Preparer: M.E.HUTCHISON

3. Generator: NRF
(area or contractor - use code from attached list)

5. Number of waste stream from this facility:
4R

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 1988

10. Comments (specify number of pertinent question):

2. Date prepared: 07/07/94

4. Particular facility: 618
(building number - use code from attached list)

6. Waste stream:
Structural components removed from Navy nuclear fuel
modules (end boxes, etc.) 1984-1988.

9. Waste stream volume:
Amount 14207.0000 Units Cubic feet.
Check box: ☐ annual or ☒ total over all years
Check box: ☒ container volume or ☐ waste volume

<p>1. General physical form (see attached list)
<u>Other core, reactor vessel, loop component</u>
<u>[X] other (specify)</u>
<u>Irradiated structural components.</u></p> <p>3. Chemical form:
<u>Metal alloys.</u></p> <p>5. Waste container type (see attached list)
<u>Insert.</u></p> <p>7. Comments (specify number of pertinent question):
<u>4. This material, scrap metal cut from Navy fuel bundles, was loaded into a shipping cask insert in</u>
<u>the ECF water pits. The insert was then loaded into the shipping cask for transport to the RWMC</u>
<u>where the insert was removed from the shipping cask and buried.</u></p> | <p>2. Details on physical form (particularly confinement related)
<u>Solid metal parts activated by neutrons in the core. The</u>
<u>majority of the activity is immobile.</u></p> <p>4. Inner packaging: ☐ plastic bag ☐ plastic liner
☒ metal liner ☐ none ☒ other (specify)
<u>See 7 below.</u></p> <p>6. Other characteristics of interest:
<u>None.</u></p> |
|---|---|

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
Ni-63	Solid metal.	Metal alloys.	T 283770.00000000	CI	1984	1988	N	-30%	+10%	Physics calculations.
Co-60	Solid metal.	Metal alloys.	T 185319.00000000	CI	1984	1988	N	-30%	+10%	Physics calculations.
Fe-55	Solid metal.	Metal alloys.	T 92660.00000000	CI	1984	1988	N	-30%	+10%	Physics calculations.
Co-58	Solid metal.	Metal alloys.	T 17374.00000000	CI	1984	1988	N	-30%	+10%	Physics calculations.

* 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 distribution was taken from NRFE-E-1448, dated February 27, 1989.

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

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

NRFE-E-1448, February 27, 1989.

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:

2. Details concerning source (names, report no., dates, etc.)
Letter NRFE-E-1448, from J.A. Bartolomucci to J.N. Davis,
summarized the estimated curie content of the waste from
this waste stream based on operational records and
calculations of neutron activation. Additionally,
Bartolomucci reported only those radionuclides that were
relatively long-lived and that contributed more than 1% of
the total activity. This method of calculating activities
based on structural materials and core power history has
continued to be used, with refinements. The data available
since 1988 are more detailed. Data sheet NRF-618-8R
contains a longer list of radionuclides because the data
were available and a decision was made to include all those
radionuclides amounting to more than one curie, regardless
of their half-lives.

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 RDT - 288

1. Preparer: M.E.HUTCHISON
2. Date prepared: 07/07/94
3. Generator: NRF
(area or contractor - use code from attached list)
4. Particular facility: 618
(building number - use code from attached list)
5. Number of waste stream from this facility:
6R
6. Waste stream:
Solidified sludge, resin, waste liquids in
vermiculite, and RWDS modules.
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 8280.0000 Units Cubic feet.
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) _____
Sludge.
[X] other (specify) _____
12, 13, 14. _____
2. Details on physical form (particularly confinement related)
The sludges were contained in metal tanks, drums, and
concrete vaults. _____
3. Chemical form: _____
Unknown. _____
4. Inner packaging: [] plastic bag [] plastic liner
[] metal liner [X] none [] other (specify) _____
5. Waste container type (see attached list) _____
Metal barrel. _____
6. Other characteristics of interest:
None. _____
7. Comments (specify number of pertinent question):
5. Also tanks and concrete vaults. _____

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
Fe-55	Sludge matrix.	Oxide.	T 296.970000000000	CI	1984	1993	N			
Co-60	Sludge matrix.	Oxide.	T 123.820000000000	CI	1984	1993	N			
Ni-63	Sludge matrix.	Oxide.	T 21.540000000000	CI	1984	1993	N			
Co-58	Sludge matrix.	Oxide.	T 17.970000000000	CI	1984	1993	N			
Mn-54	Sludge matrix.	Oxide.	T 7.050000000000	CI	1984	1993	N			
Cs-137	Sludge matrix.	Oxide.	T 1.980000000000	CI	1984	1993	N			
Ba-137m	Sludge matrix.	Oxide.	T 1.170000000000	CI	1984	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)

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

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

NRFEM-ER 1223, July 11, 1994.

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:

2. Details concerning source (names, report no., dates, etc.)
The total curie estimate was obtained from shipping records,
NRF internal data base, RWMIS, and calculations in Technical
Work Records (TWRs). Radionuclide distribution was taken
from the same sources. Compiled in NRFEM-ER-1223, July 11,
1994.

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 RDT - 289

1. Preparer: M.E.HUTCHISON
3. Generator: NRF
(area or contractor - use code from attached list)

5. Number of waste stream from this facility:
7R

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

10. Comments (specify number of pertinent question):

2. Date prepared: 07/07/94
4. Particular facility: 618
(building number - use code from attached list)

6. Waste stream:
Low level compactible and non-compactible waste
resulting from work at the ECF water pits and hot
cells.

9. Waste stream volume:
Amount 33131.0000 Units Cubic feet.
Check box: ☐ annual or ☒ total over all years
Check box: ☒ container volume or ☐ waste volume

1. General physical form (see attached list) 2. Details on physical form (particularly confinement related)
Combustibles (paper, cloth, wood, etc.) Most of this material would be in particulate form with the
[X] other (specify) majority being mobile.
6, 10, 41, 42, 43.

3. Chemical form:
Activated corrosion and wear products.

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:
None.

7. Comments (specify number of pertinent question):

5. Also BXC, BXM, and CC.

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	Particulate.	Oxide.	T 19.1033000000000	CI	1984	1993	N			
Fe-55	Particulate.	Oxide.	T 9.55160000000000	CI	1984	1993	N			
Ni-63	Particulate.	Oxide.	T 3.18390000000000	CI	1984	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)

Radionuclide distribution was taken from NRFEM-ER-1223, dated July 11, 1994.

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

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

NRFEM-ER-1223, July 11, 1994.

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:

2. Details concerning source (names, report no., dates, etc.)
Letter NRFEM-ER-1223, from R.W. Nieslanik (NRF) to T.H.
Smith (EG&G), contained information on the radionuclide
distributions in various waste streams. Shipping records
from 1984 through 1993 were compared to the RWMIS database
and no discrepancies were noted. An internal NRF database
was also used to verify data. Historically, the quarterly
RWMIS report was verified each quarter by comparison to
actual shipping records.

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 RDT - 290

1. Preparer: M.E.HUTCHISON2. Date prepared: 07/07/943. Generator: NRF
(area or contractor - use code from attached list)4. Particular facility: 618
(building number - use code from attached list)5. Number of waste stream from this facility:
8R6. Waste stream:
Structural components removed from Navy nuclear fuel
modules (end boxes, etc.) 1989-1993.7. Type of radioactive waste (check box):
☐ TRU or suspect TRU
☒ LLW
☐ non-radioactive8. Actual years disposed of at SDA:
Starting year 1989 Ending year 19939. Waste stream volume:
Amount 9024.0000 Units Cubic feet.
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)
Other core, reactor vessel, loop component
[X] other (specify)
Irradiated structural components.
2. Details on physical form (particularly confinement related)
Solid metal parts activated by neutrons in the core. The
majority of the activity is immobile.
3. Chemical form:
Metal alloys.
4. Inner packaging: ☐ plastic bag ☐ plastic liner
☒ metal liner ☐ none ☒ other (specify)
See 7 below.
5. Waste container type (see attached list)
Insert.
6. Other characteristics of interest:
None.
7. Comments (specify number of pertinent question):
4. This material, scrap metal cut from Navy fuel bundles, was loaded into a shipping cask insert in
the ECF water pits. The insert was then loaded into the shipping cask for transport to the RWMC
where the insert was removed from the shipping cask and buried.

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
Ni-63	Solid metal.	Metal alloys.	T 188543.000000000	CI	1989	1993	N	-30%	+10%	Professional judgment.
Co-60	Solid metal.	Metal alloys.	T 94924.000000000	CI	1989	1993	N	-30%	+10%	Professional judgment.
Fe-55	Solid metal.	Metal alloys.	T 58134.000000000	CI	1989	1993	N	-30%	+10%	Professional judgment.
Ta-182	Solid metal.	Metal alloys.	T 18042.000000000	CI	1989	1993	N	-30%	+10%	Professional judgment.
Sn-119m	Solid metal.	Metal alloys.	T 8769.000000000	CI	1989	1993	N	-30%	+10%	Professional judgment.
W-185	Solid metal.	Metal alloys.	T 6384.000000000	CI	1989	1993	N	-30%	+10%	Professional judgment.
Nb-95	Solid metal.	Metal alloys.	T 3614.000000000	CI	1989	1993	N	-30%	+10%	Professional judgment.
Hf-181	solid metal.	Metal alloys.	T 3436.000000000	CI	1989	1993	N	-30%	+10%	Professional judgment.
Co-58	Solid metal.	Metal alloys.	T 3250.000000000	CI	1989	1993	N	-30%	+10%	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)

Radionuclide distribution was taken from NRF curie estimation calculation records.

