Department of Energy
Albuquerque Operations Office
Los Alamos Area Office
Los Alamos, New Mexico 87544

DEC - 5 1996

DEC 1996
RECEIVED
HAZARDOUS WASTE
PROGRAM

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Benito Garcia, Bureau Chief
Hazardous and Radioactive Materials
Bureau
New Mexico Environment Department
2044 Galisteo St., Bldg. A
P. O. Box 26110
Santa Fe, New Mexico 87505

Dear Mr. Garcia:

Subject: Los Alamos National Laboratory (LANL) Hazardous Waste Facility Permit No. NM890010515-1 at TA-50-37, RCRA Permit Modification Request: Radioactive Materials Research, Operations and Demonstration Facility Container Storage Areas

The purpose of this letter is to submit a proposed permit revision for and to request approval of five Transuranic (TRU) mixed waste container storage areas at the Radioactive Materials Research, Operations, and Demonstration (RAMROD) Facility at LANL, Technical Area (TA) 50, Building 37. The proposed revisions will modify the LANL RCRA Hazardous Waste Facility Permit issued to the Department of Energy (DOE), and its management and operations contractor, the University of California (UC), by the New Mexico Environmental Improvement Division (now the New Mexico Environment Department) on November 8, 1989. LANL's Hazardous Waste Facility Permit and United States Environmental Protection Agency identification numbers are NM 0890010515-1 and NM0890010515, respectively.

The Class 3 permit modification has been prepared in accordance with the New Mexico Administrative Code, Title 20, Chapter 4, Part 1 (20 NMAC 4.1), Subpart IX, §270.42(b), as revised November 1, 1995. If approved, the permit modification will allow LANL to stage TRU mixed waste at these areas in support of waste characterization and verification activities. These characterization activities will be performed originally in support of the requirements of the December 10, 1993 Consent Agreement between NMED, DOE, and UC. The RAMROD facility will continue to be used for characterization of future generated operational mixed waste at LANL. These waste characterization activities are generally described in the TRU Mixed Waste Analysis Plan submitted to the Hazardous and Radioactive Materials Bureau (HRMB) on March 31,

8831

1995. Specific discussions and details for these activities at the RAMROD are further described in the enclosed permit modification. The permit modification is not intended to provide additional storage capacity for prolonged storage of mixed waste at LANL.

The waste analysis plan for TRU mixed waste contained in this submittal has a revision compared to previous versions submitted with the permit modification request for the TA-54, Area G, Transuranic Waste Inspectable Storage Project (March 31, 1995), and the permit modification request for the TA-50, Building 69, Waste Characterization, Reduction and Repackaging Facility, the TA-50, Building 1, Decontamination Facility, and the TA-54 West, Building 38, Radioassay and Nondestructive Testing Facility (December 22, 1995). The revision involves the replacement of the definition for hazardous waste with a simple regulatory citation to 20 NMAC 4.1, Subpart II, §261.3.

The enclosed permit modification package follows the format of permit application submittals to allow an organized and familiar presentation of the required information. The proposed permit modification is also designed to reference general information applicable to all waste management units at LANL as provided in the "General Part B Permit Application Information for Los Alamos National Laboratory," as submitted to HRMB on August 27, 1996. This unit specific package contains a Part A permit application for the five container storage areas, a permit modification request, a proposed hazardous waste facility permit modification containing suggested revised text incorporating the modifications into LANL's hazardous waste facility permit and electronic copies of the revised text. The proposed text modification is in "bold/strickout" format. The electronic copies are on 3.5 inch diskettes, in WordPerfect 5.x format.

If you should have any questions or comments concerning this permit modification, please contact Jody Plum of my staff at (505) 665-5042.

Sincerely,

G. Thomas Todd
Area Manager

LAAMEP:9JP-044

Enclosures

cc:
See page 3

cc w/enclosures:
Stuart Dinwiddee
Hazardous and Radioactive Materials
Bureau
New Mexico Environment Department
2044 Galisteo Street, Building A
P. O. Box 26110
Santa Fe, New Mexico 87505

Document:	RAMROD Part A
Revision No.:	0.0
Date:	December 1996

Part A Permit Application
Radioactive Materials Research, Operations, and Demonstration Facility
Mixed Waste Container Storage Areas

Los Alamos National Laboratory
Hazardous and Solid Waste Group (ESH-19)
Los Alamos, New Mexico 87545

December 1996

Summary of Changes to the Radioactive Materials Research, Operations, and Demonstration (RAMROD) Facility[a] Unit Descriptions

Old Description[b]	Description in this Part A Permit Application
None	Container storage area (CSA) for transuranic (TRU) mixed waste (TA-50-37, Room 112 CSA)
None	Container storage area for TRU mixed waste (TA-50-37, Room 114 CSA)
Container storage area	Container storage area for TRU mixed waste (TA-50-37, Room 115 CSA)
Container storage area	Container storage area for TRU mixed waste (TA-50-37, Room 117 CSA)
Container storage area	Container storage area for TRU mixed waste (TA-50-37, Room 118 CSA)

[a] The RAMROD Facility is located at Technical Area (TA) 50, Building 37 (TA-50-37).
[b] As described in the Los Alamos National Laboratory (LANL), 1994, "RCRA Part A Permit Application for Mixed Waste," Revision 2.0, Los Alamos National Laboratory, Los Alamos, New Mexico.

Summary of Increases in Design Capacity of Processes in the Radioactive Materials Research, Operations, and Demonstration (RAMROD) Facility[a] Part A Permit Application

(Justification Required)

Los Alamos National Laboratory (LANL) is requesting the following design capacity changes pursuant to the New Mexico Administrative Code, Title 20, Chapter 4, Part 1 (20 NMAC 4.1), Subpart IX, 270.72(a), revised November 1, 1995. Regulatory justifications for increases in design capacity are (i) a lack of available treatment, storage, or disposal capacity at other hazardous waste management facilities, and (ii) the change is necessary to comply with a federal, state, or local requirement. This information is being submitted with this Part A permit application, as required by 20 NMAC 4.1, Subpart IX, 270.72(a)(2), revised November 1, 1995.

	Old Capacity[b]	New Capacity	Justification
Container Storage:			
TA-50-37, Room 112	None	2,330 gallons (gal)	Capacity necessary to comply with federal and state requirements
TA-50-37, Room 114	None	2,200 gal	Capacity necessary to comply with federal and state requirements

[a] The RAMROD Facility is located at Technical Area (TA) 50, Building 37 (TA-50-37).
[b] As specified in the Los Alamos National Laboratory (LANL), 1994, "RCRA Part A Permit Application for Mixed Waste," Revision 2.0, Los Alamos National Laboratory, Los Alamos, New Mexico.

Please print or type with ... in the shaded areas only

For EPA Regional Use Only	EPA United States Environmental Protection Agency Washington, DC 20460	
Date Received Month Day Year	**Hazardous Waste Permit Application** **Part A** *(Read the Instructions before starting)*	

I. ID Number(s)

A. EPA ID Number	B. Secondary ID Number *(If applicable)*
N M 0 9 0 0 1 0 5 1 5	

II. Name of Facility

LOS ALAMOS NATIONAL LABORATORY

III. Facility Location *(Physical address not P.O. Box or Route Number)*

A. Street

Street *(continued)*

City or Town	State	ZIP Code
LOS ALAMOS	NM	87545-

County Code *(If known)*	County Name
028	LOS ALAMOS

B. Land Type *(enter code)*	C. Geographic Location *LATITUDE (degrees, minutes, & seconds)*	*LONGITUDE (degrees, minutes, & seconds)*
F	35 49 051	106 14 015

IV. Facility Mailing Address

Street or P.O. Box

PO BOX 1663

City or Town

LOS ALAMOS	NM	87545-

V. Facility Contact *(Person to be contacted regarding waste activities at facility)*

Name *(last)*	*(first)*
TODD	GTHOMAS

Job Title	Phone Number *(area code and number)*
AREA MANAGER	505-665-5027

VI. Facility Contact Address *(See instructions)*

A. Contact Address Location	Mailing	B. Street or P.O. Box
	X	528 35TH STREET

City or Town	State	ZIP Code
LOS ALAMOS	NM	87544-

Please print or type with ELITE type (12 characters per inch) in the unshaded areas only

Form Approved. OMB No. 2050-0034 Expires 12-31-91
GSA No. 0246-EPA-OT

[redacted] (enter from page 1)	[redacted]
N M 0 8 9 0 0 1 0 5 1 5	

[redacted] (see instructions)

[redacted] Operator

U N I V E R S I T Y O F C A L I F O R N I A

Street or P.O. Box

P O B O X 1 6 6 3

City or Town	State	ZIP Code
L O S A L A M O S	N M	8 7 5 4 5 -

[redacted] (area code and number)	B. Operator Type	C. Change of Operator Indicator	Date Changed Month Day Year
5 0 5 - 6 6 7 - 5 0 6 1	F	X	

VIII. [redacted] Owner (see instructions)

[redacted] Facility's Legal Owner

U S D E P A R T M E N T O F E N E R G Y

Street or P.O. Box

5 2 8 3 5 T H S T R E E T

City or Town	State	ZIP Code
L O S A L A M O S	N M	8 7 5 4 4 -

[redacted] (area code and number)	[redacted]	[redacted]	[redacted]
5 0 5 - 6 6 7 - 5 0 6 1	F	X	

[redacted]

[redacted]	Primary	[redacted]
9 7 1 1	(description) NATIONAL SECURITY	(description)
	(description)	(description)

[redacted]

N	N M R 0 0 A 3 8 4		NPDES Storm Water General Permit
N	N M 0 0 2 8 3 5 5		NPDES
N	N M 0 0 2 8 5 7 6		NPDES (Fenton Hill Geothermal Site)
R	N M 0 8 9 0 0 1 0 5 1 5		RCRA (Hazardous Waste Permit)
			RAD. NESHAPs Preconstr. Approvals:
E			Low Level Waste/Mixed Waste Incin.
E			Dual Axis Radiographic Hydrotest Fac.
E			Ground Test Accelerator
E			Independent Management Activity

X. Other Environmental Permits *(continued)*

A. Permit Type	B. Permit Number	C. Description
		RAD. NESHAPS PRECONSTRUCTION APPROVALS (Cont'd)
E		Facilitywide Application for Existent Emissions
E		TA-21, D&D Activity
E		TA-50, Bldg. 83 - Mobile Decontamination Trailer
E		TA-54, TRU Retrieval Domes
		STATE AIR QUALITY PERMITS:
E	AQCR 301	Open Burning
E		TA-11 Fuel Fire Burn
E		TA-36 HE-Contaminated Wood Burning
E		TA-14 HE-Contaminated Material Burning
E		TA-16 HE-Contaminated Material Burning
E		TA-33 & TA-39 LIDAR Test Burning
E	AQCR 702	Beryllium Machining
E	#632	TA-35, Bldg. 213, Beryllium Machining Emissions
E	#634-M-1	TA-3, Bldg. 141, Beryllium Processing Emissions
E	#635	TA-3, Bldg. 39, Beryllium Machining Emissions
E	#741	TA-3, Bldg. 35, Planned Beryllium Machining Emissions
E	#1081-M-1	TA-55, Bldg. 4, Beryllium Machining Emissions
		STATE SEPTIC TANK PERMITS:
E	LA-01	State Septic Tank Permit
E	LA-02	State Septic Tank Permit
E	LA-03	State Septic Tank Permit
E	LA-04	State Septic Tank Permit

EPA I.D. Number
NM0890010515

X. Other Environmental Permits *(continued)*

A. Permit Type	B. Permit Number	C. Description
E	LA-05	State Septic Tank Permit
E	LA-06	State Septic Tank Permit
E	LA-07	State Septic Tank Permit
E	LA-08	State Septic Tank Permit
E	LA-09	State Septic Tank Permit
E	LA-11	State Septic Tank Permit
E	LA-12	State Septic Tank Permit
E	LA-13	State Septic Tank Permit
E	LA-14	State Septic Tank Permit
E	LA-15	State Septic Tank Permit
E	LA-16	State Septic Tank Permit
E	LA-17	State Septic Tank Permit
E	LA-18	State Septic Tank Permit
E	LA-19	State Septic Tank Permit
E	LA-21	State Septic Tank Permit
E	LA-22	State Septic Tank Permit
E	LA-23	State Septic Tank Permit
E	LA-24	State Septic Tank Permit
E	LA-25	State Septic Tank Permit
E	LA-26	State Septic Tank Permit
E	LA-27	State Septic Tank Permit
E	LA-28	State Septic Tank Permit
E	LA-29	State Septic Tank Permit
E	LA-30	State Septic Tank Permit

EPA I.D. Number
NM0890010515

X. Other Environmental Permits *(continued)*

A. Permit Type	B. Permit Number	C. Description
E	LA-31	State Septic Tank Permit
E	LA-32	State Septic Tank Permit
E	LA-33	State Septic Tank Permit
E	LA-34	State Septic Tank Permit
E	LA-35	State Septic Tank Permit
E	LA-36	State Septic Tank Permit
E	LA-37	State Septic Tank Permit
E	LA-38	State Septic Tank Permit
E	LA-39	State Septic Tank Permit
E	LA-42	State Septic Tank Permit
E	LA-43	State Septic Tank Permit
E	LA-44	State Septic Tank Permit
E	LA-45	State Septic Tank Permit
E	LA-46	State Septic Tank Permit
E	LA-47	State Septic Tank Permit
E	LA-48	State Septic Tank Permit
E	LA-49	State Septic Tank Permit
E	LA-50	State Septic Tank Permit
E	LA-51	State Septic Tank Permit
E	LA-52	State Septic Tank Permit
E	LA-53	State Septic Tank Permit
E	LA-54	State Septic Tank Permit
E	LA-55	State Septic Tank Permit
E	LA-56	State Septic Tank Permit

EPA I.D. Number
NM0890010515

X. Other Environmental Permits *(continued)*

A. Permit Type	B. Permit Number	C. Description
E	LA-57	State Septic Tank Permit
E	LA-58	State Septic Tank Permit
E	LA-59	State Septic Tank Permit
E	LA-60	State Septic Tank Permit
E	LA-61	State Septic Tank Permit
E	LA-124	State Septic Tank Permit
E	SF880257	State Septic Tank Permit
E	SF880258	State Septic Tank Permit
E	SF880259	State Septic Tank Permit
E	SF880260	State Septic Tank Permit
E	SF880261	State Septic Tank Permit
E	SF890023	State Septic Tank Permit
E	SF890024	State Septic Tank Permit
E	SF890025	State Septic Tank Permit
E	SF89031R	State Septic Tank Permit
E	SF89032R	State Septic Tank Permit
E	SF89033R	State Septic Tank Permit
E	SF89034R	State Septic Tank Permit
E	SF89035R	State Septic Tank Permit
E	SF89036R	State Septic Tank Permit
E	SF890588	State Septic Tank Permit
E	SF890589	State Septic Tank Permit
E	SF890590	State Septic Tank Permit
E	SF900022	State Septic Tank Permit

I. EPA I.D. NUMBER (from page 1)																									
N	M	0	8	9	0	0	1	0	5	1	5														

XI. Nature of Business (Provide a description and description of manufacturing processes)

The principal mission of LANL includes the research, design, development, and analysis of weapons components for the nation's nuclear arsenal. This effort is supported by research programs such as nuclear physics, hydrodynamics, conventional explosives, chemistry, metallurgy, and radiochemistry, and biology. In addition to its defense program efforts, LANL supports energy research and environmental missions with programs including medium-energy physics; space nuclear systems; controlled thermonuclear fusion; laser research; environmental research; geothermal, solar, and fossil energy research; nuclear safeguards; biomedical research; and space physics. In 1992, LANL expanded its mission in support of environmental management to include development of new programs in the areas of health and biotechnology, environmental technologies, and industrial partnerships.

XII. Process Codes and Design Capacities

A. [illegible]

B. [illegible]

C. [illegible]

PROCESS CODE	PROCESS	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY
	DISPOSAL:	
D79	INJECTION WELL	GALLONS; LITERS; GALLONS PER DAY; OR LITERS PER DAY
D80	LANDFILL	ACRE-FEET OR HECTARE-METER
D81	LAND APPLICATION	ACRES OR HECTARES
D82	OCEAN DISPOSAL	GALLONS PER DAY OR LITERS PER DAY
D83	SURFACE IMPOUNDMENT	GALLONS OR LITERS
	STORAGE:	
S01	CONTAINER (barrel, drum, etc.)	GALLONS OR LITERS
S02	TANK	GALLONS OR LITERS
S03	WASTE PILE	CUBIC YARDS OR CUBIC METERS
S04	SURFACE IMPOUNDMENT	GALLONS OR LITERS
	TREATMENT:	
T01	TANK	GALLONS PER DAY OR LITERS PER DAY
T02	SURFACE IMPOUNDMENT	GALLONS PER DAY OR LITERS PER DAY
T03	INCINERATOR	SHORT TONS PER HOUR; METRIC TONS PER HOUR; GALLONS PER HOUR; LITERS PER HOUR; OR BTU'S PER HOUR
T04	OTHER TREATMENT (Use for physical, chemical, thermal or biolgical treatment processes not occurring in tanks, surface impoundment or incinerators. Describe the processes in the space provided in item XIII.)	GALLONS PER DAY; LITERS PER DAY; POUNDS PER HOUR; SHORT TONS PER HOUR; KILOGRAMS PER HOUR; METRIC TONS PER DAY; METRIC TONS PER HOUR; OR SHORT TONS PER DAY

UNIT OF MEASURE	UNIT OF MEASURE CODE
GALLONS	G
GALLONS PER HOUR	E
GALLONS PER DAY	U
LITERS	L
LITERS PER HOUR	H
LITERS PER DAY	V
SHORT TONS PER HOUR	D
METRIC TONS PER HOUR	W
SHORT TONS PER DAY	N
METRIC TONS PER DAY	S
POUNDS PER HOUR	J
KILOGRAMS PER HOUR	R
CUBIC YARDS	Y
CUBIC METERS	C
ACRES	B
ACRE-FEET	A
HECTARES	Q
HECTARE-METER	F
BTU's PER HOUR	K

EPA I.D. Number (enter from page 1)	Secondary ID Number (enter from page 1)
N M 0 8 9 0 0 1 0 5 1 5	

XII. Process – Codes and Design Capacities (continued)

EXAMPLE FOR COMPLETING ITEM XII (shown in line numbers X-1 and X-2 below): A facility has two storage tanks, one tank can hold 200 gallons and the other can hold 400 gallons. The facility also has an incinerator that can burn up to 20 gallons per hour.

Line Number		A. PROCESS CODE (from list above)	B. PROCESS DESIGN CAPACITY 1. AMOUNT (specify)	B. PROCESS DESIGN CAPACITY 2. UNIT OF MEASURE (enter code)	C. PROCESS TOTAL NUMBER OF UNITS	FOR OFFICIAL USE ONLY
X	1	S 0 2	600	G	0 0 2	
X	2	T 0 3	20	E	0 0 1	
	1	S 0 1	26,380	G	0 0 5	
	2					
	3					
	4					
	5					
	6					
	7					
	8					
	9					
1	0					
1	1					
1	2					

NOTE: If you need to list more than 12 process codes, attach an [illegible] above. Number the lines sequentially, taking into account any lines [illegible] for additional treatment processes in Item XIII.

XIII. Additional Treatment Processes (follow instructions from Item XII)

Line Number (enter numbers in sequence with Item XII)	A. PROCESS CODE	B. TREATMENT PROCESS DESIGN CAPACITY 1. AMOUNT (specify)	B. TREATMENT PROCESS DESIGN CAPACITY 2. UNIT OF MEASURE (enter code)	C. PROCESS TOTAL NUMBER OF UNITS	D. DESCRIPTION OF PROCESS
	T 0 4				
	T 0 4				
	T 0 4				
	T 0 4				

XIV. Description of Hazardous Wastes

A. **EPA HAZARDOUS WASTE NUMBER** - *Enter the four-digit number from 40 CFR, Part 261 Subpart D of each listed hazardous waste you will handle. For hazardous wastes which are not listed in 40 CFR, Part 261 Subpart D, enter the four-digit number(s) from 40 CFR, Part 261 Subpart C that describes the characteristics and/or the toxic contaminants of those hazardous wastes.*

B. **ESTIMATED ANNUAL QUANTITY** - *For each listed waste entered in column A estimate the quantity of that waste that will be handled on an annual basis. For each characteristic or toxic contaminant entered in column A estimate the total annual quantity of all the non-listed waste(s) that will be handled which possess that characteristic or contaminant.*

C. **UNIT OF MEASURE** - *For each quantity entered in column B enter the unit of measure code. Units of measure which must be used and the appropriate codes are:*

ENGLISH UNIT OF MEASURE	CODE	METRIC UNIT OF MEASURE	CODE
POUNDS	P	KILOGRAMS	K
TONS	T	METRIC TONS	M

If facility records use any other unit of measure for quantity, the units of measure must be converted into one of the required units of measure taking into account the appropriate density or specific gravity of the waste.

D. **PROCESSES**

1. **PROCESS CODES:**

For listed hazardous waste: For each listed hazardous waste entered in column A select the code(s) from the list of process codes contained in Item XII A. on page 3 to indicate how the waste will be stored, treated, and/or disposed of at the facility.

For non-listed hazardous waste: For each characteristic or toxic contaminant entered in column A, select the code(s) from the list of process codes contained in Item XII A. on page 3 to indicate all the processes that will be used to store, treat, and/or dispose of all the non-listed hazardous wastes that processes that characteristic or toxic contaminant.

NOTE: THREE SPACES ARE PROVIDED FOR ENTERING PROCESS CODES. IF MORE ARE NEEDED:

1. *Enter the first two as described above.*
2. *Enter "000" in the extreme right box of Item XIV-D(1).*
3. *Enter in the space provided on page 7, Item XIV-E, the line number and the additional code(s).*

2. **PROCESS DESCRIPTION:** *If a code is not listed for a process that will be used, describe the process in the space provided on the form (D.(2)).*

NOTE: HAZARDOUS WASTES DESCRIBED BY MORE THAN ONE EPA HAZARDOUS WASTE NUMBER: Hazardous wastes that can be described by more than one EPA Hazardous Waste Number shall be described on the forms as follows:

1. *Select one of the EPA Hazardous Waste Numbers and enter it in column A. On the same line complete columns B, C, and D by estimating the total annual quantity of the waste and describing all the processes to be used to treat, store, and/or dispose of the waste.*
2. *In column A of the next line enter the other EPA Hazardous Waste Number that can be used to describe the waste. In column D(2) on that line enter "Included with above" and make no other entries on that line.*
3. *Repeat step 2 for each EPA Hazardous Waste Number that can be used to describe the hazardous waste.*

EXAMPLE FOR COMPLETING ITEM XIV (shown in line numbers X-1, X-2, X-3, and X-4 below) - A facility will treat and dispose of an estimated 900 pounds per year of chromic shavings from leather tanning and finishing operation. In addition, the facility will treat and dispose of three non-listed wastes. Two wastes are corrosive only and there will be an estimated 200 pounds per year of each waste. The other waste is corrosive and ignitable and there will be an estimated 100 pounds per year of that waste. Treatment will be in an incinerator and disposal will be in a landfill.

Line Number		A. EPA HAZARD WASTE NO. (enter code)				B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESS (1) PROCESS CODES (enter)									D. PROCESS (2) PROCESS DESCRIPTION (If a code is not entered in D(1))
X	1	K	0	5	4	900	P	T	0	3	D	8	0				
X	2	D	0	0	2	400	P	T	0	3	D	8	0				
X	3	D	0	0	1	100	P	T	0	3	D	8	0				
X	4	D	0	0	2												Included With Above

EPA I.D. Number (enter from Page 1)
NM0890010515

Secondary ID Number (enter from Page 1)

XIV. Description of Hazardous Wastes (Continued)

Line Number	A. EPA Hazardous Waste No. (enter code)	B. Estimated Annual Quantity of Waste	C. Unit of Measure (enter code)	D. Processes (1) Process Codes (enter)			D. Processes (2) Process Description (If a code is not entered in D[1])
Technical Area 50, Building 37, Rooms 112, 114, 115, 117, and 118 Mixed Waste Container Storage Areas							
1	D001	1,170	K	S01			Transuranic Mixed Waste (TRUMW)
2	D002	610	K	S01			TRUMW
3	D003	60	K	S01			TRUMW
4	D004	390	K	S01			TRUMW
5	D005	360	K	S01			TRUMW
6	D006	57,130	K	S01			TRUMW
7	D007	59,610	K	S01			TRUMW
8	D008	135,280	K	S01			TRUMW
9	D009	4,120	K	S01			TRUMW
10	D010	430	K	S01			TRUMW
11	D011	480	K	S01			TRUMW
12	D018	20	K	S01			TRUMW
13	D019	450	K	S01			TRUMW
14	D021	170	K	S01			TRUMW
15	D022	100	K	S01			TRUMW
16	D027	70	K	S01			TRUMW
17	D028	18,250	K	S01			TRUMW
18	D029	18,160	K	S01			TRUMW
19	D030	410	K	S01			TRUMW
20	D031	10	K	S01			TRUMW
21	D032	260	K	S01			TRUMW
22	D033	180	K	S01			TRUMW
23	D034	90	K	S01			TRUMW
24	D035	10	K	S01			TRUMW
25	D036	30	K	S01			TRUMW
26	D037	50	K	S01			TRUMW
27	D038	10	K	S01			TRUMW
28	D039	120	K	S01			TRUMW

EPA I.D. Number (enter from Page 1)
NM0890010515

Secondary ID Number (enter from Page 1)

XIV. Description of Hazardous Wastes (Continued)

Line Number	A. EPA Hazardous Waste No. (enter code)	B. Estimated Annual Quantity of Waste	C. Unit of Measure (enter code)	D. Processes (1) Process Codes (enter)			D. Processes (2) Process Description (If a code is not entered in D[1])
29	D040	280	K	S01			TRUMW
30	D041	10	K	S01			TRUMW
31	D042	90	K	S01			TRUMW
32	D043	40	K	S01			TRUMW
33	F001	35,050	K	S01			TRUMW
34	F002	4,540	K	S01			TRUMW
35	F003	2,300	K	S01			TRUMW
36	F004	130	K	S01			TRUMW
37	F005	20,430	K	S01			TRUMW
38	P003	10	K	S01			TRUMW
39	P012	10	K	S01			TRUMW
40	P015	10	K	S01			TRUMW
41	P029	10	K	S01			TRUMW
42	P030	10	K	S01			TRUMW
43	P031	10	K	S01			TRUMW
44	P038	10	K	S01			TRUMW
45	P056	20	K	S01			TRUMW
46	P063	10	K	S01			TRUMW
47	P068	10	K	S01			TRUMW
48	P073	10	K	S01			TRUMW
49	P076	10	K	S01			TRUMW
50	P078	10	K	S01			TRUMW
51	P095	10	K	S01			TRUMW
52	P096	10	K	S01			TRUMW
53	P098	10	K	S01			TRUMW
54	P106	10	K	S01			TRUMW
55	P113	10	K	S01			TRUMW
56	P120	10	K	S01			TRUMW
57	U001	10	K	S01			TRUMW
58	U002	10	K	S01			TRUMW

EPA I.D. Number (enter from Page 1)
NM0890010515

Secondary ID Number (enter from Page 1)

XIV. Description of Hazardous Wastes (Continued)

Line Number	A. EPA Hazardous Waste No. (enter code)	B. Estimated Annual Quantity of Waste	C. Unit of Measure (enter code)	D. Processes (1) Process Codes (enter)			D. Processes (2) Process Description (If a code is not entered in D[1])
59	U003	10	K	S01			TRUMW
60	U012	10	K	S01			TRUMW
61	U019	10	K	S01			TRUMW
62	U022	10	K	S01			TRUMW
63	U029	10	K	S01			TRUMW
64	U031	10	K	S01			TRUMW
65	U037	10	K	S01			TRUMW
66	U044	10	K	S01			TRUMW
67	U045	10	K	S01			TRUMW
68	U052	10	K	S01			TRUMW
69	U056	10	K	S01			TRUMW
70	U057	10	K	S01			TRUMW
71	U075	10	K	S01			TRUMW
72	U077	10	K	S01			TRUMW
73	U080	10	K	S01			TRUMW
74	U108	10	K	S01			TRUMW
75	U112	10	K	S01			TRUMW
76	U115	10	K	S01			TRUMW
77	U117	10	K	S01			TRUMW
78	U121	10	K	S01			TRUMW
79	U122	10	K	S01			TRUMW
80	U123	10	K	S01			TRUMW
81	U131	10	K	S01			TRUMW
82	U133	10	K	S01			TRUMW
83	U134	10	K	S01			TRUMW
84	U135	10	K	S01			TRUMW
85	U140	10	K	S01			TRUMW
86	U144	10	K	S01			TRUMW
87	U145	10	K	S01			TRUMW
88	U151	20	K	S01			TRUMW

EPA I.D. Number (enter from Page 1)
NM0890010515

Secondary ID Number (enter from Page 1)

XIV. Description of Hazardous Wastes (Continued)

Line Number	A. EPA Hazardous Waste No. (enter code)	B. Estimated Annual Quantity of Waste	C. Unit of Measure (enter code)	D. Processes (1) Process Codes (enter)			D. Processes (2) Process Description (If a code is not entered in D[1])
89	U154	10	K	S01			TRUMW
90	U159	10	K	S01			TRUMW
91	U160	10	K	S01			TRUMW
92	U161	10	K	S01			TRUMW
93	U165	10	K	S01			TRUMW
94	U169	10	K	S01			TRUMW
95	U188	10	K	S01			TRUMW
96	U190	10	K	S01			TRUMW
97	U196	10	K	S01			TRUMW
98	U204	10	K	S01			TRUMW
99	U210	10	K	S01			TRUMW
100	U211	10	K	S01			TRUMW
101	U213	10	K	S01			TRUMW
102	U216	10	K	S01			TRUMW
103	U218	10	K	S01			TRUMW
104	U219	10	K	S01			TRUMW
105	U220	10	K	S01			TRUMW
106	U225	10	K	S01			TRUMW
107	U226	70	K	S01			TRUMW
108	U227	10	K	S01			TRUMW
109	U228	10	K	S01			TRUMW
110	U239	10	K	S01			TRUMW

Please print or type with ELITE type (12 characters per inch) in the unshaded areas only

GSA No. 0246-EPA-OT

EPA I.D. Number *(enter from page 1)*	Secondary ID Number *(enter from page 1)*
N M 0 8 9 0 0 1 0 5 1 5	

XIV. Description of Hazardous Waste *(continued)*

E. USE THIS SPACE TO LIST ADDITIONAL PROCESS CODES FROM ITEM D(1) ON PAGE 6.

Line Number	*Additional Process Codes (enter)*

XV. Map

Attach to this application a topographic map of the area extending to at least one mile beyond property boundaries. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers and other surface water bodies in this map area. See instructions for precise requirements.

XVI. Facility Drawing

All existing facilities must include a scale drawing of the facility (see instructions for more detail).

XVII. Photographs

All existing facilities must include photographs (aerial or ground-level) that clearly delineate all existing structures; existing storage, treatment and disposal areas; and sites of future storage, treatment or disposal areas (see instructions for more detail).

XVIII. Certification(s)

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to be the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Owner Signature	Date Signed
G. Thomas Todd	12.5.96

Name and Official Title *(type or print)*
G. THOMAS TODD, AREA MANAGER, DOE LAAO

Operator Signature	Date Signed
G. Thomas Todd	12.5.96

Name and Official Title *(type or print)*
G. THOMAS TODD, AREA MANAGER, DOE LAAO/DENNIS J. ERICKSON, DIVISION DIRECTOR, LANL ES&H DIV.

XIX. Comments

Note: Mail completed form to the appropriate EPA Regional or State Office. (refer to instructions for more information)

ATTACHMENT 1

EXPLANATION OF PROCESS CODE LISTINGS AND DESIGN CAPACITIES FOR MIXED WASTE UNITS AT THE RADIOACTIVE MATERIALS RESEARCH, OPERATIONS, AND DEMONSTRATION FACILITY AT TECHNICAL AREA 50, BUILDING 37 (TA-50-37)

EXPLANATION OF PROCESS CODE LISTINGS AND DESIGN CAPACITIES FOR MIXED WASTE UNITS AT THE RADIOACTIVE MATERIALS RESEARCH, OPERATIONS, AND DEMONSTRATION FACILITY AT TECHNICAL AREA 50, BUILDING 37 (TA-50-37)

Line 1 S01 Container Storage

Description	Capacity	SWMU[a] No.	Associated Structure No./Area
TA-50-37:			
Container storage area (CSA) for transuranic (TRU) mixed waste (Room 112 CSA)	2,330 gallons	50-007	TA-50-37-112
Container storage area for TRU mixed waste (Room 114 CSA)	2,200 gallons	50-007	TA-50-37-114
Container storage area for TRU mixed waste (Room 115 CSA)	220 gallons	50-007	TA-50-37-115
Container storage area for TRU mixed waste (Room 117 CSA)	3,630 gallons	50-007	TA-50-37-117
Container storage area for TRU mixed waste (Room 118 CSA)	18,000 gallons	50-007	TA-50-37-118
TOTAL S01	**26,380 gallons**		

Explanation of Symbols/Abbreviations

[a] SWMU = solid waste management unit.

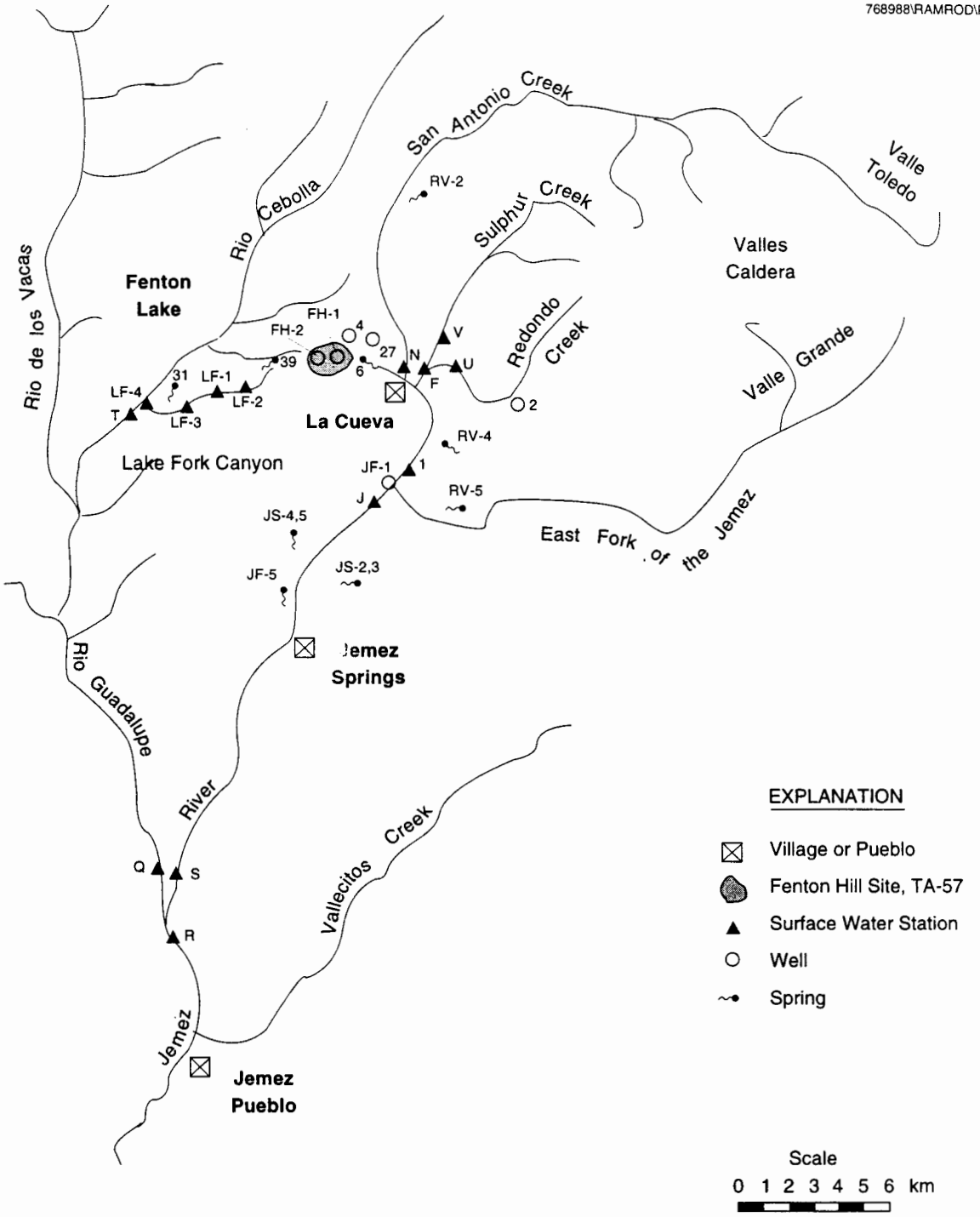
ATTACHMENT 2

TOPOGRAPHIC MAPS

LIST OF TOPOGRAPHIC MAPS

MAP NO.	MAP TITLE
1	Contour Map Showing All Technical Areas (TA) at Los Alamos National Laboratory (LANL)
2	Contour Map Showing Hazardous and Mixed Waste Units at Technical Area (TA) 50
3	Location Map of Water Supply Wells, Monitoring Wells, Test Wells, Springs, and Surface Water Sampling Stations
4	Los Alamos National Laboratory (LANL) National Pollutant Discharge Elimination System (NPDES) Outfall Locations
5	Location Map of Technical Area (TA) 57, Fenton Hill Geothermal Site

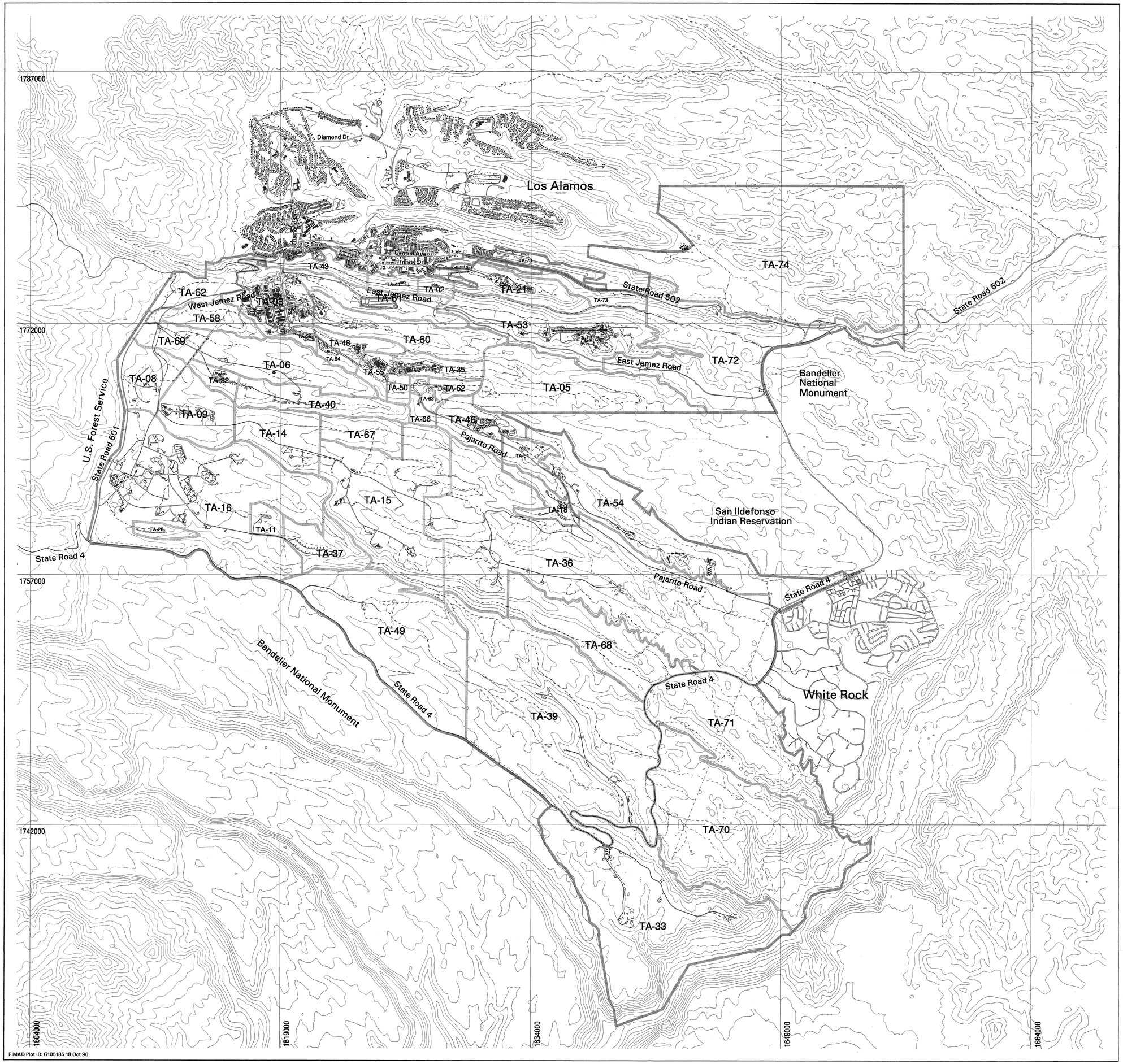
Note: For topographic maps showing LANL's other hazardous and mixed waste units, refer to the LANL, 1996, "General Part B Permit Application Information for Los Alamos National Laboratory," Los Alamos National Laboratory, Los Alamos, New Mexico.



Reference: "Environmental Surveillance at Los Alamos During 1992," 1994, LA-12764-ENV, Los Alamos National Laboratory, Los Alamos, New Mexico.

Map 5

Location Map of Technical Area (TA) 57, Fenton Hill Geothermal Site



Boundary, LANL
Boundary, TA
Contours, 100 foot
Roads, Dirt
Roads, Paved
Trail
Building

NOTE: TA-57, Fenton Hill Site, not shown

8831-A

MAP 1:
Contour Map Showing All Technical Areas (TA) at Los Alamos National Laboratory (LANL)

FACILITY for INFORMATION, MANAGEMENT, ANALYSIS and DISPLAY
EARTH & ENVIRONMENTAL SCIENCES DIVISION (EES-5)
LOS ALAMOS NATIONAL LABORATORY, Los Alamos, New Mexico

Produced by: Marcia Jones
Date: October 18, 1996
FIMAD Plot ID: G105185

N

State Plane Coordinate System, New Mexico Central Zone.
1983 North American Datum

Grid provides NM State Plane coordinates in feet.
Grid interval, in feet: 15000
Feet per inch on map = 3000

SCALE 1:36000

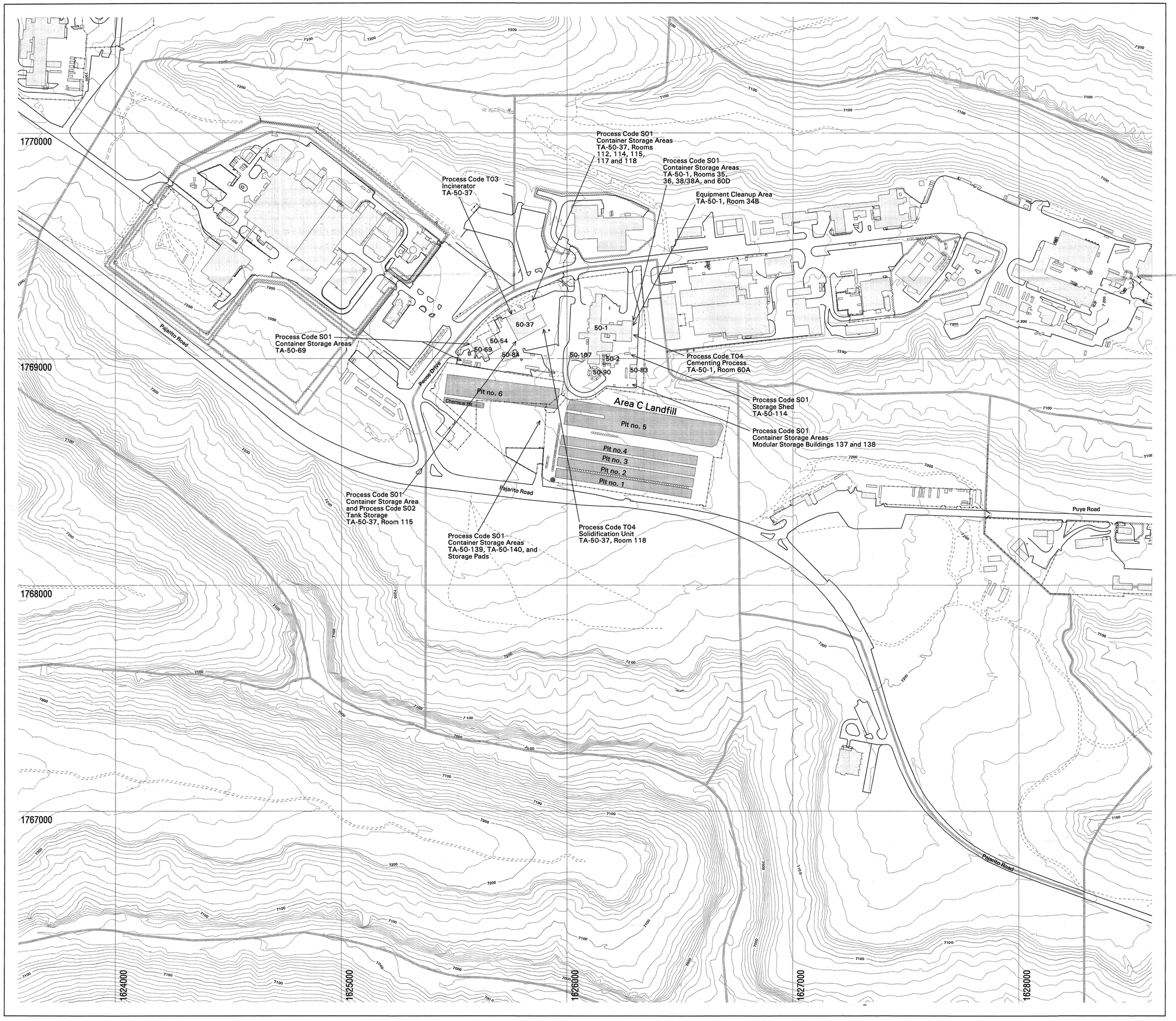
0 914 1828 2742 3656

METERS

0 3000 6000 9000 12000

FEET

NOTICE: The information on this map is provisional. Feature locations are dependent on scale and symbology and their accuracy may not have been confirmed. Los Alamos National Laboratory boundary is based on legal description established in 1995. Contour data are from a September 1991 aerial survey. All other data are from various sources and are part of the FIMAD repository.



LEGEND

- Boundary, TA
- Contour, 10 foot
- Contour, 100 foot
- Fence, Industrial
- Fence, Security
- Retaining Wall
- Road/Parking, Paved
- Road/Parking, Dirt
- Building or Structure
  - 50-1 = Liquid Waste Treatment Plant
  - 50-37 = Incinerator
  - 50-69 = Waste Characterization, Reduction, and Repackaging Facility
- Disposal Pit (location approximate)

8831-B

MAP 2:
Contour Map Showing Hazardous and Mixed Waste Units at Technical Area (TA) 50

FACILITY for INFORMATION, MANAGEMENT, ANALYSIS and DISPLAY
EARTH & ENVIRONMENTAL SCIENCES DIVISION (EES-5)
Los Alamos National Laboratory, Los Alamos, New Mexico

Produced by: Marcia Jones

Date: October 22, 1996 FIMAD Plot ID: G105183

N

State Plane Coordinate System, New Mexico Central Zone.
1983 North American Datum

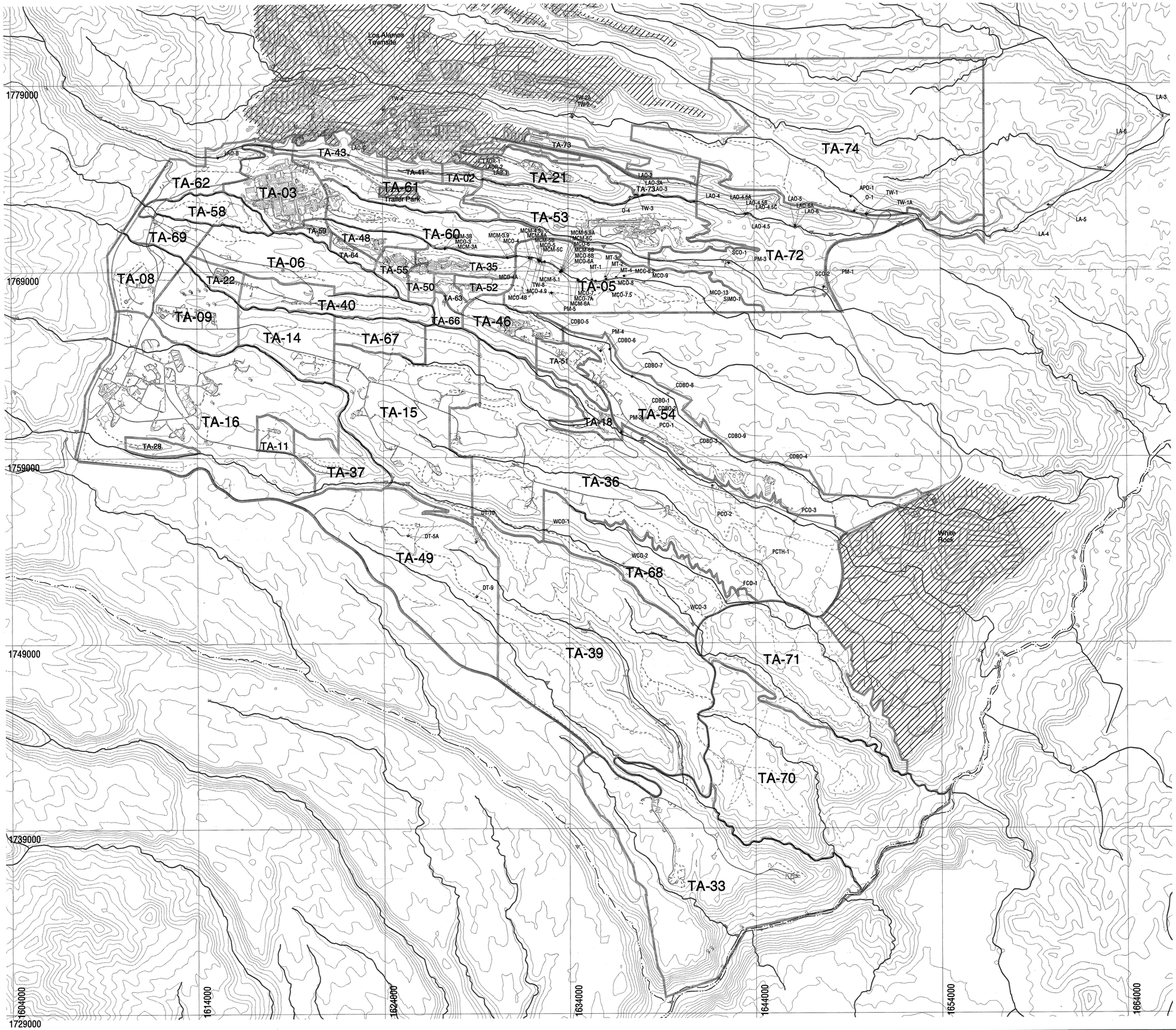
Grid provides NM State Plane coordinates in feet.
Grid interval, in feet: 1000
Feet per Inch on map = 200

SCALE 1:2400

0 61 122 183 244 METERS

0 200 400 600 800 FEET

NOTICE: The information on this map is provisional. Feature locations are dependent on scale and symbology and their accuracy may not have been confirmed. Los Alamos National Laboratory boundary is based on legal description established in 1995. Contour data are from a September 1991 aerial survey. All other data are from various sources and are part of the FIMAD repository.



LEGEND

- Boundary, Los Alamos National Laboratory
- Boundary, Technical Area (TA)
- Contours, 100 foot
- Roads, Dirt
- Roads, Paved
- Road/Trail
- Stream, Intermittent
- Stream, Perennial
- Building
- Residential Areas

PERCHED ALLUVIAL MONITORING WELLS
(Old wells are pre-1990, new wells installed since 1990 according to EPA guidelines)

- New Dry Well
- Old Dry Well
- New Saturated Well
- Old Saturated Well

MAIN AQUIFER WELLS

- Water Supply Well
- Test Well

OTHER

- LAOR Well
- Abandoned/Plugged Well
- Surface Water Sampling Station
- Spring

8831-C

MAP 3:
Location Map of Water Supply Wells, Monitoring Wells, Test Wells, Springs, and Surface Water Sampling Stations

FACILITY for INFORMATION, MANAGEMENT, ANALYSIS and DISPLAY
EARTH & ENVIRONMENTAL SCIENCES DIVISION (EES-5)
LOS ALAMOS NATIONAL LABORATORY, Los Alamos, New Mexico

Produced by: Marcia Jones

Date: October 17, 1996 FIMAD Plot ID: G105186

N

State Plane Coordinate System, New Mexico Central Zone.
1983 North American Datum

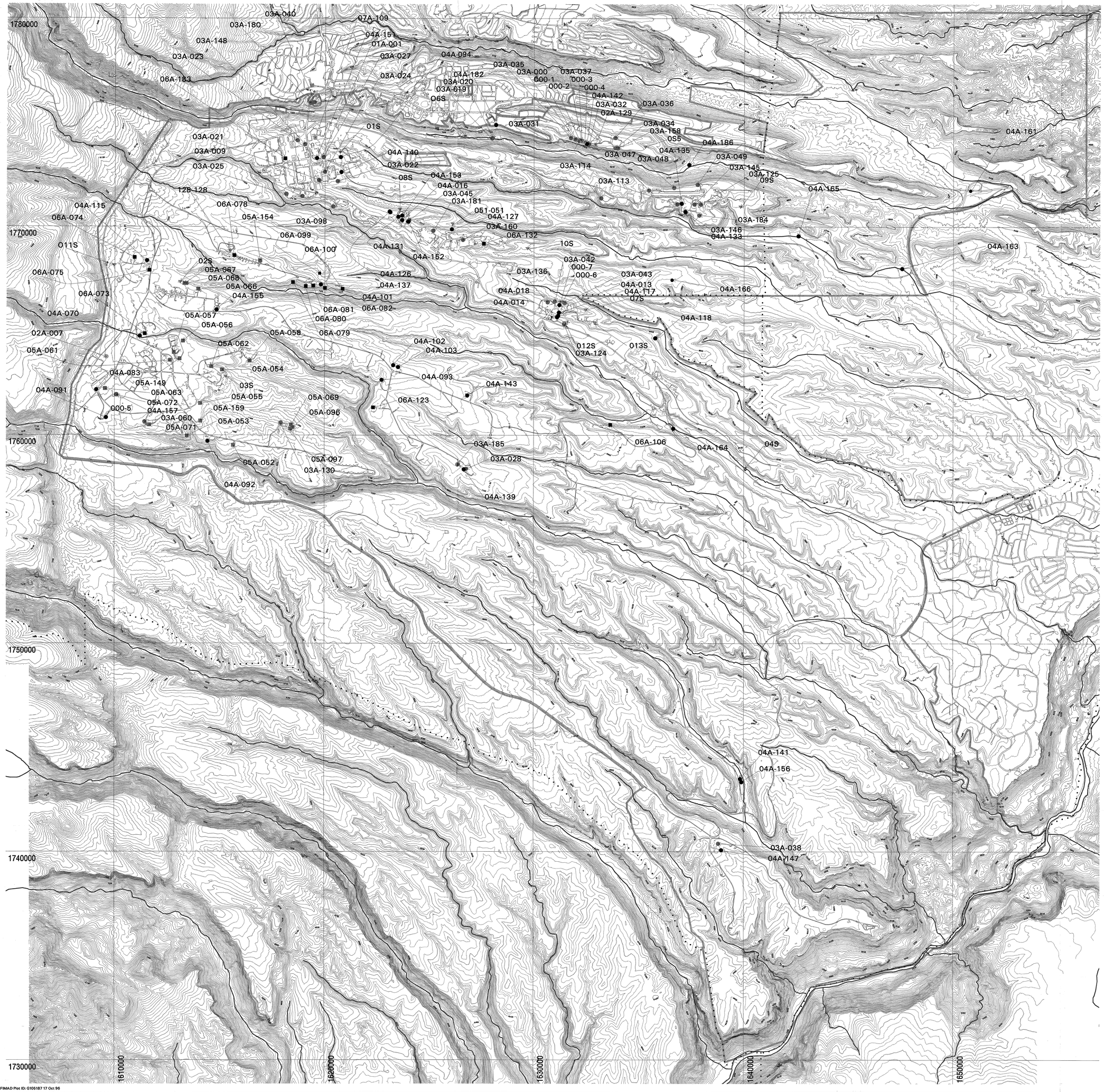
Grid provides NM State Plane coordinates in feet.
Grid interval, in feet: 10000
Feet per inch on map = 2500

SCALE 1:30000

0 762 1524 2286 3048
METERS

0 2500 5000 7500 10000
FEET

NOTICE: The information on this map is provisional. Feature locations are dependent on scale and symbology and their accuracy may not have been confirmed. Los Alamos National Laboratory boundary is based on legal description established in 1995. Contour data are from a September 1991 aerial survey. All other data are from various sources and are part of the FIMAD repository.



LEGEND

- County Boundary
- Drainage
- LANL Boundary
- Roads, Paved
- 100-ft Contours
- 20-ft Contours

OUTFALL CATEGORIES

- 01A
- 02A
- 03A
- 04A
- 05A
- 06A
- 07A
- Miscellaneous

8831-D

Map 4:
Los Alamos National Laboratory (LANL)
National Pollutant Discharge Elimination System (NPDES) Outfall Locations

FACILITY for INFORMATION, MANAGEMENT, ANALYSIS and DISPLAY
EARTH & ENVIRONMENTAL SCIENCES DIVISION (EES-5)
LOS ALAMOS NATIONAL LABORATORY, Los Alamos, New Mexico

Produced by: Marcia Jones
Date: October 17, 1996
FIMAD Plot ID: G105187

N

State Plane Coordinate System, New Mexico Central Zone.
1983 North American Datum

Grid provides NM State Plane coordinates in feet.
Grid interval, in feet: 10000
Feet per inch on map = 1750

SCALE 1:21000

0 533 1066 1599 2132
METERS

0 1750 3500 5250 7000
FEET

NOTICE: The information on this map is provisional. Feature locations are dependent on scale and symbology and their accuracy may not have been confirmed. Los Alamos National Laboratory boundary is based on legal description established in 1995. Contour data are from a September 1991 aerial survey. All other data are from various sources and are part of the FIMAD repository.

FIMAD Plot ID: G105187 17 Oct 96

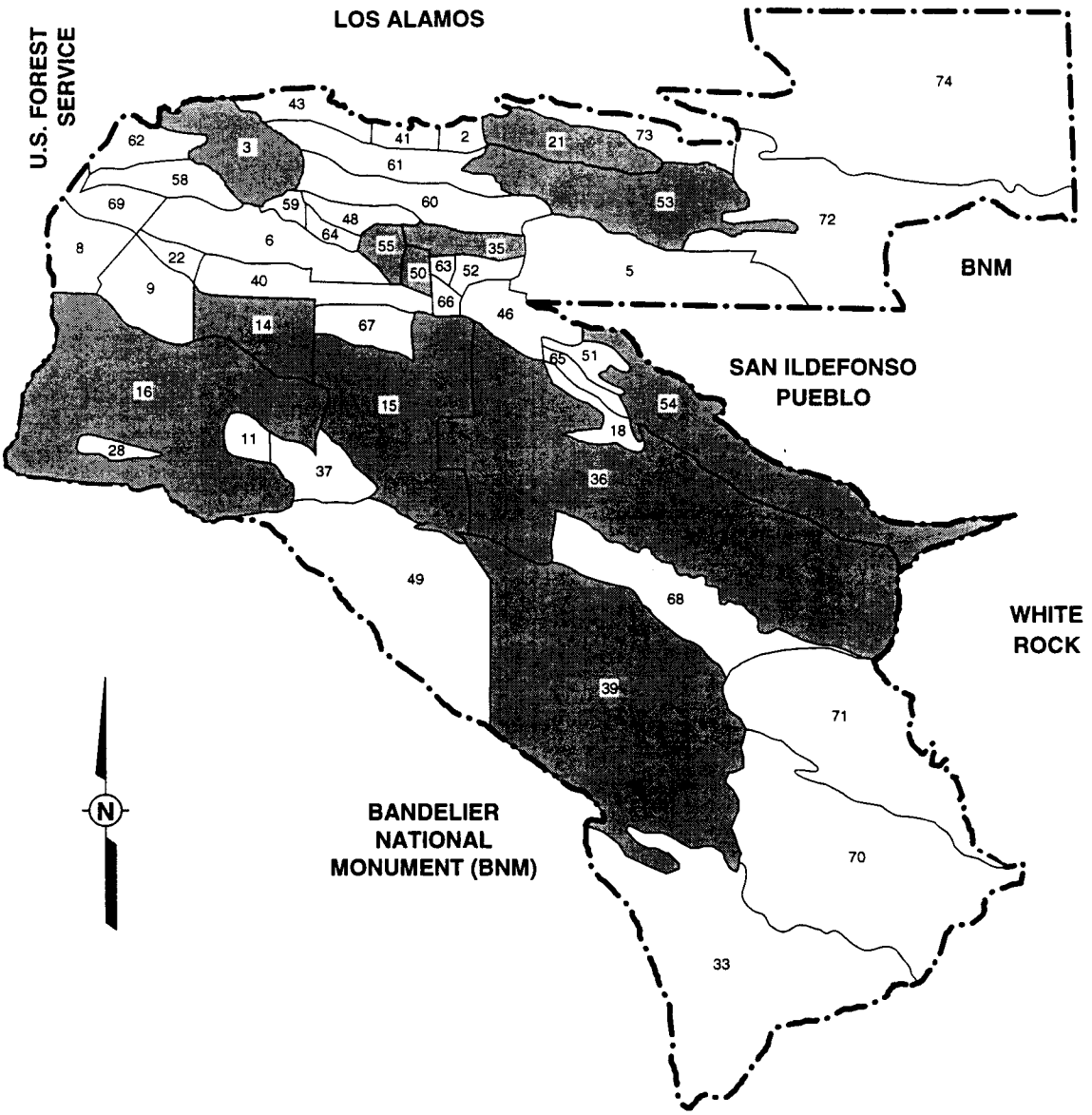
ATTACHMENT 3

FACILITY DRAWINGS

LIST OF FACILITY DRAWINGS

FIGURE NO.	TITLE
1	Location Map of Los Alamos National Laboratory Technical Areas
2	Technical Area (TA) 50 Site Location Map
3	First Floor Plan at the Radioactive Materials Research, Operations, and Demonstration Facility at Technical Area 50, Building 37

Note: For facility drawings showing Los Alamos National Laboratory's (LANL) other hazardous and mixed waste units, refer to the LANL, 1994, "RCRA Part A Permit Application for Mixed Waste," Revision 2.0, Los Alamos National Laboratory, Los Alamos, New Mexico, and/or subsequent unit- or TA-specific Part A permit applications.



Shading indicates technical areas in which hazardous waste or mixed waste units are located.

4800 0 4800
Scale in Feet

Modified from: "Environmental Surveillance at Los Alamos During 1992," 1994, LA-12764-ENV, Los Alamos National Laboratory, Los Alamos,

Figure 1
Location Map of Los Alamos National Laboratory Technical Areas

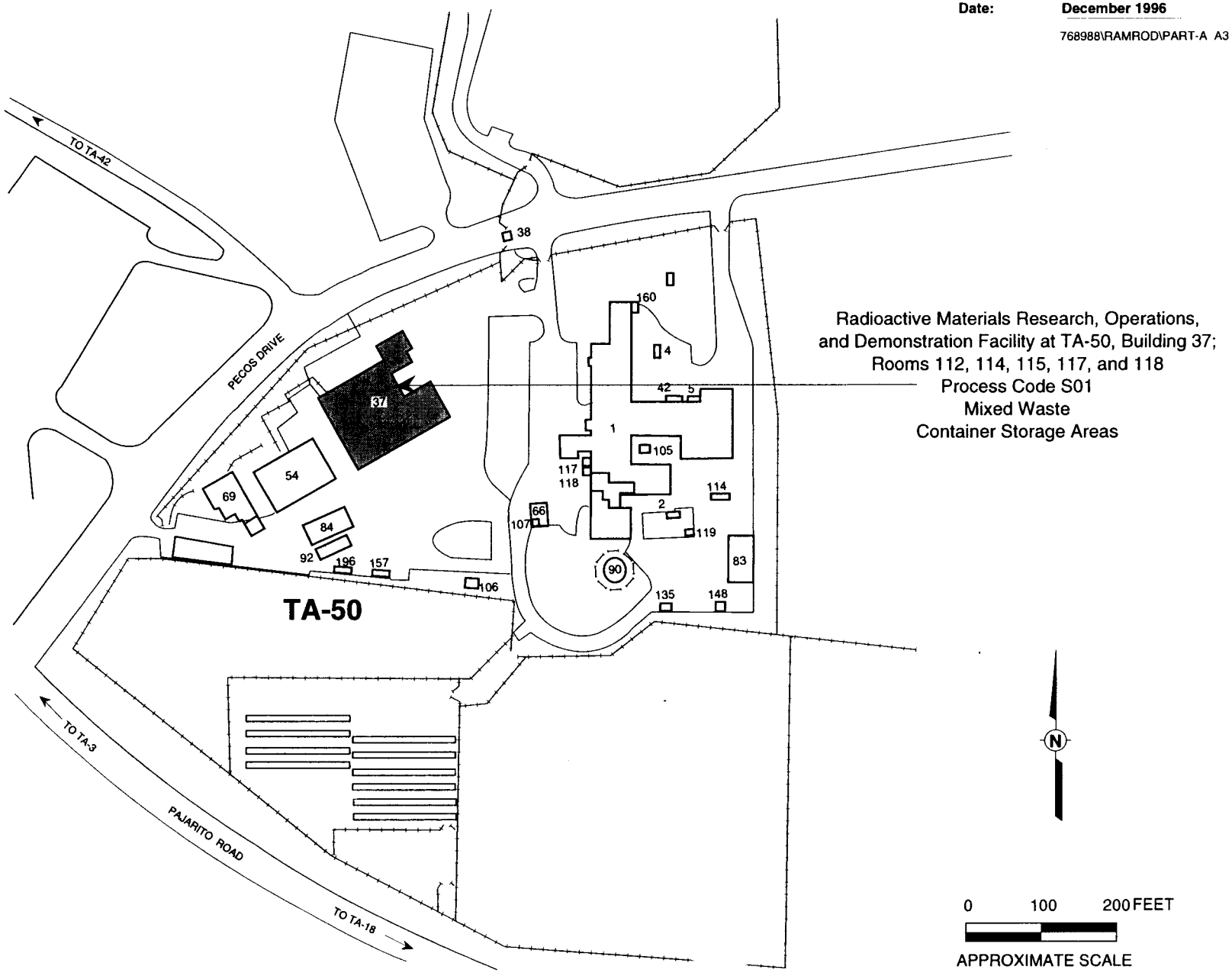


Figure 2
Technical Area (TA) 50 Site Location Map

768988\RAMROD\PART-A A4

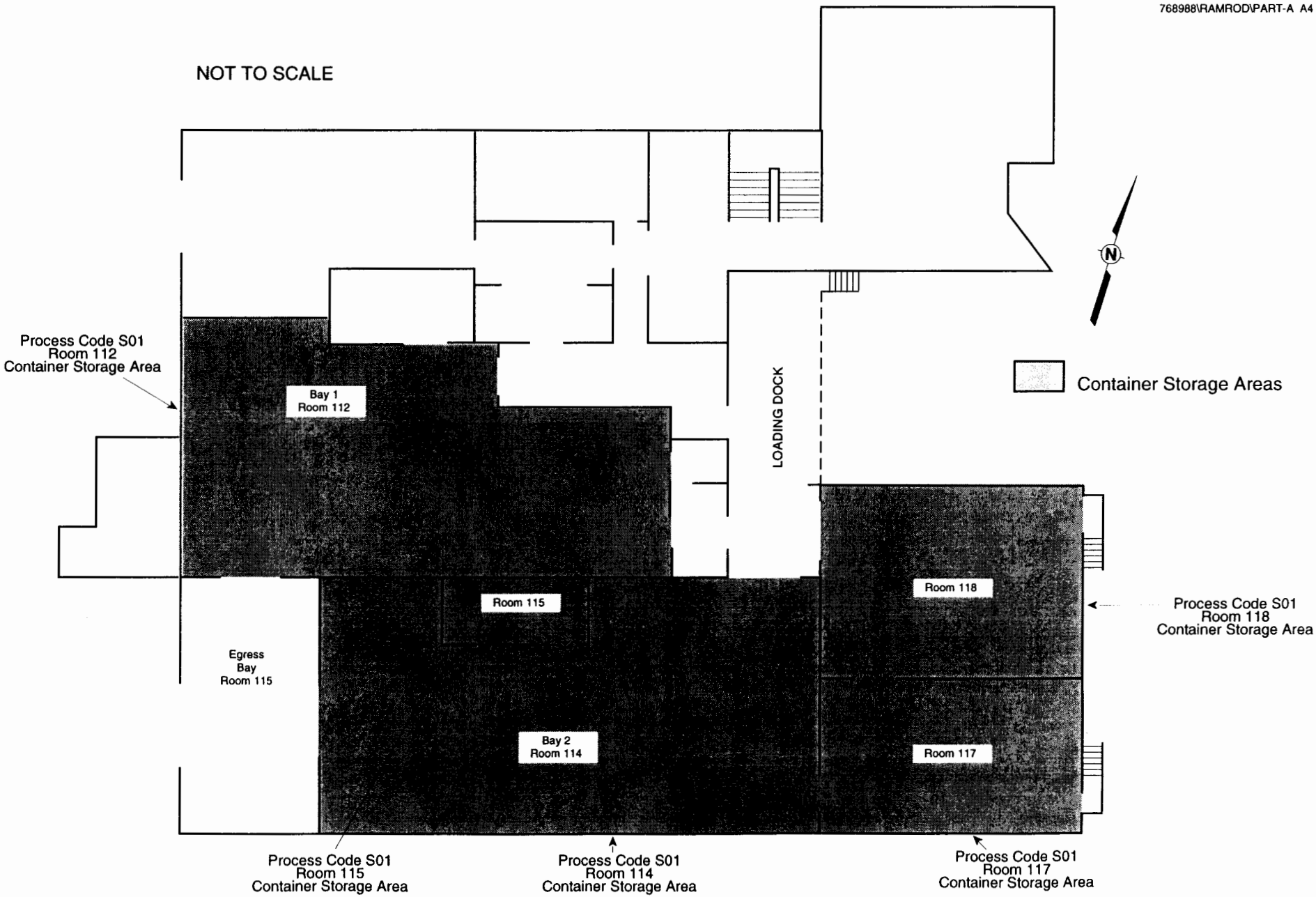


Figure 3
First Floor Plan of the Radioactive Materials Research, Operations, and Demonstration Facility at Technical Area 50, Building 37

ATTACHMENT 4

PHOTOGRAPHS

LIST OF PHOTOGRAPHS

PHOTOGRAPH CAPTION PAGE

Radioactive Materials Research, Operations, and Demonstration Facility at Technical Area 50, Building 37, Process Code S01, Container Storage Area (Room 112) 4-1

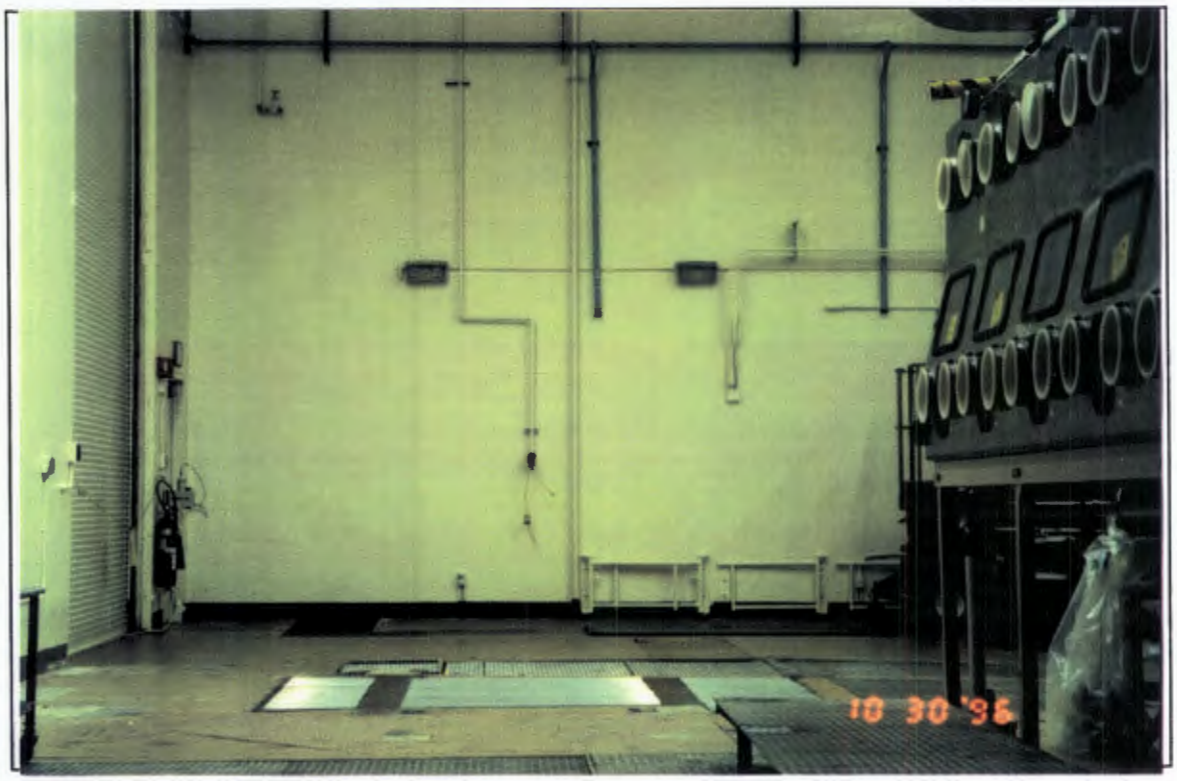
Radioactive Materials Research, Operations, and Demonstration Facility at Technical Area 50, Building 37, Process Code S01, Container Storage Area (Room 114) 4-2

Radioactive Materials Research, Operations, and Demonstration Facility at Technical Area 50, Building 37, Process Code S01, Container Storage Area (Room 115) 4-3

Radioactive Materials Research, Operations, and Demonstration Facility at Technical Area 50, Building 37, Process Code S01, Container Storage Area (Room 117) 4-4

Radioactive Materials Research, Operations, and Demonstration Facility at Technical Area 50, Building 37, Process Code S01, Container Storage Area (Room 118) 4-5

Note: For photographs showing Los Alamos National Laboratory's (LANL) other hazardous and mixed waste units, refer to the LANL, 1994, "RCRA Part A Permit Application for Mixed Waste," Revision 2.0, Los Alamos National Laboratory, Los Alamos, New Mexico, and/or subsequent unit- or TA-specific Part A permit applications.



Radioactive Materials Research, Operations, and Demonstration Facility at Technical Area 50, Building 37, Process Code S01, Container Storage Area (Room 112)

Radioactive Materials Research, Operations, and Demonstration Facility at Technical Area 50, Building 37, Process Code S01, Container Storage Area (Room 114)

Radioactive Materials Research, Operations, and Demonstration Facility at Technical Area 50, Building 37, Process Code S01, Container Storage Area (Room 115)

Radioactive Materials Research, Operations, and Demonstration Facility at Technical Area 50, Building 37, Process Code S01, Container Storage Area (Room 117)

Radioactive Materials Research, Operations, and Demonstration Facility at Technical Area 50, Building 37, Process Code S01, Container Storage Area (Room 118)

Document:	LANL RAMROD Permit Mod
Revision No.:	0.0
Date:	December 1996

Permit Modification Request

Radioactive Materials Research, Operations, and Demonstration Facility
Mixed Waste Container Storage Areas

Prepared by:
Los Alamos National Laboratory
Hazardous and Solid Waste Group (ESH-19)
Los Alamos, New Mexico 87545

December 1996

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LIST OF ABBREVIATIONS/ACRONYMS

BWTU	Batch Waste Treatment Unit
CAI	Controlled Air Incinerator
CAM	continuous air monitor
CFR	Code of Federal Regulations
cm	centimeter
cm/cm	centimeter per centimeter
cm/hr	centimeter per hour
CSA	container storage area
CST	LANL's Chemical Science and Technology Division
DOE	U.S. Department of Energy
EPA	U.S. Environmental Protection Agency
ESH-1	LANL's Health Physics Operations Group
ESH-5	LANL's Industrial Hygiene and Safety Group
FRP	fiberglass-reinforced plywood
HEPA	high-efficiency particulate air
IDC	Item Description Codes
INEL	Idaho National Engineering Laboratory
LANL	Los Alamos National Laboratory
LDR	land disposal restriction
MDA	material disposal area
20 NMAC 4.1	New Mexico Administrative Code, Title 20, Chapter 4, Part 1
NMED	New Mexico Environment Department
PN	property-numbered

LIST OF ABBREVIATIONS/ACRONYMS
(Continued)

PPE	personal protective equipment
QA	quality assurance
QAPP	TRU Waste Characterization Quality Assurance Program Plan
QA/QC	quality assurance/quality control
QC	quality control
RAMROD	Radioactive Materials Research, Operations, and Demonstration Facility
RCRA	Resource Conservation and Recovery Act
RLWTF	Radioactive Liquid Waste Treatment Facility
RTL	regulatory threshold limit
RTR	real-time radiography
RSWD	Radioactive Solid Waste Disposal
SVOC	semivolatile organic compound
SW-846	EPA's "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods"
SWB	standard waste box
SWMU	solid waste management unit
TA	technical area
TC	toxicity characteristic
TRU	transuranic
TRUCON	TRUPACT-II content
VOC	volatile organic compound
WAP	waste analysis plan
WIPP	Waste Isolation Pilot Plant
WCRRF	Waste Characterization, Reduction, and Repackaging Facility

LIST OF ABBREVIATIONS/ACRONYMS
(Continued)

WPF	Waste Profile Form

1.0 INTRODUCTION

This unit-specific permit modification request has been prepared for submittal to the New Mexico Environment Department (NMED) to meet certain requirements of the New Mexico Hazardous Waste Act and implementing regulations, specifically, the New Mexico Administrative Code, Title 20, Chapter 4, Part 1 (20 NMAC 4.1), revised November 1, 1995. The U.S. Environmental Protection Agency, Region 6, is also being provided with a copy of this unit-specific permit modification request.

This permit modification request follows the format of a Part B permit application, as this format allows for an organized and customary presentation of the required information. General information applicable to all waste management units at Los Alamos National Laboratory (LANL) is provided in the "General Part B Permit Application Information for Los Alamos National Laboratory" (LANL, 1996a), hereinafter referred to as the LANL General Part B. This unit-specific permit modification request contains only the information specific to the waste management units addressed herein; the LANL General Part B addresses other permit application requirements and is referenced in this permit modification request, as appropriate.

Pursuant to 20 NMAC 4.1, Subpart IX, 270.42(b)(1)(ii), revised November 1, 1995, LANL is requesting a Class 2 permit modification to their existing Hazardous Waste Facility Permit, ID Number NM0890010515, issued by the New Mexico Health and Environment Department Environmental Improvement Division in 1989. As required by 20 NMAC 4.1, Subpart IX, 270.42(b)(1)(i), revised November 1, 1995, the exact changes to be made to the permit conditions and supporting documents referenced by the permit are described in Table 1-1. Pursuant to 20 NMAC 4.1, Subpart IX, 270.42(b)(1)(iii), revised November 1, 1995, this permit modification is needed to provide LANL with short-term storage for containers of transuranic (TRU) mixed waste at five container storage areas (CSA) at the Radioactive Materials Research, Operations, and Demonstration (RAMROD) Facility at Technical Area 50, Building 37. The wastes will be stored at the CSAs to facilitate the performance of TRU mixed waste characterization and verification activities. The permit modification is not intended to provide additional storage capacity for prolonged storage at LANL.

This permit modification request addresses TRU mixed waste CSAs in Rooms 112, 114, 115, 117, and 118 at the RAMROD Facility. The CSA in Room 117 was included in the Part A permit application for hazardous waste (LANL, 1988), and is currently permitted for storage of hazardous waste. The CSAs in Rooms 115, 117, and 118 were included in the Part A permit application for mixed waste (LANL, 1991a). These waste management units were also included in Revision 1.0 (LANL, 1993a) and Revision 2.0 (LANL, 1994a) of the Part A for mixed waste. The CSAs in Rooms 112 and 114 are included in the Part A permit application that is being submitted with this permit modification request. In accordance with direction from NMED, a unit-specific Part A permit application for the waste management units addressed in this unit-specific permit modification request is being submitted to NMED, pursuant to 20 NMAC 4.1, Subpart IX, 270.72, revised November 1, 1995. The unit-specific Part A permit application, hereinafter referred to as the RAMROD Part A, is being submitted with this unit-specific permit modification request as a separate document. Following is a list of the TRU mixed waste CSAs at the RAMROD Facility for which this unit-specific permit modification request is being submitted.

- **Room 112: A CSA** is included in LANL's RAMROD Part A, which is being submitted with this permit modification request. This CSA may be used to store TRU mixed waste.

- **Room 114: A CSA** is included in LANL's RAMROD Part A, which is being submitted with this permit modification request. This CSA may be used to store TRU mixed waste.

- **Room 115: A CSA** was included in LANL's original Part A permit application for mixed waste, submitted to NMED in January 1991. This CSA may be used to store TRU mixed waste.

- **Room 117: A CSA** was included in LANL's Part A permit application for hazardous waste, submitted to NMED in November 1988, and is currently permitted for storage of hazardous waste. The waste management unit was also included in LANL's original Part A permit application for mixed waste, submitted to NMED in January 1991. This CSA may be used to store TRU mixed waste.

- **Room 118: A CSA** was included in LANL's original Part A permit application for mixed waste, submitted to NMED in January 1991. This CSA may be used to store TRU mixed waste.

In the RAMROD Part A permit application and in this unit-specific permit modification request, a waste management unit to be permitted may sometimes be referred to as a "facility" (e.g., the Drum Prep Facility). The term "facility," as it appears in this context, is used only to denote

building names and does not imply the regulatory meaning of "facility" as defined in 20 NMAC 4.1, Subpart I, 260.10, revised November 1, 1995. However, pursuant to 20 NMAC 4.1, Subpart I, 260.10, revised November 1, 1995, the LANL facility as a whole does meet the regulatory definition of a facility.

Table 1-2 provides a list of regulatory references and the corresponding section location in this unit-specific permit modification request and/or the LANL General Part B permit application. Where applicable, regulatory citations in this unit-specific permit modification request and in the LANL General Part B reference 20 NMAC 4.1, which adopts, with a few limited exceptions, the Code of Federal Regulations, Title 40, Parts 260 to 266, Part 268, and Part 270.

Table 1-1

Summary of Changes to be Made to Permit Conditions

Permit Section	Requested Change
Module I	Modify to include transuranic (TRU) mixed waste.
Module II	Modify to include TRU mixed waste.
Module III	Add new sections to Module III to address (1) TRU mixed waste container storage at Technical Area 50, Building 37 (TA-50-37); (2) the capacity of TRU mixed waste containers to be placed in storage at TA-50-37; and (3) the quantity of TRU mixed waste to be stored at TA-50-37.
Module IV	Not applicable; no changes needed.
Module V	Not applicable; no changes needed.
Module VI	Not applicable; no changes needed.
Module VII	Not applicable; no changes needed.
Module VIII	Not applicable; no changes needed.
Attachment A	Revise Attachment A by inserting the Waste Analysis Plan (Section 3.0 of this permit modification request and of the Los Alamos National Laboratory [LANL] General Part B[a]) for TRU mixed waste.
Attachment B	Add new sections to Attachment B to address inspection requirements and additional information for TRU mixed waste container storage areas at TA-50-37.
Attachment C	Replace Attachment C with the most recent Personnel Training Plan (Section 8.0 of the LANL General Part B).
Attachment D	To reflect that this plan applies to both hazardous and mixed waste emergencies, replace Attachment D with the most recent Contingency Plan (Section 7.0 of this submittal and of the LANL General Part B).
Attachment E	Revise Attachment E by inserting the Closure Plan for the waste management units addressed in this permit modification request (Section 9.0 of this submittal and of the LANL General Part B).
Attachment F	Revise Attachment F and add a new section that addresses container management at the container storage units addressed in this permit modification request.
Attachment G	Revise Attachment G by inserting the appropriate pages (i.e., from pages 6 of 7) from the Radioactive Materials Research, Operations, and Demonstration Facility Part A permit application[b], included with this submittal as a separate document. These pages address authorized waste codes, waste quantities, and process codes for mixed waste.
Attachment H	Not applicable; no changes needed.

See footnotes at end of table.

Table 1-1 (Continued)

Summary of Changes to be Made to Permit Conditions

Permit Section	Requested Change
Attachment I	Not applicable; no changes needed.
Attachment J	Not applicable; no changes needed.
Attachment K	Replace with the most recent version of the New Mexico Administrative Code, Title 20, Chapter 4, Part 1.
Attachment L	Not applicable; no changes needed.

[a] Los Alamos National Laboratory, 1996, "General Part B Permit Application Information for Los Alamos National Laboratory," Los Alamos National Laboratory, Los Alamos; New Mexico.

[b] Los Alamos National Laboratory, 1996, "Part A Permit Application—Radioactive Materials Research, Operations, and Demonstration Facility Mixed Waste Container Storage Areas," Revision 0.0, Los Alamos National Laboratory, Los Alamos, New Mexico.

Table 1-2

Regulatory References and Corresponding Permit Application Location

Regulatory Reference[a]				
20 NMAC 4.1, Subpart IX	20 NMAC 4.1, Subparts V and VI[b]	Description of Requirement	Location in this Permit Modification Request	Location in General Part B Permit Application
270.10(a)	--	Permit application	Entire Document	Entire Document
270.10(g)(1)	--	Updating permit application	1.0	1.0
270.11(a)	--	Signatories	12.0	12.0
270.11(d)	--	Certification	12.0	12.0
270.13	--	Contents of Part A permit application	Part A[c]	NA[d]
270.13(a)	--	Activities conducted	Part A	NA
270.13(b)	--	Name, mailing address, and location	Part A	NA
270.13(c)	--	Principal standard industrial classification (SIC) codes	Part A	NA
270.13(d)	--	Operator information	Part A	NA
270.13(e)	--	Owner information	Part A	NA
270.13(f)	--	Whether located on Indian lands	Part A	NA
270.13(g)	--	New or existing facility	Part A	NA
270.13(h)	--	Scale drawing and photographs	Part A	NA
270.13(i)	--	Description of waste processes	Part A	NA
270.13(j)	--	Specification and quantity of hazardous waste	Part A	NA
270.13(k)	--	List of permits and construction approvals	Part A	NA
270.13(l)	--	Topographic maps	Part A	NA
270.13(m)	--	Description of nature of business	Part A	NA
270.13(n)	--	Hazardous debris	Part A	NA
270.14(b)(1)	--	General facility description	2.0	2.0
270.14(b)(2)	264.13(a)	Chemical and physical analyses	3.0	3.0
270.14(b)(3)	264.13(b)	Waste analysis plan	3.0	3.0
	264.13(b)(1)	Parameters and rationale	3.0	NA

Refer to footnotes at end of table.

Table 1-2 (Continued)

Regulatory References and Corresponding Permit Application Location

Regulatory Reference[a]				
20 NMAC 4.1, Subpart IX	20 NMAC 4.1, Subparts V and VI[b]	Description of Requirement	Location in this Permit Modification Request	Location in General Part B Permit Application
	264.13(b)(2)	Test methods	3.0	NA
	264.13(b)(3)	Sampling methods	3.0	NA
	264.13(b)(4)	Frequency of analyses	3.0	3.0
	264.13(b)(5)	Waste analysis for off-site facilities	3.0	NA
270.14(b)(4)	264.14	Security procedures and equipment.	5.0	NA
270.14(b)(5)	264.15(b)	General inspection requirements	NA	6.0
	264.1088	Inspection and monitoring for units subject to Subpart CC requirements	6.0	NA
270.14(b)(7)	264 Subpart D	Contingency Plan	7.0	7.0
	264.51	Contingency plan design and implementation	NA	7.0
	264.52(a) & (c–f)	Contingency plan content	NA	7.0
	264.52(e) & (f)	Contingency plan content	7.0	NA
	264.53	Contingency plan copies	NA	7.1
	264.54	Contingency plan amendment	NA	7.13
	264.55	Emergency coordinator	NA	7.1.1
	264.56	Emergency procedures	NA	7.3 - 7.12
270.14(b)(8)	264 Subpart C	Preparedness and prevention	5.0	NA
	264.31	Design and operation of facility	4.0/5.0	5.0
	264.32	Required equipment	5.0	NA
	264.33	Testing and maintenance of equipment	5.0	NA
	264.34	Communications/alarm system	5.0	NA
	264.35	Required aisle space	5.0	NA
	264.37	Arrangements with local authorities	NA	5.0/7.0
270.14(b)(9)	264.17	Prevention of accidental ignition or reaction	4.0/5.0	NA

Refer to footnotes at end of table.

Table 1-2 (Continued)

Regulatory References and Corresponding Permit Application Location

Regulatory Reference[a]				
20 NMAC 4.1, Subpart IX	20 NMAC 4.1, Subparts V and VI[b]	Description of Requirement	Location in this Permit Modification Request	Location in General Part B Permit Application
270.14(b)(10)	--	Traffic pattern, volume, and controls	2.0	2.3
270.14(b)(11)(i) & (ii)	264.18(a)	Seismic standard	2.0	2.0
270.14(b)(11)(iii)	264.18(b)	Floodplain standard	2.0	2.2.2
270.14(b)(12)	264.16	Personnel training	NA	8.0
270.14(b)(13)	264 Subpart G	Closure and post-closure plans	9.0	9.0
	264.111	Closure performance standard	NA	9.1.1
	264.112(a) & (b)	Written content of closure plan	9.0	9.0
	264.112(c)	Amendment of closure plan	NA	9.1.4
	264.112(d)	Notification of partial and final closure	NA	9.1.2
	264.112(e)	Removal of wastes and decontamination/dismantling of equipment	9.0	NA
	264.113	Time allowed for closure	NA	9.1.3
	264.114	Disposal/decontamination	9.0	NA
	264.115	Certification of closure	NA	9.1.6
	264.116	Survey plat	NA	9.1.10
	264.117	Post-closure care and use of property	NA	9.1.10
	264.118	Post-closure plan; amendment of plan	NA	9.1.10
	264.119	Post-closure notices	NA	9.1.10
	264.120	Certification of post-closure	NA	9.1.10
270.14(b)(19)(i) (vi)(vii) & (x)	--	Topographic maps	Part A	2.1.2
270.14(b)(19)(ii)	264.18(b)	100-year floodplain	2.0	2.2.2
270.14(b)(19)(iii)	--	Surface waters	Part A	2.1.3
270.14(b)(19)(iv)	--	Land use	NA	2.1.5

Refer to footnotes at end of table.

Table 1-2 (Continued)

Regulatory References and Corresponding Permit Application Location

Regulatory Reference[a]				
20 NMAC 4.1, Subpart IX	20 NMAC 4.1, Subparts V and VI[b]	Description of Requirement	Location in this Permit Modification Request	Location in General Part B Permit Application
270.14(b)(19)(v)	--	Wind rose	NA	2.1.4
270.14(b)(19)(viii)	264.14(b)	Access control	5.0	NA
270.14(b)(19)(ix)	--	Wells	Part A	2.1.3
270.14(b)(19)(xi)	--	Drainage barriers	Part A	NA
270.14(b)(19)(xii)	--	Location of operational units	2.0	2.1
270.14(b)(20)	--	Other federal laws	NA	11.0
270.14(c)	264.90	Ground-water monitoring requirements	2.0	2.2.5.1
270.14(d)(1)	--	Requirements for solid waste management units (SWMU)	10.0	NA
270.14(d)(1)(i)	--	Location of SWMUs on topographic map	10.0	NA
270.14(d)(1)(ii)	--	Types of SWMUs	10.0	NA
270.14(d)(1)(iii)	--	Structural description of SWMUs	10.0	NA
270.14(d)(1)(iv)	--	Dates of operation	10.0	NA
270.14(d)(1)(v)	--	Waste types managed at SWMU	10.0	NA
270.14(d)(2)	--	Information on releases from SWMUs	10.0	NA
270.15	264 Subpart I	Containers	4.0	NA
	264.171	Condition of containers	4.0	NA
	264.172	Compatibility of waste with containers	4.0/5.0	NA
	264.173	Management of containers	4.0	NA
	264.174	Inspections	6.0	6.0
270.15(a)	264.175	Containment system	4.0	NA
270.15(b)	264.175(c)	No free liquids	4.0	NA
270.15(c)	264.176	Special requirements for ignitable or reactive waste	4.0/5.0	NA

Refer to footnotes at end of table.

Table 1-2 (Continued)

Regulatory References and Corresponding Permit Application Location

Regulatory Reference[a]				
20 NMAC 4.1, Subpart IX	20 NMAC 4.1, Subparts V and VI[b]	Description of Requirement	Location in this Permit Modification Request	Location in General Part B Permit Application
270.15(d)	264.177	Special requirements for incompatible wastes	4.0/5.0	NA
	264.178	Closure	9.0	9.0
270.15(e)	264.179	Air emission control equipment	4.0/5.0	NA

[a] The New Mexico Administrative Code, Title 20, Chapter 4, Part 1 (20 NMAC 4.1), revised November 1, 1995, adopts, with a few limited exceptions, Title 40 of the Code of Federal Regulations (40 CFR), Parts 260–266, Part 268, and Part 270 (1995). 20 NMAC 4.1, Subparts V, VI, and IX, revised November 1, 1995, contain equivalent regulations to 40 CFR Parts 264, 265, and 270, respectively.

[b] Where there are no applicable 20 NMAC 4.1, Subpart V, Part 264 standards, 20 NMAC 4.1, Subpart VI, Part 265 standards are used, when appropriate.

[c] Part A = Los Alamos National Laboratory's "Part A Permit Application—Radioactive Materials Research, Operations, and Demonstration Facility Mixed Waste Container Storage Areas" Revision 0.0 (LANL, 1996).

[d] NA = not addressed.

2.0 FACILITY DESCRIPTION

The information provided in this section is submitted in accordance with the applicable requirements of the New Mexico Administrative Code, Title 20, Chapter 4, Part 1 (20 NMAC 4.1), revised November 1, 1995. The following subject areas are addressed in this section:

- Site-specific location information for compliance with seismic and floodplain standard requirements [20 NMAC 4.1, Subpart IX, 270.14(b)(11)(i through iii), and 20 NMAC 4.1, Subpart V, 264.18(a and b), revised November 1, 1995].
- Site-specific groundwater monitoring and protection information [20 NMAC 4.1, Subpart IX, 270.14(c), and 20 NMAC 4.1, Subpart V, 264.90(a), revised November 1, 1995].
- Site-specific traffic patterns and control [20 NMAC 4.1, Subpart IX, 270.14(b)(10), revised November 1, 1995].

A Los Alamos National Laboratory (LANL)-wide facility description addressing additional regulatory requirements is provided in Section 2.0 of the "General Part B Permit Application Information for Los Alamos National Laboratory" (LANL, 1996a) (i.e., the LANL General Part B).

2.1. UNIT LOCATION/DESCRIPTION

The transuranic (TRU) mixed waste management units addressed in this permit modification request include five container storage areas (CSA) at the Radioactive Materials Research, Operations, and Demonstration (RAMROD) Facility at Technical Area (TA) 50, Building 37 (TA-50-37). The CSAs are located in Rooms 112, 114, 115, 117, and 118 of the RAMROD Facility. The RAMROD Facility will be used for waste characterization and verification, waste treatment technology development and implementation, and other activities necessary to support LANL programs. The CSAs will be used to facilitate the performance of TRU mixed waste characterization and verification activities.

The following sections describe the mixed waste management units addressed in this permit modification request and the wastes managed or planned for management at each unit. The locations of these waste management units are shown on Map 2 and Figures 2 and 3 of the unit-specific Part A permit application (LANL, 1996b) (i.e., the RAMROD Part A). Map 2 of the RAMROD Part A is a topographic map with a scale of 1 inch = 200 feet.

2.1.1 TA-50, Building 37, CSAs

TA-50 is located on a finger mesa bounded by Mortandad Canyon to the north and by Two Mile Canyon to the south. Mesa-top elevations at TA-50 range from approximately 7,250 to 7,280 feet above mean sea level. The locations of the CSAs at TA-50-37 addressed in this permit modification request are shown on Figures 2 and 3 and Map 2 of the RAMROD Part A.

The CSAs at the RAMROD Facility are located in Rooms 112, 114, 115, 117, and 118. The CSAs are located on the first floor of the building and will be used for short-term storage of TRU mixed waste in drums and containers of various sizes. The short-term storage will occur while LANL conducts various waste characterization activities at the RAMROD Facility.

2.2 LOCATION INFORMATION

2.2.1 Seismic Standard [20 NMAC 4.1, Subpart IX, 270.14(b)(11)(i and ii) and 20 NMAC 4.1, Subpart V, 264.18(a)]

TA-50 is in compliance with the seismic standards of 20 NMAC 4.1, Subpart IX, 270.14(b)(11)(i and ii), and 20 NMAC 4.1, Subpart V, 264.18(a), revised November 1, 1995. A geologic field investigation, which consisted of exploratory trenching, was conducted within 3,000 feet of the RAMROD Facility during the fall of 1992 and summer of 1993. Based on trench stratigraphy, no evidence of Holocene faulting was observed (Woodward-Clyde Federal Services, 1995).

2.2.2 Floodplain Standard [20 NMAC 4.1, Subpart IX, 270.14(b)(11)(iii) and 270.14(b)(19)(ii); 20 NMAC 4.1, Subpart V, 264.18(b)]

In accordance with 20 NMAC 4.1, Subpart IX, 270.14(b)(11)(iii), the CSAs addressed in this permit modification request are not located within the 100-year floodplain boundary. Additional information regarding this documentation is provided in Section 2.0 of the LANL General Part B.

2.2.3 Soils

The soils in TA-50 are Hackroy-Rock outcrop complex and Carjo loam. The Hackroy-Rock outcrop complex consists primarily of rock outcrop and Hackroy soils. These soils are classified in the Unified Soil Classification System as sandy loam, sandy loam-sandy clay, loam, clay loam-loam, and clay loam. The Hackroy soils typically range from a brown sandy loam in the top 8 centimeters (cm) to a reddish brown clay from 8 to 30 cm in depth. Permeability rates range from 5 to 15 cm per hour (cm/hr) in the top layers down to 0.15 to 0.50 cm/hr in the lower layers.

The shrink-swell potential is low. Available water-holding capacity is 0.11 to 0.21 cm per cm (cm/cm), and the soil pH is 6.6 to 7.8. The Carjo soils typically range from a grayish brown loam in the top 10 cm to a brown clay loam from 10 to 30 cm in depth. Permeability rates range from 1.5 to 5 cm/hr in the top layer down to 0.15 to 5 cm/hr in the lower layers. The shrink-swell potential is low to moderate. Available water-holding capacity is 0.14 to 0.21 cm/cm, and the soil pH is 6.3 to 7.8 (Nyhan et al., 1978). Native vegetation at TA-50 is mainly brome grass, false tarragon, blue grama, wormwood, Colorado piñon, and one-seed juniper (LANL, 1995a).

2.3 GROUNDWATER MONITORING [20 NMAC 4.1, Subpart IX, 270.14(c) and 20 NMAC 4.1, Subpart V, 264.90(a)]

Requirements for groundwater monitoring and protection specified in 20 NMAC 4.1, Subpart IX, 270.14(c), and 20 NMAC 4.1, Subpart V, 264.90(a), revised November 1, 1995, apply to owners and operators of the following "regulated units" only: surface impoundments, waste piles, land treatment units, and landfills. This document addresses CSAs, which are not regulated units subject to 20 NMAC 4.1, Subpart IX, 270.14(c), revised November 1, 1995.

2.4 TRAFFIC PATTERNS AND CONTROL [20 NMAC 4.1, Subpart IX, 270.14(b)(10)]

The CSAs at the RAMROD Facility will be used for short-term storage of TRU mixed waste during waste characterization activities at the facility. These wastes are generated at various TAs at LANL.

2.4.1 Routes of Travel

The primary traffic routes that may be used to transport TRU mixed waste to the RAMROD Facility include Pajarito Road, Pecos Drive, and Mesita del Buey Road; lesser used traffic routes may include Diamond Drive and West Jemez Road (State Road 501) (see Figure 2-1 in this section and Figure 2-10 in the LANL General Part B). After waste containers are received at TA-50, they may be moved minimal distances on road surfaces within the TA.

