



Buried Transuranic-
Contaminated
Waste and Related
Materials Database

December 15, 1999

CONTENTS

HANFORD

Hanford Site 600 Area 618-10
Hanford Site 600 Area 618-11
Hanford Site 200 West Area 218-W-1
Hanford Site 200 West Area 218-W-2
Hanford Site 200 West Area 218-W-3
Hanford Site 200 West Area 218-W-4A
Hanford Site 200 West Area 218-W-4B
Hanford Site 200 East Area 218-E-12A
Hanford Site 200 West Area 241-Z-361
Hanford Site 200 West Area 241-T-361
Hanford Site 200 West Area 216-T-6
Hanford Site 200 West Area 216-S-1 & 2
Hanford Site 200 West Area 216-T-18
Hanford Site 200 West Area 216-T-3
Hanford Site 200 West Area 216-T-32
Hanford Site 200 West Area 216-Z-1
Hanford Site 200 West Area 216-Z-1, -2-TF
Hanford Site 200 West Area 216-Z-3
Hanford Site 200 West Area 216-Z-5
Hanford Site 200 West Area 216-Z-7
Hanford Site 200 West Area 216-Z-8
Hanford Site 200 West Area 216-Z-9
Hanford Site 200 West Area 216-Z-10
Hanford Site 200 West Area 216-Z-11
Hanford site 200 West Area 216-Z-12
Hanford Site 200 West Area 216-Z-18
Hanford Site 200 West Area 216-Z-19
Hanford Site 200 East Area 216-B-5
Hanford Site 200 East Area 216-B-361
Hanford Site 200 East Area 216-B-7 A&B
Hanford Site 200 East Area 216-E-15
Hanford Site 200 East Area 216-B-53A

IDAHO NATIONAL ENGINEERING AND ENVIRONMENTAL LABORATORY

Subsurface Disposal Area, Radioactive Waste Management Complex, Idaho National Engineering and Environmental Laboratory

LOS ALAMOS NATIONAL LABORATORY

Los Alamos National Laboratory TA-21 Material Disposal Area A
Los Alamos National Laboratory TA-21 Material Disposal Area B - Disposal Pits
Los Alamos National Laboratory TA-50 Material Disposal Area C - Pits
Los Alamos National Laboratory TA-54 Material Disposal Area G - Pits
Los Alamos National Laboratory TA-21 Material Disposal Area T - Shafts
Los Alamos National Laboratory TA-50 Material Disposal Area C - Shafts
Los Alamos National Laboratory TA-54 Material Disposal Area G - Shafts
Los Alamos National Laboratory TA-49 Material Disposal Area AB - Hydronuclear Test Shafts
Los Alamos National Laboratory TA-21 Material Disposal Area T - Absorption Beds
Los Alamos National Laboratory TA-21 Material Disposal Area V - Laundry Absorption Beds

I. Summary Estimates

A. Original Material (Emplaced Waste)

1a. Site/Area Name and Location: Los Alamos National Laboratory TA-21 Material Disposal Area A

1b. Origin: Material Disposal Area (MDA) A covers 5,000 square meters and contains two underground tanks, two pits on the east end, and a large pit in the center. MDA A was used actively for disposal during two periods: 1945 to 1949 and 1969 to 1977. The primary TRU waste contributors are two 50,000 gallon tanks (Generals Tanks) which were used for chemical storage awaiting improved chemical recovery processes. In 1985, the tanks were pumped and the exteriors decontaminated leaving several inches of residue within the tanks. The remaining disposal area volume is unlikely to contain TRU waste levels of contamination.

2. Type of Placement (check only one):

- a. Trench/Pit Burial
- b. Greater Confinement Disposal (GCD)
- c. Underground Injection
- d. Spill or Surface Discharge
- e. Surface Testing
- f. Underground Testing
- g. Other (Please Specify)

Remarks:

3a. Total volume of actual waste emplaced (not including packaging): 14000 m³

3b. Total volume of containers emplaced (including packaging): m³

This applies to 2a-d waste: soil contaminated from 2d-f would be reported in B.1. Actual waste volume is preferred over contained volume.

Please indicate how volumes were estimated and provide source citation(s)/report reference(s) in A.9 below.

Remarks: Volume of containers emplaced reported as Not Available.

Information obtained from Comprehensive Implementation Plan for the DOE Buried TRU-Contaminated Waste Program, Rockwell International, September 1987. Alternate Transuranic Waste Management Strategies at Los Alamos National Laboratory, L.J. Walker, LA-8982-MS, and TA-21 Operable Unit Report, RCRA Facility Investigation, 1991.

4. Type of Material (for 1a-d):

- Liquid
- Homogeneous Solids (if available, as: Sludges)
- Heterogeneous Debris
- Other (please specify):

Remarks: Pits used for disposal of Pu processing and early D&D wastes, and "Generals Tanks" which contain TRU sludges.

5. Of the total volume reported in 3 above:

Estimated percent exceeding 100 nCi/g: 5 Estimated percent between 10-100 nCi/g: 95

6. Total amount of TRU radionuclides in the original material: 25 Ci

(These units must be the same as those used in 7 below.)

7. Percent component key radionuclide(s): Please identify units used: Ci (weight % or Ci %)

(Must be the same as those used in 6 above.)

Am-241	Pu-238	Pu-239	Pu-240	Pu-241	Pu-242	U-233	Cm-244	Ra-266	Cf-252	Other	Other	Other
		47	47							6		

8. Estimates provided in Sections 6 and 7 above are based on: initial (emplaced) values If decayed, to what date?

9. Basis for waste information, notably how TRU values were estimated for 6 and 7 and how volumes were calculated for 3.

Poor initial records on pit contents and source term.

10. General level of confidence in the waste information: Low

Site/Area Name and Location: Los Alamos National Laboratory TA-21 Material Disposal Area A

Summary Estimates

B. Contaminated Soil (if applicable)

1. Estimated total volume of soil contaminated by the emplaced waste (solid or liquid) or by past testing: 0 m³

Please indicate how volumes were estimated and provide source citation(s)/report reference(s) in B.3 below.

Remarks: Mostly solid form waste disposal, not likely to contaminate soil to TRU waste levels.

2. Of this total volume of contaminated soil: Estimated percent exceeding 100 nCi/g: %

Estimated percent between 10-100 nCi/g: %

3. Basis for the soil information, including supporting volume calculations and the report reference(s)/citation(s):

4. General level of confidence in the soil information: Low

II. Supporting Volume Detail

1. Please provide for the initial waste and contaminated soil, with additional breakouts as can be provided.

	Total Volume	Volume with >100 nCi/g (m ³)		Volume with 10-100 nCi/g (m ³)	
		TRU	MTRU	LLW	MLLW
Emplaced Waste (combined)	14000	700		13300	
Liquids					
Homogeneous Solids					
Heterogeneous Solids	14000	700		13300	
Other (please specify)					
Contaminated Soil (best est.)					
Minimum Estimate					
Maximum Estimate					

2. The volume(s) of "waste emplaced" in this table represent: Volume of actual waste I.A.3.a

III. Anticipated Plans

Per baselines, as can be provided - e.g., only for the total initial waste and associated soil, and/or for further breakouts.

