



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



FEB 08 2002

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Subject: Transmittal of Revision 1.0 of the TA-55 (Technical Area 55) Permit  
 Renewal Application

Dear Mr. Will:

The purpose of this letter is to transmit to you Revision 1.0 of the TA-55 Permit Application. This revision incorporates the addition of a new treatment unit for vitrification of hazardous waste and the tank storage associated with that process. It also consolidates the tank storage into a single tank system. It does delete room B-38 in the basement which was previously identified as a storage area for hazardous waste. A Closure Plan for that room is currently under development and will be submitted to you for your review and approval soon.

This application does reference portions of the General Part B currently under review by you and your staff. The various plans in the General Part B (e.g. the Inspection Plan, Contingency Plan, Training Plan) are either adopted completely or with variations that are explained in their particular attachment.

Please note that the body of the document is labeled with its laboratory number, LA-UR-02-561. This means that it is acceptable to make the information contained within the binder available to those in the public that may wish to review it. There is a manila envelope within the pocket of the binder at the front. That envelope is labeled UCNI (Unclassified Controlled Nuclear Information) and contains the laboratory number LA-CP-02-45. This information, while not classified, is sensitive and is not to be distributed for review. It is now the responsibility of NMED to maintain control of that information and keep it secured during times when it is not being used.

The Department of Energy and University of California (UC) appreciate your willingness to review this application in the initial permit renewal endeavor. The new units discussed above are scheduled for construction within the year and having the permit will allow DOE/UC to meet schedule and budget commitments.



TA-55 LANL Permits

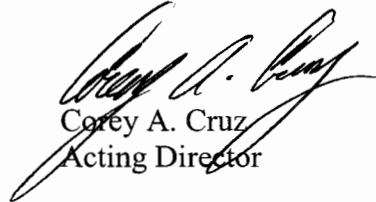
Mr. Carl Will

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FEB 0 8 2005

If you have questions concerning this matter, please feel free to contact either Gene Turner of my staff at (505) 667-5794 or Jack Ellvinger of LANL ESH-19 at (505) 667-0633.

Sincerely,



Corey A. Cruz  
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OFO:3GT-019

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LA-UR-02-561

Los Alamos National Laboratory  
Technical Area 55 Part B  
Permit Application

Revision 1.0

January 2002

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1-1	Regulatory References and Corresponding Permit Application Location
4-1	Solid Waste Management Units (SWMU) Identified for Corrective Action in Module VIII
4-2	Active Hazardous/Mixed Waste Management Units Not Identified for Corrective Action in Module VIII

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## LIST OF FIGURES

FIGURE NO.    TITLE

4-1            Solid Waste Management Units (SWMU) at Technical Area (TA) 55

## LIST OF ATTACHMENTS

<u>ATTACHMENT</u>	<u>TITLE</u>
A	Facility Description
B.1	Waste Analysis Plan for the Technical Area 55 Cementation Unit
B.2	Waste Analysis Plan for the Technical Area 55 Vitrification Unit
C	Inspection Plan
D	Personnel Training Plan
E	Contingency Plan
F.1	Closure Plan for Technical Area 55 Container Storage Unit
F.2	Closure Plan for Technical Area 55 Storage Tank System
F.3	Closure Plan for Technical Area 55 Cementation Unit
F.4	Closure Plan for Technical Area 55 Vitrification Unit
G	Container Storage
H	Storage Tank System
I	Cementation Unit
J	Vitrification Unit
K	General Facility Operations and Waste Management Practices



**LIST OF ACRONYMS/ABBREVIATIONS**

20.4.1 NMAC	New Mexico Administrative Code, Title 20, Chapter 4, Part 1
CSU	container storage unit(s)
D&D	decontamination and decommissioning
EPA	U.S. Environmental Protection Agency
ft	foot/feet
gal	gallon(s)
HEPA	high-efficiency particulate air
HRMB	Hazardous and Radioactive Materials Bureau
in.	inch(es)
L	liter(s)
LANL	Los Alamos National Laboratory
NMED	New Mexico Environment Department
pCi/g	picoCurie(s) per gram
PPE	personal protective equipment
RCRA	Resource Conservation and Recovery Act
SWB	standard waste box
SWMU	solid waste management unit
TA	technical area
TRU	transuranic
WPF	Waste Profile Form

## 1.0 INTRODUCTION

This revised "Los Alamos National Laboratory Technical Area 55 Part B Permit Application" is submitted to address the requirements of the New Mexico Administrative Code, Title 20, Chapter 4, Part 1 (20.4.1 NMAC), revised June 14, 2000 [6-14-00], specific to hazardous and mixed waste operations at Technical Area (TA) 55 at Los Alamos National Laboratory (LANL). Waste management units to be permitted include nine container storage units, a storage tank system, and two Subpart X treatment units (a cementation unit and a vitrification unit). This document serves as Revision 1.0 to the "Technical Area 55 Part B Permit Application," Revision 0.0, submitted to the New Mexico Environment Department (NMED) in June 1996 (LANL, 1996).

This document has been formatted to meet the permitting strategy outlined by the NMED Hazardous and Radioactive Materials Bureau (HRMB) in correspondence dated February 5, 1998 (NMED, 1998a). As presented in this correspondence, TA-specific permit applications, permit modification requests, and permit renewal documents will cover any details and/or requirements not addressed in the "Los Alamos National Laboratory General Part B Permit Application," Revision 1.0 (LANL, 1998a) or most recent version, hereinafter referred to as the LANL General Part B. The LANL General Part B will serve in the operating permit as an "umbrella" document, covering the requirements of the New Mexico Hazardous Waste Act and implementing regulations, specifically 20.4.1 NMAC [6-14-00], common to all TAs. Together, information provided in this permit application and in the LANL General Part B will meet the applicable requirements specified in 20.4.1 NMAC, Subparts V and IX [6-14-00].

In addition to reformatting, this revised document also addresses permitting requirements for a new vitrification treatment unit, a modification to the existing storage tank system, and additional container storage units. The vitrification treatment unit will be used to immobilize mixed waste generated at TA-55. The two storage tank systems identified in Revision 0.0 as the evaporator glovebox storage tank system and the cementation unit storage tank system have been combined and modified into a single storage tank system. The storage tank system, as presented in this document, is comprised of two existing components and two new components. The two existing components include the evaporator glovebox tank component (formerly identified as the evaporator glovebox storage tank system) and the cementation unit pencil tanks component (formerly identified as the cementation unit storage tank system). The two new components include additional pencil tanks and the vitrification unit slab tanks.

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In accordance with HRMB's permitting strategy, LANL submitted the "Los Alamos National Laboratory General Part A Permit Application," Revision 0.0 (LANL, 1998b), hereinafter referred to as the LANL General Part A. The LANL General Part A consolidated information from previous site-wide and TA-specific Part A submittals into one comprehensive document, identifying all hazardous and mixed waste treatment, storage, and disposal facilities subject to 20.4.1 NMAC, Subparts V, VI, and IX [6-14-00] at LANL as of April 30, 1998. The LANL General Part A serves as a companion document to the LANL General Part B and TA-specific permit applications, permit modification requests, and permit renewal documents, including this revised permit application.

In the LANL General Part A, the LANL General Part B, and the revised permit application, a unit to be permitted or an area within LANL may sometimes be referred to as a facility. The term "facility," as it appears in this context, is used only to denote building or area names and does not imply the regulatory meaning of "facility" as defined in 20.4.1 NMAC, Subpart I, 260.1 [6-14-00]. However, pursuant to 20.4.1 NMAC, Subpart I, 260.1 [6-14-00], the "LANL facility" as a whole does meet the regulatory definition of a facility.

Table 1-1 provides a list of regulatory references and the corresponding location in this permit application, as appropriate. Where applicable, regulatory citations in this document reference 20.4.1 NMAC, which adopts, with a few exceptions, all of the Code of Federal Regulations, Title 40, Parts 260 to 266, Part 268, Part 270, and Part 273.

**Table 1-1**

**Regulatory References and Corresponding Permit Application Location**

<b>Regulatory Citation(s)</b>	<b>Description of Requirement</b>	<b>Location in this Permit Application</b>
§270.14(b)(1)	General facility description	Attachment A
§270.14(b)(2)	Chemical and physical analyses of hazardous waste	Attachment B.1 <sup>a</sup> and B.2 <sup>a</sup>
§270.14(b)(3)	Waste analysis plan	Attachments B.1 <sup>a</sup> and B.2 <sup>a</sup>
§264.13(b)	Development and implementation of a written waste analysis plan	Attachments B.1 <sup>a</sup> and B.2 <sup>a</sup>
§264.13(c)	Off-site waste analysis requirements	Attachments B.1 <sup>a</sup> and B.2 <sup>a</sup>
§270.14(b)(4)	Security procedures and equipment	Attachment K
§270.14(b)(5)	General inspection schedule	Attachment C <sup>a</sup>
§264.174	Inspections/containers	Attachment C <sup>a</sup>
§264.193(i)	Tank system inspections pending provision of adequate secondary containment	NA
§264.195	Overfill control inspections	Attachments C <sup>a</sup> , H, I, and J
§264.602	Miscellaneous units	Attachments I and J
§264.1033	Process vent standards	Attachments H, I, and J
§264.1052	Equipment leak air emission standards	Attachments H, I, and J
§264.1053	Compressor standards	NA
§264.1058	Standards for pumps, valves, pressure relief devices, flanges, and connections	Attachments H, I, and J
§270.14(b)(6)	Request for waiver from preparedness and prevention requirements of 264 Subpart C	NA
§270.14(b)(7)	Contingency Plan	Attachment E <sup>a</sup>
§270.14(b)(8)	Description of preparedness and prevention	Attachment K
§270.14(b)(8)(i)	Hazard prevention in unloading operations	Attachment K

See footnotes at end of table.

Table 1-1 (continued)

## Regulatory References and Corresponding Permit Application Location

Regulatory Citation(s)	Description of Requirement	Location in this Permit Application
§270.14(b)(8)(ii)	Runoff prevention	Attachment K
§270.14(b)(8)(iii)	Contamination prevention of water supplies	Attachment K
§270.14(b)(8)(iv)	Mitigation of equipment failure and power outages	Attachment K
§270.14(b)(8)(v)	Prevention of undue exposure of personnel to hazardous waste	Attachment K
§270.14(b)(8)(vi)	Prevention of releases to the atmosphere	Attachment K
§270.14(b)(9)	Prevention of accidental ignition or reaction of ignitable, reactive, or incompatible wastes	Attachments G, H, I, and J
§264.17(c)	Documentation of compliance with 264.17 (general requirements for ignitable, reactive, or incompatible wastes)	Attachments G, H, I, and J
§270.14(b)(10)	Traffic pattern, volume, and controls	Attachment A
§270.14(b)(11)	Facility/unit location information	Attachment A
§270.14(b)(11)(i)	Seismic standard applicability [264.18(a)]	Attachment A
§270.14(b)(11)(ii)	Seismic standard requirements	Attachment A
§270.14(b)(11)(ii)(A)	No fault within 3,000 feet (ft) with displacement in Holocene time	Attachment A
§270.14(b)(11)(ii)(B)	If faults which have displacement in Holocene time are present within 3,000 ft, no faults pass within 200 ft of portions of the facility where treatment, storage, or disposal will be conducted	NA
§270.14(b)(11)(iii)	100-year floodplain standard	Attachment A <sup>a</sup>
§270.14(b)(11)(iv)	Facilities located within the 100-year floodplain	NA
§270.14(b)(11)(v)	Compliance schedule for 264.18(b)	NA
§270.14(b)(12)	Personnel training program	Attachment D <sup>a</sup>

See footnotes at end of table

**Table 1-1 (continued)**

**Regulatory References and Corresponding Permit Application Location**

<b>Regulatory Citation(s)</b>	<b>Description of Requirement</b>	<b>Location in this Permit Application</b>
§270.14(b)(13)	Closure and post-closure plans	Attachments F.1, F.2, F.3, F.4
§264, Subpart G	Closure and post-closure	Attachments F.1, F.2, F.3, and F.4
§264.178	Closure/containers	Attachment F.1
§264.197	Closure and post-closure care/tanks	Attachment F.2
§264.601	Closure/miscellaneous units	Attachments F.3 and F.4
§264.603	Requirements by the Secretary	Attachments F.3 and F.4
§270.14(b)(14)	Post-closure notices (264.119)	Attachments F.1, F.2, F.3, and F.4
§270.14(b)(15)	Closure cost estimate (264.142)	Attachments F.1, F.2, F.3, and F.4
§270.14(b)(16)	Post-closure cost estimate (264.144)	Attachments F.1, F.2, F.3, and F.4
§270.14(b)(17)	Liability insurance (264.147)	Attachments F.1, F.2, F.3, and F.4
§270.14(b)(18)	Proof of financial coverage (264.149-150)	Attachments F.1, F.2, F.3, and F.4
§270.14(b)(19)	Topographic map requirements	Attachment A <sup>b</sup>
§270.14(b)(19)(i)	Map scale and date	Attachment A <sup>b</sup>
§270.14(b)(19)(ii)	100-year floodplain area	Attachment A <sup>b</sup>
§270.14(b)(19)(iii)	Surface waters	Attachment A
§270.14(b)(19)(iv)	Surrounding land uses	Attachment A
§270.14(b)(19)(v)	Wind rose	Attachment A
§270.14(b)(19)(vi)	Map orientation	Attachment A <sup>b</sup>

See footnotes at end of table.

Table 1-1 (continued)

Regulatory References and Corresponding Permit Application Location

Regulatory Citation(s)	Description of Requirement	Location in this Permit Application
§270.14(b)(19)(vii)	Legal boundaries	Attachment A <sup>b</sup>
§270.14(b)(19)(viii)	Access control	Attachment A
§270.14(b)(19)(ix)	Wells	Attachment A
§270.14(b)(19)(x)	Buildings	Attachment A
§270.14(b)(19)(xi)	Drainage barriers or flood control	Attachment A
§270.14(b)(19)(xii)	Location of operational units	Attachment A
§270.14(b)(20)	Other federal laws	3.0 <sup>a</sup>
§270.14(b)(20)(a)	Wild and Scenic Rivers Act	3.0 <sup>a</sup>
§270.14(b)(20)(b)	National Historic Preservation Act	3.0 <sup>a</sup>
§270.14(b)(20)(c)	Endangered Species Act	3.0 <sup>a</sup>
§270.14(b)(20)(d)	Coastal Zone Management	3.0 <sup>a</sup>
§270.14(b)(20)(e)	Fish and Wildlife Coordination Act	3.0 <sup>a</sup>
§270.14(b)(20)(f)	Executive Orders	3.0 <sup>a</sup>
§270.14(b)(21)	Notice of extension approval for land disposal facilities	NA
§270.14(c)	Groundwater monitoring requirements	Attachment A <sup>a</sup>
§270.14(d)	Information requirements for solid waste management units (SWMU)	4.0
§270.14(d)(1)(i)	Location of SWMUs on topographic map	4.0
§270.14(d)(1)(ii)	Types of SWMUs	4.0
§270.14(d)(1)(iii)	Dimensions and descriptions of SWMUs	4.0
§270.14(d)(1)(iv)	Dates of SWMU operations	4.0

See footnotes at end of table.

**Table 1-1 (continued)**

**Regulatory References and Corresponding Permit Application Location**

<b>Regulatory Citation(s)</b>	<b>Description of Requirement</b>	<b>Location in this Permit Application</b>
§270.14(d)(1)(v)	Waste types managed at SWMUs	4.0
§270.14(d)(2)	Information on releases from SWMUs	4.0
§270.14(d)(3)	RCRA Facility Assessment sampling and analysis results	NA
§270.15	Information requirements for containers	Attachment G
§270.16	Information requirements for tank systems	Attachment H
§270.23	Information requirements for miscellaneous units	Attachments I and J

- a Requirement or information is also addressed in the "Los Alamos National Laboratory General Part B Permit Application," Revision 1.0, as appropriate, 1998a, Los Alamos National Laboratory, Los Alamos, New Mexico.
- b Some of the topographic map requirements are addressed in the "Los Alamos National Laboratory General Part A Permit Application," Revision 0.0, 1998b, Los Alamos National Laboratory, Los Alamos, New Mexico.

NA = not applicable.



## 2.0 WASTE MANAGEMENT UNITS

This section describes the waste management units at Los Alamos National Laboratory (LANL) Technical Area (TA) 55. These units include <sup>seven</sup> eight container storage units (CSU), a storage tank system, a cementation unit, and a vitrification unit. Detailed information on and design drawings of the CSUs, storage tank system, cementation unit, and vitrification unit are presented in Attachments G, H, I, and J, respectively. Detailed information on general facility operations and management practices is contained in Attachment K of this permit application.

### 2.1 CONTAINER STORAGE

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 (20.4.1 NMAC), Subpart IX, 270.15, and 20.4.1 NMAC, Subpart V, Part 264, Subpart I, revised June 14, 2000 [6-14-00]. Container storage at TA-55 consists of nine CSUs including B40, B05, K13, B45, FLO1, and the Vault located in TA-55, Building 4 (TA-55-4); a container storage pad located northwest of TA-55-4; and TA-55, Building 185 (TA-55-185). These CSUs provide storage for hazardous, mixed low-level, and/or mixed transuranic (TRU) wastes. This section provides a brief description of the waste management practices associated with the TA-55 CSUs.

#### 2.1.1 Storage Capacities

The maximum storage capacity of each TA-55 CSU is as follows:

- B40 – 21,500 gallons (gal)
- B05 – 3,000 gal <sup>3,000 gal</sup>
- K13 – 3,400 gal
- B45 – 3,400 gal <sup>10,000 gal</sup>
- FLO1 – 666 gal
- Vault – 4,000 gal
- Storage Pad – 135,000 gal
- TA-55-185 – 55,000 gal <sup>55,000 gal</sup>

General dimensions, containment features, and materials of construction for each CSU is provided in Attachment G of this permit application to satisfy the requirements of 20.4.1 NMAC, 270.15(a)(1) and (2) [8-14-00].

### 2.1.2 Storage Containers

Waste containers that may be stored in the TA-55 CSUs include, but are not limited to: glass or plastic bottles; steel cans; 30-, 55-, and 85-gal drums; special order waste boxes; large waste boxes; standard waste boxes (SWBs); and various small containers.

The most common container used for waste storage at TA-55 is the 55-gal drum. The standard drum is constructed of 16-gauge steel, has an inner diameter of 22.5 inches (in.), and a usable inside height of 33.25 in. The drums may be lined and may have either a removable or a prefastened lid.

Two sizes of large waste boxes, 45 cubic foot (ft) and 90 cubic ft, are used for storage of hazardous and mixed waste solids at TA-55. These large waste boxes are constructed of low-carbon, hot-rolled steel and have continuous welds on all four sides and the bottom. The large waste boxes are designed to be loaded from the top. The lid is designed to be clamped and locked closed.

Special order waste boxes are used to package gloveboxes. Special order waste boxes are U.S. Department of Transportation Type A containers constructed of carbon steel. These boxes vary in size and can be designed to be loaded and unloaded from the top as well as the side and/or the end.

SWBs are used to store mixed TRU waste at TA-55 and are approved by the U.S. Department of Energy for use at the Waste Isolation Pilot Plant. All containers holding mixed TRU waste are vented. The vented containers have high-efficiency particulate air (HEPA) filters that allow gases (e.g., hydrogen), if any, to be released but prevent the release of airborne particulates. SWBs are constructed of low-carbon, hot-rolled steel and have continuous welds on all four sides and the bottom. SWBs are designed to be loaded from the top, have a lid that is bolted on, and have a capacity of 72 cubic ft.

Overpacks are used to package large equipment items and gloveboxes or may be used when containers integrity is suspect. SWBs are commonly used to overpack equipment. Eighty-five-gal drums may be used to overpack 55-gal drums. The 85-gal overpacks are constructed of 16-gauge steel, at a minimum.

### 2.1.3 Minimum Aisle Space and Storage Configuration

Waste containers at the TA-55 CSUs are arranged in rows with a minimum aisle space of 24 in. Storage configuration within a row depends upon the type of container, its size, and its weight restrictions. Fifty-five-gal drums and SWBs are arranged in rows and may be stacked to a maximum of two high. The 85-gal drums are not stacked. Large waste boxes may also be stacked to a maximum of two high, unless size and weight restrictions prohibit stacking due to safety concerns.

### 2.1.4 Authorized Waste Identification

The TA-55 CSUs will store containers that bear hazardous and mixed waste bearing the appropriate U.S. Environmental Protection Agency (EPA) Hazardous Waste Numbers presented in the LANL General Part A (LANL, 1998b).

### 2.1.5 Condition of Containers [20.4.1 NMAC, Subpart V, 264.171]

Prior to storage, any container at the TA-55 CSUs that is not in good condition (e.g. severe rusting, apparent structural defects) is overpacked or the wastes are repackaged in containers that are in good condition. This meets the requirements of 20.4.1 NMAC, Subpart V, 264.171 [1-1-97].

### 2.1.6 Compatibility of Waste with Containers [20.4.1 NMAC, Subpart V, 264.172]

The TA-55 CSUs will only store containers made of or lined with materials that will not react with and are otherwise compatible with the wastes stored in them. This fulfills the requirements of 20.4.1 NMAC, Subpart V, 264.172 [1-1-97].

### 2.1.7 Management of Containers [20.4.1 NMAC, Subpart V, 264.173(a) and (b)]

Waste containers stored at the TA-55 CSUs are handled in a manner that will not cause them to rupture or leak, as required in 20.4.1 NMAC, Subpart V, 264.173(b) [6-14-00]. All containers are kept closed during storage in accordance with 20.4.1 NMAC, Subpart V, 264.173(a) [6-14-00], except when waste is added to or removed from the container or when a container's contents need to be repackaged.

#### 2.1.7.1 Packaging and Transport

Flatbed trucks, trailers, and/or forklifts may be used to transport waste containers to and from the waste management units at TA-55. Forklift operations may use a boom, if necessary, to improve handling capabilities. Small containers may be handled manually or with a dolly. The use of proper

handling equipment, appropriate to a container's size and weight, helps to prevent hazards while moving containers.

The methods used to move containers into and within the TA-55 CSUs will be selected based on the size and weight of containers to prevent hazards while moving containers. Damaged containers (e.g., severely corroded drums) must be repaired or overpacked or the wastes repackaged in new containers before being stored at any TA-55 CSU.

#### 2.1.7.2 Labeling, Recording, and Sampling System

The generator labels each container of waste with a "Hazardous Waste" label bearing the following information:

- Generator name and address
- EPA Identification Number
- The accumulation start date
- The applicable EPA Hazardous Waste Number(s)

A "Radioactive Material/Radioactive Waste" label is applied, if appropriate.

Each waste shipment container must be accompanied by an approved Waste Profile Form (WPF) or equivalent form. Upon receipt of a waste shipment/container, the CSU operator writes the WPF number on each container.

#### 2.1.7.3 TA-55 Storage Area Practices

The CSU at TA-55 is used to store solid hazardous and mixed waste. Containers at the TA-55 CSU holding suspect or known free liquids are placed on self-containment pallets. If incompatible wastes are stored, they are kept segregated during storage.

#### 2.1.7.4 General Container Management Practices

Inspections will be conducted and aisle space will be maintained in accordance with Attachment C of this permit application.

Whenever waste is being handled, all personnel involved have immediate access to telephones in the building for direct voice contact with another individual.

Electrical power is supplied to operate ventilation systems, the public address system, various instruments, and other electrical equipment at TA-55. In the event of a power failure, portable generators are available from the Nuclear Materials Technology Facilities Management Group support office at TA-55-3. These generators may be used as temporary power sources at any of the waste management units within TA-55. Evacuation alarms located throughout TA-55 are equipped with a battery back-up and will continue to operate for eight hours during a power failure. Operations at any of the units would be discontinued temporarily if electrical power was not restored quickly or if container-handling equipment failed. Neither a power nor an equipment failure would affect containment at any of the waste management units at TA-55.

Personnel at the TA-55 CSUs are required to use appropriate personal protective equipment (PPE) to protect themselves from the hazards found in the work place under normal conditions. Use of PPE protects workers from direct contact with and inhalation or ingestion of hazardous materials. At TA-55, PPE is used as needed during waste-handling operations and when responding to unusual hazardous situations.

#### 2.1.8 Containment Systems [20.4.1 NMAC, Subpart IX, 270.15(a)(1-5) and 270.15(b)(1-2)]

In accordance with 20.4.1 NMAC, Subpart IX, 270.15(b)(1) [6-14-00], information contained in LANL's waste databases may be used initially to verify the absence of free liquids in containers. Containers at the TA-55 CSUs holding suspect or known free liquids will be placed on self-containment pallets.

Potential liquids that might accumulate at the TA-55 CSUs are contained within secondary containment (e.g., self-containment pallets) at each storage location until the liquid is removed. All secondary containment systems are designed to contain at least 10 percent of the volume of potential liquid-bearing containers or the volume of the largest container, whichever is greater, pursuant to the requirements of 20.4.1 NMAC, Subpart V, 264.175(b)(3) [6-14-00]. Any accumulated liquids are removed as appropriate and depending on the volume. The collected liquids are then transferred to appropriate containers and sampled, as necessary. If the accumulated liquids are from an identifiable source, or from water generated during fire-suppression activities, the resulting material may be characterized as a newly-generated waste and analyzed for constituents known to be components of the source. If the accumulated liquids are from other than an identifiable source, the resulting material will be analyzed for the appropriate potential parameters listed in Table E-3 of Appendix E the LANL General Part B (LANL, 1998a). Containers of collected

liquids are stored with secondary containment, pending analytical results, which determine how the waste liquids will be managed. This method of removal and analysis of accumulated liquids fulfills the requirements of 20.4.1 NMAC, Subpart IX, 270.15(a)(5) [6-14-00], for prevention of overflow.

#### 2.1.9 Inspection Schedules and Procedures

The purpose of inspections is to identify leaking containers, deterioration of containers, and/or loss of integrity of the containment system, as required by 20.4.1 NMAC, Subpart V, 264.174 [6-14-00]. The inspections include checking the structural integrity of the containers (e.g., for bulging or warping). Inspections will follow the Inspection Plan in Attachment C of this permit application.

#### 2.1.10 Special Requirements for Ignitable, Reactive, and Incompatible Wastes [20.4.1 NMAC, Subpart V, 264.17 and 20.4.1 NMAC, Subpart IX, 270.15(c) and 270.15(d)]

Ignitable or reactive waste may be stored at TA-55-4, K13, and on the container storage pad. Pursuant to 20.4.1 NMAC, Subpart V, 264.17 [6-14-00], LANL will follow specific waste management procedures for ignitable and reactive waste. Containers storing hazardous or mixed waste will be segregated according to the following compatibility group scheme: (1) flammables/ignitables, (2) oxidizers, (3) corrosive acids, (4) corrosive bases, (5) reactive (those with water), (6) reactives (except those reactive with water), and (7) other wastes.

In accordance with the requirements of 20.4.1 NMAC, Subpart V, 264.176, and 20.4.1 NMAC, Subpart IX, 270.15(c) [6-14-00], containers holding ignitable or reactive wastes are stored at least 50 ft from the LANL property line. All ignitable and reactive wastes are also protected from sources of ignition or reaction, in accordance with 20.4.1 NMAC, Subpart V, 264.17(a) [6-14-00]. Smoking is not allowed at any of the container storage locations at TA-55. No Smoking signs are conspicuously placed at TA-55 wherever there is a potential hazard from ignitable or reactive waste, as required by 20.4.1 NMAC, Subpart V, 264.17(a) [6-14-00]. In addition, most mechanical equipment operated within the area is grounded to minimize the potential for sparking and accidental ignition.

Incompatible wastes may be stored at TA-55-4, K13, and on the container storage pad and are stored according to specific segregation schemes to meet the requirements of 20.4.1 NMAC, Subpart V, 264.177(c) [6-14-00]. Containers holding incompatible wastes and that potentially contain free liquids will be stored in separate secondary containment systems. No incompatible wastes will be mixed, and no wastes will be placed in containers that previously held incompatible wastes, as required by 20.4.1 NMAC, Subpart V, 264.177(a) and (b), and 20.4.1 NMAC, Subpart

IX, 270.15(d) [6-14-00]. 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 hazardous or mixed waste storage at the CSUs. Wastes carrying the EPA Hazardous Waste Numbers F020, F021, F022, F023, F026, or F027 are neither generated nor stored at TA-55; therefore, the requirements of 20.4.1 NMAC, Subpart V, 264.175(d)(1) [6-14-00], are not applicable.

Ignitable, reactive, and incompatible wastes will not be stored at TA-55-4, B40, B05, B45, FLO1, 432, the Vault, and TA-55-185; therefore the requirements of 20.4.1 NMAC, Subpart V, 264.17, and 20.4.1 NMAC, Subpart IX, 270.15(c) and (d) [6-14-00] do not apply.

#### 2.1.11 Closure

Closure will consist of partial closure of one or more of the CSUs at TA-55 while leaving the other hazardous and mixed waste units at LANL in service. Partial closure activities will, at a minimum, include removal of hazardous and/or mixed waste from the CSU to be closed and decontamination or disposal of any surfaces or equipment that has been contaminated by hazardous constituents. Closure will minimize the need for further maintenance, preclude the release of hazardous constituents to environmental media, and be protective of human health and the environment, in accordance with the closure performance standards specified in 20.4.1 NMAC, Subpart V, 264.111 [6-14-00]. Detailed closure procedures for the TA-55 CSUs are addressed in Attachment F.1 of this permit application. This information is provided to meet the requirements of 20.4.1 NMAC, Subpart V, 264.111 and 264.178 [6-14-00].

#### 2.1.12 Control of Run-On and Runoff

Run-on into the CSUs at TA-55-4, and TA-55-185 will not occur due to their location inside buildings. The slopes surrounding these buildings direct potential run-on away from each building. The storage pad is above grade, has positive surface drainage, and has a culvert beneath it that will direct potential run-on away from this storage location. In addition, containers stored on the storage pad are covered. Figures A-5 and A-9 in Attachment A of this permit application show the contours and surface drainage around the storage pad, TA-55-4, and TA-55-185. This information is provided to meet the requirements of 20.4.1 NMAC, Subpart V, 264.175(b)(4), and 20.4.1 NMAC, Subpart IX, 270.14(b)(8)(ii) [6-14-00].

## 2.2 STORAGE TANK SYSTEM

The information provided in this section is submitted to address the applicable tank storage requirements of 20.4.1 NMAC, Subpart IX, 270.16, and 20.4.1 NMAC, Subpart V, Part 264, Subpart June 14, 2000, [6-14-00]. This section provides a brief description of the storage tank system located at TA-55 and the waste management practices associated with it. Detailed information is presented in Attachment H.

The TA-55 storage tank system is located at TA-55-4 in Rooms 401 and 434A, and includes the following components: the evaporator glovebox tank, the cementation unit pencil tanks, the pencil tanks, and the vitrification unit slab tanks. It has an overall storage capacity of 1,270 liters (L) (approximately 336 gal), and may be used to store evaporator bottoms solutions, a mixed waste, prior to stabilization in the cementation unit or the vitrification unit.

### 2.2.1 Authorized Waste

The TA-55 storage tank system may store mixed waste solutions bearing the appropriate EPA Hazardous Waste Numbers presented in the LANL General Part A (LANL, 1998b).

### 2.2.2 Containment Systems

The following provides a detailed description of the storage tank system secondary containment, in accordance with 20.4.1 NMAC, Subpart IX, 270.16(g), and 20.4.1 NMAC, Subpart V, 264.193(a), (b), (c), (d), and (e)(1) [6-14-00]. This secondary containment meets the requirements of an external liner system. Rooms 401 and 434A at TA-55-4 serve as secondary containment for the storage tank system, all ancillary equipment, and piping. The walls and floor of these two rooms will prevent the migration of wastes or accumulated liquids to any soil, groundwater, or surface water and are capable of collecting releases and accumulated liquids until the material is removed. Because the storage tank system and secondary containment are inside a building, run-on or precipitation will not affect the containment capacity. The capacity of the containment area will be sufficient to contain 100 percent of the largest tank within its boundary. The floor consists of a 10-in.-thick reinforced concrete slab that is compatible with the wastes stored in the tanks and will effectively prevent the migration of waste. The construction joints in the floor slab and exterior walls of Rooms 401 and 434A are all constructed with chemical-resistant water stops in place. The conduit piping penetrating the floor of the room is secured with rubber boots, bushings, and flanges. All penetrations (e.g., holes for conduit) in the floor have been sealed to prevent liquids from entering the penetrations.



### 2.2.3 Inspection Schedules and Procedures

The purpose of inspections is to identify leaking, deteriorating, or corroding tanks, or components of the storage tank system and identify the loss of integrity of the containment system, as required by 20.4.1 NMAC, Subpart V, 264.15, and 20.4.1 NMAC, Subpart V, 264.195 [6-14-00]. Inspections of the storage tank system will follow the Inspection Plan in Attachment C of this permit application.

### 2.2.4 Special Requirements for Ignitable, Reactive, and Incompatible Wastes

Currently, no ignitable, reactive, or incompatible mixed wastes are stored in the storage tank system. Pursuant to the requirements of 20.4.1 NMAC, Subpart V, 264.198(a)(2) and 264.198(b) [6-14-00], in the event that ignitable or reactive waste is stored in the storage tank system, the waste will be handled in such a way that it is protected from any material or condition that may cause the waste to ignite or react, and appropriate protective distances will be maintained.

### 2.2.5 Closure

Closure will consist of partial closure of one or more of the storage tank system components while leaving the other tank system components and/or regulated hazardous and mixed waste management units at LANL in service. Partial closure will include, but is not limited to, removal of mixed waste from the component to be closed and decommissioning or decontamination of any surfaces, and/or equipment that have been contaminated by hazardous constituents. Closure will minimize the need for further maintenance, preclude the release of hazardous constituents to environmental media, and be protective of human health and the environment. Detailed closure procedures for the storage tank system are addressed in Attachment F.2 of this permit application. This information is provided to meet the requirements of 20.4.1 NMAC, Subpart V, 264.111 and 264.197 [6-14-00].

### 2.2.6 Control of Runoff

Runoff from the storage tank system to other areas of the facility or to the environment will be prevented. Secondary containment is provided for storage tank system components by Rooms 401 and 434A. This secondary containment will be sufficient to contain 100 percent of the volume of the largest tank, pursuant to the requirements of 20.4.1 NMAC, Subpart V, 264.193(e)(1)(i) [6-14-00]. Runoff control of liquids resulting from fire-suppression activities and from leaks or spills will be accomplished by using a portable pump, a HEPA vacuum, and/or sorbents, depending on the volume of accumulated liquid. Accumulated liquids will be removed as soon as possible. This information is provided to meet the requirements of 20.4.1 NMAC, Subpart IX, 270.14(b)(8)(ii) [6-14-00].

## 2.3 MISCELLANEOUS UNIT – CEMENTATION UNIT

The information provided in this section is submitted to address the applicable miscellaneous unit requirements of 20.4.1 NMAC, Subpart IX, 270.23, and 20.4.1 NMAC, Subpart V, Part 264, Subpart X, revised June 14, 2000 [6-14-00]. This section provides a brief description of the cementation unit located at TA-55 and the waste management practices associated with it. Detailed information is provided in Attachment I.

The cementation unit is located in glovebox GB-454 along the west wall of TA-55-4, Room 401. The unit has been in operation since 1991 and has a maximum capacity of 568 liters (approximately 150 gallons) and consists of a pH adjustment column, vacuum trap, two motor-driven mixers, four impellers, associated support structures, a glovebox, and piping.

### 2.3.1 Authorized Waste

The TA-55 cementation unit is used to treat solid and liquid mixed wastes bearing the appropriate EPA Hazardous Waste Numbers presented in the LANL General Part A (LANL, 1998b).

### 2.3.2 Containment Systems

TA-55-4, Room 401, serves as secondary containment for the cementation unit. Detailed information on the containment features for Room 401 are described in Section 2.2.2.

### 2.3.3 Inspection Schedules and Procedures

The purpose of inspections is to identify leaking, deteriorating, or corroding components of the cementation unit and identify the loss of integrity of the containment system, as required by 20.4.1 NMAC, Subpart V, 264.15, 20 NMAC 4.1, Subpart V, 264.602 [6-14-00]. Inspections of the cementation unit will follow the Inspection Plan in Attachment C of this permit application.

### 2.3.4 Special Requirements for Ignitable, Reactive, and Incompatible Wastes

Currently, no ignitable, reactive, or incompatible mixed wastes are treated in the cementation unit. In the event that ignitable or reactive waste is treated in the cementation unit, the waste will be handled in such a way that it is protected from any material or condition that may cause the waste to ignite or react, and appropriate protective distances will be maintained.

### 2.3.5 Closure

Closure will consist of partial closure of the cementation unit while leaving the other regulated hazardous and mixed waste management units at LANL in service. Partial closure will include, but

is not limited to, removal of mixed waste from the unit and decommissioning or decontamination of any surfaces, and/or equipment that have been contaminated by hazardous constituents. Closure will minimize the need for further maintenance, preclude the release of hazardous constituents to environmental media, and be protective of human health and the environment. Detailed closure procedures for the cementation unit are addressed in Attachment F.3 of this permit application. This information is provided to meet the requirements of 20.4.1 NMAC, Subpart V, 264.111 [6-14-00].

#### 2.3.6 Control of Runoff

Runoff from the cementation unit to other areas of the facility or to the environment will be prevented. Secondary containment is provided for cementation unit by Room 401. This secondary containment will be sufficient to contain 100 percent of the volume of the cementation unit. Runoff control of liquids resulting from fire-suppression activities and from leaks or spills will be accomplished by using a portable pump, a HEPA vacuum, and/or sorbents, depending on the volume of accumulated liquid. Accumulated liquids will be removed as soon as possible. This information is provided to meet the requirements of 20.4.1 NMAC, Subpart IX, 270.14(b)(8)(ii) [6-14-01].

### 2.4 MISCELLANEOUS UNIT – VITRIFICATION UNIT

The information provided in this section is submitted to address the applicable miscellaneous unit requirements of 20 NMAC 4.1, Subpart IX, 270.23, and 20 NMAC 4.1, Subpart V, Part 264, Subpart X, revised June 14, 2000 [6-14-00]. This section provides a brief description of the vitrification unit located at TA-55 and the waste management practices associated with it. Detailed information is presented in Attachment J. The vitrification unit will be located at TA-55-4, Room 434A, inside Room 401. It will consist of a single batch in-can melter, a glass frit feed system, a glass/waste handling system to cool and move the glass-filled cans, an off-gas system, associated support structures, a glovebox, and associated piping. The vitrification unit has an overall capacity of 27 L (approximately 7 gal), and will be used to treat evaporator bottoms solutions, a mixed waste, by stabilization in a solid glass matrix.

#### 2.4.1 Authorized Waste

The TA-55 vitrification unit will treat liquid mixed wastes bearing the appropriate EPA Hazardous Waste Numbers presented in the LANL General Part A (LANL, 1998b).

#### 2.4.2 Containment Systems

TA-55-4, Room 434A, serves as secondary containment for the vitrification unit. Detailed information on the containment features for Room 434A are described in Section 2.2.2.

#### 2.4.3 Inspection Schedules and Procedures

The purpose of inspections is to identify leaking, deteriorating, or corroding components of the vitrification unit and identify the loss of integrity of the containment system, as required by 20.4.1 NMAC, Subpart V, 264.15 and 20 NMAC 4.1, Subpart V, 264.602 [6-14-00]. Inspections of the vitrification unit will follow the Inspection Plan in Attachment C of this permit application.

#### 2.4.4 Special Requirements for Ignitable, Reactive, and Incompatible Wastes

There are no plans to treat ignitable, reactive, or incompatible mixed wastes in the vitrification unit.

#### 2.4.5 Closure

Partial closure activities may include closing one or more of the vitrification unit components at TA-55 while leaving the other vitrification unit components and/or waste management units in service. Closure or partial closure may include, but is not limited to, removal of mixed waste from the unit or unit component to be closed and decommissioning or decontamination of any surfaces, structures, and/or equipment that have been contaminated by hazardous constituents. Closure will minimize the need for further maintenance, preclude the release of hazardous waste or constituents to environmental media, and be protective of human health and the environment. Detailed closure procedures for the vitrification unit are addressed in Attachment F.4 of this permit application. This information is provided to meet the requirements of 20.4.1 NMAC, Subpart V, 264.111 [6-14-00].

#### 2.4.6 Control of Runoff

Runoff from the vitrification unit to other areas of the facility or to the environment will be prevented. Secondary containment for the vitrification unit is provided by Room 434A. This secondary containment will be sufficient to contain 100 percent of the volume of the vitrification unit. Runoff control of liquids resulting from fire-suppression activities and from leaks or spills will be accomplished by using a portable pump, a HEPA vacuum, and/or sorbents, depending on the volume of accumulated liquid. Accumulated liquids will be removed as soon as possible. This information is provided to meet the requirements of 20.4.1 NMAC, Subpart IX, 270.14(b)(8)(ii) [6-14-00].

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### **3.0 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 June 14, 2000, is provided in Section 3.0 of the LANL General Part B (LANL, 1998a).

#### 4.0 CORRECTIVE ACTION FOR SOLID WASTE MANAGEMENT UNITS

The information provided in this section is submitted to address the applicable solid waste management unit (SWMU) requirements of the New Mexico Administrative Code, Title 20, Chapter 4, Part 1 (20.4.1 NMAC), Subpart IX, 270.14(d), revised June 14, 2000 [6-14-00]. This section provides descriptions of the SWMUs identified at Technical Area (TA) 55. Information on these SWMUs was extracted from Revision 1.0 of the Los Alamos National Laboratory (LANL) "Solid Waste Management Units Report" (LANL, 1990), hereinafter referred to as the 1990 SWMU Report, and the "RFI Work Plan for Operable Unit 1129" (LANL, 1992).

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, 1994), hereinafter 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."

##### 4.1 TA-55 GENERAL SWMU DESCRIPTIONS [20.4.1 NMAC, Subpart IX, 270.14(d)(1)]

Several types of SWMUs have been identified at TA-55 and are described below. These include SWMUs identified for corrective actions in Module VIII, as modified following a Class III permit modification effective December 23, 1998 (New Mexico Environment Department [NMED], 1998b); and SWMUs that are Resource Conservation and Recovery Act (RCRA) active hazardous/mixed waste management units. Brief unit and waste descriptions are also provided in Tables 4-1 and 4-2. Figure 4-1 shows the locations of the SWMUs in TA-55.

TA-55 contains SWMUs associated with TA-42, a former TA, which is now located within the current TA-55 boundary. From 1951 until 1978, TA-42 was located within a 5,000-square-meter fenced area just to the northeast of the main cluster of buildings currently located at TA-55. In 1978, structures, debris, and soil contamination associated with TA-42 were removed and taken to TA-54 during a decontamination and decommissioning (D&D) project (LANL, 1992).

#### 4.1.1 SWMUs Identified for Corrective Action in Module VIII

The following are descriptions of the SWMUs at TA-55, including the SWMUs associated with the former TA-42, that have been identified for corrective action in Module VIII, as modified in 1998.

##### 4.1.1.1 Incinerator Complex

SWMU No. 42-001(a) is identified as an incinerator designed to incinerate radionuclide-contaminated waste in a cylindrical combustion chamber. The incinerator was located at TA-42, Building 1 (TA-42-1) adjacent to the north wall. Beginning in 1951, the unit was used to incinerate small quantities of low-level radioactive waste. Because of operational problems, however, the incinerator was shut down in 1952 (LANL, 1992). Part of the building (TA-42-1) was later used as a decontamination and storage area. The entire structure was removed in 1978.

SWMU Nos. 42-001(b) and (c) are identified as two holding tanks that were located immediately north of the incinerator at TA-42. The tanks each had a 37,000-gallon capacity and were connected to the incinerator via underground drainlines. The tanks, which were used to store ash generated during the incineration process, were removed during the 1978 D&D project. The drainlines were filled with asphalt, but it remains unknown whether they were removed or left in place (LANL, 1992).

##### 4.1.1.2 Decontamination Area

SWMU No. 42-002(b) is identified as an outside decontamination area located at the end of an asphalt driveway, to the north and west of TA-42-1. Between 1956 and 1969, this area was used to decontaminate items that were too large for decontamination in TA-42-1. Runoff from decontamination activities flowed down an embankment on the northwest side of the driveway and is estimated to have potentially contaminated an approximate area of 75 feet (ft) by 100 ft. Potentially contaminated soils were not sampled or removed during the 1978 D&D project (LANL, 1992).

##### 4.1.1.3 Septic System

SWMU No. 42-003 is a septic system that was located near and served TA-42-1. Installed in 1951, the septic system consisted of a drainline from the building, a 565-gallon septic tank, a filter trench, a leach field, and an outfall to Mortandad Canyon (LANL, 1990; LANL, 1992). The

septic system encompassed an area of approximately 75 ft by 200 ft. Liquid wastes containing plutonium, uranium, fission products, and tritium entered the septic system as a result of the decontamination activities conducted in TA-42-1. Solvents, acids, and greases may have also entered the septic system. The septic system and associated contaminated soils were removed in 1978 during the D&D project (LANL, 1992).

#### 4.1.1.4 Sumps, Pumps, and Tanks

SWMU No. 55-008 is collectively identified as the sumps, pumps, and tanks in the TA-55-4 basement. Six 3- by 3- by 3-ft deep sumps collect spills and mop water generated in the building. The liquid may contain mixed waste constituents (LANL, 1990). Four condensate tanks, each measuring 8 inches (in.) in diameter and 4 ft long, and four blowdown tanks of the same dimensions, receive condensate from cooling coils. The condensate discharged to the units may have contained small amounts of mixed waste in the past. All liquids collected and contained within these units are transferred via direct pipeline to TA-50 for treatment (LANL, 1990; LANL, 1992). Operations began at TA-55-4 in 1978 and continue through the present.

#### 4.1.1.5 Concrete Enclosure

SWMU No. 55-009 consists of monitoring instrumentation and a concrete enclosure located northeast and outside of TA-55-6. The enclosure is constructed of concrete and measures approximately 7 ft long, 7 ft wide, and 5.5 ft deep. The enclosure was taken out of service, the instrumentation was removed, and abandoned in place (LANL, 1990; LANL, 1992).

#### 4.1.2 Active Hazardous/Mixed Waste Management Units Not Identified in Module VIII

The following sections provide descriptions of the SWMUs that are not identified for corrective action in Module VIII, as modified in 1998. These SWMUs, for which LANL is seeking permitted status through the proposed TA-55 chapter of the permit, are active hazardous/mixed waste management units operating under interim status standards and will be closed in accordance with an applicable RCRA closure plan.

##### 4.1.2.1 Cementation Unit

SWMU No. 55-001, the cementation unit, is located in Room 401 in the southwest corner of TA-55-4 and occupies an area of approximately 3 ft by 9 ft. The cementation unit is used to treat mixed waste generated at TA-55. The cementation unit became operational in approximately 1980 (LANL, 1990).



SWMU No. 55-001 also includes the cementation unit pencil tanks, which are used for storage of mixed waste prior to solidification.

#### 4.1.2.2 Evaporator Glovebox Tank

SWMU No. 55-004 consists of the evaporator glovebox tank located in Room 401 in TA-55-4 and occupies an area of approximately 4 ft by 12 ft. The evaporator glovebox tank stores evaporator bottoms solutions waste prior to solidification. The evaporator glovebox tank began operation in approximately 1980.

#### 4.1.2.3 Container Storage Units

The following container storage units (CSU) are used for hazardous and/or mixed waste storage and are operated under interim status standards. These CSUs have not been formally evaluated relative to their status as SWMUs nor assigned SWMU numbers, if appropriate.

The basement in TA-55-4 has five active container storage locations designated as B40, B05, K13, B45, and the Vault. Storage location B40 is L-shaped, located in the southwest section of the basement, and is approximately 61 ft long by 55 ft wide. Storage location B05 is located in the southwest section of the TA-55-4 basement and is approximately 26 ft long by 10 ft wide. Storage location K13 is located in the northwest section of the TA-55-4 basement and is 16 ft long by 13 ft wide. Storage location B45 is located in the northeast section of the basement and is approximately 45 ft long by 17.5 ft wide. The Vault is located along the eastern wall of the TA-55-4 basement and is approximately 80 ft long by 50.5 ft wide. Storage locations B40, B05, K13, and B45 may be used to store hazardous waste, mixed low-level waste, and mixed transuranic (TRU) waste. The only waste items that may be stored in the Vault are mixed low-level or mixed TRU waste. In addition, the TA-55-4 basement has one inactive CSU, B38, that is scheduled for closure under interim status. Storage location B38 is located in the southeast section of the TA-55 basement and is approximately 27 ft long by 11 ft wide. This storage location was used for storage of hazardous, mixed low-level, and mixed transuranic waste.

At TA-55-4, Room 401, an area measuring 6 ft by 5.5 ft, may be used to store hazardous waste, mixed low-level waste, and mixed TRU waste.

At TA-55-185, an area measuring approximately 60 ft long by 40 ft wide, may be used to store hazardous waste, mixed low-level waste, and mixed TRU waste.

An asphalt storage pad, which is located on the west side of TA-55-4, is used to store containers. This pad consists of a trapezoid measuring 102 ft, 86 ft, 156 ft, and 105 ft and a rectangular shape measuring 70 ft by 10 ft. The pad is used to store hazardous waste, mixed low-level waste, and mixed TRU waste.

#### 4.2 RELEASES [20.4.1 NMAC, Subpart IX, 270.14(d)(2)]

At SWMU Nos. 42-001(b) and (c), liquid waste and ash were intentionally released from the holding tanks into Mortandad Canyon in 1952. The ash contained an estimated 100 millicuries of radioactivity. Samples collected from Mortandad Canyon in 1952 confirmed that radioactive contamination had entered the canyon (LANL, 1992).

At SWMU No. 42-002(b), wash liquids from the outdoor contamination area were not contained and ran down an embankment adjacent to the asphalt driveway. Potentially affected soils were not sampled or removed during the D&D project (LANL, 1990; LANL, 1992).

SWMU No. 42-003, a septic system, released radioactive liquid wastes to an outfall area in Mortandad Canyon. During the 1978 D&D project, approximately 1,200 cubic meters of soil were removed from the septic tank outfall area. Analysis of soil samples collected in the outfall area indicated levels of radioactivity ranging from below 25 picoCuries per gram (pCi/g) to 400 pCi/g (LANL 1990; LANL, 1992).

#### 4.3 CHARACTERIZATION OF RELEASE

Potential releases from SWMUs are described in the 1990 SWMU Report (LANL, 1990) and in the "RFI Work Plan for Operable Unit 1129" (LANL, 1992). These descriptions included the material released and the nature of the release to the extent such information was available at the time of each document's publication. However, because of the nature of the releases, the exact volume released is not known, and the timing of the releases can only be estimated by the period of operation and sampling events. The corrective action process for the SWMUs identified in Section 4.1.1 will, at a minimum, include investigation to verify whether or not a release occurred.

4.4 CORRECTIVE ACTIONS [20.4.1 NMAC, Subpart V, 264.101(a)]

Pursuant to 20.4.1 NMAC, Subpart V, 264.101(a) [6-14-00], corrective actions are required only for releases of hazardous waste or hazardous constituents. SWMUs identified in Section 4.1.1 and that are known or believed to have releases will be investigated in accordance with a schedule approved by NMED during LANL Environmental Restoration Project corrective action activities. Corrective action, if necessary, will generally follow the RCRA Facility Investigation/Corrective Measures Study process. RCRA Facility Investigation Work Plans have been completed for TA-42 and TA-55.

**Table 4-1**  
**Solid Waste Management Units (SWMU) Identified for Corrective Action in Module VIII<sup>a</sup>**

<b>SWMU No.</b>	<b>Unit Type</b>	<b>Unit Description</b>	<b>Waste Description</b>
42-001(a) <sup>b</sup>	Incinerator	Cylindrical combustion chamber housed in Technical Area (TA)-42-1 and used to incinerate radioactively-contaminated waste; decommissioned in 1978.	Radioactively-contaminated waste.
42-001(b-c) <sup>b</sup>	Holding Tanks	Two 37,000-gallon holding tanks associated with the incinerator; decommissioned in 1978.	Radioactive ash from the incinerator.
42-002(b) <sup>b</sup>	Decontamination Area	Asphalt driveway formerly located adjacent to TA-42-1 and used to decontaminate large items that could not be decontaminated inside TA-42-1; decommissioned in 1978.	Radionuclides and possibly grease and oils.
42-003 <sup>b</sup>	Septic System	Septic system that served TA-42-1; the unit consisted of a drainline from TA-42-1, a 565-gallon septic tank, a filter trench, a leach field, and an outfall; decommissioned in 1978.	Sanitary wastes and liquid wastes containing plutonium, uranium, fission products, tritium, and possibly solvents, acids, and greases.
55-008 <sup>b</sup>	Sumps, Pumps and Tanks	Sumps, pumps, and tanks used to contain and manage spills, mop water, and cooling coil condensate generated in TA-55-4.	Potentially small amounts of mixed wastes.
55-009 <sup>b</sup>	Concrete Enclosure	Enclosure constructed of concrete approximately 7 feet (ft) long, 7 ft wide, and 5.5 ft deep.	Radioactively-contaminated liquids.

<sup>a</sup> Information compiled from Los Alamos National Laboratory, 1990, "Solid Waste Management Units Report," Revision 1.0, *LAUR 90-3400*, Los Alamos National Laboratory, Los Alamos, New Mexico; and Los Alamos National Laboratory, 1992, "RFI Work Plan for Operable Unit 1129," *LAUR-92-800*, Los Alamos National Laboratory, Los Alamos, New Mexico. The SWMU report contained the most complete and accurate information available at the time of its publication; it is currently undergoing significant revision.

<sup>b</sup> SWMU is identified for corrective action in New Mexico Environment Department, 1998b, "Approval: Class III Permit Modification to Remove Ninety-Nine (99) Solid Waste Management Units from the Department of Energy/Los Alamos National Laboratory RCRA Permit NM0890010515," effective December 23, 1998, New Mexico Environment Department, Hazardous and Radioactive Materials Bureau.

**Table 4-2**  
**Active Hazardous/Mixed Waste Management Units Not Identified for Corrective Action**  
**in Module VIII<sup>a</sup>**

<b>SWMU No.</b>	<b>Unit Type</b>	<b>Unit Description</b>	<b>Waste Description</b>
55-001	Cementation Unit and Storage Tanks	Cementation unit housed inside a glovebox in TA-55-4-401. Five storage tanks and ancillary equipment associated with the cementation unit in TA-55-4-401.	Hazardous waste, mixed transuranic (TRU) waste, and mixed low-level waste.
55-004	Storage Tank	Evaporator glovebox tank and ancillary equipment associated with the evaporator in TA-55-4-401.	Mixed TRU waste liquid.
TBD <sup>b,c</sup>	Container Storage	An approximately 27- by 11-ft area adjacent to Room 38A in TA-55-4 basement (B38).	Hazardous waste, mixed TRU waste, and mixed low-level waste.
TBD <sup>b</sup>	Container Storage	An approximately 26- by 10-ft area located in southwest quadrant of TA-55-4 basement (B05).	Hazardous waste, mixed TRU waste, and mixed low-level waste.
TBD <sup>b</sup>	Container Storage	An approximately 16- by 13-ft area located north of Room 7 in the northwest corner of TA-55-4 basement (K13).	Hazardous waste, mixed TRU waste, and mixed low-level waste.
TBD <sup>b</sup>	Container Storage	An approximately 45- by 17.5-ft area adjacent to Room 8 in the northeast section of TA-55-4 basement (B45).	Hazardous waste, mixed TRU waste, and mixed low-level waste.
TBD <sup>b</sup>	Container Storage	An approximately 6 ft by 5.5 ft area located in Room 401(FLO1).	Hazardous waste, mixed TRU waste, and mixed low-level waste.
TBD <sup>b</sup>	Container Storage	An approximately 80- by 50.5-ft area located along the eastern wall of the TA-55-4 basement (Vault).	Mixed TRU waste and mixed low-level waste.
TBD <sup>b</sup>	Container Storage	An approximately 60- by 40-ft area in TA-55-185.	Hazardous waste, mixed TRU waste, and mixed low-level waste.
TBD <sup>b</sup>	Container Storage	Trapezoidal-shaped asphalt pad located on the west side of TA-55-4; the trapezoid measures 102 ft, 86 ft, 156 ft, and 105 ft and the rectangle measures 70 ft by 10 ft.	Hazardous waste, mixed TRU waste, and mixed low-level waste.

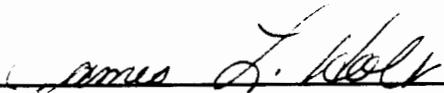
<sup>a</sup> Information compiled from Los Alamos National Laboratory, 1990, "Solid Waste Management Units Report," Revision 1.0, LAUR 90-3400, Los Alamos National Laboratory, Los Alamos, New Mexico; and Los Alamos National Laboratory, 1992, "RFI Work Plan for Operable Unit 1129," LAUR-92-800, Los Alamos National Laboratory, Los Alamos, New Mexico.

<sup>b</sup> TBD - SWMU status (and SWMU number, if appropriate) to be determined.

<sup>c</sup> CSU B38 is inactive and is scheduled for closure under interim status.

**5.0 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.

  
\_\_\_\_\_

James L. Holt  
Associate Director, Operations  
Los Alamos National Laboratory  
Operator

2/8/02  
\_\_\_\_\_

Date Signed

  
\_\_\_\_\_

Corey A. Cruz  
Acting Director, Office of Los Alamos  
Site Operation  
U.S. Department of Energy  
Albuquerque Operations  
Owner/Operator

2/8/02  
\_\_\_\_\_

Date Signed

## 6.0 REFERENCES

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, U.S. Environmental Protection Agency, Region 6, Hazardous Waste Management Division, Dallas, Texas.

LANL, 1998a, "Los Alamos National Laboratory General Part B Permit Application," Revision 1.0, Los Alamos National Laboratory, Los Alamos, New Mexico.

LANL, 1998b, "Los Alamos National Laboratory General Part A Permit Application," Revision 0.0, Los Alamos National Laboratory, New Mexico.

LANL, 1996, "Los Alamos National Laboratory Technical Area 55 Part B Permit Application," Revision 0.0, Los Alamos National Laboratory, Los Alamos, New Mexico.

LANL, 1992, "RFI Work Plan for Operable Unit 1129," LAUR-92-800, Los Alamos National Laboratory, Los Alamos, New Mexico.

LANL, 1990, "Solid Waste Management Units Report," Revision 1.0, LAUR-90-3400, Los Alamos National Laboratory, Los Alamos, New Mexico.

NMED, 1998a, Dinwiddie, Robert S. (Stu), New Mexico Environment Department, Letter to T. Taylor and J. Browne, February 5, 1998.

NMED, 1998b, "Approval: Class III Permit Modification to Remove Ninety-Nine (99) Solid Waste Management Units from the Department of Energy/Los Alamos National Laboratory RCRA Permit NM0890010515," effective December 23, 1998, New Mexico Environment Department, Hazardous and Radioactive Materials Bureau.

**ATTACHMENT A**  
**FACILITY DESCRIPTION**



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**LIST OF ABBREVIATIONS/ACRONYMS**

20.4.1 NMAC	New Mexico Administrative Code, Title 20, Chapter 4, Part 1
AASHTO	American Association of State Highway and Transportation Officials
EPA	U.S. Environmental Protection Agency
in	inch(es)
JCI	Johnson Controls World Services, Inc.
LANL	Los Alamos National Laboratory
TA	technical area

## ATTACHMENT A 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 (20.4.1 NMAC), revised June 14, 2000 [6-14-00]. The following subject areas are addressed:

- A general description of Technical Area (TA) 55 at Los Alamos National Laboratory (LANL) [20.4.1 NMAC, Subpart IX, 270.14(b)(1)];
- Site-specific traffic patterns, volume, and control [20.4.1 NMAC, Subpart IX, 270.14(b)(10)];
- Site-specific location information for compliance with the seismic standard and floodplain requirements [20.4.1 NMAC, Subpart IX, 270.14(b)(11), and 20.4.1 NMAC, Subpart V, 264.18(a) and (b)];
- Site-specific topographic map requirements [20.4.1 NMAC, Subpart IX, 270.14(b)(19)]; and
- Site-specific groundwater monitoring and protection information [20.4.1 NMAC, Subpart IX, 270.14(c), and 20.4.1 NMAC, Subpart V, 264.90(a)].

A LANL-wide facility description addressing additional regulatory requirements is provided in Appendix A of the "Los Alamos National Laboratory General Part B Permit Application," Revision 1.0 (LANL, 1998a), hereinafter referred to as the LANL General Part B.

### A.1 TA-55 GENERAL DESCRIPTION [20.4.1 NMAC, Subpart IX, 270.14(b)(1)]

TA-55 is located in the north central portion of LANL (Figure A-1) on a finger mesa between a branch of Mortandad Canyon on the north and Two Mile Canyon on the south. Mesa-top elevations at TA-55 range from approximately 7,100 to 7,300 feet above mean sea level. The locations of the waste management units at TA-55 are shown on Figure A-2.

TA-55 began operating in 1978 and is the location of research and development activities including a plutonium processing facility. The waste management units addressed in this permit application include nine container storage units, a storage tank system, a cementation unit, and a vitrification unit. Detailed descriptions of the waste management units at TA-55 are provided in Attachments G, H, I, and J, respectively.

## A.2 TRAFFIC PATTERNS [20.4.1 NMAC, Subpart IX, 270.14(b)(10)]

General traffic pattern information, traffic volumes, and traffic control signals for the LANL-wide facility are provided in Appendix A of the LANL General Part B (LANL, 1998a).

### A.2.1 Routes of Travel

Hazardous and/or mixed waste stored and treated at TA-55 is generated at TA-3 and TA-55. Hazardous and/or mixed waste is occasionally transported from TA-55 to other areas at LANL (e.g., TA-54). The primary traffic routes that may be used to transport hazardous and mixed waste to and from TA-55 include Diamond Drive, Pajarito Road, and Pecos Drive as shown on Figure A-3.

### A.2.2 Traffic Volumes

The buildings at TA-55 are located northwest of the intersection of Pajarito Road and Pecos Drive, as shown on Figure A-4. According to a traffic study conducted by Johnson Controls World Services, Inc. (JCI) (JCI, 1999), Pajarito Road has an average daily traffic volume of 12,000 vehicles. This includes vehicles traveling both northwest and southeast. Pecos Drive has an average daily traffic volume of 5,000 vehicles per day. This includes vehicles traveling both north and south. These values are based on a 24-hour period. Vehicle types include cars, light- and medium-duty trucks, and vans.

### A.2.3 Traffic Control Signals

Traffic control signals surrounding and within TA-55 include stop signs, posted speed limits, a traffic light, and other traffic and pedestrian control signs. The locations of existing traffic control signals at TA-55 are shown on Figure A-4.

### A.2.4 Road Load-Bearing Capacity

Roads within TA-55 are generally two lane roads with asphaltic concrete surfaces. Load-bearing capacity for these roads is 32,000 pounds per axle. These roads are typically constructed with a 6 inch (in.) thick base with a 3 in. thick asphaltic concrete surface. These roads were designed and constructed to meet the American Association of State Highway and Transportation Officials (AASHTO) specification HS-20 (AASHTO, 1996).

A.3 LOCATION INFORMATION [20.4.1 NMAC, Subpart IX, 270.14(b)(11)]

A.3.1 Seismic Standard [20.4.1 NMAC, Subpart IX, 270.14(b)(11)(i - ii) and 20.4.1 NMAC, Subpart V, 264.18(a)]

TA-55 is in compliance with the seismic standards of 20.4.1 NMAC, Subpart IX, 270.14(b)(11), and 20.4.1 NMAC, Subpart V, 264.18(a) [6-14-00]. A geologic field investigation, which consisted of exploratory trenching, was conducted within 3,000 ft of TA-55-4 and TA-55-185 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).

A.3.2 Floodplain Standard [20.4.1 NMAC, Subpart IX, 270.14(b)(11)(iii - v) and 270.14(b)(19)(ii); 20.4.1 NMAC, Subpart V, 264.18(b)]

In accordance with 20.4.1 NMAC, Subpart IX, 270.14(b)(11)(iii) [6-14-00], the hazardous and mixed waste management units addressed in this permit application are not located within the 100-year floodplain boundary. LANL mapped all 100-year floodplain boundaries within the LANL complex, as required 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" (U.S. Environmental Protection Agency [EPA], 1994). These floodplain maps were revised in 2001 due to the Cerro Grande Fire. The revised maps are provided as Appendix C of the "Response to Request for Supplemental Information: Technical Adequacy Review, RCRA Permit Application; General Part A, April 1998, Revision 0.0; General Part B, October 1998, Revision 1.0, "Los Alamos National Laboratory, EPA ID No. NM0890010515" (LANL, 2001).

A.4 TOPOGRAPHIC MAPS [20.4.1 NMAC, Subpart IX, 270.14(b)(19)]

Topographic maps and figures are provided herein or referenced to meet the requirements of 20.4.1 NMAC, Subpart IX, 270.14(b)(19) [6-14-00]. All maps clearly show the map scale, the date of preparation, and a north arrow. The maps and figures used to fulfill these regulatory requirements include the following:

- LANL-wide 100-year floodplain maps are provided as Appendix C of the Response to Request for Supplemental Information: Technical Adequacy Review, RCRA Permit Application; General Part A, April 1998, Revision 0.0; General Part B, October 1998, Revision 1.0; Los Alamos National Laboratory, EPA ID No. NM 0890010515 (LANL, 2001).
- A map showing surface waters, including intermittent streams, near TA-55 is included as Figure A-5.
- Surrounding land uses are shown on Figure A-1.

- Wind roses for TA-6, the TA directly to the west of TA-55, are shown on Figures A-6 and A-7.
- A map showing the legal boundaries of LANL (including TA-55) is provided as Map 1 in the "Los Alamos National Laboratory General Part A Permit Application," Revision 0.0 (LANL, 1998b), hereinafter referred to as the LANL General Part A.
- Access control features at TA-55 (e.g., fences, gates) are shown on Figure A-8.
- A map showing supply wells, monitoring wells, test wells, springs, and surface-water sampling stations near TA-55 is included as Figure A-5.
- The locations of buildings, hazardous and/or mixed waste management units, and loading and unloading areas at TA-55 are shown on Figure A-5.
- A map showing National Pollutant Discharge Elimination System discharge structure locations is included in the LANL General Part A (LANL, 1998b).
- Storm, sanitary, and process sewer systems at LANL are shown on Map A-1 of the LANL General Part B (LANL, 1998a).
- Drainage control features (e.g., run-on/runoff) are shown on Figure A-9.
- Natural surface drainages are shown on a topographic map included herein as Figure A-5.
- Fire stations serving LANL and the County of Los Alamos are shown on Figure E-2 of Appendix E in the LANL General Part B (LANL, 1998a).
- The equipment cleanup area for LANL is located at TA-50-1. The location of TA-50-1 is shown on a map in the LANL General Part A (LANL, 1998b).

Contour lines on the topographic map are in intervals sufficient to detail natural drainage at LANL and in the vicinity of the waste management units at TA-55. As provided in 20.4.1 NMAC, Subpart IX, 270.14(b)(19) [6-14-00], LANL has submitted the maps to the New Mexico Environment Department at these scales and contour intervals due to the size of the waste management units, the extent of the LANL facility, and the topographic relief in the area.

A.5 GROUNDWATER MONITORING [20.4.1 NMAC, Subpart IX, 270.14(c) and 20.4.1 NMAC, Subpart V, 264.90(a)]

Groundwater monitoring information is provided in Appendix A of the LANL General Part B (LANL, 1998a).

## A.6 OTHER PERMIT ACTIVITIES

Other types of Resource Conservation and Recovery Act permits include, but are not limited to, the following:

- Permits by Rule
- Emergency Permits
- Hazardous Waste Incinerator Permits
- Permits for Land Treatment Demonstrations Using Field Test or Laboratory Analyses
- Interim Permits for Underground Injection Control Program Wells
- Research, Development, and Demonstration Permits
- Permits for Boilers and Industrial Furnaces Burning Hazardous Waste.

Currently, none of these permit types are in effect for operations at TA-55.

## A.7 REFERENCES

AASHTO, 1996 and all approved updates, "Standard Specifications for Highway Bridges," 16<sup>th</sup> Edition, American Association of State Highway and Transportation Officials.

JCI, 1999, Telecon from John Bradley, Johnson Controls World Services, Inc. to Jessica Moseley, IT Corporation, on February 10, 1999, Los Alamos, New Mexico.

LANL, 2001, "Response to Request for Supplemental Information: Technical Adequacy Review, RCRA Permit Application; General Part A, April 1998, Revision 0.0; General Part B, October 1998, Revision 1.0, Los Alamos National Laboratory, EPA ID No. NM0890010515," Los Alamos National Laboratory, Los Alamos, New Mexico.

LANL, 1998a, "Los Alamos National Laboratory General Part B Permit Application," Revision 1.0, Los Alamos National Laboratory, Los Alamos, New Mexico.

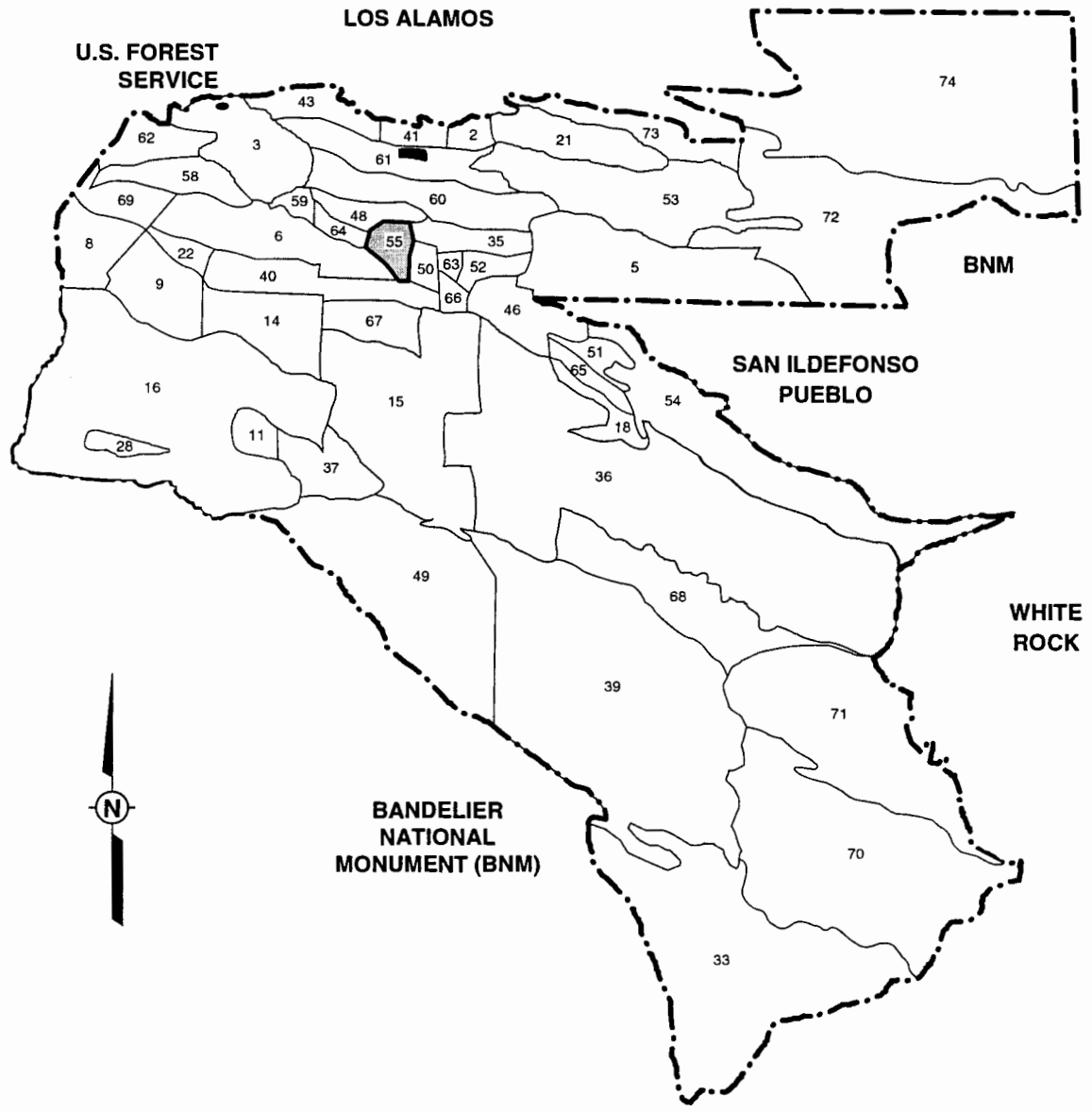
LANL, 1998b, "Los Alamos National Laboratory General Part A Permit Application," Revision 0.0, Los Alamos National Laboratory, Los Alamos, New Mexico.

McLin, 1992, "Determination of 100-year Floodplain Elevations at Los Alamos National Laboratory, "ILA-12195-MS, Los Alamos National Laboratory, Los Alamos, New Mexico.

U.S. Environmental Protection Agency, 1994, "Module VIII: Special Conditions Pursuant to the 1984 Hazardous and Solid Waste Amendments to RCRA for Los Alamos National Laboratory, EPA I.D. NM 0890010515," effective date May 19, 1994, U.S. Environmental Protection Agency, Region 6, Hazardous Waste Management Division, Dallas, Texas.

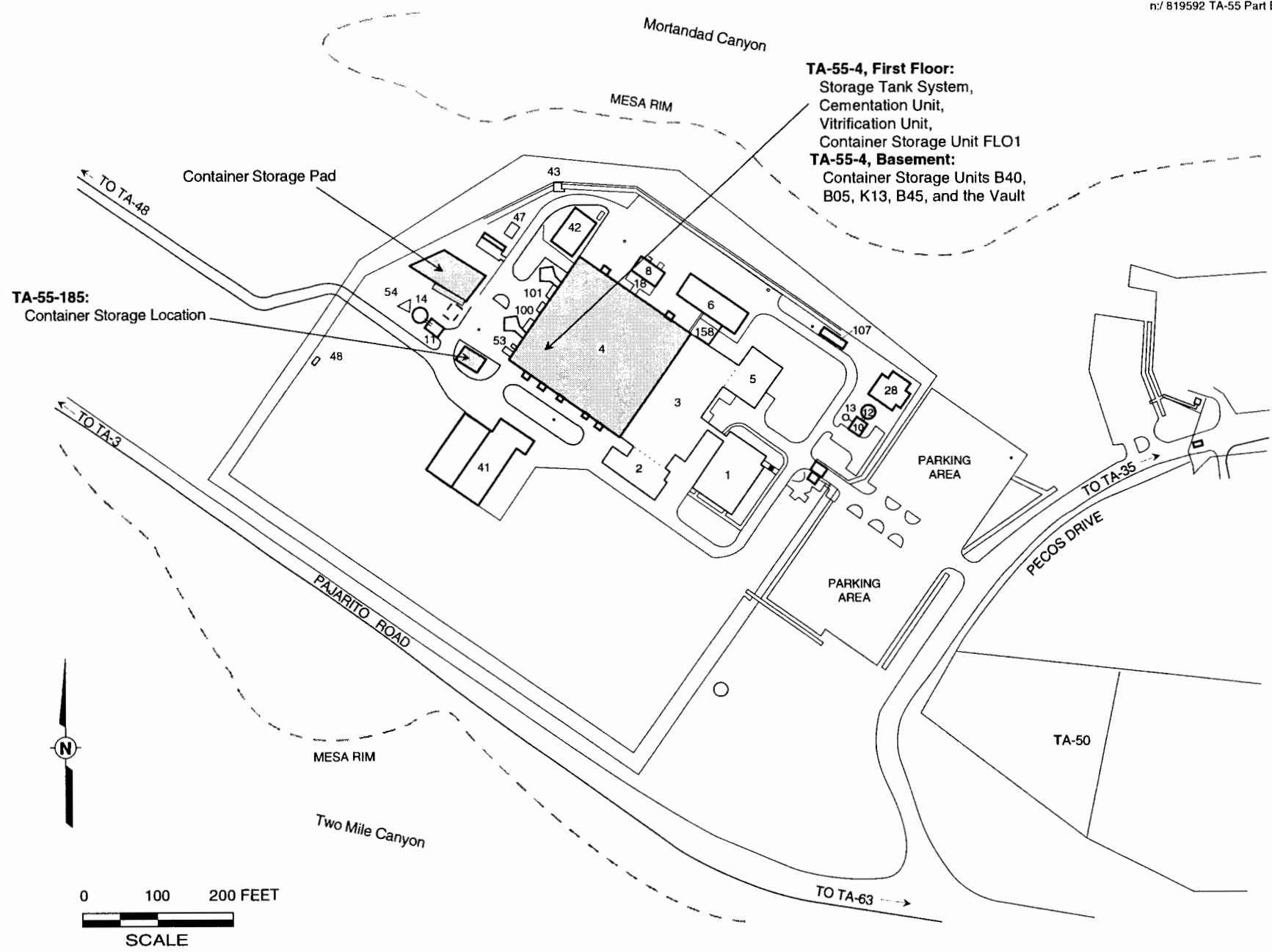
Woodward-Clyde Federal Services, 1995, "Evaluation of the Potential for Surface Faulting at TA-63," prepared for Los Alamos National Laboratory, Los Alamos, New Mexico.