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
Hf-175	Solid metal.	Metal alloys.	T 2827.0000000000	CI	1989	1993	N	-30%	+10%	Professional judgment.
Sb-125	solid metal.	Metal alloys.	T 2820.0000000000	CI	1989	1993	N	-30%	+10%	Professional judgment.
Zr-95	Solid metal.	Metal alloys.	T 1943.0000000000	CI	1989	1993	N	-30%	+10%	Professional judgment.
Ni-59	Solid metal.	Metal alloys.	T 1356.0000000000	CI	1989	1993	N	-30%	+10%	Professional judgment.
Mn-54	Solid metal.	Metal alloys.	T 296.0000000000	CI	1989	1993	N	-30%	+10%	Professional judgment.
Cr-51	Solid metal.	Metal alloys.	T 267.0000000000	CI	1989	1993	N	-30%	+10%	Professional judgment.
H-3	Solid metal.	Metal alloys.	T 18.0000000000	CI	1989	1993	N	-30%	+10%	Professional judgment.
C-14	Solid metal.	Metal alloys.	T 10.0000000000	CI	1989	1993	N	-30%	+10%	Professional judgment.
Cs-137	Solid metal.	Metal alloys.	T 5.0000000000	CI	1989	1993	N	-30%	+10%	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)

Radionuclide distribution was taken from NRF curie estimation calculation records.

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
Ba-137m	Solid metal.	Metal alloys.	T 4.00000000000000	CI	1989	1993	N	-30%	+10%	Professional judgment.
Sn-113	Solid metal.	Metal alloys.	T 2.00000000000000	CI	1989	1993	N	-30%	+10%	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)

Radionuclide distribution was taken from NRF curie estimation calculation records.

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

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

NRFEM-ER-1223, July 11, 1994.

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:

2. Details concerning source (names, report no., dates, etc.)
Since 1989, NRF has performed quarterly data verification
reviews of the RWMIS database. RWMIS printouts are compared
to shipping records and curie estimate summary sheets. The
RWMIS database was then corrected each quarter to be
consistent with shipping records and curie estimates. The
Bartolomucci letter (NRFE-E-1448, February 27, 1989) gave a
radionuclide breakdown that included only those
radionuclides that were relatively long-lived and which
contributed more than 1% of the total activity. This data
sheet includes all radionuclides which total more than one
curie, regardless of their half-lives. This was done
because the data were available and might be of use to those
using this report.

4. If other than best estimate, explain why:

6. If yes, explain why:

8. Key assumptions used to deal with the unknowns:
The radionuclide distribution assumed for this stream was
taken from NRF curie estimation calculation records.

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION PDT - 322

1. Preparer: Leonard, Patrick
2. Date prepared: 08/11/94
3. Generator: NRF
(area or contractor - use code from attached list)
4. Particular facility: 618
(building number - use code from attached list)
5. Number of waste stream from this facility:
6P
6. Waste stream:
Solidified sludge, resin, waste liquids in
vermiculite, and RWDS modules.
7. Type of radioactive waste (check box):
☐ TRU or suspect TRU
☒ LLW
☐ non-radioactive
8. Actual years disposed of at SDA:
Starting year 1994 Ending year 2003
9. Waste stream volume:
Amount 15044.0000 Units Cubic feet.
Check box: ☐ annual or ☒ total over all years
Check box: ☒ container volume or ☐ waste volume
10. Comments (specify number of pertinent question):

<div>1. General physical form (see attached list) Resin. [X] other (specify) 11, 13, 14.</div>	<div>2. Details on physical form(particularly confinement related) The resins are contained in metal tanks, drums and concrete vaults. Resins are dried before disposal. Sludges are absorbed in vermiculite before disposal.</div>
<div>3. Chemical form: Resins.</div>	<div>4. Inner packaging: [] plastic bag [] plastic liner [] metal liner [X] none [] other (specify)</div>
<div>5. Waste container type (see attached list) Metal barrel.</div>	<div>6. Other characteristics of interest: None.</div>
<div>7. Comments (specify number of pertinent question): 5. Also tanks and concrete vaults.</div>	

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
Fe-55	Sludge matrix.	Oxide.	T 1.78000000000000	CI	1994	2003	Y	N	-20%	+20%	Professional judgment.
Co-60	Sludge matrix.	Oxide.	T 1.03000000000000	CI	1994	2003	Y	N	-20%	+20%	Professional judgment.
Ni-63	Sludge matrix.	Oxide.	T .360000000000000	CI	1994	2003	Y	N	-20%	+20%	Professional judgment.
Co-58	Sludge matrix.	Oxide.	T .080000000000000	CI	1994	2003	Y	N	-20%	+20%	Professional judgment.
Mn-54	Sludge matrix.	Oxide.	T .050000000000000	CI	1994	2003	Y	N	-20%	+20%	Professional judgment.
C-14	Sludge matrix.	Oxide.	T .010000000000000	CI	1994	2003	Y	N	-20%	+20%	Professional judgment.
Tc-99	Sludge matrix.	Oxide.	T .001000000000000	CI	1994	2003	Y	N	-20%	+20%	Professional judgment.
I-129	Sludge matrix.	Oxide.	T .000005000000000	CI	1994	2003	Y	N	-20%	+20%	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)
 Radionuclide distribution and total activity were taken from NRRFC-RCE-2247.

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:

2. Details concerning source (names, report no., dates, etc.)
Letter NRFRC-RCE-2247 by J.L. Charter, "Radioactive Waste
Forecasts-Naval Reactors Facility", November 15, 1993. This
letter contains data on the projected waste anticipated from
NRF for the period of 1994-2003.

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 - 323

1. Preparer: Leonard, Patrick
2. Date prepared: 08/11/94
3. Generator: NRF
(area or contractor - use code from attached list)
4. Particular facility: 618
(building number - use code from attached list)
5. Number of waste stream from this facility:
7P
6. Waste stream:
Low level compactible and noncompactible waste
resulting from work at the S5G prototype and at the
ECF water pits and hot cells.
7. Type of radioactive waste (check box):
☐ TRU or suspect TRU
☒ LLW
☐ non-radioactive
8. Actual years disposed of at SDA:
Starting year 1994 Ending year 2003
9. Waste stream volume:
Amount 22354.0000 Units Cubic feet.
Check box: ☐ annual or ☒ total over all years
Check box: ☒ container volume or ☐ waste volume
10. Comments (specify number of pertinent question):

<p>1. General physical form (see attached list)
<u>HEPA filters.</u>
<u>[X] other (specify)</u>
<u>6, 10, 41, 42, 43.</u></p> <p>3. Chemical form:
<u>Activated corrosion and wear products.</u></p> <p>5. Waste container type (see attached list)
<u>Wooden box.</u></p> | <p>2. Details on physical form (particularly confinement related)
<u>Most of this material would be in particulate form with the</u>
<u>majority being mobile.</u></p> <p>4. Inner packaging: [] plastic bag [X] plastic liner
[] metal liner [] none [] other (specify)</p> <p>6. Other characteristics of interest:
<u>None.</u></p> |
|--|--|
7. Comments (specify number of pertinent question):
5. Also BXC 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	Fore cast	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Co-60	Particulate.	Oxide.	T 1.20000000000000	CI	1994	2003	Y	N	-20%	+20%	Professional judgment.
Fe-55	Particulate.	Oxide.	T .600000000000000	CI	1994	2003	Y	N	-20%	+20%	Professional judgment.
Ni-63	Particulate.	Oxide.	T .200000000000000	CI	1994	2003	Y	N	-20%	+20%	Professional judgment.
Cs-137	Particulate.	Oxide.	T .200000000000000	CI	1994	2003	Y	N	-20%	+20%	Professional judgment.
Ba-137m	Particulate.	Oxide.	T .200000000000000	CI	1994	2003	Y	N	-20%	+20%	Professional judgment.
Mn-54	Particulate.	Oxide.	T .100000000000000	CI	1994	2003	Y	N	-20%	+20%	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)
Radionuclide distribution and total activity were taken from NRFRC-RCE-2247.

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:

2. Details concerning source (names, report no., dates, etc.)
Letter NRFRC-RCE-2247 by J.L. Charter, "Radioactive Waste
Forecasts-Naval Reactor Facility", November 15, 1993. This
letter contains data on the projected waste anticipated from
NRF for the period 1994-2003.

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 - 324

1. Preparer: Leonard, Patrick
2. Date prepared: 08/10/94
3. Generator: NRF
(area or contractor - use code from attached list)
4. Particular facility: 618
(building number - use code from attached list)
5. Number of waste stream from this facility:
8P
6. Waste stream:
Structural components removed from Navy nuclear fuel
modules (end boxes, etc.) 1994-2003.
7. Type of radioactive waste (check box):
☐ TRU or suspect TRU
☒ LLW
☐ non-radioactive
8. Actual years disposed of at SDA:
Starting year 1994 Ending year 2003
9. Waste stream volume:
Amount 14900.0000 Units Cubic feet.
Check box: ☐ annual or ☒ total over all years
Check box: ☒ container volume or ☐ waste volume
10. Comments (specify number of pertinent question):

<p>1. General physical form (see attached list) <u>Irradiated end boxes.</u>
<u>[X] other (specify)</u>
<u>5.</u></p> <p>3. Chemical form:
<u>Metal alloys.</u></p> <p>5. Waste container type (see attached list) <u>Insert.</u></p> <p>7. Comments (specify number of pertinent question):
<u>4. This material, scrap metal cut from Navy fuel bundles, is loaded into a shipping cask insert in the ECF water pits. The insert is then loaded into the shipping cask for transport to the RWMC where the insert is removed from the shipping cask and buried.</u></p> | <p>2. Details on physical form (particularly confinement related) <u>Solid metal parts activated by neutrons in the core. The majority of the activity is immobile.</u></p> <p>4. Inner packaging: ☐ plastic bag ☐ plastic liner
☒ metal liner ☐ none ☒ other (specify)
<u>See 7 below.</u></p> <p>6. Other characteristics of interest:
<u>None.</u></p> |
|--|--|

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
Ni-63	Solid metal.	Metal alloys.	T 186833.000000000	CI	1994	2003	Y	N	-30%	+10%	Physics calculations.
Co-60	Solid metal.	Metal alloys.	T 169092.000000000	CI	1994	2003	Y	N	-30%	+10%	Physics calculations.
Fe-55	Solid metal.	Metal alloys.	T 99238.000000000	CI	1994	2003	Y	N	-30%	+10%	Physics calculations.
Ta-182	Solid metal.	Metal alloys.	T 30492.000000000	CI	1994	2003	Y	N	-30%	+10%	Physics calculations.
Nb-95	Solid metal.	Metal alloys.	T 27166.000000000	CI	1994	2003	Y	N	-30%	+10%	Physics calculations.
Co-58	Solid metal.	Metal alloys.	T 13860.000000000	CI	1994	2003	Y	N	-30%	+10%	Physics calculations.
Zr-95	Solid metal.	Metal alloys.	T 12751.000000000	CI	1994	2003	Y	N	-30%	+10%	Physics calculations.
Cr-51	Solid metal.	Metal alloys.	T 6653.000000000	CI	1994	2003	Y	N	-30%	+10%	Physics calculations.
C-14	Solid metal.	Metal alloys.	T 39.000000000000	CI	1994	2003	Y	N	-30%	+10%	Physics calculations.