In-Place Management (Volume in m³)

	No Action	Access/Install. Controls	In-Situ Containment	Containment Type	In-Situ Treatment	Treatment Type
Emplaced Waste			14000			
TRU / MTRU			700			
aLLW / aMLLW			13300			
Contaminated Soil						
TRU / MTRU						
aLLW / aMLLW						

Removal for Further Management (Volume in m³)

	Collection and Treatment	Treatment Type	Collection and Storage	Storage Type and Location	Collection and Disposal	Disposal Location
Emplaced Waste						
TRU / MTRU						
aLLW / aMLLW						
Contaminated Soil						
TRU / MTRU						
aLLW / aMLLW						

(Response plans are often similar for mixed/non-mixed materials, so they have been combined above. Please use a "/" to separate entries where response plans differ, or provide additional information in IV below.

Site/Area Name and Location: Los Alamos National Laboratory TA-21 Material Disposal Area A

IV. Additional Supporting Information

1. Further supporting detail on response plans, as needed, including references or agreements that have resulted in the responses indicated above.

Project Plan for the Remediation of TA-21, February 1999.

2. Additional information about contaminants (e.g., further detail about those identified in I.A.7, or other radionuclides not yet discussed), including non-radiological content (e.g., hazardous chemicals), as appropriate.

3. Additional status of environmental management activities, e.g., ongoing/planned investigations, major milestones, and any additional notes on response plans.

EM-40 Funded RCRA Corrective Measures Study planned during Fiscal Year 2003 through the Los Alamos National Laboratory Environmental Restoration Project.

I. Summary Estimates

A. Original Material (Emplaced Waste)

1a. Site/Area Name and Location: Los Alamos National Laboratory TA-21 Material Disposal Area B - Disposal Pits

1b. Origin: Material Disposal Area (MDA) B was constructed in 1945 to handle wastes after completely filling MDA A in TA-21. The initial design specified an area of 15 by 300 feet and 12 feet deep. Later records indicate 4 trenches of various sizes. A fire occurred at MDA B in 1948 and waste disposal ended.

2. Type of Placement (check only one):

- a. Trench/Pit Burial
- b. Greater Confinement Disposal (GCD)
- c. Underground Injection
- d. Spill or Surface Discharge
- e. Surface Testing
- f. Underground Testing
- g. Other (Please Specify)

Remarks:

3a. Total volume of actual waste emplaced (not including packaging): 21000 m³

3b. Total volume of containers emplaced (including packaging): m³

This applies to 2a-d waste: soil contaminated from 2d-f would be reported in B.1. Actual waste volume is preferred over contained volume.

Please indicate how volumes were estimated and provide source citation(s)/report reference(s) in A.9 below.

Remarks: Volume of containers emplaced reported as Not Available.

Information obtained from Alternate Transuranic Waste Management Strategies at Los Alamos National Laboratory, L.J. Walker, LA-8982-MS, and TA-21 Operable Unit Report, RCRA Facility Investigation, 1991.

4. Type of Material (for 1a-d):

- Liquid
- Homogeneous Solids (if available, as:)
- Heterogeneous Debris
- Other (please specify):

Remarks: Records indicate both chemical and radioactive waste disposal. Employee interviews indicate chemical disposal of old bottles of organics, perchlorates, ethers, solvents, and pressurized gases. Radioactive debris from TA-21 operations, Trinity testing, and other radioactive debris was disposed in MDA B. Principal radioactive contaminants included plutonium, polonium, uranium, americium, curium, lanthanum, actinium, and fission products. It is estimated that MDA B contains no more than 100 grams Pu-239/240.

5. Of the total volume reported in 3 above:

Estimated percent exceeding 100 nCi/g: 2.5 Estimated percent between 10-100 nCi/g: 97.5

6. Total amount of TRU radionuclides in the original material: 0.1 kg

(These units must be the same as those used in 7 below.)

7. Percent component key radionuclide(s): Please identify units used: weight (weight % or Ci %)

(Must be the same as those used in 6 above.)

Am-241	Pu-238	Pu-239	Pu-240	Pu-241	Pu-242	U-233	Cm-244	Ra-266	Cf-252	Other	Other	Other
		100										

8. Estimates provided in Sections 6 and 7 above are based on: initial (emplaced) values If decayed, to what date?

9. Basis for waste information, notably how TRU values were estimated for 6 and 7 and how volumes were calculated for 3.

Poor initial records on pit contents and source term.

10. General level of confidence in the waste information: Low

Site/Area Name and Location: Los Alamos National Laboratory TA-21 Material Disposal Area B - Disposal Pits

Summary Estimates

B. Contaminated Soil (if applicable)

1. Estimated total volume of soil contaminated by the emplaced waste (solid or liquid) or by past testing: 0 m³
Please indicate how volumes were estimated and provide source citation(s)/report reference(s) in B.3 below.

Remarks: Mostly solid form waste, some waste packaged. Assume no cross-contamination of soil.

2. Of this total volume of contaminated soil: Estimated percent exceeding 100 nCi/g: %
Estimated percent between 10-100 nCi/g: %

3. Basis for the soil information, including supporting volume calculations and the report reference(s)/citation(s):

4. General level of confidence in the soil information: Low

II. Supporting Volume Detail

1. Please provide for the initial waste and contaminated soil, with additional breakouts as can be provided.

	Total Volume	Volume with >100 nCi/g (m ³)		Volume with 10-100 nCi/g (m ³)	
		TRU	MTRU	LLW	MLLW
Emplaced Waste (combined)	21000	525		15475	5000
Liquids					
Homogeneous Solids					
Heterogeneous Solids	21000	525		15475	5000
Other (please specify)					
Contaminated Soil (best est.)					
Minimum Estimate					
Maximum Estimate					

2. The volume(s) of "waste emplaced" in this table represent: Volume of actual waste I.A.3.a

III. Anticipated Plans

Per baselines, as can be provided - e.g., only for the total initial waste and associated soil, and/or for further breakouts.

In-Place Management (Volume in m³)

	No Action	Access/Install. Controls	In-Situ Containment	Containment Type	In-Situ Treatment	Treatment Type
Emplaced Waste			21000			
TRU / MTRU			525			
aLLW / aMLLW			20475			
Contaminated Soil						
TRU / MTRU						
aLLW / aMLLW						

Removal for Further Management (Volume in m³)

	Collection and Treatment	Treatment Type	Collection and Storage	Storage Type and Location	Collection and Disposal	Disposal Location
Emplaced Waste						
TRU / MTRU						
aLLW / aMLLW						
Contaminated Soil						
TRU / MTRU						
aLLW / aMLLW						

(Response plans are often similar for mixed/non-mixed materials, so they have been combined above. Please use a "/" to separate entries where response plans differ, or provide additional information in IV below.

Site/Area Name and Location: Los Alamos National Laboratory TA-21 Material Disposal Area B - Disposal Pits

IV. Additional Supporting Information

1. Further supporting detail on response plans, as needed, including references or agreements that have resulted in the responses indicated above.

Project Plan for the Remediation of TA-21, February 1999.

2. Additional information about contaminants (e.g., further detail about those identified in I.A.7, or other radionuclides not yet discussed), including non-radiological content (e.g., hazardous chemicals), as appropriate.

3. Additional status of environmental management activities, e.g., ongoing/planned investigations, major milestones, and any additional notes on response plans.

EM-40 Funded RCRA Corrective Measures Study planned during fiscal year 2000 through the Los Alamos National Laboratory Environmental Restoration Project.

I. Summary Estimates

A. Original Material (Emplaced Waste)

1a. Site/Area Name and Location: Los Alamos National Laboratory TA-50 Material Disposal Area C - Pits

1b. Origin: Disposal pits used between 1948 and 1969, containing 6 pits and a chemical pit.