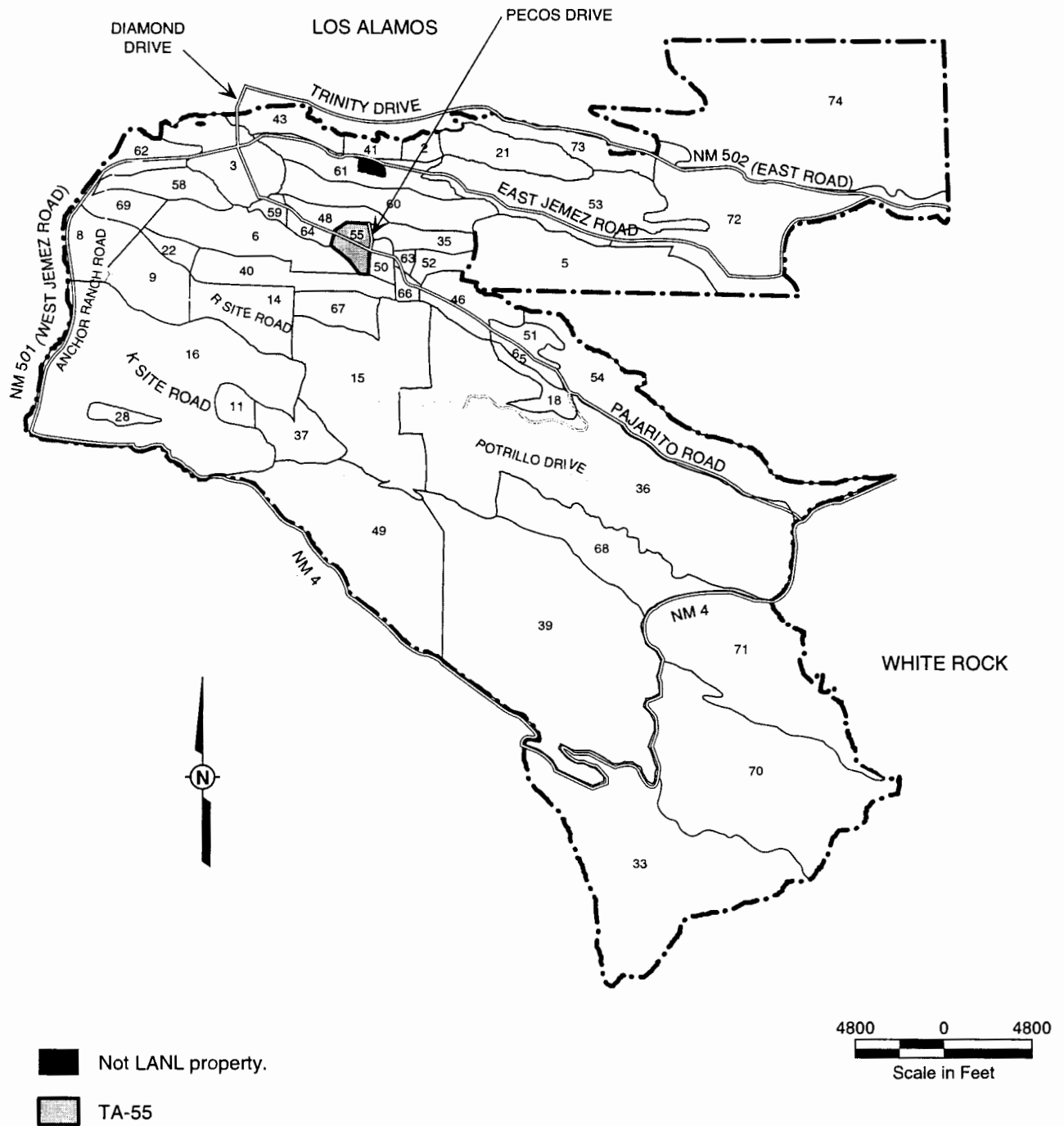


■ Not LANL property.  
▨ TA-55

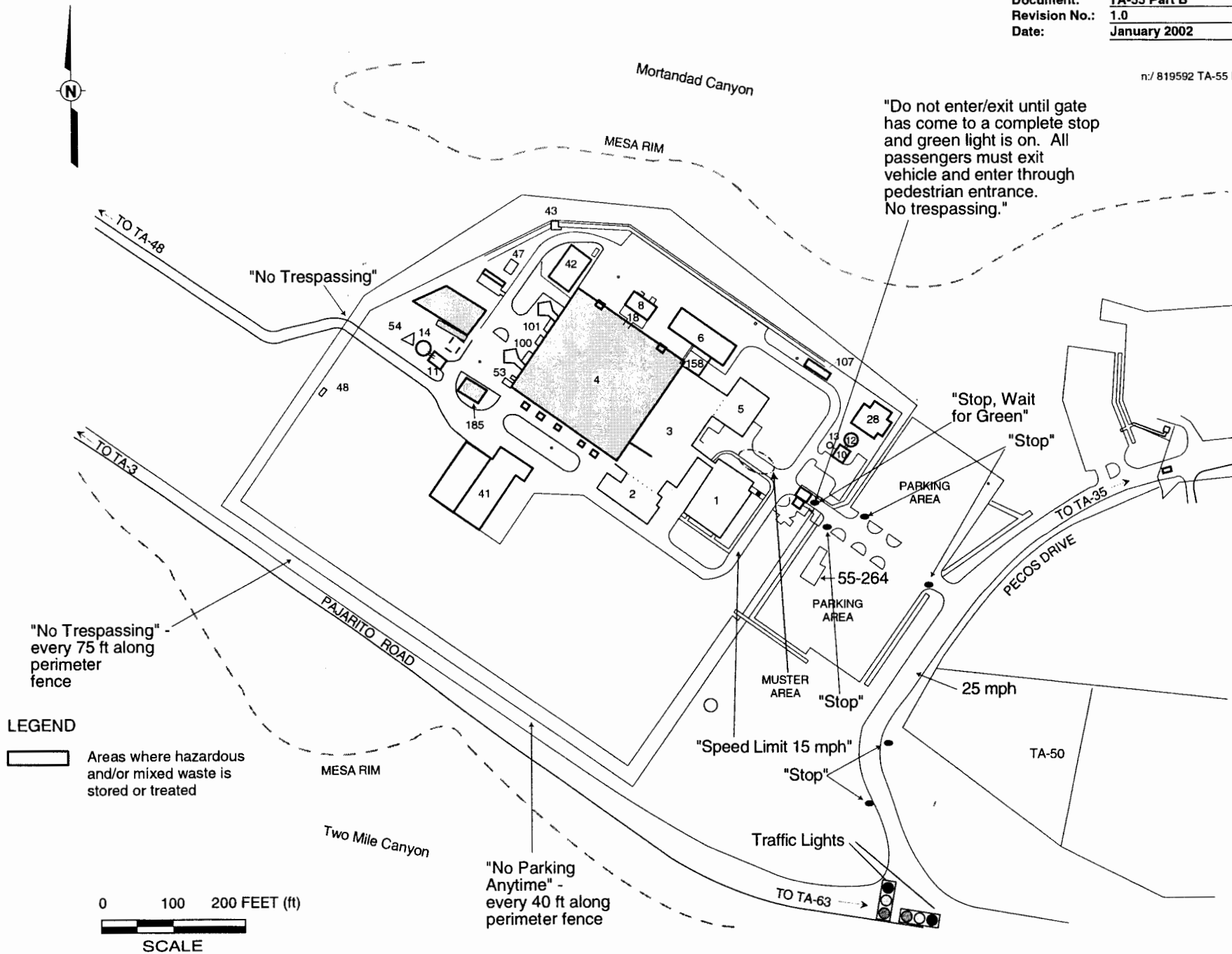
**Figure A-1**  
Location Map of Technical Area (TA) 55 at Los Alamos National Laboratory (LANL)



**Figure A-2**  
 Location of Waste Management Units at Technical Area (TA) 55

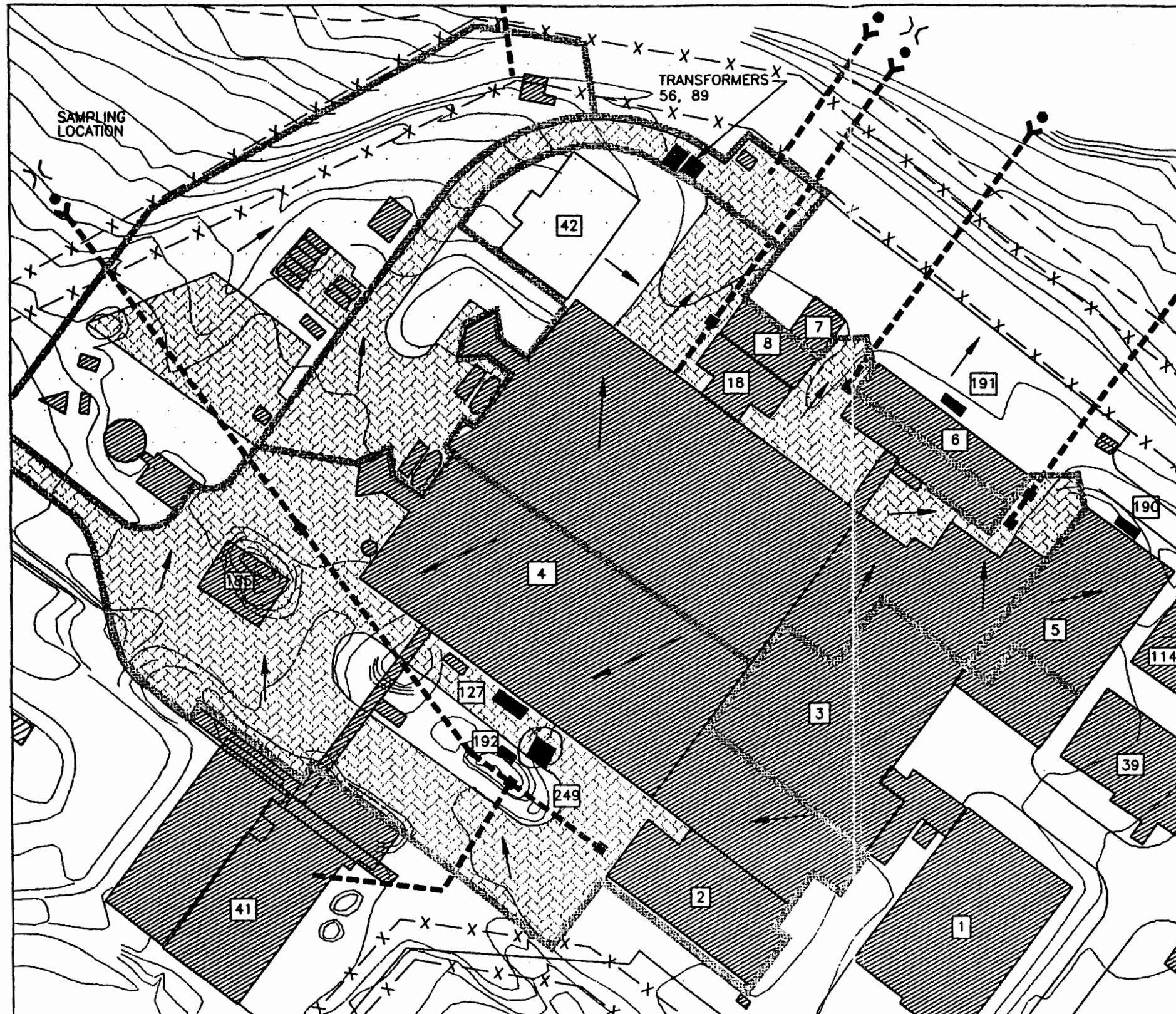


**Figure A-3**  
Major Roads and Primary Traffic Routes at Los Alamos National Laboratory (LANL)



**Figure A-4**

Location Map of Access Roads and Traffic Control Signs in the Vicinity of Technical Area (TA) 55



**NOTE:**  
1. CONTOURS 10-FT INTERVALS

SYMBOLS LEGEND	
	DIRECTION OF STORM WATER FLOW
	DIRT ROAD
	PAVED ROAD
	EXISTING BUILDING
	DRAINAGE BOUNDARY
	CULVERT
	FENCE
	CENTER LINE OF DRAINAGE
	ASPHALT COVERED
	GSIP LOCATION
	AREA OF CONCERN
	SUMP
	STORM WATER DISCHARGE POINT

REVISIONS		NO.	BY	DATE	REMARKS	DRAWN	SCALE
						JSI	1"=90'-0"
						SJV	PLOT DATE 01/24/96
						SJV	CREATION DATE 12/12/95
							DRAWING FILE NAME 55-PLUT.DWG

**Santa Fe Engineering Limited**  
1429 Second St. Santa Fe, NM 87505  
(505) 886-7438 Fax: (505) 883-5608

**Los Alamos**  
Los Alamos National Laboratory  
Los Alamos, New Mexico 87545  
REQUESTING GROUP ESH-18  
LAE JOB NO. -

**Figure A-9**  
Drainage Control Features  
at Technical Area (TA) 55  
DRAWING NUMBER -

SHEET  
1  
of  
1  
REV  
0