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Los Alamos National Laboratory

Technical Area 50
Part B Permit Renewal Application

Revision 3.0

Prepared by:

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Solid Waste Regulatory Compliance (SWRC)
Los Alamos, New Mexico 87544

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LIST OF ABBREVIATIONS/ACRONYMS

20.4.1 NMAC	New Mexico Administrative Code, Title 20, Chapter 4, Part 1
BWTU	Batch Waste Treatment Unit
CSU	container storage unit
CWA	Clean Water Act
D&D	decontamination and decommissioning
DOT	U.S. Department of Transportation
EPA	U.S. Environmental Protection Agency
FRP	fiberglass-reinforced plywood
ft	foot/feet
gal.	gallon(s)
HRMB	Hazardous and Radioactive Materials Bureau
in.	inch(es)
LANL	Los Alamos National Laboratory
MDA	Material Disposal Area
NMED	New Mexico Environment Department
NPDES	National Pollutant Discharge Elimination System
PVC	polyvinyl chloride
RCRA	Resource Conservation and Recovery Act
RLW	radioactive liquid waste
RLWTF	Radioactive Liquid Waste Treatment Facility
SWB	standard waste box
SWMU	solid waste management unit
TA	Technical Area
WAC	waste acceptance criteria

1.0 INTRODUCTION

This revised "Los Alamos National Laboratory Technical Area 50 Part B Permit Renewal 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) 50 at Los Alamos National Laboratory (LANL). Waste management units to be permitted include two container storage units located at TA-50, Building 69 (TA-50-69). This document serves as Revision 3.0 to the "Technical Area 50 Part B Permit Renewal Application," Revision 1.0, submitted to the New Mexico Environment Department (NMED) in January 1999 (LANL, 1999).

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,1998). 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].

This permit renewal document addresses revisions agreed upon in the "Response to Request for Supplemental Information: Technical Adequacy Review, Resource Conservation and Recovery Act Permit Application; TA-50 Part B, December 2000, Revision 2.0; Los Alamos National Laboratory, U.S. Environmental Protection Agency ID No. NM0890010515," submitted to the NMED in November 2001 (LANL, 2001), and the "Response to Notice of Deficiency; TA-50 Part B Permit Application, Revision 2.0, March 4, 2002," submitted to the NMED in April 2002 (LANL, 2002a).

In accordance with HRMB's permitting strategy, LANL submitted the "Los Alamos National Laboratory General Part A Permit Application," Revision 0.0 (LANL, 1998b) or most recent version, 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 renewal application.

In the LANL General Part A, the LANL General Part B, and the revised permit renewal 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

Regulatory Citation(s)	Description of Requirement	Location in this Permit Application
§270.14(b)(1)	General facility description	Attachment A
§270.14(b)(2)	Chemical and physical analyses of hazardous waste	Attachment B[a]
§270.14(b)(3)	Waste analysis plan	Attachments B[a]
§264.13(b)	Development and implementation of a written waste analysis plan	Attachments B[a]
§264.13(c)	Off-site waste analysis requirements	Attachments B[a]
§270.14(b)(4)	Security procedures and equipment	Attachment G
§270.14(b)(5)	General inspection schedule	Attachment C[a]
§264.174	Inspections/containers	Attachment C[a]
§264.193(i)	Tank system inspections pending provision of adequate secondary containment	NA
§264.195	Overfill control inspections	NA
§264.602	Miscellaneous units	NA
§264.1033	Process vent standards	NA
§264.1052	Equipment leak air emission standards	NA
§264.1053	Compressor standards	NA
§264.1058	Standards for pumps, valves, pressure relief devices, flanges, and connections	NA
264.1088	Subpart CC inspection air monitoring requirements	Attachment C, Attachment G
§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[a]
§270.14(b)(8)	Description of preparedness and prevention	Attachment G
§270.14(b)(8)(i)	Hazard prevention in unloading operations	Attachment G

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	2.0, Attachment G
§270.14(b)(8)(iii)	Contamination prevention of water supplies	Attachment G
§270.14(b)(8)(iv)	Mitigation of equipment failure and power outages	Attachment G
§270.14(b)(8)(v)	Prevention of undue exposure of personnel to hazardous waste	Attachment G
§270.14(b)(8)(vi)	Prevention of releases to the atmosphere	Attachment G
§270.14(b)(9)	Prevention of accidental ignition or reaction of ignitable, reactive, or incompatible wastes	2.0, Attachment G
§264.17(c)	Documentation of compliance with 264.17 (general requirements for ignitable, reactive, or incompatible wastes)	2.0, Attachment G
§270.14(b)(10)	Traffic pattern, volume, and controls	Attachment A[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[a]
§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[a]

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)(13)	Closure and post-closure plans	Attachment F
§264, Subpart G	Closure and post-closure	Attachments F
§264.178	Closure/containers	Attachment F
§264.197	Closure and post-closure care/tanks	Attachment F
§264.601	Closure/miscellaneous units	Attachment F
§264.603	Requirements by the Secretary	Attachments F
§270.14(b)(14)	Post-closure notices (264.119)	Attachments F
§270.14(b)(15)	Closure cost estimate (264.142)	Attachments F
§270.14(b)(16)	Post-closure cost estimate (264.144)	Attachments F
§270.14(b)(17)	Liability insurance (264.147)	Attachments F
§270.14(b)(18)	Proof of financial coverage (264.149-150)	Attachments F
§270.14(b)(19)	Topographic map requirements	Attachment A[b]
§270.14(b)(19)(i)	Map scale and date	Attachment A[b]
§270.14(b)(19)(ii)	100-year floodplain area	Attachment A[b]
§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[b]

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[b]
§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[a]
§270.14(b)(20)(a)	Wild and Scenic Rivers Act	3.0[a]
§270.14(b)(20)(b)	National Historic Preservation Act	3.0[a]
§270.14(b)(20)(c)	Endangered Species Act	3.0[a]
§270.14(b)(20)(d)	Coastal Zone Management	3.0[a]
§270.14(b)(20)(e	Fish and Wildlife Coordination Act	3.0[a]
§270.14(b)(20)(f)	Executive Orders	3.0[a]
§270.14(b)(21)	Notice of extension approval for land disposal facilities	NA
§270.14(c)	Groundwater monitoring requirements	Attachment A[a]
§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

Regulatory Citation(s)	Description of Requirement	Location in this Permit Application
§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	NA
§270.23	Information requirements for miscellaneous units	NA

[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

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]. This section provides a general description of the Los Alamos National Laboratory (LANL) Technical Area (TA) 50 container storage units (CSU) and waste management practices. Detailed information on and figures of the TA-50 CSUs are provided in Attachment G of this permit renewal application. A summary of applicable regulatory references for container storage and the corresponding location where the requirement is addressed in this permit renewal application is located in Attachment G, Table G-1.

2.1 CONTAINER STORAGE

TA-50 is located at the northeast corner of the intersection of Pajarito Drive and Pecos Road, on the finger mesa bounded by Mortandad Canyon to the north and Two-Mile Canyon to the south. The CSUs at TA-50 include the TA-50-69, Indoor CSU and the TA-50-69, Outdoor CSU. The following provides descriptions of the locations and capacity, potential storage containers, and minimum aisle space requirements for the TA-50 CSUs.

2.1.1 Storage Capacity

The maximum storage capacity of the TA-50 CSUs is as follows:

- TA-50-69, Indoor CSU – 1,500 gallons (gal.)
- TA-50-69, Outdoor CSU – 30,000 gal.

General dimensions, containment features, and materials of construction for each CSU are provided in Attachment G of this permit renewal application to satisfy the requirements of 20.4.1 NMAC, Subpart IX, 270.15(a)(1) and (2) [6-14-00].

2.1.2 Storage Containers

Containers that will be used to store wastes at the TA-50 CSUs include, but are not limited to 5-, 30-, 55-, 83-, 85-, and 110-gal. steel and/or poly drums; standard fiberglass-reinforced plywood (FRP) boxes; steel standard waste boxes (SWBs); metal overpack boxes; steel B25 and B12 boxes; various small containers; and oversized, irregularly shaped FRP boxes. The following sections provide

descriptions of the storage containers considered acceptable for waste storage at the TA-50-69, Indoor and Outdoor CSUs.

2.1.2.1 55-Gallon Drums

The most common drum to be used for storage is the 55-gal. drum. The standard 55-gal. drum in use is constructed of 16-gauge steel, has an approximate 22-inch (in.) inner diameter, and a usable inside height of approximately 33 in. Standard 55-gal. drums meet the U.S. Department of Transportation (DOT) requirements.

2.1.2.2 Fiberglass-Reinforced Plywood Boxes

Standard-size FRP boxes used for storage measure 4 foot (ft) by 4 ft by 8 ft. The outer surface of the FRP boxes is coated with a 0.06- to 0.12-in.- (60- to 120-mil)- thick layer of epoxy-impregnated fiberglass. At times, nonstandard-size FRP boxes are designed and constructed to contain odd-shaped or oversized waste.

2.1.2.3 Standard Waste Boxes

Two different types of SWBs are used for storage at the TA-50 CSUs. One type is constructed of 14-gauge steel and has rounded ends. It measures 52 in. by 69 in. by 36 in., 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 in. by 72 in. by 37 in. It has continuous welds on all four sides and on the bottom and a lid that is clamped and welded in place.

2.1.2.4 Overpacks

The metal overpack containers 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 overpacks are elevated by design with risers for ease of handling. B25 overpacks are constructed of 16-gauge welded carbon steel, are a standard size of 4 ft by 4 ft by 6 ft, and are elevated by design. All B25 overpacks have a rubber gasket with either a bolt-on, clipped-pinned, or hinged lid.

Overpacks are used when a container's integrity is suspect, or if cracks or leaks are observed. The 85-gal. drums are commonly used to overpack 55-gal. drums, and 110-gal. drums are used to overpack 85-gal. drums. The 85-gal. 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-in. closure bolt. Rounded-end SWBs are used to overpack drums of various sizes that contain mixed transuranic waste. Metal boxes are used as overpacks for FRP boxes.

2.1.3 Minimum Aisle Space and Storage Configuration

Waste containers at the TA-50 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 weight restrictions. Fifty-five gallon drums and SWBs are arranged in rows and may be stacked to a maximum of two high. The 85-gallon drums are not stacked. Large waste boxes are also stacked to a maximum of two high, unless size and width restrictions prohibit stacking due to safety concerns.

2.1.3.1 TA-50-69, Indoor CSU

Waste to be stored in the TA-50-69, Indoor CSU is positioned in an area away from any worker activity or traffic that is unrelated to the management of the waste itself. Adequate space is maintained around each storage pallet to allow for inspection of all containers. Due to volumes and placement of waste, aisle spacing is not an issue at this CSU. Solid waste stored in containers connected to the packaging/bagout module of the glovebox enclosure do not require aisle spacing. Incompatible wastes will not be stored inside the glovebox enclosure.

2.1.3.2 TA-50-69, Outdoor CSU

Drum containers at the TA-50-69, Outdoor CSU are stacked to a maximum of two high based upon size and weight. Adequate space is maintained between rows of containers. Container rows in the transportainers are typically oriented north/south and in one of two configurations. The first configuration stores containers on dollies in rows along both walls of the transportainer with a main aisle running down the center. Containers stored on dollies are rotated during routine inspections so that the entire drum can be inspected. The second configuration stores containers on pallets placed against one wall of the transportainer with a main aisle running along the opposite wall. Adequate space is maintained between each pallet and between the pallet and the transportainer wall to allow for visual inspection. To facilitate container movement, storage, and inspection, all drums and irregular containers holding wastes are stored on either pallets or dollies.

2.1.4 Authorized Waste Identification

The TA-50 CSUs will store containers of 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). These wastes do not contain free liquids as defined by the Waste Isolation Pilot Plant Waste Acceptance Criteria, which include:

- Liquids that readily separate from the solid portion of a waste under ambient temperature and pressure; and
- Liquids that are not absorbed into a host material such that it could spill or drain from its container.

Additional information on the wastes to be stored at the TA-50 CSUs is provided in the waste analysis plan, Appendix B of the LANL General Part B (LANL, 1998a).

2.1.5 Condition of Containers [20.4.1 NMAC, Subpart V, 264.171, 264.173, and 264.174]

As required by 20.4.1 NMAC, Subpart V, 264.171 [6-14-00], any container that is not in good condition (e.g., severe rusting, apparent structural defects) will be overpacked, or the wastes will be transferred and repackaged in containers that are in good condition before being placed into storage. All containers will be 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. 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 20.4.1 NMAC, Subpart V, 264.173(b) [6-14-00].

Any container of waste that shows signs of structural instability or leakage will be overpacked in a DOT-approved container, or the waste will be transferred into a container that is in good condition, as required by 20.4.1 NMAC, Subpart V, 264.171 [6-14-00]. When specified by DOT, liners will be used inside the waste container.

2.1.6 Compatibility of Waste with Containers

The container materials and liners will be selected to ensure that the ability of the container to contain the waste is not impaired as required by 20.4.1 NMAC, Subpart V, 264.172 [6-14-00]. Based on manufacturer's tolerance specifications, container material and liners used will not react with, and will be compatible with, the waste.

2.1.7 Management of Containers

Waste containers are kept closed during storage and staging, except when it is necessary to add or remove waste, as allowed by 20.4.1 NMAC, Subpart V, 264.173(a) [6-14-00]. Some mixed waste containers are vented and have carbon composite filters that allow gases (e.g., hydrogen), if any, to be released, but prevent the release of airborne particulates. Waste containers are closed or vented, handled, staged, and stored to prevent rupture, leakage, or spillage, as required by 20.4.1 NMAC, Subpart V, 264.173(b) [6-14-00]. Containers are managed at the TA-50 CSUs in accordance with written facility-specific procedures to minimize the potential for damage to or spillage from waste containers. All waste handlers at TA-50 are thoroughly trained in the safe use of waste container handling and transport equipment in accordance with Appendix C of the LANL General Part B. Because the TA-50 yard area is graded and paved, jarring of containers during transport is minimized. To protect the integrity of waste containers received at the TA-50 CSUs, only equipment designed for moving waste containers is used. Small waste containers may be handled manually or with dollies. Each TA-50 CSU is equipped with structures and equipment to facilitate safe loading, unloading, and movement of waste containers, as described in Attachment G of this permit renewal application.

2.1.7.1 Movement of Containers

All waste received at the TA-50 CSUs is manifested and transported from LANL waste generator or storage locations in accordance with applicable DOT regulations. LANL procedures establish vehicle and operator qualifications and provide specifications for loading and transporting waste. The loading and unloading of containers is also described in more detail in Section G.2.4.1. Waste received at TA-50 meets site-specific waste acceptance criteria (WAC) to ensure wastes and their containers are appropriate for storage in the various CSUs. The WAC is established to ensure wastes destined for TA-50 are identified as to form, packaged in DOT-approved containers appropriate for the waste, and markings and labels required by applicable EPA and DOT regulations are used. In addition, the WAC requires waste containers to be in good condition without signs of corrosion or structural defects.

2.1.7.2 Waste Container Labeling

All waste containers will be marked with a bar code identification number that corresponds to a number in LANLs waste management database. This database is composed of information supplied by the waste generator before storage by waste management personnel after the waste has been received. This information includes the name and location of the waste generator, waste characterization information, packaging, waste certification, receiving site, and storage location. All containers with hazardous or mixed waste will be labeled with a hazardous waste label that lists the appropriate EPA hazardous waste number(s). All containers are clearly marked to identify the contents and the date

each period of accumulation begins. In the event that a container is repackaged, repackaging personnel will ensure the new container is properly labeled. When waste containers are moved during storage, their waste package identification numbers (bar codes), origin and destination, and package changes (e.g., overpack volume, overpack dimensions) will be documented. The waste management database will then be updated to reflect any new information.

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

To demonstrate compliance with 20.4.1 NMAC, Subpart IX, 270.15(b)(1)[6-14-00], information documented in LANL waste management databases will be used to initially verify the absence of free liquids in containers. Containers that cannot be verified are characterized with real-time radiography (RTR) prior to being sent to the TA-50 CSUs. FRP boxes that hold glove boxes do not contain any free liquids. Free liquids discovered during past inspections and/or RTR are removed from the FRP boxes at TA-54, Area G, or elsewhere, before transport and storage at TA-50. FRP boxes that have poor structural integrity are overpacked in metal containers to facilitate safe transport and storage.

FRP boxes, SWBs, and steel B25 and B12 boxes are elevated by design. The pallets and/or devices used to elevate containers at the TA-50 CSUs are constructed of impervious, corrosion-resistant materials compatible with the wastes.

Elevated containers, pallets and/or devices (such as the glovebox in the TA-50-69 Indoor CSU) provide protection from potential contact with standing liquids that could be introduced through fire suppression activities. Together, these waste management practices and design features satisfy the requirements of 20.4.1 NMAC, Subpart IX, 270.15(b)(2) and 20.4.1 NMAC, Subpart V, 264.175(c) [6-14-00].

2.1.8.1 TA-50-69, Indoor CSU

This section describes containment systems specific to each room within the TA-50-69, Indoor CSU. Rooms 102 and 103 of TA-50-69 historically have been used to store contaminated glove boxes and other mixed wastes associated with the Waste Characterization, Reduction, and Repacking Facility operations. The total design capacity for these two rooms is 1,500 gal. and there is no physical barrier between them. A steel mezzanine added to the western third of the main process room is used for storage of materials and equipment. The mezzanine is not part of the CSU.

A large glove box enclosure is located inside the main process room for size reduction of radioactively contaminated metallic items. The glove box enclosure measures 15 ft wide, 30 ft long, and 10 ft high and is constructed of type 304 stainless steel with a high-polish finish. It was originally assembled in

four separate modules: Airlock, disassembly, cutting, and packaging/bagout. The modules are bolted together and seal welded. Although assembled as four modules, the structure is a single continuous volume, entirely self-contained, and meets all the requirements for containment of free liquids. The glove box enclosure was leak-tested before use. A floor drain is located near the glove box enclosure and is connected directly to the Radioactive Liquid Waste Treatment Facility (RLWTF). Waste containers are stored on pallets to prevent contact between the containers and any standing liquid. Collected liquids will be held in DOT-approved containers until they are sampled and analyzed in accordance with Appendix E of the LANL General Part B (LANL, 1998a). To facilitate container movement, storage, and inspection, all drums and irregular containers are stored on either wooden pallets or dollies.

The glove box enclosure is airtight and provides a containment system that meets the requirements of 20.4.1 NMAC, Subpart V, 264.175(b) [6-14-00]. Containers inside the glove box enclosure are elevated to prevent contact with potentially accumulated liquid. Any accumulated liquid in the glove box enclosure is removed as soon as possible after discovery to prevent overflow. Collected liquids are held in DOT-approved containers until they are sampled and analyzed in accordance with Appendix E of the LANL General Part B (LANL, 1998a). The design and operation of the pallets and glove box enclosure meet the requirements of 20.4.1 NMAC, Subpart V, 264.175(b) and 20.4.1 NMAC, Subpart IX, 270.15(a)(1) through (4) [6-14-00].

A floor drain is located in the eastern part of Room 103. The drain is plumbed directly to the RLWTF. Containers in Room 103 are stored on pallets that provide segregation of incompatible wastes in the event that a container is breached and prevent contact with potentially accumulated liquids. Any accumulated liquids in the room are removed as soon as possible after discovery. Collected liquids are held in DOT-approved containers until they are sampled and analyzed in accordance with Appendix E of the LANL General Part B (LANL, 1998a). Equipment that is located inside Room 103, but not associated with the CSU, includes a chemical decontamination fume hood, continuous feed welding system, and Heliarc welding system.

2.1.8.2 TA-50-69, Outdoor CSU

Capacity for the TA-50-69, Outdoor CSU is 30,000 gal. The waste to be stored in this CSU is expected to be solid waste; any liquids present would be residual liquids only. The TA-50-69, Outdoor CSU consists of transportainers and waste pallets stored on an asphalt pad. It does not have permanent secondary containment built into it.

Incompatible wastes stored at the Outdoor CSU are separated on pallets to keep the wastes segregated in the event that a container is breached.

2.1.9 Inspection Schedules and Procedures

The purpose of inspections is to identify leaking/breached containers, deterioration of containers, and/or loss of integrity of a containment system, as required by 20.4.1 NMAC, Subpart V, 264.174 [6-14-00]. The inspections will include checking the structural integrity of containers (e.g., for bulging or warping). Inspections will follow the Inspection Plan in Appendix C of the LANL General Part B (LANL, 1998a) and Attachment C of this permit renewal 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)]

To prevent accidental ignition or reaction of ignitable, reactive, or incompatible waste at the TA-50 CSUs, TA-50 personnel will manage hazardous and mixed waste using the precautions described in this section.

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 CSUs, the containers will be located at least 50 ft from the facility property line at all times (refer to Map 2 of the General Part A (LANL 1998b). All ignitable and reactive wastes will be protected from sources of ignition or reaction, in accordance with 20.4.1 NMAC, Subpart V, 264.17(a) [6-14-00]. The following policies and controls are in place at TA-50, which 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.
- Smoking is not allowed in or near the CSUs.
- "No Smoking" signs are conspicuously placed 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].

Together, these measures meet the requirements of 20.4.1 NMAC, Subpart V, 264.17(a) and (b), and 264.176 [6-14-00].

Incompatible wastes, if any, will be segregated during storage. In addition, incompatible wastes will not be mixed and waste will not be placed in a container that previously held an incompatible waste 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].

Pursuant to the requirements of 20.4.1 NMAC, Subpart V, 264.172 [6-14-00], only containers constructed 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 TA-50 CSUs.

Waste management database information and results of waste characterization activities provide documentation of compliance with the requirements for ignitable, reactive, or incompatible wastes, pursuant to 20.4.1 NMAC, Subpart V, 264.17(c) [6-14-00]. Wastes carrying the EPA Hazardous Waste Numbers F020, F021, F022, F023, F026, or F027 will not be stored in TA-50 CSUs; therefore, the requirements of 20.4.1 NMAC, Subpart V, 264.175(d) [6-14-00] are not applicable.

2.1.11 Closure

Closure will consist of partial closure of one or more of the CSUs at TA-50 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 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-50 CSUs are addressed in Attachment F of this permit renewal 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 TA-50-69, Indoor CSU from outdoors is not likely to occur. Positive surface drainage will direct potential run-on away from the building. Run-on into the TA-50-69, Outdoor CSU is prevented because the CSU is elevated by design. The Outdoor CSU is sloped sufficiently to prevent the accumulation of precipitation and drainage swales located in the vicinity divert storm water away from the CSU. One drainage swale is located just south of the CSU, between it and Material Disposal Area-C. A second drainage swale is located on the west side of the CSU between Pecos Drive and the TA-50 fence line. Figure A-11 in Attachment A of this permit renewal application shows the contours and surface drainage around the TA-50 CSUs. This information is provided to meet the requirements of 20.4.1 NMAC, Subpart IX, 270.14(b)(8)(ii) [6-14-00].

Supplement 2-1

TRANSPORTAINERS

TRANSPORTAINER INFORMATION

Maritime freight containers (transportainers) are routinely used at Los Alamos National Laboratory (LANL) to provide security and weather protection for temporary storage. LANL procures this type of equipment from a variety of vendors specializing in the reconditioning of used transportainers. Stringent federal transportation criteria govern the design and acceptance of transportainers for the specified intended use. Transportainers that no longer meet these specifications are commonly sold to suppliers who recondition them for resale. The following guidelines reflect specifications typical of reconditioned maritime freight containers designed to transport containerized, non-perishable cargo.

The exterior dimensions of the transportainers are typically 8 foot (ft) wide, 8.5 ft tall, and either 20 or 40 ft long. The sidewalls and roof of the transportainers are constructed of 14-gauge corrugated steel. The sidewalls are welded to 5 inch (in.)-channel beam supports. All joints and seams are continuously welded. The transportainers are equipped with four corner castings and lifting eyes to allow the transportainers to be stacked or hooked together. The corner posts and lifting eyes are 0.25-in. steel welded to corner castings. The floor has 0.125-in. steel-channel cross members. The joists are spaced 12 to 14 in. on center. Either a 1.125-in. or 1.25-in. hardwood decking is screwed into the joists. The decking is applied such that there are no visible gaps between planks. The transportainer door panels are of double-seam construction with double-sealing (two-flap) gaskets. For added security, the hinge pins are constructed of stainless steel and the locking handles are made of hardened steel. The door hardware bolts are welded so that they cannot be unbolted. Each transportainer is equipped with one-way side vents to equalize ambient pressure differentials inside the transportainer.

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 that have been identified at Technical Area (TA) 50. Information for these SWMUs was extracted from the "RFI Work Plan for Operable Unit 1147" (LANL, 1992) and the "TA-50 Solid Waste Management Unit Report", hereinafter referred to as the TA-50 SWMU Report (LANL, 2002b). The TA-50 SWMU Report is provided as Supplement 4-1.

Los Alamos National Laboratory (LANL) uses the definition of a SWMU as presented in the U.S. Environmental Protection Agency (EPA) "Module VIII: Special Conditions Pursuant to the 1984 Hazardous and Solid Waste Amendments to Resource Conservation and Recovery Act (RCRA) for LANL, EPA I.D. NM0890010515" (EPA, 1994), hereinafter referred to as Module VIII. This definition states that a SWMU is "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 SWMU DESCRIPTIONS [20.4.1 NMAC, Subpart IX, 270.14(d)(1)]

Several types of SWMUs are present at 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 RCRA units; and SWMUs identified in the TA-50 SWMU Report. Brief unit and waste descriptions are provided in Tables 4-1 and 4-2. Figure 4-1 shows the locations of the SWMUs in TA-50.

4.1.1 SWMUs Identified for Corrective Action In Module VIII

4.1.1.1 Radioactive Liquid Waste Treatment Facility

SWMU No. 50-001(a) is identified as the Radioactive Liquid Waste Treatment Facility (RLWTF) and is located at TA-50, Building 1. The RLWTF is used to treat radioactive liquid waste (RLW) received from various TA's at LANL. The facilities at TA-50-1 consist of approximately 37,000-square feet of treatment equipment designed to remove radionuclides from RLW using neutralization, flocculation, clarification, and membrane filtration. After treatment the effluent from the RLWTF is monitored and discharged to a National Pollutant Discharge Elimination System (NPDES)-permitted Outfall 051 in Mortandad Canyon. Treatment sludges are stabilized and managed at TA-54.

4.1.1.2 Waste Lines and Manholes

SWMU No. 50-001(b) consists of the active underground drain line system through which RLW is transferred from the various TA's to the RLWTF. A manhole (TA-50-72) serves as the central collection area for most of the incoming RLW. There are three lines that feed into this manhole. The primary waste line for LANL was replaced in 1982 with a double contained polyethylene pipe and enters the manhole from the north side of Pecos Drive. The second line transfers low-level RLW from TA-50-73, which receives waste from TA-50-69 and TA-50-37 operations. This line consists of a 6-inch (in.) by 10-in. double contained polyethylene pipe that has leak monitor and vacuum testing capabilities. The third line transports low-level RLW from TA-55 to TA-50-72 through manholes TA-50-016 and TA-50-78. This line consists of an inner stainless steel pipe encased in a polyvinyl chloride (PVC) pipe and has leak-monitor and vacuum test capabilities. This SWMU also consists of the drain lines from TA-50-72 to the RLWTF and from TA-55 to the underground storage tanks at TA-55-66.

4.1.1.3 Underground Tanks

SWMU No. 50-002(a) consists of an underground, reinforced-concrete tank vault at TA-50, Building 2 that houses six flow-through process tanks, an equipment room, and waste-transfer lines associated with a RLWTF. The floor of the vault is 17 feet (ft) below ground and includes two raw-waste tanks (25,000 gallon [gal.] and 75,000 gal.), one low-level sludge tank (25, 000 gal.), and two effluent tanks (25,000 gal. each) for treated waste. The waste transfer lines include:

- Six cast-iron lines connecting TA-50-1 to the equipment room.
- Four steel lines added in 1984 to connect Room 61 to the Equipment room.
- Five cast iron lines from drains in TA-50-1 to the decontamination and decommissioning (D&D) tank in TA-50-2.
- One cast iron line from a sink in the vehicle decontamination facility to the D&D effluent line connecting 50-90 to one of the influent tanks.

4.1.1.4 Vaulted Underground Tanks for TA-50 Waste

SWMU No. 50-002(b)-00 is a consolidated SWMU that consists of former SWMU's 50-002(b) and (c). This SWMU includes two active waste tanks (TA-50-67 and TA-50-68) and their associated inlet and outlet lines housed in an underground vault (TA-50-66). The concrete vault measures 18-ft long, 16-ft wide, by 14 ft deep and is located approximately 30-ft west of the southwest corner of TA-50-1. The inlet lines consist of four stainless steel pipes encased in PVC. One of these lines is capped and serves as a backup. The second pipe transfers acidic RLW and the third transfers caustic RLW. The waste is transferred from the storage tanks through two double contained stainless steel lines to Room 60 at TA-50-1 for treatment. The tanks, piping, and vault were constructed exclusively to transfer/store caustic and acidic RLW received from TA-55.

4.1.1.5 Aboveground Storage Tank

SWMU No. 50-002(d) consists of a decommissioned aboveground storage tank (TA-50-5) that is located adjacent to the north wall of Room 60D at TA-50-1. The tank has a capacity of 5,000-gal. and was used to store nitric acid intended to recharge ion-exchange columns at the RLWTF. It was used to store nitric acid product only and was never used to store waste.

4.1.1.6 Container Storage Units

SWMU No. 50-003(a) and 50-007 consist of two CSUs that were used for hazardous and mixed waste storage and are scheduled for closure. SWMU No. 50-003(a) is located at the northwest corner of TA-50-1, Room 59. This CSU is used to store containers of cemented mixed waste sludge and is approximately 10 ft wide by 19 ft long. SWMU No. 50-007 is located at TA-50-37 and contains a CSU that includes Rooms 115, 117, and 118. Room 115 is located on the first floor of TA-50-37 and measures 10-ft wide by 21-ft long. Room 117 is located on the first floor in the eastern portion of TA-50-37 and measures 21-ft wide and 40-ft long. Room 118 is located on the first floor in the eastern portion of TA-50-37 and measures 31-ft wide and 40-ft long.

SWMU No. 50-008 consists of an active Indoor CSU located at TA-50, Building 69. The CSU consist of Rooms 102 and 103 and is used for hazardous and mixed waste storage. Room 102 is referred to as the main process room and is approximately 45-ft wide by 52-ft long. Room 103 is referred to as the unloading area and is approximately 18 ft wide by 19 ft long.

4.1.1.7 Historical Waste Lines and Underground Vault, RLWTF

The consolidated SWMU No. 50-004(a)-00 consists of former SWMU's 50-004(a), 50-004(b), and 50-004(c) and includes all historical waste lines and former components of the RLWTF at TA-50-1. This includes:

- Locations through which underground RLW and industrial waste lines were routed to the RLWTF from the LANL technical areas located along Pajarito Road.
- A decommissioned underground vault (TA-50-3) that housed three-stainless-steel lined concrete storage tanks, ranging in volume from 1,000 to 4,500 gal. and used to collect and store wastewater from the Omega reactor.
- Waste lines and manholes to the collection tank structure (TA-50-3) including waste line 49 from TA-35 and waste line 50 from TA-50-1.
- Thirteen industrial waste lines (44, 45, 45a, 46, 47, 48, 48a, 49, 54, 55, 56, 65, and 67) and three associated manholes (TA-50-6, 55, and 56) that discharged to the decommissioned underground vault.

4.1.1.8 Operational Releases/Outfalls

SWMU Nos. 50-006 (a, c, and d) consist of operational releases and outfalls located at TA-50. A portion of Upper Ten Site Canyon received two accidental releases of RLW as a result of a sump overflow at 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 and are identified as SWMU No. 50-006(c). SWMU No. 50-006(d) consists of the RLWTF treated liquid effluent discharged into Mortandad Canyon. This active effluent discharge is subject to regulation under the Clean Water Act (CWA) and is permitted as NPDES Outfall 051. Parameters prescribed by the NPDES permit are sampled in accordance with that permit's requirements.

4.1.1.9 Incinerator

An incinerator complex was housed in TA-50-37 and is identified as SWMU No. 50-007. The incinerator complex was comprised of the incinerator, various waste-feed components, and two waste-feed tanks located in Rooms 112 and 115. The unit was used to treat solid and liquid wastes containing chlorinated and fluorinated hydrocarbons, carcinogenic materials, and TRU wastes. The incinerator unit, storage tanks, and associated CSU have undergone closure (Benchmark, 1998).

4.1.1.10 Material Disposal Area

Material Disposal Area (MDA) C is identified as SWMU No. 50-009 and consists of an 11.8-acre disposal site that comprises approximately one-half of TA-50. MDA C includes six pits that were used for the disposal of radioactive and hazardous waste (Pits 1 through 6), one unnumbered pit for disposal of chemical wastes, 107 disposal shafts, and one unnumbered shaft that was used for a single disposal of strontium-90. Pits 1 through 4 measure approximately 610 ft long, 40 ft wide, and 25 ft deep. Pit 5 is approximately 705 ft long, 110 ft wide, and 18 ft deep. Pit 6 is approximately 505 ft long, 100 ft wide, and 25 ft deep. The chemical pit measures approximately 180 ft long, 25 ft wide, and 12 ft deep. The disposal shafts vary in depth and diameter. Table 4-1 lists the various types of waste that

were disposed of at MDA C. Waste disposal at MDA C ceased by 1969, and the MDA C was officially decommissioned in 1974.

4.1.1.11 Decontamination Facility

SWMU No. 50-010 consists of an inactive vehicle decontamination area at TA-50-1, Room 34B, that is used to clean vehicles and radioactively contaminated large objects. The area was operated from 1963 through Ocotber 1999 and was enclosed in 1983. Liquid wastes generated during decontamination activities were transferred to TA-50-2 via the floor drain and waste line.

4.1.1.12 Septic System and Lift Stations

SWMU No. 50-011(a) is the location of a decommissioned septic system that was installed in 1964 at the south end of the RLWTF at 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 was removed in 1983 except for the perforated pipe, which made up the seepage pit. These areas are currently located beneath an asphalt pad and Building 83. The septic system managed sanitary waste only.

SWMU No. 50-011(b) is composed of two active sanitary wastewater lift stations (TA-50-91 and 92) and approximately 400 ft of piping that transports sanitary wastewater from the RLWTF to the main line that serves the Solid Waste Sanitary Control Plant. The lift stations are located on the north and south sides of TA-50-1 and were installed as part of a utility upgrade in 1983.

4.1.2 SWMUs Not Identified for Corrective Action in Module VIII

4.1.2.1 Container Storage Units

The TA-50-69, Outdoor CSU has not been formerly evaluated relative to its status as a SWMU nor is it assigned a SWMU number. This CSU is located in the southwest corner of TA-50 and consists of an asphalt pad that is not lined or coated. The CSU is used for hazardous and mixed waste storage and is approximately 24 ft wide by 90 ft long, with an additional strip that is 12 ft wide by 90 ft long added to the southeast end.

The TA-50-114 CSU is identified at SWMU No. 50-003(d) and consists of a storage locker located south of the eastern wing of TA-50-1 and east of TA-50-1 Room 34 B. This CSU was used to store waste generated at the RLWTF and consists of a metal prefabricated building approximately 9 ft by 23 ft by 9 ft high, has three doors, and is anchored to a concrete pad. The CSU is divided into two separate lockers by a metal wall, and has a grated floor above a recessed area on which the waste containers are placed.

4.1.2.2 Batch Waste Treatment Unit

SWMU No. 50-005 consists of the Batch Waste Treatment Unit (BWTU) located in the basement of TA-50-1. The BWTU included a 500-gal. pressure vessel, filtering system, condenser, vacuum transfer lines, transfer pump, and associated transfer lines. The unit was permitted for hazardous waste treatment and closed in accordance with an NMED-approved closure plan (IT, 1994).

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

Some of the SWMUs listed in Table 4-1 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 Nos. 50-002(a) and (b)-00. 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)-00, a waste line in the vicinity of TA-50-37, has leaked. 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 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 NPDES permit, has contaminated sections of Mortandad Canyon with a variety of chemical, radiological, and heavy metal wastes [SWMU No. 50-006(d)]. This active effluent discharge is subject to regulation under the CWA. Parameters prescribed by the NPDES permit are sampled in accordance with that permit's requirements.

4.3 CHARACTERIZATION OF RELEASES

Information regarding releases from SWMUs is contained in the "RFI Work Plan for Operable Unit 1147" (LANL, 1992). These 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. Additional information on the SWMUs at TA-50 and any associated releases is provided in the revised TA-50 SWMU Report (LANL, 2002b) that is included as Supplement 4-1 of this permit renewal document.

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 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 through LANL Environmental Restoration Project correction action activities. Corrective action, if necessary, will follow the RCRA Facility Investigation/Corrective Measures Study process.

Table 4-1

Solid Waste Management Units (SWMU) Identified for Corrective Action in Module VIII [a]

SWMU No.	Unit Type	Unit Description	Waste Description
50-001(a)	Radioactive Liquid Waste Treatment Facility (RLWTF)	The RLWTF is located at TA-50, Building 1 and designed to treat 250 gallons/minute of radioactive liquid waste (RLW) using neutralization, flocculation, clarification, and membrane filtration.	RLW, sludge, and potentially hazardous constituents
50-001(b)	Waste Lines and Manholes	Liquid waste transfer system.	RLW and potentially hazardous constituents
50-002(a)	Tank farm	A reinforced concrete vault that houses six flow-through process tanks, an equipment room, and associated waste transfer lines.	RLW, sludge, and potentially hazardous constituents
50-002(b)-00 [b]	Underground Storage Tanks	Two active waste tanks (TA-50-67 and TA-50-68) and their associated inlet and outlet lines housed in an underground vault located approximately 30 ft west of the southwest corner of TA-50-1.	RLW and potentially hazardous waste
50-002(d)	Aboveground Storage Tank	Decommissioned aboveground, 5000-gallon, stainless steel tank used for nitric acid storage.	Unused product storage only
50-003(a)	Container Storage Unit	An approximately 10- by 19-foot area located in TA-50-1, Room 59 along the northwest wall.	Mixed waste
50-004(a)-00 [c]	Historical Waste Lines and Underground Vault, RLWTF	All former components of the RLWTF at TA-50-1. Includes: • Decommissioned RLW and industrial waste lines routed tot he RLWTF from LANL TAs located along Pajarito Road. • Decommissioned underground concrete vault (TA-50-3) that housed three stainless-steel-lined concrete storage tanks (1,000 – 4,500 gallons) used to collect and store wastewater from the Omega Reactor. • 13 industrial waste lines that discharged to the decommissioned underground vault TA-50-3.	RLW and potentially hazardous constituents

Table 4-1 (continued)

Solid Waste Management Units (SWMU) Identified for Corrective Action in Module VIII [a]

SWMU No.	Unit Type	Unit Description	Waste Description
50-006(a)	Operational Release	Outfall area at the head of Ten Site Canyon impacted by two accidental operational releases due to a sump overflow at the RLWTF pump house.	RLW and potentially hazardous constituents
50-006(c)	Operational Release	Surface Soil contamination from historical stack emissions from operations at TA-50.	Soil contaminated with radioactive and potentially hazardous constituents
50-006(d)	Effluent Discharge	Drainline and NPDES-permitted Outfall 051 in Mortandad for treated wastewater from the RLWTF.	Soil contaminated with a variety of chemicals, radionuclides, and heavy metals
50-007	Incinerator and Container Storage Unit	An incinerator, various waste feed components, two waste feed tanks Container Storage Unit located in Rooms 115, 117, and 118 at TA-50-37.	Hazardous and mixed waste
50-008	Container Storage Unit	Container storage Unit located inside Rooms 102 and 103 at TA-50, Building 69 (TA-50-69).	Mixed waste
50-009	Material Disposal Area (MDA) C	An inactive MDA that covers 11.8-acres and consists of 7 pits and 108 shafts located on the north side of Pajarito Road at TA-50	Radioactive, mixed, hazardous, and solid waste
50-010	Decontamination Facility	An inactive vehicle decontamination area located in Room 34 B of the RLWTF at TA-50-1.	Radioactive and potentially hazardous waste
50-011(a)	Septic system	Decommissioned septic system located at the south end of the RLWTF at TA-50-1. The systems consisted of an influent line from TA-50-1, septic tank, manhole, a sanitary distribution system, and a seepage pit.	Sanitary waste

Table 4-1 (continued)

Solid Waste Management Units (SWMU) Identified for Corrective Action in Module VIII [a]

SWMU No.	Unit Type	Unit Description	Waste Description
50-011(b)	Lift Stations	Two active sanitary wastewater lift stations (TA-50-91 and TA-50-92) and approximately 400 feet of piping that transport sanitary wastewater from the RLWTF to the main line that serves the SWSC Plant.	Sanitary waste

a Information compiled from the LANL, 2002b, “TA-50 SWMU Report,” Los Alamos National Laboratory, Los Alamos, New Mexico; and LANL, 1992, "RFI Work Plan for Operable Unit 1147," Los Alamos National Laboratory, Los Alamos, New Mexico.
b Consolidated SWMU that consists of former SWMUs 50-002(b) and 50-002(c).
c Consolidated SWMU that consists of form SWMUs 50-004(a), 50-004(b), and 50-004(c).
d TBD = SWMU Number to be determined.