* 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 distribution and total activity were taken from NRFRC-RCE-2247.

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	Solid metal.	Metal alloys.	T 11.000000000000	CI	1994	2003	Y	N	-30%	+10%	Physics calculations.
Sr-90	Solid metal.	Metal alloys.	T .60000000000000	CI	1994	2003	Y	N	-30%	+10%	Physics calculations.
Tc-99	Solid metal.	Metal alloys.	T .01000000000000	CI	1994	2003	Y	N	-30%	+10%	Physics calculations.
I-129	Solid metal.	Metal alloys.	T .00000390000000	CI	1994	2003	Y	N	-30%	+10%	Physics calculations.

* 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 distribution and total activity were taken from NRFRC-RCE-2247.

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:

2. Details concerning source (names, report no., dates, etc.)
Letter NRFRC-RCE-2247 by J.L. Charter, "Radioactive Waste
Forecasts-Naval Reactor Facility", November 15, 1993. This
letter contains data on the projected waste anticipated from
NRF for the period of 1994-2003.

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 RDT - 255

1. Preparer: Rhodes, Donald W.2. Date prepared: 02/24/953. Generator: PBF
(area or contractor - use code from attached list)4. Particular facility: 620
(building number - use code from attached list)5. Number of waste stream from this facility:
1R6. Waste stream:
Primarily waste associated with cleanup of the
facility.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 19929. Waste stream volume:
Amount 440.0000 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):

4. Also includes waste from 601 and 632.8. Most of the radionuclides disposed of were in waste produced in 1984 and 1985 from PBF-620.

<p>1. General physical form (see attached list)
Other scrap metals.
[X] other (specify)
7.</p> <hr/> <p>3. Chemical form:
Metal (ferrous and non-ferrous) and
cellulose (paper and wood).</p> <hr/> <p>5. Waste container type (see attached list)
Wooden box.</p> <hr/> <p>7. Comments (specify number of pertinent question):
1. Also 12, 13, 21, 41, 42, 43, and 44.
4. Some materials were placed in plastic bags. Large metal tanks and cut up metal were not
contained in anything.
5. Also BLX and O.</p> <hr/> | <p>2. Details on physical form (particularly confinement related)
Metal tanks, ion exchange resin in metal container, resin
tanks in concrete blocks, glass, paper, plastic, wood and
cloth.</p> <hr/> <p>4. Inner packaging: [X] plastic bag [] plastic liner
[] metal liner [] none [X] other (specify)
See 7 below.</p> <hr/> <p>6. Other characteristics of interest:</p> <hr/> |
|--|--|

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
7439-92-1 Lead	Concrete resin module with lead shielding.	Metal.	T 2500000.0000000	GM	1985	1985	N	-10%	+10%	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)

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	Contained in SS components.	Metal.	T 9.08000000000000	CI	1984	1984	N			
Cs-137	Absorbed on surfaces.	Oxide.	T 85.85000000000000	CI	1984	1984	N			
Sr-90	Absorbed on surfaces.	Oxide.	T 85.85000000000000	CI	1984	1984	N			
Cs-134	Absorbed on surfaces.	Oxide.	T 49.00000000000000	CI	1985	1985	N			
Ba-140	Absorbed on surfaces.	Oxide.	T .5000000000000000	CI	1985	1985	N			
La-140	Absorbed on surfaces.	Oxide.	T .5000000000000000	CI	1985	1985	N			
Cs-137	Absorbed on surfaces.	Oxide.	T 318.57000000000000	CI	1985	1985	N			
Sr-90	Absorbed on surfaces.	Oxide.	T 1.5700000000000000	CI	1985	1985	N			
Co-60	Contained in SS components.	Metal.	T .3600000000000000	CI	1985	1985	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)

Radioactivity reported as MAP, was listed as Co-60, and MFP was listed as Cs-137 and Sr-90. Since the contamination had probably been in place for several years, it was assumed that only the longer-lived fission products would remain. The total MFP value was thus divided equally between Cs-137 and Sr-90. Ba-La-140 was divided into 50% Ba-140 and 50% La-140.

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	Absorbed on surfaces.	Oxide.	T .00140000000000	CI	1986	1986	N			
Sr-90	Absorbed on surfaces.	Oxide.	T .00140000000000	CI	1986	1986	N			
Co-60	Contained in SS components.	Metal.	T .00025000000000	CI	1986	1986	N			
Cs-137	Absorbed on surfaces.	Oxide.	T 1.24400000000000	CI	1987	1987	N			
Sr-90	Absorbed on surfaces.	Oxide.	T 1.24400000000000	CI	1987	1987	N			
Co-60	Contained in SS components.	Metal.	T 8.05100000000000	CI	1987	1987	N			
Cs-137	Absorbed on surfaces.	Oxide.	T 1.15300000000000	CI	1988	1988	N			
Sr-90	Absorbed on surfaces.	Oxide.	T 1.15300000000000	CI	1988	1988	N			
Co-60	Contained in SS components.	Metal.	T .96650000000000	CI	1988	1988	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)

Radioactivity reported as MAP, was listed as Co-60, and MFP was listed as Cs-137 and Sr-90. Since the contamination had probably been in place for several years, it was assumed that only the longer-lived fission products would remain. The total MFP value was thus divided equally between Cs-137 and Sr-90. Ba-La-140 was divided into 50% Ba-140 and 50% La-140.

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	Absorbed on surfaces.	Oxide.	T 2.3720000000000	CI	1992	1992	N			
Co-60	Contained in SS components.	Metal.	T .000010000000000	CI	1992	1992	N			
Cs-134	Absorbed on surfaces.	Oxide.	T .046900000000000	CI	1992	1992	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)

Radioactivity reported as MAP, was listed as Co-60, and MFP was listed as Cs-137 and Sr-90. Since the contamination had probably been in place for several years, it was assumed that only the longer-lived fission products would remain. The total MFP value was thus divided equally between Cs-137 and Sr-90. Ba-La-140 was divided into 50% Ba-140 and 50% La-140.

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:

Inadequate description of waste in RWMIS.

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.

J.D. Wells letter to K.L. Falconer, "Hazardous Materials in
the SDA," JDW-02-86, January 15, 1986.

4. If other than best estimate, explain why:

6. If yes, explain why:

8. Key assumptions used to deal with the unknowns:

Used content code from RWMIS to determine waste description.

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION RDT - 315

1. Preparer: Henry Peterson
2. Date prepared: 07/15/94
3. Generator: TAN
(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:
2R
6. Waste stream:
Slightly contaminated non-combustibles, and wood
used in the decontamination of the TAN-603 sump.

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 45.2600 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):
Wastes generated at this facility occurred in 1984 and 1986. A TAN-603 waste stream, improperly
designated as TSF-603 and that occurred in 1984, has been included in this waste stream. "Sludge"
in the amount of 32.6 M3 was originally assigned to this waste stream. However, in discussions with
G.L. Fife, Julie Lopez, Tom L. Trace and C.A. Pruett, it was decided that this waste should be
assigned to TAN-623 as it is sludge from the sewage plant drying beds (see waste stream TAN-623-1R).

1. General physical form (see attached list) Concrete, brick, and asphalt.
[X] other (specify)
21.
2. Details on physical form(particularly confinement related)
Particulate contamination of non-combustibles and wood.
3. Chemical form:
Oxide.
4. Inner packaging: [X] plastic bag [] plastic liner
[] metal liner [] none [X] other (specify)
Plastic liner.
5. Waste container type (see attached list)
Wooden box.
6. Other characteristics of interest:
The wood was simply wrapped in polyethylene sheet and taped
to prevent contamination spread during transport to the
RWMC.
7. Comments (specify number of pertinent question):
5. BXW (for the non-combustibles).

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
Cs-137	Particulate.	Oxide.	A .020000000000000	CI	1984	1984	N			
Cs-137	Particulate.	Oxide.	A .000002000000000	CI	1986	1986	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
- ☐ 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:

2. Details concerning source (names, report no., dates, etc.)
Interviews with G.L. Fife, TAN HP Supervisor (1980-1988)
Julie Lopez, the HP Technician that worked on the job of
radiologically surveying the TAN-603 waste; T.L. Trace, and
C.A. Pruett.

4. If other than best estimate, explain why:

6. If yes, explain why:
RWMIS data shows that 18 64-cubic foot boxes of sludge were
incorrectly assigned to this facility in 1987. The sludge
waste has been assigned to TAN-623, the TAN Sewage Disposal
Plant on a different datasheet (see waste stream
TAN-623-1R).

8. Key assumptions used to deal with the unknowns:

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION RDT - 316

1. Preparer: Henry Peterson
2. Date prepared: 07/25/94
3. Generator: TAN
(area or contractor - use code from attached list)
4. Particular facility: 607
(building number - use code from attached list)
5. Number of waste stream from this facility:
6R
6. Waste stream:
TAN Hot Shop and Hot Cell waste.

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 904.9000 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):
6. Hot Cell and Hot Shop waste was unsegregated for the time frame of this study. Prior to this period, at least some of the Hot Cell (TAN-633) waste was attributed to TAN-633. During this time period ('84 to '93) statements in the TAN Hot Shop logs indicate Hot Cell and Hot Shop waste was attributed to the TAN Hot Shop, TAN-607.