2. Type of Placement (check only one):

- a. Trench/Pit Burial
- b. Greater Confinement Disposal (GCD)
- c. Underground Injection
- d. Spill or Surface Discharge
- e. Surface Testing
- f. Underground Testing
- g. Other (Please Specify)

Remarks:

3a. Total volume of actual waste emplaced (not including packaging): 103000 m³

3b. Total volume of containers emplaced (including packaging): m³

This applies to 2a-d waste: soil contaminated from 2d-f would be reported in B.1. Actual waste volume is preferred over contained volume.

Please indicate how volumes were estimated and provide source citation(s)/report reference(s) in A.9 below.

Remarks: Volume of containers emplaced reported as Not Available.

Information obtained from Alternate Transuranic Waste Management Strategies at Los Alamos National Laboratory, L.J. Walker, LA-8982-MS; Comprehensive Implementation Plan for the DOE Defense Buried TRU-Contaminated Waste Program, Rockwell International Westinghouse, E-JIO-025, September 1987; and Los Alamos National Laboratory OU 1147 (TA-50) RCRA Facility Investigation Work Plan, May 1992.

4. Type of Material (for 1a-d):

- Liquid
- Homogeneous Solids (if available, as:)
- Heterogeneous Debris
- Other (please specify):

Remarks:

5. Of the total volume reported in 3 above:

Estimated percent exceeding 100 nCi/g: 2.5 Estimated percent between 10-100 nCi/g: 97.5

6. Total amount of TRU radionuclides in the original material: 196 Ci

(These units must be the same as those used in 7 below.)

7. Percent component key radionuclide(s): Please identify units used: Ci (weight % or Ci %)

(Must be the same as those used in 6 above.)

Am-241	Pu-238	Pu-239	Pu-240	Pu-241	Pu-242	U-233	Cm-244	Ra-266	Cf-252	U	Other	Other
75		12.5								12.5		

8. Estimates provided in Sections 6 and 7 above are based on: initial (emplaced) values If decayed, to what date?

9. Basis for waste information, notably how TRU values were estimated for 6 and 7 and how volumes were calculated for 3.

10. General level of confidence in the waste information: Low

Site/Area Name and Location: Los Alamos National Laboratory TA-50 Material Disposal Area C - Pits

Summary Estimates

B. Contaminated Soil (if applicable)

1. Estimated total volume of soil contaminated by the emplaced waste (solid or liquid) or by past testing: 0 m³

Please indicate how volumes were estimated and provide source citation(s)/report reference(s) in B.3 below.

Remarks: Solid form waste disposal, not likely to contaminate soil to TRU waste levels.

2. Of this total volume of contaminated soil: Estimated percent exceeding 100 nCi/g: %

Estimated percent between 10-100 nCi/g: %

3. Basis for the soil information, including supporting volume calculations and the report reference(s)/citation(s):

4. General level of confidence in the soil information: Low

II. Supporting Volume Detail

1. Please provide for the initial waste and contaminated soil, with additional breakouts as can be provided.

	Total Volume	Volume with >100 nCi/g (m ³)		Volume with 10-100 nCi/g (m ³)	
		TRU	MTRU	LLW	MLLW
Emplaced Waste (combined)	103000	1925	675	75300	25100
Liquids					
Homogeneous Solids					
Heterogeneous Solids	103000	1925	675	75300	25100
Other (please specify)					
Contaminated Soil (best est.)					
Minimum Estimate					
Maximum Estimate					

2. The volume(s) of "waste emplaced" in this table represent: Volume of actual waste I.A.3.a

III. Anticipated Plans

Per baselines, as can be provided - e.g., only for the total initial waste and associated soil, and/or for further breakouts.

In-Place Management (Volume in m³)

	No Action	Access/Install. Controls	In-Situ Containment	Containment Type	In-Situ Treatment	Treatment Type
Emplaced Waste			103000			
TRU / MTRU			2600			
aLLW / aMLLW			100400			
Contaminated Soil						
TRU / MTRU						
aLLW / aMLLW						

Removal for Further Management (Volume in m³)

	Collection and Treatment	Treatment Type	Collection and Storage	Storage Type and Location	Collection and Disposal	Disposal Location
Emplaced Waste						
TRU / MTRU						
aLLW / aMLLW						
Contaminated Soil						
TRU / MTRU						
aLLW / aMLLW						

(Response plans are often similar for mixed/non-mixed materials, so they have been combined above. Please use a "/" to separate entries where response plans differ, or provide additional information in IV below.

Site/Area Name and Location: Los Alamos National Laboratory TA-50 Material Disposal Area C - Pits

IV. Additional Supporting Information

1. Further supporting detail on response plans, as needed, including references or agreements that have resulted in the responses indicated above.

2. Additional information about contaminants (e.g., further detail about those identified in I.A.7, or other radionuclides not yet discussed), including non-radiological content (e.g., hazardous chemicals), as appropriate.

3. Additional status of environmental management activities, e.g., ongoing/planned investigations, major milestones, and any additional notes on response plans.

EM-40 Funded RCRA Corrective Measures Study planned during Fiscal Year 2001 through the Los Alamos National Laboratory Environmental Restoration Project.

I. Summary Estimates

A. Original Material (Emplaced Waste)

1a. Site/Area Name and Location: Los Alamos National Laboratory TA-54 Material Disposal Area G - Pits

1b. Origin: Since 1957, Technical Area 54 (TA-54) Material Disposal Area (MDA) G has been the primary disposal area for TRU waste and LLW. These areas received a combination of TRU waste, LLW, Mixed Activation Products, and Mixed LLW (MLLW). The DOE/University of California ceased disposal of MLLW in MDA G when retrievable arrays were installed at MDA L. The total surface area of the shafts is 580 square meters and the pit area is approximately 33,000 square meters.

2. Type of Placement (check only one):

- a. Trench/Pit Burial
- b. Greater Confinement Disposal (GCD)
- c. Underground Injection
- d. Spill or Surface Discharge
- e. Surface Testing
- f. Underground Testing
- g. Other (Please Specify)

Remarks:

3a. Total volume of actual waste emplaced (not including packaging): 184000 m³

3b. Total volume of containers emplaced (including packaging): m³

This applies to 2a-d waste: soil contaminated from 2d-f would be reported in B.1. Actual waste volume is preferred over contained volume.

Please indicate how volumes were estimated and provide source citation(s)/report reference(s) in A.9 below.

Remarks: Volume of containers emplaced reported as Not Applicable.

The primary data source is Appendix 2e of the TA-54 Performance Assessment, which shows 56,000 cubic meters of total pit disposal volume prior to 1971, and 128,000 cubic meters of total pit disposal volume after 1971. Of the total pit volume, 4,710 cubic meters of known TRU waste were disposed before 1971, and 75 cubic meters of TRU waste were placed in the pits after 1971. After 1979 no additional TRU waste has been placed in a non-retrievable configuration. Information obtained from Performance Assessment and Composite Analysis for Los Alamos National Laboratory Material Disposal Area G, LAUR-97-85, March 1997. Alternate Transuranic Waste Management Strategies at Los Alamos National Laboratory, L.J. Walker, LA-8982-MS.

Handwritten calculations:

$$\begin{array}{r} 56 \\ 128 \\ \hline 184 \end{array}$$

128,000
56,000

184,000

4. Type of Material (for 1a-d):

- Liquid
- Homogeneous Solids (if available, as:)
- Heterogeneous Debris
- Other (please specify):

Remarks:

5. Of the total volume reported in 3 above:

Estimated percent exceeding 100 nCi/g: 2.6 Estimated percent between 10-100 nCi/g: 97.4

6. Total amount of TRU radionuclides in the original material: 20844 Ci ✓

(These units must be the same as those used in 7 below.)