Table 4-2

Solid Waste Management Units (SWMU) Not Identified for Corrective Action in Module VIII [a]

SWMU No.	Unit Type	Unit Description	Waste Description
50-003(d)	Container Storage Unit	An approximately 9 ft by 23 ft by a 9 ft high CSU located east of TA-50-1, Room 34B at TA-50, Building 114.	Hazardous and mixed waste
50-005	Batch Waste Treatment Unit	Closed 500-gallon pressure vessel and associated processing components located at TA-50-1.	Hazardous waste
TBD [b]	Container Storage Unit	An approximately 24 ft wide by 90 ft long asphalt and concrete pad with a 12 ft wide by 90 ft long strip located in the southwest corner of TA-50, located outside TA-50-69.	Mixed waste

a Information compiled from the LANL, 2002b, “TA-50 SWMU Report,” Los Alamos National Laboratory, Los Alamos, New Mexico; LANL, 1992, "RFI Work Plan for Operable Unit 1147," Los Alamos National Laboratory, Los Alamos, New Mexico.
b TBD = SWMU Number to be determined.

Supplement 4-1

"TA-50 Solid Waste Management Unit Report," Los Alamos National Laboratory, Los Alamos, New Mexico, April 2002.

TA-50, Waste Management Site

TA-50 is located near the center of the LANL complex. The site contains 33 waste management structures (including office trailers, tanks, storage sheds, and buildings). Waste management activities include treating radioactive liquid waste, reducing the size and volume of TRU wastes, and characterizing TRU wastes

The facilities at TA-50 support LANL's waste management activities for several types of waste, including treatment and storage of solid and liquid, low-level radioactive waste, low-level mixed waste, TRU waste, and hazardous waste. The major facilities at TA-50 are the RLWTF; the WCRRF (50-69), formerly known as the Size Reduction Facility; and the RAMROD Facility.

TA-50 — Waste Management Site

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SWMU 50-001(a) — Waste treatment facility 50-1 — RCRA unit (active)

Administrative Authority	NMED	**Former Operable Unit**	OU 1147
Technical Area	TA-50	**Dates of Operation**	1963-Present
Has ER Sampled the Site?	No	**ER Remedial Action Conducted?**	No
Structure Number	50-1	**Other Remedial Action Conducted?**	No

Unit Description

SWMU 50-001(a) is an active radioactive liquid waste treatment plant (Building 50-1) that has operated continuously since its construction in 1963. Building 50-1 is designed to treat 250 gal./min of wastewater, primarily to remove TRU elements through neutralization, flocculation and clarification, pH control, ion exchange, and filtration. Building 50-1 treats only low-level liquid wastes from many TAs to remove target contaminants and then monitors and discharges treated effluent to NPDES-permitted Outfall 051 in Mortandad Canyon [SWMU 50-006(d)]. Treatment sludges subsequently are managed at TA-54, MDA G. Building 50-1 housed a container storage area in Room 59 [AOC 50-003(a)], and a second container storage area is located in a storage locker [structure 50-114, which was former AOC 50-003(d)]. A system of drainlines [SWMU 50-001(b)] and tanks [SWMUs 50-002(a) and 50-002(b)-00] is used to transfer, treat, and temporarily store the liquid waste and treatment sludge associated with Building 50-1. In July 1990, core samples collected from boreholes drilled through the floor around the pH adjustment tank or "grit chamber" indicated that the inlet line or the chamber leaked. Influent wastes subsequently were rerouted to flow directly into the pH adjustment tank in Building 50-2.

ER Project Activities

Information presented in this section was derived from previously published documents. RFI activities conducted at this site are described in detail in the documents listed in the reference section below.

This SWMU was proposed for NFA in an August 2000 permit modification request based on its active status and because the hazardous waste container storage areas within Building 50-1 are listed in Module VIII of LANL's Hazardous Waste Facility Permit. No additional RFI activities have been conducted at this SWMU.

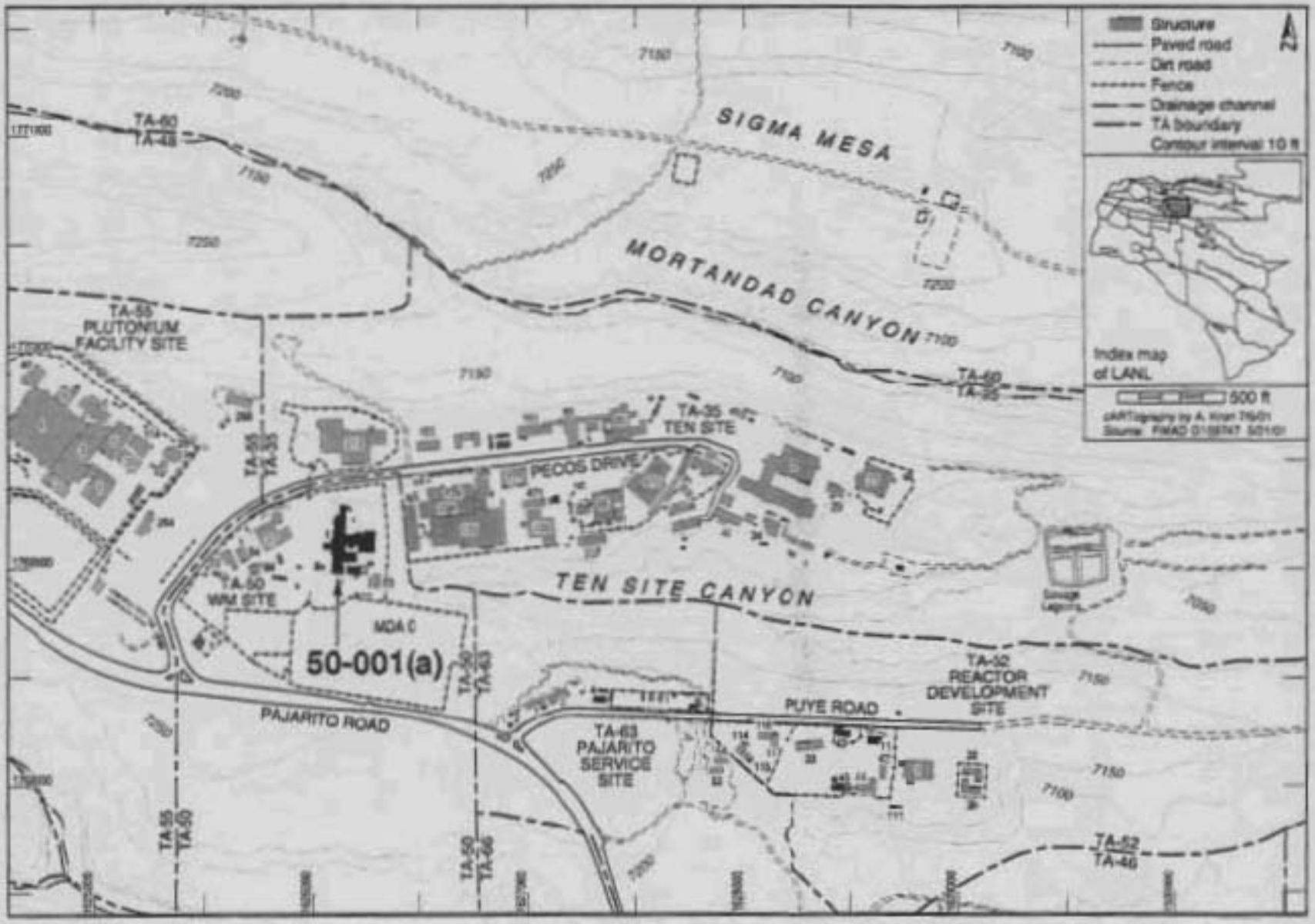
ER Project Sampling Summary

No analytical samples were collected at this site.

References

RFI Work Plan for Operable Unit 1147	LA-UR Number: 92-0969

View of SWMU 50-001(a)


Structure
Paved road
Dirt road
Fence
Drainage channel
TA boundary
Contour interval 10 ft
Index map of LANL
500 ft
SIGMA MESA
MORTANDAD CANYON
TA-60
TA-48
TA-55
PLUTONIUM FACILITY SITE
TA-35
TEN SITE
PECOS DRIVE
TA-50
WM SITE
MDA C
50-001(a)
TEN SITE CANYON
PAJARITO ROAD
TA-63
PAJARITO SERVICE SITE
PUYE ROAD
TA-52
REACTOR DEVELOPMENT SITE
TA-49
7100
7150
7200
7250

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AOC 50-001(b) — Waste lines and manholes

Administrative Authority	DOE	**Former Operable Unit**	OU 1147
Technical Area	TA-50	**Dates of Operation**	1963-Present
Has ER Sampled the Site?	No	**ER Remedial Action Conducted?**	No
Structure Number	Various	**Other Remedial Action Conducted?**	No

Unit Description

AOC 50-001(b) is the active underground drainline system through which liquid waste is transferred to a radioactive liquid waste treatment facility (Building 50-1). A manhole (structure 50-72) is the central collection area for most incoming liquid waste. Three lines feed into structure 50-72. A major line connecting several TAs to this manhole was constructed in 1982 to replace an old line [SWMU 50-004(a)-00]. The new line is a double polyethylene pipe that enters structure 50-72 from the north side of Pecos Drive. Another waste line into structure 50-72, completed in 1982, transports low-level radioactive liquids from structure 50-73, which receives wastes from Building 50-69 (a volume reduction facility, AOC 50-008) and Building 50-37 (the incinerator complex, AOC 50-037). This line is a 6-in. polyethylene line encased in a 10-in. polyethylene line that has leak monitor and vacuum test capabilities. A third line, also installed in 1982, transports low-level radioactive waste from TA-55 to structure 50-72 through manholes 50-016 and 50-78. The line consists of an inner stainless steel pipe encased in a PVC pipe and has leak-monitor and vacuum test capabilities. All manholes that transport wastewater to Building 50-1 are monitored continuously. A single drainline carried all influent from structure 50-72 into the grit tank at Building 50-1 until a leak around the grit tank was detected in 1990. The line now bypasses the grit chamber and passes through the neutralization chamber before it connects to the Building 50-2 tank farm [SWMU 50-002[a]]. The line consists of an inner 8-in. schedule 40 stainless steel pipe and an outer 10-in. schedule 10 stainless steel pipe. Structure 50-7, another component of the influent waste system, is connected to the waste line from the tank truck unloading station (structure 50-77). Structure 50-7 has been out of service since the early 1990s.

Four other waste lines run from TA-55 to Building 50-1 through structure 50-106 to tanks in an underground vault (structure 50-66). Three of the lines are 1.5-in. stainless steel lines, each encased in 3-in. PVC. Two of the three lines carry caustic and acid wastes with high radioactivity; the third line is a spare that has never been used. The fourth line, which is for industrial waste, is a 2-in.-diameter stainless steel line encased in 3-in. PVC. The lines operate by gravity flow, and the end of each is continuously monitored at TA-55, at structure 50-57, and at structure 50-66 by a drip-tray and conductivity-probe system wired to a computer for continuous readout. The three nonindustrial waste lines were replaced in 1994; however, the new lines have not yet been put into service. Soil sampling was scheduled to determine if contaminants had leaked from the pipes. According to the 1990 SWMU report, there was some concern about contamination from the waste lines carrying TA-55 effluent because the original vacuum seals had lost their integrity; however, the drip pans have never collected fluid that indicated the inner lines were leaking. The area where the lines run into Building 50-1 and the area west and north of the tank farm (Building 50-2) were sampled in August 1990. Sample results showed no radionuclides above BVs.

ER Project Activities

RFI activities conducted at this site are described in detail in the documents listed in the reference section below. No additional RFI activities have been conducted at this site.

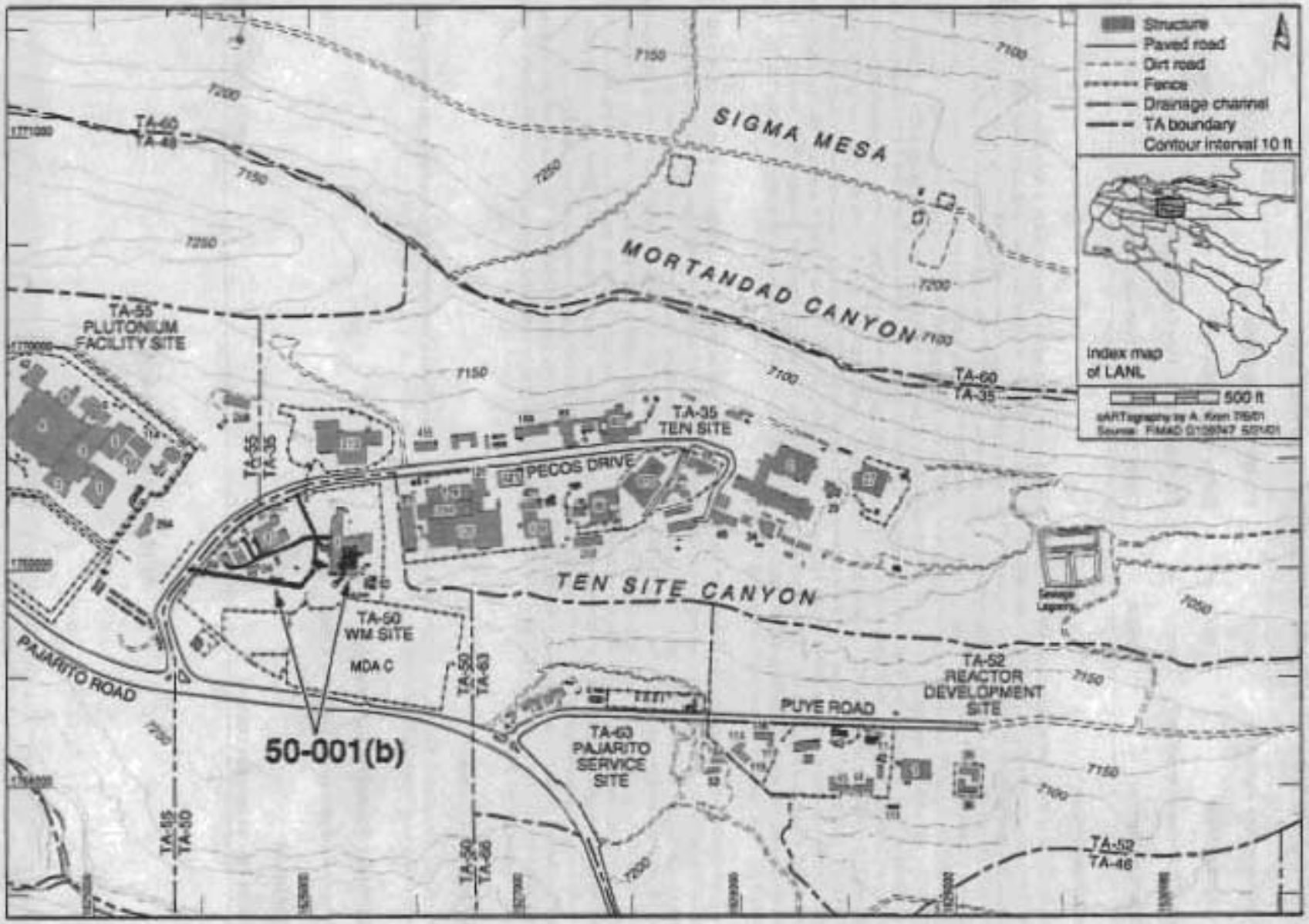
ER Project Sampling Summary

No analytical samples were collected at this site.

References

RFI Work Plan for Operable Unit 1147 — LA-UR Number: 92-0969

No photo; subsurface unit


Structure
Paved road
Dirt road
Fence
Drainage channel
TA boundary
Contour interval 10 ft
N
index map of LANL
500 ft
SIGMA MESA
MORTANDAD CANYON
TA-55 PLUTONIUM FACILITY SITE
TA-35 TEN SITE
PECOS DRIVE
TEN SITE CANYON
TA-50 WM SITE
MDA C
PAJARITO ROAD
50-001(b)
TA-63 PAJARITO SERVICE SITE
PUYE ROAD
TA-52 REACTOR DEVELOPMENT SITE
TA-60
TA-40
TA-55
TA-35
TA-50
TA-63
TA-46
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SWMU 50-002(a) — Underground tanks

Administrative Authority	NMED	**Former Operable Unit**	OU 1147
Technical Area	TA-50	**Dates of Operation**	1963-Present
Has ER Sampled the Site?	Yes	**ER Remedial Action Conducted?**	No
Structure Number	50-2	**Other Remedial Action Conducted?**	No

Unit Description

SWMU 50-002(a) consists of an underground, reinforced-concrete tank vault (Building 50-2) housing six flow-through process tanks, an equipment room, and waste-transfer lines associated with a radioactive liquid waste treatment facility (Building 50-1). The floor of the vault is 17 ft below ground. Holding tanks located within the vault (Building 50-2) include two incoming raw-waste tanks (25,000 gal. and 75,000 gal.); one 25,000-gal. low-level sludge tank; and two 25,000-gal. tanks used to store treated waste before discharge to NPDES-permitted Outfall 051 [SWMU 50-006(d)], which discharges to Mortandad Canyon. One of these tanks is used to store waste during D&D activities. Wastes are transported to the vault (Building 50-2) through the system of transfer lines. Waste-transfer lines include six cast-iron lines (including waste lines 55 and 67) connecting Building 50-1 to the equipment room in Building 50-2; four steel lines added in 1984 to connect Room 61 in Building 50-1 to the equipment room in Building 50-2; five cast-iron lines from drains in Building 50-1 to the D&D tank in Building 50-2; a cast-iron line from a sink in the vehicle-decontamination facility to the D&D tank in Building 50-2; an influent line connecting Building 50-2 to a 100,000-gal. emergency holding tank (structure 50-90); and an effluent line connecting structure 50-90 to one of the 25,000-gal. influent tanks in Building 50-2. Two unintended operational releases occurred from the overflow of a sump in Building 50-2, causing untreated wastewater to be discharged to waste lines 55 and 67 (the waste lines for treated effluent) and into the outfall area at the head of Ten Site Canyon [see SWMU 50-006(a)]. The releases occurred in July and September 1974. In February 1975, waste line 67 was plugged at its outfall. The integrity of the tank farm and the pipelines tied to Building 50-1 were checked in 1990, and no leaks were found. The 75,000-gal. influent tank and 25,000-gal. sludge tank were taken offline in June 2001 and are scheduled for decontamination in FY2002.

ER Project Activities

Information presented in this section was derived from previously published documents. RFI activities conducted at this site are described in detail in the documents listed in the reference section below.

One sample was collected at this SWMU in 1995; no additional RFI activities have been conducted at this site.

ER Project Sampling Summary

The following table shows the number of analytes that exceeded BVs, FVs, and SALs that were in use in calendar year 2002. These data reflect site conditions before any remedial activities that may have occurred, as discussed in the ER Project activities section above. BVs are naturally occurring concentrations of inorganic chemicals and radionuclides in soil, sediment, or tuff before any influence from LANL operations. FVs are concentrations of radionuclides in soil, sediment, or tuff that resulted from global atmospheric deposition unrelated to LANL releases. SALs are concentrations of chemicals or radionuclides based on a residential exposure, below which there is no potential unacceptable risk to human health.

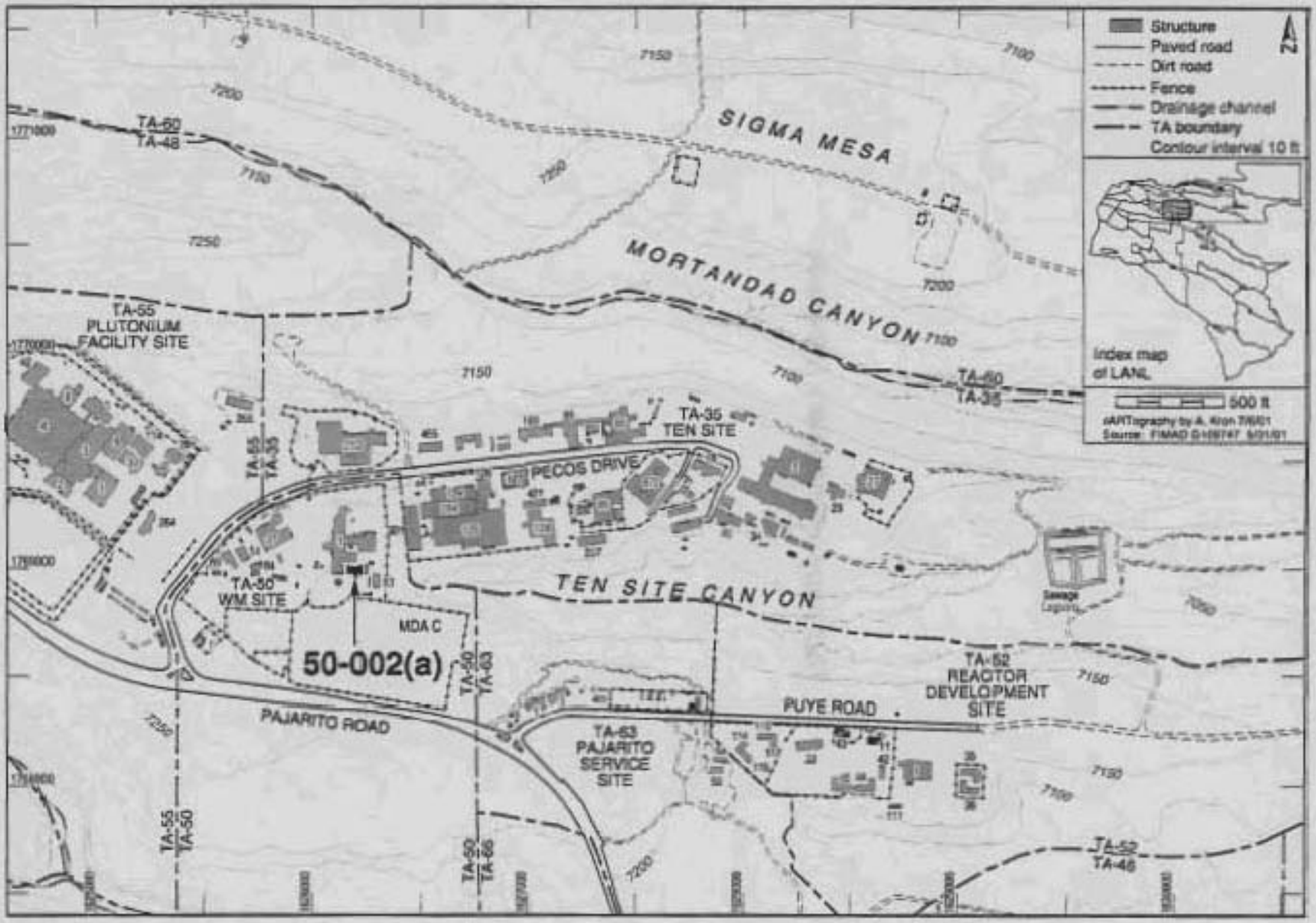
Analytical Suite Sampled	No. of Chemicals Detected	No. of Chemicals >CY2002 BV/FV (If Applicable)	No. of Chemicals >CY2002 SAL (Residential)
Inorganic chemicals	17	0	1
PCBs	0	N/A	0
Radionuclides	3	1	1
SVOCs	0	N/A	0
VOCs	0	N/A	0

The following table provides the maximum concentrations of analytes that exceeded CY2002 SALs.

Analytical Suite	Analyte	Maximum Concentration	CY2002 SAL (Residential)
Inorganic chemicals	Arsenic	1.4 mg/kg	0.39 mg/kg
Radionuclides	Tritium	2620 pCi/g	880 pCi/g

View of SWMU 50-002(a)

View of SWMU 50-002(a)


Structure
Paved road
Dirt road
Fence
Drainage channel
TA boundary
Contour interval 10 ft
N
Index map of LANL
500 ft
SIGMA MESA
MORTANDAD CANYON
TA-60
TA-48
TA-55
PLUTONIUM FACILITY SITE
TA-35
TEN SITE
PECOS DRIVE
TA-50
WM SITE
MDA C
50-002(a)
TEN SITE CANYON
TA-63
PAJARITO ROAD
TA-53
PAJARITO SERVICE SITE
PUYE ROAD
TA-52
REACTOR DEVELOPMENT SITE
TA-46
TA-66
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SWMU 50-002(b)-00 — Vaulted underground tanks for TA-55 wastes

Administrative Authority	NMED	**Former Operable Unit**	N/A
Technical Area	TA-50	**Dates of Operation**	Unknown
Has ER Sampled the Site?	No	**ER Remedial Action Conducted?**	No
Structure Number	50-67, 50-68	**Other Remedial Action Conducted?**	No

Unit Description

Consolidated SWMU 50-002(b)-00 consists of former SWMUs 50-002(b) and 50-002(c), two active waste tanks (structures 50-67 and 50-68) and their associated inlet and outlet lines housed in an underground, reinforced-concrete tank vault (structure 50-66) at the radioactive liquid waste treatment facility [Building 50-1, SWMU 50-001(a)]. The concrete vault measures 18 ft x 16 ft x 14 ft deep and is located about 30 ft from the southwest corner of Building 50-1. The tanks and vault were constructed exclusively to store radioactive caustic waste (structure 50-67) and acidic waste (structure 50-68) from TA-55, where TRU wastes are generated. TRU wastes are processed separately from other wastes. The inlet lines consist of four stainless steel pipes encased in PVC. One line is a capped backup. The second line carries radioactive acid waste to the acid waste tank. The third line carries radioactive caustic waste to the caustic tank. Wastes are transferred from the tanks through two double stainless steel lines to Room 60, Building 50-1. The operation is monitored for criticality hazards, and necessary adjustments are made before treatment; from 10 to 12 containers of treated TRU waste are generated annually. The fourth line carries radioactive liquid wastes to a manhole (structure 50-72) [see AOC 50-001(b)]. No documented releases are associated with SWMU 50-002(b)-00.

ER Project Activities

RFI activities conducted at this site are described in detail in the documents listed in the reference section below. No additional RFI activities have been conducted at this site.

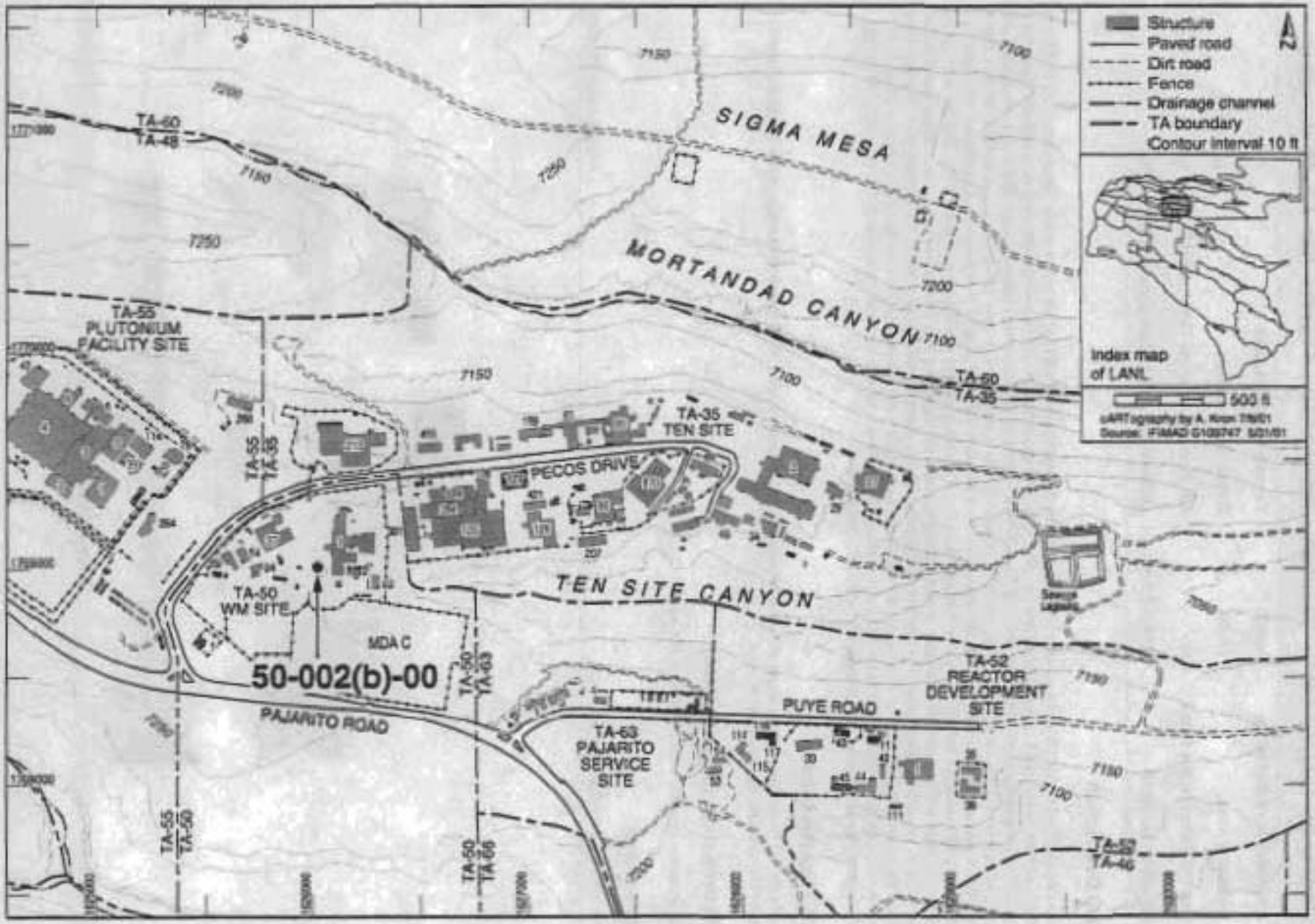
ER Project Sampling Summary

No analytical samples were collected at this site.

References

RFI Work Plan for Operable Unit 1147	LA-UR Number: 92-0969

View of SWMU 50-002(b)-00


Structure
Paved road
Dirt road
Fence
Drainage channel
TA boundary
Contour interval 10 ft
N
Index map of LANL
500 ft
SIGMA MESA
MORTANDAD CANYON
TEN SITE CANYON
PAJARITO ROAD
PUYE ROAD
PECOS DRIVE
TA-55 PLUTONIUM FACILITY SITE
TA-35 TEN SITE
TA-50 WM SITE
MDA C
50-002(b)-00
TA-63 PAJARITO SERVICE SITE
TA-52 REACTOR DEVELOPMENT SITE
TA-60
TA-48
TA-55
TA-35
TA-50
TA-63
TA-66
TA-46
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AOC 50-002(d) — Aboveground storage tank

Administrative Authority	DOE	**Former Operable Unit**	OU 1147
Technical Area	TA-50	**Dates of Operation**	1964-1996
Has ER Sampled the Site?	No	**ER Remedial Action Conducted?**	No
Structure Number	50-5	**Other Remedial Action Conducted?**	Yes

Unit Description

AOC 50-002(d) is a decommissioned aboveground 5000-gal. stainless steel tank (structure 50-5) previously used for the storage of unused product (nitric acid). The storage tank was part of the ion-exchange column system, which was designed to remove any radioisotopes not removed by the clarifloculator system at the radioactive liquid waste treatment facility (Building 50-1). Because the clarifloculator system was successful in removing radioisotopes from wastewater to levels consistently below DOE limits, the ion-exchange column was rarely used and the tank was never filled to capacity. The tank (structure 50-5) is located adjacent to the north wall of Room 60D at Building 50-1 and replaced the original nitric acid tank in late 1964 after the original rubber-lined carbon steel tank reportedly leaked. The new tank (structure 50-5) is supported on concrete saddles that extend 5 ft below ground surface. A concrete sump filled with limestone chips (structure 50-12) was installed beneath the new tank. The tank was vented to the sump to neutralize any nitric acid vapors emitted when the tank was filled. Retaining walls and a concrete slab were installed in 1988 to contain any spillage. The tank was decommissioned (emptied, triple rinsed, and all piping disconnected) in 1996.

ER Project Activities

Information presented in this section was derived from previously published documents. RFI activities conducted at this site are described in detail in the documents listed in the reference section below.

The original tank was replaced after a reported leak, and the new tank (structure 50-5) was managed in accordance with LANL's Spill Prevention Control and Countermeasures Plan. No documented releases have occurred from structure 50-5. AOC 50-002(d) was recommended for NFA in a 2000 RFI report.

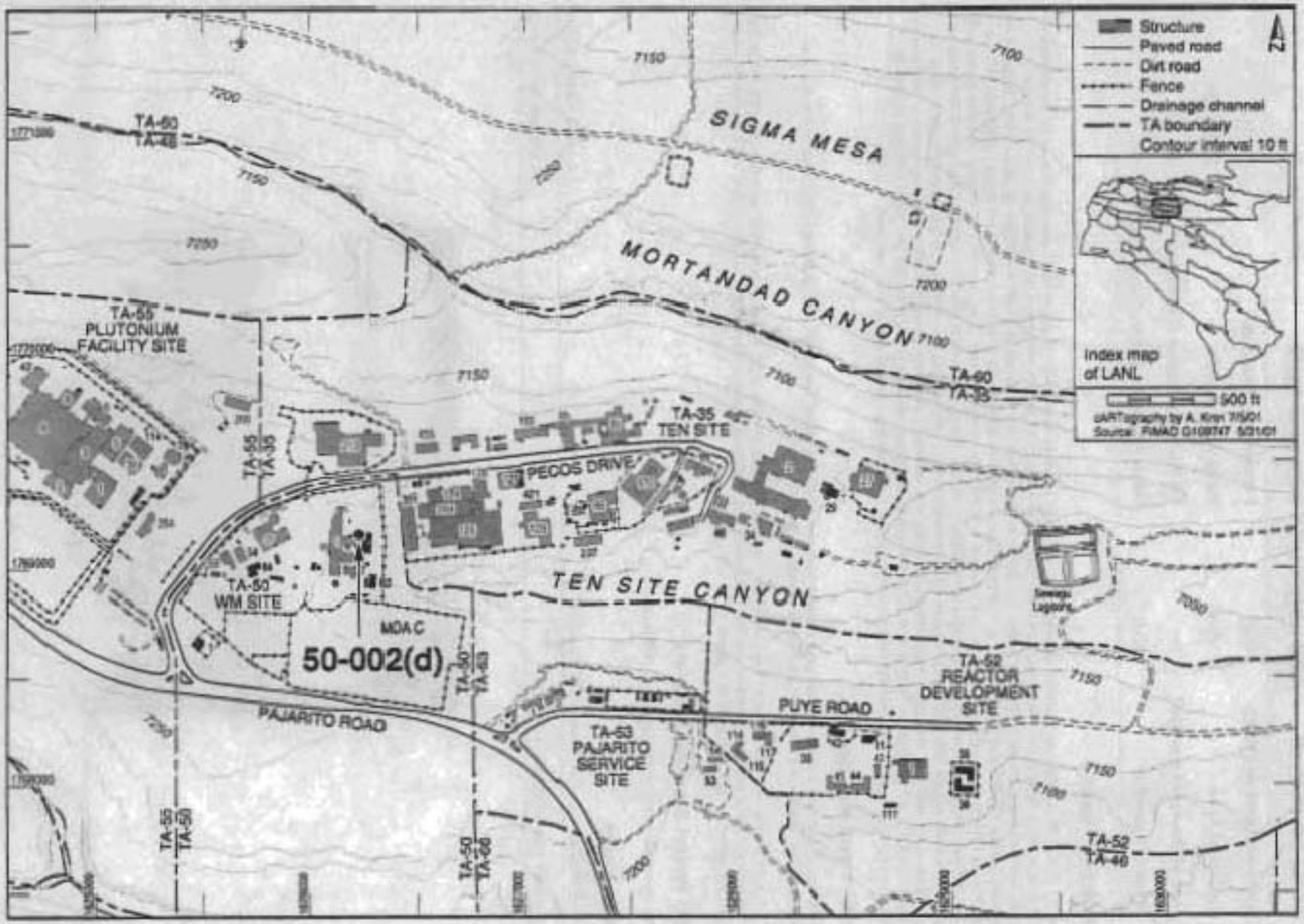
ER Project Sampling Summary

No analytical samples were collected at this site.

References

RFI Report for Potential Release Site 50-002(d)	LA-UR Number: 00-2514
RFI Work Plan for Operable Unit 1147	LA-UR Number: 92-0969

View of AOC 50-002(d)


Structure
Paved road
Dirt road
Fence
Drainage channel
TA boundary
Contour interval 10 ft
N
Index map of LANL
500 ft
SIGMA MESA
MORTANDAD CANYON
TA-55 PLUTONIUM FACILITY SITE
TA-60
TA-48
TA-35 TEN SITE
PECOS DRIVE
TA-55
TA-35
TA-50 WM SITE
MDAC
50-002(d)
TEN SITE CANYON
TA-52 REACTOR DEVELOPMENT SITE
PUYE ROAD
PAJARITO ROAD
TA-53 PAJARITO SERVICE SITE
TA-55
TA-50
TA-50
TA-66
TA-52
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AOC 50-003(a) — Container storage area

Administrative Authority	DOE	**Former Operable Unit**	OU 1147
Technical Area	TA-50	**Dates of Operation**	Unknown
Has ER Sampled the Site?	No	**ER Remedial Action Conducted?**	No
Structure Number	N/A	**Other Remedial Action Conducted?**	No

Unit Description

AOC 50-003(a) is a RCRA interim status mixed-waste container storage area located in Room 59 of the radioactive liquid waste treatment facility (Building 50-1). This unit will not be permitted, but will be closed. Room 59 was constructed with steel framing and insulated metal roofing and siding; the design capacity is the equivalent of twenty-seven 55-gal. containers of solid mixed low-level, mixed TRU, and hazardous waste. The area has been used to store containers of solid cemented mixed TRU sludge resulting from waste treatment activities in Room 60A; waste containing free liquids cannot be stored in Room 59. The cementation process is generator treatment being performed in a less-than-90-day storage area. Following cementation, containers of mixed TRU waste have been temporarily stored in Room 59 in accordance with the permit requirements. The waste containers are subsequently transported to other LANL RCRA-permitted mixed-waste management facilities for storage.