1. General physical form (see attached list) Irradiated end boxes.
[X] other (specify)
5.
2. Details on physical form (particularly confinement related) Majority of waste contains particulate radiological contamination of contamination control and personal protective items (polyethylene sheeting, blotting paper, etc.), Hot Shop/Hot Cell equipment and structures that are removed and/or replaced, and items removed from project hardware, such as fuel assembly end boxes or fuel assembly shrouds.
3. Chemical form: Alloys (for some MAPs).
4. Inner packaging: ☒ plastic bag ☐ plastic liner ☐ metal liner ☐ none ☒ other (specify) Plastic liner.
5. Waste container type (see attached list) Wooden box.
6. Other characteristics of interest: Some Hot Cell wastes are placed in metal "buckets" with tight-fitting lids before being placed in wooden Hot Waste Boxes.
7. Comments (specify number of pertinent question):
4. HICs are High Integrity Containers.
5. Also BLM and O.
6. In 1990, the resin contents of 3 Submerged Demineralizer System (SDS) liners (#PF-8, PF-20, and PF-27) from Three Mile Island (TMI) were mixed with concrete, placed in 3 respective High Integrity Containers (HICs), and sent to the RWMC for disposal. A fourth HIC, sent to the RWMC the same year, contained equipment contaminated during the grouting operation of the 3 previous HICs and was also grouted into the fourth HIC. The majority of the radioactivity disposed of by TAN-607 in 1990 is contained within these HICs.

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
Cs-134	Particulate.	Oxide.	A .659000000000000	CI	1984	1984	N			
Cs-137	Particulate.	Oxide.	A 1.420000000000000	CI	1984	1984	N			
Sr-90	Particulate.	Oxide.	A .902000000000000	CI	1984	1984	N			
Cs-134	Particulate.	Oxide.	A 3.740000000000000	CI	1985	1985	N			
Cs-137	Particulate.	Oxide.	A 12.900000000000000	CI	1985	1985	N			
Sr-90	Particulate.	Oxide.	A 8.160000000000000	CI	1985	1985	N			
Co-60	Particulate.	Oxide.	A .290000000000000	CI	1986	1986	N			
Cs-134	Particulate.	Oxide.	A 2.790000000000000	CI	1986	1986	N			
Cs-137	Particulate.	Oxide.	A 11.600000000000000	CI	1986	1986	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	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Sr-90	Particulate.	Oxide.	A 7.35000000000000	CI	1986	1986	N			
Co-60	Particulate.	Oxide.	A 6.41000000000000	CI	1987	1987	N			
Cs-134	Particulate.	Oxide.	A 52.3000000000000	CI	1987	1987	N			
Cs-137	Particulate.	Oxide.	A 299.000000000000	CI	1987	1987	N			
Sr-90	Particulate.	Oxide.	A 189.000000000000	CI	1987	1987	N			
U-234	Particulate.	Oxide.	A .001090000000000	CI	1987	1987	N			
U-235	Particulate.	Oxide.	A .000006500000000	CI	1987	1987	N			
U-238	Particulate.	Oxide.	A .000522000000000	CI	1987	1987	N			
Co-60	Particulate.	Oxide.	A .006120000000000	CI	1988	1988	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	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Cs-134	Particulate.	Oxide.	A .231000000000000	CI	1988	1988	N			
Cs-137	Particulate.	Oxide.	A 1.80000000000000	CI	1988	1988	N			
Sr-90	Particulate.	Oxide.	A 1.13000000000000	CI	1988	1988	N			
Co-60	Particulate.	Oxide.	A .288000000000000	CI	1989	1989	N			
Am-241	Particulate.	Oxide.	A .071000000000000	CI	1989	1989	N			
Ce-144	Particulate.	Oxide.	A .120000000000000	CI	1989	1989	N			
Cm-244	Particulate.	Oxide.	A .002250000000000	CI	1989	1989	N			
Cs-134	Particulate.	Oxide.	A 4.25000000000000	CI	1989	1989	N			
Cs-137	Particulate.	Oxide.	A 60.4000000000000	CI	1989	1989	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	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Pu-239	Particulate.	Oxide.	A .01510000000000	CI	1989	1989	N			
Ru-106	Particulate.	Oxide.	A .08000000000000	CI	1989	1989	N			
Sb-125	Particulate.	Oxide.	A .17000000000000	CI	1989	1989	N			
Sr-90	Particulate.	Oxide.	A 38.000000000000	CI	1989	1989	N			
U-234	Particulate.	Oxide.	A .00012900000000	CI	1989	1989	N			
U-235	Particulate.	Oxide.	A .00000077800000	CI	1989	1989	N			
U-238	Particulate.	Oxide.	A .00003190000000	CI	1989	1989	N			
Ag-110m	Particulate.	Oxide.	A .00169000000000	CI	1990	1990	N			
Am-241	Particulate.	Oxide.	A .00037100000000	CI	1990	1990	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	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
C-14	Particulate.	Oxide.	A .02470000000000	CI	1990	1990	N			
Ce-144	Particulate.	Oxide.	A 1.60000000000000	CI	1990	1990	N			
Cm-242	Particulate.	Oxide.	A .00000009840000	CI	1990	1990	N			
Cm-244	Particulate.	Oxide.	A .00000785000000	CI	1990	1990	N			
Co-60	Particulate.	Oxide.	A .22800000000000	CI	1990	1990	N			
Cs-134	Particulate.	Oxide.	A 21.100000000000	CI	1990	1990	N			
Cs-137	Particulate.	Oxide.	A 2570.0000000000	CI	1990	1990	N			
Eu-152	Particulate.	Oxide.	A .00000476000000	CI	1990	1990	N			
Eu-154	Particulate.	Oxide.	A .00002110000000	CI	1990	1990	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	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Eu-155	Particulate.	Oxide.	A .00006000000000	CI	1990	1990	N			
Fe-55	Particulate.	Oxide.	A .00103000000000	CI	1990	1990	N			
H-3	Liquid.	Oxide.	A .89300000000000	CI	1990	1990	N			
I-129	Particulate.	Organic.	A .00053700000000	CI	1990	1990	N			
Mn-54	Particulate.	Oxide.	A .00211000000000	CI	1990	1990	N			
Nb-94	Particulate.	Oxide.	A .00000690000000	CI	1990	1990	N			
Ni-63	Particulate.	Oxide.	A .00246000000000	CI	1990	1990	N			
Np-237	Particulate.	Oxide.	A .00000012100000	CI	1990	1990	N			
Pu-238	Particulate.	Oxide.	A .00043900000000	CI	1990	1990	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	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Pu-239	Particulate.	Oxide.	A .001020000000000	CI	1990	1990	N			
Pu-240	Particulate.	Oxide.	A .000257000000000	CI	1990	1990	N			
Pu-241	Particulate.	Oxide.	A .013000000000000	CI	1990	1990	N			
Pu-242	Particulate.	Oxide.	A .00000002450000	CI	1990	1990	N			
Ru-106	Particulate.	Oxide.	A .291000000000000	CI	1990	1990	N			
Sb-125	Particulate.	Oxide.	A .704000000000000	CI	1990	1990	N			
Sr-90	Particulate.	Oxide.	A 62.3000000000000	CI	1990	1990	N			
Tc-99	Particulate.	Oxide.	A .005410000000000	CI	1990	1990	N			
U-234	Particulate.	Oxide.	A .000023400000000	CI	1990	1990	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	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
U-235	Particulate.	Oxide.	A .00069400000000	CI	1990	1990	N			
U-236	Particulate.	Oxide.	A .00000110000000	CI	1990	1990	N			
U-238	Particulate.	Oxide.	A .00000829000000	CI	1990	1990	N			
Co-60	Particulate.	Oxide.	A .00105000000000	CI	1991	1991	N			
Cs-137	Particulate.	Oxide.	A .00645000000000	CI	1991	1991	N			
Ce-144	Particulate.	Oxide.	A 1.15000000000000	CI	1992	1992	N			
Co-60	Particulate.	Oxide.	A 5.84000000000000	CI	1992	1992	N			
Cs-134	Particulate.	Oxide.	A 6.15000000000000	CI	1992	1992	N			
Cs-137	Particulate.	Oxide.	A 335.000000000000	CI	1992	1992	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	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Sb-125	Particulate.	Oxide.	A 1.86000000000000	CI	1992	1992	N			
Sr-90	Particulate.	Oxide.	A 210.000000000000	CI	1992	1992	N			
Co-60	Solid.	Alloy.	A .247000000000000	CI	1993	1993	N			
Cs-137	Particulate.	Oxide.	A .001060000000000	CI	1993	1993	N			
Fe-55	Solid.	Alloy.	A 48.6000000000000	CI	1993	1993	N			
H-3	Liquid.	Oxide.	A 1.43000000000000	CI	1993	1993	N			
Ni-63	Solid.	Alloy.	A 162.000000000000	CI	1993	1993	N			
Pu-238	Particulate.	Oxide.	A .000002800000000	CI	1993	1993	N			
Pu-239	Particulate.	Oxide.	A .000001650000000	CI	1993	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)

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	Particulate.	Oxide.	A .05410000000000	CI	1993	1993	N			
U-234	Particulate.	Oxide.	A .00000130000000	CI	1993	1993	N			
U-235	Particulate.	Oxide.	A .00000000778000	CI	1993	1993	N			
U-238	Particulate.	Oxide.	A .00233000000000	CI	1993	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)

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

- ☒ RWMIS ☐ other database
 - ☐ sample analysis data
 - ☐ operating records ☒ interview
 - ☐ expert judgment ☒ reports
 - ☒ other
- TAN Hot Shop/Hot Cell logs.

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:

2. Details concerning source (names, report no., dates, etc.)
Discussions with A.L. Ayers, Jr; A.L. Ayers, Jr. letter to
H.K. Peterson, TEST AREA NORTH (TAN) HOT SHOP PROJECTS OF
1984 TO PRESENT, Aye-02-94, July 14, 1994; C.K. Mullen
letter to H.K. Peterson.

4. If other than best estimate, explain why:

6. If yes, explain why:
Based on guidance from B.L. Rich, et al, Health Physics
Manual of Good Practice for Uranium Facilities, EG&G Idaho
Inc., EGG-2530, June 1988, U-234 was added to the 1987
radionuclides; U-234 was added to the 1989 radionuclides;
U-235 was added to the 1993 radionuclides. (See continuation
page.)

8. Key assumptions used to deal with the unknowns:

Continuation of Part E Column or Question Number or Title 6.

The Sr-90 was increased for 1989 based on professional judgment because it was inconsistently too low compared to the Cs-137.