7. Percent component key radionuclide(s): Please identify units used: Ci (weight % or Ci %)

(Must be the same as those used in 6 above.)

Am-241 Pu-238 Pu-239 Pu-240 Pu-241 Pu-242 U-233 Cm-244 Ra-266 Cf-252 Other Other Other

100

Handwritten calculations:

$$\begin{array}{r} 20844 \\ 7676 \\ \hline 28520 \end{array}$$

8. Estimates provided in Sections 6 and 7 above are based on: initial (emplaced) values If decayed, to what date?

9. Basis for waste information, notably how TRU values were estimated for 6 and 7 and how volumes were calculated for 3.

All activity is assumed to be Pu-239 because no inventory data are available.

10. General level of confidence in the waste information: Low

Site/Area Name and Location: Los Alamos National Laboratory TA-54 Material Disposal Area G - Pits

Summary Estimates

B. Contaminated Soil (if applicable)

1. Estimated total volume of soil contaminated by the emplaced waste (solid or liquid) or by past testing: 0 m³
Please indicate how volumes were estimated and provide source citation(s)/report reference(s) in B.3 below.

Remarks: Solid form waste disposal, not likely to contaminate soil to TRU waste levels.

2. Of this total volume of contaminated soil: Estimated percent exceeding 100 nCi/g: %
Estimated percent between 10-100 nCi/g: %

3. Basis for the soil information, including supporting volume calculations and the report reference(s)/citation(s):

4. General level of confidence in the soil information: Low

II. Supporting Volume Detail

1. Please provide for the initial waste and contaminated soil, with additional breakouts as can be provided.

	Total Volume	Volume with >100 nCi/g (m ³)		Volume with 10-100 nCi/g (m ³)	
		TRU	MTRU	LLW	MLLW
Emplaced Waste (combined)	184000	4785		179215	
Liquids					
Homogeneous Solids					
Heterogeneous Solids	184000	4785		179215	
Other (please specify)					
Contaminated Soil (best est.)					
Minimum Estimate					
Maximum Estimate					

2. The volume(s) of "waste emplaced" in this table represent:

Volume of actual waste I.A.3.a

Site/Area Name and Location: Los Alamos National Laboratory TA-54 Material Disposal Area G - Pits

III. Anticipated Plans

Per baselines, as can be provided - e.g., only for the total initial waste and associated soil, and/or for further breakouts.

In-Place Management (Volume in m^3)

	No Action	Access/Install. Controls	In-Situ Containment	Containment Type	In-Situ Treatment	Treatment Type
Emplaced Waste			184000			
TRU / MTRU			4785			
aLLW / aMLLW			179215			
Contaminated Soil						
TRU / MTRU						
aLLW / aMLLW						

Removal for Further Management (Volume in m^3)

	Collection and Treatment	Treatment Type	Collection and Storage	Storage Type and Location	Collection and Disposal	Disposal Location
Emplaced Waste						
TRU / MTRU						
aLLW / aMLLW						
Contaminated Soil						
TRU / MTRU						
aLLW / aMLLW						

(Response plans are often similar for mixed/non-mixed materials, so they have been combined above. Please use a "/" to separate entries where response plans differ, or provide additional information in IV below.

Site/Area Name and Location: Los Alamos National Laboratory TA-54 Material Disposal Area G - Pits

IV. Additional Supporting Information

1. Further supporting detail on response plans, as needed, including references or agreements that have resulted in the responses indicated above.

2. Additional information about contaminants (e.g., further detail about those identified in I.A.7, or other radionuclides not yet discussed), including non-radiological content (e.g., hazardous chemicals), as appropriate.

3. Additional status of environmental management activities, e.g., ongoing/planned investigations, major milestones, and any additional notes on response plans.

EM-40 Funded RCRA Facility Investigation (RFI) and Corrective Measures Study planned during Fiscal Year 2000 - 2001 through the Los Alamos National Laboratory Environmental Restoration Project. Draft RFI Report for TA-54 is scheduled for final release September 1999.

I. Summary Estimates

A. Original Material (Emplaced Waste)

1a. Site/Area Name and Location: Los Alamos National Laboratory TA-50 Material Disposal Area C - Shafts

1b. Origin: Disposal pits used between 1948 and 1969 containing 107 shafts. Reports estimate that 50 percent of the shafts contain TRU waste.

2. Type of Placement (check only one):

- | | |
|--|---|
| <input type="radio"/> a. Trench/Pit Burial | <input type="radio"/> e. Surface Testing |
| <input checked="" type="radio"/> b. Greater Confinement Disposal (GCD) | <input type="radio"/> f. Underground Testing |
| <input type="radio"/> c. Underground Injection | <input type="radio"/> g. Other (Please Specify) |
| <input type="radio"/> d. Spill or Surface Discharge | <input type="text"/> |

Remarks:

3a. Total volume of actual waste emplaced (not including packaging): 140 m³

3b. Total volume of containers emplaced (including packaging): m³

This applies to 2a-d waste: soil contaminated from 2d-f would be reported in B.1. Actual waste volume is preferred over contained volume.

Please indicate how volumes were estimated and provide source citation(s)/report reference(s) in A.9 below.

Remarks: Volume of containers emplaced reported as Not Available.

Information obtained from Alternate Transuranic Waste Management Strategies at Los Alamos National Laboratory, L.J. Walker, LA-8982-MS; Comprehensive Implementation Plan for the DOE Defense Buried TRU-Contaminated Waste Program, Rockwell International Westinghouse, E-JIO-025, September 1987; and Los Alamos National Laboratory OU 1147 (TA-50) RCRA Facility Investigation Work Plan, May 1992.

4. Type of Material (for 1a-d):

- | | |
|--|--|
| <input type="checkbox"/> Liquid | <input checked="" type="checkbox"/> Heterogeneous Debris |
| <input type="checkbox"/> Homogeneous Solids (if available, as: |) <input type="checkbox"/> Other (please specify): |

Remarks:

5. Of the total volume reported in 3 above:

Estimated percent exceeding 100 nCi/g: 50 Estimated percent between 10-100 nCi/g: 50

6. Total amount of TRU radionuclides in the original material: 57 Ci

(These units must be the same as those used in 7 below.)

7. Percent component key radionuclide(s): Please identify units used: Ci (weight % or Ci %)

(Must be the same as those used in 6 above.)

Am-241	Pu-238	Pu-239	Pu-240	Pu-241	Pu-242	U-233	Cm-244	Ra-266	Cf-252	Other	Other	Other
	100											

8. Estimates provided in Sections 6 and 7 above are based on: initial (emplaced) values If decayed, to what date?

9. Basis for waste information, notably how TRU values were estimated for 6 and 7 and how volumes were calculated for 3.

10. General level of confidence in the waste information: Low

Site/Area Name and Location: Los Alamos National Laboratory TA-50 Material Disposal Area C - Shafts

Summary Estimates

B. Contaminated Soil (if applicable)

1. Estimated total volume of soil contaminated by the emplaced waste (solid or liquid) or by past testing: 0 m³

Please indicate how volumes were estimated and provide source citation(s)/report reference(s) in B.3 below.

Remarks: Solid form waste disposal, not likely to contaminate soil to TRU waste levels.

2. Of this total volume of contaminated soil: Estimated percent exceeding 100 nCi/g: %

Estimated percent between 10-100 nCi/g: %

3. Basis for the soil information, including supporting volume calculations and the report reference(s)/citation(s):

4. General level of confidence in the soil information: Low

II. Supporting Volume Detail

1. Please provide for the initial waste and contaminated soil, with additional breakouts as can be provided.

	Total Volume	Volume with >100 nCi/g (m ³)		Volume with 10-100 nCi/g (m ³)	
		TRU	MTRU	LLW	MLLW
Emplaced Waste (combined)	140	70		70	
Liquids					
Homogeneous Solids					
Heterogeneous Solids	140	70		70	
Other (please specify)					
Contaminated Soil (best est.)					
Minimum Estimate					
Maximum Estimate					

2. The volume(s) of "waste emplaced" in this table represent: Volume of actual waste I.A.3.a

III. Anticipated Plans

Per baselines, as can be provided - e.g., only for the total initial waste and associated soil, and/or for further breakouts.

In-Place Management (Volume in m^3)

	No Action	Access/Install. Controls	In-Situ Containment	Containment Type	In-Situ Treatment	Treatment Type
Emplaced Waste			140			
TRU / MTRU			70			
aLLW / aMLLW			70			
Contaminated Soil						
TRU / MTRU						
aLLW / aMLLW						

Removal for Further Management (Volume in m^3)

	Collection and Treatment	Treatment Type	Collection and Storage	Storage Type and Location	Collection and Disposal	Disposal Location
Emplaced Waste						
TRU / MTRU						
aLLW / aMLLW						
Contaminated Soil						
TRU / MTRU						
aLLW / aMLLW						

(Response plans are often similar for mixed/non-mixed materials, so they have been combined above. Please use a "/" to separate entries where response plans differ, or provide additional information in IV below.

Site/Area Name and Location: Los Alamos National Laboratory TA-50 Material Disposal Area C - Shafts

IV. Additional Supporting Information

1. Further supporting detail on response plans, as needed, including references or agreements that have resulted in the responses indicated above.

2. Additional information about contaminants (e.g., further detail about those identified in I.A.7, or other radionuclides not yet discussed), including non-radiological content (e.g., hazardous chemicals), as appropriate.

3. Additional status of environmental management activities, e.g., ongoing/planned investigations, major milestones, and any additional notes on response plans.

EM-40 Funded RCRA Corrective Measures Study planned during Fiscal Year 2001 through the Los Alamos National Laboratory Environmental Restoration Project.

I. Summary Estimates

A. Original Material (Emplaced Waste)

1a. Site/Area Name and Location: Los Alamos National Laboratory TA-54 Material Disposal Area G - Shafts

1b. Origin: Since 1957, Technical Area 54 (TA-54) Material Disposal Area (MDA) G has been the primary disposal area for TRU waste and LLW. These areas received a combination of TRU waste, LLW, mixed activation products, and Mixed LLW (MLLW). The total surface area of the shafts is 580 square meters and the pit area is approximately 33,000 square meters.

2. Type of Placement (check only one):

- a. Trench/Pit Burial
- b. Greater Confinement Disposal (GCD)
- c. Underground Injection
- d. Spill or Surface Discharge
- e. Surface Testing
- f. Underground Testing
- g. Other (Please Specify)

Remarks:

3a. Total volume of actual waste emplaced (not including packaging): 1050 m³

3b. Total volume of containers emplaced (including packaging): m³

This applies to 2a-d waste: soil contaminated from 2d-f would be reported in B.1. Actual waste volume is preferred over contained volume.

Please indicate how volumes were estimated and provide source citation(s)/report reference(s) in A.9 below.

Remarks: Volume of containers emplaced reported as Not Available.

The primary data source is Appendix 2e of the TA-54 Performance Assessment, which shows 150 cubic meters of total shaft disposal volume prior to 1971, and 900 cubic meters of total shaft disposal volume after 1971. Of the total shaft volume, 1.2 cubic meters of known TRU waste were disposed before 1971, and 75 cubic meters of TRU waste were placed in the shafts after 1971. After 1979 no additional TRU waste has been placed in a non-retrievable configuration. Information obtained from Performance Assessment and Composite Analysis for Los Alamos National Laboratory Material Disposal Area G, LAUR-97-85, March 1997; and Alternate Transuranic Waste Management Strategies at Los Alamos National Laboratory, L.J. Walker, LA-8982-MS.

4. Type of Material (for 1a-d):

- Liquid
- Heterogeneous Debris
- Homogeneous Solids (if available, as:)
- Other (please specify):

Remarks:

5. Of the total volume reported in 3 above:

Estimated percent exceeding 100 nCi/g: 0.5 Estimated percent between 10-100 nCi/g: 99.5

6. Total amount of TRU radionuclides in the original material: 3630 Ci

(These units must be the same as those used in 7 below.)

7. Percent component key radionuclide(s): Please identify units used: Ci (weight % or Ci %)

(Must be the same as those used in 6 above.)

Am-241	Pu-238	Pu-239	Pu-240	Pu-241	Pu-242	U-233	Cm-244	Ra-266	Cf-252	Other	Other	Other
100												

8. Estimates provided in Sections 6 and 7 above are based on: initial (emplaced) values If decayed, to what date?

9. Basis for waste information, notably how TRU values were estimated for 6 and 7 and how volumes were calculated for 3.

All activity is assumed to be Pu-239 because no inventory data are available.

10. General level of confidence in the waste information: Low

II. Supporting Volume Detail

1. Please provide for the initial waste and contaminated soil, with additional breakouts as can be provided.

	Total Volume	Volume with >100 nCi/g (m ³)		Volume with 10-100 nCi/g (m ³)	
		TRU	MTRU	LLW	MLLW
Emplaced Waste (combined)	1050	6		1044	
Liquids					
Homogeneous Solids					
Heterogeneous Solids	1050	6		1044	
Other (please specify)					
Contaminated Soil (best est.)					
Minimum Estimate					
Maximum Estimate					

2. The volume(s) of "waste emplaced" in this table represent: Volume of actual waste I.A.3.a

III. Anticipated Plans

Per baselines, as can be provided - e.g., only for the total initial waste and associated soil, and/or for further breakouts.

In-Place Management (Volume in m³)

	No Action	Access/Install. Controls	In-Situ Containment	Containment Type	In-Situ Treatment	Treatment Type
Emplaced Waste			1050			
TRU / MTRU			6			
aLLW / aMLLW			1044			
Contaminated Soil						
TRU / MTRU						
aLLW / aMLLW						

Removal for Further Management (Volume in m³)

	Collection and Treatment	Treatment Type	Collection and Storage	Storage Type and Location	Collection and Disposal	Disposal Location
Emplaced Waste						
TRU / MTRU						
aLLW / aMLLW						
Contaminated Soil						
TRU / MTRU						
aLLW / aMLLW						

(Response plans are often similar for mixed/non-mixed materials, so they have been combined above. Please use a "/" to separate entries where response plans differ, or provide additional information in IV below.

Site/Area Name and Location: Los Alamos National Laboratory TA-54 Material Disposal Area G - Shafts

IV. Additional Supporting Information

1. Further supporting detail on response plans, as needed, including references or agreements that have resulted in the responses indicated above.

2. Additional information about contaminants (e.g., further detail about those identified in I.A.7, or other radionuclides not yet discussed), including non-radiological content (e.g., hazardous chemicals), as appropriate.

3. Additional status of environmental management activities, e.g., ongoing/planned investigations, major milestones, and any additional notes on response plans.

EM-40 Funded RCRA Facility Investigation (RFI) and Corrective Measures Study planned during Fiscal Year 2000 - 2001 through the Los Alamos National Laboratory Environmental Restoration Project. Draft RFI Report for TA-54 MDA G is scheduled for final release September 1999.

I. Summary Estimates

A. Original Material (Emplaced Waste)

1a. Site/Area Name and Location: Los Alamos National Laboratory TA-21 Material Disposal Area T - Shaft Disposal

1b. Origin: TA-21 DP West Pu and U Processing

2. Type of Placement (check only one):

- a. Trench/Pit Burial
- b. Greater Confinement Disposal (GCD)
- c. Underground Injection
- d. Spill or Surface Discharge
- e. Surface Testing
- f. Underground Testing
- g. Other (Please Specify)

Remarks: Fifty-six shafts between eight and 85 feet below ground surface which received liquid treatment sludges and effluent in a cement paste and grout form.

3a. Total volume of actual waste emplaced (not including packaging): 3800 m³

3b. Total volume of containers emplaced (including packaging): m³

This applies to 2a-d waste: soil contaminated from 2d-f would be reported in B.1. Actual waste volume is preferred over contained volume.

Please indicate how volumes were estimated and provide source citation(s)/report reference(s) in A.9 below.

Remarks: Volume of containers emplaced reported as Not Available.

Information obtained from Alternate Transuranic Waste Management Strategies at Los Alamos National Laboratory, L.J. Walker, LA-8982-MS; and TA-21 Operable Unit Report, RCRA Facility Investigation, 1991.

4. Type of Material (for 1a-d):

- Liquid
- Homogeneous Solids (if available, as:)
- Heterogeneous Debris
- Other (please specify):

Remarks: Grout containing sludges from liquid waste treatment, disposed in 56 shafts between eight and 85 feet below ground surface.

5. Of the total volume reported in 3 above:

Estimated percent exceeding 100 nCi/g: 95 Estimated percent between 10-100 nCi/g: 5

6. Total amount of TRU radionuclides in the original material: 4000 Ci

(These units must be the same as those used in 7 below.)

7. Percent component key radionuclide(s): Please identify units used: Ci (weight % or Ci %)

(Must be the same as those used in 6 above.)

Am-241	Pu-238	Pu-239	Pu-240	Pu-241	Pu-242	U-233	Cm-244	Ra-266	Cf-252	Other	Other	Other
92	3	2				0.1				2.9		

8. Estimates provided in Sections 6 and 7 above are based on: initial (emplaced) values If decayed, to what date?

9. Basis for waste information, notably how TRU values were estimated for 6 and 7 and how volumes were calculated for 3.

Los Alamos National Laboratory EM/SWO TRU Database indicates that the total curies discharged to the shafts after 1971 was 3,445.75 Ci (distributed by initial activity: Am-241: 92%; Pu-238: 6%; Pu-239: 2%; all others: <1%). This inventory does not include the total discharge to the shafts.

10. General level of confidence in the waste information: Medium

Site/Area Name and Location: Los Alamos National Laboratory TA-21 Material Disposal Area T - Shaft Disposal

Summary Estimates

B. Contaminated Soil (if applicable)

1. Estimated total volume of soil contaminated by the emplaced waste (solid or liquid) or by past testing: 0 m³

Please indicate how volumes were estimated and provide source citation(s)/report reference(s) in B.3 below.

Remarks:

2. Of this total volume of contaminated soil: Estimated percent exceeding 100 nCi/g: %

Estimated percent between 10-100 nCi/g: %

3. Basis for the soil information, including supporting volume calculations and the report reference(s)/citation(s):

4. General level of confidence in the soil information: Medium

Site/Area Name and Location: Los Alamos National Laboratory TA-21 Material Disposal Area T - Shaft Disposal

II. Supporting Volume Detail

1. Please provide for the initial waste and contaminated soil, with additional breakouts as can be provided.

	Total Volume	Volume with >100 nCi/g (m ³)		Volume with 10-100 nCi/g (m ³)	
		TRU	MTRU	LLW	MLLW
Emplaced Waste (combined)	3800	3610		190	
Liquids					
Homogeneous Solids	3800	3610		190	
Heterogeneous Solids					
Other (please specify)					
Contaminated Soil (best est.)					
Minimum Estimate					
Maximum Estimate					

2. The volume(s) of "waste emplaced" in this table represent: Volume of actual waste I.A.3.a

III. Anticipated Plans

Per baselines, as can be provided - e.g., only for the total initial waste and associated soil, and/or for further breakouts.

In-Place Management (Volume in m³)

	No Action	Access/Install. Controls	In-Situ Containment	Containment Type	In-Situ Treatment	Treatment Type
Emplaced Waste			3800			
TRU / MTRU			3610			
aLLW / aMLLW			190			
Contaminated Soil						
TRU / MTRU						
aLLW / aMLLW						

Removal for Further Management (Volume in m³)

	Collection and Treatment	Treatment Type	Collection and Storage	Storage Type and Location	Collection and Disposal	Disposal Location
Emplaced Waste						
TRU / MTRU						
aLLW / aMLLW						
Contaminated Soil						
TRU / MTRU						
aLLW / aMLLW						

(Response plans are often similar for mixed/non-mixed materials, so they have been combined above. Please use a "/" to separate entries where response plans differ, or provide additional information in IV below.

Site/Area Name and Location: Los Alamos National Laboratory TA-21 Material Disposal Area T - Shaft Disposal

IV. Additional Supporting Information

1. Further supporting detail on response plans, as needed, including references or agreements that have resulted in the responses indicated above.

Project Plan for the Remediation of TA-21, February 1999.

2. Additional information about contaminants (e.g., further detail about those identified in I.A.7, or other radionuclides not yet discussed), including non-radiological content (e.g., hazardous chemicals), as appropriate.

3. Additional status of environmental management activities, e.g., ongoing/planned investigations, major milestones, and any additional notes on response plans.

EM-40 funded RCRA Corrective Measures Study planned during Fiscal Year 2001 through the Los Alamos National Laboratory Environmental Restoration Project.

I. Summary Estimates

A. Original Material (Emplaced Waste)

1a. Site/Area Name and Location: Los Alamos National Laboratory TA-49 Material Disposal Area AB - Hydronuclear Test Shafts

1b. Origin: Technical Area (TA-49) was used for an intense period of experimental activity from 1959 through 1961 during which a significant amount of plutonium, uranium, lead, and beryllium were used in nuclear safety and related experiments in underground shafts.

2. Type of Placement (check only one):

- a. Trench/Pit Burial
- b. Greater Confinement Disposal (GCD)
- c. Underground Injection
- d. Spill or Surface Discharge
- e. Surface Testing
- f. Underground Testing
- g. Other (Please Specify)

Remarks: Unpackaged source term in 44 shafts between 31 and 142 feet below ground surface.

3a. Total volume of actual waste emplaced (not including packaging): 4400 m³

3b. Total volume of containers emplaced (including packaging): m³

This applies to 2a-d waste: soil contaminated from 2d-f would be reported in B.1. Actual waste volume is preferred over contained volume.

Please indicate how volumes were estimated and provide source citation(s)/report reference(s) in A.9 below.

Remarks: Volume of containers emplaced reported as Not Available. 100 cubic meters of contaminated soil/rock was created by each of the 44 shots.

4. Type of Material (for 1a-d):

- Liquid
- Homogeneous Solids (if available, as:)
- Heterogeneous Debris
- Other (please specify): TRU contamination distributed in soil surrounding experiment locations.

Remarks: The experiments involved high explosive dispersal of significant quantities of special nuclear material, lead, beryllium, and uranium-238 at the bottom of shafts.

5. Of the total volume reported in 3 above:

Estimated percent exceeding 100 nCi/g: 100 Estimated percent between 10-100 nCi/g: 0

6. Total amount of TRU radionuclides in the original material: 302.24 kg

(These units must be the same as those used in 7 below.)

7. Percent component key radionuclide(s): Please identify units used: weight (weight % or Ci %)

(Must be the same as those used in 6 above.)

Am-241	Pu-238	Pu-239	Pu-240	Pu-241	Pu-242	U-233	Cm-244	Ra-266	Cf-252	U-235	U-238	Pu
										31	56	13

8. Estimates provided in Sections 6 and 7 above are based on: initial (emplaced) values If decayed, to what date?

9. Basis for waste information, notably how TRU values were estimated for 6 and 7 and how volumes were calculated for 3.

TA-49 Operable Unit RCRA Facility Investigation Work Plan, May 1992, data Table 7-4.

10. General level of confidence in the waste information: Medium

II. Supporting Volume Detail

1. Please provide for the initial waste and contaminated soil, with additional breakouts as can be provided.

	Total Volume	Volume with >100 nCi/g (m ³)		Volume with 10-100 nCi/g (m ³)	
		TRU	MTRU	LLW	MLLW
Emplaced Waste (combined)	4400	4400			
Liquids					
Homogeneous Solids	4400	4400			
Heterogeneous Solids					
Other (please specify)					
Contaminated Soil (best est.)					
Minimum Estimate					
Maximum Estimate					

2. The volume(s) of "waste emplaced" in this table represent: Volume of actual waste I.A.3.a

Site/Area Name and Location: Los Alamos National Laboratory TA-49 Material Disposal Area AB - Hydronuclear Test Shafts

III. Anticipated Plans

Per baselines, as can be provided - e.g., only for the total initial waste and associated soil, and/or for further breakouts.

In-Place Management (Volume in m³)

	No Action	Access/Install. Controls	In-Situ Containment	Containment Type	In-Situ Treatment	Treatment Type
Emplaced Waste			4400			
TRU / MTRU			4400			
aLLW / aMLLW						
Contaminated Soil						
TRU / MTRU						
aLLW / aMLLW						

Removal for Further Management (Volume in m³)

	Collection and Treatment	Treatment Type	Collection and Storage	Storage Type and Location	Collection and Disposal	Disposal Location
Emplaced Waste						
TRU / MTRU						
aLLW / aMLLW						
Contaminated Soil						
TRU / MTRU						
aLLW / aMLLW						

(Response plans are often similar for mixed/non-mixed materials, so they have been combined above. Please use a "/" to separate entries where response plans differ, or provide additional information in IV below.

Site/Area Name and Location: Los Alamos National Laboratory TA-49 Material Disposal Area AB - Hydronuclear Test Shafts

IV. Additional Supporting Information

1. Further supporting detail on response plans, as needed, including references or agreements that have resulted in the responses indicated above.

Stabilization Plan for Implementing Interim Measures and Best Management Practices at PRSs 49-001 (b,c,d, and g), July 14, 1998.

2. Additional information about contaminants (e.g., further detail about those identified in I.A.7, or other radionuclides not yet discussed), including non-radiological content (e.g., hazardous chemicals), as appropriate.

3. Additional status of environmental management activities, e.g., ongoing/planned investigations, major milestones, and any additional notes on response plans.

EM-40 Funded RCRA Corrective Measures Study planned during Fiscal Year 2004 through the Los Alamos National Laboratory Environmental Restoration Project.

I. Summary Estimates

A. Original Material (Emplaced Waste)

1a. Site/Area Name and Location: Los Alamos National Laboratory TA-21 Material Disposal Area T - Absorption Beds

1b. Origin: TA-21 DP West Pu and U Processing

2. Type of Placement (check only one):

<input checked="" type="radio"/> a. Trench/Pit Burial	<input type="radio"/> e. Surface Testing
<input type="radio"/> b. Greater Confinement Disposal (GCD)	<input type="radio"/> f. Underground Testing
<input type="radio"/> c. Underground Injection	<input type="radio"/> g. Other (Please Specify)
<input type="radio"/> d. Spill or Surface Discharge	<input type="text"/>

Remarks: Four absorption beds that received raw liquid treatment effluent prior to construction of TA-21-35 Treatment Facility, and treated waste thereafter. Discharge was recorded from 1943 to 1967. Early discharges were from Pu and U operations; later discharges were from tritium facilities at DP East.

3a. Total volume of actual waste emplaced (not including packaging): 2700 m³

3b. Total volume of containers emplaced (including packaging): m³

This applies to 2a-d waste: soil contaminated from 2d-f would be reported in B.1. Actual waste volume is preferred over contained volume.

Please indicate how volumes were estimated and provide source citation(s)/report reference(s) in A.9 below.

Remarks: Volume of containers emplaced reported as None.

Information obtained from Alternate Transuranic Waste Management Strategies at Los Alamos National Laboratory, L.J. Walker, LA-8982-MS; and TA-21 Operable Unit Report, RCRA Facility Investigation, 1991.

4. Type of Material (for 1a-d):

- Liquid Heterogeneous Debris
- Homogeneous Solids (if available, as:) Other (please specify):

Remarks:

5. Of the total volume reported in 3 above:

Estimated percent exceeding 100 nCi/g: 6 Estimated percent between 10-100 nCi/g: 94

6. Total amount of TRU radionuclides in the original material: 10 Ci

(These units must be the same as those used in 7 below.)

7. Percent component key radionuclide(s): Please identify units used: Ci (weight % or Ci %)

(Must be the same as those used in 6 above.)

Am-241	Pu-238	Pu-239	Pu-240	Pu-241	Pu-242	U-233	Cm-244	Ra-266	Cf-252	Other	Other	Other
			100									

8. Estimates provided in Sections 6 and 7 above are based on: initial (emplaced) values If decayed, to what date?

9. Basis for waste information, notably how TRU values were estimated for 6 and 7 and how volumes were calculated for 3.

10. General level of confidence in the waste information: Medium

Site/Area Name and Location: Los Alamos National Laboratory TA-21 Material Disposal Area T - Absorption Beds

i. Summary Estimates

B. Contaminated Soil (if applicable)

1. Estimated total volume of soil contaminated by the emplaced waste (solid or liquid) or by past testing: 0 m^3
Please indicate how volumes were estimated and provide source citation(s)/report reference(s) in B.3 below.

Remarks:

2. Of this total volume of contaminated soil: Estimated percent exceeding 100 nCi/g: %
Estimated percent between 10-100 nCi/g: %

3. Basis for the soil information, including supporting volume calculations and the report reference(s)/citation(s):

4. General level of confidence in the soil information: Medium

II. Supporting Volume Detail

1. Please provide for the initial waste and contaminated soil, with additional breakouts as can be provided.

	Total Volume	Volume with >100 nCi/g (m ³)		Volume with 10-100 nCi/g (m ³)	
		TRU	MTRU	LLW	MLLW
Emplaced Waste (combined)	2700	162		2538	
Liquids					
Homogeneous Solids	2700	162		2538	
Heterogeneous Solids					
Other (please specify)					
Contaminated Soil (best est.)					
Minimum Estimate					
Maximum Estimate					

2. The volume(s) of "waste emplaced" in this table represent:

Site/Area Name and Location: Los Alamos National Laboratory TA-21 Material Disposal Area T - Absorption Beds

III. Anticipated Plans

Per baselines, as can be provided - e.g., only for the total initial waste and associated soil, and/or for further breakouts.

In-Place Management (Volume in m³)

	No Action	Access/Install. Controls	In-Situ Containment	Containment Type	In-Situ Treatment	Treatment Type
Emplaced Waste			2700			
TRU / MTRU			162			
aLLW / aMLLW			2538			
Contaminated Soil						
TRU / MTRU						
aLLW / aMLLW						

Removal for Further Management (Volume in m³)

	Collection and Treatment	Treatment Type	Collection and Storage	Storage Type and Location	Collection and Disposal	Disposal Location
Emplaced Waste						
TRU / MTRU						
aLLW / aMLLW						
Contaminated Soil						
TRU / MTRU						
aLLW / aMLLW						

(Response plans are often similar for mixed/non-mixed materials, so they have been combined above. Please use a "/" to separate entries where response plans differ, or provide additional information in IV below.

Site/Area Name and Location: Los Alamos National Laboratory TA-21 Material Disposal Area T - Absorption Beds

IV. Additional Supporting Information

1. Further supporting detail on response plans, as needed, including references or agreements that have resulted in the responses indicated above.

Project Plan for the Remediation of TA-21, February 1999.

2. Additional information about contaminants (e.g., further detail about those identified in I.A.7, or other radionuclides not yet discussed), including non-radiological content (e.g., hazardous chemicals), as appropriate.

3. Additional status of environmental management activities, e.g., ongoing/planned investigations, major milestones, and any additional notes on response plans.

EM-40 Funded RCRA Corrective Measures Study planned during Fiscal Year 2001 through the Los Alamos National Laboratory Environmental Restoration Project.

I. Summary Estimates

A. Original Material (Emplaced Waste)

1a. Site/Area Name and Location: Los Alamos National Laboratory TA-21 Material Disposal Area V - Laundry Absorption Beds

1b. Origin: Material Disposal Area (MDA) V is a 3,561 square meter site containing three absorption beds that occupy 1,390 square meters. The pits received between 400 and 8,000 gallons per day liquid effluent from 1945 to 1961 from the radioactive laundry facility. Some of the liquids discharged to the beds included greater than 10 nCi/g Pu liquids totaling 0.1 curie.

2. Type of Placement (check only one):

- a. Trench/Pit Burial
- b. Greater Confinement Disposal (GCD)
- c. Underground Injection
- d. Spill or Surface Discharge
- e. Surface Testing
- f. Underground Testing
- g. Other (Please Specify)

Remarks:

3a. Total volume of actual waste emplaced (not including packaging): 4300 m³

3b. Total volume of containers emplaced (including packaging): m³

This applies to 2a-d waste: soil contaminated from 2d-f would be reported in B.1. Actual waste volume is preferred over contained volume.

Please indicate how volumes were estimated and provide source citation(s)/report reference(s) in A.9 below.

Remarks: Volume of containers emplaced reported as Not Available.

Information obtained from Alternate Transuranic Waste Management Strategies at Los Alamos National Laboratory, L.J. Walker, LA-8982-MS; and TA-21 Operable Unit Report, RCRA Facility Investigation, 1991.

4. Type of Material (for 1a-d):

- Liquid
- Homogeneous Solids (if available, as:)
- Heterogeneous Debris
- Other (please specify): Absorption beds constructed of cobbles, gravel, overburden and underlying tuff.

Remarks: Three absorption beds for liquid waste effluent from radioactive laundry facility. Contamination is located as a "rind" on cobble surfaces.

5. Of the total volume reported in 3 above:

Estimated percent exceeding 100 nCi/g: 0 Estimated percent between 10-100 nCi/g: 100

6. Total amount of TRU radionuclides in the original material: 0.1 Ci

(These units must be the same as those used in 7 below.)

7. Percent component key radionuclide(s): Please identify units used: Ci (weight % or Ci %)

(Must be the same as those used in 6 above.)

Am-241	Pu-238	Pu-239	Pu-240	Pu-241	Pu-242	U-233	Cm-244	Ra-266	Cf-252	Other	Other	Other
		100										

8. Estimates provided in Sections 6 and 7 above are based on: initial (emplaced) values If decayed, to what date?

9. Basis for waste information, notably how TRU values were estimated for 6 and 7 and how volumes were calculated for 3.

10. General level of confidence in the waste information: Medium

$$\frac{0.1 \times 10^9 \text{ nCi}}{4300 \text{ m}^3} \cdot \frac{1 \text{ m}^3}{10^6 \text{ cm}^3} = 0.02326 \text{ nCi/cm}^3$$

Site/Area Name and Location: Los Alamos National Laboratory TA-21 Material Disposal Area V - Laundry Absorption Beds

1. Summary Estimates

B. Contaminated Soil (if applicable)

1. Estimated total volume of soil contaminated by the emplaced waste (solid or liquid) or by past testing:

m³

Please indicate how volumes were estimated and provide source citation(s)/report reference(s) in B.3 below.

Remarks: Reported as Not Available.

2. Of this total volume of contaminated soil:

Estimated percent exceeding 100 nCi/g:	%
Estimated percent between 10-100 nCi/g:	%

3. Basis for the soil information, including supporting volume calculations and the report reference(s)/citation(s):

4. General level of confidence in the soil information:

II. Supporting Volume Detail

1. Please provide for the initial waste and contaminated soil, with additional breakouts as can be provided.

	Total Volume	Volume with >100 nCi/g (m ³)		Volume with 10-100 nCi/g (m ³)	
		TRU	MTRU	LLW	MLLW
Emplaced Waste (combined)	4300			4300	
Liquids					
Homogeneous Solids					
Heterogeneous Solids					
Other (please specify)	4300			4300	
Cobbles, gravel, overburden and tuff					
Contaminated Soil (best est.)					
Minimum Estimate					
Maximum Estimate					

2. The volume(s) of "waste emplaced" in this table represent: Volume of actual waste I.A.3.a

Site/Area Name and Location: Los Alamos National Laboratory TA-21 Material Disposal Area V - Laundry Absorption Beds

III. Anticipated Plans

Per baselines, as can be provided - e.g., only for the total initial waste and associated soil, and/or for further breakouts.

In-Place Management (Volume in m³)

	No Action	Access/Install. Controls	In-Situ Containment	Containment Type	In-Situ Treatment	Treatment Type
Emplaced Waste						
TRU / MTRU						
aLLW / aMLLW						
Contaminated Soil						
TRU / MTRU						
aLLW / aMLLW						

Removal for Further Management (Volume in m³)

	Collection and Treatment	Treatment Type	Collection and Storage	Storage Type and Location	Collection and Disposal	Disposal Location
Emplaced Waste					4300	
TRU / MTRU						
aLLW / aMLLW					4300	
Contaminated Soil						
TRU / MTRU						
aLLW / aMLLW						

(Response plans are often similar for mixed/non-mixed materials, so they have been combined above. Please use a "/" to separate entries where response plans differ, or provide additional information in IV below.

Site/Area Name and Location: Los Alamos National Laboratory TA-21 Material Disposal Area V - Laundry Absorption Beds

IV. Additional Supporting Information

1. Further supporting detail on response plans, as needed, including references or agreements that have resulted in the responses indicated above.

Project Plan for the Remediation of TA-21, February 1999.

2. Additional information about contaminants (e.g., further detail about those identified in I.A.7, or other radionuclides not yet discussed), including non-radiological content (e.g., hazardous chemicals), as appropriate.

3. Additional status of environmental management activities, e.g., ongoing/planned investigations, major milestones, and any additional notes on response plans.

EM-40 Funded RCRA Corrective Measures Study planned during Fiscal Year 2002 through the Los Alamos National Laboratory Environmental Restoration Project.