ER Project Activities

Information presented in this section was derived from previously published documents. RFI activities conducted at this site are described in detail in the documents listed in the reference section below.

AOC 50-003(a) is designed and operated in accordance with 20 NMAC 4.1 Subpart V and 40 CFR 264 Subpart B, C, and I requirements. Collectively, these requirements address the active management of the waste. AOC 50-003(a) was recommended for NFA in a 1999 RFI report.

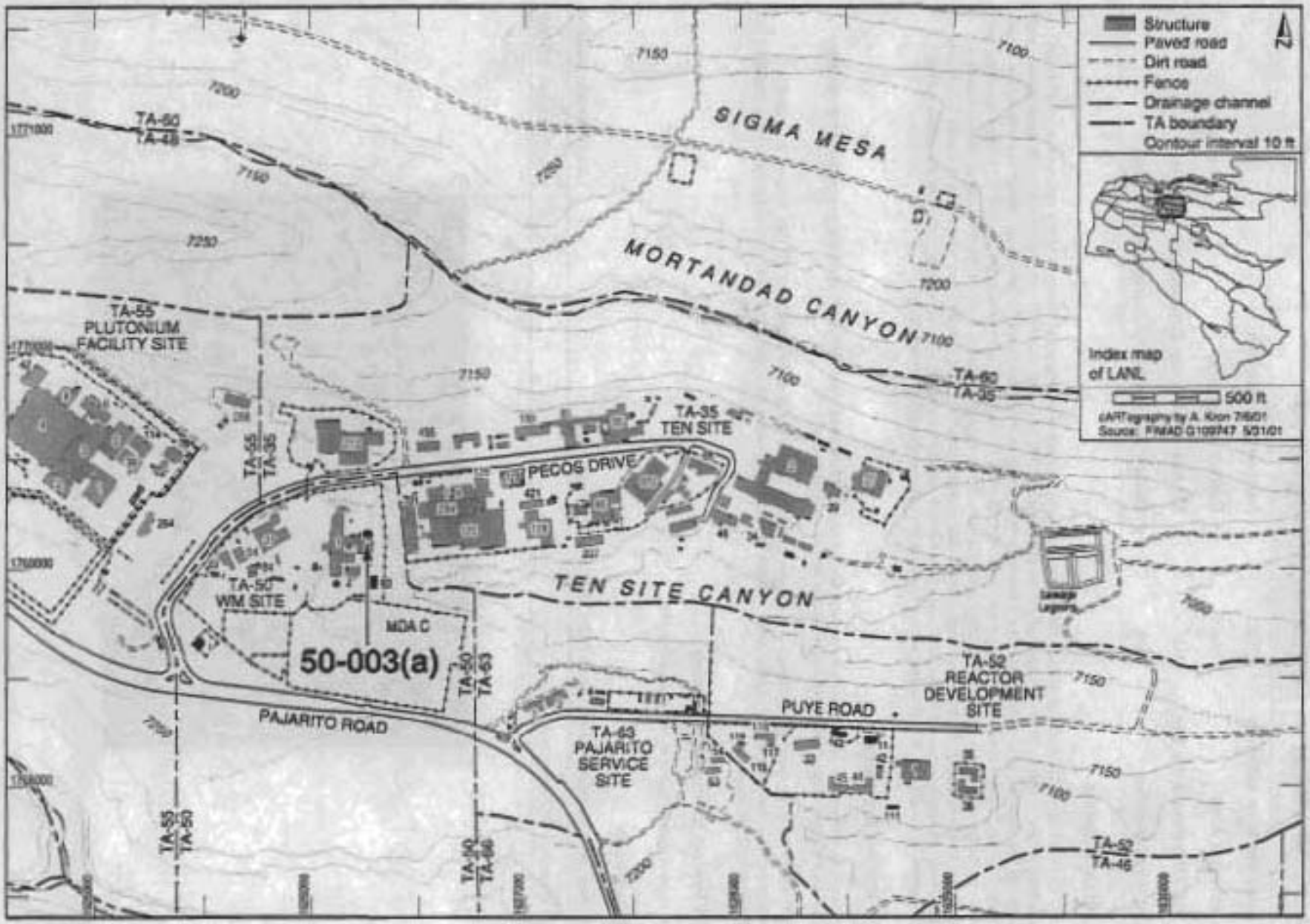
ER Project Sampling Summary

No analytical samples were collected at this site.

References

RFI Report for Potential Release Site 50-003(a) (Container Storage Area)	LA-UR Number: 99-4834
RFI Work Plan for Operable Unit 1147	LA-UR Number: 92-0069

View of AOC 50-003(a)


Structure
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Source: FRMAC G109747 5/31/01
SIGMA MESA
MORTANDAD CANYON
TA-60
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TA-55
PLUTONIUM FACILITY SITE
TA-35
TEN SITE
PECOS DRIVE
TA-50
WM SITE
MDA C
50-003(a)
TEN SITE CANYON
TA-52
REACTOR DEVELOPMENT SITE
PUYE ROAD
PAJARITO ROAD
TA-63
PAJARITO SERVICE SITE
TA-46
7100
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7200
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SWMU 50-004(a)-00 — Historical waste lines and underground vault, Radioactive Liquid Waste Treatment Facility

Administrative Authority	NMED	**Former Operable Unit**	N/A
Technical Area	TA-50	**Dates of Operation**	1963-1989
Has ER Sampled the Site?	Yes	**ER Remedial Action Conducted?**	No
Structure Number	Various	**Other Remedial Action Conducted?**	Yes

Unit Description

Consolidated SWMU 50-004(a)-00 consists of former SWMUs 50-004(a), 50-004(b), and 50-004(c), all former components of the radioactive liquid waste treatment facility, Building 50-1.

Former SWMU 50-004(a) includes locations through which underground radioactive liquid waste and industrial waste lines were routed to the TA-50 radioactive liquid waste treatment facility from LANL technical areas located along Pajarito Road. The majority of these waste lines were decommissioned and removed in 1975; excavated soils were characterized for radioactive constituents and remediated to meet ALARA levels.

Former SWMU 50-004(b) is the location of a decommissioned underground vault (structure 50-3) that housed three stainless steel-lined concrete storage tanks, ranging in volume from 1000 to 4500 gal., used to collect and store wastewater from the Omega Reactor. Waste lines and manholes to the collection tank structure included waste line 49 from TA-35 and waste line 50 from Building 50-1. Waste line 49, the vault, and the tanks were removed in 1989. Soil sampled during decommissioning was screened for radionuclides and chemical constituents. No elevated concentrations were detected.

Former SWMU 50-004(c) consists of 13 industrial waste lines (44, 45, 45a, 46, 47, 48, 48a, 49, 54, 55, 56, 65, and 67) and three associated manholes (structures 50-6, -55, and -56) that discharged to the decommissioned underground vault (structure 50-3). All of the waste lines and manholes associated with former SWMU 50-004(b) were removed between 1961 and 1989, with the exception of waste line 56, which remains in service. Radionuclide contamination discovered during decommissioning of the waste lines and manholes was remediated to ALARA levels through removal of pipe and affected soil to approximately 19 ft below grade. Field screening for radionuclides confirmed that ALARA levels had been met; however, no samples were analyzed for hazardous constituents.

ER Project Activities

Information presented in this section was derived from previously published documents. Any discussion of BVs, FVs, and SALs is taken from the referenced documents and reflects the values in use at the time the documents were written. RFI activities conducted at this site are described in detail in the documents listed in the reference section below.

In 1994, an RFI was conducted at former SWMUs 50-004(a) and 50-004(c), with the objective of filling data gaps identified in the RFI work plan and to determine the presence and/or absence of radionuclides and hazardous constituents from historical operational releases. The RFI at former SWMU 50-004(a) included the trench and manholes through which a 520-ft section of the original 6-in. VCP waste line passed. Part of the waste line was removed in 1975 to clear the area for construction of Building 50-37 (a new line, acid waste line 45, bypassed the Building 50-37 construction zone and replaced the decommissioned line until 1984, when the recently installed waste line also was removed). Five vertical boreholes located approximately 100 ft apart were advanced along the waste line trench to the contact between trench fill and trench bottom. Eleven samples, collected from the five locations, were field-screened for radionuclides and organic vapors. Radionuclide screening results were all at or near BVs and organic vapor results were below 1 ppm. The samples were subsequently submitted to an off-site laboratory for analysis for inorganic chemicals, organic chemicals, and radionuclides. Elevated levels of beryllium, plutonium-238, and plutonium-239 were detected at levels above BVs, but none of the detects exceeded SALs. At former SWMU 50-004(c), 67 samples were collected from depths up to approximately 14 ft in 29 locations. Samples were field-screened for radionuclides and organic vapors and submitted for off-site laboratory analysis for organic chemicals, inorganic chemicals, and radionuclides. Analytical results showed elevated levels of beryllium, copper, chromium, lead, mercury, calcium, potassium, nickel, zinc, plutonium-238, plutonium-239, and uranium-235. The human health risk assessment, documented in the RFI report, indicated that the contaminants identified above BVs were not considered COPCs when compared with risk-based SALs. An ecological screening assessment was not completed for either of the former SWMUs. Former SWMUs 50-004(a) and 50-004(c) were recommended for NFA in the RFI report, which is currently under review by the NMED. No additional RFI activities have been conducted at former SWMU 50-004(b).

Based on common operational history, waste streams, geographical proximity, contaminant transport mechanisms, and the investigation required to assess nature and extent of contamination, all three former SWMUs were consolidated during the FY2000 annual unit audit. Based on the current SAL screening, presented in table above, only arsenic exceeds SALs at a maximum detected value of 6.5 mg/kg.

ER Project Sampling Summary

The following table shows the number of analytes that exceeded BVs, FVs, and SALs that were in use in calendar year 2002. These data reflect site conditions before any remedial activities that may have occurred, as discussed in the ER Project activities section above. BVs are naturally occurring concentrations of inorganic chemicals and radionuclides in soil, sediment, or tuff before any influence from LANL operations. FVs are concentrations of radionuclides in soil, sediment, or tuff that resulted from global atmospheric deposition unrelated to LANL releases. SALs are concentrations of chemicals or radionuclides based on a residential exposure, below which there is no potential unacceptable risk to human health.

Analytical Suite Sampled	No. of Chemicals Detected	No. of Chemicals >CY2002 BV/FV (If Applicable)	No. of Chemicals >CY2002 SAL (Residential)
Inorganic chemicals	17	16	1
PCBs	0	N/A	0
Radionuclides	8	6	0
SVOCs	0	N/A	0
VOCs	3	N/A	0

The following table provides the maximum concentrations of analytes that exceeded CY2002 SALs.

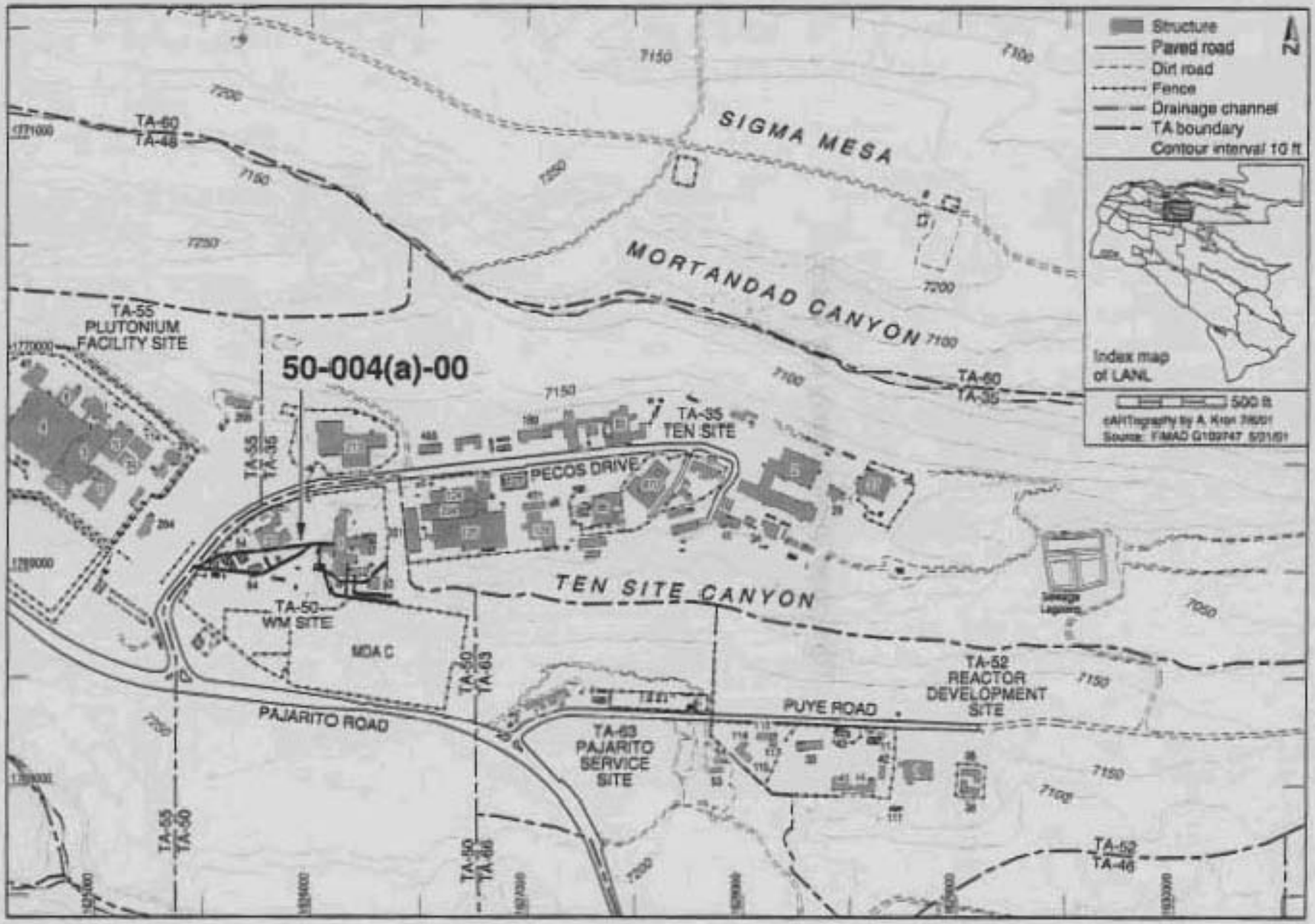
Analytical Suite	Analyte	Maximum Concentration	CY2002 SAL (Residential)
Inorganic chemicals	Arsenic	6.5 mg/kg	0.39 mg/kg

References

RFI Report for Potential Release Sites at TA-50: 50-004(a), 50-004(c), 50-011(a) (Located in Former Operable Unit 1147) — LA-UR Number: 96-148

RFI Work Plan for Operable Unit 1147 — LA-UR Number: 92-0969

No photo; subsurface unit


Structure
Paved road
Dirt road
Fence
Drainage channel
TA boundary
Contour interval 10 ft
N
Index map of LANL
500 ft
SIGMA MESA
MORTANDAD CANYON
TEN SITE CANYON
50-004(a)-00
TA-55 PLUTONIUM FACILITY SITE
TA-60 TA-46
TA-60 TA-35
TA-35 TEN SITE
PECOS DRIVE
TA-50 WM SITE
MDA C
TA-50 TA-63
TA-52 REACTOR DEVELOPMENT SITE
PUYE ROAD
PAJARITO ROAD
TA-63 PAJARITO SERVICE SITE
TA-55 TA-50
TA-50 TA-66
TA-52 TA-46
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SWMU 50-006(a) — Operational release

Administrative Authority	NMED	**Former Operable Unit**	OU 1147
Technical Area	TA-50	**Dates of Operation**	1963-Present
Has ER Sampled the Site?	Yes	**ER Remedial Action Conducted?**	Yes
Structure Number	N/A	**Other Remedial Action Conducted?**	No

Unit Description

SWMU 50-006(a) is the outfall area at the head of Ten Site Canyon impacted by two accidental operational releases when a sump in a pumping station (Building 50-2) overflowed, causing untreated wastewater to be discharged to waste lines 55 and 67 (the waste lines for treated effluent). The releases occurred in July and September 1974. In February 1975, waste line 67 was plugged at its outfall. A soil sample collected from the outfall area when waste line 67 was plugged showed elevated levels of gross-alpha radioactivity. Analysis of additional soil samples collected below the waste line 67 outfall in September 1976 showed elevated levels of gross-alpha radioactivity extending 964 ft downgradient from the outfall. In 1981, both waste lines were completely removed. During the waste line removal operation, elevated levels of radionuclides, including plutonium-239, ruthenium-106, cesium-137, strontium-89, and yttrium-90, were detected. As a result, the outfall area was partially decontaminated by the removal of 70 cubic meters of contaminated soil [see description for SWMU 50-004(a)-00)]. The contaminated outfall area in Ten Site Canyon was subsequently marked with signs and tape.

ER Project Activities

Information presented in this section was derived from previously published documents. Any discussion of BVs, FVs, and SALs is taken from the referenced documents and reflects the values in use at the time the documents were written. RFI activities conducted at this site are described in detail in the documents listed in the reference section below.

The ER Project conducted an RFI at SWMU 50-006(a) in 1993 to determine the nature and extent of radionuclide and hazardous chemical contamination in and around the Ten Site Canyon outfall area. Sample locations were sited below the former waste line outfalls, on both banks of the drainage channel, and in the canyon drainage channel at regular intervals over a distance of approximately 1300 ft downstream from the TA-50 boundary. Samples were field-screened for organic vapors and radioactivity. Elevated gross-alpha radiation was found at one screening sample location, resulting in the selection of additional sample locations upstream and downstream from the area with elevated gross-alpha radiation. A total of 134 samples were collected from 53 locations during the RFI. Samples were analyzed for inorganic chemicals, VOCs, SVOCs, PCBs/pesticides, and radionuclides. Analytical results showed concentrations of PAHs, lead, mercury, nickel, silver, thallium, PCBs, thorium-232, cesium-137, cobalt-60, plutonium-238, plutonium-239/240, and strontium-90 above their respective BVs and/or SALs. Samples collected from a hummock in the stream channel approximately 500 ft downgradient of the outfall area showed the highest levels of cesium-137, plutonium-238, plutonium-239/240, and strontium-90. Because the hummock could be dislodged in a rain event, the 1995 RFI report recommended an interim action to remove the contaminated sediment.

The ER Project implemented an interim action to remove the hummock in November 1996. Approximately 0.72 cubic yards of radioactively contaminated soil was excavated and removed from the location in the stream channel where the highest levels of radionuclides had been detected during the RFI. Ten confirmation samples were collected from the excavated area and analyzed for gross-alpha and -beta radioactivity. Results reported in the 1997 interim action report showed gross-alpha radiation levels ranging from 8.91 pCi/g to 23.5 pCi/g, and gross-beta levels ranging from 0.0 pCi/g to 23.8 pCi/g, indicating that the interim action cleanup levels had been met.

ER Project Sampling Summary

The following table shows the number of analytes that exceeded BVs, FVs, and SALs that were in use in calendar year 2002. These data reflect site conditions before any remedial activities that may have occurred, as discussed in the ER Project activities section above. BVs are naturally occurring concentrations of inorganic chemicals and radionuclides in soil, sediment, or tuff before any influence from LANL operations. FVs are concentrations of radionuclides in soil, sediment, or tuff that resulted from global atmospheric deposition unrelated to LANL releases. SALs are concentrations of chemicals or radionuclides based on a residential exposure, below which there is no potential unacceptable risk to human health.

Analytical Suite Sampled	No. of Chemicals Detected	No. of Chemicals >CY2002 BV/FV (if Applicable)	No. of Chemicals >CY2002 SAL (Residential)
Inorganic chemicals	12	11	1
PCBs	2	N/A	2
Radionuclides	10	10	6
SVOCs	15	N/A	4
VOCs	6	N/A	0

The following table provides the maximum concentrations of analytes that exceeded CY2002 SALs.

Analytical Suite	Analyte	Maximum Concentration	CY2002 SAL (Residential)
Inorganic chemicals	Arsenic	4.6 mg/kg	0.39 mg/kg
PCBs	Aroclor-1254	6 mg/kg	0.22 mg/kg
	Aroclor-1260	1.25 mg/kg	0.22 mg/kg
Radionuclides	Americium-241	170.9 pCi/g	39 pCi/g
	Cesium-137	72.83 pCi/g	5.3 pCi/g
	Cobalt-60	1.2691 pCi/g	1.2 pCi/g
	Plutonium-238	5190 pCi/g	49 pCi/g
	Plutonium-239	453 pCi/g	44 pCi/g
	Strontium-90	57.7 pCi/g	5.7 pCi/g
SVOCs	Benzo(a)anthracene	1.1 mg/kg	0.62 mg/kg
	Benzo(a)pyrene	1.2 mg/kg	0.062 mg/kg
	Benzo(b)fluoranthene	1.5 mg/kg	0.62 mg/kg
	Indeno(1,2,3-cd)pyrene	0.66 mg/kg	0.62 mg/kg

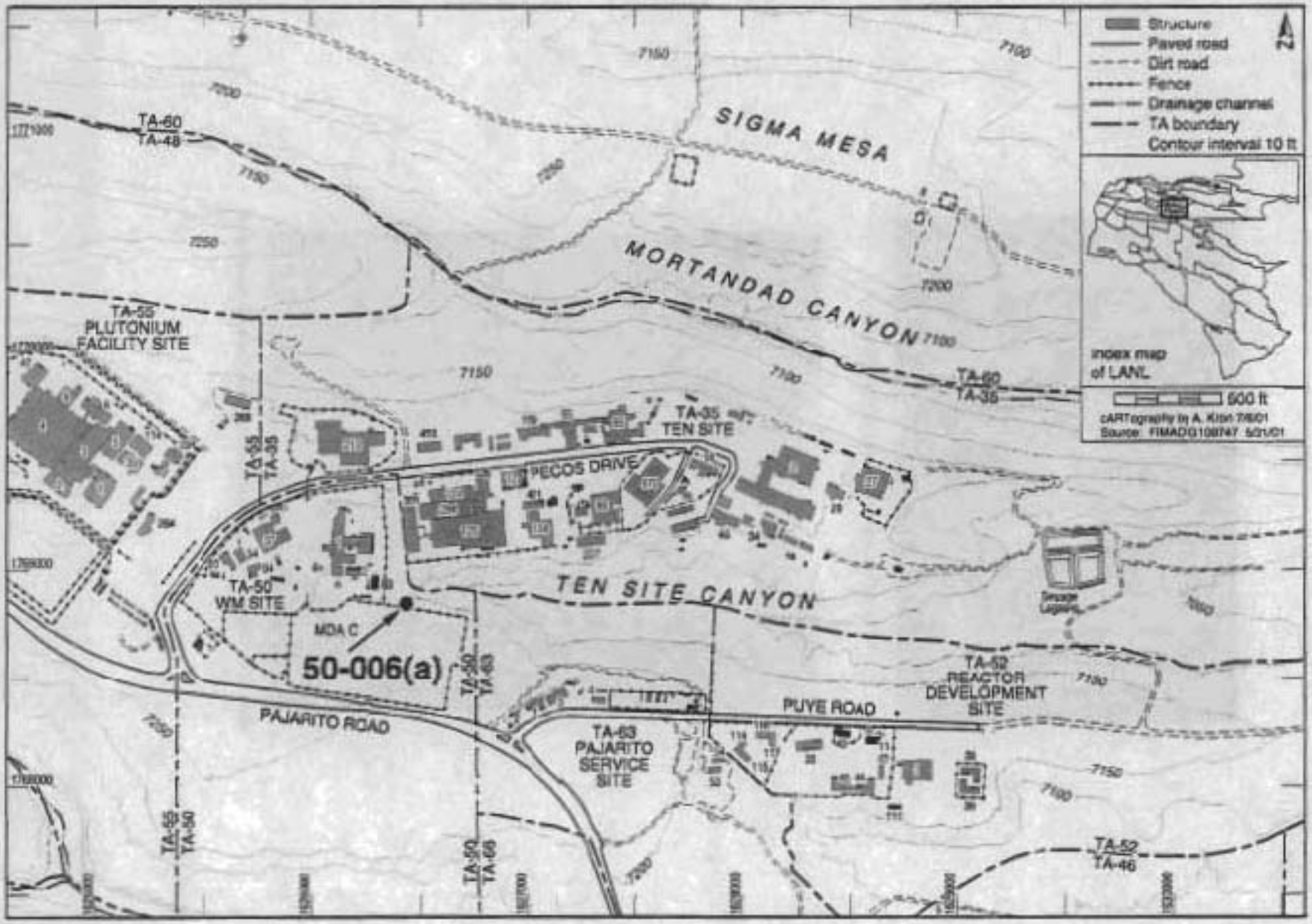
References

RFI Report for TA-50 PRSs 50-006(a), 50-006(c), 50-007, 50-008 — LA-UR Number: 95-2738

RFI Work Plan for Operable Unit 1147 — LA-UR Number: 92-0969

View of exclusion zone (SWMU 50-006(a))

View of SWMU 50-006(a), after remediation, looking southwest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Dirt road
Fence
Drainage channel
TA boundary
Contour interval 10 ft
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Index map of LANL
500 ft
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Source: FIMADG108747 5/31/01
SIGMA MESA
MORTANDAD CANYON
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PLUTONIUM
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REACTOR
DEVELOPMENT
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SWMU 50-006(c) — Operational release

Administrative Authority	NMED	**Former Operable Unit**	OU 1147
Technical Area	TA-50	**Dates of Operation**	1963-Present
Has ER Sampled the Site?	Yes	**ER Remedial Action Conducted?**	No
Structure Number	N/A	**Other Remedial Action Conducted?**	No

Unit Description

SWMU 50-006(c) refers to surface soil contamination from the deposition of radioactive contaminants (primarily plutonium and americium) from historical stack emissions from operations at TA-50. Emission sources included seven exhaust stacks that ventilated hoods for specific operations at the facility. A previous investigation showed slightly elevated plutonium levels in nearby soils. The only stack emission at TA-50 that has an Air Quality Permit is the Portable Flash Evaporation System. That permit is not held by LANL but by an independent firm called HydroChem Industrial Services; permit number: 2310-REV-1. Buildings 50-1, 50-37, and 50-69 are all monitored for radioactive emissions and resulting data are reported to EPA Region VI.

ER Project Activities

Information presented in this section was derived from previously published documents. Any discussion of BVs, FVs, and SALs is taken from the referenced documents and reflects the values in use at the time the documents were written. RFI activities conducted at this site are described in detail in the documents listed in the reference section below.

The ER Project conducted an RFI at SWMU 50-006(c) in the summer of 1993 to confirm results from previous surface soil samples and to determine the nature and extent of any radionuclides and RCRA-listed chemicals for which data were lacking when the OU 1147 work plan was written. The RFI included AOCs 50-007 and 50-008, surface soil contamination from airborne releases from the incinerator complex (Building 50-37) and the volume reduction facility (Building 50-69), respectively. The one SWMU and two AOCs were investigated as an aggregate because their boundaries were indistinguishable. Samples were collected from surface soils from five unpaved areas around Buildings 50-1, 50-37, and 50-69. Sample locations were biased toward natural drainage channels, and soil samples were collected from a total of 51 locations. The samples were analyzed for inorganic and organic chemicals, PCBs, and radionuclides. Analytical results showed elevated concentrations of beryllium, cadmium, chromium, nickel, and silver near a pipe rack. Because the pipe rack was still in use at the time of the RFI, the RFI report recommended that the area be recharacterized when the pipe rack was removed. In addition, cobalt-60, radium-226, several PAHs, and PCBs (Aroclor 1254) were detected above their respective BVs and/or SALs. The RFI report indicated that these contaminants were not considered COPCs when compared with risk-based SALs and/or PRGs. An ecological screening assessment was not completed for the SWMU. The RFI report recommended NFA for SWMU 50-006(c).

ER Project Sampling Summary

The following table shows the number of analytes that exceeded BVs, FVs, and SALs that were in use in calendar year 2002. These data reflect site conditions before any remedial activities that may have occurred, as discussed in the ER Project activities section above. BVs are naturally occurring concentrations of inorganic chemicals and radionuclides in soil, sediment, or tuff before any influence from LANL operations. FVs are concentrations of radionuclides in soil, sediment, or tuff that resulted from global atmospheric deposition unrelated to LANL releases. SALs are concentrations of chemicals or radionuclides based on a residential exposure, below which there is no potential unacceptable risk to human health.

Analytical Suite Sampled	No. of Chemicals Detected	No. of Chemicals >CY 2002 BV/FV (If Applicable)	No. of Chemicals >CY2002 SAL (Residential)
Inorganic chemicals	12	8	4
PCBs	2	N/A	2
Radionuclides	7	4	1
SVOCs	14	N/A	5

The following table provides the maximum concentrations of analytes that exceeded CY2002 SALs.

Analytical Suite	Analyte	Maximum Concentration	CY2002 SAL (Residential)
Inorganic chemicals	Arsenic	12.3 mg/kg	0.39 mg/kg
	Cadmium	170 mg/kg	70 mg/kg
	Chromium (total)	810 mg/kg	210 mg/kg
	Silver	410 mg/kg	380 mg/kg
PCBs	Aroclor-1254	1 mg/kg	0.22 mg/kg
	Aroclor-1260	0.52 mg/kg	0.22 mg/kg
Radionuclides	Cobalt-60	1.5192 pCi/g	1.2 pCi/g
SVOCs	Benzo(a)anthracene	1.8 mg/kg	0.62 mg/kg
	Benzo(a)pyrene	2.4 mg/kg	0.062 mg/kg
	Benzo(b)fluoranthene	2.2 mg/kg	0.62 mg/kg
	Dibenz(a,h)anthracene	0.69 mg/kg	0.062 mg/kg
	Indeno(1,2,3-cd)pyrene	1.6 mg/kg	0.62 mg/kg

References

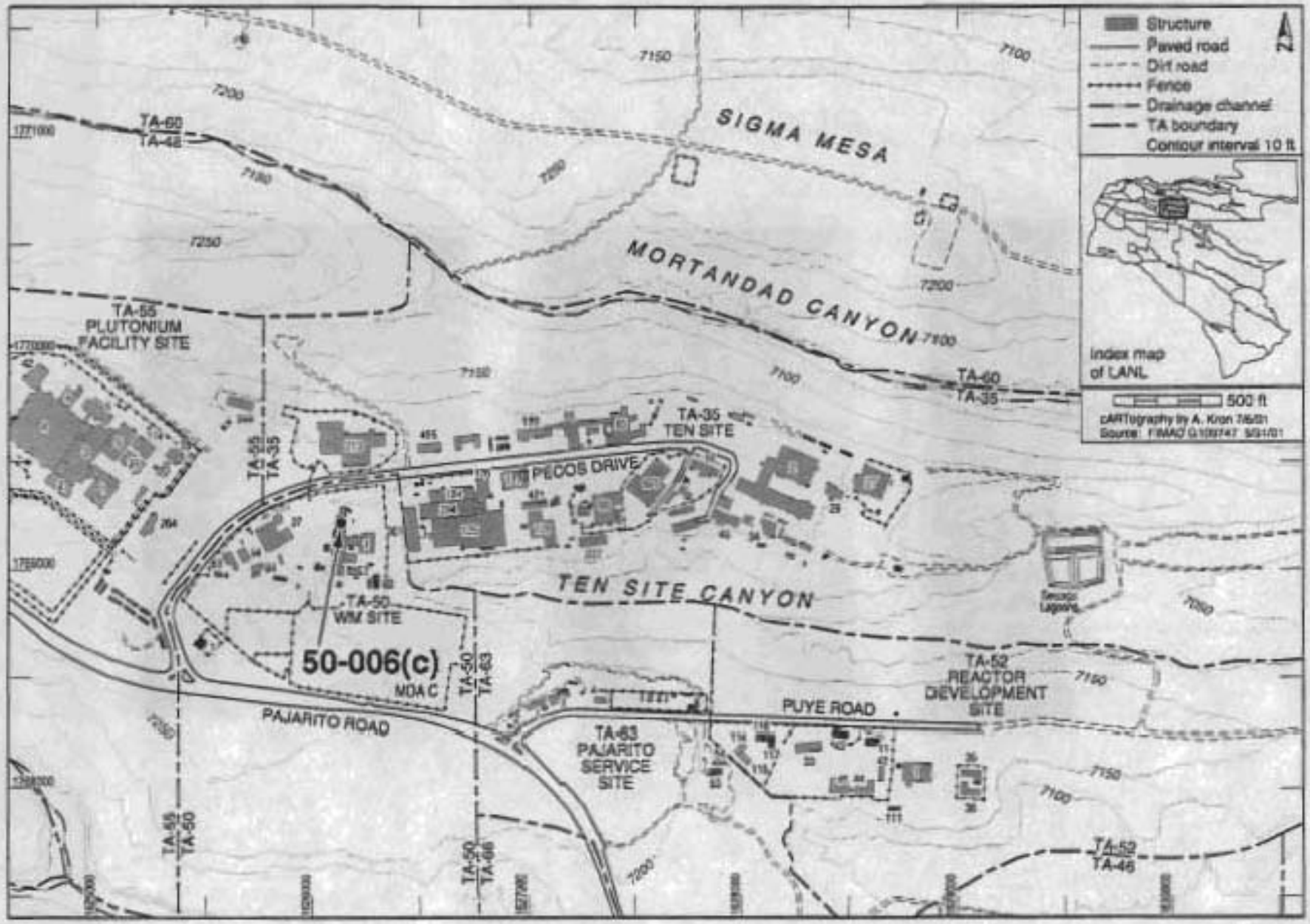
RFI Report for TA-50: PRSs 50-006(a), 50-006(c), 50-007, 50-008 — LA-UR Number: 95-2738

RFI Work Plan for Operable Unit 1147 — LA-UR Number: 92-0969

View of SWMU 50-006(c)

View of SWMU 50-006(c)

View of SWMU 50-006(c)


Structure
Paved road
Dirt road
Fence
Drainage channel
TA boundary
Contour interval 10 ft
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Index map of LANL
500 ft
cARTography by A. Kron 7/6/01
Source: FIMAD Q1097147 5/31/01
SIGMA MESA
MORTANDAD CANYON
TA-60
TA-48
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PLUTONIUM FACILITY SITE
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PECOS DRIVE
TEN SITE CANYON
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SWMU 50-006(d) — Effluent discharge

Administrative Authority	NMED	**Former Operable Unit**	OU 1147
Technical Area	TA-50	**Dates of Operation**	1983-Present
Has ER Sampled the Site?	Yes	**ER Remedial Action Conducted?**	No
Structure Number	N/A	**Other Remedial Action Conducted?**	No

Unit Description

SWMU 50-006(d) consists of a dra nline (structure 64) and NPDES-permitted Outfall 051 in Mortandad Canyon for treated wastewater from the radioactive liquid waste treatment facility (Building 50-1). Structure 64 is a 6-in.-diameter iron discharge pipe that was rerouted in 1983 to accommocate construction of the target fabrication facility (Building 35-213). In 1985, EPA Region VI issued an administrative order to DOE requiring modification of the outfall to mitigate ongoing stream bank erosion caused by the discharge pipe ending 25 ft short of the stream channel. DOE extended the pipe into the stream channel, and the order was subsequently closed by EPA in 1986.

ER Project Activities

Information presented in this section was derived from previously published documents. RFI activities conducted at this site are described in detail in the documents listed in the reference section below.

At the time the OU 1147 RFI work plan was prepared in 1992, 13 NPDES permit violations had been issued for Outfall 051 for exceedances of permit levels for iron and copper. The work plan stated that the nature and extent of contaminants in Mortandad Canyon would be addressed as part of the Canyons Focus Area investigations. No additional RFI activities have been conducted at SWMU 50-006(d).

ER Project Sampling Summary

The following table shows the number of analytes that exceeded BVs, FVs, and SALs that were in use in calendar year 2002. These data reflect site conditions before any remedial activities that may have occurred, as discussed in the ER Project activities section above. BVs are naturally occurring concentrations of inorganic chemicals and radionuclides in soil, sediment, or tuff before any influence from LANL operations. FVs are concentrations of radionuclides in soil, sediment, or tuff that resulted from global atmospheric deposition unrelated to LANL releases. SALs are concentrations of chemicals or radionuclides based on a residential exposure, below which there is no potential unacceptable risk to human health.

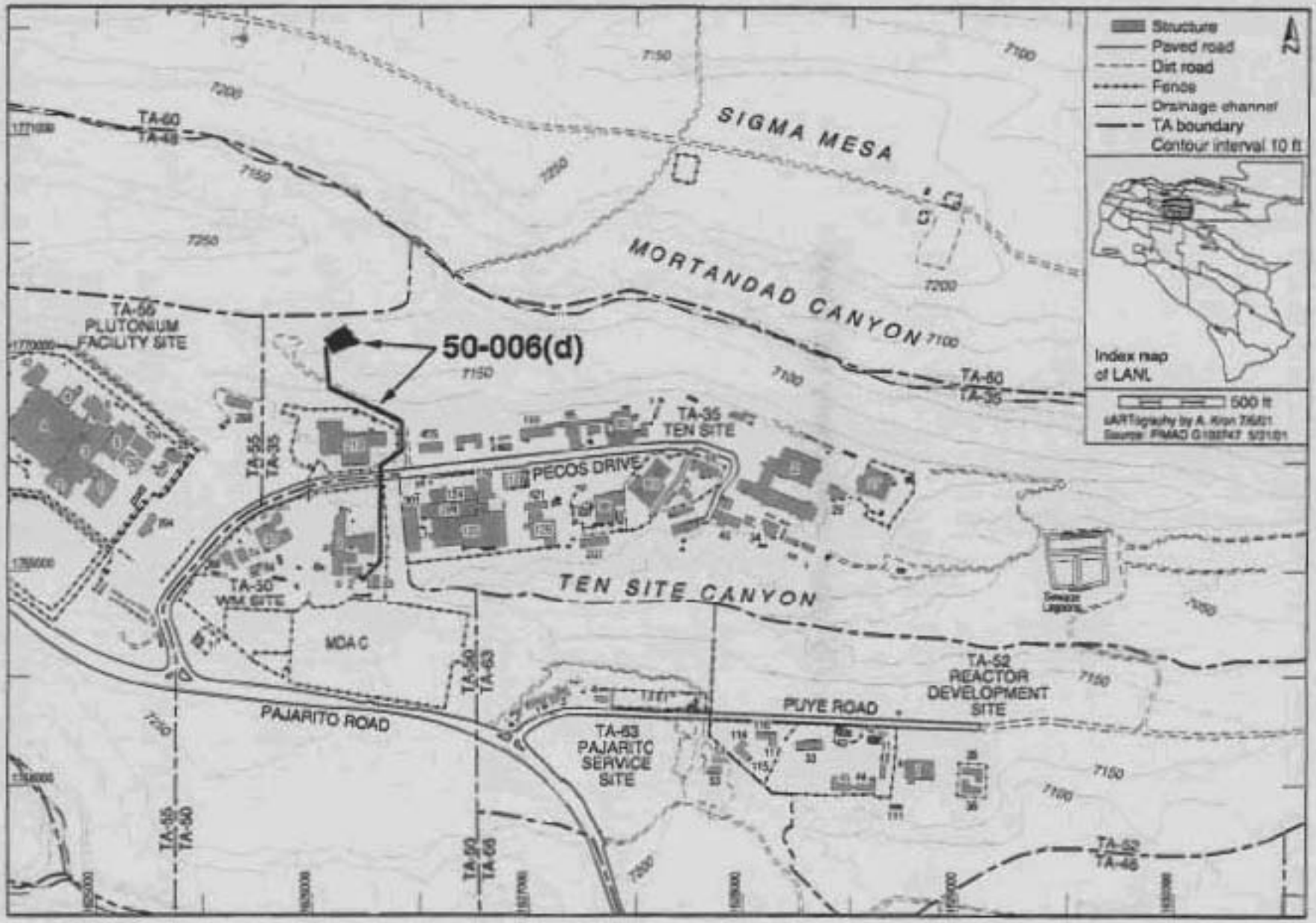
Analytical Suite Sampled	No. of Chemicals Detected	No. of Chemicals >CY2002 BV/FV (If Applicable)	No. of Chemicals >CY2002 SAL (Residential)
Inorganic chemicals	12	8	1
PCBs	1	N/A	0
Radionuclides	12	12	5
SVOCs	3	N/A	0
VOCs	5	N/A	0

The following table provides the maximum concentrations of analytes that exceeded CY2002 SALs.