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION RDT - 303

1. Preparer: Henry Peterson
2. Date prepared: 07/25/94
3. Generator: TAN
(area or contractor - use code from attached list)
4. Particular facility: 623
(building number - use code from attached list)
5. Number of waste stream from this facility:
1R
6. Waste stream:
Sewage sludge that has accumulated during previous
years of plant operation.
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 1992
9. Waste stream volume:
Amount 74.2700 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):
3. In the RWMIS printouts, this facility waste stream was designated as TAN-623 (for 1986) and
TSF-623 (for 1984). Discussions with G.L. Fife, Julie Lopez, T.L. Trace and C.A. Pruett have
indicated that 18 64-cubic foot boxes of "sludge", originally assigned by RWMIS to TAN-603 in 1987
should have been attributed to TAN-623. Therefore, this sludge waste is included in this waste
stream.

2. Details on physical form (particularly confinement related)
Moist, dewatered sludge.

4. Inner packaging: ☐ plastic bag ☒ plastic liner

☐ metal liner ☐ none ☐ other (specify)

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
Co-60	Particulate.	Oxide.	A .00039000000000	CI	1984	1984	N	-20%	+20%	See comment below.
Cs-137	Particulate.	Oxide.	A .00057000000000	CI	1984	1984	N	-20%	+20%	See comment below.
Co-60	Particulate.	Oxide.	A .00000330000000	CI	1986	1986	N	-20%	+20%	See comment below.
Cs-137	Particulate.	Oxide.	A .00000470000000	CI	1986	1986	N	-20%	+20%	See comment below.
Co-60	Particulate.	Oxide.	A .00280000000000	CI	1987	1987	N	-20%	+20%	See comment below.
Cs-137	Particulate.	Oxide.	A .01720000000000	CI	1987	1987	N	-20%	+20%	See comment below.
Co-60	Particulate.	Oxide.	A .00105000000000	CI	1991	1991	N	-20%	+20%	See comment below.
Cs-137	Particulate.	Oxide.	A .00645000000000	CI	1991	1991	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)

5* The sample data for the 1991 shipment was extrapolated to the 1984 and 1986 shipments, based on a conversation with G.L. Fife, who sampled all the sludge that was sent from TAN. The uncertainty for 1984 and 1986 is the same as that for 1991. In 1987 and 1991, 13 samples were taken and the analysis was +/- 20%.

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

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

Shipping data for 1991.

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:

2. Details concerning source (names, report no., dates, etc.)
Interviews and conversations with G.L. Fife, Julie Lopez,
T.L. Trace, and C.A. Pruett.

4. If other than best estimate, explain why:

6. If yes, explain why:

The RWMIS data does not include the 1991 Shipment (which was
sent to the RWMC on 4-22/23-1991).

8. Key assumptions used to deal with the unknowns:

Unknowns for the 1984 and 1986 shipments are based on a
discussion with G.L. Fife and extrapolated from the 1991
shipping data and sample analysis of sludge for that
shipment.

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION RDT - 302

1. Preparer: Henry Peterson2. Date prepared: 07/22/943. Generator: TAN
(area or contractor - use code from attached list)4. Particular facility: 629
(building number - use code from attached list)5. Number of waste stream from this facility:
1R6. Waste stream:
Cleanup of LOFT ERA waste in the preparation for
Rockwell International Inc. to move into the
building for the SMC Project.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 19849. Waste stream volume:
Amount 7.2500 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)
Other scrap metals.
[] other (specify)

2. Details on physical form(particularly confinement related)
Scrap metal parts activated during LOFT tests that were no longer needed.
3. Chemical form:
Metal.

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):

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-58	Solid.	Metal.	A .00141000000000	CI	1984	1984	N			
Co-60	Solid.	Metal.	A .00142000000000	CI	1984	1984	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
☐ 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.)
Interviews and discussion with D.M. Sherick.

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 RDT - 305

1. Preparer: Henry Peterson
2. Date prepared: 07/24/94
3. Generator: TAN
(area or contractor - use code from attached list)
4. Particular facility: 629
(building number - use code from attached list)
5. Number of waste stream from this facility:
2R
6. Waste stream:
Sand blasting grit contaminated with depleted
uranium and scrap pieces of depleted uranium.

7. Type of radioactive waste (check box):
☐ TRU or suspect TRU
☒ LLW
☐ non-radioactive
8. Actual years disposed of at SDA:
Starting year 1986 Ending year 1992
9. Waste stream volume:
Amount 198.1000 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):

<p>1. General physical form (see attached list)
Other scrap metals.
[X] other (specify)
42.</p> <hr/> <p>3. Chemical form:
Oxide.</p> <hr/> <p>5. Waste container type (see attached list)
Metal barrel.</p> <hr/> <p>7. Comments (specify number of pertinent question):
5. BLM is inside of an M-3 metal bin.</p> <hr/> | <p>2. Details on physical form(particularly confinement related)
Since there is no designation in the "Physical Form" list
for sand (SiO₂), the number for "glass" (#42) is used.</p> <hr/> <p>4. Inner packaging: [] plastic bag [X] plastic liner
[] metal liner [] none [X] other (specify)
BLM.</p> <hr/> <p>6. Other characteristics of interest:</p> <hr/> |
|---|--|

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
U-238	Particulate.	Oxide and metal.	A .00510000000000	CI	1986	1986	N	-10%	+10%	Professional judgment.
U-235	Particulate.	Oxide and metal.	A .00007000000000	CI	1986	1986	N	-10%	+10%	Professional judgment.
U-234	Particulate.	Oxide and metal.	A .00143000000000	CI	1986	1986	N	-10%	+10%	Professional judgment.
U-238	Particulate.	Oxide and metal.	A .07896000000000	CI	1987	1987	N	-10%	+10%	Professional judgment.
U-235	Particulate.	Oxide and metal.	A .00101000000000	CI	1987	1987	N	-10%	+10%	Professional judgment.
U-234	Particulate.	Oxide and metal.	A .02225000000000	CI	1987	1987	N	-10%	+10%	Professional judgment.
U-238	Particulate.	Oxide and metal.	A .42660000000000	CI	1988	1988	N	-10%	+10%	Professional judgment.
U-235	Particulate.	Oxide and metal.	A .00554000000000	CI	1988	1988	N	-10%	+10%	Professional judgment.
U-234	Particulate.	Oxide and metal.	A .12020000000000	CI	1988	1988	N	-10%	+10%	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)

Shipping personnel, R.K. Moss, confirmed there were no shipments in 1990 or in 1993. U-234 and U-235 were added as applicable for depleted uranium (0.2 weight percent U-235), as per Rich 1988, but scaled to match the total value of 0.0126 Ci of U-235 over all the years, per statement from R.K. Moss and D. Barg of SMC.

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	Particulate.	Oxide and metal.	A .209070000000000	CI	1989	1989	N	-10%	+10%	Professional judgment.
U-235	Particulate.	Oxide and metal.	A .002720000000000	CI	1989	1989	N	-10%	+10%	Professional judgment.
U-234	Particulate.	Oxide and metal.	A .058820000000000	CI	1989	1989	N	-10%	+10%	Professional judgment.
U-238	Particulate.	Oxide and metal.	A .247000000000000	CI	1991	1991	N	-10%	+10%	Professional judgment.
U-235	Particulate.	Oxide and metal.	A .003240000000000	CI	1991	1991	N	-10%	+10%	Professional judgment.
U-234	Particulate.	Oxide and metal.	A .069840000000000	CI	1991	1991	N	-10%	+10%	Professional judgment.
U-238	Particulate.	Oxide and metal.	A .002239000000000	CI	1992	1992	N	-10%	+10%	Professional judgment.
U-235	Particulate.	Oxide and metal.	A .000030000000000	CI	1992	1992	N	-10%	+10%	Professional judgment.
U-234	Particulate.	Oxide and metal.	A .000630000000000	CI	1992	1992	N	-10%	+10%	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)

Shipping personnel, R.K. Moss, confirmed there were no shipments in 1990 or in 1993. U-234 and U-235 were added as applicable for depleted uranium (0.2 weight percent U-235), as per Rich 1988, but scaled to match the total value of 0.0126 Ci of U-235 over all the years, per statement from R.K. Moss and D. Barg of SMC.

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:
None.

2. Details concerning source (names, report no., dates, etc.)
Shipping personnel, R.K. Moss, confirmed there were no
shipments in 1990 or 1993. Rich, B.L. et al, Health Physics
Manual of Good Practices for Uranium Facilities, EGG-2530,
June 1988.

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 RDT - 310

1. Preparer: Henry Peterson
2. Date prepared: 07/22/94
3. Generator: TAN
(area or contractor - use code from attached list)
4. Particular facility: 630
(building number - use code from attached list)
5. Number of waste stream from this facility:
1R
6. Waste stream:
Compactible waste generated during LOFT reactor
building entries.
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 1985
9. Waste stream volume:
Amount 4.2800 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):
6. The compactible waste consists of blotting paper, plastic, anti-contamination clothing, smears,
and other cloth, paper, and plastic used to support reactor building entries primarily following the
LOFT LP-FP-1 test.

<p>1. General physical form (see attached list)
<u>Combustibles (paper, cloth, wood, etc.)</u>
<u>[X] other (specify)</u>
<u>44.</u></p> <p>3. Chemical form:
<u>Cellulose, polyethylene, cotton, rubber,</u>
<u>and unnatural fibers.</u></p> <p>5. Waste container type (see attached list)
<u>Metal barrel.</u></p> <p>7. Comments (specify number of pertinent question):
<u>4. Bagged in polyethylene, which was then contained in a metal barrel.</u></p> | <p>2. Details on physical form(particularly confinement related)
<u>Paper, plastic, and cloth.</u>

_____</p> <p>4. Inner packaging: [] plastic bag [X] plastic liner
[] metal liner [] none [X] other (specify)
<u>Plastic bag.</u></p> <p>6. Other characteristics of interest:
_____</p> |
|---|---|

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-58	Particulate.	Oxide.	T .00043800000000	CI	1984	1985	N			
Co-60	Particulate.	Oxide.	T .00121000000000	CI	1984	1985	N			
Mn-54	Particulate.	Oxide.	T .00070000000000	CI	1984	1985	N			
Cr-51	Particulate.	Oxide.	T .00333000000000	CI	1984	1985	N			
Fe-55	Particulate.	Oxide.	T .00483000000000	CI	1984	1985	N			
Cs-137	Particulate.	Elemental.	A .00004950000000	CI	1985	1985	N			
I-131	Particulate.	Elemental.	A .00017600000000	CI	1985	1985	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)
In 1984, only two MAPs were assumed to makeup the list of radionuclides, i.e., Co-60 and Co-58, and they were assumed to be in equal quantities as listed in RWMIS. The above list preserves the curie quantity of the gamma-emitting radionuclides with an additional MAP radionuclide, Fe-55, which does not emit gamma rays. The distribution of the MAP radionuclides is assumed to be generated in stainless steel type 304, the principal type in the LOFT primary coolant system and was calculated based on a standard PWR in-core section with a burnup of 33,000 MWd/MTU and a 60-day decay as described in "Characteristics of Potential Repository Wastes", U.S. DOE Office of Civilian Radioactive Waste Management, July 1992, DOE/RW-0184-R1. The MFP activity of the 1985 waste is based on Table 21, p.41, Report OECD LOFT-T-3808.