2.4.2 Traffic Control Signals

Traffic control signals within TA-50 include stop signs, posted speed limits, and other traffic and pedestrian control signs. The locations of existing signs at TA-50 are shown on Figure 2-1 in this section.

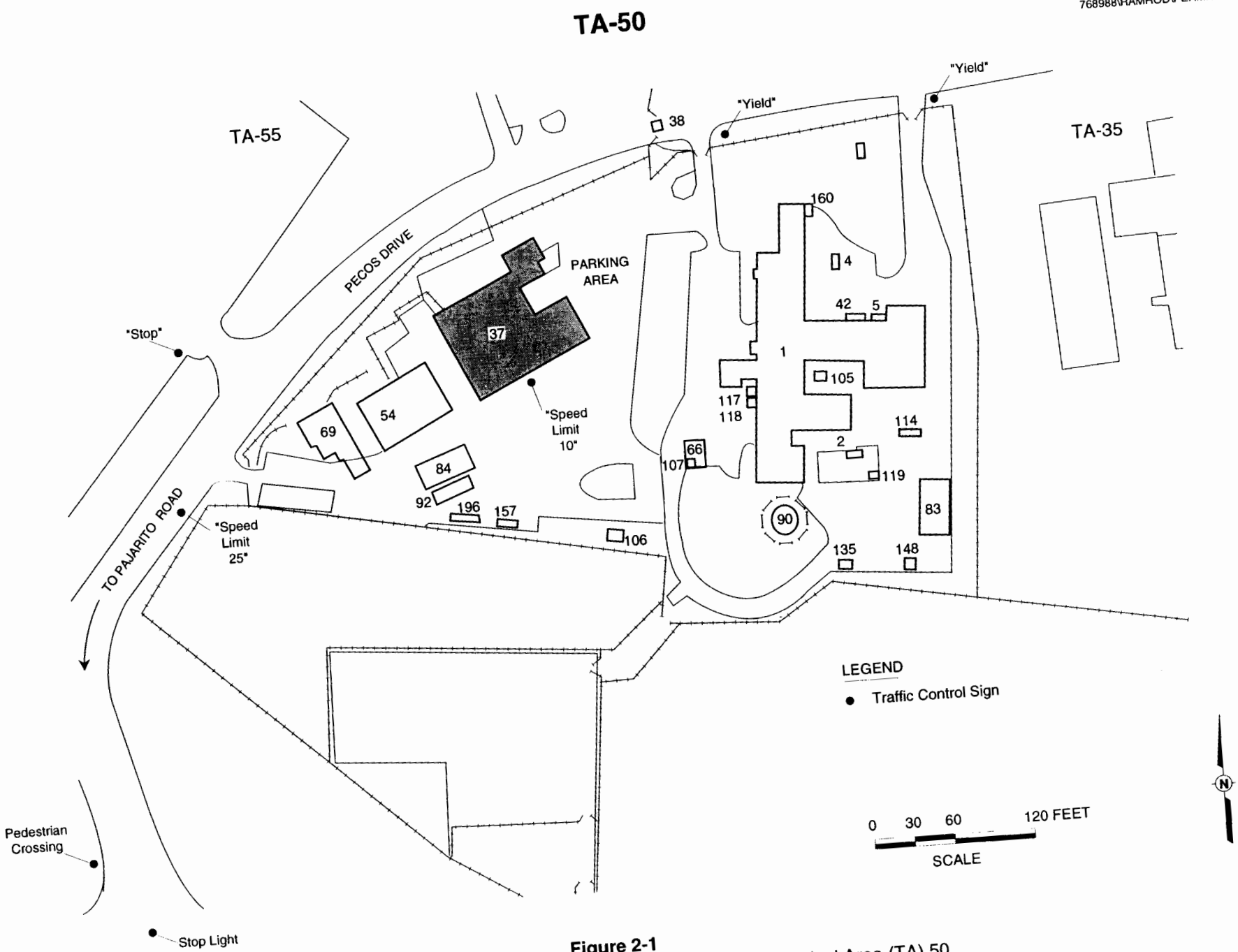


Figure 2-1
Location Map of Access Road and Traffic Control Signs in Technical Area (TA) 50

WASTE ANALYSIS PLAN FOR TRANSURANIC MIXED WASTE

Note to Reviewers:

This waste analysis plan (WAP) is similar to the "Los Alamos National Laboratory RCRA Waste Analysis Plan," Rev. 0.0 (LANL, 1995b), submitted to the New Mexico Environment Department in March 1995. Changes to this WAP will be made to be consistent with responses and resolutions to the Notice of Deficiency for the 1995 WAP, when available.

LIST OF DEFINITIONS

Acceptable knowledge - Broadly defined to include process knowledge, waste analysis data, and/or facility records of analysis.

Existing (or currently generated) transuranic (TRU) mixed waste - TRU mixed waste streams that have been characterized using the Los Alamos National Laboratory (LANL) Waste Profile Form (WPF) (the WPF has been used since May 1991).

Future TRU mixed waste - TRU mixed waste streams that will be characterized through the use of both LANL's WPF and an acceptable knowledge certification program.

Heterogeneous waste - Waste that is of dissimilar or diverse composition.

Homogeneous waste - Waste that is of uniform composition.

Legacy TRU mixed waste - TRU mixed waste streams generated before the LANL WPF was implemented (i.e., prior to May 1991).

Process knowledge - Described in the New Mexico Administrative Code, Title 20, Chapter 4, Part 1 (20 NMAC 4.1), Subpart V, Section 264.13(a)(2), revised November 1, 1995, as data developed under Subpart II and existing published or documented data on a specific hazardous waste or hazardous waste generated from similar processes.

Resource Conservation and Recovery Act (RCRA) hazardous waste - The definition of a RCRA hazardous waste is provided in 20 NMAC 4.1, Subpart II, 261.3, revised November 1, 1995.

RCRA solid waste - Any waste stream that meets the definition of a "solid waste" as specified in 20 NMAC 4.1, Subpart II, 261.2, revised November 1, 1995.

LIST OF DEFINITIONS
(Continued)

Retrievably stored waste - Waste that was generated and placed in storage in covered pads and shafts before the implementation of LANL's TRU waste certification program. Waste stored after implementation of LANL's TRU waste certification program is stored in areas that can be more easily accessed.

Solid waste - Any waste stream in a solid physical form. In this document, use of the generic term "solid waste" refers only to the solid physical form and has no additional regulatory meaning.

TRU mixed waste - Waste that has both a RCRA hazardous waste component (see definition) and a TRU waste component (see definition).

TRU waste - Waste defined in the U.S. Department of Energy (DOE) Order 5820.2A, "Radioactive Waste Management" (DOE, 1988), as follows: "Without regard to source or form, waste that is contaminated with alpha-emitting transuranic radionuclides with half-lives greater than 20 years and concentrations greater than 100 nanocuries per gram at the time of assay and has atomic numbers greater than 92. Heads of Field Elements can determine that other alpha contaminated waste, peculiar to a specific site, must be managed as TRU waste."

3.0 WASTE ANALYSIS PLAN FOR TRANSURANIC MIXED WASTE

This waste analysis plan (WAP) presents information on the chemical and physical nature of transuranic (TRU) mixed waste and general TRU mixed waste characterization methods used at Los Alamos National Laboratory (LANL). The waste analysis information contained within this WAP is specific to storage requirements only. WAPs specific to treatment requirements will be developed and submitted as needed. Waste analysis requirements are specified in the New Mexico Administrative Code, Title 20, Chapter 4, Part 1 (20 NMAC 4.1), Subpart IX, 270.14(b)(2); in 20 NMAC 4.1, Subpart V, 264.13, "General Waste Analysis"; and in 20 NMAC 4.1, Subpart VIII, 268.7, "Waste Analysis and Recordkeeping," revised November 1, 1995. The content of this WAP generally follows the guidance provided in "Waste Analysis at Facilities that Generate, Treat, Store, and Dispose of Hazardous Wastes - A Guidance Manual" (EPA, 1994a).

Mixed waste contains both a hazardous waste component, as defined and regulated by the Resource Conservation and Recovery Act (RCRA), and a radioactive waste component. This WAP addresses only *TRU mixed waste*, which is defined in the List of Definitions.

For waste characterization purposes, TRU mixed waste at LANL has been subdivided into three groups based on the timeframe for generation of the waste: *legacy, existing (or currently generated)*, and *future*. These three groups are defined in the List of Definitions.

This TRU mixed waste WAP is organized as follows. Section 3.1 provides information on TRU mixed waste-generating processes and activities, identification of TRU mixed waste managed, and a description of TRU mixed waste management units. Section 3.2 presents waste parameters, including the criteria and rationale for selection. Section 3.3 provides TRU mixed waste characterization procedures. Section 3.4 presents laboratory selection and analytical methods. Section 3.5 provides waste verification requirements. Section 3.6 addresses special procedural requirements (e.g., for ignitable, reactive, and incompatible waste and for compliance with land disposal restriction [LDR] requirements). LANL's waste profiling system is discussed in Section 3.0 of the LANL General Part B. Differences in requirements for the characterization

of legacy, existing, and future TRU mixed waste are described in the applicable sections of this WAP.

3.1 FACILITY WASTE-GENERATING PROCESSES, ACTIVITIES, AND IDENTIFICATION OF TRU MIXED WASTES MANAGED

TRU mixed waste is generated at LANL primarily from research and development activities, processing and recovery operations, and decontamination and decommissioning projects. Additional information on waste-generating processes is provided in Sections 3.1.1 through 3.1.3.

In addition to grouping TRU mixed waste based on the time of generation (i.e., legacy, existing, and future), TRU mixed waste streams at LANL will be divided into three broad categories referred to as *matrix parameter codes*, which are used to define waste characterization groupings for the Federal Facilities Compliance Act. The matrix parameter codes are based upon the physical and chemical forms of the waste. The matrix parameter codes that are applicable to LANL's TRU mixed waste are:

- Matrix Parameter Code 3000 - solid process residues
- Matrix Parameter Code 4000 - soils
- Matrix Parameter Code 5000 - debris wastes.

Matrix parameter code descriptions are provided in "DOE Waste Treatability Groups Guidance" (DOE, 1994a). Sampling and analytical procedures, discussed in Sections 3.3 and 3.4, are based on the physical characteristics of these broad categories.

Matrix parameter codes have been applied to TRU mixed waste streams at LANL as the most general categorization scheme to distinguish waste types at this time. Additional waste identification systems have been used for supplementary purposes as part of waste management operations for TRU mixed waste generated at LANL. Table 3-1 cross references the matrix parameter codes with these waste identification systems. The waste identification system used for a particular waste container depends largely upon the date of placement into storage. The additional waste identification systems, listed in order of the most general system to the most specific, are as follows:

- Item Description Codes (IDC) - IDCs, first used at LANL in July 1984, generally consist of a three-digit number. These codes represent the most general descriptions of TRU and TRU mixed waste and are used at most of DOE's facilities that generate TRU and TRU mixed waste. They were developed as a waste identification system, based on the chemical and physical form of the waste, to promote consistency throughout DOE for wastes intended for transportation to the Waste Isolation Pilot Plant (WIPP) in Carlsbad, New Mexico. IDCs for TRU mixed waste at LANL are provided in Section 3.1.1.

- TRUPACT-II Content (TRUCON) Codes - TRUCON codes, first used at LANL in October 1992, were developed by DOE to provide a consistent waste description for all TRU and TRU mixed waste generated throughout all of DOE's facilities. The TRUCON codes are intended to assist DOE in establishing the characteristics of TRU and TRU mixed waste to be certified for transportation to the WIPP. LANL TRUCON codes consist of a three-digit number preceded by the letters "LA" and are followed by a letter that further defines the waste type and source. TRUCON codes for TRU mixed waste at LANL are provided in Section 3.1.2.

- Radioactive Solid Waste Disposal (RSWD) Codes - RSWD codes, first used at LANL in January 1971, are two-digit codes preceded by the letter "A". These codes are used exclusively at LANL and categorize TRU and TRU mixed waste forms generated by the various on-site facilities. RSWD codes for TRU mixed waste are provided in Section 3.1.3.

Tables 3-1 and 3-2 are organized in this hierarchical fashion, from the most general waste stream categorization scheme to the most specific waste stream identification system. As shown in Table 3-1, the matrix parameter codes are the most general categorization scheme for TRU mixed waste. Each matrix parameter code includes specific IDCs, and each IDC in turn may include a number of TRUCON and RSWD codes. Each IDC, TRUCON code, and RSWD code in LANL's TRU mixed waste inventory is described in Sections 3.1.1, 3.1.2, and 3.1.3, respectively. The basis for hazardous waste classification for each IDC, TRUCON code, and RSWD code is provided in Table 3-2. Because the IDCs, TRUCON codes, and RSWD codes were not developed to provide RCRA-required information[1], potential U.S. Environmental Protection Agency (EPA) Hazardous Waste Numbers and hazardous constituents shown in Table 3-2 have been identified through records reviews and interviews with generators for much of LANL's legacy TRU mixed waste. A conservative approach has been used to identify potential

[1]Use of the term "RCRA-required information" refers to information on the hazardous waste or hazardous constituents, as defined in 20 NMAC 4.1, Subpart II, Part 261, revised November 1, 1995.

hazardous constituents for legacy and existing TRU mixed waste streams. Waste characterization, as discussed in Section 3.3, will be used to confirm hazardous constituents present in individual waste streams. The development of detailed hazardous waste or hazardous constituent information for legacy TRU mixed waste is an ongoing process at LANL. The potential EPA Hazardous Waste Numbers and hazardous constituents shown in Table 3-2 are the result of the most recent iteration of this process and may be updated upon further evaluation.

3.1.1 LANL IDCs

This section provides brief descriptions of the TRU mixed waste streams at LANL that have been assigned IDCs. The descriptions of the IDC wastes were developed from Attachments 1 through 4 and Attachment 6 to the "Los Alamos TRU Waste Certification Plan" (LANL, 1991b). The EPA Hazardous Waste Numbers that potentially apply to these IDC wastes are listed in Table 3-2.

IDC 001

IDC 001 waste is comprised of several types of metal scrap and incidental combustibles. This waste is generated at various TAs throughout LANL and is size-reduced at the Waste Characterization, Reduction, and Repackaging Facility (WCRRF) at TA-50-69. The waste consists mostly of metals or metal equipment, either whole or sectioned, and lesser amounts of combustible components. In addition, it contains small volumes of combustibles generated during decommissioning, sectioning, and packaging. The waste forms primarily include gloveboxes, process equipment, and ductwork from decommissioning operations. Gloveboxes may include gloves, wiring, plastic, glass windows, plastic wrapping, and lead shielding.

IDC 002

IDC 002, concreted (cemented) aqueous waste, consists of caustic sludge stabilized with Portland cement to form a noncorrosive solid monolith. The sludge is a residue from the treatment of blended acidic and caustic aqueous liquid radioactive waste with calcium hydroxide, ferric sulfate, and a flocculation aid. This treatment produces a thin sludge (approximately 25 percent solids) that is always alkaline and is compatible with Portland cement. Final cemented

waste monoliths are produced by tumbling 55-gallon steel drums containing empirically determined quantities of sludge, Portland cement, vermiculite, and sodium silicate.

IDC 003

IDC 003, stabilized aqueous waste, is a dewatered sludge generated by the vacuum filtration of solids from a pretreated aqueous waste slurry. These solids are first trapped on the surfaces of the filter media (diatomaceous earth). The filter medium with the entrapped filtrate is then placed in drums with dry concrete absorbent.

IDC 004

Combustible waste (e.g., paper, rags, plastic, rubber) comprises IDC 004, including plastic-based and cellulose-based waste generated at TA-55-4. Plastic-based waste includes, but may not be limited to, tape, polyethylene, and vinyl; gloves; plastic vials; polystyrene; Tygon™ tubing; polyvinyl chloride plastic; Teflon™ products; plexiglass; and dry box gloves (unleaded Neoprene base). Cellulose-based waste includes, but may not be limited to, rags, wood, paper, cardboard, laboratory coats and coveralls, booties and cotton gloves, and similar miscellaneous materials. IDC 004 waste may also contain a small fraction of noncombustible solids (e.g., scrap metals, metal lids).

IDC 005 and Subgroups

IDC 005 waste consists of the following subgroups:

IDC 005

Discarded high-efficiency particulate air (HEPA) filters are identified as IDC 005. This waste is generated at TA-55-4.

IDC 005(LG)

IDC 005(LG) consists of glass waste and includes, but may not be limited to, discarded labware, windows, and bottles. A small fraction of combustible waste, such as plastics (mainly packaging), may also be present in this waste stream.

IDC 005(LM)

Metal waste (e.g., motors, pumps, tools, and process equipment) comprises IDC 005(LM). A small fraction of combustible waste, such as plastics (mainly packaging), may also be present in this waste stream.

IDC 005(P1)

IDC 005(P1) is leaded rubber waste and metal waste. This waste stream also includes lead-lined glovebox gloves discarded along with metal waste, such as motors and tools.

IDC 005(P2G)

IDC 005(P2G) is graphite solid waste that consists of discarded graphite mold and furnace equipment generated during plutonium casting and other operations conducted in Room 327 at TA-55-4.

IDC 005(P2S)

IDC 005(P2S) is waste that consists of used salts from pyrochemical processes such as electrorefining, molten salt extraction, salt stripping, fluoride reduction, and direct oxide reduction. These processes occur at TA-55-4. A small fraction of combustible waste, such as plastics (mainly packaging), may also be present in this waste stream.

IDC 006

Solidified inorganic and organic process solids comprise IDC 006 waste. This waste consists of process leached solids, asn, filter cakes, salts, metal oxides, fines, or evaporator bottoms stabilized in Portland or gypsum cement. These waste streams are generated at TA-55-4.

3.1.2 LANL TRUCON Codes

This section provides a brief description of the TRUCON-coded TRU mixed waste streams at LANL. All existing (i.e., currently generated) TRU mixed waste at LANL is assigned a TRUCON code, except for waste that requires further processing at the WCRRF. The descriptions of the TRUCON-coded wastes were extracted from "TRUPACT-II Content Codes (TRUCON)," DOE/WIPP 89-004, Rev. 3 (DOE, 1989); and "Detailed Operating Procedure for the Review and

Disposition of the TRU Waste Storage Record," Attachment B (LANL, 1994b). The EPA Hazardous Waste Numbers that potentially apply to these TRUCON-coded wastes are listed in Table 3-2.

TRUCON Code LA 111A

TRUCON code LA 111A consists of concreted (cemented) aqueous waste. This waste is similar to the waste previously identified as IDC 002. The waste originates as aqueous effluent from plutonium processing at TA-55-4 that is then treated in Room 60 of the Radioactive Liquid Waste Treatment Facility (RLWTF) at TA-50-1. As described for IDC 002, the resultant sludge is mixed with Portland cement, vermiculite, and sodium silicate and then packaged as TRUCON code LA 111A.

TRUCON Code LA 211A

TRUCON code LA 211A consists of retrievably stored (see List of Definitions), concreted (cemented) aqueous waste. This waste originates as aqueous effluent from plutonium processing at TA-55-4 that is then treated in Room 60 of the RLWTF at TA-50-1. As described for IDC 002, the resultant sludge is mixed with Portland cement, vermiculite, and sodium silicate.

TRUCON Code LA 111B

TRUCON code LA 111B consists of stabilized aqueous waste (dewatered sludge) that is similar to the waste identified as IDC 003. The waste consists of solids from vacuum filtration of a pretreated aqueous waste slurry at TA-50-1. These solids, which originated in the plutonium-processing facility at TA-55-4, are trapped on the surfaces of filter media (diatomaceous earth). The filter medium with the entrapped filtrate is placed in drums with dry Portland cement as an absorbent.

TRUCON Code LA 211B

TRUCON code LA 211B consists of retrievably stored, stabilized aqueous waste (dewatered sludge) that is similar to the waste identified as IDC 003. The waste consists of solids from vacuum filtration of a pretreated aqueous waste slurry at TA-50-1. These solids, which originated in the plutonium-processing facility at TA-55-4, are trapped on the surfaces of filter

media (diatomaceous earth). The filter medium with the entrapped filtrate is placed in drums with dry Portland cement as an absorbent.

TRUCON Code LA 114A

TRUCON code LA 114A consists of solidified inorganic process solids. This waste is similar to the waste previously identified as IDC 006. The waste is generated at TA-55-4 as a result of plutonium-processing operations. Solidified process solids include process residue from evaporator bottoms and other discardable solutions, process-leached solids, ash, filter cakes, salts, metal oxides, and fines. These process solids are immobilized in gypsum cement to form a noncorrosive solid matrix. The resultant waste is packaged as TRUCON code LA 114A.

TRUCON Code LA 115A

Graphite waste generated from plutonium-processing activities at TA-55-4 is packaged as TRUCON code LA 115A. TRUCON code LA 115A is similar to the waste identified as IDC 005(P2G). The waste consists of discarded graphite mold and furnace equipment from plutonium-casting operations. A small fraction of combustible waste, such as plastic (mainly packaging), also comprises this waste type. The graphite waste is first placed in tin or stainless steel cans and then placed in 55-gallon drums or standard waste boxes (SWB).

TRUCON Code LA 116A

TRUCON code LA 116A is comprised of combustible waste generated at TA-55-4. TRUCON code LA 116A is similar to the waste identified as IDC 004. The combustible solids consist primarily of paper, rags, plastic, and rubber. A small fraction of noncombustible solids, such as scrap metals, may also be contained in this waste form. The wastes are containerized in 55-gallon drums or SWBs.

TRUCON Code LA 116B

TRUCON code LA 116B is comprised of combustible debris waste generated at TA-55. TRUCON code LA 116B is similar to the waste identified as IDC 004. This combustible debris waste consists primarily of room trash generated during plutonium-processing activities.

TRUCON Code LA 116C

TRUCON code LA 116C is comprised of combustible debris waste generated at TA-55. TRUCON code LA 116C is similar to the waste identified as IDC 004. This combustible debris waste consists primarily of glovebox trash generated during plutonium-processing activities.

TRUCON Code LA 116D

TRUCON code LA 116D is comprised of all other combustible waste generated at TA-3 and not included in LA 116E. TRUCON code LA 116D is similar to the waste previously identified as IDC 004.

TRUCON Code LA 116E

TRUCON code LA 116E is comprised of combustible waste generated at TA-3. TRUCON code LA 116E is similar to the waste previously identified as IDC 004. This combustible solid waste may consist of paper, rags, plastic, and rubber.

TRUCON Code LA 117A

TRUCON code LA 117A is comprised of noncombustible waste generated at TA-55. TRUCON code LA 117A is similar to the waste previously identified as IDC 005(LM). This metal waste may consist of motors, pumps, tools, and process equipment and may contain some small fraction of combustible waste, such as plastics (mainly packaging). This waste is packaged in SWBs.

TRUCON Code LA 117B

TRUCON code LA 117B is comprised of noncombustible waste generated at TA-55. TRUCON code LA 117B consists of the metal waste described in TRUCON code LA 117A. The difference between this waste and LA 117A is that LA 117B is packaged in a maximum of four layers of plastic bagging contained within 55-gallon drums.

TRUCON Code LA 117C

TRUCON code LA 117C is comprised of metal waste as described in TRUCON code LA 117A. This waste stream is generated at TA-3.

TRUCON Code LA 117D

TRUCON code LA 117D is comprised of metal waste as described in TRUCON code LA 117A. This waste stream is generated at TA-55. The waste may also contain glass in the form of discarded laboratory glassware, windows, and bottles, with a small fraction of combustibles (mainly plastic packaging). The waste is packaged in a maximum of four layers of plastic bagging contained within 55-gallon drums.

TRUCON Code LA 117E

TRUCON code LA 117E is comprised of metal waste from plutonium-processing activities at TA-55. TRUCON code LA 117E is similar to IDC 005(LM). This waste may consist of motors, pumps, tools, and process equipment and may contain some small fraction of combustible waste, such as plastic (mainly packaging). The waste is packaged in a maximum of four layers of plastic bagging contained within 55-gallon drums.

TRUCON Code LA 117F

TRUCON code LA 117F is comprised of noncombustible waste and is similar to IDC 005(LM). This waste is generated from plutonium-processing activities at TA-3.

TRUCON Code LA 117G

TRUCON code LA 117G is comprised of all other noncombustible waste generated at TA-3. TRUCON code LA 117G is similar to IDC 005(LM).

TRUCON Code LA 118A

TRUCON code LA 118A consists of TRU glass waste generated from plutonium-processing activities at TA-55-4. TRUCON code LA 118A is similar to the waste identified as IDC 005(LG). This glass waste consists of discarded laboratory glassware, windows, and bottles. A small fraction of combustible waste, such as plastic (mainly packaging), may also comprise this waste type. The waste is packaged in tin or stainless steel cans and contained in 55-gallon drums or SWBs.

TRUCON Code LA 119A

TRUCON code LA 119A consists of discarded HEPA filters from TA-55-4. TRUCON code LA 119A is similar to the waste identified as IDC 005.

TRUCON Code LA 123A

Leaded rubber and metal waste generated at TA-55-4 is packaged as TRUCON code LA 123A, which is similar to the waste identified as IDC 005(P1). This waste type consists of lead-lined glovebox gloves discarded along with metal waste, such as discarded metals, motors, and tools. The waste is placed in 55-gallon drums or SWBs.

TRUCON Code LA 123B

TRUCON code LA 123B consists only of leaded gloves from TA-55-4. The waste is similar to the waste identified previously as IDC 005(P1).

TRUCON Code LA 124A

TRUCON code LA 124A consists of TRU waste salts generated from plutonium-processing activities at TA-55-4. TRUCON code LA 124A is similar to the waste identified as IDC 005(P2S). The salt waste consists of used salts from pyrochemical processes, such as electrorefining, molten salt extraction, salt stripping, fluoride reduction, and direct oxide reduction. A small fraction of combustible waste, such as plastics (mainly packaging), may also be contained in this waste.

TRUCON Code LA 125A

TRUCON code LA 125A waste contains metal equipment, either whole or sectioned, along with its combustible components. This waste also consists of a small volume of combustibles generated during decommissioning, sectioning, and packaging. TRUCON code LA 125A is similar to IDC 001 and is generated at TA-50.

TRUCON Code LA 126A

TRUCON code LA 126A consists of solidified organic process solids. This waste is similar to the waste previously identified as IDC 006. The waste is generated at TA-55-4 as a result of

plutonium-processing operations. Solidified process solids include process residue from evaporator bottoms and other discardable solutions, process leached solids, ash, filter cakes, salts, metal oxides, and fines. These process solids are immobilized in gypsum cement to form a noncorrosive solid matrix. The resultant waste is packaged as TRUCON code LA 126A.

3.1.3 LANL RSWD Codes

This section provides a brief description of the RSWD-coded waste at LANL and the processes that generated the waste. The descriptions of the RSWD-coded waste were extracted primarily from the DOE/LANL "Response to the Notice of Deficiency Issued by the New Mexico Environment Department for the Part B Permit Application for Technical Area 54, Area G Storage Pads and Domes" (DOE, 1994b). Additional information was obtained through queries of LANL's Chemical Science and Technology Division waste management database. The EPA Hazardous Waste Numbers that potentially apply to these RSWD codes are listed in Table 3-2.

LANL RSWD Code A10

RSWD code A10 waste consists of graphite solids generated from plutonium-processing operations, specifically, casting conducted in Room 327 at TA-55-4.

LANL RSWD Code A14

The RSWD code A14 waste stream consists of combustible material generated during decontamination activities at TA-3, TA-21, TA-50, and TA-55. Decontamination waste may include cellulosics, plastic, or cloth generated during plutonium processing.

LANL RSWD Code A15

RSWD code A15 consists mainly of combustible solids collected from plutonium-processing operations and related activities at TA-3, TA-21, TA-50, and TA-55-4. Waste at TA-55-4 is collected in the waste management room (Room 432) for packaging, documentation, and radionuclide assay. The waste includes cellulosics, such as wood scraps, paper, and rags.

LANL RSWD Code A16

RSWD code A16 waste consists of plastic (mainly packaging) generated at TA-3, TA-21, TA-50, and TA-55. This waste is generated from plutonium-processing and related activities.

LANL RSWD Code A17

RSWD code A17 waste consists of rubber materials generated during plutonium-processing and related activities. This waste is generated at TA-3, TA-21, TA-50, and TA-55.

LANL RSWD Code A18

Waste consisting of nonsegregated paper, plastic, and rubber comprises RSWD code A18. This waste is generated at TA-3, TA-21, TA-50, and TA-55 during plutonium-processing and related activities.

LANL RSWD Code A19

RSWD code A19 waste consists of a combination of noncombustible material, such as scrap metal, and trash generated at TA-3, TA-21, TA-50, and TA-55. Plutonium-processing and related activities generate this waste.

LANL RSWD Code A24

RSWD code A24 waste is comprised of cemented/immobilized residues and/or powders. This waste stream is generated at TA-55-4 and may consist of process leached solids, ash, filter cake, metal oxides, and fines from plutonium-processing operations. The waste has been immobilized in gypsum cement.

LANL RSWD Code A25

Plutonium operations generate numerous waste items that may require plutonium recovery, such as filter media, plastics, used equipment, personnel protection equipment, and paper products that are removed from process gloveboxes or radiation control areas. These items are processed by various methods, such as acid leaching, to recover the residual plutonium. In this plutonium-recovery process, waste streams consisting of leached materials, such as solution residues, solids, ash, filter cake residues, salts, and metal oxides, were generated at TA-21 and

TA-50 and are currently generated at TA-55. This waste constitutes the A25 waste stream. The residual material is mixed with gypsum cement in steel drums. Some batches of gypsum-cemented waste have been found to release a minimal amount of free liquid as a result of dewatering after the cement has set. There is some likelihood of hydrogen gas generation from the radiolysis of water contained within the cement matrix.

LANL RSWD Code A26

After the items containing recoverable levels of plutonium have been processed (as described above) and the waste materials that no longer contain recoverable amounts of plutonium have been segregated (RSWD code A25), the remaining leachate that still contains recoverable levels of plutonium is processed in ion-exchange units. The ion-exchange units segregate the plutonium and generate a stripped leachate. This stripped leachate is then collected, along with plutonium-oxalate solutions and process waters, and distilled in an evaporator. The evaporator distillate is then sent to TA-50 for further treatment. The A26 waste stream consists of the evaporator bottom solutions that result from the evaporation process. This waste stream is generated at TA-55 and is stabilized in a cement matrix at TA-55-4, Room 401.

LANL RSWD Code A27

This waste stream consists of any solid crystallized residues from the evaporator process solution described above for RSWD code A26. The residues may include iron-, aluminum-, calcium-, magnesium-, ammonium-, potassium-, and sodium-nitrate salts. Some particles have been immobilized by cementation to meet minimum particulate size criteria for storage. Most salts were placed in containers without immobilization.

LANL RSWD Code A28

RSWD code A28 consists of discarded chloride salts used in pyrochemical operations, such as electrorefining, molten salt extraction, salt stripping, and oxide reduction associated with plutonium-recovery operations at TA-55. In molten form, the chlorides are used as a solvent in the preparation and purification of plutonium metal. No liquids or hydrocarbons are present in this waste stream.

LANL RSWD Code A29

RSWD code A29 waste is a hydroxide cake generated from waste salt. This waste is generated at TA-55 during plutonium-processing operations.

LANL RSWD Code A30

RSWD Code A30 consists of large, discarded, property-numbered (PN) equipment, such as gloveboxes and ancillary equipment (e.g., support structures, feed lines, ventilation equipment) from TA-3, TA-21, TA-39, TA-49, TA-50, and TA-55. These large metallic items from decontamination and decommissioning operations are size-reduced at the WCRRF at TA-50-69 by cutting with a plasma arc torch. Many of the gloveboxes included in this waste stream are lined with sheets of lead. This waste may contain very small quantities of contained liquids in piping and possibly precipitation that entered containment crates prior to placement in their present storage configuration.

LANL RSWD Code A31

RSWD Code A31 consists of smaller discarded parts and non-PN equipment associated with the generation of RSWD code A30, such as faucets, piping, wiring, plastic wrapping, and plastic or glass windows. No liquids or hydrocarbons are associated with this waste stream.

LANL RSWD Code A36

The RSWD code A36 waste consists of noncombustible building debris. The building debris was generated during decommissioning activities at TA-3, TA-21, TA-39, TA-49, TA-50-69, and TA-55.

LANL RSWD Code A40

RSWD code A40 waste consists of combustible hot cell waste generated during plutonium-processing and related activities. This waste is generated at TA-3, TA-21, TA-50, and TA-55.

LANL RSWD Code A46

RSWD code A46 waste consists of reaction process crucibles and oxide residues immobilized in gypsum cement. This waste is generated at TA-55.

LANL RSWD Code A47

Slag and porcelain waste generated at TA-3 and TA-55 comprise RSWD code A47 waste. This waste is generated as a result of plutonium-processing activities.

LANL RSWD Code A50

RSWD code A50 waste consists of metal crucibles, scrap, and dies. This waste is generated during plutonium-processing activities at TA-3 and TA-55.

LANL RSWD Code A52

RSWD code A52 consists of metal waste from TA-55-4. The metal waste is comprised of motors, pumps, tools, and process equipment.

LANL RSWD Code A55

Discarded HEPA filters comprise RSWD code A55. This waste is generated at TA-55-4.

LANL RSWD Code A60

RSWD code A60 waste consists of other combustibles generated at TA-3, TA-21, TA-50, and TA-55. This waste is generated as a result of plutonium-processing and related activities.

LANL RSWD Code A61

RSWD code A61 consists of miscellaneous noncombustible trash associated with plutonium-processing operations, such as ceramics, scrap metal, and glass. The scrap metal includes discarded motors, pumps, tools, and process equipment and materials from fabricated items disassembled for evaluation. Rubber gloves containing lead oxide may be included in this waste stream.

LANL RSWD Code A75

Most of the waste included in RSWD code A75 was generated before 1982 at TA-50-1 and TA-55-4. This waste stream consists of the distillate from the evaporator process discussed for RSWD code A26 and depleted-plutonium solutions from caustic-recovery processes at TA-55-4. This wastewater was collected and chemically treated at TA-50-1 with lime and ferric sulfate to encapsulate the nuclear material in an iron hydroxide matrix. It was then dewatered by vacuum filtration. Cement was added to the top of the resulting sludge to capture any liquid that separated from the sludge. This waste stream was significantly reduced in 1982 by redirecting TA-50-1 influent with high TRU content into a pretreatment unit in Room 60 (see description below for RSWD code A76). However, even though this influent is now redirected into the pretreatment unit, the supernatant resulting from the current pretreatment operations enters the main plant treatment operations in Room 116; thus, A75 waste continues to be generated.

LANL RSWD Code A76

RSWD Code A76 consists of cement paste created by stabilizing pretreatment sludge generated at TA-50-1, Room 60. This sludge results from pretreatment of TA-55 influent before it enters the main treatment plant operations in TA-50-1, Room 116. The pretreatment sludge was generated after 1982 and stabilized with Portland cement. Halogenated organic solvents used in the influent generating process may have periodically been introduced to the influent generating this sludge. There is currently no evidence that this waste stream contains free liquids and no materials exist in this waste stream that would cause generation of hydrogen gas.

LANL RSWD Code A80

RSWD code A80 waste consists of irradiation sources plated on planchets. This waste is generated at TA-3 and TA-55.

LANL RSWD Code A90

RSWD code A90 consists of radioactively-contaminated soil generated during decontamination activities and/or accidental spills at TA-1, TA-3, TA-21, and TA-50.

LANL RSWD Code A95

RSWD code A95 waste consists of glass waste generated from plutonium-processing and related activities at TA-3, TA-21, TA-42, and TA-55. This waste stream may contain discarded labware, windows, and/or bottles and contains a small fraction of combustibles such as plastic.

3.1.4 Description of TRU Mixed Waste Management Units

The permitted TRU mixed waste storage units at LANL that are addressed in this WAP include:

- Storage Pad 2 and Storage Pad 4 at TA-54, Area G
- Storage Domes 226, 229, 230, 231, and 232 at TA-54, Area G

Information on the mixed waste management units at TA-54, Area G, is available in LANL's "RCRA Part B Permit Application: Technical Area 54, Area G, Pads 1, 2, and 4; Storage Domes A–D; Chemical Plating Waste Treatment Skid and Treated Liquid Storage Tanks, Technical Area 63, Hazardous Waste Treatment Facility," (LANL, 1993b) submitted by LANL to the New Mexico Environment Department in September 1993.

TRU mixed waste storage units addressed in this permit modification request and in this WAP include:

- Rooms 112, 114, 115, 117, and 118 at the Radioactive Materials Research, Operations, and Demonstration (RAMROD) Facility at TA-50-37.

Information on the mixed waste management units at the RAMROD Facility is available in Sections 2.0 and 4.0 of this permit modification request.

TRU mixed waste storage units operating under 20 NMAC 4.1, Subpart VI, revised November 1, 1995, standards and addressed in this WAP include:

- Storage Domes 48, 153, 224, and 283 at TA-54, Area G
- The Drum Prep Facility and Storage Shed 8 at TA-54, Area G

- Container storage areas in Rooms 9010, 9020, and 9030 of Wing 9 at TA-3-29
- Storage units at TA-50-1 (Room 59)
- Rooms 35, 36, and 38/38A container storage areas at the TA-50-1 Decontamination Facility
- The Waste Characterization, Reduction, and Repackaging Facility indoor and outdoor container storage areas at TA-50-69
- A container storage area at TA-50-114
- Container storage areas at the Radioassay and Nondestructive Testing Facility at TA-54 West
- Storage units at TA-55, Buildings 4 and 185.

Information on these mixed waste management units is available in LANL's "RCRA Part A Permit Application for Mixed Waste, Revision 2.0" (LANL, 1994a).

3.2 WASTE PARAMETERS [20 NMAC 4.1, Subpart V, 264.13(a)(1)]

A detailed chemical and physical characterization will be performed for TRU mixed waste management purposes, as required by 20 NMAC 4.1. Waste analysis parameters will be selected to ensure that this characterization will contain all information necessary to properly treat, store, or dispose of waste in accordance with 20 NMAC 4.1 general facility standards and LDR requirements.

3.2.1 Proposed Analytical Parameters and Characterization Methods [20 NMAC 4.1, Subpart V, 264.13(b)(1), and Subpart IX, 270.14(b)(2)]

Proposed analytical parameters and characterization methods for TRU mixed waste at LANL are summarized in Table 3-3. Some or all of these parameters will be used to determine the regulatory status of LANL TRU mixed waste and are as follows:

- Physical waste form characterization through real-time radiography (RTR) and visual examination to verify the absence of free liquids

- Headspace gas sampling to determine the presence of volatile organic compounds (VOC) in container headspace

- Hazardous constituent sampling to determine the presence and concentrations of:

  - Regulated metals
  - Regulated VOCs
  - Regulated semivolatile organic compounds (SVOC)

3.2.2 Criteria and Rationale for Parameter Selection [20 NMAC 4.1, Subpart V, 264.13(b)(1)]

Waste analysis parameters selected to characterize TRU mixed waste are in conformance with 20 NMAC 4.1 and incorporate characterization procedures from the WIPP "TRU Waste Characterization Quality Assurance Program Plan" (QAPP) (DOE, 1994c) requirements, which are based on knowledge of raw materials and physical/chemical processes of waste-generating activities and which may be supported by analytical results. The analytical parameters selected to confirm knowledge-based waste characterization, as well as the rationale for the selected parameters, are identified in Table 3-3.

3.3 CHARACTERIZATION OF TRU MIXED WASTE [20 NMAC 4.1, Subpart V, 264.13(a)(1), 264.13(b)(2), and Subpart IX, 270.14(b)(2)]

The characterization of TRU mixed waste managed at LANL can be divided into general approaches based on when the waste was generated and the differences involved in sampling the waste. Generally, the distinction is made between legacy, existing, and future TRU mixed waste to define the quality of information available on the waste and the subsequent need for additional sampling and analysis. A secondary distinction between heterogeneous and homogeneous waste, as reflected in the matrix parameter codes, is made to determine the availability or appropriateness of sampling procedures.

As provided in the List of Definitions, *legacy* TRU mixed waste is waste generated before the LANL Waste Profile Form (WPF) was implemented in May 1991 (see Section 3.1 of the LANL General Part B). Legacy TRU mixed waste has been characterized with qualitative assessments to evaluate the presence or absence of hazardous constituents. These assessments include examining past records and databases, conducting interviews with waste generators, and

observing and evaluating similar waste-generating processes. *Existing (or currently generated)* TRU mixed waste is characterized using LANL's WPF (i.e., waste generated since May 1991). *Future* TRU mixed waste will be characterized using both LANL's WPF and an acceptable knowledge certification program (see Section 3.3.1 of this document).

The TRU mixed waste types described include solid process residues, soils, and debris wastes. As discussed in Section 3.1, these types are categorized by *matrix parameter codes* based on the physical and chemical form of the waste. Waste streams in the solid process residues (Matrix Parameter Code 3000) or soils (Matrix Parameter Code 4000) categories may contain regulated VOCs, SVOCs, and metals (see Table 3-4). These homogeneous waste streams will be sampled and analyzed for the toxicity characteristic (TC) contaminants listed in 20 NMAC 4.1, Subpart II, 261.24. Analysis for total concentration of TC contaminants may be performed on samples in a screening step. If total concentrations are used in the waste characterization process, analytical data will be compared to the TC regulatory levels expressed as total values. These total values will be considered the regulatory threshold limit (RTL) values for the determination of whether a particular waste exhibits a TC. RTL values are obtained by calculating the weight/weight concentration (in the solid) of a TC contaminant that would give the regulatory weight/volume concentration in the toxicity characteristic leaching procedure extract.

Debris waste streams (Matrix Parameter Code 5000) consist of heterogeneous materials. As such, it is difficult to obtain representative samples, and the waste type is best characterized through examination of the original materials from which the waste was generated. Therefore, debris waste may be characterized for the presence of hazardous constituents (i.e., VOCs, SVOCs, and metals) using acceptable knowledge. Additionally, headspace gas sampling, RTR, or visual examination will be conducted on a statistically selected population of waste streams to substantiate this characterization.

The matrix parameter codes (see Table 3-1) will be used as preliminary guidance for establishing sampling and analytical procedures. Specific sampling and analytical requirements will then be determined for each waste stream. Initial predictions of hazardous constituents present in each waste stream will be based on process knowledge, with waste sampling and analysis performed

as necessary to obtain qualitative and quantitative data for hazardous constituents (i.e., VOCs, SVOCs, and metals). Table 3-3 summarizes characterization methods by matrix parameter code. Sampling and analytical methods for specific hazardous constituents are presented in Table 3-4. The following discussion presents the approach to characterization that will be used for each of these waste groups, integrating the time of generation and the physical form of the waste.

Characterization of legacy TRU mixed waste is primarily based on process knowledge, which is suitable for safe storage of these waste streams. Further characterization of homogeneous legacy waste may be accomplished through statistically based sampling and analysis, headspace gas sampling, RTR, and visual examination. Heterogeneous legacy waste will be characterized using process knowledge, headspace gas sampling, RTR, and visual examination. These approaches for homogeneous and heterogeneous legacy waste are discussed in Section 3.3.2.

Existing TRU mixed waste is currently characterized using process knowledge, which is provided by individual waste generators on LANL's WPF. (For a detailed description of the WPF, refer to Section 3.1 of the LANL General Part B and to LANL's Administrative Requirement (AR) 10-9, "Waste Profile Form.") Additional characterization of existing TRU mixed waste will occur after the construction of planned facilities and implementation of sampling and analytical capabilities at LANL. For this additional characterization of homogeneous existing waste, LANL will use statistically based sampling and analysis, headspace gas analysis, RTR, and visual examination. Heterogeneous existing waste will be characterized using process knowledge, headspace gas sampling, RTR, and visual examination.

Future homogeneous TRU mixed waste will be characterized through the use of LANL's WPF and an acceptable knowledge certification program to be implemented. Sampling and analysis will be conducted for characterization only when required to fully document and/or verify the waste stream. Documented and auditable acceptable knowledge will be used to determine whether the waste stream is regulated under 20 NMAC 4.1. If available information regarding acceptable knowledge is insufficient for waste characterization, additional information will be obtained using the sampling procedures identified in Section 3.3.2. Heterogeneous waste will

be characterized for regulated constituents using acceptable knowledge, which may be supported by some waste analysis data.

For future TRU mixed waste, knowledge of the waste-generating process will be strictly controlled by a quality assurance/quality control (QA/QC) program that addresses management of specific waste streams. This approach will provide a rigid definition for the acceptable knowledge applicable to specific waste streams. For example, the QA/QC program may include procedures for controlling chemical inputs to the waste-generating process as well as procedures for confirming the types of waste placed in different waste containers. These measures will provide knowledge of the types and concentrations of chemical constituents in individual waste streams.

3.3.1 Acceptable Knowledge [20 NMAC 4.1, Subpart V, 264.13(a)(2), 264.13(b)(5), and Subpart IX, 270.14(b)(2)]

The physical nature of some TRU mixed waste forms (e.g., debris) makes the collection of representative samples difficult. This difficulty arises from several factors, some of which include: waste streams that contain disparate elements; disparate elements may need to be segregated into similar forms; large objects cannot be made to fill standard size sample containers; and laboratories may not have the capability to sample large objects (EPA, 1992). Health and safety risks to personnel from exposure to radioactive material also preclude extensive sampling and analysis of certain TRU mixed waste forms. Therefore, acceptable knowledge, as defined in the List of Definitions, is a method used to characterize TRU mixed waste forms at LANL. For generation of future TRU mixed waste, LANL will implement an acceptable knowledge certification program to ensure that acceptable knowledge used for waste characterization is documented and auditable.

A discussion of *acceptable knowledge, process knowledge, supplemental waste analysis data,* and *facility records of analysis*, according to EPA guidance (EPA, 1994a), is provided in Section 3.1 of the LANL General Part B.

Sampling surrogate wastes (e.g., equivalent nonradioactive or low-level radioactive materials) may also be a means of obtaining acceptable knowledge for characterizing mixed wastes. For example, data from the analysis of nonradioactive leaded-rubber glove waste may be used to evaluate the characteristics of similar radioactive leaded-rubber glove waste. In some cases, a low-level mixed waste stream may be chemically equivalent to a TRU mixed waste stream. Because data for a low-level mixed waste stream may be more readily attainable, it may be useful for characterizing the TRU mixed waste stream. Sampling nonradioactive inputs or outputs from processes may also provide data that are useful for characterizing a similar TRU mixed waste stream.

Acceptable knowledge confirmed with RTR and visual examination is a reasonable approach to characterizing debris waste. Obtaining a representative sample of debris waste (Matrix Parameter Code 5000), as required by 20 NMAC 4.1, Subpart V, 264.13(b)(3), is difficult, because many types of waste may be present in a single waste stream or even in a single waste container. For legacy and existing heterogeneous waste, the type of waste segregation that would enable the development of a sampling strategy to obtain representative samples has not always occurred. Problems also arise in collecting representative samples from irregularly shaped and indurated waste items. Debris wastes are expected to exhibit highly variable concentrations of hazardous constituents, even for segregated materials. This may potentially diminish the reliability of sampling and analytical data.

The acceptable knowledge approach to characterizing TRU mixed debris waste is supported by EPA guidance (EPA, 1994a) for the situations described in the previous paragraph. A conservative approach is used to determine if a waste is regulated under 20 NMAC 4.1. Process inputs (e.g., chemicals) are identified, and if the waste stream generated may potentially contain regulated hazardous constituents derived from process inputs, the waste is managed as regulated hazardous/mixed waste. This type of process knowledge will be used to characterize TRU mixed debris waste. For example, metals present in debris waste are often associated with specific materials (e.g., lead in leaded rubber, leaded glass, or lead shielding). Knowledge of the materials and operations that generated specific waste streams in the debris category is used

to determine if these types of items are present in the waste and if the waste stream contains regulated metals.

3.3.2 Sampling and Analysis for TRU Mixed Waste [20 NMAC 4.1, Subpart V, 264.13(b)(2) and (3), and Subpart IX, 270.14(b)(2)]

This section discusses proposed sampling procedures and frequency of sampling applicable to TRU mixed wastes. The approach described for characterizing TRU mixed waste streams is based on radiological, physical/chemical, and hazardous properties of the waste. The sampling and analysis strategies presented here will be used to evaluate whether TRU mixed waste exhibits the characteristic of toxicity, as described in 20 NMAC 4.1, Subpart II, 261.24, revised November 1, 1995. The proposed methods do not apply directly to determinations of whether a waste exhibits other characteristics (i.e., ignitability, corrosivity, or reactivity) or is listed in 20 NMAC 4.1, Subpart II, Part 261, Subpart D, revised November 1, 1995. Determinations of whether a TRU mixed waste exhibits these characteristics or is listed will be made by applying acceptable knowledge, as described in Section 3.3.1 of this document and Section 3.1 of the LANL General Part B. Techniques typically used to obtain the physical and chemical data necessary for TRU mixed waste characterization include the following: RTR, visual examination, headspace gas sampling and analysis, and homogeneous solid waste sampling and analysis (e.g., for VOCs, SVOCs, and metals). For the purpose of TRU mixed waste characterization, LANL utilizes RTR, visual examination, and headspace gas sampling as confirmational sampling and analysis procedures for process knowledge. These procedures, coupled with documented, auditable process knowledge, will result in accurate, defensible waste characterization of TRU mixed waste. Specific waste sampling methods, equipment, and sample handling procedures are described below.

To confirm whether existing TRU mixed waste is hazardous, as defined in 20 NMAC 4.1, Subpart II, Part 261, revised November 1, 1995, available process knowledge will first be used to segregate the waste containers into waste streams and to assign each waste stream to a matrix parameter code. Once the waste streams have been defined and assigned to the matrix parameter codes, this information will be verified by a multistep process (Section 3.5). RTR will be used for TRU mixed waste to confirm the matrix parameter code and to verify compliance

with the waste form requirements of the "Waste Acceptance Criteria for the Waste Isolation Pilot Plant" (DOE, 1991). A statistically selected number of containers (as described in Section 3.3.2.2) will be visually examined to confirm RTR results. Drums retrieved from Storage Pads 1, 2, and 4 will be selected on a statistical basis (as described in Section 3.3.2.5) for headspace gas sampling during drum venting operations.

3.3.2.1 RTR [20 NMAC 4.1, Subpart V, 264.13(b)(2), and Subpart IX, 270.14(b)(2)]

RTR is a nondestructive, qualitative and semiquantitative assay technique that involves x-ray scanning of waste containers to identify and verify, using appropriate equipment and qualified operators, the physical form(s) of waste container contents. RTR will be used to verify the absence of free liquids and that the physical form requirements of the WIPP waste acceptance criteria (DOE, 1991) are met. At the same time, RTR will verify the waste classification (i.e., matrix parameter code) and waste form determined using acceptable knowledge. All TRU mixed waste containers will be analyzed by RTR, and the results for each waste container will be documented. The audio/video tapes produced during the waste container scan will be maintained for a minimum of three years. In addition, an RTR data form will be used to document the waste matrix parameter code.

3.3.2.2 Visual Examination [20 NMAC 4.1, Subpart V, 264.13(b)(2), and Subpart IX, 270.14(b)(2)]

Waste contents of select TRU mixed waste containers will be visually examined to confirm the RTR results. This visual examination will also verify aspects of acceptable knowledge amenable to visual confirmation. For example, the visual examination will verify the physical characteristics of the waste and the associated matrix parameter code (i.e., Matrix Parameter Code 3000, 4000, or 5000). In addition, the visual examination will verify the presence of certain hazardous constituents, such as lead in lead bricks or lead-lined gloves. These types of visual confirmations will further verify or refute the overall acceptable knowledge used to characterize the waste stream.

The number of containers to be visually examined will be determined based on the drum population and on the historical miscertification percentage. The method for selecting containers

to be examined visually is based upon a statistical approach for quantifying the proportion of waste containers miscertified by the RTR process. Because the sampling effort will be to estimate a proportion in a finite population, the hypergeometric distribution is used to determine the number of containers to be visually examined. For the first year of container examination, LANL will use the 2 percent miscertification rate observed at the Idaho National Engineering Laboratory (INEL). In subsequent years, LANL will use the miscertification rate observed at LANL in the previous year(s) to determine the appropriate number of containers for visual examination. Visual examinations will be documented and the staff making the examination will be trained regarding what to look for and how to record observations.

3.3.2.3 Headspace Gas Sampling and Analysis [20 NMAC 4.1, Subpart V, 264.13(b)(2) and (3), and Subpart IX, 270.14(b)(2)]

Headspace gas sampling and analysis is a qualitative screening technique used to confirm the presence of regulated hazardous constituents. TRU mixed waste characterization includes sampling and analysis of headspace gas from up to three areas within drums of waste as follows:

(1) The drum headspace (i.e., directly under the drum lid)
(2) The 55-gallon polyethylene bag headspace
(3) The innermost layers of confinement headspace.

The drum headspace (i.e., the space directly under the drum lid) will be sampled when filters are inserted into unvented drums. All previously unvented drums will be sampled for flammable gases, and a statistically selected subset of these drums will be sampled for selected VOCs in order to assure that health and safety criteria for safe storage of these drums are met. The statistical basis for selection of drums to be sampled is described in Section 3.3.2.5. Headspace gas sampling and analysis also serves to confirm the presence of regulated hazardous constituents. Headspace gas sampling alone will not be relied upon to prove the absence of a hazardous constituent in a waste.

The precision, accuracy, and representativeness of these headspace gas samples will be evaluated for adherence to the program's quality assurance (QA) objectives through analysis of field quality control (QC) samples and adherence to QC practices.

In order to meet the proposed characterization requirements in the WIPP QAPP (DOE, 1994c), the headspace of previously vented drums in retrievable storage will be sampled and analyzed as the drums are characterized for shipment to WIPP. The sampling of vented drums may include samples from inner layers of confinement (55-gallon polyethylene bag headspace and innermost layers of confinement headspace) for a statistically selected subset of drums undergoing visual examination.

Analytical methods for the determination of VOCs in the headspace of TRU mixed waste containers must meet technical performance criteria, be consistent with regulatory guidance, and be compatible with the operational constraints associated with the analysis of actinide-contaminated materials. Methods for the collection of headspace gases are based on "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" (SW-846) (EPA, 1986) and on the "Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air" (EPA, 1988). DOE has modified the EPA methods to accommodate the characteristics of TRU mixed waste headspace gas samples. These methods include SA 010 and SA 011 (DOE, 1994d).

3.3.2.4 Solid Waste Sampling and Analysis [20 NMAC 4.1, Subpart V, 264.13(b)(3)]

The following describes the proposed methods for collecting samples of homogeneous TRU mixed waste classified as solid process residues or soils. Sampling protocol is based on sampling methods similar to those approved by EPA for solid waste and soil sampling in SW-846 (EPA, 1986); in "Standard Practice for Thin-Walled Tube Sampling of Soils" (ASTM, 1983); and in "Standard Practice for Sampling Waste and Soils for Volatile Organic Compounds" (ASTM, 1991). These methods are designed to ensure that representative waste samples are consistently collected and transferred to the responsible laboratory in a manner that maintains sample integrity. The statistical basis for sampling is described in Section 3.3.2.5.

The TRU mixed waste classified as solid process residues or soils is packaged in either 55-gallon drums or in smaller containers within 55-gallon drums. Drums may contain TRU mixed waste within a 55-gallon polyethylene bag or may consist of up to 20 or more small containers within a 55-gallon polyethylene bag. For drums selected for sampling that contain multiple small containers, one of the small containers will be randomly selected for sampling. Waste parameters for which solid process residues and soils may be analyzed are listed in Table 3-3.

To accomplish sampling of these wastes, the techniques described below have been developed for sample and subsample collection. The sampling techniques are designed to obtain a representative sample from the container (e.g., 55-gallon drum, 1-gallon polyethylene bottle) and the subsampling techniques are designed to obtain a representative subsample from the sample. Subsampling is conducted to provide laboratories the minimum amount of required sample, thus minimizing the quantity of investigation-derived waste.

The methods used to collect samples of TRU mixed waste classified as solid process residues and soils from 55-gallon drums and smaller containers must be such that the samples are representative of the waste from which they were taken. For 55-gallon drums containing solid process residues and soils, a sample must be collected as a core that is representative of the waste along the entire depth of the waste in the drum.

Sample Core Collection

Coring tools must be used to collect cores of solid process residues and soils from 55-gallon drums and smaller containers in a manner that minimizes disturbance to the core. A rotational coring tool (i.e., a tool that is rotated longitudinally), similar to a drill bit, must be used to cut, lift the waste cuttings, and collect a core sample from containers of waste. For solid process residues and soils that are relatively soft, nonrotational coring tools may be used in lieu of a rotational coring tool.

Rotational coring tools (i.e., lightweight augers) and nonrotational coring tools (i.e., thin-walled samplers) have each been tested for their ability to collect a vertical core of simulated solidified waste contained in 55-gallon drums and 1-gallon polyethylene bottles, as described in "Idaho

National Engineering Laboratory Simulated Solidified Transuranic Waste Sampling Program" (EG&G, 1994). The rotational coring tool used at the INEL has demonstrated core recoveries greater than 75 percent for soft simulated wastes and greater than 94 percent for hard simulated waste. The sampling tool has been designed to minimize the transfer of frictional heat to the core, thereby minimizing potential loss of VOCs (DOE, 1994c). The nonrotational coring tool has demonstrated core recoveries greater than 88 percent for soft simulated wastes. LANL will use coring tools similar to those developed at the INEL.

Subsample Collection

To obtain representative subsamples, subsampling of the sample core is required. Subsampling must be conducted as soon as possible after sample core collection to minimize the loss of VOCs. If a substantial delay (e.g., several minutes) is expected between sample core collection and subsampling, the sample core must remain in the sleeve and the sleeve must be capped at each end. Subsamples for VOCs must be collected prior to extruding the sample core from the sleeve. The sampling location must be randomly selected along the long axis of the sleeve and access to the waste must be gained by making a perpendicular cut through the sleeve and the waste it contains.

3.3.2.5 Statistical Approach for Headspace Gas and Solid Waste Sampling [20 NMAC 4.1, Subpart V, 264.13(b)(3)]

A statistical approach will be used to select containers for headspace gas sampling. The same approach will be used for solid waste sampling and analysis of legacy and existing solid process residue and soil waste streams. This approach relies on the premise that the waste containers have been separated into waste streams on the basis of process knowledge and, thus, represent populations that contain similar waste. Drums are first segregated into waste streams based on existing characterization information. An initial number of drums is selected from each waste stream for sampling and analysis. For waste streams consisting of ten drums or more, ten drums are selected at random for sampling. For waste streams consisting of ten drums or less, each drum is sampled. For waste streams with less than three drums, a total of three samples is taken. The analytical results from the initial round of sampling are used to calculate upper and lower confidence limits for the mean concentrations of regulated constituents. These limits are

compared to the RTLs for the constituents. If a hazardous waste determination cannot be made based on the results from the initial round of sampling, an additional number of drums is selected. The number of additional drums for the second round of sampling depends on the variance of the analytical results from the first round. Drums are sampled to a maximum of all of the drums in the waste stream or 40 drums, whichever is smaller.

The objective is to classify specific waste streams as hazardous or nonhazardous by determining the average, or mean, and associated variance of the concentration of hazardous constituents in the waste stream. Confidence limits for the mean concentration will be used in comparisons to regulatory limits so that a predetermined level of confidence can be associated with the decision on whether a waste stream is hazardous for a RCRA characteristic[2]. Waste containers within each waste stream and sample locations within each container will be randomly selected to ensure that the analytical results provide an unbiased estimate of the true mean contaminant concentration for each waste stream.

3.3.3 Sample Handling, Preservation, and Storage

Table 3-5 presents SW-846 requirements regarding sample containers, preservation techniques, and holding times associated with sample collection. Adherence to these requirements will occur to ensure that sampling and analysis meet quality objectives for data.

3.4 LABORATORY SELECTION AND ANALYTICAL METHODS [20 NMAC 4.1, Subpart V, 264.13(b)(2)]

Analytical laboratories at LANL and/or approved subcontractor laboratories will perform all of the detailed qualitative and quantitative chemical analyses specified in Table 3-4 of this WAP. These laboratories must have:

- The capability of handling radioactive material/waste
- A documented comprehensive QA/QC program
- Technical analytical expertise
- A document control/records management plan

[2]Use of the term "RCRA characteristic" refers to toxicity characteristic as defined in 20 NMAC 4.1, Subpart II, 261.24, revised November 1, 1995.

- The capability to perform data reduction, validation, and reporting.

The selection and development of analytical testing methods for LANL TRU mixed waste streams were based on the following considerations:

- The physical form of the waste
- Analytes of interest
- Required detection limits (e.g., regulatory thresholds)
- Information requirements (e.g., verify compliance with LDR treatment standards, waste classification).

Collectively, these factors contributed to the selection of the analytical methods specified in Table 3-4. Qualified analytical laboratories at LANL and/or approved subcontractor laboratories that meet the above criteria will analyze TRU mixed waste samples for regulated hazardous constituents (VOCs, SVOCs, and metals) and characteristics, according to SW-846, or documented equivalent methods.

3.5 VERIFICATION ANALYSIS FOR TRU MIXED WASTE [20 NMAC 4.1, Subpart V, 264.13(a)(3)]

Analysis may be performed to verify the accuracy of the initial waste characterization and to verify that applicable treatment standards have been met, when there is a change in a waste-generating process, when the generator requests a review, or when analytical results indicate a change in a waste stream. Verification analysis for TRU mixed waste will be conducted at LANL's or an approved subcontractor's laboratory facilities. All verification analyses will be conducted in conformance with appropriate methods. The type of verification analysis that will be performed to obtain waste characterization information depends upon the matrix parameter code of the waste stream and whether the waste is existing or future TRU mixed waste. Verification analysis methodologies for these different types of waste are presented below.

3.5.1 Verification of Existing TRU Mixed Waste [20 NMAC 4.1, Subpart V, 264.13(b)(4)]

Characterization for existing homogeneous TRU mixed waste streams (Matrix Parameter Codes 3000 and 4000) will not require verification, because the statistical basis for initial characterization provides statistical confidence in determining whether a waste is a regulated hazardous waste. Process knowledge documentation applicable to existing heterogeneous TRU mixed waste streams (Matrix Parameter Code 5000) will be qualitatively verified by RTR of waste containers (see Section 3.3.2.1), visual examination of the contents of select waste containers (see Section 3.3.2.2), and headspace gas sampling while venting (see Section 3.3.2.3).

3.5.2 Verification of Future TRU Mixed Waste [20 NMAC 4.1, Subpart V, 264.13(a)(3) and 264.13(b)(4)]

Future homogeneous TRU mixed waste streams that have been characterized using LANL's WPF and an acceptable knowledge certification program will undergo verification sampling and analysis at a frequency of at least 1 in 100 waste streams per year. This verification will be used to support waste characterization information provided on the WPF, as well as the acceptable knowledge certification, for the waste stream. Analytical results that show regulated constituents present at concentrations outside the ranges documented on the WPF are cause for rejection of the WPF and will require investigation and recharacterization of the waste stream. The recharacterization will include sampling and analysis sufficient to establish the range of regulated constituents potentially present in the waste stream.

Future heterogeneous TRU mixed waste streams will undergo qualitative verification of acceptable knowledge through RTR, visual examination, and headspace gas sampling, as described in Section 3.5.1. Both homogeneous and heterogeneous waste streams will undergo qualitative verification through review of documentation supporting waste characterization as part of an acceptable knowledge certification program.

3.6 SPECIAL PROCEDURAL REQUIREMENTS [20 NMAC 4.1, Subpart V, 264(b)(6)]

Additional waste management requirements specific to ignitable, reactive, and incompatible wastes, as well as compliance with LDR, are described below.

3.6.1 Procedures for Ignitable and Reactive Wastes

Currently, no ignitable or reactive TRU mixed waste is being stored at LANL. However, in the event that these waste streams are stored, LANL will follow specific waste management procedures for ignitable and reactive waste pursuant to 20 NMAC 4.1, Subpart V, 264.17, revised November 1, 1995. At a minimum, ignitable and reactive wastes will be segregated during storage.

3.6.2 Procedures for Incompatible Wastes

Pursuant to 20 NMAC 4.1 Subpart V, 264.17, revised November 1, 1995, specific waste management procedures for incompatible wastes are described as follows. Incompatible wastes are kept segregated during storage. Waste containers holding potentially incompatible free liquids, if any, will be stored on self-containment pallets. Because incompatible wastes are segregated and incompatible free liquids will be stored on self-containment pallets, any potential for release and reaction with other wastes or materials is minimized.

3.6.3 Procedures to Ensure Compliance with LDR Requirements [20 NMAC 4.1, Subpart VIII, 268.7(a), and 268.7(b)(1), (3), (4), and (5)]

In accordance with LDR requirements, waste to be shipped off site may need to be analyzed to determine whether it meets the applicable LDR treatment standards in 20 NMAC 4.1, Subpart VIII, Part 268, Subpart D, revised November 1, 1995. If, (1) it is known whether the wastes meet applicable LDR treatment standards based on acceptable knowledge, or (2) waste will be transported to a permitted waste management facility operating in conformance with a no-migration determination, then sampling and analysis to certify LDR compliance is not necessary for affected waste. Sampling and analysis will be conducted in accordance with 20 NMAC 4.1, Subpart VIII, Part 268, revised November 1, 1995, only to certify that the waste meets LDR treatment standards. Each waste for which a treatment standard has been established will be evaluated for the applicable parameters in 20 NMAC 4.1, Subpart VIII, Part 268, Subpart D, revised November 1, 1995. All analytical results completed in support of LDR requirements will be retained within the facility operating record. LDR determinations will be documented on LANL's Land Disposal Restrictions Notification Form (see Section 3.2 of the LANL General Part B).

Table 3-1

Cross Reference of Matrix Parameter Codes and Waste Identification Codes

Matrix Parameter[a] Code/ Description	Item Description Codes	Matrix Category (Waste Description)	TRUPACT-II Content and Radioactive Solid Waste Disposal Codes	Waste Descriptions
3000-Solid Process Residues	002	Stabilized aqueous waste	LA 111A/211A	Concreted/cemented aqueous waste
			A76	Cement paste
	003	Stabilized aqueous waste	LA 111B/211B	Dewatered sludge
			A75	Chemical treatment sludge
	005(P2S)	Waste salts	LA 124A	Transuranic (TRU) waste salts
			A27	Nitrated solid crystallized residues
			A28	Chloride salts
			A29	Hydroxide cake
	006	Solidified inorganic process solids	LA 114A	Solidified inorganic process solids
			A24	Cemented/immobilized residues/powders
			A26	Evaporator bottoms/salts
	006	Solidified organic process solids	LA 126A	Solidified organic process solids
			A24	Cemented/immobilized residues/powders
			A25	Leached process residues
			A26	Evaporator bottoms/salts
			A29	Hydroxide cake
			A46	Reaction process crucibles and oxide residues
4000-Soils	None	Contaminated soil	A90	Contaminated soil

Refer to footnote at end of table.

Table 3-1 (Continued)

Cross Reference of Matrix Parameter Codes and Waste Identification Codes

Matrix Parameter[a] Code/ Description	Item Description Codes	Matrix Category (Waste Description)	TRUPACT-II Content and Radioactive Solid Waste Disposal Codes	Waste Descriptions
5000-Debris Wastes (Continued)	001	Mixed metal scrap and incidental combustibles	LA 125A	Incidental combustibles and mixed metal scrap
			A30	Property-numbered (PN) equipment
			A31	Non-PN equipment
			A36	Noncombustible building debris
			A55	Filter media
	004	Combustible waste	LA 116A-E	Combustible waste
			A14	Combustible decontamination waste
			A15	Cellulosics (e.g., paper, wood)
			A16	Plastics
			A17	Rubber materials
			A18	Combined paper/plastics/rubber
			A19	Combined noncombustible trash
			A40	Combustible hot cell waste
			A60	Other combustibles
	005	High-efficiency particulate air (HEPA) filters	LA 119A	HEPA filters
			A55	Filter media
	005(LG)	Glass waste and incidental combustibles	LA 118A	TRU glass waste and incidental combustibles
			A47	Slag and porcelain
			A95	Glass waste and incidental combustibles

Refer to footnote at end of table.

Table 3-1 (Continued)

Cross Reference of Matrix Parameter Codes and Waste Identification Codes

Matrix Parameter[a] Code/ Description	Item Description Codes	Matrix Category (Waste Description)	TRUPACT-II Content and Radioactive Solid Waste Disposal Codes	Waste Descriptions
5000-Debris Wastes (Continued)	005(LM)	Metal waste and incidental combustibles	LA 117A-G	TRU noncombustible/ metal waste; incidental combustibles in LA 117A, LA 117D, and LA 117E
			A50	Metal crucibles, scrap, dies
			A52	Scrap metal
			A61	Other noncombustibles
			A80	Irradiation sources
	005(P1)	Leaded-rubber and metal waste	LA 123A-B	TRU leaded-rubber and TRU metal waste
			A61	Other noncombustibles
	005(P2G)	Graphite waste	LA 115A	TRU graphite waste and incidental combustibles
			A10	Graphite solids

[a] Information in this column was extracted from the U.S. Department of Energy (DOE), 1994, "TRU Waste Characterization Quality Assurance Program Plan," *CAO-94-1010*, Rev. B, Draft, Carlsbad Area Office, Carlsbad, New Mexico.

Table 3-2

Transuranic Mixed Waste Characterization Matrix[a]

Item Description Codes (IDC)	Waste Description	TRUPACT-II Content (TRUCON) Codes	Process Generating the Waste/Technical Area (TA)	Radioactive Solid Waste Disposal (RSWD) Codes/Waste Description	Basis for Hazardous Waste Designation (knowledge and/or testing)	Potential EPA[b] Hazardous Waste Numbers	Potential Hazardous Constituents in the Waste	Regulatory Limits[c] (milligrams per liter)
001	Mixed metal scrap and incidental combustibles	LA 125A	Metal equipment from decommissioning (e.g., gloveboxes, process equipment, ductwork); small volumes of combustibles from decommissioning in TA-3, TA-21, TA-39, TA-49, and TA-55, and sectioning, and packaging in TA-50-69.	A30 - Property-numbered (PN) equipment A31 - Non-PN Equipment A36 - Non-combustible building debris A55 - Filter media	Knowledge[d]	D006 D008	Cadmium Lead	1.0 5.0
002	Stabilized aqueous waste	LA 111A LA 211A	Effluent from plutonium (Pu) processing operations in TA-21 and TA-55, treated in TA-50-1 to produce the resulting concreted monolith	A76 - Cement paste	Knowledge[d]	D004 D006 D007 D008 D009 None None	Arsenic Cadmium Chromium Lead Mercury Barium hydroxide Beryllium hydroxide	5.0 1.0 5.0 5.0 0.2 None None

Refer to footnotes at end of table.

Table 3-2 (Continued)

Transuranic Mixed Waste Characterization Matrix[a]

Item Description Codes (IDC)	Waste Description	TRUPACT-II Content (TRUCON) Codes	Process Generating the Waste/Technical Area (TA)	Radioactive Solid Waste Disposal (RSWD) Codes/Waste Description	Basis for Hazardous Waste Designation (knowledge and/or testing)	Potential EPA[b] Hazardous Waste Numbers	Potential Hazardous Constituents in the Waste	Regulatory Limits[c] (milligrams per liter)
003	Stabilized aqueous waste	LA 111B LA 211B	Sludge from Pu processing in TA-55 is chemically treated and mixed with dry concrete in TA-50-1	A75 - Chemical treatment sludge	Knowledge[d]	D004	Arsenic	5.0
						D006	Cadmium	1.0
						D007	Chromium	5.0
						D008	Lead	5.0
						D009	Mercury	0.2
						D010	Selenium	1.0
						D011	Silver	5.0
						D019	Carbon tetrachloride	0.5
						D021	Chlorobenzene	100.0
						D022	Chloroform	6.0
						F002	Spent halogenated solvents	Not Applicable (NA)
						F004 F005	Spent nonhalogenated solvents	NA
						None	Acetone	None
						None	Barium chloride	None
						None	Barium hydroxide	None
						None	Beryllium	None
						None	Beryllium hydroxide	None
						None	Di-n-octyl-phthalate	None
						None	Ethanol	None
						None	Methanol	None
						None	Methylene chloride	None
						None	n-Butyl alcohol	None
						None	Nickel	None
						None	Thallium	None
						None	Toluene	None
						None	Xylene	None

Refer to footnotes at end of table.

Table 3-2 (Continued)

Transuranic Mixed Waste Characterization Matrix[a]

Item Description Codes (IDC)	Waste Description	TRUPACT-II Content (TRUCON) Codes	Process Generating the Waste/Technical Area (TA)	Radioactive Solid Waste Disposal (RSWD) Codes/Waste Description	Basis for Hazardous Waste Designation (knowledge and/or testing)	Potential EPA[b] Hazardous Waste Numbers	Potential Hazardous Constituents in the Waste	Regulatory Limits[c] (milligrams per liter)
004	Combustible waste	LA 116A LA 116B LA 116C LA 116D LA 116E	Combustible solids (e.g., paper, rags, plastic, rubber) and a small fraction of non-combustibles (e.g., metal scrap) generated from Pu processing and operations in TA-3, TA-21, TA-50, and TA-55	A14 - Combustible decontamination waste A15 - Cellulosics A16 - Plastics A17 - Rubber materials A18 - Combined paper/plastics/rubber A19 - Combined noncombustible trash A40 - Combustible hot cell waste A60 - Other combustibles	Knowledge[d]/ Testing[e]	D002 D004 D006 D008 D009 D019 D022 D028 D040 F002 F003 F005 None None None None None None	Hydrofluoric acid Arsenic Cadmium Lead Mercury Carbon tetrachloride Chloroform Dichloroethane Trichloroethylene 1,1,1-Trichloroethane Acetone Toluene Barium chloride Beryllium Beryllium hydroxide Bromobenzene Nickel Tributyl phosphate	NA 5.0 1.0 5.0 0.2 0.5 6.0 0.5 0.5 NA NA NA None None None None None None
005	High-efficiency particulate air (HEPA) filters	LA 119A	HEPA filters from exhaust air systems in Pu processing in TA-55	A55 - Filter media	Knowledge[d]	None	None	None
005(LG)	Glass waste	LA 118A	Glass waste (e.g., discarded labware, windows, bottles) with a small fraction of combustibles (e.g., plastics) generated from Pu processing in TA-3, TA-21, TA-42, and TA-55	A47 - Slag and porcelain A95 - Glass waste	Knowledge[d]/ Testing[e]	D002 D008 D009 D019 None None	Hydrofluoric acid Lead Mercury Carbon tetrachloride Barium chloride Barium hydroxide	NA 5.0 0.2 0.5 None None

Refer to footnotes at end of table.

Table 3-2 (Continued)

Transuranic Mixed Waste Characterization Matrix[a]

Item Description Codes (IDC)	Waste Description	TRUPACT-II Content (TRUCON) Codes	Process Generating the Waste/Technical Area (TA)	Radioactive Solid Waste Disposal (RSWD) Codes/Waste Description	Basis for Hazardous Waste Designation (knowledge and/or testing)	Potential EPA[b] Hazardous Waste Numbers	Potential Hazardous Constituents in the Waste	Regulatory Limits[c] (milligrams per liter)
005(LM)	Metal waste	LA 117A LA 117B LA 117C LA 117D LA 117E LA 117F LA 117G	Metal waste (e.g., motors, pumps, tools, process equipment) with a small fraction of combustible waste (e.g., plastics) generated from Pu processing in TA-3 and TA-55	A50 - Metal crucibles, scrap, dies A52 - Scrap metal A61 - Other noncombustibles A80 - Irradiation sources	Knowledge[d]/ Testing[e]	D002 D008 D019 None None	Hydrofluoric acid Lead Carbon tetrachloride Barium chloride Beryllium	NA 5.0 0.5 None None
005(P1)	Leaded-rubber and metal waste	LA 123A LA 123B	Lead-lined glovebox gloves and metal waste (e.g., motors, tools, discarded metals) generated from Pu processing in TA-55	A61 - Other noncombustibles	Knowledge[d]/ Testing[e]	D002 D004 D006 D008 D009 D019 None None None	Hydrofluoric acid Arsenic Cadmium Lead Mercury Carbon tetrachloride Beryllium hydroxide Bromobenzene Nickel	NA 5.0 1.0 5.0 0.2 0.5 None None None
005(P2G)	Graphite waste	LA 115A	Discarded graphite molds, furnace equipment, and a small fraction of combustible waste generated from Pu processing in TA-55	A10 - Graphite solids	Knowledge[d]	D004 D006 D008 None None	Arsenic Cadmium Lead Beryllium Nickel	5.0 1.0 5.0 None None

Refer to footnotes at end of table.

Table 3-2 (Continued)

Transuranic Mixed Waste Characterization Matrix[a]

Item Description Codes (IDC)	Waste Description	TRUPACT-II Content (TRUCON) Codes	Process Generating the Waste/Technical Area (TA)	Radioactive Solid Waste Disposal (RSWD) Codes/Waste Description	Basis for Hazardous Waste Designation (knowledge and/or testing)	Potential EPA[b] Hazardous Waste Numbers	Potential Hazardous Constituents in the Waste	Regulatory Limits[c] (milligrams per liter)
005(P2S)	Waste salts	LA 124A	Used chloride salts from pyrochemical processes (e.g., electrorefining, molten salt extraction, salt stripping, fluoride reduction, direct oxide reduction) and a small fraction of combustible waste (e.g., plastic) generated from Pu processing in TA-55	A27 - Nitrated solid crystallized residues A28 - Chloride salts A29 - Hydroxide cake	Knowledge[d]/ Testing[e]	D004 D006 D008 D009 None None	Arsenic Cadmium Lead Mercury Beryllium hydroxide Nickel	5.0 1.0 5.0 0.2 None None
006	Solidified inorganic process solids	LA 114A	Process residue from evaporator bottoms and other discardable solutions, process-leached solids, ash, filter cakes, salts, metal oxides, and fines generated as a result of Pu processing at TA-55-4	A24 - Cemented/immobilized residues/powders A26 - Evaporator bottoms/salts	Knowledge[d]	D002 D004 D006 D007 D008 D009	Hydrofluoric acid Arsenic Cadmium Chromium Lead Mercury	NA 5.0 1.0 5.0 5.0 0.2

Refer to footnotes at end of table.

Table 3-2 (Continued)

Transuranic Mixed Waste Characterization Matrix[a]

Item Description Codes (IDC)	Waste Description	TRUPACT-II Content (TRUCON) Codes	Process Generating the Waste/Technical Area (TA)	Radioactive Solid Waste Disposal (RSWD) Codes/Waste Description	Basis for Hazardous Waste Designation (knowledge and/or testing)	Potential EPA[b] Hazardous Waste Numbers	Potential Hazardous Constituents in the Waste	Regulatory Limits[c] (milligrams per liter)
006	Solidified organic process solids	LA 126A	Solidified process residue from evaporator bottoms and other discardable solutions, processed leached solids, ash, filter cake, salts, metal oxide, fines, etc., that are immobilized in gypsum cement, generated from processing operations in TA-55.	A24 - Cemented/immobilized residues/powders A25 - Leached process residues A26 - Evaporator bottoms/salts A29 - Hydroxide cake A46 - Reaction process crucibles and oxide residues	Knowledge[d]	D002	Hydrofluoric acid	NA
						D004	Arsenic	5.0
						D006	Cadmium	1.0
						D007	Chromium	5.0
						D008	Lead	5.0
						D009	Mercury	0.2
						D019	Carbon tetrachloride	0.5
						D021	Chlorobenzene	100.0
						D022	Chloroform	6.0
						D028	Dichloroethane	0.5
						D040	Trichloroethylene	0.5
						F002	1,1,1-Trichloroethane	NA
						None	Acetone	None
						None	Beryllium	None
						None	Bromobenzene	None
						None	Ethanol	None
						None	Methanol	None
						None	Methylene Chloride	None
						None	n-Butyl Alcohol	None
						None	Toluene	None
						None	Xylene	None
None	Contaminated soil	None	Possibly generated by decontamination activities and/or accidental spills in TA-1, TA-3, TA-21, and TA-50	A90 - Contaminated soil	Knowledge[d]	Unknown	Unknown	Unknown

[a] This table is based on preliminary information from the Los Alamos National Laboratory, 1994, "Draft Transuranic Waste Stream Hazardous Material Characterization Study," Rev. 0, and is subject to change upon further review. Potential EPA Hazardous Waste Numbers shown in this table may vary from those reported in Los Alamos National Laboratory's (LANL) "RCRA Part A Permit Application for Mixed Waste" (Rev. 2.0), September 1994, which reports the EPA Hazardous Waste Numbers in LANL's waste management database.

[b] U.S. Environmental Protection Agency.

[c] A solid waste exhibits the characteristic of toxicity if the extract from a representative sample of the waste contains any of the contaminants listed at a concentration equal to or greater than the respective value given in the New Mexico Administrative Code, Title 20, Chapter 4, Part 1, Subpart II, 261, Subpart D, revised November 1, 1995.

[d] Knowledge indicates process knowledge used as the basis for hazardous waste designation.

[e] Testing: In reference to the basis for hazardous waste classification, indicates that sampling and analysis has been performed, but either (1) the documentation is not available or (2) the data exist but are not verifiable.

Table 3-3

Parameters, Characterization Methods, and Rationale for Transuranic Mixed Waste

Matrix Parameter[a] Code/Description	Waste Description	Analytical Parameters[b]	Characterization Methods	Rationale
3000—Solid Process Residues	– Solidified aqueous waste (e.g., concreted/cemented aqueous waste) – Solidified aqueous waste (e.g., dewatered sludge and chemical treatment sludge) – Solidified inorganic/organic process solids – Waste salts	– Free liquids in waste matrix – Physical form of the waste	– Visual examination – Real-time radiography (RTR) – Acceptable knowledge[c]	– Verify physical waste form – No free liquids allowed
		– Regulated metals (see Table 3-4)	– Sample and analyze statistically selected number of drums in waste stream. (see Table 3-4)	– Determine toxicity characteristic – Determine concentration of metals
		– Volatile organic compounds (VOC) in container headspace gas	– Gas chromatography/ mass spectrometry – Fourier transform infrared spectrometry – Gas chromatography/ Flame ionization detector	– Qualitative screening to confirm the presence of VOCs
		– VOCs and semivolatile organic compounds (SVOC) (see Table 3-4)	– Sample and analyze statistically selected number of drums in waste stream. (see Table 3-4)	– Determine toxicity characteristic – Determine concentration of organics
4000—Soils	– Contaminated soil			
5000—Debris Waste	– Mixed metal scrap and incidental combustibles – Combustible waste – Graphite waste – Metal waste – Glass waste – Leaded-rubber and metal waste – High-efficiency particulate air filters	– Free liquids – Physical form of the waste	– Visual examination – RTR – Acceptable knowledge	– Verify physical waste form – No free liquids allowed
		– Regulated metals (see Table 3-4)	– Acceptable knowledge	– Determine compliance with land disposal restriction (LDR) treatment standards, if applicable

Refer to footnotes at end of table.

Table 3-3 (Continued)

Parameters, Characterization Methods, and Rationale for Transuranic Mixed Waste

Matrix Parameter[a] Code/Description	Waste Description	Analytical Parameters[b]	Characterization Methods	Rationale
		– VOCs in container headspace gas	– Gas chromatography/ mass spectrometry – Fourier transform infrared spectrometry – Gas chromatography/ Flame ionization detector	– Qualitative screening to confirm the presence of VOC
		– VOCs and SVOCs (see Table 3-4)	– Acceptable knowledge	– Determine compliance with LDR treatment standards, if applicable

[a] Information in this column was extracted from the U.S. Department of Energy (DOE), 1994, "TRU Waste Characterization Quality Assurance Program Plan," *CAO-94-1010*, Rev. B, Draft, Carlsbad Area Office, Carlsbad, New Mexico.

[b] U.S. Department of Energy (DOE), 1992, "RCRA Part B Permit Application for the Waste Isolation Pilot Plant," *DOE/WIPP 91-005*, Rev. 2, U.S. Department of Energy, Carlsbad, New Mexico.

[c] According to U.S. Environmental Protection Agency (EPA), 1994, "Waste Analysis at Facilities that Generate, Treat, Store, and Dispose of Hazardous Wastes, A Guidance Manual," *OSWER 9938.4-03*, U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, Washington, D.C., acceptable knowledge is broadly defined as process knowledge, waste analysis data (e.g., sampling and analysis) and/or facility records of analysis performed.

Table 3-4

Summary of Waste Characterization Techniques for Transuranic Mixed Waste

Parameter[a]	Method Numbers	Test Methods	Rationale
Physical Waste Form		Waste inspection procedures Real-time radiography Visual examination Process knowledge	Identify and verify waste container contents
Volatile Organic Compounds (VOC) in waste matrix and container headspace gas: Acetone n-Butyl alcohol Carbon tetrachloride Chlorobenzene Chloroform Dichloroethane Formaldehyde Methanol Methylene chloride Spent halogenated solvents Spent nonhalogenated solvents Tetrachloroethylene Toluene 1,1,1-Trichloroethane Trichloroethylene Xylenes	ASTM Method D4547-91[b] U.S. EPA/540/4-91/001[c] SW-846 (1311, 8240, 8240A, 8240B, 8260, 8260A)[d], or equivalent methods[e]	Total and/or toxicity characteristic leaching procedure (TCLP) VOC analysis by gas chromatography/ mass spectrometry (GC/MS) Fourier transform infrared spectrometry Flame ionization detector Process knowledge for debris wastes	Determine total and/or TCLP VOC concentrations in samples of solid process residues and soils
Semivolatile Organic Compounds (SVOC) in waste: Cresols Ortho-dichlorobenzene 1,4-Dichlorobenzene 2,4-Dinitrotoluene Hexachloroethane Nitrobenzene Pyridine	SW-846 (1311, 8250, 8250A, 8270A, 8270B)[d], or equivalent methods[e]	Total and/or TCLP SVOC analysis by GC/MS Process knowledge for debris waste	Determine total and/or TCLP SVOC concentrations in samples of solid process residues and soils
Metals in waste: Arsenic Barium Cadmium Chromium Lead Mercury Nickel Selenium Silver Thallium	SW-846 (3051 1311, 6010, 6010A, 6020, 7060, 7060A, 7061A)[d] (3051 1311, 6010, 6010A, 6020, 7080, 7080A, 7081)[d] (3051 1311, 6010, 6010A, 6020, 7130, 7131, 7131A)[d] (3051 1311, 6010, 6010A, 6020, 7190, 7191)[d] (3051 1311, 6010, 6010A, 6020, 7420, 7421)[d] (1311, 7470, 7470A, 7471, 7471A)[d] (3051 1311, 6010, 6010A, 6020, 7520)[d] (3051 1311, 6010, 6010A, 6020, 7740, 7741, 7741A, 7742)[d] (3051 1311, 6010, 6010A, 6020, 7760A, 7761)[d] (3051 1311, 6010, 6010A, 6020, 7840, 7841)[d], or equivalent methods[e]	Total and/or TCLP metals analysis Inductively coupled plasma Atomic absorption spectroscopy Cold vapor atomic absorption spectroscopy Process knowledge for debris wastes	Determine total and/or TCLP metals concentrations in samples of solid process residues and soils

Refer to footnotes at end of table.

Table 3-4 (Continued)

Summary of Waste Characterization Techniques for Transuranic Mixed Waste

[a] Information in this column was extracted from the U.S. Department of Energy (DOE), 1992, "RCRA Part B Permit Application for the Waste Isolation Pilot Plant," *DOE/WIPP 91-005*, Rev. 2, U.S. Department of Energy, Carlsbad, New Mexico.

[b] American Society for Testing and Materials (ASTM), 1991, "Standard Practice for Sampling Waste and Soils for Volatile Organic Compounds," *ASTM D4547-91*, Annual Book of ASTM Standards, Philadelphia, Pennsylvania, American Society for Testing and Materials.

[c] U.S. Environmental Protection Agency (EPA), 1991, "Soil Sampling and Analysis for Volatile Organic Compounds," *EPA/540/4-91/001*, Office of Research and Development, U.S. Environmental Protection Agency.

[d] U.S. Environmental Protection Agency (EPA), 1986, "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," *SW-846*, Third Edition and all subsequent updates, Office of Solid Waste and Emergency Response, U.S. Government Printing Office, Washington, D.C.

[e] Equivalent methods, subject to EPA approval, may be substituted.

Table 3-5

Recommended Sample Containers, Preservation Techniques, and Holding Times[a]

Analyte Class and Sample Type	Container	Preservative	Holding Time
Volatile Organics			
Concentrated Waste Samples	125-milliliter (mL) wide-mouth glass with Teflon™-lined lid	Cool to 4 degrees Celsius (°C)[b].	14 days
Liquid Samples			
No residual chlorine present	2 x 40-mL glass vials with Teflon™-lined septum caps	Cool to 4°C	14 days
Residual chlorine present	2 x 40-mL glass vials with Teflon™-lined septum caps	Collect sample in a 125 mL container that has been pre-preserved with 4 drops of 10 percent sodium thiosulfate. Gently mix sample and transfer to a 40-mL volatile organic analyte vial. Cool to 4°C.	14 days
Acrolein and Acrylonitrile	2 x 40-mL vials with Teflon™-lined septum caps	Adjust to pH[c] of 4-5. Cool to 4°C.	14 days
Soil/Sediments and Sludges	125-mL wide-mouth glass container sealed with a septum	Cool to 4°C.	14 days

Refer to footnotes at end of table.

Table 3-5 (Continued)

Recommended Sample Containers, Preservation Techniques, and Holding Times[a]

Analyte Class and Sample Type	Container	Preservative	Holding Time
Semivolatile Organics/Organochlorine Pesticides and Herbicides			
Concentrated Waste Samples	125-mL wide-mouth glass with Teflon™-lined lid	None	Samples must be extracted within 14 days and analyzed within 40 days following extraction.
Soil/Sediments and Sludges	250-mL wide-mouth glass with Teflon™-lined lid	Cool to 4°C.	Samples must be extracted within 14 days and analyzed within 40 days following extraction.
Metals (except hexavalent chromium and mercury)			
Liquid Samples			
Total	600-mL polyethylene	Add nitric acid to pH of less than 2.	180 days
Chromium VI	400-mL polyethylene or glass	Cool to 4°C.	24 hours
Mercury	400-mL polyethylene or glass	Add nitric acid to pH of less than 2. Cool to 4°C.	28 days
Soil/Sediments and Sludges	200-gram polyethylene or glass	Cool to 4°C.	180 days; as soon as possible for chromium VI; 28 days for mercury

[a] U.S. Environmental Protection Agency (EPA), 1986, "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," *SW-846*, Third Edition and all subsequent updates, Office of Solid Waste and Emergency Response, U.S. Government Printing Office, Washington, D.C.
[b] Adjust to pH (see footnote c) of less than 2 with sulfuric acid, hydrochloric acid, or solid sodium bisulfate.
[c] A term used to describe the hydrogen-ion activity of a system.

4.0 DESIGN, OPERATIONS, AND PROCESS INFORMATION

This section presents a brief description of each container storage area (CSA) at the Radioactive Materials Research, Operations, and Demonstration (RAMROD) Facility addressed in this permit modification request. In addition, an overview of the general operations and process information that are applicable to each of the CSAs is presented. The information provided in this section is submitted to address the applicable container storage requirements of the New Mexico Administrative Code, Title 20, Chapter 4, Part 1 (20 NMAC 4.1), Subpart IX, 270.15, and 20 NMAC 4.1, Subpart V, Part 264, Subpart I, revised November 1, 1995.

In response to the New Mexico Environment Department's December 17, 1993, Notice of Deficiency requiring sampling and chemical/physical analysis of transuranic (TRU) mixed waste, Los Alamos National Laboratory (LANL) submitted a waste analysis plan (WAP) that prescribes a variety of activities intended to supply sufficient waste characterization information for Resource Conservation and Recovery Act (RCRA)-compliant storage[1]. LANL has obtained several pieces of equipment necessary to perform the waste characterization activities included in the WAP.

Sort and Segregate Gloveboxes (used to visually characterize and segregate heterogeneous waste streams) and Drum Coring Gloveboxes (used to obtain core samples from drums containing solidified waste) will be stationed and operated at the RAMROD Facility at Technical Area 50, Building 37 (TA-50-37); at the Waste Characterization, Reduction, and Repackaging Facility at TA-50-69; and at the Decontamination Facility at TA-50-1. Additional similar gloveboxes for waste characterization activities may be operated at the RAMROD Facility. The characterization and sampling activities to be performed in these gloveboxes are not regulated under 20 NMAC 4.1, Subpart V, Part 264, revised November 1, 1995. However, siting the gloveboxes within permitted CSAs allows for efficient processing of drums selected for characterization and will assure that before, during, and after characterization activities, candidate drums will be managed in a manner that is protective of human health and the

[1]Use of the term "RCRA-compliant storage" refers to the container storage requirements in 20 NMAC 4.1, Subpart V, Part 264, and 20 NMAC 4.1, Subpart IX, Part 270, revised November 1, 1995.

environment. A detailed description of these gloveboxes and their use is provided for informational purposes only in Attachment 4-1 of this permit modification request.

4.1 CONTAINER STORAGE AREAS [20 NMAC 4.1, Subpart IX, 270.15; 20 NMAC 4.1, Subpart V, Part 264, Subpart I]

This section provides descriptions of the TRU mixed waste CSAs at the RAMROD Facility. The CSAs addressed in this permit modification request include Rooms 112, 114, 115, 117, and 118 at TA-50-37. Each description includes the location, the physical parameters, the materials of construction, the basic design features, and the maximum storage capacity of each CSA. Engineering drawings (Figures 4-1 and 4-2) are provided for groups of CSAs included in this permit modification request.

The RAMROD Facility is a two-story building containing offices, laboratories, two process bays, an egress bay, a mechanical equipment area, and container storage areas. The original building was constructed in 1975, the second process bay (Room 114) and the office additions were added in 1979, and the egress bay (Room 116) was constructed in 1986. Rooms 117 and 118 were added in 1990. Previously, the RAMROD Facility was named the Treatment Development Facility, and housed LANL's Controlled Air Incinerator (CAI). The CAI received a Toxic Substances Control Act incineration permit in 1984, and a RCRA operating permit for hazardous waste in 1989. In 1995, it was determined that waste incineration was not to be done at this facility, and removal of the CAI from the building was initiated in 1996. The facility will now be used for waste characterization and verification, waste treatment technology development and implementation, and other activities necessary to support LANL programs. The mixed waste CSAs addressed in this permit modification request will be used to support the waste characterization and verification activities.

4.1.1 TA-50-37 Room 112 Mixed Waste CSA

The TA-50-37 Room 112 CSA will be located on the first floor in the west-central portion of the RAMROD Facility. The Room 112 CSA consists of Room 112, which measures 41 feet wide and 75 feet long (Figure 4-1). The floor is concrete and painted with epoxy paint. There are floor trenches, drains, and pits in Room 112. The trenches generally drain toward a pit in the northwest corner of the room. Additional smaller pits, located next to the floor drains, allow access to the drains, which are connected to a tank located within the pit in the northwest corner

of Room 112. Pumps are located within the two largest pits in the room. Fire-suppression liquids would collect in the trenches, drains, and pits.

In addition, ancillary equipment for the room or waste characterization gloveboxes may include exhaust components used for the Controlled Air Incinerator previously located in this room. The utility of re-using some or all of this equipment for glovebox, area, or other process ventilation will be considered for the RAMROD Facility and other future LANL projects. The ability to re-use this equipment will allow the greatest flexibility for future use of this site for various scientific endeavors in addition to the RAMROD Facility waste characterization activities. This equipment includes the existing stack, plenum, and associated ducts and fans. Eventual decontamination and removal of this equipment is discussed further in Section 9.1.4, "Closure Procedures and Decontamination."

The storage capacity for the Room 112 CSA is 2,330 gallons, or approximately 42 55-gallon drums. Wastes to be stored in the Room 112 CSA include TRU mixed wastes that consist of solid physical forms and wastes that are either suspected or known to contain free liquids. Further information on the wastes that may be stored in the Room 112 CSA is provided in Table 3-1 of this permit modification request.

Waste containers to be stored in the Room 112 CSA will primarily include drums of various sizes. Standard waste boxes (SWB), fiberglass-reinforced plywood (FRP) boxes, steel B25 boxes, and various other containers may also be stored. Detailed information regarding different container types used at LANL is provided in Section 4.2.1. To facilitate container movement, storage, and inspection, all drums holding wastes that do not contain free liquids (see below) will be stored on elevation devices. Containers holding suspect or known liquids will be stored on self-containment pallets or devices. FRP boxes, SWBs, and steel B25 boxes are elevated by design. Elevated containers and self-containment pallets or devices provide protection from potential contact with liquids that could be introduced through fire-suppression activities. Together, these waste management practices and design features satisfy the requirements of 20 NMAC 4.1, Subpart IX, 270.15(b)(2), and 20 NMAC 4.1, Subpart V, 264.175(c), revised November 1, 1995.

Pursuant to the requirements of 20 NMAC 4.1, Subpart IX, 270.15(b)(1), revised November 1, 1995, information contained in LANL's waste databases will be used initially to verify the absence of free liquids in containers. In addition, some containers received at the Room 112 CSA will have been characterized with real-time radiography (RTR) to verify the presence or absence of free liquids within the container.

Containers suspected or known to contain free liquids will be stored on self-containment pallets or devices. The self-containment pallets or devices will be constructed of impervious, corrosion-resistant materials compatible with the wastes and will have the capacity to contain at least 10 percent of the total volume of the potential liquid-bearing containers or the volume of the largest potential liquid-bearing container, whichever is greater. Containers will be placed on

elevated grates within these pallets or devices to prevent contact with potentially accumulated liquids. Because the Room 112 CSA is indoors, run-on into the CSA from outdoors is not likely to occur. Positive surface drainage will direct potential run-on away from TA-50-37. Map 2 of the RAMROD Part A, submitted with this permit modification request as a separate document, shows the contours and surface drainage around TA-50-37. Together, the containment design and operation will meet the requirements of 20 NMAC 4.1, Subpart V, 264.175(b), and 20 NMAC 4.1, Subpart IX, 270.15(a)(14), revised November 1, 1995.

To meet the requirements of 20 NMAC 4.1, Subpart IX, 270.15(a)(5), revised November 1, 1995, any liquids that may accumulate within the self-containment pallets or devices, the trenches, and the pits will be removed as soon as possible to prevent overflow. Depending upon the volume of the accumulated liquid, a high-efficiency particulate air (HEPA) vacuum, a portable pump, universal sorbents, and/or other methods suitable for retrieval will be used to remove the liquid for subsequent sampling and analysis. Liquids that may collect in the pits will be pumped to the floor drains and then into the sump tank located in the pit in the northwest corner of Room 112. These liquids will be held in the tank until they are sampled and analyzed. Collected liquids and/or sorbents will be sampled for the constituents known to be present in the waste or for the appropriate parameters listed in Table 7-3 of the LANL General Part B. These containers will be stored temporarily at the RAMROD Facility pending analysis, which will dictate how the wastes will be managed.

If a sample represents a spill, the sample will be analyzed for the hazardous waste constituents known to be components of the source. In the unlikely event that a spill source cannot be identified, the sample will be analyzed for the hazardous waste constituents listed in Table 7-3 of the LANL General Part B. If the liquids are not a result of a spill (e.g., water generated during fire-suppression activities), samples will be analyzed only for the potential constituents present in the waste.

All applicable requirements for the storage of ignitable, reactive, incompatible, and certain F-listed wastes will be met at the Room 112 CSA as follows. If ignitable or reactive wastes are stored, they will be located at least 50 feet from the facility's property line, as shown on Map 2 of the RAMROD Part A. Incompatible wastes, if stored, will be segregated during storage using self-containment pallets or devices. Pursuant to the requirements of 20 NMAC 4.1, Subpart V,

264.177(a) and (b), revised November 1, 1995, no incompatible wastes will be mixed, and no waste will be placed in a container that previously held an incompatible waste. No wastes carrying the U.S. Environmental Protection Agency (EPA) Hazardous Waste Numbers F020, F021, F022, F023, F026, or F027 will be stored in the Room 112 CSA. Therefore, the requirements of 20 NMAC 4.1, Subpart V, 264.175(d), revised November 1, 1995, are not applicable.

4.1.2 TA-50-37 Room 114 Mixed Waste CSA

The TA-50-37 Room 114 CSA will be located on the first floor in the south-central portion of the RAMROD Facility. The Room 114 CSA consists of Room 114, which measures 41 feet wide and 78 feet long (Figure 4-1). The floor is concrete and painted with an epoxy paint. There are several pits and drains and a floor trench in Room 114. The trench generally drains to the pit in the northwest corner of the room. Fire-suppression liquids would ultimately collect in the trench and pits. The main line of the floor drains is capped.

The storage capacity for the Room 114 CSA is 2,200 gallons, or approximately 40 55-gallon drums. Wastes to be stored in the Room 114 CSA include TRU mixed wastes that consist of solid physical forms and wastes that are either suspected or known to contain free liquids. Further information on the wastes that may be stored in the Room 114 CSA is provided in Table 3-1 of this permit modification request.

Waste containers to be stored in the Room 114 CSA will primarily include drums of various sizes. SWBs, FRP boxes, steel B25 boxes, and various other containers may also be stored. Detailed information regarding different container types used at LANL is provided in Section 4.2.1. To facilitate container movement, storage, and inspection, all drums holding wastes that do not contain free liquids will be stored on elevation devices. Containers holding suspect or known liquids will be stored on self-containment pallets or devices. FRP boxes, SWBs, and steel B25 boxes are elevated by design. Elevated containers and self-containment pallets or devices provide protection from potential contact with liquids that could be introduced through fire-suppression activities. Together, these waste management practices and design features satisfy the requirements of 20 NMAC 4.1, Subpart IX, 270.15(b)(2), and 20 NMAC 4.1, Subpart V, 264.175(c), revised November 1, 1995.

Pursuant to the requirements of 20 NMAC 4.1, Subpart IX, 270.15(b)(1), revised November 1, 1995, information contained in LANL's waste databases will be used initially to verify the absence of free liquids in containers. In addition, some containers received at the Room 114 CSA will have been characterized with RTR to verify the presence or absence of free liquids within the container.

Containers suspected or known to contain free liquids will be stored on self-containment pallets or devices. The self-containment pallets or devices will be constructed of impervious, corrosion-resistant materials compatible with the wastes and will have the capacity to contain at least 10 percent of the total volume of the potential liquid-bearing containers or the volume of the largest potential liquid-bearing container, whichever is greater. Containers will be placed on elevated grates within these pallets or devices to prevent contact with potentially accumulated liquids. Because the Room 114 CSA is indoors, run-on into the CSA from outdoors is not likely to occur. Positive surface drainage will direct potential run-on away from TA-50-37. Map 2 of the RAMROD Part A shows the contours and surface drainage around TA-50-37. Together, the containment design and operation will meet the requirements of 20 NMAC 4.1, Subpart V, 264.175(b), and 20 NMAC 4.1, Subpart IX, 270.15(a)(14), revised November 1, 1995.

To meet the requirements of 20 NMAC 4.1, Subpart IX, 270.15(a)(5), revised November 1, 1995, any liquids that may accumulate within the self-containment pallets or devices, the trench, and the pits will be removed as soon as possible to prevent overflow. Depending upon the volume of the accumulated liquid, a HEPA vacuum, a portable pump, universal sorbents, and/or other methods suitable for retrieval will be used to remove the liquid for subsequent sampling and analysis. The collected liquids and/or sorbents will be transferred to compatible containers and sampled for the constituents known to be present in the waste or for the appropriate parameters listed in Table 7-3 of the LANL General Part B. These containers will be stored temporarily at the RAMROD Facility pending analysis, which will dictate how the wastes will be managed.

If a sample represents a spill, the sample will be analyzed for the hazardous waste constituents known to be components of the source. In the unlikely event that a spill source cannot be identified, the sample will be analyzed for the hazardous waste constituents listed in Table 7-3 of the LANL General Part B. If the liquids are not a result of a spill (e.g., water generated during

fire-suppression activities), samples will be analyzed only for the potential constituents present in the waste.

All applicable requirements for the storage of ignitable, reactive, incompatible, and certain F-listed wastes will be met at the Room 114 CSA as follows. If ignitable or reactive wastes are stored, they will be located at least 50 feet from the facility's property line, as shown on Map 2 of the RAMROD Part A. Incompatible wastes, if stored, will be segregated during storage using self-containment pallets or devices. Pursuant to the requirements of 20 NMAC 4.1, Subpart V, 264.177(a) and (b), revised November 1, 1995, no incompatible wastes will be mixed, and no waste will be placed in a container that previously held an incompatible waste. No wastes carrying EPA Hazardous Waste Numbers F020, F021, F022, F023, F026, or F027 will be stored in the Room 114 CSA. Therefore, the requirements of 20 NMAC 4.1, Subpart V, 264.175(d), revised November 1, 1995, are not applicable.

4.1.3 TA-50-37 Room 115 Mixed Waste CSA

The TA-50-37 Room 115 CSA is located on the first floor of the RAMROD Facility. Room 115 is located within Room 114. The Room 115 CSA consists of Room 115, which measures 10 feet wide and 21 feet long (Figure 4-1). The floor is concrete and painted with epoxy paint. Six-inch-high concrete berms are located at the doorways to the Room 115 CSA to provide secondary containment.

The storage capacity for the Room 115 CSA is 220 gallons, or four 55-gallon drums. Wastes to be stored in the Room 115 CSA include TRU mixed wastes that consist of solid physical forms and wastes that are either suspected or known to contain free liquids. Further information on the wastes that may be stored in the Room 115 CSA is provided in Table 3-1 of this permit modification request.

Only drums and various small waste containers will be stored in the Room 115 CSA. Detailed information regarding the different container types used at LANL is provided in Section 4.2.1. To facilitate container movement, storage, and inspection, all drums will be stored on elevation devices, which will provide protection from potential contact with liquids that could be introduced through spills, leaks, or fire suppression activities. Together, these waste management practices

and design features will satisfy the requirements of 20 NMAC 4.1, Subpart IX, 270.15(b)(2), and 20 NMAC 4.1, Subpart V, 264.175(c), revised November 1, 1995.

Containers suspected or known to contain free liquids will be stored on elevation devices. Secondary containment will be provided by the concrete berms in the room. The secondary containment capacity of the room is approximately 700 gallons, which will easily contain at least 10 percent of the volume of the potential liquid-bearing containers or the volume of the largest potential liquid-bearing container, whichever is greater. (The storage capacity of Room 115 is only 220 gallons.) The elevation devices will prevent contact with potentially accumulated liquids. Because the Room 115 CSA is indoors, run-on into the room from outdoors is not likely to occur. Positive surface drainage will direct potential run-on away from TA-50-37. Map 2 of the RAMROD Part A shows the contours and surface drainage around TA-50-37. Together, the containment design and operation will meet the requirements of 20 NMAC 4.1, Subpart V, 264.175(b), and 20 NMAC 4.1, Subpart IX, 270.15(a)(14), revised November 1, 1995.

To meet the requirements of 20 NMAC 4.1, Subpart IX, 270.15(a)(5), revised November 1, 1995, any liquids that may accumulate in the secondary containment area will be removed as soon as possible to prevent overflow. Depending upon the volume of the accumulated liquid, a HEPA vacuum, a portable pump, universal sorbents, and/or other methods suitable for retrieval will be used to remove the liquid for subsequent sampling and analysis. The collected liquids and/or sorbents will be transferred to compatible containers and will be sampled for the constituents known to be present in the waste or for the appropriate parameters listed in Table 7-3 of the LANL General Part B. These containers will be stored temporarily at the RAMROD Facility pending analysis, which will dictate how the wastes will be managed.

If a sample represents a spill, the sample will be analyzed for the hazardous waste constituents known to be components of the source. In the unlikely event that a spill source cannot be identified, the sample will be analyzed for the hazardous waste constituents listed in Table 7-3 of the LANL General Part B.

All applicable requirements for the storage of ignitable, reactive, incompatible, and certain F-listed wastes will be met at the Room 115 CSA as follows. If ignitable or reactive wastes are stored, they will be located at least 50 feet from the facility's property line as shown on Map 2

of the RAMROD Part A. Incompatible wastes, if stored, will be segregated during storage using self-containment pallets or devices. Pursuant to the requirements of 20 NMAC 4.1, Subpart V, 264.177(a) and (b), revised November 1, 1995, no incompatible wastes will be mixed, and no waste will be placed in a container that previously held an incompatible waste. No wastes carrying EPA Hazardous Waste Numbers F020, F021, F022, F023, F026, or F027 will be stored in the Room 115 CSA. Therefore, the requirements of 20 NMAC 4.1, Subpart V, 264.175(d), revised November 1, 1995, are not applicable.

4.1.4 TA-50-37 Room 117 Mixed Waste CSA

The TA-50-37 Room 117 CSA is located on the first floor in the eastern portion of the RAMROD Facility. The Room 117 CSA consists of Room 117 (Figure 4-2). Room 117 measures 21 feet wide and 40 feet long. The entire epoxy-painted concrete floor is recessed approximately 3 feet below a steel-grate surface. The recessed floor area, which provides secondary containment, is divided into two areas, one approximately twice the size of the other. In addition, each recessed floor area is sloped toward its own 3-foot-square sump, which is further recessed. Each sump area contains a pump and piping that connects the sump to its own standpipe. The pumps and standpipes may be used to remove liquids that may accumulate in the sump areas.

The storage capacity for the Room 117 CSA is 3,630 gallons, or approximately 66 55-gallon drums. TRU mixed wastes suspected or known to contain free liquids will be stored in the Room 117 CSA. Further information on the wastes that may be stored in the Room 117 CSA is provided in Table 3-1 of this permit modification request.

Waste containers to be stored in the Room 117 CSA primarily include drums of various sizes. FRP boxes, SWBs, steel B25 boxes, and other irregular containers may also be stored. Detailed information regarding different container types used at LANL is provided in Section 4.2.1. To facilitate container storage, all containers holding suspected or known free liquids will be stored on the steel grate floor. The design of the steel grate floor over the recessed secondary containment areas will provide protection from potential contact with liquids that could be introduced through fire-suppression activities, spills, or leaks and that could potentially accumulate in the secondary containment systems. Together, these waste management practices and design features satisfy the requirements of 20 NMAC 4.1, Subpart IX, 270.15(b)(2), and 20 NMAC 4.1, Subpart V, 264.175(c), revised November 1, 1995.

The self-containment areas are constructed of epoxy-painted concrete. The epoxy paint is compatible with the wastes to be stored. The self-containment areas have the capacity to contain at least 10 percent of the volume of the potential liquid-bearing containers or the volume of the largest potential liquid-bearing container, whichever is greater. Because the Room 117 CSA is indoors, run-on into the secondary containment systems from outdoors is not likely to occur. In addition, positive surface drainage will direct run-on away from TA-50-37. Map 2 of the RAMROD Part A shows the contours and surface drainage around TA-50-37.

To meet the requirements of 20 NMAC 4.1, Subpart IX, 270.15(a)(5), revised November 1, 1995, any liquids that may accumulate within the secondary containment systems will be removed as soon as possible. The sump pump and piping associated with the secondary containment system may be used to remove the liquid for subsequent sampling and analysis. The collected liquids will be transferred to compatible containers and sampled for the constituents known to be present in the waste or for the appropriate parameters listed in Table 7-3 of the LANL General Part B. These containers will be stored temporarily at the RAMROD Facility pending analysis, which will dictate how the wastes will be managed.

If a sample represents a spill, the sample will be analyzed for the hazardous waste constituents known to be components of the source. In the unlikely event that a spill source cannot be identified, the sample will be analyzed for the hazardous waste constituents listed in Table 7-3 of the LANL General Part B. If the liquids are not a result of a spill (e.g., water generated during fire-suppression activities), samples will be analyzed for the potential constituents present in the waste.

All applicable requirements for the storage of ignitable, reactive, incompatible, and certain F-listed wastes will be met at the Room 117 CSA. If ignitable or reactive wastes are stored, they will be located at least 50 feet from the facility's property line as shown on Map 2 of the RAMROD Part A. Incompatible wastes, if stored, will be segregated during storage by using self-containment pallets or by storing over the separated secondary containment areas. Pursuant to the requirements of 20 NMAC 4.1, Subpart V, 264.177(a) and (b), revised November 1, 1995, no incompatible wastes will be mixed, and no waste will be placed in a container that previously held an incompatible waste. No wastes carrying EPA Hazardous Waste Numbers F020, F021, F022, F023, F026, or F027 will be stored in the Room 117 CSA.

Therefore, the requirements of 20 NMAC 4.1, Subpart V, 264.175(d), revised November 1, 1995, are not applicable.

4.1.5 TA-50-37 Room 118 Mixed Waste CSA

The TA-50-37 Room 118 CSA is located on the first floor in the eastern portion of the RAMROD Facility, just north of Room 117. The Room 118 CSA (Figure 4-2) measures 31 feet wide and 40 feet long. The concrete floor of the Room 118 CSA is epoxy painted and slopes toward a 4-foot-square sump. The sump, which is approximately 4 feet deep and covered by a steel grate, is located in the center of the room. The sump contains a pump connected to a standpipe. This equipment may be used to remove any liquids that may potentially accumulate in the sump.

The storage capacity for the Room 118 CSA is 18,000 gallons, or roughly 327 55-gallon drums. Wastes to be stored in the Room 118 CSA include TRU mixed wastes that consist of solid physical forms and wastes that are either suspected or known to contain free liquids. Further information on the wastes that may be stored in the Room 118 CSA is provided in Table 3-1 of this permit modification request.

Waste containers that may be stored in the Room 118 CSA primarily include drums of various sizes. In addition, FRP boxes, SWBs, B25 boxes, and other irregular containers may be stored. Detailed information regarding the different container types used at LANL is provided in Section 4.2.1. To facilitate container movement, storage, and inspection, all drums and irregular containers holding wastes that do not contain free liquids will be stored on elevation devices. Drums holding suspect or known liquids will be stored on self-containment pallets or devices. SWBs, FRP boxes, and B25 boxes are elevated by design. Elevated containers and self-containment pallets or devices will provide protection from potential contact with accumulated liquids resulting from fire-suppression activities, leaks, or spills. Together, these waste management practices and design features satisfy the requirements of 20 NMAC 4.1, Subpart IX, 270.15(b)(2), and 20 NMAC 4.1, Subpart V, 264.175(c), revised November 1, 1995.

In accordance with 20 NMAC 4.1, Subpart IX, 270.15(b)(1), revised November 1, 1995, information contained in LANL's waste databases will be used initially to verify the absence of free liquids in containers. In addition, some containers received at the Room 118 CSA will have

been characterized with RTR to verify the presence or absence of free liquids within the container.

Containers suspected or known to contain free liquids will be stored on self-containment pallets or devices. The self-containment pallets will be constructed of impervious, corrosion-resistant materials compatible with the wastes and will have the capacity to contain at least 10 percent of the volume of the potential liquid-bearing containers or the volume of the largest potential liquid-bearing container, whichever is greater. Containers will be placed on elevated grates within these pallets or devices to prevent contact with potentially accumulated liquids.

Because the Room 118 CSA is indoors, run-on into the CSA from outdoors is not likely to occur. Positive surface drainage will direct potential run-on away from TA-50-37. Map 2 of the RAMROD Part A shows the contours and surface drainage around TA-50-37. Together, the containment design and operation will meet the requirements of 20 NMAC 4.1, Subpart V, 264.175(b), and 20 NMAC 4.1, Subpart IX, 270.15(a)(14), revised November 1, 1995.

To meet the requirements of 20 NMAC 4.1, Subpart IX, 270.15(a)(5), revised November 1, 1995, any liquids that may accumulate within the self-containment pallets or devices or in the sump will be removed as soon as possible to prevent overflow. If liquids accumulate in a self-containment pallet or device, a HEPA vacuum, a portable pump, universal sorbents, and/or other methods suitable for retrieval will be used to remove the liquid for subsequent sampling and analysis. If liquids accumulate in the sump, the sump pump and piping system may be used to remove the liquids for subsequent sampling and analysis. The collected liquids and/or sorbents will be transferred to compatible containers and sampled for the constituents known to be present in the waste or for the appropriate parameters listed in Table 7-3 of the LANL General Part B. These containers will be stored temporarily at the RAMROD Facility pending analysis, which will dictate how the wastes will be managed.

If a sample represents a spill, the sample will be analyzed for the hazardous waste constituents known to be components of the source. In the unlikely event that a spill source cannot be identified, the sample will be analyzed for the hazardous waste constituents listed in Table 7-3 of the LANL General Part B. If the liquids are not a result of a spill (e.g., water generated during

fire-suppression activities), samples will be analyzed for the potential constituents present in the waste.

All applicable requirements for the storage of ignitable, reactive, incompatible, and certain F-listed wastes will be met at the Room 118 CSA. If ignitable or reactive wastes are stored, they will be located at least 50 feet from the facility's property line as shown on Map 2 of the RAMROD Part A. Incompatible wastes, if stored, will be segregated during storage by using self-containment pallets or devices. Pursuant to the requirements of 20 NMAC 4.1, Subpart V, 264.177(a) and (b), revised November 1, 1995, no incompatible wastes will be mixed, and no wastes will be placed in a container that previously held an incompatible waste. No wastes carrying EPA Hazardous Waste Numbers F020, F021, F022, F023, F026, or F027 will be stored in the Room 118 CSA. Therefore, the requirements of 20 NMAC 4.1, Subpart V, 264.175(d), revised November 1, 1995, are not applicable.

4.2 WASTE MANAGEMENT PRACTICES [20 NMAC 4.1, Subpart V, Part 264, Subpart I]

The following sections provide an overview of the general operations and process information that are applicable to all of the CSAs addressed in this permit modification request. This overview includes a discussion of container types and labeling practices; storage configuration; handling and inspection procedures; precautions taken when handling or storing incompatible, ignitable, or reactive wastes; and information regarding additional reporting requirements. This information is submitted to fulfill the requirements of 20 NMAC 4.1, Subpart V, Part 264, Subpart I, revised November 1, 1995. Information regarding contents of the operating record for the facility and additional reports is presented in Section 4.0 of the LANL General Part B.

4.2.1 Container Types and Labeling

Containers that will be used to store TRU mixed wastes at the CSAs addressed in this permit modification request include 30-, 55-, 83-, 85-, and 110-gallon steel drums; standard FRP boxes; steel SWBs; metal overpack boxes; steel B25 boxes; various small containers; and oversized, irregularly-shaped FRP boxes. Some of the mixed waste containers are vented. The vented containers have carbon composite filters that allow gases (e.g., hydrogen), if any, to be released but prevent the release of airborne particulates.

The most common drum used for storage is the 55-gallon drum. The standard drum in use is constructed of 16-gauge steel and has an inner diameter of approximately 22 inches and a usable inside height of approximately 33 inches. Standard-size FRP boxes used for storage measure 4 by 4 by 8 feet. The outer surface of the FRP boxes is coated with a 0.06- to 0.12-inch-thick layer of epoxy-impregnated fiberglass. At times, nonstandard-size FRP boxes are designed and constructed to contain odd-shaped or oversized waste. Two different types of SWBs are used for storage. One type is constructed of 14-gauge steel and has rounded ends. It measures 52 by 69 by 36 inches, has continuous welds on all four sides and on the bottom, and has a lid with a closed-cell neoprene gasket that is secured in place with bolts. The second type of SWB is also constructed of 14-gauge steel but is rectangular in shape. Its dimensions are 56 by 72 by 37 inches. It has continuous welds on all four sides and on the bottom and a lid that is clamped and welded in place. The metal overpack boxes vary in size and have continuous welds both inside and outside on all four sides and on the bottom. The lid has a gasket made of closed-cell neoprene and can be strapped closed or clipped down. The metal overpack boxes are elevated by design with risers for ease in handling. B25 boxes are constructed of 16-gauge welded carbon steel, are a standard size of 4 by 4 by 6 feet, and are elevated by design. All B25 boxes have a rubber gasket with either a bolt-on, clip-pinned, or hinged lid.

Overpacks may be used when a container's integrity is suspect or if cracks or leaks are observed. The 85-gallon drums are commonly used to overpack 55-gallon drums and 110-gallon drums are used to overpack 85-gallon drums. The 85-gallon overpacks are constructed of 16-gauge steel, at a minimum. Universal sorbent is generally added to the interior of the overpack. The lid is secured to the overpack with a 12-gauge bolt ring complete with a 5/8-inch closure bolt. Rounded-end SWBs will be used to overpack drums of various sizes that contain TRU mixed waste. Finally, metal boxes are used as overpacks for FRP boxes.

All waste containers are labeled with an identification number in the form of a barcode that corresponds to a number in the Chemical Science and Technology (CST) Division's waste management database. This database is composed of information supplied by the generator prior to storage and by CST personnel after the waste has been received. This information includes the waste generator, the available waste characterization information, the packaging, the waste certification, the receiving site, and the storage location. In addition to an identification

number, all containers are labeled with a hazardous waste label and the appropriate EPA Hazardous Waste Numbers. Containers holding mixed waste are also labeled with a radioactive material tag. All containers will be clearly marked to identify contents and the date each period of accumulation begins. Boxes are labeled on a minimum of two sides. When waste containers are moved during storage, their waste package identification numbers (barcode), origin and destination, and package changes (e.g., overpack volume, overpack dimensions) will be documented. CST's database will then be updated to reflect any new information.

4.2.2 Storage Configuration

Storage configurations are dependent upon facility throughput, size constraints, and by the chemical and radiological characteristics of the waste in storage at any one time. The storage capacity requested for the CSAs addressed in this permit modification request reflects the volume necessary to support the waste characterization activities that will occur in Room 112 (see Attachment 4-1 for a detailed description of waste characterization equipment).

Whenever waste is stored in the Room 112 and Room 114 CSAs, it will be positioned in an area that is removed from the location of any worker activity or traffic that is unrelated to the management of the waste itself. Security posts and a chain will be used to alert workers to the presence of waste containers. Adequate space will be maintained to allow for inspection of all containers, and a minimum space of 28 inches will be maintained between rows of containers. Whenever incompatible wastes are stored, separate self-containment pallets or devices will be used to keep the wastes segregated to ensure commingling would not occur in the event a container is breached. Stacking of drums and small containers will not exceed two levels in these CSAs.

The physical dimensions of Room 115 limit container storage in the Room 115 CSA to four drums. Therefore, minimum space between the containers is not required, and no stacking of containers will occur in the Room 115 CSA.

A minimum of 28 inches will be maintained between rows of containers in the Room 117 and Room 118 CSAs. Whenever incompatible wastes are to be stored in the Room 117 CSA, separate self-containment pallets or devices will be used or storage over separate secondary containment areas will be done to keep the wastes segregated to ensure that commingling will

not occur in the event a container is breached. Whenever incompatible wastes are to be stored in the Room 118 CSA, segregation will be ensured using separate self-containment pallets or devices. Drums and various small containers may be stacked up to a maximum of two high. No other containers will be stacked.

4.2.3 Handling and Inspection [20 NMAC 4.1, Subpart V, 264.171, 264.173, and 264.174]

As required by 20 NMAC 4.1, Subpart V, 264.171, revised November 1, 1995, any container that is not in good condition (e.g., severe rusting, apparent structural defects) will be overpacked or the wastes will be repackaged in containers that are in good condition prior to storage. All containers will be kept closed during storage in accordance with 20 NMAC 4.1, Subpart V, 264.173(a), revised November 1, 1995, except when waste is added to or removed from the container or when a container's contents need to be repackaged. Containers will be handled and stored at all times in a manner that will not rupture a container nor cause it to leak, as required by 20 NMAC 4.1, Subpart V, 264.173(b), revised November 1, 1995.

Inspections will be performed at each CSA according to the schedule in Section 6.2 of the LANL General Part B. The purpose of the inspections is to identify leaking containers, deterioration of containers, and loss of integrity of a containment system, as required by 20 NMAC 4.1, Subpart V, 264.174, revised November 1, 1995. The inspections will include checking the structural integrity of the steel drums and boxes (e.g., for bulging or warping). Refer to Section 6.0 of the LANL General Part B for more detailed information regarding inspection requirements and how they will be met.

4.2.4 Ignitable, Reactive, and Incompatible Wastes [20 NMAC 4.1, Subpart V, 264.17(a), 264.176, and 264.177]

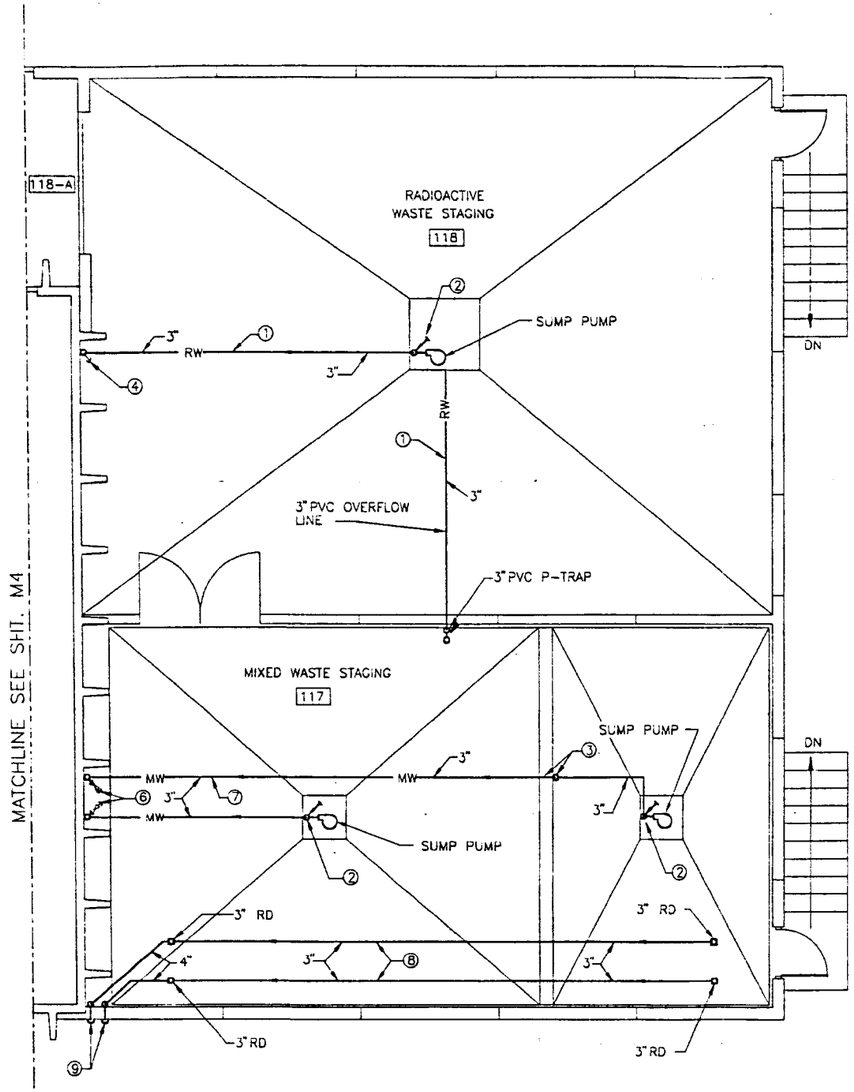
In accordance with the requirements of 20 NMAC 4.1, Subpart V, 264.176, November 1, 1995, containers holding ignitable or reactive waste will be stored at least 50 feet from the facility's property line (refer to Map 2 of the RAMROD Part A). All ignitable and reactive wastes will also be protected from sources of ignition or reaction, in accordance with 20 NMAC 4.1, Subpart V, 264.17(a), revised November 1, 1995. No smoking is allowed. "No Smoking" signs are conspicuously placed wherever there is a potential hazard from ignitable or reactive waste, as required by 20 NMAC 4.1, Subpart V, 264.17(a), revised November 1, 1995. In addition, most mechanical equipment operated within each CSA is grounded to minimize the potential for

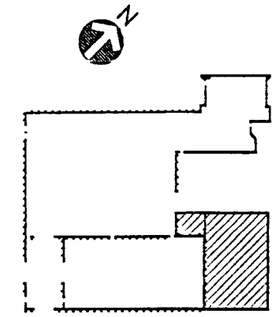
sparking and accidental ignition. Conduit boxes and other utilities in Room 117 are explosion proof.

Incompatible wastes will be kept separated during storage at all the CSAs. LANL has a system in place that assigns codes to TRU mixed waste streams based on the chemical and physical properties of the waste. Containers of TRU mixed wastes will be segregated according to their assigned waste code and generator location. No incompatible wastes will be mixed, and no wastes will be placed in containers that previously held incompatible wastes, as required by 20 NMAC 4.1, Subpart V, 264.177(a) and (b), and 20 NMAC 4.1, Subpart IX, 270.15(d), revised November 1, 1995. Pursuant to the requirements in 20 NMAC 4.1, Subpart V, 264.172, revised November 1, 1995, only containers made of or lined with materials that will not react with and are otherwise compatible with the waste to be stored will be used for storage at these CSAs. Waste database information and results of waste characterization activities will provide documentation of compliance with the requirements for ignitable, reactive, or incompatible wastes, pursuant to 20 NMAC 4.1, Subpart V, 264.17(c), revised November 1, 1995.

4.3 RECORDKEEPING AND REPORTING REQUIREMENTS [20 NMAC 4.1, Subpart V, Part 264, Subpart E]

The various recordkeeping and reporting requirements applicable to all waste management units at LANL and addressed in a Part B permit application or permit modification request are detailed in Section 4.1 of the LANL General Part B.





KEY PLAN

NTS

KEYED NOTES

1. PIPING ROUTED BELOW SLAB – DOUBLE ENCASED PVC.
2. 3" FORCE MAIN FROM SUMP PUMP.
3. 3" FORCE MAIN RISE TO A POINT JUST BELOW GRATING.
4. 3" THREADED PIPE WITH CAPPED END INSTALLED 36" AFF
5. 3" STORM DRAIN PIPING.
6. 3" GATE VALVE AND CAPPED PIPE INSTALLED 48" AFF
7. PIPING ROUTED JUST BELOW GRATING.
8. PIPING ROUTED BELOW ROOF.
9. 4" ROOF DRAIN LEADERS DROP ALONG WALL AND DISCHARGE THRU 4" DOWNSPOUTS.

MIXED RADIOACTIVE WASTE AND ROOF DRAIN FIRST FLOOR PLAN

4 3 2 1 0 4 8 16

GRAPHIC SCALE

NOTE:

FIELD VERIFICATION WAS DONE ON 4-23-92.

Figure 4-2

First Floor Plan for Technical Area 50, Building 37, Showing Details of Rooms 117 and 118

NO.	DATE	CLASS REV.	REVISIONS	DWN	DES	CHKD	REL	SUB	REC	APP

JOHNSON CONTROLS WORLD SERVICES INC

AS-BUILT CRITICAL FACILITY
TREATMENT DEVELOPMENT FACILITY

MECH: MIXED RAD WASTE AND ROOF DRAIN FIRST FLOOR PLAN

BLDG. 37 TA-50

DRAWN	J.PEREA
DESIGN	N/A
CHECKED	GOLDSMITH
RELEASED	GOLDSMITH
DATE	5-15-92

SUBMITTED JERRY FORTE RECOMMENDED DENNIS HALL APPROVED FRED THOMPSON

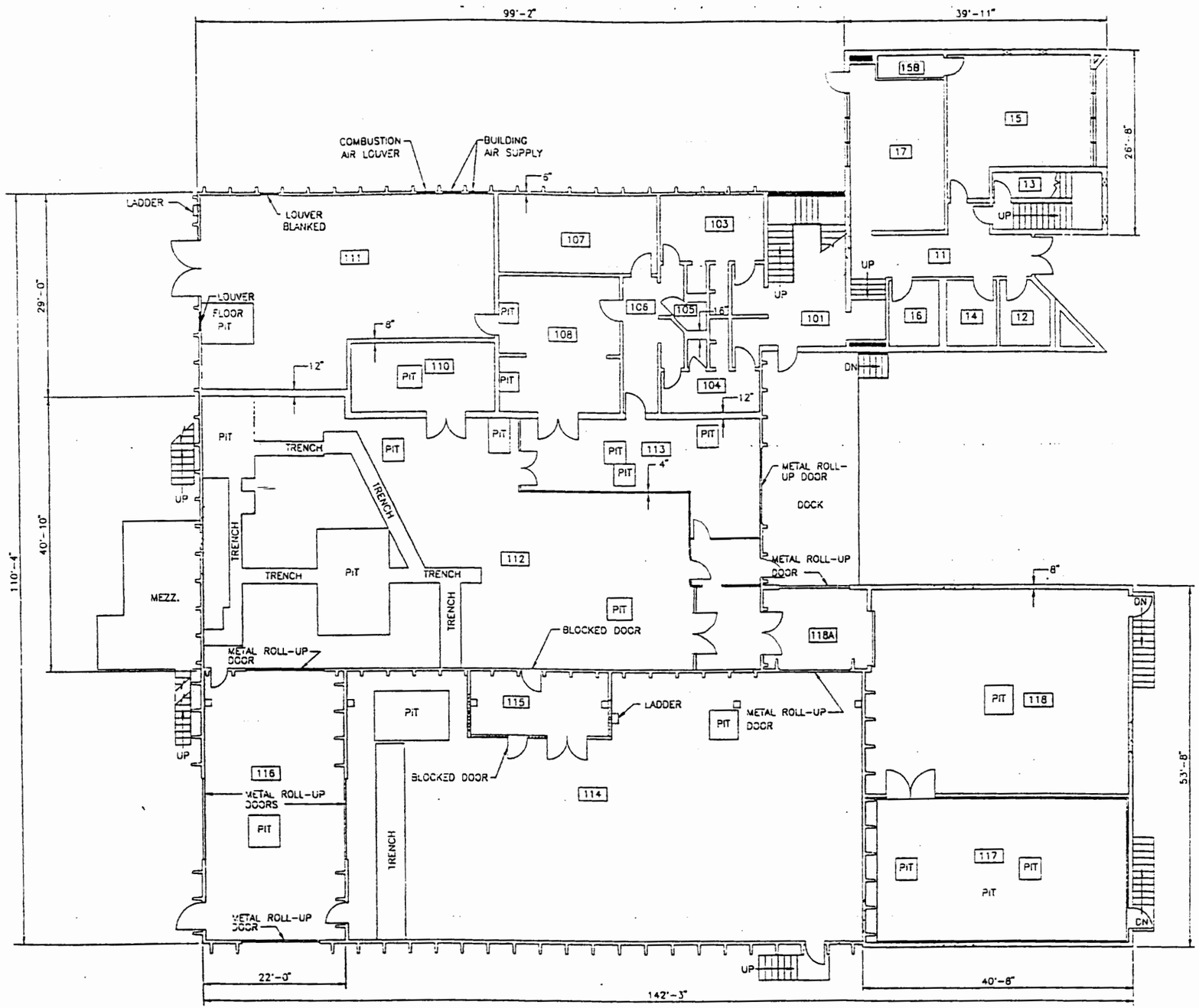
Los Alamos — Los Alamos National Laboratory, Los Alamos, New Mexico 87545

SHEET M7 19 OF 70

CLASSIFICATION U REVIEWER DATE 11/10/92

LAB JOB NO.	DRAWING NO.	REV.
10901	AB1	

JCI#91-032



FIRST FLOOR PLAN

10 5 0 5 10 15 20 25
GRAPHIC SCALE

NOTE:
FIELD VERIFICATION WAS DONE ON 1-24-92

ROOM INFORMATION CHART

RM. #	DESCRIPTION	DIMENSION	SQ. FT.	OCCUPIABLE/UNOCCUPIABLE
11	CORRIDOR	27'-2" X 5'-0"	227	UNOCCUPIABLE
12	JANITOR	9'-6" X 7'-6"	66	UNOCCUPIABLE
13	STORAGE	11'-0" X 3'-9"	41	UNOCCUPIABLE
14	RESTROOM	9'-6" X 7'-6"	71	UNOCCUPIABLE
15	CONFERENCE	21'-6" X 16'-2"	376	OCCUPIABLE
15B	STORAGE	10'-0" X 3'-0"	40	UNOCCUPIABLE
16	RESTROOM	9'-6" X 7'-6"	71	UNOCCUPIABLE
17	OFFICE	21'-6" X 14'-0"	314	OCCUPIABLE
101	STW/ENTRY	21'-10" X 12'-2"	336	UNOCCUPIABLE
103	OFFICE	15'-10" X 9'-4"	181	OCCUPIABLE
104	RESTROOM	15'-0" X 6'-0"	123	UNOCCUPIABLE
105	JANITOR	4'-0" X 3'-0"	15	UNOCCUPIABLE
106	CORRIDOR	19'-9" X 5'-2"	147	UNOCCUPIABLE
107	LABORATORY	24'-0" X 11'-0"	264	OCCUPIABLE
108	CONTROL	19'-8" X 18'-4"	360	OCCUPIABLE
110	SHOP	22'-0" X 10'-0"	220	OCCUPIABLE
111	PLANT	45'-0" X 21'-10"	1146	OCCUPIABLE
112	LABORATORY	80'-6" X 36'-6"	2619	OCCUPIABLE
113	MATERIAL	36'-4" X 10'-6"	476	OCCUPIABLE
114	EQUIPMENT	79'-0" X 39'-10"	2927	OCCUPIABLE
115	PLANT	21'-0" X 9'-6"	200	UNOCCUPIABLE
116	MATERIAL	39'-10" X 21'-6"	856	OCCUPIABLE
117	STORAGE	40'-0" X 21'-6"	860	UNOCCUPIABLE
118	STORAGE	40'-0" X 30'-0"	1200	UNOCCUPIABLE
118A	STORAGE	16'-1" X 10'-4"	155	UNOCCUPIABLE

FIRST FLOOR PLAN GROSS SQUARE FEET = 13,291
SECOND FLOOR PLAN GROSS SQUARE FEET = 5,213
TOTAL BUILDING GROSS SQUARE FEET = 18,504

FIRST FLOOR PLAN NET OCCUPIABLE SQUARE FEET = 9,739
SECOND FLOOR PLAN NET OCCUPIABLE SQUARE FEET = 4,339
TOTAL BUILDING NET OCCUPIABLE SQUARE FEET = 14,078

GENERAL NOTES

1. ALL INTERIOR WALLS ARE 6" THICK UNLESS OTHERWISE NOTED ON THE FLOOR PLANS.
2. ALL INTERIOR WALL PARTITIONS ARE CONCRETE BLOCK UNLESS OTHERWISE NOTED ON FLOOR PLANS.

Figure 4-1

First Floor Plan for Technical Area 50, Building 37, Showing Details of Rooms 112, 114, 115, 117, and 118

JOHNSON CONTROLS WORLD SERVICES INC.

AS-BUILT CRITICAL FACILITY
TREATMENT DEVELOPMENT FACILITY
ARCH: FIRST FLOOR PLAN

BLDG. 37 TA-50

DRAWN T. ROSETTA
DESIGN N/A
CHECKED GOLDSMITH
RELEASED GOLDSMITH
DATE 5-15-92

SUBMITTED JERRY FORTE
RECOMMENDED DOUG HALL
APPROVED

Los Alamos — Los Alamos National Laboratory, Los Alamos, New Mexico 87545

SHEET A2 11 OF 70

CLASSIFICATION U1 REVIEWER DATE 11/14/92

LAB JOB NO. 10901
DRAWING NO. AB1
REV.

JCI #91-032

ATTACHMENT 4-1

SORT AND SEGREGATE GLOVEBOX AND DRUM CORING GLOVEBOX INFORMATION

SORT AND SEGREGATE GLOVEBOX AND DRUM CORING GLOVEBOX INFORMATION

Los Alamos National Laboratory (LANL) proposes to open drums of retrievably-stored transuranic (TRU) and TRU mixed waste for the purpose of verifying and/or identifying their contents. The reason for characterizing the waste is to provide for storage of the waste in compliance with regulatory requirements, and to certify the waste for shipment to the Waste Isolation Pilot Plant (WIPP).

To characterize the waste, LANL intends to use two types of gloveboxes, the Sort and Segregate Glovebox (SSG) and the Drum Coring Glovebox (DCG). The SSG will be used to survey and sort heterogeneous TRU and TRU mixed waste; the DCG will be used to drill core samples from solid or solidified waste forms. The gloveboxes will be operated inside Technical Area (TA) 50, Building 69; TA-50, Building 37; and TA-50, Building 1. Other uses for the gloveboxes are possible and could be implemented in the future.

Sort and Segregate Glovebox

The SSG to be operated in TA-50-37 will be constructed by modifying an existing, unused controlled air incinerator (CAI) process glovebox. Components include numerous sets of gloves and windows, removable end panels, utility feed-throughs, a stand, a pass-in port, high efficiency particulate air (HEPA) filter housings for air control, and bag-on ports for 55-gallon and 30-gallon drums and for samples on the bottom (see Figure 1). Unique features of the glovebox will be a side-mounted 55-gallon bag-on port for admitting the waste to the box, and a depression in the floor beneath the side bag-on port to act as a sump to hold residual liquids drained from the waste. The SSG will also be equipped with a neutron well counter to determine the activity of waste items being repackaged before being placed in a waste container for WIPP. Mounted outside the glovebox will be a drum-lift mechanism for lifting a drum of waste from the floor and positioning it in the side bag-on port. The SSG will be provided with facility support utilities such as electricity and ventilation. The SSG will have both inlet and outlet HEPA filtration, in addition to the building's HEPA exhaust filtration.

Due to the size of this existing CAI process glovebox, it may be divided to provide two separate characterization areas. These two halves would be managed as two separate gloveboxes with the same capabilities.

Workers will remove the contents of a drum, catalog the contents, remediate any nonconforming conditions such as the presence of free liquids or prohibited items (e.g., compressed gases, corrosives, sealed containers larger than 1-gallon), and repackage the contents into a drum on the lower port. The original drum can be removed and handled appropriately or be reused to accept other waste.

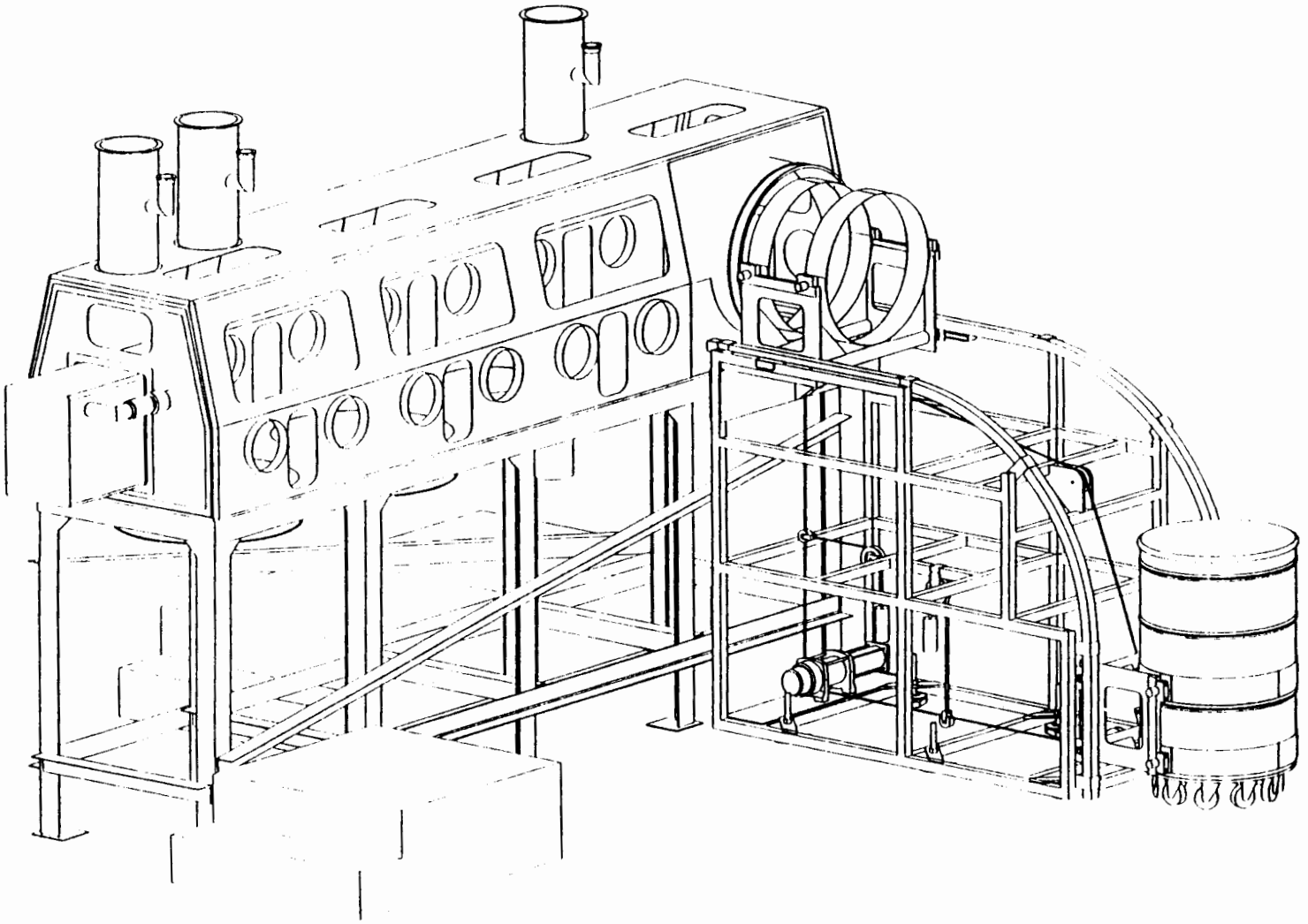


Figure 1

Conceptual Drawing of the Sort and Segregate Glovebox

A detailed process description for the SSG follows.

1) Select candidate drums from the inventory. This will be done on a statistical basis, selecting a specified number of drums at random from each of the identified waste streams. Some of the candidate categories of waste are glass waste, metal and incidental combustibles, leaded-rubber and metal waste, graphite waste, and combustible solids.

2) Review the records and other available data for the drums.

3) Radiograph the drums.

4) Select or reject drums for inspection based on condition and contents.

5) Transport the drums to TA-50-69 or TA-50-37 for staging.

6) Introduce a drum to the facility (TA-50-69, TA-50-37, or TA-50-1).

7) Prepare the glovebox.

   a) Bag on[1] the appropriate waste-receiving containers (55-gallon drum, standard waste box, 10-drum overpack, pipe component package, or other qualified[2] packaging) to the glovebox lower drum ports.[3]

   b) Tape a sleeve inside a clean container and attach the other end to a bag-on port.

   c) If required, attach a long 5-inch-diameter bag to a port. This bag can be used to bag off samples.

   d) Remove previous sleeves from the ports by pushing them up into the glovebox.

8) Bag on the waste drum.

   a) Mount the drum to the drum-handling fixture.

   b) Open the exterior metal protector of the bag-on port.

   c) Attach one end of an 8-foot sleeve to the side glovebox port and the other end of the sleeve to the drum. Tape and clamp the sleeve in place as indicated for safety.

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[1] An emerging technology called bagless posting could eliminate the need for bag sleeves, thus saving time, reducing personnel exposures, and minimizing waste. Typical bag-on procedures are included only to help demonstrate the flow of material.

[2] The named containers are qualified for shipment in TRUPACT-II containers. Should handling other than shipment to WIPP be required, different packaging may be required.

[3] Special or additional containers may be required to handle sample material to be sent for analysis, or to handle nonremediable waste, or to package waste into one or more additional certifiable waste streams.

d) Remove any previously used sleeve from the port by pushing it up into the glovebox.

e) Raise the drum so that it is horizontal and protrudes slightly into the glovebox.

f) To keep extra sleeve material out of the way, work it down the side of the drum.

9) Working through gloves, remove the drum clamp ring and lid.

10) If liquids drain from the waste, they will be caught in the sump and will be removed immediately for separate handling.

11) Remove the waste from the drum and catalog it.[4]

12) Remove any materials from the waste that would otherwise make it uncertifiable for shipment or storage. Remediate nonconforming conditions in the segregated materials and return the materials to the waste stream, or remove them to a separate container.

13) Repackage the waste into a container bagged on in (7)(a).

14) Record the contents of the new package and remove the old package from the inventory.

15) Remove the original waste drum from the glovebox.

a) Install the lid and clamp ring on the drum.

b) Lower the drum to the floor, using the drum-lift mechanism.

c) Detach the drum from the drum-lift mechanism and rotate the drum to twist-and-tape close the bag.

d) Cut the bag and monitor the cut.

e) Remove the drum for decontamination or other appropriate handling.

f) Replace the protector plate over the glovebox side port.

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[4] Characterization may include counting and weighing separate bags, opening separate bags and characterizing them individually, and videotaping. Other elements of characterization may include estimating the percentage of material of each type (such as glass, paper, gloves, leaded gloves, metal, and graphite molds) or using IR reflectometry or other techniques to analyze waste materials.

16) If the receiving waste containers are not full[5], leave them attached to the glovebox to receive waste from additional drums.

17) As receiving containers become full, complete the documentation and bag them off.

---

[5] A standard waste box can hold 7 drum equivalents of waste, and a 10-drum overpack can hold substantially more. Even most 55-gallon drums are not packaged to capacity, meaning that the waste from more than one candidate drum will fit into the receiving drum. If, in the judgement of the facility manager and the characterization project manager, more waste can be put into a receiving container without exceeding the conditions of the facility SAR or the storage and shipping requirements of the waste package, more waste will be put into the receiving container. Thus, a receiving container may remain inside the facility longer, but at no time will conditions of the facility SAR be exceeded.

Drum Coring Glovebox

The DCG is a 7-gauge stainless-steel glovebox, 3 work stations long, one work station wide, and one work station high (see Figure 2), with a higher ceiling in one end to accommodate the drilling apparatus. Standard components include 13 sets of gloves, numerous windows, removable end panels, utility feed-throughs, a stand, a pass-in port on one end, HEPA filter housings for air control, and bag-on ports for two 55-gallon drums and for samples. A unique feature of the glovebox is a plastic bulkhead that separates the drilling area from the sample preparation area. Mounted outside the glovebox is a drum-handling mechanism for moving a drum of waste into and out of drilling position.

Workers will drill a core sample of material from the drum and package the sample for shipment to an analytical laboratory. They will also remediate minor nonconforming conditions, such as the presence of free liquids. After drilling, workers will replace the residual core material into the drum, seal the drum, and return it to storage.

A detailed process description for the DCG follows.

1) Select candidate drums from the inventory. This will be done on a statistical basis, selecting a specified number of drums at random from each of the identified waste streams. Some of the candidate categories of waste are solidified waste water sludge, solidified inorganic process sludge, and pyrochemical salt waste.

2) Review the records and other available data for the drums.

3) Radiograph the drums.

4) Select or reject drums for inspection based on condition and contents.

5) Transport the drums to TA-50-69 or TA-50-37 for staging.

6) Introduce a drum to the facility (TA-50-69, TA-50-37, or TA-50-1).

7) Prepare the glovebox.

    a) Bag on a 55-gallon drum to the glovebox lower drum port by taping a sleeve inside a clean container and attaching the other end to the center bag-on port. This container receives the damp decontamination waste from cleanup operations inside the glovebox and other sampling-derived wastes.

    b) Bag on sample sleeves as required.

    c) Remove previous sleeves from the ports by pushing them up into the glovebox.

8) Bag on the waste drum.

    a) Mount the drum to the drum-handling mechanism.

    b) Open the exterior metal protector of the bag-on port.

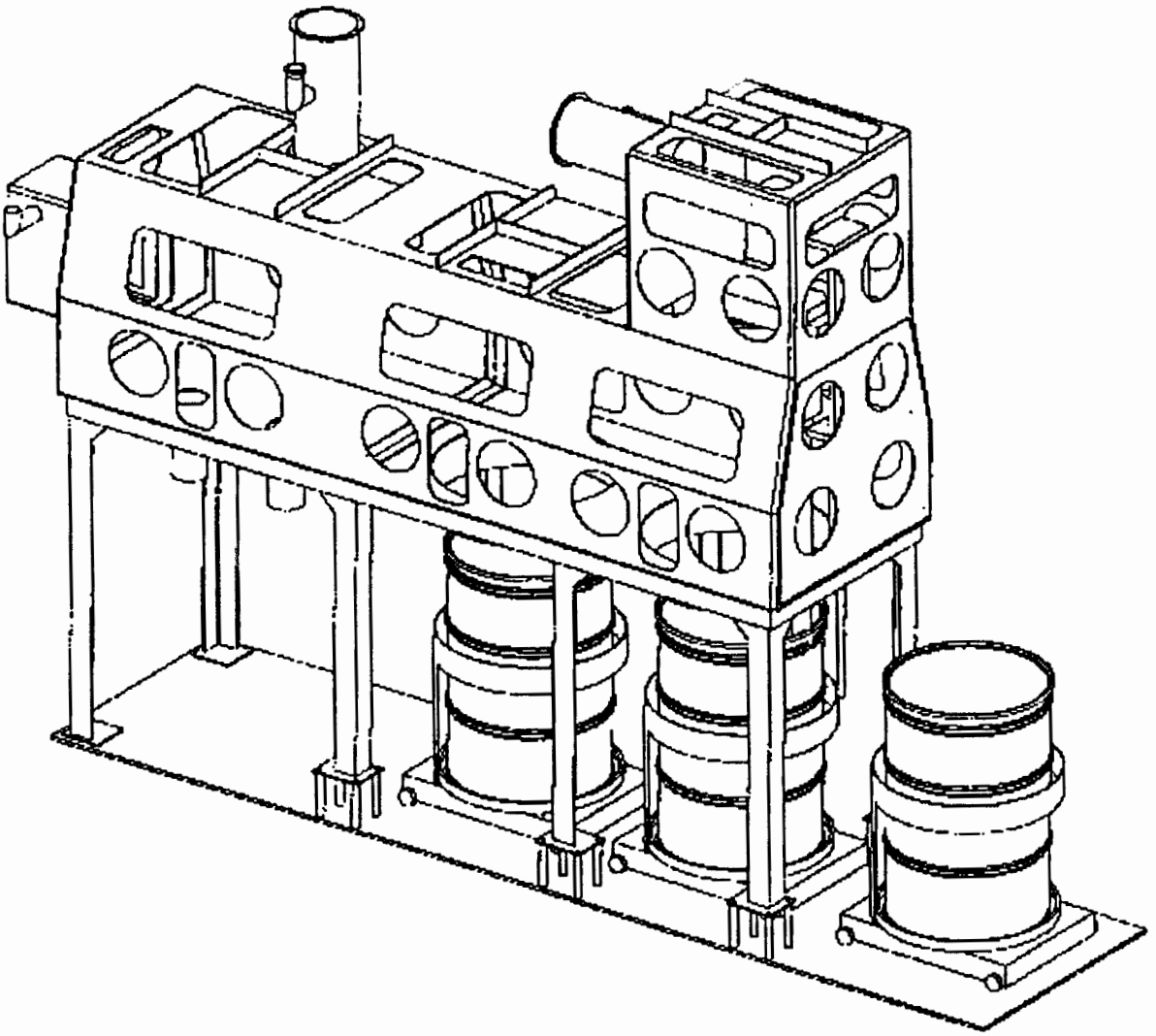

Figure 2

Conceptual Drawing of the Drum Coring Glovebox

c) Attach one end of an 8-foot sleeve to the side glovebox port and the other end of the sleeve to the drum. Tape and clamp the sleeve in place as indicated for safety.

d) Remove any previously used sleeve from the port by pushing it up into the glovebox.

e) Move the drum under the drilling area and raise it into the glovebox.

f) To keep extra sleeve material out of the way, work it down the side of the drum.

9) Remove the drum lid and package shielding to expose the material to be drilled.

10) Lower the drum and move it into drilling position.

11) Drill a core from the drum and remove the required samples.

12) Return the residual core to the original waste drum.

13) Prepare the samples for shipping and remove them from the glovebox by bag-out or via the pass-in port.

14) Clean up the drilling and sampling areas, placing the associated waste into the waste receiving drum.

15) Remove the original waste drum from the glovebox.

a) Install the lid and clamp ring on the drum.
b) Move the drum out from under the glovebox.
c) Rotate the drum to twist-and-tape close the bag.
d) Cut the bag and monitor the cut.
e) Return the waste drum for storage or shipping.
f) Replace the protector plate over the drilling port.

16) If the receiving waste container is not full[6], leave it attached to the glovebox to receive waste from additional drums.

17) When the receiving container is full, complete the documentation and bag it off..

Throughput of the DCG is anticipated to be 1 drum per day. Due to process uncertainties and volumes, a cemented waste drum and a partially full process waste receiving drum may remain attached to the DCG for longer periods. The intent of the SSG and the DCG is to characterize and repackage waste, not to hold it in storage, so every effort will be made to detach original

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[6] A 55-gallon drum will hold the waste from an estimated 10 to 20 drilling efforts. If, in the judgement of the facility manager and the characterization project manager, more waste can be put into a receiving container without exceeding the conditions of the facility SAR or the storage and shipping requirements of the waste package, more waste will be put into the receiving container. This means that a receiving container may remain inside the facility longer, but at no time will conditions of the facility SAR be exceeded.

waste drums and receiving waste containers in a timely manner, while remaining within waste minimization and ALARA guidelines.

5.0 PROCEDURES TO PREVENT HAZARDS

The information provided in this section is submitted in accordance with the applicable requirements of the New Mexico Administrative Code, Title 20, Chapter 4, Part 1 (20 NMAC 4.1), Subpart IX, 270.14(b)(4), 270.14(b)(8), 270.14(b)(9), 270.14(b)(19)(viii), and 270.15, and 20 NMAC 4.1, Subpart V, Subparts B, C, and I, revised November 1, 1995. In accordance with 20 NMAC 4.1, Subpart V, 264.31, revised November 1, 1995, the container storage areas (CSA) addressed in this permit modification request are designed and operated to minimize the possibility of fire, explosion, or unplanned releases of hazardous constituents to any environmental medium. The following subject areas are addressed in this section: security; preparedness and prevention requirements; preventive procedures, structures, and equipment; and precautions for ignitable, reactive, or incompatible wastes.

5.1 SECURITY [20 NMAC 4.1, Subpart IX, 270.14 (b)(4) and 270.14(b)(19)(viii); 20 NMAC 4.1, Subpart V, 264.14]

Security at Technical Area (TA) 50 is predominantly maintained with artificial barriers. These barriers prevent the unknowing entry and minimize the possibility for unauthorized entry of persons or livestock into the area and thus satisfy the requirements of 20 NMAC 4.1, Subpart V, 264.14(a) and 264.14(b)(2), revised November 1, 1995.

Eight-foot-high chain-link security fences with barbed wire at the top surround the entire perimeter of TA-50. Bilingual (i.e., English and Spanish) warning signs are posted on the fences at approximately 50- to 75-foot intervals. In accordance with the requirements of 20 NMAC 4.1, Subpart V, 264.14(c), revised November 1, 1995, warning signs will also be posted at the entrances to each area that will manage transuranic (TRU) mixed waste and will be visible from any approach to these areas. The legends on the posted signs (will) indicate "Danger—Hazardous Waste Storage Area" and "Unauthorized Persons Keep Out." The signs are and will be legible from a distance of 25 feet.

There are three entry gates to TA-50. A fire access and shipping gate is located west of TA-50-69 and is routinely closed and locked. When the gate is opened for shipments of material or waste, personnel are present in the yard west of TA-50-69 to limit egress by unauthorized persons. Two entry gates are located north of TA-50-1. These gates are closed and locked

during nonoperational hours. An additional entry gate is also located at TA-50-38 on Pecos Drive, northeast of the Radioactive Materials Research, Operations, and Demonstration (RAMROD) Facility at TA-50-37. This gate may be used to secure entrance to TA-50 from Pecos Drive. It is also closed and locked during nonoperational hours.

Access to the RAMROD Facility is gained via badge readers. Roll-up doors to the building are locked and can only be opened from inside the building; keys to these doors are distributed to designated personnel only. The building site is patrolled by Protection Technology Los Alamos security personnel during nonoperational hours to ensure that the entry gates are locked and that unauthorized entry has not occurred. The security fence is also inspected weekly by on-site personnel and repairs are made as necessary. In accordance with 20 NMAC 4.1, Subpart IX, 270.14(b)(19)(viii), revised November 1, 1995, the locations of the security fence and entry gates at TA-50 are shown on Figure 5-1.

5.2 PREPAREDNESS AND PREVENTION REQUIREMENTS [20 NMAC 4.1, Subpart V, Subpart C]

The following sections present how operations at the RAMROD Facility CSAs comply with the preparedness and prevention requirements of 20 NMAC 4.1, Subpart V, Part 264, Subpart C, revised November 1, 1995. Communication and alarm equipment available to any location at Los Alamos National Laboratory (LANL) is presented in Section 7.0 of the LANL General Part B. A summary list of the emergency equipment available for use at the CSAs addressed in this permit modification request is included in this document as Attachment 7-1.

5.2.1 Required Equipment [20 NMAC 4.1, Subpart V, 264.32]

The RAMROD Facility is equipped with an audible alarm system to alert personnel to evacuate the area. The alarm system may be activated by using fire alarm pull stations. The building also has a public address system for announcing fires or evacuations. Telephones with paging capabilities are located throughout the RAMROD Facility. Paging telephones are used to page on-site personnel and may be used in the event of an emergency to communicate the location and nature of hazardous conditions to personnel in the area. The alarm system is interrupted when the paging telephone system is activated to allow personnel to hear the announcement. Personnel working in Rooms 112, 114, 115, 117, and 118 can also use these phones to summon assistance from local emergency response teams in case of emergency.

Rooms 112, 114, and 118 have wet-pipe sprinkler systems that are equipped with fusible-link heads that actuate at 212 degrees Fahrenheit. The sprinkler flows are monitored to automatically initiate a fire alarm. Room 115 has two ultraviolet fire-detection sensors. Room 117 is protected by a dry-pipe open-sprinkler-head deluge fire-suppression system. The building is also equipped with fire extinguishers and pull stations. Depending on the size of a fire and the fuel source, fire extinguishers may be used by on-site personnel. However, LANL policy encourages immediate evacuation of the area and notification of appropriate emergency personnel. The fire alarm control panel continuously monitors all fire suppression and detection systems and transmits signals to the Los Alamos County Fire Department through LANL's central alarm system (see Section 7.0 of the LANL General Part B).

Fire hydrants installed according to National Fire Protection Association standards are located outside TA-50-37 near the northeast and southeast corners of the building. Water is supplied to the fire hydrants by a municipal water system through 8-inch pipes at an adequate volume and pressure (i.e., 200 gallons per minute and 90 pounds per square inch static pressure) to supply a water hose in the event of a fire.

Personnel decontamination equipment available includes safety showers and eyewashes in Rooms 112 and 115. The buddy system will always be employed when containers are actively managed to assure that an eyewash or safety shower can be reached in an emergency.

5.2.2 Testing and Maintenance of Equipment [20 NMAC 4.1, Subpart V, 264.33]

Communications and alarm systems and the fire protection and decontamination equipment described above will be tested and/or maintained according to the inspection schedule detailed in Section 6.2 of the LANL General Part B. The frequency of inspection will be adequate to assure proper operation in the event of an emergency. Repair and replacement of emergency equipment will be performed as required.

5.2.3 Access to Communications or Alarm System [20 NMAC 4.1, Subpart V, 264.34]

Whenever waste is being handled at any of the CSAs at the RAMROD Facility, all personnel involved will have immediate access to an internal alarm or emergency communication device, either directly or through visual or voice contact with another individual. In the event of an emergency, this communication equipment will allow personnel to contact the operating group

management, the Emergency Management and Response Office, and/or the Central Alarm Station operator (refer to Section 7.2.2 of the LANL General Part B). In addition to the communications and alarm systems described in Section 5.2.1, on-site personnel may carry pagers, two-way radios, and/or cellular telephones so that they can contact or be contacted by on-site and LANL emergency support personnel at all times.

5.2.4 Aisle Space Requirements [20 NMAC 4.1, Subpart V, 264.35]

Where applicable, aisle space between waste containers at the RAMROD Facility CSAs will be a minimum of 28 inches to provide access for inspection purposes and to allow the unobstructed movement of personnel and of fire protection and decontamination equipment in the event of an emergency. The specific waste storage method and configurations for the areas are described in Section 4.2.2 of this permit modification request.

5.2.5 Support Agreements with Outside Agencies [20 NMAC 4.1, Subpart V, 264.37]

Information on support agreements with outside agencies, as required by 20 NMAC 4.1, Subpart V, 264.37, revised November 1, 1995, is presented in Section 5.0 of the LANL General Part B.

5.3 PREVENTIVE PROCEDURES, STRUCTURES, AND EQUIPMENT [20 NMAC 4.1, Subpart IX, 270.14(b)(8)]

A description of the preventive procedures, structures, and equipment at the RAMROD Facility CSAs is presented below. This information is provided in accordance with the requirements of 20 NMAC 4.1, Subpart IX, 270.14(b)(8), revised November 1, 1995. Adherence to the procedures and proper use of the structures and equipment will help to prevent hazards and exposure to personnel and releases to the environment.

Flatbed trucks or trailers will be used to transport containers to the RAMROD Facility for storage and processing. The packaged wastes will be unloaded onto the loading dock, onto the ground, or into the egress bay. A lift truck equipped with a blunt-ended drum grappler will be used to unload drums from the delivery truck, one at time. The drum grapplers will be equipped with blocks to prevent drums from being damaged. Metal standard waste boxes (SWB) and other large containers will be handled with a forklift. Once the characterization activities have been completed, the waste containers will be repackaged, if necessary, and loaded from storage areas

onto trucks for shipment to other waste management facilities on site. Should a spill occur during waste handling activities, management of the spill and/or residual material will be performed in accordance with the contingency plan (see Section 7.0 of the LANL General Part B).

The method used to move drums during RAMROD Facility waste characterization operations will be selected based on the type of structure on which the drum is located. Drums on dollies will be moved manually. Drums located on elevation pallets or devices will be moved using pallet handlers or lift trucks equipped with drum grapplers. Drums containing liquids will only be set on dollies for placement at process equipment stations. The lift trucks will also be used to return drums from dollies to elevation pallets or devices. A forklift will be used to move SWBs and fiberglass-reinforced plywood boxes in Room 112. The 5-ton overhead crane located in Room 114 may be used instead of lift trucks for moving heavy or large containers within this room. The use of proper handling equipment, appropriate to a container's size and weight, helps to prevent hazards while moving containers within the CSAs. Damaged containers (e.g., severely corroded drums) will be repaired or overpacked or the wastes will be repackaged in new containers before being stored at any of the CSAs.

Runoff of TRU mixed waste from the CSAs to other areas of the facility or to the environment will be prevented. Engineered secondary containment is present in Rooms 115 and 117, and self-containment pallets or devices will be provided at each remaining CSA where potential liquid-bearing containers may be stored. All secondary containment systems will be sufficient to contain at least 10 percent of the volume of potential liquid-bearing containers or the volume of the largest container, whichever is greater, in accordance with the requirements of 20 NMAC 4.1, Subpart V, 264.175(b)(3), revised November 1, 1995. Liquids resulting from fire-suppression activities, leaks, or spills that may accumulate in the secondary containment systems, in the self-containment pallets or devices, or in the trenches and pits will be collected into appropriate containers using a high-efficiency particulate air vacuum, a pump, and/or sorbents, depending on the volume of accumulated liquid. Accumulated liquids will be removed as soon as possible.

Run-on to the CSAs will be prevented because all the CSAs at the RAMROD Facility are located inside the building. In addition, positive surface drainage will direct potential run-on away from the building. Pursuant to the requirements of 20 NMAC 4.1, Subpart IX, 270.14(b)(19)(xi),

revised November 1, 1995, Map 2 of the RAMROD Part A shows the contours and surface drainage around TA-50-37.

For several reasons, it is not anticipated that there will be any impact to groundwater or other water supplies as a result of waste-handling operations at the RAMROD Facility. The CSAs are located inside the building, any material spilled during waste management activities will be remediated in accordance with the appropriate contingency plan as part of normal operations, and potential liquid-bearing wastes will be stored in secondary containment systems or on self-containment pallets or devices. In addition, all water-supply lines are under pressure and are equipped with backflow prevention devices to prevent contamination of these lines during emergencies. The depth to the main aquifer at TA-50 is approximately 1,000 feet (Purtymun and Johansen, 1974). Geologic units underlying the area include layers of unsaturated volcanic tuff and ash, the moisture content of which is generally less than 10 percent (DBA, 1995). Because the moisture content is insufficient for direct moisture migration through the Bandelier Tuff, no impact to groundwater is expected as a result of a release.

To prevent undue exposure of personnel to TRU mixed waste, appropriate personal protective equipment (PPE) will be worn by personnel working at the RAMROD Facility CSAs. While working with waste containers, a minimum of coveralls and steel-toed shoes will be worn. A Radiological Control Technician will provide guidance on additional PPE to be worn while working with mixed waste containers. Hard hats will be worn while heavy equipment is being operated.

Releases to the atmosphere are not anticipated at the RAMROD Facility CSAs because containers will be kept closed during storage. The only exceptions to this practice are when, upon inspection, it is determined that containers currently in storage need to be overpacked or repackaged in new containers, and when containers of waste are opened for characterization activities. Daily inspections will be conducted to ensure the integrity of stored containers. Continuous air monitors (CAM) will be located in the CSAs as appropriate for the hazards. In the event of an unexpected release, personnel located in the area would be notified to evacuate immediately.

Electrical power is supplied to TA-50-37 by a 13.4 kilovolt overhead distribution line through an underground conduit to an on-site substation that provides distribution to the facility. Supplied power is used to operate CAMs and other electrical equipment in the building. In the event of a power failure, operations in the building would cease and personnel would exit the facility. Operations in CSAs would be discontinued temporarily if electrical power was not restored quickly or if container handling equipment failed. However, neither a power failure nor an equipment failure would affect containment at any of these CSAs.

5.4 PREVENTION OF ACCIDENTAL IGNITION OR REACTION OF IGNITABLE, REACTIVE, OR INCOMPATIBLE WASTE [20 NMAC 4.1, Subpart IX, 270.14(b)(9), 270.15(c) and (d); 20 NMAC 4.1, Subpart V, 264.17, 264.176, and 264.177]

This section provides a description of the precautions used to prevent accidental ignition or reaction of ignitable, reactive, or incompatible waste at the RAMROD Facility CSAs.

If containerized ignitable and/or reactive wastes (e.g., discarded materials contaminated with ignitable spent solvents, reactive metal debris) are stored at any of the CSAs, the containers will be located at least 50 feet from the facility's property line at all times (refer to Map 2 of the RAMROD Part A) and will be protected from sources of ignition or reaction. Policies and features are in place at the RAMROD Facility that minimize the possibility of accidental ignition. Most mechanical equipment operated within the areas is grounded to minimize the potential for sparking by dissipating static charges. In addition, conduit boxes and other utilities in Room 117 are explosion proof. Smoking is not allowed within any of the CSAs. "No Smoking" signs are conspicuously placed wherever there is a potential hazard from ignitable or reactive waste, as required by 20 NMAC 4.1, Subpart V, 264.17(a), revised November 1, 1995. Together, these measures meet the requirements of 20 NMAC 4.1, Subpart V, 264.17(a) and (b) and 264.176, revised November 1, 1995.

Incompatible wastes, if any, will be kept segregated during storage, as described in Section 4.2.4. In addition, no incompatible wastes will be mixed, and no waste will be placed in a container that previously held an incompatible waste, as required by 20 NMAC 4.1, Subpart V, 264.177(a) and (b), and 20 NMAC 4.1, Subpart IX, 270.15(d), revised November 1, 1995. Incompatible liquid-bearing solid wastes (e.g., dewatered sludges) will be stored on self-containment pallets or devices or, in the Room 117 CSA, will be segregated by storage over

separate secondary containment areas to meet the requirements of 20 NMAC 4.1, Subpart V, 264.177(c), revised November 1, 1995. Only containers made of or lined with materials that will not react with and are otherwise compatible with the waste to be stored will be used for storage at the CSAs addressed in this permit modification request.

5.5 ORGANIC AIR EMISSION STANDARDS

Hazardous wastes treated, stored, or disposed of in tanks, surface impoundments, or containers are subject to the Code of Federal Regulations, Title 40 (40 CFR), Part 264, Subpart CC, standards for volatile organic emissions after October 6, 1996. Subpart CC standards for containers, as currently set forth by the U.S. Environmental Protection Agency (59 *Federal Register* 62896), require that containers be covered so that there are no detectable emissions.

The CSAs addressed in this permit modification request will be used to store TRU mixed wastes. Mixed wastes are currently exempt from the organic air emission standards. Therefore, the 40 CFR, Part 264, Subpart CC, standards are not applicable to the CSAs included in this permit modification request.

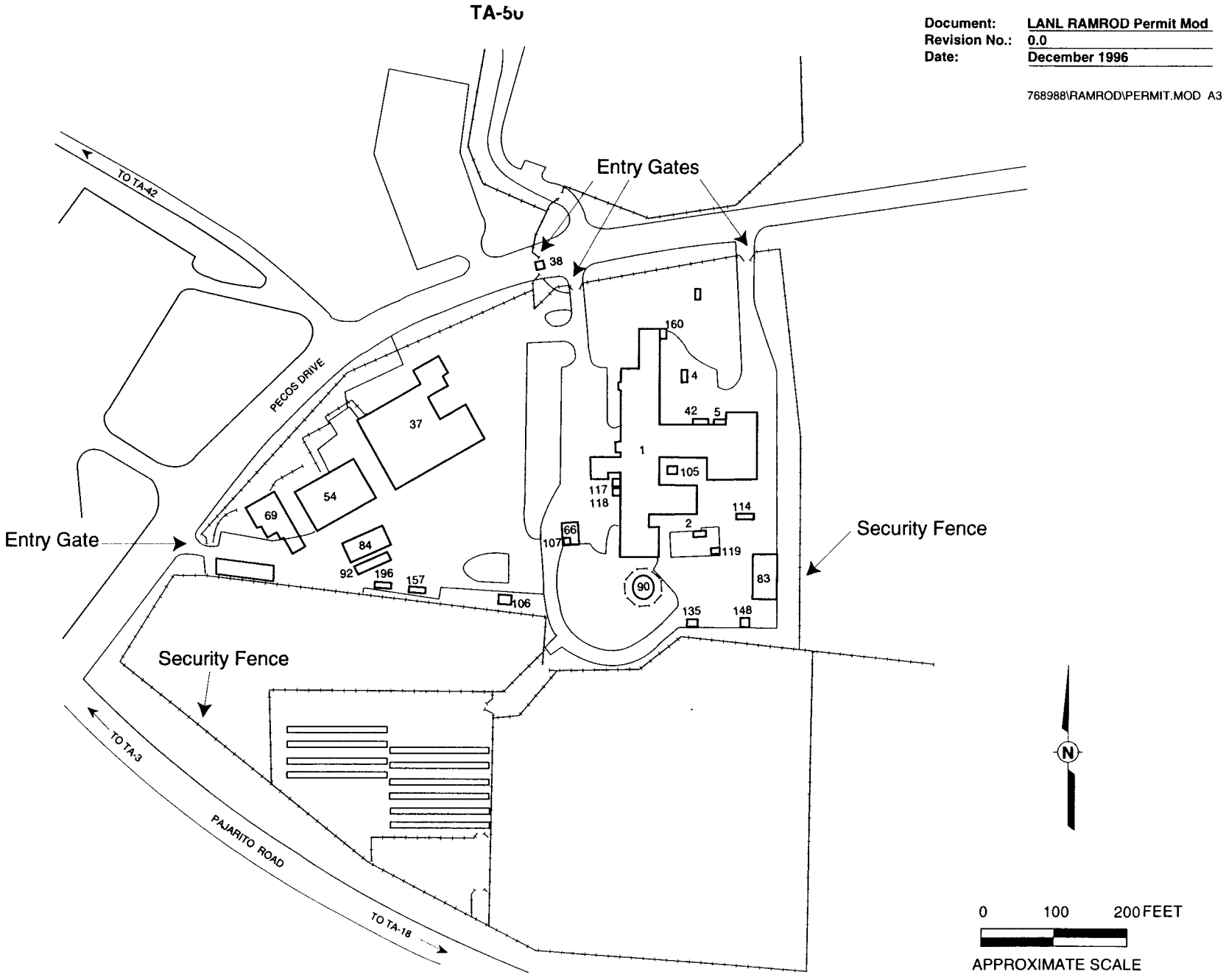


Figure 5-1
Location Map Showing Security Fences and Entry Gates at Technical Area (TA) 50

6.0 INSPECTION PLAN

General inspection schedules and requirements applicable to the transuranic (TRU) mixed waste container storage areas (CSA) at the Radioactive Materials Research, Operations, and Demonstration Facility at Technical Area 50, Building 37, are addressed in Section 6.0 of the Los Alamos National Laboratory General Part B.

6.1 INSPECTION AND MONITORING FOR UNITS SUBJECT TO SUBPART CC REQUIREMENTS [20 NMAC 4.1, Subpart V, Part 264, Subpart CC, 264.1088]

Hazardous wastes treated, stored, or disposed of in tanks, surface impoundments, or containers are subject to the Code of Federal Regulations, Title 40 (40 CFR), Part 264, Subpart CC, standards for volatile organic emissions after October 6, 1996. Subpart CC standards for containers, as currently set forth by the U.S. Environmental Protection Agency (59 *Federal Register* 62896), require that containers be covered so that there are no detectable emissions.

The CSAs addressed in this permit modification request will be used to store TRU mixed wastes. Mixed wastes are currently exempt from the organic air emission standards. Therefore, the 40 CFR, Part 264, Subpart CC, standards are not applicable to the CSAs included in this permit modification request.

7.0 CONTINGENCY PLAN

In the event of an emergency at the container storage areas at the Radioactive Materials Research, Operations, and Demonstration (RAMROD) Facility at Technical Area 50, Building 37 (TA-50-37), the Los Alamos National Laboratory (LANL)-wide contingency plan presented in Section 7.0 of the LANL General Part B will be implemented. Evacuation routes and the muster area at TA-50-37 are shown on Figure 7-1 in this section. In addition, a listing of emergency equipment available for use at the RAMROD Facility is included in this section as Attachment 7-1.

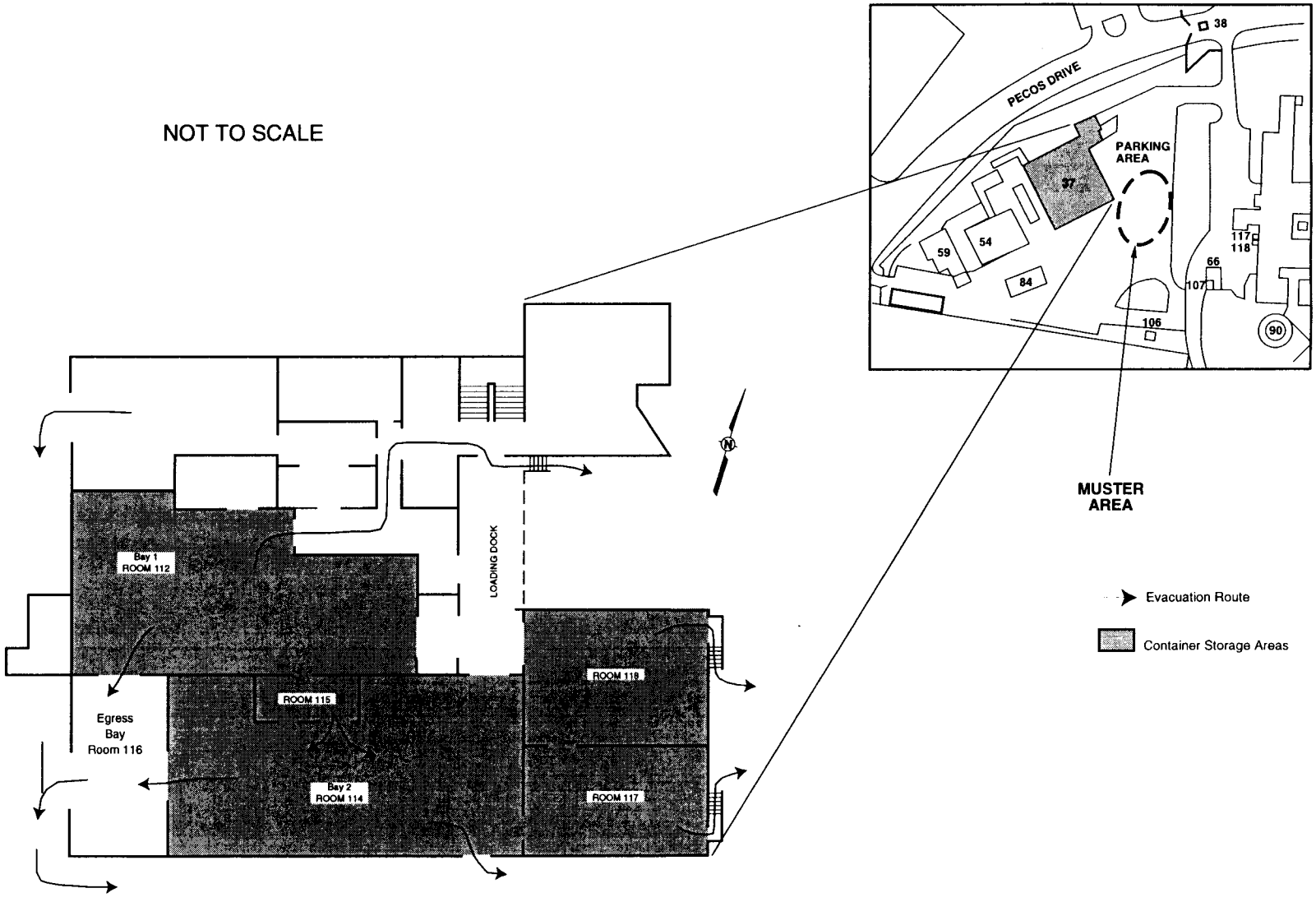


Figure 7-1
Evacuation Routes and Muster Area at Technical Area 50, Building 37

ATTACHMENT 7-1

Emergency Equipment

Attachment 7-1

Emergency Equipment

Emergency equipment available at the Radioactive Materials Research, Operations, and Demonstration (RAMROD) Facility at Technical Area 50, Building 37 (TA-50-37):

FIRE CONTROL EQUIPMENT:

TA-50-37 is fully equipped with fire extinguishers that are placed and maintained in accordance with National Fire Protection Association (NFPA) standards (NFPA 10).

Locations:
Three wall-mounted fire extinguishers are located in Room 112. Two fire extinguishers are located in Room 114.

Description of General Capabilities:
The fire extinguishers may be used by any employee in the event of a small fire.

Fire hydrants are located near the northeast and southeast corners of TA-50-37.

Description of General Capabilities:
The fire hydrants will supply water at adequate volume and pressure to satisfy the requirements of the New Mexico Administrative Code, Title 20, Chapter 4, Part 1, Part V, 264.32, revised November 1, 1995.

There are several fire alarm pull stations located throughout TA-50-37. Two pull stations are located in Room 112. Three pull stations are located in Room 114, one of which is located outside the exit door of Room 115.

TA-50-37 has an automatic fire-suppression system. Rooms 112, 114, and 118 are equipped with a wet-pipe sprinkler system. Room 115 is equipped with two ultraviolet fire-detection sensors. Room 117 is protected by a dry-pipe open-sprinkler-head deluge fire-suppression system.

Description of General Capabilities:
The fire alarm control panel continuously monitors all fire suppression and detection systems and transmits signals to the Los Alamos County Fire Department.

Attachment 7-1

Emergency Equipment (Continued)

Emergency equipment available at the RAMROD Facility at TA-50-37 (Continued):

COMMUNICATION EQUIPMENT:

Telephones (Centrex and private lines) are located in most areas of TA-50-37, including Rooms 112 and 114. Fire and evacuation alarm communicators are located in Rooms 112, 114, 117, and 118.

Description of General Capabilities:
Telephones are used for internal and external communication and have paging capabilities. The fire and evacuation alarms are used to alert personnel in the area.

DECONTAMINATION EQUIPMENT:

Two eyewashes and two safety showers are located in Room 112. One eyewash and one safety shower are located in Room 115. Personnel working in Rooms 114, 117, and 118 have access to the eyewashes and safety showers in Rooms 112 and 115.

Description of General Capabilities:
An eyewash station or safety shower may be used by personnel who receive a chemical splash to the skin or eyes.

PERSONAL PROTECTIVE EQUIPMENT (PPE):

Booties, lab coats, and safety glasses are minimum PPE requirements when waste is present or if designated by the Health Physics Operations Group.

OTHER:

See Attachment 7-1 of the Los Alamos National Laboratory General Part B for equipment available in the Hazardous Materials Response Group vehicles and trailers.

8.0 PERSONNEL TRAINING PLAN

Personnel working at the container storage areas at the Radioactive Materials Research, Operations, and Demonstration Facility at Technical Area 50, Building 37, will be trained appropriately, as discussed in Section 8.0 of the Los Alamos National Laboratory General Part B.

9.0 CLOSURE PLAN

This section describes the activities necessary to close the transuranic (TRU) mixed waste container storage areas (CSA) at the Radioactive Materials Research, Operations, and Demonstration (RAMROD) Facility at Technical Area (TA) 50, Building 37 (TA-50-37). The activities detailed in this section are included to address the closure requirements specified in the New Mexico Administrative Code, Title 20, Chapter 4, Part 1 (20 NMAC 4.1), Subpart IX, 270.14(b)(13), and 20 NMAC 4.1, Subpart V, Part 264, Subpart G, revised November 1, 1995. This closure plan addresses closure procedures specific to the CSAs. Closure will be conducted in accordance with the schedule presented in Table 9-1. One or more CSAs may be closed at any given time.

General closure information applicable to all hazardous and mixed waste management units at Los Alamos National Laboratory (LANL) and general sampling and analytical procedures to be used during closure activities are presented in Section 9.0 of the LANL General Part B.

9.1 CLOSURE PROCEDURES FOR THE TA-50-37, ROOMS 112, 114, 115, 117, AND 118 CSAs [20 NMAC 4.1, Subpart V, 264.112]

The TA-50-37, Rooms 112, 114, 115, 117, and 118 TRU mixed waste CSAs are located on the first floor of the RAMROD Facility. These CSAs will be used to store drums, containers of various sizes, standard waste boxes, steel B25 boxes, and fiberglass-reinforced plywood boxes before, during, and after waste characterization activities. Figure 9-1 shows the location of TA-50 at LANL, and the locations of the mixed waste CSAs are shown on Figure 9-2. More detailed information on these CSAs is provided in Section 4.1 of this permit modification request.

9.1.1 Estimate of Maximum Waste in Storage

The maximum inventory of TRU mixed waste in storage at any time at the TA-50-37, Rooms 112, 114, 115, 117, and 118 CSAs addressed in this permit modification request is estimated at 26,380 gallons. A breakdown of the maximum inventories for each of the CSAs is as follows:

- Room 112 - 2,330 gallons
- Room 114 - 2,200 gallons
- Room 115 - 220 gallons

- Room 117 - 3,630 gallons
- Room 118 - 18,000 gallons

9.1.2 Description of Waste

TRU mixed waste to be stored in the TA-50-37, Rooms 112, 114, 115, 117, and 118 CSAs is generated during research activities, processing and recovery operations, and decontamination and decommissioning operations primarily at TA-3, TA-21, TA-50, and TA-55. The wastes are classified as mixed wastes because Resource Conservation and Recovery Act-characteristic and/or -listed wastes are or may be present in the waste, along with a radioactive component.

9.1.3 Removal of Waste

Wastes will be removed from the CSA scheduled to be closed prior to the initiation of closure activities. Containers will be removed from each storage area primarily with forklifts or pallet handlers. Small containers may be handled manually or with dollies. Containers will be placed onto flatbed trucks or trailers for transport. Appropriate shipping papers will accompany the wastes during transport. Remaining containers of TRU mixed waste will be moved to an approved on-site facility or permitted off-site treatment and/or disposal facility.

9.1.4 Closure Procedures and Decontamination

To the extent possible, contaminated structures and equipment at the CSAs addressed in this closure plan will be decontaminated. Structures, equipment, and media that cannot be decontaminated will be containerized and managed in compliance with appropriate regulations. Sampling conducted during closure and decontamination activities will be done in accordance with quality assurance/quality control (QA/QC) procedures (see Section 9.1.8 of the LANL General Part B).

Before proceeding with any closure activities, the CSAs will be surveyed for radiological contamination. Personal protective equipment (PPE) and monitoring requirements will be determined by LANL's Health Physics Operations (ESH-1) and Industrial Hygiene and Safety (ESH-5) groups following a field inspection. Radiation and chemical monitoring will occur throughout closure activities. If any contamination is found, the contaminated materials, equipment, or structures will be decontaminated (if possible) or containerized and taken to an approved storage location at LANL appropriate for the waste type.

Personnel involved in closure activities will wear appropriate PPE, specified by ESH-1 and ESH-5, and will follow good hygiene practices to protect employees from exposure to mixed waste. The level of PPE that will be required will depend upon the levels of radiological and/or chemical contamination that are detected, if any. If ESH-1 and ESH-5 surveys do not indicate detectable contamination levels, minimum PPE requirements will consist of coveralls, steel-toed boots, rubber gloves, and safety glasses or face shields. If an overhead danger is present, a hard hat will be worn. All workers involved in closure activities will be required to have training and medical monitoring. Contaminated PPE will either be decontaminated or managed in compliance with appropriate regulations.

Before decontamination activities begin, samples of clean water and detergent (wash water) squeezed from mops and/or sponges prior to use will be collected for analysis of the parameters listed in Table 9-2. The analytical results from these samples will be used to provide a baseline for decontamination verification.

Prior to decontamination of the main surfaces of the CSA, any portable equipment to be removed from the area will be wiped down with wash water. This may include equipment such as self-containment pallets or devices, wooden pallets, and miscellaneous equipment. Portable berms will be used, when necessary, to provide containment for the used wash water. After the washdown process, the used wash water will be collected, transferred to containers, sampled, and analyzed for the parameters in Table 9-2, as appropriate. If the used wash water is nonhazardous and nonradioactive, it will be managed appropriately in accordance with LANL policy. Otherwise the used wash water will be managed at an appropriate on-site facility. If sampling and analysis indicate that radioactive and/or hazardous constituents are present, the wash cycles and analyses will continue until the equipment has been decontaminated or the decision is made to manage it appropriately as contaminated waste.

Each container storage area will be inspected for any cracks or conditions that would potentially lead to loss of decontamination liquid containment in the storage area. If any defects, deterioration, damage, or hazards affecting the containment system are discovered during inspection, appropriate remedial actions (including repairs, maintenance, or replacement) will be completed prior to further decontamination activities. The walls, floors, and remaining equipment (e.g., floor grates) of a CSA will then be wiped down with wash water. Portable berms will be

used to collect and provide containment for the used wash water, as necessary. The used wash water will be collected, sampled, and analyzed for the parameters in Table 9-2, as appropriate. If the used wash water is nonhazardous and nonradioactive, it will be managed appropriately in accordance with LANL policy. Otherwise, the used wash water will be managed at an appropriate on-site facility, depending on the regulated constituents present. If sampling and analysis indicate that hazardous and/or radioactive constituents are present, the wash cycles and analyses will continue until the area has been decontaminated or the decision is made to segregate contaminated portions of the storage area for subsequent management as contaminated waste. Decontamination verification is discussed further in Section 9.1.6.

After the walls and floors of a CSA have been decontaminated, recessed areas (e.g., sumps, pits, trenches, recessed floor) of the CSA (if present) will be wiped down with wash water. The used wash water will collect in the recessed areas, where it will be sampled and analyzed for the parameters in Table 9-2, as appropriate. After sampling, the used wash water will be removed from the recessed area, transferred to appropriate containers, and stored pending analysis. The wash cycles and analyses will continue until the recessed areas have been decontaminated or the decision is made to segregate contaminated portions of the recessed areas for subsequent management as contaminated waste. Used wash water will be managed in the same manner as wall and floor used wash water.

Under normal circumstances, the following soil sampling activities will not be applicable because the CSAs are located inside a building with an impervious floor. However, if soil sampling is deemed necessary based on analytical evidence and the operational history of the unit, sampling of the area will be performed to verify that no hazardous constituents remain upon closure as a result of container storage activities. A grid will be sited over the area to be sampled, boreholes drilled through the floor material, and soil samples taken and analyzed to determine horizontal and vertical extent of contamination.

As discussed in Section 4.1.1, exhaust components from the Controlled Air Incinerator will be considered for use in connection with the RAMROD Facility waste characterization glovebox or facility ventilation units. If not suitable for use in the RAMROD Facility, they may also be considered for use in other LANL projects or be disposed of appropriately. This equipment consists of the existing stack, plenum, and associated ducts and fans. If this equipment is

removed from the RAMROD Facility prior to final closure of the CSAs addressed in this closure plan, the equipment will be dismantled and decontaminated pursuant to 20 NMAC 4.1, Subpart V, Part 264, Subpart G, 264.112(e), revised March 1, 1997. Successful decontamination for each equipment component will be defined as detectable hazardous constituents in the final rinsate sample equal to or less than the risk-based concentrations presented in the latest version of the U.S. Environmental Protection Agency (EPA) Region III Risk-Based Concentration Table or other concentration levels agreed upon with the New Mexico Environment Department (NMED). Documentation of the decontamination procedure, verification results, and ultimate location for disposition of this equipment will be maintained in the facility operating record.

9.1.5 Decontamination Equipment

Prior to use, decontamination equipment will be rinsed with distilled water. Decontamination equipment rinsate blanks will be collected and analyzed in accordance with QA/QC procedures (see Section 9.1.8 of the LANL General Part B). Reusable protective clothing, tools, and equipment used during closure activities will be cleaned with wash water and scraped as

necessary to remove any residue. Residue, disposable equipment, and reusable equipment that cannot be decontaminated will be containerized and managed appropriately at an approved on-site facility, depending on the regulated constituents present. Used wash water will be collected and analyzed for the parameters listed in Table 9-2, as appropriate. If the used wash water is nonhazardous and nonradioactive, the water will be managed appropriately in accordance with LANL policy. Otherwise, it will be managed at an appropriate on-site facility, depending on the regulated constituents present.

9.1.6 Decontamination Verification

Sufficient sampling and analysis will be required to demonstrate that hazardous waste residue is not present at the site after closure. Two samples of clean wash water squeezed from mops and/or sponges prior to use will be collected before initial washdown of the CSAs. The samples will be analyzed for parameters listed in Table 9-2 to provide baseline data for decontamination verification. Analytical procedures will conform to methods found in the most current version of "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" (SW-846) (EPA, 1986). Used wash water will also be analyzed for the parameters listed in Table 9-2, as appropriate, and will be considered contaminated if it shows a significant increase (i.e., determined using statistical methods defined in SW-846) in the analytical parameters over the clean wash water. If subsequent washdowns are deemed necessary, an additional sample of clean wash water squeezed from mops and/or sponges prior to use will be taken for each additional washdown event.

Existing background soil data for TA-50-37 may also be used to demonstrate that hazardous waste residue resulting from container storage activities is not present at the site after closure. A comparison of closure sampling data to existing background soil data will be used to establish the source of any hazardous waste or hazardous constituents present in the soil. If the data comparison indicates that contamination is from container storage activities, additional contaminated-soil excavations will be performed until at least one of the decontamination criteria has been met successfully.

Successful decontamination meets one of the following criteria:

- No detectable hazardous waste or hazardous constituents from container storage activities are found in the final sample.
- Detectable hazardous waste or hazardous constituents from container storage activities in the final sample are removed to statistically significant levels based on baseline concentrations in the clean wash water or established background soil data.
- Detectable hazardous waste or hazardous constituents from container storage activities in the final sample are at or below levels agreed upon with the New Mexico Environment Department (NMED).
- Detectable hazardous waste or hazardous constituent concentrations from container storage activities do not significantly decrease after several washdowns. In such an event, hazardous constituents that pose an acceptable risk will be allowed to remain, as mutually agreed upon with NMED.

Table 9-1

Closure Schedule for the Container Storage Areas

Activity	Maximum Time Required[a]
Let contract request for proposals	-90 Days
Notify the New Mexico Environment Department (NMED)	-45 Days
Receive proposals	-30 Days
Select contractor and award contract	-10 Days
Collect background samples (if appropriate)	-5 Days
Final receipt of waste	Day 0
Begin closure activities (perform washdown of structures and/or equipment)	Day 10
Perform initial sampling of the waste management unit	Day 15
Analyze samples	Day 45
Perform additional washdown (if necessary)	Day 50
Perform additional sampling (if necessary)	Day 60
Analyze samples (if necessary)	Day 90
Perform final cleanup (e.g., removal of decontaminated equipment and decontamination wastes)	Day 120
Verify decontamination	Day 150
Submit final report to NMED	Day 180

[a] The schedule above indicates calendar days from the beginning by which activities will be completed. Some activities may be conducted simultaneously and/or may not require the maximum time listed. Extensions to this schedule may be requested, as needed.

Table 9-2

Analytical Parameters and Test Methods[a] for Container Storage Areas

Parameter	Test Method	Reference[b]
Ignitability	Pensky-Martens closed-cup method	(L, S) SW1010 (L, S) ASTM D93-80
Reactivity	Test method to determine hydrogen cyanide (HCN) released from waste	(L, S) HCN Test Method SW, Section 7.3
	Test method to determine hydrogen sulfide (H_2S) released from waste	(L, S) H_2S Test Method, SW, Section 7.3
Corrosivity	Electrometric (pH of aqueous solution)	(L) SW9040B
Toxicity characteristic	Toxicity characteristic leaching procedure (TCLP) extraction	(S) SW1311
Metals	Graphite furnace atomic absorption (AA) spectroscopy, gaseous hydride AA, or direct aspiration AA	
Arsenic		(L,S) SW7060A, SW7061A
Barium		(L,S) SW7080A, SW7081
Cadmium		(L,S) SW7130, SW7131A
Chromium		(L,S) SW7190, SW7191
Lead		(L,S) SW7420, SW7421
Selenium		(L,S) SW7740, SW7741A
Silver		(L,S) SW7760A, SW7761
Mercury	Manual cold-vapor technique	(L) SW7470A, (S) SW7471A
Volatile organics	Gas chromatography/mass spectrometry (GC/MS)	(L,S) SW8240B
	GC/MS capillary column technique	(L,S) SW8260A
Semivolatile organics	GC/MS	(L,S) SW8250A
	GC/MS capillary column technique	(L,S) SW8270B
Organochlorine pesticides	TCLP extraction and GC	(L,S) SW8080A

Refer to footnotes at end of table.

Table 9-2 (Continued)

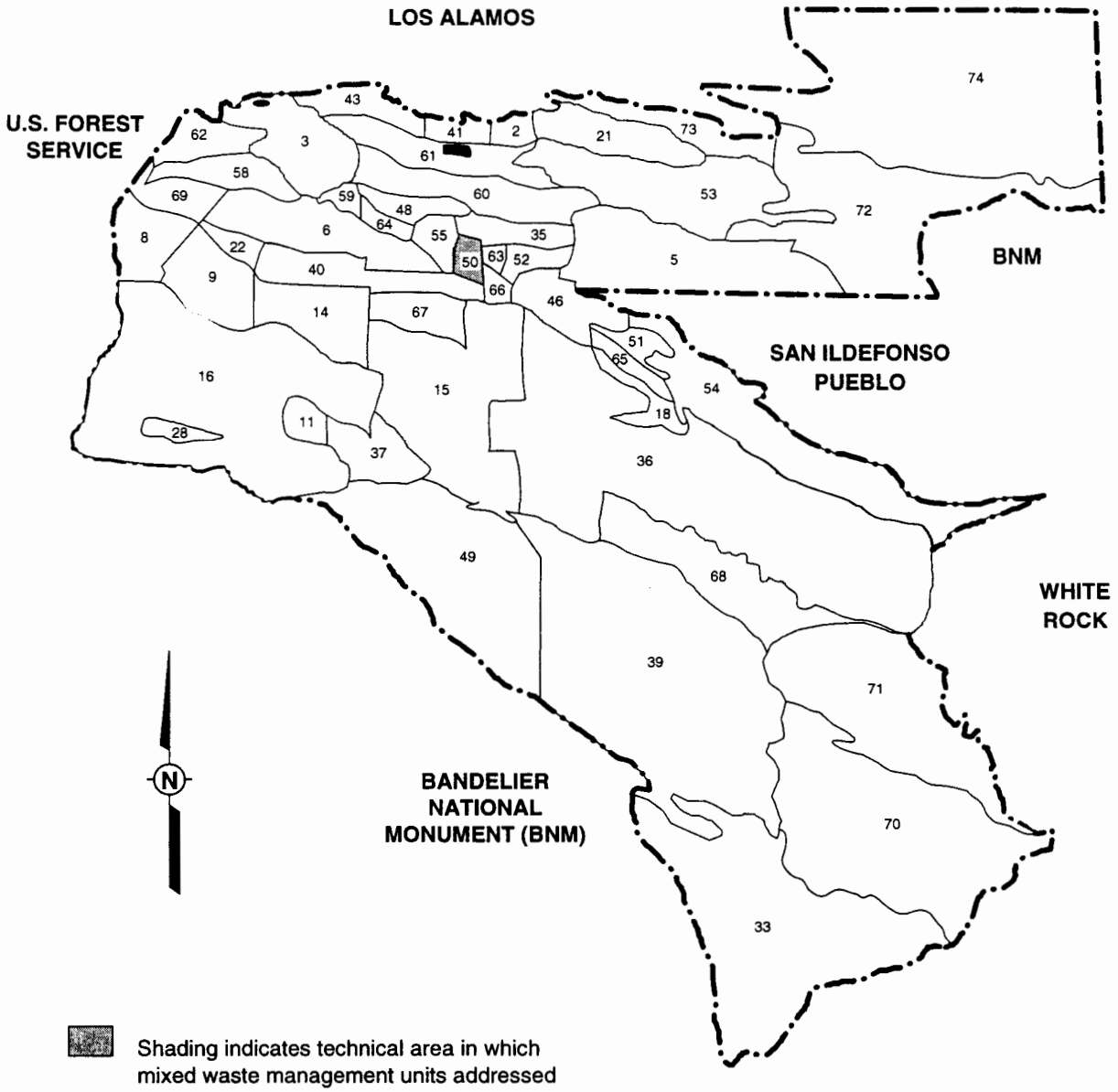
Analytical Parameters and Test Methods[a] for Container Storage Areas

Parameter	Test Method	Reference[b]
Chlorinated herbicides		(L,S) SW8150B
Total metals[c]	Acid digestion	(L) SW3010A, (S) SW3050A
	Inductively coupled plasma emission spectroscopy	(L,S) SW6010A
Arsenic		(L,S) SW6010A
Barium		(L,S) SW6010A
Beryllium		(L,S) SW6010A
Cadmium		(L,S) SW6010A
Chromium		(L,S) SW6010A
Lead		(L,S) SW6010A
Nickel		(L,S) SW6010A
Selenium		(L,S) SW6010A
Silver		(L,S) SW6010A
Thallium		(L,S) SW6010A
Zinc		(L,S) SW6010A
Mercury	Manual cold-vapor technique	(L) SW7470A, (S) SW7471A
Free liquids	Paint Filter Liquids Test	(S) SW9095

[a] At Los Alamos National Laboratory, current analytical capabilities include limited analyses of mixed waste samples. These analyses include, but are not limited to, gross alpha, beta, and gamma screening.

[b] "ASTM" refers to American Society for Testing and Materials standards.
"SW" refers to U.S. Environmental Protection Agency, 1986, "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," *SW-846*, Third Edition and all subsequent updates, Office of Solid Waste and Emergency Response, U.S. Government Printing Office, Washington, D.C.
(L) refers to liquid waste.
(S) refers to solid waste.

[c] See also atomic absorption methods.



Shading indicates technical area in which mixed waste management units addressed in this closure plan are located.

Not Los Alamos National Laboratory property.

4800 0 4800
Scale in Feet

Note: Technical Area 57, the Fenton Hill Geothermal Site, is not shown on this figure.

Modified from Los Alamos National Laboratory, 1994, "Environmental Surveillance at Los Alamos During 1992," LA-12764-ENV, Los Alamos National Laboratory, Los Alamos, New Mexico.

Figure 9-1

Technical Area Where Mixed Waste Container Storage Areas Addressed in the Closure Plan Are Located

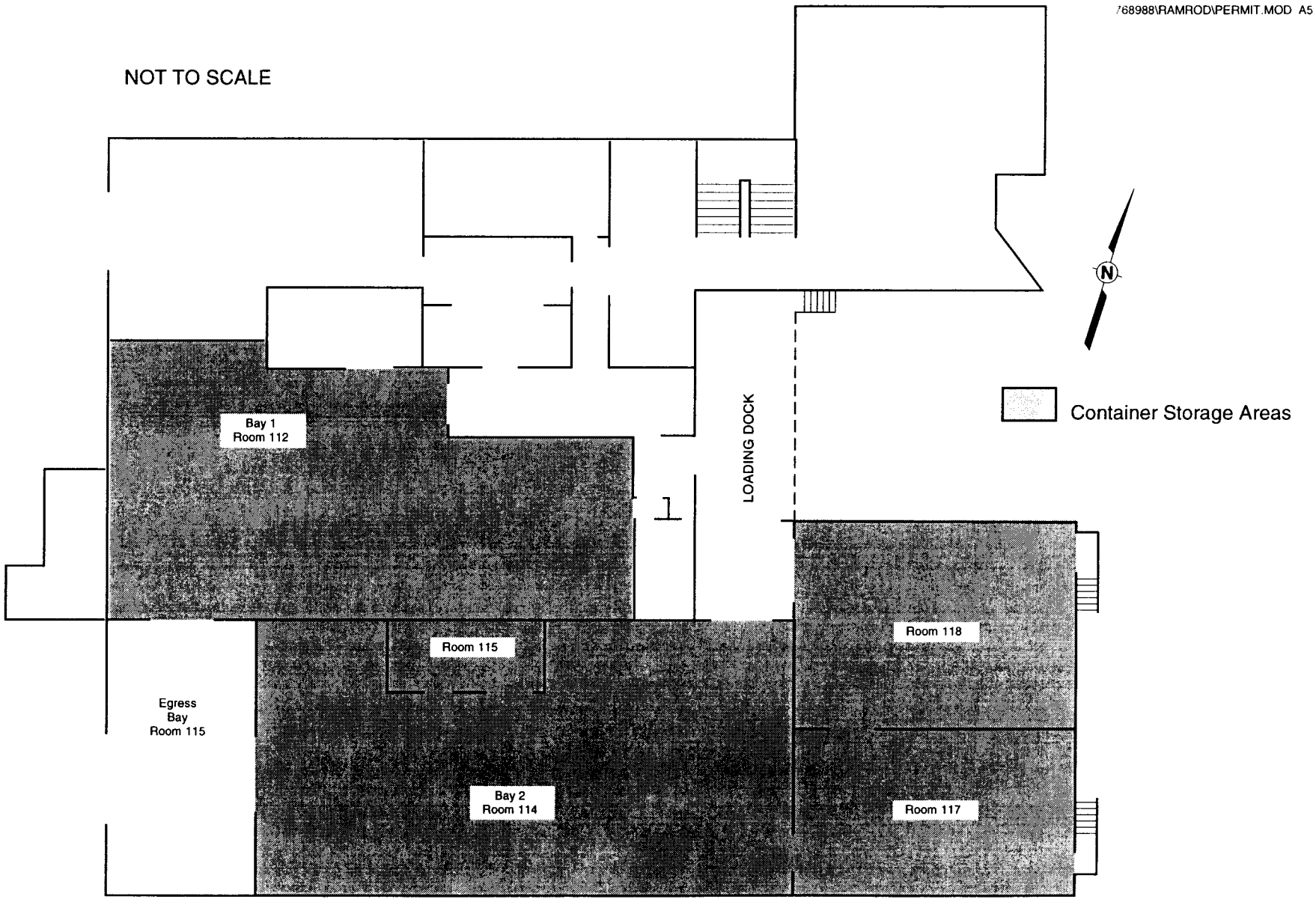


Figure 9-2
Mixed Waste Container Storage Areas at Technical Area 50, Building 37

10.0 CORRECTIVE ACTION FOR SOLID WASTE MANAGEMENT UNITS

This section describes the solid waste management units (SWMU) that have been identified in Technical Area (TA) 50 at Los Alamos National Laboratory (LANL). The information in this section is being submitted in response to regulatory requirements in the New Mexico Administrative Code, Title 20, Chapter 4, Part 1 (20 NMAC 4.1), Subpart IX, 270.14(d), revised November 1, 1995.

LANL uses the definition of a SWMU presented in "Module VIII: Special Conditions Pursuant to the 1984 Hazardous and Solid Waste Amendments to RCRA for Los Alamos National Laboratory, EPA I.D. NM0890010515" (EPA, 1990; EPA, 1994b), referred to as Module VIII. This definition states that SWMUs are "any discernible unit at which solid wastes have been placed at any time, irrespective of whether the unit was intended for the management of solid or hazardous waste. Such units include any area at or around a facility at which solid wastes have been routinely and systematically released."

10.1 SWMU DESCRIPTIONS

Several types of SWMUs are present in TA-50. These SWMUs include: those identified for corrective actions in Module VIII, as modified following a Class III permit modification effective May 19, 1994; SWMUs that are active Resource Conservation and Recovery Act (RCRA) units; and SWMUs identified in Revision 1.0 of LANL's "Solid Waste Management Units Report," hereafter referred to as the 1990 SWMU Report (LANL, 1990). The SWMUs in TA-50 are described below. These descriptions were compiled from the "RFI Work Plan for Operable Unit 1147" (LANL, 1992) and from the 1990 SWMU Report. Brief unit and waste descriptions are also provided in Table 10-1. Figure 10-1 shows the locations of the SWMUs at TA-50.

Radioactive Liquid Waste Treatment Facility

The Radioactive Liquid Waste Treatment Facility (RLWTF), located in Building 1 at TA-50 (TA-50-1), is used to treat radioactive liquid wastes received from other TAs. The 37,000-square-foot facility houses several treatment components that primarily remove transuranics (TRU) from liquid wastes through processes of neutralization, flocculation/clarification, pH control, ion exchange, and filtration. The RLWTF is identified as SWMU No. 50-001(a) in Module VIII.

Waste lines and manholes comprise a system through which liquid waste is transferred to the RLWTF from many of the active TAs at LANL. This transfer system, identified as SWMU No. 50-001(b), is continuously monitored by a drip-tray and conductivity-probe leak-monitoring system.

Tanks and Waste Lines

SWMUs at TA-50 include various tanks and waste lines. SWMU No. 50-002(a), identified in Module VIII, is a tank farm (TA-50-2) that includes six flow-through process tanks, the largest of which has a 75,000-gallon capacity. The tank farm is comprised of six underground tanks that manage wastes associated with the RLWTF. Two of the tanks receive incoming waste, two store treated liquid waste, one tank collects sludge, and one tank stores waste generated during decontamination and decommissioning activities.

Two additional tanks (TA-50-67 and TA-50-68) are encased in an underground vault (TA-50-66) located approximately 30 feet west of the southwest corner of TA-50-1. Radioactive caustic liquid waste and radioactive acidic liquid waste received from the Plutonium Facility at TA-55 are managed in tanks TA-50-67 and TA-50-68, respectively. These tanks are listed as SWMU Nos. 50-002(b) and 50-002(c) in Module VIII.

An aboveground storage tank, TA-50-5, is located adjacent to the north wall of Room 60D in TA-50-1. This 4,000-gallon tank was used to store nitric acid, which was intended to recharge an ion-exchange column. The tank, SWMU No. 50-002(d), stored nitric acid product only; it has not been used to store waste.

In addition to the active tanks and associated waste transfer lines, several other decommissioned tanks and lines are identified in Module VIII as SWMUs at TA-50. SWMU No. 50-004(a), comprised of a 520-foot section of 6-inch-diameter vitrified clay pipe, transported industrial waste to TA-50. This waste line was removed in 1975 due to radioactive contamination. A concrete vault and three stainless-steel-lined concrete storage tanks (formerly TA-50-3) comprise SWMU No. 50-004(b). The tanks, ranging in volume from 1,000 to 4,500 gallons, managed waste from the Omega Reactor. The tanks and vault were removed in 1989. SWMU No. 50-004(c) is comprised of 16 waste lines and associated manholes at various locations within TA-50 that

were removed between 1981 and 1989. These waste lines were used to transport radioactive industrial wastes.

The Batch Waste Treatment Unit (BWTU) was located in the basement of TA-50-1. The BWTU (SWMU No. 50-005) consisted of a 500-gallon pressure vessel, a filtering system, a condenser, vacuum transfer lines, a transfer pump, and associated transfer lines. The unit was RCRA-permitted for hazardous waste treatment; it has undergone RCRA closure.

Container Storage Areas

SWMU No. 50-003(a) is a mixed waste container storage area (CSA) located in TA-50-1-59. This active mixed waste CSA is used primarily to store containers of cemented sludge that at one time were suspected of containing hazardous constituents. This sludge results from waste treatment operations in Room 60A. A CSA located in TA-50-114 is identified as SWMU No. 50-003(d). This active CSA is permitted for hazardous waste storage and operates under 20 NMAC 4.1, Subpart VI, revised November 1, 1995, standards for mixed waste container storage.

A hazardous waste CSA located in TA-50-37-117 is associated with the incinerator complex, which is identified as SWMU No. 50-007. This CSA is permitted for hazardous waste storage. Mixed waste containers may also be stored in Room 117. In addition, mixed waste CSAs in Rooms 115 and 118 of TA-50-37 are included as part of SWMU No. 50-007. The three active mixed waste CSAs operate under 20 NMAC 4.1, Subpart VI, standards. The CSAs in Rooms 115, 117, and 118 are three of the units for which this permit modification request is being submitted.

A mixed waste CSA inside TA-50-69, the Waste Characterization, Reduction, and Repackaging Facility, is identified as SWMU No. 50-008. A mixed waste CSA located outside TA-50-69 has not yet been assigned a SWMU number. These two CSAs operate under 20 NMAC 4.1, Subpart VI, revised November 1, 1995, standards.

Several additional CSAs have not yet been assigned SWMU numbers. Three CSAs will be located in Rooms 35, 36, and 38/38A of TA-50-1. These CSAs will be used for storage of hazardous and mixed waste during non-RCRA-regulated activities (e.g., waste characterization,

segregation of lead from gloveboxes). CSAs to be located in Rooms 112 and 114 of TA-50-37 will be used for storage of TRU mixed waste. These two CSAs are two of the units for which this permit modification request is being submitted. A CSA located within the bermed area of the BWTU at TA-50-1 is RCRA-permitted for hazardous waste storage. Additional CSAs are located in TA-50-137, -138, -139, and -140. Each of these CSAs is RCRA-permitted for hazardous waste storage.

Operational Releases/Outfalls

Operational releases and outfalls comprise three SWMUs identified in Module VIII and located in TA-50. A portion of Upper Ten Site Canyon received two accidental releases of radioactive waste and chemicals as a result of a sump overflow in TA-50-2. This site is identified as SWMU No. 50-006(a). Airborne releases via stack emissions from the RLWTF and other treatment facilities at TA-50 have contaminated some soil in the area. These airborne releases are identified as SWMU No. 50-006(c). The area where discharge of treated liquid effluent from the RLWTF to Mortandad Canyon occurred is identified as SWMU No. 50-006(d) because previous analyses of the effluent indicated the presence of chemicals, radionuclides, and heavy metals.

Disposal Area

Material Disposal Area (MDA) C is an 11.8-acre disposal site that comprises approximately half of TA-50. MDA C, identified as SWMU No. 50-009 in Module VIII, consists of six pits used for the disposal of radioactive and hazardous waste (Pits 1-6), one pit for disposal of chemical waste, 107 disposal shafts, and one unnumbered shaft that was used for a single strontium-90 disposal. Pits 1-4 measure approximately 610 feet long, 40 feet wide, and 25 feet deep. Pit 5 is approximately 705 feet long, 110 feet wide, and 18 feet deep. Pit 6 is approximately 505 feet long, 100 feet wide, and 25 feet deep. The chemical pit measures approximately 180 feet long, 25 feet wide, and 12 feet deep. The disposal shafts vary in depth and diameter. Table 10-1 provides a list of the various types of waste that were disposed of at MDA C. Most waste disposal at MDA C ceased by 1969 and the unit was officially decommissioned in 1974.

Decontamination Area

A vehicle decontamination area at TA-50-1 is used to clean vehicles and large objects that are radioactively contaminated. This area, originally a pad, has been in use since 1963; in 1983, it was enclosed. Liquid waste generated during decontamination is transferred to TA-50-2 via

the floor drain and waste line. The vehicle decontamination area is identified as SWMU No. 50-010.

Septic System

SWMU No. 50-011(a), identified in Module VIII, consists of a decommissioned septic system that was located near the south end of TA-50-1. This septic system was comprised of a septic tank (TA-50-10), a manhole (TA-50-9), a sanitary distribution box (TA-50-11), and a seepage pit. The septic system managed sanitary waste only. All components of the septic system were removed in 1983, when a new septic system was installed. The new septic system is identified as SWMU No. 50-011(b).

Incinerator Complex

An incinerator complex (SWMU No. 50-007) in TA-50-37 is comprised of the incinerator, various waste-feed components, and two waste-feed tanks. The incinerator is located in Room 112, and the waste-feed system and tanks are located in Room 115. The unit is used to treat solid and liquid waste containing chlorinated and fluorinated hydrocarbons, carcinogenic materials, and TRU waste. The incinerator unit is a RCRA-permitted hazardous waste treatment unit; currently, this unit is undergoing RCRA closure.

Cementation Unit

A cementation unit [SWMU No. 50-001(a)] is located in Room 60A of TA-50-1. The unit is used to solidify TRU-contaminated sludge generated during the treatment of low-level, acidic, and caustic liquid waste received from the Plutonium Facility at TA-55. The cementation unit operates under 20 NMAC 4.1, Subpart VI, revised November 1, 1995, standards for mixed waste treatment.

10.2 RELEASES

10.2.1 Description of Releases at TA-50

Some of the SWMUs listed in Table 10-1 have released, or are suspected to have released, hazardous waste or hazardous constituents. In 1990, LANL initiated drilling activities to test the integrity of the waste tanks comprising SWMU No. 50-002. Cuttings from the boreholes revealed that some of the soil appeared wet and, based on field screening, were found to be radioactively contaminated.

SWMU No. 50-004(a), a waste line in the vicinity of TA-50-37, was known to have leaked occasionally. Radioactively-contaminated soil discovered during waste line decommissioning activities was cleaned up to levels as low as reasonably achievable. Potential chemical contaminants were not analyzed for at the time of decommissioning.

Accidental releases from the RLWTF have contaminated sections of Upper Ten Site Canyon [SWMU No. 50-006(a)] with radioactive and chemical wastes. Airborne contaminants released through stack emissions from the RLWTF and other treatment facilities at TA-50 have contaminated soil at various locations within TA-50 [SWMU No. 50-006(c)]. Liquid effluent from the treatment plant, released prior to the issuance of a National Pollutant Discharge Elimination System permit, has contaminated sections of Mortandad Canyon with a variety of chemical, radiological, and heavy metal wastes [SWMU No. 50-006(d)]. Contamination in Mortandad Canyon will be addressed by the LANL Environmental Restoration (ER) Project.

Several sampling efforts at MDA C (SWMU No. 50-009) have confirmed the presence of low-level radioactive contamination of soil in and near the perimeter of the area. Soils at the north and east perimeter of the site contain tritium, uranium, and various isotopes of plutonium at levels above background levels. Soils along the west ends of disposal Pits 2, 4, 5, and 6 also contain above-background levels of tritium and various plutonium isotopes.

10.2.2 Characterization of Releases

Potential releases from SWMUs, if any, are described in the 1990 SWMU Report and in the "RFI Work Plan for Operable Unit 1147" (LANL, 1992). The descriptions include the material released and the nature of the release. However, because of the nature of the releases, the exact volume released is not always known. The timing of the releases can only be estimated by the period of operation and sampling events.

10.2.3 Corrective Actions

Pursuant to 20 NMAC 4.1, Subpart V, 264.101(a), revised November 1, 1995, corrective actions are required for releases of hazardous waste or hazardous constituents. There have been some documented releases of hazardous waste or hazardous constituents from the TA-50 SWMUs listed in Table 10-1. However, because the TA-50 SWMUs are located in areas where waste has been historically and is currently managed, they will be investigated and remediated, as

necessary and with U.S. Environmental Protection Agency and New Mexico Environment Department approval, during LANL ER Project corrective action activities. Corrective action will generally follow the RCRA Facility Investigation/Corrective Measures Study process.

Table 10-1

Technical Area (TA) 50 Solid Waste Management Unit (SWMU) Descriptions[a]

SWMU No.	Unit Type	Unit Description	Waste Description
50-001(a)	Radioactive Liquid Waste Treatment Facility (RLWTF) and associated cementation unit	A 37,000-square-foot facility located at TA-50-1 that houses various components used to treat radioactive liquid waste	Radioactive liquid waste and potentially hazardous constituents
50-001(b)	Waste lines and manholes	Liquid waste transfer system	Radioactive liquid waste and potentially hazardous constituents
50-002(a)	Tank farm	Six flow-through process tanks and associated waste transfer lines	Radioactive liquid waste and sludge and potentially hazardous constituents
50-002(b)	Underground storage tank	One of two tanks (TA-50-67) contained in an underground vault located approximately 30 feet west of the southwest corner of TA-50-1	Radioactive liquid waste and potentially hazardous waste
50-002(c)	Underground storage tank	One of two tanks (TA-50-68) contained in an underground vault located approximately 30 feet west of the southwest corner of TA-50-1	Radioactive liquid waste and potentially hazardous waste
50-002(d)	Aboveground storage tank	4,000-gallon nitric acid storage tank	Unit stored product only; no waste stored
50-003(a)	Container storage	Mixed waste container storage area located in TA-50-1-59 used primarily to store drums of solidified, transuranic-contaminated sludge	Potentially mixed waste
50-003(d)	Container storage	Container storage area located in TA-50-114	Hazardous and mixed waste
50-004(a)	Decommissioned waste line	520-foot section of 6-inch-diameter, vitrified clay pipe removed from the vicinity of TA-50-37	Radioactive liquid waste and potentially hazardous constituents
50-004(b)	Decommissioned tank farm	An underground concrete vault and three stainless-steel-lined concrete storage tanks removed in 1989	Radioactive liquid waste and potentially hazardous constituents

See footnotes at end of table.

Table 10-1 (Continued)

Technical Area (TA) 50 Solid Waste Management Unit (SWMU) Descriptions[a]

SWMU No.	Unit Type	Unit Description	Waste Description
50-004(c)	Decommissioned waste lines and manholes	16 waste lines and associated manholes in TA-50 removed between 1981 and 1989	Radioactive liquid waste and potentially hazardous constituents
50-005	Batch Waste Treatment Unit	500-gallon pressure vessel and associated waste-processing components located in TA-50-1	Hazardous waste
50-006(a)	Operational releases/outfall	Section of Upper Ten Site Canyon contaminated as a result of a sump overflow	Radioactive liquid waste and hazardous chemicals
50-006(c)	Operational releases/outfall	Contaminated soil caused by airborne releases from the RLWTF and other treatment facilities at TA-50	Soil contaminated with radioactive and chemical waste
50-006(d)	Operational releases/outfall	Outfall of treated liquid effluent from the RLWTF to Mortandad Canyon	Soil contaminated with a variety of chemicals, radionuclides, and heavy metals
50-007	Incinerator complex	An incinerator, various waste feed components, two waste feed tanks, and three container storage areas housed in TA-50-37	Hazardous and mixed waste
50-008	Container storage	Container storage area located inside TA-50-69	Mixed waste

See footnotes at end of table.

Table 10-1 (Continued)

Technical Area (TA) 50 Solid Waste Management Unit (SWMU) Descriptions[a]

SWMU No.	Unit Type	Unit Description	Waste Description
50-009	Disposal area (Material Disposal Area C)	11.8-acre disposal area (consisting of pits and shafts) located on the north side of Pajarito Road at TA-50	Radioactive, mixed, hazardous, and solid waste in the forms of building debris; contaminated trash; sludge from waste treatment plants and depleted uranium chips; plutonium-contaminated sodium loops; a variety of chemicals, pyrophoric metals, hydrides, and powders; sealed vessels containing sodium-potassium alloys or compressed gases; equipment not suitable for salvage; natural uranium-contaminated objects; gas cylinders containing carboys of di- or triethylbenzene; parts of the Clementine Reactor; and other waste forms
50-010	Decontamination area	Vehicle decontamination area in TA-50-1	Radioactive waste and potentially hazardous waste
50-011(a)	Septic system	Decommissioned septic system that consisted of a septic tank, a manhole, a sanitary distribution system, and a seepage pit	Sanitary waste
50-011(b)	Septic system	New septic system installed in 1983	Sanitary waste
TBD[b]	Container storage	Container storage area located outside TA-50-69	Mixed waste
TBD[b]	Container storage	Container storage areas located in TA-50-1, Rooms 35, 36, and 38/38A	Hazardous and mixed waste
TBD[b]	Container storage	Bermed area of the Batch Waste Treatment Unit used for container storage	Hazardous waste
TBD[b]	Container storage	Container storage area located in TA-50-137	Hazardous waste
TBD[b]	Container storage	Container storage area located in TA-50-138	Hazardous waste
TBD[b]	Container storage	Container storage area located in TA-50-139	Hazardous waste

See footnotes at end of table.

Table 10-1 (Continued)

Technical Area (TA) 50 Solid Waste Management Unit (SWMU) Descriptions[a]

SWMU No.	Unit Type	Unit Description	Waste Description
TBD[b]	Container storage	Container storage area located in TA-50-140	Hazardous waste

[a] Information compiled from the Los Alamos National Laboratory (LANL), 1990, "Solid Waste Management Units Report"; the LANL, 1992, "RFI Work Plan for Operable Unit 1147"; and the U.S. Environmental Protection Agency (EPA), 1994, "Module VIII: Special Conditions Pursuant to the 1984 Hazardous and Solid Waste Amendments to RCRA for Los Alamos National Laboratory, EPA I.D. NM0890010515," effective date May 19, 1994.

[b] TBD = SWMU Number to be determined.

11.0 OTHER FEDERAL LAWS

A discussion of federal laws, as required by the New Mexico Administrative Code, Title 20, Chapter 4, Part 1, Subpart IX, 270.3 and 270.14(b)(20), revised November 1, 1995, is provided in Section 11.0 of the Los Alamos National Laboratory General Part B.

12.0 CERTIFICATION

In accordance with the New Mexico Administrative Code, Title 20, Chapter 4, Part 1, Subpart IX, 270.11(d), revised November 1, 1995, I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Thomas E. Baca
Division Director for Environmental Management Division
Los Alamos National Laboratory
Operator

13 May 97
Date Signed

Alexander J. Gancarz
Division Director for Chemical Science and Technology Division
Los Alamos National Laboratory
Operator

13 MAY 97
Date Signed

Dennis J. Erickson
Division Director for Environment, Safety, and Health Division
Los Alamos National Laboratory
Operator

5/13/97
Date Signed

G. Thomas Todd
Area Manager, Los Alamos Area Office
U.S. Department of Energy
Albuquerque Operations
Owner/Operator

5.14.97
Date Signed

CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Reed J. Janssen for — 13 May 97

Thomas E. Baca
Division Director for Environmental Management Division
Los Alamos National Laboratory
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Date Signed

Fred B Wampler — 13 MAY 97

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5/13/97

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Date Signed

Thomas Todd — 5.14.97

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Area Manager, Los Alamos Area Office
U.S. Department of Energy
Albuquerque Operations
Owner/Operator

Date Signed

13.0 LIST OF REFERENCES

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Proposed Hazardous Waste Facility Permit Modification

Radioactive Materials Research, Operations, and Demonstration Facility Mixed Waste Container Storage Areas

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PROPOSED HAZARDOUS WASTE FACILITY MODIFIED PERMIT SUMMARY FOR THE RADIOACTIVE MATERIALS RESEARCH, OPERATIONS, AND DEMONSTRATION (RAMROD) FACILITY MIXED WASTE CONTAINER STORAGE AREAS AT TECHNICAL AREA 50, BUILDING 37

Module/Attachment	Page	Section	Modification to Permit
III	2 of 6	III.A.3	Added information on TRU mixed waste container storage areas at the RAMROD Facility.
III	2 of 6	III.B.1	Added language to address mixed waste.
III	2 of 6	III.B.3	Updated regulatory citations.
III	3 of 6	III.C.1	Added language to address mixed waste.
III	3 of 6	III.C.2	Added language to address mixed waste.
III	4 of 6	III.C.3	Added information to III.C.3.e to address permitted storage of hazardous waste. Added information on quantities of mixed waste in container storage areas at the RAMROD Facility.
III	4 of 6	III.C.4	Added language to address mixed waste.
III	4 of 6	III.C.5	Updated regulatory citation and added language to address mixed waste.
III	5 of 6	III.C.6	Updated regulatory citation.
III	5 of 6	III.D	Simplified language and updated regulatory citation.
III	5 of 6	III.F	Updated regulatory citation.
III	5 of 6	III.H.3	Added language to address mixed waste.
Figure 11	--	--	New figure added to show mixed waste container storage area locations at the RAMROD Facility.
A	--	Cover Page	Changed from Permit Attachment A to Permit Attachment A.1.
A.2	1-57 of 57	All	Added new Permit Attachment A.2 to address waste analysis for transuranic mixed waste.

PROPOSED HAZARDOUS WASTE FACILITY MODIFIED PERMIT SUMMARY FOR THE RADIOACTIVE MATERIALS RESEARCH, OPERATIONS, AND DEMONSTRATION (RAMROD) FACILITY MIXED WASTE CONTAINER STORAGE AREAS AT TECHNICAL AREA 50, BUILDING 37 (Continued)

Module/Attachment	Page	Section	Modification to Permit
B	1-2 of 29	B.2	Clarified that existing permitted container storage in TA-50-117 is for hazardous waste.
B	5 of 29	B.5.1	Clarified/updated language and added language to address mixed waste.
B	6 of 29	B.5.1	Added information on communication and alarm equipment for the container storage areas at the RAMROD Facility.
B	6-7 of 29	B.5.2	Clarified/updated language regarding external communication/alarm equipment.
B	7 of 29	B.5.4	Updated reference regarding fire protection group.
B	7-8 of 29	B.6	Clarified language and added aisle space information for the mixed waste container storage areas at the RAMROD Facility.
B	8-9 of 29	B.7	Added inspection information for the mixed waste container storage areas at the RAMROD Facility.
B	11 of 29	Table B-1	Added inspection schedule information for the mixed waste container storage areas at the RAMROD Facility.
B	22-24 of 29	IRF	Added "Hazardous and Mixed Waste Facility Inspection Record Form." This form is currently used at LANL.
B	25-29 of 29	IRF	Added "Instructions for Use of the Hazardous and Mixed Waste Facility Inspection Record Form."
C (Existing)	1-68 of 68	All	Deleted previous version of Attachment C because training information has been updated and/or revised extensively.
C (Proposed)	1-10 of 10	All	Provided new Attachment C to reflect updated/revised training information.

PROPOSED HAZARDOUS WASTE FACILITY MODIFIED PERMIT SUMMARY FOR THE RADIOACTIVE MATERIALS RESEARCH, OPERATIONS, AND DEMONSTRATION (RAMROD) FACILITY MIXED WASTE CONTAINER STORAGE AREAS AT TECHNICAL AREA 50, BUILDING 37 (Continued)

Module/Attachment	Page	Section	Modification to Permit
D (Existing)	1-46 of 46	All	Deleted previous version of Attachment D because contingency measures have been updated and/or revised extensively and the plan addressed only hazardous waste.
D (Proposed)	1-52 of 52	All	Provided new Attachment D to reflect updated/revised contingency measures information and to address both hazardous and mixed waste.
D (Proposed)	9 of 52	D.3.1	Language regarding explosions and fires was retained from the previous version of Attachment D.
D (Proposed)	17-18 of 52	D.9.1.1	Language regarding emergency process shutdown for the TA-50 Waste Incinerator was retained from the previous version of Attachment D.
D (Proposed)	18 of 52	D.9.1.2	Language regarding emergency process shutdown for the TA-16 Industrial Incinerator was retained from the previous version of Attachment D.
D (Proposed)	27 of 52	Table D-3	Table D-6 from the previous version of Attachment D was retained and renumbered as Table D-3.
D (Proposed)	37-43 of 52	Appendix D-1	Information regarding emergency equipment for the specific units included in the previous version of Attachment D was retained and is in now included in Appendix D-1.
E.10	1-18 of 18	All	Provided new Attachment E.10, which is the Closure Plan for the mixed waste container storage areas at the RAMROD Facility.
F	1 of 4	F.1.1	Updated language regarding container packaging and transport to reflect most current and accurate information and to address mixed waste.

PROPOSED HAZARDOUS WASTE FACILITY MODIFIED PERMIT SUMMARY FOR THE RADIOACTIVE MATERIALS RESEARCH, OPERATIONS, AND DEMONSTRATION (RAMROD) FACILITY MIXED WASTE CONTAINER STORAGE AREAS AT TECHNICAL AREA 50, BUILDING 37 (Continued)

Module/Attachment	Page	Section	Modification to Permit
F	2 of 4	F.1.2	Updated language regarding labeling, recording, and sampling to reflect most current and accurate information.
F	2-4 of 4	F.2.1	Added language to address mixed waste container storage areas at the RAMROD Facility.
F	4 of 4	F.2.2	Added language for clarification of general container management practices.
G	19-23	--	Added authorized wastes for mixed waste container storage areas at the RAMROD Facility, Rooms 112, 114, 115, 117, and 118. Because the EPA form already has shading, the new information is not redlined.

MODULE III STORAGE IN CONTAINERS

III.A. DESIGNATED STORAGE UNITS

1. Technical Area 54, Area L The Permittee may store for more than ninety days hazardous wastes in containers only in the following designated storage areas:

   a. Containers containing free liquids may be stored on the concrete containment structure, Facility Number 54-32.

   b. Containers containing free liquids may be stored in the packaging building, Facility Number 54-31.

   c. Containers not containing free liquids may be stored, on pallets or otherwise elevated four inches, in a single layer in cleared areas within the fenced portion of Area L, subject to the limitations of HWMR-5, as amended 1989, Part V, 40 CFR Sections 264.175(c) and 264.175(d). Such containers shall not be stored within five feet of the perimeter fence, nor five feet of any structure, nor five feet of the paved or unpaved roadway. Disposal unit covers designed to serve as storage areas are not subject to this exclusion. See Figure 6.

   d. Gas cylinders will be stored in cylinder racks, or on specially constructed pallets that provide support and restraint under a self-supporting canopy located in cleared areas within the fenced portion of Area L, within the restrictions of permit paragraph II.G. above.

   e. The fence line around Area L as shown in permit Figure 6 shall not be altered without prior notice to the Secretary and permit modification in accordance with HWMR-5, as amended 1989, Part IX, 40 CFR Section 270.41 or 270.42 as appropriate.

   f. Containers containing free liquids may be stored in the modular storage buildings, Model 22 or equivalent, Facility Numbers 54-68 and 54-69, 54-70 for container storage located as shown in Figure 6.

2. Technical Area 50 The Permittee may store for more than ninety days hazardous wastes in containers only in the following designated storage areas:

   a. Containers may be stored within the curbed bay of the Batch Waste Treatment Unit in Building 50-1.

   b. Containers containing free liquids may be stored on the concrete containment structures, Facility Numbers 50-139 and 50-140, located as shown in Figure 4.

c. Building 50-37. Containers may be stored within storage room 117 of the Controlled Air incinerator as shown in Figure 4.

d. Containers containing free liquids may be stored in the modular storage buildings, Model 22 or equivalent, Facility Numbers 50-114, 50-137 and 50-138, located as shown in Figure III-2.

3. Technical Area 50 The Permittee may store for more than ninety days TRU mixed wastes in containers only in the following designated storage areas:

a. Containers not containing free liquids may be stored on pallets, dollies, or other elevation devices in Building 50-37, Rooms 112, 114, 115, 117, and 118. Containers containing suspect or known free liquids may be stored in Building 50-37, Rooms 115 and 117, or on self-containment pallets or devices in Building 50-37, Rooms 112, 114, and 118. Containers may be stacked in Rooms 112, 114, 117, and 118. See Figure 11.

III.B. AUTHORIZED WASTES

1. Identification Only hazardous and/or mixed wastes identified in Permit Attachment G. with the process code "S01" in column D.1. "Processes" shall be stored.

2. Quantities The cumulative quantity of individual hazardous and/or mixed wastes in storage at any one time at the facility shall not exceed the quantity indicated in Permit Attachment G. Column B. "Estimated Annual Quantity of Waste".

3. Land Ban The Permittee must also comply with the following regarding storage of its wastes in containers which are prohibited from land disposal. These restrictions are imposed on any waste as it becomes prohibited from land disposal. ~~(HWMR-5, as amended 1989, Part VIII, 40 CFR Section 268.50)~~ (New Mexico Administrative Code, Title 20, Chapter 4, Part 1 (20 NMAC 4.1), Subpart VIII, 268.50, revised November 1, 1995)

a. A storage period of one year is permitted. A storage period beyond one year is permitted provided there is proof that such storage is solely for the purpose of accumulation of such quantities as are necessary to facilitate proper recovery, treatment or disposal.

b. Each container must be clearly marked as to its contents and the date each period of accumulation begins.

c. Hazardous wastes meeting the treatment standards in ~~HWMR-5, Part VIII, 40 CFR Sections 268.41, 268.42, 268.43~~ 20 NMAC 4.1, Subpart VIII, 268.41, 268.42, 268.43, revised November 1, 1995, are not subject to the storage prohibition. Hazardous wastes meeting the treatment standards specified under the variance in ~~HWMR-5, Part VIII, 40 CFR Section 268.44~~ 20 NMAC 4.1, Subpart VIII, 268.44, revised November 1, 1995, are not subject to the storage prohibition.

III.C. CONTAINERS

1. Capacity

   a. Labpacked wastes shall be stored in containers not to exceed 55-gallon nominal capacity.

   b. Bulk liquids may be stored in drums of a nominal capacity of 55-gallons or less.

   c. Solidified hazardous and/or mixed wastes not containing free liquids may be stored in containers meeting U.S. Department of Transportation (DOT) requirements for transportation.

   d. Compressed gases may be stored in any sized cylinder. Small cylinders may be packed in drums or crates complying with DOT shipping regulations.

   e. Polyethylene containers of 220-gallon or 330-gallon capacity may be used in place of 55-gallon drums as long as secondary containment capacity criteria of HWMR-5, as amended 1989, Part V, 40 CFR Section 264.175(b)(3) are not exceeded.

2. Type Containers must be of a type specified in the DOT hazardous materials regulations, 49 CFR 171 to 179, if those regulations specify a particular container for the waste. As applicable, the containers shall be either: (1) previously unused or certified reconditioned DOT shipping containers; (2) the original shipping containers in which the material was first marketed; or (3) any other suitable container which satisfies the requirements of permit paragraph III.C. If the hazardous and/or mixed wastes are to be received and stored in their original shipping containers, the Permittee must insure that the requirements of permit paragraph III.C. are satisfied. Polyethylene bulk containers shall meet or exceed DOT specification number E9052. Compressed gas cylinders not meeting DOT requirements shall be segregated in a safe area.

3. Quantity The following quantities include all stored liquid materials, whether regulated or not. Solid materials which do not displace containment capacity may be collocated without affecting these volumes. Solid materials which displace containment volume shall be included in calculating the stored volume as if they were liquids. The Permittee shall keep current accurate records of the quantity of waste in storage at each location below to ensure that these capacities are not exceeded.

   a. No more than 220 gallons of liquid shall be stored at Technical Area 50, Building 50-1, BWTU curbed bay.

   b. No more than 440 gallons of liquid shall be stored at Technical Area 54, Area L, Building Number 54-31.

   c. No more than 17,220 gallons of liquid shall be stored at each concrete containment structure: facility Numbers 54-32, 50-139 or 50-140.

d. No more than 3600 containers of 55-gallon capacity or less, or the equivalent volume of 26,470 cubic feet, 980 cubic yards or 749 cubic meters, shall be used to store solidified wastes at Technical Area 54, Area L.

e. No more than 3,630 gallons of liquid hazardous waste shall be stored in Building 50-37, Room 117.

f. No more than 1,650 gallons of waste shall be stored in each modular storage unit.

g. No more than 2,330 gallons of transuranic (TRU) mixed waste shall be stored in Building 50-37, Room 112. No more than 2,200 gallons of TRU mixed waste shall be stored in Building 50-37, Room 114. No more than 220 gallons of TRU mixed waste shall be stored in Building 50-37, Room 115. No more than 3,630 gallons of TRU mixed waste shall be stored in Building 50-37, Room 117. No more than 18,000 gallons of TRU mixed waste shall be stored in Building 50-37, Room 118.

4. Condition

a. If a container holding hazardous or mixed waste is not in good condition (e.g. severe rusting, structural defects) or if it begins to leak, the Permittee shall transfer the hazardous or mixed waste from such container to a container that is in good condition or otherwise manage the waste in compliance with the conditions of this permit.

b. The Permittee may use overpack containers of more than 55-gallon capacity to manage defective waste storage containers. Each overpacked container shall be recorded in the facility record.

5. Compatibility of Waste with Containers

a. The Permittee shall assure, as required by ~~HWMR-5, as amended 1989, Part V, 40 CFR Section 264.172,~~ 20 NMAC 4.1, Subpart V, 264.172, revised November 1, 1995, that the ability of the container to contain the waste is not impaired. When necessary, this shall include procedures for determining whether the hazardous or mixed waste is no longer compatible with the shipping container if it is to be stored in its original container (e.g. determination of container adequacy for chemicals that have a finite shelf life or may change in composition upon aging).

b. The Permittee shall not place into the polyethylene containers described in permit paragraph III.C.1.e. above, any material for which the manufacturer does not rate the container suitability as "Good" or "Excellent" in the current compatibility technical bulletin issued by the manufacturer. A copy of the current bulletin shall be available at any location where the polyethylene container(s) is (are) filled or stored with contained wastes for more than thirty days.

6. Management The Permittee shall manage containers as required by ~~HWMR-5, as amended 1989, Part V, 40 CFR Section 264.173~~ 20 NMAC 4.1, Subpart V, 264.173, revised November 1, 1995, and Permit Attachment F.

III.D. CONTAINMENT

The Permittee shall construct and maintain the containment systems for each storage unit in permit paragraphs III.A.~~1. and III.A.2.~~ above in accordance with the requirements of ~~HWMR-5, as amended 1989, Part V, 40 CFR Section 264.175.~~ 20 NMAC 4.1, Subpart V, 264.175, revised November 1, 1995.

III.E. IGNITABLE OR REACTIVE WASTES

The Permittee shall not locate containers holding ignitable or reactive waste within 15 meters (50 feet) of the facility property line.

III.F. INCOMPATIBLE WASTES

The Permittee shall manage incompatible wastes or incompatible wastes and materials in accordance with the requirements of ~~HWMR-5, as amended 1989, Part V, 40 CFR Section 264.177.~~ 20 NMAC 4.1, Subpart V, 264.177, revised November 1, 1995.

III.G. CLOSURE

The Permittee shall comply with the Closure Plan, Permit Attachment E. and permit paragraph II.L. above, for closure of any permitted storage area.

III.H. INSPECTION

1. Inspection Plan The Permittee shall inspect the storage areas in accordance with Permit Attachment B.

2. Spill Kits The type, presence, location and quantity of spill kits shall be verified and annotated monthly. If spill kits are locked up, the location of access keys shall be verified.

3. Warning Signs The legibility and condition of warning signs shall be included in the weekly inspection. Missing or illegible signs shall be promptly replaced within 24 hours of discovery.

   a. Signs shall be at the entrances to the hazardous and mixed waste units. Collocated units may be included within one signed area.

   b. Signs shall say "Danger, Unauthorized Personnel Keep Out" and "Hazardous Waste Storage Area".

   c. Signs shall be in both English and Spanish.

d. Signs on approachable perimeter fences shall be spaced no more than 50 feet apart.

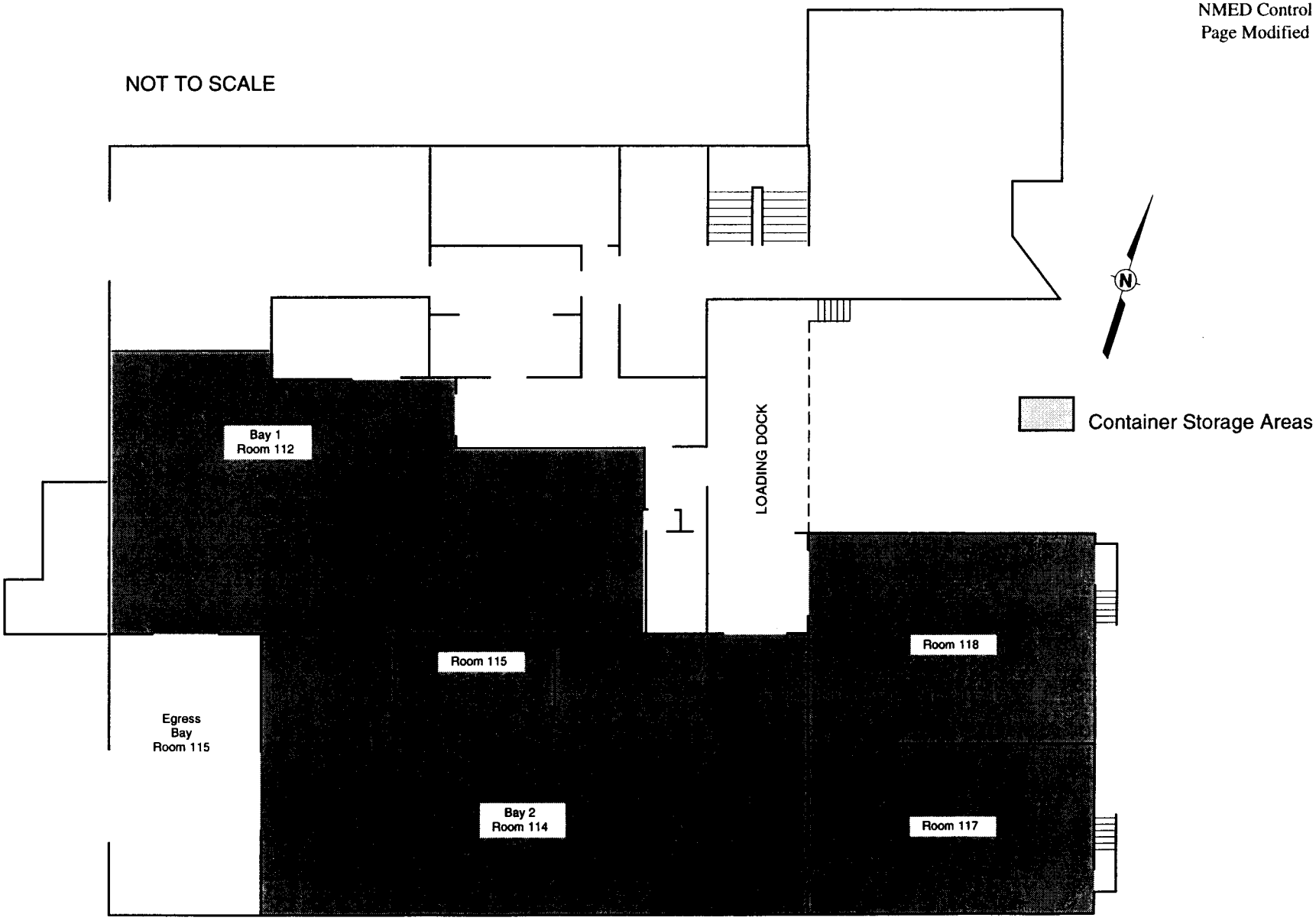

Figure 11
Technical Area 50, Building 37, First Floor Plan

WASTE ANALYSIS PLAN
AND
WASTE SEGREGATION PROCEDURES

PERMIT ATTACHMENT A.1
NM0890010515-1

WASTE ANALYSIS PLAN

PERMIT ATTACHMENT A.2
NM0890010515-1

WASTE ANALYSIS PLAN FOR TRANSURANIC MIXED WASTE

Note to Reviewers:
This waste analysis plan (WAP) is similar to the Los Alamos National Laboratory, 1995, "Los Alamos National Laboratory RCRA Waste Analysis Plan," Rev. 0.0, submitted to the New Mexico Environment Department in March 1995. Changes to this WAP will be made to be consistent with responses and resolutions to the Notice of Deficiency for the 1995 WAP, when available.

LIST OF DEFINITIONS

Acceptable knowledge - Broadly defined to include process knowledge, waste analysis data, and/or facility records of analysis.

Existing (or currently generated) transuranic (TRU) mixed waste - TRU mixed waste streams that have been characterized using Los Alamos National Laboratory (LANL)'s Waste Profile Form (WPF) (the WPF has been used since May 1991).

Future TRU mixed waste - TRU mixed waste streams that will be characterized through the use of both LANL's WPF and a certification program.

Heterogeneous waste - Waste that is of dissimilar or diverse composition.

Homogeneous waste - Waste that is of uniform composition.

Legacy TRU mixed waste - TRU mixed waste streams generated before the LANL WPF was implemented (i.e., prior to May 1991).

Process knowledge - Described in the New Mexico Administrative Code, Title 20, Chapter 4, Part 1 (20 NMAC 4.1), Subpart V, 264.13(a)(2), revised November 1, 1995, as data developed under Subpart II and existing published or documented data on a specific hazardous waste or hazardous waste generated from similar processes.

Resource Conservation and Recovery Act (RCRA) hazardous waste - The definition of RCRA hazardous waste is provided in 20 NMAC 4.1, Subpart II, 261.3, revised November 1, 1995.

RCRA solid waste - Any waste stream that meets the definition of a "solid waste" as specified in 20 NMAC 4.1, Subpart II, 261.2, revised November 1, 1995.

Retrievably stored waste - Waste that was generated and placed in storage in covered pads and shafts before the implementation of LANL's TRU waste certification program. Waste stored after implementation of LANL's TRU waste certification program is stored in areas that can be more easily accessed.

Solid waste - Any waste stream in a solid physical form. In this document, use of the generic term "solid waste" refers only to the solid physical form and has no additional regulatory meaning.

TRU mixed waste - Waste that has both a RCRA-hazardous waste component (see definition) and a TRU waste component (see definition).

TRU waste - Waste defined in the U.S. Department of Energy (DOE) Order 5820.2A, "Radioactive Waste Management" (DOE, 1988), as follows: "Without regard to source or form, waste that is contaminated with alpha-emitting transuranic radionuclides with half-lives greater than 20 years and concentrations greater than 100 nanocuries per gram at the time of assay and has atomic numbers greater

LIST OF DEFINITIONS
(Continued)

than 92. Heads of Field Elements can determine that other alpha contaminated waste, peculiar to a specific site, must be managed as TRU waste."

ATTACHMENT A.2
WASTE ANALYSIS PLAN FOR TRANSURANIC MIXED WASTE

This waste analysis plan (WAP) presents information on the chemical and physical nature of transuranic (TRU) mixed waste generated and general TRU mixed waste characterization methods used at Los Alamos National Laboratory (LANL). The waste analysis information contained within this WAP is specific to storage requirements only. WAPs specific to treatment requirements will be developed and submitted as needed. Waste analysis requirements are specified in the New Mexico Administrative Code, Title 20, Chapter 4, Part 1 (20 NMAC 4.1), Subpart IX, 270.14(b)(2), revised November 1, 1995; in 20 NMAC 4.1, Subpart V, 264.13, "General Waste Analysis," revised November 1, 1995; and in 20 NMAC 4.1, Subpart VIII, 268.7, "Waste Analysis and Recordkeeping," revised November 1, 1995. The content of this WAP generally follows the guidance provided in "Waste Analysis at Facilities that Generate, Treat, Store, and Dispose of Hazardous Wastes - A Guidance Manual" (EPA, 1994).

Mixed waste contains both a hazardous waste component, as defined and regulated by the Resource Conservation and Recovery Act (RCRA), and a radioactive waste component. This WAP addresses only *TRU mixed waste*, which is defined in the List of Definitions of this WAP.

For waste characterization purposes, TRU mixed waste at LANL has been subdivided into three groups based on the timeframe for generation of the waste: *legacy, existing (or currently generated)*, and *future*. These three groups are defined in the List of Definitions.

This TRU mixed waste WAP is organized as follows. Section A.2.1 includes a facility description, information on TRU mixed waste-generating processes and activities, identification of TRU mixed waste managed, and a description of TRU mixed waste management units. Section A.2.2 presents waste parameters, including the criteria and rationale for selection. Section A.2.3 provides TRU mixed waste characterization procedures. Section A.2.4 presents laboratory selection and analytical methods. Section A.2.5 provides waste verification requirements. Section A.2.6 addresses special procedural requirements (e.g., for ignitable, reactive, and incompatible waste and for compliance with land disposal restriction [LDR] requirements). Differences in requirements for the characterization of legacy, existing, and future TRU mixed waste are described in the applicable sections of this WAP.

A.2.1 FACILITY DESCRIPTION

LANL is located in Los Alamos County in north-central New Mexico. It is approximately 60 miles north-northeast of Albuquerque and 25 miles northwest of Santa Fe. LANL, which is divided into 49 technical areas (TA), and the associated residential and commercial areas of Los Alamos County are situated on the Pajarito Plateau. The principal missions of LANL include the research, design, development, and analysis of weapons components for the nation's nuclear arsenal; supporting research programs; energy research and environmental missions; and environmental management programs. LANL is owned by the U.S. Department of Energy (DOE) and is operated jointly by DOE and the University of California.

A.2.1.1 Facility Waste-Generating Processes, Activities, and Identification of TRU Mixed Wastes Managed

TRU mixed waste is generated at LANL primarily from research and development activities, processing and recovery operations, and decontamination and decommissioning projects. Additional information on waste-generating processes is provided in Sections A.2.1.1.1 through A.2.1.1.3.

In addition to grouping TRU mixed waste based on the time of generation (i.e., legacy, existing, and future), TRU mixed waste streams at LANL will be divided into three broad categories referred to as *matrix parameter codes*, which are used to define waste characterization groupings for the Federal Facilities Compliance Act requirements. The matrix parameter codes are based upon the physical and chemical forms of the waste. The matrix parameter codes that are applicable to LANL's TRU mixed waste are:

- Matrix Parameter Code 3000 - solid process residues
- Matrix Parameter Code 4000 - soils
- Matrix Parameter Code 5000 - debris wastes.

Matrix parameter code descriptions are provided in "DOE Waste Treatability Groups Guidance" (DOE, 1994). Sampling and analytical procedures, discussed in Sections A.2.3 and A.2.4, are based on the physical characteristics of these broad categories.

Matrix parameter codes have been applied to TRU mixed waste streams at LANL as the most general categorization scheme to distinguish waste types at this time. Additional waste identification systems have been used for supplementary purposes as part of waste management operations for TRU mixed waste generated at LANL. Table A.2-1 cross references the matrix parameter codes with these waste identification systems. The waste identification system used for a particular waste container depends largely upon the date of placement into storage. The additional waste identification systems, listed in order of the most general system to the most specific, are as follows:

- Item Description Codes (IDC) - IDCs, first used at LANL in July 1984, generally consist of a three-digit number. These codes represent the most general descriptions of TRU and TRU mixed waste and are used at most of DOE's facilities that generate TRU and TRU mixed waste. They were developed as a waste identification system, based on the chemical and physical form of the waste, to promote consistency throughout DOE for wastes intended for transportation to the Waste Isolation Pilot Plant (WIPP) in Carlsbad, New Mexico. IDCs for TRU mixed waste at LANL are provided in Section A.2.1.1.1.

- TRUPACT-II Content (TRUCON) Codes - TRUCON codes, first used at LANL in October 1992, were developed by DOE to provide a consistent waste description for all TRU and TRU mixed waste generated throughout all of DOE's facilities. The TRUCON codes are intended to assist DOE in establishing the characteristics of TRU and TRU mixed waste to be certified for transportation to the WIPP. LANL TRUCON codes consist of a three-digit number preceded by the letters "LA" and followed by a letter that further defines the waste type and source. TRUCON codes for TRU mixed waste at LANL are provided in Section A.2.1.1.2.

- Radioactive Solid Waste Disposal (RSWD) Codes - RSWD codes, first used at LANL in January 1971, are two-digit codes preceded by the letter "A". These codes are used exclusively at LANL and categorize TRU and TRU mixed waste forms generated by the various on-site facilities. RSWD codes for TRU mixed waste are provided in Section A.2.1.1.3.

Tables A.2-1 and A.2-2 are organized in this hierarchical fashion, from the most general waste stream categorization scheme to the most specific waste stream identification system. As shown in Table A.2-1, the matrix parameter codes are the most general categorization scheme for TRU mixed waste. Each matrix parameter code includes specific IDCs, and each IDC in turn may include a number of TRUCON and RSWD codes. Each IDC, TRUCON code, and RSWD code in LANL's TRU mixed waste inventory is described in Sections A.2.1.1.1, A.2.1.1.2, and A.2.1.1.3, respectively. The basis for RCRA waste classification for each IDC, TRUCON code, and RSWD code is provided in Table A.2-2. Because the IDCs, TRUCON codes, and RSWD codes were not developed to provide RCRA-required information, potential U.S. Environmental Protection Agency (EPA) Hazardous Waste Numbers and potential hazardous constituents shown in Table A.2-2 have been identified through records reviews and interviews with generators for much of LANL's legacy TRU mixed waste. A conservative approach has been used to identify potential hazardous constituents for legacy and existing TRU mixed waste streams. Waste characterization, as discussed in Section A.2.3, will be used to confirm hazardous constituents present in individual waste streams. The development of detailed, RCRA-required information for legacy TRU mixed waste is an ongoing process at LANL. The potential EPA Hazardous Waste Numbers and hazardous constituents shown in Table A.2-2 are the result of the most recent iteration of this process and may be updated upon further evaluation.

A.2.1.1.1 LANL IDCs

This section provides brief descriptions of the TRU mixed waste streams at LANL that have been assigned IDCs. The descriptions of the IDC wastes were developed from Attachments 1 through 4 and Attachment 6 to the "Los Alamos TRU Waste Certification Plan" (LANL, 1991). The EPA Hazardous Waste Numbers that potentially apply to these IDC wastes are listed in Table A.2-2.

IDC 001

IDC 001 waste is comprised of several types of metal scrap and incidental combustibles. This waste is generated at various TAs throughout LANL and is size reduced at the Waste Characterization, Reduction, and Repackaging Facility (WCRRF) at TA-50-69. The waste consists mostly of metals or metal equipment, either whole or sectioned, and lesser amounts of combustible components. In addition, it contains small volumes of combustibles generated during decommissioning, sectioning, and packaging. The waste forms primarily include gloveboxes, process equipment, and ductwork from decommissioning operations. Gloveboxes may include gloves, wiring, plastic, glass windows, plastic wrapping, and lead shielding.

IDC 002

IDC 002 waste is concreted (cemented) aqueous waste, which consists of caustic sludge stabilized with Portland cement to form a noncorrosive solid monolith. The sludge is a residue from the treatment of blended acidic and caustic aqueous liquid radioactive waste with calcium hydroxide, ferric sulfate, and a flocculation aid. This treatment produces a thin sludge (approximately 25 percent solids) that is always alkaline and is compatible with Portland cement. Final cemented waste monoliths are produced by tumbling 55-gallon steel drums containing empirically determined quantities of sludge, Portland cement, vermiculite, and sodium silicate.

IDC 003

IDC 003 waste is stabilized aqueous waste. It consists of dewatered sludge generated by the vacuum filtration of solids from a pretreated aqueous waste slurry. These solids are first trapped on the surfaces of the filter media (diatomaceous earth). The filter medium with the entrapped filtrate is then placed in drums with dry concrete absorbent.

IDC 004

Combustible waste (e.g., paper, rags, plastic, rubber) comprises IDC 004, including plastic-based and cellulose-based waste generated at TA-55-4. Plastic-based waste includes, but may not be limited to, tape, polyethylene, and vinyl; gloves; plastic vials; polystyrene; Tygon™ tubing; polyvinyl chloride plastic; Teflon™ products; plexiglass; and dry box gloves (unleaded Neoprene base). Cellulose-based waste includes, but may not be limited to, rags, wood, paper, cardboard, laboratory coats and coveralls, booties and cotton gloves, and similar miscellaneous materials. IDC 004 waste may also contain a small fraction of noncombustible solids (e.g., scrap metals, metal lids).

IDC 005 and Subgroups

IDC 005 waste consists of the following subgroups:

IDC 005

Discarded high-efficiency particulate air (HEPA) filters are identified as IDC 005 waste. This waste is generated at TA-55-4.

IDC 005(LG)

IDC 005(LG) waste consists of glass waste and includes, but may not be limited to, discarded labware, windows, and bottles. A small fraction of combustible waste, such as plastics (mainly packaging), may also be present in this waste stream.

IDC 005(LM)

Metal waste (e.g., motors, pumps, tools, and process equipment) comprises IDC 005(LM) waste. A small fraction of combustible waste, such as plastics (mainly packaging), may also be present in this waste stream.

IDC 005(P1)

IDC 005(P1) waste is leaded rubber waste and metal waste. This waste stream also includes lead-lined glovebox gloves discarded along with metal waste, such as motors and tools.

IDC 005(P2G)

IDC 005(P2G) waste is graphite solid waste that consists of discarded graphite mold and furnace equipment generated during plutonium casting and other operations conducted in Room 327 at TA-55-4.

IDC 005(P2S)

IDC 005(P2S) waste consists of used salts from pyrochemical processes such as electrorefining, molten salt extraction, salt stripping, fluoride reduction, and direct oxide reduction. These processes occur at TA-55-4. A small fraction of combustible waste, such as plastics (mainly packaging), may also be present in this waste stream.

IDC 006

Solidified inorganic and organic process solids comprise IDC 006 waste. This waste consists of process leached solids, ash, filter cakes, salts, metal oxides, fines, or evaporator bottoms stabilized in Portland or gypsum cement. These waste streams are generated at TA-55-4.

A.2.1.1.2 LANL TRUCON Codes

This section provides a brief description of the TRUCON-coded TRU mixed waste streams at LANL. All existing (i.e., currently generated) TRU mixed waste at LANL is assigned a TRUCON code, except for waste that requires further processing at the WCRRF. The descriptions of the TRUCON-coded wastes were extracted from "TRUPACT-II Content Codes (TRUCON)," DOE/WIPP 89-004, Rev. 3 (DOE, 1989); and "Detailed Operating Procedure for the Review and Disposition of the TRU Waste Storage Record," Attachment B (LANL, 1994). The EPA Hazardous Waste Numbers that potentially apply to these TRUCON-coded wastes are listed in Table A.2-2.

TRUCON Code LA 111A

TRUCON code LA 111A waste consists of concreted (cemented) aqueous waste. This waste is similar to the waste previously identified as IDC 002. The waste originates as aqueous effluent from plutonium processing at TA-55-4 that is then treated in Room 60 of the Radioactive Liquid Waste Treatment Facility (RLWTF) at TA-50-1. As described for IDC 002, the resultant sludge is mixed with Portland cement, vermiculite, and sodium silicate and then packaged as TRUCON code LA 111A.

TRUCON Code LA 211A

TRUCON code LA 211A waste consists of retrievably stored (see List of Definitions), concreted (cemented) aqueous waste. This waste originates as aqueous effluent from plutonium processing at TA-55-4 that is then treated in Room 60 of the RLWTF at TA-50-1. As described for IDC 002, the resultant sludge is mixed with Portland cement, vermiculite, and sodium silicate.

TRUCON Code LA 111B

TRUCON code LA 111B waste consists of stabilized aqueous waste (dewatered sludge) that is similar to the waste identified as IDC 003. The waste consists of solids from vacuum filtration of a pretreated aqueous waste slurry at TA-50-1. These solids, which originated in the plutonium-processing facility at TA-55-4, are trapped on the surfaces of filter media (diatomaceous earth). The filter medium with the entrapped filtrate is placed in drums with dry Portland cement as an absorbent.

TRUCON Code LA 211B

TRUCON code LA 211B waste consists of retrievably stored, stabilized aqueous waste (dewatered sludge) that is similar to the waste identified as IDC 003. The waste consists of solids from vacuum filtration of a pretreated aqueous waste slurry at TA-50-1. These solids, which originated in the plutonium-processing facility at TA-55-4, are trapped on the surfaces of filter media (diatomaceous earth). The filter medium with the entrapped filtrate is placed in drums with dry Portland cement as an absorbent.

TRUCON Code LA 114A

TRUCON code LA 114A waste consists of solidified inorganic process solids. This waste is similar to the waste previously identified as IDC 006. The waste is generated at TA-55-4 as a result of plutonium-processing operations. Solidified process solids include process residue from evaporator bottoms and other discardable solutions, process-leached solids, ash, filter cakes, salts, metal oxides, and fines. These process solids are immobilized in gypsum cement to form a noncorrosive solid matrix. The resultant waste is packaged as TRUCON code LA 114A.

TRUCON Code LA 115A

Graphite waste generated from plutonium-processing activities at TA-55-4 is packaged as TRUCON code LA 115A waste. TRUCON code LA 115A is similar to the waste identified as IDC 005(P2G). The waste consists of discarded graphite mold and furnace equipment from plutonium-casting operations. A small fraction of combustible waste, such as plastic (mainly packaging), also comprises this waste type. The graphite waste is first placed in tin or stainless steel cans and then placed in 55-gallon drums or standard waste boxes (SWB).

TRUCON Code LA 116A

TRUCON code LA 116A waste is comprised of combustible waste generated at TA-55-4. TRUCON code LA 116A is similar to the waste identified as IDC 004. The combustible solids consist primarily

of paper, rags, plastic, and rubber. A small fraction of noncombustible solids, such as scrap metals, may also be contained in this waste form. The wastes are containerized in 55-gallon drums or SWBs.

TRUCON Code LA 116B

TRUCON code LA 116B waste is comprised of combustible debris waste generated at TA-55. TRUCON code LA 116B is similar to the waste identified as IDC 004. This combustible debris waste consists primarily of room trash generated during plutonium-processing activities.

TRUCON Code LA 116C

TRUCON code LA 116C waste is comprised of combustible debris waste generated at TA-55. TRUCON code LA 116C is similar to the waste identified as IDC 004. This combustible debris waste consists primarily of glovebox trash generated during plutonium-processing activities.

TRUCON Code LA 116D

TRUCON code LA 116D waste is comprised of all other combustible waste generated at TA-3 and not included in LA 116E. TRUCON code LA 116D is similar to the waste previously identified as IDC 004.

TRUCON Code LA 116E

TRUCON code LA 116E waste is comprised of combustible waste generated at TA-3. TRUCON code LA 116E is similar to the waste previously identified as IDC 004. This combustible solid waste may consist of paper, rags, plastic, and rubber.

TRUCON Code LA 117A

TRUCON code LA 117A waste is comprised of noncombustible waste generated at TA-55. TRUCON code LA 117A is similar to the waste previously identified as IDC 005(LM). This metal waste may consist of motors, pumps, tools, and process equipment and may contain some small fraction of combustible waste, such as plastics (mainly packaging). This waste is packaged in SWBs.

TRUCON Code LA 117B

TRUCON code LA 117B waste is comprised of noncombustible waste generated at TA-55. TRUCON code LA 117B consists of the metal waste described in TRUCON code LA 117A. The difference between this waste and LA 117A is that LA 117B is packaged in a maximum of four layers of plastic bagging contained within 55-gallon drums.

TRUCON Code LA 117C

TRUCON code LA 117C waste is comprised of metal waste as described in TRUCON code LA 117A. This waste stream is generated at TA-3.

TRUCON Code LA 117D

TRUCON code LA 117D waste is comprised of metal waste as described in TRUCON code LA 117A. This waste stream is generated at TA-55. The waste may also contain glass in the form of discarded laboratory glassware, windows, and bottles, with a small fraction of combustibles (mainly plastics from packaging). The waste is packaged in a maximum of four layers of plastic bagging contained within 55-gallon drums.

TRUCON Code LA 117E

TRUCON code LA 117E waste is comprised of metal waste from plutonium-processing activities at TA-55. TRUCON code LA 117E is similar to IDC 005(LM). This waste may consist of motors, pumps, tools, and process equipment and may contain some small fraction of combustible waste, such as plastic (mainly packaging). The waste is packaged in a maximum of four layers of plastic bagging contained within 55-gallon drums.

TRUCON Code LA 117F

TRUCON code LA 117F waste is comprised of noncombustible waste and is similar to IDC 005(LM). This waste is generated from plutonium-processing activities at TA-3.

TRUCON Code LA 117G

TRUCON code LA 117G waste is comprised of all other noncombustible waste generated at TA-3. TRUCON code LA 117G is similar to IDC 005(LM).

TRUCON Code LA 118A

TRUCON code LA 118A waste consists of TRU glass waste generated from plutonium-processing activities at TA-55-4. TRUCON code LA 118A is similar to the waste identified as IDC 005(LG). This glass waste consists of discarded laboratory glassware, windows, and bottles. A small fraction of combustible waste, such as plastic (mainly packaging), may also comprise this waste type. The waste is packaged in tin or stainless steel cans and contained in 55-gallon drums or SWBs.

TRUCON Code LA 119A

TRUCON code LA 119A waste consists of discarded HEPA filters from TA-55-4. TRUCON code LA 119A is similar to the waste identified as IDC 005.

TRUCON Code LA 123A

Leaded rubber and metal waste generated at TA-55-4 is packaged as TRUCON code LA 123A waste, which is similar to the waste identified as IDC 005(P1). This waste type consists of lead-lined glovebox gloves discarded along with metal waste, such as discarded metals, motors, and tools. The waste is placed in 55-gallon drums or SWBs.

TRUCON Code LA 123B

TRUCON code LA 123B waste consists only of leaded gloves from TA-55-4. The waste is similar to the waste identified previously as IDC 005(P1).

TRUCON Code LA 124A

TRUCON code LA 124A waste consists of TRU waste salts generated from plutonium-processing activities at TA-55-4. TRUCON code LA 124A is similar to the waste identified as IDC 005(P2S). The salt waste consists of used salts from pyrochemical processes, such as electrorefining, molten salt extraction, salt stripping, fluoride reduction, and direct oxide reduction. A small fraction of combustible waste, such as plastics (mainly packaging), may also be contained in this waste.

TRUCON Code LA 125A

TRUCON code LA 125A waste contains metal equipment, either whole or sectioned, along with its combustible components. This waste also consists of a small volume of combustibles generated during decommissioning, sectioning, and packaging. TRUCON code LA 125A is similar to IDC 001 and is generated at TA-50.

TRUCON Code LA 126A

TRUCON code LA 126A waste consists of solidified organic process solids. This waste is similar to the waste previously identified as IDC 006. The waste is generated at TA-55-4 as a result of plutonium-processing operations. Solidified process solids include process residue from evaporator bottoms and other discardable solutions, process leached solids, ash, filter cakes, salts, metal oxides, and fines. These process solids are immobilized in gypsum cement to form a noncorrosive solid matrix. The resultant waste is packaged as TRUCON code LA 126A.

A.2.1.1.3 LANL RSWD Codes

This section provides a brief description of the RSWD-coded waste at LANL and the processes that generated the waste. The descriptions of the RSWD-coded waste were extracted primarily from the DOE/LANL "Response to the Notice of Deficiency Issued by the New Mexico Environment Department for the Part B Permit Application for Technical Area 54, Area G Storage Pads and Domes" (DOE, 1994). Additional information was obtained through queries of LANL's Chemical Science and Technology (CST) Division waste management database. The EPA Hazardous Waste Numbers that potentially apply to these RSWD codes are listed in Table A.2-2.

LANL RSWD Code A10

RSWD code A10 waste consists of graphite solids generated from plutonium-processing operations, specifically, casting conducted in Room 327 at TA-55-4.

LANL RSWD Code A14

RSWD code A14 waste consists of combustible material generated during decontamination activities at TA-3, TA-21, TA-50, and TA-55. Decontamination waste may include cellulosics, plastic, or cloth generated during plutonium processing.

LANL RSWD Code A15

RSWD code A15 waste consists mainly of combustible solids collected from plutonium-processing operations and related activities at TA-3, TA-21, TA-50, and TA-55-4. Waste at TA-55-4 is collected in the waste management room (Room 432) for packaging, documentation, and radionuclide assay. The waste includes cellulosics, such as wood scraps, paper, and rags.

LANL RSWD Code A16

RSWD code A16 waste consists of plastic (mainly packaging) generated at TA-3, TA-21, TA-50, and TA-55. This waste is generated from plutonium-processing and related activities.

LANL RSWD Code A17

RSWD code A17 waste consists of rubber materials generated during plutonium-processing and related activities. This waste is generated at TA-3, TA-21, TA-50, and TA-55.

LANL RSWD Code A18

Nonsegregated paper, plastic, and rubber comprises RSWD code A18 waste. This waste is generated at TA-3, TA-21, TA-50, and TA-55 during plutonium-processing and related activities.

LANL RSWD Code A19

RSWD code A19 waste consists of a combination of noncombustible material, such as scrap metal, and trash generated at TA-3, TA-21, TA-50, and TA-55. Plutonium-processing and related activities generate this waste.

LANL RSWD Code A24

RSWD code A24 waste is comprised of cemented/immobilized residues and/or powders. This waste stream is generated at TA-55-4 and may consist of process leached solids, ash, filter cake, metal oxides, and fines from plutonium-processing operations. The waste has been immobilized in gypsum cement.

LANL RSWD Code A25

Plutonium operations generate numerous waste items that may require plutonium recovery, such as filter media, plastics, used equipment, personal protective equipment, and paper products that are removed from process gloveboxes or radiation control areas. These items are processed by various methods, such as acid leaching, to recover the residual plutonium. In this plutonium-recovery process, waste streams

consisting of leached materials, such as solution residues, solids, ash, filter cake residues, salts, and metal oxides, were generated at TA-21 and TA-50 and are currently generated at TA-55. This waste constitutes the A25 waste stream. The residual material is mixed with gypsum cement in steel drums. Some batches of gypsum-cemented waste have been found to release a minimal amount of free liquid as a result of dewatering after the cement has set. There is some likelihood of hydrogen gas generation from the radiolysis of water contained within the cement matrix.

LANL RSWD Code A26

After the items containing recoverable levels of plutonium have been processed (as described for LANL RSWD Code A25) and the waste materials that no longer contain recoverable amounts of plutonium have been segregated (RSWD code A25 waste), the remaining leachate that still contains recoverable levels of plutonium is processed in ion-exchange units. The ion-exchange units segregate the plutonium and generate a stripped leachate. This stripped leachate is then collected, along with plutonium-oxalate solutions and process waters, and distilled in an evaporator. The evaporator distillate is then sent to TA-50 for further treatment. The A26 waste stream consists of the evaporator bottom solutions that result from the evaporation process. This waste stream is generated at TA-55 and is stabilized in a cement matrix at TA-55-4, Room 401.

LANL RSWD Code A27

This waste stream consists of any solid crystallized residues from the evaporator process solution described above for RSWD code A26. The residues may include iron-, aluminum-, calcium-, magnesium-, ammonium-, potassium-, and sodium-nitrate salts. Some particles have been immobilized by cementation to meet minimum particulate size criteria for storage. Most salts were placed in containers without immobilization.

LANL RSWD Code A28

RSWD code A28 waste consists of discarded chloride salts used in pyrochemical operations, such as electrorefining, molten salt extraction, salt stripping, and oxide reduction associated with plutonium-recovery operations at TA-55. In molten form, the chlorides are used as a solvent in the preparation and purification of plutonium metal. Prior to 1987, the discarded salts contained calcium metal. No liquids or hydrocarbons are present in this waste stream.

LANL RSWD Code A29

RSWD code A29 waste is a hydroxide cake generated from waste salt. This waste is generated at TA-55 during plutonium-processing operations.

LANL RSWD Code A30

RSWD Code A30 waste consists of large, discarded, property-numbered (PN) equipment, such as gloveboxes and ancillary equipment (e.g., support structures, feed lines, ventilation equipment) from TA-3, TA-21, TA-39, TA-49, TA-50, and TA-55. These large metallic items from decontamination and decommissioning operations are size reduced at the WCRRF at TA-50-69 by cutting with a plasma arc

torch. Many of the gloveboxes included in this waste stream are lined with sheets of lead. This waste may contain very small quantities of contained liquids in piping and possibly precipitation that entered containment crates prior to placement in their present storage configuration.

LANL RSWD Code A31

RSWD Code A31 waste consists of smaller discarded parts and non-PN equipment associated with the generation of RSWD code A30, such as faucets, piping, wiring, plastic wrapping, and plastic or glass windows. No liquids or hydrocarbons are associated with this waste stream.

LANL RSWD Code A36

The RSWD code A36 waste consists of noncombustible building debris. The building debris was generated during decommissioning activities at TA-3, TA-21, TA-39, TA-49, TA-50-69, and TA-55.

LANL RSWD Code A40

RSWD code A40 waste consists of combustible hot cell waste generated during plutonium-processing and related activities. This waste is generated at TA-3, TA-21, TA-50, and TA-55.

LANL RSWD Code A46

RSWD code A46 waste consists of reaction process crucibles and oxide residues immobilized in gypsum cement. This waste is generated at TA-55.

LANL RSWD Code A47

Slag and porcelain waste generated at TA-3 and TA-55 comprise RSWD code A47 waste. This waste is generated as a result of plutonium-processing activities.

LANL RSWD Code A50

RSWD code A50 waste consists of metal crucibles, scrap, and dies. This waste is generated during plutonium-processing activities at TA-3 and TA-55.

LANL RSWD Code A52

RSWD code A52 waste consists of metal waste from TA-55-4. The metal waste is comprised of motors, pumps, tools, and process equipment.

LANL RSWD Code A55

Discarded HEPA filters comprise RSWD code A55 waste. This waste is generated at TA-55-4.

LANL RSWD Code A60

RSWD code A60 waste consists of other combustibles generated at TA-3, TA-21, TA-50, and TA-55. This waste is generated as a result of plutonium-processing and related activities.

LANL RSWD Code A61

RSWD code A61 waste consists of miscellaneous noncombustible trash associated with plutonium-processing operations, such as ceramics, scrap metal, and glass. The scrap metal includes discarded motors, pumps, tools, and process equipment and materials from fabricated items disassembled for evaluation. Rubber gloves containing lead oxide may be included in this waste stream.

LANL RSWD Code A75

Most of the waste included in RSWD code A75 was generated before 1982 at TA-50-1 and TA-55-4. This waste stream consists of the distillate from the evaporator process discussed for RSWD code A26 and depleted plutonium solutions from caustic-recovery processes at TA-55-4. This wastewater was collected and chemically treated at TA-50-1 with lime and ferric sulfate to encapsulate the nuclear material in an iron hydroxide matrix. It was then dewatered by vacuum filtration. Cement was added to the top of the resulting sludge to capture any liquid that separated from the sludge. This waste stream was significantly reduced in 1982 by redirecting TA-50-1 influent with high TRU content into a pretreatment unit in Room 60 (see description below for RSWD code A76). However, even though this influent is now redirected into the pretreatment unit, the supernatant resulting from the current pretreatment operations enters the main plant treatment operations in Room 116; thus, A75 waste continues to be generated.

LANL RSWD Code A76

RSWD Code A76 waste consists of cement paste created by stabilizing pretreatment sludge generated at TA-50-1, Room 60. This sludge results from pretreatment of TA-55 influent before it enters the main treatment plant operations in TA-50-1, Room 116. The pretreatment sludge was generated after 1982 and stabilized with Portland cement. Halogenated organic solvents used in the influent-generating process may have been introduced to the influent generating this sludge. There is currently no evidence that this waste stream contains free liquids and no materials exist in this waste stream that would cause generation of hydrogen gas.

LANL RSWD Code A80

RSWD code A80 waste consists of irradiation sources plated on planchets. This waste is generated at TA-3 and TA-55.

LANL RSWD Code A90

RSWD code A90 waste consists of radioactively-contaminated soil generated during decontamination activities and/or accidental spills at TA-1, TA-3, TA-21, and TA-50.

LANL RSWD Code A95

RSWD code A95 waste consists of glass waste generated from plutonium-processing and related activities at TA-3, TA-21, TA-42, and TA-55. This waste stream may contain discarded labware, windows, and/or bottles and contains a small fraction of combustibles such as plastic.

A.2.1.2 Description of TRU Mixed Waste Management Units

The permitted TRU mixed waste storage units at LANL that are addressed in this WAP include:

- Storage Pad 2 and Storage Pad 4 at TA-54, Area G.
- Storage Domes 226, 229, 230, 231, and 232 at TA-54, Area G.
- Rooms 112, 114, 115, 117, and 118 at the Radioactive Materials Research, Operations, and Demonstration (RAMROD) Facility at TA-50-37.

Information on the mixed waste management units at TA-54, Area G, is available in LANL's "RCRA Part B Permit Application: Technical Area 54, Area G, Pads 1, 2, and 4; Storage Domes A-D; Chemical Plating Waste Treatment Skid and Treated Liquid Storage Tanks, Technical Area 63, Hazardous Waste Treatment Facility" (LANL, 1993), submitted to the New Mexico Environment Department in September 1993.

Information on the mixed waste management units at the RAMROD Facility is available in LANL's "Permit Modification Request, Radioactive Materials Research, Operations, and Demonstration Facility Mixed Waste Container Storage Areas," submitted in October 1996.

TRU mixed waste storage units operating under interim status facility standards and addressed in this WAP include:

- Storage Domes 48, 153, 224, and 283 at TA-54, Area G
- The Drum Prep Facility and Storage Shed 8 at TA-54, Area G
- Container storage areas (CSA) in Rooms 9010, 9020, and 9030 of Wing 9 at TA-3-29
- Storage units at TA-50-1 (Room 59)
- Rooms 35, 36, and 38/38A CSAs at the TA-50-1 Decontamination Facility
- The Waste Characterization, Reduction, and Repackaging Facility Indoor and Outdoor CSAs at TA-50-69
- A CSA at TA-50-114

- The Radioassay and Nondestructive Testing Facility High Bay, Low Bay, Loading Dock, and Outdoor CSAs at TA-54 West, Building 38 (TA-54-38)

- Storage units at TA-55, Buildings 4 and 185.

Information on these mixed waste management units is available in LANL's "RCRA Part A Permit Application for Mixed Waste," Revision 2.0 (LANL, 1994).

A.2.2 WASTE ANALYSIS PARAMETERS

A detailed chemical and physical characterization will be performed for TRU mixed waste management purposes, as required by RCRA. Waste analysis parameters will be selected to ensure that this characterization will contain all the information necessary to properly treat, store, or dispose of waste in accordance with RCRA general facility standards and LDR requirements.

A.2.2.1 Proposed Analytical Parameters and Characterization Methods

Proposed analytical parameters and characterization methods for TRU mixed waste at LANL are summarized in Table A.2-3. Some or all of these parameters will be used to determine the RCRA regulatory status of LANL TRU mixed waste and are as follows:

- Physical waste form characterization through real-time radiography (RTR) and visual examination to verify the absence of free liquids

- Headspace gas sampling to determine the presence of volatile organic compounds (VOC) in container headspace

- Hazardous constituent sampling to determine the presence and concentrations of:

  - RCRA-regulated metals
  - RCRA-regulated VOCs
  - RCRA-regulated semivolatile organic compounds (SVOC)

A.2.2.2 Criteria and Rationale for Parameter Selection

Waste analysis parameters selected to characterize TRU mixed waste are in conformance with RCRA and incorporate characterization procedures from the WIPP "TRU Waste Characterization Quality Assurance Program Plan" (QAPP) (DOE, 1994) requirements, which are based on knowledge of raw materials and physical/chemical processes of waste-generating activities and which may be supported by analytical results. The analytical parameters selected to confirm knowledge-based waste characterization, as well as the rationale for the selected parameters, are identified in Table A.2-3.

A.2.3 CHARACTERIZATION OF TRU MIXED WASTE

The characterization of TRU mixed waste managed at LANL can be divided into general approaches based on when the waste was generated and the differences involved in sampling the waste. Generally,

the distinction is made between legacy, existing, and future TRU mixed waste to define the quality of information available on the waste and the subsequent need for additional sampling and analysis. A secondary distinction between heterogeneous and homogeneous waste, as reflected in the matrix parameter codes, is made to determine the availability or appropriateness of sampling procedures.

As provided in the List of Definitions, *legacy* TRU mixed waste is waste generated before the LANL Waste Profile Form (WPF) was implemented in May 1991 (see Section A.2.3.1). Legacy TRU mixed waste has been characterized with qualitative assessments to evaluate the presence or absence of hazardous constituents. These assessments include examining past records and databases, conducting interviews with waste generators, and observing and evaluating similar waste-generating processes. *Existing (or currently generated)* TRU mixed waste (i.e., waste generated since May 1991) is characterized using LANL's WPF. *Future* TRU mixed waste will be characterized using both LANL's WPF and a certification program (see Section A.2.3.2).

The TRU mixed waste types described include solid process residues, soils, and debris wastes. As discussed in Section A.2.1.1, these types are categorized by *matrix parameter codes* based on the physical and chemical form of the waste. Waste streams in the solid process residues (Matrix Parameter Code 3000) or soils (Matrix Parameter Code 4000) categories may contain RCRA-regulated VOCs, SVOCs, and metals (see Table A.2-4). These homogeneous waste streams will be sampled and analyzed for the toxicity characteristic (TC) contaminants listed in 20 NMAC 4.1, Subpart II, 261.24, revised November 1, 1995. Analysis for total concentration of TC contaminants may be performed on samples in a screening step. If total concentrations are used in the waste characterization process, analytical data will be compared to the TC regulatory levels expressed as total values. These total values will be considered the regulatory threshold limit (RTL) values for the determination of whether a particular waste exhibits a TC. RTL values are obtained by calculating the weight/weight concentration (in the solid) of a TC contaminant that would give the regulatory weight/volume concentration in the toxicity characteristic leaching procedure extract.

Debris waste streams (Matrix Parameter Code 5000) consist of heterogeneous materials. As such, it is difficult to obtain representative samples, and the waste type is best characterized through examination of the original materials from which the waste was generated. Therefore, debris waste may be characterized for the presence of hazardous constituents (i.e., VOCs, SVOCs, and metals) using acceptable knowledge. Additionally, headspace gas sampling, RTR, or visual examination will be conducted on a statistically selected population of waste streams to substantiate this characterization.

The matrix parameter codes (see Table A.2-1) will be used as preliminary guidance for establishing sampling and analytical procedures. Specific sampling and analytical requirements will then be determined for each waste stream. Initial predictions of hazardous constituents present in each waste stream will be based on process knowledge, with waste sampling and analysis performed as necessary to obtain qualitative and quantitative data for hazardous constituents (i.e., VOCs, SVOCs, and metals). Table A.2-3 summarizes characterization methods by matrix parameter code. Sampling and analytical methods for specific hazardous constituents are presented in Table A.2-4. The following discussion presents the approach to characterization that will be used for each of these waste groups, integrating the time of generation and the physical form of the waste.

Characterization of legacy TRU mixed waste is primarily based on process knowledge, which is suitable for safe storage of these waste streams. Further characterization of homogeneous legacy waste may be accomplished through statistically based sampling and analysis, headspace gas sampling, RTR, and visual examination. Heterogeneous legacy waste will be characterized using process knowledge, headspace gas sampling, RTR, and visual examination. These approaches for homogeneous and heterogeneous legacy waste are discussed in Section A.2.3.3.

Existing TRU mixed waste is currently characterized using process knowledge, which is provided by individual waste generators on LANL's WPF. (For a detailed description of the WPF, refer to Section A.2.3.1 and to LANL's Administrative Requirement 10-9, "Waste Profile Form.") Additional characterization of existing TRU mixed waste will occur after the construction of planned facilities and implementation of sampling and analytical capabilities at LANL. For this additional characterization of homogeneous existing waste, LANL will use statistically based sampling and analysis, headspace gas analysis, RTR, and visual examination. Heterogeneous existing waste will be characterized using process knowledge, headspace gas sampling, RTR, and visual examination.

Future homogeneous TRU mixed waste will be characterized through the use of LANL's WPF and a certification program to be implemented. Sampling and analysis will be conducted for characterization only when required to fully document and/or verify the waste stream. Documented and auditable acceptable knowledge will be used to determine whether or not the waste stream is RCRA-regulated. If available information regarding acceptable knowledge is insufficient for waste characterization, additional information will be obtained using the sampling procedures identified in Section A.2.3.3. Heterogeneous waste will be characterized for RCRA-regulated constituents using acceptable knowledge, which may be supported by some waste analysis data.

For future TRU mixed waste, knowledge of the waste-generating process will be strictly controlled by a quality assurance (QA)/quality control (QC) program that addresses management of specific waste streams. This approach will provide a rigid definition for the acceptable knowledge applicable to specific waste streams. For example, the QA/QC program may include procedures for controlling chemical inputs to the waste-generating process as well as procedures for confirming the types of waste placed in different waste containers. These measures will provide knowledge of the types and concentrations of chemical constituents in individual waste streams.

A.2.3.1 Waste Profiling System

In an effort to maintain detailed and accurate waste characterization information, LANL's CST Division utilizes a generator waste-profiling program for existing (i.e., currently generated) waste at LANL. The waste-profiling effort requires each waste generator to provide a detailed written description of the waste on a standardized WPF, Form 1346 (Figure A.2-1). The waste description can be based on generator process knowledge, the use of appropriate Material Safety Data Sheets, and/or results of a chemical/physical analysis of the specific waste. By completing the WPF, waste generators supply information that allows for the proper management of TRU mixed waste. Specific information that is requested on the WPF includes:

- Point of generation
- Method of characterization
- Waste categories
- Waste description
- Waste origination
- Classification of radioactivity
- Presence of toxic metals and an estimate of concentration
- Presence of organic compounds and an estimate of concentration
- Identification of hazardous constituents
- Identification of hazardous characteristics
- Identification of the radiological characteristics of the waste.

A correctly completed WPF contains sufficient information to allow CST to classify the waste as either non-RCRA-regulated waste, RCRA-regulated solid waste (i.e., regulated under RCRA Subtitle D), RCRA-regulated hazardous (includes mixed) waste (i.e., regulated under RCRA Subtitle C), or radioactive waste. These four waste classifications are each divided into categories that further distinguish specific wastes. These categories are identified on the WPF. By associating a waste with an individual category, CST can properly classify the waste and assign it the appropriate EPA Hazardous Waste Number(s). Ultimately, the waste profile is used by CST Division to determine the proper procedures for managing the waste.

All waste generators must certify, based on their knowledge of the waste, that the information on the WPF is complete and accurate. Knowingly providing false information can result in administrative action by LANL and/or significant civil or criminal penalties, as stipulated by the waste generator's certification statement.

The WPF must be completed prior to any waste treatment, storage, or disposal. Waste generators must provide new profiles when a process change results in a change in waste composition or when a new waste is generated; otherwise, waste stream profiles are reevaluated annually. This annual reevaluation complies with the characterization frequency requirement of 20 NMAC 4.1, Subpart V, 264.13(b)(4), revised November 1, 1995.

A.2.3.2 Acceptable Knowledge

The physical nature of some TRU mixed waste forms (e.g., debris) makes the collection of representative samples difficult. This difficulty arises from several factors, some of which include: waste streams that contain disparate elements; disparate elements may need to be segregated into similar forms; large objects cannot be made to fill standard size sample containers; and laboratories may not have the capability to sample large objects (EPA, 1992). Health and safety risks to personnel from exposure to radioactive material also preclude extensive sampling and analysis of certain TRU mixed waste forms. Therefore, acceptable knowledge is a method used to characterize TRU mixed waste forms at LANL. For generation of future TRU mixed waste, LANL will implement a certification program to support acceptable knowledge used for waste characterization.

According to EPA guidance, *acceptable knowledge* is broadly defined to include process knowledge, waste analysis data, and/or facility records of analysis (EPA, 1994). *Process knowledge* is described in

20 NMAC 4.1, Subpart V, 264.13(a)(2), revised November 1, 1995, as data developed under 20 NMAC 4.1, Subpart II, revised November 1, 1995, and existing published or documented data on a specific hazardous waste or hazardous waste generated from similar processes. *Waste analysis data* include concentration(s) of RCRA-regulated constituents and/or results of tests for hazardous characteristics. These data are used to determine if wastes are RCRA regulated and to determine their LDR status. *Facility records of analysis* performed before the effective date of RCRA regulations will be used with caution. These analytical results must be accurate and applicable to the specified waste and should be supplemented with other existing information (e.g., published data). EPA guidance suggests that acceptable knowledge may be appropriate for wastes meeting the following descriptions:

- Wastes containing hazardous constituents from specific processes that are well documented, such as RCRA F-listed and/or K-listed waste code descriptions.

- Wastes consisting of discarded unused commercial chemical products, reagents, or chemicals containing known physical and chemical constituents. Several of these fall into the RCRA P-listed and U-listed waste code descriptions.

- Waste (e.g., radioactive mixed waste) containing levels of radioactivity such that health and safety risks to personnel do not justify sampling and analysis due to quantified and documented radiological concerns.

- Wastes containing heterogeneous materials, where the physical nature of the waste does not lend itself to taking a representative sample (e.g., laboratory trash and construction debris with surface contamination) (EPA, 1994).

At LANL, waste generators will obtain, assemble, and prepare the acceptable knowledge documentation available for each waste stream in a separate auditable file or maintain a waste stream reference file that identifies the acceptable knowledge documents and their locations. The acceptable knowledge documentation must be explicitly relevant and traceable to a waste type and must not be merely a list of information sources for a particular operation and/or waste. There are many sources of applicable documentation at LANL that may be used to substantiate acceptable knowledge for a specific waste stream. This documentation includes the following:

- Process design documents (e.g., Title II Design).

- Preliminary and final safety analysis reports, unreviewed safety question determinations, and technical safety requirements.

- Standard operating procedures and detailed operating procedures, which can list the raw materials or reagents, describe the process/experiment that uses the materials, and describe the wastes generated and how the wastes are handled.

- Waste packaging logs.

- Test plans or research project reports that describe the reagents and other raw materials used in an experiment.

- Site databases (e.g., chemical inventory database for Superfund Amendments and Reauthorization Act Title III requirements).
- Information from site personnel (e.g., documented interviews).
- Standard industry practice documents (e.g., vendor information).
- Industry reports on a similar process when there is a clear connection between the LANL process/experiment and the industry's similar process/experiment.
- Previous analytical data relevant to the waste stream, including results from fingerprint analyses, spot checks, or routine waste verification sampling.
- Analytical data from studies of common industry processes that are similar to LANL processes. These data can be used to identify the constituents in a specific "similar" process waste stream and to determine the regulatory status of the waste.
- MSDSs, product labels, and other product package information.
- Sampling and analysis data from comparable waste streams.
- Documented visual inspections to confirm or identify the physical characteristics and packaging of a waste.
- Laboratory notebooks that detail the research processes and raw materials used in an experiment.

Sampling surrogate wastes (e.g., equivalent nonradioactive or low-level radioactive materials) may also be a means of obtaining acceptable knowledge for characterizing TRU mixed wastes. For example, data from the analysis of nonradioactive leaded-rubber glove waste may be used to evaluate the characteristics of similar radioactive leaded-rubber glove waste. In some cases, a low-level mixed waste stream may be chemically equivalent to a TRU mixed waste stream. Because data for a low-level mixed waste stream may be more readily attainable, it may be useful for characterizing the TRU mixed waste stream. Sampling nonradioactive inputs or outputs from processes may also provide data that are useful for characterizing a similar TRU mixed waste stream.

Acceptable knowledge confirmed with RTR and visual examination is a reasonable approach to characterizing debris waste. Obtaining a representative sample of debris waste (Matrix Parameter Code 5000), as required by 20 NMAC 4.1, Subpart V, 264.13(b)(3), revised November 1, 1995, is difficult, because many types of waste may be present in a single waste stream or even in a single waste container. For legacy and existing heterogeneous waste, the type of waste segregation that would enable the development of a sampling strategy to obtain representative samples has not always occurred. Problems also arise in collecting representative samples from irregularly shaped and indurated waste items. Debris wastes are expected to exhibit highly variable concentrations of hazardous constituents, even for segregated materials. This may potentially diminish the reliability of sampling and analytical data.

The acceptable knowledge approach to characterizing TRU mixed debris waste is supported by EPA guidance for the situations described in the previous paragraph (EPA, 1994). A conservative approach is used to determine if a waste is RCRA-regulated waste. Process inputs (e.g., chemicals) are identified, and if the waste stream generated may potentially contain RCRA-hazardous constituents derived from process inputs, the waste is managed as a RCRA-regulated hazardous/mixed waste. This type of process knowledge will be used to characterize TRU mixed debris waste. For example, metals present in debris waste are often associated with specific materials (e.g., lead in leaded rubber, leaded glass, or lead shielding). Knowledge of the materials and operations that generated specific waste streams in the debris category is used to determine if these types of items are present in the waste and if the waste stream contains RCRA-regulated metals.

A.2.3.3 Sampling and Analysis for TRU Mixed Waste

This section describes sampling procedures and frequency of sampling applicable to TRU mixed wastes. The approach described for characterizing TRU mixed waste streams is based on radiological, physical/chemical, and hazardous properties of the waste. The sampling and analysis strategies presented here will be used to evaluate whether TRU mixed waste exhibits the characteristic of toxicity, as described in 20 NMAC 4.1, Subpart II, 261.24, revised November 1, 1995. The proposed methods do not apply directly to determinations of whether a waste exhibits other characteristics (i.e., ignitability, corrosivity, or reactivity) or is listed in 20 NMAC 4.1, Subpart II, Part 261, Subpart D, revised November 1, 1995. Determinations of whether a TRU mixed waste exhibits these characteristics or is listed will be made by applying acceptable knowledge, as described in Section A.2.3.2. Techniques typically used to obtain the physical and chemical data necessary for TRU mixed waste characterization include the following: RTR, visual examination, headspace gas sampling and analysis, and homogeneous solid waste sampling and analysis (e.g., for VOCs, SVOCs, and metals). For the purpose of TRU mixed waste characterization, LANL utilizes RTR, visual examination, and headspace gas sampling as confirmational sampling and analysis procedures for process knowledge. These procedures, coupled with documented, auditable process knowledge, will result in accurate, defensible waste characterization of TRU mixed waste. Specific waste sampling methods, equipment, and sample-handling procedures are described below.

To confirm whether existing TRU mixed waste is RCRA hazardous, available process knowledge will first be used to segregate the waste containers into waste streams and to assign each waste stream to a matrix parameter code. Once the waste streams have been defined and assigned to the matrix parameter codes, this information will be verified by a multistep process (Section A.2.5). RTR will be used for TRU mixed waste to confirm the matrix parameter code and to verify compliance with the waste form requirements of the "Waste Acceptance Criteria for the Waste Isolation Pilot Plant" (DOE, 1991). A statistically selected number of containers (as described in Section A.2.3.3.2) will be visually examined to confirm RTR results. Drums retrieved from Storage Pads 1, 2, and 4 will be selected on a statistical basis (as described in Section A.2.3.3.5) for headspace gas sampling during drum-venting operations.

A.2.3.3.1 RTR

RTR is a nondestructive, qualitative, and semiquantitative assay technique that involves x-ray scanning of waste containers to identify and verify, using appropriate equipment and qualified operators, the physical form(s) of waste container contents. RTR will be used to verify the absence of free liquids and

that the physical form requirements of the WIPP waste acceptance criteria (DOE, 1991) are met. At the same time, RTR will verify the waste classification (i.e., matrix parameter code) and waste form determined using acceptable knowledge. All TRU mixed waste containers will be analyzed by RTR, and the results for each waste container will be documented. The audio/video tapes produced during the waste container scan will be maintained for a minimum of three years. In addition, an RTR data form will be used to document the waste matrix parameter code.

A.2.3.3.2 Visual Examination

Waste contents of select TRU mixed waste containers will be visually examined to confirm the RTR results. This visual examination will also verify aspects of acceptable knowledge amenable to visual confirmation. For example, the visual examination will verify the physical characteristics of the waste and the associated matrix parameter code (i.e., Matrix Parameter Code 3000, 4000, or 5000). In addition, the visual examination will verify the presence of certain hazardous constituents, such as lead in lead bricks or lead-lined gloves. These types of visual confirmations will further verify or refute the overall acceptable knowledge used to characterize the waste stream.

The number of containers to be visually examined will be determined based on the drum population and on the historical miscertification percentage. The method for selecting containers to be examined visually is based upon a statistical approach for quantifying the proportion of waste containers miscertified by the RTR process. Because the sampling effort will be to estimate a proportion in a finite population, the hypergeometric distribution is used to determine the number of containers to be visually examined. For the first year of container examination, LANL will use the 2 percent miscertification rate observed at the Idaho National Engineering Laboratory (INEL). In subsequent years, LANL will use the miscertification rate observed at LANL in the previous year(s) to determine the appropriate number of containers for visual examination. Visual examinations will be documented and the staff making the examination will be trained regarding what to look for and how to record observations.

A.2.3.3.3 Headspace Gas Sampling and Analysis

Headspace gas sampling and analysis is a qualitative screening technique used to confirm the presence of RCRA-regulated hazardous constituents. TRU mixed waste characterization includes sampling and analysis of headspace gas from up to three areas within drums of waste as follows:

(1) The drum headspace (i.e., directly under the drum lid)
(2) The 55-gallon polyethylene bag headspace
(3) The innermost layers of confinement headspace.

The drum headspace (i.e., the space directly under the drum lid) will be sampled when filters are inserted into unvented drums. All previously unvented drums will be sampled for flammable gases, and a statistically selected subset of these drums will be sampled for selected VOCs in order to assure that health and safety criteria for safe storage of these drums are met. The statistical basis for selection of drums to be sampled is described in Section A.2.3.3.5. Headspace gas sampling and analysis also serves to confirm the presence of RCRA-regulated hazardous constituents. Headspace gas sampling alone will not be relied upon to prove the absence of a hazardous constituent in a waste.

The precision, accuracy, and representativeness of these headspace gas samples will be evaluated for adherence to the program's QA objectives through analysis of field QC samples and adherence to QC practices.

In order to meet the proposed characterization requirements in the WIPP QAPP (DOE, 1994), the headspace of previously vented drums in retrievable storage will be sampled and analyzed as the drums are characterized for shipment to WIPP. The sampling of vented drums may include samples from inner layers of confinement (55-gallon polyethylene bag headspace and innermost layers of confinement headspace) for a statistically selected subset of drums undergoing visual examination.

Analytical methods for the determination of VOCs in the headspace of TRU mixed waste containers must meet technical performance criteria, be consistent with regulatory guidance, and be compatible with the operational constraints associated with the analysis of actinide-contaminated materials. Methods for the collection of headspace gases are based on "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" (SW-846) (EPA, 1986) and on the "Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air" (EPA, 1988). DOE has modified the EPA methods to accommodate the characteristics of TRU mixed waste headspace gas samples. These methods include SA 010 and SA 011 (DOE, 1994).

A.2.3.3.4 Solid Waste Sampling and Analysis

The following describes the methods for collecting samples of homogeneous TRU mixed waste classified as solid process residues or soils. Sampling protocol is based on sampling methods similar to those approved by EPA for solid waste and soil sampling in SW-846 (EPA, 1986); in "Standard Practice for Thin-Walled Tube Sampling of Soils" (ASTM, 1983); and in "Standard Practice for Sampling Waste and Soils for Volatile Organic Compounds" (ASTM, 1991). These methods are designed to ensure that representative waste samples are consistently collected and transferred to the responsible laboratory in a manner that maintains sample integrity. The statistical basis for sampling is described in Section A.2.3.3.5.

The TRU mixed waste classified as solid process residues or soils is packaged in either 55-gallon drums or in smaller containers within 55-gallon drums. Drums may contain TRU mixed waste within a 55-gallon polyethylene bag or may consist of up to 20 or more small containers within a 55-gallon polyethylene bag. For drums selected for sampling that contain multiple small containers, one of the small containers will be randomly selected for sampling. Waste parameters for which solid process residues and soils may be analyzed are listed in Table A.2-3.

To accomplish sampling of these wastes, the techniques described below have been developed for sample and subsample collection. The sampling techniques are designed to obtain a representative sample from the container (e.g., 55-gallon drum, 1-gallon polyethylene bottle) and the subsampling techniques are designed to obtain a representative subsample from the sample. Subsampling is conducted to provide laboratories the minimum amount of required sample, thus minimizing the quantity of investigation-derived waste.

The methods used to collect samples of TRU mixed waste classified as solid process residues and soils from 55-gallon drums and smaller containers must be such that the samples are representative of the waste

from which they were taken. For 55-gallon drums containing solid process residues and soils, a sample must be collected as a core that is representative of the waste along the entire depth of the waste in the drum.

Sample Core Collection

Coring tools must be used to collect cores of solid process residues and soils from 55-gallon drums and smaller containers in a manner that minimizes disturbance to the core. A rotational coring tool (i.e., a tool that is rotated longitudinally), similar to a drill bit, must be used to cut, lift the waste cuttings, and collect a core sample from containers of waste. For solid process residues and soils that are relatively soft, nonrotational coring tools may be used in lieu of a rotational coring tool.

Rotational coring tools (i.e., lightweight augers) and nonrotational coring tools (i.e., thin-walled samplers) have each been tested for their ability to collect a vertical core of simulated solidified waste contained in 55-gallon drums and 1-gallon polyethylene bottles, as described in "Idaho National Engineering Laboratory Simulated Solidified Transuranic Waste Sampling Program" (EG&G, 1994). The rotational coring tool used at the INEL has demonstrated core recoveries greater than 75 percent for soft simulated wastes and greater than 94 percent for hard simulated waste. The sampling tool has been designed to minimize the transfer of frictional heat to the core, thereby minimizing potential loss of VOCs (DOE, 1994). The nonrotational coring tool has demonstrated core recoveries greater than 88 percent for soft simulated wastes. LANL will use coring tools similar to those developed at the INEL.

Subsample Collection

To obtain representative subsamples, subsampling of the sample core is required. Subsampling must be conducted as soon as possible after sample core collection to minimize the loss of VOCs. If a substantial delay (e.g., several minutes) is expected between sample core collection and subsampling, the sample core must remain in the sleeve and the sleeve must be capped at each end. Subsamples for VOCs must be collected prior to extruding the sample core from the sleeve. The sampling location must be randomly selected along the long axis of the sleeve and access to the waste must be gained by making a perpendicular cut through the sleeve and the waste it contains.

A.2.3.3.5 Statistical Approach for Headspace Gas and Solid Waste Sampling

A statistical approach will be used to select containers for headspace gas sampling. The same approach will be used for solid waste sampling and analysis of legacy and existing solid process residue and soil waste streams. This approach relies on the premise that the waste containers have been separated into waste streams on the basis of process knowledge and, thus, represent populations that contain similar waste. Drums are first segregated into waste streams based on existing characterization information. An initial number of drums is selected from each waste stream for sampling and analysis. For waste streams consisting of ten drums or more, ten drums are selected at random for sampling. For waste streams consisting of ten drums or less, each drum is sampled. For waste streams with less than three drums, a total of three samples is taken. The analytical results from the initial round of sampling are used to calculate upper and lower confidence limits for the mean concentrations of RCRA-regulated constituents. Those limits are compared to the RTLs for the constituents. If a hazardous waste determination cannot be made based on the results from the initial round of sampling, an additional number of drums is

selected. The number of additional drums for the second round of sampling depends on the variance of the analytical results from the first round. Drums are sampled to a maximum of all of the drums in the waste stream or 40 drums, whichever is smaller.

The objective is to classify specific waste streams as hazardous or nonhazardous by determining the average, or mean, and associated variance of the concentration of RCRA-hazardous constituents in the waste stream. Confidence limits for the mean concentration will be used in comparisons to RCRA regulatory limits so that a predetermined level of confidence can be associated with the decision on whether a waste stream is hazardous for a RCRA characteristic. Waste containers within each waste stream and sample locations within each container will be randomly selected to ensure that the analytical results provide an unbiased estimate of the true mean contaminant concentration for each waste stream.

A.2.3.4 Sample Handling, Preservation, and Storage

Table A.2-5 presents SW-846 requirements regarding sample containers, preservation techniques, and holding times associated with sample collection. Adherence to these requirements will occur to ensure that sampling and analysis meet quality objectives for data.

A.2.4 ANALYTICAL LABORATORY SELECTION AND ANALYTICAL METHODS

Analytical laboratories at LANL and/or approved subcontractor laboratories will perform all of the detailed qualitative and quantitative chemical analyses specified in Table A.2-4 of this WAP. These laboratories must have:

- The capability of handling radioactive material/waste
- A documented comprehensive QA/QC program
- Technical analytical expertise
- A document control/records management plan
- The capability to perform data reduction, validation, and reporting.

The selection and development of analytical testing methods for LANL TRU mixed waste streams were based on the following considerations:

- The physical form of the waste
- Analytes of interest
- Required detection limits (e.g., regulatory thresholds)
- Information requirements (e.g., verify compliance with LDR treatment standards, waste classification).

Collectively, these factors contributed to the selection of the analytical methods specified in Table A.2-4. Qualified analytical laboratories at LANL and/or approved subcontractor laboratories that meet the above criteria will analyze TRU mixed waste samples for RCRA-regulated hazardous constituents (VOCs,

SVOCs, and metals) and characteristics according to SW-846 or documented and approved equivalent methods.

A.2.5 VERIFICATION ANALYSIS FOR TRU MIXED WASTE

Analysis may be performed to verify the accuracy of the initial waste characterization, to verify that applicable treatment standards have been met, when there is a change in a waste-generating process, when the generator requests a review, or when analytical results indicate a change in a waste stream. Verification analysis for TRU mixed waste will be conducted at LANL's or an approved subcontractor's laboratory facilities. All verification analyses will be conducted in conformance with appropriate EPA-approved methods. The type of verification analysis that will be performed to obtain waste characterization information depends upon the matrix parameter code of the waste stream and whether the waste is existing or future TRU mixed waste. Verification analysis methodologies for these different types of waste are presented below.

A.2.5.1 Verification of Existing TRU Mixed Waste

Characterization for existing homogeneous TRU mixed waste streams (Matrix Parameter Codes 3000 and 4000) will not require verification, because the statistical basis for initial characterization provides statistical confidence in determining whether a waste is hazardous as defined by RCRA. Process knowledge documentation applicable to existing heterogeneous TRU mixed waste streams (Matrix Parameter Code 5000) will be qualitatively verified by RTR of waste containers (see Section A.2.3.3.1), visual examination of the contents of select waste containers (see Section A.2.3.3.2), and headspace gas sampling while venting (see Section A.2.3.3.3).

A.2.5.2 Verification of Future TRU Mixed Waste

Future homogeneous TRU mixed waste streams that have been characterized using LANL's WPF and a certification program will undergo verification sampling and analysis at a frequency of at least 1 in 100 waste streams per year. This verification will be used to support waste characterization information provided on the WPF, as well as the certification program, for the waste stream. Analytical results that show regulated constituents present at concentrations outside the ranges documented on the WPF are cause for rejection of the WPF and will require investigation and recharacterization of the waste stream. The recharacterization will include sampling and analysis sufficient to establish the range of regulated constituents potentially present in the waste stream.

Future heterogeneous TRU mixed waste streams will undergo qualitative verification of acceptable knowledge through RTR, visual examination, and headspace gas sampling, as described in Section A.2.5.1. Both homogeneous and heterogeneous waste streams will undergo qualitative verification through review of documentation supporting waste characterization as part of a certification program.

A.2.6 SPECIAL PROCEDURAL REQUIREMENTS

Additional waste management requirements specific to ignitable, reactive, and incompatible wastes, as well as compliance with LDR, are described below.

A.2.6.1 Procedures for Ignitable and Reactive Wastes

When ignitable or reactive waste streams are stored at LANL, specific waste management procedures for ignitable and reactive waste will be followed pursuant to 20 NMAC 4.1, Subpart V, 264.17, revised November 1, 1995. At a minimum, ignitable and reactive wastes will be separated during storage.

A.2.6.2 Procedures for Incompatible Wastes

Pursuant to 20 NMAC 4.1 Subpart V, 264.17, revised November 1, 1995, specific waste management procedures for incompatible wastes are described as follows. Incompatible wastes are kept separated during storage. Waste containers holding potentially incompatible free liquids will be stored on self-containment pallets to maintain separation. Because incompatible wastes are and will be separated and potentially incompatible free liquids will be stored on self-containment pallets, any potential for release and reaction with other wastes or materials is and will be minimized.

A.2.6.3 Procedures to Ensure Compliance with LDR Requirements

In accordance with LDR requirements, waste to be shipped off site may need to be analyzed to determine whether it meets the applicable LDR treatment standards in 20 NMAC 4.1, Subpart VIII, Part 268, Subpart D, revised November 1, 1995. If (1) it is known whether the wastes meet applicable LDR treatment standards based on acceptable knowledge or (2) waste will be transported to a RCRA-permitted waste management facility operating in conformance with a no-migration determination, then sampling and analysis to certify LDR compliance is not necessary for affected waste. Sampling and analysis will be conducted in accordance with 20 NMAC 4.1, Subpart VIII, Part 268, revised November 1, 1995, only to certify that the waste meets LDR treatment standards. Each waste for which a treatment standard has been established will be evaluated for the applicable parameters in 20 NMAC 4.1, Subpart VIII, Part 268, Subpart D, revised November 1, 1995. All analytical results completed in support of LDR requirements will be retained within the facility operating record. LDR determinations will be documented on LANL's Land Disposal Restrictions Notification Form (Figure A.2-2).

TABLE A.2-1
CROSS REFERENCE OF MATRIX PARAMETER CODES AND WASTE IDENTIFICATION CODES

Matrix Parameter[a] Code/ Description	Item Description Codes	Matrix Category (Waste Description)	TRUPACT-II Content and Radioactive Solid Waste Disposal Codes	Waste Descriptions
3000-Solid Process Residues	002	Stabilized aqueous waste	LA 111A/211A	Concreted/cemented aqueous waste
			A76	Cement paste
	003	Stabilized aqueous waste	LA 111B/211B	Dewatered sludge
			A75	Chemical treatment sludge
	005(P2S)	Waste salts	LA 124A	Transuranic (TRU) waste salts
			A27	Nitrated solid crystallized residues
			A28	Chloride salts
			A29	Hydroxide cake
	006	Solidified inorganic process solids	LA 114A	Solidified inorganic process solids
			A24	Cemented/immobilized residues/powders
			A26	Evaporator bottoms/salts
	006	Solidified organic process solids	LA 126A	Solidified organic process solids
			A24	Cemented/immobilized residues/powders
			A25	Leached process residues
			A26	Evaporator bottoms/salts
			A29	Hydroxide cake
			A46	Reaction process crucibles and oxide residues
4000-Soils	None	Contaminated soil	A90	Contaminated soil

Refer to footnote at end of table.

TABLE A.2-1
CROSS REFERENCE OF MATRIX PARAMETER CODES AND WASTE IDENTIFICATION CODES
(continued)

Matrix Parameter[a] Code/ Description	Item Description Codes	Matrix Category (Waste Description)	TRUPACT-II Content and Radioactive Solid Waste Disposal Codes	Waste Descriptions
5000-Debris Wastes	001	Mixed metal scrap and incidental combustibles	LA 125A	Incidental combustibles and mixed metal scrap
			A30	Property-numbered (PN) equipment
			A31	Non-PN equipment
			A36	Noncombustible building debris
			A55	Filter media
	004	Combustible waste	LA 116A-E	Combustible waste
			A14	Combustible decontamination waste
			A15	Cellulosics (e.g., paper, wood)
			A16	Plastics
			A17	Rubber materials
			A18	Combined paper/plastics/rubber
			A19	Combined noncombustible trash
			A40	Combustible hot cell waste
			A60	Other combustibles
	005	High-efficiency particulate air (HEPA) filters	LA 119A	HEPA filters
			A55	Filter media
	005(LG)	Glass waste and incidental combustibles	LA 118A	TRU glass waste and incidental combustibles
			A47	Slag and porcelain
			A95	Glass waste and incidental combustibles

Refer to footnote at end of table.

TABLE A.2-1
CROSS REFERENCE OF MATRIX PARAMETER CODES AND WASTE IDENTIFICATION CODES
(continued)

Matrix Parameter[a] Code/ Description	Item Description Codes	Matrix Category (Waste Description)	TRUPACT-II Content and Radioactive Solid Waste Disposal Codes	Waste Descriptions
5000-Debris Wastes (Continued)	005(LM)	Metal waste and incidental combustibles	LA 117A-G	TRU noncombustible/ metal waste; incidental combustibles in LA 117A, LA 117D, and LA 117E
			A50	Metal crucibles, scrap, dies
			A52	Scrap metal
			A61	Other noncombustibles
			A80	Irradiation sources
	005(P1)	Leaded-rubber and metal waste	LA 123A-B	TRU leaded-rubber and TRU metal waste
			A61	Other noncombustibles
	005(P2G)	Graphite waste	LA 115A	TRU graphite waste and incidental combustibles
			A10	Graphite solids

[a] Information in this column was extracted from the U.S. Department of Energy (DOE), 1994, "TRU Waste Characterization Quality Assurance Program Plan," *CAO-94-1010*, Rev. B, Draft, Carlsbad Area Office, Carlsbad, New Mexico.

TABLE A.2-2
TRANSURANIC MIXED WASTE CHARACTERIZATION MATRIX[a]

Item Description Codes (IDC)	Waste Description	TRUPACT-II Content (TRUCON) Codes	Process Generating the Waste/Technical Area (TA)	Radioactive Solid Waste Disposal (RSWD) Codes/Waste Description	Basis for Hazardous Waste Designation (knowledge and/or testing)	Potential EPA[b] Hazardous Waste Numbers	Potential Hazardous Constituents in the Waste	Regulatory Limits[c] (milligrams per liter)
001	Mixed metal scrap and incidental combustibles	LA 125A	Metal equipment from decommissioning (e.g., gloveboxes, process equipment, ductwork); small volumes of combustibles from decommissioning in TA-3, TA-21, TA-39, TA-49, and TA-55, and sectioning, and packaging in TA-50-69.	A30 - Property-numbered (PN) equipment A31 - Non-PN Equipment A36 - Non-combustible building debris A55 - Filter media	Knowledge[d]	D006 D008	Cadmium Lead	1.0 5.0
002	Stabilized aqueous waste	LA 111A LA 211A	Effluent from plutonium (Pu) processing operations in TA-21 and TA-55, treated in TA-50-1 to produce the resulting concreted monolith	A76 - Cement paste	Knowledge[d]	D004 D006 D007 D008 D009 None None	Arsenic Cadmium Chromium Lead Mercury Barium hydroxide Beryllium hydroxide	5.0 1.0 5.0 5.0 0.2 None None

Refer to footnotes at end of table.

TABLE A.2-2
TRANSURANIC MIXED WASTE CHARACTERIZATION MATRIX[a]
(continued)

Item Description Codes (IDC)	Waste Description	TRUPACT-II Content (TRUCON) Codes	Process Generating the Waste/Technical Area (TA)	Radioactive Solid Waste Disposal (RSWD) Codes/Waste Description	Basis for Hazardous Waste Designation (knowledge and/or testing)	Potential EPA[b] Hazardous Waste Numbers	Potential Hazardous Constituents in the Waste	Regulatory Limits[c] (milligrams per liter)
003	Stabilized aqueous waste	LA 111B LA 211B	Sludge from Pu processing in TA-55 is chemically treated and mixed with dry concrete in TA-50-1	A75 - Chemical treatment sludge	Knowledge[d]	D004	Arsenic	5.0
						D006	Cadmium	1.0
						D007	Chromium	5.0
						D008	Lead	5.0
						D009	Mercury	0.2
						D010	Selenium	1.0
						D011	Silver	5.0
						D019	Carbon tetrachloride	0.5
						D021	Chlorobenzene	100.0
						D022	Chloroform	6.0
						F002	Spent halogenated solvents	Not Applicable (NA)
						F004 F005	Spent nonhalogenated solvents	NA
						None	Acetone	None
						None	Barium chloride	None
						None	Barium hydroxide	None
						None	Beryllium	None
						None	Beryllium hydroxide	None
						None	Di-n-octyl-phthalate	None
						None	Ethanol	None
						None	Methanol	None
						None	Methylene chloride	None
						None	n-Butyl alcohol	None
						None	Nickel	None
						None	Thallium	None
						None	Toluene	None
						None	Xylene	None

Refer to footnotes at end of table.

TABLE A.2-2
TRANSURANIC MIXED WASTE CHARACTERIZATION MATRIX[a]
(continued)

Item Description Codes (IDC)	Waste Description	TRUPACT-II Content (TRUCON) Codes	Process Generating the Waste/Technical Area (TA)	Radioactive Solid Waste Disposal (RSWD) Codes/Waste Description	Basis for Hazardous Waste Designation (knowledge and/or testing)	Potential EPA[b] Hazardous Waste Numbers	Potential Hazardous Constituents in the Waste	Regulatory Limits[c] (milligrams per liter)
004	Combustible waste	LA 116A LA 116B LA 116C LA 116D LA 116E	Combustible solids (e.g., paper, rags, plastic, rubber) and a small fraction of non-combustibles (e.g., metal scrap) generated from Pu processing and operations in TA-3, TA-21, TA-50, and TA-55	A14 - Combustible decontamination waste A15 - Cellulosics A16 - Plastics A17 - Rubber materials A18 - Combined paper/plastics/rubber A19 - Combined noncombustible trash A40 - Combustible hot cell waste A60 - Other combustibles	Knowledge[d]/ Testing[e]	D002 D004 D006 D008 D009 D019 D022 D028 D040 F002 F003 F005 None None None None None None	Hydrofluoric acid Arsenic Cadmium Lead Mercury Carbon tetrachloride Chloroform Dichloroethane Trichloroethylene 1,1,1-Trichloroethane Acetone Toluene Barium chloride Beryllium Beryllium hydroxide Bromobenzene Nickel Tributyl phosphate	NA 5.0 1.0 5.0 0.2 0.5 6.0 0.5 0.5 NA NA NA None None None None None None
005	High-efficiency particulate air (HEPA) filters	LA 119A	HEPA filters from exhaust air systems in Pu processing in TA-55	A55 - Filter media	Knowledge[d]	None	None	None
005(LG)	Glass waste	LA 118A	Glass waste (e.g., discarded labware, windows, bottles) with a small fraction of combustibles (e.g., plastics) generated from Pu processing in TA-3, TA-21, TA-42, and TA-55	A47 - Slag and porcelain A95 - Glass waste	Knowledge[d]/ Testing[e]	D002 D008 D009 D019 None None	Hydrofluoric acid Lead Mercury Carbon tetrachloride Barium chloride Barium hydroxide	NA 5.0 0.2 0.5 None None

Refer to footnotes at end of table.

TABLE A.2-2
TRANSURANIC MIXED WASTE CHARACTERIZATION MATRIX[a]
(continued)

Item Description Codes (IDC)	Waste Description	TRUPACT-II Content (TRUCON) Codes	Process Generating the Waste/Technical Area (TA)	Radioactive Solid Waste Disposal (RSWD) Codes/Waste Description	Basis for Hazardous Waste Designation (knowledge and/or testing)	Potential EPA[b] Hazardous Waste Numbers	Potential Hazardous Constituents in the Waste	Regulatory Limits[c] (milligrams per liter)
005(LM)	Metal waste	LA 117A LA 117B LA 117C LA 117D LA 117E LA 117F LA 117G	Metal waste (e.g., motors, pumps, tools, process equipment) with a small fraction of combustible waste (e.g., plastics) generated from Pu processing in TA-3 and TA-55	A50 - Metal crucibles, scrap, dies A52 - Scrap metal A61 - Other noncombustibles A80 - Irradiation sources	Knowledge[d]/ Testing[e]	D002 D008 D019 None None	Hydrofluoric acid Lead Carbon tetrachloride Barium chloride Beryllium	NA 5.0 0.5 None None
005(P1)	Leaded-rubber and metal waste	LA 123A LA 123B	Lead-lined glovebox gloves and metal waste (e.g., motors, tools, discarded metals) generated from Pu processing in TA-55	A61 - Other noncombustibles	Knowledge[d]/ Testing[e]	D002 D004 D006 D008 D009 D019 None None None	Hydrofluoric acid Arsenic Cadmium Lead Mercury Carbon tetrachloride Beryllium hydroxide Bromobenzene Nickel	NA 5.0 1.0 5.0 0.2 0.5 None None None
005(P2G)	Graphite waste	LA 115A	Discarded graphite molds, furnace equipment, and a small fraction of combustible waste generated from Pu processing in TA-55	A10 - Graphite solids	Knowledge[d]	D004 D006 D008 None None	Arsenic Cadmium Lead Beryllium Nickel	5.0 1.0 5.0 None None

Refer to footnotes at end of table.

TABLE A.2-2
TRANSURANIC MIXED WASTE CHARACTERIZATION MATRIX[a]
(continued)

Item Description Codes (IDC)	Waste Description	TRUPACT-II Content (TRUCON) Codes	Process Generating the Waste/Technical Area (TA)	Radioactive Solid Waste Disposal (RSWD) Codes/Waste Description	Basis for Hazardous Waste Designation (knowledge and/or testing)	Potential EPA[b] Hazardous Waste Numbers	Potential Hazardous Constituents in the Waste	Regulatory Limits[c] (milligrams per liter)
005(P2S)	Waste salts	LA 124A	Used chloride salts from pyrochemical processes (e.g., electrorefining, molten salt extraction, salt stripping, fluoride reduction, direct oxide reduction) and a small fraction of combustible waste (e.g., plastic) generated from Pu processing in TA-55	A27 - Nitrated solid crystallized residues A28 - Chloride salts A29 - Hydroxide cake	Knowledge[d]/ Testing[e]	D004 D006 D008 D009 None None	Arsenic Cadmium Lead Mercury Beryllium hydroxide Nickel	5.0 1.0 5.0 0.2 None None
006	Solidified inorganic process solids	LA 114A	Process residue from evaporator bottoms and other discardable solutions, process-leached solids, ash, filter cakes, salts, metal oxides, and fines generated as a result of Pu processing at TA-55-4	A24 - Cemented/immobilized residues/powders A26 - Evaporator bottoms/salts	Knowledge[d]	D002 D004 D006 D007 D008 D009	Hydrofluoric acid Arsenic Cadmium Chromium Lead Mercury	NA 5.0 1.0 5.0 5.0 0.2

Refer to footnotes at end of table.

TABLE A.2-2
TRANSURANIC MIXED WASTE CHARACTERIZATION MATRIX[a]
(continued)

Item Description Codes (IDC)	Waste Description	TRUPACT-II Content (TRUCON) Codes	Process Generating the Waste/Technical Area (TA)	Radioactive Solid Waste Disposal (RSWD) Codes/Waste Description	Basis for Hazardous Waste Designation (knowledge and/or testing)	Potential EPA[b] Hazardous Waste Numbers	Potential Hazardous Constituents in the Waste	Regulatory Limits[c] (milligrams per liter)
006	Solidified organic process solids	LA 126A	Solidified process residue from evaporator bottoms and other discardable solutions, processed leached solids, ash, filter cake, salts, metal oxide, fines, etc., that are immobilized in gypsum cement, generated from processing operations in TA-55.	A24 - Cemented/immobilized residues/powders A25 - Leached process residues A26 - Evaporator bottoms/salts A29 - Hydroxide cake A46 - Reaction process crucibles and oxide residues	Knowledge[d]	D002 D004 D006 D007 D008 D009 D019 D021 D022 D028 D040 F002 None None None None None None None None None	Hydrofluoric acid Arsenic Cadmium Chromium Lead Mercury Carbon tetrachloride Chlorobenzene Chloroform Dichloroethane Trichloroethylene 1,1,1-Trichloroethane Acetone Beryllium Bromobenzene Ethanol Methanol Methylene Chloride n-Butyl Alcohol Toluene Xylene	NA 5.0 1.0 5.0 5.0 0.2 0.5 100.0 6.0 0.5 0.5 NA None None None None None None None None None
None	Contaminated soil	None	Possibly generated by decontamination activities and/or accidental spills in TA-1, TA-3, TA-21, and TA-50	A90 - Contaminated soil	Knowledge[d]	Unknown	Unknown	Unknown

Refer to footnotes at end of table.

TABLE A.2-2
TRANSURANIC MIXED WASTE CHARACTERIZATION MATRIX[a]
(continued)

[a] This table is based on preliminary information from Los Alamos National Laboratory (LANL), 1994, "Draft Transuranic Waste Stream Hazardous Material Characterization Study," Rev. 0, and is subject to change upon further review. Potential EPA Hazardous Waste Numbers shown in this table may vary from those reported in LANL's Part A Permit Application for Mixed Waste (Rev. 2.0), September 1994, which reports the EPA Hazardous Waste Numbers in LANL's waste management database.
[b] U.S. Environmental Protection Agency.
[c] A solid waste exhibits the characteristic of toxicity if the extract from a representative sample of the waste contains any of the contaminants listed at a concentration equal to or greater than the respective value given in the New Mexico Administrative Code, Title 20, Chapter 4, Part 1, Subpart II, Part 261, Subpart D, revised November 1, 1995.
[d] Knowledge indicates process knowledge used as the basis for hazardous waste designation.
[e] Testing: In reference to the basis for hazardous waste classification, indicates that sampling and analysis has been performed, but either (1) the documentation is not available or (2) the data exist but are not verifiable.

TABLE A.2-3
PARAMETERS, CHARACTERIZATION METHODS, AND RATIONALE FOR TRANSURANIC MIXED WASTE

Matrix Parameter[a] Code/Description	Waste Description	Analytical Parameters[b]	Characterization Methods	Rationale
3000—Solid Process Residues	– Solidified aqueous waste (e.g., concreted/cemented aqueous waste) – Solidified aqueous waste (e.g., dewatered sludge and chemical treatment sludge) – Solidified inorganic/organic process solids – Waste salts	– Free liquids in waste matrix – Physical form of the waste	– Visual examination – Real-time radiography (RTR) – Acceptable knowledge[c]	– Verify physical waste form – No free liquids allowed
		– Resource Conservation and Recovery Act (RCRA)–regulated metals (see Table A.2-4)	– Sample and analyze statistically selected number of drums in waste stream. (see Table A.2-4)	– Determine toxicity characteristic – Determine concentration of metals
		– Volatile organic compounds (VOC) in container headspace gas	– Gas chromatography/ mass spectrometry – Fourier transform infrared spectrometry – Gas chromatography/ Flame ionization detector	– Qualitative screening to confirm the presence of VOCs
		– VOCs and semivolatile organic compounds (SVOC) (see Table A.2-4)	– Sample and analyze statistically selected number of drums in waste stream. (see Table A.2-4)	– Determine toxicity characteristic – Determine concentration of organics
4000—Soils	– Contaminated soil			
5000—Debris Waste	– Mixed metal scrap and incidental combustibles – Combustible waste – Graphite waste – Metal waste – Glass waste – Leaded-rubber and metal waste – High-efficiency particulate air filters	– Free liquids – Physical form of the waste	– Visual examination – RTR – Acceptable knowledge	– Verify physical waste form – No free liquids allowed
		– RCRA-regulated metals (see Table A.2-4)	– Acceptable knowledge	– Determine compliance with land disposal restriction (LDR) treatment standards, if applicable

efer to footnotes at end of table.

TABLE A.2-3
PARAMETERS, CHARACTERIZATION METHODS, AND RATIONALE FOR TRANSURANIC MIXED WASTE (continued)

Matrix Parameter[a] Code/Description	Waste Description	Analytical Parameters[b]	Characterization Methods	Rationale
		– VOCs in container headspace gas	– Gas chromatography/ mass spectrometry – Fourier transform infrared spectrometry – Gas chromatography/ Flame ionization detector	– Qualitative screening to confirm the presence of VOCs
		– VOCs and SVOCs (see Table A.2-4)	– Acceptable knowledge	– Determine compliance with LDR treatment standards, if applicable

[a] Information in this column was extracted from the U.S. Department of Energy (DOE), 1994, "TRU Waste Characterization Quality Assurance Program Plan," *CAO-94-1010*, Rev. B, Draft, Carlsbad Area Office, Carlsbad, New Mexico.
[b] U.S. Department of Energy (DOE), 1992, "RCRA Part B Permit Application for the Waste Isolation Pilot Plant," *DOE/WIPP 91-005*, Rev. 2, U.S. Department of Energy, Carlsbad, New Mexico.
[c] According to U.S. Environmental Protection Agency (EPA), 1994, "Waste Analysis at Facilities that Generate, Treat, Store, and Dispose of Hazardous Wastes - A Guidance Manual," *OSWER 9938.4-03*, U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, Washington, D.C., acceptable knowledge is broadly defined as process knowledge, waste analysis data (e.g., sampling and analysis), and/or facility records of analysis performed.

TABLE A.2-4
SUMMARY OF WASTE CHARACTERIZATION TECHNIQUES FOR TRANSURANIC MIXED WASTE

Parameter[a]	Method Numbers	Test Methods	Rationale
Physical Waste Form		Waste inspection procedures Real-time radiography Visual examination Process knowledge	Identify and verify waste container contents
Volatile Organic Compounds (VOC) in waste matrix and container headspace gas: Acetone n-Butyl alcohol Carbon tetrachloride Chlorobenzene Chloroform Dichloroethane Formaldehyde Methanol Methylene chloride Spent halogenated solvents Spent nonhalogenated solvents Tetrachloroethylene Toluene 1,1,1-Trichloroethane Trichloroethylene Xylenes	ASTM Method D4547-91[b] U.S. EPA/540/4-91/001[c] SW-846 (1311, 8240, 8240A, 8240B, 8260, 8260A)[d], or equivalent methods[e]	Total and/or toxicity characteristic leaching procedure (TCLP) VOC analysis by gas chromatography/ mass spectrometry (GC/MS) Fourier transform infrared spectrometry Flame ionization detector Process knowledge for debris wastes	Determine total and/or TCLP VOC concentrations in samples of solid process residues and soils
Semivolatile Organic Compounds (SVOC) in waste: Cresols Ortho-dichlorobenzene 1,4-Dichlorobenzene 2,4-Dinitrotoluene Hexachloroethane Nitrobenzene Pyridine	SW-846 (1311, 8250, 8250A, 8270A, 8270B)[d], or equivalent methods[e]	Total and/or TCLP SVOC analysis by GC/MS Process knowledge for debris waste	Determine total and/or TCLP SVOC concentrations in samples of solid process residues and soils

`efer to footnotes at end of table.

TABLE A.2-4
SUMMARY OF WASTE CHARACTERIZATION TECHNIQUES FOR TRANSURANIC MIXED WASTE
(continued)

Parameter[a]	Method Numbers	Test Methods	Rationale
Metals in waste: Arsenic Barium Cadmium Chromium Lead Mercury Nickel Selenium Silver Thallium	SW-846 (3051, 1311, 6010A, 6020, 7060A, 7061A)[d] (3051, 1311, 6010A, 6020, 7080, 7080A, 7081)[d] (3051, 1311, 6010A, 6020, 7130, 7131A)[d] (3051, 1311, 6010A, 6020, 7190, 7191)[d] (3051, 1311, 6010A, 6020, 7420, 7421)[d] (1311, 7471A)[d] (3051, 1311, 6010A, 6020, 7520)[d] (3051, 1311, 6010A, 6020, 7740, 7741A, 7742)[d] (3051, 1311, 6010A, 6020, 7760A, 7761)[d] (3051, 1311, 6010A, 6020, 7840, 7841)[d], or equivalent methods[e]	Total and/or TCLP metals analysis Inductively coupled plasma Atomic absorption spectroscopy Cold vapor atomic absorption spectroscopy Process knowledge for debris wastes	Determine total and/or TCLP metals concentrations in samples of solid process residues and soils

[a] Information in this column was extracted from the U.S. Department of Energy (DOE), 1992, "RCRA Part B Permit Application for the Waste Isolation Pilot Plant," *DOE/WIPP 91-005*, Rev. 2, U.S. Department of Energy, Carlsbad, New Mexico.
[b] American Society for Testing and Materials (ASTM), 1991, "Standard Practice for Sampling Waste and Soils for Volatile Organic Compounds," *ASTM D4547-91*, Annual Book of ASTM Standards, Philadelphia, Pennsylvania, American Society for Testing and Materials.
[c] U.S. Environmental Protection Agency (EPA), 1991, "Soil Sampling and Analysis for Volatile Organic Compounds," *EPA/540/4-91/001*, Office of Research and Development, U.S. Environmental Protection Agency.
[d] U.S. Environmental Protection Agency (EPA), 1986, "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," *SW-846*, Third Edition and all subsequent updates, Office of Solid Waste and Emergency Response, U.S. Government Printing Office, Washington, D.C.
[e] Equivalent methods, subject to EPA approval, may be substituted.

Table A.2-5

Recommended Sample Containers, Preservation Techniques, and Holding Times[a]

Analyte Class and Sample Type	Container	Preservative	Holding Time
Volatile Organics			
Concentrated Waste Samples	125-milliliter (mL) wide-mouth glass with Teflon™-lined lid	Cool to 4 degrees Celsius (°C)[b].	14 days
Liquid Samples			
No residual chlorine present	2 x 40-mL glass vials with Teflon™-lined septum caps	Cool to 4°C.	14 days
Residual chlorine present	2 x 40-mL glass vials with Teflon™-lined septum caps	Collect sample in a 125-mL container that has been pre-preserved with 4 drops of 10 percent sodium thiosulfate. Gently mix sample and transfer to a 40-mL volatile organic analyte vial. Cool to 4°C.	14 days
Acrolein and Acrylonitrile	2 x 40-mL vials with Teflon™-lined septum caps	Adjust to pH[c] of 4-5. Cool to 4°C.	14 days
Soil/Sediments and Sludges	125-mL wide-mouth glass container sealed with a septum	Cool to 4°C.	14 days

Refer to footnotes at end of table.

Table A.2-5 (Continued)

Recommended Sample Containers, Preservation Techniques, and Holding Times[a]

Analyte Class and Sample Type	Container	Preservative	Holding Time
Semivolatile Organics/Organochlorine Pesticides and Herbicides			
Concentrated Waste Samples	125-mL wide-mouth glass with Teflon™-lined lid	None	Samples must be extracted within 14 days and analyzed within 40 days following extraction.
Soil/Sediments and Sludges	250-mL wide-mouth glass with Teflon™-lined lid	Cool to 4°C.	Samples must be extracted within 14 days and analyzed within 40 days following extraction.
Metals (except hexavalent chromium and mercury)			
Liquid Samples			
Total	600-mL polyethylene	Add nitric acid to pH of less than 2.	180 days
Chromium VI	400-mL polyethylene or glass	Cool to 4°C.	24 hours
Mercury	400-mL polyethylene or glass	Add nitric acid to pH of less than 2. Cool to 4°C.	28 days
Soil/Sediments and Sludges	200-gram polyethylene or glass	Cool to 4°C.	180 days, as soon as possible for chromium VI, 28 days for mercury

[a] U.S. Environmental Protection Agency (EPA), 1986, "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," *SW-846*, Third Edition and all subsequent updates, Office of Solid Waste and Emergency Response, U.S. Government Printing Office, Washington, D.C.
[b] Adjust to pH (see footnote c) of less than 2 with sulfuric acid, hydrochloric acid, or solid sodium bisulfate.
[c] A term used to describe the hydrogen-ion activity of a system.

Los Alamos
National Laboratory

WASTE PROFILE FORM

Account Information		Reference Number
	For rapid processing, complete **all sections** in black or blue ink and mail this form to Waste Services Group at MS J579	

Waste Generator's Name (Print)	Znumber	Waste Management Coordinator's Name (Print)	Znumber

Generator's Group	Generator's Telephone	Generator's Mail Stop	Waste Stream Technical Area	Building	Room

Waste Accumulation
Check as many as apply.

- ☐ Satellite accumulation area --> site no.: _____
- ☐ Less than 90 day accumulation area --> site no.: _____
- ☐ Radioactive Materials Management Area (RMMA) --> site no.: _____
- ☐ None of the above

Method of Characterization
Check as many as apply.

- ☐ Acceptable Knowledge (AK)
- ☐ Analysis attached --> sample/request no. _____
- ☐ MSDS attached
- ☐ Request for analysis

Section 1- Chemical and Physical Characteristics

For help in completing this section of the form, call 5-WAST or 5-4000.

Waste Type
Check only one.

- ☐ Unused/unspent chemical
  Check *Waste Classes* and *Associated Documentation* Only
- ☐ Process waste/spent chemical
  Complete all of Section 1.

Waste Classes
Check as many as apply.

- ☐ On-going generation
- ☐ One-time generation
- ☐ Radioactive (complete Sec. 2)
- ☐ Non-radioactive
- ☐ Wastewater (complete Sec. 3)
- ☐ Classified/Sensitive

Associated Documentation
Check as many as apply.

- ☐ Process SOP --> no.: _____
- ☐ RMMA OP --> no.: _____
- ☐ WM SOP --> no.: _____
- ☐ Other --> _____
- ☐ None --> describe below

Waste Category
Check as many as apply.

- ☐ Solvent
- ☐ Degreaser
- ☐ Dioxin
- ☐ Electroplating
- ☐ Treated hazardous waste residue
- ☐ Explosive process waste
- ☐ Infectious/biological waste
- ☐ Beryllium
- ☐ Asbestos-friable
- ☐ Asbestos-nonfriable
- ☐ Empty containers
- ☐ PCB (<50 ppm)
  - ☐ PCB (50 - 500 ppm)
  - ☐ PCB (> 500 ppm)
  - → id. no.: _____
- ☐ Not applicable --> describe below

Waste Sources
Check as many as apply.

- ☐ Research and development
- ☐ Maintenance
- ☐ Construction
- ☐ Material processing
- ☐ Decon/decom
- ☐ Investigation derived
- ☐ Remediation
- ☐ UST - petroleum
- ☐ UST - non-petroleum
- ☐ Generator treatment
- ☐ Interim/permitted treatment
- ☐ Industrial sludge
- ☐ Sanitary sludge
- ☐ Abatement

Waste Matrix
Check only one.

Gas

- ☐ ≤ 1.5 Atmospheres
- ☐ > 1.5 Atmospheres

Liquid

- ☐ Aqueous
- ☐ Organic
- ☐ Inorganic

Solid

- ☐ Powder/ash
- ☐ Solid
- ☐ Absorbed liquid

Matrix Type
Check only one.

- ☐ Homogeneous
- ☐ Heterogeneous --> describe below

Waste/Process Description

_____
_____
_____
_____
_____
_____
_____

FIGURE A.2-1

WASTE PROFILE FORM

Section 1- Chemical and Physical Characteristics (continued)

Ignitability (degrees F.)
Check only one.

- ☐ < 73
- ☐ 73-99
- ☐ 100-139
- ☐ 140-200
- ☐ > 200
- ☐ Ignitable solid
- ☐ DOT oxidizer
- ☐ Not ignitable

Corrosivity (pH)
Check only one.

- ☐ ≤ 2.0
- ☐ 2.1-4.0
- ☐ 4.1-6.0
- ☐ 6.1-9.0
- ☐ 9.1-12.4
- ☐ ≥ 12.5
- ☐ Liquid corrosive to steel
- ☐ Not aqueous

Reactivity
Check as many as apply.

- ☐ Unstable
- ☐ Water reactive
- ☐ Pyrophoric
- ☐ Cyanide bearing
- ☐ Sulfide bearing
- ☐ Shock sensitive
- ☐ Explosive - class _____
- ☐ Non-reactive

Boiling Point (degrees F.)
Check only one.

- ☐ ≤ 95
- ☐ > 95
- ☐ Not applicable

Identify presence of contaminants.			Minimum		Maximum	Unit (ppm or % only)	Analytical method	
Toxicity Characteristic Metals								
Arsenic	☐ None	☐ < 5.0 ppm	_____	to	_____	_____	☐ TCLP	☐ Total
Barium	☐ None	☐ < 100.0 ppm	_____	to	_____	_____	☐ TCLP	☐ Total
Cadmium	☐ None	☐ < 1.0 ppm	_____	to	_____	_____	☐ TCLP	☐ Total
Chromium	☐ None	☐ < 5.0 ppm	_____	to	_____	_____	☐ TCLP	☐ Total
Lead	☐ None	☐ < 5.0 ppm	_____	to	_____	_____	☐ TCLP	☐ Total
Mercury	☐ None	☐ < 0.2 ppm	_____	to	_____	_____	☐ TCLP	☐ Total
Selenium	☐ None	☐ < 1.0 ppm	_____	to	_____	_____	☐ TCLP	☐ Total
Silver	☐ None	☐ < 5.0 ppm	_____	to	_____	_____	☐ TCLP	☐ Total
Toxicity Characteristic Organic Compounds								
Benzene	☐ None	☐ < 0.5 ppm	_____	to	_____	_____	☐ TCLP	☐ Total
Carbon tetrachloride	☐ None	☐ < 0.5 ppm	_____	to	_____	_____	☐ TCLP	☐ Total
Chlorobenzene	☐ None	☐ < 100.0 ppm	_____	to	_____	_____	☐ TCLP	☐ Total
Chloroform	☐ None	☐ < 6.0 ppm	_____	to	_____	_____	☐ TCLP	☐ Total
Cresol	☐ None	☐ < 200.0 ppm	_____	to	_____	_____	☐ TCLP	☐ Total
1,4-dichlorobenzene	☐ None	☐ < 7.5 ppm	_____	to	_____	_____	☐ TCLP	☐ Total
1,2-Dichloroethane	☐ None	☐ < 0.5 ppm	_____	to	_____	_____	☐ TCLP	☐ Total
1,1-Dichloroethylene	☐ None	☐ < 0.7 ppm	_____	to	_____	_____	☐ TCLP	☐ Total
2,4-Dinitrotoluene	☐ None	☐ < 0.13 ppm	_____	to	_____	_____	☐ TCLP	☐ Total
Hexachlorobenzene	☐ None	☐ < 0.13 ppm	_____	to	_____	_____	☐ TCLP	☐ Total
Hexachlorobutadiene	☐ None	☐ < 0.5 ppm	_____	to	_____	_____	☐ TCLP	☐ Total
Hexachloroethane	☐ None	☐ < 3.0 ppm	_____	to	_____	_____	☐ TCLP	☐ Total
Methyl ethyl ketone	☐ None	☐ < 200.0 ppm	_____	to	_____	_____	☐ TCLP	☐ Total
Nitrobenzene	☐ None	☐ < 2.0 ppm	_____	to	_____	_____	☐ TCLP	☐ Total
Pentachlorophenol	☐ None	☐ < 100.0 ppm	_____	to	_____	_____	☐ TCLP	☐ Total
Pyridine	☐ None	☐ < 5.0 ppm	_____	to	_____	_____	☐ TCLP	☐ Total
Perchloroethylene or tetrachloroethylene	☐ None	☐ < 0.7 ppm	_____	to	_____	_____	☐ TCLP	☐ Total
Trichloroethylene	☐ None	☐ < 0.5 ppm	_____	to	_____	_____	☐ TCLP	☐ Total
2,4,5-Trichlorophenol	☐ None	☐ < 400.0 ppm	_____	to	_____	_____	☐ TCLP	☐ Total
2,4,6-Trichlorophenol	☐ None	☐ < 2.0 ppm	_____	to	_____	_____	☐ TCLP	☐ Total
Vinyl chloride	☐ None	☐ < 0.2 ppm	_____	to	_____	_____	☐ TCLP	☐ Total

Additional Chemical Constituents and Contaminants (for hazardous constituents, see AR 10-3, Appendix A)
List all other constituents (including inerts) not identified above and attach any applicable analyses.

Name of constituent	Cas no.(optional)	Minimum		Maximum	Unit (ppm or % only)
_____	_____	_____	to	_____	_____
_____	_____	_____	to	_____	_____
_____	_____	_____	to	_____	_____
_____	_____	_____	to	_____	_____
_____	_____	_____	to	_____	_____
_____	_____	_____	to	_____	_____
_____	_____	_____	to	_____	_____
_____	_____	_____	to	_____	_____
_____	_____	_____	to	_____	_____

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FIGURE A.2-1

WASTE PROFILE FORM
(continued)

Section 2- Radiological Characteristics

For help in completing this section of the form, call 5-WAST or 5-4000.

	Range minimum		Range maximum	Unit (Ci/g or Ci/l)
General				
☐ Alpha		to		
☐ Beta		to		
☐ Gamma		to		
TRU radionuclides				
☐ None present				
☐ Am-241		to		
☐ Am-243		to		
☐ Cf-249		to		
☐ Cf-251		to		
☐ Cm-243		to		
☐ Cm-245		to		
☐ Cm-247		to		
☐ Pu-238		to		
☐ Pu-239		to		
☐ Pu-240		to		
☐ Pu-242		to		
Fission products				
☐ None present				
☐ Ba-140		to		
☐ Ce-144		to		
☐ Cs-134		to		
☐ Cs-137		to		
☐ I-129		to		
☐ I-133		to		
☐ Kr-85		to		
☐ Nb-95		to		
☐ Ru-106		to		
☐ Sb-125		to		
☐ Sr-90		to		
☐ Tc-99		to		
☐ Zr-93		to		
☐ Zr-95		to		
Activation products				
☐ None present				
☐ As -74		to		
☐ Be-7		to		
☐ C-14		to		
☐ Co-56		to		
☐ Co-57		to		
☐ Co-58		to		
☐ Co-60		to		
☐ Cr-51		to		
☐ Eu-152		to		
☐ Mn-52		to		
☐ Mn-54		to		
☐ Nb-94		to		
☐ Ni-59		to		
☐ Ni-63		to		
☐ Rb-83		to		
☐ Rb-84		to		
☐ Se-75		to		
☐ Sr-82		to		
☐ Sr-85		to		
☐ Y-48		to		
☐ Y-88		to		
☐ Zn-65		to		
☐ Zr-88		to		

	Range minimum		Range maximum	Unit (Ci/g or Ci/l)
Other				
☐ None present				
☐ Am-242		to		
☐ Bi-207		to		
☐ Bi-210		to		
☐ Cf-250		to		
☐ Cf-252		to		
☐ Cm-244		to		
☐ H-3		to		
☐ Pa-231		to		
☐ Pb-210		to		
☐ Po-210		to		
☐ Pu-236		to		
☐ Pu-241		to		
☐ Ra-226		to		
☐ Ra-228		to		
☐ Th-230		to		
☐ Th-232		to		
☐ U-232		to		
☐ U-233		to		
☐ U-234		to		
☐ U-235		to		
☐ U-236		to		
☐ U-238		to		
Add'l radionuclides				
☐ No additional radionuclides present				
		to		
		to		
		to		
		to		
		to		
		to		
		to		
		to		
		to		
		to		
		to		
		to		
		to		
		to		
		to		

Contamination Type: *Check as many as apply.*

☐ Volume Contamination
☐ Surface Contamination

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FIGURE A.2-1

WASTE PROFILE FORM
(continued)

Section 3 - Wastewater Characteristics

For help in completing this section of the form, call 7-4301.

Identify presence of contaminants			Minimum		Maximum	ppm	Analytical method	
Aluminum	☐ None	☐ < 5.0 ppm	_____	to	_____	_____	☐ TCLP	☐ Total
Boron	☐ None	☐ < 5.0 ppm	_____	to	_____	_____	☐ TCLP	☐ Total
Cobalt	☐ None	☐ < 1.0 ppm	_____	to	_____	_____	☐ TCLP	☐ Total
Copper	☐ None	☐ < 1.0 ppm	_____	to	_____	_____	☐ TCLP	☐ Total
Vanadium	☐ None	☐ < 0.10 ppm	_____	to	_____	_____	☐ TCLP	☐ Total
Zinc	☐ None	☐ < 95.4 ppm	_____	to	_____	_____	☐ TCLP	☐ Total

Maximum daily flow when discharge occurs: _____ ☐ Gallons ☐ Liters

Average daily flow when discharge occurs: _____ ☐ Gallons ☐ Liters

Estimated number of days per year that discharge will occur: _____

Estimated total volume per year discharged to the Radioactive Liquid Waste Collection System at TA-50-1: _____ ☐ Gallons ☐ Liters

For TA-55 use only. Wastewater will be discharged through one of the following:

☐ Acid line ☐ Caustic line ☐ Industrial waste line

Section 4 - Additional Information

If additional information is available on the chemical, physical, or radiological character of the waste not covered on this form, provide it below:

WASTE GENERATOR CERTIFICATION: *Based on my knowledge of the waste and/or chemical/physical analysis, I certify that the information on this form is correct. I understand that this information will be made available to regulatory agencies and that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.*

Signature _____ Date _____

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FIGURE A.2-1

WASTE PROFILE FORM
(continued)

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LAND DISPOSAL RESTRICTIONS NOTIFICATION FORM

A copy of this form must be attached to each Waste Profile Form and to each Uniform Hazardous Waste Manifest required to transport waste within LANL, pursuant to 40 CFR 268.7 (a)(1).

Waste Profile Form No.	Chemical Waste Waste Disposal Record No	Uniform Hazardous Waste Manifest No	Date of Waste Pickup

Check only one.

☐ Non-wastewater
☐ Wastewater (as defined in 40 CFR 268.2(f))

NOTIFICATION OF CALIFORNIA LIST APPLICABILITY

Check all that apply.

☐ Liquid hazardous waste containing PCBs at a concentration of ≥50 ppm.
☐ A D001 – D017 liquid waste containing ≥134 mg/L of nickel and/or ≥130 mg/L of thallium.
☐ A D001 – D011 waste containing Halogenated Organic Compounds (HOCs) listed in 40 CFR 268, Appendix III, at ≥1000 ppm

NOTIFICATION OF "D" CHARACTERISTIC EPA WASTE CODES

Check all that apply.

EPA Waste Code	Waste Description and/or Subcategory (as needed)
☐ D001*	Ignitable characteristic wastes (except for the Section 261.21(a)(1) High TOC Subcategory) that are managed in non-CWA/non-CWA-equivalent/non-Class I SDWA systems.
☐ D001	High TOC Ignitable Characteristic Liquids Subcategory based on 40 CFR 261.21(a)(1) - Greater than 10% total organic carbon.
☐ D002*	Corrosive Characteristic Wastes that are managed in non-CWA/non-CWA-equivalent/non-Class I SDWA systems.
☐ D003	Reactive Sulfides Subcategory
☐ D003	Reactive Cyanides Subcategory
☐ D003	Water Reactive Subcategory
☐ D003	Other Reactives Subcategory (based on 261.23(a)(1))
☐ D004	
☐ D005	
☐ D006	Wastes that exhibit the TC for cadmium
☐ D006	Cadmium Containing Batteries Subcategory
☐ D007	
☐ D008	Wastes that exhibit TC for lead
☐ D008	Lead Acid Batteries Subcategory
☐ D008	Radioactive Lead Solids Subcategory
☐ D009	High Mercury-Organic Subcategory (≥260 mg/kg Hg with organics and not incinerator residues)
☐ D009	High Mercury-Inorganic Subcategory (≥260 mg/kg Hg (with inorganics))
☐ D009	Low Mercury Subcategory (<260 mg/kg Hg)
☐ D009	All D009 wastewaters
☐ D009	Elemental mercury contaminated with radioactive materials.
☐ D009	Hydraulic oil contaminated with Mercury Radioactive Materials Subcategory
☐ D010	
☐ D011	

☐ D012*	☐ D020*	☐ D028*	☐ D036*
☐ D013*	☐ D021*	☐ D029*	☐ D037*
☐ D014*	☐ D022*	☐ D030*	☐ D038*
☐ D015*	☐ D023*	☐ D031*	☐ D039*
☐ D016*	☐ D024*	☐ D032*	☐ D040*
☐ D017*	☐ D025*	☐ D033*	☐ D041*
☐ D018*	☐ D026*	☐ D034*	☐ D042*
☐ D019*	☐ D027*	☐ D035*	☐ D043*

*All applicable Underlying Hazardous Constituents in these characteristic wastes must be checked in Table UTS

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FIGURE A.2-2

LAND DISPOSAL RESTRICTIONS NOTIFICATION FORM

Los Alamos
National Laboratory

LAND DISPOSAL RESTRICTIONS NOTIFICATION FORM

NOTIFICATION FOR F001 – F005 SPENT SOLVENT WASTES

Check all that apply.

Spent solvent wastes with the following constituents only

EPA Waste Code	Constituents in the waste	
☐ F001	☐ Acetone	☐ Isobutyl alcohol
☐ F002	☐ Benzene	☐ Methanol
☐ F003	☐ n-Butyl alcohol	☐ Methylene chloride
☐ F004	☐ Carbon disulfide (wastewater only)	☐ Methyl ethyl ketone
☐ F005	☐ Carbon tetrachloride	☐ Methyl isobutyl ketone
	☐ Chlorobenzene	☐ Nitrobenzene
	☐ o-cresol	☐ Pyridine
	☐ m-cresol	☐ Tetrachloroethylene
	☐ p-cresol	☐ Toluene
	☐ Cresol-mixed isomers (Cresylic acid)	☐ 1,1,1-Trichloroethane
	☐ Cyclohexanone (wastewater only)	☐ 1,1,2-Trichloroethane
	☐ o-Dichlorobenzene	☐ 1,1,2-Trichloro – 1,2,2-trifluoroethane
	☐ Ethyl acetate	☐ Trichloroethylene
	☐ Ethyl benzene	☐ Trichloromonofluoromethane
	☐ Ethyl ether	☐ Xylenes – mixed isomers (o-, m-, p-xylene)

Check all that apply.

EPA Waste Codes	Constituents in the waste
☐ F003	☐ Carbon disulfide
☐ F005	☐ Cyclohexanone
	☐ Methanol

Note: Treatment standards for these constituents apply to F001 – F005 wastes which contain only one, two, or all three of these constituents.

Check only one, if applicable.

EPA Waste Code	Constituents in the waste
☐ F005	☐ Containing 2-nitropropane as the only listed F001 – F005 solvent.
	☐ Containing 2-ethoxyethanol as the only listed F001 – F005 solvent.

NOTIFICATION FOR OTHER "F" WASTES

Check only one, if applicable.

☐ F006
☐ F007
☐ F008
☐ F009
☐ F027

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FIGURE A.2-2

LAND DISPOSAL RESTRICTIONS NOTIFICATION FORM
(continued)

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LAND DISPOSAL RESTRICTIONS NOTIFICATION FORM

NOTIFICATION FOR "P" AND "U" LISTED WASTE CODES

☐ P001	☐ P057	☐ P115	☐ U041	☐ U092	☐ U144	☐ U194
☐ P002	☐ P058	☐ P116	☐ U042	☐ U093	☐ U145	☐ U196
☐ P003	☐ P059	☐ P118	☐ U043	☐ U094	☐ U146	☐ U197
☐ P004	☐ P060	☐ P119	☐ U044	☐ U095	☐ U147	☐ U200
☐ P005	☐ P062	☐ P120	☐ U045	☐ U096	☐ U148	☐ U201
☐ P006	☐ P063	☐ P121	☐ U046	☐ U097	☐ U149	☐ U202
☐ P007	☐ P064	☐ P122	☐ U047	☐ U098	☐ U150	☐ U203
☐ P008	☐ P065	☐ P123	☐ U048	☐ U099	☐ U151	☐ U204
☐ P009	☐ P066		☐ U049	☐ U101	☐ U152	☐ U205
☐ P010	☐ P067		☐ U050	☐ U102	☐ U153	☐ U206
☐ P011	☐ P068		☐ U051	☐ U103	☐ U154	☐ U207
☐ P012	☐ P069	☐ U001	☐ U052	☐ U105	☐ U155	☐ U208
☐ P013	☐ P070	☐ U002	☐ U053	☐ U106	☐ U156	☐ U209
☐ P014	☐ P071	☐ U003	☐ U055	☐ U107	☐ U157	☐ U210
☐ P015	☐ P072	☐ U004	☐ U056	☐ U108	☐ U158	☐ U211
☐ P016	☐ P073	☐ U005	☐ U057	☐ U109	☐ U159	☐ U213
☐ P017	☐ P074	☐ U006	☐ U058	☐ U110	☐ U160	☐ U214
☐ P018	☐ P075	☐ U007	☐ U059	☐ U111	☐ U161	☐ U215
☐ P020	☐ P076	☐ U008	☐ U060	☐ U112	☐ U162	☐ U216
☐ P021	☐ P077	☐ U009	☐ U061	☐ U113	☐ U163	☐ U217
☐ P022	☐ P078	☐ U010	☐ U062	☐ U114	☐ U164	☐ U218
☐ P023	☐ P081	☐ U011	☐ U063	☐ U115	☐ U165	☐ U219
☐ P024	☐ P082	☐ U012	☐ U064	☐ U116	☐ U166	☐ U220
☐ P026	☐ P084	☐ U014	☐ U066	☐ U117	☐ U167	☐ U221
☐ P027	☐ P085	☐ U015	☐ U067	☐ U118	☐ U168	☐ U222
☐ P028	☐ P087	☐ U016	☐ U068	☐ U119	☐ U169	☐ U223
☐ P029	☐ P088	☐ U017	☐ U069	☐ U120	☐ U170	☐ U225
☐ P030	☐ P089	☐ U018	☐ U070	☐ U121	☐ U171	☐ U226
☐ P031	☐ P092	☐ U019	☐ U071	☐ U122	☐ U172	☐ U227
☐ P033	☐ P093	☐ U020	☐ U072	☐ U123	☐ U173	☐ U228
☐ P034	☐ P094	☐ U021	☐ U073	☐ U124	☐ U174	☐ U234
☐ P036	☐ P095	☐ U022	☐ U074	☐ U125	☐ U176	☐ U235
☐ P037	☐ P096	☐ U023	☐ U075	☐ U126	☐ U177	☐ U236
☐ P038	☐ P097	☐ U024	☐ U076	☐ U127	☐ U178	☐ U237
☐ P039	☐ P098	☐ U025	☐ U077	☐ U128	☐ U179	☐ U238
☐ P040	☐ P099	☐ U026	☐ U078	☐ U129	☐ U180	☐ U239
☐ P041	☐ P101	☐ U027	☐ U079	☐ U130	☐ U181	☐ U240
☐ P042	☐ P102	☐ U028	☐ U080	☐ U131	☐ U182	☐ U243
☐ P043	☐ P103	☐ U029	☐ U081	☐ U132	☐ U183	☐ U244
☐ P044	☐ P104	☐ U030	☐ U082	☐ U133	☐ U184	☐ U246
☐ P045	☐ P105	☐ U031	☐ U083	☐ U134	☐ U185	☐ U247
☐ P046	☐ P106	☐ U032	☐ U084	☐ U135	☐ U186	☐ U248
☐ P047	☐ P108	☐ U033	☐ U085	☐ U136	☐ U187	☐ U249
☐ P048	☐ P109	☐ U034	☐ U086	☐ U137	☐ U188	☐ U328
☐ P049	☐ P110	☐ U035	☐ U087	☐ U138	☐ U189	☐ U353
☐ P050	☐ P111	☐ U036	☐ U088	☐ U140	☐ U190	☐ U359

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FIGURE A.2-2

LAND DISPOSAL RESTRICTIONS NOTIFICATION FORM
(continued)

Los Alamos
National Laboratory

LAND DISPOSAL RESTRICTIONS NOTIFICATION FORM

TABLE UTS—Universal Treatment Standards
(Check the applicable underlying hazardous constituents for D001, D002, and D012 –D043 characteristic wastes only.)

Regulated constituent—common name

- ☐ Acenaphthylene
- ☐ Acenaphthene
- ☐ Acetone
- ☐ Acetonitrile
- ☐ Acetophenone
- ☐ 2-Acetylaminofluorene
- ☐ Acrolein
- ☐ Acrylamide
- ☐ Acrylonitrile
- ☐ Aldrin
- ☐ 4-Aminobiphenyl
- ☐ Aniline
- ☐ Anthracene
- ☐ Aramite
- ☐ alpha-BHC
- ☐ beta-BHC
- ☐ delta-BHC
- ☐ gamma-BHC
- ☐ Benzene
- ☐ Benz(a)anthracene
- ☐ Benzal chloride
- ☐ Benzo(b)fluoranthene (difficult to distinguish from benzo(k)fluoranthene)
- ☐ Benzo(k)fluoranthene (difficult to distinguish from benzo(b)fluoranthene)
- ☐ Benzo(g,h,i)perylene
- ☐ Benzo(a)pyrene
- ☐ Bromodichloromethane
- ☐ Methyl bromide (Bromomethane)
- ☐ 4-Bromophenyl phenyl ether
- ☐ n-Butyl alcohol
- ☐ Butyl benzyl phthalate
- ☐ 2-sec-Butyl-4,6-dinitrophenol (Dinoseb)
- ☐ Carbon disulfide
- ☐ Carbon tetrachloride
- ☐ Chlordane (alpha and gamma isomers)
- ☐ p-Chloroaniline
- ☐ Chlorobenzene
- ☐ Chlorobenzilate
- ☐ 2-Chloro-1,3-butadiene
- ☐ Chlorodibromomethane
- ☐ Chloroethane
- ☐ bis(2-Chloroethoxy)methane
- ☐ bis(2-Chloroethyl)ether
- ☐ Chloroform
- ☐ bis(2-Chloroisopropyl)ether
- ☐ p-Chloro-m-cresol
- ☐ 2-Chloroethyl vinyl ether
- ☐ Chloromethane (Methyl chloride)
- ☐ 2-Chloronaphthalene
- ☐ 2-Chlorophenol
- ☐ 3-Chloropropylene
- ☐ Chrysene
- ☐ o-Cresol
- ☐ m-Cresol (difficult to distinguish from p-cresol)
- ☐ p-Cresol (difficult to distinguish from m-cresol)
- ☐ Cyclohexanone
- ☐ 1,2-Dibromo-3-chloropropane
- ☐ Ethylene dibromide (1,2-Dibromoethane)
- ☐ Dibromomethane
- ☐ 2,4-D (2,4-Dichlorophenoxyacetic acid)
- ☐ o,p'-DDD
- ☐ p,p'-DDD
- ☐ o,p'-DDE
- ☐ p,p'-DDE
- ☐ o,p'-DDT
- ☐ p,p'-DDT
- ☐ Dibenz(a,h)anthracene
- ☐ Dibenz(a,e)pyrene
- ☐ m-Dichlorobenzene
- ☐ o-Dichlorobenzene
- ☐ p-Dichlorobenzene
- ☐ Dichlorodifluoromethane
- ☐ 1,1-Dichloroethane
- ☐ 1,2-Dichloroethane
- ☐ 1,1-Dichloroethylene
- ☐ trans-1,2-Dichloroethylene
- ☐ 2,4-Dichlorophenol
- ☐ 2,6-Dichlorophenol
- ☐ 1,2-Dichloropropane
- ☐ cis-1,3-Dichloropropylene
- ☐ trans-1,3-Dichloropropylene
- ☐ Dieldrin
- ☐ Diethyl phthalate
- ☐ 2-4,Dimethyl phenol
- ☐ Dimethyl phthalate
- ☐ Di-n-butyl phthalate
- ☐ 1,4-Dinitrobenzene

FIGURE A.2-2

LAND DISPOSAL RESTRICTIONS NOTIFICATION FORM
(continued)

Los Alamos
National Laboratory

LAND DISPOSAL RESTRICTIONS NOTIFICATION FORM

TABLE UTS—Universal Treatment Standards
(Check the applicable underlying hazardous constituents for D001, D002, and D012 –D043 characteristic wastes only.)

Regulated constituent—common name

- ☐ 4,6-Dinitro-o-cresol
- ☐ 2,4-Dinitrophenol
- ☐ 2,4-Dinitrotoluene
- ☐ 2,6-Dinitrotoluene
- ☐ Di-n-octyl phthalate
- ☐ p-Dimethylaminoazobenzene
- ☐ Di-n-propylnitrosamine
- ☐ 1,4-Dioxane
- ☐ Diphenylamine (difficult to distinguish from diphenylnitrosamine)
- ☐ Diphenylnitrosamine (difficult to distinguish from diphenylamine)
- ☐ 1,2-Diphenylhydrazine
- ☐ Disulfoton
- ☐ Endosulfan I
- ☐ Endosulfan II
- ☐ Endosulfan sulfate
- ☐ Endrin
- ☐ Endrin aldehyde
- ☐ Ethyl acetate
- ☐ Ethyl cyanide (Propanenitrile)
- ☐ Ethyl benzene
- ☐ Ethyl ether
- ☐ bis(2-Ethylhexyl) phthalate
- ☐ Ethyl methacrylate
- ☐ Ethylene oxide
- ☐ Famphur
- ☐ Fluoranthene
- ☐ Fluorene
- ☐ Heptachlor
- ☐ Heptachlor epoxide
- ☐ Hexachlorobenzene
- ☐ Hexachlorobutadiene
- ☐ Hexachlorocyclopentadiene
- ☐ HxCDDs (All Hexachlorodibenzo-p-dioxins)
- ☐ HxCDFs (All Hexachlorodibenzofurans)
- ☐ Hexachloroethane
- ☐ Hexachloropropylene
- ☐ Indeno (1,2,3-c,d) pyrene
- ☐ Iodomethane
- ☐ Isobutyl alcohol
- ☐ Isodrin
- ☐ Isosafrole
- ☐ Kepone
- ☐ Methacrylonitrile
- ☐ Methanol
- ☐ Methapyrilene
- ☐ Methoxychlor
- ☐ 3-Methylcholanthrene
- ☐ 4,4-Methylene bis(2-chloroaniline)
- ☐ Methylene chloride
- ☐ Methyl ethyl ketone
- ☐ Methyl isobutyl ketone
- ☐ Methyl methacrylate
- ☐ Methyl methansulfonate
- ☐ Methyl parathion
- ☐ Naphthalene
- ☐ 2-Naphthylamine
- ☐ o-Nitroaniline
- ☐ p-Nitroaniline
- ☐ Nitrobenzene
- ☐ 5-Nitro-o-toluidine
- ☐ o-Nitrophenol
- ☐ p-Nitrophenol
- ☐ N-Nitrosodiethylamine
- ☐ N-Nitrosodimethylamine
- ☐ N-Nitroso-di-n-butylamine
- ☐ N-Nitrosomethylethylamine
- ☐ N-Nitrosomorpholine
- ☐ N-Nitrosopiperidine
- ☐ N-Nitrosopyrrolidine
- ☐ Parathion
- ☐ Total PCBs (sum of all PCB isomers, or all Aroclors)
- ☐ Pentachlorobenzene
- ☐ PeCDDs (All Pentachlorodibenzo-p-dioxins)
- ☐ PeCDFs (All Pentachlorodibenzofurans)
- ☐ Pentachloroethane
- ☐ Pentachloronitrobenzene
- ☐ Pentachlorophenol
- ☐ Phenacetin
- ☐ Phenanthrene
- ☐ Phenol
- ☐ Phorate
- ☐ Phthalic acid
- ☐ Phthalic anhydride
- ☐ Pronamide
- ☐ Pyrene
- ☐ Pyridine
- ☐ Safrole
- ☐ Silvex (2,4,5-TP)

FIGURE A.2-2

LAND DISPOSAL RESTRICTIONS NOTIFICATION FORM
(continued)

Los Alamos
National Laboratory

LAND DISPOSAL RESTRICTIONS NOTIFICATION FORM

TABLE UTS—Universal Treatment Standards
(Check the applicable underlying hazardous constituents for D001, D002, and D012 –D043 characteristic wastes only.)

Regulated constituent—common name

- ☐ 2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)
- ☐ 1,2,4,5-Tetrachlorobenzene
- ☐ TCDDs (All Tetrachlorodibenzo-p-dioxins)
- ☐ TCDFs (All Tetrachlorodibenzofurans)
- ☐ 1,1,1,2-Tetrachloroethane
- ☐ 1,1,2,2-Tetrachloroethane
- ☐ Tetrachloroethylene
- ☐ 2,3,4,6-Tetrachlorophenol
- ☐ Toluene
- ☐ Toxaphene
- ☐ Bromoform (Tribromomethane)
- ☐ 1,2,4-Trichlorobenzene
- ☐ 1,1,1-Trichloroethane
- ☐ 1,1,2-Trichloroethane
- ☐ Trichloroethylene
- ☐ Trichloromonofluoromethane
- ☐ 2,4,5-Trichlorophenol
- ☐ 2,4,6-Trichlorophenol
- ☐ 1,2,3-Trichloropropane
- ☐ 1,1,2-Trichloro-1,2,2-trifluoroethane
- ☐ tris-(2,3-Dibromopropyl) phosphate
- ☐ Vinyl chloride
- ☐ Xylenes-mixed isomers (sum of o-, m- and p-xylene concentrations)
- ☐ Antimony
- ☐ Arsenic
- ☐ Barium
- ☐ Beryllium
- ☐ Cadmium
- ☐ Chromium (Total)
- ☐ Cyanides (Total)[1]
- ☐ Cyanides (Amenable)[1]
- ☐ Fluoride
- ☐ Lead
- ☐ Mercury—Nonwastewater from Retort
- ☐ Mercury—All Others
- ☐ Nickel
- ☐ Selenium
- ☐ Silver
- ☐ Sulfide
- ☐ Thallium
- ☐ Vanadium

[1] Both Cyanides (Total) and Cyanides (Amenable) for nonwastewaters are to be analyzed using Method 9010 or 9012, found in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", EPA Publication SW-846, as incorporated by reference in 40 CFR 260.11, with a sample size of 10 grams and a distillation time of one hour and 15 minutes.

NOTIFICATION OF ADDITIONAL TREATMENT STANDARDS

EPA Waste Code	Waste Description and/or Subcategory (if applicable)

Form 1346A (11/94)

Page 6 of 6

FIGURE A.2-2

LAND DISPOSAL RESTRICTIONS NOTIFICATION FORM
(continued)

INSPECTION PLAN

PERMIT ATTACHMENT B
NM0890010515-1

INSPECTION PLAN
PERMIT ATTACHMENT B
NM 0890010515-1

B.1 TA-50 MODULAR CONTAINER STORAGE BUILDINGS POTENTIAL PROBLEMS

The modular container storage area is routinely inspected for potential problems with safety and emergency equipment, security devices, containers, and container storage facilities. Potential problems are listed on an inspection checklist. Potential problems include containment failure, fire, explosion, exposure, deterioration of the batch waste treatment unit or construction materials, and system leakage.

B.1.1 Frequency and Content of Inspection

The modular container storage units are inspected weekly by visually inspecting containers for waste leakage and for corrosion.

B.1.2 Remedial Action

Leaks from containers in the modular storage buildings will collect in the 500-gallon sump within the unit. In the case of small spills, vermiculite or other compatible absorbent is poured over the spill area and once the liquid is absorbed, it is swept or shoveled into drums or other appropriate containers. For spills involving larger liquid volumes, free liquids are pumped into drums and absorbent is used as above to remove the remaining liquid. Once liquids are removed, the sump is cleaned using appropriate cleaning agents. All expended cleaning material will be considered hazardous waste and handled accordingly.

In the case of exposure, remedial actions include treating the exposed personnel at the HSE-2 Medical Facility and determining the cause of exposure by observation, Laboratory records, and/or sampling.

Similar to hazardous waste releases, the extent of damage from fire and explosion is assessed by visual observations, Laboratory records, and if necessary, sampling. Equipment damaged or contaminated by fire, explosion, or spills is identified by visual inspections and sampling, if necessary.

B.2 TA-50 WASTE INCINERATOR AND ROOM 117 HAZARDOUS WASTE STORAGE AREA POTENTIAL PROBLEMS

The waste incinerator system building and Room 117 hazardous waste storage area are routinely inspected for potential problems with safety and emergency equipment, security devices, containers, container storage facilities, and loading and unloading facilities. Inspections of specific equipment and systems are conducted with a frequency appropriate to current operations, as well as appropriate to the equipment and systems. Potential problems include containment failure, fire, explosion, exposure, equipment deterioration or malfunction, and leaks from the incinerator.

B.2.1 Frequency and Content of Inspection

The waste incinerator, hazardous waste storage area, building and emergency equipment are inspected according to the schedule in Table B-1. Standard operating procedures require that process operators "walk through," their operating areas each hour to visually observe, monitor, and record and leaks, spills, malfunctions or other unusual conditions. The w hrough and remedial actions will be annotated in the operating log.

B.2.2 Remedial Action

If any defects, deterioration, damage or hazards are discovered during inspection, appropriate remedial actions including repairs, maintenance and replacement will be completed as soon as practical to preclude further damage and reduce the need for emergency repairs. If a hazard is found imminent or if a hazardous situation already exists, remedial action will be initiated immediately and the unit not reused until corrective action is complete. Any remedial action taken due to an inspection will be noted on the operating log.

Remedial actions in the case of containment failure, fire, explosion, or exposure are identical to the measures at the TA-50 batch waste treatment unit and modular container storage area See Section B.1.2 above. Should any of these problems occur, the waste incinerator can be shut down at the discretion of the operator. Failure of the HEPA filtration system or wet scrubbers, equipment deterioration or malfunction, or leaks from the waste incinerator will be remedied during and following process shutdown. The process operator will assess the situation and decide upon which shutdown method will be most expeditious and efficient. He will supervise the operating area during the shutdown process.

B.2.3 Inspection Logs

General inspections are conducted by the operating group according to checklists associated with the operating log. Results of the inspection (Figures B-5 and B-6), the inspector's name and title, and date and time of inspection are recorded on the inspection log sheet. A copy is sent for records to HSE-8 and kept for at least three years after all remedial action is complete. In addition, process operators will fill out process data sheets associated with the operations and every four hours when not feeding wastes. These sheets are record of operating conditions and provide evidence that the operator has checked and is aware of the operating status of the system. The time at which entries are made and the actual instrument reading for each variable will be entered into each checklist. When shutdown occurs, the log will state the nature of the shutdown, the time it occurred, and the suspected cause. Once each shift, the shift supervisor will inspect the facility for malfunctions, deterioration, operator error, and discharges. The time, individual, and results of this inspection will be entered in the log. Prestarting inspection procedures, general inspection checklists and the operating log will be kept with the incinerator system during operations. The waste storage room will be inspected using Figures B-5 and B-6.

B.3 TA-54, AREA L WASTE TRANSFER, PACKAGING AND CONTAINER STORAGE FACILITIES AND TREATMENT TANKS

B.3.1 Potential Problems

Area L is routinely inspected for potential problems with safety and emergency equipment, security devices, containers, container storage facilities, treatment tanks, and loading and unloading facilities. Potential problems are listed on the weekly inspection checklist. The container storage areas will be inspected weekly. The treatment tanks will be inspected weekly and after storms to detect any leakage, free board, damage, overflow, or cracks. In addition, the interior of each treatment tank will be inspected yearly for thin spots or excessive corrosion. Prior to the interior inspection, the treatment tank will be emptied by pumping into drums following standard procedures. After it is empty, any liner is removed and the tank must be thoroughly cleaned and checked to be sure it is free of flammable, toxic and corrosive vapors and materials before entry. If this requires steaming, the tank must be cooled after cleaning and the rinse water checked to be sure it is essentially neutral. Any nearby operations considered hazardous to tank entry are shut down. The atmosphere in the tank must be tested for the presence of combustible or toxic vapors and for oxygen content. A sufficient number of standby personnel must be present to give aid in case of trouble. Protective clothing or equipment may be required in some instances. Potential problems at Area L include containment failure, fire, explosion, and exposure.

B.3.2 Frequency and Content of Inspection

Area L is inspected according to the schedule in Table B-1. In addition, the treatment tank's shell and liner will be inspected annually to ensure that the tanks walls and liner have not experienced damage due to corrosion or erosion. The annual inspection procedure is the same as the triennial inspection outlined for the TA-50 Batch Waste Treatment Unit Tanks in Section B.1.1. above.

B.3.3 Remedial Action

If any defects, deterioration, damage or hazards are discovered during inspection, appropriate remedial actions including repairs, maintenance and replacement will be completed as soon as practical to preclude further damage and reduce the need for emergency repairs. If a hazard is found imminent or if a hazardous situation already exists, remedial action will be initiated immediately and the unit will be taken out of service until corrective action is complete. Any remedial action taken due to an inspection will be noted on the operating log.

In the case of failure of run-on or run-off control measures, the HSE-7 Group Leader or his qualified designee will assess the damage by visual observations and sampling and monitoring to determine the type and extent of contamination. Mitigation procedures and repairs, such as sandbagging and building berms, will be instituted immediately. All such action will be entered in the site log.

Remedial action in the case of drum or container failure, fire, explosion, or exposure is handled as described for the TA-50 batch waste treatment unit. In addition, soil and water samples will be taken down gradient from the release. At the transfer, packaging and storage facilities in Area L. releases from drum or container failure collect In sumps as well as berms.

If leakage, corrosion, overflow or any other damage is detected in the treatment tanks, the contents will be pumped into a drum or another treatment tank. At least 33 empty drums are always available to hold the maximum amount of liquid in a treatment tank in the unlikely event that the tank is completely full and the contents cannot be pumped into another treatment tank. The portable pumps used for emptying the tank are the same pumps used to draw down the tanks and have adequate capacity to fill 55-gallon drums. The pumps and hose used are compatible with the hazardous wastes they handle and are decontaminated after use by flushing with water. The wash water is handled as hazardous waste. The pumps are located at TA-54, Area L.

B.3.4 Inspection Logs

Each inspection is conducted by the operating groups according to the checklist in the inspection log (Figures B-7 and B-8). Results of the inspection, the inspector's name and title, and date and time of inspection are recorded on the inspection log sheet. A copy is sent to HSE-8 for records and kept for at least three years after the completion of all remedial action.

B.4 TA-50 CONCRETE CONTAINMENT STRUCTURE

B.4.1 Potential Problems

The TA-50 concrete containment structures are routinely inspected for potential problems with safety and emergency equipment, security devices, containers, container storage facilities, and loading/unloading facilities. Potential problems are listed on a weekly checklist and include containment failure, fire, explosion, exposure, equipment deterioration or malfunction and leaks.

B.4.2 Frequency and Content of Inspection

The TA-50 Storage and associated equipment are inspected in accordance with the schedule in Table B-1. The weekly inspection looks for leaking containers and for deterioration of containers and the containment system caused by corrosion or other factors.

Inspectors will use the checklists in Figures B-3 and B-4. Loading/unloading areas will be inspected daily, when used.

B.4.3 Remedial action

If any defects, deterioration, damage, spills or hazards are discovered during inspections, appropriate remedial actions including cleanup, repairs, maintenance and replacement will be completed as soon as practical to preclude further damage and reduce the need for emergency repairs. If an imminent hazard is found or if a hazardous situation already exists, remedial action will be initiated immediately. Any remedial action taken due to an inspection will be noted in the operating log.

In the case of failure of run-on and run-off control measures, the HSE-7 Group Leader or his qualified designee will assess the damage by visual observations and sampling and monitoring to determine the type and extent of contamination. Mitigation procedures and repairs, such as sandbagging and building berms, will be instituted immediately. All such action will be entered in the site log.

Leaks from containers will collect in the individual sump within the unit. In the case of small spills, vermiculite or other compatible absorbent is poured over the spill area and once the liquid is absorbed, it is swept or shoveled into drums or other appropriate containers. For spills involving larger liquid volumes, free liquids are pumped into drums and absorbent is used as above to remove the remaining liquid. Once liquids are removed, the sump is cleaned using appropriate cleaning agents.

In the case of exposure, remedial actions include treating the exposed personnel at the HSE-2 Medical Facility and determining the cause of exposure by observation, Laboratory records, and/or sampling.

Similar to hazardous waste releases, the extent of damage from fire and explosion is assessed by visual observations, Laboratory records, and if necessary, sampling.

Equipment damaged or contaminated by fire, explosion, or spills is identified by visual inspections and sampling, if necessary.

B.4.4 Inspection Logs

Each inspection is conducted by the operating group according to the checklist in Figures B-3 and B-4. Results of the inspection, the inspector's name and title, and date and time of inspection are recorded on the inspection log sheet A copy is sent for records to HSE-8 and kept for at least three years.

B.5 PREPAREDNESS AND PREVENTION REQUIREMENTS

B.5.1 Equipment Requirements Internal Communication/Alarm Equipment

The following internal communication/alarm equipment is available at LANL to provide emergency instruction for rapid evacuation and to initiate emergency response:

- Centrex telephone system
- Medium range radio nets (30-60 miles)
- Limited range radio nets (3-10-miles)
- Telephone/radio paging
- Two-way hand held radios
- Emergency central alarm system
- Mechanical central alarm system

Because ~~Since~~ this equipment is Laboratory-wide, it allows all personnel to ~~get in~~ contact Emergency Managers ~~with emergency coordinators~~ in all areas of the Laboratory. All hazardous and/or mixed waste handling personnel have immediate access to internal alarms or emergency communication devices.

The TA-50 batch waste treatment unit is equipped with telephones, one pull alarm, one automatic thermal alarm, and one automatic smoke alarm. There is an intercom system at each telephone. In the case of an emergency, the nearest source of communication for personnel handling wastes is the intercom/paging systems on each telephone.

The TA-50 waste incinerator and storage areas ~~is~~ are equipped with telephones throughout the facility. A radio with microphones at remote locations is available. Other communication/alarm equipment available at this facility includes:

- One portable radio
- One radio-equipped vehicle telephone paging system
- Internal telephone communication line
- Two-channel work station intercoms for direct communication from process area to offices and labs.
- Eleven pull alarms
- Two automatic thermal alarms

The trailer at Area L is equipped with a telephone. A radio-equipped vehicle is available for use at Area L. In addition, Area L is equipped with an alarm system and intercom to area G for evacuation. These are the nearest communication sources for use in the case of an emergency. Because of the proximity of the TA-50 Storage Pads and modular storage units to other TA-50 facilities and because only contained waste is handled at these facilities, individual emergency equipment is not required.

TA-50-37 is equipped with telephones and fire alarm pull stations throughout the facility. Fire and evacuation alarm annunciators are located in Rooms 112, 114, 117, and 118 as well as various other locations.

B.5.2 External Communication/Alarm Equipment

The Laboratory has established external communication capabilities with the Los Alamos County Police Department and the Los Alamos Medical Center ~~County Hospital~~. The following external communication/alarm equipment is available at LANL:

- Centrex telephone system
- Private telephone lines (if Centrex fails)
- Medium range radio nets (30-60 miles)
- Limited range radio nets (3-10 miles)

- Two National Warning System (NAWAS) stations ~~(NAWAS)~~
- Direct lines from Emergency Operations Centers to KRSN (local radio station)
- Local cable television
- A Community Alert Network

B.5.3 Emergency Equipment

A list of emergency equipment available at LANL, including types of equipment, locations, and contact phone numbers is shown in Permit Attachment D.

Emergency vehicles are inspected quarterly, according to the schedule in Table B-1. Medical supplies include self-contained breathing apparatuses, wheel chairs, manual resuscitation, portable oxygen units. blankets, blood supplies, and medical kits.

B.5.4 Water for Fire Control

The Department of Energy (DOE) is responsible for overall water production, transmission, and storage for the Laboratory and Los Alamos County. Storage capacity is adequate to provide water for fire fighting purposes.

Hydrant flow tests and block valve inspections are performed annually. Pressure regulating valves are inspected and adjusted every 60 days. Flow rates for hydrants are specified by ~~FSS-21 ENG-8~~, an experienced fire protection engineering staff, and are dependent upon site needs, including size of building and presence of sprinkler systems.

B.6 AISLE SPACE REQUIREMENTS

Aisle space between waste containers at all container storage areas is inspected weekly to insure it is adequate to provide access for inspection purposes and for movement of personnel, containers, and equipment.

There are no ramps provided for fork lifts or drum handling equipment at the TA-50 batch treatment and modular container storage areas. Drums are placed in the container storage using drum slings or hydraulically powered drum tongs on a forklift.

Aisles between rows of drums at the Area L transfer, packaging and storage facilities and at the TA-50 storage pads are maintained at a minimum width of two feet to permit access for inspection and handling. Much of the bermed or curbed areas are ramped to facilitate access of forklifts and drum handling equipment.

When waste volumes necessitate aisle spacing at TA-50-37, Rooms 112, 114, 117, and 118, a minimum aisle space of 28 inches is maintained to permit access for inspection and handling. The limited number

of containers in TA-50-37, Room 115 does not require aisle spaces. Containers are placed in the storage areas either manually or with pallet handlers, cranes, forklifts, or dollies.

B.7 TA-50-37, ROOMS 112, 114, 115, 117, AND 118 MIXED WASTE STORAGE AREAS

B.7.1 Potential Problems

The TA-50-37, Rooms 112, 114, 115, 117, and 118 mixed waste container storage areas are routinely inspected for various items, including integrity of containers and self-containment systems as well as conditions of safety and emergency equipment, security devices, and loading/unloading areas. Potential problems include leaks, containment failure, and equipment deterioration or malfunction. Identified problems are recorded in Part II of the Inspection Record Form (IRF).

B.7.2 Frequency and Content of Inspection

The TA-50-37, Rooms 112, 114, 115, 117, and 118 mixed waste container storage areas and associated equipment are inspected in accordance with the schedule in Table B-1. Items inspected daily include structural integrity of containers, condition of self-containment systems, appropriate aisle space and stacking, and conditions of loading/unloading areas. Items inspected weekly include conditions of safety equipment, security devices, emergency equipment, and elevation pallets or devices. Inspectors will use the IRF when conducting daily and weekly inspections.

B.7.3 Preventive and Remedial Action

If any defects, deterioration, damage, or potential hazards are discovered during inspections, appropriate corrective measures (e.g., transfer of waste from a defective container to an appropriate container in good condition) will be completed promptly to minimize further damage and prevent the need for emergency response. If a hazardous condition is imminent or has already occurred, remedial actions (including cleanup, repairs, maintenance, and/or replacement) will be completed immediately. Any remedial action taken as a result of an inspection will be recorded in Part II of the IRF.

In the case of small spills, compatible sorbent is poured over the spill area and once the liquid is sorbed, it is swept or shoveled into appropriate containers. For spills involving larger liquid volumes, free liquids are transferred into appropriate containers and sorbent is used as above to remove the remaining liquid. Once liquids are removed, the spill area is cleaned using appropriate cleaning agents. All expended cleaning material will be sampled to determine appropriate waste management procedures.

In the case of exposure, remedial actions include treating exposed personnel at the ESH-2 central medical facility and determining the cause of exposure by observation, Laboratory records, and/or sampling.

The extent of damage from fire and/or explosion is assessed by visual observations, Laboratory records, and, if necessary, sampling.

Equipment damaged or contaminated by fire, explosion, or spills is identified by visual inspections and, if necessary, sampling.

B.7.4 Inspection Logs

Each inspection is conducted by the operating group responsible for the waste management unit and is recorded on the IRF. The original records are maintained by the operating group in inspection logbooks for a minimum of three years. A copy of the IRF is sent weekly to ESH-19 and maintained at ESH-19 for a minimum of three years.

TABLE B-1
INSPECTION SCHEDULE

MODULAR STORAGE UNITS	
Daily when loading or unloading	Figures B-1, B-7
Weekly	Figures B-2, B-8
CONCRETE CONTAINMENT STRUCTURES	
Daily when loading or unloading	Figures B-3, B-7
Weekly	Figures B-4, B-8
CONTROLLED AIR INCINERATOR	
Hourly when burning hazardous waste	Log entry
Daily when burning hazardous waste	Figure B-5
Weekly	Figure B-6
C.A.I. STORAGE AREA	
Daily when loading or unloading	Figure B-5
Weekly	Figure B-6
WASTE TRANSFER/STORAGE UNIT	
Daily when loading or unloading	Figure B-7
Weekly	Figure B-8
SOLID WASTE STORAGE AREA	
Daily when loading or unloading	Figure B-7
Weekly	Figure B-8
TA-54 AREA L WASTE TREATMENT/STORAGE TANKS	
Daily when in use with hazardous waste	Figure B-7
Weekly	Figure B-8
Annually	Special Report
After Storms	Special Report
EMERGENCY VEHICLES	
Quarterly	Special Report
FIRE CONTROL SYSTEM	
Annually	Special Report

TABLE B-1 (Continued)
INSPECTION SCHEDULE

TA-50-37, ROOMS 112, 114, 115, 117, AND 118 MIXED WASTE STORAGE AREAS	
Daily for areas subject to spills and when new containers of waste are placed in the storage area	Inspection Record Form (IRF)
Weekly	IRF

FACILITY: **50-Batch Plant (Includes structures 114, 137, 138, and portaberm)**

FACILITY TYPE: **T.S.** **19____** **MONTH/DAY** **MONTH/DAY**
WEEK OF_____ **THRU_____**

DAILY PARTS I, II, III-To be completed every day of operation

PART I. Enter the data in column for day inspected.

DAY	S	M	T	W	TH	F	S
DATE							
TIME							
INSPECTOR							

PART II. Enter condition of item inspected (OK or AR*) in column for day inspected.

ITEM	INSPECTED FOR	S	M	T	W	TH	F	S
**(UN) LOADING AREA TANKS/CONTAINERS	SPILLS AND DETERIORATION							
**CONTAINERS STORAGE	SEGREGATED ACCORDING TO COMPATIBILITY							
**CONTAINERS AND TANKS	CLOSED, LABELED AND DATED							
COMMUNICATION EQUIPMENT	PROPERLY FUNCTIONING							
TANK MONITORING EQUIPMENT	DISCHARGE CONTROLS, TEMP/PRESSURE GAUGES LEVELS (%FULL) (OK?)							
**AREA AROUND TANKS/ CONTAINERS SECONDARY CONTAINMENT	SPILLS, DAMAGE STANDING WATER							
ABOVE GROUND PARTS OF TANK SYSTEM	INTEGRITY, LEAKS CORROSION							

PART III. For any action noted in PART II, describe below: action required, action taken, date.

WEEKLY **To be completed on the first working day of the week.**

INSPECTOR:_____ **DATE:**_____ **TIME:**_____

PART IV. Enter condition of item inspected (OK or AR*) in "condition" column. describe action and date taken in "Action\Date" column.

ITEM	INSPECTED FOR	CONDITION (OK OR AR*)	ACTION AND DATE ACTION TAKEN
STRUCTURAL INTEGRITY OF CONTAINERS/TANKS	DETERIORATION AND LEAKS, TANKS INCLUDES ALL VALVES, PIPE, FLANGES		
COVER/LID OF CONTAINERS	CLOSED AND SECURED		
WARNING SIGNS	POSTED & READABLE (BILINGUAL)		
LABELS	"HAZARDOUS WASTE" PRESENT ON ALL CONTAINERS/TANKS		
ACCUMULATION DATE (<90 DAY STORAGE)	PRESENT ON ALL CONTAINERS/TANKS NONE EXCEED 90 DAYS FROM START		
SECURITY	CONDITION OF GATES/LOCKS		
EMERGENCY EQUIPMENT	FIRE EXTINGUISHERS, EYE WASH, SHOWERS, RESPIRATORS		
SPILL CONTROL EQUIPMENT	PRESENT, GOOD WORKING ORDER		
SITE LIGHTING	FUNCTIONS PROPERLY		
HOOD	FUNCTIONING		

REMARKS:

* Action required ** Includes all associated storage facilities.

For waste removal call HSE-7 at 667-6095 at least 10 working day prior to reaching 90 day storage limit of any container or tank. Request all hazardous waste stored on site be removed at this time. For questions concerning inspections or regulations contact Tony Grieggs, 5-0451 or Jim White, 5-0677.

cc: Tony Grieggs, HSE-8, MS K490 (Copies only, maintain original for a minimum of three (3) years. Last Revision: April 18, 1989

FACILITY: 50-139, 140

FACILITY TYPE: T.S. 19____ MONTH/DAY MONTH/DAY

DAILY PARTS I,II,III-To be completed every day of operation

PART I. Enter the data in column for day inspected.

DAY	S	M	T	W	TH	F	S
DATE							
TIME							
INSPECTOR							

PART II. Enter condition of item inspected (OK or AR*) in column for day inspected.

ITEM	INSPECTED FOR	S	M	T	W	TH	F	S
**(UN) LOADING AREA TANKS/CONTAINERS	SPILLS AND DETERIORATION							
COMMUNICATION EQUIPMENT	PROPERLY FUNCTIONING							
EYE WASH SAFETY SHOWERS	LEAKS FUNCTIONING							

PART III. For any action noted in PART II, describe below: action required, action taken, date.

WEEKLY **To be completed on the first working day of the week.**

INSPECTOR:_____ **DATE:**_____ **TIME:**_____

PART IV. Enter condition of item inspected (OK or AR*) in "condition" column. describe action and date taken in "Action/Date" column.

ITEM	INSPECTED FOR	CONDITION (OK OR AR*)	ACTION AND DATE ACTION TAKEN
STRUCTURAL INTEGRITY OF CONTAINERS	DETERIORATION AND LEAKS		
COVER/LID OF CONTAINERS	CLOSED AND SECURED		
WARNING SIGNS	POSTED & READABLE (BILINGUAL)		
LABELS	"HAZARDOUS WASTE" PRESENT ON ALL CONTAINERS/TANKS		
SECURITY	CONDITION OF FENCE/GATES/LOCKS		
SITE LIGHTING	FUNCTIONS PROPERLY		
CONTAINMENT STRUCTURES	INTEGRITY, STANDING WASTE		
	EROSION		
CONTAINER STORAGE	SEGREGATED ACCORDING TO COMPATIBILITY, AISLE SPACE		
FIRE EXTINGUISHERS SPILL CONTROL CEAR	PRESENT, IN GOOD WORKING ORDER		
HOSE BIB	LEAKS, FUNCTIONING		
ROAD/WORK SURFACES	CRACKS		
WIND SOCK	DAMAGE, FUNCTIONING		
PALLETS	INTEGRITY, DAMAGE		

REMARKS:

*Action required **Includes all associated storage facilities.

For waste removal call HSE-7 at 667-6095 at least 10 working days prior to reaching 90 day storage limit of any container or tank. Request all hazardous waste stored on site be removed at this time. For questions concerning inspections or regulations contact Tony Grieggs, 5-0451 or Jim White, 5-0677.

cc: Tony Grieggs, HSE-8 MS K490 (Copies only, maintain original for a minimum of three (3) years. Last Revision: April 18, 1989

FACILITY: 50-37 (incinerator) includes room 117

FACILITY TYPE: T.S. 19____ MONTH/DAY MONTH/DAY

DAILY PARTS I,II,III-To be completed every day of operation

PART I. Enter the data in column for day inspected.

DAY	S	M	T	W	TH	F	S
DATE							
TIME							
INSPECTOR							

PART II. Enter condition of item inspected (OK or AR*) in column for day inspected.

ITEM	INSPECTED FOR	S	M	T	W	TH	F	S
**(UN) LOADING AREA	SPILLS AND DETERIORATION							
TANK BY-PASS	LEAKS, DETERIORATION							
COMMUNICATION EQUIPMENT	PROPERLY FUNCTIONING							
PUMPS, VALVES PIPES	CONDITION LEAKS							
INCINERATOR EQUIP.	DETERIORATION MALFUNCTION							
TANK DISCHARGE CONTROLS, WASTE FEED CUTOFF (TANK)	ALL OVERFILL & SPILL CONTROL EQUIP. IN GOOD WORKING ORDER							
TANK MONITORING EQUIPMENT	OPERATING PROPERLY							
CONTAINMENT STRUCTURES	INTEGRITY, STANDING WATER CORROSION							

PART III. For any action noted in PART II, describe below: action required, action taken, date.

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WEEKLY **To be completed on the first working day of the week.**

INSPECTOR:_____ **DATE:**_____ **TIME:**_____

PART IV. Enter condition of item inspected (OK or AR*) in "condition" column. describe action and date taken in "Action/Date" column.

ITEM	INSPECTED FOR	CONDITION (OK OR AR*)	ACTION AND DATE ACTION TAKEN
STRUCTURAL INTEGRITY OF CONTAINERS/TANKS	DETERIORATION AND LEAKS, TANKS INCLUDES ALL VALVES, PIPES, FLANGES		
TANKS AND CONTAINERS	CLOSED AND SECURED		
AISLE SPACE BETWEEN CONTAINERS	AT LEAST ONE (1) FOOT BETWEEN CONTAINERS		
WARNING SIGNS	POSTED AND READABLE (BILINGUAL)		
LABELS	"HAZARDOUS WASTE" PRESENT ON ALL CONTAINERS/TANKS		
SECURITY	CONDITION OF GATES/LOCKS		
EMERGENCY EQUIPMENT	FIRE EXTINGUISHERS, EYE WASH, SHOWERS, RESPIRATORS		
SITE LIGHTING	FUNCTIONS PROPERLY		
TANK LEVEL ALARM	FUNCTIONING		
PROCESS GLOVES	TEARS, DETERIORATION		
VENTILATION SYSTEM	FUNCTIONING PROPERLY		
SCBA GEAR	DETERIORATION, FUNCTIONING		
PROCESS FLOOR	CRACKS, SPALLING, COATING		
AISLE SPACE	CLEAR		

REMARKS:

*Action required **Includes all associated storage facilities.

For waste removal call HSE-7 at 667-6095 at least 10 working days prior to reaching 90 day storage limit of any container or tank. Request all hazardous waste stored on site be removed at this time. For questions concerning inspections or regulations contact Tony Grieggs, 5-0451 or Jim White, 5-0667.

cc: Tony Grieggs, HSE-8, MS K490 (Copies only, maintain original for a minimum of three (3) years. Last Revision: April 18, 1989

FACILITY: 54-AREA-L

FACILITY TYPE: T.S. **19____** **MONTH/DAY** **MONTH/DAY**

DAILY PARTS I,II,III-To be completed every day of operation

PART I. Enter the data in column for day inspected.

DAY	S	M	T	W	TH	F	S
DATE							
TIME							
INSPECTOR							

PART II. Enter condition of item inspected (OK or AR*) in column for day inspected.

ITEM	INSPECTED FOR	S	M	T	W	TH	F	S
**(UN) LOADING AREA TANKS/CONTAINERS	SPILLS AND DETERIORATION							
COMMUNICATION EQUIPMENT	PROPERLY FUNCTIONING							
TANKS (ALL ABOVE) GROUND PORTIONS)	DISCHARGE CONTROLS CONDITION, LEAKS LEVEL (6" FREEBOARD)							
SURFACE IMPOUNDMENTS AND CONTAINMENT	FREEBOARD (2FT) SUDDEN DROPS IN LEVEL							
PORTA BERM	LEAKS CONDITION							
RUN ON/OFF CONTROL	INTEGRITY, EROSION PONDING							
EYE WASH SAFETY SHOWER	LEAKS FUNCTIONING							

PART III. For any action noted in PART II, describe below: action required, action taken, date.

WEEKLY **To be completed on the first working day of the week.**

INSPECTOR:_____ **DATE:**_____ **TIME:**_____

PART IV. Enter condition of item inspected (OK or AR*) in "condition" column. describe action and date taken in "Action/Date" column.

ITEM	INSPECTED FOR	CONDITION (OK OR AR*)	ACTION AND DATE ACTION TAKEN
STRUCTURAL INTEGRITY OF CONTAINERS/TANKS	DETERIORATION AND LEAKS, TANKS INCLUDES ALL VALVES, PIPES, FLANGES		
COVER/LID OF CONTAINERS	CLOSED AND SECURED		
WARNING SIGNS	POSTED & READABLE (BILINGUAL)		
LABELS	"HAZARDOUS WASTE" PRESENT ON ALL CONTAINERS/TANKS		
ACCUMULATION DATE (<90 DAY STORAGE)	PRESENT ON ALL CONTAINERS/TANKS NONE EXCEED 90 DAYS FROM START		
RUN ON CONTROL (AREA L, H LANDFILL)	INTEGRITY, EROSION PONDING		
COVER INTEGRITY (AREA L, H LANDFILL)	EROSION, SUBSIDENCE WATER INTRUSION		
SECURITY	CONDITION OF FENCE/GATES/LOCKS		
SITE LIGHTING	FUNCTIONS PROPERLY		
CONTAINMENT STRUCTURES	INTEGRITY, STANDING WATER VEGETATION, EROSION		
CONTAINER STORAGE	SEGREGATED ACCORDING TO COMPATIBILITY, AISLE SPACE		
HOSE BIB	LEAKS, FUNCTIONING		
STORAGE SHED	FLOOR DAMAGE, LIQUID		
ROAD/WORK SURFACES	CRACKS		
WIND SOCK	DAMAGE, FUNCTIONING		
SHAFT COVER AND RAIL	DAMAGE		
PALLETS	INTEGRITY, DAMAGE		
TREATMENT TANKS	LEAKS, DAMAGE		
REFRIGERATOR	DAMAGED CONTAINERS		
SPILL CONTROL FIRE EQUIPMENT	PRESENT, IN GOOD WORKING ORDER		

REMARKS:

*Action required **Includes all associated storage facilities.

For waste removal call HSE-7 at 667-6095 at least 10 working days prior to reaching 90 day storage limit of any container or tank. Request all hazardous waste stored on site be removed at this time. For questions concerning inspection or regulations contact Tony Grieggs, 5-0461 or Jim White, 5-0667.

cc: Tony Grieggs, HSE-8, MS K490 (Copies only, maintain originals for a minimum for three (3) years. Last Revision: April 18,1989

PERMIT ATTACHMENT B

APPENDIX A

RESPIRATORY PROTECTION EQUIPMENT PRACTICES FOR THE CHEMICAL BATCH TREATMENT PLANT

1. INTRODUCTION

The use of respiratory equipment is necessary for the safety and well-being of Group HSE-7 employees engaged in certain waste treatment operations. Respiratory protection equipment is required where effective engineering controls are not yet feasible or where equipment failures or malfunctions could cause hazardous work environments. The Group HSE-7 Plant Operations Section Respiratory Practices Program is in accordance with ANSI Standard Z88.2-1969, Practices for Respiratory Protection and the respirator training program of Group HSE-5.

2. SCOPE

These respiratory protection procedures shall pertain to all Group HSE-7 liquid waste facilities, equipment and operations which may generate potentially hazardous atmospheres involving toxic materials or oxygen deficiencies.

3. RESPONSIBILITIES

The Section Leader for Liquid Waste Operations or the Alternate is responsible for assuring that respiratory protection practices are performed in accordance with the respiratory protection practices outlined in this SOP and any incidents involving the use of respiratory equipment must be reported immediately to Group HSE-5.

HSE-7 personnel shall inspect the self-contained breathing apparatus (SCBA's) periodically; the interval between inspections can be as individually desired, but must not exceed one month. Each inspection must be signed and dated with the breathing air cylinder PSI marked on the inspection sticker. A SCBA inspection form must be completed and sent to HSE-5-MS486. An inspection and donning procedure is available in each SCBA carrying case. SCBA's shall also be inspected after each use. Group HSE-5 shall be notified immediately of any respirator defects, and the SCBA unit shall be replaced. HSE-5 shall also be notified when the SCBA has been used so that the breathing air tank is immediately replaced.
The HSE-1 HPT shall insure that each respirator user has a current respirator authorization card for the type of respirator that is worn. The HSE-1 HPT shall examine the photo on the respirator authorization card to determine if additional facial hair is present. Additional facial hair voids the respirator authorization card. If this situation occurs, the employee shall not be allowed to wear the respirator or enter any hazardous environment and Group HSE-5 shall be notified immediately to pick up the respirator authorization card.

Each employee shall comply with all health and safety regulations (verbal or written) and shall report any incident involving the improper utilization of respiratory protective equipment immediately to the supervisor.

4. MATERIAL, OPERATION AND EQUIPMENT CONTROLS

Full facepiece air-purifying respirators with high efficiency,v filter are not approved for emergency situations or in environments containing toxic gases/vapors or in oxygen deficient environments (<19.5% oxygen by volume). The respirator and canister shall be suited to the contaminant. If there are any questions, contact Group HSE-5.

SCBA's are approved for use in oxygen deficient environments and hazardous concentrations of toxic materials. If the environment contains materials which may be readily absorbed through the skin, an impervious suit is also required.

Possible emergencies would include:

- chemical leaks or spills
- smoke
- emergency entry into a confined space

The MSA Model 401 utilizes a high pressure portable air tank which provides a high air flow rate to meet breathing demands during extreme exertion. Generally these units supply breathing air for up to 30 minutes of activity and are equipped with an audible alarm to indicate when the breathing supply is low. The air used for SCBA's must meet the strict purity requirements of the Compressed Gas Association Specification G7.1 for Type I, Class D Breathing Air. Group HSE-5 has facilities available for filling these air tanks with air that meets these purity requirements.

5. PERSONNEL CONTROLS

Each respirator user shall have completed the comprehensive respirator training program (including quantitative fitting for air-purifying respirators) conducted by Group HSE-5 and have in his/her possession a current respirator authorization card for the type of respiratory equipment that is worn. To prevent accumulation of dirt on the respirator, it should be cleaned after each use with the packets provided at the respirator fitting office. Always inspect air purifying respirators before and after use. Any deterioration shall be reported to the supervisor, and the respirator shall be replaced.

HAZARDOUS AND MIXED WASTE FACILITY INSPECTION RECORD FORM

[1] FACILITY	[2] ☐ <90 DAY. GENERATOR STORAGE ☐ TREATMENT. STORAGE. DISPOSAL	[3] START DATE	[4] END DATE

[5] ☐ Containers ☐ Landfill ☐ Surface Impoundment ☐ Waste Pile ☐ Thermal Treatment ☐ Chem/Phys/Bio. Treat.
☐ Incinerator ☐ Misc. Unit ☐ Tank ☐ UST ☐ Land Treatment ☐ Underground Inj.

PART I - Enter condition of item inspected (OK or AR*) in column for day inspected.

ITEM	INSPECTED FOR	SUN	MON	TUE	WED	THU	FRI	SAT
[6] NO USE	CHECK IF NO WASTE IS PRESENT							
[7] (UN)LOADING AREA TANKS/CONTAINERS	SPILLS AND DETERIORATION							
[8] COMMUNICATION EQUIPMENT (PHONE/RADIO/ALARMS)	PROPERLY FUNCTIONING							
[9] TANKS (ALL ABOVE GROUND PORTIONS) MONITORING DATA	DISCHARGE CONTROLS CONDITION. LEAKS. LEVEL (6" FREEBOARD). CORROSION							
[10] SURFACE IMPOUNDMENTS AND CONTAINMENT	FREEBOARD (2 ft) SUDDEN DROPS IN LEVEL							
[11] PORTA BERM	LEAKS. CONDITION							
[12] EYE WASH SAFETY SHOWERS	LEAKS. FUNCTIONING							
[13] STRUCTURAL INTEGRITY OF CONTAINERS/TANKS. VALVES. PIPES. AND FLANGES	DETERIORATION AND LEAKS. CORROSION. DAMAGE							
[14] COVER/LID OF CONTAINERS	CLOSED AND SECURED							
[15] WARNING SIGNS	POSTED & READABLE (BILINGUAL)							
[16] LABELS	"HAZARDOUS WASTE" PRESENT ON ALL CONTAINERS/TANKS							
[17] ACCUMULATION START DATE	PRESENT ON ALL CONTAINERS. TANKS. NONE EXCEED TIME RESTRICTIONS							
[18] RUN ON/OFF CONTROL (AREA L. G. H. P) LANDFILLS. DETONATION PADS	INTEGRITY. EROSION. PONDING							
[19] COVER INTEGRITY (AREA L. G. H. P). LANDFILLS	EROSION. SUBSIDENCE. WATER INTRUSION							
[20] SECURITY	CONDITION. FENCE/GATES/LOCKS							
[21] SITE LIGHTING	FUNCTIONS PROPERLY							

HAZARDOUS AND MIXED WASTE FACILITY INSPECTION RECORD FORM

ITEM	INSPECTED FOR	SUN	MON	TUE	WED	THU	FRI	SAT
22 CONTAINMENT STRUCTURES	INTEGRITY, STANDING WATER, VEGETATION, EROSION							
23 AISLE SPACE, STACKING	ADEQUACY, APPROPRIATENESS							
24 MANAGEMENT OF CONTAINERS	SEGREGATED ACCORDING TO COMPATIBILITY							
25 HOSE BIBS, WATER SUPPLY	LEAKS, FUNCTIONING							
26 STORAGE SHEDS	FLOOR DAMAGE, LIQUID							
27 ROAD/WORK SURFACES	CRACKS/POTHOLES							
28 WIND SOCK	DAMAGE, FUNCTIONING							
29 SHAFT COVER AND RAIL	PRESENT, DAMAGE							
30 PALLETS	INTEGRITY, DAMAGE							
31 TREATMENT TANKS	PROPER OPERATION, LEAKS							
32 REFRIGERATOR	DAMAGED CONTAINERS, PROPER OPERATION							
33 SPILL CONTROL, FIRE, AND EMERGENCY EQUIPMENT	PRESENT AND IN GOOD WORKING ORDER							
34 INCINERATOR EMERGENCY WASTE FEED CUTOFF/ALARMS	PROPER OPERATING CONDITION OF ALL SHUTDOWN CONTROLS							
35 INCINERATOR PUMPS, VALVES, PIPES, MONITORING CONTROLS	LEAKS/SPILLS/TAMPERING, OPERATING WITHIN SPECS.							
36 PRESSURE VESSELS (S-SITE)	DETERIORATION AND SAND CONDITION							
37 OIL BURN PANS (S-SITE)	DETERIORATION & LEAKS							
38 HE BURN PADS (S-SITE)	DETERIORATION, VEGETATION, SAND COND., EROSION							
39 RADIATION SAFETY	SIGNS, MONITORING (α β γ ^{3}H)							
40 DATE	DATE OF INSPECTION							
41 TIME	TIME OF INSPECTION							
42 INSPECTOR	INITIALS OF INSPECTOR							

HAZARDOUS AND MIXED WASTE FACILITY INSPECTION RECORD FORM

PART II - For any AR (Action Required) in PART I above, describe below: action required, action taken, date of action. Attach additional sheets if necessary.

(Note: Items 43-48 must be completed for all inspections.)

43 INSPECTOR (Printed Name)	45 Z NUMBER	46 GROUP	47 DATE	48 TIME

44 INSPECTOR (Signature)

Instructions for Use of the Hazardous and Mixed Waste Facility Inspection Record Form

Part I

1. FACILITY: Location information including TA, building, and room if applicable. Other location descriptors may be necessary. (e.g., TA-59-3-114 or TA-59-1-S. Dock)

2. <90 Day, GENERATOR STORAGE should be checked if this location is intended for operation in accordance with generator requirements for storage of hazardous waste for less than 90 days.

   TREATMENT, STORAGE, DISPOSAL should be checked if this location is listed in LANL's Hazardous Waste Facility Permit or Part A application as a permitted or interim status TSD operation.

3. START DATE: The date of the first inspection for the week on that inspection sheet. (Usually the first working day of the week)

4. END DATE: The date of the last inspection for the week on that inspection sheet. (Usually the last working day of the week; however, if handling of hazardous waste occurs during the weekend, inspections must be conducted.)

5. Check the appropriate box for the type of operation. Several boxes may be checked if necessary for those locations where inspections are combined on a single sheet. You must have prior approval from ESH-19 to combine inspections for more than one unit.

6. NO USE: May be checked if the unit did not store, treat, dispose, or otherwise handle hazardous waste for the day/week in question. The individual responsible for the inspection must then only complete boxes 40 through 48 for that day/week. If any hazardous waste is subsequently placed at the site for any reason, a full inspection must be performed immediately and every working day thereafter until all waste is properly disposed of.

7. Loading and unloading areas must be inspected daily when in use for signs of damage or deterioration that may lead to an accident or spill. This includes asphalt pads and areas where containers or tanks are handled or contents thereof are transferred.

8. Communication equipment must be inspected for proper function: Includes all telephones, two-way radios, and alarms for the area being inspected. (An initial consultation with ESH-19 prior to use of the facility/location will determine what equipment is necessary at any particular location.)

9. For tank systems used for treatment or storage of hazardous waste, all aboveground portions of the tank system, including any and all ancillary plumbing, must be inspected daily for signs of leaking, corrosion, deterioration, or improper operation. Tanks must be operated with a minimum freeboard of 6 inches. If the tank system includes discharge controls, overtopping controls, tank level alarms, or other monitoring equipment, including leak detection equipment, all controls and relevant data must be checked to ensure they are operating properly and that operation is within design specifications for the system.

Instructions for Use of the Hazardous and Mixed Waste Facility Inspection Record Form (Continued)

10. Surface impoundments must be operated with a minimum of 24 inches (60 cm) of freeboard from the top of the dike or berm to the surface of the waste therein. Inspectors must look for signs of leaks, deterioration, and erosion of dikes, berms, and any associated plumbing or valves. These could include dying vegetation, gullies, and sudden changes in level.

11. For those locations where inflatable "Porta Berms" are used as secondary containment for tanks and containers of hazardous waste, inspectors must ensure that they are adequately inflated. Inspectors must also check for the presence of liquids in the containment unit that could indicate leaks or spills of hazardous waste. All monitoring and leak detection systems must also be checked.

12. Where required, eyewash and safety showers must be inspected to ensure proper operating condition. Outside locations must be checked for freezing.

13. All containers and tanks must be checked for structural integrity, leaks, corrosion, or damage. This item includes checking condition of all construction materials, fixtures, seams, and auxiliary equipment. See Item 7 above.

14. All tanks and containers used for treating or storing hazardous waste must have the cover or lid securely in place. Containers are not considered to be closed until the lid/cover is fastened in the manner the manufacturer originally intended.

15. Required signs must be legible and prominently posted. TSD facilities and <90 day storage areas must be equipped with bilingual (English/Spanish) signs with the legend "DANGER UNAUTHORIZED PERSONNEL KEEP OUT." TSDs must be identified with signs that read "HAZARDOUS WASTE STORAGE AREA." <90 day storage areas must be identified with a sign with the legend "<90 DAY HAZARDOUS WASTE STORAGE AREA."

16. All containers and tanks must be labeled with the words "HAZARDOUS WASTE" and with other words that identify the contents. Mixed waste must also be labeled as "RADIOACTIVE."

17. All containers and tanks of hazardous waste in TSDs or <90 day storage areas must be marked with the accumulation start date. At TSDs, containers without dates must be dated when they arrive at the facility. For wastes generated at <90 day storage areas and TSDs, containers must be marked with the accumulation start date at the time the container first receives any waste. For <90 day storage areas, no containers may exceed 90 days from accumulation start date to the time they are delivered to a permitted treatment, storage, or disposal unit. Waste management organizations will provide transportation for these wastes.

Instructions for Use of the Hazardous and Mixed Waste Facility Inspection Record Form (Continued)

18. Landfills and detonation pads must have run-on and runoff controls inspected wherever present. Leachate collection systems, where present, must also be inspected. Items to be inspected for are proper operating condition, damage, erosion, contaminant migration, ponding, etc. Detonation pads must be inspected for unburned or undetonated explosives, ordnance, and debris.

19. Landfill covers must be inspected at least weekly and after storms for evidence of erosion, subsidence, and water intrusion.

20. Site security must be verified. Items such as fences, gates, locks, etc., should be checked for proper condition and adequacy.

21. Site lighting must be adequate to prevent accidents related to hazardous waste operations and for any other night operations that may take place within the boundaries of the hazardous waste unit.

22. Secondary containment structures for hazardous waste operations must be inspected to verify proper operating condition and to ensure adequate capacity. Structures must also be inspected for the presence of standing water or hazardous waste. For incinerators and certain operations at TA-55, secondary containment includes inspections of gloves and gloveboxes, hoods, and ventilation systems where necessary.

23. Adequate aisle space must be maintained to allow for inspection and for the unobstructed movement of personnel and emergency equipment in an emergency. All containers of hazardous waste must be stored in a manner that ensures a minimum of 2 feet of aisle space between containers. Drums containing free liquids or those holding hazardous waste (excluding mixed wastes) may not be stacked over two drums high.

24. All hazardous waste containers holding materials that may be incompatible with any other materials at that location must be separated from those materials by dikes, berms, or other physical barriers to prevent a possible reaction.

25. TSD facilities must have water at an adequate volume and pressure for fire protection available. Hose bibs should be inspected for proper operating condition and adequate pressure. Outside water supplies must be checked for freezing.

26. The storage sheds must be inspected for damage, free liquids that might indicate a leak, and chemical compatibility of materials stored therein.

27. Road and work surfaces, process floors, or other work surfaces at TSDs must be inspected for damage or erosion that could lead to a spill or accident, and for adequate secondary containment.

28. Wind socks, where required, at TSDs must be inspected to ensure that they are present and in proper operating condition.

Instructions for Use of the Hazardous and Mixed Waste Facility Inspection Record Form (Continued)

29. Disposal shafts and shafts used for retrievable storage should have their covers securely in place and guard rails must be installed and in good condition.

30. Hazardous waste containers at TSDs and <90 day storage areas must be stored on pallets if they are stored outside without a roof.

31. Hazardous waste treatment tanks must be operated within design specifications and in accordance with SOPs and work plans. Tanks must be inspected for leaks or damage prior to operation.

32. Refrigerators used for storing hazardous waste, or samples thereof, must be inspected for proper operating condition and leaking or damaged containers.

33. Hazardous waste TSDs and <90 day storage areas must have adequate fire and spill control equipment for the types and volumes of waste present. Equipment must be present, in good working order, and appropriate for the material in question.

34. Incinerator waste feed cutoffs, emergency shutdown controls, and associated alarms or warning systems must be inspected for proper operating condition.

35. Incinerators, ancillary plumbing and equipment, and all monitoring controls must be inspected to ensure that they are in proper operating condition, and are being operated within design specifications. Inspectors must also look for evidence of leaks, corrosion, spills, or tampering.

36. Pressure vessels must be inspected for signs of deterioration or damage. Condition of the sand and loading must also be checked to ensure adequacy.

37. Oil burn pans must be inspected for deterioration, damage, or leaks. Inspectors must also inspect for unburned explosives and debris.

38. HE burn pads must be inspected for deterioration, damage, leaks, or vegetation that could catch fire. Condition of the sand must also be checked. Inspectors must also inspect for unburned explosives and debris.

39. Radioactive materials must be properly placarded, labeled, and stored within controlled areas in accordance with AR 3-7. Containers should be monitored/swiped for outside contamination if suspected, and all leaks or spills must be monitored to ensure adequate cleanup.

40. Inspectors will record the date of the current inspection.

41. Inspectors will record the time of the current inspection.

42. Inspectors will initial each daily inspection.

Instructions for Use of the Hazardous and Mixed Waste Facility Inspection Record Form (Continued)

Part II

Inspectors must explain in detail any deficiency noted above. Items to be included are: type of problem, any action taken, and the date/time of the action. Additional sheets may be attached as necessary.

43. Printed name of individual performing inspection.

44. Signature of individual performing inspection.

45. Z number of individual performing inspection.

46. Organization responsible for this location.

47. Date record was signed and completed.

48. Time record was signed and completed.

(Note: Items 43-48 must be completed for all inspections.)

PERSONNEL TRAINING

PERMIT ATTACHMENT C
NM0890010515-1

~~PERSONNEL TRAINING~~
~~PERMIT ATTACHMENT C~~
~~NM0890010515-1~~

~~This attachment describes the personnel training program for Los Alamos National Laboratory in accordance with the regulatory requirements of HWMR-6, Part V., Section 264.16. The information presented outlines the personnel training programs at the Laboratory. The primary objective of the program is to prepare persons to safely operate and maintain those areas containing hazardous wastes. This training program applies to all employees of Department of Energy (DOE), University of California (UC), Pan American Worldwide Services (PAWS), and their contractors who regularly work at the facility. The degree of training varies with the duties but all personnel receive as an introduction to the RCRA requirements of this permit a minimum of Sections I and II of the training outline, Figure C-1.~~

~~C.1 OUTLINE OF TRAINING PROGRAM~~

~~C.1.1 Responsibilities~~

~~Figure C-2 presents the organization of Health, Safety, and Environment (HSE) Division. HSE Division handles all waste management activities except for high explosives treatment, which is handled by the WX and M Divisions. Individuals who are directly involved with waste management are in Health, Safety, and Environment Group 7 (HSE-7). PAWS provides trained personnel to assist HSE-7 in waste handling activities. The Environmental Surveillance Group is responsible for RCRA compliance. Personnel in the Occupational Medicine (HSE-2), Safety Group (HSE-3), Industrial Hygiene Group (HSE-5), and Environmental Surveillance Group (HSE-8) are trained in their specialties to provide emergency response support.~~

~~C.2 TRAINING CONTENT, FREQUENCY, AND TECHNIQUES~~

~~The training program instituted at the Laboratory includes a combination of internal training courses, on-the-job training, and courses taught by outside contractors.~~

~~Records of each waste handling individual's formal training are maintained in the HSE Division office. Training records of current employees are kept until closure of the facility. Records of former employees are kept for at least three years from the date the employee last worked at the facility.~~

~~The training outline (Figure C-1) is on file in the HSE Division Office and is available for review by all hazardous waste management and handling personnel, emergency response personnel, and all regulatory agencies. Courses will be reviewed annually and updated as required to maintain currency with RCRA.~~

~~The training coordinator will work with the group leaders of HSE-2, 3, 5, 7, and 8, WX and M Divisions, and PAWS to ensure that all employees receive the proper level of training. All new LANL~~

~~and PAWS employees will receive training within six months of their date of hire or transfer. Personnel will not work in unsupervised positions until they successfully complete the training course.~~

~~C.2.1 Internal Training~~

~~The personnel training courses emphasize the safe handling of hazardous wastes. Program instructors are trained in hazardous waste management procedures and RCRA provisions. The training program is designed to provide training commensurate with the employee's responsibilities. All employees will receive section I and II training, regardless of their duty assignment.~~

~~C.2.2 On the Job Training~~

~~All waste handling personnel will participate in on the job training programs. These programs are designed to give field demonstrations of Laboratory procedures for hazardous waste handling, inspections, and hazardous waste transportation requirements. Personnel responsible for directing on the job training participate in the RCRA provisions course so that they are familiar with hazardous waste management procedures as they related to RCRA.~~

~~C.2.3 External Training~~

~~In addition to internal training, selected personnel will participate in contractor taught courses. Those personnel who will participate in the external training program are listed herein. These contractor taught courses will serve to supplement the internal training program.~~

~~C.2.4 Training Coordinator~~

~~The personnel training program is directed by Dr. Thomas C. Gunderson. As Division Leader for the EM Division, Dr. Gunderson is knowledgeable about hazardous waste management facilities and practices and emergency procedures. Dr. Gunderson is responsible for coordinating the internal and external training courses and for assuring that all personnel receive the required training. The training program provides employees with training relevant to their positions within the organization. Supervisors and staff receive training appropriate to their degree of handling hazardous waste (e.g., reporting and other procedures required for compliance). For example, management responsibilities for compliance with RCRA are assigned to the HSE 7 Group Leader, who receives training in RCRA provisions. Material handlers are trained to maintain proper and safe operating procedures and to respond effectively to spills and other emergencies. Duties for each job description are matched to a LANL training course.~~

~~C.3 EMERGENCY RESPONSE TRAINING~~

~~The outside professionals (PAWS and the Protective Force) assist the Incident Commander (IC) as soon as they arrive on the scene of the emergency. These people are trained in their specialties (i.e., heavy equipment operation, traffic control). PAWS personnel are also trained in personal safety. At all times during an emergency, these contractors are under the direct supervision of the HWEC and other trained Laboratory personnel. All actions taken by contractors do not perform activities other than those for which they are trained (heavy equipment operations, constructing dikes).~~

~~In order to ensure maximum protection of life and property and to mitigate the consequences of an emergency situation, it is imperative that all HSE personnel, WX and M Division personnel, and PAWS personnel involved in waste handling and emergency response be knowledgeable about appropriate building and operating area emergency procedures. These groups will participate in the Laboratory's formal training program.~~

~~In addition to the Laboratory's formal program, division and group leaders and immediate supervisors are responsible for providing education and training in emergency response procedures. Periodic unannounced emergency drills and exercises are used to familiarize employees with emergency procedures. Training is also provided through prominent instruction displays and through presentations and discussions in safety meetings.~~

~~Each new or transferred employee is indoctrinated by his immediate supervisor regarding the RCRA requirements which apply, the general emergency procedures and those specific procedures related to his work area. Each employee is advised of changes to any emergency procedures and is given an annual review of procedures affecting his work area. The review may be given separately in writing or included in an overall indoctrination. A record of training will be kept in the employee's personnel file.~~

~~Specialized training is given to those employees assigned special functions or specific emergency duties. Emergency response personnel (HSE 2, 5, and 8, the DOE fire Department, Laboratory Emergency Response Coordinators, and Chemical Waste Management Coordinators) participate in the formal Laboratory training program and are required to attend courses on spill response, the RCRA contingency plan and RCRA provisions. All waste handling personnel (HSE 7, WX and M Divisions, and PAWS) also participate in the formal training program in which they are instructed in emergency procedures pertinent to their work area. The emergency procedures instruction in which hazardous waste management and handling personnel and emergency response personnel are required to participate will ensure a coordinated response to hazardous waste emergencies.~~

~~C.4 IMPLEMENTATION OF TRAINING PROGRAM~~

~~The introductory training program is offered at six month intervals, when needed, to ensure that all employees receive training within six months of their date of hire or transfer. Employees will not work in unsupervised positions until they have been trained. Employees transferring within divisions of the facility will receive training as if they were new employees.~~

~~All hazardous waste management and handling personnel must attend annual refresher courses. These courses are intended to update personnel on Laboratory procedures and provide them with an overview of their introductory training.~~

~~In addition, a complete Respirator or self contained breathing apparatus (SCBA) training course is taught annually, where appropriate, and must be successfully completed by hazardous waste handling personnel.~~

~~Group leaders, along with the training coordinator, will ensure that all their personnel participate in the introductory and annual training programs.~~

~~RCRA JOB DESCRIPTION~~

~~TITLE: Group Leader, Waste Management (HSE 7) #001~~

~~A. Required Skills:~~

- ~~Familiarity with State and Federal Regulations regarding hazardous materials and waste.~~
- ~~Good technical knowledge of problems associated with hazardous chemical handling and use.~~
- ~~Ability to communicate with a wide variety of personnel, internal and external to the Laboratory.~~
- ~~Ability to supervise personnel in proper chemical waste management.~~

~~B. Required Education/Training:~~

- ~~Minimum of a bachelor's degree in chemistry/chemical engineering or an equivalent combination of experience and education.~~
- ~~RCRA Provisions~~
- ~~Spill Response~~
- ~~RCRA Contingency Plan~~
- ~~Hazardous Waste Handling and Operations~~

~~C. Duties:~~

- ~~Oversee all chemical waste activities~~
- ~~Maintain security of waste management facilities.~~
- ~~Evaluate performance of Section Leaders~~

~~RCRA JOB DESCRIPTION~~

~~TITLE: Deputy Group Leader, Waste Management (HSE-7) #002~~

~~A. Required Skills:~~

- ~~Familiarity with State and Federal Regulations regarding hazardous materials and waste.~~
- ~~Good technical knowledge of problems associated with hazardous chemical handling and use.~~
- ~~Ability to communicate with a wide variety of personnel, internal and external to the Laboratory.~~
- ~~Ability to supervise personnel in proper chemical waste management.~~

~~B. Required Education/Training:~~

- ~~Minimum of a bachelor's degree in chemistry/chemical engineering or an equivalent combination of experience and education.~~
- ~~RCRA Provisions~~
- ~~Spill Response~~
- ~~RCRA Contingency Plan~~
- ~~Hazardous Waste Handling and Operations~~

~~C. Duties:~~

- ~~Fulfill duties of group leader as necessary.~~

~~RCRA JOB DESCRIPTION~~

~~TITLE: Section Leader Chemical Mixed Waste Operations (HSE-7) #003~~

~~A. Required Skills:~~

- ~~Knowledge of State and Federal Regulations regarding hazardous materials and waste~~
- ~~Good technical knowledge of problems associated with hazardous materials handling and use~~
- ~~Ability to communicate with a wide variety of personnel, internal and external to the Laboratory.~~
- ~~Ability to supervise personnel in proper chemical waste management.~~

~~B. Required Education/Training:~~

- ~~Minimum of a bachelor's degree in chemistry/chemical engineering or an equivalent combination of experience and education.~~
- ~~RCRA Provisions~~
- ~~Personal Safety~~
- ~~Respiratory Protection~~
- ~~Hazardous and Mixed Waste Handling and Operations~~
- ~~Spill Response~~
- ~~Contingency Plan~~
- ~~Recordkeeping/Inspections~~
- ~~On Site/Off Site Transportation~~

~~C. Duties:~~

- ~~Oversee the daily collection, packaging, and transport activities of chemical waste technicians.~~
- ~~Plan and direct treatment/disposal activities.~~

~~TITLE: Section Leader, Chemical Mixed Waste Operations (HSE-7) #003 (continued)~~

- ~~Review incoming Chemical Waste Disposal Request forms and identify hazards associated with the requests.~~
- ~~Interact with waste generators on waste problem solutions (such as identification of unknown waste).~~
- ~~Write and update all chemical waste procedures.~~
- ~~Maintain operations records for Area L.~~
- ~~Assist in on the job training for chemical waste handlers.~~
- ~~Provide input and personnel to spill responses for hazardous and mixed material/waste as necessary.~~
- ~~Evaluate overall performance of technicians and staff annually.~~
- ~~Maintain awareness of changes in RCRA regulations and identify necessary improvements.~~
- ~~Review and approve hazardous and mixed waste generator SOPs and relevant parameters in facility designs.~~
- ~~Review training records and inspection records for completeness and identify any needs~~
- ~~Provide personnel for emergency response.~~

~~RCRA JOB DESCRIPTION~~

~~TITLE: Section Leader, Low Level Waste Operations (HSE-7) #004~~

~~A. Required Skills:~~

- ~~Familiarity with State and Federal Regulations regarding hazardous materials and waste.~~
- ~~Good technical knowledge of problems associated with hazardous chemical handling and use.~~
- ~~Ability to communicate with a wide variety of personnel, internal and external to the Laboratory.~~
- ~~Ability to supervise personnel in proper chemical waste management.~~

~~B. Required Education/Training:~~

- ~~Minimum of a bachelor's degree in chemistry/chemical engineering or an equivalent combination of experience and education.~~
- ~~RCRA Provisions~~
- ~~Spill Response~~
- ~~RCRA Contingency Plan~~
- ~~Emergency Procedures~~

~~C. Duties:~~

- ~~Assist Section leader for chemical waste operations as necessary.~~
- ~~Inter act with waste generators on waste problem solutions (such as identification of unknown waste)~~
- ~~Write and update all chemical waste procedures.~~
- ~~Assist in on the job training for chemical waste handlers.~~
- ~~Provide input to spill responses for hazardous material/waste as necessary~~
- ~~Evaluate overall performance of technicians and staff annually.~~

~~TITLE: Section Leader, Low Level Waste Operations (HSE-7) #004 (continued)~~

- ~~Maintain awareness of change in RCRA regulations and identify necessary improvements.~~
- ~~Review and approve hazardous waste generators SOPs and relevant parameters in facility designs.~~
- ~~Review training records and inspection records for completeness and identify any needs.~~

~~RCRA JOB DESCRIPTION~~

~~TITLE: Section Leader, Liquid Waste Operations (HSE-7) #005~~

~~A. Required Skills:~~

- ~~Familiarity with State and Federal Regulations regarding hazardous materials and waste.~~
- ~~Good technical knowledge of problems associated with hazardous chemical handling and use.~~
- ~~Ability to communicate with a wide variety of personnel, internal and external to the Laboratory.~~
- ~~Ability to supervise personnel in proper chemical waste management.~~

~~B. Required Education/Training:~~

- ~~Minimum of a bachelor's degree in chemistry/chemical engineering or an equivalent combination of experience and education.~~
- ~~RCRA Provisions~~
- ~~Spill Response~~
- ~~RCRA Contingency Plan~~
- ~~Emergency Procedures~~

~~C. Duties:~~

- ~~Coordinate Section capabilities to properly receive, store and treat RCRA hazardous waste.~~

~~RCRA JOB DESCRIPTION~~

~~TITLE: Section Leader,Technical Support Section (HSE-7) #006~~

~~A. Required Skills:~~

- ~~Familiarity with State and Federal Regulations regarding RCRA listed hazardous materials~~
- ~~Good technical knowledge of waste incinerator design and operation.~~
- ~~Ability to supervise Section personnel in proper handling and incineration of hazardous materials.~~

~~B. Required Education/Training:~~

- ~~Minimum of a bachelor's degree in chemistry/chemical engineering or an equivalent combination of experience and education.~~
- ~~RCRA Provisions~~
- ~~Personal Safety~~
- ~~Spill Response~~
- ~~RCRA Contingency Plan~~
- ~~On Site Transportation~~

~~C. Duties:~~

- ~~Coordinate Section capabilities to properly receive, accumulate, and incinerate RCRA hazardous waste.~~

~~RCRA JOB DESCRIPTION~~

~~TITLE: Lead Engineer, Technical Support Section (HSE-7) #007~~

~~A. Required Skills:~~

- ~~Familiarity with State and Federal Regulations regarding RCRA listed hazardous materials~~
- ~~Thorough understanding of waste incinerator design and operation.~~
- ~~Ability to ensure proper collection and archiving of operating data required by incinerator operating permit.~~

~~B. Required Education/Training:~~

- ~~Minimum of a bachelor's degree in chemistry/chemical engineering or an equivalent combination of experience and education.~~
- ~~RCRA Provisions~~
- ~~Personal Safety~~
- ~~Hazardous Waste Handling and Operations~~

  ~~a. Incineration~~
  ~~b. Acids/Bases~~
  ~~c. Organics - General~~
  ~~d. Inorganics - General~~

- ~~Spill Response~~
- ~~RCRA Contingency Plan~~
- ~~Recordkeeping/Inspections~~
- ~~On Site Transportation~~

~~C. Duties:~~

- ~~Lead engineer for design, construction, and maintenance of hazardous waste incinerator.~~
- ~~Train Section staff and technicians on handling of hazardous waste, incinerator operation, and data collection.~~
- ~~Serve as shift supervisor during incinerator operations.~~

~~TITLE: Lead Engineer, Technical Support Section (HSE-7) — #007 (continued)~~

- ~~Maintain records of required run data in an auditable form.~~

~~RCRA JOB DESCRIPTION~~

~~TITLE: Staff Member, Technical Support Section (HSE-7) #008~~

~~A. Required Skills:~~

- ~~Familiarity with State and Federal Regulations regarding RCRA listed hazardous materials~~
- ~~Good technical knowledge of proper handling of hazardous waste forms.~~
- ~~Good technical knowledge of waste incinerator design and operation.~~

~~B. Required Education/Training:~~

- ~~Minimum of a bachelor's degree in chemistry/chemical engineering or an equivalent combination of experience and education.~~
- ~~RCRA Provisions~~
- ~~Personal Safety~~
- ~~Respirator or SCBA~~
- ~~Hazardous Waste Handling and Operations~~

  ~~a. Incineration~~
  ~~b. Acids/Bases~~
  ~~c. Organics - General~~
  ~~d. Inorganics - General~~

- ~~Spill Response~~
- ~~RCRA Contingency Plan~~
- ~~Recordkeeping/Inspections~~

~~C. Duties:~~

- ~~Provide engineering support for design, construction, and maintenance of hazardous waste incinerator.~~
- ~~Assist in handling of hazardous waste as required by operations.~~
- ~~Assist in collection of required run data.~~

~~RCRA JOB DESCRIPTION~~

~~TITLE: Staff Member, Chemical and Mixed Waste Operations (HSE-7) #009~~

~~A. Required Skills:~~

- ~~Familiarity with State and Federal Regulations regarding hazardous and mixed materials and waste.~~
- ~~Technical knowledge of problems associated with hazardous and mixed materials handling and use.~~
- ~~Ability to communicate with a wide variety of personnel, internal and external to Laboratory.~~
- ~~Ability to supervise personnel in proper hazardous and mixed waste management.~~

~~B. Required Education/Training:~~

- ~~Minimum of a bachelor's degree in chemistry/chemical engineering or an equivalent combination of experience and education.~~
- ~~RCRA Provisions~~
- ~~Personnel Safety~~
- ~~Respiratory Protection~~
- ~~Hazardous/Mixed Waste Handling and Operations~~
- ~~Spill Response~~
- ~~Contingency Plan~~
- ~~Recordkeeping/Inspections~~
- ~~On Site/Off Site Transportation~~

~~C. Duties:~~

- ~~Oversee the daily collection, packaging, and transport activities of chemical waste technicians.~~
- ~~Plan and direct treatment/storage/disposal activities.~~

~~TITLE: Staff Member, Chemical and Mixed Waste Operations (HSE-7) #009~~

- ~~Review incoming Chemical Waste Disposal Request forms and identify hazards associated with the requests.~~
- ~~Interact with waste generators on waste problem solutions (such as the identification of unknown waste).~~
- ~~Write and update all chemical waste procedures.~~
- ~~Maintain operational records for Area L~~
- ~~Assist in on the job training for chemical waste handlers.~~
- ~~Provide input to spill and emergency responses for hazardous and mixed materials/waste as necessary.~~
- ~~Maintain awareness of changes in RCRA regulations and identify necessary improvements.~~
- ~~Review and approve hazardous waste generators SOPs and relevant parameters in facility designs.~~
- ~~Review training records and inspections records for completeness and identify any needs.~~

~~RCRA JOB DESCRIPTION~~

~~TITLE: Staff Member, Liquid Waste Operations (HSE 7) #010~~

~~A. Required Skills:~~

- ~~Knowledge of State and Federal Regulations regarding hazardous materials and waste.~~
- ~~Technical knowledge of problems associated with hazardous materials handling and use.~~
- ~~Ability to communicate with a wide variety of personnel, internal and external to Laboratory.~~
- ~~Ability to supervise personnel in proper chemical waste management.~~

~~B. Required Education/Training:~~

- ~~Minimum of a bachelor's degree in chemistry/chemical engineering or an equivalent combination of experience and education.~~
- ~~RCRA Provisions~~
- ~~Personal Safety~~
- ~~Respirator or SCBA~~
- ~~Hazardous Waste Handling and Operations~~

  ~~a. Explosives/Reactives~~
  ~~b. Acids/Bases~~
  ~~c. Organics - General~~
  ~~d. Inorganics - General~~

- ~~Spill Response~~
- ~~RCRA Contingency Plan~~
- ~~Recordkeeping/Inspections~~
- ~~On Site/Off Site Transportation~~

~~TITLE: Staff Member, Liquid Waste Operations (HSE 7) #010 (continued)~~

~~C. Duties:~~

- ~~Oversee the daily collection, packaging, and transport activities of chemical waste technicians.~~
- ~~Plan and direct treatment/disposal activities~~
- ~~Interact with waste generators on waste problems solutions (such as the identification of unknown waste).~~
- ~~Write and update all chemical waste procedures.~~
- ~~Maintain operational records for batch waste treatment system.~~
- ~~Assist in on the job training for chemical waste handlers.~~
- ~~Provide input to spill responses for hazardous materials/waste as necessary.~~
- ~~Maintain awareness of changes in RCRA regulations and identify necessary improvements.~~
- ~~Review training records and inspections records for completeness and identify any needs.~~

~~RCRA JOB DESCRIPTION~~

~~TITLE: Staff Member, Technical Support (HSE-7) #011~~

~~A. Required Skills:~~

- ~~Knowledge of State and Federal Regulations regarding hazardous materials and waste.~~
- ~~Technical knowledge of problems associated with hazardous materials handling and use.~~
- ~~Ability to communicate with a wide variety of personnel, internal and external to Laboratory.~~
- ~~Ability to supervise personnel in proper chemical waste management.~~

~~B. Required Education/Training:~~

- ~~Minimum of a bachelor's degree in chemistry/chemical engineering or an equivalent combination of experience and education.~~
- ~~RCRA Provisions~~
- ~~Personal Safety~~
- ~~Respirator or SCBA~~
- ~~Hazardous Waste Handling and Operations~~

  ~~a. Explosives/Reactives~~
  ~~b. Acids/Bases~~
  ~~c. Organics General~~
  ~~d. Inorganics General~~

- ~~Spill Response~~
- ~~RCRA Contingency Plan~~
- ~~Recordkeeping/Inspections~~
- ~~On Site/Off Site Transportation~~

~~C. Duties:~~

- ~~Plan and direct treatment/disposal activities.~~
- ~~Interact with waste generators on waste problem solutions (such as the identification of unknown waste).~~

~~TITLE: Staff Member, Technical Support (HSE-7) #011 (continued)~~

- ~~Write and update all chemical waste procedures.~~
- ~~Assist in on-the job training for chemical waste handlers.~~
- ~~Provide input to spill responses for hazardous materials/waste as necessary.~~
- ~~Maintain awareness of changes in RCRA regulations and identify necessary improvements.~~
- ~~Review and approve hazardous waste generator's SOPs and relevant parameters in facility designs.~~
- ~~Design and construct new treatment processes as needed.~~

~~RCRA JOB DESCRIPTION~~

~~TITLE: Chemical Technician II, III (EM-7) #012~~

~~A. Required Skills~~

- ~~Familiarity with State and Federal Regulations regarding hazardous materials and waste.~~
- ~~Good technical knowledge of problems associated with hazardous and mixed materials handling and use.~~
- ~~Oral communication skills for interfacing with waste generators.~~

~~B. Required Education/Training:~~

- ~~Formal chemistry classes or experience in chemical handling operations.~~
- ~~RCRA Provisions~~
- ~~Personnel Safety~~
- ~~Respiratory Protection~~
- ~~Spill Response~~
- ~~Contingency Plan~~
- ~~Recordkeeping/Inspections~~
- ~~On-site Transportation~~
- ~~Hazardous Waste Handling and Operations~~

~~C. Duties:~~

- ~~Collect hazardous/mixed waste from technical areas in Laboratory.~~
- ~~Segregate and/or package waste for storage/treatment/disposal.~~
- ~~Transport waste to the storage/treatment area.~~
- ~~Chemically treat any waste requiring treatment.~~
- ~~Perform required hazardous waste facility inspections.~~
- ~~Assist in the recordkeeping of all chemical waste activities.~~

~~TITLE: Chemical Technician II, III (EM-7) #012 (continued)~~

- ~~Assist in spill or emergency response treatment, cleanup, and disposal operations as required.~~
- ~~Provide input to updating of operational procedures.~~

~~RCRA JOB DESCRIPTION~~

~~TITLE: Technician Liaison Specialist IV, Technical Support Section (HSE-7) #013~~

~~A. Required Skills~~

- ~~Familiarity with State and Federal Regulations regarding RCRA listed hazardous materials.~~
- ~~Technical competence in area of proper handling of hazardous materials.~~
- ~~Good technical knowledge of waste incinerator design and operation.~~

~~B. Required Education/Training:~~

- ~~RCRA Provisions~~
- ~~Personal Safety~~
- ~~Respirator or SCBA~~
- ~~Hazardous Waste Handling and Operations~~

  ~~a. Explosives/Reactives~~
  ~~b. Acids/Bases~~
  ~~c. Organics General~~
  ~~d. Inorganics General~~

- ~~Spill Response~~
- ~~RCRA Contingency Plan~~
- ~~Recordkeeping/Inspections~~

~~C. Duties:~~

- ~~Provide specialized technical support for proper handling of hazardous wastes.~~
- ~~Assist in operation of incinerator.~~
- ~~Assist in collection of required run data.~~

~~RCRA JOB DESCRIPTION~~

~~TITLE: Mechanical Technician III/IV, Technical Support Section (HSE-7) #014~~

~~A. Required Skills~~

- ~~Familiarity with State and Federal Regulations regarding RCRA listed hazardous materials.~~
- ~~Technical competence in area of mechanical equipment design and fabrication.~~
- ~~Good technical knowledge of proper handling of hazardous waste forms.~~
- ~~Good technical knowledge of waste incinerator design and operation.~~

~~B. Required Education/Training:~~

- ~~RCRA Provisions~~
- ~~Personal Safety~~
- ~~Respirator or SCBA~~
- ~~Hazardous Waste Handling and Operations~~

  ~~a. Explosives/Reactives~~
  ~~b. Acids/Bases~~
  ~~c. Organics General~~
  ~~d. Inorganics General~~

- ~~Spill Response~~
- ~~RCRA Contingency Plan~~
- ~~Recordkeeping/Inspections~~

~~C. Duties:~~

- ~~Provide specialized technical support for design, construction, and maintenance of hazardous waste incinerator.~~
- ~~Assist in handling of hazardous waste.~~
- ~~Assist in operation of incinerator.~~
- ~~Assist in collection of required run data.~~

~~RCRA JOB DESCRIPTION~~

~~TITLE: Electronic Technician III, Technical Support Section (HSE-7) #015~~

~~A. Required Skills~~

- ~~Familiarity with State and Federal Regulations regarding RCRA listed hazardous materials.~~
- ~~Technical competence in area of mechanical equipment design and fabrication.~~
- ~~Good technical knowledge of proper handling of hazardous waste forms.~~
- ~~Good technical knowledge of waste incinerator design and operation.~~

~~B. Required Education/Training:~~

- ~~RCRA Provisions~~
- ~~Personal Safety~~
- ~~Respirator or SCBA~~
- ~~Hazardous Waste Handling and Operations~~

  ~~a. Explosives/Reactives~~
  ~~b. Acids/Bases~~
  ~~c. Organics General~~
  ~~d. Inorganics General~~

- ~~Spill Response~~
- ~~RCRA Contingency Plan~~
- ~~Recordkeeping/Inspections~~

~~C. Duties:~~

- ~~Provide specialized technical support for design, construction, and maintenance of hazardous waste incinerator.~~
- ~~Assist in handling of hazardous waste.~~
- ~~Assist in operation of incinerator.~~
- ~~Assist in collection of required run data.~~

~~RCRA JOB DESCRIPTION~~

~~TITLE: Mechanical Technician II/III (HSE-7) #016~~

~~A. Required Skills~~

- ~~Familiarity with State and Federal Regulations regarding hazardous materials and waste.~~
- ~~Good technical knowledge of problems associated with hazardous materials handling and use.~~
- ~~Oral communication skills for interfacing with waste generators.~~

~~B. Required Education/Training:~~

- ~~RCRA Provisions~~
- ~~Personal Safety~~
- ~~Respirator or SCBA~~
- ~~RCRA Contingency Plan~~
- ~~Spill Response~~

~~C. Duties:~~

- ~~Assist with chemical waste operations as needed.~~

~~RCRA JOB DESCRIPTION~~

~~TITLE: Experimental Equipment/Facilities Operator II/III (Area G, HSE-7) #017~~

~~A. Required Skills~~

- ~~Familiarity with State and Federal Regulations regarding hazardous materials and waste.~~
- ~~Good technical knowledge of problems associated with hazardous materials handling and use.~~
- ~~Oral communication skills for interfacing with waste generators.~~

~~B. Required Education/Training:~~

- ~~RCRA Provisions~~
- ~~Personal Safety~~
- ~~Respirator or SCBA~~
- ~~RCRA Contingency Plan~~
- ~~Spill Response~~

~~C. Duties:~~

- ~~Assist with chemical waste operations as needed.~~

~~RCRA JOB DESCRIPTION~~

~~TITLE: Experimental Equipment/Facilities II/III (TA-50, HSE-7) #018 Mechanical Technician III~~

~~A. Required Skills:~~

- ~~Familiarity with State and Federal Regulations regarding hazardous materials and waste.~~
- ~~Good technical knowledge of problems associated with hazardous materials handling and use.~~
- ~~Oral communication skills for interfacing with waste generators.~~

~~B. Required Education/Training:~~

- ~~Formal chemistry classes or experience in chemical handling operations.~~
- ~~RCRA Provisions~~
- ~~Personal Safety~~
- ~~Respirator or SCBA~~
- ~~Spill Response~~
- ~~RCRA Contingency Plan~~
- ~~Recordkeeping/Inspections~~
- ~~On Site Transportation~~
- ~~Hazardous Waste Handling and Operations~~

  ~~a. Explosives/Reactives~~
  ~~b. Acids/Bases~~
  ~~c. Organics - General~~
  ~~d. Inorganics - General~~

~~C. Duties:~~

- ~~Operation of chemical batch treatment plant.~~
- ~~Assist in recordkeeping of all chemical waste activities.~~
- ~~Perform required hazardous waste facility inspections.~~

~~TITLE: Experimental Equipment/Facilities II/III (TA-50, HSE-7) #018 Mechanical Technician III (continued)~~

- ~~Assist in spill response treatment, cleanup, and disposal operations as required.~~
- ~~Provide input to updating operational procedures.~~

~~RCRA JOB DESCRIPTION~~

~~TITLE: Chemical Technician III/Laborer (PAWS) #019~~

~~A. Required Skills:~~

- ~~Familiarity with State and Federal Regulations regarding hazardous materials and waste.~~
- ~~Good technical knowledge of problems associated with hazardous materials handling and use.~~
- ~~Oral communication skills for interfacing with waste generators.~~

~~B. Required Education/Training:~~

- ~~Formal chemistry classes or experience in chemical handling operations.~~
- ~~RCRA Provisions~~
- ~~Personal Safety~~
- ~~Respirator or SCBA~~
- ~~Spill Response~~
- ~~RCRA Contingency Plan~~
- ~~Recordkeeping/Inspections~~
- ~~On Site Transportation~~
- ~~Hazardous Waste Handling and Operations~~

  ~~a. Explosives/Reactives~~
  ~~b. Acids/Bases~~
  ~~c. Organics - General~~
  ~~d. Inorganics - General~~

~~C. Duties:~~

- ~~Collect chemical waste from technical areas in Laboratory.~~
- ~~Segregate and/or package for storage/treatment/disposal.~~
- ~~Transport waste to the storage/treatment area.~~
- ~~Chemically treat any waste requiring treatment.~~

~~TITLE: Chemical Technician III/Laborer (PAWS) — #019 (continued)~~

- ~~Perform required hazardous waste facility inspections.~~
- ~~Assist in recordkeeping of all chemical waste activities.~~
- ~~Assist in spill response treatment, cleanup, and disposal operations as required.~~
- ~~Provide input to updating operational procedures.~~

~~RCRA JOB DESCRIPTION~~

~~TITLE: Section Leader, Decontamination and Decommissioning #020~~

~~A. Required Skills~~

- ~~Familiarity with State and Federal Regulations regarding hazardous materials and waste.~~
- ~~Good technical knowledge of problems associated with hazardous materials handling and use.~~
- ~~Ability to communicate with a wide variety of personnel, internal and external to the Laboratory.~~
- ~~Ability to supervise personnel in proper chemical waste management.~~

~~B. Required Education/Training:~~

- ~~Minimum of a bachelor's degree in chemistry/chemical engineering or an equivalent combination of experience and education.~~
- ~~RCRA Provisions~~
- ~~Spill Response~~
- ~~RCRA Contingency Plan~~
- ~~Emergency Procedures~~

~~C. Duties:~~

- ~~Coordinate Section capabilities to properly receive, store, and treat mercury waste.~~

~~RCRA JOB DESCRIPTION~~

~~TITLE: Health Protection Technician II, III, Decontamination & Decommissioning (HSE 7) #021~~

~~A. Required Skills~~

- ~~Familiarity with State and Federal Regulations regarding hazardous materials and waste.~~
- ~~Good technical knowledge of problems associated with hazardous materials handling and use.~~
- ~~Oral communication skills for interfacing with waste generators.~~

~~B. Required Education/Training:~~

- ~~RCRA Provisions~~
- ~~Personal Safety~~
- ~~Respirator or SCBA~~
- ~~RCRA Contingency Plan~~
- ~~Spill Response~~

~~C. Duties:~~

- ~~Store mercury waste~~
- ~~Treat mercury waste~~
- ~~Maintain documentation on mercury storage and treatment.~~

~~RCRA JOB DESCRIPTION~~

~~TITLE: Team Leader, Staff Members, Waste Generator Interface (HSE 7) #022~~

~~A. Required Skills~~

- ~~Knowledge of State and Federal Regulations regarding hazardous materials and waste.~~
- ~~Technical knowledge of problems associated with hazardous materials handling and use.~~
- ~~Ability to communicate with a wide variety of personnel, internal and external to the Laboratory.~~
- ~~Ability to supervise personnel in proper chemical waste management.~~

~~B. Required Education/Training:~~

- ~~Minimum of a bachelor's degree in chemistry/chemical engineering or an equivalent combination of experience and education.~~
- ~~RCRA Provisions~~
- ~~Personal Safety~~
- ~~Respirator or SCBA~~
- ~~Hazardous Waste Handling and Operations~~

  ~~a. Explosives/Reactives~~
  ~~b. Acids/Bases~~
  ~~c. Organics General~~
  ~~d. Inorganics General~~

- ~~Spill Response~~
- ~~RCRA Contingency Plan~~
- ~~Recordkeeping/Inspections~~
- ~~On Site/Off Site Transportation~~

~~TITLE: Team Leader, Staff Members, Waste Generator Interface (HSE-7) #022~~

~~C. Duties:~~

- ~~Work in the field with waste generators on waste segregation, storage, minimization and transportation issues.~~

~~RCRA JOB DESCRIPTION~~

~~TITLE: Technical Coordinator for Operations (M-DO) #023~~

~~A. Required Skills~~

- ~~Familiarity with State and Federal Regulations regarding hazardous materials and waste.~~
- ~~Good technical knowledge of problems associated with high explosives and handling and use.~~
- ~~Ability to communicate with a wide variety of personnel, internal and external to the Laboratory.~~

~~B. Required Education/Training:~~

- ~~RCRA Provisions~~
- ~~Personal Safety~~
- ~~Hazardous Waste Handling and Operations~~

  ~~a. Handling/detonation of HE waste~~

- ~~Emergency Procedures~~
- ~~RCRA Contingency Plan~~
- ~~Recordkeeping/Inspections~~
- ~~On Site Transportation~~

~~C. Duties:~~

- ~~General oversight responsibility for M Division's Safety Program and general operation matters.~~

~~RCRA JOB DESCRIPTION~~

~~TITLE: Testing Technician III (M-1) #024~~

~~A. Required Skills~~

- ~~Familiarity with State and Federal Regulations regarding hazardous materials and waste.~~
- ~~Good technical knowledge of problems associated with high explosives (HE) handling and use.~~

~~B. Required Education/Training:~~

- ~~RCRA Provisions~~
- ~~Personal Safety~~
- ~~Hazardous Waste Handling and Operations~~
  - ~~a. Detonation/Burning HE waste~~
- ~~M-1 Contingency Plan~~
- ~~Recordkeeping/Inspections~~
- ~~On Site Transportation~~

~~C. Duties:~~

- ~~Removes waste from storage for disposal at Q Site firing area.~~
- ~~Responsible for small scale sensitivity evaluation of explosives.~~
- ~~Responsible for small scale performance tests.~~
- ~~Directs conventional firing at Q Site.~~

~~RCRA JOB DESCRIPTION~~

~~TITLE: Technical Administrative Specialist (M-1) #025~~

~~A. Required Skills~~

- ~~Familiarity with State and Federal Regulations regarding hazardous materials and waste.~~
- ~~Good technical knowledge of problems associated with high explosives (HE) handling and use.~~

~~B. Required Education/Training:~~

- ~~RCRA Provisions~~
- ~~Personal Safety~~
- ~~Hazardous Waste Handling and Operations~~
  - ~~a. Handling/Detonation/Burning HE waste~~
- ~~M-1 Emergency Procedures~~
- ~~Recordkeeping/Inspections~~
- ~~On Site Transportation~~

~~C. Duties:~~

- ~~Responsible for site maintenance at TA-9 and TA-14.~~
- ~~Supervise TA-9 explosives area.~~
- ~~Develop processing on new materials.~~
- ~~Coordinate production, assembly and delivery of HE.~~
- ~~Supervise new equipment installation.~~
- ~~Supervise HE shop scheduling.~~

~~RCRA JOB DESCRIPTION~~

~~TITLE: Remote Site Supervisor III (M-6) #026~~

~~A. Required Skills~~

- ~~Familiarity with State and Federal Regulations regarding hazardous materials and waste.~~
- ~~Good technical knowledge of problems associated with high explosives (HE) handling and use.~~

~~B. Required Education/Training:~~

- ~~RCRA Provisions~~
- ~~Personal Safety~~
- ~~Hazardous Waste Handling and Operations~~
  - ~~a. Handling/Detonation HE waste~~
- ~~M-6 Emergency Procedures~~
- ~~Recordkeeping/Inspections~~
- ~~On Site Transportation~~

~~C. Duties:~~

- ~~Schedules shots at M-6 firing sites.~~
- ~~Performs maintenance at firing sites.~~
- ~~Insures adequate safety measures of firing point operations.~~
- ~~Supervise operations at the M-6 general purpose firing site.~~
- ~~Responsible for maintenance of operational records.~~

~~RCRA JOB DESCRIPTION~~

~~TITLE: Mechanical Technician II (M-6) #027~~

~~A. Required Skills~~

- ~~Familiarity with State and Federal Regulations regarding hazardous materials and waste.~~
- ~~Good technical knowledge of problems associated with high explosives (HE) handling and use.~~

~~B. Required Education/Training:~~

- ~~RCRA Provisions~~
- ~~Personal Safety~~
- ~~Hazardous Waste Handling and Operations~~
  - ~~a. Handling/Detonation HE waste~~
- ~~M-6 Emergency Procedures~~
- ~~Recordkeeping/Inspections~~
- ~~On Site Transportation~~

~~C. Duties:~~

- ~~Assemble and fire explosive shots.~~
- ~~Assist firing point crew during shots.~~

~~RCRA JOB DESCRIPTION~~

~~TITLE: Technical Supervisor IV (M-7) #028~~

~~A. Required Skills~~

- ~~Familiarity with State and Federal Regulations regarding hazardous materials and waste.~~
- ~~Good knowledge of problems associated with high explosives handling and use.~~
- ~~Strong electronics background.~~

~~B. Required Education/Training:~~

- ~~RCRA Provisions~~
- ~~Personal Safety~~
- ~~Hazardous Waste Handling and Operations of HE waste~~
- ~~M-7 Emergency Procedures~~
- ~~Recordkeeping/Inspections~~
- ~~On Site Transportation~~

~~C. Duties~~

- ~~Supervise HE Test Firing technicians.~~
- ~~Provide on the job training for explosives technicians.~~
- ~~Responsible for maintenance of operational records.~~

~~RCRA JOB DESCRIPTION~~

~~TITLE: Technical Supervisor III (M-7))29~~

~~A. Required Skills~~

- ~~Familiarity with State and Federal Regulations regarding hazardous materials and waste.~~
- ~~Good technical knowledge of problems associated with high explosives (HE) handling and use along with M-7 HE fabrication operations.~~
- ~~Familiarity with DOE and Laboratory Safety Regulations and M-7 Sops.~~

~~B. Required Education/Training:~~

- ~~RCRA Provisions~~
- ~~Personal Safety~~
- ~~Hazardous Waste Handling and Operations.~~

  ~~a. Handling of HE waste~~

- ~~M-7 Emergency Procedures~~
- ~~Recordkeeping/Inspections~~
- ~~On-Site Transportation~~

~~C. Duties:~~

- ~~Supervise HE fabrication technicians.~~
- ~~Provide on the job training for explosives technicians.~~
- ~~Responsible for maintenance of operational records.~~

~~RCRA JOB DESCRIPTION~~

~~TITLE: Group Committee Chairman (M-7) #030~~

~~A. Required Skills~~

- ~~Familiarity with State and Federal Regulations regarding hazardous materials and waste.~~
- ~~Good technical knowledge of problems associated with high explosives (HE) handling and use.~~
- ~~Familiarity with DOE and Laboratory Safety Regulations.~~

~~B. Required Education/Training:~~

- ~~RCRA Provisions~~
- ~~Personal Safety~~
- ~~Hazardous Waste Handling and Operations~~

  ~~a. Handling of HE waste~~

- ~~M-7 Emergency Procedures~~
- ~~Recordkeeping/Inspections~~
- ~~On-Site Transportation~~

~~C. Duties:~~

- ~~Aid the group leader in implementing Laboratory Safety Program.~~
- ~~Inform the group of changes in policy, new programs/services offered by the Laboratory.~~
- ~~Assure proper records are kept as required by Federal, State and Laboratory Regulations.~~
- ~~Aid Supervisors in training personnel in safety.~~

~~RCRA JOB DESCRIPTION~~

~~TITLE: Safety Officer (M-8) #031~~

~~A. Required Skills~~

- ~~Familiarity with State and Federal Regulations regarding hazardous materials and waste.~~
- ~~Knowledge of problems associated with high explosives (HE) handling and use.~~

~~B. Required Education/Training:~~

- ~~RCRA Provisions~~
- ~~Personal Safety~~
- ~~Hazardous Waste Handling and Operations~~

  ~~a. Handling of HE waste~~

- ~~M-8 Emergency Procedures~~
- ~~Recordkeeping/Inspections~~
- ~~Respirator or SCBA~~

~~C. Duties~~

- ~~Participate in writing SOPs for group operations.~~
- ~~Maintains files of SOPs.~~
- ~~Arranges Health and Safety Training for group personnel.~~
- ~~Conducts necessary inspections of M-8 facilities.~~
- ~~Assures group operations on compliance with Laboratory Health and Safety Manual.~~
- ~~Assures group operations in accordance with approved SOPs.~~

~~RCRA JOB DESCRIPTION~~

~~TITLE: Firing Operations Supervisor (M-8) #032~~

~~A. Required Skills~~

- ~~Familiarity with State and Federal Regulations regarding hazardous materials and waste.~~
- ~~Good knowledge of problems associated with high explosives (HE) handling and use.~~

~~B. Required Education/Training:~~

- ~~RCRA Provisions~~
- ~~Personal Safety~~
- ~~Hazardous Waste Handling and Operations~~

  ~~a. Handling/Detonation of HE waste~~

- ~~M-8 Emergency Procedures~~
- ~~On Site Transportation~~

~~C. Duties~~

- ~~Supervise firing section facilities & personnel in the following areas:~~

  ~~a. Directs and coordinates destruction of HE waste at M-8's firing sites.~~

  ~~b. Receiving explosives deliveries.~~

  ~~c. Assembling shots.~~

  ~~d. Shot set up at firing site.~~

  ~~e. Setting up the diagnostics, e.g., rotating mirror smear camera.~~

  ~~f. Firing the shot.~~

  ~~g. Collecting the data.~~

~~TITLE: Firing Operations Supervisor (M-8) #032 (continued)~~

~~h. Supervise the safety of facilities and personnel.~~

~~i. Supervise and help train new technicians.~~

~~RCRA JOB DESCRIPTION~~

~~TITLE: Disposal Operations Materials Technician (WX-3) #033~~

~~A. Required Skills~~

- ~~Familiarity with State and Federal Regulations regarding hazardous materials and waste.~~
- ~~Good technical knowledge of problems associated with high explosives (HE) handling and disposal.~~
- ~~Knowledge of specific group SOPs and procedures for disposal operations.~~
- ~~Competence in disposal operations.~~

~~B. Required Education/Training:~~

~~Personnel assigned to the Disposal Crew are trained on the job. Most come to the job from other technical positions in WX-3 and are well grounded in explosives safety. They have knowledge of relevant SOPs and their competence in the disposal operations is recorded by the Supervisor. They attend monthly meetings and participate in safety training.~~

- ~~RCRA Provisions~~
- ~~Personal Safety~~
- ~~Hazardous Waste Handling and Operations~~
  - ~~a. Detonation/Burning HE waste~~
- ~~WX-3 Contingency Plan~~
- ~~Recordkeeping/Inspections~~
- ~~On Site Transportation~~

~~C. Duties:~~

- ~~Participates in the operations of a truck mounted vacuum tank for the removal of sump waste.~~
- ~~Prepares HE Waste for burning. Uses squibs and firing circuitry to start burning operations.~~
- ~~Responsible for preparing HE waste for burning.~~
- ~~Responsible to supervisor for problems concerning efficiency, safety, and maintenance of the operation.~~

~~TITLE: Disposal Operations Materials Technician (WX-3) #033 (continued)~~

- ~~Charged with practicing good housekeeping for the proper level of cleanliness of the facilities and equipment.~~

~~RCRA JOB DESCRIPTION~~

~~TITLE: Disposal Operations Supervisor (WX-3) #034~~

~~A. Required Skills~~

- ~~Familiarity with State and Federal Regulations regarding hazardous materials and waste.~~
- ~~Good technical knowledge of problems associated with high explosives (HE) handling and disposal.~~
- ~~Thorough knowledge and understanding of specific group SOPs, safety manuals, and procedures for disposal operations.~~
- ~~Directs activities of two technicians in the pickup, transportation, and disposal of HE contaminated flammable waste from all areas involving WX-3 operations and other Laboratory Groups.~~
- ~~Responsible for the safety of all personnel engaged in disposal activities.~~
- ~~Responsible for the training of personnel in the handling, transportation, and destroying of wastes, with emphasis on the precautions necessary for individual and crew protection.~~
- ~~Schedules the activities to have all explosive or contaminated waste removed from the facilities for disposal at the Burning Ground.~~
- ~~Oversees sump cleaning activities to assure a safe, effective operation and inspects all sumps regularly.~~
- ~~Understands and enforces security regulations concerning classified scrap.~~
- ~~Responsible for the cleanliness and maintenance of all facilities and equipment involved in disposal activities.~~

~~B. Required Education/Training:~~

~~The Disposal Supervisor must have a thorough understanding of the SOPs based on the procedures developed over decades of experience in handling, transporting, and using explosives at TA-16. He must also have a thorough understanding of the regulations stated in both the U.S. Army's Materials Development and Readiness Command Manual 385-100 and DOE Safety Manual. The Supervisor is an individual promoted to this position based on his demonstrated experience and knowledge of disposal activities, explosives in general, and safety practices in explosive operations.~~

- ~~RCRA Provisions~~
- ~~Personal Safety~~

~~TITLE: Disposal Operations Supervisor (WX-3) #034 (continued)~~

- ~~Hazardous Waste Handling and Operations~~

  ~~a. Detonation/Burning HE waste~~

- ~~WX-3 Contingency Plan~~

- ~~Recordkeeping/Inspections~~

- ~~On Site Transportation~~

~~C. Duties:~~

- ~~Responsible for the operations of a truck mounted vacuum truck for the removal of sump waste.~~

- ~~Works with the crew in preparing HE waste for burning. Custody of the firing apparatus.~~

- ~~Responsible to supervisor for problems concerning efficiency, safety, and maintenance of the disposal operation.~~

- ~~Maintains facilities and equipment by requesting maintenance support and conducts safety checks of the Burning Ground.~~

- ~~Evaluates personnel and assures compliance with security regulations.~~

- ~~Assures personnel comply with RCRA regulations.~~

~~RCRA JOB DESCRIPTION~~

~~TITLE: Plant Engineering Specialist TEC IV (WX-12) #035~~

~~A. Required Skills~~

- ~~Demonstrated technical and administrative proficiency in plant operation in maintenance.~~
- ~~Good technical knowledge of problems associated with high explosives (HE) handling and disposal.~~

~~B. Required Education/Training:~~

- ~~RCRA Provisions~~
- ~~Spill Response/Contingency Plan~~
- ~~Personal Safety~~
- ~~Detonation/Burning HE waste~~
- ~~Emergency Procedures~~
- ~~Recordkeeping/Inspections~~
- ~~On Site Transportation~~

~~C. Duties:~~

- ~~Investigate all proposed actions involving the physical plant and equipment to assure that the results will be compatible with the operational requirements and plant of the operating division.~~
- ~~Track, monitor, and expedite operations involving contractor and off site personnel that affect the area, buildings, facilities, and equipment.~~
- ~~Serve as construction coordinator and maintenance inspector.~~
- ~~Ensure the operations of contractor and off site personnel are safe, compatible with existing facilities and operations, and minimize impact on the work of division personnel.~~

~~TITLE: Plant Engineering Specialist TEC IV (WX-12) #035 (continued0~~

- ~~Function as certifying agent, which involves inspection and testing for explosives contamination of items leaving the explosives area and many items to be transferred within the explosives area.~~

- ~~Provide direct supervision of all craft work related to vacuum systems, dust collectors, and other equipment that may be internally contaminated with high explosives.~~

- ~~Supervision of jobs in progress to assure that job requirements are met, including timely completion of jobs, adherence to S-Site safety rules, and procedures, and prompt resolution of problems.~~

- ~~Provide safety leadership at S-Site, including recommendation of changes to existing safety rules and procedures affecting contractor and off-site personnel work in the area.~~

~~RCRA JOB DESCRIPTION~~

~~TITLE: Certifying Agent (WX-12) #036~~

~~A. Required Skills~~

- ~~Familiarity with State and Federal Regulations regarding hazardous materials and waste.~~
- ~~Good technical knowledge of problems associated with high explosives (HE) handling and disposal.~~
- ~~Knowledgeable of specific group SOPs and procedures for disposal operations.~~
- ~~Competence in verification by visual inspection or application of appropriate tests that equipment or materials leaving TA-16 are free of explosives.~~
- ~~Certifies equipment or materials for general use with no qualifications.~~

~~B. Required Education/Training:~~

~~The Certifier is trained on the job by senior personnel. Qualified Certifiers are senior technicians knowledgeable in explosives safety and explosives used in specific facilities.~~

~~Required Courses:~~

- ~~RCRA Provisions~~

  ~~Personal Safety~~

- ~~Hazardous Waste Handling and Operations~~

  ~~a. Detonation/Burning HE waste~~

- ~~WX-12 Contingency Plan~~
- ~~Recordkeeping/Inspections~~
- ~~On Site Transportation~~

~~C. Duties:~~

- ~~Completely remove high explosives from contaminated equipment and materials. Certify the equipment and materials for general use with no qualifications.~~

~~TITLE: Certifying Agent (WX-12) #036 (continued)~~

- ~~Responsible to supervisor for problems concerning efficiency, safety, and maintenance of the operation.~~

~~RCRA JOB DESCRIPTION~~

~~TITLE: Plant Engineering Specialist TEC IV (WX-12) #037~~

~~A. Required Skills~~

- ~~Demonstrated technical and administrative proficiency in maintenance of plant operation.~~
- ~~Good technical knowledge of problems associated with high explosives handling and use.~~

~~B. Required Education/Training:~~

- ~~RCRA Provisions~~
- ~~Spill Response/Contingency Plan~~
- ~~Personal Safety~~
- ~~Detonation/Burning HE~~
- ~~Emergency Procedures~~
- ~~Recordkeeping/Inspections~~
- ~~On Site Transportation~~

~~C. Duties:~~

- ~~Investigate all proposed actions involving the physical plant and equipment to assure that the results will be compatible with the operational requirements and plant of the operating division.~~
- ~~Track, monitor, and expedite operations involving contractor and off site personnel that affect the area, buildings, facilities, and equipment.~~
- ~~Serve as construction coordinator and maintenance inspector.~~
- ~~Ensure that operations of contractor and off site personnel are safe, compatible with existing facilities and operations, and minimize impact on the work of division personnel.~~
- ~~Function as certifying agent, which involves inspection and testing for explosives, contamination of items leaving the explosives area and many items to be transferred within the explosives area.~~
- ~~Provide direct supervision of all craft work related to vacuum systems, dust collectors, and other equipment that may be internally contaminated with high explosives.~~

~~RCRA JOB DESCRIPTION~~

~~TITLE: Emergency Manager/Hazardous Material Response Team #038~~

~~A. Required Skills:~~

- ~~Familiarity with State and Federal Regulations regarding hazardous and mixed materials and waste.~~
- ~~Good technical knowledge of problems associated with hazardous chemical handling and use.~~
- ~~Ability to communicate with a wide variety of personnel, internal and external to the Laboratory.~~
- ~~Ability to supervise personnel in hazardous and mixed waste emergency situation.~~

~~B. Required Education/Training:~~

- ~~RCRA Provisions~~
- ~~OSHA Provisions~~
- ~~Spill Response~~
- ~~Contingency Plan~~
- ~~Emergency Response~~

~~C. Duties:~~

- ~~Act as Incident Commander in the event of a RCRA emergency situation.~~
- ~~Maintain awareness of RCRA regulations with respect to local operations.~~

~~RCRA JOB DESCRIPTION~~

~~TITLE: Chemical Waste Management Coordinator #039~~

~~A. Required Skills:~~

- ~~Knowledge of State and Federal Regulations regarding hazardous materials and waste.~~
- ~~Knowledge of Laboratory requirements for hazardous material and waste management.~~
- ~~Ability to instruct personnel in proper chemical waste management.~~

~~B. Required Education/Training:~~

- ~~RCRA Provisions~~
- ~~Spill Response~~
- ~~Contingency Plan~~

~~C. Duties:~~

- ~~Oversee local waste activities.~~
- ~~Instruct fellow personnel in Laboratory waste disposal requirements.~~
- ~~Provide input to spill responses for hazardous materials/waste as necessary.~~
- ~~Maintain awareness of RCRA regulations with respect to local operations.~~

~~RCRA JOB DESCRIPTION~~

~~TITLE: Staff Member, Technical Support Section (HSE-7) #040~~

~~A. Required Skills:~~

- ~~Familiarity with State and Federal Regulations regarding RCRA listed hazardous materials.~~
- ~~Good understanding of waste incinerator design and operation.~~
- ~~Ability to train and supervise other Section members as required by operations.~~

~~B. Required Education/Training:~~

- ~~Minimum of a bachelor's degree in chemistry/chemical engineering or an equivalent combination of experience and engineering.~~
- ~~RCRA Provisions~~
- ~~Personal Safety~~
- ~~Respirator or SCBA~~
- ~~Hazardous Waste Handling and Operations~~

  ~~a. Incineration~~
  ~~b. Acids/Bases~~
  ~~c. Organics General~~
  ~~d. Inorganics General~~

- ~~Spill Response~~
- ~~RCRA Contingency Plan~~
- ~~Recordkeeping/Inspections~~

~~C. Duties:~~

- ~~Assist in training of Section staff and technicians in handling of hazardous wastes, incinerator operations, and data collection.~~
- ~~Supervise handling of hazardous wastes as required by operations.~~

~~TITLE: Staff Member, Technical Support Section (HSE-7) #040 (continued)~~

- ~~Serve as shift supervisor during incinerator operations.~~
- ~~Collect records of required run data.~~

~~RCRA JOB DESCRIPTION~~

~~TITLE: High Explosives Technician (M-1) #041~~

~~A. Required Skills:~~

- ~~Familiarity with State and Federal Regulations regarding hazardous materials and waste.~~
- ~~Good technical knowledge of problems associated with high explosives handling and use.~~

~~B. Required Education/Training:~~

- ~~RCRA Provisions~~
- ~~Personal Safety~~
- ~~Detonation/burning HE~~
- ~~Emergency procedures~~
- ~~Recordkeeping/inspection~~
- ~~On Site transportation of explosives~~

~~C. Duties:~~

- ~~Remove waste from satellite storage for disposal at TA-14 detonation/burning site.~~
- ~~Small scale sensitivity testing of explosives.~~
- ~~Small scale evaluation of explosives performance.~~

~~RCRA JOB DESCRIPTION TABLE~~

~~Name~~	~~Number~~	~~Title~~	~~Group~~
~~A. Drypolcher~~	~~001~~	~~Group Leader, Waste Management~~	~~EM-7~~
~~R. Garde~~	~~002~~	~~Deputy Group Leader, Waste Management~~	~~EM-7~~
~~A. Gustavsson~~	~~003~~	~~Section Leader, Chemical and Mixed Waste Operations~~	~~EM-7~~
~~J. Harper~~	~~004~~	~~Section Leader, Low Level Waste Operations~~	~~EM-7~~
~~S. Hanson~~	~~005~~	~~Acting Section Leader, Liquid Waste Operations~~	~~EM-7~~
~~S. Zygmunt~~	~~006~~	~~Section Leader, Technical Support Section~~	~~EM-7~~
~~Vacant~~	~~008~~	~~Staff Member, Technical Support Section~~	~~EM-7~~
~~A. Montonya~~	~~009~~	~~Staff Member, Chemical and Mixed Waste Operations~~	~~EM-7~~
~~E. Lopez~~	~~009~~	~~Staff Member, Chemical and Mixed Waste Operations~~	~~EM-7~~
~~F. Vigil~~	~~009~~	~~Staff Member, Chemical and Mixed Waste Operations~~	~~EM-7~~
~~N. Sauer~~	~~009~~	~~Staff Member, Chemical and Mixed Waste Operations~~	~~EM-7~~
~~J. Kelly~~	~~009~~	~~Staff Member, Chemical and Mixed Waste Operations~~	~~EM-7~~
~~W.R. Velasquez~~	~~012~~	~~Environmental Technician~~	~~EM-7~~
~~E. Velasquez~~	~~012~~	~~Environmental Technician~~	~~EM-7~~
~~B. Romero~~	~~012~~	~~Environmental Technician~~	~~EM-7~~
~~J. Armijo~~	~~012~~	~~Environmental Technician~~	~~EM-7~~
~~M. Martinez~~	~~012~~	~~Environmental Technician~~	~~EM-7~~
~~S. Martinez~~	~~012~~	~~Environmental Technician~~	~~EM-7~~
~~T. Martinez~~	~~012~~	~~Environmental Technician~~	~~EM-7~~
~~J. Gonzales~~	~~012~~	~~Environmental Technician~~	~~EM-7~~

~~RCRA JOB DESCRIPTION TABLE~~
~~(continued)~~

~~Name~~	~~Number~~	~~Title~~	~~Group~~
~~L. Esquibel~~	~~012~~	~~Environmental Technician~~	~~EM 7~~
~~L. Hupke~~	~~012~~	~~Environmental Technician~~	~~EM 7~~
~~D. Melton~~	~~014~~	~~Mechanical Technician, Technical Support~~	~~EM 7~~
~~R. Powers~~	~~014~~	~~Mechanical Technician, Technical Support~~	~~EM 7~~
~~J.F. Rutten~~	~~014~~	~~Mechanical Technician, Technical Support~~	~~EM 7~~
~~J. Mendez~~	~~015~~	~~Electronic Technician III, Technical Support~~	~~EM 7~~
~~Vacancy~~	~~015~~	~~Electronic Technician III, Technical Support~~	~~EM 7~~
~~C. Villareal~~	~~017~~	~~Experimental Equipment/Facilities Operator II/III (Area G)~~	~~EM 7~~
~~R. Roybal~~	~~017~~	~~Experimental Equipment/Facilities Operator II/III (Area G)~~	~~EM 7~~
~~R. Spencer~~	~~017~~	~~Experimental Equipment/Facilities Operator II/III (Area G)~~	~~EM 7~~
~~B. Smith~~	~~017~~	~~Experimental Equipment/Facilities Operator II/III (Area G)~~	~~EM 7~~
~~M. Martinez~~	~~017~~	~~Experimental Equipment/Facilities Operator II/III (Area G)~~	~~EM 7~~
~~D. Moss~~	~~018~~	~~Experimental Equipment Facilities Operator II/III (TA-50)~~	~~EM 7~~
~~D. Salazar~~	~~018~~	~~Experimental Equipment Facilities Operator II/III (TA-50)~~	~~EM 7~~
~~R. Reyonlds~~	~~018~~	~~Experimental Equipment Facilities Operator II/III (TA-50)~~	~~EM 7~~
~~G. Royer~~	~~018~~	~~Experimental Equipment Facilities Operator II/III (TA-50)~~	~~EM 7~~
~~E. Montoya~~	~~019~~	~~Chemical Technician III/Laborer~~	~~JCI~~
~~Vacant~~	~~020~~	~~Section Leader, Decontamination and Decomissioning~~	~~EM 7~~
~~M. Romero, Supervisor~~	~~021~~	~~Health Protection Technician II/III~~	~~EM 7~~
~~M. Sanchez~~	~~021~~	~~Health Protection Technician II/III~~	~~EM 7~~
~~Vacancy~~	~~022~~	~~Staff Member, Waste Generator Interface~~	~~EM 7~~
~~F.M. Jackson~~	~~023~~	~~Technical Coordinator for Operations~~	~~M DO~~

~~RCRA JOB DESCRIPTION TABLE~~
~~(continued)~~

~~Name~~	~~Number~~	~~Title~~	~~Group~~
~~S. Hildner~~	~~024~~	~~Testing Technician III~~	~~M-1~~
~~C.C. Maxwell~~	~~025~~	~~Technical Administrative Specialist~~	~~M-1~~
~~A.D. Bonner~~	~~026~~	~~Remote Site Supervisor~~	~~M-6~~
~~D.T. Torres~~	~~027~~	~~Mechanical Technician II~~	~~M-6~~
~~W. Patterson~~	~~028~~	~~Technical Supervisor IV~~	~~M-7~~
~~S. Trujillo~~	~~029~~	~~Technical Supervisor III~~	~~M-7~~
~~L.W. Creamer~~	~~030~~	~~Group Safety Committee Chairman~~	~~M-7~~
~~C.M. Montoya~~	~~031~~	~~Safety Officer~~	~~M-8~~
~~C.M. Montoya~~	~~032~~	~~Firing Operations Supervisor~~	~~M-8~~
~~J. Maestas~~	~~033~~	~~Disposal Operations Materials Technician~~	~~WX-3~~
~~S. Ortiz~~	~~033~~	~~Disposal Operations Materials Technician~~	~~WX-3~~
~~J. Gallegos~~	~~033~~	~~Disposal Operations Materials Tecnician~~	~~WX-3~~
~~R. Garcia~~	~~033~~	~~Disposal Operations Materials Technician~~	~~WX-3~~
~~A. Montano~~	~~033~~	~~Disposal Operations Materials Technician~~	~~WX-3~~
~~P. Velarde~~	~~034~~	~~Disposal Operations Materials Technician~~	~~WX-3~~
~~B. McCormick~~	~~035~~	~~Plant Engineering Specialist Technician IV~~	~~WX-12~~
~~B. McCormick~~	~~036~~	~~Certifying Agent~~	~~WX-12~~
~~J. Martinez~~	~~036~~	~~Certifying Agent~~	~~WX-12~~
~~D. Sharpless~~	~~037~~	~~Plant Engineering Specialist Technician IV~~	~~WX-12~~
~~Z. Macbain~~	~~038~~	~~Emergency Manager/HAZ MAT Team~~	~~EMO~~
~~F. Pearce~~	~~038~~	~~Emergency Manager/HAZ MAT Team~~	~~EMO~~
~~J. Griffiths~~	~~038~~	~~Emergency Manager/HAZ MAT Team~~	~~EMO~~
~~D. Winston~~	~~038~~	~~Emergency Manager/HAZ MAT Team~~	~~EMO~~

~~RCRA JOB DESCRIPTION TABLE~~
~~(continued)~~

~~Name~~	~~Number~~	~~Title~~	~~Group~~
~~D. Seitz~~	~~038~~	~~Emergency Manager/HAZ MAT Team~~	~~EMO~~
~~G. Bequett~~	~~038~~	~~Emergency Manager/HAZ MAT Team~~	~~EMO~~
~~T. Hower~~	~~038~~	~~Emergency Manager/HAZ MAT Team~~	~~HS-5~~
~~D. Volz~~	~~038~~	~~Emergency Manager/HAZ MAT Team~~	~~HS-5~~
~~T. Montoya~~	~~038~~	~~Emergency Manager/HAZ MAT Team~~	~~HS-5~~

~~FIGURE C-1~~
~~OUTLINE OF LOS ALAMOS NATIONAL LABORATORY'S TRAINING PROGRAM~~

~~IC - internal classroom instruction~~
~~EC - external classroom instruction~~
~~OJT - on the job training~~

~~I. RCRA PROVISIONS~~

~~A. Legislation (Federal/State) - (IC, EC) introductory with annual update.~~

~~Brief overview of legislative mandates.~~

~~B. Regulations (Federal/State) - introductory with annual update.~~

~~1. Overview of 40 CFR 260-265 (N.M. Hazardous Waste Regs. Parts I & II)~~
~~2. Overview of DOT shipping regulations.~~
~~3. Familiarization with Los Alamos National Laboratory emergency response, recordkeeping.~~

~~II. PERSONNEL HEALTH AND SAFETY~~

~~A. Familiarization with Standard Operating Safety Guidelines (IC)~~

~~B. Safe Handling of Chemicals (EC)~~

~~1. Explosive/fire hazards, chemical burns, chemical compatibility~~
~~2. Eye/skin hazards and protection~~
~~3. Respiratory hazards and protection~~

~~C. First Aid (IC) introductory, triennial recertification~~

~~D. CPR (IC) introductory, annual recertification~~

~~E. Use of H&S equipment~~

~~1. Safety showers, eyewashers~~
~~2. Fire extinguishers~~
~~3. Alarm system~~
~~4. Communication system~~

~~FIGURE C-1~~
~~OUTLINE OF LOS ALAMOS NATIONAL LABORATOROY'S TRAINING PROGRAM~~
~~(continued)~~

~~III. RESPIRATOR~~

~~A. Air Purifying Devices (IC) introductory, annual~~

~~1. Use~~
~~a. Operation of device~~
~~b. Changing of filters~~
~~c. Donning and taking off equipment~~
~~d. Safety features~~

~~2. Care and cleaning~~
~~3. Inspection~~
~~4. Fitting~~

~~B. Self Contained Breathing Apparatus (IC) introductory, annual~~

~~1. Use~~
~~a. Operation of device~~
~~b. Changing compressed air bottles~~
~~c. Donning and taking off equipment~~
~~d. Safety features~~

~~2. Care and cleaning~~
~~3. Inspection~~
~~4. Fitting~~

~~IV. HAZARDOUS WASTE HANDLING AND OPERATIONS~~

~~A. Controlled Air Incineration (OJT) introductory with annual update~~

~~1. Familiarization of SOP~~
~~2. Familiarization of Operating Manual~~
~~3. Supervised Operation of Facility~~
~~4. Emergency Shutdown Procedures~~
~~5. Evacuation Procedures~~
~~6. Accidental Release Procedure~~
~~7. Familiarization with Emergency Equipment Use, Inspection, Repair, etc.~~
~~8. Use of Communication/Alarm System~~

~~FIGURE C-1~~
~~OUTLINE OF LOS ALAMOS NATIONAL LABORATOROY'S TRAINING PROGRAM~~
~~(continued)~~

~~B. Detonation/Burning HE (OJT) introductory with annual update~~

~~1. Familiarization of SOP~~
~~2. Supervised Operation of Facility~~
~~3. Emergency Shutdown Procedures~~
~~4. Accidental Release Procedure~~
~~5. Familiarization with Emergency Equipment Use, Inspection, Repair, etc.~~
~~6. Use of Communication/Alarm System~~

~~D. Non HE Reactives, Corrosives, Ignitables, Toxics~~

~~1. Chemical Hazards and Reactions (EC)~~
~~2. Emergency Procedures (OJT)~~
~~3. Accidental Release Procedures (OJT)~~
~~4. Emergency Equipment~~
~~5. Communication/Alarm System~~

~~V. RECORDKEEPING/INSPECTIONS (IC, EC, OJT) introductory~~

~~A. Use of Manifest System (on site)~~

~~B. Operating Records~~

~~C. Reporting~~

~~D. Inspections~~

~~1. Facility~~
~~2. Operating Equipment~~
~~3. Safety/Emergency Equipment~~
~~4. Security System~~

~~VI. TRANSPORTATION (OJT) introductory~~

~~A. On Site~~
~~1. Packaging~~
~~2. Placarding/labeling~~
~~3. Manifesting/recordkeeping~~
~~4. Internal Procedures~~
~~5. Waste Segregation~~

~~FIGURE C-1~~
~~OUTLINE OF LOS ALAMOS NATIONAL LABORATOROY'S TRAINING PROGRAM~~
~~(continued)~~

~~B. Off Site~~
~~1. Packaging~~
~~2. Placarding/labeling~~
~~3. Manifesting/recordkeeping~~
~~4. Internal Procedures~~
~~5. Waste Segregation~~

~~Supervisors and staff receive training appropriate to their degree of handling hazardous waste (e.g., reporting and other procedures required for compliance). Material handlers are trained in the hands-on aspects such as maintenance of operating records, plant operation, and response to spills or other emergencies.~~

ATTACHMENT C
PERSONNEL TRAINING

This attachment describes the personnel training program for Los Alamos National Laboratory (LANL) in accordance with the regulatory requirements of the New Mexico Administrative Code, Title 20, Chapter 4, Part 1 (20 NMAC 4.1), Subpart V, 264.16, "Personnel Training," revised November 1, 1995. The information presented outlines the personnel training program at LANL. The primary objective of the training program is to prepare persons to operate and maintain safely those areas managing hazardous and/or mixed waste in accordance with 20 NMAC 4.1, Subpart V, revised November 1, 1995. This training program applies to all employees of the U.S. Department of Energy, the University of California, and any of their subcontractors who work regularly at LANL and who handle or generate hazardous and/or mixed waste. The degree of training varies with the job duties. However, all personnel who may handle or generate hazardous and/or mixed waste receive an introduction to hazardous waste management regulations.

C.1 HAZARDOUS AND MIXED WASTE MANAGEMENT/RESPONSIBILITIES

Waste management activities and responsibilities at specific hazardous and/or mixed waste units are handled by the appropriate LANL division or group. Waste management groups within the Chemical Science and Technology (CST) Division and the Hazardous and Solid Waste Group (ESH-19) are responsible for most other waste management activities at LANL. Waste management activities associated with high-explosive waste treatment are handled by the Engineering Sciences and Applications (ESA) Division and the Dynamic Experimentation (DX) Division. The Nuclear Materials Technology (NMT) Division is responsible for waste management activities at Technical Area 55. With the noted exceptions, CST waste management groups are responsible for all day-to-day operational aspects of waste management. ESH-19 is responsible for providing waste management regulatory guidance to all LANL personnel and operations.

Other LANL groups and various support personnel assist in waste management activities and provide support to ESH-19 and CST. Johnson Controls World Services Inc. (JCI) provides trained personnel to assist CST in waste-handling activities. Personnel in the Health Physics Operations Group (ESH-1), the Occupational Medicine Group (ESH-2), the Industrial Hygiene and Safety Group (ESH-5), the Criticality Safety Group (ESH-6), the Occurrence Investigation Group (ESH-7), the Hazardous Materials Response Group (ESH-10), the Air Quality Group (ESH-17), the Water Quality and Hydrology Group (ESH-18), the Environmental Assessments and Resource Evaluations Group (ESH-20), and personnel in ESH-19 are trained in their specialities to provide emergency response support. Protection Technology Los Alamos (PTLA) is responsible for LANL security, traffic control, and site access control.

The Emergency Management and Response (EM&R) Office provides emergency planning and response at LANL and has the overall responsibility for LANL's Emergency Management Plan (EMP) training. The Environment, Safety, and Health (ESH) Division Training Group (ESH-13) is responsible for developing and delivering LANL-wide environment, safety, and health (ES&H) training. Environmental courses are designed with substantial input from ESH-19, the CST waste management groups, and others, as appropriate.

C.2 TRAINING CONTENT, FREQUENCY, AND TECHNIQUES

The training program instituted at LANL includes a combination of LANL-wide courses (received internally or through external vendors and usually classroom-based), facility-specific training (developed and delivered within a particular facility), and on-the-job training (OJT) (performance-based courses that focus primarily on procedures performed by individual workers). Each of these types of training is described briefly in Sections C.2.1 through C.2.3. All LANL, JCI, and PTLA employees will receive the appropriate level of training within six months of their date of hire or transfer. Personnel will not work in unsupervised positions until they successfully complete the appropriate level of training for their positions and responsibilities.

Records of LANL-wide training currently sponsored or administered by ESH-13 are entered by that group into the Employee Development System (EDS), the official LANL training database. These records document that the required training has been successfully completed by the worker. Training records of former workers are kept for at least three years from the date last worked at the facility. It is required that records documenting successful completion of facility-specific, on-the-job, or externally provided training be kept by sponsoring organizations. Group or section training personnel or document control custodians will maintain, at a minimum, hard copies of training records for currently employed workers until the facility closes.

Table C-1 summarizes the components of the LANL-wide training program as administered through ESH-13. This table includes a listing of the relevant training courses, a summary of topics, and a designation of the relevant courses for each job category. Categories of workers summarized in Table C-1 include hazardous/mixed waste workers, managers and supervisors of hazardous/mixed waste workers, emergency responders, and uncontrolled area potential release site workers. Table C-2 summarizes the components of facility-specific training and OJT that workers must receive. Each training element was designed to ensure that every worker involved in hazardous and/or mixed waste operations is properly trained in procedures relevant to the positions in which they are employed. Tracking the completion of training is possible through the EDS training plans.

The responsibilities of the worker categories summarized in Table C-1 are presented herein. Hazardous/mixed waste workers are responsible for handling and/or managing hazardous/mixed wastes and assisting in spill and emergency response activities, as required. Managers and supervisors of hazardous/mixed waste workers are directly responsible for day-to-day operations related to waste management activities and ensuring that personnel safety and training requirements are met. Emergency responders are trained emergency response personnel (e.g., ESH-10) who respond to emergencies (e.g., spills, fires, explosions) involving hazardous and/or mixed wastes and who provide support for emergency response activities. Uncontrolled area potential release site workers conduct investigations and remedial activities at potential release sites and are responsible for proper waste management from generation to disposal, including waste characterization, treatment, and storage.

Training materials of LANL-wide training courses are on file in the ES&H Training Center and are available for review by all hazardous/mixed waste management and handling personnel, emergency response personnel, and regulatory agencies. Course content will be reviewed annually and updated as required to remain current with hazardous waste management regulations. Alternative forms of training (e.g., paper-based self-study courses, computer-based training) may be taken to meet specific training requirements. Such alternate forms of training must be approved by ESH-13 personnel and determined to be equivalent in content to more traditional classroom-based training courses. Files listing the requisite skills, education, and training for workers who handle hazardous and/or mixed waste and the duties and responsibilities for each job description, as well as the name of each worker filling a job description, are maintained, as required by 20 NMAC 4.1, Subpart V, 264.16(d)(2), revised

November 1, 1995. This information is located in the EDS as well as maintained at the facility by the group or section document control custodian.

C.2.1 LANL-Wide Training

The RCRA Personnel Training course provides an overview of state and federal hazardous waste management regulations and emphasizes compliance with the RCRA requirements that apply to job-related activities, such as the safe handling of hazardous and mixed waste. Program instructors are trained in hazardous and mixed waste management programs and procedures and in RCRA. The course is designed to provide training that is appropriate for the worker's responsibilities. ESH-13, with guidance from ESH-19, provides an annual refresher of applicable hazardous waste management requirements. Personnel who handle hazardous/mixed waste and/or clean up spills or releases of hazardous/mixed waste and the managers and supervisors of these workers receive instruction on appropriate topics listed in Table C-1. In addition, personnel responsible for requisitioning the transport, treatment, or storage of hazardous and/or mixed waste receive supplemental training, as necessary, as listed in Table C-1. Training is typically provided by LANL training instructors or by external vendors knowledgeable about a particular subject.

C.2.2 Facility-Specific Training

All waste-handling personnel will participate in facility-specific training at their work locations. Table C-2 addresses program requirements that ensure that hazardous and mixed waste management and handling personnel know the specific requirements for their facilities and are able to respond effectively to emergencies. Personnel will become familiar with emergency and monitoring equipment use, inspection, repair, and replacement at their facility. In addition, they will receive instruction on contingency plan contents and implementation (as they apply to their facility) including, but not limited to, communications or alarm systems, response to fires and explosions at their facility, and key parameters for automatic waste-feed cutoff systems and shutdown of facility operations.

C.2.3 OJT

Performance-based OJT is developed in conformance with LANL standards. Supervisors or other experts who can evaluate worker proficiency provide training appropriate for the procedures required of each function-specific position. To become proficient in hazardous and/or mixed waste procedures, workers receive this performance-based training, as necessary.

OJT topics include implementing facility-specific procedures, maintaining operating records, fulfilling reporting requirements, and conducting inspections specific to the facility. Workers whose duties include waste packaging and transportation support receive training on packaging, labeling, recordkeeping, and waste segregation for transportation within their facility. Emergency responders receive facility-specific training regarding emergency response and shutdown procedures at the facility to which they are assigned.

C.2.4 Training Coordinator

The ESH-13 Group Leader directs the LANL-wide ES&H training program. The Group Leader is trained in the operation of hazardous and mixed waste management facilities, waste management practices, and emergency procedures and is responsible for coordinating training courses. Line managers are responsible for ensuring that personnel under their supervision receive necessary training.

C.3 EMERGENCY TRAINING

If called upon by the EM&R Office, additional non-LANL emergency response personnel (e.g., JCI, PTLA) may assist the LANL Emergency Manager at the scene of a hazardous or mixed waste emergency. These professionals are trained in their specialties (e.g., heavy equipment operation, hazardous material cleanups, traffic control, security). JCI personnel are also trained in personal safety. At all times during an emergency, these workers are under the direct supervision of the Incident Commander in the Unified Command or the designated Crisis Manager, as appropriate. A more detailed discussion of emergency procedures, personnel, and equipment is provided in Permit Attachment D.

To ensure maximum protection of life and property and to mitigate the consequences of an emergency situation, facility personnel involved in waste handling and emergency response must be knowledgeable about appropriate building and operating area emergency procedures. These workers receive training in facility-specific emergency procedures or participate in the LANL-wide emergency training program. Group leaders and immediate supervisors are responsible for ensuring that education and training in facility-specific emergency procedures are provided to all personnel under their supervision. Training in facility-specific emergency procedures is given by the operating group. Periodic announced and unannounced emergency drills and exercises are used to familiarize workers with emergency procedures. Training is also provided to workers through prominent instructional displays and through presentations and discussions in safety meetings.

Each new or transferred worker is informed by an immediate supervisor regarding the general and specific emergency procedures related to the work area. The immediate supervisor also advises each worker of changes to any emergency procedures and provides an annual refresher of procedures affecting the work area. The organization that develops and delivers facility-specific training maintains these training records.

Specialized training is given to personnel assigned special functions or specific emergency duties. Emergency response personnel are required to attend courses on implementation of the hazardous/mixed waste contingency plan, spill response, and Occupational Safety and Health Administration (OSHA) emergency response provisions. The EM&R Office provides training related to implementing LANL's EMP. All waste management and handling personnel participate in a training program in which they are instructed in emergency procedures pertinent to their work areas. The operating group provides this site-specific instruction.

C.4 IMPLEMENTATION OF TRAINING PROGRAMS

General Employee Training (GET), an ES&H orientation course, is given on the first day of employment to all new employees. GET is also required of contract workers and visitors who work on site at LANL for ten or more consecutive days. GET includes, but is not limited to, ES&H policy, OSHA rights and regulations, industrial safety, waste minimization, general radiation protection, industrial hygiene, emergency management, and fire protection. Personnel who will handle or be associated with hazardous waste are required to take the hazard communications and waste generator training courses. All workers who will handle or be associated with mixed waste also receive courses in hazard communications and waste generator training, as well as radiation worker protection. Workers will not work without direct supervision or at a new position until they have been trained.

The Waste Generation Overview training course provides hazardous and mixed waste generators with information needed to identify wastes that are subject to hazardous waste regulations in 20 NMAC 4.1, Subpart II, revised

November 1, 1995. The training defines hazardous waste and hazardous constituents (including hazardous components in mixed waste) and addresses how to identify hazardous waste and hazardous constituents. The Waste Documentation Forms training course focuses on documenting characterized waste according to LANL requirements and to requirements in 20 NMAC 4.1, revised November 1, 1995. These training courses inform hazardous and mixed waste generators and/or waste management coordinators of their responsibilities and requirements and support the documentation of process knowledge, which may be used to characterize hazardous and mixed waste. All workers who handle hazardous and/or mixed waste are required to have RCRA Personnel Training, and those who work at treatment, storage, or disposal units are required to have Hazardous Waste Operations and Emergency Response (HAZWOPER) Occasional Site Worker training.

All hazardous and mixed waste management and handling personnel must attend annual refresher courses. These courses are intended to update personnel on LANL procedures and changes in RCRA provisions and to provide them with an overview of their introductory training. Line managers and group leaders will ensure that personnel participate in the appropriate introductory and annual training courses.

TABLE C-1
LOS ALAMOS NATIONAL LABORATORY-WIDE TRAINING PROGRAM

COURSES[a]	Hazardous/Mixed Waste Worker	Manager/Supervisor of Hazardous/Mixed Waste Workers	Emergency Responder	Uncontrolled Area Potential Release Site Worker
Criticality Safety Training (presents nuclear theory, criticality reactions, characteristics, exposure protection principles, and criticality prevention measures)	*[b]	*	*	*
General Employee Training (includes familiarization with standard operating safety guidelines)	X[c]	X	X	X
Hazard Communication Introduction (includes information on explosion/fire hazards, chemical burns, chemical compatibility, eye/skin hazards and protection, respiratory hazards and protection)	X	X	X	X
HAZWOPER[d]: First Responder (Operations Level) (provides an overview of hazardous materials emergency response including recognition and identification of hazardous materials and associated risks, required actions, and relationships with other emergency responders)			X	
HAZWOPER: General Site Worker (provides general information on hazardous waste operations and emergency response for general site workers engaged in corrective action, remediation, or decontamination and decommissioning activities)				X
HAZWOPER: Occasional Site Worker (provides general information on hazardous waste operations and emergency response for occasional and regular site workers)	X	X		

Refer to footnotes at end of table.

TABLE C-1
LOS ALAMOS NATIONAL LABORATORY-WIDE TRAINING PROGRAM
(continued)

COURSES[a]	Hazardous/Mixed Waste Worker	Manager/Supervisor of Hazardous/Mixed Waste Workers	Emergency Responder	Uncontrolled Area Potential Release Site Worker
HAZWOPER: Refresher for General Site Workers (provides general information on hazardous waste operations to general site workers)				X
HAZWOPER: Refresher for TSD[e] Workers (provides general information on hazardous waste operations to TSD workers)	X	X		
OSHA[f] Rights and Responsibilities (provides general information on worker's rights in relation to OSHA)	X	X	X	X
RCRA[g] Personnel Training (includes an overview of Code of Federal Regulations Title 40, Parts 260-265, 268; New Mexico Administrative Code, Title 20, Chapter 4, Part 1, revised November 1, 1995; Department of Transportation shipping regulations; internal and external protocol for facility inspections; operating equipment, communication systems, security systems; contingency plan, and emergency equipment use, inspection, and repair)	X	X	*	*
RCRA Refresher Training (includes regulatory and legislative updates, occurrence reports and lessons learned, audit findings, modification/review of the contingency plan; provides required retraining)	X	X	*	*
Refresher General Employee Radiological Training (provides refresher general radiological training)	X	X	X	X
Radiological Worker I and II Training (requires recertification every two years)	*	*	X	X

Refer to footnotes at end of table.

TABLE C-1
LOS ALAMOS NATIONAL LABORATORY-WIDE TRAINING PROGRAM
(continued)

COURSES[a]	Hazardous/Mixed Waste Worker	Manager/Supervisor of Hazardous/Mixed Waste Workers	Emergency Responder	Uncontrolled Area Potential Release Site Worker
Refresher Radiological Worker I and II Training (provides refresher radiological training)	*	*	X	X
Waste Generation Overview (includes waste management regulations and policies, definition of hazardous waste, waste minimization, cycle of waste management at Los Alamos National Laboratory, storage and disposal)	X	X	X	X
Waste Management Coordinator Requirements (provides training on waste management to coordinators)	*	*		*
Cardiopulmonary Resuscitation: Adult (requires annual recertification)	*	*	*	*
First Aid: Standard (requires recertification every three years)	*	*	*	*
Health Physics Checklist Indoctrination (provides health physics information to new workers)	*	*	X	X
HMPT[b] Training - General (includes introduction to HMPT regulations, identification and segregation of hazardous materials, packaging, placarding/labeling, manifesting/recordkeeping)	*	*		
Lockout/Tagout (provides information on lockout/tagout procedures and policy)	*	*	*	*
Respirators: Air-Purifying (provides required annual retraining for operation and inspection of device, changing filters, donning and doffing)	*	*	X	*

Refer to footnotes at end of table.

TABLE C-1
LOS ALAMOS NATIONAL LABORATORY-WIDE TRAINING PROGRAM
(continued)

COURSES[a]	Hazardous/Mixed Waste Worker	Manager/Supervisor of Hazardous/Mixed Waste Workers	Emergency Responder	Uncontrolled Area Potential Release Site Worker
Respirators: Self-Contained Breathing Apparatus (provides required annual retraining for operation and inspection, changing compressed air bottles, donning and doffing, safety features, care and cleaning, fitting)	*	*	X	*
Waste Documentation Forms (includes use of Waste Profile Form, use of waste disposal forms, use of manifest system, as applicable)	*	*		*

[a] Additional training courses (not listed in this attachment) may also be taken by personnel depending on the types of hazards (e.g., chemical) associated with a particular job description.
[b] * indicates that a course may be required for specific job tasks and/or work areas.
[c] X indicates a required course.
[d] HAZWOPER = Hazardous waste operations and emergency response
[e] TSD = Treatment, storage, and disposal
[f] OSHA = Occupational Safety and Health Act
[g] RCRA = Resource Conservation and Recovery Act
[h] HMPT = Hazardous materials packaging and transportation

TABLE C-2
FACILITY-SPECIFIC AND ON-THE-JOB
TRAINING FOR
HAZARDOUS AND MIXED WASTE HANDLING OPERATIONS

The following categories of facilities will provide facility-specific training for all workers and on-the-job training on procedures directly applicable to an individual's work assignment:

- Treatment units
- Incinerators
- Open burning and explosives detonation areas
- Container and tank storage areas
- Other categories, as necessary.

Facility-specific training will include the following topics:

- Supervised operation of the facility
- Emergency shutdown and evacuation procedures
- Accidental release and spill response procedures
- Familiarization with emergency equipment use, inspection, and repair
- Use of communication/alarm system
- Contingency plan training
- Operations manual specific to the facility
- Specialized equipment at the facility
- Information about the particular chemical and radioactive hazards present at the facility.

On-the-job training will consist of training individuals to be familiar with and use the standard operating procedures that apply to their jobs.

CONTINGENCY PLAN
PERMIT ATTACHMENT D
NM0890010515-1

~~ATTACHMENT D~~
~~HAZARDOUS WASTE FACILITY CONTINGENCY PLAN~~

~~D.1 INTRODUCTION~~

~~The Los Alamos National Laboratory and the resident communities of Los Alamos and White Rock are located in north central New Mexico on the Pajarito Plateau, situated west of the Rio Grande on the eastern slopes of the Jemez Mountains. The Laboratory site covers about 111 km^2 (27,500 acres) in and adjacent to Los Alamos County and includes 32 active Technical Areas (TAs)(Figure D-1).~~

~~The principal mission of the Laboratory is the design and development of weapons for the nation's nuclear arsenal; however, considerable research and development (R&D) is directed toward the development of advanced technology. In executing its research mission, the Laboratory produces hazardous wastes in small quantities, the nature of which varies with changes in the research projects conducted. The potential exists for hazardous waste generation to occur at virtually all of the technical areas.~~

~~Overall responsibility for Hazardous Waste Management is with the HSE-7 Waste Management Group in the Health, Safety and Environment (HSE) Division (Figure D-2). Generators of hazardous wastes are responsible for proper identification, segregation, and documentation of their wastes. Except for HE wastes, packaging, transportation, and final disposition of hazardous wastes are the responsibility of HSE-7 Chemical Waste Operations.~~

~~HE wastes are handled by Dynamic Testing (M) and Design Engineering (WX) Division groups whose central purpose is the design and testing of explosives. Activities within HSE-7 include liquid waste treatment, hazardous chemical waste packaging, transport, treatment, and disposal.~~

~~The Laboratory maintains its own response forces to handle emergencies. Emergency resources available to the Laboratory include the Fire Department, the contracted services of the Mason Hanger Protective Force (security), Pan Am World Services (PAWS) (maintenance), Los Alamos Medical Center, internal laboratory services including medical facilities, and minor external assistance from the Los Alamos County Police.~~

~~D.1.1 Hazardous Wastes~~

~~The hazardous wastes generated by the Laboratory activities can be considered as three types:~~

- ~~Wastes from research and development;~~
- ~~Wastes from process operations; and~~
- ~~High explosive wastes (HE).~~

~~In addition to the wastes noted above, various laboratory items that contain chemical residues or are otherwise chemically contaminated are considered hazardous waste.~~

~~D.1.2 Hazardous Waste Units~~

~~The safe handling, treatment, and/or storage of hazardous wastes is the responsibility of HSE 7. Daily operations involving hazardous wastes are performed by Solid Waste Operations. HE wastes are an exception, their treatment being the responsibility of M and WX Divisions. HSE 7 is only responsible for residuals from HE treatment when these residuals are determined to be hazardous wastes.~~

~~Hazardous Waste Units currently in operation are summarized in Table D-1. The locations of the units are shown as the shaded areas on Figure D-1. The flow plan for hazardous wastes within the Laboratory is shown in Figure D-3.~~

~~D.2 HAZARDOUS WASTE EMERGENCY RESPONSE RESOURCES~~

~~The Laboratory maintains its own response resources to handle emergencies. Interaction with outside agencies is limited for security reasons and because it is impractical to train these agencies to cope with the technical diversity of the Laboratory's operations such that they could safely contribute in an emergency. Response resources include personnel, emergency equipment, and communication systems.~~

~~D.2.1 Response Groups~~

~~The emergency response groups available to the laboratory include the Fire Department, the contracted services of the Mason hanger Protective Force (security), Pan Am World Services (PAWS) (maintenance), Los Alamos Medical Center, internal Laboratory services including medical facilities, and minor external assistance from the Los Alamos County Police. The services offered by these response groups are itemized on Table D-2 and discussed briefly in the following. Each of the emergency response groups retains a current copy of the HWF Contingency Plan.~~

~~D.2.1.1 Medical Facilities~~

~~The Laboratory maintains its own medical facility, HSE-2 Occupational Medicine, to handle job-related injuries and to monitor employee health. Medical facilities include a staff of six physicians, two physician assistants, ten nurses, six x-ray technicians, and two laboratory technicians.~~

~~HSE-2 is supported by HSE-5, Industrial Hygiene. HSE-5 can provide exposure and treatment information via telephone access to Chemtrec and the National Library of Medicine, and via computer access to TOXLINE, CHEMLINE, and Toxicity Data Bank.~~

~~Those cases which cannot be handled by HSE-2 would be forwarded to the Los Alamos County Hospital, where the Laboratory maintains a fully equipped decontamination room. The HSE-2 staff meets with the hospital's emergency staff monthly to go over procedures. In the event that a case is sent to the hospital, staff from HSE-2 provide assistance at the hospital.~~

~~D.2.1.2 HSE-3 Safety~~

~~HSE-3 reviews and approves fire protection procedures. They may assist in process shutdown and evacuation.~~

~~D.2.1.3 HSE-5 Industrial Hygiene~~

~~In addition to medical support, HSE-5 provides site field testing to determine the nature (nonradiological) and extent of contamination, provide information on current handling of chemicals, and specify protective clothing and equipment.~~

~~D.2.1.4 HSE-7 Waste Management~~

~~Provides cleanup operations and proper treatment and disposal of hazardous materials and supervises emergency response operations. Since HSE-7 normally handles hazardous waste, the group is highly trained and equipped. This group represents the nucleus of the hazardous waste emergency response.~~

~~D.2.1.5 HSE-8 Environmental Surveillance~~

~~Provides field surveys of soils, water, air and biota to determine environmental effects of exposure. The group includes expertise in geohydrology and meteorology.~~

~~D.2.1.6 Fire Department~~

~~The Fire Department provides fire protection for the Laboratory as well as the communities of Los Alamos and White Rock. The department includes 98 personnel.~~

~~In case of an emergency within the Laboratory, the Fire Department puts itself under the direction of the Laboratory response team. The Fire Department personnel make regular tours of the Laboratory facilities to detect and discuss hazards associated with individual facilities and are instructed in hazardous material handling and emergency procedures. They are aware of the hazardous waste practices at the Laboratory, and are well equipped to handle any credible emergency situation.~~

~~D.2.1.7 Mason & Hanger Protective Force (Pro Force)~~

~~The Pro Force consists of more than 300 personnel who are responsible for Laboratory security. the security force is provided by Mason & Hanger, Silas Mason, under contract to the Laboratory.~~

~~During an emergency, the Pro Force activities include maintenance of security, direction of traffic within the Laboratory, and control of access to the emergency site. The Pro Force maintains the necessary equipment to perform these functions such as crowd equipment, patrol cars, etc.~~

~~D.2.1.8 PAWS~~

~~PAWS provides a maintenance support force on contract to the Laboratory. This support force is under the Laboratory's direction in an emergency. PAWS conducts inspections of Laboratory equipment, maintains equipment, and participates in emergency cleanup.~~

~~D.2.1.9 Los Alamos County Police~~

~~In keeping with the principle of handling emergencies internally, the Los Alamos County Police have only a minimal interaction with the laboratory in an emergency. That interaction is limited to traffic control on DOE roads with public access. The limits of interaction are included in a signed agreement, a copy of which is included as an attachment to this document. There are no agreements with other agencies.~~

~~D.2.1.10 WX and M Division Personnel~~

~~Personnel in WX and M Divisions are trained to safely handle and dispose of highly reactive materials (High Explosives). Any spill or uncontrolled release of material at the burning grounds (TA-14 and 16) or the detonation pads (TAs 14,15,36, and 39) will be cleaned up by personnel from these divisions. The fire Department may be called to respond if a burn or detonation results in an uncontrolled fire.~~

~~D.2.1.11 Operational Management Group I (Emergency Management)~~

~~This group provides a 24 hour duty officer, called the Laboratory Emergency Duty Officer (LEDO), to respond to all credible emergencies, including hazardous materials releases. The LEDO is the On Scene Commander (OSC) for all emergencies, including releases of hazardous materials when an On Scene Control Group (OSCG) is formed. Emergency Management maintains the Emergency Operations Center (EOC) in operational ready status should the center be required.~~

~~D.2.2 Emergency Equipment~~

~~A list of emergency equipment for use at the laboratory and the location of this equipment can be found in Table D-3. The equipment immediately available for use is located at TA-54, Area L, the TA-50 batch treatment system and modular container storage buildings, the TA-50 waste incinerator and Room 117 storage, the TA-16 incinerator, and the TA-50 storage pads.~~

~~In addition, PAWS, the Fire Department, and HSE-2 maintain emergency equipment. Major emergency facilities are shown in Figure D-4.~~

~~D.2.3 Communications~~

~~Effective emergency response at Los Alamos National laboratory requires an efficient communication system which will integrate all personnel into the emergency response procedure.~~

~~There are two central alarm systems (CAS) at the Laboratory; an emergency CAS and a mechanical CAS. The emergency CAS is activated by:~~

~~Telephone communication (9-911)~~
~~Automatic Fire Alarms~~
~~Manual Pull Alarms~~

~~Computer Interface (to warn of critical events or loss of confinement at selected facilities)~~
~~Break-in Security~~
~~Radio Communications~~

~~The emergency CAS is located in the central control room in Building 440 at TA-3. The control room is manned 24 hours a day and is equipped with telephones, medium and short range radios, direct line telephones, a National Warning System (NAWAS) station, and an emergency power system. The fire alarm board at the control room gives the location of automatic and pull fire alarms.~~

~~The maintenance CAS board, located in Building 223 at TA-3, is manned by PAWS personnel 245 hours a day. The maintenance CAS board interfaces with computers which monitor critical equipment throughout the Laboratory. Activation of an alarm triggers a call out procedure to provide maintenance personnel and management supervision to correct the malfunction. The maintenance CAS does not directly trigger an emergency response.~~

~~Internal communication systems at the Laboratory include:~~

~~Centrex telephone system~~
~~Medium range radio nets (30-60 miles)~~
~~Limited range radio nets (3-10 miles)~~
~~Telephone/radio paging~~
~~Two-way hand-held radios~~

~~Off-site communications with Federal,state, county and other agencies are maintained by the following:~~

~~Centrex telephone system~~
~~Private telephone lines (if Centrex fails)~~
~~Medium range radio nets (30-6 miles)~~
~~Limited range radio nets (3-10 miles)~~
~~Two National Warning system Stations (NAWAS)~~
~~Direct line to KRSN (local radio station)~~
~~470-2657 telephone to Santa Fe switchboard~~

~~All alarm systems and internal and external communication systems are available for use by all employees.~~

~~Activation of the emergency CAS automatically alerts the Fire Department, the Mason Hanger Pro-Force, and the CAS dispatcher. For hazardous waste emergencies, the CAS dispatcher notifies the Emergency Preparedness Office Deputy Officer (EPODO) who notifies upper management of the problem.~~

~~HSE-7 has access to all communications systems including a short wave radio base station located at TA-50-4. During normal working hours, communications to support response groups can be handled by HSE-7. During off-hours, the EPODO uses the CAS Dispatcher to contact support groups.~~

~~D.3 NONSUDDEN RELEASES~~

~~Nonsudden releases include those incidences which, if uncontrolled, impact the environment over a long period of time. Such incidences include minor leaks of containers, loss of integrity of secondary containment, incomplete treatment, and leachate migration from disposal areas.~~

~~D.3.1 Responsibility~~

~~Correction of nonsudden release shall be the responsibility of the operating group and can be handled with normal maintenance and management procedures. Correction methods for nonsudden releases that have resulted in environmental contamination shall be coordinated with the New Mexico Environmental Improvement Division (NMEID).~~

~~D.3.2 Credible Nonsudden Releases~~

~~Not all failures can be predicted. In general, the response to nonsudden release will (1) contain the release, (2) correct the cause of the release, and (3) clean up any release to a level that protects health and the environment.~~

~~D.3.3 Nonsudden Release Surveillance~~

~~In addition to routine inspection and site specific sampling and testing, the Laboratory maintains an area-wide environmental monitoring network maintained by HSE-8. Routine monitoring for radiation, radioactive materials, and chemical substances on the Laboratory site helps to fulfill the Laboratory's policy to protect the general public, employees, and the environment.~~

~~Monitoring and sampling locations for various types of measurements are organized into three main groups. Regional monitoring stations are located within the five counties surrounding Los Alamos County. They are placed up to 80 kilometers (50 miles) from the Laboratory, and serve to determine background conditions. Perimeter stations are located within approximately four kilometers (2.5 miles) of the Laboratory boundary, and document conditions in residential areas surrounding the Laboratory. On site stations are within the Laboratory boundary, and most are accessible only to employees during work hours.~~

~~The types of routine surveillance conducted at these stations includes radiation measurements and collection of air particulates, waters, soils, sediments, and foodstuffs for subsequent analysis.~~

~~Additional samples are collected to gain information about particular events such as major runoff events and nonroutine releases. Data are used for comparison with standards, background radiation levels, and dose calculations.~~

~~D.4 SUDDEN RELEASES~~

~~This section deals with incidents involving sudden release such as spills, fires, or explosions which pose a significant threat to human health or the environment and includes the release of hazardous materials and hazardous wastes. Hazardous materials are chemical substances that become a regulated waste as~~

~~the result of the incident and can include hazardous raw materials that are spilled, products of combustion, and products of uncontrolled reactions.~~

~~D.4.1 Hazardous Waste Emergency Coordination~~

~~The EPODO is responsible for coordinating all emergency response measures involving sudden releases of hazardous wastes with the exception of the open burning and open detonation units at TA-14, 15, 16, 36 and 39. HE waste handling is the responsibility of M and WX divisions, who have developed Standard Operating Procedures (SOPs) based on safe handling practices designed to eliminate the risk of fire and explosions. Unplanned detonation or combustion of HE renders the HE waste nontoxic. In some cases, residuals contain barium. Cleanup of barium contaminated areas due to unplanned detonations shall be coordinated with the EPODO. The EPODO can be reached during working hours by contacting the Emergency Management Office (7-6211) or the CAS dispatcher during off hours (Table D-4).~~

~~The EPODO shall respond to all incidents involving the release of hazardous wastes including spills, fires, or explosions; assess the possible hazards to human health or the environment; and use whatever response group or emergency equipment needed to control and contain the wastes.~~

~~D.4.2 HWF Emergency Contingency Plan~~

~~This section defines the guideline used to initiate the HWF Emergency Contingency Plan and the resulting actions taken.~~

~~D.4.2.1 Guidelines for Implementation~~

~~The decision to implement the HWF Emergency Contingency Plan depends upon whether or not an imminent or actual incident could threaten human health or the environment. The following guidelines shall be sued by the EPODO in making the decision whether or not to institute the HWF Emergency Contingency Plan.~~

~~The HWF Emergency Contingency Plan could be implemented in the following situations involving hazardous wastes or hazardous materials:~~

~~Spills~~

> ~~A hazardous waste or hazardous material spill cannot be contained with secondary containment or application of absorbents;~~
>
> ~~Precipitation threatens to move spilled material off site;~~
>
> ~~A hazardous waste or hazardous material spill causes the release of flammable material, creating a fire or explosion hazard;~~

~~A hazardous waste or hazardous material spill results in toxic fumes which threaten human health; or~~

~~An earthquake or other natural disaster threatens containment integrity.~~

~~Explosions~~

~~An unplanned explosion involving hazardous wastes occurred (except at TA-14, 15, 16, 36, and 39); or~~

~~An imminent danger exists that an explosion involving hazardous wastes or hazardous material could occur.~~

~~Fires~~

~~Any fire involving hazardous wastes or hazardous material (except planned burning of HE waste); or~~

~~Any building, grass, forest, nonhazardous waste fire that threatens to ignite hazardous wastes.~~

~~D.4.2.2 Emergency Notification~~

~~Immediately upon discovery of an imminent or actual incident involving hazardous wastes or hazardous materials, the EPODO will be notified first. In the case of fire involving hazardous wastes or hazardous materials, this is superseded by the Laboratory fire alarm system. A fire is reported by dialing 9-911, activation of automatic alarms, or activation of a fire pull box. All fire alarms simultaneously alert the CAS Dispatcher, the Fire Department, and the Mason and Hanger pro Force. For fire involving hazardous wastes, hazardous materials, or hazardous waste units, the CAS Dispatcher shall contact the EPODO (Figure D-5). Orange 1 signs on building which contain HE are a warning to fire fighters not to approach or enter the building without obtaining information from WX or M Division personnel about the nature and location of HE materials in the building.~~

~~During off hours, all incidents involving hazardous wastes or hazardous materials shall be reported to the CAS Dispatcher, who will contact eh on call EPODO.~~

~~The EPODO shall proceed to the incident and assess the nature of the problem. On an as needed basis, the EPODO shall contact response groups directly or instruct the CAS Dispatcher to contact them or contact the HSE Duty Officer (HSE DO) who will notify the appropriate HSE groups. Table D-2 shows the assistance available from each emergency response group. The EPODO will use this list as criteria to determine which groups to contact in an emergency.~~

~~Each response group maintains an on-call person and/or a call down procedure to answer emergencies. Because the initial observer may not be able to recognize the involvement of hazardous materials, the EPODO shall be notified of any incident as described in Section D.4.1. The EPODO shall use~~

~~whatever means available including the assistance of other response groups, computer data searches, and sampling to determine if a hazardous waste is generated. HSE-5 and HSE-8 have the expertise to determine the nature and extent of contamination, the chemicals involved in the incident, and the characteristics of the hazardous waste.~~

~~D.4.2.3 EPODO Actions~~

~~Upon notification of an incident, the EPODO shall:~~

1. ~~Proceed directly to the site;~~

2. ~~Assess the nature of the incident, and quantities and types of hazardous wastes or hazardous materials involved; and~~

3. ~~Based on the guidelines in Section D.4.2.1 of the Contingency Plan, determine if implementation of the HWF Emergency Contingency Plan is warranted.~~

~~Upon the decision to implement the HWF Emergency Contingency Plan, the EPODO shall perform, in this order, the following actions:~~

1. ~~Assess the hazards to human health and the environment including both direct and indirect effects such as generation of toxic, irritating, or asphyxiating gases, hazards of runoff of fire water or treatment chemicals. The EPODO will use the guidelines in Section D.4.2.1 to assess the hazards to human health and the environment. If any of the criteria under Section D.4.2.1 are met, evacuation of the immediate area will be initiated.~~

2. ~~Determine if evacuation of the local area is advisable, and if so, immediately notify appropriate response groups and/or the Los Alamos County Police.~~

3. ~~Notify required response personnel and DOE-LAAO by phone, radio, or through the CAS Dispatcher in the case of a spill or incident other than fire. In the case of fire, since the fire fighters have already responded, he shall confirm that the Fire Department Officer in Charge is aware of the hazardous waste or hazardous materials involvement and the special hazards associated with the wastes.~~

4. ~~Warn the remaining personnel of imminent or actual hazards using the radio and/or the PA system.~~

5. ~~DOE-LAAO through the Emergency Management office will notify the New Mexico Environmental Improvement Division (505) 827-9329, and the National Response Center (800) 424-8802, reporting:~~

   - ~~Name and telephone number of the reporter~~
   - ~~Name and address of the facility~~
   - ~~Time and type of incident~~
   - ~~Name and quantity of materials involved, to the extent known~~

~~- The extent of injuries, if any~~
~~- The possible hazards to human health or the environment outside the facility.~~

~~6. Advise the response groups as needed to minimize personnel exposure and expedite control; and~~

~~7. For the Batch Treatment Plant and Controlled Air Incinerator, where the emergency stops operations, HSE-7 personnel must monitor for leaks, pressure buildup, gas generation or equipment ruptures. The instruments that are monitored during the shutdown and what they are monitored for are shown on Table D-5 for the Batch Treatment Plant and Table D-6 for the incinerator.~~

~~Once control of the emergency is established, the EPODO shall:~~

~~1. Arrange for site cleanup;~~

~~2. Provide for treating, storing, or disposing of recovered wastes, contaminated soil or contaminated surface waters;~~

~~3. Provide for decontamination of equipment as needed;~~

~~4. Replace and/or repair equipment as needed;~~

~~5. Conduct testing as needed to verify successful cleanup;~~

~~6. Within 15 days of the incident, submit to the Regional Administrator and Environmental Improvement Division the report described in Section D.10.~~

~~D.5 SPECIFIC EMERGENCY RESPONSE PROCEDURES FOR HAZARDOUS WASTE UNITS~~

~~The following section summarizes the guidelines for handling emergencies.~~

~~D.5.1 Chemical Spills~~

~~Hazardous wastes are handled and stored in small containers, lab packs, 55 gal. drums, and dumpster tanks. The individual volumes handled are small. Handling of hazardous materials may involve truckload quantities of material such as solvents, fuels, acids, and bases.~~

~~The general steps in handling hazardous wastes are:~~

~~Containment including spreading of absorbents or forming of temporary dikes;~~

~~Waste pickup and packaging in sound containers; and~~

~~Decontamination followed by testing to assure adequate clean up.~~

~~The emergency preparedness procedures related to flammable organic solvent spills call for stabilization of the spilled material with the organic solvent spill kit. Other chemical spills are to be stabilized using the acid and caustic spill kits or by the addition of absorbents such as vermiculite. Personnel protective equipment will be worn during spill control and cleanup. The stabilized material will be treated as hazardous waste. Runoff which might occur from spills outside containment areas during precipitation must be contained and handled as a hazardous waste unless analyzed and found to be nonhazardous. Temporary dikes can be constructed to contain runoff.~~

~~D.5.1.1 Spill Control Procedures~~

~~Vermiculite or Pell O Cell will be used to control all chemical spills except hydrofluoric acid spills. Vermiculite and Pell O Cell are compatible will all chemicals except fluorine and hydrofluoric acid. Hydrofluoric acid is generally only handled in very small volumes, in small containers, so that a spill would be limited to a very small volume (less than one gallon). A hydrofluoric acid spill will be neutralized by carefully adding calcium hydroxide or other caustic to the spill. After an excess of caustic has been added and the reaction has ceased, the resulting solution will be cleaned up using vermiculite. Vermiculite and caustic are stored at all the TSD units at the Laboratory.~~

~~DOT approved drums will be used to collect all spilled material and contaminated absorbent. There are many drums of this type, located at all treatment and storage facilities at the laboratory. For corrosives, the drums will be lined with polyethylene drum liners. The list of emergency equipment (Table D-3) shows the equipment available at each area to be used to control a spill. The ultimate disposition of any contaminated absorbent or waste material will be decided by HSE-7 according to permit conditions and RCRA standards. The material will be temporarily stored at TA-54, Area L.~~

~~Decontamination will be accomplished at the spill site. After the spilled material has been absorbed by vermiculite or Pell O Cell, the material will be drummed. If the spill occurs on a cemented area, water or an appropriate solvent will be used to clean the area and this liquid will be absorbed onto vermiculite or Pell O Cell and drummed. A composite sample will be taken of the material used to absorb the final waste water. No contamination should be present in this sample. If contamination is present, the procedure will be repeated (i.e. clean the area and collect and analyze a composite sample). The composite sample will be taken from a drum using a thief or trier as specified in SW-846.~~

~~If the spill occurs on soil, any free liquid present will be adsorbed onto vermiculite and the resulting material will be drummed. The contaminated soil will be dug up and drummed. For a spill of less than one gallon, the visibly contaminated dirt plus a sufficient amount of dirt around the spill site will be dug up. For a spill of more than one gallon, the contaminated dirt plus the perimeter dirt will be drummed and a sample taken of the perimeter dirt using the same method as discussed for the vermiculite sample.~~

~~There will be no sampling for a spill in a sealed storage area. Once all visible signs of contamination have been removed, it will be simple to verify any remaining contamination because the floors are sealed with epoxy. In addition, sealed storage areas have secondary containment structures that will control potential spills. At closure, if there is any residual contamination, it will be removed.~~

~~If a spill is from a known source, the waste will be analyzed for materials present in that container. Analytical procedures specified in Table D-7 will be used. If the spill is from an unknown source, the chemical composition will be determined by using the parameters and test methods specified in Table D-7.~~

~~D.5.2 Fire~~

~~Depending on the size of the fire and fuel source, portable ABC fire extinguishers may be used to put out fires. However, the Laboratory is discouraging the use of portable fire extinguishers by employees and encouraging the immediate evacuation and notification of the Fire Department. The person fighting the fire must wear appropriate protective equipment. If the fire spreads or increases in intensity, all personnel should evacuate to an upwind point at least 100 yards away from the fire. For any fire involving hazardous waste, the EPODO must be contacted immediately, and he will alert all necessary emergency management personnel. The Fire Department is automatically alerted when the CAS is activated. The EPODO should remain near the site, but at a safe distance, so he can advise the personnel responding to the fire of the known hazards. The EPODO is familiar with RCRA provisions, spill response, and emergency actions and therefore, is qualified to advise firefighting personnel of the potential hazards involved. Upon arrival at a fire, the Fire Department Officer in Charge will be in command of fire fighting. He will accept and evaluate the advice of Los Alamos personnel and emergency management organization members, but he will retain the responsibility to select the fire fighting methods and tactics. The EPODO will be in overall control of the Laboratory's emergency response efforts until the emergency is terminated.~~

~~D.5.3 Explosion~~

~~In the case of explosions, all personnel will immediately evacuate the area. Any injured personnel will be immediately transported to the Medical Department for treatment. The EPODO must be contacted immediately upon activation of the CAS, and they he must alert all necessary emergency response personnel. The Fire Department is notified automatically upon CAS activation. The EPODO will remain near the site, but at a safe distance, so he can advise the personnel responding to the explosion of the known hazards.~~

~~Upon arrival at the site, the Fire Department Officer in Charge will be in command of fire fighting. He will accept and evaluate the advice of Los Alamos personnel and emergency management organization members, but he retains the responsibility to select the fire fighting methods and tactics. The EPODO will be in overall control of the laboratory's emergency response efforts until the emergency is terminated.~~

~~D.5.4 Exposure~~

~~Chemical material in the eye or on the skin will be washed either with the entire contents of the portable eye wash station or for at least 15 minutes. The eyelids will be held open during washing. The injured person will then be quickly transported to the Medical Department for evaluation. If possible, the chemical material involved in the injury will be ascertained and the information given to the Medical Department.~~

~~Other potential chemical exposures will necessitate evacuation. If anyone notices any of the following conditions:~~

~~Irritation of the eyes, breathing passages or skin;~~
~~Difficulty in breathing; or~~
~~Nausea, light headedness, vertigo, or blurred vision~~

~~The affected person will be transferred to the Medical Department and the HSE-5 Group representative will attempt to ascertain what, if any, chemical exposure occurred and what corrective measure is appropriate.~~

~~D.5.5 Flood~~

~~The U. S. Army Corps of Engineers has documented that Los Alamos National Laboratory's waste management facilities are not located within the 100 year floodplain. This documentation has been included as an attachment to this document.~~

~~D.6 EVACUATION~~

~~A facility will be evacuated upon the voice command of "evacuate the area," or upon the sounding of the evacuation alarm, or upon the fire alarm.~~

~~D.6.1 Evacuation Plan~~

~~Emergency situations may warrant the shutdown and evacuation of an area(s) or building(s) in order to protect personnel and property, to anticipate the emergency condition, or to enhance the appropriate response. Table D-8 shows the criteria for evacuation, persons responsible for initiating evacuations, and reentry conditions.~~

~~To initiate building evacuation, the evacuation alarm is sounded and/or the public address system is used. The evacuation alarm, which is more suitable for evacuation of the whole facility, is a steady, continuous, audible signal. This alarm cannot be silenced and reset by site personnel. The Fire Alarm Maintenance Section at 667-4027 and the Fire Department Platoon Chief at 667-7026 can silence and reset the alarm.~~

~~To evacuate a portion of the building, the public address system is more appropriate. The PA system will notify the occupants of the area to be evacuated, and additionally, will advise personnel in the rest of the facility of the existence of a problem in that specific area.~~

~~Upon initiation of an evacuation, either via the PA or evacuation alarm, all personnel are to leave the specified area and go to the muster area, turning off all equipment that could contribute to the hazard if left unattended.~~

~~In the event of an evacuation of only a portion of the building, one of the out buildings, or outlying work areas, the Group Leader will designate a control point at the closest and/or the most convenient location. This area will be outside the affected area and will serve as a muster point and provide control of the affected area to prevent further spread of the hazard.~~

~~Sweep Team personnel will remain in the area for a visual inspection of all the affected work areas, laboratories, and offices. At least two persons will do the sweep to insure that if an injured person is found or if a single person is fighting a small fire, turning off equipment or activating fire suppression systems, one sweep team member can give assistance while the other reports to the muster area or control point to obtain additional aid. If the building is evacuated during normal working hours, the secretary will remove the personnel attendance roster that is posted near the secretary's desk, take it to the muster area, call roll, and report the personnel accounting to the Group Leader. During second or third shift operations, the lead engineer will be responsible for evacuation and roll call. The evacuation procedure follows:~~

~~Group Leader determines cause and probable extent of hazard;~~

~~Group Leader will sound the evacuation alarm or make an announcement on the PA system;~~

~~Group Leader will designate an assembly area if other than muster area;~~

~~Group Leader will notify the on call EPODO;~~

~~Personnel will shut down equipment that might contribute to the hazard;~~

~~Personnel will activate fire suppression systems;~~

~~Personnel will not remain in affected area except to assist injured personnel;~~

~~Personnel will report to the muster area or designated control point;~~

~~Roll call (general evacuation) or personnel accounting (partial evacuation); and~~

~~Building or Area sweep by assigned personnel.~~

~~For a small scale evacuation, the Group Leader takes control. For a large scale evacuation, the CAS will be activated, the EPODO will be notified and will be responsible for the evacuation.~~

~~D.6.2 Process Shutdown~~

~~Personnel are instructed to shut down equipment prior to evacuating a building unless an immediate building evacuation is announced. To ensure efficient shutdown, training and exercises in process shutdown are required. In the case of an immediate evacuation, a selected team may shutdown designated equipment in an evacuated area. The team will be equipped with the proper equipment, clothing and breathing apparatus. If present, HSE 1, HSE 3, and HSE 5 will provide advice and assistance. Process shutdown procedures only apply to the TA 50 batch treatment system and waste incinerator and the TA 16 Industrial Incinerator. Process shutdown procedures are as follows.~~

~~D.6.2.1 TA-50 Batch Treatment System~~

~~The Batch Treatment System will be operated in accordance with current Standard Operating Procedures. If a fire or evacuation alarm sounds during the operation of the Batch Treatment System, the operating crew sill initiate a process shutdown. Because the process is a batch treatment, cessation of treatment is adequate to bring the process to a safe condition. In general, the process shutdown should include the following:~~

~~Shutdown of treatment chemical feeds;~~

~~Shutdown of the waste pump discontinuing waste transfer or circulation;~~

~~Shutdown of steam/hot water to the reactor jacket, if any;~~

~~Shutdown cooling water only if there is a risk of contamination of the water with waste (continued cooling removes residual heat from the system); and~~

~~Allow the reactor mixer to operate unless its operation poses a unique hazard (operation helps remove heat and prevents stratification).~~

~~D.6.2.2 TA-50 Waste Incinerator~~

~~If a fire or evacuation alarm sounds during the operation of the controlled air incineration process, the operating crew will initiate a process shutdown in accordance with the current operating instructions. Three logic sequences are provided to shut down the process in a safe and orderly manner.~~

~~Controlled Shutdown~~ ~~Initiated when there is potential for significant damage to minor process components. This is also the normal shutdown mode at the completion of a run. When controlled shutdown is initiated, feeding of waste to the incinerator is stopped and a programmable set point generator is activated that directs remote set point inputs to the temperature controllers, causing a gradual decrease in chamber temperatures. Switches internal to the set point generator cause an orderly timed shutdown of process components.~~

~~Fast Shutdown~~ ~~Initiated for conditions that could likely result in loss of containment or damage to major process components. Waste feeding is stopped. Following a two minute timed interval following the last feeding of solid waste (immediate, if feeding liquid waste), the upper and lower chamber burners are shut down and the system valves and dampers are positioned so as to maintain a negative pressure in the system while minimizing flow through the system. Snuffing steam is introduced into the lower chamber. The two minute delay when feeding solid waste allows for the ignition of pyrolltic gases formed immediately after feeding.~~

~~Scram Shutdown~~ ~~Initiated at the discretion of an operator. The chain of events are identical to the fast shutdown except that the sequence is not delayed when feeding solid waste. Scram buttons are located at the incinerator and in the control room.~~

~~The last two shutdown modes are potentially destructive to the incinerator refractory and are initiated only when the consequences of not shutting down are greater than the consequences to the incinerator during a scram or fast shutdown. It is the responsibility of the operating personnel and the process lead engineer to assess any situation and initiate the proper process shutdown sequence.~~

~~D.6.2.3 Industrial Incinerator~~

~~If a fire or evacuation alarm sounds during the operation of the TA-16 Industrial Incinerator, the operating crew will initiate a process shutdown. The TA-16 incinerator is equipped with automatic and manual controls for shutdown of burners. Burners may be shut down manually by tripping a single switch. Automatic shutdown of the burners will occur on occurrence of a power failure, limit failure, or flame failure.~~

~~D.7 SALVAGE AND CLEANUP~~

~~The affected area will be surveyed by appropriate representatives from HSE Groups before salvage, cleanup and return to normal operations. Visual inspections of the affected area will be supplemented by sampling to determine whether cleanup is complete. After determination of any existing hazards from toxic or hazardous gases or fumes, electrical hazards, or other unsafe conditions, personnel or selected teams, equipped with proper breathing apparatus and protective clothing, will reenter the are to perform designated tasks to affect decontamination, repairs, and salvage to allow the return to normal operations. After an emergency, the EPODO will:~~

> ~~Provide for treating, storing, or disposing of recovered waste, contaminated soil or surface water, or any other material that results from a release, fire, or explosion. Contaminated material will be treated as a hazardous waste and temporarily stored at one of the permitted hazardous waste storage areas at the laboratory. HSE-7 will be responsible for determining the final disposition of the waste. This determination will be made in compliance with the permit and RCRA standards.~~
>
> ~~Remain at the site to ensure that no waste that may be incompatible with the released material is treated, stored, or disposed of until cleanup procedures are completed.~~
>
> ~~Ensure that emergency equipment is cleaned and fit for its intended use before operations are resumed. Equipment will be visually inspected and sampled to determine the type and degree of contamination and appropriate cleanup measures will be used.~~

~~Prior to resuming operations, appropriate local authorities will be notified that cleanup procedures are completed and emergency equipment is cleaned and fit for its intended use.~~

~~Damage assessment and recovery shall be performed within the reporting and investigative requirements of DOE Order 5484.1. The EPODO has general responsibility for coordinating post-emergency actions, particularly during the time period immediately after the emergency. Such actions include cleanup operations, repair of vital equipment, or interim hazard removing operations (such as demolition of unstable walls). The services of the affected operational organizations, HSE Division, the PAWS, and~~

~~other on-site talent will also be utilized to estimate cleanup costs and operational impact. The EPODO declares the end of the emergency; an Incident Report is filled out, and the Group Leader and his staff review emergency actions.~~

~~D.8 POST-EMERGENCY ASSESSMENT~~

~~When the emergency is over, the causes of the emergency and the effectiveness of the response are investigated, in order that future emergencies may either be prevented, or that the response to them amy be more effective. Following each event requiring the implementation of the HWF Contingency Plan, the EPODO shall meet with representatives of all response functions to determine the adequacy of the response.~~

~~D.9 EMERGENCY RECORDS~~

~~The details of any incident that requires implementation of the HWF Emergency Contingency Plan must be noted in that unit's log book. This record must include the time, date, and full description of the incident.~~

~~D.10 EMERGENCY REPORTS~~

~~Any emergency that requires implementation of the HWF Emergency Contingency Plan will be reported in writing within 15 days to the EPA Regional Administrator and to the New Mexico Environmental Improvement Division (EID).~~

~~The report shall include the following date:~~

~~Name, address, and phone number of owner or operator;~~

~~Name, address and phone number of the facility;~~

~~Date, time, and type of incident (e.g. fire, explosion, spill);~~

~~Name of material involved;~~

~~Quantity of material involved;~~

~~Extent of injuries (if any);~~

~~Assessment of actual or potential hazards to human health or the environment;~~

~~Estimated quantity and disposition of material recovered from the incident.~~

~~D.11 CONTINGENCY PLAN AMENDMENT~~

~~The Contingency Plan shall be reviewed by EPODO, HSE 7, and HSE 8 and immediately amended if determined to be inadequate to handle nonsudden and sudden releases, and whenever:~~

~~The HWF permit is revised;~~

~~There is significant change in the design or operation of the HWF (i.e., waste quantities handled, handling techniques, or final disposition);~~

~~The list of emergency coordinators changes;~~

~~The list of emergency equipment significantly changes;~~

~~Operating experience, drills, or technical review demonstrates the plan is inappropriate;~~

~~Actual implementation of the plan demonstrates inadequacies.~~

~~The Contingency Plan shall have a cover sheet noting the date of the last amendment. Amendments shall be issued to all HWF Contingency Plan holders and shall include a cover letter that describes the plan changes and rationale for those changes.~~

~~**FIGURE D-1**~~

~~**LOS ALAMOS TECHNICAL AREAS**~~

~~FIGURE D-2~~

~~HEALTH, SAFETY, AND ENVIRONMENT DIVISION ORGANIZATION CHART~~

~~FIGURE D-3~~

~~SCHEMATIC DIAGRAM OF LOS ALAMOS HAZARDOUS WASTE MANAGEMENT ACTIVITIES~~

~~**FIGURE D-4**~~

~~**EMERGENCY FACILITIES**~~

~~FIGURE D-5~~

~~HAZARDOUS WASTE EMERGENCY NOTIFICATION STRUCTURE~~

~~TABLE D-1~~
~~SUMMARY OF HAZARDOUS WASTE UNITS~~
~~LOS ALAMOS NATIONAL LABORATORY~~

~~Technical Area and Building or Area Designation~~	~~Wastes Handled~~	~~Activity Description~~
~~TA-14, 15, 16, 36, and 39~~	~~High explosives (HE)~~	~~Open burning/open detonation units used to react waste HE and HE contaminated material~~
~~TA-50-01~~	~~Electrochemistry wastes~~ ~~Isotope separation wastes~~	~~Chemical batch treatment by neutralization, metal precipitation, and cyanide destruction~~
~~TA-50 Modular Storage Units~~	~~Shops department wastes~~ ~~Wastes from Basic and Applied Chemistry R&D programs~~ ~~Electrochemistry wastes~~ ~~Isotope separation wastes~~	~~Storage of wastes prior to treatment, incineration~~
~~TA-50-37~~	~~Combustible liquids and solids, including chlorinated and fluorinated hydrocarbons, and carcinogenic materials~~	~~Waste incineration with flue gas treatment~~
~~TA-37-50~~ ~~Room 117~~ ~~Storage Area~~	~~Combustible liquids and solids, including chlorinated and fluorinated hydrocarbons, and carcinogenic materials~~	~~Storage/Staging area for incinerator~~
~~TA-50 Storage Pads~~	~~Shops department wastes~~ ~~Wastes from Basic and Applied Chemistry R&D programs~~	~~Waste storage prior to treatment, incineration, or shipment off site.~~
~~TA-54, Area L~~	~~Shops department wastes~~ ~~Wastes from Basic and Applied chemistry R&D programs~~	~~Wastes are segregated and stored prior to treatment, incineration, recycling, or shipment off site~~

~~TABLE D-2~~
~~HAZARDOUS WASTE EMERGENCY RESPONSE GROUPS~~

~~Laboratory Controlled Response Group~~	~~Emergency Telephone~~	~~Assistance Available~~
~~HSE-2 Occupational Medicine~~	~~667-7878 (8 am - 5 pm) 988-0539 (off duty hours)~~	~~Emergency medical treatment~~
~~HSE-3 Safety~~		~~Reviews and approves fire protection procedures. May assist in process shutdown and evacuation.~~
~~HSE-5 Industrial Hygiene~~		~~Site evaluation - field testing to determine the nature and extent of contamination (nonradiological).~~
		~~Specify protective clothing and equipment.~~
		~~Information services regarding hazards of wastes and treatment for exposure.~~
~~HSE-7 Waste Management~~		~~Hazardous waste cleanup, handling, treatment, and disposal.~~
~~HSE-8 Environmental Surveillance~~		~~Field surveys to determine spread of contamination and adequacy of clean up.~~
		~~Meteorological information.~~
		~~Geohydrologic support.~~
~~HSE-9 Health and Environmental Chemistry~~		~~Chemical analytical services.~~
~~Fire Department~~	~~9-911~~	~~Firefighting personnel and equipment.~~
		~~Ambulance and paramedic service.~~
~~Mason & Hanger Protective Force (Pro-Force)~~	~~667-4437~~	~~Traffic Control~~
~~Pan Am World Services~~	~~667-6196~~	~~Maintenance personnel and equipment~~

~~TABLE D-2~~
~~HAZARDOUS WASTE EMERGENCY RESPONSE GROUPS~~
~~(continued)~~

~~Laboratory Controlled Response Group~~	~~Emergency Telephone~~	~~Assistance Available~~
~~Non Laboratory Controlled~~		
~~Los Alamos County Police~~	~~662-4176~~	~~Traffic control on DOE roads with public access.~~
~~Los Alamos Medical Center[a]~~	~~662-4201~~	~~Medical Services~~

~~[a]Medical services related to hazardous wastes injuries provided under the direction of HSE-2.~~

~~TABLE D-3~~
~~EMERGENCY EQUIPMENT~~

~~EMERGENCY EQUIPMENT AT THE BURNING GROUND AND THE OPEN DETONATION PADS, TAs 14, 15, 16, 36, AND 39~~

~~Fire Control Equipment~~

~~Fire Extinguisher in each vehicle used to transport HE material~~
~~Fire Extinguisher in each control bunker~~

~~Description of General Capabilities:~~

~~These are portable units of approximately 9 to 15 pounds capacity used in wet chemical laboratory applications. May be used by any employee in case of fire. Fire extinguishers are never used to put out controlled fires at the burning grounds.~~

~~Communication Equipment~~

~~Telephones~~
~~Two-way radios~~

~~Description of General Capabilities:~~

~~Telephones for internal communication at the Laboratory and off-site communication with federal, state, county, and other agencies are available. A Centrex telephone system and a private telephone line (if Centrex fails) are available for use by all employees.~~

~~Located in each control bunker, in the control building at the burning ground, and at the waste water treatment facility at the burning ground. Radios allow communication between each vehicle.~~

~~**TABLE D-3**~~
~~**(continued)**~~

~~**EMERGENCY EQUIPMENT AT THE TA-50 CHEMICAL WASTE INCINERATOR AND ROOM 117 STORAGE AREA**~~

~~Fire Control Equipment~~

~~13 fire extinguishers (9C CO; 4 A water)~~

~~Description of General Capabilities:~~
~~These are portable units of approximately 9 to 15 pounds capacity used in wet chemical laboratory applications. May be used by any employee in the event of fire.~~

~~Manually operated fire alarm may be activated by any employee in the event of fire to notify Central Alarm Station.~~

~~The sprinkler system is an automatic system which delivers a maximum of 200 psi of water spray through shower heads placed at locations which maximize fire suppression range capability. In the event of fire, this system should function automatically, requiring no manual assistance.~~

~~Halon Extinguishing Systems are indicated to supplement automatic sprinkler systems which protect high value equipment, or suppress special hazardous operations or occupancies.~~

~~Location:~~
- ~~1 - Mechanical Equipment Room 111~~
- ~~2 - High Bay Room 112~~
- ~~2 - High Bay Room 114~~
- ~~1 - South of Library and Conference Room~~
- ~~1 - Chemistry Laboratory Room 107~~
- ~~1 - Process Engineering Laboratory Room 209~~
- ~~1 - Office Area Room 202~~
- ~~1 - Room 21~~
- ~~1 - Room 117~~

~~11 Fire Alarm Pull Boxes connected to the CAS~~
~~Location:~~
- ~~1 - Mechanical Equipment Room 111~~
- ~~1 - High Bay Room 112~~
- ~~2 - South of Library and Conference Room~~
- ~~2 - High Bay Room 114~~
- ~~1 - East of women's changing room~~
- ~~1 - Process Engineering Laboratory~~
- ~~1 - Office Area Room 202~~
- ~~2 - Room 21~~

~~TABLE D-3~~
~~(continued)~~

~~EMERGENCY EQUIPMENT AT THE TA-50 CHEMICAL WASTE INCINERATOR AND ROOM 117 STORAGE AREA~~

~~Automatic thermal alarm on inlet and exhaust of ventilation system~~
~~Automatic thermal sprinkler system throughout offices~~

~~4 Fire Hydrants~~
~~Location:~~
~~1 Northeast corner of Building 84~~
~~1 West of Building 69~~
~~1 Northeast of Building 37~~
~~Halon Extinguishing System, manual and ultraviolet in Room 115~~

~~Communication Equipment~~

~~Telephones throughout building with building wide paging system~~

~~Description of General Capabilities:~~
~~Telephones for internal communication at the Laboratory and off site communication with federal, state, county and other agencies are available. A Centrex telephone system and a private telephone line (if Centrex fails) are available for use by all employees.~~

~~Radio located in Room 202~~

~~Spill Control Equipment~~

~~Absorbent kept onsite~~
~~PCB room is bermed to handle all liquids stored~~
~~Have Spill Prevention and Containment Plan~~

~~Description of General Capabilities~~
~~Containment is designed to handle all liquids stored. Absorbent is used in the event of a small spill.~~

~~TABLE D-3~~
~~(continued)~~

~~EMERGENCY EQUIPMENT AT THE TA-50 CHEMICAL WASTE INCINERATOR AND ROOM 117 STORAGE AREA~~

~~Decontamination Equipment~~

~~Showers~~
~~Emergency eye wash~~

~~Description of General Capabilities~~
~~Safety showers and eye washes are used by personnel who receive a chemical splash to skin or eyes. Specific material safety data sheets for the chemical should be obtained prior to working with the chemical to determine if the application of water is indicated for decontamination.~~

~~TABLE D-3~~
~~(continued)~~

~~EMERGENCY EQUIPMENT - HSE-7 CONTROLLED~~

~~Spill Control Equipment: Located at TA-54, Area G~~

~~Heavy equipment available for emergencies may include~~

~~2 scrapers~~
~~1 bulldozer~~
~~1 tractor (front end loader)~~
~~Shovels~~
~~Absorbents (vermiculite) in combustibles storage shed~~

~~Description of General Capabilities:~~
~~The following pieces of heavy equipment will be used in the event of large spills. Small spills will be absorbed with absorbent.~~

~~Decontamination Equipment~~

~~Small decontamination pit for heavy equipment~~
~~Showers (MD-11)~~

~~Other~~

~~Change room with protective clothing (MD-11)~~
~~2-3 dozen respirators (particulates) (MD-11)~~
~~2 self contained, portable air masks (MD-11)~~
~~2 emergency generators, portable~~
~~3 vehicles are available for evacuation of personnel:~~
~~2 sanfu~~
~~2 Jeep (with emergency equipment, e.g., coveralls, booties, tape, rope)~~

~~TABLE D-3~~
~~(continued)~~

~~EMERGENCY EQUIPMENT AT TA-54, AREA L~~

~~Fire Control Equipment~~

~~1 - fire hydrant located 30 feet south of site entrance to site~~
~~1 - CO fire extinguisher located inside trailer at west end of site (B, C)~~
~~1 - CO fire extinguisher located inside storage shed (B, C)~~
~~1 - freeze proof faucet located immediately east of shed~~

~~Description of General Capabilities:~~
~~These are portable units of approximately 9 to 15 pounds capacity used in wet chemical laboratory applications. May be used by any employee in the event of fire.~~

~~Spill Control Equipment~~

~~Shovels~~
~~Oversized drums~~
~~Absorbent inside storage shed~~
~~Heavy equipment from Area G available for any emergencies at Area L~~
~~Bermed storage area~~

~~Description of General Capabilities:~~
~~The following pieces of heavy equipment will be used in the event of large spills. Small spills will be absorbed with absorbent.~~

~~Communications Equipment~~

~~2 way radios are available to all personnel when in area~~
~~2 way radios are in all vehicles used for moving hazardous waste~~
~~Telephone located inside trailer~~

~~Description of General Capabilities~~
~~External and internal Laboratory communications which may be used in emergency situations are listed.~~

~~TABLE D-3~~
~~(continued)~~

~~EMERGENCY EQUIPMENT AT TA-54, AREA L~~

~~Decontamination Equipment~~

~~1 emergency shower and eye wash located immediately east of shed~~

~~Description of General Capabilities:~~
~~Safety showers and eye washes are used by personnel who receive a chemical splash to skin or eyes. Specific material safety data sheets for the chemical should be obtained prior to working with the chemical to determine if the application of water is indicated for decontamination.~~

~~Other~~
~~2 self-contained, portable air masks located inside trailer~~

~~TABLE D-3~~
~~(continued)~~

~~SUPPLEMENTARY EMERGENCY EQUIPMENT~~

~~PAN AM WORLD SERVICES (667-6196)~~

~~Equipment~~	~~Number~~
~~A. Transportation~~	
~~1. Pickups, 1/2 through 3/4 ton~~	~~183~~
~~2. Trucks, 1 through 3 ton~~	~~25~~
~~3. Powerwagon (E 2078) with welder (PN 3-30256) mounted on vehicle, CC-135~~	~~1~~
~~4. Buses (11 passenger)~~	~~2~~
~~5. Stationwagons~~	~~11~~
~~6. Vans, panels and carryalls~~	~~24~~
~~B. Special Equipment~~	
~~1. Road grader, Champion, self propelled blade, with radio~~	~~1~~
~~2. Grader, John Deere, self propelled, with radio~~	~~1~~
~~3. Loaders, bucket, Melroe, Bobcat, 1/3 cubic yards~~	~~3~~
~~4. Loader, bucket, Michigan, 2-3/4 cubic yards~~	~~1~~
~~5. Loader, Fiat Ellis, 3 cubic yards~~	~~1~~
~~6. Loader, bucket, Michigan, 2-1/2 cubic yards~~	~~1~~
~~7. Loader, bucket, Michigan, 3-1/4 cubic yards~~	~~1~~
~~8. Loader, bucket, Yale, 3 cubic yards, with radio~~	~~1~~
~~9. Loader, bucket, backhoe, International, 1-1/2 cubic yards~~	~~1~~
~~10. Loaders, bucket, backhoe, Case, 7/8 cubic yards~~	~~2~~
~~11. Loader, backhoe, Ford, 1 cubic yard~~	~~1~~
~~12. Snowplows, Bombardier, with blade~~	~~2~~

~~TABLE D-3~~
~~(continued)~~

~~SUPPLEMENTARY EMERGENCY EQUIPMENT~~

~~PAN AM WORLD SERVICES (667-6196)~~

~~Equipment~~	~~Number~~
~~B. Special Equipment (continued)~~	~~1~~
~~13. Bulldozer, D-8, Crawler~~	
~~14. Bulldozers, TD-25, International~~	~~2~~
~~15. Scraper, Terex, self propelled~~	~~1~~
~~16. Scraper, Fiat-Ellis, self propelled~~	~~1~~
~~17. Scraper, 280, rubber tired, with radio~~	~~1~~
~~18. Semitrailers~~	~~5~~
~~19. Lights, camp (electrical, plant, portable, 1000 to 5000 watts)~~	~~4~~
~~20. Power saws (approximate)~~	~~14~~
~~21. Flusher, street, 3000 gallon Truck, tanker, 500 gallon, International~~	~~1~~
~~22. Mobile transceivers (2-way, KOB-753)~~	~~64~~
~~23. Mobile transceivers (2-way, fire network)~~	~~7~~
~~24. Handsets (2-way)~~	~~8~~
~~25. Pageboys (1-way)~~	~~235~~
~~26. Welders, mounted on trailers and trucks~~	~~32~~
~~27. Fire tools (hand) (approximate)~~	~~150~~
~~C. Supplies~~	
~~1. Food~~	
~~Box lunches~~	~~150~~

~~TABLE D-3~~
~~(continued)~~

~~SUPPLEMENTARY EMERGENCY EQUIPMENT~~

~~PAN AM WORLD SERVICES (667-6196)~~

~~Equipment~~	~~Number~~
~~D. Other Supplies~~	
~~1. Bedding~~	
~~Blankets~~	~~60~~
~~Bedrolls (disposable) (from U.S. Forest Service an Santa Fe)~~	~~50~~
~~2. Butane gas (25 gallon tanks)~~	4
~~3. Fuel and lubricants~~	
~~4. Miscellaneous Supplies~~	

~~TABLE D-3~~
~~(continued)~~

~~SUPPLEMENTARY EMERGENCY EQIUPMENT~~

~~PAN AM WORLD SERVICES (667-6196)~~

~~Manpower~~	~~Number~~
~~A. Fire Bosses~~	
~~1. Crew bosses~~	~~3~~
~~2. Straw bosses~~	~~12~~
~~B. Service Bosses~~	
~~1. Transportation boss~~	~~1~~
~~C. Specialists~~	
~~1. Cat bosses~~	~~2~~
~~2. Bulldozer operators~~	~~14~~
~~3. Clerks~~	~~10~~
~~4. Dispatchers~~	~~3~~
~~5. Mechanics~~	~~17~~
~~6. Power saw operators~~	~~8~~
~~7. Radio and telephone operators~~	~~10~~
~~8. Truck drivers~~	~~13~~
~~9. Tool sharpeners~~	~~4~~
~~D. Firefighters~~	
~~1. Organized crews (approximately 8 men per crew)~~	~~14 crews~~

~~TABLE D-3~~
~~(continued)~~

~~EMERGENCY EQUIPMENT AT THE FIRE DEPARTMENT (9-911)~~

~~Equipment~~	~~Number~~
~~1000 gallons per minute pumper trucks~~	~~8~~
~~Minipumper trucks~~	~~5~~
~~1500 gallon tank trucks~~	~~5~~
~~Modular ambulances~~	~~4~~
~~Rescue vehicle~~	~~1~~
~~Self contained breathing apparati~~	~~69~~
~~Various firefighting equipment~~	
~~Emergency Medical Technician (EMT) medical equipm.~~	
~~Personnel with 81 hours of MTA training~~	~~98~~
~~75 foot elevated platform~~	~~1~~

~~TABLE D-3~~
~~(continued)~~

~~EMERGENCY RESOURCES AT THE MEDICAL FACILITY (HSE-2)~~
~~(677-7878) 8 AM — 5 PM~~
~~(988-0539) OFF-DUTY HOURS~~

~~Manpower~~

- ~~6 (2 casual) physicians~~
- ~~2 physician's assistant~~
- ~~10 (1 part-time) nurses~~
- ~~3 (2 casual) x-ray technicians~~
- ~~2 laboratory technicians~~

~~Special Equipment – Portable~~

- ~~1 radio base station (HSE Div. net, being installed)~~
- ~~3 walkie talkies (HSE Div. net)~~
- ~~1 portable cardiac monitor and defibrillator~~
- ~~1 crash cart – emergency equipment~~
- ~~1 portable physicians bag – drugs~~
- ~~1 portable suction unit~~
- ~~5 portable stretchers~~
- ~~1 ambulance stretcher with straps~~
- ~~6 wheel chairs~~
- ~~1 manual resuscitator~~
- ~~6 portable oxygen units~~
- ~~Several intravenous holders and solutions~~
- ~~6 otoscope/ophthalmoscope sets~~
- ~~1 portable sphygmomanometer~~
- ~~10 stethoscopes~~
- ~~Many contamination apparel~~
- ~~1 eye irrigation system~~
- ~~Many inflatable limb traction splints~~
- ~~3 industrial first aid kits~~
- ~~Many extrication and cervical collars~~
- ~~Many crutches and canes~~
- ~~Many suture sets~~

~~Supplies~~

- ~~Bedding and pillows~~
- ~~Rescue blankets~~
- ~~Burn blankets~~
- ~~Multitrauma dressing and bandages~~
- ~~Thermal/icing pouches~~

~~TABLE D-3~~
~~(continued)~~

~~EMERGENCY RESOURCES AT THE MEDICAL FACILITY (HSE-2)~~
~~(677-7878) 8 AM — 5 PM~~
~~(988-0539) OFF-DUTY HOURS~~

~~Special Facilities—Nonportable~~

~~Completely equipped medical clinic with emergency lighting system, x-ray machine, and ambulance entrance. Contamination showers, protective clothing, and wound counters. Suction unit, electrocardiograph (12 lead), pulse rate monitor/recorder, primary response trauma kits are included.~~

~~Transportation~~

~~1970 Plymouth Sedan~~

~~**TABLE D-4**~~
~~**HAZARDOUS WASTE EMERGENCY COORDINATORS**~~

~~**(To be notified in succession)**~~

~~Primary Coordinators~~	~~Laboratory Telephone~~	~~Home Telephone~~	~~Home Address~~
~~1. Donald Winston Emergency Management~~	~~7-6211~~	~~662-2453~~	~~450 Navajo Road Los Alamos, NM~~
~~2. James F. Griffin Emergency Management Coordinator~~	~~7-6211~~	~~662-5436~~	~~1057 Cedro Court Los Alamos, NM~~
~~3. Z. Edward MacBain Emergency Management Coordinator~~	~~7-6211~~	~~662-6211~~	~~1856 Cooper Place Los Alamos, NM~~
~~4. James S. Griffiths Emergency Management Coordinator~~	~~7-6211~~	~~662-9155~~	~~190 Manhattan Loop Los Alamos, NM~~

~~TABLE D-5~~
~~ITEMS MONITORED AT THE BATCH TREATMENT PLANT~~
~~DURING EMERGENCY SHUTDOWN~~

~~Item~~	~~Monitored For~~
~~Piping/Valves~~	~~Leaks, damage, poor seals~~
~~Gauges~~	~~Acceptable range~~

~~TABLE D-6~~
~~ITEMS MONITORED AT THE WASTE INCINERATOR~~
~~DURING EMERGENCY SHUTDOWN~~

~~Item~~	~~Monitored For~~
~~Incinerator/Equipment~~	~~Functioning~~
~~Pumps, valves, pipes~~	~~Leaks~~
~~Tank by pass~~	~~Leaks~~
~~Emergency waste feed cutoff system~~	~~Functioning~~
~~HEPA Filtration System~~	~~Functioning~~
~~Radiation~~	~~Levels~~

~~TABLE D-7~~
~~WASTE ANALYSIS PARAMETERS AND TEST METHODS~~

~~Parameter~~	~~Test Method~~	~~Reference[1]~~
~~Ignitability~~	~~Pensky-Martens Closed Cup Method~~	~~(L) SW1010~~ ~~(L) ASTM D93-80~~
~~Reactivity~~	~~Numerous methods and tests[2]~~	~~(L,S) SW Section 2.1.3~~
~~pH~~	~~Electrometric~~	~~(L) SW9040~~
~~EP Toxicity~~	~~EP Toxicity Extraction[3] and Graphite Furnace AA Spectroscopy~~	~~(L,S) SW1310~~
~~Arsenic~~		~~(L) SW7060~~
~~Barium~~		~~(L) SW7081, SW7080~~
~~Cadmium~~		~~(L) SW7131, SW7130~~
~~Chromium~~		~~(L) SW7191, SW7190~~
~~Lead~~		~~(L) SW7421, SW7420~~
~~Selenium~~		~~(L) SW7740~~
~~Silver~~		~~(L) SW7761, SW7760~~
~~Mercury~~	~~EP Toxicity Extraction[3] and Manual Cold Vapor Technique~~	~~(L,S) SW1310~~
~~Organochlorine Pesticides~~	~~EP Toxicity Extraction[3] and Gas Chromatography~~	~~(L) SW8080~~
~~Chlorinated Herbicides~~		~~(L) SW8150~~

~~**TABLE D-7**~~
~~**WASTE ANALYSIS PARAMETERS AND TEST METHODS**~~
~~**(continued)**~~

~~Parameter~~	~~Test Method~~	~~Reference[1]~~
~~Toxicity Characteristic Leaching Procedure (TCLP)~~		~~(L,S) 40 CFR Part 268, Appendix I~~
~~Chemical Composition~~	~~95% organic composition by GC/FID~~	~~(L) SW 8100~~
~~Trace Organic Analysis~~	~~Any of the following:~~	
	~~Volatile organic compounds GC/MS~~	~~(L) SW8240~~
	~~Semivolatile organic compounds GC/MS~~	
	~~- Packed column~~	~~(L) SW8250~~
	~~- Capillary column~~	~~(L) SW8270~~
~~Heat Value~~	~~Bomb calorimeter~~	~~(L) A006, ASTM D240~~
~~Organic Chlorine~~	~~Halide titration of combustion residue~~	~~(L,S) A004, ASTM D2361~~
~~Ash Content~~	~~Residue after combustion in muffle furnace~~	~~(L) A001, ASTM D482~~ ~~(S) A001, ASSTM D3174~~
~~Cyanide Free and Total~~	~~Distillation and colorimetric (UV)~~	~~(L) SW9012~~
~~Chrome~~	~~Colorimetric method for hexavalent chromium~~	~~(L) SW7196~~

TABLE D-7
WASTE ANALYSIS PARAMETERS AND TEST METHODS
(continued)

Parameter	Test Method	Reference[1]
Sulfide	Colorimetric Titration	(L) SW9030
Total Methods	Digestion and inductively coupled plasma method	SW3020
Arsenic		(L) SW6010
Barium		(L) SW6010
Beryllium		(L) SW6010
Cadmium		(L) SW6010
Chromium		(L) SW6010
Lead		(L) SW6010
Nickel		(L) SW6010
Selenium		(L) SW6010
Silver		(L) SW6010
Thallium		(L) SW6010
Zinc		(L) SW6010
Mercury	Manual Cold Vapor Technique	(L) SW7470 (S) SW7471
Free Liquids	Paint Filter Liquids Test	(S) SW9095

[1] "A" refers to Sampling and Analysis Methods for Hazardous Waste Combustion, EPA 600/8-84-002, February 1984.
"ASTM" refers to American Society for Testing Material Standards.
"SW" refers to Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, 3rd Edition, EPA, November 1986.
"L" refers to liquid waste
"S" refers to solid waste.

[2] Methods for cyanide and sulfide gas generation are pending. SW-846 methods will be used when they become available. Methods recommended by the EPA will be used in the interim.

[3] If EP Toxicity and other analyses do not permit identification of an unknown chemical waste, digested metal samples (per SW3020) will be analyzed for the metals noted.

~~TABLE D-8~~
~~EVACUATION DETERMINATION AND REENTRY~~

~~Reason for Evacuation~~	~~Determination Made By~~	~~Reentry Conditions~~
~~Fire~~	~~Fire or Evacuation alarm, Group Leader, Alternate, Lead Engineer, Senior Staff Member present, or HWEC~~	~~Following survey by the Chief Fire Officer, HSE-1 and/or HSE-5, and R&D Supervision~~
~~Explosion~~	~~Same as above~~	~~Same as above plus HSE-3~~
~~Loss of Ventilation~~	~~Group Leader, Alternate, Senior Staff Member, Lead Engineer, or Senior Technician~~	~~Following survey by HSE-1, and/or HSE-5, and R&D Supervison~~
~~Loss of Electric Power~~	~~Same as above~~	~~Same as above~~
~~Extensive Contamination~~	~~Same as above or HSE-1 Representative~~	~~Same as above~~
~~Airbone Contamination~~	~~Same as above or Rad Monitor~~	~~Same as above~~
~~Excape or Release of Toxic or Hazaardous Gas or Fumes~~	~~Group Leader, Alternate, Senior Staff Member, Lead Engineer, Senior Technician, or HWEC~~	~~Same as above plus HSE-5~~
~~Bomb Threat~~	~~HSE-3 or Protective Force Representative, R&D Section Leader, Alternate, Senior Staff Member or Lead Engineer~~	~~Following determination by HSE ___ or Protective Force Representative (illegible handwrritten note)~~

ATTACHMENT D
CONTINGENCY PLAN

This attachment presents contingency measures for hazardous and mixed waste units at Los Alamos National Laboratory (LANL). The contingency plan is intended to meet the requirements specified in the New Mexico Administrative Code, Title 20, Chapter 4, Part 1 (20 NMAC 4.1), Subpart V, Part 264, Subpart D, revised November 1, 1995, "Contingency Plan and Emergency Procedures," for hazardous waste treatment, storage, or disposal facilities. In addition, this document is consistent with the LANL Emergency Management Plan (EMP) (LANL, 1995), prepared by the LANL Emergency Management and Response (EM&R) Office. The provisions of this plan will be carried out immediately to minimize hazards whenever there is a fire, explosion, or release of hazardous or mixed waste or hazardous or mixed waste constituents that could threaten human health or the environment [20 NMAC 4.1, Subpart V, 264.51(b), revised November 1, 1995].

D.1 HAZARDOUS AND MIXED WASTE EMERGENCY RESPONSE RESOURCES

The primary resources for management of emergency incidents at LANL reside within the EM&R Office, which is part of the Facilities, Security, and Safeguards (FSS) Division. During an emergency situation, line management (i.e., the Group Leader of the affected area) works with the Duty Emergency Manager from the EM&R Office (FSS-20). The Emergency Manager has primary responsibility for managing emergency response operations, making appropriate notifications, activating the emergency response organizations, and proceeding to the scene. (Personnel from other organizations, such as the Federal Bureau of Investigation [FBI] or Los Alamos County Fire Department, may also assume the role of Incident Commander (IC), depending upon the type of emergency and responding organizations.) Additional LANL resources that may provide assistance in an emergency include personnel from the Environment, Safety, and Health (ESH) Division and the Chemical Science and Technology (CST) Division at LANL. Response resources are described in Sections D.1.1 through D.1.7.

Contracted services and other agencies are also available for assistance during emergencies. These are discussed in Section D.1.5 and include the contracted services of Protection Technology Los Alamos (PTLA) for security, Johnson Controls World Services Inc. (JCI) for facility maintenance, and the Los Alamos County Fire Department (LACFD). Other outside response agencies are discussed in Section D.1.7 and include the Los Alamos County Police Department (LACPD) and the Los Alamos Medical Center (LAMC). The LACPD and the LAMC each provide assistance under a memorandum of understanding (MOU).

Emergency response protocol at LANL is currently being modified to be consistent with the National Interagency Incident Management System (NIIMS). The NIIMS is a national standard that provides consistency in terminology/methodology and allows for an integrated emergency response both locally and nationally, if necessary. Consequently, this contingency plan may undergo further modification, when required.

The IC (e.g., the Duty Emergency Manager) coordinates all groups and agencies responding to the emergency and personnel operating at the scene in what is called the Unified Command (UC). The general emergency notification structure at LANL, as shown on Figure D-1, is designed to expand and

collapse, as appropriate, to include the response groups/agencies needed to address any particular emergency.

The IC may appoint and utilize a network of support personnel to assess, plan for, and mitigate emergencies. These personnel include, but are not limited to, a Safety Officer, a Public Information Officer, and a Liaison Officer than report directly to the IC and are responsible for issues related to safety, information, and the interaction of various groups associated with the overall emergency. Also reporting directly to the IC are an Operations Chief, a Logistics Chief, a Plans Chief, and an Administrative Chief. The Operations Chief oversees the Fire Branch, the Emergency Medical Services Branch, and the Facility Branch and is responsible for the actual emergency response. The Logistics Chief is responsible for providing support personnel and equipment necessary for the emergency response. The Plans Chief is responsible for planning the active mitigation and recovery for the emergency and the Administrative Chief is responsible for keeping records of expenditures. In some instances, one person may be assigned more than one of these positions. During an emergency at LANL, assistance may be provided to the IC and the IC's appointees by a large variety of response groups/ agencies. The responsibilities and/or assistance available from the various response groups/agencies are listed in Table D-1 and discussed briefly in Sections D.1.2 through D.1.7

Each of the emergency response groups/agencies and the appropriate facility operators will retain a current copy of this contingency plan. The Hazardous and Solid Waste Group (ESH-19) is responsible for the controlled distribution of the contingency plan.

D.1.1 Emergency Management and Response Office

The Director of LANL has delegated the authority and responsibility for administering and implementing LANL's emergency management program to the FSS Division, which includes the EM&R Office. The EM&R Office coordinates and issues LANL's EMP and provides response coordination for emergencies. The EM&R Office also provides a 24-hour Duty Emergency Manager to respond to emergencies, including hazardous and mixed waste releases. The LANL Emergency Manager is the functional equivalent of the Emergency Coordinator (20 NMAC 4.1, Subpart V, 264.55, revised November 1, 1995). The EM&R Office maintains an Emergency Operations Center (EOC) in a ready condition, should a center be required. The primary EOC is located at Technical Area (TA) 59, Building 1 (TA-59-1). An alternate EOC is located at TA-49-113. Should an EOC be activated during an emergency, all other emergency personnel, including the IC and the entire Facility or Unified Command, fall under the control and direction of the EOC.

EM&R Office personnel designated as Emergency Managers are listed in Table D-2. Assignment as the Duty (i.e., primary) Emergency Manager is rotated. The Duty Emergency Manager can be reached by contacting the EM&R Office (667-6211 during working hours, 667-7080 after working hours) or the Central Alarm Station (CAS) operator (911).

The Duty Emergency Manager will respond to emergency incidents involving the release of hazardous or mixed waste to the environment, including spills, fires, and explosions. With input from the appropriate LANL groups (e.g., ESH, CST, and site groups), the Duty Emergency Manager will initially assess the possible hazards to human health or the environment and, if assuming incident command, will use whatever response personnel and/or emergency equipment necessary in order to control and contain

the waste, as necessary. In the event of an emergency, the Emergency Manager becomes the IC with full responsibility for field activities (including logistics, planning, and operations or establishing these positions within the UC). The exception to this is when on-site personnel can adequately address the emergency and maintain incident command internally. At the scene of the emergency, the IC will assemble a UC consisting of the senior person from each responding organization, functional specialists, and the Duty Emergency Manager (if not the IC). Additional technical or management representation may be integrated into the emergency response, as needed. The UC will receive direction from the IC and the members of the UC will work together to mitigate emergency situations.

The Duty Emergency Manager responding to an emergency will have access to a copy of the appropriate building emergency plan(s) (BEP) for the area in which the ncident is occurring. These plans are maintained by the EM&R Office at TA-59 as well as located on site for use by emergency response personnel. The various response groups will obtain specific information relating to the facilities involved (including the layout of all affected buildings; the location of evacuation routes, equipment, and personnel; properties of the materials/wastes managed at the facility; and the hazards associated with these materials/wastes) from the BEP(s) and other site-specific information.

D.1.2 Hazardous Materials Response Group

The Hazardous Materials (HAZMAT) Team is comprised of personnel from the Hazardous Materials Response Group (ESH-10). The HAZMAT Team is responsible for the aggressive mitigation of chemical, radiological, hazardous waste, and mixed waste emergencies, including field decontamination of responders and response equipment. The HAZMAT Team may provide the LACFD with limited field decontamination support for victims. The HAZMAT Team is capable of providing a contamination-control station at the scene of a hazardous material incident to process people working in a contaminated area and is prepared to perform decontamination of personnel. LANL standards require that the HAZMAT Team meet the training criteria for emergency response personnel specified in the Code of Federal Regulations, Title 29 (29 CFR), Subparts 1910.120(q)(6)(iii), (iv), and (v). The HAZMAT Team acts as part of the UC reporting through the HAZMAT Group Supervisor (HMGS). The LANL HMGS coordinates the HAZMAT Team and radiological field monitoring activities.

During an emergency response, ESH-10 may also provide site field monitoring to determine the nature and extent of contamination, provide information on correct handling of chemicals, make recommendations on protective clothing and equipment, and provide exposure and treatment information to responders. To operate effectively, ESH-10 may obtain resources from other ESH groups, such as the Health Physics Operations Group (ESH-1) and the Industrial Hygiene and Safety Group (ESH-5).

D.1.3 CST and ESH Response Groups

At the scene, representatives and technical advisors from the CST and ESH groups and other response personnel are coordinated by the IC. In addition to their post-emergency duties, the groups discussed below may also be responsible for on-scene emergency operations such as planning. Depending on the type of emergency and the associated hazards, an individual from the most relevant group in the ESH Division will assume the position of the Environmental Safety and Health Advisor, will provide technical support, and will ensure LANL compliance with applicable federal, state, and local regulations.

D.1.3.1 Chemical Science and Technology Division

Waste management groups within CST Division may provide guidance on proper treatment, storage, and transportation of hazardous and mixed waste.

D.1.3.2 Air Quality Group

The Air Quality Group (ESH-17) provides field surveys of air to determine potential environmental effects of exposure after an emergency. In addition, ESH-17 provides expertise in meteorology to establish short- and long-term environmental effects of emergency conditions.

D.1.3.3 Water Quality and Hydrology Group

After an emergency, the Water Quality and Hydrology Group (ESH-18) provides sampling of water to determine potential environmental effects of an emergency and performs assessments for reporting requirements. ESH-18 also provides expertise in hydrogeology to establish short- and long-term environmental effects of emergency conditions.

D.1.3.4 Hazardous and Solid Waste Group

ESH-19 provides guidance on regulatory requirements to other LANL groups. After an emergency, ESH-19 provides field sampling (e.g., of soil, surface water runoff, and sediments) to determine potential environmental effects of exposure.

D.1.3.5 Environmental Assessments and Resource Evaluations Group

The Environmental Assessments and Resource Evaluations Group (ESH-20) provides field surveys of biota to determine potential environmental effects of exposure after an emergency.

D.1.4 Other LANL Response Resources

Emergency response personnel from the Nuclear Materials Technology Division at TA-55 have been trained to respond to emergencies at that facility. Dynamic Experimentation (DX) Division personnel are responsible for the hazardous and mixed waste units at TA-14, TA-15, TA-36, and TA-39. DX personnel responsible for these units are trained in emergency procedures and may provide information and/or assistance during emergencies involving explosive waste. Engineering Science and Applications Division personnel are responsible for waste management units at TA-16. These personnel are also trained in emergency procedures and may provide information and/or assistance during emergencies involving units at TA-16.

D.1.5 Contracted Response Groups

Contracted response groups report to the Crisis Manager in the UC if the EOC is activated. In a smaller emergency, the EOC is not activated and the contracted response groups report directly to the IC. If the IC deems it necessary, the IC may designate an Operations Chief to aid in the coordination and direction of these groups.

D.1.5.1 Protection Technology Los Alamos

PTLA is responsible for LANL security and provides this service under contract to LANL. During an emergency, PTLA activities include maintaining security, directing traffic within LANL, and controlling access to the emergency scene. PTLA maintains the necessary equipment (such as crowd-control equipment and patrol vehicles) to perform these functions. In addition, the CAS at TA-64-1 is manned by PTLA personnel 24 hours a day.

D.1.5.2 Johnson Controls World Services Inc.

JCI provides a maintenance support force under contract to LANL. This support force is under LANL's direction in an emergency. JCI conducts inspections of LANL equipment, maintains equipment, and participates in post-emergency cleanup under the direction of a Recovery Manager designated by the IC. The Utilities Control Center (UCC) at TA-3-223 is maintained by JCI personnel 24 hours a day.

D.1.5.3 Los Alamos County Fire Department

The LACFD provides fire protection and ambulance coverage for the residential communities of Los Alamos and White Rock and for LANL. In the case of an emergency within LANL, the LACFD coordinates fire suppression and Emergency Medical Services. The IC (e.g., EM&R Duty Manager, LACFD Senior Officer, FBI personnel, depending upon the type of emergency) retains overall responsibility for the emergency response effort. The U.S. Department of Energy (DOE) requires that LACFD personnel meet the training criteria for emergency response personnel specified in 29 CFR 1910.120(q)(6)(i) and (ii). A contract has been established between the DOE and the Incorporated County of Los Alamos.

D.1.6 LANL Support Groups

D.1.6.1 Health Physics Operations Group

ESH-1 provides field personnel to perform routine site evaluation and monitoring to determine the nature and extent of radiological contamination. ESH-1 also provides routine guidance on radiological decontamination. Field personnel conduct these activities under the supervision of certified health physicists. In addition, this group augments the assessment and monitoring functions of the HAZMAT Team.

D.1.6.2 Occupational Medicine Group

LANL maintains its own medical facility operated by the Occupational Medicine Group (ESH-2). ESH-2 provides appropriate medical treatment for occupation-related illnesses and injuries and monitors employees to assess the effectiveness of health protection programs. In addition to promoting early identification and prevention of illnesses or injuries that may arise from exposures to hazardous or radioactive materials, ESH-2 maintains documented records of the health status of employees and related occupational medicine activities.

Although ESH-2 is not routinely involved with on-scene emergency response, the group maintains a central medical facility with a fully equipped emergency room and decontamination facilities at TA-3, Building 409 (SM-409). The location of this and other emergency facilities is shown on Figure D-2. Medical staff at these facilities includes physicians, physician's assistants, registered nurses, x-ray technicians, clinical laboratory technicians, and clinical testing technicians. All full-time physicians and nurses receive radiation accident training.

ESH-2 also maintains access to a software program called the TOMES™ system at the central medical facility in SM-409. This extensive database provides the clinical staff with timely exposure and treatment information. ESH-2 is supported by ESH-5, as described below.

D.1.6.3 Industrial Hygiene and Safety Group

ESH-5 provides support to ESH-2 with its ability to obtain additional exposure and treatment information via telephone access to the National Library of Medicine's TOXLINE™ and CHEMLINE™, the Toxicity Databank files POISONDEX™ and TOMESPLUS™ (Micromedics), and the CC/INFO™ database files on Material Safety Data Sheets. In addition, ESH-5 maintains access to the National Institute of Occupational Safety and Health Technical Information Center and the Registry of Toxic Effects of Chemical Substances. During routine operations, ESH-5 performs site evaluations and field testing to determine the nature and extent of chemical contamination and specifies protective clothing and equipment.

D.1.6.4 Occurrence Investigation Group

The Occurrence Investigation Group (ESH-7) is responsible for the Occurrences Reporting and Processing System at LANL and has the lead in reporting the occurrence of an on-site emergency. ESH-7 is in part responsible for tracking follow-up corrective actions. ESH-7 personnel assist the facility manager in investigating the occurrence, determining the causal factors, identifying the appropriate corrective actions, and assisting in the preparation of reports documenting the occurrence to DOE. This group tracks the target and actual completion dates for all corrective actions associated with an emergency and maintains the information in an on-site database.

D.1.7 Outside Response Agencies

During an emergency, outside response agencies report directly to the IC. An Operations Chief, designated by the IC, may aid in coordinating and directing the groups responding to an emergency.

D.1.7.1 Los Alamos County Police Department

The LACPD has only minimal interaction with LANL in an on-site emergency. This interaction is limited to traffic control on DOE roads with public access and to criminal investigations. An MOU for mutual aid and emergency response has been established between the DOE and the Incorporated County of Los Alamos.

D.1.7.2 Los Alamos Medical Center

LANL maintains a fully equipped decontamination room adjacent to the emergency room at LAMC. In the event that a case is sent to LAMC, support for the emergency room staff is provided by ESH-2 medical personnel. ESH-1, ESH-5, and ESH-10 personnel also provide assistance to the emergency room staff. This assistance is coordinated through the EM&R Office. An MOU for mutual assistance and emergency support has been established between the DOE Los Alamos Area Office (DOE/LAAO) and LAMC.

D.2 EMERGENCY EQUIPMENT AND COMMUNICATIONS

D.2.1 Emergency Equipment

20 NMAC 4.1, Subpart V, Part 264, Subpart D, revised November 1, 1995, requires a listing of all emergency response equipment available that can be used in the event of an emergency. Appendix D-1 lists all emergency equipment available at or near the waste management units addressed in this permit and in LANL's HAZMAT vehicles and trailers. Appendix D-1 also includes a list of supplemental emergency equipment maintained by JCI, the LACFD, and ESH-2. The locations of emergency facilities are shown on Figure D-2.

D.2.2 Emergency Communications

Effective emergency response at LANL requires an efficient communication system that will integrate required personnel into the emergency response. The initial phase of an emergency will involve a small number of individuals at the affected area and notification of the Duty Emergency Manager. For small scale emergencies, local communication equipment/systems will be utilized. When responding to hazardous or mixed waste emergencies, the EM&R Office provides communications between response units and emergency organizations.

D.2.2.1 Emergency Central Alarm Station

The LANL emergency CAS is located at TA-64-1. This station is manned by PTLA personnel 24 hours a day and is equipped with telephones (including direct-line telephones), medium- and short-range radios, a National Warning System (NAWAS) station, and an emergency power system. The fire alarm board at the control room gives the location of automatic and manual fire alarm equipment. The CAS receives alarms from several sources and, in turn, notifies the Duty Emergency Manager of a hazardous or mixed waste emergency. Sources include:

- Telephone communication (911)
- Automatic fire alarms
- Manual pull alarms
- Computer interface (to warn of critical events at selected facilities)
- Security alarms
- Radio communications.

Upon receipt of an alarm, the CAS operator then notifies the LACFD and the Duty Emergency Manager. The Emergency Manager, the HMGS, the EOC communicator, and/or the CAS operator may request emergency response groups to respond. Should the LANL 911 system fail, the Los Alamos County System, located at the LACPD Station, will be used to activate emergency response groups.

D.2.2.2 Utilities Control Center

JCI personnel maintain the UCC at TA-3-223. The UCC is maintained 24 hours a day. Alarms at this facility are connected to LANL experiments, equipment, and/or buildings to record outages and hazardous conditions. Any conditions that activate these alarms will be reported immediately to building management or to the CAS operator for notification and response.

D.2.2.3 Additional Communication Systems

Internal communication systems at LANL include:

- The Centrex telephone system
- A telephone paging system
- A variety of FM VHF simplex repeater and trunked radio systems, including:
  - Multiple base stations
  - Mobile and hand-held units
  - Links to New Mexico public safety agencies
- A UHF radio system, including:
  - Multiple antenna sites
  - Mobile and base units
  - Links with the LACPD, the LACFD, and the State Medical System
- A 400-megahertz trunked radio system that includes a link with the LACFD
- Transmission and reception (through EOC) for:
  - Secure telephone
  - Secure fax
  - Secure still video
- Access to all radio systems outlined above (through EOC).

Off-site communications with federal, state, tribal, county, and other agencies are available through the following:

- A Centrex telephone system
- Private telephone lines (if Centrex fails)
- Two NAWAS stations
- A link to KRSN radio (local radio station)

- The local cable television
- A Community Alert Network.

The LANL EOC, maintained by the EM&R Office, operates radio systems on key LANL and off-site channels. Emergency personnel responding to on-site incidents have the benefit of wide-area radio coverage using EOC facilities. After hours, the Duty Emergency Manager is responsible for activating whatever support personnel, equipment, or services are needed.

D.3 CONTINGENCY PLAN IMPLEMENTATION

The following sections discuss guidelines used to implement this contingency plan, for emergency notifications, for Emergency Manager actions, and the responses to be taken in various types of emergencies.

D.3.1 Guidelines For Implementation

The decision to implement this contingency plan depends upon whether an imminent or actual incident involving a release of hazardous or mixed waste to the environment could threaten human health or the environment. The Duty Emergency Manager or IC will use the guidelines listed below to decide whether to implement this plan.

This contingency plan will be implemented immediately in the following situations involving releases or potential releases of hazardous or mixed waste:

- Spills:
  - If a hazardous or mixed waste spill cannot be contained with secondary containment or application of sorbents.
  - If precipitation threatens to move spilled material off site.
  - If a hazardous or mixed waste spill causes the release of flammable material, creating a fire or explosion hazard.
  - If a hazardous or mixed waste spill results in toxic fumes that threaten human health.
  - If an earthquake or other natural disaster threatens containment integrity.
- Explosions:
  - If an unplanned explosion involving hazardous or mixed waste occurs (except at TA-14, TA-15, TA-16, TA-36, and TA-39).
  - If an imminent danger of an explosion involving hazardous or mixed waste exists.
- Fires:
  - If a fire involving hazardous or mixed waste occurs (except planned burning of explosive waste).

- If any building, grass, forest, or nonhazardous waste fire exists that threatens to volatilize or ignite hazardous or mixed waste.

D.3.2 Emergency Notification

During working hours, immediately upon discovery of an imminent or actual incident involving hazardous or mixed waste, on-site personnel will notify line management and the EM&R Office. During nonworking hours, personnel will report all incidents involving hazardous or mixed waste to the Duty Emergency Manager or the CAS operator. In the case of fire involving hazardous or mixed waste, notification of these individuals is superseded by the LANL fire alarm system. A fire is reported by dialing 911 (from telephone exchanges 667 and 665) or 667-7080 (from all exchanges), activating automatic alarms, or activating a fire alarm pull box. All fire alarms alert the CAS operator, the LACFD, and PTLA. In case of a fire involving hazardous or mixed waste or a hazardous or mixed waste unit, the CAS operator will contact the Duty Emergency Manager.

Upon recognition of a hazardous or mixed waste emergency, the first arriving emergency-trained person will become the temporary IC. Once the EM&R Office is notified of the emergency, the Duty Emergency Manager will proceed to the scene and be briefed by the temporary IC, building/area personnel, and/or other emergency units/teams. The Emergency Manager may then assume the position of IC. If necessary, the IC may recommend that the EOC be activated and that the necessary members of the emergency management team be determined. The IC will form a UC and contact the HMGS. The HMGS will notify the appropriate emergency response groups. The IC may determine, from the list of response groups described in Table D-1, which groups to contact in an emergency. Each response group maintains an on-call person and/or a call-down procedure to respond to emergencies.

The EM&R Office will be notified of any potential hazardous or mixed waste emergency (e.g., spills, fires, or explosions). The IC and the HMGS will use whatever means are available (including the assistance of other response groups, computer data searches, and sampling) to determine if a hazardous or mixed waste is being or has been generated and/or released. ESH-10, ESH-19, and waste management groups within CST Division have the expertise to determine the nature and extent of contamination and the characteristics of the hazardous or mixed waste involved.

D.3.3 Emergency Manager Actions

Upon notification of an incident, the Duty Emergency Manager may:

- Proceed directly to the scene.
- Call the HMGS.
- Assess the nature of the incident (e.g., through communication with the temporary IC).
- Assume incident command.

- Make an initial assessment of the incident and, in conjunction with the UC, obtain resources to determine the source, quantities, and types of hazardous or mixed waste involved and the areal extent of any released materials.

- Based on the guidelines in Section D.3.1 of this plan, determine if implementation of this contingency plan is warranted.

- Recommend activation of the EOC, if necessary.

Upon deciding to implement this contingency plan, the IC will, when appropriate:

- Assess the hazards to human health and the environment, including both direct and indirect effects, such as generation of toxic, irritating, or asphyxiating gases and/or hazards of runoff of water or chemicals used for fire suppression. An individual designated by the IC will use the guidelines in Section D.3.1 to assess the hazards to human health and the environment. If any of the criteria under Section D.3.1 are met and if the responsible Group or Section Leader (or designee) has not already accomplished evacuation of the area, the IC will initiate evacuation of the immediate area.

- Determine if evacuation of the local area is advisable and, if so, immediately notify appropriate response groups and the LACPD, if appropriate. The IC may activate one or more of the following community alert mechanisms: the Community Alert (telephone) Network, the KRSN radio remote input system, or the cable television capture system.

- Notify required response personnel and DOE/LAAO. In the case of fire, the IC will confirm that the LACFD Senior Officer at the scene is aware of the special hazards associated with hazardous or mixed waste.

- Warn the remaining on-scene and response personnel of imminent or actual hazards using internal radio communication systems or the public address (PA) system. A radio/PA system at key facilities throughout LANL may be used for emergency notification.

- In emergency situations, the appropriate ESH representative will notify the New Mexico Environment Department (NMED) at (505) 827-9329 and the National Response Center at (800) 424-8802, reporting:
  - The name and telephone number of the ESH representative
  - The name and address of the facility
  - The time and type of incident
  - The name and quantity of material involved, to the extent known
  - The extent of injuries, if any
  - The possible hazards to human health or the environment outside the facility.

- Advise the response groups of hazards in order to minimize personnel exposure and expedite mitigation.

- When an emergency occurs at hazardous or mixed waste treatment units, ensure that appropriate personnel monitor for leaks, pressure buildup, gas generation, or equipment ruptures. The instruments monitored at the incinerator and what they are monitored for are listed in Table D-3.

Once control of the emergency is established, the IC will take all reasonable measures to minimize the occurrence, recurrence, or spread of fires, explosions, or releases. In addition, the IC will delegate cleanup and decontamination responsibilities to include:

- Arranging for site cleanup.
- Assisting with arrangements for proper handling of recovered waste, contaminated soil, or contaminated surface/groundwater.
- Assisting with arrangements for decontamination of equipment, as needed.
- Arranging for replacement and/or repair of equipment, as needed.
- Requesting that testing is conducted to verify successful cleanup.

Within 15 days of the incident, DOE/LAAO will submit a report to the Secretary, NMED. The contents of this report will be generated by several LANL groups responding to the emergency, as detailed in Section D.12.

D.4 SPILLS

Sudden releases include spills of hazardous or mixed waste that pose a significant threat to human health or the environment. Spill incidents resulting in a sudden release of hazardous or mixed waste that present a potential threat to human health or the environment, as listed in Section D.3.1, require implementation of this contingency plan.

Hazardous and mixed wastes are stored on site in a variety of containers including, but not limited to, 55-gallon drums, lab packs, tanks, fiberglass-reinforced plywood boxes, standard waste boxes, and small laboratory bottles. Volumes of hazardous or mixed waste stored or treated will vary from unit to unit. The general steps in handling hazardous and/or mixed waste spills are as follows:

- Isolate the immediate area and deny entry to all unauthorized personnel
- Contain the spill by spreading sorbents or forming temporary dikes to prevent further migration (performed by properly trained personnel, if safe)
- Monitor the spill area and sample the spilled waste and contaminated media
- Package the waste and contaminated media in sound containers

- Decontaminate the area and all involved equipment and personnel (followed by testing to assure adequate cleanup)

- Remove the waste and contaminated media (performed by appropriate waste management personnel).

The IC will determine the steps to be taken for spill mitigation. If initial mitigation of the spill is necessary and can be accomplished safely before the Emergency Manager arrives, a qualified member of the affected area's operating group will serve as the temporary IC.

The emergency preparedness procedures related to flammable organic solvent spills require stabilization of the spilled material with an organic solvent spill kit. Other chemical spills are to be stabilized using acid and caustic spill kits or by the addition of sorbents. During spill control and cleanup, all personnel will wear personal protective equipment (PPE). ESH-5 will conduct monitoring to ensure that chemical exposure is minimized. ESH-1 will conduct health physics monitoring whenever mixed waste is involved to ensure that radiation exposure is also minimized. The stabilized material may be treated as hazardous or mixed waste, depending on the components present. Runoff from spills of listed hazardous or mixed waste that have migrated outside waste storage and/or treatment areas must be contained and managed as hazardous or mixed waste, as appropriate. If the spill was from a characteristic hazardous or mixed waste and if analysis shows that the runoff does not exhibit the characteristic (i.e., ignitability, corrosivity, reactivity, and/or toxicity), the runoff need not be managed as characteristic waste. Temporary dikes may be constructed to contain runoff.

D.4.1 Spill Control Procedures

When a flammable organic solvent spill, a highly acidic spill, or a highly caustic spill has been stabilized with the contents of an organic solvent spill kit, an acid spill kit, or a caustic spill kit, respectively, the resulting material may be sorbed using a nonbiodegradable sorbent. Nonbiodegradable sorbent can be used to control spills if it is known to be compatible with the spilled material. Approved drums or packaging will be used to collect all spilled material and contaminated sorbent. For corrosives, the drums will be lined with polyethylene drum liners. Appendix D-1 lists emergency equipment available for spill control at each waste management unit addressed in this permit. Appropriate waste management personnel will determine the ultimate disposition of any contaminated sorbent or waste material, according to hazardous waste management regulatory requirements.

D.4.2 Decontamination Verification

Decontamination will be accomplished at the spill site. After the spilled material has been sorbed, the material will be containerized. If the spill occurs on a cemented or asphaltic concrete area, water or an appropriate solvent will be used to clean the area. Liquids (i.e., spilled material and cleaning water or solvents used to clean a spill) will be sorbed with a compatible, nonbiodegradable sorbent and will be containerized. If a spill is from an identifiable source, then the spilled material will be analyzed for the hazardous waste constituents known to be components of the waste managed at that unit. The appropriate analytical method(s) given in Table D-4 will be utilized. If the spill is from other than an identifiable source, then the spilled material will be analyzed for all of the parameters listed in Table D-4. All personnel conducting decontamination verification will wear PPE. ESH-1 will conduct health physics

monitoring whenever mixed waste is involved to ensure that radiation exposure is maintained as low as reasonably achievable. Any hazardous or mixed waste collected from decontamination activities will be handled appropriately.

In order to establish baseline data, a sample of decontamination water or solvent and nonbiodegradable sorbent material will be taken prior to the start of the decontamination effort. A sample of the material used to sorb the final wash water will then be taken. No hazardous waste constituents should be present in this sample at levels above those found in the baseline data. If the sample exhibits any of the characteristics of a hazardous waste as defined in 20 NMAC 4.1, Subpart II, Part 261, Subpart C, revised November 1, 1995, or if a hazardous constituent listed in 20 NMAC 4.1, Subpart II, Part 261, Appendix VIII, revised November 1, 1995 (and not detected in the baseline data), is present above established health-based levels, the decontamination procedure will be repeated. An alternative demonstration of decontamination may be proposed and justified to NMED, who will evaluate the proposed alternative in accordance with the standards and guidance then in effect. If the proposed alternative is accepted, decontamination levels will meet the levels approved by NMED. Each sample will be collected with an appropriate sampling device (e.g., thief or trier) as specified in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" (EPA, 1992).

If the spill occurs on soil, any free liquid present will be sorbed with a compatible nonbiodegradable sorbent, and the resulting material will be containerized. For such a spill, all contaminated soil will be excavated and containerized. ESH-5 will conduct industrial hygiene monitoring, and if mixed waste is involved, ESH-1 will conduct health physics monitoring to minimize exposure during soil removal operations. To establish comparative background data, one or more samples will be collected from an unaffected area near the spill site. The spill site will then be characterized, and the data will be compared to the background data to ensure that all contaminated material has been removed.

If a spill occurs in an area with sealed floors, verification sampling will be performed after decontamination. Swipe samples or other types of sampling appropriate for the contaminant will be collected at random in the area and analyzed. For a spill that occurs in an area that does not have sealed floors, random samples of the floor material, such as concrete chips, will be collected and analyzed for decontamination verification. Contaminated floor material will be removed if the level of contamination remains above that detected in the background data after repeated decontamination attempts. If a spill occurs on asphaltic concrete, the asphaltic concrete will be decontaminated, and a sample of the final wash water and/or the material used to sorb the final wash water will be collected and analyzed for decontamination verification. Contaminated asphaltic concrete that cannot be decontaminated will be removed.

D.5 EXPLOSION

Explosions and resultant releases may result in a significant threat to human health or the environment. The potential exists for hazardous or mixed waste to be released during an explosion. Implementation of this contingency plan is required whenever a sudden release that cannot be contained or that presents a threat to human health or the environment occurs as a result of an explosion.

In the case of an explosion at LANL, all personnel will immediately evacuate the area. Any injured personnel will be decontaminated at the site, if required and if time allows. An LACFD ambulance will

transport these personnel to the ESH-2 facility or to LAMC for treatment. If an injury is severe and requires immediate medical evacuation, the injured person will be wrapped to contain contamination, if necessary. In the case of an actual or potential explosion, on-site personnel will contact the EM&R Office immediately so that the Emergency Manager can ensure that all necessary emergency response personnel are alerted. The LACFD is notified automatically upon central alarm system activation. The Emergency Manager assumes incident command and will remain near but at a safe distance from the site in order to inform personnel responding to the explosion of the known hazards.

If a fire results from an explosion, the LACFD Senior Officer will, upon arrival at the scene, evaluate all available information and determine the appropriate firefighting methods and tactics. The LACFD Senior Officer will direct firefighting operations under the general direction of the IC.

D.6 FIRE

Fires and resultant releases of hazardous or mixed waste may result in a significant threat to human health or the environment. Implementation of this contingency plan is required whenever a fire incident results in a sudden release of hazardous or mixed waste that cannot be contained or that presents a threat to human health or the environment.

Fire alarms will be sounded automatically or manually to alert personnel that a fire hazard exists and to evacuate the area immediately if in the vicinity. Depending on the size of the fire and the fuel source, portable fire extinguishers may be used. However, LANL policy does not encourage the use of portable fire extinguishers by employees unless properly trained. Instead, LANL policy encourages immediate evacuation of the area and notification of the LACFD. For any fire, including a fire that involves hazardous or mixed waste, the responsible Group Leader and the EM&R Office must be contacted immediately. The Emergency Manager will alert the LACFD and all other necessary emergency response personnel. If the fire spreads or increases in intensity, all personnel must evacuate to an area designated by the responsible Group or Section Leader (or designee) or the Emergency Manager. The Emergency Manager assumes incident command and will remain near the scene to advise personnel responding to the fire of the known hazards.

Upon arrival at the scene, the LACFD Senior Officer will evaluate all available information and determine the appropriate firefighting methods and tactics. The LACFD Senior Officer will direct firefighting operations under the general direction of the IC.

D.7 UNPLANNED NONSUDDEN RELEASES

Nonsudden releases include those incidents that, if uncontrolled, impact the environment over a long period of time. Such incidents include minor leaks from containers, loss of secondary containment integrity, and incomplete treatment.

D.7.1 Responsibility

Appropriate LANL personnel are responsible for correction of a nonsudden release from a hazardous or mixed waste unit if the correction can be performed safely with normal maintenance and management procedures. Personnel from the EM&R Office may provide assistance in mitigating releases. Any

correction methods for nonsudden releases that have resulted in an impact to the environment will be coordinated with the NMED.

D.7.2 Nonsudden Releases

In general, the response to a nonsudden release will be (1) to contain the release, (2) to correct the cause of the release, and (3) to clean up any release to a level that protects human health and the environment.

Appropriate LANL personnel will conduct regularly scheduled inspections to detect failure of containment at the hazardous and mixed waste units addressed in this permit. Inspections of these units will be conducted to ensure that containers and tanks are not leaking. In addition, inspections of the secondary containment systems will be conducted regularly to ensure that the integrity of the containment systems has not deteriorated. If an inspection reveals that containers or tanks are leaking or that secondary containment has deteriorated, LANL personnel will ensure that maintenance or replacement of containment is performed, as appropriate.

D.7.3 Nonsudden Release Surveillance

In addition to routine inspection and site-specific sampling and testing, LANL has established an areawide environmental monitoring network maintained by ESH. Monitoring and sampling locations for various types of measurements are organized into three main groups. Regional monitoring stations located within the five counties surrounding Los Alamos County are placed up to 80 kilometers (50 miles) from LANL. These stations serve to determine background conditions. Perimeter stations, located within approximately 4 kilometers (2.5 miles) of the LANL boundary, document conditions in residential areas surrounding LANL. On-site stations, most of which are accessible only to employees during normal working hours, are within the LANL boundary.

Routine surveillance conducted at these stations includes measuring radiation and collecting samples of air particulates, surface waters, groundwaters, soil, sediment, and foodstuffs for subsequent analysis. Additional samples provide information about particular events, such as major runoff events and nonroutine releases. Data from these efforts are used for comparison with standards, for determining background levels, and for radiation dose calculations.

D.8 EXPOSURE TO HAZARDOUS OR MIXED WASTE

If a person is exposed to hazardous or mixed waste, the affected person, a co-worker, or line management will notify the EM&R Office. Appropriate first aid should be administered immediately. An EM&R Office representative will notify ESH-10 directly, as soon as possible, so that exposure levels and decontamination requirements can be established. The injured person will then be transported to the ESH-2 medical facility or to LAMC for evaluation. If possible, the material involved in the injury will be ascertained and the information given to the medical staff.

Other potential exposures will necessitate evacuation of the area, if appropriate, or under any of the following conditions:

- Irritation of the eyes, breathing passages, or skin
- Difficulty in breathing
- Nausea, lightheadedness, vertigo, or blurred vision.

The affected person will be transferred to the ESH-2 medical facility or to LAMC. An ESH-1, ESH-5, or ESH-10 representative will attempt to ascertain what, if any, exposure occurred and what corrective measure is appropriate.

D.9 EVACUATION

A facility will be evacuated upon the voice command to evacuate the area or upon the sounding of the evacuation or fire alarm.

D.9.1 Emergency Process Shutdown Prior To Evacuation

Personnel are instructed to shut down equipment prior to evacuating a building/area unless an immediate building/area evacuation is announced or signaled. To ensure efficient shutdown, training and exercises addressing the shutdown process are performed. In the case of an immediate evacuation, a selected team may shut down designated equipment in an evacuated area. The team will be equipped with the proper equipment, clothing, and breathing apparatus. If they are on location, ESH-1, ESH-5, and/or ESH-10 personnel will provide advice and assistance. Process-shutdown procedures apply mainly to hazardous or mixed waste treatment units. Process-shutdown procedures are described below.

~~D.6.2.2~~ D.9.1.1 TA-50 Waste Incinerator

If a fire or evacuation alarm sounds during the operation of the controlled air incineration process, the operating crew will initiate a process shutdown in accordance with the current operating instructions. Three logic sequences are provided to shut down the process in a safe and orderly manner.

Controlled Shutdown - Initiated when there is potential for significant damage to minor process components. This is also the normal shutdown mode at the completion of a run. When controlled shutdown is initiated, feeding of waste to the incinerator is stopped and a programmable set-point generator is activated that directs remote set-point inputs to the temperature controllers, causing a gradual decrease in chamber temperatures. Switches internal to the set-point generator cause an orderly, timed shutdown of process components.

Fast Shutdown - Initiated for conditions that could likely result in loss of containment or damage to major process components. Waste feeding is stopped. Following a two-minute timed interval following the last feeding of solid waste (immediate, if feeding liquid waste), the upper and lower chamber burners are shut down and the system valves and dampers are positioned to maintain a negative pressure in the system while minimizing flow through the system. Snuffing steam is introduced into the lower chamber. The two-minute delay when feeding solid waste allows for the ignition of pyrolitic gases formed immediately after feeding.

Scram Shutdown - Initiated at the discretion of an operator. The chain of events are identical to the fast shutdown except that the sequence is not delayed when feeding solid waste. Scram buttons are located at the incinerator and in the control room.

The last two shutdown modes are potentially destructive to the incinerator refractory and are initiated only when the consequences of not shutting down are greater than the consequences to the incinerator during a scram or fast shutdown. It is the responsibility of the operating personnel and the process lead engineer to assess any situation and initiate the proper process shutdown sequence.

~~D.6.2.3~~ D.9.1.2 Industrial Incinerator

If a fire or evacuation alarm sounds during the operation of the TA-16 Industrial Incinerator, the operating crew will initiate a process shutdown. The TA-16 incinerator is equipped with automatic and manual controls for shutdown of burners. Burners may be shut down manually by tripping a single switch. Automatic shutdown of the burners will occur on occurrence of a power failure, limit failure, or flame failure.

D.9.2 Evacuation Plan

Emergency situations may warrant the shutdown and evacuation of areas or buildings in order to protect personnel and property, to anticipate the emergency condition, or to enhance the appropriate response. Table D-5 lists the criteria for evacuation, persons responsible for initiating evacuations, and reentry conditions.

To initiate the evacuation of a building/area, the evacuation or fire alarm is sounded and/or the PA system may be used. Evacuation alarms cannot be silenced and reset by site personnel. Only the Fire Alarm Maintenance Section at 667-4027 and the LACFD Battalion Chief at 667-7026 can silence and reset alarms. To evacuate a portion of a building or area, use of the PA system may be more appropriate. The PA system will notify the occupants of the area to be evacuated and will advise personnel throughout the building of the existence of a problem in a specific area. Once evacuation has been initiated and if conditions allow, personnel will turn off all equipment that could contribute to the hazard if left unattended. All personnel will then proceed from the affected area to the assembly/muster area.

In the event of the evacuation of a building, an outbuilding, or an outlying work area, the responsible Group or Section Leader (or designee) will establish a control point at the closest safe location (e.g., considering wind direction). The designated area will be outside the affected area and will serve as an assembly/muster area where the Group or Section Leader (or designee) can oversee evacuation operations and work to prevent further spread of the hazard.

As personnel exit an affected building/area, a primary sweep of the building/area will be performed to ensure that all personnel have evacuated. If the building/area is evacuated, a Group or Section Leader designee will take attendance at the assembly/muster area and report personnel accountability to the IC. The evacuation procedure is as follows:

- Person discovering the accident or emergency will call 911 and ensure that line management and the EM&R Office are notified.

- Site-specific BEPs and/or emergency action procedures will be followed concerning evacuation, sweep, personnel accountability, and equipment shutdown procedures.

For a small-scale evacuation, a responsible on-site person may direct the evacuation. For a large-scale evacuation, the central alarm system may be activated. The EM&R Office will be notified immediately and will dispatch the Duty Emergency Manager. A responsible on-site person may begin the evacuation process until the Duty Emergency Manager arrives at the scene to assume that responsibility.

D.10 SALVAGE AND CLEANUP

Appropriate representatives from the ESH groups will survey the affected area before salvage and cleanup begin. They will conduct visual inspections and sampling of the affected area to determine whether cleanup is complete. If gases or fumes, electrical or radiological problems, or other conditions present a hazardous situation, personnel or selected teams equipped with proper breathing apparatus and protective clothing will reenter the area to perform designated decontamination tasks, repairs, and salvage to allow the return to normal operations. After an emergency, the IC will turn the operation over to the Recovery Manager, who will:

- Provide for proper handling of recovered waste, contaminated soil or surface water, or any other material that results from a spill, fire, or explosion. Contaminated material will be managed appropriately and temporarily stored at one of the hazardous or mixed waste storage areas at LANL. Waste management personnel will be responsible for determining the final disposition of the waste. This determination will be made in compliance with hazardous waste management regulations.

- Arrange to monitor for damage or improper operation of the unit and associated equipment as a result of the emergency or of plant shutdown in response to the emergency.

- Arrange for site cleanup procedures to be completed and ensure that no waste that may be incompatible with the released material is treated or stored in the same area.

- Ensure that emergency equipment is cleaned, decontaminated, and fit for its intended use before operations are resumed. Equipment will be inspected visually and then sampled, if necessary, to determine the type and degree of contamination and to determine appropriate cleanup measures.

The Recovery Manager is the functional equivalent of the Emergency Coordinator for post-emergency actions.

Prior to resuming operations, the appropriate facility management at LANL will verify that the previously mentioned tasks have been performed. The owner/operator (DOE/LAAO) will notify appropriate state and local authorities that cleanup procedures are completed and that emergency equipment is clean and fit for its intended use.

The IC assumes the coordination of post-emergency actions (particularly during the time period immediately following the emergency) until a Recovery Manager is appointed. The Recovery Manager then assumes this coordination role. The post-emergency actions include cleanup operations, vital equipment repair, or interim hazard-removal operations (such as arranging for the demolition of unstable walls). The services of the affected operational organizations, ESH groups, JCI, and other on-site resources will also be used to estimate cleanup costs and operational impact.

D.11 POST-EMERGENCY ASSESSMENT

When the emergency is over, the cause of the emergency and the effectiveness of the response are investigated in an effort to prevent future emergencies and to facilitate more effective responses to them. Following each event requiring the implementation of this contingency plan, the EM&R Office will schedule and conduct a critique with representatives from all response groups, with representatives in the building/area in which the emergency occurred, and with LANL management to determine the adequacy of the response.

D.12 EMERGENCY RESPONSE RECORDS AND REPORTS

Any emergency that requires implementation of the contingency plan will be documented by the Group or Section Leader responsible for the hazardous or mixed waste unit associated with the emergency, and reported in writing within 15 days to the NMED. The incident report, submitted by DOE/LAAO, will include the following data:

- Name, address, and phone number of owner or operator
- Name, address, and phone number of the facility
- Date, time, and type of incident (e.g. fire, explosion, spill)
- Name of material(s) involved
- Quantity of material(s) involved
- Extent of injuries (if any)
- Assessment of actual or potential hazards to human health or the environment
- Estimated quantity and disposition of material recovered from the incident.

Various LANL personnel responding to the emergency will record the details of any incident requiring implementation of this plan. The CAS operator, the EOC communicator, the Emergency Manager, and/or the Group or Section Leader responsible for the hazardous or mixed waste management area in which the emergency occurred will record the date, time, location of the incident, wastes/materials involved, injuries (if any), property damage (if any), and a detailed description of the incident. This information will be maintained in the facility operating record. ESH-7 will supply information concerning any follow-up actions. Appropriate LANL personnel will provide details regarding the removal and disposition of hazardous and mixed wastes associated with the emergency.

D.13 CONTINGENCY PLAN AMENDMENT

This contingency plan will be reviewed periodically by appropriate division personnel, the EM&R Office, CST waste management groups, and ESH-19 and, if necessary, will be reviewed as appropriate by

ESH-10. The plan will be amended immediately if determined to be inadequate to handle releases (spills, explosions, and/or fires), and whenever:

- The facility permit is revised
- There is significant change in the design or operation of the facility (e.g., quantities of waste handled and handling techniques) that increases the likelihood of an emergency and requires changes in emergency response
- The list of Emergency Managers changes
- The list of emergency equipment changes significantly.

This plan is a controlled document distributed by ESH-19. Amendments to this contingency plan will be distinguished by the revision number and date of revision noted in the upper right corner of each page. Amendments will be issued to all contingency plan holders and will include a cover letter that describes the plan changes and the rationale for those changes.

TABLE D-1
RESPONSE GROUPS AND AGENCIES AVAILABLE TO THE EMERGENCY MANAGEMENT AND RESPONSE OFFICE FOR GUIDANCE AND/OR EMERGENCY ASSISTANCE

LANL[a]-Controlled Response Group	Telephone	Responsibilities
ESH-1, Health Physics Operations	667-5296	Provides routine guidance on radiological decontamination. Provides routine site evaluation and monitoring to determine the nature and extent of contamination (radiological).
ESH-2, Occupational Medicine	667-7251	Provides emergency medical treatment.
ESH-5, Industrial Hygiene and Safety	667-4644	Provides guidance on industrial hygiene equipment and operational safety.
	665-4427	Provides routine site evaluation/support field testing to determine the nature and extent of contamination (chemical).
ESH-7, Occurrence Investigation	667-0598	Reports occurrences and tracks follow-up actions.
ESH-10, Hazardous Materials Response	665-5237	Provides emergency site evaluation/field monitoring (chemical and radiological). Specifies protective clothing and equipment. Dispatches Hazardous Materials Response Team. Provides support for chemical, radiological, hazardous, and mixed waste incidents and decontamination of responders and response equipment.

TABLE D-1
RESPONSE GROUPS AND AGENCIES AVAILABLE TO THE EMERGENCY MANAGEMENT AND RESPONSE OFFICE FOR GUIDANCE AND/OR EMERGENCY ASSISTANCE
(continued)

LANL[a]-Controlled Response Group	Telephone	Responsibilities
ESH-17, Air Quality	665-8855	Provides information on meteorological conditions.
ESH-18, Water Quality and Hydrology	665-0453	Provides information on hydrologic conditions.
ESH-19, Hazardous and Solid Waste	667-0666	Provides guidance on regulatory requirements. Conducts field surveys to determine spread of contamination and adequacy of cleanup.
ESH-20, Environmental Assessments and Resource Evaluations	667-0730	Provides information on biotic conditions.
CST, Chemical Science and Technology Division	667-7579 667-6095	Provides guidance on proper treatment, storage, and off-site shipment of hazardous and mixed waste.
NMT, Nuclear Materials Technology Division	667-2556	Provides initial emergency site evaluation at Technical Area (TA) 55 and conducts activities related to the prevention, notification, and control of emergencies at TA-55. In the event of an emergency at TA-55, monitors for leaks, pressure buildup, gas generation, or equipment ruptures, if necessary. Maintains and operates TA-55 Emergency Response Team. Prepares TA-55 emergency plans and procedures.
ESA, Engineering Science and Applications Division	667-4136	Provides information and/or assistance during emergencies involving units at TA-16.

TABLE D-1
RESPONSE GROUPS AND AGENCIES AVAILABLE TO THE EMERGENCY MANAGEMENT AND RESPONSE OFFICE FOR GUIDANCE AND/OR EMERGENCY ASSISTANCE
(continued)

LANL[a]-Controlled Response Group	Telephone	Responsibilities
DX, Dynamic Experimentation Division	667-5653	Provides information and/or assistance during emergencies involving units at TA-14, TA-15, TA-36, and TA-39.

LANL[a]-Controlled Response Group	Telephone	Responsibilities
PTLA, Protection Technology Los Alamos	667-4437	Provides traffic control and security.
JCI, Johnson Controls World Services Inc.	667-6191	Dispatches maintenance personnel and equipment. Assists in waste cleanup under the direction of the Recovery Manager.

TABLE D-1
RESPONSE GROUPS AND AGENCIES AVAILABLE TO THE EMERGENCY MANAGEMENT AND RESPONSE OFFICE FOR GUIDANCE AND/OR EMERGENCY ASSISTANCE
(continued)

Non-LANL[a]-Controlled Response Group	Telephone	Responsibilities
Los Alamos County Fire Department	667-7080 9-911	Dispatches firefighting personnel and equipment and provides Emergency Medical Services.
Los Alamos County Police Department	662-8222	Provides traffic control on public access roads.
Los Alamos Medical Center[b]	662-4201 662-2455	Provides medical services. Provides and maintains Emergency Room.

[a] Los Alamos National Laboratory.
[b] Medical services related to hazardous and mixed waste injuries are provided under the direction of ESH-2.

TABLE D-2
EMERGENCY MANAGEMENT AND RESPONSE OFFICE
EMERGENCY MANAGERS[a]

Emergency Managers[b]	Laboratory Telephone	Home Telephone	Home Address
Gary W. Bequette	667-6211	662-5636	1781 37th St., Los Alamos, NM
Cheryl S. Bequette	667-6211	662-5636	1781 37th St., Los Alamos, NM
Eugene Darling	667-6211	672-0354	430 Grand Canyon, White Rock, NM
Douglas Tuggle	667-6211	672-1231	117 Grand Canyon, White Rock, NM
George Van Tiem[c]	667-6211	662-4623	197 El Viento St., Los Alamos, NM
Ed Nettles[c]	667-6211	662-5690	1461 Oakwood Lp., Los Alamos, NM

[a] To ensure immediate response, the Emergency Manager may be reached at the Emergency Management and Response Office (667-6211 or after hours, 667-7080).
[b] Assignments as the designated (i.e., primary) Emergency Manager are rotated. A current schedule is maintained at the Emergency Management and Response Office (667-6211 or after hours, 667-7080) and at the Central Alarm Station (911).
[c] Alternate Emergency Manager.

TABLE D-63
ITEMS MONITORED AT THE WASTE INCINERATOR DURING EMERGENCY SHUTDOWN

Item	Monitored For
Incinerator/Equipment	Functioning
Pumps, valves, pipes	Leaks
Tank by-pass	Leaks
Emergency waste feed cutoff system	Functioning
HEPA[a] Filtration System	Functioning
Radiation	Levels

[a] High-efficiency particulate air

TABLE D-4
WASTE ANALYSIS PARAMETERS AND TEST METHODS[a]

Parameter	Test Method	Reference[b]
Ignitability	Pensky-Martens closed-cup method	(L, S) SW1010 (L, S) ASTM D93-80
Reactivity	Test method to determine hydrogen cyanide (HCN) released from waste	(L, S) HCN Test Method, SW, Section 7.3
	Test method to determine hydrogen sulfide (H_2S) released from waste	(L, S) H_2S Test Method, SW, Section 7.3
Corrosivity	Electrometric (pH of aqueous solution)	(L) SW9040B
Toxicity characteristic:	Toxicity characteristic leaching procedure (TCLP) extraction	(S) SW1311
Metals:	Graphite furnace atomic absorption (AA) spectroscopy, gaseous hydride AA, or direct aspiration AA	
Arsenic		(L, S) SW7060A, SW7061A
Barium		(L, S) SW7080A, SW7081
Cadmium		(L, S) SW7130, SW7131A
Chromium		(L, S) SW7190, SW7191
Lead		(L, S) SW7420, SW7421
Selenium		(L, S) SW7740, SW7741A
Silver		(L, S) SW7760A, SW7761
Mercury	Manual cold-vapor technique	(L) SW7470A, (S) SW7471A
Volatile organics	Gas chromatography/mass spectrometry (GC/MS)	(L, S) SW8240B
	GC/MS capillary column technique	(L, S) SW8260A

Refer to footnotes at end of table.

TABLE D-4
WASTE ANALYSIS PARAMETERS AND TEST METHODS[a]
(continued)

Parameter	Test Method	Reference[b]
Semivolatile organics	GC/MS	(L, S) SW8250A
	GC/MS capillary column technique	(L, S) SW8270B
Organochlorine pesticides	TCLP extraction and GC	(L, S) SW8080A
Chlorinated herbicides		(L, S) SW8150B
Heat value	Bomb calorimeter	(L) A006, ASTM D240
Organic chloride	Halide titration of combustion residue	(L, S) A004, ASTM D2361
Ash content	Residue after combustion in muffle furnace	(L) A001, ASTM D482 (S) A001, ASTM D3174
Cyanide, free and total	Distillation and colorimetric ultraviolet	(L, S) SW9010A, SW9012
Total chromium	Colorimetric method for hexavalent chromium	(L, S) SW7196A
Sulfide	Colorimetric titration	(L, S) SW9030A

Refer to footnotes at end of table.

TABLE D-4
WASTE ANALYSIS PARAMETERS AND TEST METHODS[a]
(continued)

Parameter	Test Method	Reference[b]
Total metals[c]:	Acid digestion	(L) SW3010A, (S) SW3050A
	Inductively coupled plasma atomic emission spectroscopy	(L, S) SW6010A
Arsenic		(L, S) SW6010A
Barium		(L, S) SW6010A
Beryllium		(L, S) SW6010A
Cadmium		(L, S) SW6010A
Chromium		(L, S) SW6010A
Lead		(L, S) SW6010A
Nickel		(L, S) SW6010A
Selenium		(L, S) SW6010A
Silver		(L, S) SW6010A
Thallium		(L, S) SW6010A
Zinc		(L, S) SW6010A
Mercury	Manual cold-vapor technique	(L) SW7470A (S) SW7471A
Free liquids	Paint Filter Liquids Test	(L, S) SW9095

Refer to footnotes at end of table.

TABLE D-4
WASTE ANALYSIS PARAMETERS AND TEST METHODS[a]
(continued)

[a] At Los Alamos National Laboratory, current analytical capabilities include limited analyses of mixed waste samples. These analyses include gross alpha, beta, and gamma screening.

[b] "A" (e.g., A006) refers to U.S. Environmental Protection Agency, 1984, "Sampling and Analysis Methods for Hazardous Waste Combustion," *EPA-600/8-84-002*.
"ASTM" refers to American Society for Testing and Materials standards.
"SW" refers to U.S. Environmental Protection Agency, 1992, "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," *SW-846*.
(L) refers to liquid waste.
(S) refers to solid waste.

[c] See also atomic absorption methods.

TABLE D-5
EVACUATION DETERMINATION AND REENTRY CONDITIONS

Reason for Evacuation	Evacuation Determination Made by	Reentry Conditions[a]
Fire	[1]Fire or evacuation alarm, Group Leader or alternate, Lead Engineer, Senior Staff Member present, Senior Technician, or Emergency Manager	[2]Following survey by the Chief Fire Officer, ESH-1[b], ESH-5[c], and/or ESH-10[d], and R&D[e] supervision
Explosion	Same as 1 above	Same as 2 above
Loss of ventilation	[3]Group Leader or alternate, Senior Staff Member, Lead Engineer, or Senior Technician	[4]Following survey by ESH-1 and/or ESH-5, and R&D supervision
Loss of electric power	Same as 3 above	Same as 4 above
Extensive contamination	Same as 3 above or ESH-1 Representative	Same as 4 above or ESH-10
Airborne contamination	Same as 3 above or Radiation Monitor	Same as 4 above or ESH-10
Escape or release of toxic or hazardous gas or fumes	Group Leader or alternate, Senior Staff Member, Lead Engineer, Senior Technician, or Emergency Manager	Same as 4 above plus ESH-5 or ESH-10
Bomb or bomb threat	EM&R[f] or PTLA[g] representative, R&D Section Leader or alternate, Senior Staff Member, or Lead Engineer	Following determination by the Emergency Manager or HDT[h] Leader

[a] All reentries are authorized by the Incident Commander.
[b] "ESH-1" refers to the Health Physics Operations Group.
[c] "ESH-5" refers to the Industrial Hygiene and Safety Group.
[d] "ESH-10" refers to the Hazardous Materials Response Group.
[e] "R&D" refers to the Research and Development Section.
[f] "EM&R" refers to the Emergency Management and Response Office.
[g] "PTLA" refers to Protection Technology Los Alamos.
[h] "HDT" refers to the Hazardous Devices Team.

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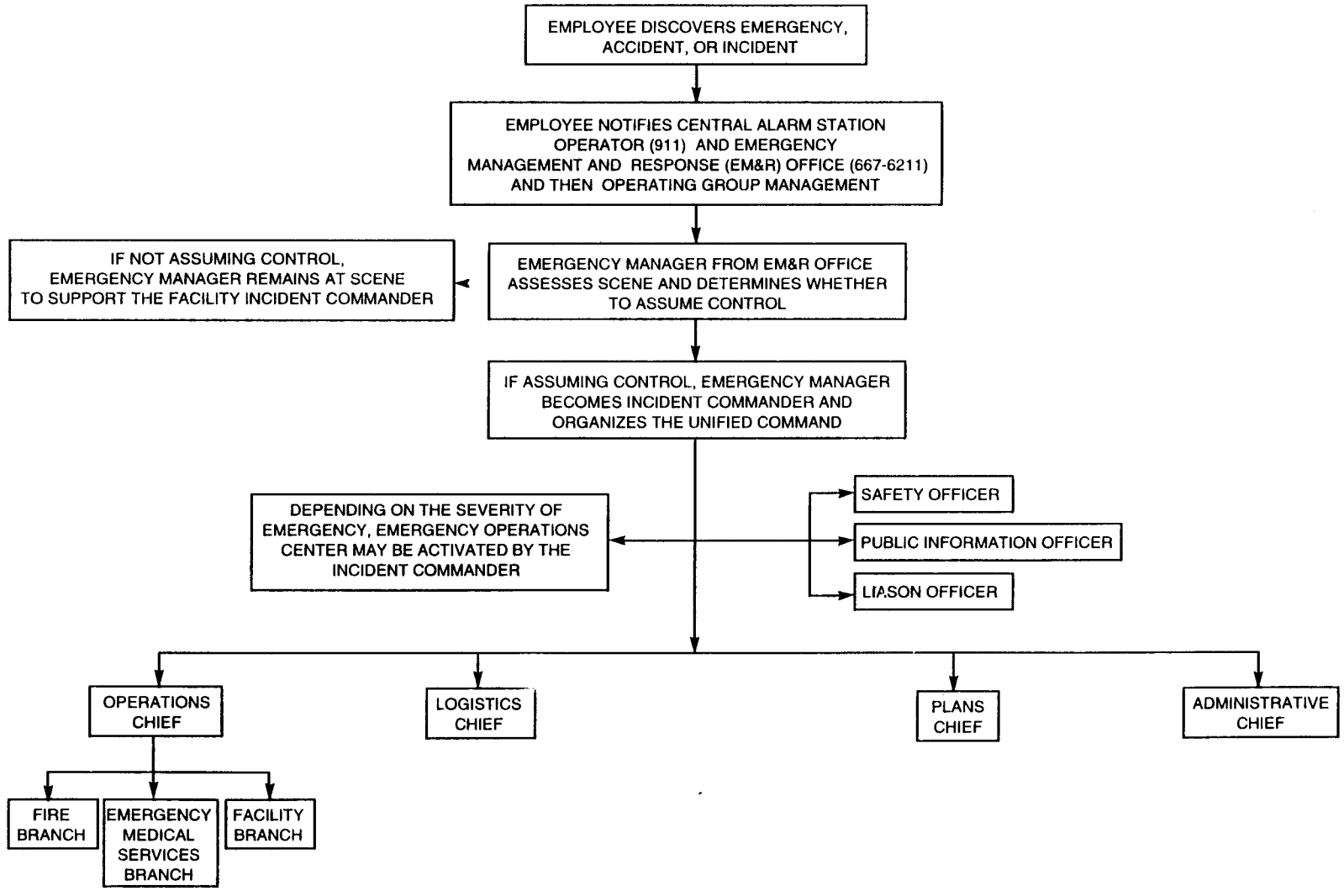

FIGURE D-1
GENERAL HAZARDOUS AND MIXED WASTE EMERGENCY NOTIFICATION STRUCTURE

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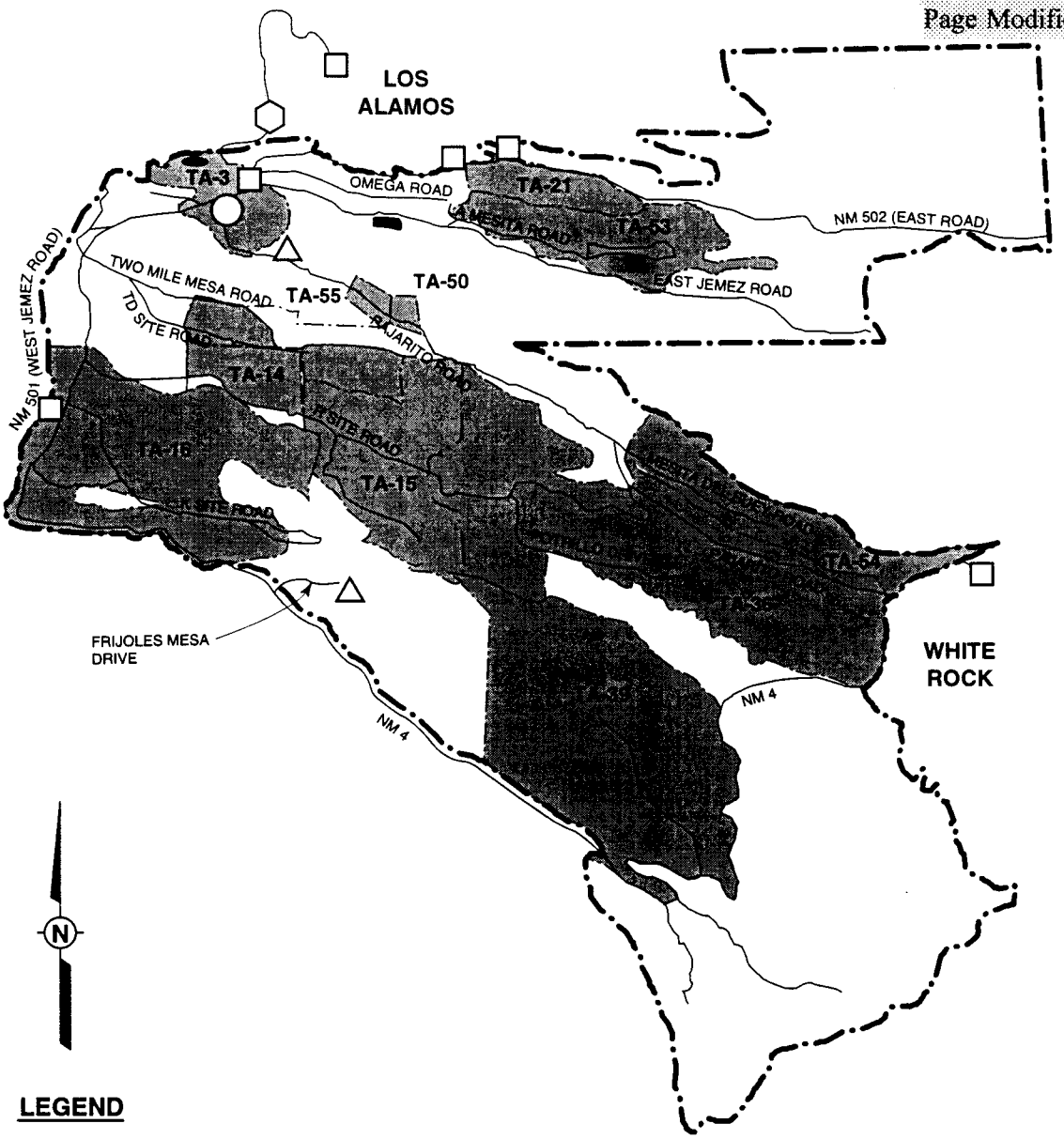

LEGEND

- Fire Station
- Medical Facility at Technical Area 3
- Hospital
- Emergency Operations Center
- Shading indicates areas in which hazardous or mixed waste management units are located or planned for construction.
- Not Los Alamos National Laboratory property.

4800 0 4800
Scale in Feet

FIGURE D-2
EMERGENCY FACILITIES

APPENDIX D-1

Emergency Equipment

APPENDIX D-1
EMERGENCY EQUIPMENT

Hazardous Materials (HAZMAT) Vehicles and Associated Emergency Equipment:

HAZMAT vehicles and trailers are located at Technical Area (TA) 64, Building 39 (TA-64-39). They are available to the Environment, Safety, and Health (ESH) Division Hazardous Materials Response Group (ESH-10) for emergency response to all of the TAs at Los Alamos National Laboratory (LANL). ESH-10 is responsible for maintaining the supplies of appropriate emergency equipment in each vehicle and trailer.

The HAZMAT vehicles and trailers are equipped with safety and emergency equipment, personal protective clothing, and other supplies, which may include, but are not limited to: assorted personal protective equipment, T-shirts, and gloves; safety goggles and glasses; boots and booties; face shields; totally encapsulating suits and boots; Level A and B suits; flash suits; self-contained breathing apparatus (SCBA) and SCBA bottles; hazardous chemical reference books and other reference materials; shovels; siphon pumps; assorted spill kits and sorbents; chemical burn and neutralizing solutions; two-way radios, cellular phones, and communication equipment; bottles of leak detector; leak repair kits; emergency repair packs; HAZMAT bags; gas detectors and chemical detectors; respirators and cartridges; radiological equipment; sponges and cleaners; warning signs and barricade tape; traffic control barriers; flashlights; cameras and film; knives; portable power supplies; warning and signal horns; harnesses and belts; portable emergency oxygen; decontamination equipment; sampling equipment; and assorted tools, tape, and other supplies.

~~TABLE D-3~~ APPENDIX D-1
EMERGENCY EQUIPMENT

EMERGENCY EQUIPMENT AT THE BURNING GROUND AND THE OPEN DETONATION PADS, TAs 14, 15, 16, 36, AND 39

Fire Control Equipment

Fire Extinguisher in each vehicle used to transport HE material
Fire Extinguisher in each control bunker

Description of General Capabilities:

These are portable units of approximately 9 to 15 pounds capacity used in wet chemical laboratory applications. May be used by any employee in case of fire. Fire extinguishers are never used to put out controlled fires at the burning grounds.

Communication Equipment

Telephones
Two-way radios

Description of General Capabilities:

Telephones for internal communication at the Laboratory and off-site communication with federal, state, county, and other agencies are available. A Centrex telephone system and a private telephone line (if Centrex fails) are available for use by all employees.

Located in each control bunker, in the control building at the burning ground, and at the waste water treatment facility at the burning ground. Radios allow communication between each vehicle.

~~TABLE D-3~~ APPENDIX D-1
(continued)

EMERGENCY EQUIPMENT AT THE TA-50 CHEMICAL WASTE INCINERATOR AND ROOM 117 STORAGE AREA

Fire Control Equipment

13 fire extinguishers (9C-CO; 4 A-water)

Description of General Capabilities:
These are portable units of approximately 9 to 15 pounds capacity used in wet chemical laboratory applications. May be used by any employee in the event of fire.

Manually operated fire alarm may be activated by any employee in the event of fire to notify Central Alarm Station.

The sprinkler system is an automatic system which delivers a maximum of 200 psi of water spray through shower heads placed at locations which maximize fire suppression range capability. In the event of fire, this system should function automatically, requiring no manual assistance.

Halon Extinguishing Systems are indicated to supplement automatic sprinkler systems which protect high value equipment, or suppress special hazardous operations or occupancies.

Location:
- 1 Mechanical Equipment Room 111
- 2 High Bay Room 112
- 2 High Bay Room 114
- 1 South of Library and Conference Room
- 1 Chemistry Laboratory Room 107
- 1 Process Engineering Laboratory Room 209
- 1 Office Area Room 202
- 1 Room 21
- 1 Room 117

11 Fire Alarm Pull Boxes connected to the CAS
Location:
- 1 Mechanical Equipment Room 111
- 1 High Bay Room 112
- 2 South of Library and Conference Room
- 2 High Bay Room 114
- 1 East of women's changing room
- 1 Process Engineering Laboratory
- 1 Office Area Room 202
- 2 Room 21

~~TABLE D-3~~ APPENDIX D-1
(continued)

EMERGENCY EQUIPMENT AT THE TA-50 CHEMICAL WASTE INCINERATOR AND ROOM 117 STORAGE AREA

Automatic thermal alarm on inlet and exhaust of ventilation system
Automatic thermal sprinkler system throughout offices

4 Fire Hydrants
Location:
1 Northeast corner of Building 84
1 West of Building 69
1 Northeast of Building 37
Halon Extinguishing System, manual and ultraviolet in Room 115

Communication Equipment

Telephones throughout building with building-wide paging system

Description of General Capabilities:
Telephones for internal communication at the Laboratory and off-site communication with federal, state, county and other agencies are available. A Centrex telephone system and a private telephone line (if Centrex fails) are available for use by all employees.

Radio located in Room 202

Spill Control Equipment

Absorbent kept onsite
PCB room is bermed to handle all liquids stored
Have Spill Prevention and Containment Plan

Description of General Capabilities
Containment is designed to handle all liquids stored. Absorbent is used in the event of a small spill.

~~TABLE D-3~~ APPENDIX D-1
(continued)

EMERGENCY EQUIPMENT AT THE TA-50 CHEMICAL WASTE INCINERATOR AND ROOM 117 STORAGE AREA

Decontamination Equipment

Showers
Emergency eye wash

Description of General Capabilities
Safety showers and eye washes are used by personnel who receive a chemical splash to skin or eyes. Specific material safety data sheets for the chemical should be obtained prior to working with the chemical to determine if the application of water is indicated for decontamination.

~~TABLE D-3~~ APPENDIX D-1
(continued)

EMERGENCY EQUIPMENT - HSE-7 CONTROLLED

Spill Control Equipment: Located at TA-54, Area G

Heavy equipment available for emergencies may include

2 scrapers
1 bulldozer
1 tractor (front end loader)
Shovels
Absorbents (vermiculite) in combustibles storage shed

Description of General Capabilities:

The following pieces of heavy equipment will be used in the event of large spills. Small spills will be absorbed with absorbent.

Decontamination Equipment

Small decontamination pit for heavy equipment
Showers (MD-11)

Other

Change room with protective clothing (MD-11)
2-3 dozen respirators (particulates) (MD-11)
2 self-contained, portable air masks (MD-11)
2 emergency generators, portable
3 vehicles are available for evacuation of personnel:
2 sanfu
2 Jeep (with emergency equipment, e.g., coveralls, booties, tape, rope)

~~TABLE D-3~~ APPENDIX D-1
(continued)

EMERGENCY EQUIPMENT AT TA-54, AREA L

Fire Control Equipment

1 fire hydrant located 30 feet south of site entrance to site
1 CO fire extinguisher located inside trailer at west end of site (B, C)
1 CO fire extinguisher located inside storage shed (B, C)
1 freeze-proof faucet located immediately east of shed

Description of General Capabilities:
These are portable units of approximately 9 to 15 pounds capacity used in wet chemical laboratory applications. May be used by any employee in the event of fire.

Spill Control Equipment

Shovels
Oversized drums
Absorbent inside storage shed
Heavy equipment from Area G available for any emergencies at Area L
Bermed storage area

Description of General Capabilities:
The following pieces of heavy equipment will be used in the event of large spills. Small spills will be absorbed with absorbent.

Communications Equipment

2-way radios are available to all personnel when in area
2-way radios are in all vehicles used for moving hazardous waste
Telephone located inside trailer

Description of General Capabilities
External and internal Laboratory communications which may be used in emergency situations are listed.

~~TABLE D-3~~ APPENDIX D-1
(continued)

EMERGENCY EQUIPMENT AT TA-54, AREA L

Decontamination Equipment

1 emergency shower and eye wash located immediately east of shed

Description of General Capabilities:

Safety showers and eye washes are used by personnel who receive a chemical splash to skin or eyes. Specific material safety data sheets for the chemical should be obtained prior to working with the chemical to determine if the application of water is indicated for decontamination.

Other

2 self-contained, portable air masks located inside trailer

APPENDIX D-1
EMERGENCY EQUIPMENT
(Continued)

Emergency equipment available at the Radioactive Materials Research, Operations, and Demonstration (RAMROD) Facility at Technical Area 50, Building 37 (TA-50-37):

FIRE CONTROL EQUIPMENT:

TA-50-37 is fully equipped with fire extinguishers that are placed and maintained in accordance with National Fire Protection Association (NFPA) standards (NFPA 10).

Locations:
Three wall-mounted fire extinguishers are located in Room 112. Two fire extinguishers are located in Room 114.

Description of General Capabilities:
The fire extinguishers may be used by any employee in the event of a small fire.

Fire hydrants are located near the northeast and southeast corners of TA-50-37.

Description of General Capabilities:
The fire hydrants supply water at adequate volume and pressure to satisfy the requirements of the New Mexico Administrative Code, Title 20, Chapter 4, Part 1, Part V, 264.32, revised November 1, 1995.

TA-50-37 has an automatic fire-suppression system. Rooms 112, 114, and 118 are equipped with a wet-pipe sprinkler system. Room 115 is equipped with two ultraviolet fire-detection sensors. Room 117 is protected by a dry-pipe open-sprinkler-head deluge fire-suppression system.

Description of General Capabilities:
The fire alarm control panel continuously monitors all fire suppression and detection systems and transmits signals to the Los Alamos County Fire Department.

There are several fire alarm pull stations located throughout TA-50-37. Two pull stations are located in Room 112. Three pull stations are located in Room 114, one of which is located outside the exit door of Room 115.

APPENDIX D-1
EMERGENCY EQUIPMENT
(Continued)

Emergency equipment available at the RAMROD Facility at TA-50-37 (Continued):

COMMUNICATION EQUIPMENT:

Telephones (Centrex and private lines) are located in most areas of TA-50-37, including Rooms 112 and 114. Fire and evacuation alarm annunciators are located in Rooms 112, 114, 117, and 118.

Description of General Capabilities:
Telephones are used for internal and external communication and have paging capabilities. The fire and evacuation alarms are used to alert personnel in the area.

DECONTAMINATION EQUIPMENT:

Two eyewashes and two safety showers are located in Room 112. One eyewash and one safety shower are located in Room 115. Personnel working in Rooms 114, 117, and 118 have access to the eyewashes and safety showers in Rooms 112 and 115.

Description of General Capabilities:
An eyewash station or safety shower may be used by personnel who receive a chemical splash to the skin or eyes.

PERSONAL PROTECTIVE EQUIPMENT (PPE):

Booties, lab coats, and safety glasses are minimum PPE requirements when waste is present or if designated by the Health Physics Operations Group.

OTHER:

See Attachment 7-1 of the Los Alamos National Laboratory General Part B for equipment available in the Hazardous Materials Response Group vehicles and trailers.

APPENDIX D-1
EMERGENCY EQUIPMENT
(Continued)

Supplemental emergency equipment and personnel available from the Los Alamos County Fire Department (9-911):

Engine companies - 1,250 gallons per minute
- Engines 1, 3, 4, 5, 6, 10, and 40

Engine 50 (Reserve) - 1,000 gallons per minute
Mini-pumpers
- MT-1, -3, -4, and -5

Modular ambulances
- 3 First line - M1, M3, M4
- 1 Reserve Unit - M10

Rescue vehicles
- 1 First Line
- 1 Newly Purchased

Crash-Fire-Rescue (CFR) units
- CFR 6
- CFR 60 (small, fast attack unit)

SCBA units
SCBA air tanks
105-foot tower ladder with pump - 1,500 gallons per minute
Personnel with 120 hours Emergency Medical Technician training
Personnel with Advanced Life Support training
Water tankers
- T-1 = 1,500 gallons
- T-3 = 2,500 gallons
- T-4 = 3,000 gallons
- T-5 = 2,500 gallons
- T-50 = 1,500 gallons

APPENDIX D-1
EMERGENCY EQUIPMENT
(Continued)

Supplementary emergency equipment and personnel available from Johnson Controls World Services Inc. (667-6191):

TRANSPORTATION:

Pickups, 1/2 through 3/4 ton
Trucks, 1 through 3 ton
Vans, panels, and carryalls

SPECIAL EQUIPMENT:

Road grader, Cat, self-propelled blade, with radio
Grader, John Deere, self-propelled, with radio
Loaders, bucket, Melroe, Bobcat, 1/3 cubic yards
Loader, bucket, Cat, 2-3/4 cubic yards, with radio
Loader, Fiat-Allis, 3 cubic yards
Loader, bucket, Cat, 2-1/2 cubic yards
Loader, bucket, Cat, 3-1/4 cubic yards
Loader, bucket, Yale, 3 cubic yards, with radio
Loader, bucket, backhoe, Case, 1-1/2 cubic yards
Loaders, bucket, backhoe, Case, 7/8 cubic yards
Loader, backhoe, Ford, 1 cubic yard
Loader, bucket, backhoe, JCB, 7/8 cubic yards
Snowplows, Bombardier, with blade
Bulldozer, D-8, Crawler
Bulldozers, TD-25, International
Scraper, Terex, self-propelled
Scraper, Fiat-Allis, self-propelled
Bulldozer, 280, rubber-tired, with radio
Semitrailers
Chain saws
Flusher, street, 3,000-gallon truck, tanker, 500-gallon, FMC
Mobile transceivers (2-way, KOB-753)
Generators
Handsets (2-way)
Pageboys (1-way)
Welders, mounted on trailers and trucks

APPENDIX D-1
EMERGENCY EQUIPMENT
(Continued)

Supplementary emergency equipment and personnel available from Johnson Controls World Services Inc. (667-6191), (continued):

PERSONNEL:

Heavy equipment operators
Clerks
Dispatchers
Mechanics
Power saw operators
Radio and telephone operators
Truck drivers

OTHER EQUIPMENT:

Portable toilets
Light bank set 2/3 kilowatt generator
Hand-held two-way radios
6" x 8" landscape timbers
15-ton dump truck
8-ton dump truck
Fuel truck 3,000 gallons (diesel)
Service truck (petroleum, oil, lubricant)
Combination fuel truck (392 gallons diesel) (392 gallons gasoline)

SNOW REMOVAL EQUIPMENT:

Truck-mounted snow plows
Motor graders w/wing plow attachment
Truck-mounted sand/salt spreaders
Sand/salt spreader/plow
Front end loaders
Rubber-tired bulldozer
Farm tractors w/blade attachments
Skid steer loaders
Rubber tracked bombardiers
Hand-operated snow blowers
Road-configured snow blower
Wheel Horses w/blade attachments

APPENDIX D-1
EMERGENCY EQUIPMENT
(Continued)

Supplementary emergency equipment and personnel available from Johnson Controls World Services Inc. (667-6191), (continued):

SNOW REMOVAL PERSONNEL:

Laborers
Teamsters
Operators
Mechanics
Supervisors

SPILL RESPONSE EQUIPMENT:

Spill trailer
Material storage shed
Submersible pump
Acid/caustic pump
Wet vacuums
Vacuum

SPILL RESPONSE MATERIAL:

Sorbent sheets
Zorball (sacks)
55-gallon barrel w/bung
55-gallon barrel w/o bung
3" x 96" spill booms
Sand bags
Gallon ND-165 degreaser
White mop heads w/handles

PERSONNEL:

Teamsters
Operators
Laborers
Supervisors

APPENDIX D-1
EMERGENCY EQUIPMENT
(Continued)

Supplementary emergency equipment and personnel available from Johnson Controls World Services Inc. (667-6191), (continued):

UTILITIES EQUIPMENT:

Line truck (digger derrick)
Basket truck
Backhoe
Boom truck
Dump truck
Sewage trucks
Potable water truck
Trailer-mounted generator 110 volt
Truck-mounted welders
Thawing machine

UTILITIES PERSONNEL:

Operators
Pipefitters
Laborers

APPENDIX D-1
EMERGENCY EQUIPMENT
(Continued)

Emergency equipment and personnel at the Central Medical Facility, Occupational Medicine Group (ESH-2) (667-7251):

At TA-3 (SM-409) Central Clinic:

PERSONNEL:

Physicians
Physician's Assistants
Nurses
X-ray Technicians
Clinical Laboratory Technicians
Clinical Testing Technicians

SPECIAL EQUIPMENT-PORTABLE:

Multichannel emergency receiver-base station
Two-way radio on the State Med Net,
the LANL Emergency Management channel, and the LANL Health-Safety Net
Cardiac monitors and defibrillators
Crash cart emergency equipment with E-tank oxygen (O_2)
Portable physicians' bag with medications
Portable suction unit
Portable stretchers (ambulance, gurney, folding)
Wheelchairs
O_2 tanks
Manual resuscitators
Intravenous (IV) stands
IV solutions
Otoscope/ophthalmoscopes
Portable sphygmomanometers
Stethoscopes
Anticontamination apparel
Eye irrigation solution
Industrial first-aid kits
Extrication and cervical collars, crutches, canes
Suture sets
Protective apparel
Morgan lends and irrigation sets
Decontamination equipment (portable)

APPENDIX D-1
EMERGENCY EQUIPMENT
(Continued)

Emergency equipment and personnel at the Central Medical Facility, ESH-2 (667-7251) (continued):

At TA-3 (SM-409) Central Clinic (continued):

SUPPLIES-GENERAL:

Bedding/pillows
Rescue blankets
Burn blankets
Thermal/icing pouches
Multitrauma dressings, surgical and first aid supplies
Disposable ice bags

SPECIAL FACILITIES - NONPORTABLE:

Completely equipped emergency room with ambulance entrance
Emergency lighting system
Complete X-ray suite
Protective clothing and wound counters
12-lead electrocardiograph
Fully equipped crash cart with Life Pak, intubation equipment, emergency medications, etc.
Fully equipped decontamination room at Los Alamos Medical Center (LAMC) adjacent to the LAMC emergency room

TRANSPORTATION:

Full ambulance service is available within minutes to the central facility.

COMMUNICATION:

Base station on State Medical Net and Los Alamos County Fire Department trunked radio system.

CLOSURE PLAN
PERMIT ATTACHMENT E.10
NM 0890010515-1

CLOSURE PLAN
PERMIT ATTACHMENT E.10
NM0890010515-1

E.10 TECHNICAL AREA 50, BUILDING 37, ROOMS 112, 114, 115, 117, AND 118 MIXED WASTE CONTAINER STORAGE AREAS

The mixed waste container storage areas (CSA) addressed in this closure plan are located in Rooms 112, 114, 115, 117, and 118 at Technical Area 50, Building 37 (TA-50-37) (Figure E.10-1). These CSAs are used to store transuranic (TRU) mixed waste.

Waste containers stored in these CSAs may include drums of various sizes, fiberglass-reinforced plywood boxes, standard waste boxes, and other irregular containers. Room 112 is 41 feet (ft) wide and 75 ft long. The floor is reinforced concrete slab painted with epoxy paint. Floor trenches, drains, and pits are located in Room 112. The drains are connected to a tank located within a pit in the northwest corner of the room. Pumps are located within the two largest pits in Room 112. Room 114 is 41 ft wide by 78 ft long. The floor is epoxy-painted reinforced concrete slab. A floor trench and several pits and drains are located in Room 114; however, the main line of the floor drains is capped. Room 115, which is located within Room 114, measures 10 ft wide and 21 ft long. The reinforced concrete slab floor is coated with epoxy paint. Room 117 is 21 ft wide and 40 ft long, and Room 118 is 31 ft wide and 40 ft long. Both of these rooms have epoxy-painted reinforced concrete slab floors. Room 117 has steel grates approximately 3 ft above its recessed floor. The recessed floor area is divided into two areas, and each of these areas is sloped toward further recessed 3-ft-square sumps. Each sump area contains a pump and piping connected to its own standpipe. A 4-ft-square sump is located in the center of Room 118, and the floor is sloped toward this sump.

E.10.1 Estimate of Maximum Waste in Storage

The maximum inventory of waste in storage at any time at the TA-50-37, Rooms 112, 114, 115, 117, and 118 CSAs is estimated at 26,380 gallons. A breakdown of the maximum inventories for each of these areas is as follows:

- Room 112 - 2,330 gallons
- Room 114 - 2,200 gallons
- Room 115 - 220 gallons
- Room 117 - 3,630 gallons
- Room 118 - 18,000 gallons

E.10.2 Description of Waste

TRU mixed waste stored in the TA-50-37, Rooms 112, 114, 115, 117, and 118 CSAs is generated during research activities, processing and recovery operations, and decontamination and decommissioning operations primarily at TA-3, TA-21, TA-50, and TA-55. The wastes are classified as mixed wastes because Resource Conservation and Recovery Act (RCRA)-characteristic and/or -listed wastes are or may be present in the waste, along with a radioactive component.

E.10.3 Closure Procedure and Decontamination

E.10.3.1 Partial Closure

Partial closure would consist of closing one or more of the hazardous and/or mixed waste management units or subunits at the LANL facility, while leaving the other hazardous and/or mixed waste management units at LANL in service. In the event of a partial closure, the following procedures would apply to the unit(s) being closed.

E.10.3.2 Unit Closure

To the extent possible, contaminated structures and equipment at the CSAs addressed in this closure plan will be decontaminated. Structures, equipment, and media that cannot be decontaminated will be containerized and managed in compliance with appropriate regulations. Sampling conducted during closure and decontamination activities will be done in accordance with quality assurance/quality control (QA/QC) procedures (see Section E.10.7).

Before proceeding with any closure activities, the CSAs will be surveyed for radiological contamination. Personal protective equipment (PPE) and monitoring requirements will be determined by LANL's Health Physics Operations (ESH-1) and Industrial Hygiene and Safety (ESH-5) Groups following a field inspection. Radiation and chemical monitoring will occur throughout closure activities. If any contamination is found, the contaminated materials, equipment, and/or structures will be decontaminated (if possible) or containerized and taken to an approved storage location at LANL appropriate for the waste type.

Personnel involved in closure activities will wear appropriate PPE, specified by ESH-1 and ESH-5, and will follow good hygiene practices to protect employees from exposure to mixed waste. The level of PPE that will be required will depend upon the levels of radiological and/or chemical contamination that are detected, if any. If ESH-1 and ESH-5 surveys do not indicate detectable contamination levels, minimum PPE requirements will consist of coveralls, steel-toed boots, rubber gloves, and safety glasses or face shields. If an overhead danger is present, a hard hat will be worn. All workers involved in closure activities will be required to have training and medical monitoring. Contaminated PPE will either be decontaminated or managed in compliance with appropriate regulations.

Wastes will be removed from the CSA scheduled to be closed prior to the initiation of closure activities. Containers will be removed from each storage area primarily with forklifts or pallet handlers. Small containers may be handled manually or with dollies. Containers will be placed onto flatbed trucks or trailers for transport. Appropriate shipping papers will accompany the wastes during transport. Containers holding mixed wastes will be moved to an approved on-site facility or permitted off-site treatment and/or disposal facility.

Before decontamination activities begin, samples of the clean water and detergent (wash water) squeezed from mops and/or sponges prior to use will be collected for analysis of the parameters listed in Table E.10-1. The analytical results from these samples will be used to provide a baseline for decontamination verification.

Prior to decontamination of the main surfaces of a CSA, any portable equipment to be removed from the area will be wiped down with wash water. This may include equipment such as self-containment pallets or devices, wooden pallets, and miscellaneous equipment. Portable berms will be used, when necessary, to provide containment for the used wash water. After the washdown process, the used wash water will be collected, transferred to containers, sampled, and analyzed for the parameters in Table E.10-1, as appropriate. If the used wash water is nonhazardous and nonradioactive, it will be managed appropriately in accordance with LANL policy. Otherwise the used wash water will be managed at an appropriate on-site facility. If sampling and analysis indicate that radioactive and/or hazardous constituents are present, the wash cycles and analyses will continue until the equipment has been decontaminated or the decision is made to manage it appropriately as contaminated waste.

Each container storage area will be inspected for any cracks or conditions that would potentially lead to loss of decontamination liquid containment in the storage area. If any defects, deterioration, damage, or hazards affecting the containment system are discovered during inspection, appropriate remedial actions (including repairs, maintenance, or replacement) will be completed prior to further decontamination activities. The walls, floors, and remaining equipment (e.g., floor grates) of a CSA will then be wiped down with wash water. Portable berms will be used to collect and provide containment for the used wash water, as necessary. The used wash water will be collected, sampled, and analyzed for the parameters in Table E.10-1, as appropriate. If the used wash water is nonhazardous and nonradioactive, it will be managed appropriately in accordance with LANL policy. Otherwise, the used wash water will be managed at an appropriate on-site facility, depending on the regulated constituents present. If sampling and analysis indicate that hazardous and/or radioactive constituents are present, the wash cycles and analyses will continue until the area has been decontaminated or the decision is made to segregate contaminated portions of the storage area for subsequent management as contaminated waste. Decontamination verification is discussed further in Section E.10.3.3.

After the walls and floors of a CSA have been decontaminated, recessed areas (e.g., sumps, pits, trenches, recessed floor) of the CSA (if present) will be wiped down with wash water solution. The used wash water will collect in the recessed areas, where it will be sampled and analyzed for the parameters in Table E.10-1, as appropriate. After sampling, the used wash water will be removed from the recessed area, transferred to appropriate containers, and stored pending analysis. The wash cycles and analyses will continue until the recessed areas have been decontaminated or the decision is made to segregate contaminated portions of the recessed areas for subsequent management as contaminated waste. Used wash water will be managed in the same manner as wall and floor used wash water.

Prior to use, decontamination equipment will be rinsed with distilled water. Decontamination equipment rinsate blanks will be collected and analyzed in accordance with QA/QC procedures (see Section E.10.7). Reusable protective clothing, tools, and equipment used during closure activities will be cleaned with wash water and scraped as necessary to remove any residue. Residue, disposable equipment, and reusable equipment that cannot be decontaminated will be containerized and managed appropriately at an approved on-site facility, depending on the regulated constituents present. Used wash water will be collected and analyzed for the parameters listed in Table E.10-1, as appropriate. If the used wash water is nonhazardous and nonradioactive, the water will be managed appropriately in accordance with LANL policy. Otherwise, it will be managed at an appropriate on-site facility, depending on the regulated constituents present.

Under normal circumstances, the following soil sampling activities will not be applicable because the CSAs are located inside a building with an impervious floor. However, if soil sampling is deemed necessary based on analytical evidence and the operational history of the unit, sampling of the area will be performed to verify that no hazardous constituents remain upon closure as a result of container storage activities. A grid will be sited over the area to be sampled, boreholes will be drilled through the floor material and soil samples will be collected and analyzed to determine the horizontal and vertical extent of contamination.

E.10.3.3 Decontamination Verification

Sufficient sampling and analysis will be required to demonstrate that hazardous waste residue is not present at the site after closure. Two samples of clean wash water squeezed from mops and/or sponges prior to use will be collected before initial washdown of the CSAs. The samples will be analyzed for parameters listed in Table E.10-1 to provide baseline data for decontamination verification. Analytical procedures will conform to methods found in the most current version of "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" (SW-846). Used washdown solutions will also be analyzed for the parameters listed in Table E.10-1, as appropriate. Washdown solutions will be considered contaminated if the used wash water shows a significant increase (i.e., determined using statistical methods defined in SW-846) in the analytical parameters over the clean wash water. If subsequent washdowns are deemed necessary, an additional sample of clean wash water squeezed from mops and/or sponges prior to use will be taken for each additional washdown event.

Existing background soil data for TA-50-37 may also be used to demonstrate that hazardous waste residue resulting from container storage activities is not present at the site after closure. A comparison of closure sampling data to existing background soil data will be used to establish the source of any hazardous waste or constituents present in the soil. If the data comparison indicates that contamination is from container storage activities, additional contaminated-soil excavations will be performed until at least one of the decontamination criteria has been met successfully.

Successful decontamination meets one of the following criteria:

- No detectable hazardous waste or hazardous constituents from container storage activities are found in the final sample.

- Detectable hazardous waste or hazardous constituents from container storage activities in the final sample are removed to statistically significant levels based on baseline concentrations in the clean wash water or established background soil data.

- Detectable hazardous waste or hazardous constituents from container storage activities in the final sample are at or below levels agreed upon with the New Mexico Environment Department (NMED).

- Detectable hazardous waste or hazardous constituent concentrations from container storage activities do not significantly decrease after several washdowns. In such an event, hazardous constituents that pose an acceptable risk will be allowed to remain, as mutually agreed upon with NMED.

E.10.4 Closure Schedule

Closure will not commence until the wastes have been removed from the CSA scheduled to be closed. Closure activities will begin in accordance with the approved closure plan, as required by the New Mexico Administrative Code, Title 20, Chapter 4, Part 1 (20 NMAC 4.1), Subpart V, 264.113(a), revised November 1, 1995, within 90 days after final receipt of waste at the CSA. This timeframe will be met as long as facilities are available for treatment and/or disposal of these wastes. In the event that closure activities cannot be completed at the CSA within 90 days, LANL will notify the Secretary of the NMED in accordance with the extension requirements cited in 20 NMAC 4.1, Subpart V, 264.113(a), revised November 1, 1995. Closure activities and reporting requirements will be completed within 180 days of the receipt of the final volume of waste at the waste management area to be closed. Closure will be conducted in accordance with the schedule presented in Table E.10-2. In the event that closure of a CSA is prevented from proceeding according to schedule, LANL will notify the Secretary of the NMED in accordance with extension request requirements in 20 NMAC 4.1, Subpart V, 264.113(b), revised November 1, 1995. In addition, the demonstrations in 20 NMAC 4.1, Subpart V, 264.113(a)(1) and (b)(1), revised November 1, 1995, will be made in accordance with 20 NMAC 4.1, Subpart V, 264.113(c), revised November 1, 1995.

E.10.5 Closure Certification

Within 60 days after completion of closure activities for each of the CSAs, the U.S. Department of Energy (DOE) will submit to the Secretary of the NMED, via certified mail, a certification that the area has been closed in accordance with the specifications of the closure plan. The certification will be attested to by an independent, registered professional engineer and will be signed by the appropriate DOE and LANL officials, in accordance with 20 NMAC 4.1, Subpart V, 264.115, revised November 1, 1995. Documentation supporting the independent registered engineer's certification will be furnished to the Secretary of the NMED with the original certification. A copy of the certification and supporting documentation shall be maintained by both the DOE/Los Alamos Area Office and LANL's Hazardous and Solid Waste Group.

E.10.6 Sampling and Analytical Procedures

The following sections describe procedures and methods for sampling, analysis, and documentation applicable to closure activities. While the procedures and methods are specific, other applicable procedures or methods given in SW-846 may be used if conditions or experience show the alternate method to be more appropriate. All sampling and analytical procedures actually used will be annotated in the final closure report. Sampling will be conducted in accordance with procedures given in SW-846 (for hazardous components) and LANL's Inorganic Trace Analysis Group (CST-9) procedures (for radiological analysis).

E.10.6.1 Soil Sampling

Soil samples will be collected only if evidence is found that hazardous constituents have migrated from the CSAs discussed in this closure plan. The soil samples will only then be collected to determine if contaminants have migrated from the CSAs and, if so, to determine the horizontal and vertical extent of such migration.

E.10.6.1.1 Cleaning of Samplers

To prevent cross contamination, it is important to clean the samplers after each sample is collected. An unused, disposable sampler may be presumed clean if still in a factory-sealed wrapper. Unsealed samplers will be cleaned prior to use. The samplers will be washed with a detergent and water solution, rinsed several times with tap water, rinsed with distilled water, drained of excess water, and air-dried or wiped dry.

E.10.6.1.2 Sampling Procedures

The sampling procedures outlined below will be used to obtain samples to determine the amount of hazardous or mixed waste constituents in soil associated with the units undergoing closure. Soil samples will be collected from the 6-inch depth with a trowel or scoop or with a Veihmeyer soil sampler. Sampling procedures will be performed as follows:

- Trowel or Scoop
  - Take small, equal portions of sample from the surface or near the surface of the material to be sampled.
  - Combine the samples in a container appropriate for the required analysis.
  - Cap the container, attach a label and seal, and preserve as required (see Table E.10-3). Record in the field logbook, and complete the sample analysis request sheet and chain-of-custody form. Deliver the samples to CST-9 for radiological screening and to the laboratory for analysis.
- Veihmeyer Sampler
  - Assemble the sampler by screwing in the tip and drive head on the sampling tube.
  - Insert the tapered handle (drive guide) of the drive hammer through the drive head.
  - Place the sampler in a perpendicular position on the soil to be sampled.
  - With the left hand holding the tube, drive the sampler into the soil to the desired sampling depth by pounding the drive head with the drive hammer. Do not drive the tube further than the tip of the hammer's drive guide.
  - Record the length of the tube that penetrated the material.
  - Move the drive hammer onto the drive head. In this position, the hammer serves as a handle for the sampler.
  - Rotate the sampler at least two revolutions to shear off the sample at the bottom.
  - Lower the sampler handle (hammer) until it just clears the two ear-like protrusions on the drive head and rotate about 90 degrees.

- Withdraw the sampler from the material by pulling the handle (hammer) upwards. When the sampler cannot be withdrawn by hand, as in deep soil sampling, use a puller jack and grip.

- Dislodge the hammer from the sampler, turn the sampler tube upside down, tap the head gently against the hammer, and carefully recover the sample from the tube. The sample should slip out easily.

- Store the sample in an appropriate sample container.

- Label the sample, affix the seals, preserve as required (see Table E.10-3), record in the field logbook, complete the sample analysis request sheet and chain-of-custody form, and deliver the samples to CST-9 for radiological screening and to the laboratory for analysis.

E.10.6.2 Liquid Sampling

A composite liquid waste sampler (COLIWASA) or similar device will be used to sample unused wash water solutions before decontamination begins in order to determine baseline parameters. It will also be used to sample the wash water used in cleaning structures and equipment. As an alternative to the COLIWASA, glass tubes may be used to sample liquids. The primary advantage in using a glass tube is that the tube will be disposed of appropriately after each sample is collected, thus eliminating the potential for cross contamination.

E.10.6.2.1 Cleaning of Samplers

The sampler must be clean before use. An unused, disposable sampler may be presumed clean if still in a factory-sealed wrapper. Unsealed samplers will be cleaned prior to use. Samplers will be washed with a detergent and water solution, rinsed several times with tap water, rinsed with distilled water, drained of excess water, and air-dried or wiped dry. A necessary piece of equipment for cleaning the tube of the COLIWASA is a bottle brush that fits tightly inside the diameter of the tube. The brush is connected to a rod of sufficient length to reach the entire length of the sampler tube. Improper cleaning of sampling equipment will cause cross contamination of samples. Clean samplers should be stored in clean polyethylene plastic tubes or bags in a clean and protected area.

E.10.6.2.2 Sampling Procedure

Liquid sampling with a COLIWASA will be performed as follows:

- Ensure that the COLIWASA is clean.

- Assemble the COLIWASA.

- Check that the sampler is functioning properly. Adjust the locking mechanism, if necessary, to make sure the neoprene rubber stopper provides a tight closure.

- Wear necessary protective clothing and gear, and observe required sampling precautions.

- Put the sampler in the open position by placing the stopper-rod handle in the T-position and pushing the rod down until the handle sits against the sampler's locking block.

- Slowly lower the COLIWASA into the liquid at a rate that permits the level of the liquid inside and outside the sampler tube to be about the same. If the level of the liquid in the sampler tube is lower than that outside the sampler, the sampling rate is too fast and will result in a nonrepresentative sample.

- When the sampler stopper hits the bottom of the liquid container, push the sampler tube downward against the stopper to close the sampler. Lock the sampler in the closed position by turning the T-handle until it is upright and one end rests tightly on the locking block.

- Slowly withdraw the sampler from the container with one hand, while wiping the sampler tube with a disposable cloth with the other hand.

- Carefully discharge the sample into a sample container by slowly opening the sampler. This is done by slowly pulling the lower end of the T-handle away from the locking block, while the lower end of the sampler is positioned in the sample container.

- Preserve as required (see Table E.10-4), cap the container, attach a label and seal, place immediately in an insulated container with ice (if required), record in the field logbook, and complete the sample analysis request sheet and chain-of-custody form.

- Unscrew the T-handle of the sampler and disengage the locking block. Clean the sampler on site, or store the contaminated parts of the sampler in a plastic storage tube or bag for subsequent cleaning. Store used rags in plastic bags for subsequent disposal.

E.10.6.3 Sample Handling and Documentation

Samples will be analyzed either at LANL or at a commercial laboratory. In either case, each sample will be labeled, sealed, and accompanied by a chain-of-custody and sample analysis request form. The chain-of-custody form is necessary to trace sample possession from the time of collection to the time of analysis and must accompany every sample. The original record accompanies shipment. The copy is retained by LANL. If samples are analyzed at LANL, the original will be maintained by LANL. The request for analysis form has two parts: field and laboratory. The field portion of this form must be completed by the person collecting the sample and include most of the pertinent information noted in the logbook. The laboratory portion is intended to be completed by the analytical laboratory personnel when the sample is received. The analytical laboratory retains the original record and sends a copy to LANL.

Sample containers appropriate for the requested analyses will be used for all samples. Sample containers, preservation, and holding times will conform to those specified in SW-846 for the corresponding analyses. Samples will be collected, placed in bottles, sealed, and tagged. Sample container surfaces will be screened for radiological contamination and decontaminated, if necessary. Sample containers will then be immediately packed in vermiculite, sawdust, or if refrigeration is required, an insulated container with ice. Recommended sample containers, preservation, and holding times are presented in Tables E.10-3 and E.10-4.

The sample container must be sealed with a gummed paper seal attached to the container in such a way that the seal must be broken in order to open the container. The seal and sample tag must be completed with a waterproof pen. A sample label is necessary to prevent misidentification of samples and should include, if applicable, the grid number referenced to positions staked on the site perimeter. The sample label must be completed to include the project name, sample number, collection date/time, collector's name, sample location, sample media description, preservative, and analysis requested. In the case of soil sampling, field information shall include observations such as the soil texture and surface appearance, ambient temperature and cloud cover at time of sampling, and precipitation conditions 24 hours before sampling.

A field logbook will be kept and will contain all information pertinent to field surveys and sampling. The logbook shall have bound and consecutively numbered pages in 8 1/2 - by 11 inch format. Minimum entries should include:

- Purpose of sample (routine sampling, special sampling)
- Location of sampling (coordinates referenced to staked field points, if soil sample)
- Name and business address of person making log entry
- Type of process producing waste
- Number and volume of sample
- Description of each sampling location, sampling methodology, equipment used, etc.
- Date and time of sample collection
- Sample destination and transporter's name (e.g., name of laboratory, United Parcel Service, etc.)
- Map or photograph of the sampling site, if any
- Field observations, if applicable (e.g., ambient temperature, sky conditions, past 24-hour precipitation)
- Field measurements, if applicable (e.g., pH, conductivity)
- Collector's sample identification number(s)
- Signature of person responsible for the log entry.

Because sampling situations vary widely, no specific rule can be given as to the extent of information that must be entered in the logbook. It is recommended, however, to record sufficient information so that someone can reconstruct the sampling situation without relying on the collector's memory.

E.10.7 Quality Assurance/Quality Control

A qualified individual or individuals shall be designated to independently oversee the closure activities and to report directly to senior management on the quality of the closure performance. This individual will personally observe a portion of the key activities, assure that sample blanks are used and analyzed, and review the analysis reports for accuracy and adequacy. A written QA/QC plan prepared in accordance with SW-846 guidance shall be prepared and followed, with variations from the plan documented and explained. The designated individual shall prepare a written statement for the final report commenting on the level of decontamination verification achieved.

E.10.8 Closure Report

Upon completion of the closure activities for each CSA addressed in this closure plan, a closure report shall be submitted to the Secretary of the NMED. The report shall document the closure and contain, at a minimum, the following:

- The certification described in Section E.10.5
- Any variance from the approved activities and the reason for the variance
- A tabular summary of all sampling results, showing:
  - Sample identification
  - Sampling location
  - The datum reported
  - Detection limit for each datum
  - A measure of analytical precision (e.g., uncertainty, range, variance)
  - Identification of analytical procedure
  - Identification of analytical laboratory.
- A QA/QC statement on analytical data validation and decontamination verification
- The location of the file of supporting documentation, including:
  - Field logbooks
  - Laboratory sample analysis reports
  - QA/QC documentation
  - Chain-of-custody forms.
- Disposition location of RCRA-regulated closure materials
- A certification of accuracy of the report.

TABLE E.10-1
ANALYTICAL PARAMETERS AND TEST METHODS[a] FOR THE TECHNICAL AREA 50, BUILDING 37, ROOMS 112, 114, 115, 117, AND 118 MIXED WASTE CONTAINER STORAGE AREAS

Parameter	Test Method	Reference[b]
Ignitability	Pensky-Martens closed-cup method	(L, S) SW1010 (L, S) ASTM D93-80
Reactivity	Test method to determine hydrogen cyanide (HCN) released from waste Test method to determine hydrogen sulfide (H_2S) released from waste	(L, S) HCN Test Method, SW, Section 7.3 (L, S) H_2S Test Method, SW, Section 7.3
Corrosivity	Electrometric (pH of aqueous solution)	(L) SW9040B
Toxicity characteristic	Toxicity characteristic leaching procedure (TCLP) extraction	(S) SW1311
Metals:	Graphite furnace atomic absorption (AA) spectroscopy, gaseous hydride AA, or direct aspiration AA	
Arsenic		(L, S) SW7060A, SW7061A
Barium		(L, S) SW7080A, SW7081
Cadmium		(L, S) SW7130, SW7131A
Chromium		(L, S) SW7190, SW7191
Lead		(L, S) SW7420, SW7421
Selenium		(L, S) SW7740, SW7741A
Silver		(L, S) SW7760A, SW7761

Refer to footnotes at end of attachment.

TABLE E.10-1
ANALYTICAL PARAMETERS AND TEST METHODS[a] FOR THE TECHNICAL AREA 50, BUILDING 37, ROOMS 112, 114, 115, 117, AND 118 MIXED WASTE CONTAINER STORAGE AREAS
(continued)

Parameter	Test Method	Reference[b]
Mercury	Manual cold-vapor technique	(L) SW7470A, (S) SW7471A
Volatile organics	Gas chromatography/mass spectrometry (GC/MS)	(L, S) SW8240B
	GC/MS capillary column technique	(L, S) SW8260A
Semivolatile organics	GC/MS	(L, S) SW8250A
	GC/MS capillary column technique	(L, S) SW8270B
Organochlorine pesticides	TCLP extraction and GC	(L, S) SW8080A
Chlorinated herbicides		(L, S) SW8150B
Total metals[c]	Acid digestion	(L) SW3010A, (S) SW3050A
	Inductively coupled plasma atomic emission spectroscopy	(L, S) SW6010A
Arsenic		(L, S) SW6010A
Barium		(L, S) SW6010A
Beryllium		(L, S) SW6010A

Refer to footnotes at end of attachment.

TABLE E.10-1
ANALYTICAL PARAMETERS AND TEST METHODS[a] FOR THE TECHNICAL AREA 50, BUILDING 37, ROOMS 112, 114, 115, 117, AND 118 MIXED WASTE CONTAINER STORAGE AREAS
(continued)

Parameter	Test Method	Reference[b]
Cadmium		(L, S) SW6010A
Chromium		(L, S) SW6010A
Lead		(L, S) SW6010A
Nickel		(L, S) SW6010A
Selenium		(L, S) SW6010A
Silver		(L, S) SW6010A
Thallium		(L, S) SW6010A
Zinc		(L, S) SW6010A
Mercury	Manual cold-vapor technique	(L) SW7470A (S) SW7471A
Free liquids	Paint Filter Liquids Test	(L, S) SW9095

[a] At Los Alamos National Laboratory, current analytical capabilities include limited analyses of mixed waste samples. These analyses include, but are not limited to, gross alpha, beta, and gamma screening.
[b] "ASTM" refers to American Society for Testing and Materials standards.
"SW" refers to U.S. Environmental Protection Agency, 1986, "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," *SW-846*, Third Edition and all subsequent updates, Office of Solid Waste and Emergency Response, U.S. Government Printing Office, Washington, D.C.
(L) refers to liquid waste.
(S) refers to solid waste.
[c] See also atomic absorption methods.

TABLE E.10-2
SCHEDULE FOR CLOSURE ACTIVITIES AT THE TECHNICAL AREA 50, BUILDING 37, ROOMS 112, 114, 115, 117, AND 118 MIXED CONTAINER STORAGE AREAS

Activity	Maximum Time Required[a]
Let contract request for proposals	-90 Days
Notify the New Mexico Environment Department (NMED)	-45 Days
Receive proposals	-30 Days
Select contractor and award contract	-10 Days
Collect background samples	-5 Days
Final receipt of waste	Day 0
Begin closure activities (perform washdown of structures)	Day 10
Perform initial sampling of the waste management area	Day 15
Analyze samples	Day 45
Perform additional washdown (if necessary)	Day 50
Perform additional sampling (if necessary)	Day 60
Analyze samples (if necessary)	Day 90
Perform final cleanup (e.g., removal of decontaminated equipment and decontamination wastes)	Day 120
Verify decontamination	Day 140
Submit final report to NMED	Day 180

[a] The schedule above indicates calendar days from the beginning by which activities will be completed. Some activities may be conducted simultaneously. Extensions to this schedule may be requested, as needed.

TABLE E.10-3
SAMPLE CONTAINERS, PRESERVATION, AND HOLDING TIMES FOR SEDIMENT/SOIL/SLUDGE SAMPLES

Analyte Group	Container	Preservative	Holding Time[a]
Target compound volatile organics[b]	125 milliliter (ml) WM[c]-G[d]	Cool to 4 degrees Celsius (°C)	14 days
Target compound semivolatile organics[b]	250 ml WM-G vial Teflon™-lined lid	Cool to 4°C	14 days from field collection to preparative extraction 40 days from preparative extraction to determinative analysis
Target analyte metals[b] (except mercury and hexavalent chromium)	200 gram (gm) WM-P[e] or G	Cool to 4°C	180 days
Mercury	200 gm WM-P or G	Cool to 4°C	28 days
Hexavalent chromium	200 gm WM-P or G	Cool to 4°C	Not established - analyze as soon as possible
Radioactivity screening	120 ml G vial	None	Analyze upon receipt

[a] Holding time information was taken from U.S. Environmental Protection Agency, 1992, "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," *SW-846*.
[b] Target compound volatile and semivolatile organics and target analyte metals are listed by respective test method numbers in U.S. Environmental Protection Agency, 1992, "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," *SW-846*.
[c] WM = Wide-mouth
[d] G = Glass
[e] P = Polyethylene

TABLE E.10-4
SAMPLE CONTAINERS, PRESERVATION, AND HOLDING TIMES FOR LIQUID SAMPLES

Analyte Group	Container	Preservative	Holding Time[a]
Target compound volatile organics[b]	2 x 40 milliliter (ml) G[c] vials with Teflon-lined septa	HCl[d] to pH <2; cool to 4 degrees Celsius (°C)	14 days
Target compound semivolatile organics[b]	4 x 1 liter AG[e] with Teflon-lined lid	Cool to 4°C	7 days from field collection to preparative extraction 40 days from preparative extraction to determinative analysis
Target analyte metals[b] (except mercury and hexavalent chromium)	600 ml P[f] or G	HNO_3[g] to pH <2	180 days
Mercury	400 ml P or G	HNO_3 to pH <2; cool to 4°C	28 days
Hexavalent chromium	400 ml P or G	Cool to 4°C	24 hours
Radioactivity screening	40 ml G[h] vial, no septa	None	Analyze upon receipt

[a] Holding time information was taken from U.S. Environmental Protection Agency, 1992, "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," *SW-846*.
[b] Target compound volatile and semivolatile organics and target analyte metals are listed by respective test method numbers in U.S. Environmental Protection Agency, 1992, "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," *SW-846*.
[c] G = Amber glass
[d] HCl = Hydrochloric acid
[e] AG = Amber glass

TABLE E.10-4
SAMPLE CONTAINERS, PRESERVATION, AND HOLDING TIMES FOR LIQUID SAMPLES
(continued)

[f] P = Polyethylene
[g] HNO_3 = Nitric acid
[h] G = Glass

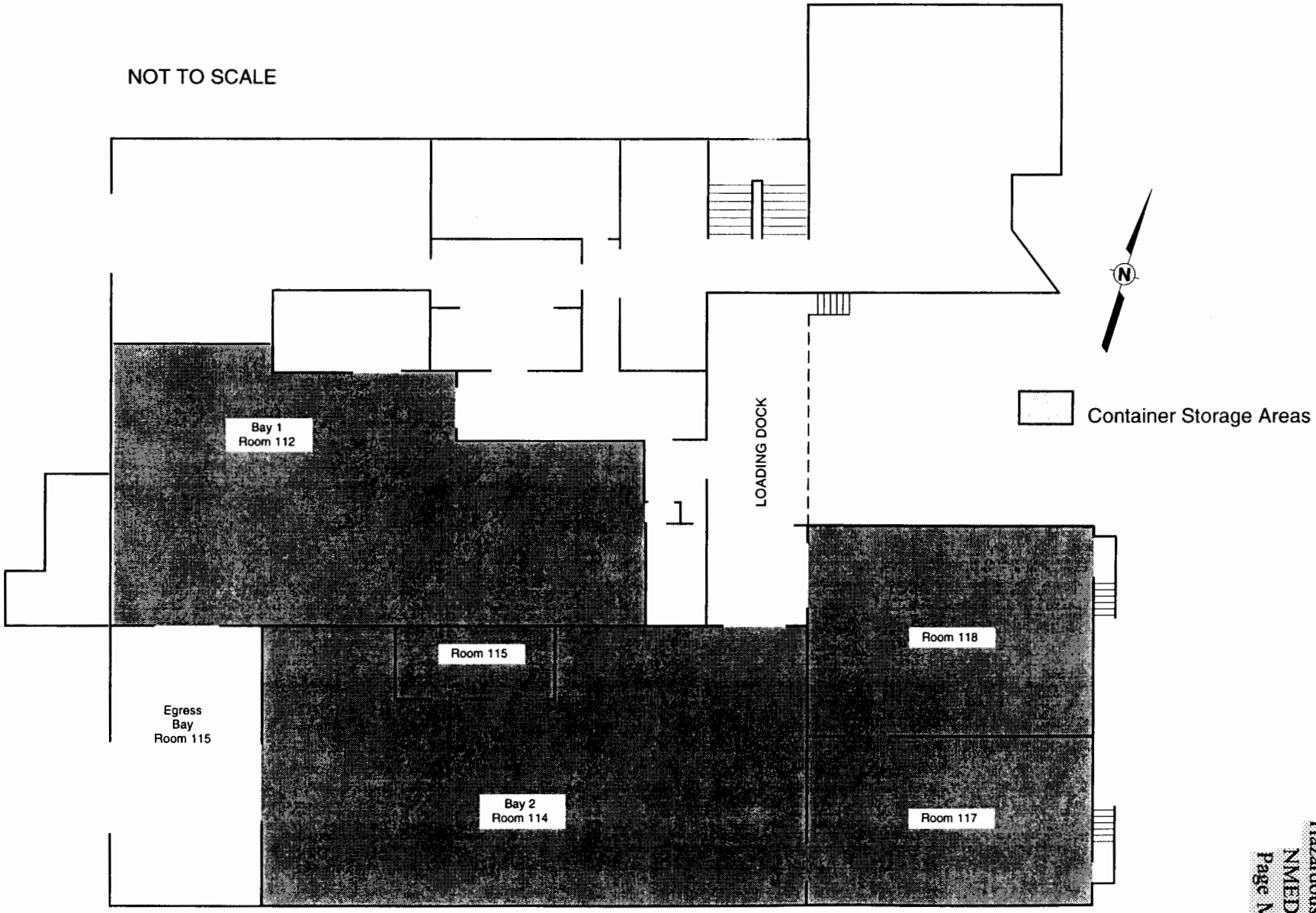

Figure E.10-1
Technical Area 50, Building 37, Mixed Waste Container Storage Areas

CONTAINER MANAGEMENT
PERMIT ATTACHMENT F
NM0890010515-1

ATTACHMENT F
CONTAINER MANAGEMENT

F.1 CONTAINER PACKAGING, SAMPLING and LABELING

F.1.1 Container Packaging and Transport

When chemical substances are declared to be in excess, the originating group completes a Waste Profile Form (WPF, see Permit Attachment A.2 ~~Chemical Waste Disposal Request Form 10-3A)~~ and sends the form to the Chemical and Mixed Waste Management Group (CMWM) ~~(HSE-7)~~. The WPF provides waste characterization information for subsequent management of the material. The WPF is reviewed for adequacy of information and assignation of segregation codes, Department of Transportation (DOT) information, and Environmental Protection Agency (EPA) Hazardous Waste Numbers. When the WPF is approved, the waste generator submits a Chemical Waste Disposal Request (CWDR) to the CMWM. The CWDR ~~The request~~ lists the chemical waste the generating group needs to dispose of, the quantity ~~and physical form~~ of the waste, and other pertinent information about ~~such as the condition of~~ the containers. ~~Material Safety Data Sheets (MSDS's) and existing analytical data may also be available. The containers described will range from two ounce bottles of unusable chemical to 330 gallon Tuff-Tanks of plating material.~~

A uniform hazardous waste manifest is prepared for use when the waste is collected, packaged, and transported. ~~The Chemical Waste Disposal Request form is reviewed for adequacy of information and assignation of segregation codes, DOT information, and EPA codes. It is then used by HSE-7 personnel as the shipping form when the waste is collected. HSE-7 personnel then visit the generating site to package the waste for transport to TA-54, Area L.~~ All waste materials are packaged and ~~is~~ transferred in accordance with DOT regulations ~~the Laboratory's On-Site Transportation Manual.~~

~~Small containers of waste (< 5 gallon size), will be overpacked in either a DOT approved cardboard box or plastic or metal drum with absorbent material (referred to as labpacks). Vermiculite will be the most commonly used absorbent; however, the organic waste is compatible with absorbents such as corncobs and sawdust. These absorbents may be used for this category of waste since in cases of contamination of the absorbent incinerators prefer to receive a more combustible material than vermiculite. Containers that will be composited at TA-54, Area L will be sorted and packaged separately from those that will remain in labpacks for storage.~~

Containers ~~Drums and Tuff-Tanks~~ will be visually inspected for integrity before transport. If the container ~~drum~~ is unacceptable, it will be repackaged or overpacked prior to transport. The wastes are transported by vehicles ranging from ~~on a~~ half-ton ~~to twelve ton~~ trucks to semitrailers with maximum capacities of up to 80,000 pounds.

Upon arrival at a hazardous or mixed waste management unit, ~~TA-54, Area L,~~ the wastes are unloaded from the transport vehicle and placed into appropriate storage areas. Labpack waste will be temporarily placed at the packaging building for labeling or compositing. Drums and Tuff-Tanks will be placed on either the sampling pad or storage pad for sampling and labeling.

F.1.2 Drum Labeling, Recording, and Sampling System

Each unique package of waste~~, meaning labpack or drum,~~ is labeled with the following information:

- chemical segregation group number
- unique record number
- date of generation (if this information is not already on the container, the date from the CWDR ~~Chemical Waste Disposal Request~~ form is used)
- either an EPA hazardous waste label or the words "hazardous waste."

This information and the data from the CWDR are entered into a chemical and mixed waste database. ~~Chemical Disposal Request Form is provided to the resident data analyst. This individual creates a second record as part of the Hazardous Waste Database.~~ All records are then maintained ~~by the data analyst~~ in accordance with the requirements of this permit.

If appropriate or required, sampling of the waste is then performed as outlined in Permit Attachment A. The sampling pad at TA-54, Area L, is restricted to one compatibility group ~~family~~ of chemicals at a time~~, for example~~ (e.g., organics). The group allowed at the time will be posted on the pad. This ensures that incompatible chemicals do not react in the containment basin of the pad. Before a new compatibility group ~~family~~ of chemicals is placed on the pad, the containment area will be cleaned. For this reason, the main sampling pad will generally be used for organic waste, and acid/base waste will be sampled at the appropriate storage cell.

After all packages are labeled and/or sampled, they are moved to one of the Laboratory's storage areas. The permitted areas are defined in Permit Module III.

F.2 STORAGE AREA PRACTICES

F.2.1 Specific Storage Areas

The Laboratory has the following ~~five groups of~~ storage areas: two modular storage units and the main storage pad at TA-54, Area L; the modular storage units and two storage pads for hazardous waste at TA-50; ~~and~~ the storage room at the incinerator; and the TA-50-37, Rooms 112, 114, 115, 117, and 118 mixed waste storage units (five total). The usage of each of these units is discussed below.

F.2.1.1 Modular Storage Units, TA-54, Area L (TA-54-68 and -69)

The primary usage of the modular units will be for the storage of labpack waste, particularly those in fiberboard containers. After labeling, the labpacks are placed directly in the appropriate storage cell. Each modular unit has three cells allowing a maximum of six chemical family groups to be stored at any one time. However, multiple cells may be used for the same chemical family, such as two cells contain organic waste. Each cell will be labeled as to the chemical family stored there. If at any time the cell designation changes, such as from organic to reactive, the cell will first be cleaned to ensure that no

organic residues remain that would create an incompatibility problem during a spill.

F.2.1.2 Storage Pad at TA-54, Area L (TA-54-32)

Material stored on the storage pad at TA-54, Area L, will generally be placed there after labeling and sampling. This may not be the case for acids and bases where the storage cell is also used as the sampling pad. The pad is divided into six cells allowing the storage of six families of chemicals. However, more than one cell may be used for the same chemical type. All cells will be labeled as to which chemical type is stored there. If at any time it is necessary to change the designation of a cell, it will first be cleaned to remove any residues that might produce an unfavorable reaction with the new chemical type.

F.2.1.3 Modular Storage Units at TA-50 (TA-50-114, -137, and -138)

The modular storage units at TA-50 will be used primarily to store acid and base wastes that will be treated at the Batch Waste Treatment Unit. Each cell will be labeled acid or base to indicate the type of waste stored there. If at any time the designation of a cell needs to be changed, the cell will first be cleaned to ensure that incompatibility residues have been removed. All waste stored here will have been labeled and sampled at TA-54, Area L.

F.2.1.4 Storage Pads at TA-50 (TA-50-139 and -140)

Two large storage pads will be located at TA-50. Each pad will have six divisions capable of storing six types of chemicals. Multiple cells may be used for the same chemical type. Each cell will be labeled to indicate the type of chemical stored there. If a cell designation needs to be changed, the cell will first be cleaned to remove any residues that might result in an incompatibility problem. All waste stored at this location will have been labeled and sampled at TA-54, Area L.

F.2.1.5 Storage Room at TA-50-37, Room 117

The storage room at TA-50-37 is divided into two areas, one for solids and one for liquids. The liquid side is further divided into two cells. Therefore, up to three chemical types may be stored at any one time. Cells will be labeled as to the chemical type stored there. If at any time the cell designation needs to be changed, the cell will be cleaned to remove any incompatible residues. Generally, only waste that is already approved for onsite incineration will be stored there. This means the waste has not only been sampled and labeled but also analyzed per Permit Attachment A. However, if the need should arise, the area will be used for compatible waste for which analytical results are pending. All labeling and sampling will have occurred at TA-54, Area L. The primary chemical type stored here will be organic waste. If small quantities of other waste types, such as oxidizers, are to be incinerated, it will generally be delivered the day of the burn to avoid storage in this room.

F.2.1.6 Technical Area 50, Building 37 (TA-50-37), Rooms 112, 114, 115, 117, and 118 Mixed Waste Container Storage Areas

The container storage areas at TA-50-37, Rooms 112, 114, 115, 117, and 118, are used for storage of transuranic (TRU) mixed waste. Potentially incompatible wastes will be segregated on self-containment

pallets or devices in these storage areas. Potential liquid-bearing waste containers will be stored in Rooms 115 and 117, or on self-containment pallets or devices in the Rooms 112, 114, and 118 container storage areas.

F.2.2 General Container Management Practices

All recyclable materials are stored as hazardous waste until such time as they are recycled. They are placed in the same segregated storage areas as the other waste.

Any bulging drums are handled in accordance with accepted practice and Laboratory procedures. Generally this means that such practices as slowly venting the drum as it is being opened and personnel wearing protective clothing and splash guards will be followed.

Any spills resulting from the transfer/storage of waste will be cleaned up in accordance with Permit Attachment D.

Inspection will be conducted and aisle space will be maintained in accordance with Permit Attachment B.

Off-site shipments of waste will occur at either the given storage area directly or from the transport pad at TA-54, Area L. This will avoid unnecessary transport on Pajarito Road.

Repackaging of waste will generally occur adjacent to the storage area the waste was removed from. Other possible areas include the TA-54, Area L, sampling pad (TA-54-31), transport pad (TA-54-58), and TA-54-59; and the TA-50-37, Rooms 112 and 114 container storage areas. Repackaging can range from overpacking a leaking container to off-site contractors repackaging the labpack waste to meet incinerator specifications.

Permit Module III provides additional requirements ~~such as required aisle space~~ for all container storage ~~in container~~ areas.

AUTHORIZED WASTES

PERMIT ATTACHMENT G
NM0890010515-1

EPA I.D. Number (enter from Page 1)
NM0890010515

Secondary ID Number (enter from Page 1)

XIV. Description of Hazardous Wastes (Continued)

Line Number	A. EPA Hazardous Waste No. (enter code)	B. Estimated Annual Quantity of Waste	C. Unit of Measure (enter code)	D. Processes (1) Process Codes (enter)			D. Processes (2) Process Description (If a code is not entered in D[1])
Technical Area 50, Building 37, Rooms 112, 114, 115, 117, and 118 Mixed Waste Container Storage Areas							
1	D001	1,170	K	S01			Transuranic Mixed Waste (TRUMW)
2	D002	610	K	S01			TRUMW
3	D003	60	K	S01			TRUMW
4	D004	390	K	S01			TRUMW
5	D005	360	K	S01			TRUMW
6	D006	57,130	K	S01			TRUMW
7	D007	59,610	K	S01			TRUMW
8	D008	135,280	K	S01			TRUMW
9	D009	4,120	K	S01			TRUMW
10	D010	430	K	S01			TRUMW
11	D011	480	K	S01			TRUMW
12	D018	20	K	S01			TRUMW
13	D019	450	K	S01			TRUMW
14	D021	170	K	S01			TRUMW
15	D022	100	K	S01			TRUMW
16	D027	70	K	S01			TRUMW
17	D028	18,250	K	S01			TRUMW
18	D029	18,160	K	S01			TRUMW
19	D030	410	K	S01			TRUMW
20	D031	10	K	S01			TRUMW
21	D032	260	K	S01			TRUMW
22	D033	180	K	S01			TRUMW
23	D034	90	K	S01			TRUMW
24	D035	10	K	S01			TRUMW
25	D036	30	K	S01			TRUMW
26	D037	50	K	S01			TRUMW

EPA I.D. Number (enter from Page 1)
NM0890010515

Secondary ID Number (enter from Page 1)

XIV. Description of Hazardous Wastes (Continued)

Line Number	A. EPA Hazardous Waste No. (enter code)	B. Estimated Annual Quantity of Waste	C. Unit of Measure (enter code)	D. Processes			
				(1) Process Codes (enter)			(2) Process Description (If a code is not entered in D[1])
27	D038	10	K	S01			TRUMW
28	D039	120	K	S01			TRUMW
29	D040	280	K	S01			TRUMW
30	D041	10	K	S01			TRUMW
31	D042	90	K	S01			TRUMW
32	D043	40	K	S01			TRUMW
33	F001	35,050	K	S01			TRUMW
34	F002	4,540	K	S01			TRUMW
35	F003	2,300	K	S01			TRUMW
36	F004	130	K	S01			TRUMW
37	F005	20,430	K	S01			TRUMW
38	P003	10	K	S01			TRUMW
39	P012	10	K	S01			TRUMW
40	P015	10	K	S01			TRUMW
41	P029	10	K	S01			TRUMW
42	P030	10	K	S01			TRUMW
43	P031	10	K	S01			TRUMW
44	P038	10	K	S01			TRUMW
45	P056	20	K	S01			TRUMW
46	P063	10	K	S01			TRUMW
47	P068	10	K	S01			TRUMW
48	P073	10	K	S01			TRUMW
49	P076	10	K	S01			TRUMW
50	P078	10	K	S01			TRUMW
51	P095	10	K	S01			TRUMW
52	P096	10	K	S01			TRUMW
53	P098	10	K	S01			TRUMW

EPA I.D. Number (enter from Page 1)
NM0890010515

Secondary ID Number (enter from Page 1)

XIV. Description of Hazardous Wastes (Continued)

Line Number	A. EPA Hazardous Waste No. (enter code)	B. Estimated Annual Quantity of Waste	C. Unit of Measure (enter code)	D. Processes (1) Process Codes (enter)			D. Processes (2) Process Description (If a code is not entered in D[1])
54	P106	10	K	S01			TRUMW
55	P113	10	K	S01			TRUMW
56	P120	10	K	S01			TRUMW
57	U001	10	K	S01			TRUMW
58	U002	10	K	S01			TRUMW
59	U003	10	K	S01			TRUMW
60	U012	10	K	S01			TRUMW
61	U019	10	K	S01			TRUMW
62	U022	10	K	S01			TRUMW
63	U029	10	K	S01			TRUMW
64	U031	10	K	S01			TRUMW
65	U037	10	K	S01			TRUMW
66	U044	10	K	S01			TRUMW
67	U045	10	K	S01			TRUMW
68	U052	10	K	S01			TRUMW
69	U056	10	K	S01			TRUMW
70	U057	10	K	S01			TRUMW
71	U075	10	K	S01			TRUMW
72	U077	10	K	S01			TRUMW
73	U080	10	K	S01			TRUMW
74	U108	10	K	S01			TRUMW
75	U112	10	K	S01			TRUMW
76	U115	10	K	S01			TRUMW
77	U117	10	K	S01			TRUMW
78	U121	10	K	S01			TRUMW
79	U122	10	K	S01			TRUMW
80	U123	10	K	S01			TRUMW

EPA I.D. Number (enter from Page 1)
NM0890010515

Secondary ID Number (enter from Page 1)

XIV. Description of Hazardous Wastes (Continued)

Line Number	A. EPA Hazardous Waste No. (enter code)	B. Estimated Annual Quantity of Waste	C. Unit of Measure (enter code)	D. Processes (1) Process Codes (enter)			D. Processes (2) Process Description (If a code is not entered in D[1])
81	U131	10	K	S01			TRUMW
82	U133	10	K	S01			TRUMW
83	U134	10	K	S01			TRUMW
84	U135	10	K	S01			TRUMW
85	U140	10	K	S01			TRUMW
86	U144	10	K	S01			TRUMW
87	U145	10	K	S01			TRUMW
88	U151	20	K	S01			TRUMW
89	U154	10	K	S01			TRUMW
90	U159	10	K	S01			TRUMW
91	U160	10	K	S01			TRUMW
92	U161	10	K	S01			TRUMW
93	U165	10	K	S01			TRUMW
94	U169	10	K	S01			TRUMW
95	U188	10	K	S01			TRUMW
96	U190	10	K	S01			TRUMW
97	U196	10	K	S01			TRUMW
98	U204	10	K	S01			TRUMW
99	U210	10	K	S01			TRUMW
100	U211	10	K	S01			TRUMW
101	U213	10	K	S01			TRUMW
102	U216	10	K	S01			TRUMW
103	U218	10	K	S01			TRUMW
104	U219	10	K	S01			TRUMW
105	U220	10	K	S01			TRUMW
106	U225	10	K	S01			TRUMW
107	U226	70	K	S01			TRUMW

EPA I.D. Number (enter from Page 1)
NM0890010515

Secondary ID Number (enter from Page 1)

XIV. Description of Hazardous Wastes (Continued)

Line Number	A. EPA Hazardous Waste No. (enter code)	B. Estimated Annual Quantity of Waste	C. Unit of Measure (enter code)	D. Processes			
				(1) Process Codes (enter)			(2) Process Description (If a code is not entered in D[1])
108	U227	10	K	S01			TRUMW
109	U228	10	K	S01			TRUMW
110	U239	10	K	S01			TRUMW

CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Alexander J. Gancarz
Division Director for Chemical Science and Technology Division
Los Alamos National Laboratory
Operator

12-3-96
Date Signed

Dennis J. Erickson
Division Director for Environment, Safety, and Health Division
Los Alamos National Laboratory
Operator

12/2/96
Date Signed

G. Thomas Todd
Area Manager, Los Alamos Area Office
U.S. Department of Energy
Albuquerque Operations
Owner/Operator

12.5.96
Date Signed