Analytical Suite	Analyte	Maximum Concentration	CY2002 SAL (Residential)
Inorganic chemicals	Arsenic	5.18 mg/kg	0.39 mg/kg
Radionuclides	Americium-241	71.003 pCi/g	39 pCi/g
	Cesium-137	203.02 pCi/g	5.3 pCi/g
	Cobalt-60	2.4397 pCi/g	1.2 pCi/g
	Plutonium-239	47.816 pCi/g	44 pCi/g
	Strontium-90	18.3 pCi/g	5.7 pCi/g

View of SWMU 50-006(d)

View of SWMU 50-006(d)


Structure
Paved road
Dirt road
Fence
Drainage channel
TA boundary
Contour interval 10 ft
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Index map of LANL
500 ft
SIGMA MESA
MORTANDAD CANYON
TA-60
TA-48
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PLUTONIUM FACILITY SITE
50-006(d)
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TEN SITE
PECOS DRIVE
TA-55
TA-35
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TA-30
WM SITE
MDAC
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PAJARITO ROAD
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PAJARITO SERVICE SITE
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REACTOR DEVELOPMENT SITE
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AOC 50-007 — Incinerator

Administrative Authority	DOE	**Former Operable Unit**	OU 1147
Technical Area	TA-50	**Dates of Operation**	1975-1987
Has ER Sampled the Site?	No	**ER Remedial Action Conducted?**	No
Structure Number	50-37	**Other Remedial Action Conducted?**	No

Unit Description

AOC 50-007 was an incinerator complex housed in Building 50-37. The complex was constructed in 1975 and consisted of the incinerator, various waste-feed components, and two waste-feed tanks. The incinerator was conceived as a research and development project to demonstrate the application of commercially available incineration technology for the safe treatment of TRU-containing wastes. The incinerator was located in Room 112, and the former solid and liquid waste-feed system was in Room 115. The liquid feed system preparation room was bermed and had no floor drains. The maximum waste inventory allowed in Room 115 was 600 gal. in two waste-feed tanks. The incinerator complex was equipped with an off-gas treatment unit, and the exhaust air system from the incinerator included two HEPA filters. Liquid effluent generated by the off-gas aqueous scrub system was filtered to remove solids before transfer to a double instrument-monitored pipeline to the radioactive liquid waste treatment facility (Building 50-1). Ash was stabilized in concrete. From 1978 to 1987, 23 test burns were successfully conducted for RCRA and TSCA wastes. EPA issued a permit for the incineration of PCBs in 1984, and NMED included the incinerator in LANL's 1989 Hazardous Waste Facility Permit. Actual waste streams incinerated at Building 50-37 after the permits were issued included radioactively contaminated PCBs and scintillation cocktails. Operation of the incinerator was discontinued in 1987 to allow for system upgrades. A previous investigation showed slightly elevated plutonium levels in nearby soils. The incinerator complex was removed and underwent RCRA closure in 1998. According to Part A of LANL's Hazardous Waste Facility Permit, Building 50-37 currently houses one container storage area consisting of rooms 112, 115, 117 and 118. This unit will not be permitted, but will be closed. It operated under RCRA interim status and staged waste undergoing characterization and verification.

ER Project Activities

Information presented in this section was derived from previously published documents. RFI activities conducted at this site are described in detail in the documents listed in the reference section below.

The ER Project conducted an RFI at AOC 50-007 in the summer of 1993 to confirm results from previous surface soil samples to determine the nature and extent of any radionuclides and RCRA-listed chemicals that were lacking data when the OU 1147 work plan was written. The RFI included SWMU 50-006(c) and AOC 50-008, surface soil contamination from airborne releases from Building 50-1 and the volume reduction facility (Building 50-69), respectively. The two AOCs and one SWMU were investigated as an aggregate because their boundaries were indistinguishable. Data collected during these activities are associated with SWMU 50-006(c). An ecological screening assessment was not completed for the AOC. The RFI report recommended NFA for AOC 50-007.

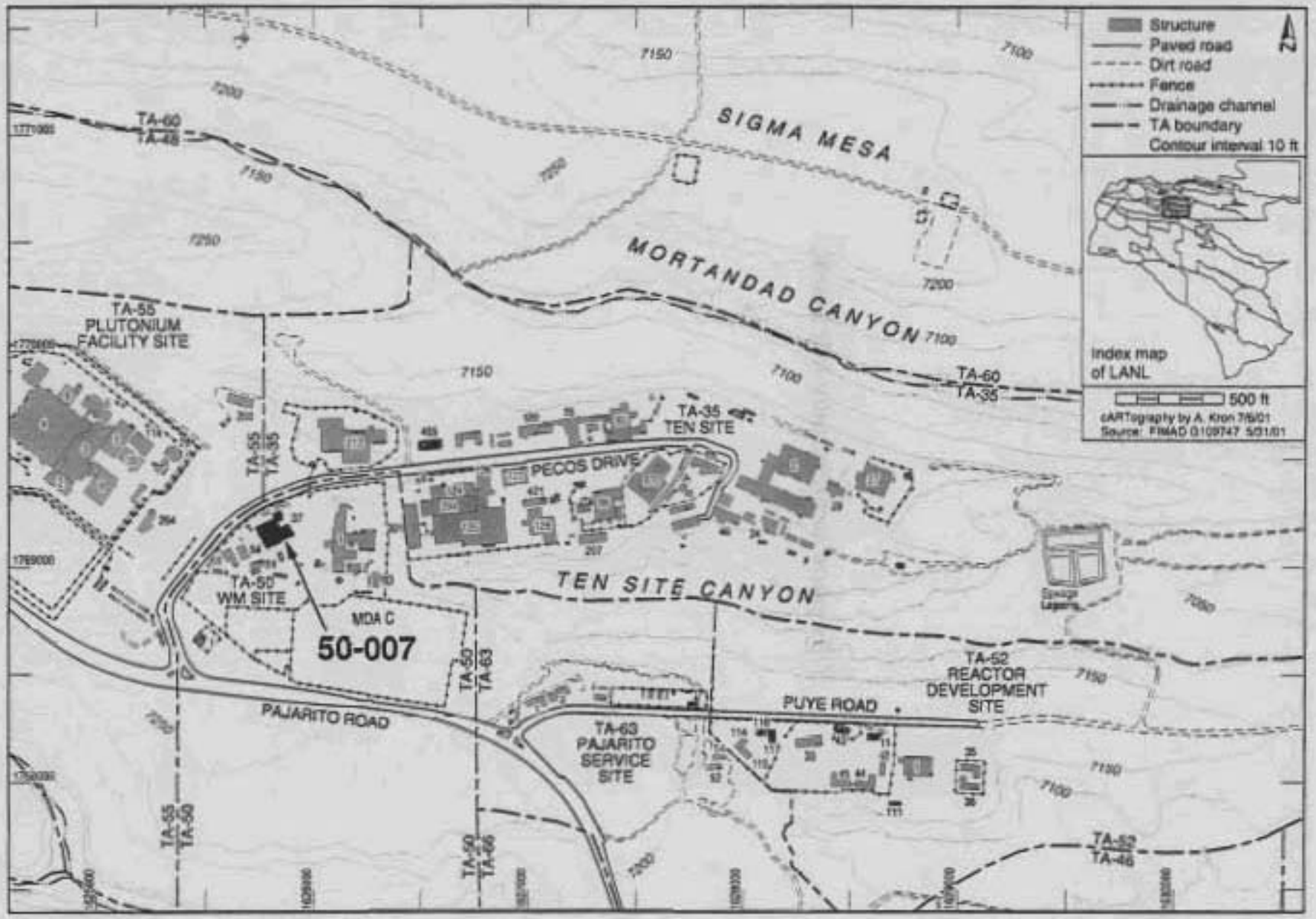
ER Project Sampling Summary

No analytical samples were collected at this site.

References

RFI Report for TA-50: PRSs 50-006(a), 50-006(c), 50-007, 50-008	LA-UR Number: 95-2738
RFI Work Plan for Operable Unit 1147	LA-UR Number: 92-0969

View of AOC 50-007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Paved road
Dirt road
Fence
Drainage channel
TA boundary
Contour interval 10 ft
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Index map of LANL
500 ft
cARTography by A. Kron 7/5/01
Source: FIMAD 0109747 5/31/01
SIGMA MESA
MORTANDAD CANYON
TA-60
TA-48
TA-55
PLUTONIUM FACILITY SITE
TA-35
TEN SITE
PECOS DRIVE
TA-50
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50-007
TEN SITE CANYON
TA-52
REACTOR DEVELOPMENT SITE
PUYE ROAD
PAJARITO ROAD
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PAJARITO SERVICE SITE
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AOC 50-008 — Reduction site

Administrative Authority	DOE	**Former Operable Unit**	OU 1147
Technical Area	TA-50	**Dates of Operation**	1982-1991
Has ER Sampled the Site?	No	**ER Remedial Action Conducted?**	No
Structure Number	50-69	**Other Remedial Action Conducted?**	No

Unit Description

AOC 50-008 is the volume reduction facility (now called the waste characterization, reduction, and repackaging facility) located in Building 50-69. The facility was constructed in 1979 to size-reduce large TRU-contaminated metallic items (e.g., glove boxes, metal ducts, and plenums) and repackage them into standard-sized containers for ultimate disposal at WIPP. The facility was first used to size-reduce TRU waste in 1982. Previous swipe samples indicated that Building 50-69 may be moderately contaminated with radionuclides. No outfalls are associated with Building 50-69; all liquid wastes are processed at the radioactive liquid waste treatment facility (Building 50-1). Operations at Building 50-69 were stopped in 1991, while upgrades were made to allow for continued long-term operation. A previous investigation showed slightly elevated plutonium levels in nearby soils.

ER Project Activities

Information presented in this section was derived from previously published documents. RFI activities conducted at this site are described in detail in the documents listed in the reference section below.

The ER Project conducted an RFI at AOC 50-008 in the summer of 1993 to confirm results from previous surface soil samples and to determine the nature and extent of any radionuclides and RCRA-listed chemicals that were lacking data when the OU 1147 work plan was written. The RFI included SWMUs 50-006(c) and AOC 50-007, surface soil contamination from airborne releases from Building 50-1 and the incinerator complex (Building 50-37), respectively. The two AOCs and one SWMU were investigated as an aggregate because their boundaries were indistinguishable. Data collected during these activities are associated with SWMU 50-006(c). An ecological screening assessment was not completed for the AOC. The RFI report recommended NFA for AOC 50-008.

According to Part A of LANL's Hazardous Waste Facility Permit, the waste characterization, reduction, and repackaging facility (Building 50-69) currently houses one interim status mixed waste operation.

ER Project Sampling Summary

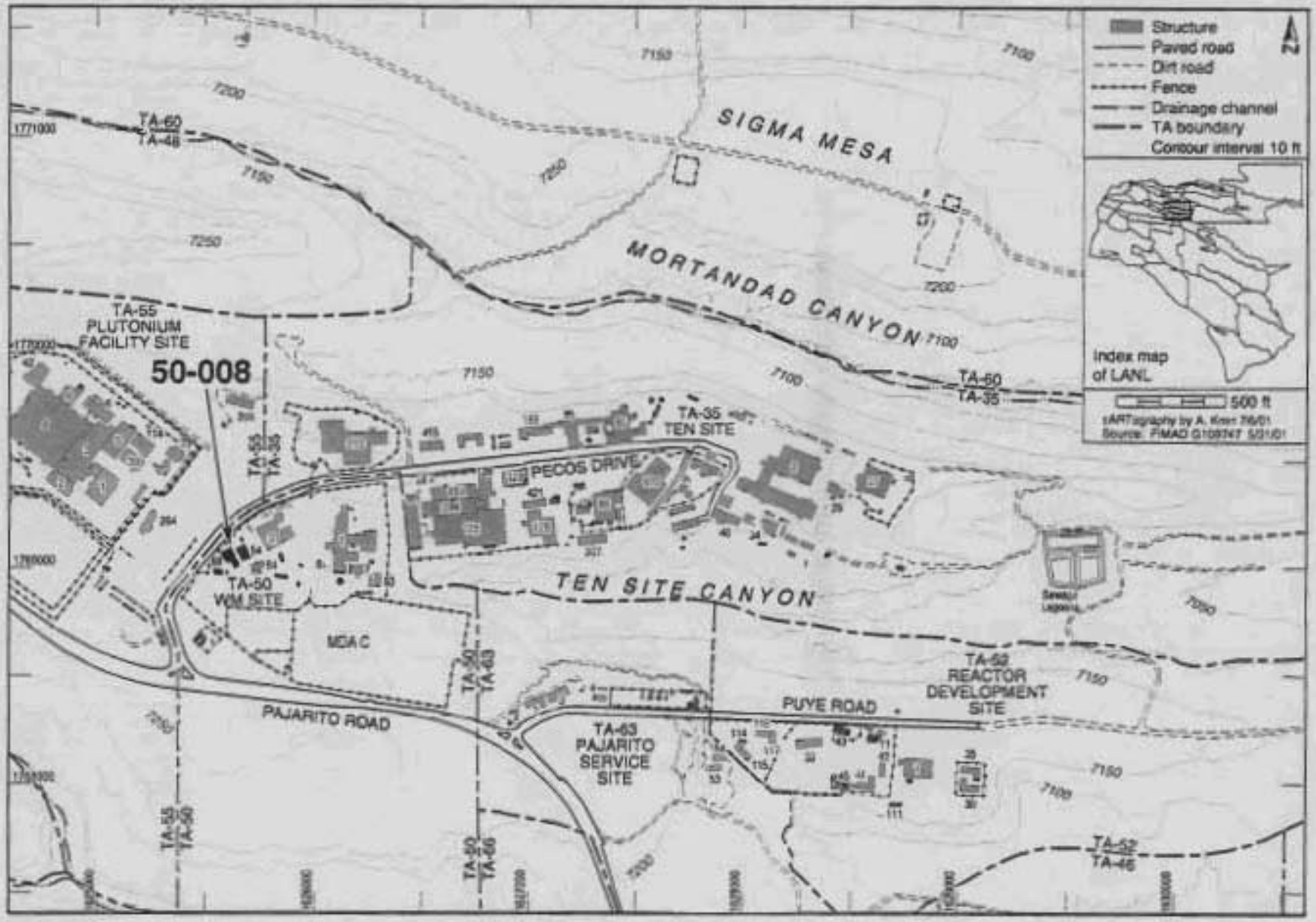
No analytical samples were collected at this site.

References

RFI Report for TA-50, PRSs 50-006(a), 50-006(c), 50-007, 50-008	LA-UR Number: 95-2738
RFI Work Plan for Operable Unit 1147	LA-UR Number: 92-0969

View of AOC 50-008

View of AOC 50-008


Structure
Paved road
Dirt road
Fence
Drainage channel
TA boundary
Contour interval 10 ft
Index map of LANL
500 ft
SIGMA MESA
MORTANDAD CANYON
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TA-50 WM SITE
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SWMU 50-009 — Material disposal area (MDA C)

Administrative Authority	NMED	**Former Operable Unit**	OU 1147
Technical Area	TA-50	**Dates of Operation**	1948-1974
Has ER Sampled the Site?	Yes	**ER Remedial Action Conducted?**	No
Structure Number	N/A	**Other Remedial Action Conducted?**	Yes

Unit Description

SWMU 50-009 is inactive MDA C, established in May 1948 to replace MDA B (SWMU 21-015). MDA C covers 11.8 acres and consists of 7 pits, 107 shafts, and 1 unnumbered shaft that was used for a single strontium-90 disposal. Pits and shafts were used for burial of hazardous chemicals, uncontaminated classified materials, and radioactive materials. TRU waste also was buried in unknown quantities in the pits. The landfill was used until April 1974 but received waste only intermittently from 1968 to 1974. COPCs include inorganic chemicals, VOCs, SVOCs, and radionuclides. According to the OU 1147 work plan, most of the radioactivity at MDA C is associated with tritium.

Pits 1 through 5 are located in the eastern half of MDA C. Pits 1 through 4 are approximately 610 ft x 40 ft x 25 ft deep; pit 5 is 110 ft x 705 ft x 18 ft deep. Pit 1 operated from 1948 to 1951, pit 2 operated from 1950 to 1951, pit 3 operated from 1951 to 1953, pit 4 operated from 1951 to 1955, and pit 5 operated from 1953 to 1959. Pits 6 and 7 are located in the northwestern part of MDA C. Pit 6 is 100 ft x 505 ft x 25 ft deep and operated from 1956 to 1960. Pit 7, the chemical pit, is 25 ft x 180 ft x 12 ft deep and operated from 1960 to 1964. Pit 7's designation and use as a chemical disposal pit was spurred by several chemical fires, first at MDA B and later at MDA C. The pit was fenced off from the rest of MDA C and was used to bury chemicals, pyrophoric metals, natural uranium powders and hydrides, sealed vessels containing sodium-potassium alloy, compressed gases, and unspecified equipment. According to the OU 1147 work plan, some radioactively contaminated materials were disposed of in pit 7.

The shafts are grouped chronologically and were used to dispose of radioactively contaminated waste from TA-35 and elsewhere. Group 1 consisted of 12 shafts that were used from February through October 1959. Group 1 shafts are located between pits 4 and 5 and measure 2 ft in diameter x 10 ft deep. The shafts originally were numbered 1 through 12 and were renumbered 56 through 67 in 1962. Group 2 shafts, numbered 1 through 55, were used from November 1959 to May 1967. The shafts were located between pits 1 and 3 and are 2 ft in diameter x 15 ft deep. Group 3 shafts, numbered 68 through 107, are located along the western edge of pits 1 through 5 and were used from October 1962 to February 1966. Shafts 68 through 97 are unlined 2-ft-diameter shafts that vary in depth from 20 ft to 25 ft. Shafts 98 through 107 are lined with 12-in.-thick concrete and have an inner diameter of 1 ft. The strontium-90 shaft (no assigned number) was used in the 1950s or 1960s to bury a single strontium-90 source. This shaft is located a few feet from the south fence near the entrance gate at MDA C.

Water infiltration tests were performed at LANL, including MDA C, by the US Geological Survey from 1956 to 1961. In 1976, 1977, and 1980 to 1983, soil and vegetation sampling confirmed the presence of radionuclides in localized areas on the surface of MDA C. In 1984, as part of an interim action to cover the contaminated soil surface, a new soil cover was placed over most of MDA C. In 1985 and 1986, a field-instrument and soil-sampling effort took place at MDA C. Readings taken at 18 locations in 1985 were all near BVs. Tritium concentrations were at or below the average LANL BVs in about half the samples and above that level in the remaining samples. Samples from the north and east perimeter and the western third of the site exceeded BVs for tritium, whereas samples from the east-central portions of MDA C were consistently low in tritium. In many cases, tritium levels increased with sampling depth. In 1986, more samples were collected to confirm 1985 sample results.

ER Project Activities

Information presented in this section was derived from previously published documents. Any discussion of BVs, FVs, and SALs is taken from the referenced documents and reflects the values in use at the time the documents were written. RFI activities conducted at this site are described in detail in the documents listed in the reference section below.

RFI activities were conducted at MDA C from 1993 through 1996. Surface soil sampling was conducted during the summer of 1993; a subsurface investigation was performed during parts of 1994, 1995, and early 1996.

Only one contaminant was found in surface soil samples at concentrations exceeding SALs. PCBs exceeded SALs in 4 out of 183 surface soil samples analyzed for pesticides/PCBs. Several inorganic chemicals and radionuclides were found to exceed BVs in surface soil samples. Out of 69 surface soil samples analyzed for inorganic chemicals, lead concentrations exceeded BVs in 6 and silver concentrations exceeded background in 2. In the 69 surface soil samples analyzed for radionuclides, several had exceedances of BVs for americium-241, plutonium-238 and -239, and uranium-235 and -238.

In subsurface samples, several inorganic chemicals were detected at concentrations greater than BVs. Each of the following inorganic analytes exceeded BVs in at least 2 of the 81 subsurface soil samples analyzed for inorganic chemicals: aluminum, antimony, barium, cadmium, calcium, chromium, cobalt, copper, cyanide, lead, magnesium, selenium, silver, and vanadium. The

following seven organic chemicals, including acetone, bis(2-ethylhexyl)phthalate, 1,1-dichloroethene, hexachlorobutadiene, 2-methylphenol, methylene chloride, and toluene were detected in isolated core samples out of the 70 samples analyzed for organic chemicals. Americium-241, cesium-137, cobalt-60, plutonium-238 and -239, strontium-90, and tritium were all measured above the minimum detectable activity in at least 1 of the 81 subsurface samples analyzed for radionuclides. Only isotopic uranium has a subsurface BV, and uranium-234, -235, and -238 all exceeded their respective BVs in at least one subsurface sample.

A data gap was identified by the ER Project after conducting 1995 RFI fieldwork at MDA C. The ER Project learned from work at TA-54 that VOCs do not adsorb to the tuff but are present in the pore gas. To complete the RFI, data were needed to determine whether there is a VOC vapor phase plume from the chemical pit (pit 7) at MDA C. The first of two vapor-monitoring boreholes was installed in FY2000 to collect pore-gas samples. The ER Project field-screens 10 sampling ports quarterly from this monitoring borehole; the deepest is 315 ft below ground surface. Based on field-screening data, two samples are collected quarterly for analysis by a fixed analytical laboratory. The second borehole was installed in June 2001 to provide a second reference point to delineate the plume. The pore-gas monitoring project is being conducted in parallel with similar characterization activities at MDAs G and L at TA-54, and results are reported in ER Project quarterly reports. The data will be used to complete the MDA C RFI, and the RFI results will feed into the corrective measures study for MDA C to determine if remedial action is required.

A geophysical investigation was conducted in 2001 to confirm the locations of the disposal pits and shafts at MDA C, as well as estimate the thickness of cover materials at the site. To achieve this objective, an integrated geophysical survey was performed using terrain conductivity, high-sensitivity metal detector, and digital ground-penetrating radar techniques. The results of this investigation indicate that the actual locations of disposal pits 1 through 4 are offset approximately 40 ft to the east relative to the historically reported locations of the pits. The thickness of cover materials at MDA C ranges from 0.0 ft to 8.76 ft.

ER Project Sampling Summary

The following table shows the number of analytes that exceeded BVs, FVs, and SALs that were in use in calendar year 2002. These data reflect site conditions before any remedial activities that may have occurred, as discussed in the ER Project activities section above. BVs are naturally occurring concentrations of inorganic chemicals and radionuclides in soil, sediment, or tuff before any influence from LANL operations. FVs are concentrations of radionuclides in soil, sediment, or tuff that resulted from global atmospheric deposition unrelated to LANL releases. SALs are concentrations of chemicals or radionuclides based on a residential exposure, below which there is no potential unacceptable risk to human health.

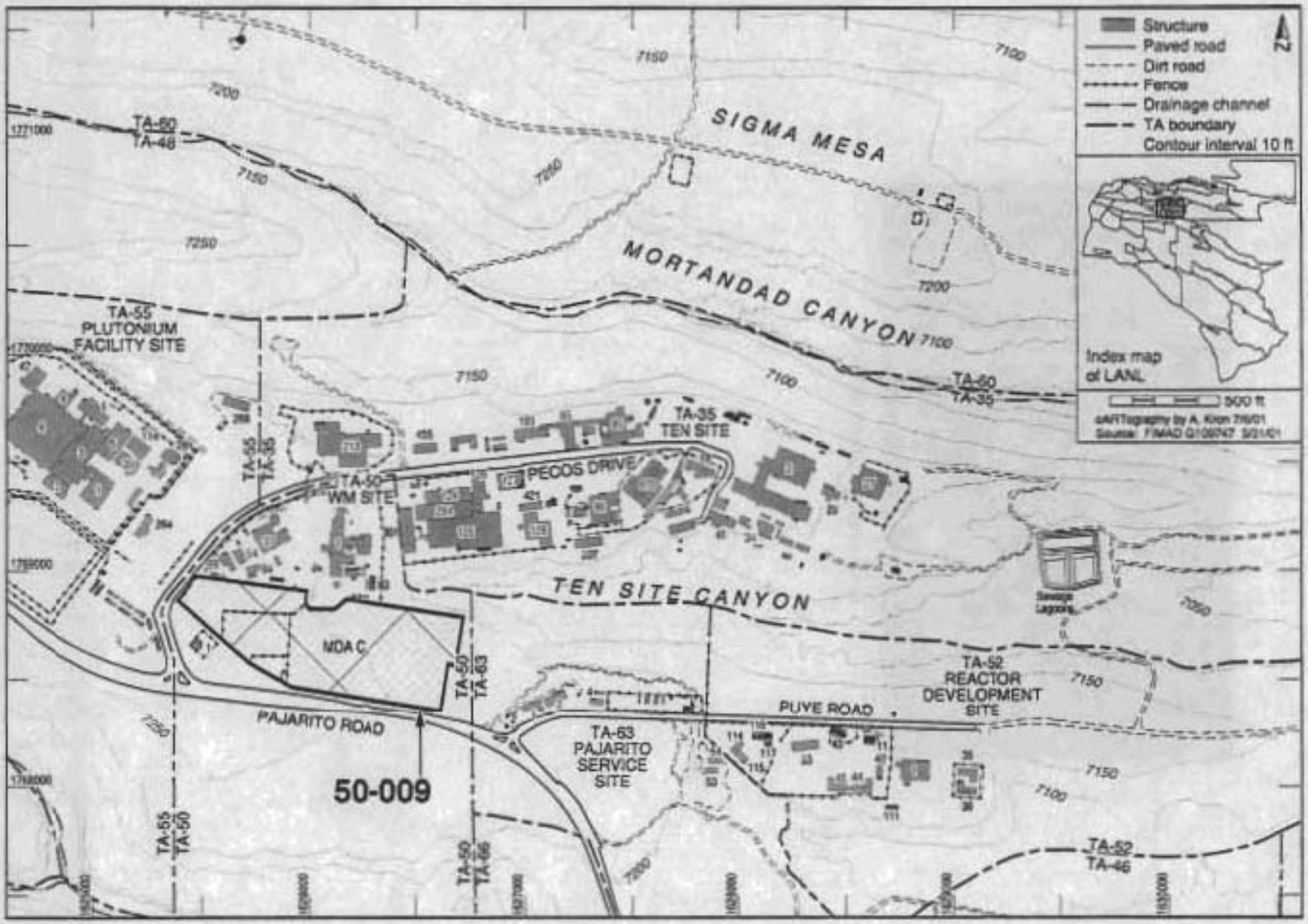
Analytical Suite Sampled	No. of Chemicals Detected	No. of Chemicals >CY2002 BV/FV (If Applicable)	No. of Chemicals >CY2002 SAL (Residential)
Inorganic chemicals	23	19	2
PCBs	2	N/A	1
Pesticide/PCBs	0	N/A	0
Radionuclides	16	13	1
SVOCs	4	N/A	0
VOCs	4	N/A	0

The following table provides the maximum concentrations of analytes that exceeded CY2002 SALs.

Analytical Suite	Analyte	Maximum Concentration	CY2002 SAL (Residential)
Inorganic chemicals	Arsenic	8 mg/kg	0.39 mg/kg
	Thallium	12 mg/kg	6.1 mg/kg
PCBs	Aroclor-1254	1 mg/kg	0.22 mg/kg
Radionuclides	Tritium	1,660,000 pCi/g	880 pCi/g

References

Aerial of SWMU 50-009 (MDA C)


Structure
Paved road
Dirt road
Fence
Drainage channel
TA boundary
Contour interval 10 ft
N
Index map of LANL
500 ft
SIGMA MESA
MORTANDAD CANYON
TA-55 PLUTONIUM FACILITY SITE
TA-60
TA-48
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TA-35 TEN SITE
PECOS DRIVE
TA-50 WM SITE
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MDA C
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PAJARITO ROAD
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TA-52 REACTOR DEVELOPMENT SITE
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TA-46
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1770000
1769000
1768000

AOC 50-010 — Decontamination facility

Administrative Authority	DOE	**Former Operable Unit**	OU 1147
Technical Area	TA-50	**Dates of Operation**	1963-1999
Has ER Sampled the Site?	No	**ER Remedial Action Conducted?**	No
Structure Number	N/A	**Other Remedial Action Conducted?**	No

Unit Description

AOC 50-010 is an inactive vehicle decontamination area located in Room 348 of the radioactive liquid waste treatment facility (Building 50-1). The area was used to clean radioactive contamination from vehicles and large objects used to transport radioactive liquid waste to TA-50. Liquid wastes generated during decontamination activities were transferred to tanks at Building 50-2 through a floor drain and waste line. The decontamination bay was operated from 1963 through October 1999. It was enclosed in 1983. According to the OU 1147 work plan, there is no documented evidence of contaminant releases from this facility.

ER Project Activities

RFI activities conducted at this site are described in detail in the documents listed in the reference section below. No additional RFI activities have been conducted at this site.

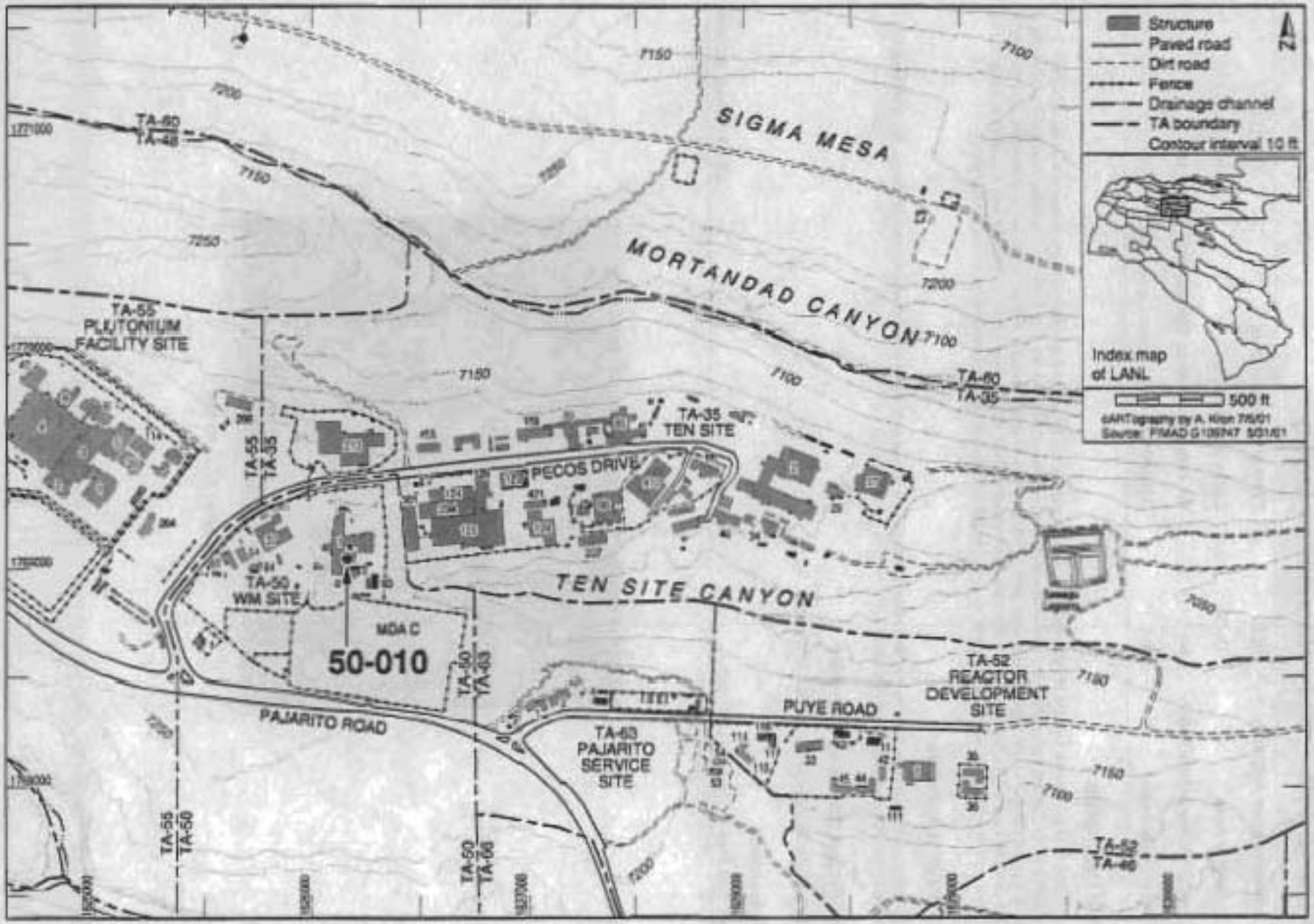
ER Project Sampling Summary

No analytical samples were collected at this site.

References

RFI Work Plan for Operable Unit 1147 — LA-UR Number: 92-0969

View of AOC 50-010


Structure
Paved road
Dirt road
Fence
Drainage channel
TA boundary
Contour interval 10 ft
Index map of LANL
500 ft
SIGMA MESA
MORTANDAD CANYON
TA-55 PLUTONIUM FACILITY SITE
TA-35 TEN SITE
PECOS DRIVE
TEN SITE CANYON
TA-50 WM SITE
MDA C
50-010
PAJARITO ROAD
TA-63 PAJARITO SERVICE SITE
PUYE ROAD
TA-52 REACTOR DEVELOPMENT SITE
TA-60
TA-48
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TA-43
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SWMU 50-011(a) — Septic system

Administrative Authority	NMED	**Former Operable Unit**	OU 1147
Technical Area	TA-50	**Dates of Operation**	1964-1983
Has ER Sampled the Site?	Yes	**ER Remedial Action Conducted?**	No
Structure Number	50-9, 50-10, 50-11	**Other Remedial Action Conducted?**	Yes

Unit Description

SWMU 50-011(a) is the location of decommissioned septic system that was installed in 1964 at the south end of the radioactive liquid waste treatment facility (Building 50-1). The system consisted of an influent line from Building 50-1 that discharged to a manhole (structure 50-9) and then to a septic tank (structure 50-10). The effluent line from the tank tied to a distribution box (structure 50-11), which discharged to four parallel perforated pipes traversing a leach field. A 4-ft-diameter x 50-ft-deep shaft was drilled at the east end of the leach field in 1978 to address problems with standing water on the ground surface. A 4-in. perforated pipe was installed in the shaft, and the annulus was backfilled to within 4 ft of the ground surface (seepage pit). The outlets of the four parallel pipes were then tied into the 4-in. perforated pipe. The septic system, except for the perforated pipe (seepage pit), was removed in 1983. Currently, the former location of the leach field and the section of the effluent line between the former septic tank and the leach field are the only portions of the old system not covered by a storage building (Building 50-83). These areas are beneath an asphalt pad located between the pumping station (Building 50-2) and Building 50-83. The 50-ft-deep shaft is currently located beneath the southeast corner of Building 50-83. Previous investigations of the areas surrounding this SWMU were conducted in 1986, during decommissioning of the radioactive liquid waste line; excavated soils were characterized for radioactive constituents and remediated to meet ALARA levels.

ER Project Activities

Information presented in this section was derived from previously published documents. Any discussion of BVs, FVs, and SALs is taken from the referenced documents and reflects the values in use at the time the documents were written. RFI activities conducted at this site are described in detail in the documents listed in the reference section below.

The ER Project conducted an RFI at SWMU 50-011(a) in 1994 to determine the presence of and define the nature and extent of any contamination from previous operational releases. The investigation involved the collection of seven soil samples from four 10-ft-deep vertical boreholes. The samples were analyzed for inorganic and organic chemicals, PCBs, and radionuclides. No elevated chemical concentrations were detected, and the RFI report recommended NFA for SWMU 50-011(a). In a May 1997 RSI, NMED approved the drilling of an additional borehole adjacent to the seepage pit to a depth of 60 ft.

In December 2001, geotechnical and waste characterization samples were collected from eight boreholes, including one adjacent to the seepage pit, to determine the feasibility of constructing a new pump house and influent storage tank vault at TA-50.

ER Project Sampling Summary

The following table shows the number of analytes that exceeded BVs, FVs, and SALs that were in use in calendar year 2002. These data reflect site conditions before any remedial activities that may have occurred, as discussed in the ER Project activities section above. BVs are naturally occurring concentrations of inorganic chemicals and radionuclides in soil, sediment, or tuff before any influence from LANL operations. FVs are concentrations of radionuclides in soil, sediment, or tuff that resulted from global atmospheric deposition unrelated to LANL releases. SALs are concentrations of chemicals or radionuclides based on a residential exposure, below which there is no potential unacceptable risk to human health.

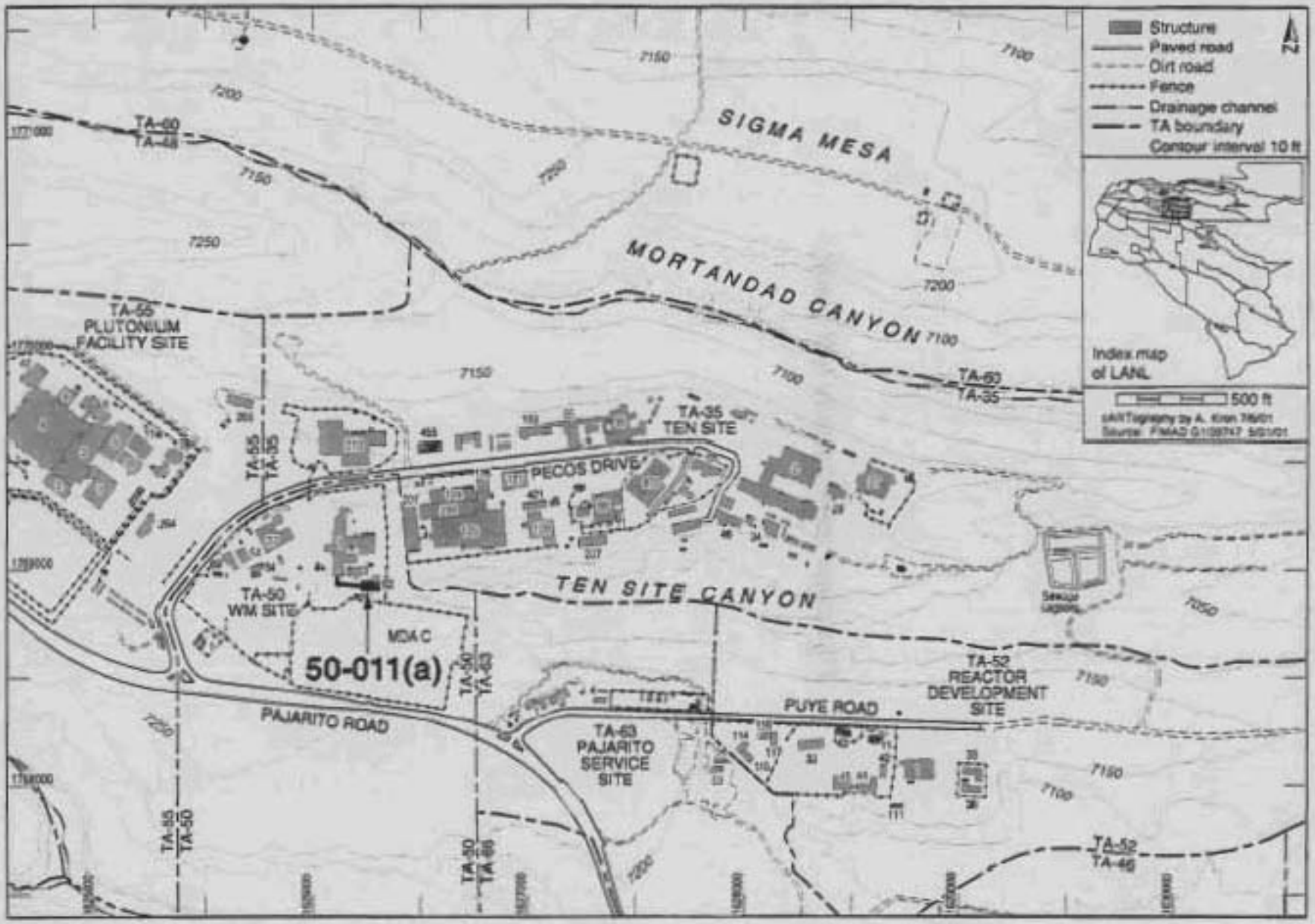
Analytical Suite Sampled	No. of Chemicals Detected	No. of Chemicals >CY2002 BV/FV (If Applicable)	No. of Chemicals >CY2002 SAL (Residential)
Inorganic chemicals	6	0	0
PCBs	0	N/A	0
Radionuclides	5	3	0
SVOCs	0	N/A	0
VOCs	2	N/A	0

Data collected at this site indicate that there have been no constituents detected above SALs at this SWMU.