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:

2. Details concerning source (names, report no., dates, etc.)
Interview with M.L. Carboneau. "Containment Analysis Report
for LOFT Experiment LP-FP-2", January 1989, OECD
LOFT-T-3808, (Table 21, page 41.) and H.K. Peterson letter
to Lofthouse Pletscher, "LOFT CV Entry and Cleanup
Activities Following the LP-FP-2 Test", HKP-6-85, March 21,
1985.

4. If other than best estimate, explain why:

6. If yes, explain why:

The gamma-emitting quantities of the MAP and MFP are equal
to quantities reported in RWMIS, but quantities of non-gamma
emitting radionuclides have been included in the amount
expected.

8. Key assumptions used to deal with the unknowns:

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION RDT - 309

1. Preparer: Henry Peterson
2. Date prepared: 07/25/94
3. Generator: TAN
(area or contractor - use code from attached list)
4. Particular facility: 647
(building number - use code from attached list)
5. Number of waste stream from this facility:
1R
6. Waste stream:
Contaminated or activated steel parts and equipment
that have been stored at TAN-647.
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 98.3400 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):
3. In the RWMIS data base, the waste stream from this facility in 1984 has been designated as
LOF-647, which is an improper designation, and is included under the proper designation TAN-647.
Wastes from this facility, known as the RPSSA (Radioactive Parts Storage and Service Area) occurred
only in 1984 and 1986 for this report period.

1. General physical form (see attached list) Other scrap metals.
[] other (specify) _____

2. Details on physical form (particularly confinement related)
Principally surface-contaminated components.

3. Chemical form:
Oxide.

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

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

6. Other characteristics of interest:

7. Comments (specify number of pertinent question):
4. Wrapped in polyethylene and placed in a poly-lined wooden box for transport to the RWMC.

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-58	Metal.	Alloy.	A .900000000000000	CI	1984	1984	N			
Co-60	Metal.	Alloy.	A .900000000000000	CI	1984	1984	N			
Ag-110m	Metal.	Alloy.	A .030000000000000	CI	1984	1984	N			
Cr-51	Metal.	Alloy.	A .030000000000000	CI	1984	1984	N			
Mn-54	Metal.	Alloy.	A .030000000000000	CI	1984	1984	N			
Co-60	Particulate.	Alloy.	A .000020000000000	CI	1986	1986	N			
Cs-137	Particulate.	Oxide.	A 2.32000000000000	CI	1986	1986	N			
Sr-90	Particulate.	Oxide.	A 2.30000000000000	CI	1986	1986	N			
Ce-144	Particulate.	Oxide.	A .008000000000000	CI	1986	1986	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
 - ☒ other
- TAN-607 Hot Shop logs.

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:

2. Details concerning source (names, report no., dates, etc.)
Interview and discussion with Kevin Streeper, TAN Hot Shop
Operations Manager; Interview with Ilene Harrell, TAN Hot
Shop Shift Manager.

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 RDT - 312

1. Preparer: Henry Peterson
2. Date prepared: 07/25/94
3. Generator: TAN
(area or contractor - use code from attached list)
4. Particular facility: 650
(building number - use code from attached list)
5. Number of waste stream from this facility:
1R
6. Waste stream:
Compactible waste generated following LOFT tests.

7. Type of radioactive waste (check box):
☐ TRU or suspect TRU
☒ LLW
☐ non-radioactive
8. Actual years disposed of at SDA:
Starting year 1985 Ending year 1986
9. Waste stream volume:
Amount 9.9200 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):
6. All of this waste stream occurred in 1985 and 1986, and was generated following the LP-FP-1 and LP-FP-2 test and consisted of contaminated articles such as protective clothing, contamination control material (polyethylene sheet, poly bags, blotting paper, etc.) that was used for reactor building entries.

<p>1. General physical form (see attached list)
<u>Combustibles (paper, cloth, wood, etc.)</u>
<u>[X] other (specify)</u>
<u>44.</u></p> <hr/> <p>3. Chemical form:
<u>Oxides, elemental.</u></p> <hr/> <p>5. Waste container type (see attached list)
<u>Bale.</u></p> <hr/> <p>7. Comments (specify number of pertinent question):</p> | <p>2. Details on physical form (particularly confinement related)
<u>Particulate contamination on protective clothing, blotting</u>
<u>paper, polyethylene sheet, etc.</u></p> <hr/> <p>4. Inner packaging: ☒ plastic bag ☐ plastic liner
☐ metal liner ☐ none ☒ other (specify)
<u>Plastic liner.</u></p> <hr/> <p>6. Other characteristics of interest:</p> <hr/> |
|--|--|

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-58	Particulate.	Oxide.	T .00399000000000	CI	1985	1986	N			
Co-60	Particulate.	Oxide.	T .00310000000000	CI	1985	1986	N			
I-131	Particulate.	Elemental.	T .01400000000000	CI	1985	1986	N			
Cs-137	Particulate.	Oxide.	T .00160000000000	CI	1985	1986	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
☐ 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:

2. Details concerning source (names, report no., dates, etc.)
"Containment Analysis Report for LOFT Experiment LP-FP-2",
January 1989, by M.L. Carboneau, OECD LOFT-T-3808; "OECD
LOFT FISSION PRODUCT EXPERIMENT LP-FP-2 FISSION PRODUCT DATA
REPORT", May 1987, by M.L. Carboneau, R.L. Nitchke, D.C.
Mecham, E.W. Coryell and J.A. Baques, OECD LOFT-T-3805.

4. If other than best estimate, explain why:

6. If yes, explain why:

8. Key assumptions used to deal with the unknowns:
Only the major long half-lived fission products were
accounted for in the RWMIS MFP designation.

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION RDT - 313

1. Preparer: Henry Peterson2. Date prepared: 07/25/943. Generator: TAN
(area or contractor - use code from attached list)4. Particular facility: 650
(building number - use code from attached list)5. Number of waste stream from this facility:
2R6. Waste stream:
LOFT LP-FP-2 resins.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 19869. Waste stream volume:
Amount 7.0880 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):

6. The types of resin used in the LOFT project were all organic, polystyrene bead type, produced by DUOLITE and EAGLE-PITCHER.

<p>1. General physical form (see attached list)
<u>Resin.</u>
<u>[X] other (specify)</u>
<u>7.</u></p> <p>3. Chemical form:
<u>Elemental, oxide.</u></p> <p>5. Waste container type (see attached list)
<u>Other.</u></p> <p>7. Comments (specify number of pertinent question):
<u>2. The majority of the resin was disposed in 1986, one year after the LP-FP-2 test. From activity levels measured in the primary coolant system after the test, essentially all of the fission products contained in the resins consisted of Cs-134 and Cs-137. (See page 139 of Ref. 1.)</u></p> | <p>2. Details on physical form (particularly confinement related)
<u>Complexed with cation/anion exchange resins. Not solidified.</u></p> <p>4. Inner packaging: ☐ plastic bag ☐ plastic liner
☒ metal liner ☐ none ☐ other (specify)</p> <p>6. Other characteristics of interest:
<u>Contained in a carbon steel or stainless steel tank or drum.</u></p> |
|---|--|

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
7439-92-1 Lead	Lead shielded resin cask.	Metal.	T 5400000.0000000	GM	1985	1985	N	-10%	+10%	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)

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.	Oxide.	T .00022400000000	CI	1985	1986	N			
Co-58	Particulate.	Oxide.	T .00154000000000	CI	1985	1986	N			
Co-60	Particulate.	Oxide.	T .00023700000000	CI	1985	1986	N			
Cs-134	Particulate.	Oxide.	T .18500000000000	CI	1985	1986	N			
Cs-137	Particulate.	Oxide.	T .30600000000000	CI	1985	1986	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)

All curie values are based on the Primary Coolant System (PCS) activity levels. (Page 139 of Ref. 1.) Decayed to one year after the LP-FP-2 test.

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:

2. Details concerning source (names, report no., dates, etc.)
Interview and discussion with R.A. Montgomery.

Ref. 1: "OECD LOFT FISSION PRODUCT EXPERIMENT LP-FP-2
FISSION PRODUCT DATA REPORT", by M.L. Carboneau, et al., May
1987, OECD-LOFT-T-3805.

J.D. Wells letter to K.L. Falconer, "Hazardous Materials in
the SDA", JDW-02-86, January 15, 1986.

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 RWM SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION RDT - 314

1. Preparer: Henry Peterson

3. Generator: TAN
(area or contractor - use code from attached list)

5. Number of waste stream from this facility:
3R

7. Type of radioactive waste (check box):
☐ TRU or suspect TRU
☒ LLW
☐ non-radioactive

8. Actual years disposed of at SDA:
Starting year 1985 Ending year 1993

2. Date prepared: 07/22/94

4. Particular facility: 650
(building number - use code from attached list)

6. Waste stream:
Discarded LOFT facility parts and systems after the
final test.

9. Waste stream volume:
Amount 1169.0000 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):

6. This waste stream consists of all of the system components, and primarily non-compactibles that
were discarded from the LOFT facility following the LP-FP-2 test so that the Mobile Test Assembly
(MTA) and the Blowdown Suppression Tank (BST) could be removed from the containment building to put
the facility in an inactive and defunct status.

<p>1. General physical form (see attached list)
<u>Other core, reactor vessel, loop component</u>
<u>[X] other (specify)</u>
<u>6, 10, 22, 23, 31, 41.</u></p> <hr/> <p>3. Chemical form:
<u>Oxides and elemental.</u></p> <hr/> <p>5. Waste container type (see attached list)
<u>Wooden box.</u></p> <hr/> <p>7. Comments (specify number of pertinent question):
<u>5. Also O and BLX.</u></p> <hr/> | <p>2. Details on physical form (particularly confinement related)
<u>Activation products produced during reactor operation are</u>
<u>incorporated into the structural parts within the reactor</u>
<u>vessel. Otherwise, MFP and MAP contamination is in</u>
<u>particulate form that coats structural components.</u></p> <hr/> <p>4. Inner packaging: [] plastic bag [X] plastic liner
[] metal liner [] none [X] other (specify)
<u>Sealed pipes, internally contaminated.</u></p> <hr/> <p>6. Other characteristics of interest:</p> <hr/> |
|---|--|

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-58	Particulate.	Oxide.	A .25400000000000	CI	1985	1985	N			
Co-60	Particulate.	Oxide.	A .03900000000000	CI	1985	1985	N			
Mn-54	Particulate.	Oxide.	A .03740000000000	CI	1985	1985	N			
Cs-137	Particulate.	Oxide.	A .05000000000000	CI	1985	1985	N			
Ba-140	Particulate.	Oxide.	A .15200000000000	CI	1985	1985	N			
Co-58	Solid.	Alloy.	A 19.900000000000	CI	1986	1986	N			
Co-60	Solid.	Alloy.	A 95.900000000000	CI	1986	1986	N			
Mn-54	Solid.	Alloy.	A 46.100000000000	CI	1986	1986	N			
Fe-59	Solid.	Alloy.	A .00038000000000	CI	1986	1986	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	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Ce-144	Solid.	Elemental.	A 10.1000000000000	CI	1986	1986	N			
U-235	Fines.	Oxide.	A .00004150000000	CI	1986	1986	N	-30%	+30%	Professional judgment.
U-234	Fines.	Oxide.	A .00073000000000	CI	1986	1986	N	-30%	+30%	Professional judgment.
U-238	Fines.	Oxide.	A .00005810000000	CI	1986	1986	N	-30%	+30%	Professional judgment.
Cs-137	Particulate.	Oxide.	A 73.8000000000000	CI	1986	1986	N			
Cs-134	Particulate.	Oxide.	A .460000000000000	CI	1986	1986	N			
Sr-89	Particulate.	Oxide.	A .005910000000000	CI	1986	1986	N			
Sr-90	Particulate.	Oxide.	A .013900000000000	CI	1986	1986	N			
Co-58	Solid.	Alloy.	A .109000000000000	CI	1987	1987	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	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Co-60	Solid.	Alloy.	A 17.400000000000	CI	1987	1987	N			
Mn-54	Solid.	Alloy.	A 4.240000000000	CI	1987	1987	N			
Cs-137	Particulate.	Oxide.	A 3.510000000000	CI	1987	1987	N			
Cs-134	Particulate.	Oxide.	A .015900000000	CI	1987	1987	N			
Sr-90	Particulate.	Oxide.	A .000659000000	CI	1987	1987	N			
Cs-137	Particulate.	Oxide.	A .004040000000	CI	1988	1988	N			
Cs-134	Particulate.	Oxide.	A .000013400000	CI	1988	1988	N			
Sr-90	Particulate.	Oxide.	A .000000757000	CI	1988	1988	N			
Ce-144	Particulate.	Oxide.	A .026000000000	CI	1993	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)

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	Particulate.	Oxide.	A .02600000000000	CI	1993	1993	N			
Cs-137	Particulate.	Oxide.	A .17200000000000	CI	1993	1993	N			
Eu-155	Particulate.	Oxide.	A .00195000000000	CI	1993	1993	N			
Ru-106	Particulate.	Oxide.	A .00598000000000	CI	1993	1993	N			
Sb-125	Particulate.	Oxide.	A .00598000000000	CI	1993	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)

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:

2. Details concerning source (names, report no., dates, etc.)
Interview with R.D. Sayer; OECD LOFT FISSION PRODUCT
EXPERIMENT LP-FP-2 FISSION PRODUCT DATA REPORT, by M.L.
Carboneau, et al., May 1987, OECD-LOFT-T-3805; QUICK-LOOK
REPORT ON OECD LOFT EXPERIMENT. LP-FP-2, by J.P. Adams, et
al., September 1985, OECD-LOFT-T-3804; HEALTH PHYSICS MANUAL
OF GOOD PRACTICES FOR URANIUM FACILITIES by B.L. Rich, et
al., June 1988, EGG-2530/UC-41.

4. If other than best estimate, explain why:

6. If yes, explain why:

The total curies per year are the same, but the distribution
for a given year is different from RWMIS values. The RWMIS
curie values are not consistent with expected values. For
example, for 1986, the value of Ce-144 is 7.5 times that for
Cs-137 and should be the same as the value of Pr-144, which
is only 35.6% of the Ce-144 value. Also, in RWMIS the value
of Zr-95 is 265 times the value of Nb-95, a ratio way out of
line for the LOFT operation.

8. Key assumptions used to deal with the unknowns:

DATA INPUT FOR HISTORICAL DATA TASK FOR RWMC SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION RDT - 301

1. Preparer: Henry Peterson
2. Date prepared: 07/25/94
3. Generator: TAN
(area or contractor - use code from attached list)
4. Particular facility: 668
(building number - use code from attached list)
5. Number of waste stream from this facility:
1R
6. Waste stream:
Soil that was dug from in front of the TAN Hot Shop
during the construction of TAN-668.
7. Type of radioactive waste (check box):
☐ TRU or suspect TRU
☒ LLW
☐ non-radioactive
8. Actual years disposed of at SDA:
Starting year 1985 Ending year 1985
9. Waste stream volume:
Amount 72.5000 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):
6. TAN 668 is the Heavy Equipment Cleaning Facility or the entrance enclosure to the large
shielding doors of the TAN Hot Shop where items coming out of the Hot Shop are resurveyed and
decontaminated if necessary (the majority of the decontamination was performed in the Hot Shop).
The soil became contaminated chiefly during the GE/ANP project with the testing of the nuclear
aircraft engines, therefore it is principally Cs-137 and Sr-90.

<p>1. General physical form (see attached list)
<u>Soil.</u>
<u>[] other (specify)</u>   3. Chemical form:
<u>Unknown.</u>   5. Waste container type (see attached list)
<u>Wooden box.</u></p>	<p>2. Details on physical form(particularly confinement related)
<u>The soil contamination is confined in an ion-/cation complex</u>
<u>with the clay minerals contained in the soil.</u>   4. Inner packaging: [] plastic bag [X] plastic liner
[] metal liner [] none [] other (specify)</p> <p>6. Other characteristics of interest:</p>
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
Cs-137	Particulate.	Oxide.	T .390000000000000	CI	1985	1985	N			
Sr-90	Particulate.	Oxide.	T .390000000000000	CI	1985	1985	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)

(Cs-137) - There are several references that show that Cs-137 and Sr-90 are the major contaminants left from the GE/ANP testing era. Decontamination and decommissioning of the HTRE engines and work at TAN-620, the IET Control and Equipment Building, show these two components to be 99% of the activity, the same components that would be present in the soil dug from in front of TAN-668.

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

☒ RWMIS ☐ other database
☐ sample analysis data
☐ operating records ☒ interview
☐ expert judgment ☐ reports
☒ other
TAN Hot Shop logs.

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:

2. Details concerning source (names, report no., dates, etc.)
TAN Hot Shop Logs #32, #33, #34, and #35. Interview with I.
Harrell and K. Streeper. RWMIS.

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 RDT - 311

1. Preparer: Henry Peterson
2. Date prepared: 07/25/94
3. Generator: TAN
(area or contractor - use code from attached list)
4. Particular facility: DFN
(building number - use code from attached list)
5. Number of waste stream from this facility:
1R
6. Waste stream:
Pieces of ferrous and non-ferrous articles and
contamination control items (blotting paper, plastic
sheeting, rubber, and cloth) generated in a
decontamination facility.
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 1987
9. Waste stream volume:
Amount 108.7400 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 TAN Decontamination Facility North (DFN) was located in the west end of TAN-607. To
distinguish waste from this facility (DFN) as opposed to TAN-607, the TANDFN designation was
established.
8. Wastes were sent from the facility only in 1984 and 1987. The wastes generated in 1984 are
listed in RWMIS as consisting of Mixed Fission Products (MFP) and those generated in 1987 are listed
as Mixed Activation Products (MAP). Wastes for 1984 consist of removal of old ventilation and
filter ductwork and structures necessary to update and refit the area for the new decontamination
facility. Wastes of 1987 are combustible and compactible wastes and "ferrous and non-ferrous metal
articles" discarded with the decontamination of pieces of equipment, casks, and tools.

<p>1. General physical form (see attached list)
<u>Combustibles (paper, cloth, wood, etc.)</u>
<u>[X] other (specify)</u>
<u>10.</u></p> <p>3. Chemical form:

_____</p> <p>5. Waste container type (see attached list)
<u>Wooden box.</u></p> <p>7. Comments (specify number of pertinent question):
<u>4. Bagged in polyethylene and contained in poly-lined wooden boxes.</u></p> | <p>2. Details on physical form(particularly confinement related)
<u>Contamination principally on the surface of items.</u>

_____</p> <p>4. Inner packaging: [X] plastic bag [] plastic liner
[] metal liner [] none [X] other (specify)
<u>Plastic liner.</u></p> <p>6. Other characteristics of interest:
_____</p> |
|---|---|

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
Cs-137	Particulate.	Oxide.	A .046100000000000	CI	1984	1984	N			
Co-60	Particulate.	Oxide.	A .977000000000000	CI	1987	1987	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)

Cs-137 - chosen because it is easily released from damaged fuel and easily spread after release. Also, it is the longest half-lived radionuclide of the volatile metals released. Co-60 is the dominant, long-lived radionuclide that persists after the other MAPs have decayed away.