References

RFI Report for Potential Release Sites at TA-50: 50-004(a), 50-004(c), 50-011(a) (Located in Former Operable Unit 1147)	LA-UR Number: 96-168
RFI Work Plan for Operable Unit 1147	LA-UR Number: 92-0959

No photo; subsurface unit


Structure
Paved road
Dirt road
Fence
Drainage channel
TA boundary
Contour interval 10 ft
N
Index map of LANL
500 ft
SIGMA MESA
MORTANDAD CANYON
TA-60
TA-48
TA-55
PLUTONIUM FACILITY SITE
TA-35
TEN SITE
PECOS DRIVE
TEN SITE CANYON
TA-50
WM SITE
MDA C
50-011(a)
PAJARITO ROAD
TA-63
PAJARITO SERVICE SITE
PUYE ROAD
TA-52
REACTOR DEVELOPMENT SITE
TA-46
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AOC 50-011(b) — Lift stations

Administrative Authority	DOE	**Former Operable Unit**	OU 1147
Technical Area	TA-50	**Dates of Operation**	1983-Present
Has ER Sampled the Site?	No	**ER Remedial Action Conducted?**	No
Structure Number	50-90, 50-91	**Other Remedial Action Conducted?**	No

Unit Description

AOC 50-011(b) is composed of two active sanitary wastewater lift stations (structures 50-91 and 50-92) and approximately 400 ft of piping that transport sanitary wastewater from the radioactive liquid waste treatment facility (Building 50-1) to the main line that serves the SWSC Plant. The lift stations are located on the north and south sides of Building 50-1. This sanitary wastewater system, AOC 50-011(b), was installed as part of a utility upgrade in 1983. At that time, the septic tank and drainfield [SWMU 50-011(a)] that had served Building 50-1 since 1963 were removed. One lift station serves the north end of Building 50-1, and a second lift station serves the south end of the building. This sanitary wastewater system is still active and is approximately 16 years old. The 400 ft of piping that runs between the lift stations and out to Pecos Drive was also installed in 1983. Effluent lines exit near the southwest and the northwest corners of Building 50-1 and drain to the lift stations. The wastewater is pumped through 4-in. laterals at each lift station to a 6-in. main on the west side of the building. The 6-in. main runs across Pecos Drive to a sanitary sewer manhole; then it joins the 5-in. gravity main to the SWSC Plant at TA-48.

ER Project Activities

Information presented in this section was derived from previously published documents. RFI activities conducted at this site are described in detail in the documents listed in the reference section below.

This AOC was recommended for NFA in a 1999 RFI report. The SWSC Plant, which is the ultimate repository for the sanitary waste handled by these lift stations, is operated in accordance with LANL's NPDES Permit, NM0028355, for Outfall 135. To support the treatment and discharge standards specified by the NPDES Permit, the SWSC Plant requires detailed evaluation of all incoming waste streams, and all incoming wastes are required to meet the waste acceptance criteria specified for sanitary liquid waste (Chapter 19 of the LANL Waste Acceptance Criteria, Sanitary Liquid Waste, March 1999). Samples are collected from the SWSC Plant outfall on a regular basis to demonstrate the effectiveness of the program, as specified in the permit. The Water Quality and Hydrology Group at LANL (ESH-18) also periodically collects samples from this permitted outfall as a quality assurance and quality control measure. Collectively, these requirements comprise a program that addresses the active management and treatment of the sanitary wastewater generated at TA-50.

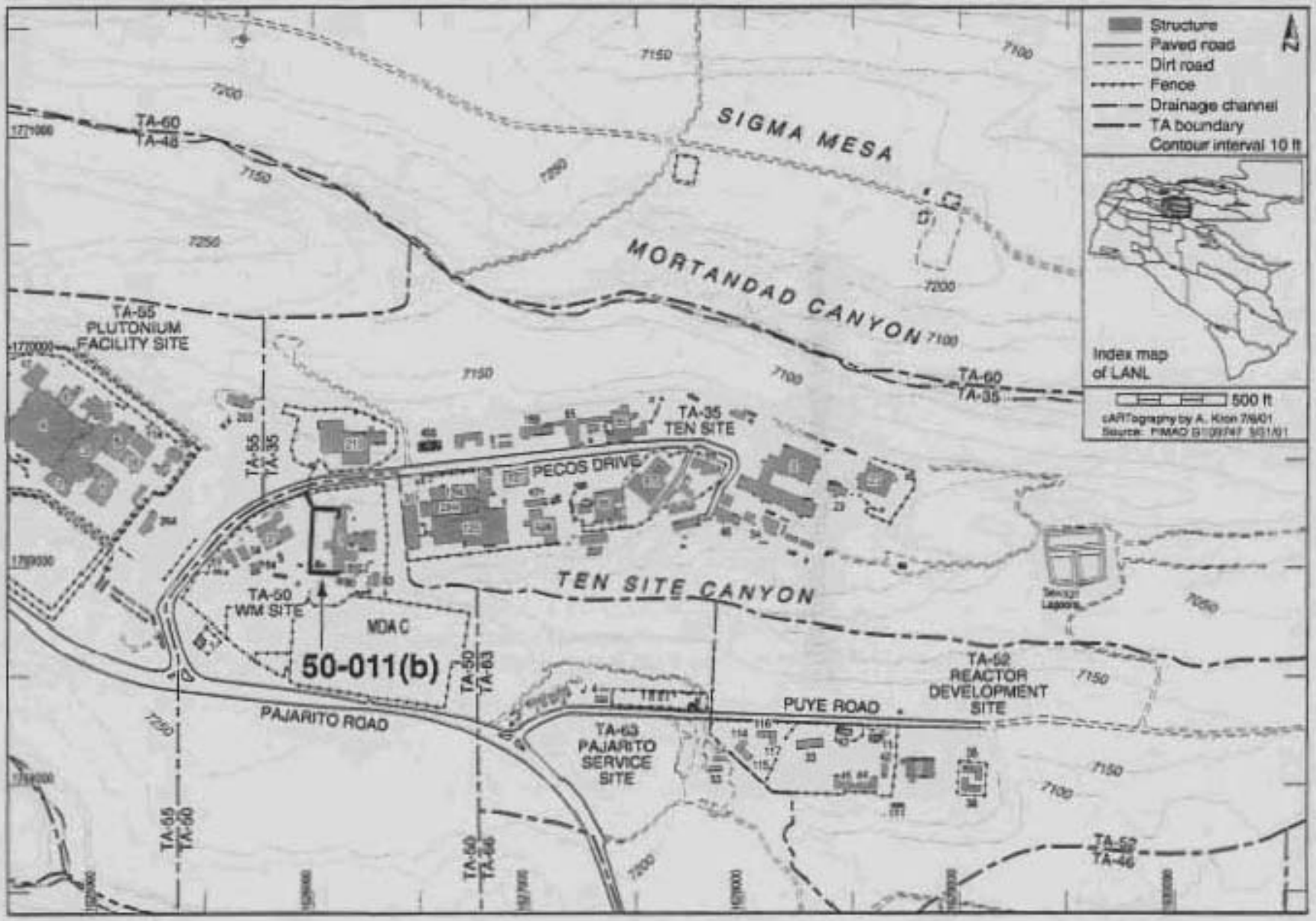
ER Project Sampling Summary

No analytical samples were collected at this site.

References

RFI Report for Potential Release Site 50-011(b) (Sanitary Sewage System)	LA-UR Number: 99-4908
RFI Work Plan for Operable Unit 1147	LA-UR Number: 92-0969

View of SWMU 50-011(b)


Structure
Paved road
Dirt road
Fence
Drainage channel
TA boundary
Contour interval 10 ft
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Index map of LANL
500 ft
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SIGMA MESA
MORTANDAD CANYON
TA-60
TA-48
TA-55
PLUTONIUM FACILITY SITE
TA-35
TEN SITE
PECOS DRIVE
TEN SITE CANYON
TA-50
WM SITE
MDAC
50-011(b)
TA-50
TA-63
PAJARITO ROAD
TA-63
PAJARITO SERVICE SITE
PUYE ROAD
TA-52
REACTOR DEVELOPMENT SITE
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AOC C-50-001 — Transformer - PCB only site

Administrative Authority	DOE	**Former Operable Unit**	OU 1147
Technical Area	TA-50	**Dates of Operation**	1963-1994
Has ER Sampled the Site?	No	**ER Remedial Action Conducted?**	No
Structure Number	N/A	**Other Remedial Action Conducted?**	Yes

Unit Description

AOC C-50-001 is the former location of a PCB transformer that was installed when the radioactive liquid waste treatment facility (Building 50-1) was built in 1963. The site is a 20 ft x 10 ft concrete pad surrounded by asphalt and is located east of Building 50-1. According to the historical research conducted at this AOC, the concrete pad was expanded in recent years, and a containment system was installed along the inside edge of the pad. One documented release occurred from the transformer at AOC C-50-001. A minor seep from a valve was discovered in August 1989 during a routine daily inspection. The valve was cleaned, and metal epoxy was used to seal the valve. Oil staining was noted on the concrete pad after the PCB transformer was removed in 1994. A sample collected by ESH-19 confirmed the presence of PCBs. The staining remained within the perimeter boundary of the transformer pad. The pad subsequently was scraped clean and double washed/rinsed five times using an alkaline detergent, in accordance with EPA's PCB Spill Cleanup Policy (40 CFR 761). The cleaned area was encapsulated with polymeric paint/sealer before the replacement non-PCB transformer was positioned on the pad.

ER Project Activities

Information presented in this section was derived from previously published documents. RFI activities conducted at this site are described in detail in the documents listed in the reference section below.

The June 2000 RFI report for AOC C-50-001 recommended NFA at this AOC because the site has been managed in accordance with 40 CFR 761 requirements and LANL's PCB management policy. Releases from AOC C-50-001 were cleaned up in accordance with regulatory requirements, and the PCB-containing transformer was replaced with a non-PCB transformer.

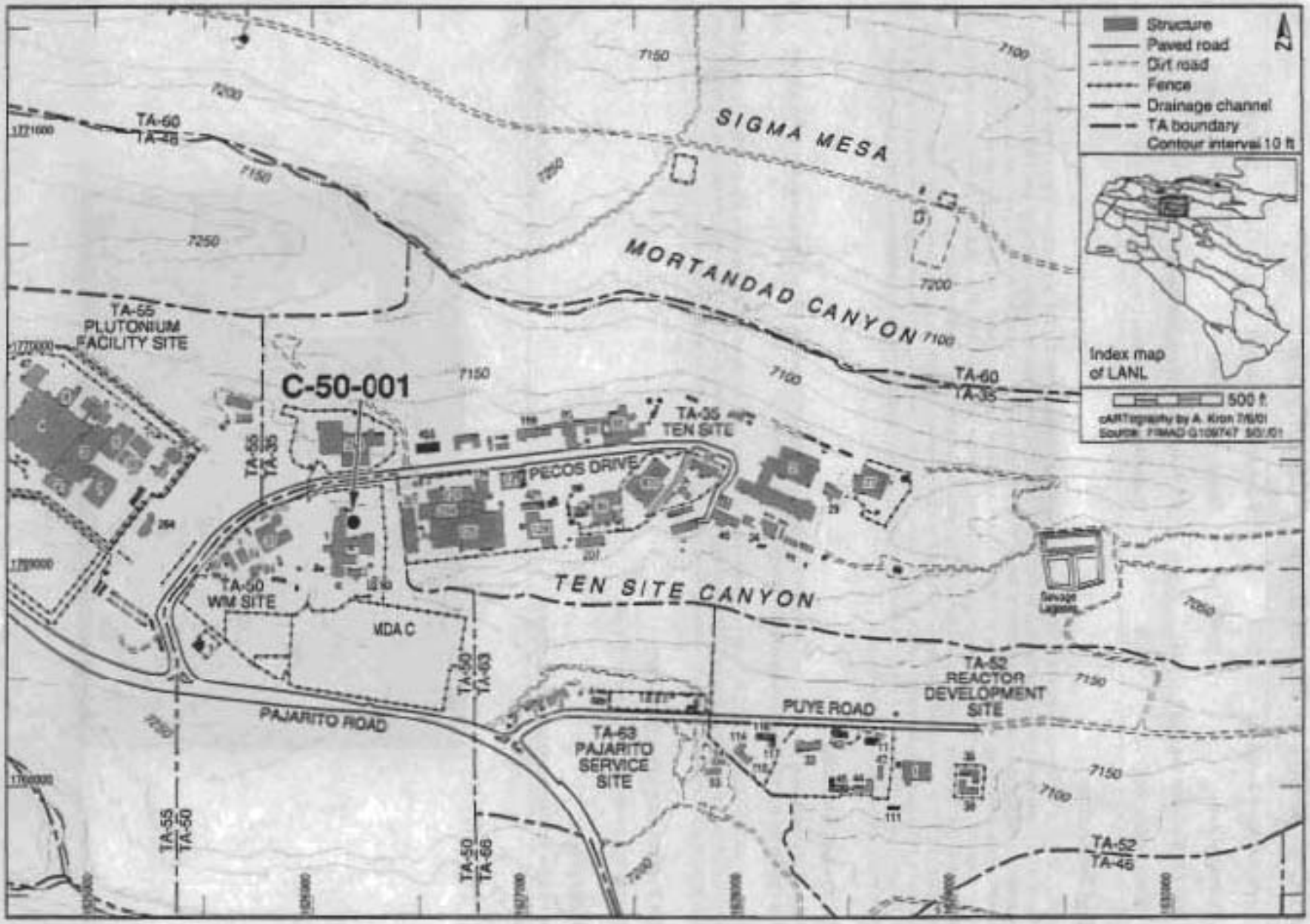
ER Project Sampling Summary

No analytical samples were collected at this site.

References

RFI Report for Potential Release Site C-50-001 — LA-UR Number: 00-2515

View of AOC C-50-001


Structure
Paved road
Dirt road
Fence
Drainage channel
TA boundary
Contour interval 10 ft
Index map of LANL
500 ft
SIGMA MESA
MORTANDAD CANYON
TEN SITE CANYON
C-50-001
TA-55 PLUTONIUM FACILITY SITE
TA-60 TA-48
TA-60 TA-35
TA-35 TEN SITE
PECOS DRIVE
TA-50 WM SITE
MDA C
TA-50 TA-63
PAJARITO ROAD
TA-63 PAJARITO SERVICE SITE
PUYE ROAD
TA-52 REACTOR DEVELOPMENT SITE
TA-55 TA-50
TA-50 TA-66
TA-52 TA-46
Sewage Lagoon
7150
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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.

W. Scott Eichelberger for — 7-30-02

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

Date Signed

E. Dennis Martinez — 7/31/02

for **Ralph E. Erickson**
Director, Office of Los Alamos Site Operation
U.S. Department of Energy
Albuquerque Operations
Owner/Operator

Date Signed

6.0 REFERENCES

IT, 1994, "Closure Certification Report TA-50 Batch Waste Treatment Unit," IT Corporation, Albuquerque, New Mexico.

Benchmark, 1998, "Los Alamos National Laboratory Controlled-Air Incinerator RCRA Closure Certification Report," Benchmark Environmental Corporation, Albuquerque, New Mexico.

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." In Hazardous Waste Facility Permit. November 8, 1989. Permit No. NM 0890010515-1 issued to Los Alamos National Laboratory, Santa Fe, New Mexico, New Mexico Environmental Improvement Division.

LANL, 2002a, "Response to Notice of Deficiency; TA-50 Part B Permit Application, Revision 2.0, March 2002," LA-UR-02-2013, Los Alamos National Laboratory, Los Alamos, New Mexico, April 2002.

LANL, 2002b, "TA-50 Solid Waste Management Unit Report," Los Alamos National Laboratory, Los Alamos, New Mexico, April 2002.

LANL, 2001, "Response to Request for Supplemental Information: Technical Adequacy Review, Resource Conservation and Recovery Act Permit Application: TA-50 Part B, December 2000, Revision 2.0, Los Alamos National Laboratory, U.S. Environmental Protection Agency I.D. No. NM0890010515," LA-UR-01-6020, Los Alamos National Laboratory, Los Alamos, New Mexico, November 2001.

LANL, 1999, "Technical Area 50 Part B Permit Renewal Application," Revision 1.0, Los Alamos National Laboratory, Los Alamos, New Mexico, January 1999.

LANL, 1998a (or more recent version), "Los Alamos National Laboratory General Part B Permit Application," Revision 1.0, Los Alamos National Laboratory, Los Alamos, New Mexico.

LANL, 1998b (or more recent version), "Los Alamos National Laboratory General Part A Permit Application," Revision 0.0, April 1998, Los Alamos National Laboratory, Los Alamos, New Mexico.

LANL, 1992, "RFI Work Plan for Operable Unit 1147," Los Alamos, New Mexico, Los Alamos National Laboratory.

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

ATTACHMENT A

FACILITY DESCRIPTION

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS/ACRONYMS

20.4.1 NMAC	New Mexico Administrative Code, Title 20, Chapter 4, Part 1
cm	centimeters
cm/hr	centimeters per hour
CSU	container storage unit
DOE	U.S. Department of Energy
ft	feet/foot
in.	inch(es)
km	kilometer
LANL	Los Alamos National Laboratory
RCRA	Resource Conservation and Recovery Act
TA	Technical Area
WCRRF	Waste Characterization, Reduction, and Repackaging Facility (TA-50-69)

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) 50 at Los Alamos National Laboratory (LANL) (20.4.1 NMAC, Subpart IX, 270.14(b)(1) [6-14-00])
- Site-specific traffic patterns, volume, and control (20.4.1 NMAC, Subpart IX, 270.14(b)(10) [6-14-00])
- Site-specific location information for compliance with seismic and floodplain standard requirements (20.4.1 NMAC, Subpart IX, 270.14(b)(11), and 20.4.1 NMAC, Subpart V, 264.18(a) and (b) [6-14-00])
- Site-specific topographic map requirements (20.4.1 NMAC, Subpart IX, 270.14(b)(19) [6-14-00])
- 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) [6-14-00])

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," (LANL 1998a), hereinafter referred to as the LANL General Part B.

A.1 TA-50 GENERAL DESCRIPTION [20.4.1 NMAC, Subpart IX, 270.14(b)(1)]

TA-50 is located at the northeast corner of the intersection of Pajarito Drive and Pecos Road, on the finger mesa bounded by Mortandad Canyon to the north and Two-Mile Canyon to the south. Mesa-top elevations at TA-50 range from approximately 7,250 to 7,280 feet (ft) above mean sea level. Figure A-1 depicts the TA-50 location within the LANL site boundary, and its location relative to other TAs. Figure A-2 depicts facilities, structures, and hazardous and mixed waste units within the TA-50 boundary. Nearby facilities are described in Section A.1.4 of this attachment. The nearest point of unrestricted public access to TA-50 outside the LANL site boundary is the Royal Crest Trailer Park 1,500 meters (3,770 ft) north of TA-50. The residential areas of Los Alamos and White Rock are within a 17-kilometer (km) (10-mile) radius of TA-50 and together have a population of approximately 18,200.

The waste management units addressed in this permit renewal application include two container storage units located at TA-50-69. Other waste management units have been identified in previous

Part A or Part B permit applications. These hazardous and/or mixed waste management units are identified in Table A-1.

Table A-1
Waste Management Unit Status at Technical Area 50

Waste Management Unit	Unit Type	Current Status
TA-50-1, Room 59	CSU	To Be Closed [a]
TA-50-37, Rooms 115, 117 and 118	CSU	To Be Closed [a]
TA-50-69, Indoor Area	CSU	Requesting Permit Renewal [b]
TA-50-69, Outdoor Area	CSU	Requesting Permit Renewal [b]
TA-50-114	CSU	To Be Closed [a]
TA-50-1, Rooms 35, 36, and 38/38A	CSU	Administratively Removed [c]
Solidification/Cementation Unit	Treatment	Administratively Removed [c]
Controlled Air Incinerator	Treatment	Closed [d]
Batch Waste Treatment Unit	Treatment	Closed [e]
TA-50-137	CSU	Administratively Removed [c]
TA-50-138	CSU	Administratively Removed [c]
TA-50-139/Storage Pads	CSU	Administratively Removed [c]
TA-50-140/Storage Pads	CSU	Administratively Removed [c]

[a] To be closed in accordance with New Mexico Administrative Code, Title 20, Chapter 4, Part 1, Subpart VI [6-14-00], requirements.
[b] Detailed descriptions provided in Attachment G of this permit renewal application.
[c] Waste management units that were proposed but never constructed and/or where waste was never stored, treated, or disposed.
[d] "Los Alamos National Laboratory controlled-Air Incinerator RCRA Closure Certification Report," Benchmark Environmental Corporation, Albuquerque, New Mexico, 1998.
[e] "Closure Certification Report TA-50 Batch Waste Treatment Unit," IT Corporation, Albuquerque, New Mexico, 1994.

CSU = container storage unit

Waste management units addresses in this permit renewal application include two container storage units (CSU) located in the southwest quadrant of TA-50 and identified as the TA-50-69, Indoor CSU and the TA-50-69, Outdoor CSU. Detailed descriptions of these CSUs are provided in Attachment G of this permit renewal application.

A.1.1 Meteorology and Hydrology

The climate and surface winds are described in the LANL General Part B.

A.1.2 Wells and Surface Waters [20.4.1 NMAC, Subpart IX, 270.14(b)(19)(iii) and (ix)]

The only hydrological characteristic specific to operations conducted at TA-50 is surface runoff in the small drainage off the mesa for brief periods during spring snowmelt and intense summer thunderstorms. Surface grading and other storm water controls prevent accumulation of storm water

and snowmelt (Appendix A, LANL General Part B). Summer storms on the Pajarito Plateau can generate high discharge rates and may reach a maximum discharge in less than two hours. High discharge rates can transport suspended and bed sediments down the canyons. Snow, however, melts slowly in the spring and runs off over a period of several weeks to several months at a low discharge rate. Stream flow is ephemeral in Cañada del Buey to the north and Pajarito Canyon to the south of Mesita del Buey, occurring primarily during snowmelt or thunderstorms. Situated on top of the mesa, TA-50 is not affected by stream flooding or runoff.

A.1.3 Surrounding Land Use [20.4.1 NMAC, Subpart IX, 270.14(b)(19)(iv)]

No industrial facilities, except for those within LANL, are near TA-50. The following buildings or facilities are located within the TA-50 boundary:

- Radioactive Liquid Waste Treatment Facility, TA-50-1
- TA-50-37
- Engineering Sciences and Applications Division, TA-50-54
- WCRRF, TA-50-69
- Portable office trailer, TA-50-84
- Portable office trailer, TA-50-196
- U.S. West relay facility, TA-50-184
- Material Disposal Area-C Landfill (inactive)

As depicted on Figure A-1, the TAs that border TA-50 include: TA-35, TA-40, TA-55, TA-63, and TA-66. TA-35, located northeast of TA-50, includes facilities that conduct nuclear safeguards research and development. TA-40, which is south and west of TA-50, is used in developing special detonators for the initiation of high-explosive systems. The facilities at TA-55, west of TA-50, conduct plutonium processing and metallurgy research. TA-66, southeast of TA-50, includes the Advanced Technology Assessment Center. The types of activities conducted, the separation distances, and administrative controls ensure that these nearby TAs do not affect the safety of operations conducted at TA-50.

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

General traffic pattern information, traffic volume, 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

The primary traffic routes that may be used to transport hazardous and mixed waste to and from TA-50 include Pajarito Road, Pecos Drive, and Mesita del Buey Road as shown on Figure A-3. Lesser-used traffic routes include Diamond Drive and West Jemez Road (State Road 501). Containers received at TA-50, are also moved minimal distances on road surfaces within the TA.

A.2.2 Traffic Volumes and Control

The only local access road to TA-50 is Pajarito Road. Approximately 8,000 automobiles traverse Pajarito Road daily as stated in "Environmental Surveillance at Los Alamos During 1990" (LANL, 1992). The U.S. Department of Energy controls all of the area within the Laboratory site boundary and has the authority to completely restrict access. LANL routinely closes Pajarito Road for activities such as the transport of hazardous waste to and from TA-50.

During normal business hours, the traffic pattern consists of personal and government-owned passenger vehicles entering the area through the open western gate, going to a parking area, and parking. After normal business hours, access through this western gate is by badge-reader only. Throughout normal business hours, the eastern gate may remain open to receive deliveries. After normal business hours, this eastern gate is padlocked. Throughout the workday, the average flow of traffic is approximately 160 vehicles per day. Authorized government vehicles only are permitted on the road leading around the southern end of TA-50-1 and in the area to the southeast of TA-50-1. Figure A-4 depicts the gates and area discussed.

A.2.3 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 A-4

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

A.3.1 Geology

Geologic aspects (Longmire et. al., 1996) of interest at TA-50 include the following:

- Detailed stratigraphy of the upper units of the Bandelier Tuff, including contacts between units that may form barriers to migration or create paths to divert liquid or vapor movement.
- Joints in the Bandelier Tuff that may provide paths for liquid and vapor movement.
- Mineralogy of the geologic strata that may be important in the retardation of contaminant movement.
- Faulting that may provide zones of fracturing along which contaminant transport may be enhanced.
- Surface erosion that could potentially transport contaminants.

A.3.1.1 Seismology [20.4.1 NMAC, Subpart IX, 270.14(b)(11)(i) and (ii), and 20.4.1 NMAC, Subpart V, 264.18(a)]

TA-50 is located in Los Alamos, New Mexico; therefore, pursuant to 20.4.1 NMAC, Subpart IX, 270.14(b)(11)(i) [6-14-00], the seismic standard of 20.4.1 NMAC, Subpart V, 264.18(a) [6-14-00], is applicable.

A geologic field investigation, which consisted of exploratory trenching, was conducted within 3,000 ft of TA-50 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). Therefore, TA-50 is in compliance with the seismic standards of 20.4.1 NMAC, Subpart IX, 270.14(b)(11)(i) and (ii), and 20.4.1 NMAC, Subpart V, 264.18(a) [6-14-00]. Figure A-5 details regional surface faulting.

A.3.1.2 Stratigraphy

TA-50 is located in the central part of the Pajarito Plateau. A simplified stratigraphy of the TA-50 site, as well as estimated thickness of rock units, is shown on Figure A-6.

A.3.1.3 Soils

The soils on Mesita del Buey were derived from Bandelier Tuff bedrock and formed under a semiarid climate. Soils on the mesa top are mainly thin, well-drained, sandy loams. The subsoil is a reddish-brown clay, gravelly clay, or clay loam with depth to tuff bedrock about 20 to 50 centimeters (cm) (8 to 20 inches [in.]). These soils are classified in the Unified Soil Classification System as sandy loam, sandy loam-sandy clay, loam, clay loam-loam, and clay loam.

TA-50 is a Hackroy-Rock outcrop complex and Carjo loam. The Hackroy-Rock outcrop complex consists primarily of rock outcrop and Hackroy soils. The Hackroy soils typically range from a brown, sandy loam in the top 8 cm to a reddish-brown clay from 8 to 30 cm in depth. Permeability rates range from 5 to 15 centimeters 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).

The slopes between TA-50 mesa top and canyon bottoms consists of steep rock outcrops and patches of shallow, undeveloped colluvial soils. The south-facing canyon walls of Pajarito Canyon are steep and have little or no soil material or vegetation, whereas the north-facing walls of Canada del Buey have areas of thin dark-colored soils. Native vegetation at TA-50 is mainly brome grass, false tarragon, blue grama, wormwood, Colorado piñon, and one-seed juniper.

A.3.1.4 Erosional Processes

Erosion of material on Mesita del Buey occurs primarily by shallow runoff on the relatively flat pans of the mesa, by deeper runoff in channels, and by rock fall and colluvial transport on the canyon walls. Wind erosion of disturbed soils also occurs. Mesita del Buey cliff-forming units are eroded primarily by lateral cliff retreat and not vertical erosion.

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

The CSUs addressed in the TA-50 Part B are not located within the 100-year floodplain boundary. In accordance with 20.4.1 NMAC, Subpart IX, 270.14(b)(11)(iii) [6-14-00], additional floodplain information is provided in Appendix A of the LANL General Part B.

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, and 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, Resource Conservation and 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-50 is included as Figure A-7.
- Surrounding land uses are shown on Figure A-1.
- Wind roses for TA-6, the TA directly to the west of TA-50, are shown on Figures A-8 and A-9.
- A map showing the legal boundaries of LANL (including TA-50) 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-50 (e.g., fences, gates) are shown on Figure A-10.

- A map showing supply wells, monitoring wells, test wells, springs, and surface-water sampling stations near TA-50 is included as Figure A-7.
- The locations of buildings, hazardous and/or mixed waste management units, and loading and unloading areas at TA-50 are shown on Figure A-7.
- 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-11.
- Natural surface drainages are shown on a topographic map included herein as Figure A-7.
- 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-50. 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 and protection requirements specified in 20.4.1 NMAC, Subpart IX, 270.14(c) and 20.4.1 NMAC, Subpart V, 264.90(a) [6-14-00], apply only to owners and operators of surface impoundments, waste piles, land treatment units, and landfills. This document addresses CSUs, which are not regulated units subject to 20.4.1 NMAC, Subpart IX, 270.14(c) [6-14-00].

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 of 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 relevant for operations at TA-50.

A.7 REFERENCES

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," 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.

LANL, 1992, "Environmental Surveillance at Los Alamos During 1990," Los Alamos National Laboratory, Los Alamos, New Mexico.

Longmire et. al., 1996, "Natural Background Geochemistry, Geomorphology, and Pedogenesis of Selected Soil Profiles and Bandelier Tuff," LA-12913-MS, Los Alamos National Laboratory, Los Alamos, New Mexico.

Nyhan et al. (J. W. Nyhan, L. W. Hacker, T. E. Calhoun, and D. L. Young), 1978, "Soil Survey of Los Alamos County, New Mexico," LA-6779-MS, Los Alamos National Laboratory, Los Alamos, New Mexico.

Woodward-Clyde Federal Services, 1995, "Seismic Hazards Evaluation of the Los Alamos National Laboratory," Los Alamos, New Mexico.

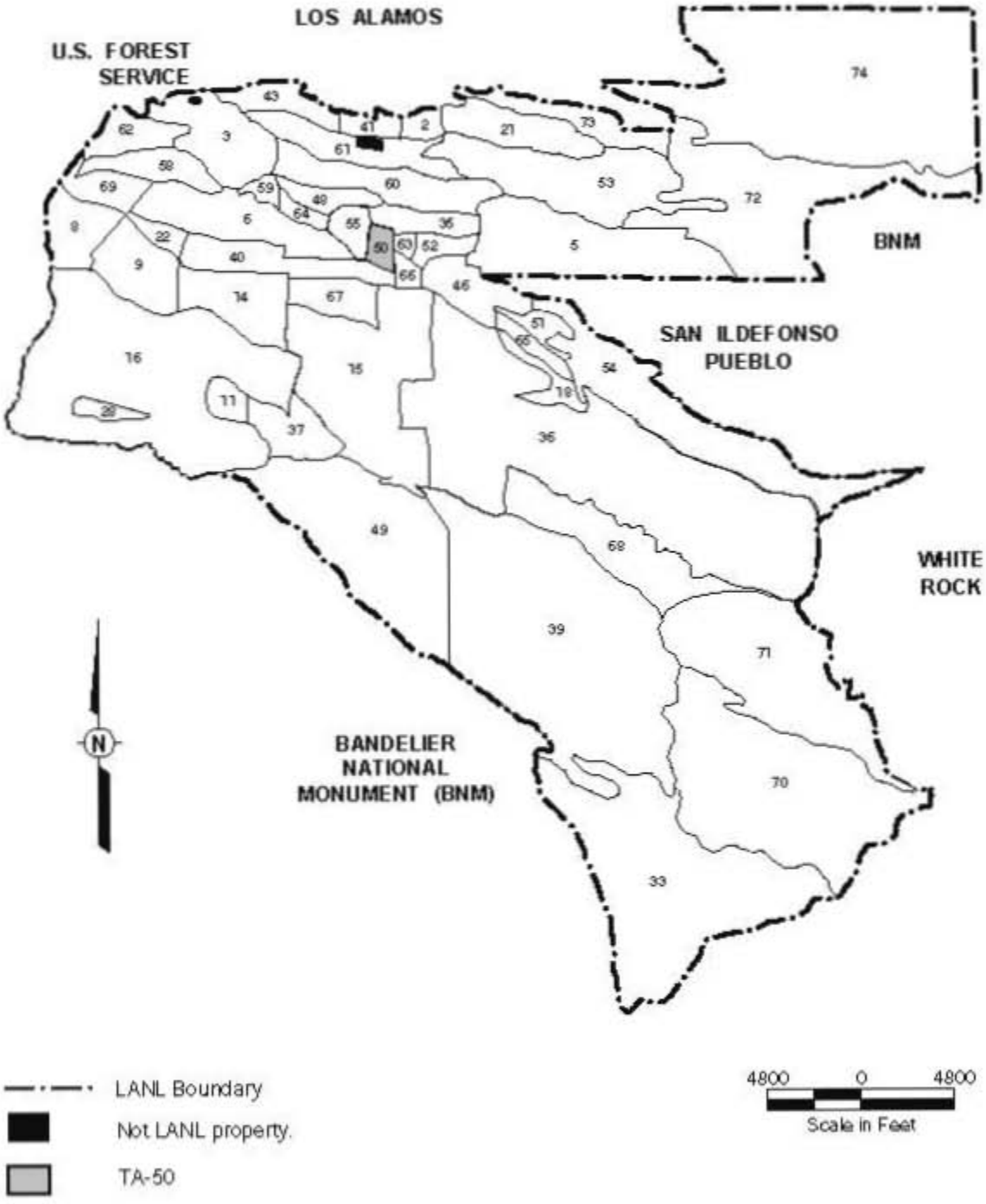


Figure A-1
Location Map of Technical Area (TA) 50 at Los Alamos National Laboratory (LANL)

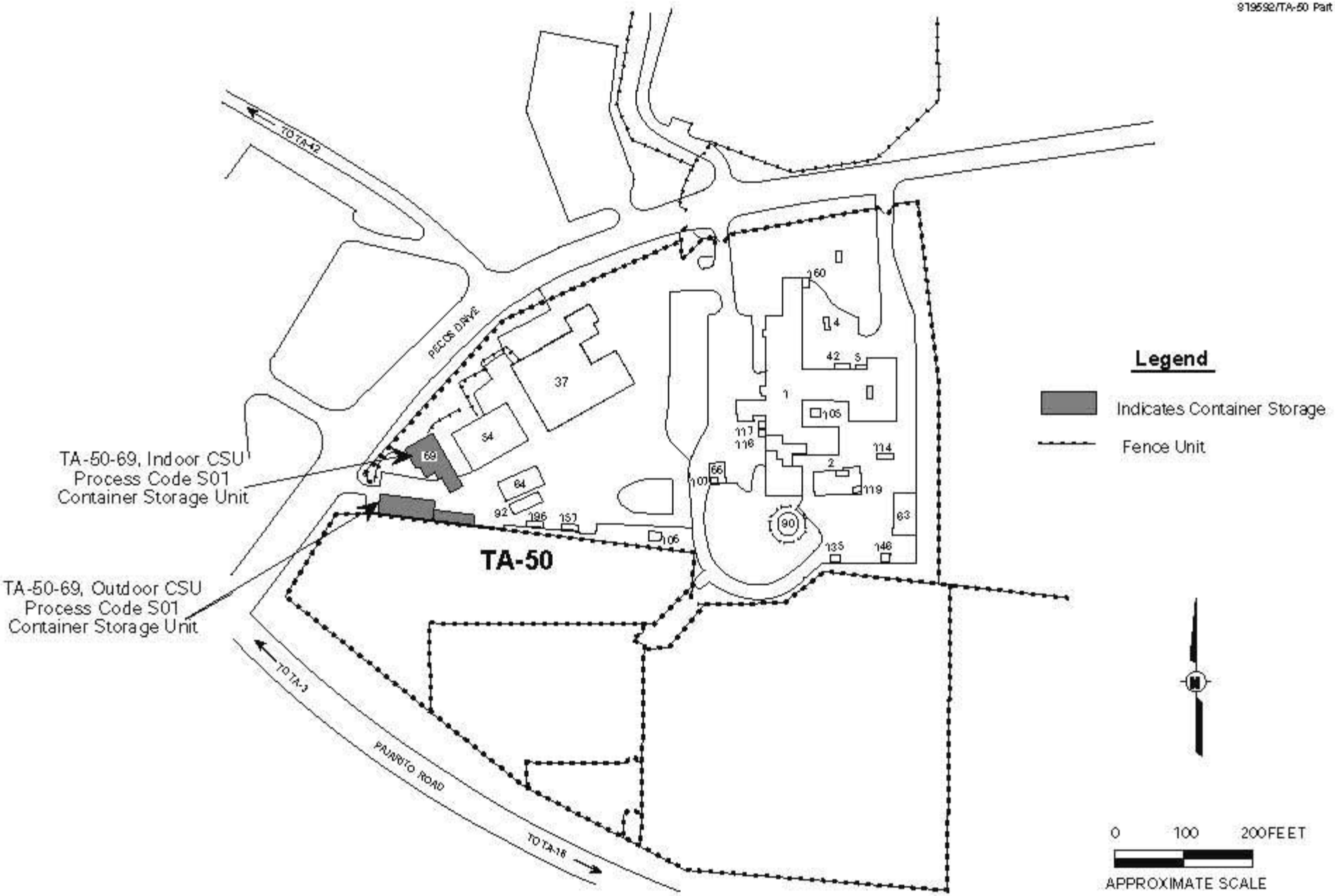


Figure A-2
Location of Container Storage Units (CSU) at Technical Area (TA) 50

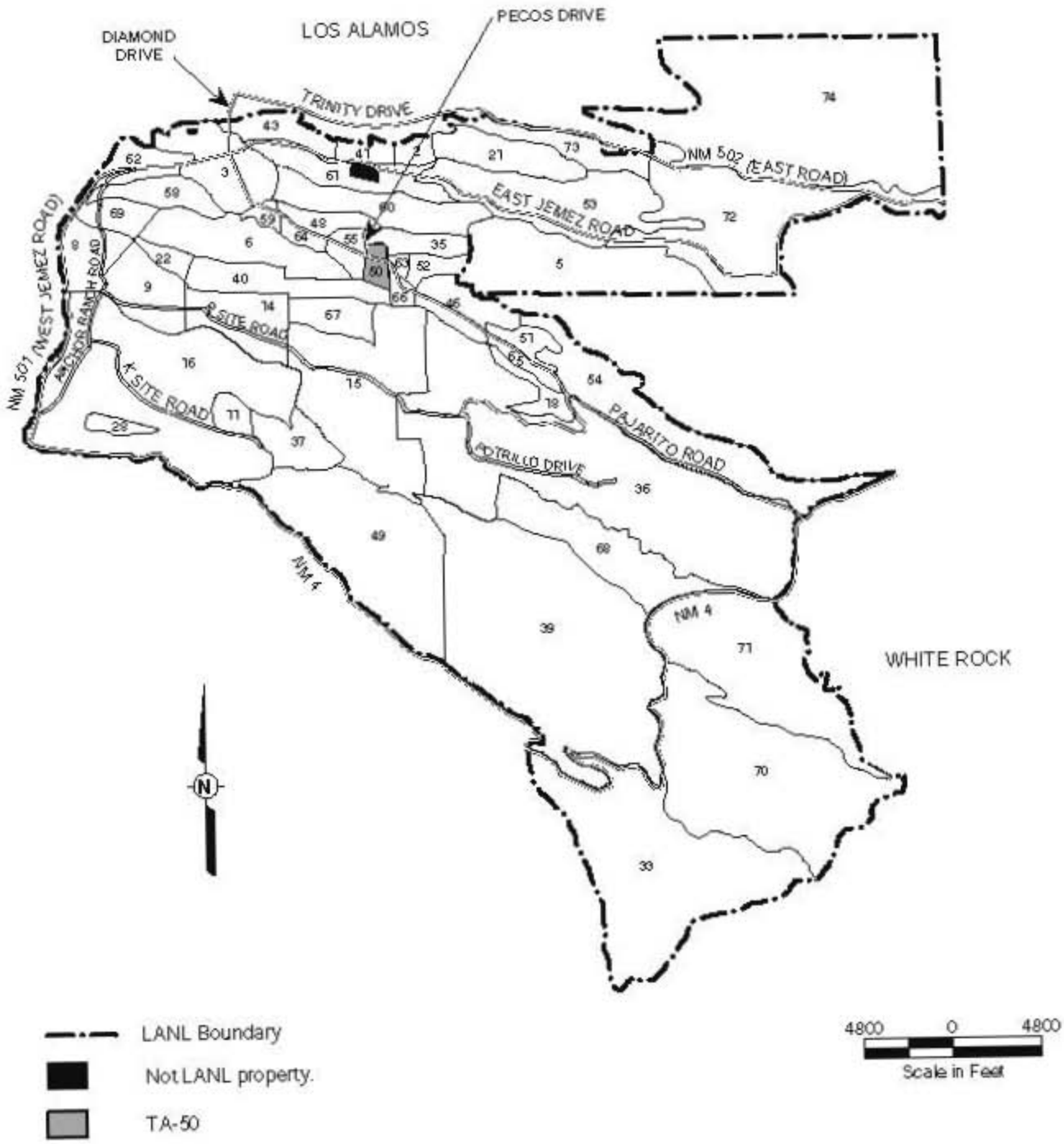


Figure A-3
Major Roads and Primary Traffic Routes at Los Alamos National Laboratory (LANL)

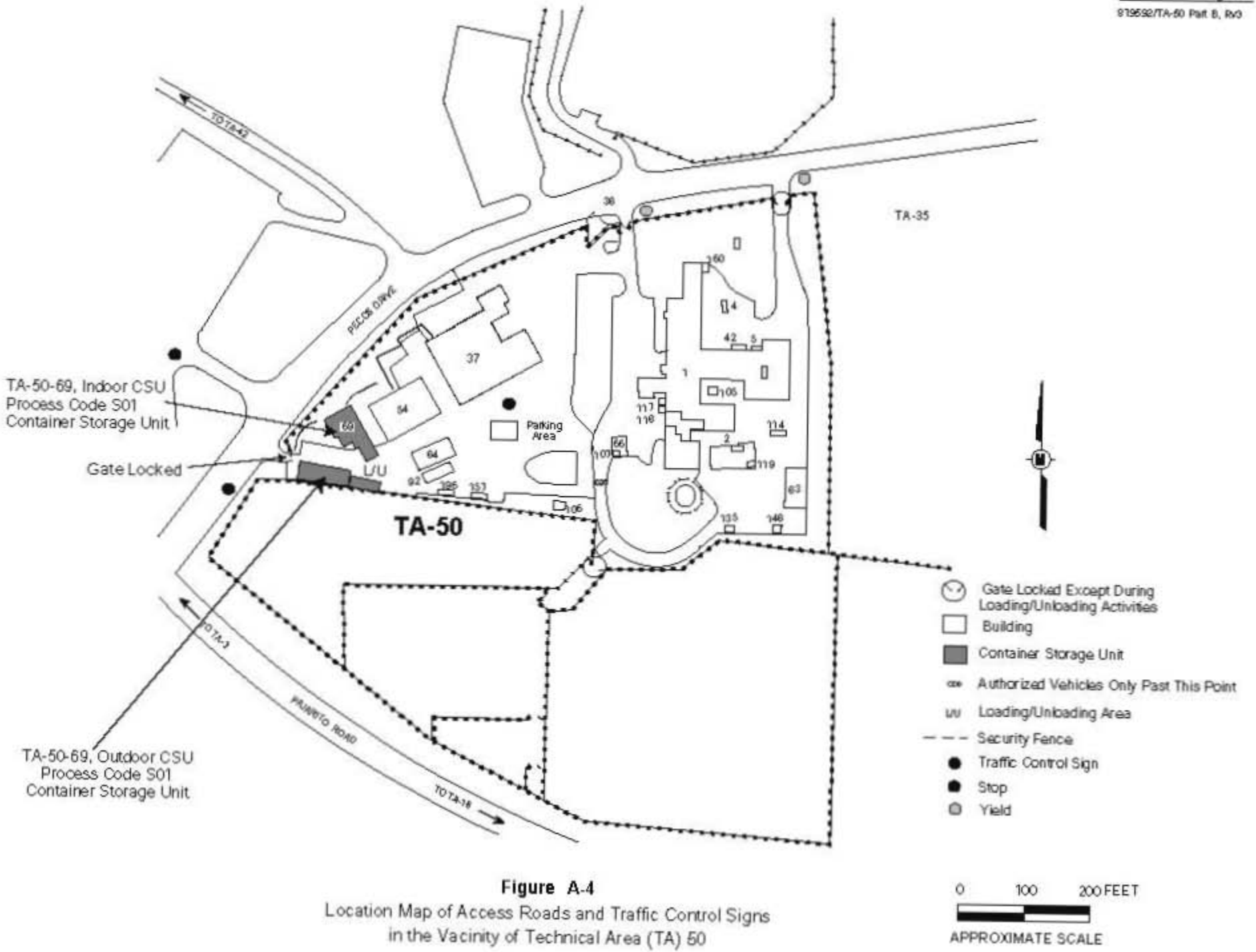


Figure A-4
Location Map of Access Roads and Traffic Control Signs
in the Vacinity of Technical Area (TA) 50

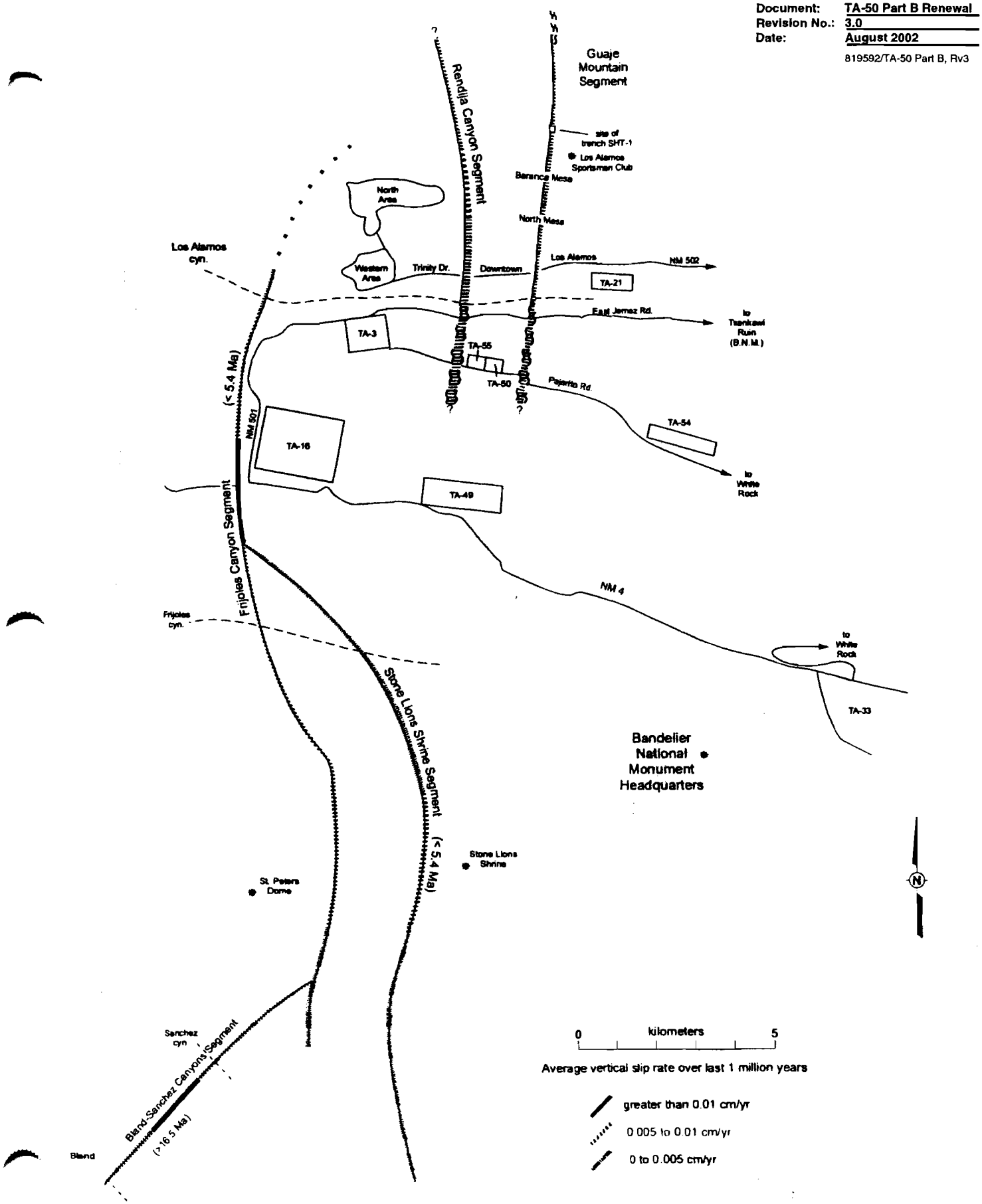


Figure A-5
Regional Surface Faulting

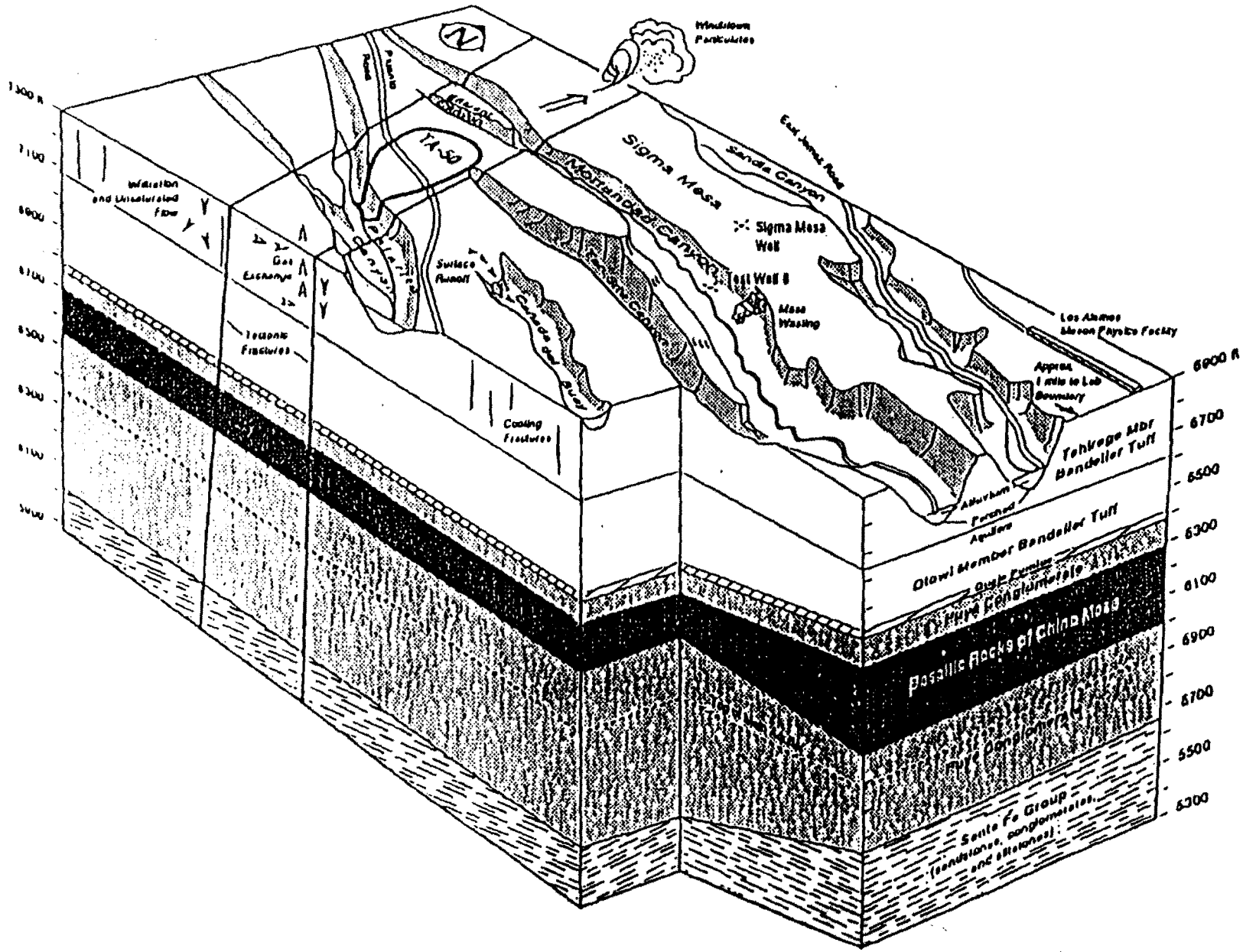
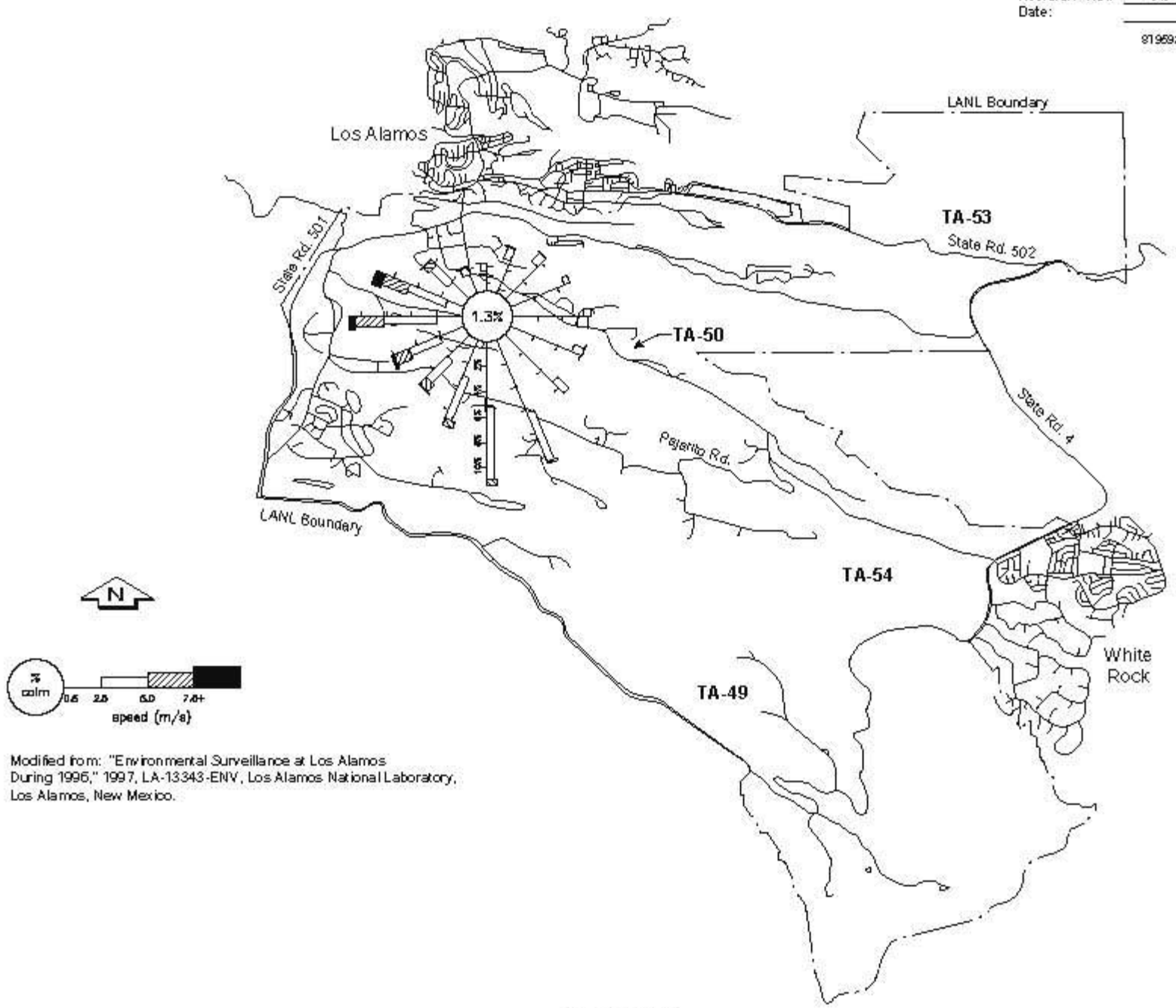


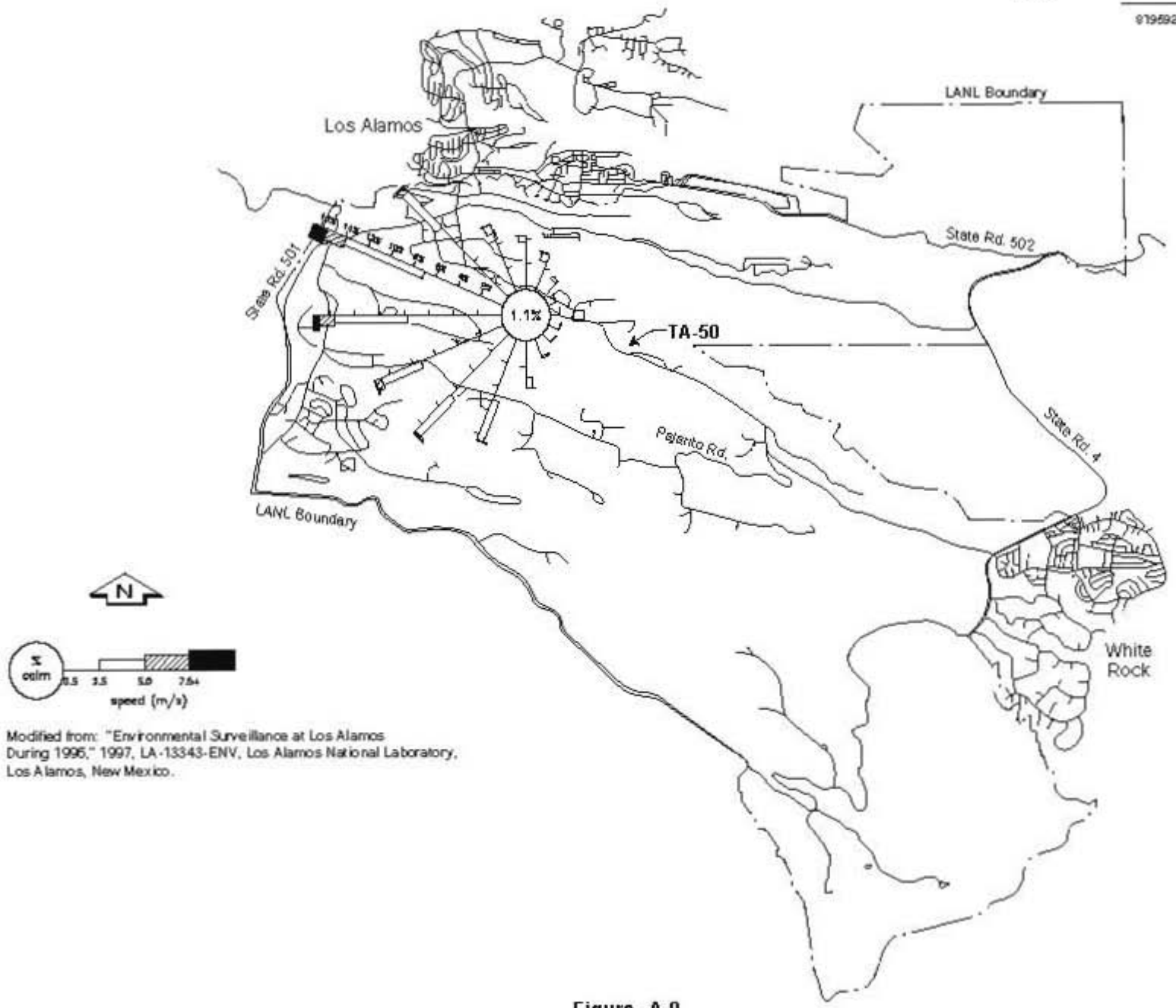
Figure A-6
Conceptual Block Diagram of the igraphy of the TA-50 Site



Modified from: "Environmental Surveillance at Los Alamos During 1995," 1997, LA-13343-ENV, Los Alamos National Laboratory, Los Alamos, New Mexico.

Figure A-8

Annual Wind Roses for Technical Area (TA) 6 at Los Alamos National Laboratory (LANL)—Day



Modified from: "Environmental Surveillance at Los Alamos During 1995," 1997, LA-13343-ENV, Los Alamos National Laboratory, Los Alamos, New Mexico.

Figure A-9
Annual Wind Roses for Technical Area (TA) 6 at Los Alamos National Laboratory (LANL)—Night

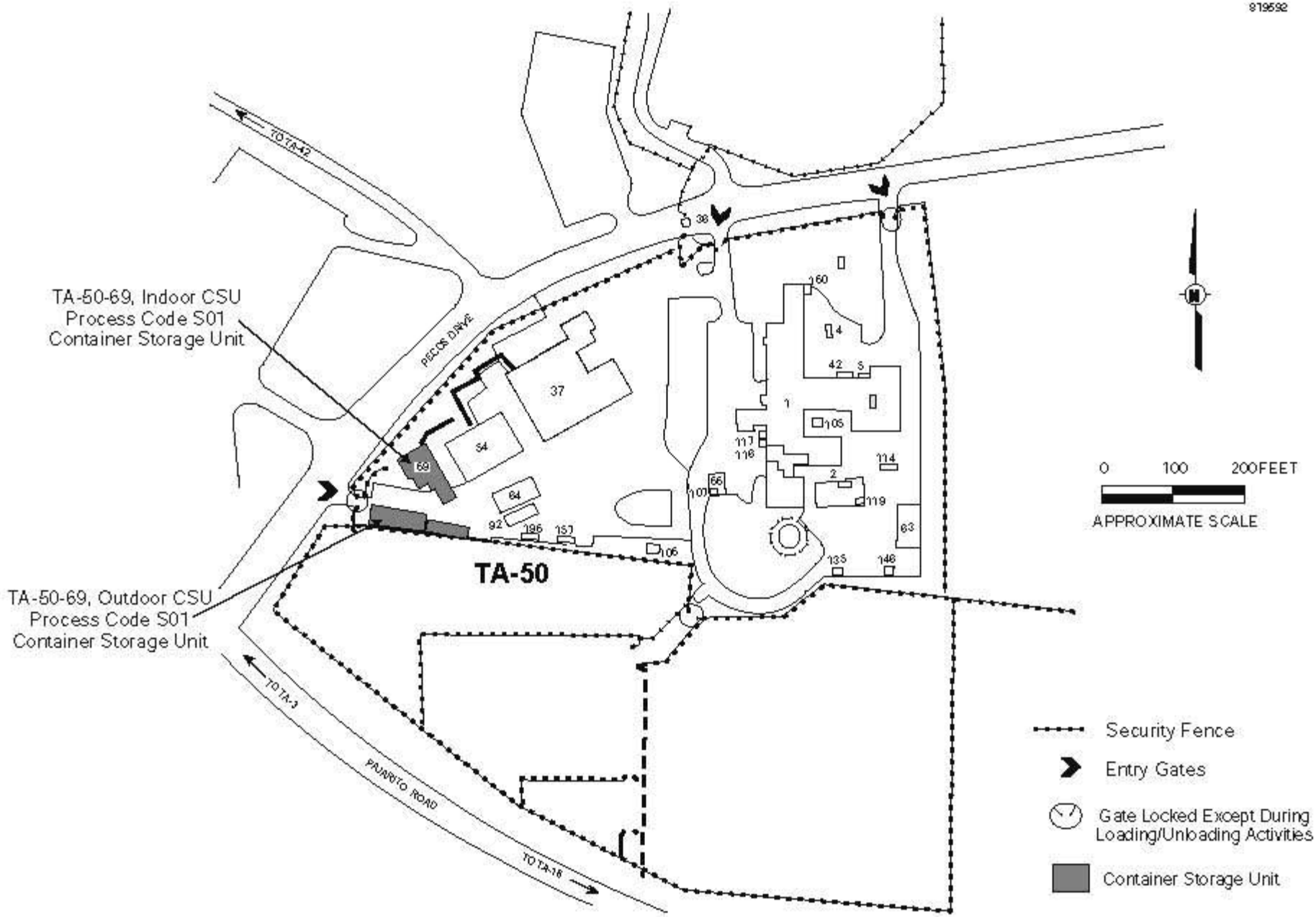
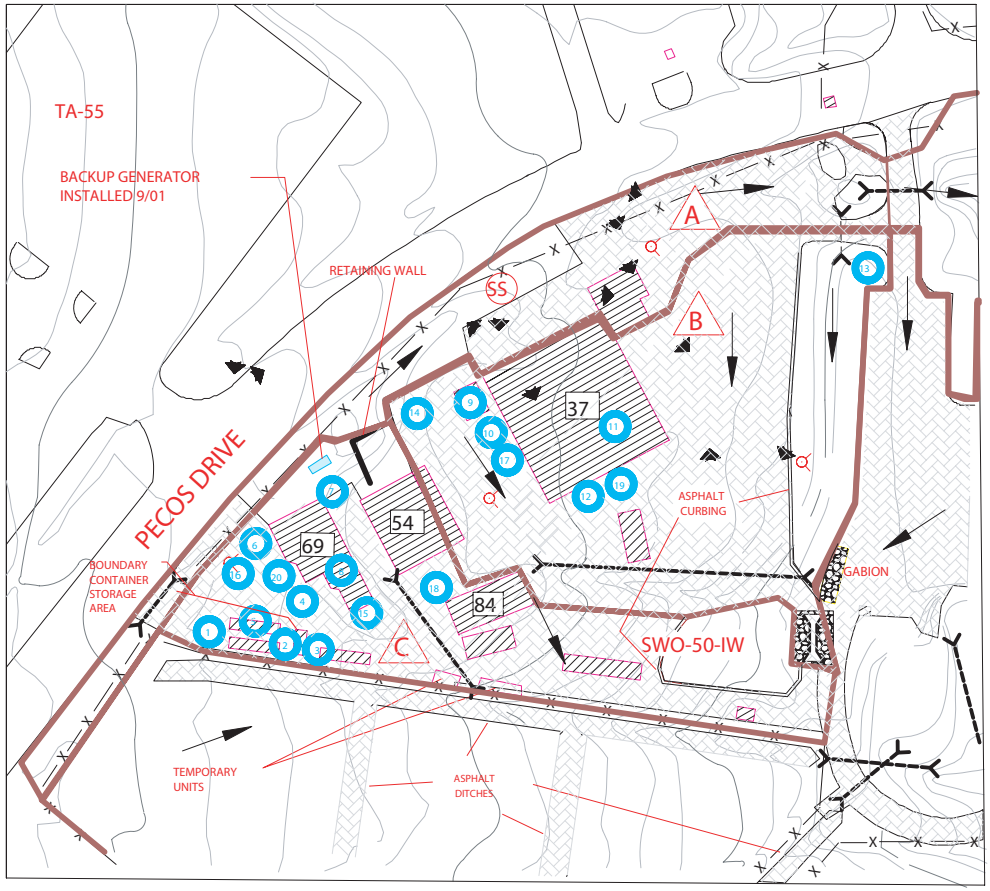


Figure A-10
Location Map Showing Security Fences, Entry Gates, and Entry Station at Technical Area (TA) 50



SYMBOLS LEGEND	
	DRAINAGE BOUNDARY
	DIRECTION OF STORM WATER FLOW
	DIRT ROAD
	ASPHALT COVERED SURFACE
	SOILS COVERED
	EXISTING BUILDING
	CULVERT
SS	SANITARY SEWER MANHOLE
	STORM WATER CATCH BASIN
	EXISTING FLUME
	FENCE
	FIRE HYDRANT

N

Figure A-11
Drainage Control Features
at Technical Area (TA) 50

NO.	DATE	DESCRIPTION	BY
2	12/01	Added Backup Generator	LA
	10/00	Added temporary units	LA

TA-50 RAMROD/ WCRCF
SWPP PLAN

SITE MAP

NO.	DATE	CLASS REV.	REVISIONS	DWN	DES	CHKD	SUB	APP
			JCF 3/25/99					

MERRICK
Engineers & Architects
600 Sixth Street, Los Alamos, New Mexico, 87544, USA
(505) 662-0606, Fax (505) 662-3851

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DRAWN	
DESIGN	
CHECKED	
DATE	

SUBMITTED | APPROVED FOR RELEASE

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

SHEET | OF

CLASSIFICATION | REVIEWER | DATE

PROJECT ID | DRAWING NO. | REV.

ATTACHMENT B

WASTE ANALYSIS PLAN

ATTACHMENT B
WASTE ANALYSIS PLAN

Waste analysis requirements are specified in the New Mexico Administrative Code, Title 20, Chapter 4, Part 1 (20.4.1 NMAC), Subpart IX, 270.14(b)(2) revised June 14, 2000 [6-14-00], and 20.4.1 NMAC, Subpart V, 264.13, and 268.7 [6-14-00]. The only waste management operation at TA-50 addressed in this permit renewal application is container storage. Waste analysis requirements for all container storage units at Los Alamos National Laboratory are described in the facility-wide Waste Analysis Plan in Appendix B of the "Los Alamos National Laboratory General Part B Permit Application", (LANL, 1998).

ATTACHMENT C

INSPECTION PLAN

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LIST OF ABBREVIATIONS/ACRONYMS

20.4.1 NMAC	New Mexico Administrative Code, Title 20, Chapter 4, Part 1
CSU	container storage unit
gal.	gallon(s)
LANL	Los Alamos National Laboratory
m^3	Cubic meter(s)
TA	Technical Area

ATTACHMENT C
INSPECTION PLAN

In accordance with the New Mexico Administrative Code, Title 20, Chapter 4, Part 1 (20.4.1 NMAC), Subpart IX, 270.14(b)(5), and 20.4.1 NMAC, Subpart V, 264.15, "General Inspection Requirements," revised June 14, 2000 [6-14-00], inspection requirements for all hazardous and/or mixed waste management units at Los Alamos National Laboratory (LANL) are addressed in Appendix C of the "Los Alamos National Laboratory General Part B Permit Application," Revision 1.0, (LANL, 1998), hereinafter referred to as the LANL General Part B. This attachment presents additional inspection requirements applicable to the container storage units (CSU) at Technical Area (TA) 50, Building 69 (TA-50-69). Inspections will be conducted often enough to identify problems in time to correct them before they harm human health or the environment.

C.1 INSPECTION AND MONITORING FOR UNITS SUBJECT TO SUBPART CC REQUIREMENTS [20.4.1 NMAC, Subpart V, Part 264, Subpart CC]

The hazardous wastes stored in containers at the TA-50 CSUs are subject to 20.4.1 NMAC, Subpart V, 264, Subpart CC [6-14-00], "Air Emission Standards for Tanks, Surface Impoundment and Containers." Subpart CC standards for containers require that containers be covered so that there are no detectable emissions. The standards are met by placement of waste in DOT-compliant containers and are not applicable to containers of radioactive mixed waste. These standards are also not applicable to containers of waste with less than 500 parts per million by weight average volatile organics concentration, containers of less than a 0.1 cubic meters (m^3) (approximately 26 gallons [gal.]) capacity, and containers that have received waste before December 6, 1996.

Containers of hazardous waste that are less than or equal to 0.46 m^3 (approximately 119-gal.) capacity and meet U.S. Department of Transportation specifications under 49 Code of Federal Regulations, Part 178 will be closed while they are in storage so that there are no detectable emissions. All other containers subject to 20.4.1 NMAC, Subpart 264, Subpart CC [6-14-00] requirements will be inspected and monitored, as required at 20.4.1 NMAC, Subpart V, 264.1088(b) [6-14-00].

C.2 REFERENCES

LANL, 1998, ”Los Alamos National Laboratory General Part B Permit Application”, Los Alamos, New Mexico, Los Alamos National Laboratory.

ATTACHMENT D

PERSONNEL TRAINING PLAN

ATTACHMENT D
PERSONNEL TRAINING PLAN

In accordance with the New Mexico Administrative Code, Title 20, Chapter 4, Part 1 (20.4.1 NMAC), Subpart IX, 270.14(b)(12), and 20.4.1 NMAC, Subpart V, 264.16, "Personnel Training," revised June 14, 2002 [6-14-00], training requirements for treatment, storage, and disposal facility workers who work at Technical Area 50 are addressed in Appendix D of the "Los Alamos National Laboratory General Part B Permit Application," Revision 1.0 (LANL, 1998).

ATTACHMENT E

CONTINGENCY PLAN

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LIST OF FIGURES

LIST OF ABBREVIATIONS/ACRONYMS

20.4.1 NMAC	New Mexico Administrative Code, Title 20, Chapter 4, Part 1
CSU	container storage unit
LANL	Los Alamos National Laboratory
TA	Technical Area

ATTACHMENT E
CONTINGENCY PLAN

In accordance with the New Mexico Administrative Code, Title 20, Chapter 4, Part 1 (20.4.1 NMAC), Subpart V, Part 264, Subpart D, "Contingency Plan and Emergency Procedures," and 20.4.1 NMAC, Subpart IX, 270.14(b)(7), revised June 14, 2000, contingency measures applicable to the hazardous and mixed waste container storage units (CSU) at Technical Area (TA) 50 are provided in Appendix E of the "Los Alamos National Laboratory General Part B," hereinafter referred to as the General Part B (LANL, 1998).

Figure E-1 shows evacuation routes and muster areas that may be used in the event of an emergency. In addition, lists of emergency equipment currently available for use at TA-50 CSUs are included as Table E-1. A list of emergency equipment (including spill equipment) available from the Hazardous Materials Response Group is presented in Table E-2 of Appendix E in the LANL General Part B (LANL, 1998). Evacuation routes, muster area locations, and emergency equipment are subject to change.

Hazardous and mixed waste spills are managed by type and severity of the incident. If a hazardous/mixed waste spill occurs, the Incident Command evaluates the type and severity of the spill and determines if assistance from LANL's Emergency Management Response Group is required. If not, the spill is managed internally by TA-50 personnel.

Table E-1

Emergency Equipment

FIRE CONTROL EQUIPMENT:

- **FIRE EXTINGUISHERS**

  Description of General Capabilities

  The fire extinguishers are portable, manually operated units and may be used by any employee in case of fire. They consist of Class A, B, and C units of approximately 9 to 15 pounds capacity used in wet chemical laboratory applications.

  Locations

  2 fire extinguishers are located in TA-50-69, Indoor Container Storage Unit (CSU) (Room—102)

  1 fire extinguisher is located within 20 feet (ft) of the TA-50-69, Outdoor CSU

- **FIRE ALARM PULL BOXES CONNECTED TO THE CENTRAL ALARM STATION**

  Description of General Capabilities

  Fire alarms may be activated by any employee in the event of fire to notify the Central Alarm Station. Upon activation, fire alarm horns and strobes provide audible and visual signals for personnel notification. The fire alarm is a pulsing sound. The evacuation alarm is a wailing sound that can be heard throughout TA-50-69, Indoor CSU and at the TA-50-69, Outdoor CSU.

  Locations

  Two fire alarm pull stations are located in the TA-50-69, Indoor CSU. One is just inside the south door of Room 102 and the other is inside the east door of TA-50-69. Personnel working at the TA-50-69, Outdoor CSU may use the pull stations at TA-50-69 in the event of a fire.

- **AUTOMATIC FIRE SUPPRESSION SYSTEM**

  Description of General Capabilities

  A wet-pipe automatic sprinkler system that is hydraulically designed for ordinary hazard Group II coverage is in place throughout TA-50-69. This system is activated at 100°C (212°F). The glovebox cutting and disassembly modules are equipped with an automatic water deluge sprinkler system. One sprinkler head is mounted on the west wall of the cutting module and one sprinkler head is mounted on the east wall of the disassembly module. Additionally, a manually operated carbon dioxide (CO_2) system is in place inside the cutting enclosure which allows an operator to apply CO_2 to minor flare-ups that can originate on the waste item being cut up with the plasma-torch. The CO_2 system cannot over pressurize the enclosure.

Table E-1 (continued)

Emergency Equipment
Technical Area (TA) 50, Building 69 (TA-50-69) Indoor and Outdoor Container Storage Units

FIRE CONTROL EQUIPMENT (continued):

Locations
Throughout TA-50-69, as described above.

- **FIRE HYDRANT**

  Description of General Capabilities
  Fire hydrants provide water for fire fighting. All fire hydrants are supplied by an 8-inch (in.) water line connected to the 12-in. water main on Pecos Drive.

  Location
  A fire hydrant is located approximately 55 ft west of TA-50-69.

SPILL CONTROL EQIUPMENT:

- **CURBING AND DRAINS**

  The main process room (Room 102) and unloading area (Room 103) at TA-50-69 provide secondary containment by use of curbs or floor drains. The storage capacity plus curbed area storage would be adequate to contain water generated during fire fighting.

- **SPILL CENTERS**

  Description of General Capabilities
  The spill centers contain at a minimum personnel protective equipment (i.e., gloves), and sorbents (i.e., pillows and pigs). The Emergency Management and Response Group provides additional spill control and clean up equipment as needed.

  Spill Center Location
  2 - TA-50-69, Indoor CSU (Room 102)
  2 - TA-50-69, Outdoor CSU

COMMUNICATION EQUIPMENT:

Description of General Capabilities
Telephones with public address (PA) capabilities for internal and external communication are available for use by any employee. Fire and evacuation alarms are activated in the event of a fire or in case an evacuation is required. The fire alarm is a double slow whoop sound. The evacuation alarm is a high-pitched wailing sound. The PA system can be heard at the TA-50-69, Outdoor CSU. When working at the CSUs, personnel will have immediate access to emergency communication equipment either directly or through visual or voice contact with another employee.

Table E-1 (continued)

Emergency Equipment
Technical Area (TA) 50, Building 69 (TA-50-69) Indoor and Outdoor Container Storage Units

COMMUNICATION EQUIPMENT (continued):

Location of Communication Equipment
Four telephones, three with PA capabilities, are located in TA-50-69. One is located outside Room 104 near the door. Personnel working at the TA-50-69, Outdoor CSU have access to the phone outside Room 104, will carry cellular phones, or will have immediate access to communication equipment through visual or voice contact with another employee.

DECONTAMINATION EQUIPMENT:

- **SAFETY SHOWERS**

  Description of General Capabilities
  Safety showers are available to personnel who receive a chemical splash to the skin.

  Location of Safety Showers
  Safety showers are located in TA-50-69, Room 102 and Room 103. One standard shower is located adjacent to the change room in TA-50-69.

- **EYEWASHES**

  Description of General Capabilities
  Eyewashes are available to personnel who receive a chemical splash to the eye(s). Specific MSDSs for the chemicals being managed are available to personnel working with hazardous or mixed waste to determine if the application of water is indicated for decontamination.

  Location of Eyewashes and Material Safety Data Sheets
  An eyewash is located in the TA-50-69, Indoor CSU (Room 102). The safety shower and eyewash in TA-50-69 are available to personnel working at the TA-50-69, Outdoor CSU.

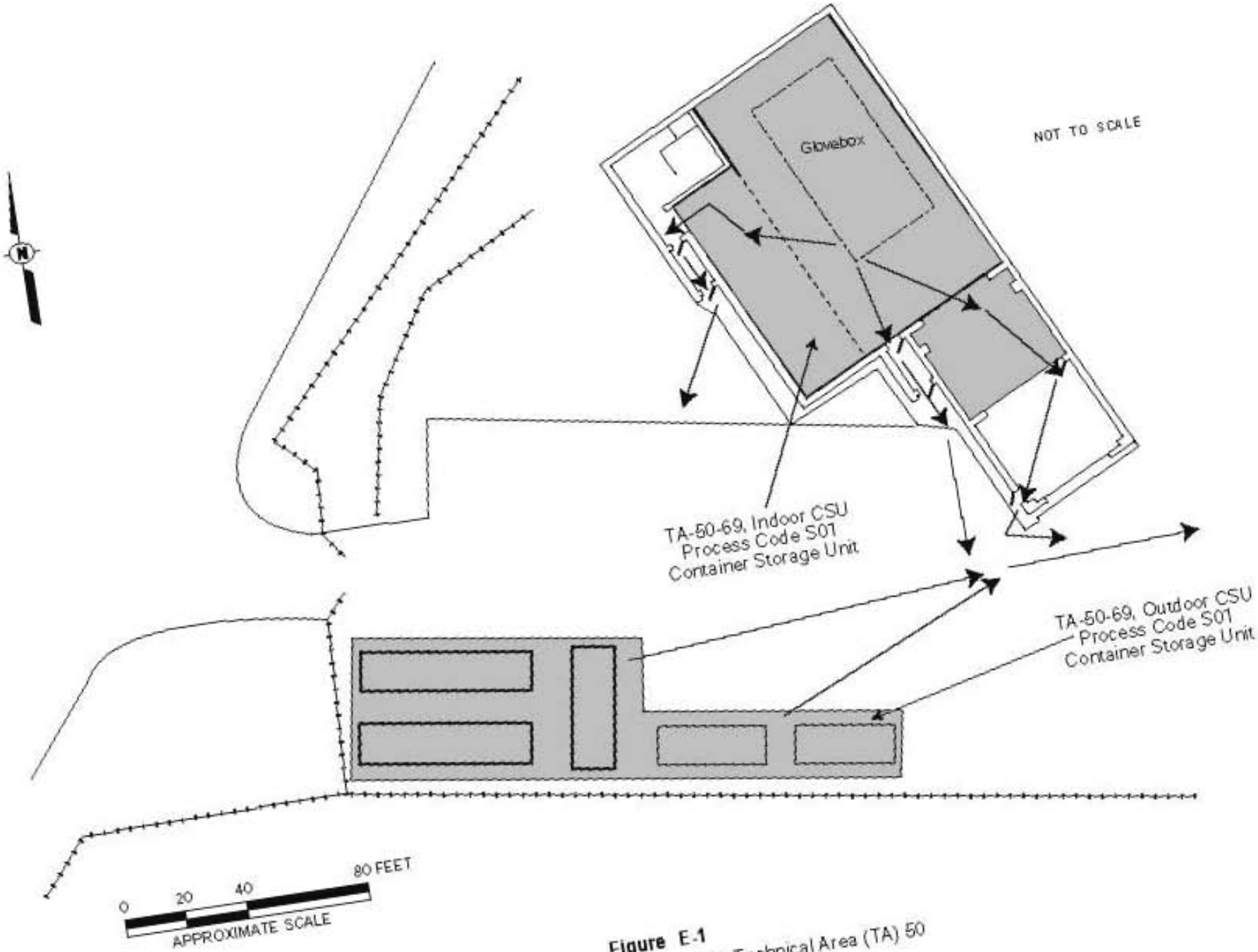
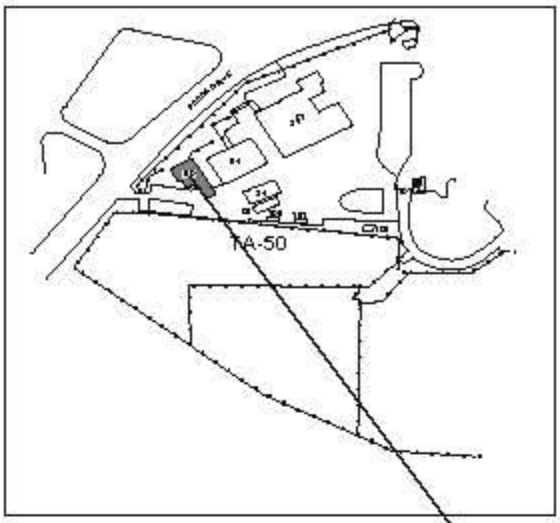


Figure E-1
Evacuation Routes and Muster Areas at Technical Area (TA) 50



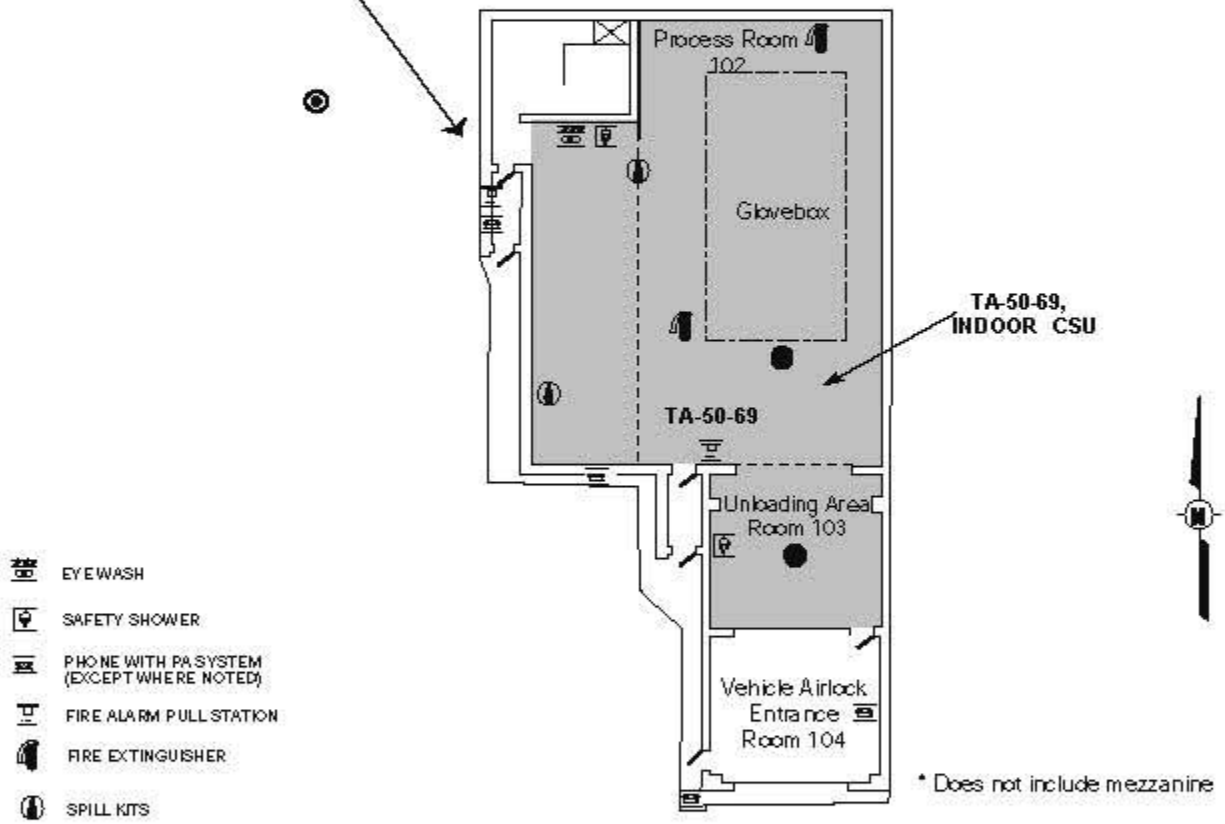


Figure E-2
TA-50-69, Indoor Container Storage Unit (CSU) Emergency Equipment

ATTACHMENT F

CLOSURE PLAN

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LIST OF ABBREVIATIONS/ACRONYMS

20.4.1 NMAC	New Mexico Administrative Code, Title 20, Chapter 4, Part 1
COPC	contaminants of potential concern
CSU	container storage unit
D&D	Decontamination and Development
DOE	U.S. Department of Energy
ft	feet/foot
HSR-1	Health Physics Operations Group
HAR-5	Industrial Hygiene and Safety Group
LANL	Los Alamos National Laboratory
NMED	New Mexico Environment Department
OLASO	Office of Los Alamos Site Operation
PPE	Personal Protective Equipment
QA/QC	quality assurance/quality control
R&D	research and development
RCRA	Resource Conservation and Recovery Act
SAP	sampling and analysis plan
SW-846	Test Methods for Evaluating Solid Waste, Physical/Chemical Methods
SWRC	Solid Waste Regulatory Compliance
TA	technical area

ATTACHMENT F
CLOSURE PLAN

The information provided in this closure plan is submitted to address the applicable closure requirements specified in the New Mexico Administrative Code, Title 20, Chapter 4, Part 1 (20.4.1 NMAC), Subpart IX, 270.14(b)(13), and 20.4.1 NMAC, Subpart V, Part 264, Subpart G [6-14-00], which is inclusive of 264.178. This closure plan describes the activities necessary to clean close the container storage units (CSU) located at Los Alamos National Laboratory (LANL) Technical Area (TA) 50. Closure activities will minimize the need for further maintenance, preclude the release of hazardous constituents to environmental media, and be protective of human health, in accordance with the closure performance standards specified in 20.4.1 NMAC, Subpart 264.111 [6-14-00].

The CSUs addressed in this closure plan include the TA-50, Building 69 (TA-50-69), Indoor CSU and the TA-50-69, Outdoor CSU. The CSUs provide storage for hazardous and mixed wastes and are shown on Figure F-1.

Until closure is complete and has been certified in accordance with 20.4.1 NMAC, Subpart V, 264.115 [6-14-00], as discussed in Section F.1.6, a copy of the approved closure plan and any approved revisions will be on file at LANL's Solid Waste Regulatory Compliance (SWRC) and at the U. S. Department of Energy (DOE) Office of Los Alamos Site Operation (OLASO).

F.1 GENERAL CLOSURE INFORMATION

This section is prepared in accordance with the requirements of 20.4.1 NMAC, Subpart IX, 270.14(b)(13), and 20.4.1 NMAC, Subpart V, Part 264, Subpart G, which is inclusive of 20.4.1 NMAC, Subpart 264.178.

F.1.1 Closure Performance Standard [20.4.1 NMAC, Subpart V, 264.111]

The CSUs addressed in this closure plan will be closed in a manner that:

- Minimizes the need for further maintenance,
- Controls, minimizes, or eliminates, to the extent necessary to protect human health and the environment, post-closure escape of hazardous waste, hazardous constituents, leachate, contaminated runoff, or hazardous waste decomposition products to the ground, or surface waters, or to the atmosphere, and
- Complies with the closure requirements of 20.4.1 NMAC, Subpart V, Part 264, Subpart G [6-14-00], including, but not limited to the requirements of 20.4.1 NMAC, Subpart V,

264.178, 264.197, 264.228, 264.258, 264.280, 264.310, 264.351, 264.601 through 264.603, and 264.1102.

This will be accomplished by removal of waste from each TA-50 CSU and decontamination, if necessary, of all surfaces and equipment that may have come into contact with wastes. The surfaces and equipment will either be sampled and determined to be below applicable standards or will be removed or decontaminated to meet the applicable standards which are inclusive of the closure performance standard; 20.4.1 NMAC, Subpart V, Part 264, Subpart G; and 20.4.1 NMAC, Subpart V, 264.178. All waste may be either subsequently reclaimed, recycled, or disposed of as appropriate after closure activities are completed. Decontamination activities will ensure the removal of hazardous waste residues from the TA-50 CSUs to establish cleanup levels.

F.1.2 Partial and Final Closure Activities [20.1.4 NMAC, Subpart V, 264.112 (b) and (d)]

This closure plan has been written for partial closure rather than final closure of the entire LANL facility. Partial closure will consist of closing one or more of the CSUs at TA-50 while leaving the other regulated hazardous/mixed waste units at LANL in service. Partial closure (hereinafter referred to as closure) will be deemed complete when clean closure of a unit has been verified; all surfaces and/or equipment have been decontaminated, if necessary; and closure certification has been submitted to and approved by the New Mexico Environment Department (NMED). Final closure will occur when LANL's remaining regulated hazardous/mixed waste management units are closed. Final closure will consist of assembling documentation on the closure status of each unit, including all previous partial clean closures as well as land-based units that have been or are being addressed via alternative closure requirements. Final closure will be deemed complete when the closure certification has been submitted to the NMED and the NMED has approved the final closure.

F.1.3 General Closure Schedule [20.1.4 NMAC, Subpart V, 264.112 (b)(6), 264.112(e) and 264.113]

Written notification will be provided to the NMED 45 days before the start of closure activities at any TA-50 CSU. However, pursuant to 20.4.1 NMAC, Subpart V, 264.112(e) [6-14-00], removing hazardous wastes and decontaminating or dismantling equipment in accordance with an approved closure plan may be conducted at any time before or after notification of closure. Closure activities will begin according to the requirements of 20.4.1 NMAC, Subpart V, 264.112(d)(2) [6-14-00]. Treatment, removal, or disposal of any hazardous waste will begin prior to the initiation of removal and/or decontamination of equipment and facilities in accordance with the approved closure plan, as required by 20.4.1 NMAC, Subpart V, 264.113(a) [6-14-00], within 90 days after final receipt of waste at the TA-50 CSU to be closed. This timeframe will be met as long as facilities are available for storage, treatment, or disposal of these wastes. In the event that closure activities cannot begin within 90 days,

LANL will notify the Secretary of the NMED in accordance with the extension requirements in 20.4.1 NMAC, Subpart V, 264.113(a) [6-14-00]. Closure activities and reporting requirements will then be completed within 180 days of the receipt of the final volume of waste at the CSU to be closed. Closure will be conducted in accordance with the schedule presented in Table F-1 of this closure plan. In the event that closure is prevented from proceeding according to schedule, LANL will notify the Secretary of the NMED in accordance with extension request requirements in 20.4.1 NMAC, Subpart V, 264.113(b) [6-14-00]. In addition, the demonstrations in 20.4.1 NMAC, Subpart V, 264.113(a)(1) and (b)(1) [6-14-00], will be made in accordance with 20.4.1 NMAC, Subpart V, 264.113(c) [6-14-00].

F.1.4 Amendment of the Closure Plan [20.4.1 NMAC, Subpart V, 264.112(c)]

In accordance with 20.4.1 NMAC, Subpart V, 264.112(c) [6-14-00], LANL will submit a written notification of request for a permit modification to authorize a change in the approved closure plan whenever:

- There are changes in operating plans or facility design that affect the closure plan.
- There is a change in the expected year of closure.
- Unexpected events occur during closure that require modification of the approved closure plan.

The written notification or request will include a copy of the amended closure plan for approval by the NMED.

LANL will submit a written request for a permit modification with a copy of the amended closure plan at least 60 days prior to the proposed change in unit design or operation or no later than 60 days after an occurrence of an unexpected event that affects the closure plan. If the unexpected event occurs during closure, the permit modification will be requested within 30 days of the occurrence. The Secretary of the NMED may request a modification of the closure plan under the conditions presented in the bulleted items above. LANL will submit the modified plan in accordance with the request within 60 days of notification, or within 30 days of notification if a change in facility condition occurs during the closure process.

F.1.5 Closure Cost Estimate, Financial Assurance, and Liability Requirements [20.1.4 NMAC, Subpart V, 264.140(c)]

In accordance with 20.4.1 NMAC, Subpart V, 264.140(c) [6-14-00], LANL, as a federal facility, is exempt from the requirements of 20.4.1 NMAC, Subpart V, Subpart H [6-14-00], to provide a cost estimate, financial assurance mechanisms, and liability insurance for closure actions.

F.1.6 Closure Certification [20.1.4 NMAC, Subpart V, 264.115]

Within 60 days after completion of closure activities at any TA-50 CSU or final closure of the facility, LANL will submit to the Secretary of the NMED, via certified mail, a certification that the unit has been closed in accordance with the approved closure plan. The certification will be signed by the appropriate DOE and LANL officials and by an independent, registered professional engineer, in accordance with 20.4.1 NMAC, Subpart V, 264.115 [6-14-00]. Documentation supporting the independent, registered engineer's certification will be furnished to the Secretary of the NMED upon request, as specified in 20.4.1 NMAC, Subpart V, 264.115 [6-14-00]. A copy of the certification and supporting documentation will be maintained by both DOE/OLASO and SWRC.

F.1.7 Security

Because of the ongoing nature of operations at LANL, site security at the TA-50 CSUs will be maintained by the DOE or another authorized federal agency for as long as necessary to prohibit public access. The security fence at TA-50 will be maintained to ensure that public access is prevented.

F.1.8 Closure Reports

Upon completion of the closure activities at a TA-50 CSU, a closure report will be prepared and, upon request, provided to the Secretary of the NMED. The report will document the closure and contain, for example, the following:

- A copy of the certification described in Section F.1.6 of this closure plan
- Any significant variance from the approved activities and the reason for the variance
- A summary of all sampling results, showing:
  - Sample identification
  - Sampling location
  - 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 quality assurance (QA)/quality control (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

- Storage or disposal location of regulated hazardous/mixed waste resulting from closure activities
- A certification of accuracy of the report.

F.2 DESCRIPTION OF THE TA-50 CSUs

F.2.1 TA-50-69, Indoor CSU

The TA-50-69, Indoor CSU consists of Rooms 102 and 103. Room 102, the main process room, measures approximately 45 feet (ft) wide and 52-ft long. The long dimension is oriented northwest-southwest. Room 103, the unloading area, measures approximately 18-ft wide and 19-ft long and is located adjacent to and southeast of Room 102. A 12-ft by 20-ft roll-up vehicle access door is located at the southernmost end of Room 103, separating the unloading area (Room 103) from the vehicle airlock entrance (Room 104).

F.2.2 TA-50-69, Outdoor CSU

The TA-50-69, Outdoor CSU is located in the southwest corner of TA-50 and consists of an asphalt and concrete pad that is not lined or coated, and measures 24-ft wide and 90-ft long, with an additional strip 12-ft wide and 90-ft long added to the southwest end. The asphalt and concrete pad is approximately 4-in. thick. The long dimension of this CSU is oriented east-southeast. The pad slopes gently (approximately 1 to 5 percent) from west to east and up to 2.5 percent toward the centerline. Transportainers and other weather protective structures within the TA-50-69, Outdoor CSU provide optional weather protection for containers of various sizes. Painted lines are used to visually delineate the CSU boundary.

F.2.3 Estimate of Maximum Waste In Storage

The maximum total inventory of waste that may be in storage at any time in the TA-50 CSUs is estimated as follows:

- TA-50-69, Indoor CSU – 1,500 gallons
- TA-50-69, Outdoor CSU – 30,000 gallons

F.2.4 Description of Waste in Storage

The TA-50 CSUs are used to store containers of solid hazardous and mixed waste. The hazardous waste is generated during research and development (R&D) activities, processing and recovery

operations, decontamination and decommissioning (D&D) projects, and environmental remediation/restoration activities conducted at various TAs throughout LANL. A waste is considered hazardous if it meets the definition of a solid waste described in 20.34.1 NMAC, Subpart II, 261.2 [6-14-00]; is not exempt from regulation as a hazardous waste under 20.4.1 NMAC, Subpart II, 261.2 [6-14-00]; and exhibits any of the characteristics of hazardous waste identified in 20.4.1 NMAC, Subpart II, Subpart C, or is listed in 20.4.1 NMAC, Subpart II, Subpart D [6-14-00]. Mixed wastes currently stored at TA-50 are generated during R&D activities, processing and recovery operations, D&D projects, and general facility operations. The mixed wastes are classified as such because Resource Conservation and Recovery Act (RCRA)-characteristic or -listed wastes are or may be present, along with radioactive components. Information on the hazardous components of all waste stored at the TA-50 CSUs is provided in the "Los Alamos National Laboratory General Part A Permit Application, " Revision 0.0 (LANL, 1998a) and Attachment H of this permit renewal application.

F.2.5 Removal of Waste

Prior to initiation of closure activities, all wastes will be removed from the CSU to undergo closure. Containers may be removed from each location with forklifts. 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 hazardous or mixed wastes will be moved to an approved on-site storage unit or permitted off-site treatment, storage, or disposal facility.

F.3 CLOSURE PROCEDURES [20.4.1 NMAC, Subpart V, 264.112]

To the extent possible, all contaminated surfaces and equipment (if present) at the TA-50 CSUs will be removed and decontaminated to meet applicable standards determined at the time of closure. Surfaces and equipment that cannot be decontaminated will be containerized and managed in compliance with applicable regulations. All waste may be subsequently reclaimed, recycled, or disposed of as appropriate after closure activities are completed. Decontamination of the CSU surfaces and/or equipment will undergo verification via sampling and analysis. All sampling conducted during closure activities will be done as generally discussed in this closure plan and as outlined in the CSU-specific sampling and analysis plan (SAP) (see Section F.4) to be provided at the time of closure. Sampling and analysis will be done in accordance with appropriate QA/QC procedures as required by the individual analytical technique or the authority for the relevant standard methods. Closure will be conducted in accordance with the general schedule presented in Table F-1, as amended by the TA-50 CSU-specific SAP to be submitted prior to the actual closure.

F.3.1 Preliminary Closure Activities

F.3.1.1 Safety Precautions

Job hazards associated with closure activities will be identified, controls developed, and workers briefed before closure activities are conducted, in accordance with LANL safety procedures. Personnel involved in closure activities will wear appropriate personal protective equipment (PPE), specified by the Health Physics Operations Group (HSR-1) and Industrial Hygiene and Safety Group (HSR-5), and will follow good hygiene practices to protect themselves from exposure to hazardous and/or 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 HSR-1 and HSR-5 surveys do not indicate detectable contamination levels, minimum PPE requirements will consist of coveralls, steel-toed shoes, 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 appropriate training as described in Appendix D of the "Los Alamos National Laboratory General Part B Permit Application" hereinafter referred to as the LANL General Part B (LANL, 1998b). Contaminated PPE will either be decontaminated or managed in compliance with appropriate waste management regulations.

F.3.2. Background Determination

Before any decontamination activity begins, background levels for potential hazardous waste constituents will be determined. Decontamination and verification sampling procedures may involve wash water sampling, swipe sampling, soil sampling, or other methods developed by the time of closure. A minimum of two background samples will be obtained from clean water, cleaning equipment, and detergent solutions, as they are applicable to the closure. Background samples will be obtained for the material to be decontaminated and/or for any sampling materials used in swipe sampling analysis used to verify closure. Appropriate background soil sample concentrations derived from soil studies developed under the LANL corrective action or other programs will be used to determine soil hazardous constituent background levels, if applicable. Details of appropriate background levels and/or necessary samples and collection techniques will be included in the TA-50 CSU-specific SAP as discussed in Section F.4 of this closure plan.

F.3.2.1 Structural Assessment

Before decontamination activities begin, the base or secondary containment of each CSU will be inspected for any cracks or conditions that could potentially lead to loss of wash water containment. Preventive maintenance inspections are conducted routinely (i.e., weekly) at each CSU. If any defects, deterioration, damage, or hazards affecting containment have developed after the most recent preventive maintenance inspection was conducted, appropriate remedial actions (including sampling, repairs, maintenance, or replacement) will be completed before decontamination activities begin. The

base surface will be evaluated for cracks/gaps that could potentially lead to a loss of decontamination wash water. If a crack or gap is present, a swipe sample or a representative sample of the media will be taken (e.g., asphalt or concrete) to determine the presence of contamination. The sample will be analyzed for hazardous contaminants of potential concern (COPC) determined through review of the chemical properties of the waste stored during the operating history of the CSU. If contamination is detected, the surface flaw will be decontaminated prior to repairing the crack/gap. Complete or partial removal (e.g., scabbling) of the material may be performed until contamination is no longer detected. If partial removal is successful in eliminating the contamination, it will be assumed that the remaining material, including underlying soil, is clean.

F.3.3 TA-50-69, Indoor CSU

Prior to decontamination of the main surfaces at the TA-50-69, Indoor CSU, any portable equipment (if present) to be removed from the area will be wiped down with a wash water solution for decontamination. The equipment may include items such as pallets and miscellaneous waste management equipment (i.e., drum dolly, glovebox). The CSU walls and floors will then be wiped down with mops, cloths, and/or other absorbent materials to remove hazardous constituents. This will minimize the amount of liquid waste generated as a result of decontamination activities. A portable berm will be used to collect excess wash water and provide containment, as necessary during the decontamination process. The used wash water will be allowed to accumulate within the portable berm area and will then be transferred to a container where it will be sampled to determine an appropriate location for disposal.

There are no recessed areas (i.e., sumps) located at the TA-50-69, Indoor CSU. There are, however, two drains connected directly to the piping that feeds to the Radioactive Liquid Waste Treatment Facility. These drains are located in Rooms 102 and 103 and will be covered prior to the commencement of decontamination activities.

When decontamination of the CSU is complete, verification will be conducted as indicated in Section F.4. If analysis from the verification indicate that hazardous constituents are present, the decontamination and verification will be repeated until the surface or equipment (if present) has been decontaminated or the decision is made to manage it as contaminated waste. Upon determination that it is contaminated waste, the surface, or equipment may be removed, transported, and stored at other hazardous waste CSUs to facilitate the closure process.

F.3.4 Decontamination of the TA-50-69, Outdoor CSU

Closure activities at the TA-50-69, Outdoor CSU will include:

- Decontamination, recycling, and/or disposal of transportainers and/or portable equipment.
- Decontamination or removal of portions of the storage pad underlying this CSU (as indicated by the operating record).
- Sampling of surrounding soils to determine presence and/or extent of contamination (as indicated in the operating record).
- Disposal of soils and/or waste materials generated during decontamination.

F.3.4.1 Pallet Decontamination

Pallets and other portable equipment used at the TA-50-69, Outdoor CSU will be removed or decontaminated to meet applicable standards at the time of closure. Pallets and equipment that cannot be decontaminated will be containerized and managed in compliance with applicable regulations. All waste may be subsequently reclaimed, recycled, or disposed of as appropriate after closure activities are completed. If decontaminated, the pallets and other portable equipment will be wiped down with a wash water solution. This will minimize the amount of liquid waste generated as a result of decontamination activities. A portable berm will be used to collect excess wash water and provide containment, as necessary during the decontamination process. The used wash water will be allowed to accumulate within the portable berm area and will then be transferred to a container where it will be sampled to determine an appropriate location for disposal.

After the decontamination is completed, several discrete verification samples will be taken as discussed in Section F.4. If this verification sampling and analysis indicates that hazardous constituents are present, the decontamination and verification will be repeated until the pallet or equipment (if present) has been decontaminated or the decision is made to manage it as contaminated waste. Upon determination that it is contaminated waste, the pallet or equipment may be removed, transported, and stored at other hazardous waste CSUs to facilitate the closure process.

F.3.4.2 Transportainer Decontamination

Normal operations at the TA-50-69, Outdoor CSU will not expose outer surfaces of transportainers to waste contamination. Therefore, unless there is evidence of accidental outer surface contamination by spillage of regulated wastes either on the outside, or leakage from interior spills, the outer surfaces will not be sampled for contamination. If outer surfaces of a transportainer(s) are found to be contaminated with hazardous constituents, those surfaces will be decontaminated following the procedures described for transportainer interior surfaces.

If necessary, the inside of the transportainers will be pressure washed or wiped down and rinsed with wash water. A portable berm will be used to collect excess wash water and provide containment, as necessary during the decontamination process. The used wash water will be allowed to accumulate within the portable berm area and will then be transferred to a container where it will be sampled to determine an appropriate disposal path.

After the decontamination is completed, several discrete verification samples will be taken as discussed in Section F.4. If this verification sampling and analysis indicates that hazardous constituents are present, the decontamination and verification will be repeated until the transportainer has been decontaminated or the decision is made to manage it as contaminated waste. Upon determination that it is contaminated waste, the transportainer may be removed, transported, and stored at other hazardous waste CSUs to facilitate the closure process.

F.3.4.3 Storage Pad Decontamination

Operational records (e.g., inspection findings, occurrence reports), visual inspection, and analytical data (if necessary) will be used to determine if the asphaltic concrete pad at the TA-50-69, Outdoor CSU is contaminated by hazardous constituents from waste management operations at the unit. Those areas suspected of being contaminated will either be removed from the pad, or washed with a wash water solution. Removal, containerization, and disposal of contaminated asphalt is likely to be the option of choice.

A portable berm will be used to collect excess wash water and provide containment, as necessary during the decontamination process. The used wash water will be allowed to accumulate within the portable berm area and will then be transferred to a container where it will be sampled to determine an appropriate location for disposal.

After the decontamination is completed, several discrete verification samples will be taken as discussed in Section F.4. If this verification sampling and analysis indicates that hazardous constituents are present, the decontamination and verification will be repeated until the pad has been decontaminated or the decision is made to manage it appropriately as contaminated waste.

Used washwater samples may exhibit anomalously high levels of organic compounds due to leaching of the asphalt during washdown. If this is the case, record reviews (e.g. manufacturer's specifications, Material Safety Data Sheets) and additional analyses may be performed to determine if leaching of organics from the asphalt contributed to the organic compound concentration in the used washwater. If this additional evaluation confirms the asphalt as the source of contamination, baseline concentrations

for clean washwater will be adjusted accordingly. If decontamination verification cannot be demonstrated, the container storage pad may be evaluated using an alternative demonstration of decontamination. If all alternative demonstrations fail, the container storage pad will be removed.

Record reviews and visual inspection of soils along the margins of the TA-50-69, Outdoor CSU will be used to identify areas where soil contamination from waste management activities could have occurred. Soil sampling will be conducted in any suspected contaminated areas and in those areas where the asphalted concrete pad has been removed due to contamination with hazardous constituents. Before closure activities begin, soil samples will be collected from appropriate areas and analyzed to serve as background samples. A statistically representative number of soil samples will be collected from contaminated area(s) to a 6-inch (in.) depth. Samples will be equally spaced to ensure representative sampling of the contaminated area(s). If contamination resulting from container storage activities is discovered, the contaminated soils will be either remediated in place, or removed for proper disposal.

F.3.4.4 Soil Sampling and Decontamination

Soil removal at the TA-50-69, Outdoor CSU may be conducted to meet the closure performance standards. Examples include the detection of contamination that has migrated beyond the asphalt pads to the surrounding soil, and cases in which operating records indicate that a release of hazardous waste from storage structures to the surrounding soil has occurred. If records indicate that no release of hazardous waste to soils has occurred, soil sampling will not be conducted.

If collection of soil samples is necessary to demonstrate decontamination, background soil samples will be collected and analyzed for the COPCs identified in the operating record to provide a baseline for decontamination verification. Sampling locations to determine the extent of contamination will be based upon a biased random sampling approach, including historical evidence of releases, or visual staining, and any other information that indicates a potential contamination pathway. The number of samples, locations, depths, and sampling methods will be determined before closure and included in the TA-50 CSU-specific closure SAP, as discussed in Section F.4. Results from sampling will be compared to the background samples and/or baseline concentration levels included in the closure SAP. If analysis shows that the soil at the storage area is contaminated, soil sampling results that are above the background/baseline levels will be used to identify the extent of soil contamination. Contaminated soils will be removed in layers and sampling conducted following removal of each layer. This procedure will be used to minimize the amount of soil removed.

F.3.5 Decontamination Equipment

Prior to use, all reusable sampling equipment used during decontamination in closure activities will be

cleaned and rinsed, as described in the closure SAP. Sampling equipment rinsate blanks will be collected and analyzed in accordance with the QA/QC procedures described in the closure SAP. Reusable decontamination equipment, including protective clothing and tools, used during closure activities will be scraped as necessary to remove any residue and cleaned with a wash water solution (the closure SAP will include a discussion of wash water solutions). Residue and disposable decontamination equipment as well as reusable decontamination equipment that cannot be decontaminated will be containerized and managed appropriately at an approved on-site facility, depending on the regulated constituents present.

F.4 DECONTAMINATION VERIFICATION

Sufficient sampling and analysis will be conducted to demonstrate that hazardous waste residue is not present at the CSU after closure. Wash water sampling, swipe sampling, or other appropriate sampling and analysis methodologies may be used to verify decontamination. The verification sampling method will be determined at the time of development of the TA-50 CSU-specific closure SAP and will be based on factors such as COPCs and materials of construction for the storage structure. The SAP will establish the minimum number of verification samples based on the total surface area of the CSU. Using a biased random sampling approach, items, structures, and/or surfaces will be sampled for verification of decontamination. Sample bias will include known or likely areas of contamination, low areas, sumps, and known spill locations, as determined to be appropriate on a case-by-case basis.

For wash water-based decontamination verifications, samples of clean wash water solution squeezed from mops, sponges, and/or other absorbent materials prior to use will be collected for a baseline comparison. The samples will be analyzed for the COPCs, as presented in the TA-50 CSU specific SAP. Analytical procedures will conform to methods found in the most current version of "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" (*SW-846*) (U.S. Environmental Protection Agency, 1986).

Used wash down solutions will be analyzed for the same parameters. Wash down solutions will be considered contaminated if the used wash water solution shows a significant increase (i.e., determined using statistical methods defined in *SW-846*) in the analytical parameters over the clean wash water solution. If additional decontamination is deemed necessary, the verification procedure will be repeated.

Swipe sampling may be used on a case-by-case basis to determine verification of decontamination at the TA-50 CSUs. Background for swipe samples will be determined by submitting an unused swipe and

solvent sample for analysis of the CSU COPCs. Swipe samples will be analyzed using approved methods, which will be included in the closure SAP.

If other sampling methodologies have been developed at the time of closure for the TA-50 CSU, their use to determine decontamination will be addressed in the closure SAP.

For any sampling methodology, decontamination will be verified if the collected samples meet any of the decontamination criteria listed in Section F.3.6 of this closure plan. If the verification sampling indicates contamination higher than the approved values, additional sampling will be performed to establish the boundaries of contamination for large structures. After establishing the boundaries of contamination, the decontamination process will be repeated within those boundaries, using portable berms or other appropriate material to limit the potential for run-off from the affected area. An additional round of verification sampling will be performed for all of the areas previously determined to be contaminated. After each decontamination event and verification iteration, a decision will be made to repeat the process or remove contaminated materials and dispose of them properly.

F.5 DECONTAMINATION VERIFICATION CRITERIA

Successful decontamination is defined as 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.
- Detectable hazardous waste or hazardous constituents from container storage activities in the final sample are at or below levels agreed upon with the NMED.
- Detectable hazardous waste or hazardous constituent concentrations from container storage activities do not significantly decrease after several wash downs. In such an event, hazardous constituents that pose an acceptable risk will be allowed to remain, as mutually agreed upon with the NMED.

An alternative demonstration of decontamination may be proposed and justified at the time of unit closure, as circumstances indicate. The Secretary, NMED, will evaluate the proposed alternative in accordance with the standards and guidance then in effect and, if approved, incorporate the alternative into this closure plan.

F.6 SAMPLING AND ANALYSIS PLAN [20.4.1 NMAC 264.112(b)(4)]

Sampling and analytical procedures will be performed during the decontamination and verification activities associated with the partial closure of the TA-50 CSUs covered by this plan. These

procedures will use standard approved methods (e.g., SW-846), as appropriate, for making closure decontamination verification determinations. However, the TA-50 CSUs are not anticipated to undergo closure for a relatively long time, and it is probable that sampling and analytical methods will be revised and improved before closure. In order to alleviate the need for future closure plan and permit modifications until actual closure activities are scheduled, LANL will submit TA-50 CSU-specific closure SAPs to the NMED at the time of closure notification for review and approval.

The TA-50 CSU-specific closure SAPs will contain a detailed discussion of the available CSU information and proposed clean closure methodology to assure the closure performance standards are met. These closure SAPs for the TA-50 CSUs will, at a minimum, include:

- A detailed discussion of site characteristics.
- The CSU operational history, to include descriptions of known spills, releases, and/or evidence of potential problems (e.g., visual stains).
- Chemical properties of the waste stored at the CSU.
- Determination of applicable COPCs.
- A detailed hazard control plan, including a review of chemical hazards present at the site, control and monitoring methods and procedures, and required PPE.
- Determination of wash water solution composition, if necessary.
- Detailed procedures for decontamination methods for equipment, structures, and media.
- Discussion of background levels determined through sampling or use of published data and their relevance to the specific CSU.
- Methods for sampling and analysis of contaminated media.
- Removal procedures for contaminated media, if necessary.
- Sampling methods for decontamination media and hazardous waste determination. The discussion will include the rationale for using wash water samples, swipe samples, soil samples, and/or other sampling methodology.
- Sampling methods for decontamination verification procedures. The discussion will include the statistical or judgmental basis for determining the number of verification samples needed and the constituents to be analyzed for.
- Sampling equipment decontamination and disposition procedures.
- Sample handling and documentation procedures.
- Analytical methods and the rationale for their determination.

- Disposition of removed waste, decontamination media, or contaminated soils. This discussion will identify on- or off-site hazardous waste management facilities used for final disposition and the types of wastes shipped.

- Decontamination criteria.

- Statistical basis for verification of decontamination, if applicable. The discussion will include information on determination of statistical increases in analytical parameters and numerical values for significant increases.

- Risk assessment procedures to be used, if necessary.

- Field and laboratory QA/QC procedures.

- Schedule of closure activities, including decontamination, sampling, analysis, potential removal of soils, and final report submittal.

- Identification of contact person or office.

F.7 REFERENCES

EPA, 1986 (and all approved updates), "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," SW-846, Office of Solid Waste and Emergency Response, U.S. Environmental Protection Agency, Washington, D.C.

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

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

Table F-1
Schedule for TA-50 Closure Activities

Activity	Maximum Time Required [a]
Submit CSU-specific Closure/Sampling and Analysis Plan	-90 Days
Notify the New Mexico Environment Department (NMED)	-45 Days
Collect background samples (if applicable)	-5 Days
Final receipt of waste	Day 0
Begin closure activities (i.e., removal of wastes)	Day 5
Decontaminate surfaces and/or equipment	Day 10
Perform verification sampling of the surfaces and/or equipment	Day 20
Evaluate analytical data	Day 50
Perform additional decontamination (if necessary)	Day 55
Perform additional verification sampling (if necessary)	Day 60
Evaluate analytical data	Day 75
Perform asphalt decontamination and verification sampling	Day 80
Evaluate analytical data	Day 95
Perform soil sampling (if necessary)	Day 100
Evaluate analytical data	Day 120
Perform final clean up (i.e., removal of decontaminated equipment and decontamination waste)	Day 140
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.

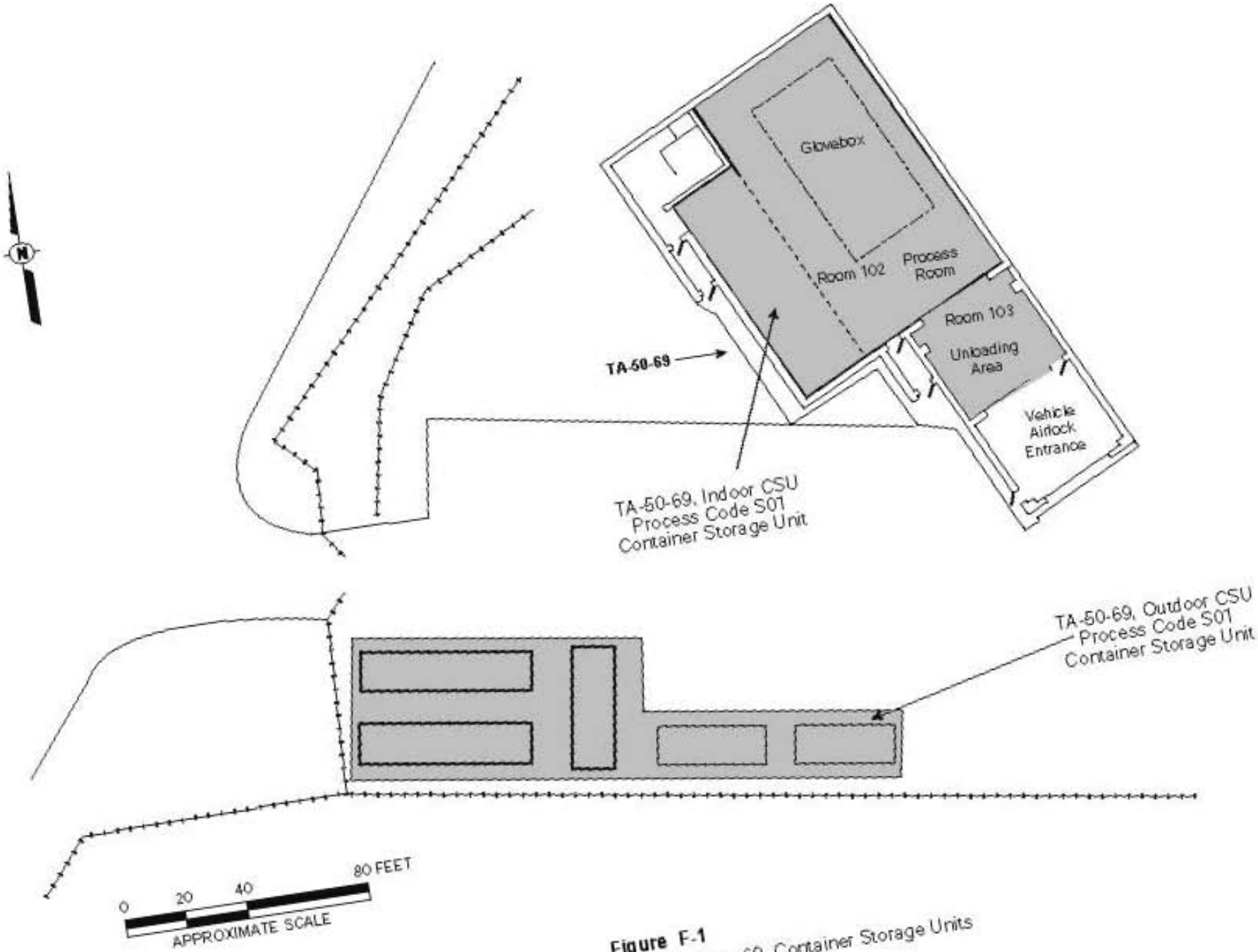

Figure F-1
Location Map Technical Area (TA) 50, Building 69, Container Storage Units

ATTACHMENT G

CONTAINER MANAGEMENT

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LIST OF ABBREVIATIONS/ACRONYMS

20.4.1 NMAC	New Mexico Administrative Code, Title 20, Chapter 4, Part 1
CAM	continuous air monitor
CSU	container storage unit
FRP	fiberglass-reinforced plywood
ft	feet/foot
LANL	Los Alamos National Laboratory
m^3	cubic meters
MDA	Material Disposal Area
ppmw	parts per million by weight
TA	Technical Area
TRU	transuranic
WCRRF	Waste Characterization, Reduction, and Repackaging Facility

ATTACHMENT G
CONTAINER MANAGEMENT

The information provided in this attachment 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]. This attachment provides an overview of current facility operations and waste management practices for the Technical Area (TA) 50 container storage units at Los Alamos National Laboratory (LANL) and complements the information provided in Section 2.0 of this permit renewal application. It includes detailed descriptions of the TA-50 container storage units (CSUs) and the waste management practices associated with them. Table G-1 summarizes applicable regulatory references for container storage and the corresponding location where the requirements are addressed in this permit renewal application.

G.1 CONTAINER STORAGE

TA-50 is located at the northeast corner of the intersection of Pajarito Drive and Pecos Road, on the finger mesa bounded by Mortandad Canyon to the north and Two-Mile Canyon to the south. TA-50-69 is located in the southwest quadrant of TA-50 and was constructed in 1979 to house the Waste Characterization, Reduction, and Repackaging Facility (WCRRF) (formerly the Size Reduction Facility). The primary purpose of WCRRF was to size reduce large metallic items (e.g., glove boxes and other process equipment) that were transuric (TRU)-contaminated and repackage them into standard-sized containers capable for transportation and disposal at the Waste Isolation Pilot Plant. The facility was first used to size reduce mixed TRU waste in 1982. The original function of the WCRRF has since been expanded to include other activities related to hazardous and mixed waste management including waste characterization and experimental process demonstration support.

TA-50-69 is a single-story building constructed in two phases. The original structure (45 feet (ft) by 52 ft) was built in 1979, to house the main process room (Room 102) and personnel change rooms. An unloading area (Room 103) and a vehicle airlock entrance (Room 104) were added to the building in 1986. The dimensions of the 1986 addition are 20 ft by 36 ft. The longest dimension of the building is now 88 ft, and the building is oriented northwest-southeast. A mezzanine was also added in 1986 over the western third of the main process room. The exterior walls of TA-50-69 are load-bearing and constructed of structural steel framing with a plastic veneer finish on polystyrene insulation and gypsum wallboard. The interior walls are similarly constructed. The epoxy-painted floor of the building is a reinforced concrete slab on compacted fill. The CSUs at TA-50 include the TA-50-69, Indoor CSU

and the TA-50-69, Outdoor CSU.

G.1.1 TA-50-69, Indoor CSU

The TA-50-69, Indoor CSU consists of Rooms 102 and 103 as shown in Figure G-1. Room 102, the main process room, measures approximately 45 ft wide and 52 ft long. The long dimension is oriented northwest-southeast. Room 103, the unloading area, measures approximately 18 ft wide and 19 ft long and is located adjacent to and southeast of Room 102. A 12-ft by 20-ft roll-up vehicle access door is located at the southernmost end of Room 103, separating the unloading area (Room 103) from the vehicle airlock entrance (Room 104). This design allows for unobstructed transport of oversized fiberglass-reinforced plywood (FRP) boxes from outside the facility, through the vehicle airlock entrance, into the unloading area, and into the glove box cutting enclosure.

G.1.2 TA-50-69, Outdoor CSU

The TA-50-69, Outdoor CSU was constructed before 1980, and was first used to store mixed waste in 1982. It is located in the southwest corner of TA-50. The TA-50-69, Outdoor CSU (Figure G-1) asphalt pad is not lined or coated, and measures 24 ft wide and 90 ft long, with an additional strip 12 ft wide and 90 ft long added to the southeast end. The asphalt pad is approximately 4 in. thick. The long dimension of this CSU is oriented east-southeast. The pad slopes gently (approximately 1 to 5 percent) from west to east and up to 2.5 percent toward the centerline. Transportainers and other weather protective structures (i.e., containers covered with tarps, containers inside SWBs) within the TA-50-69, Outdoor CSU provide weather protection for containers of various sizes. Supplement 2-1 of this permit renewal application provides detailed information regarding standard transportainers. Painted lines are used to visually delineate the TA-50-69, Outdoor CSU boundary.

G.2 GENERAL FACILITY OPERATIONS AND WASTE MANAGEMENT PRACTICES

The following provides an overview of current facility operations and waste management practices that are applicable to the TA-50 CSUs. This overview includes a discussion of container handling and inspection; security and access control; preparedness and prevention; hazards prevention; special requirements for ignitable, reactive, or incompatible waste; and air emission standards for containers. This information is submitted to fulfill the requirements of 20.4.1 NMAC, Subpart V, Part 264, Subpart I [6-14-00]. Specific waste management practices and procedures detailed herein may be subject to change as a result of LANL safety and waste management policy changes.

G.2.1 Container Handling and Inspection

Handling and inspection requirements for containers stored within the TA-50 CSU are presented in Sections 2.1.5 and 2.1.7, respectively, of this permit renewal application. This information is provided to meet the requirements of 20.4.1 NMAC, Subpart V, 264.171, 264.173, and 264.174 [6-14-00].

G.2.2 Security and Access

Security at 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 20.4.1 NMAC, Subpart V, 264.14(a) and (b)(2) [6-14-00]. An 8-ft high chain-link security fence surrounds the entire perimeter of TA-50. Bilingual (i.e., English and Spanish) warning signs are posted on the fences at approximately 50- to 75-ft intervals. In accordance with the requirements of 20.4.1 NMAC, Subpart V, 264.14(c) [6-14-00], warning signs are also posted at the entrances to each area that will manage hazardous and mixed waste and are visible from any approach to these areas. The legends on the posted signs indicate “Danger?Hazardous Waste Storage Area” and “Unauthorized Persons Keep Out.” The signs are legible from a distance of 25 ft. Additionally, signs will be posted at the entrance to each hazardous and mixed waste management area to address requirements associated with entering and working in the area.

There are four entry gates into TA-50. Two entry gates are located north of TA-50-1. During normal business hours, the easternmost of these two gates may remain open to receive deliveries. After normal business hours, this gate is padlocked. The westernmost of these two gates is the main access gate and remains open during normal business hours for personal and government-owned passenger vehicles. After normal business hours, access through this gate is by badge-reader only. A fire access and shipping gate is located west of TA-50-69 and is routinely kept closed and locked. When this gate is opened for shipments of materials or waste, facility personnel are present in the yard west of TA-50-69 to limit egress by unauthorized persons. A fourth gate to the south of TA-50-1 is locked except when authorized access is necessary. TA-50 is patrolled by Protection Technology Los Alamos security personnel during non-operational hours to ensure that unauthorized entry has not occurred. In accordance with 20.4.1 NMAC, Subpart IX, 270.14(b)(19)(viii) [6-14-00], the locations of the security fences and entry gates at TA-50 are shown on Figure A-10.

TA-50-69 is always locked and access is gained by a badge reader. Doors to the building and transportainers are locked. Keys to these doors are distributed to designated personnel only. Building access also limits access to the Indoor CSU. Access to the TA-50-69, Outdoor CSU is controlled by a chain around the CSU and a posted sign that indicates “Authorized Personnel Only.”

G.2.3 Preparedness and Prevention

The following sections present how waste management operations at TA-50 comply with the preparedness and prevention requirements of 20.4.1 NMAC, Subpart V, Part 264, Subpart C [6-14-00]. Additional information on the communication and alarm equipment available at LANL is presented in Appendix E of the "Los Alamos National Laboratory General Part B Permit Application," Revision 1.0 (LANL, 1998), hereinafter referred to as the LANL General Part B. A list of the emergency equipment available for use at the TA-50 CSUs is provided as Table E-1 of Attachment E of this document and in Table E-2 of the LANL General Part B.

G.2.3.1 Required Equipment [20.4.1 NMAC, Subpart V, 264.32]

All personnel involved in waste management activities at the TA-50 CSUs have immediate access to an internal alarm or emergency communication device, either directly or through visual or voice contact with another individual in accordance with 20.4.1 NMAC, Subpart V, 264.34 [6-14-00]. 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.

TA-50-69 is equipped with an audible alarm system to alert personnel to evacuate the area. The alarm system may be activated by one of the fire alarm pull stations located throughout the building. TA-50-69 also has a public address system for announcing fires or evacuations and telephones with paging capabilities. 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 can also use these phones to summon assistance from local emergency response teams in case of emergency. Personnel may carry pagers, two-way radios, and/or cellular telephones so they can contact or be contacted by on-site and LANL emergency support personnel at all times.

TA-50-69 is equipped with fire extinguishers and fire suppression systems. 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 central alarm system.

A fire hydrant installed according to National Fire Protection Association standards is located approximately 55 ft west of TA-50-69. Water is supplied to the fire hydrant 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.

TA-50-69 has an automatic wet-pipe sprinkler system in the main building and in the large glove box enclosure. The sprinkler system is heat-activated at 100°C (212°F). The TA-50-69, Outdoor CSU transportainers and weather protective structures are not equipped with automatic sprinkler systems, but are provided with a fire extinguisher located within 20-ft of the CSU. Personnel may use the fire alarm pull station at TA-50-69 in the event of a fire at both the Indoor and Outdoor CSUs.

Two spill centers are located in TA-50-69 in Room 102. They contain spill control equipment, personal protective equipment, and sorbents. Trained personnel may use this equipment to mitigate small containable spills when they are certain their actions will not put themselves or others at risk. EM&R provides additional spill control equipment and assistance upon request and depending on the size and severity of the spill. Personnel decontamination equipment available includes safety showers and eye wash stations located at TA-50-69. Material safety data sheets located at all operations areas provide useful exposure information.

G.2.3.2 Testing and Maintenance of Equipment [20.4.1 NMAC, Subpart V, 264.33]

The communication, alarm systems, fire protection, spill control, and decontamination equipment described above are tested and/or maintained according to the inspection schedule provided in Appendix C of the LANL General Part B (LANL, 1998). The frequency of inspection is adequate to ensure proper operation in the event of an emergency. Repair and replacement of emergency equipment is performed as required.

G.2.3.3 Access to Communications or Alarm System

Whenever waste is being handled at the TA-50 CSUs, all personnel involved have immediate access to internal alarms or telephones either directly or through visual or voice contact with another individual. In the event of an emergency, communication equipment allows personnel to contact the operating group management, the Emergency Management and Response Office, and/or the Central Alarm Station operator. In addition to the communications and alarm systems described in Section G.2.3.1, on-site personnel may carry pagers so that they can be contacted on-site and LANL emergency support personnel at all times.

G.2.3.4 Aisle Space and Storage Configuration

Information on aisle space and storage configurations for the TA-50 CSUs is presented in Section 2.1.3 of this permit renewal application. This information is provided to meet the requirements of 20.4.1 NMAC, Subpart V, 264.35 [6-14-00].

G.2.3.5 Support Agreements with Outside Agencies

LANL maintains support agreements and contracts with outside agencies for emergency response assistance. Information regarding these contracts and support agreements is provided in Section 2.1.2.4 of the LANL General Part B (LANL, 1998).

G.2.4 Hazards Prevention [20.4.1 NMAC, Subpart IX, 270.14(b)(8) and 20.4.1 NMAC, Subpart V, Part 264 Subpart C]

In accordance with 20.4.1 NMAC, Subpart V, Part 264, Subpart C and 20.4.1 NMAC, Subpart IX, 270.14(b)(8) [6-14-00], the TA-50 CSUs addressed in this TA-50 Part B are designed and operated to minimize the possibility of fire, explosion, or unplanned releases of hazardous constituents to any environmental medium. The following sections describe the general preventive procedures, structures, and equipment at the TA-50 CSUs to meet these requirements. 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.

G.2.4.1 Preventing Hazards in Unloading

TA-50 personnel will use proper handling equipment, appropriate to a container's size and weight, to help prevent hazards while moving containers within the CSUs. Flatbed trucks or trailers will be used to transport containers to TA-50-69 for storage and processing. A forklift will be used to move containers at the TA-50-69, Outdoor CSU, from outside the building into the TA-50-69 airlock, and then within the TA-50-69, Indoor CSU. FRP boxes and palletized drums will be handled with a forklift equipped with tines. Individual drums of waste will be manipulated with a drum-grapple attachment on the forklift. Small containers may be handled manually or with a dolly. Inside TA-50-69, two cranes are available to move heavy objects. Load limits are restricted to the rated capacity of these cranes for safe operation. All damaged containers (e.g., severely corroded drums) will be repaired or overpacked, or the wastes repackaged in new containers before being staged at the CSUs.

Waste management personnel at TA-50 do not perform loading/unloading operations during precipitation events. The waste stored in the TA-50 CSUs is Waste Isolation Pilot Plant-certifiable and does not contain free liquids; therefore, if a drum is opened and the contents spilled, it is easily contained. In the case of spills, on-site personnel follow site procedures, emergency response plans,

and implement the LANL Contingency Plan, if necessary. Because the waste does not contain free liquids, secondary containment and temporary berms are not necessary during loading/unloading operations.

G.2.4.2 Runoff and Runon Controls [20.4.1 NMAC, Subpart V, 264.31 and 264.175(b); and 20.4.1 NMAC, Subpart IX, 270.15(a)(4) and (5)]

Runoff from the TA-50 CSUs to other areas or to the environment will be prevented. Engineered surfaces/structures or secondary containment pallets/devices are provided for potential liquid-bearing containers. All secondary containment systems are 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 20.4.1 NMAC, Subpart V, 264.175(b)(3) [6-14-00].

As a practice at TA-50, runoff and erosion controls are designed to guide surface water away from waste management activities and into the natural drainages. Storm water feeds into Mortandad Canyon and is managed according to the Clean Water Act. Liquids that may accumulate in the self-containment pallets as a result of leaks or spills will be collected into a container using a portable pump and/or sorbents, depending on the volume of accumulated liquid. Accumulated liquids will be removed as soon as possible and sampled in accordance with Appendix E of the LANL General Part B (LANL, 1998).

G.2.4.2.1 TA-50-69, Indoor CSU

Run-on into the TA-50-69, Indoor CSU from outdoors is not likely to occur due to positive surface drainage that directs potential run-on away from the building. Figure A-11 (Attachment A) provides the contours and surface drainage around TA-50. The northern and eastern portions of TA-50 drain mainly to an unlined channel on the boundary between TA-50 and TA-35 (east of TA-50), although some flow diverges into a shallow channel running southward between TA-50-37 and TA-50-1.

To meet the requirements of 20.4.1 NMAC, Subpart IX, 270.15(a)(5) [6-14-00], any liquids that may accumulate within the self-containment pallets or devices, trenches and pits, or glove box enclosure will be removed as soon as possible to prevent overflow. The accumulated liquid will be sampled and analyzed. Depending upon the volume of the accumulated liquid, a high-efficiency particulate air vacuum, portable pump, universal sorbents, and/or other methods suitable for retrieval will be used to remove the liquid. Accumulated liquids are removed as soon as possible. The collected liquids and/or sorbents will be transferred to compatible containers, which will be stored temporarily at the respective CSU pending sample analysis, which will dictate how the wastes will be managed. Should a spill occur during waste handling activities, the spill and/or residual material will be sampled and managed in accordance with Appendix E of the LANL General Part B (LANL, 1998).

G.2.4.2.2 TA-50-69, Outdoor CSU

Run-on into the TA-50-69, Outdoor CSU is prevented because the CSU is elevated by design. The TA-50-69, Outdoor CSU is sloped sufficiently to prevent the accumulation of precipitation. In addition, drainage swales located in the vicinity, divert storm water away from the pad. One drainage swale is located just south of the CSU, between it and the material disposal area (MDA)-C. A second drainage swale is located on the west side of the CSU between Pecos Drive and the TA-50 fence line. Inspections of TA-50 waste management facilities, areas that may be prone to soil erosion, and drainage control structures are conducted as described in the "Storm Water Pollution Prevention Plan for Technical Area 50 Waste Treatment Facilities" (LANL, 1993). Together, the containment design and operations meet the requirements of 20.4.1 NMAC, Subpart V, 264.175(b), and 20.4.1 NMAC, Subpart IX, 270.15(a)(4) [6-14-00].

G.2.4.3 Preventing Water Supply Contamination [20.4.1 NMAC, Subpart V, 264.31]

It is not anticipated that there will be any impact to groundwater or other water supplies as a result of waste-handling operations at TA-50 CSUs. The TA-50-69, Indoor CSU is located inside a building. Any material spilled during waste management activities are immediately remediated pursuant to Appendix E of the LANL General Part B (LANL, 1998). All water supply lines at TA-50 are under pressure and are equipped with backflow prevention devices to prevent contamination of these lines during emergencies. Therefore, no impact to water supplies is expected. The depth to groundwater at TA-50 is approximately 1,000 ft (Purtymun and Johansen, 1974). Geologic units underlying TA-54 (located 4 miles east of TA-50) include layers of unsaturated volcanic tuff and ash, the moisture content of which ranges from 0.2 to 2.0 percent by weight (IT Corporation, 1987).

G.2.4.4 Mitigating Effects of Power Outages [20.4.1 NMAC, Subpart IX, 270.14(b)(8)]

Electrical power is supplied to TA-50-69 by a 13.4-kilovolt overhead distribution line through an underground conduit to an on-site substation that provides distribution to the building. Supplied power is used to operate continuous air monitors (CAMs) and other electrical equipment in the buildings. Additionally, an uninterruptible power source has been installed to operate the CAMs in the event of a power outage. In the event of a power failure, operations would cease and personnel would exit the affected building. Operations at the CSUs will be discontinued temporarily if electrical power is not restored quickly. A power failure or equipment failure would not affect containment within the TA-50 CSUs.

G.2.4.5 Preventing Undue Exposure [20.4.1 NMAC, Subpart V, 264.32]

To prevent undue exposure of personnel to hazardous or mixed waste, personal protective equipment appropriate for the waste being handled is worn by all on-site personnel at TA-50 involved in waste management activities at any of the waste management units. Workers involved in waste handling at TA-50 are required to wear protective work uniforms and steel-toed /composite-toed shoes, as appropriate. Hard hats and gloves may also be worn while equipment is being operated and when containers are being loaded or unloaded.

G.2.4.6 Air Emission Standards [20.4.1 NMAC, Subpart V, 264.31 and 264.179]

Releases to the atmosphere are not anticipated from any of the TA-50 CSUs. Containers are kept closed during handling and storage except when, upon inspection, it is determined that containers need to be overpacked or the contents repackaged in new containers or when it is necessary to add or remove waste. Inspections are conducted to ensure the integrity of all stored containers. In the event of an unexpected release, all personnel working within or near the area would be notified immediately to evacuate.

G.2.5 Ignitable, Reactive, or Incompatible Waste [20.4.1 NMAC, Subpart IX, 270.14(b)(9) and 270.15(c) and (d); and 20.4.1 NMAC, Subpart V, 264.17, 264.176, and 264.177]

Special requirements for ignitable, reactive, or incompatible waste at the TA-50 CSUs is presented in Section 2.1.8 of this permit renewal application. This information is provided to meet the requirements of 20.4.1 NMAC, Subpart V, 264.17(a), 264.176, and 264.177(a)(b)(c); and 20.4.1 NMAC, Subpart IX, 270.14(b)(9) and 270.15(d) [6-14-00].

G.2.6 Air Emission Standards for Containers [20.4.1 NMAC, Subpart V, Part 264, Subpart CC]

This section addresses potential applicability of 20.4.1 NMAC, Subpart V, Part 264, Subpart CC [6-14-00], "Air Emission Standards for Tanks, Surface Impoundments, and Containers" to containers at TA-50, based on applicability criteria specified in 20.4.1 NMAC, Subpart V, 264.1080 [6-14-00]. Subpart CC standards require that the containers be covered or controlled so that there are no detectable emissions. The standards are met by placement of waste in DOT-compliant containers and are not applicable to containers of radioactive mixed waste. The standards are also not applicable to containers of hazardous waste with less than 500 parts per million by weight (ppmw) volatile organics, containers that have received waste prior to the effective date of regulation (December 6, 1996), or containers of less than 0.1 cubic meters (m^3) (approximately 26 gallon) capacity.

Containers of less than 0.46 m^3 (approximately 119 gallon) capacity and that meet DOT specifications under the Code of Federal Regulations, Title 49, Part 178, will be kept closed during storage pursuant to 20.4.1 NMAC, Subpart V, 264.1086(b)(1)(ii) [6-14-00]. Containers undergoing waste characterization activities may be open for access for the purposes described in 20.4.1 NMAC, Subpart V, 264.1086(c) [6-14-00]. Containers of greater than 0.46 m^3 capacity that contain waste with greater than 500 ppmw volatile organics or those that are greater than 0.1 m^3 capacity, do not meet U.S. Department of Energy specifications, and contain wastes of greater than 500 ppmw volatile organics will be subject to a visual inspection and monitoring program as required by 20.4.1 NMAC, Subpart V, 264.1088(b) [6-14-00].

G.3 REFERENCES

IT Corporation, 1987, "Hydrogeologic Assessment of Technical Area 54, Areas G and L," Los Alamos National Laboratory, Docket No. NMHWA 001007, IT Corporation, Albuquerque, New Mexico.

LANL, 1993, "Storm Water Pollution Prevention Plan for Technical Area 50 Waste Treatment Facilities," Los Alamos, New Mexico, Los Alamos National Laboratory.

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

Purtymun and Johansen, 1974, "General Geohydrology of the Pajarito Plateau," New Mexico Geological Society Guidebook, 25th Field Conference, Central Northern New Mexico.

Table G-1

Use and Management of Containers
Regulatory References and Corresponding Permit Application Location

Regulatory Citation(s)	Description of Requirement	Location in this Permit Application
§270.15	Specific information requirements for containers:	G.0
§270.15(a)	A description of the containment system to demonstrate compliance with §264.175 including at a minimum:	G.2
§270.15(a)(1)	Basic design parameters, dimensions, and materials of construction	G.1
§270.15(a)(2)	How the design promotes drainage or how containers are kept from contact with standing liquids in the containment system	G.2
§270.15(a)(3)	Capacity of the containment system relative to the number and volume of containers to be stored	G.2
§270.15(a)(4)	Provisions for preventing or managing run-on	G.2
§270.15(a)(5)	How accumulated liquids can be analyzed and removed to prevent overflow	G.2
§270.15(b)	For storage areas that store containers holding wastes that do not contain free liquids, a demonstration of compliance with §264.175(c) including:	G.2
§270.15(b)(1)	Test procedures and results or other documentation or information to show that the wastes do not contain free liquids	G.2
§270.15(b)(2)	A description of how the storage area is designed or operated to drain and remove liquids or how containers are kept from contact with standing liquids	G.2
§270.15(c)	Sketches, drawings, or data demonstrating compliance with §264.176 (location of buffer zone and containers holding ignitable or reactive wastes) and §264.177(c) (location of incompatible wastes), where applicable	1.0
§270.15(d)	Where incompatible wastes are stored or otherwise managed in containers, a description of the procedures used to ensure compliance with §264.177(a) and (b) and §264.17(b) and (c)	G.3
§270.15(e)	Information on air emission control equipment as required in §270.27	G.4
§270.27(a)	Specific information requirements for air emission controls	G.4
§270.27(a)(2)	Identification of each container area subject to the requirements of §264, Subpart CC and certification by the owner or operator that the requirements are met	G.4

Table G-1 (Continued)

Use and Management of Containers
Regulatory References and Corresponding Permit Application Location

Regulatory Citation(s)	Description of Requirement	Location in this Permit Application
§270.27(a)(3)	Documentation that each enclosure used to control air emissions from containers are in accordance with the requirements of §264.1086(b)(2)(I) includes information prepared by the owner or operator or manufacturer or vendor describing the enclosure design and certification that the enclosure meets the specifications listed in §265.1087(b)(2)(ii)	NA[a]
§270.27(a)(5)	Documentation for each closed-vent system and control device installed in accordance with the requirements of §264.1087 that includes design and performance information as specified in §270.24 (c) and (d)	NA
§270.27(a)(6)	An emission monitoring plan for both Method 21 and control device monitoring methods. The plan must include:	NA
§270.27(a)(7)	Implementation schedule	NA

[a] NA= not applicable

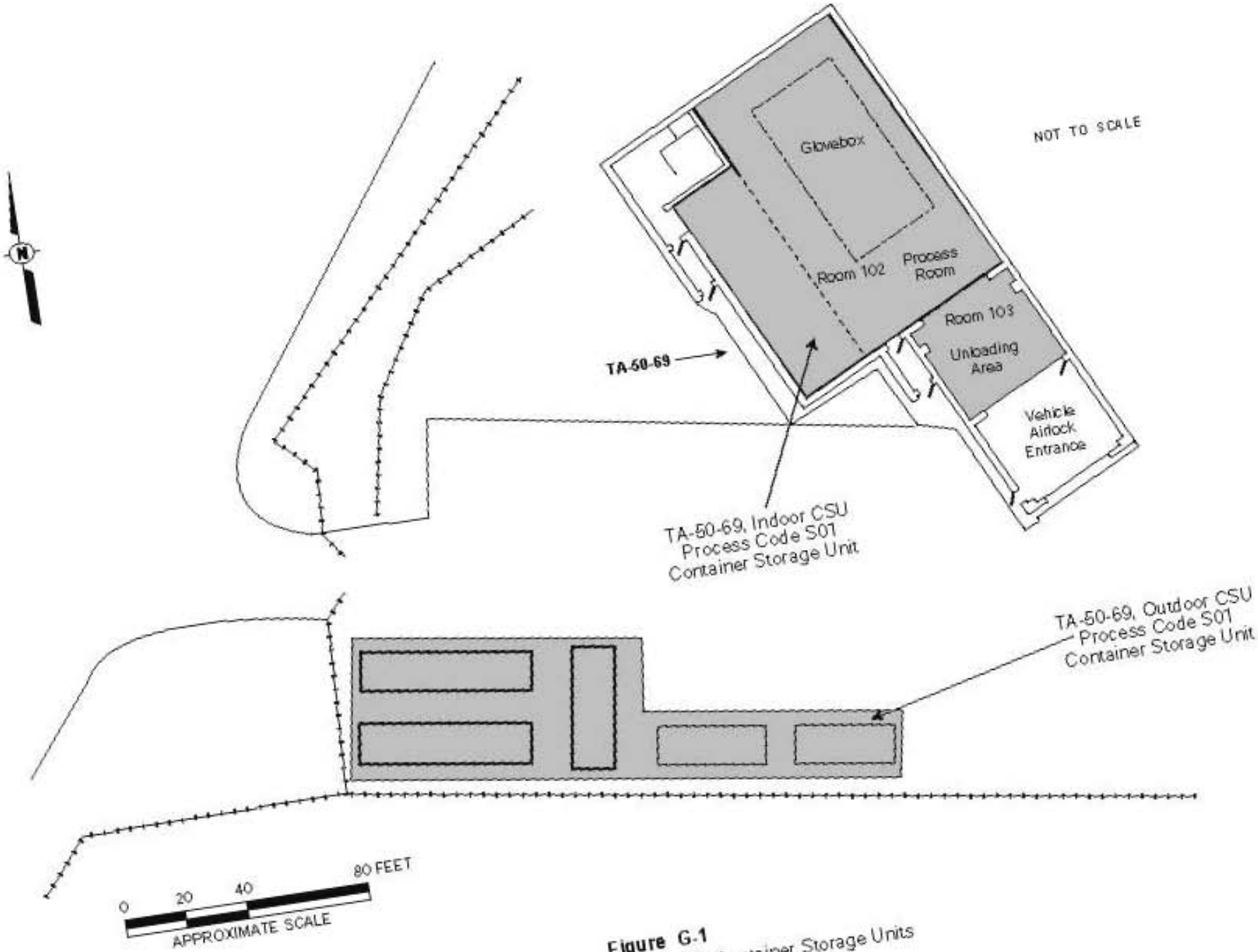

Figure G-1
Technical Area (TA) 50, Building 69, Container Storage Units

ATTACHMENT H

AUTHORIZED WASTE

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 Wastes *(Continued; use additional sheets as necessary)*

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 code)			(2) PROCESS DESCRIPTION (If a code is not entered in D(1))
			Technical Area 50, Building 69				
1	D001	27,700	K	S01			
2	D002	21,770	K	S01			
3	D003	1,320	K	S01			
4	D004	2,480	K	S01			
5	D005	2,620	K	S01			
6	D006	119,510	K	S01			
7	D007	128,620	K	S01			
8	D008	309,760	K	S01			
9	D009	24,640	K	S01			
10	D010	3,010	K	S01			
11	D011	12,660	K	S01			
12	D016	10	K	S01			
13	D017	20	K	S01			
14	D018	2,310	K	S01			
15	D019	940	K	S01			
16	D021	450	K	S01			
17	D022	1,650	K	S01			
18	D026	180	K	S01			
19	D027	220	K	S01			
20	D028	54,900	K	S01			
21	D029	54,620	K	S01			
22	D030	1,550	K	S01			
23	D031	30	K	S01			
24	D032	820	K	S01			
25	D033	570	K	S01			
26	D034	300	K	S01			
27	D035	690	K	S01			
28	D036	110	K	S01			
29	D037	150	K	S01			

EPA I.D. Number *(Enter from Page 1)*: M 0 8 9 0 0 1 0 5 1 5

Secondary ID Number *(Enter from Page 1)*:

IV. Description of Hazardous Wastes *(Continued; use additional sheets as necessary)*

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 code)			(2) PROCESS DESCRIPTION (If a code is not entered in D[1])
			Technical Area 50, Building 69 (Continued)				
30	D038	600	K	S01			
31	D039	440	K	S01			
32	D040	1,130	K	S01			
33	D041	30	K	S01			
34	D042	280	K	S01			
35	D043	140	K	S01			
36	F001	121,270	K	S01			
37	F002	55,110	K	S01			
38	F003	17,370	K	S01			
39	F004	920	K	S01			
40	F005	102,420	K	S01			
41	F009	20	K	S01			
42	F027	20	K	S01			
43	P003	30	K	S01			
44	P006	10	K	S01			
45	P011	10	K	S01			
46	P012	30	K	S01			
47	P015	30	K	S01			
48	P029	30	K	S01			
49	P030	30	K	S01			
50	P031	30	K	S01			
51	P033	10	K	S01			
52	P038	30	K	S01			
53	P043	10	K	S01			
54	P048	10	K	S01			
55	P056	1,070	K	S01			
56	P063	30	K	S01			
57	P068	30	K	S01			
58	P073	30	K	S01			

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 Wastes *(Continued; use additional sheets as necessary)*

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 code)			D. PROCESSES (2) PROCESS DESCRIPTION (If a code is not entered in D(1))
				Technical Area 50, Building 69 (Continued)			
59	P076	80	K	S01			
60	P078	90	K	S01			
61	P092	10	K	S01			
62	P095	30	K	S01			
63	P096	30	K	S01			
64	P098	30	K	S01			
65	P104	10	K	S01			
66	P105	10	K	S01			
67	P106	30	K	S01			
68	P112	10	K	S01			
69	P113	30	K	S01			
70	P119	10	K	S01			
71	P120	30	K	S01			
72	U001	30	K	S01			
73	U002	330	K	S01			
74	U003	30	K	S01			
75	U007	10	K	S01			
76	U008	10	K	S01			
77	U009	10	K	S01			
78	U012	30	K	S01			
79	U018	10	K	S01			
80	U019	110	K	S01			
81	U022	30	K	S01			
82	U029	30	K	S01			
83	U031	30	K	S01			
84	U033	10	K	S01			
85	U037	30	K	S01			
86	U041	10	K	S01			
87	U044	30	K	S01			

EPA I.D. Number *(Enter from Page 1)*: M 0 8 9 0 0 1 0 5 1 5

Secondary ID Number *(Enter from Page 1)*:

IV. Description of Hazardous Wastes *(Continued; use additional sheets as necessary)*

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 code)			(2) PROCESS DESCRIPTION (If a code is not entered in D(1))
Technical Area 50, Building 69 (Continued)							
88	U045	30	K	S01			
89	U052	30	K	S01			
90	U055	10	K	S01			
91	U056	30	K	S01			
92	U057	30	K	S01			
93	U067	10	K	S01			
94	U068	10	K	S01			
95	U070	20	K	S01			
96	U075	70	K	S01			
97	U077	30	K	S01			
98	U080	1,710	K	S01			
99	U085	10	K	S01			
100	U091	180	K	S01			
101	U092	10	K	S01			
102	U103	10	K	S01			
103	U108	30	K	S01			
104	U109	10	K	S01			
105	U112	30	K	S01			
106	U115	30	K	S01			
107	U117	30	K	S01			
108	U121	30	K	S01			
109	U122	250	K	S01			
110	U123	30	K	S01			
111	U124	10	K	S01			
112	U131	30	K	S01			
113	U133	30	K	S01			
114	U134	200	K	S01			
115	U135	100	K	S01			
116	U136	10	K	S01			

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 Wastes *(Continued; use additional sheets as necessary)*

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 code)			(2) PROCESS DESCRIPTION (If a code is not entered in D(1))
				Technical Area 50, Building 69 (Continued)			
117	U140	30	K	S01			
118	U144	30	K	S01			
119	U145	30	K	S01			
120	U151	280	K	S01			
121	U153	10	K	S01			
122	U154	60	K	S01			
123	U159	40	K	S01			
124	U160	30	K	S01			
125	U161	110	K	S01			
126	U162	10	K	S01			
127	U163	10	K	S01			
128	U165	30	K	S01			
129	U167	10	K	S01			
130	U168	10	K	S01			
131	U169	30	K	S01			
132	U170	10	K	S01			
133	U188	30	K	S01			
134	U190	30	K	S01			
135	U196	30	K	S01			
136	U204	30	K	S01			
137	U210	120	K	S01			
138	U211	60	K	S01			
139	U213	30	K	S01			
140	U216	30	K	S01			
141	U218	30	K	S01			
142	U219	30	K	S01			
143	U220	120	K	S01			
144	U223	10	K	S01			
145	U225	30	K	S01			

EPA I.D. Number *(Enter from Page 1)*

M	0	8	9	0	0	1	0	5	1	5

Secondary ID Number *(Enter from Page 1)*

IV. Description of Hazardous Wastes *(Continued; use additional sheets as necessary)*

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 code)			(2) PROCESS DESCRIPTION (If a code is not entered in D[1])
Technical Area 50, Building 69 (Continued)							
146	U226	2,680	K	S01			
147	U227	30	K	S01			
148	U228	440	K	S01			
149	U239	190	K	S01			
150	U240	10	K	S01			
151	U246	30	K	S01			