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:

2. Details concerning source (names, report no., dates, etc.)
Interview with G.L. Fife, TAN HP Supervisor (1980-1988).

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 - 317

1. Preparer: Henry Peterson
2. Date prepared: 08/25/94
3. Generator: TAN
(area or contractor - use code from attached list)
4. Particular facility: 607
(building number - use code from attached list)
5. Number of waste stream from this facility:
6P
6. Waste stream:
TAN Hot Shop and Hot Cell Waste.
7. Type of radioactive waste (check box):
☐ TRU or suspect TRU
☒ LLW
☐ non-radioactive
8. Actual years disposed of at SDA:
Starting year 1994 Ending year 2003
9. Waste stream volume:
Amount 800.0000 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):
6. Hot Cell and Hot Shop Waste was unsegregated for the time frame of this study. Prior to this time period, at least some of the Hot Cell (TAN-633) waste was attributed to TAN-633. During this time period ('84-'93) statements in the TAN Hot Shop logs indicate Hot Cell and Hot Shop waste was attributed to the TAN Hot Shop, TAN-607.
6. In a discussion with K.E. Streeper, TAN Operations Manager, he stated, considering the operations that are planned over the next 2 or 3 years, that waste from the TAN Hot Shop would be about the same as for the last couple of years.

1. General physical form (see attached list) Irradiated end boxes.
[X] other (specify)
5.
2. Details on physical form (particularly confinement related)
Majority of waste contains particulate radiological contamination of contamination control and personal protective items (polyethylene sheeting, blotting paper, etc.), Hot Shop/Hot Cell equipment and structures that are removed and/or replaced, and items removed from project hardware.
3. Chemical form:
Oxides (for particulate) and alloys (for some MAPs).
4. Inner packaging: [X] plastic bag [] plastic liner [] metal liner [] none [X] other (specify) Plastic liner.
5. Waste container type (see attached list)
Wooden box.
6. Other characteristics of interest:
Some Hot Cell wastes are placed in metal "buckets" with tight-fitting lids before being placed in wooden Hot Waste boxes.
7. Comments (specify number of pertinent question):
4. HICs are High Integrity Containers.
5. Also BLM and O.
The only major operation planned for the next couple of years is to dry the Three Mile Island (TMI) fuel and send it to the Idaho Chemical Processing Plant (ICPP) where it will be stored in a ground-vault facility that is protected from the weather. Some other operations that were discussed with K.E. Streeper, the TAN Operations Manager, are to remove the storage racks that the TMI fuel was stored in from the pool, discard them as waste to the RWMC, and drain the 607-TAN pool. After draining, the pool would be decontaminated, and that operation would generate more waste. Any projections beyond the TMI fuel drying operation are uncertain.

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
Cs-134	Particulate.	Oxide.	T .65900000000000	CI	1994	2003	N	N			
Cs-137	Particulate.	Oxide.	T 1.42000000000000	CI	1994	2003	N	N			
Sr-90	Particulate.	Oxide.	T .90200000000000	CI	1994	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:

2. Details concerning source (names, report no., dates, etc.)
Discussions with K.E. Streeper, TAN Operations Manager, and
Ilene G. Harrell.

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 - 318

1. Preparer: Henry Peterson2. Date prepared: 08/25/943. Generator: TAN
(area or contractor - use code from attached list)4. Particular facility: 623
(building number - use code from attached list)5. Number of waste stream from this facility:
1P6. Waste stream:
Sewage sludge.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 49.0000 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):

6. In discussions with K.E. Streeper, TAN Operations Manager, and other personnel that are involved in projected operations for TAN, and discussions with personnel (T.L. Trace and C.A. Pruett) who have been involved in disposal of the TAN sewage "sludge", an estimate of about 66% of the past generation rate should be a good estimate of what will be generated in the future, based on the number of people at TAN and the reduced workload.

1. General physical form (see attached list)
Sludge.

☐ other (specify)

3. Chemical form:

Oxide.

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

2. Details on physical form(particularly confinement related)
Moist, dewatered sludge.

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

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	Fore cast	Samp les?	Minimum Value/#Samp	Maximum Value/STD	Basis for Uncertainty
Co-60	Particulate.	Oxide.	T .002800000000000	CI	1994	2003	N	N			
Cs-137	Particulate.	Oxide.	T .016000000000000	CI	1994	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)

This estimated activity is based on an estimate of 66% of the waste generated over the past 10 previous years as discussed in Part A-10. (THIS ESTIMATE IS NOT BASED ON A WASTE GENERATOR FORECAST.)

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:

2. Details concerning source (names, report no., dates, etc.)
Interview and conversation with K.E. Streeper, T.L. Trace,
and C.A. Pruett. (See A.10.)

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 - 319

1. Preparer: Henry Peterson2. Date prepared: 08/24/943. Generator: TAN
(area or contractor - use code from attached list)4. Particular facility: 629
(building number - use code from attached list)5. Number of waste stream from this facility:
2P6. Waste stream:
Sand-blasting grit contaminated with U-238 and scrap
pieces of U-238 (assumed).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 36.2200 Units Cubic meters.
Check box: ☐ annual or ☒ total over all years
Check box: ☐ container volume or ☒ waste volume10. Comments (specify number of pertinent question):
Volume and curie activities are based on a "not yet assigned" waste stream as projected by K.A.
Klossner, November 11, 1993. The estimate is based on assumptions of "1994 levels of funding and
production through CY-2003. However, if funding and/or production levels are cut, the amount of
direct disposed waste will increase one hundred fold".

1. General physical form (see attached list) Other scrap metals.
[X] other (specify) 42.
3. Chemical form: Oxide.
5. Waste container type (see attached list) Metal barrel.
7. Comments (specify number of pertinent question):
5. BLM (inside of an M-3 metal bin).
2. Details on physical form (particularly confinement related) Since there is no designation in the "Physical Form" list for sand (SiO₂), the number for "glass" (#42) was used.
4. Inner packaging: [] plastic bag [X] plastic liner [] metal liner [] none [X] other (specify) BLM.
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)

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-238	Particulate.	Oxide and metal.	T .00000560000000	CI	1994	2003	Y	N	-10%	+10%	Professional judgment.
U-235	Particulate.	Oxide and metal.	T .00080000000000	CI	1994	2003	Y	N	-10%	+10%	Professional judgment.
U-234	Particulate.	Oxide and metal.	T .00000232000000	CI	1994	2003	Y	N	-10%	+10%	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)

This estimate was based on the waste generator forecast proposed by K.A. Klossner, November, 1993, for contact handled disposal at RWMC. The U-234 and U-235 components were added in accordance with the guidance provided by Ref. Rich, 1988.

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:

2. Details concerning source (names, report no., dates, etc.)
Interview and discussion with R.K. Moss, Waste Manager at
SMC.

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 - 320

1. Preparer: Henry Peterson2. Date prepared: 08/27/943. Generator: TAN
(area or contractor - use code from attached list)4. Particular facility: 629
(building number - use code from attached list)5. Number of waste stream from this facility:
3P6. Waste stream:
Contact-handled waste for incineration.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 661.0000 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):

Volume and curie activities are based on a waste stream labeled as SMC-WCR-001-91 as defined by K.A. Klossner, November 11, 1993. The estimate is based on assumptions of current levels of funding and production through CY-2003.

1. General physical form (see attached list) Unknown.
[] other (specify) _____

2. Details on physical form (particularly confinement related)
Particulate contamination on incinerable items.

3. Chemical form: Oxide.

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

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

6. Other characteristics of interest:

7. Comments (specify number of pertinent question):
B-1. Based on professional judgment and container type, waste is probably cloth, anti-c's, plastic and paper (21 and 44).

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
U-238	Particulate.	Oxide and metal.	T .01800000000000	CI	1994	2003	Y	N	-10%	+10%	Professional judgment.
U-235	Particulate.	Oxide and metal.	T .00026000000000	CI	1994	2003	Y	N	-10%	+10%	Professional judgment.
U-234	Particulate.	Oxide and metal.	T .00750000000000	CI	1994	2003	Y	N	-10%	+10%	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)

This estimate was based on the waste generator forecast proposed by K.A. Klossner, November 1993, for incinerable waste. U-238 curie estimates are provided on the forecast and U-234 and U-235 were added in accordance with Figure 2-2 of the reference, Rich, 1988. The amount of waste would increase by orders of magnitude if the project is terminated.

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.)
Interview and discussion with R.K. Moss, Waste Manager at
SMC.

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 RWM SUBSURFACE DISPOSAL AREA

PART A - GENERAL INFORMATION PDT - 321

1. Preparer: Henry Peterson2. Date prepared: 08/27/943. Generator: TAN
(area or contractor - use code from attached list)4. Particular facility: 629
(building number - use code from attached list)5. Number of waste stream from this facility:
4P6. Waste stream:
Compactible waste from SMC.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 680.0000 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):

Volume and curie activities are based on a waste stream labeled as SMC-WCR-002-91 as defined by K.A. Klossner, November 11, 1993. The estimate is based on assumptions of current levels of funding and production through CY-2003.

1. General physical form (see attached list) Unknown.
[] other (specify) _____

2. Details on physical form (particularly confinement related)
Particulate contamination on compactible waste.

3. Chemical form:
Oxide.

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

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

6. Other characteristics of interest:

7. Comments (specify number of pertinent question):
B-1. Based on professional judgment and container type, waste is probably metals, Hepa filters, and other filters. (10, 22, and 23.)

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
U-238	Particulate.	Oxide and metal.	T .11000000000000	CI	1994	2003	Y	N	-10%	+10%	Professional judgment.
U-235	Particulate.	Oxide and metal.	T .00160000000000	CI	1994	2003	Y	N	-10%	+10%	Professional judgment.
U-234	Particulate.	Oxide and metal.	T .04500000000000	CI	1994	2003	Y	N	-10%	+10%	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)

This estimate was based on the waste generator forecast proposed by K.A. Klossner, November, 1993, for compactible waste. U-238 curie estimates are provided on the forecast and U-234 and U-235 were added in accordance with Figure 2-2 of the reference, Rich, 1988. The amount of waste would increase by orders of magnitude if the project is terminated.

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.)
Interview and discussion with R.K. Moss, Waste Manager at
SMC.

4. If other than best estimate, explain why:

6. If yes, explain why:

8. Key assumptions used to deal with the unknowns: