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Los Alamos National Laboratory
Technical Area 3, Building 29
Chemistry and Metallurgy Research Building
Part B Permit Application

Container Storage Unit

Revision 0.0

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LIST OF ABBREVIATIONS/ACRONYMS

CMR	Chemistry and Metallurgy Research
CSU	container storage unit
EPA	U.S. Environmental Protection Agency
ft	foot/feet
HRMB	Hazardous and Radioactive Materials Bureau
LANL	Los Alamos National Laboratory
20 NMAC 4.1	New Mexico Administrative Code, Title 20, Chapter 4, Part 1
NMT	Nuclear Materials Technology
NPDES	National Pollutant Discharge Elimination System
PCB	polychlorinated biphenyl
STTP	Actinide Source-Term Waste Test Program
SWB	standard waste box
SWMU	solid waste management unit
TA	technical area
TRU	transuranic

1.0 INTRODUCTION

This revised ALos Alamos National Laboratory: Technical Area 3, Building 29, Chemistry and Metallurgy Research Building Part B Permit Application≅ is submitted to address the New Mexico Administrative Code, Title 20, Chapter 4, Part 1 (20 NMAC 4.1), revised January 1, 1997 [1-1-97], requirements specific to hazardous and mixed waste container storage operations at the Technical Area (TA) 3, Building 29 (TA-3-29), Chemistry and Metallurgy Research Building at Los Alamos National Laboratory (LANL). This permit application contains much of the same information for TA-3-29 hazardous and mixed waste container storage operations as was included in the APermit Modification Request: Technical Area 3, Building 29, Rooms 9010 and 9020 Container Storage Areas,≅ submitted in May 1997 (LANL, 1997). The information in that application has been reformatted in this document to meet the permitting strategy outlined by the New Mexico Environment Department, Hazardous and Radioactive Materials Bureau (HRMB) in correspondence dated February 5, 1998. Also, information for a container storage location in Room 9030 at TA-3-29 has been added to this permit application. As presented in the February 1998 correspondence, TA-specific permit applications, permit modification requests, and permit renewal documents will cover any details and/or requirements not addressed in the ALos Alamos National Laboratory General Part B Permit Application,≅ Revision 1.0 (LANL, 1998a), hereinafter referred to as the LANL General Part B. The LANL General Part B will serve in the operating permit as an Aumbrella≅ document, covering the requirements of the New Mexico Hazardous Waste Act and implementing regulations, specifically 20 NMAC 4.1 [1-1-97], common to all TAs. Together, information provided in this document and in the LANL General Part B will meet the applicable requirements specified in 20 NMAC 4.1, Subparts V and IX [1-1-97]. This TA-3-29 Part B permit application is organized similar to the LANL General Part B and contains six primary sections and numerous attachments. Attachments A through F in this document correspond to Appendices A through F in the LANL General Part B.

In accordance with HRMB=s permitting strategy, LANL submitted the ALos Alamos National Laboratory General Part A Permit Application≅ in April 1998 (LANL, 1998b), hereinafter referred to as the LANL General Part A. The LANL General Part A consolidated information from previous site-wide and TA-specific Part A submittals into one comprehensive document, identifying all hazardous and mixed waste treatment, storage, and disposal facilities subject to 20 NMAC 4.1, Subparts V, VI, and IX [1-1-97] 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 TA-3-29 Part B permit application.

In the LANL General Part A, the LANL General Part B, and this permit application, a unit to be permitted may sometimes be referred to as a Afacility.≅ The term "facility," as it appears in this context, is used only to denote building names and does not imply the regulatory meaning of "facility" as defined in 20 NMAC 4.1, Subpart I, 260.10, [1-1-97]. However, pursuant to 20 NMAC 4.1, Subpart I, 260.10 [1-1-97], 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 NMAC 4.1, which adopts, with a few limited exceptions, 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 Document
∋270.14(b)(1)	General facility description	Attachment A[a]
∋270.14(b)(2)	Chemical and physical analyses	Attachment B[a]
∋270.14(b)(3)	Waste analysis plan	Attachment B[a]
∋264.13(b)	Development and implementation of waste analysis plan	Attachment B[a]
∋264.13(c)	Off-site waste analysis requirements	Attachment B[a]
∋270.14(b)(4)	Security procedures and equipment	Attachment G
∋270.14(b)(5)	General inspection requirements	Attachment C[a]
∋264.15(b)(4)	Frequency of inspections	Attachment C[a]
∋264.174	Container inspections	2.0, Attachment C[a]
∋264.193(i)	Tank inspections	NA[b]
∋264.195	Overfill control inspections	NA
∋264.226	Surface impoundments monitoring and inspection	NA
∋264.254	Waste pile monitoring and inspection	NA
∋264.273	Land treatment design and operating requirements	NA
∋264.303	Landfill monitoring and inspection	NA
∋264.347	Incinerator monitoring and inspection	NA
∋264.602	Miscellaneous units	NA

Table 1-1 (Continued)

Regulatory References and Corresponding Permit Application Location

Regulatory Citation(s)	Description of Requirement	Location in this Document
§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 and 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 requirements under 264 Subpart D	Attachment E[a]
§264.227	Surface impoundment emergency repairs; contingency plans	NA
§270.14(b)(8)	Preparedness and prevention	Attachment G
§270.14(b)(8)(i)	Prevention of hazards in unloading operations (ramps and special forklifts)	Attachment G
§270.14(b)(8)(ii)	Runoff prevention with berms, trenches, and dikes	2.0, Attachment G
§270.14(b)(8)(iii)	Prevention of contamination of water supplies	Attachment G
§270.14(b)(8)(iv)	Mitigation effects of equipment failure and power outages	Attachment G
§270.14(b)(8)(v)	Prevention of undue exposure of personnel by use of personal protective equipment	Attachment G
§270.14(b)(8)(vi)	Prevention of release to the atmosphere	Attachment G
§270.14(b)(9)	Prevention of accidental ignition or reaction	2.0[a]
§264.17(c)	Documentation of compliance with 264.17 (general requirements for ignitable, reactive, or incompatible wastes)	2.0[a]
§270.14(b)(10)	Traffic pattern, volume, and controls	Attachment A[a]
	Identification of turn lanes	Attachment A
	Identification of traffic/stacking lanes	Attachment A
	Description of road surface	Attachment A[a]
	Description of road load-bearing capacity	Attachment A[a]
	Identification of type and number of traffic controls	Attachment A
§270.14(b)(11)	Facility/unit location information	Attachment A
§270.14(b)(11)(i)	Seismic standard applicability [264.18(a)]	Attachment A
§270.14(b)(11)(ii)	Seismic standard requirements	Attachment A
§270.14(b)(11)(ii)(A)	No fault within 3,000 feet (ft) with displacement in Holocene time	NA
§270.14(b)(11)(ii)(A)(1)	Published geological studies	NA

Table 1-1 (Continued)

Regulatory References and Corresponding Permit Application Location

Regulatory Citation(s)	Description of Requirement	Location in this Document
ɔ270.14(b)(11)(ii)(A)(2)	Aerial reconnaissance of a five-mile radius from the facility	NA
ɔ270.14(b)(11)(ii)(A)(3)	Analysis of aerial photographs covering 3,000-ft radius from the facility/unit	NA
ɔ270.14(b)(11)(ii)(A)(4)	Reconnaissance based on walking portions of the area within 3,000 ft of the facility	NA
ɔ270.14(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
ɔ270.14(b)(11)(iii)	100-year floodplain standard	Attachment A[a]
ɔ270.14(b)(11)(iv)	If facility is within 100-year floodplain	NA
ɔ270.14(b)(11)(iv)(A)	Engineering analyses of hydrostatic forces expected in a 100-year flood	NA
ɔ270.14(b)(11)(iv)(B)	Structural engineering studies for flood protection to prevent washout	NA
ɔ270.14(b)(11)(iv)(C)	Detailed description of procedures to remove hazardous waste to safety before flood reaches the waste	NA
ɔ270.14(b)(11)(iv)(C)(1)	Timing of removal	NA
ɔ270.14(b)(11)(iv)(C)(2)	Location to be moved to	NA
ɔ270.14(b)(11)(iv)(C)(3)	Dedicated equipment and personnel to ensure removal	NA
ɔ270.14(b)(11)(iv)(C)(4)	Potential for accidental discharge during movement	NA
ɔ270.14(b)(11)(v)	Plan to show how the facility will be brought into compliance with 264.18(b)	NA
ɔ270.14(b)(12)	Personnel training program	Attachment D[a]
ɔ270.14(b)(13)	Closure and post-closure plans	2.0, Attachment F[a]
ɔ264.112	Amendment of closure plan	Attachment F[a]
ɔ264.118	Post-closure plan; amendment of plan	Attachment F[a]
ɔ264.178	Closure/containers	Attachment F
ɔ264.197	Closure/tanks	NA
ɔ264.228	Closure/post-closure/surface impoundments	NA
ɔ264.258	Closure/post-closure/waste piles	NA
ɔ264.280	Closure/post-closure/land treatment	NA
ɔ264.310	Closure/post-closure/landfills	NA
ɔ264.351	Closure/incinerators	NA
ɔ264.601	Miscellaneous units	NA
ɔ264.603	Post-closure care	NA[a]

Table 1-1 (Continued)

Regulatory References and Corresponding Permit Application Location

Regulatory Citation(s)	Description of Requirement	Location in this Document
ɔ270.14(b)(14)	Post-closure notices (264.119)	Attachment F[a]
ɔ270.14(b)(15)	Closure cost estimate (264.142)	Attachment F[a]
	Financial assurance (264.143)	Attachment F[a]
ɔ270.14(b)(16)	Post-closure cost estimate (264.144)	Attachment F[a]
	Post-closure care financial assurance (264.145)	Attachment F[a]
ɔ270.14(b)(17)	Liability insurance (264.147)	Attachment F[a]
ɔ270.14(b)(18)	Proof of financial coverage (264.149-150)	Attachment F[a]
ɔ270.14(b)(19)	Topographic map requirements	Attachment A[c]
ɔ270.14(b)(19)(i)	Map scale and date	Attachment A[c]
ɔ270.14(b)(19)(ii)	100-year floodplain	Attachment A[a]
ɔ270.14(b)(19)(iii)	Surface waters	Attachment A
ɔ270.14(b)(19)(iv)	Land use	Attachment A
ɔ270.14(b)(19)(v)	Wind rose	Attachment A
ɔ270.14(b)(19)(vi)	Map orientation	Attachment A[c]
ɔ270.14(b)(19)(vii)	Legal boundaries	Attachment A
ɔ270.14(b)(19)(viii)	Access controls	Attachment A
ɔ270.14(b)(19)(ix)	Wells	Attachment A
ɔ270.14(b)(19)(x)	Buildings	Attachment A
	Treatment, storage, and disposal operations	Attachment A
	Run-on/run-off control systems	2.0, Attachment A, Attachment G
	Storm sewer systems	Attachment A[a]
	Sanitary sewer systems	Attachment A[a]
	Process sewer systems	Attachment A[a]
	Loading/unloading areas	Attachment A
	Fire control facilities	Attachment A[a]
ɔ270.14(b)(19)(xi)	Drainage barriers	2.0, Attachment A
ɔ270.14(b)(19)(xii)	Location of operational units	Attachment A
ɔ270.14(b)(20)	Other federal laws	3.0[a]
ɔ270.3(a)	Wild and Scenic Rivers Act	3.0[a]

Regulatory Citation(s)	Description of Requirement	Location in this Document
∋270.3(b)	National Historic Preservation Act	3.0[a]
∋270.3(c)	Endangered Species Act	3.0[a]

Table 1-1 (Continued)

Regulatory References and Corresponding Permit Application Location

Regulatory Citation(s)	Description of Requirement	Location in this Document
∋270.3(d)	Costal Zone Management	3.0[a]
∋270.3(e)	Fish and Wildlife Coordination Act	3.0[a]
∋270.3(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(c)(1)	Groundwater monitoring under 265.90 through 265.94	NA
∋270.14(c)(2)	Identification of uppermost aquifer, groundwater flow rate and direction	NA
∋270.14(c)(3)	A topographic map required under 270.14(b)(19) that identifies proposed point of compliance	NA
	Proposed location of groundwater monitoring wells under 264.97.	NA
∋270.14(c)(4)	Description of plume of contamination that has entered groundwater	NA
∋270.14(c)(4)(i)	Extent of plume indicated on topographic map	NA
∋270.14(c)(4)(ii)	Identification of constituents and concentration for Appendix IX of 264	NA
∋270.14(c)(5)	Detailed plan and an engineering report describing proposed groundwater monitoring program under 264.97	NA
∋270.14(c)(6)	No releases detected in groundwater (264.98)	NA
∋270.14(c)(6)(i)	List of proposed indicator parameters	NA
∋270.14(c)(6)(ii)	Proposed groundwater monitoring system	NA
∋270.14(c)(6)(iii)	Background values for each proposed monitoring parameter	NA
∋270.14(c)(6)(iv)	Description of proposed sampling, analyses and statistical comparisons to be used	NA
∋270.14(c)(7)	Release detected at point of compliance requires corrective action under 264.100	NA
∋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

Regulatory Citation(s)	Description of Requirement	Location in this Document
∋270.14(d)(1)(iv)	Dates of operation	4.0
∋270.14(d)(1)(v)	Waste types managed at SWMU	4.0
∋270.14(d)(2)	Information on releases from SWMUs	4.0
∋270.15	Containers	2.0, Attachment G
∋270.16	Tank systems	NA

Table 1-1 (Continued)

Regulatory References and Corresponding Permit Application Location

Regulatory Citation(s)	Description of Requirement	Location in this Document
∋270.16(a)	Written assessment and certification	NA
∋270.16(b)	Capacity/dimensions	NA
∋270.16(c)	Systems and controls	NA
∋270.16(d)	Piping and process flow	NA
∋270.16(e)	External corrosion protection	NA
∋270.16(f)	Installation	NA
∋270.16(g)	Secondary containment system	NA
∋270.16(h)	Request for variance from secondary containment	NA
∋270.16(i)	Spill prevention	NA
∋270.16(j)	Ignitable, reactive, or incompatible wastes	NA

[a] Requirement or information is also addressed in the "Los Alamos National Laboratory General Part B Permit Application," Revision 1.0 (LANL, 1998a), as appropriate.

[b] NA = not applicable.

[c] Some of the topographic map requirements are addressed in the "Los Alamos National Laboratory General Part A Permit Application," Revision 0.0 (LANL, 1998b).

2.0 CONTAINER STORAGE

The information provided in this section is submitted to address the applicable container storage requirements of the New Mexico Administrative Code, Title 20, Chapter 4, Part 1 (20 NMAC 4.1), Subpart IX, 270.15, and 20 NMAC 4.1, Subpart V, Part 264, Subpart I, revised January 1, 1997 [1-1-97]. This section provides a general description of the Los Alamos National Laboratory (LANL) Technical Area (TA) 3, Building 29 (TA-3-29), Chemistry and Metallurgy Research (CMR) Building container storage unit (CSU), hereinafter referred to as the TA-3-29 CSU, and its waste management practices. Detailed information on and figures of the TA-3-29 CSU and the waste management practices associated with it are provided in Attachment G of this permit application. A summary of applicable regulatory references for container storage and the corresponding location where the requirement is addressed in this permit application is located in Attachment G, Table G-1.

2.1 DESIGNATED CONTAINER STORAGE UNIT

TA-3 is located in the northern portion of LANL on South Mesa between Los Alamos Canyon on the north and Two Mile Canyon on the south. Sandia and Mortandad Canyons head on the east margin of TA-3, forming steep cliffs at the top of canyon walls. The CMR Building, TA-3-29, was established in 1952 as a research facility. It is a three-story structure containing offices, laboratories, and one CSU located in the basement of Wing 9. The TA-3-29 CSU consists of three storage locations including Room 9010 and portions of Rooms 9020 and 9030. The following provides descriptions of the locations and capacity, potential storage containers, and minimum aisle space requirements for the TA-3-29 CSU.

2.1.1 Storage Locations and Capacity

The TA-3-29 CSU has an overall storage capacity of 18,500 gallons, or approximately 336 55-gallon drums, and may be used to store solid, liquid, and/or potentially liquid-bearing wastes. Hazardous and mixed waste containers may be stored at one of the designated storage locations or structures located within the TA-3-29 CSU. General dimensions, containment features, and materials of construction for each of these locations and structures is provided in Attachment G of this permit application to satisfy the requirements of 20 NMAC 4.1, 270.15(a)(1) and (2) [1-1-97].

2.1.2 Storage Containers

Waste containers that may be stored at the TA-3-29 CSU include, but are not limited to, 30-, 55-, 83-, 85-, and 110-gallon steel, polyethylene, and fiber drums; steel standard waste boxes (SWB); various steel boxes; metal overpack boxes; cardboard shipping containers; labpacks; various small containers; and some oversized, irregularly-shaped containers. All stored waste containers at the TA-3-29 CSU are elevated, by design or by other means (e.g., pallets), to prevent contact with any potentially accumulated liquids in accordance with 20 NMAC 4.1, Subpart V, 264.175(b)(2) [1-1-97].

The following describes storage containers considered acceptable for waste storage at the TA-3-29 CSU. Specific container detail is subject to change.

The most common container used for waste storage at TA-3-29 is the 55-gallon drum. The standard drum in use is constructed of steel and has an inner diameter of approximately 22 inches and a usable inside height of approximately 33 inches. Another type of drum that may be used at TA-3-29 is the polyethylene drum. Constructed of high-density blow-molded polyethylene, these drums come in various sizes and dimensions. Capacities range from 5 gallons up to 55 gallons. Types of closures include screw-type bungs (for closed-head containers), lever-lock rings, snap-on lids, and screw-on lids. Various other types of metal boxes are also used for storage. One type, the SWB, is constructed of steel and has rounded ends. It has continuous welds on all four sides and the bottom and has a closed-cell neoprene lid gasket. After waste is placed into the container, the lid is bolted on. A second type of metal box is also constructed of steel but is rectangular in shape. It has continuous welds on all four sides and the bottom and a lid that is clamped in place and then welded. Other metal boxes (including overpacks) vary in size and typically have continuous welds both inside and outside on all four sides and on the bottom. The metal overpack boxes are elevated by design or with pallets for ease in handling. Steel boxes are constructed of welded carbon steel and are elevated by design. Metal boxes have rubber gaskets with either bolt-on, clip-pinned, or hinged lids. Custom metal and wooden boxes are constructed for oversized and/or unique wastes. Other fiber boxes may also be used, as appropriate.

The Actinide Source Term Waste Test Program (STTP) enclosures in Room 9010 utilize two additional sizes of containers, liter scale and drum scale. The liter-scale containers are stainless steel and are mounted above containment stands. The drum-scale containers are 55-gallon titanium drums mounted on rotator stands with self-containment bases.

Overpacks may be used when a container's integrity is suspect. Eighty-five-gallon drums are commonly used to overpack 55-gallon drums, and 110-gallon drums are used to overpack 85-gallon drums. SWBs may be used to overpack drums of various sizes that contain waste.

2.1.3 Minimum Aisle Space and Storage Configuration

Waste containers in the TA-3-29 CSU are stored in rows with a minimum aisle space of 24 inches. The container storage locations are demarcated (e.g., tape, posts and chains, signs) to alert workers to the presence of waste containers.

Storage configuration of containers within a row depends upon the type of container, its size, and its weight restrictions. Drums are arranged in rows and may be stacked to a maximum of two high. SWBs and metal overpack boxes are stacked to a maximum of two high, unless size and weight restrictions prohibit stacking due to safety concerns.

2.2 AUTHORIZED WASTE IDENTIFICATION

The TA-3-29 CSU will store containers of hazardous and mixed waste bearing the appropriate U.S. Environmental Protection Agency Hazardous Waste Numbers presented in the "Los Alamos National Laboratory General Part A Permit Application," Revision 0.0 (LANL, 1998b).

2.3 CONDITION OF CONTAINERS [20 NMAC 4.1, Subpart V, 264.171]

Prior to storage, any storage container at the TA-3-29 CSU that is not in good condition (e.g., severe rusting, apparent structural defects) is overpacked or the wastes are repackaged in containers that are in good condition. This meets the requirements of 20 NMAC 4.1, Subpart V, 264.171 [1-1-97].

2.4 COMPATIBILITY OF WASTE WITH CONTAINERS

The TA-3-29 CSU will only store containers made of or lined with materials that will not react with and are otherwise compatible with the waste stored in them. This fulfills the requirements of 20 NMAC 4.1, Subpart V, 264.172 [1-1-97].

2.5 MANAGEMENT OF CONTAINERS

Waste containers stored at the TA-3-29 CSU are handled in a manner that will not cause them to rupture or leak, as required in 20 NMAC 4.1, Subpart V, 264.173(b) [1-1-97]. All containers are kept closed during storage in accordance with 20 NMAC 4.1, Subpart V, 264.173(a) [1-1-97], except when waste is added to or removed from the container. Additional information on container management is located in Attachment G, Section G.2.4 of this document.

2.6 CONTAINMENT SYSTEMS

In accordance with 20 NMAC 4.1, Subpart IX, 270.15(b)(1) (1-1-97), information contained in LANL's waste databases may be used initially to verify the absence of free liquids in containers. Containers at the TA-3-29 CSU holding suspect or known free liquids will be placed on self-containment pallets.

Potential liquids that might accumulate at the TA-3-29 CSU are contained within secondary containment (e.g., self-containment pallets) at each storage location until the liquid is removed. All secondary containment systems are designed to contain at least 10 percent of the volume of potential liquid-bearing containers or the volume of the largest container, whichever is greater, pursuant to the requirements of 20 NMAC 4.1, Subpart V, 264.175(b)(3) [1-1-97]. Any accumulated liquids are removed as appropriate and depending on the volume. The collected liquids are then transferred to appropriate containers and sampled, as necessary. If the accumulated liquids are from an identifiable source, or from water generated during fire-suppression activities, the resulting material may be characterized as a newly-generated waste using acceptable knowledge or may be analyzed, as applicable, for the hazardous waste constituents known to be components of the source. If the accumulated liquids are from other than an identifiable source, the resulting material will be analyzed for the appropriate potential parameters listed in Table E-3 of Appendix E in the "Los Alamos National Laboratory General Part B Permit Application," Revision 1.0 (LANL, 1998a), hereinafter referred to as the LANL General Part B. Containers of collected liquids are stored with secondary containment, pending analytical results, which determine how the waste liquids will be managed. This method of removal and analysis of accumulated liquids fulfills the requirements of 20 NMAC 4.1, Subpart IX, 270.15(a)(5) [1-1-97], for prevention of overflow.

2.7 INSPECTION SCHEDULES AND PROCEDURES

The purpose of inspections is to identify leaking containers, deterioration of containers, and/or loss of integrity of the containment system, as required by 20 NMAC 4.1, Subpart V, 264.174 [1-1-97]. The inspections include checking the structural integrity of the 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 in Attachment C of this permit application.

2.8 SPECIAL REQUIREMENTS FOR IGNITABLE, REACTIVE, AND INCOMPATIBLE WASTES [20 NMAC 4.1, Subpart V, 264.17(a) and (b), 264.176, and 264.177(a)(b) and c); 20 NMAC 4.1, Subpart V, 270.14(b)(9) and 270.15(d)]

The TA-3-29 CSU is located within a building approximately one mile from the nearest LANL facility boundary; therefore, containers holding ignitable or reactive wastes are located at least 50 feet from the facility's property line. The stored wastes are protected from sources of ignition or reaction. Ignitable or reactive waste is separated and protected from welding activities, hot surfaces, frictional heat, and sources of sparks. By LANL policy, smoking is not allowed within TA-3-29 and "No Smoking" signs are conspicuously placed at all normal entrances to the building. Together, these measures meet the requirements of 20 NMAC 4.1, Subpart V, 264.17(a) and (b) and 264.176 [1-1-97].

Incompatible wastes, if any, are kept segregated during storage to meet the requirements of 20 NMAC 4.1, Subpart V, 264.177 (c) [1-1-97]. In addition, no incompatible wastes will be mixed, and no waste will be placed in a container that previously held an incompatible waste, as required by 20 NMAC 4.1, Subpart V, 264.177(a) and (b), and 20 NMAC 4.1, Subpart IX, 270.15(d) [1-1-97].

2.9 CLOSURE

Should partial closure of the TA-3-29 CSU become necessary, partial closure activities would include removal of hazardous and mixed waste from the location and/or structure to be closed and decontamination of any equipment that has been contaminated by waste materials if it is to be relocated outside the CSU boundary. Closure will minimize the need for further maintenance, preclude the release of hazardous waste or constituents to environmental media, and be protective of human health. Detailed closure procedures for the TA-3-29 CSU are addressed in Attachment F of this permit application. This information is provided to meet the requirements of 20 NMAC 4.1, Subpart V, 264.111 and 264.178 [1-1-97].

2.10 CONTROL OF RUN-ON AND RUNOFF [20 NMAC 4.1, Subpart V, 264.175(b)(4); 20 NMAC 4.1, Subpart IX, 270.14(b)(8)(ii)]

Run-on into the storage structures and locations that comprise the TA-3-29 CSU is not likely to occur. Rooms 9010, 9020, and 9030 are fully contained within the building. The slope surrounding TA-3-29 directs potential run-on away from the building. Figure A-10 in Attachment A of this permit application shows the contours and surface drainage around TA-3-29. This information is provided to meet the requirements of 20 NMAC 4.1, Subpart V, 264.175(b)(4), and 20 NMAC 4.1, Subpart IX, 270.14(b)(8)(ii) [1-1-97].

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 January 1, 1997, is provided in Section 3.0 of the "Los Alamos National Laboratory General Part B Permit Application" (LANL, 1998a).

4.0 CORRECTIVE ACTION FOR SOLID WASTE MANAGEMENT UNIT

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 NMAC 4.1), Subpart IX, 270.14(d), revised January 1, 1997 [1-1-97].

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

4.1 SWMU DESCRIPTIONS [20 NMAC 4.1, Subpart IX, 270.14(d)(1)]

The only SWMU identified within or in the vicinity of Technical Area (TA) 3, Building 29 (TA-3-29) is the active waste management unit addressed in this permit application. The TA-3-29 container storage unit (CSU) is located in the basement of Wing 9. It has a storage capacity of 18,500 gallons and may be used to store solid, liquid, and/or potentially liquid-bearing wastes. Hazardous and mixed waste containers may be stored at one of three designated storage locations located within the TA-3-29 CSU. The three storage locations are in Rooms 9010, 9020, and 9030. These active storage locations (i.e., the TA-3-29 CSU) do not have a SWMU number assigned to them. A brief unit and waste description is provided in Table 4-1 and a topographic map (Figure 4-1) is included solely to show the location of the SWMU in TA-3-29. General dimensions, containment features, and materials of construction for each of these locations is provided in Attachment G of this permit application. There are no SWMUs in the vicinity of TA-3-29 identified for corrective actions in Module VIII, as modified following a Class III permit modification effective December 23, 1998.

4.2 RELEASES [20 NMAC 4.1, Subpart IX, 270.14(d)(2)]

There have been no documented releases of hazardous waste or hazardous constituents from the SWMU at TA-3-29.

4.3 CHARACTERIZATION OF RELEASES

Potential releases, if any, from other SWMUs at TA-3 are described in the “Solid Waste Management Units Report” (LANL, 1990a), "RFI Work Plan for Operable Unit 1114" (LANL, 1993), and the “RFI Work Plan Addendum 1 for Operable Unit 1114" (LANL, 1995). The descriptions include the material released and the nature of the release. However, because of the nature of the releases, the exact volume is not always known. The timing of the releases can only be estimated by the period of operation and sampling events.

4.4 CORRECTIVE ACTIONS [20 NMAC 4.1, Subpart V, 264.101(a)]

Pursuant to 20 NMAC 4.1, Subpart V, 264.101(a) [1-1-97], corrective actions are required for releases of hazardous waste or hazardous constituents. The SWMUs at TA-3 identified for corrective action will be investigated and remediated, as necessary and with New Mexico Environment Department approval, during LANL Environmental Restoration Project corrective action activities. Corrective action will generally follow the Resource Conservation and Recovery Act Facility Investigation/Corrective Measures Study process.

Table 4-1

Technical Area (TA) 3, Building 29, Solid Waste Management Unit (SWMU) Description

SWMU No.	Unit Type	Unit Description	Waste Description
TBD[a]	Container storage	Container storage located in Rooms 9010, 9020, and 9030, Wing 9, basement	Hazardous and mixed waste

[a] TBD = To be determined.

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.

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

Oct. 4, 1999
Date Signed

David A. Gurulé, P.E.
Area Manager, Los Alamos Area Office
U.S. Department of Energy
Albuquerque Operations
Owner/Operator

10/6/99
Date Signed

6.0 REFERENCES

EPA, 1998, 1994, "Module VIII: Special Conditions Pursuant to the 1984 hazardous and Solid Waste Amendments to RCRA for Los Alamos National Laboratory, EPA I.D. NM0890010515," effective date May 19, 1994, U.S. Environmental Protection Agency, Region 6, Hazardous Waste Management Division, Dallas, Texas.

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

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

LANL, 1997, "Permit Modification Request: Technical Area 3, Building 29, Rooms 9010 and 9020, Container Storage Areas," Revision 0.0, Los Alamos National Laboratory, Los Alamos, New Mexico.

LANL, 1995, "RFI Work Plan Addendum 1 for Operable Unit 1114," (Draft), Los Alamos National Laboratory, Los Alamos, New Mexico.

LANL, 1993, "RFI Work Plan for Operable Unit 1114," Los Alamos National Laboratory, Los Alamos, New Mexico.

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

LANL, 1990b, "Spill Prevention Control and Countermeasure Plan for the Los Alamos National Laboratory, Los Alamos, New Mexico," Los Alamos National Laboratory, Los Alamos, New Mexico.

ATTACHMENT A

FACILITY DESCRIPTION

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LIST OF ABBREVIATIONS/ACRONYMS

AASHTO	American Association of State Highway and Transportation Officials
CMR	Chemistry and Metallurgy Research
CSU	container storage unit
LANL	Los Alamos National Laboratory
20 NMAC 4.1	New Mexico Administrative Code, Title 20, Chapter 4
TA	technical area

ATTACHMENT A
FACILITY DESCRIPTION

The information provided in this section is submitted in accordance with the applicable requirements of the New Mexico Administrative Code, Title 20, Chapter 4, Part 1 (20 NMAC 4.1) [1-1-97]. The following subject areas are addressed in this attachment:

- X A general description of Technical Area (TA) 3, Building 29 (TA-3-29), Chemistry and Metallurgy Research (CMR) Building at Los Alamos National Laboratory (LANL) [20 NMAC 4.1, Subpart IX, 270.14(b)(1)];
- X Site-specific traffic patterns, volume, and control [20 NMAC 4.1, Subpart IX, 270.14(b)(10)];
- X Site-specific location information for compliance with seismic and floodplain standard requirements [20 NMAC 4.1, Subpart IX, 270.14(b)(11), and 20 NMAC 4.1, Subpart V, 264.18(a) and (b)];
- X Site-specific topographic map requirements [20 NMAC 4.1, Subpart IX, 270.14(b)(19)];
- X Site-specific groundwater monitoring and protection information [20 NMAC 4.1, Subpart IX, 270.14(c), and 20 NMAC 4.1, Subpart V, 264.90(a)].

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

A.1 TA-3-29 GENERAL DESCRIPTION [20 NMAC 4.1, Subpart IX, 270.14(b)(1)]

TA-3 is located in the northern portion of LANL (Figure A-1) on South Mesa between Los Alamos Canyon on the north and Two Mile Canyon on the south. Sandia and Mortandad Canyons head on the east margin of TA-3, forming steep cliffs at the top of the canyon walls. The elevation at TA-3 ranges from 7,100 to 7,500 feet above mean sea level. TA-3-29, the CMR Building, was established in 1952 as a research facility at TA-3. It is a three-story structure containing offices, laboratories, and one container storage unit (CSU). The TA-3-29 CSU is located in the southwest corner of the CMR Building (Figure A-2) in the basement of Wing 9; it consists of three storage locations within Rooms 9010, 9020, and 9030 as shown on Figure A-3. Descriptions of these storage locations are provided in Section 2.0 and Attachment G of this permit application.

A.2 TRAFFIC PATTERNS [20 NMAC 4.1, Subpart IX, 270.14(b)(10)]

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

A.2.1 Routes of Travel

TA-3-29 is located on Diamond Drive. The primary traffic routes that may be used to transport hazardous and mixed waste to or from the TA-3-29 CSU include Pajarito Road, Pecos Drive, DP Road, Trinity Drive (State Road 502), Mesita del Buey Road, and Diamond Drive; a lesser-used traffic route may include West Jemez Road (State Road 501) (Figure A-4).

A.2.2 Traffic Volumes

According to a 1997 traffic study, the peak traffic periods in the vicinity of TA-3-29 are between 7:30 and 8:30 a.m., 12:15 and 1:15 p.m., and 4:30 and 5:30 p.m. (Los Alamos County, 1997). The traffic study was conducted at the intersection of Diamond Drive and Trinity Drive, just north of the TA-3-29 area. Maps and data from the cited study are included in Supplement 4 of the LANL General Part B (LANL, 1998a). The Diamond Drive and Trinity Drive intersection had a volume of 3,152 vehicles from 7:30 to 8:30 in the morning; 3,223 vehicles from 12:15 to 1:15 in the afternoon; and 2,815 vehicles from 4:30 to 5:30 in the afternoon, according to the study.

Maps and data from a traffic count conducted at the same intersection in April 1998 are also included in Supplement 4 of the LANL General Part B (Los Alamos County, 1998). The peak traffic periods for the 1998 study are between 7:15 and 8:15 a.m., 12:30 and 1:30 p.m., and 5:00 and 6:00 p.m. The traffic volume from 7:15 to 8:15 in the morning was 2,373 vehicles. Between 12:30 and 1:30 in the afternoon the volume was 2,588 vehicles. From 5:00 to 6:00 in the afternoon, the volume was 2,648 vehicles. The count is lower because Los Alamos High School was on spring break during this traffic study.

A.2.3 Traffic Control Signals

Traffic flow in the vicinity of TA-3-29 at LANL is controlled by traffic lights, stop signs, and yield signs. Traffic lights are in place at major intersections, including the intersections of Diamond Drive and Eniwetok Drive at the northeast boundary of TA-3-29, and Diamond Drive and Sigma Drive at the southeast boundary of TA-3-29. Traffic signs are used at "T" intersections throughout LANL, including the intersection of Pajarito Road and Diamond Drive south of TA-3-29.

Traffic control signals in the vicinity of TA-3-29 include stop signs, posted speed limits, and other traffic and pedestrian control signs. The locations of existing signs in the vicinity of TA-3-29 are shown on Figure A-5.

A.2.4 Road Surfacing and Load Bearing Capacity

Roads in the vicinity of TA-3-29 are generally four-lane roads with asphaltic concrete surfaces. Load-bearing capacity for these roads is 32,000 pounds per axle. These roads are typically constructed with a 6-inch-thick base overlain with a 3-inch-thick asphaltic concrete surface. These roads were designed and constructed to meet the American Association of State Highway and Transportation Officials (AASHTO) specification HS-20 (AASHTO, 1996).

A.3 LOCATION INFORMATION

A.3.1 Seismic Standard [20 NMAC 4.1, Subpart IX, 270.14(b)(11)(i and ii) and 20 NMAC 4.1, Subpart V, 264.18(a)]

The hazardous and mixed waste management unit at TA-3-29 is exempt from the seismic standards in 20 NMAC 4.1, Subpart IX, 270.14(b)(11), and 20 NMAC 4.1, Subpart V, 264.18(a) [1-1-97], because this unit existed prior to January 25, 1985, and July 25, 1990, when the State of New Mexico received hazardous and mixed waste authorization, respectively.

A.3.2 Floodplain Standard [20 NMAC 4.1, Subpart IX, 270.14(b)(11)(iii) and 270.14(b)(19)(ii); 20 NMAC 4.1, Subpart V, 264.18(b)]

In accordance with 20 NMAC 4.1, Subpart IX, 270.14(b)(11)(iii) [1-1-97], it has been determined that the CSU addressed in this permit application is not located within the 100-year floodplain boundary. LANL has mapped all 100-year floodplain boundaries within the LANL complex, as required in "Module VIII: Special Conditions Pursuant to the 1984 Hazardous and Solid Waste Amendments to RCRA for Los Alamos National Laboratory, EPA I.D. NM0890010515" (EPA, 1994). A report demonstrating that TA-3 is not within the 100-year floodplain has been published documenting the floodplain mapping procedures (McLin, 1992). This report is included as Supplement 5 of the LANL General Part B (LANL, 1998a).

A.4 TOPOGRAPHIC MAPS [20 NMAC 4.1, Subpart IX, 270.14(b)(19)]

Topographic maps and figures are provided herein or referenced to meet the requirements of 20 NMAC 4.1, Subpart IX, 270.14(b)(19) [1-1-97]. The maps include the map scale, the date of preparation, and a north arrow. The maps and figures used to fulfill these regulatory requirements include the following:

- X A LANL-wide 100-year floodplain map is provided on page 36 of the report included as Supplement 5 of the LANL General Part B (LANL, 1998a).
- X A map showing surface waters, including intermittent streams, near TA-3-29 is included as Figure A-6.

X Surrounding land uses are shown on Figure A-1.

X Wind roses for TA-6, the location of the closest wind observation tower to TA-3, are shown on Figures A-7 and A-8.

X A map showing the legal boundaries of LANL (including TA-3) 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.

X Access control features at TA-3-29 (e.g. fences, gates) are shown on Figure A-9.

X A map showing supply wells, monitoring wells, test wells, springs, and surface-water sampling stations near TA-3-29 is included as Figure A-6.

X The locations of buildings, hazardous and or mixed waste management units and structures, and loading and unloading areas at TA-3-29 are shown on Figure A-6.

X A map showing National Pollutant Discharge Elimination System discharge structure locations is included in the LANL General Part A (LANL, 1998b).

X Storm, sanitary, and process sewer systems at LANL are shown on Map A-1 of the LANL General Part B (LANL, 1998a).

X Digital elevation model drainage features are shown on Figure A-10.

X 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).

X 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 all topographic maps are in intervals sufficient to detail natural drainage at LANL and in the vicinity of the waste management unit. As provided in 20 NMAC 4.1, Subpart IX, 270.14(b)(19) [1-1-97], 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 NMAC 4.1, Subpart IX, 270.14(c) and 20 NMAC 4.1, Subpart V, 264.90(a)]

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

A.6 OTHER PERMIT ACTIVITIES

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

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

Currently, none of these permit types are relevant for operations at TA-3-29.

A.7 REFERENCES

AASHTO, 1996, "Standard Specifications for Highway Bridges," 16th Edition, American Association of State Highway and Transportation Officials.

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."

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

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

Los Alamos County, 1998, "Traffic Counts," Los Alamos County Public Works Department, Traffic Engineering Group.

Los Alamos County, 1997, "Traffic Counts," Los Alamos County Public Works Department, Traffic Engineering Group.

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

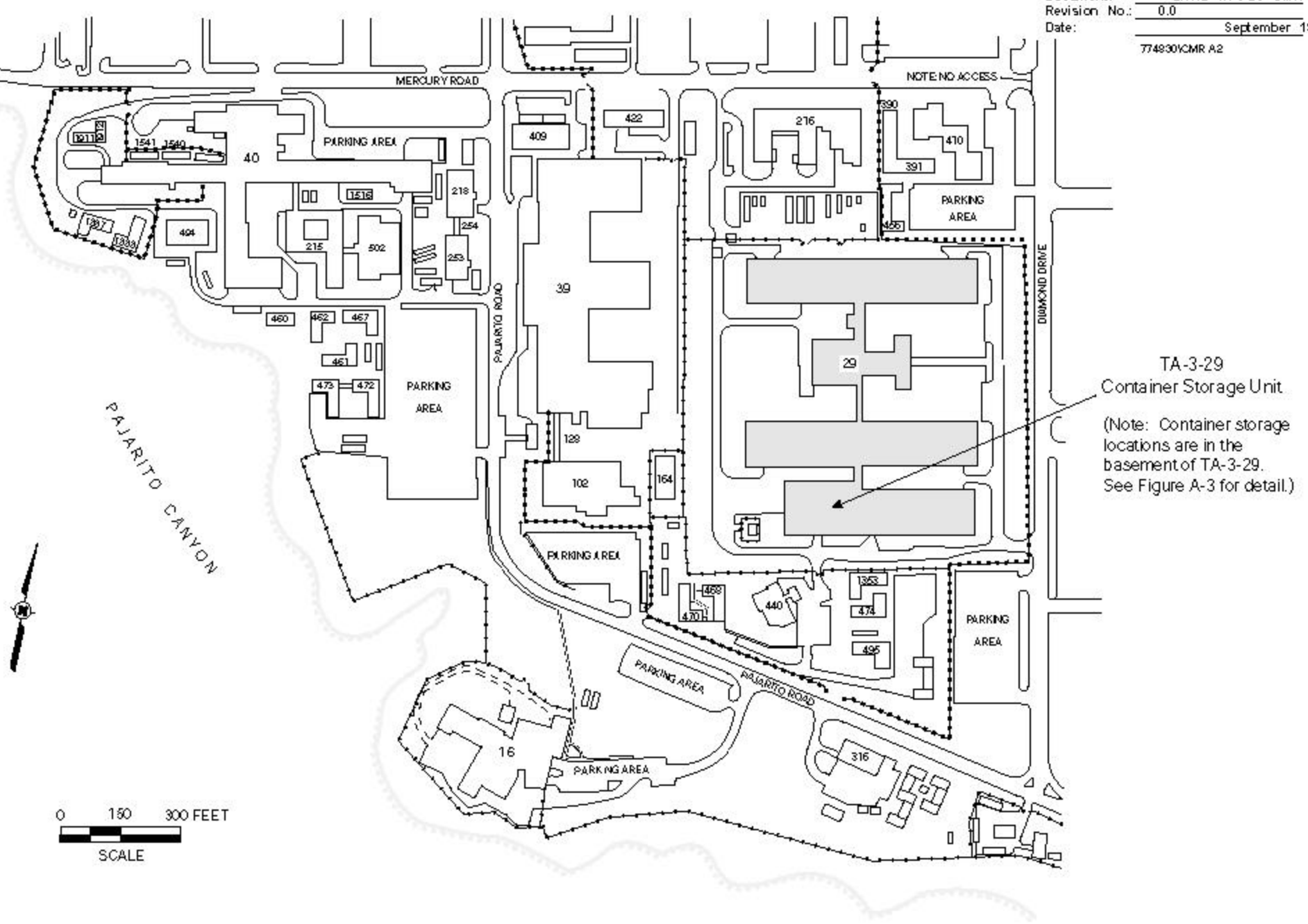


Figure A-2
Site Location Map - Technical Area (TA) 3, Building 29

Figure A-3
Technical Area 3, Building 29, Container Storage Locations

[This figure has been provided to the New Mexico Environment Department under separate cover as Unclassified Controlled Nuclear Information (UCNI) defined by Section 148 of the Atomic Energy Act.]

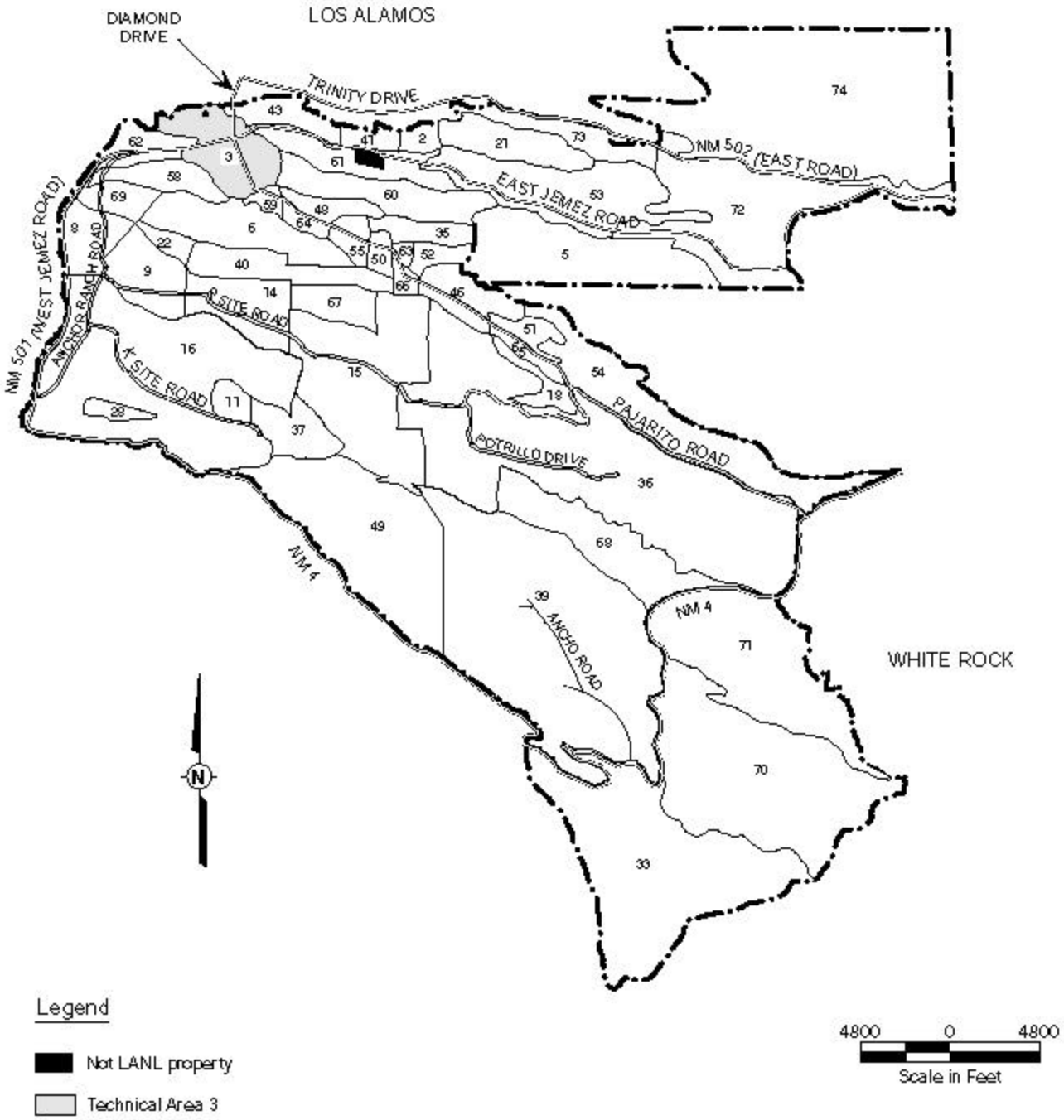


Figure A-4
Major Roads at Los Alamos National Laboratory (LANL)

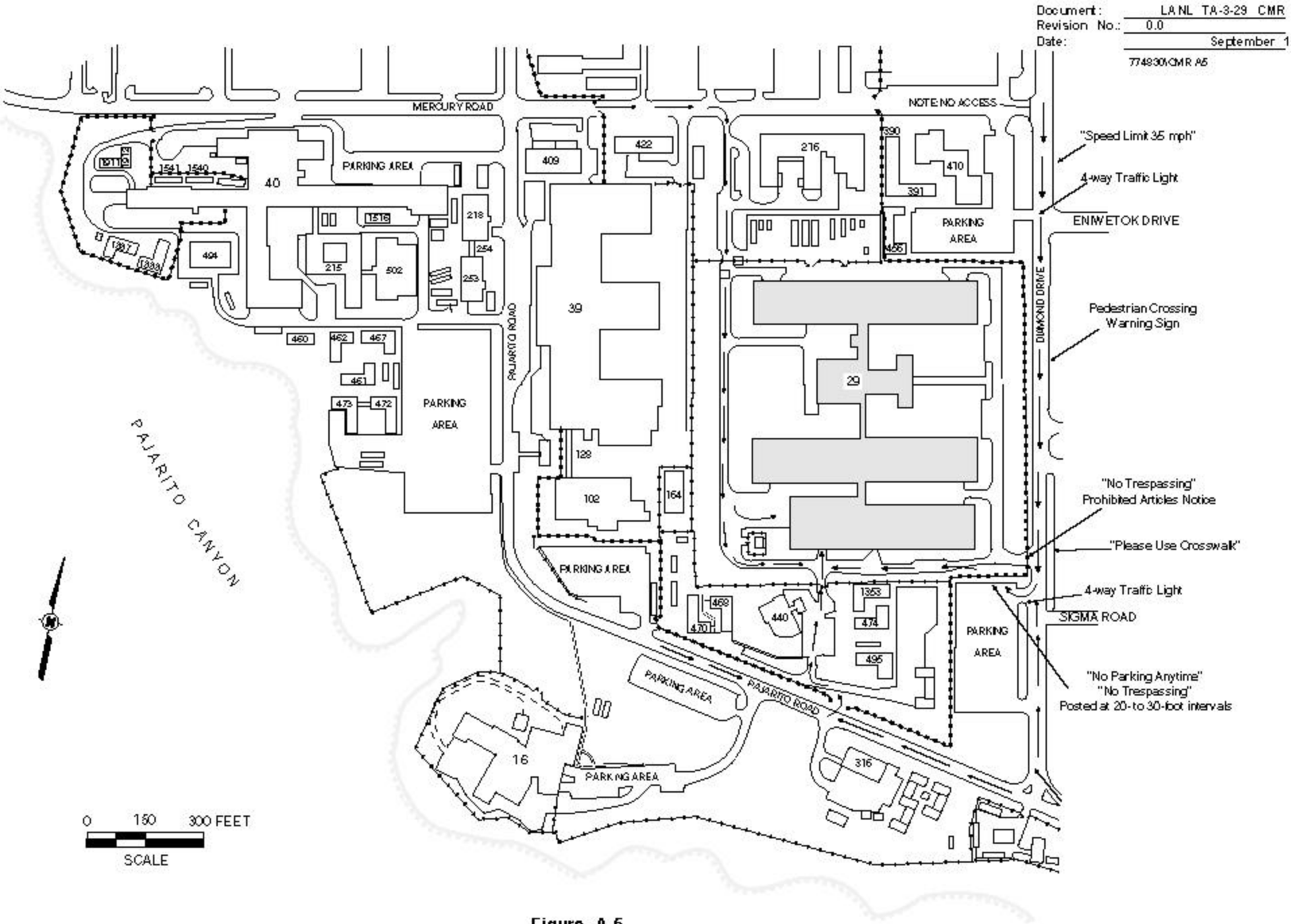
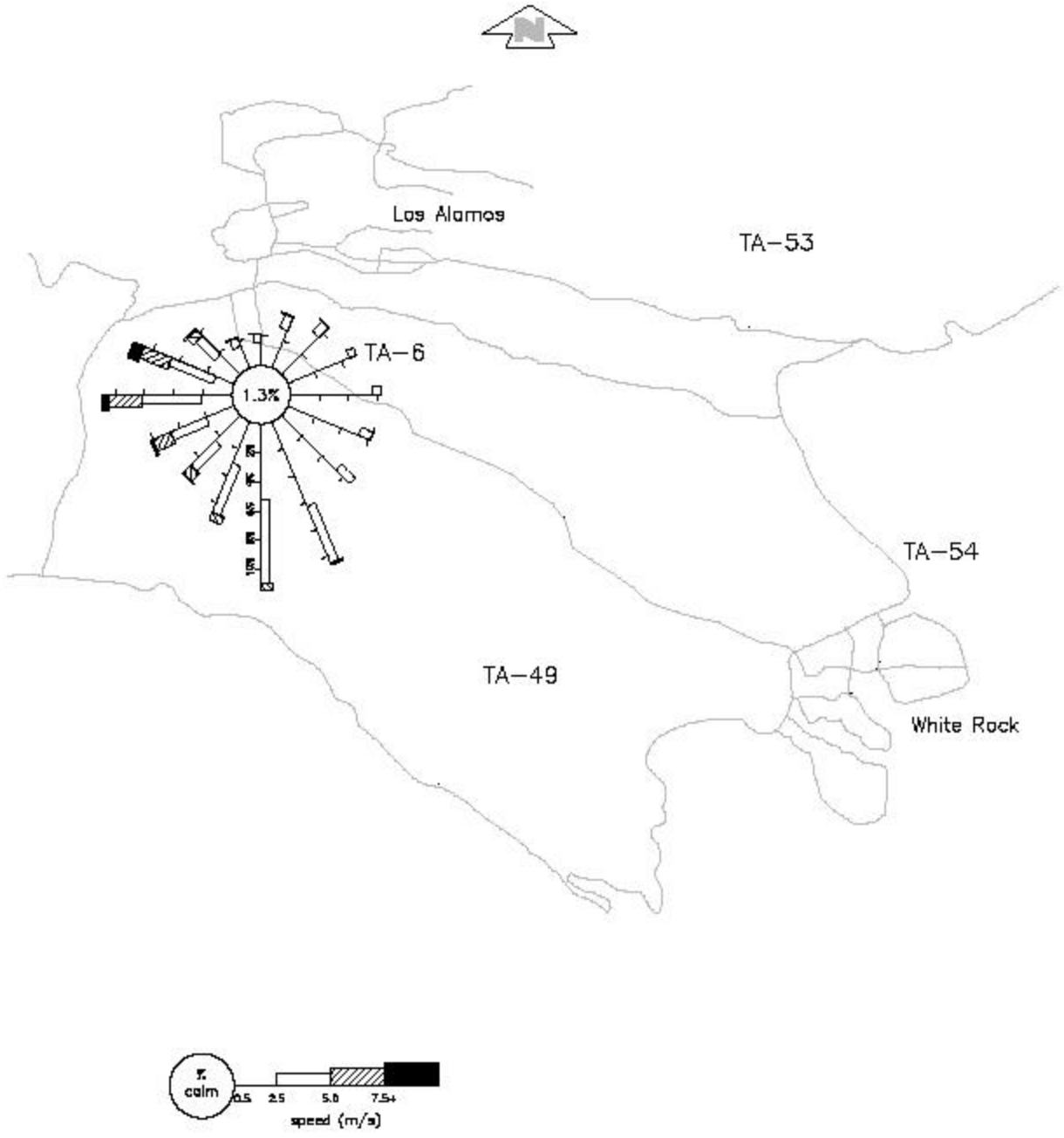
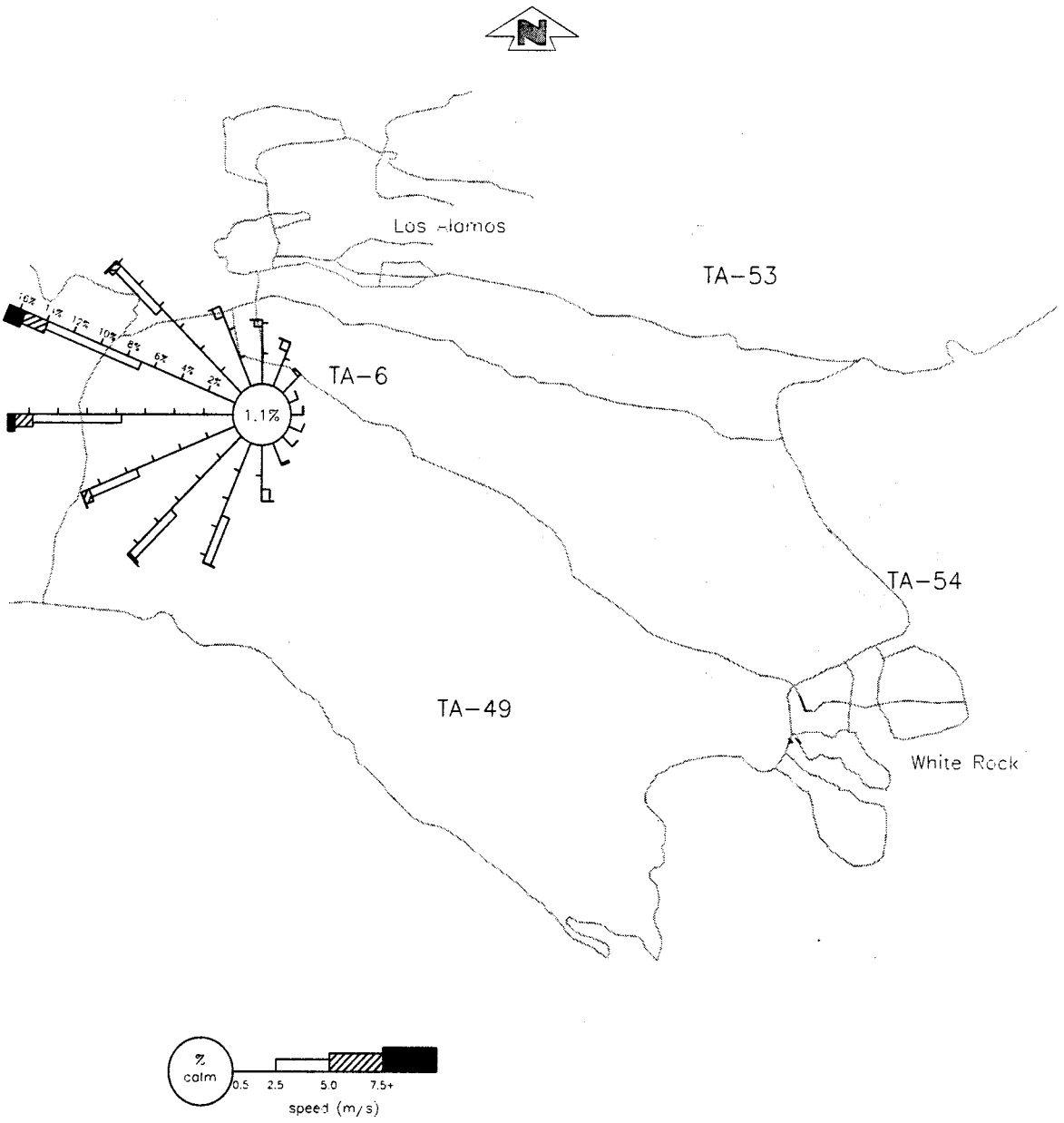


Figure A-5
Location Map of Access Roads and Traffic Control Signs in the Vicinity of Technical Area 3, Building 29



Modified from: "Environmental Surveillance and Compliance at Los Alamos During 1996," 1997, LA-13343-ENV, Los Alamos National Laboratory, Los Alamos, New Mexico.

Figure A-7
Annual Wind Roses for Los Alamos National Laboratory – Day



Modified from: "Environmental Surveillance and Compliance at Los Alamos During 1996," 1997, LA-13343-ENV, Los Alamos National Laboratory, Los Alamos, New Mexico.

Figure A-8
Annual Wind Roses for Los Alamos National Laboratory -- Night

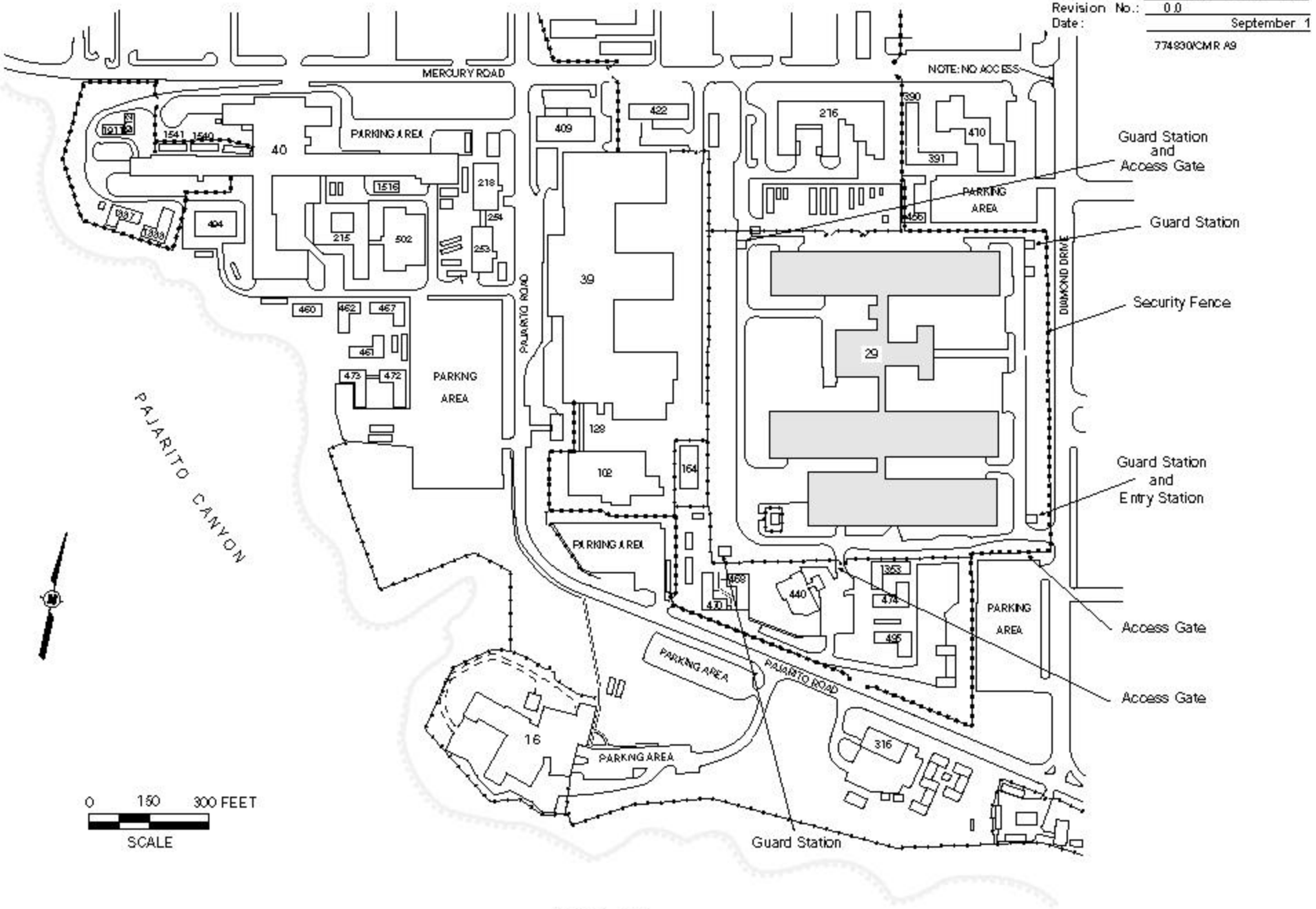


Figure A-9
Location Map Showing Security Fences, Access Gates, and Guard and Entry Stations in the Vicinity of Technical Area 3, Building 29

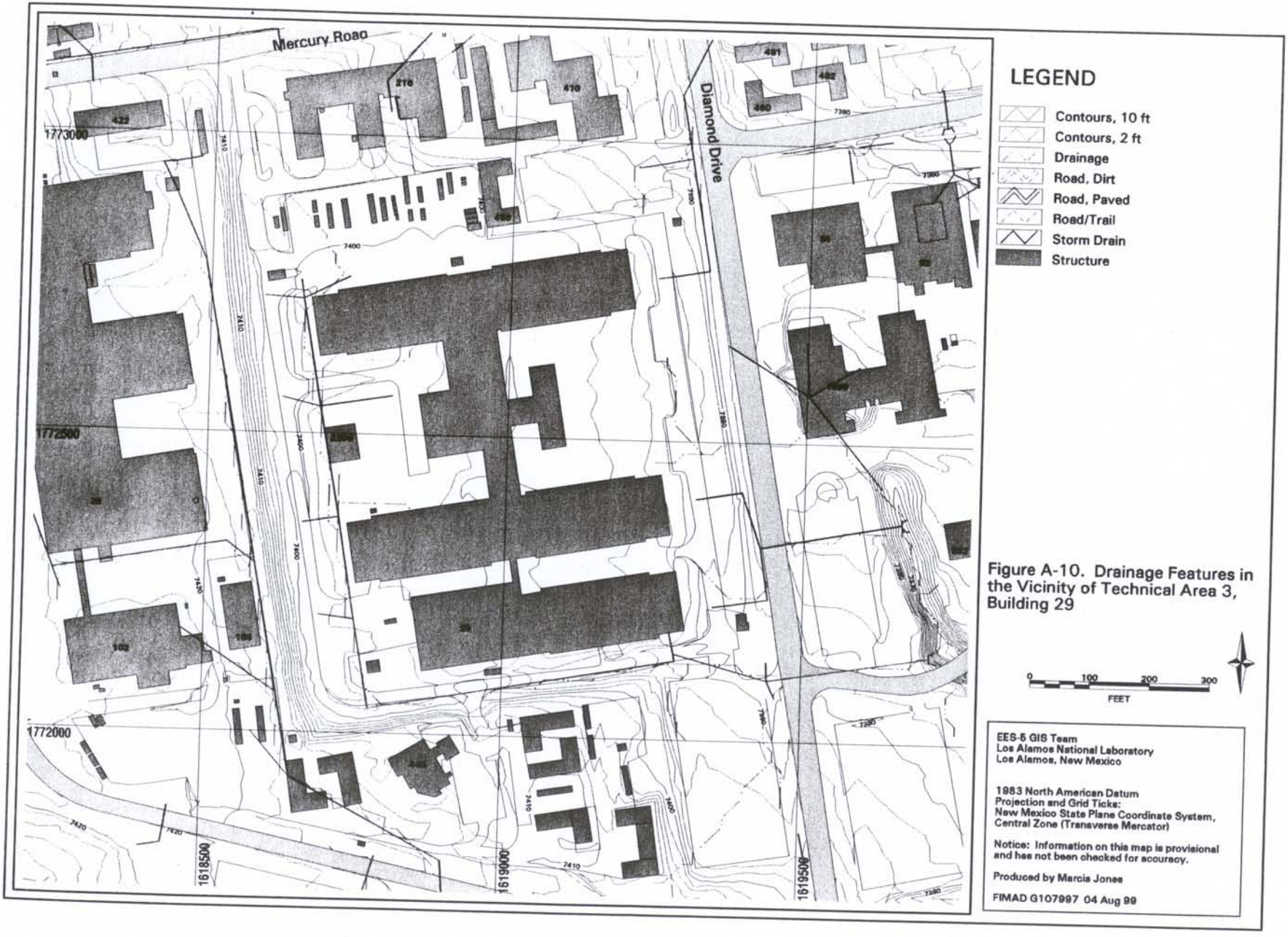


Figure A-10. Drainage Features in the Vicinity of Technical Area 3, Building 29

ATTACHMENT B

WASTE ANALYSIS PLAN

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LIST OF ABBREVIATIONS/ACRONYMS

CSU	container storage unit
LANL	Los Alamos National Laboratory
20 NMAC 4.1	New Mexico Administrative Code, Title 20, Chapter 4, Part 1
TA	technical area
TRU	transuranic
WIPP QAPP	Waste Isolation Pilot Plant TRU Waste Characterization Quality Assurance Program Plan

ATTACHMENT B
WASTE ANALYSIS PLAN

In accordance with the New Mexico Administrative Code, Title 20, Chapter 4, Part 1 (20 NMAC 4.1), Subpart IX, 270.14(b)(2); 20 NMAC 4.1, Subpart V, 264.13, "General Waste Analysis;" and 20 NMAC 4.1, Subpart VIII, 268.7, "Waste Analysis and Record-Keeping," revised January 1, 1997 [1-1-97], general waste analysis requirements for hazardous and mixed wastes managed at the Technical Area (TA) 3, Building 29 (TA-3-29), container storage unit (CSU) are addressed in Appendix B 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.

B.1 FACILITY DESCRIPTION

Section B.1 of Appendix B in the LANL General Part B provides a facility description and information on facility waste-generating processes and activities. The following applies specifically to mixed transuranic (TRU) waste characterization for storage at the TA-3-29 CSU.

Characterization of mixed TRU wastes generated at TA-3-29 is primarily based on knowledge of raw materials and the physical/chemical processes of waste-generating activities. This process knowledge may be supported by process-oriented supplemental analytical results.

As described in Appendix B of the LANL General Part B, mixed TRU waste characterization incorporates characterization procedures from the Waste Isolation Pilot Plant "TRU Waste Characterization Quality Assurance Program Plan (WIPP-QAPP) (DOE, 1994) requirements as a result of the WIPP waste acceptance criteria for final disposal. These procedures utilize process knowledge-based initial waste characterization supplemented by additional characterization procedures described in Section B.3.2 of Appendix B in the LANL General Part B. Depending upon the waste media type, these additional characterization procedures may include real-time radiography, visual examination, headspace gas sampling, and solid waste sampling and analysis.

As also described in Section B.3.2 of Appendix B in the LANL General Part B, initial process knowledge-based waste characterization procedures are sufficient for safe storage of these waste streams. This process knowledge is used to determine safe storage practices consistent with the requirements of 20 NMAC 4.1, Subpart V, 264.172, 264.176, and 264.177 [1-1-97]. The additional mixed TRU waste characterization procedures that will be performed to meet WIPP-QAPP certification procedures will be performed at applicable LANL waste management locations. The TA-3-29 CSU does not include this capability. Therefore, TRU and mixed TRU waste stored at TA-3-29 will be characterized by initial process knowledge-based procedures alone pending subsequent confirmation,

re-characterization, and relabeling at other appropriate LANL waste management locations. This waste characterization at TA-3-29 will also be subject to the requirements of the acceptable knowledge certification program described in Section B.3.2.2 of Appendix B in the LANL General Part B as additional information is obtained from subsequent mixed TRU waste characterization procedures.

B.2 REFERENCES

DOE, 1994 and all approved updates, "TRU Waste Characterization Quality Assurance Program Plan," *CAO-94-1010*, U.S. Department of Energy, Carlsbad Area Office, Carlsbad, New Mexico.

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

ATTACHMENT C

INSPECTION PLAN

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LIST OF ABBREVIATIONS/ACRONYMS ii

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C.1 INSPECTION AND MONITORING FOR UNITS SUBJECT TO SUBPART CC REQUIREMENTS [20 NMAC 4.1, Subpart V, Part 264, Subpart CC] C-1

C.2 REFERENCES C-2

LIST OF ABBREVIATIONS/ACRONYMS

CFR	Code of Federal Regulations
CSU	container storage unit
DOT	U.S. Department of Transportation
LANL	Los Alamos National Laboratory
m^3	cubic meters
20 NMAC 4.1	New Mexico Administrative Code, Title 20, Chapter 4
ppmw	parts per million by weight
TA	technical area

ATTACHMENT C
INSPECTION PLAN

In accordance with the New Mexico Administrative Code, Title 20, Chapter 4, Part 1 (20 NMAC 4.1), Subpart IX, 270.14(b)(5), and 20 NMAC 4.1, Subpart V, 264.15, "General Inspection Requirements," revised January 1, 1997 [1-1-97], 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 specific to the container storage unit (CSU) at Technical Area (TA) 3, Building 29 (TA-3-29). 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 NMAC 4.1, Subpart V, Part 264, Subpart CC]

The hazardous wastes stored in containers at the TA-3-29 CSU may be subject to the Code of Federal Regulations (CFR), Title 40, Part 264, Subpart CC, "Air Emission Standards for Tanks, Surface Impoundments, and Containers," based on applicability criteria specified in 40 CFR 264.1080. Subpart CC standards for containers, as currently set forth by the U.S. Environmental Protection Agency (59 *Federal Register* 62896), require that containers be covered so that there are no detectable emissions. These standards are not applicable to mixed waste management units, and are not applicable to containers of hazardous waste with less than 500 parts per million by weight (ppmw) volatile organics, containers of less than 0.1 cubic meters (m^3) (approximately 26 gallons) capacity, or that have received waste prior to December 6, 1996. LANL requires that Subpart CC requirements be met by the generator as part of the waste characterization process. The generator determines whether the concentration of volatile organics in a waste stream at the point of generation is less than 500 ppmw, or is equal to or greater than 500 ppmw. The generator documents this determination for that waste stream, as described in Appendix B of the LANL General Part B (LANL, 1998).

Containers of less than 0.46 m^3 (approximately 119 gallons) capacity and that meet U.S. Department of Transportation (DOT) specifications under 49 CFR, Part 178, will be kept closed during storage pursuant to 40 CFR 264.1086(b)(1)(ii). Containers undergoing the waste characterization activities described in this permit application may be opened for access for the purposes described in 40 CFR 264.1086(c). 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 DOT specifications, and contain wastes of greater than 500 ppmw volatile organics will be subject to a visual inspection and

monitoring program as required by 40 CFR 264.1088(b).

C.2 REFERENCES

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

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 NMAC 4.1), Subpart IX, 270.14(b)(12), and 20 NMAC 4.1, Subpart V, 264.16, "Personnel Training," revised January 1, 1997, training requirements for treatment, storage, and disposal facility workers who work at Technical Area 3, Building 29, are addressed in Appendix D of the "Los Alamos National Laboratory General Part B Permit Application," Revision 1.0.

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LIST OF ABBREVIATIONS/ACRONYMS

CMR	Chemistry and Metallurgy Research Building
EMP	Emergency Management Plan
ERT	Emergency Response Team
FIC	Facility Incident Command
LACFD	Los Alamos County Fire Department
LANL	Los Alamos National Laboratory
MSDS	Material Safety Data Sheets
20 NMAC 4.1	New Mexico Administrative Code, Title 20, Chapter 4
PPE	personal protective equipment
PTLA	Protection Technology Los Alamos
TA	technical area

ATTACHMENT E
CONTINGENCY PLAN

In accordance with the New Mexico Administrative Code, Title 20, Chapter 4, Part 1 (20 NMAC 4.1), Subpart V, Part 264, Subpart D, "Contingency Plan and Emergency Procedures," and 20 NMAC 4.1, Subpart IX, 270.14(b)(7), revised January 1, 1997, contingency measures applicable to the hazardous and mixed waste container storage unit at Technical Area (TA) 3, Building 29 (TA-3-29), Chemistry and Metallurgy Research (CMR) Building are provided in this attachment and Appendix E of the "Los Alamos National Laboratory General Part B Permit Application," Revision 1.0 (LANL, 1998).

The CMR Building at Los Alamos National Laboratory (LANL) has a facility-specific Emergency Management Plan (EMP) to ensure that emergency planning and preparedness for the CMR Building are commensurate with the facility and the nature of work performed there and to provide sufficient subject matter experts at the facility, should an emergency occur.

The plan establishes the CMR Facility Emergency Response Organization, which is comprised of a facility Emergency Response Team (ERT), Facility Incident Command (FIC), and the CMR Operations Center. The CMR ERT is a 15 - 20 member group of volunteer facility personnel trained to provide initial response to emergencies. The FIC is comprised of division and line managers and key personnel who respond to pre-designated locations for the purpose of initial command and control of events that occur at CMR Building emergencies. The CMR Operations Center is the emergency communications focal point and has the responsibility of development and maintenance of alarm response instructions, notification lists, and call-out lists.

"The CMR Facility Emergency Management Plan Training for CMR Workers" (LANL, 1999), includes information on emergency equipment (see Table E-1 for emergency equipment available for the TA-3-29 container storage unit); evacuation routes (Figure E-1) and primary and secondary evacuation assembly areas (Figure E-2); and evacuation procedures for the FIC, persons wearing anti-C clothing, and persons in non-anti-C clothing. The CMR EMP also includes emergency categorization, lists of potential facility emergencies, their associated alarms, and the appropriate response to the emergency and/or the alarms. Figure E-3 shows the locations of fire hydrants in the vicinity of TA-3-29. Evacuation routes, evacuation area locations, and emergency equipment are subject to change.

E.1 REFERENCES

LANL, 1999, "The CMR Facility Emergency Management Plan Training for CMR Workers," Los Alamos National Laboratory, Los Alamos, New Mexico.

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

Table E-1[a]

Emergency Equipment

FIRE CONTROL EQUIPMENT

Dry chemical fire extinguishers are available in Rooms 9010, 9020, and 9030.

Description of General Capabilities:
Each fire extinguisher has a 10-pound minimum capacity and may be used by any qualified employee in the event of a small fire.

Nine fire hydrants are located around the outside perimeter of Technical Area (TA) 3, Building 29 (TA-3-29). The nearest fire hydrants to Rooms 9010, 9020, and 9030 are located on the south side of Wing 9 and west of Wing 5.

Description of General Capabilities:
The fire hydrants supply water at an adequate volume and pressure to satisfy the requirements of the New Mexico Administrative Code, Title 20, Chapter 4, Part 1, Subpart V, 264.32, revised January 1, 1997.

Fire alarm pull boxes are located in Rooms 9010 and 9020.

Description of General Capabilities:
Manually-operated fire alarms may be activated by any employee in the event of fire to notify the Los Alamos County Fire Department (LACFD) and Protection Technology Los Alamos (PTLA).

Sprinkler systems are located in Rooms 9010, 9020, and 9030.
Automatic thermal alarm systems are located in Rooms 9010, 9020, and 9030.

Description of General Capabilities:
The sprinkler systems and thermal alarm systems are heat activated. PTLA and the LACFD are alerted when a system has been activated.

SPILL CONTROL EQUIPMENT:

Spill control kits are located in Rooms 9010, 9020, and 9030. Spill kits include (but are not limited to) sorbent pillows, safety glasses, and gloves.

Description of General Capabilities:
Sorbent is used in the event of a small spill.

COMMUNICATION EQUIPMENT:

Telephones are located in the north enclosure of Room 9010, in Room 9020, and in Room 9030.

Paging phones and evacuation alarms are located in Rooms 9010, 9020, and 9030.

Table E-1[a] (continued)

Emergency Equipment

Description of General Capabilities:
Telephones are used for internal and external communication and have paging capabilities. The evacuation alarm is a pulsating sound that can be heard over the public address system. The fire alarm is a double slow-whoop sound.

DECONTAMINATION EQUIPMENT:

Emergency shower and eyewash stations are located in the two enclosures in Room 9010, and in Room 9030.

Material safety data sheets (MSDS) are available in Room 9030.

Description of General Capabilities:
Emergency shower and eyewash stations are used by personnel who receive a chemical splash to the skin or eyes. Specific MSDSs for the chemicals should be obtained prior to working with hazardous or mixed waste to determine if the application of water is indicated for decontamination.

PERSONAL PROTECTIVE EQUIPMENT:

Personnel at TA-3-29 are required to use appropriate personal protective equipment (PPE) to protect themselves from hazards found in the workplace under normal conditions. This PPE may include gloves, steel-toed shoes, and safety glasses. Additional PPE may be required during an unusual hazardous situation or during sampling activities.

Self-contained breathing apparatus are available in Room A130 (Administrative Wing).

Room 9102 is a change room with protective clothing available.

Full-mask negative pressure respirators are located in the hallway outside of Room 9104; radioactive particulate filters are available.

OTHER:

See Table E-2 in Appendix E of the "Los Alamos National Laboratory General Part B Permit Application," Revision 1.0 (LANL, 1998) for equipment available in the Hazardous Materials Response Group vehicles and trailers.

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[a] Equipment types and locations are subject to change.

Figure E-1
Evacuation Routes at Technical Area 3, Building 29, Container Storage Unit

[This figure has been provided to the New Mexico Environment Department under separate cover as Unclassified Controlled Nuclear Information (UCNI) defined by Section 148 of the Atomic Energy Act.]

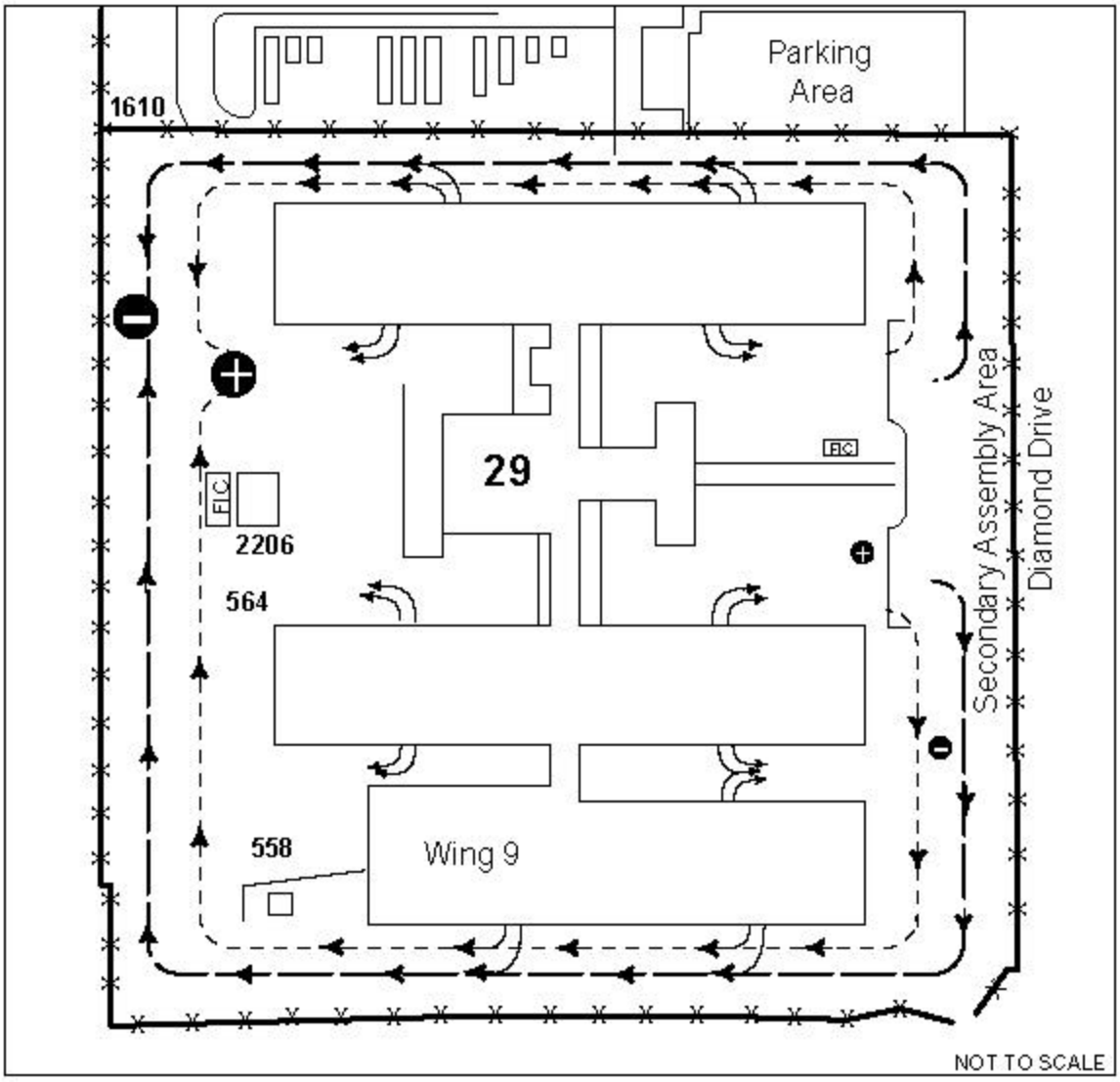

Figure E-2
Primary and Secondary Evacuation Assembly Areas, Evacuation Routes, and Facility Incident Command Locations for Technical Area 3, Building 29

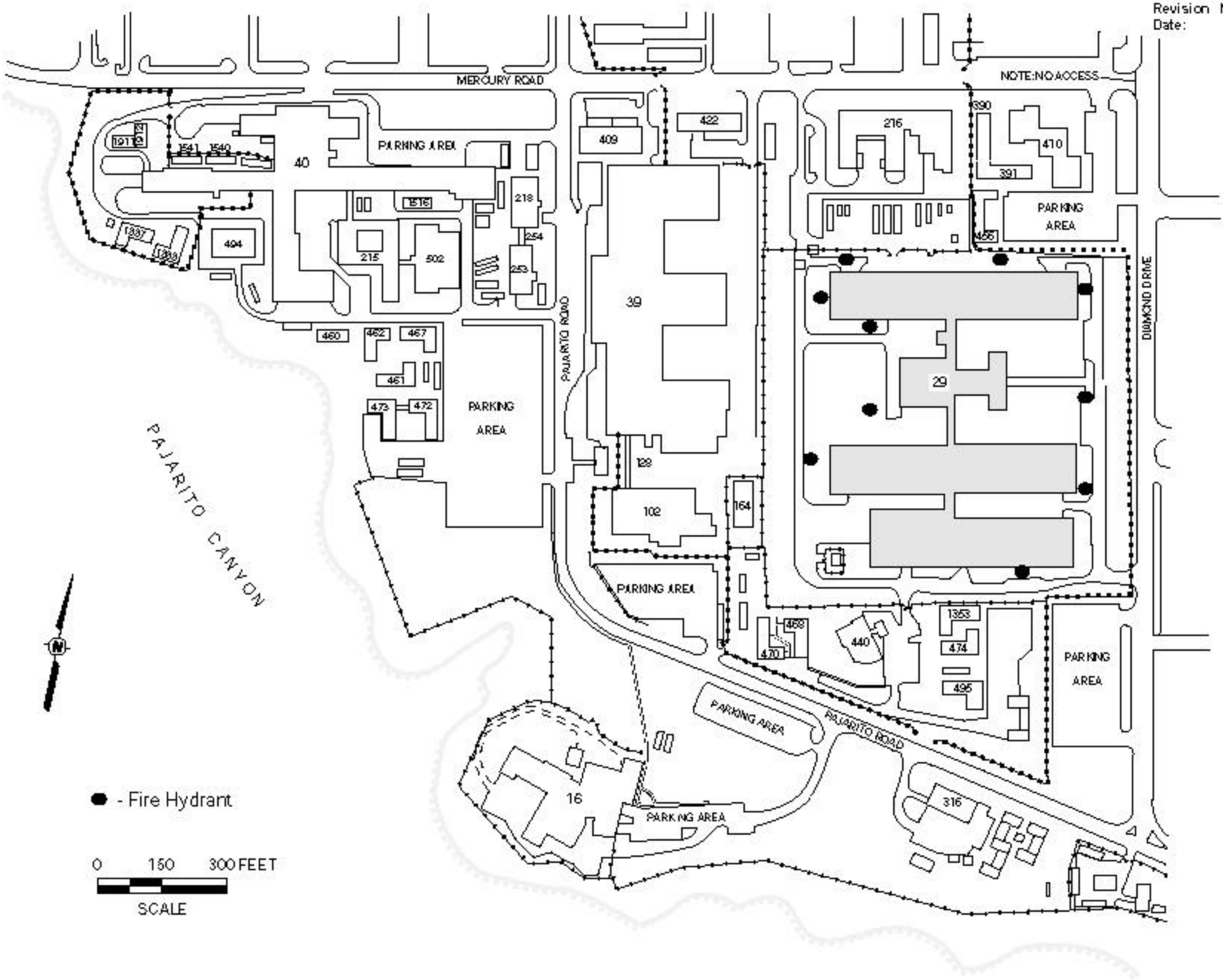

Figure E-3
Fire Hydrant Locations in the Vicinity of Technical Area 3, Building 29

ATTACHMENT F

CLOSURE PLAN FOR TECHNICAL AREA 3, BUILDING 29 CHEMISTRY AND METALLURGY RESEARCH BUILDING CONTAINER STORAGE UNIT

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F-1	Technical Area 3, Building 29, Container Storage Locations

LIST OF ABBREVIATIONS/ACRONYMS

CMR	Chemistry and Metallurgy Research
CSU	container storage unit
EPA	U.S. Environmental Protection Agency
ESH-1	Health Physics Operations Group
ESH-5	Industrial Hygiene and Safety Group
LANL	Los Alamos National Laboratory
20 NMAC 4.1	New Mexico Administrative Code, Title 20, Chapter 4, Part 1
NMED	New Mexico Environment Department
PPE	personal protective equipment
QA	quality assurance
QC	quality control
RCRA	Resource Conservation and Recovery Act
STTP	Actinide Source-Term Waste Test Program
SW-846	EPA's "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods"
TA	technical area

ATTACHMENT F

CLOSURE PLAN FOR TECHNICAL AREA 3, BUILDING 29, CHEMISTRY AND METALLURGY RESEARCH BUILDING CONTAINER STORAGE UNIT

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 NMAC 4.1), Subpart IX, 270.14(b)(13), and 20 NMAC 4.1, Subpart V, Part 264, Subparts G and I, revised January 1, 1997 [1-1-97]. This closure plan describes the activities necessary to close the container storage unit (CSU) at the Los Alamos National Laboratory (LANL) Technical Area (TA) 3, Building 29 (TA-3-29), Chemistry and Metallurgy Research (CMR) Building. General closure information applicable to all hazardous and mixed waste management units at LANL and specific sampling and analytical procedures to be used during closure activities are presented in Appendix F of the "Los Alamos National Laboratory General Part B Permit Application," Revision 1.0 (LANL, 1998a), hereinafter referred to as the LANL General Part B. The general closure information referenced includes closure performance standards; amendment of the closure plan; closure cost estimate, financial assurance, and liability requirements; closure certification and report; and survey plat and post-closure requirements.

F.1 GENERAL DESCRIPTION

The CSU is located at TA-3-29, the CMR Building, in the basement of Wing 9. The CSU consists of three storage locations within Rooms 9010, 9020, and 9030 and two enclosures located within Room 9010 that house the Actinide Source-Term Waste Test Program (STTP). These storage structures and locations (Figure F-1) provide storage for hazardous and mixed wastes. Detailed descriptions of Rooms 9010, 9020, 9030, and the STTP structures are provided in Attachment G, Sections G.1.1, G.1.2, and G.1.3 of this permit application.

F.1.1 Estimate of Maximum Waste in Storage

The maximum inventory of waste that may be in storage at any time in the TA-3-29 CSU is 18,500 gallons.

F.1.2 Description of Waste

The hazardous and mixed wastes stored in the TA-3-29 CSU are generated during research activities, processing and recovery operations, and decontamination and decommissioning operations. Some wastes are classified as mixed wastes because Resource Conservation and Recovery Act (RCRA)-

characteristic and/or -listed wastes are or may be present in the waste, along with a radioactive component.

Historically, mixed transuranic wastes were stored in the TA-3-29 CSU. (A detailed definition of mixed TRU waste is located in Appendix B of the LANL General Part B). These wastes were generated primarily from research and development activities and general facility operations. In Rooms 9010 and 9020, these wastes typically carried the U.S. Environmental Protection Agency (EPA) Hazardous Waste Numbers D001 through D009, F001, F002, F003, and F005. In Room 9030, these wastes consisted of 30 drums of lead-brick waste and carried the EPA Hazardous Waste Number D008.

Information on the hazardous component(s) of all wastes potentially stored at the TA-3-29 CSU are provided in the "Los Alamos National Laboratory General Part A Permit Application," Revision 0.0 (LANL, 1998b).

F.1.3 Removal of Waste

Prior to the initiation of closure or partial closure activities, all wastes will be removed from the storage structure and/or location scheduled to be closed within the TA-3-29 CSU. Containers will be removed from each structure and/or location with normal material-handling equipment. Small containers may be handled manually or with dollies. Containers will be placed onto 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 facility or an off-site treatment, storage, or disposal facility.

F.1.4 Partial Closure

Partial closure at the TA-3-29 CSU may consist of closing one or more of the storage structures and/or locations within the CSU, while leaving the other storage structures and/or locations within the CSU in service. For closure or partial closure, the following procedures would apply to the structure(s) and/or location(s) being closed.

F.1.5 Closure Procedures and Decontamination

To the extent possible, all contaminated structures, surfaces, and equipment (if present) at the TA-3-29 CSU will be decontaminated. Structures, surfaces, and equipment that cannot be decontaminated will be containerized and managed in compliance with appropriate regulations. All sampling conducted during closure and decontamination will be done in accordance with quality

assurance (QA)/quality control (QC) procedures. Closure will be conducted in accordance with the schedule presented in Table F-1.

Before proceeding with any closure activities, TA-3-29 will be surveyed for radiological contamination. Personal protective equipment (PPE) and monitoring requirements will be determined by LANL's Health Physics Operations (ESH-1) and Industrial Hygiene and Safety (ESH-5) groups following a field inspection. Radiation and chemical monitoring will occur throughout closure activities, as necessary. If any contamination is found, the contaminated surfaces, structures, and/or equipment (if present) will be decontaminated (if possible), encapsulated, or containerized and taken to an approved storage location at LANL appropriate for the waste type.

Personnel involved in closure activities will wear appropriate PPE, specified by ESH-1 and ESH-5, and will follow good hygiene practices to protect 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 ESH-1 and ESH-5 surveys do not indicate detectable contamination levels, minimum PPE requirements will consist of coveralls, steel-toed footwear, and safety glasses or face shields. If an overhead danger is present, hard hats will be worn. All workers involved in closure activities will be required to have appropriate training and medical monitoring. Contaminated PPE will either be decontaminated or managed in compliance with appropriate regulations.

Before any decontamination activity begins, two samples of clean water and detergent (washwater) solution (squeezed from mops and/or sponges prior to use) will be collected. To determine background concentrations of volatile organics and semivolatile organics that may be present in the TA-3-29, Wing 9, basement, a washwater sample from a typical floor area not located within the CSU boundary will also be collected. The samples will be analyzed for the appropriate parameters listed in Table E-3 of Appendix E in the LANL General Part B (LANL, 1998a). The analytical results from these samples will be used to provide a baseline for decontamination verification.

Each storage structure and/or location will be inspected for any cracks or conditions that would potentially lead to the loss of decontamination-liquid containment. If any defects, deterioration, damage, or hazards affecting containment are discovered during inspection, appropriate remedial actions (including repairs, maintenance, or replacement) will be completed before decontamination activities begin. After any decontamination washdown process, the used washwater will be collected, transferred to containers, sampled, and analyzed for the hazardous constituents to be expected

according to the operating record. Potential parameters for these hazardous constituents can be found in Table E-3 of Appendix E in the LANL General Part B (LANL, 1998a). Depending upon the results of the analysis, the used washwater will be managed appropriately.

F.1.5.1 Decontamination of Storage Locations

Prior to decontamination of the main surfaces at the Rooms 9010, 9020, and 9030 storage locations, any portable equipment, if present, to be removed from the area will be wiped down with washwater solution. This may include items such as wooden pallets and miscellaneous equipment. The storage location walls and floors will then be wiped down with mops and sponges; this will minimize the amount of liquid waste generated as a result of decontamination activities. A portable berm may be used to collect and provide containment for used washwater, as necessary.

If sampling and analysis indicate that hazardous constituents are present, the wash cycles and analyses will continue until the surface or equipment has been decontaminated or the decision is made to manage it appropriately as contaminated waste. Upon determination that it is contaminated waste, the surface or equipment may be removed, transported to, and stored at other waste management facilities to facilitate the closure process.

F.1.5.2 Decontamination of the STTP Storage Structures

Prior to decontamination of the STTP storage structures, any equipment to be removed from the structures will be wiped down with washwater solution. The storage structure walls and floors will then be wiped down with mops and sponges; this will minimize the amount of liquid waste generated as a result of decontamination activities. A portable berm may be used to collect and provide containment for used washwater, as necessary.

If sampling and analysis indicate that hazardous constituents are present, the wash cycles and analyses will continue until the structure or equipment has been decontaminated or the decision is made to manage the structure or equipment appropriately as contaminated waste. Upon determination that it is contaminated waste, the structure or equipment may be removed, transported to, and stored at other waste management facilities to facilitate the closure process.

F.1.5.3 Decontamination Equipment

Prior to use, all reusable decontamination equipment will be rinsed with distilled water. Decontamination equipment rinsate blanks will be collected and analyzed in accordance with QA/QC procedures. Reusable protective clothing, tools, and equipment used during closure activities will be cleaned with a washwater solution and scraped as necessary to remove any residue. Residue, disposable equipment, and reusable equipment that cannot be decontaminated will be containerized and managed appropriately at an approved on-site facility, depending on the regulated constituents present.

F.1.5.4 Decontamination Verification

Sufficient sampling and analysis will be required to demonstrate that hazardous and/or mixed waste residue is not present at the storage structure or location after closure. Two samples of clean washwater solution (squeezed from mops and/or sponges prior to use) will be collected before initial washdown of any storage structure or location within the TA-3-29 CSU. The samples will be analyzed for the appropriate parameters, as discussed in Section F.1.5. Analytical procedures will conform to methods found in the most current version of "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" (*SW-846*) (EPA, 1986). Used washdown solutions will be analyzed for the same parameters. Washdown solutions will be considered contaminated if the used washwater solution shows a significant increase (i.e., determined using statistical methods defined in *SW-846*) in the analytical parameters over the clean washwater solution. If subsequent washdowns are deemed necessary, an additional sample of clean washwater solution (squeezed from mops and/or sponges prior to use) will be collected for each additional washdown event.

Successful decontamination meets one of the following criteria:

- X No detectable RCRA-regulated constituent residues from the management of authorized RCRA-regulated wastes are identified in samples collected during closure activities.
- X Analytical results of samples collected during closure activities identify no statistically significant concentrations of RCRA-regulated constituents above baseline data or above established background concentrations.
- X Detectable concentrations of RCRA-regulated constituents in samples collected during closure activities are at or below levels agreed upon with NMED to be protective of human health and the environment based on the results of risk assessment methods.
- X Detectable concentrations of RCRA-regulated constituents that cannot be removed or decontaminated to acceptable levels as described above will be allowed to remain provided that these RCRA-regulated constituents do not pose an unacceptable risk when combined with technical or administrative control measures agreed upon with NMED.

An alternative demonstration of decontamination may be proposed and justified at the time of unit closure as circumstances indicate. 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.2 REFERENCES

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

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

EPA, 1986, "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" (SW-846), U.S. Environmental Protection Agency, Washington, D.C.

Table F-1

Schedule for Closure Activities at Technical Area 3, Building 29 Container Storage Unit

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

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

Figure F-1
Technical Area 3, Building 29, Container Storage Locations

[This figure has been provided to the New Mexico Environment Department under separate cover as Unclassified Controlled Nuclear Information (UCNI) defined by Section 148 of the Atomic Energy Act.]

ATTACHMENT G

CONTAINER MANAGEMENT

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LIST OF ABBREVIATIONS/ACRONYMS

CFR	Code of Federal Regulations
CMR	Chemistry and Metallurgy Research Building
CSU	container storage unit
DOT	U.S. Department of Transportation
ft	feet/foot
in	inch/inches
LANL	Los Alamos National Laboratory
m^3	cubic meters
20 NMAC 4.1	New Mexico Administrative Code, Title 20, Chapter 4, Part 1
PPE	personal protective equipment
ppmw	parts per million by weight
PTLA	Protection Technology Los Alamos
STTP	Actinide Source-Term Waste Test Program
SWB	standard waste box
TA	technical area
TRU	transuranic
WIPP	Waste Isolation Pilot Plant

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 NMAC 4.1), Subpart IX, 270.15, and 20 NMAC 4.1, Subpart V, Part 264, Subpart I, revised January 1, 1997 [1-1-97]. This attachment provides an overview of current facility operations and waste management practices for the Technical Area (TA) 3, Building 29 (TA-3-29), Chemistry and Metallurgy Research (CMR) Building container storage unit (CSU) at Los Alamos National Laboratory (LANL) and complements the information provided in Section 2.0 of this permit application. It includes detailed descriptions of the storage structures and locations within the TA-3-29 CSU and the current waste management practices associated with them. Table G-1 summarizes applicable regulatory references for container storage and the corresponding location where the requirement is addressed in this permit application.

Table G-1

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

Regulatory Citation(s)	Description of Requirement	Location in this Document
§270.15	Specific requirements for containers:	2.0, Attachment G
§270.15(a)	A description of the containment system to demonstrate compliance with §264.175 including at a minimum:	2.6
§270.15(a)(1)	Basic design parameters, dimensions, and materials of construction	2.3, 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	2.6
§270.15(a)(3)	Capacity of the containment system relative to the number and volume of containers to be stored	2.6
§270.15(a)(4)	Provisions for managing run-on	2.10, G.2.4
§270.15(a)(5)	How accumulated liquids can be analyzed and removed to prevent overflow	2.6
§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) includes:	2.6
§270.15(b)(1)	Test procedures and results or other documentation or information to show that the wastes do not contain free liquids	2.6

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 Document
§270.15(b)(2)	A description of how the storage area is designed or operated to drain or remove liquids or how containers are kept from contact with standing liquids	2.6
§270.15(c)	Provide 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	Attachment A
§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)	2.8, G.2.5
§270.15(e)	Information regarding air emission control equipment as required in §270.27	G.2.6
§270.27(a)	If applicable, specific information requirements for air emissions for containers:	G.2.6
§270.27(a)(2)	Identification of each container area subject to the requirements of Code of Federal Regulations, Title 40, Part 264, Subpart CC and certification by the owner or operator that the requirements are met	G.2.6
§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 the following information: monitoring point(s), monitoring methods for control devices, monitoring frequency, procedures for documenting exceedances, and procedures for mitigating noncompliances	NA

[a] Not applicable

G.1 CONTAINER STORAGE WITHIN TA-3-29

TA-3 is located in the northern portion of LANL on South Mesa between Los Alamos Canyon on the north and Two Mile Canyon on the south. Sandia and Mortandad Canyons head on the east margin of TA-3, forming steep cliffs at the top of canyon walls. TA-3-29, the CMR Building, was established in 1952 as a research facility. It is a three-story structure containing offices, laboratories, and one CSU located on the basement floor of Wing 9. The TA-3-29 CSU consists of three storage locations within Rooms 9010, 9020, and 9030 for storage of hazardous and mixed wastes. The following provides descriptions of the storage structures and locations for the TA-3-29 CSU.

G.1.1 TA-3-29 Room 9010

Room 9010 is located in the basement of Wing 9 of the CMR Building. It measures 21 feet (ft), 8 inches wide by 106 ft, 9 inches (in.) long (Figure G-1). The floor is concrete and is painted with an epoxy sealant. Waste storage generally takes place in the lower level portion of Room 9010 but may also take place in or near two room enclosures, located within Room 9010, that currently contain the Actinide Source Term Waste Test Program (STTP) research experiments. These enclosures are described below.

The STTP is currently located within Room 9010 in two stand-alone enclosures (Figure G-2). The northern enclosure is approximately 10 ft wide by 24 ft long; the southern enclosure measures approximately 17 ft wide by 54 ft long. The enclosures have ceilings, walls with windows, and doors for entry through airlocks; the enclosures are anchored to the floor. The wall to floor joints are sealed with grout. Floors and the lower six inches of the interior enclosure walls are coated with an epoxy sealant. Each enclosure includes emergency and communication equipment as well as ventilation, fire sprinkler, water, and electrical support functions connected to the main building systems. The enclosures are kept at negative pressure by exhaust fans ducted to the building's high-efficiency particulate air filters to provide radioactive material air-release protection.

The STTP is designed to measure time-dependent concentrations of actinide elements from transuranic (TRU) waste immersed in brines that are chemically similar to brines typically found in the underground formations of the Waste Isolation Pilot Plant (WIPP). The STTP will determine the effect of TRU waste matrices and brine chemistry on the concentrations of actinides under WIPP bounding conditions and variables. It will also test the predictive capability of the Actinide Source-Term Program Model for mobilization of actinides. TRU waste types typical of U.S. Department of Energy waste inventories will be characterized and loaded into specially designed test containers filled with brine containing additives to enhance the action of each influencing variable. The experiments are currently located within the CSU for safe and efficient processing of the experimental containers and to assure

that during and after the research experiments, the containers will be stored and managed in a manner that is protective of human health and the environment. The experiments housed within the STTP enclosures are in a phased-down mode and the enclosures may be relocated to a different building at LANL. The experiments in the STTP do not constitute a Resource Conservation and Recovery Act-regulated treatment process for the hazardous component of the mixed waste.

G.1.2 TA-3-29 Room 9020

Room 9020 is located in the basement of Wing 9 of the CMR Building and is approximately 27 ft wide by 141 ft long. The container storage location within Room 9020 measures 19 ft wide by 25 ft long (Figure G-1) and is located in the northeast end of the room. The floor is concrete and painted with an epoxy sealant. Waste storage takes place in a cleared area on the northeast side of Room 9020. Security posts and chains are used to alert workers to the presence of waste containers.

G.1.3 TA-3-29 Room 9030

Room 9030 is located in the basement of Wing 9 in the CMR Building and is approximately 62 ft wide by 141 ft long. The container storage location within Room 9030 measures approximately 30 feet long by 8 feet wide (Figure G-1) and is located in the southwest corner of Room 9030. The floor is concrete and has been painted with an epoxy sealant. Security posts and chains, used to alert workers to the presence of waste containers, are planned to be installed.

G.2 GENERAL FACILITY OPERATIONS AND WASTE MANAGEMENT PRACTICES [20 NMAC 4.1, Subpart V, Part 264, Subpart I]

The following provides an overview of current facility operations and waste management practices that are applicable to the TA-3-29 CSU. 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 NMAC 4.1, Subpart V, Part 264, Subpart I [1-1-97]. 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 [20 NMAC 4.1, Subpart V, 264.171, 264.173, and 264.174]

Handling and inspection requirements for containers stored within the TA-3-29 CSU are presented in Sections 2.5 and 2.7, respectively, of this permit application. This information is provided to meet the requirements of 20 NMAC 4.1, Subpart V, 264.171, 264.173, and 264.174 [1-1-97].

G.2.2 Security and Access [20 NMAC 4.1, Subpart IX, 270.14 (b)(4) and 270.14(b)(19)(viii);

20 NMAC 4.1, Subpart V, 264.14]

Security at TA-3-29, the CMR Building, is maintained with physical and administratively-controlled barriers. These barriers prevent the unknowing entry and minimize the possibility for unauthorized entry of persons or livestock into the areas and thus satisfy the requirements of 20 NMAC 4.1, Subpart V, 264.14(a) and 264.14(b)(2) [1-1-97].

Eight-foot-high chain-link security fences with barbed wire at the top surround the entire perimeter of TA-3-29. Pursuant to the requirements of 20 NMAC 4.1, Subpart V, 264.14(c) [1-1-97], bilingual (i.e., English and Spanish) warning signs are also posted at the entrances to each storage location within the TA-3-29 CSU and can be seen from any approach to these locations. The legends on the signs indicate "Danger: Hazardous Waste Storage Area" and "Unauthorized Persons Keep Out." The signs are legible from a distance of at least 25 ft.

There are four entry gates through the security fence at TA-3-29 (see Figure A-9 in Attachment A). A fire access and shipping gate is located south of TA-3-29 and is routinely closed and locked. When the gate is opened for shipments of material or waste, personnel are present at the gate to limit entry/exit by unauthorized persons. One combined pedestrian and vehicular entry gate manned by security personnel is located at the northwest corner of the TA-3-29 fence line. Another pedestrian gate manned by security personnel is located at the southeast corner of the building fence line. This gate is combined with a double vehicular gate which allows access from the parking area south of the building. Protection Technology Los Alamos (PTLA) provides the security personnel present at each of these gates during operational hours to limit entry/exit by unauthorized persons.

Outside doors to the main wings of TA-3-29 are always locked. Access for visitors to the operational portion of the building is controlled through a manned security station in the east side lobby and another on the west side of the building. Roll-up doors to the building can only be opened from inside the building and are also locked; opening these doors must be coordinated with PTLA security personnel. The building site is patrolled by PTLA security personnel during nonoperational hours to ensure that the gates are locked and that unauthorized entry has not occurred. The security fence is also inspected weekly by on-site personnel and repairs are made, as necessary. In accordance with 20 NMAC 4.1, Subpart IX, 270.14(b)(19)(viii) [1-1-97], the locations of the security fences, access gates, and guard and entry stations at TA-3-29 are shown in Attachment A, Figure A-9.

G.2.3 Preparedness and Prevention [20 NMAC 4.1, Subpart V, Subpart C; and 20 NMAC 4.1, Subpart IX, 270.14(b)(8)]

The following presents how waste management operations at the TA-3-29 CSU comply with the preparedness and prevention requirements of 20 NMAC 4.1, Subpart V, Part 264, Subpart C [1-1-97].

This section includes a discussion of emergency equipment required at the facility, testing and maintenance of this equipment, personnel access to communications or alarm systems, aisle space and storage configuration, and support agreements with outside agencies.

G.2.3.1 Required Equipment [20 NMAC 4.1, Subpart V, 264.32]

TA-3-29 is equipped with an audible alarm system to alert personnel to evacuate the area. The evacuation alarm system may be activated by facility personnel pushing one of the evacuation buttons located throughout TA-3-29. The building also contains a fire alarm system which may be activated by manual pull stations, heat and smoke detectors, and sprinkler system flow valves found throughout TA-3-29. Rooms 9010, 9020, 9030, and the STTP enclosures contain wet-pipe sprinkler systems that are equipped with fusible-link heads that actuate at 212 degrees Fahrenheit. Wing 9 of TA-3-29 contains gamma alarms that monitor for the presence of gamma radioactive contamination. Continuous air monitors are utilized throughout TA-3-29 to detect airborne radioactive contamination and, when detected, sound an alarm. The building also has a public address system for announcing fires or evacuations. Telephones with paging capabilities are located throughout TA-3-29. Paging telephones are used to page on-site personnel and may be used in the event of an emergency to communicate the location and nature of hazardous conditions to personnel in the area. The alarm system is interrupted when the paging telephone system is activated to allow personnel to hear the announcement. Personnel working in Rooms 9010, 9020, and 9030 can also use these phones to summon assistance from local emergency response teams in case of emergency.

The building is also equipped with fire extinguishers in Rooms 9010, 9020, and 9030 and pull stations in Rooms 9010 and 9020. Depending on the size of a fire and the fuel source, fire extinguishers may be used by on-site personnel. However, LANL policy encourages immediate evacuation of the area and notification of appropriate emergency personnel. The fire alarm control panel continuously monitors all fire-suppression and detection systems and transmits signals to the Los Alamos County Fire Department through LANL's central alarm system.

Fire hydrants installed according to National Fire Protection Association standards are located around the outside of TA-3-29 (Figure E-3, Attachment E). Water is supplied to the fire hydrants by a municipal water system through 8-in. 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.

Spill centers are located at the south end of Room 9010 and in the STTP enclosures. They contain sorbent pillows, safety glasses, and gloves. 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. Personnel decontamination equipment available includes safety showers and emergency eyewashes in the enclosures in Room 9010. Personnel working in Room 9020 have access to the eyewashes in the Room 9010 enclosures and a safety shower and emergency eyewash in Room 9030. The buddy system will always be employed when containers are actively managed in Rooms 9010, 9020, and 9030 to assure that safety showers and eyewashes can be reached in an emergency. Material Safety Data Sheets provide useful exposure information and are available in Room 9010, Room 9030, and outside Room 9130.

G.2.3.2 Testing and Maintenance of Equipment [20 NMAC 4.1, Subpart V, 264.33]

The communication, alarm system, fire protection, spill control, and decontamination equipment associated with operations at the TA-3-29 CSU is inspected and/or tested according to the inspection schedule detailed 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. Maintenance, repair, and replacement of emergency equipment are performed, as needed.

G.2.3.3 Access to Communications or Alarm System [20 NMAC 4.1, Subpart V, 264.34]

Whenever waste is being handled at the TA-3-29 CSU, all personnel involved have immediate access to internal alarms or telephones in Rooms 9010, 9020, and 9030 either directly or through visual or voice contact with another individual. In the event of an emergency, communication equipment allows personnel to contact the CMR Operations Center, 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 by on-site and LANL emergency support personnel at all times.

G.2.3.4 Aisle Space and Storage Configuration [20 NMAC 4.1, Subpart V, 264.35]

Information on aisle space and storage configurations for the TA-3-29 CSU is presented in Section 2.1.3 of this permit application. This information is provided to meet the requirements of 20 NMAC 4.1, Subpart V, 264.35 [1-1-97].

G.2.3.5 Support Agreements with Outside Agencies [20 NMAC 4.1, Subpart V, 264.37(a)]

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 NMAC 4.1, Subpart V, Part 264, Subpart C; 20 NMAC 4.1, Subpart IX, 270.14(b)(8)]

The TA-3-29 CSU is designed and operated to minimize the possibility of fire, explosion, or unplanned releases of hazardous constituents to the environment. The following discusses the general procedures, equipment, and structures that are currently used at TA-3-29 to prevent hazards. This includes preventing hazards during unloading of waste containers, preventing run-on and runoff, preventing contamination of the water supply, mitigating the effects of power outages, preventing undue exposure to personnel, and preventing releases to the atmosphere.

G.2.4.1 Preventing Hazards in Unloading

Trucks conforming to LANL specifications for Type B shipments requiring road closures are used to transport hazardous and mixed waste containers to TA-3-29 for storage and processing. The STTP waste drums are moved with individual multi-wheel dollies set into the bottom of the drums. STTP liter-scale test containers are moved with specialized fixtures referred to as "six-packs". The packaged wastes are unloaded by hydraulic lift onto the ground and moved into the south entrance of Wing 9 at TA-3-29. An electric, riding lift truck equipped with a blunt-ended drum grappler may be used to unload drums from the delivery truck one at a time. The drum grapplers will be equipped with blocks to prevent drums from being damaged. Metal standard waste boxes (SWB) and other large containers will be handled with a diesel forklift. Hand trucks or dollies will be used to move waste containers from the loading area to the CSU. Should a spill occur during waste handling activities, management of the spill and/or residual material will be performed in accordance with the contingency plan (see Attachment E of this permit application and Appendix E of the LANL General Part B).

The methods used to move drums at or within the TA-3-29 CSU will be selected based on the type of structure on which the drum is located. Drums on dollies will be moved manually. Drums located on secondary containment pallets will be moved using lift trucks equipped with drum grapplers. Drums containing liquids will only be set on dollies for placement at process equipment stations. The lift trucks will also be used to return drums from dollies to secondary containment pallets. A forklift will be used to move SWBs. The use of proper handling equipment, appropriate to a container's size and weight, helps to prevent hazards while moving containers within the CSU. All damaged containers (e.g., severely corroded drums) are repaired or overpacked or the wastes are repackaged in new containers before being stored at the CSU.

G.2.4.2 Preventing Run-on and Runoff [20 NMAC 4.1, Subpart IX, 270.14(b)(8)(ii)]

Run-on and runoff control methods for the TA-3-29 CSU are presented in Section 2.10 of this permit application. This information is provided to meet the requirements of 20 NMAC 4.1, Subpart IX, 270.14(b)(8)(ii) [1-1-97].

G.2.4.3 Preventing Water Supply Contamination [20 NMAC 4.1, Subpart IX, 270.14(b)(8)(iii)]

It is not anticipated that there will be any impact to groundwater or other water supplies as a result of waste-handling operations at the TA-3-29 CSU. The CSU is located inside the building and any material spilled during waste management activities will be remediated pursuant to the appropriate contingency plan as part of normal operations. In addition, potential liquid-bearing wastes will be stored in secondary containment systems or on self-containment pallets. All water supply lines are under pressure and are equipped with backflow prevention devices to prevent contamination of these lines during emergencies. The depth to groundwater at TA-3-29 is approximately 1,100 ft (Purtymun, 1984). Geologic units underlying similar waste management units at TA-54 include layers of unsaturated volcanic tuff and ash, the moisture content of which ranges from 0.2 to 2.0 percent by weight (IT, 1987). This moisture content is insufficient for direct moisture migration through the Bandelier Tuff. Thus, no impact to groundwater is expected due to the release of the wastes managed at these units.

G.2.4.4 Mitigating Effects of Power Outages [20 NMAC 4.1, Subpart IX, 270.14(b)(8)(iv)]

Electrical power is supplied to TA-3-29 by a 13.8 kilovolt distribution line through an underground conduit to an on-site substation. Supplied power is used to operate continuous air monitors and other electrical equipment in the building. In the event of a power failure, operations in the building would cease and personnel would exit the facility. Operations in the storage locations would be discontinued temporarily if electrical power was not restored quickly or if container handling equipment failed. However, neither a power outage nor an equipment failure would affect containment at any of these locations.

G.2.4.5 Preventing Undue Exposure [20 NMAC 4.1, Subpart IX, 270.14(b)(8)(v)]

Personnel at the TA-3-29 CSU are required to use appropriate personal protective equipment (PPE) to protect themselves from the hazards found in the work place under normal conditions. Use of PPE protects workers from direct contact with and inhalation or ingestion of hazardous materials. At TA-3-29, PPE is used routinely during waste-handling operations and when responding to unusual hazardous situations. The different levels of PPE are defined by the Occupational Safety and Health Administration as follows:

X *Level D*: Coveralls; safety boots; safety glasses or goggles; hard hat; and appropriate gloves

X *Level C*: Full-face, air-purifying respirator with appropriate cartridges for the chemicals or hazards present; chemical-resistant suits; chemical-resistant safety boots or booties; and inner and outer gloves

X *Level B*: All Level C equipment plus self-contained breathing apparatus in place of a Level C full-face respirator

X *Level A*: All Level B equipment, plus a fully-encapsulating chemical-resistant suit.

Most operations at the TA-3-29 CSU require that personnel handling wastes or working in the CSU wear modified Level D PPE (safety glasses and hard hats are not always required). There are instances where an increased level of PPE is required, such as during an emergency or unusual hazardous situation. All personnel that use PPE are trained and qualified to use the equipment properly.

G.2.4.6 Preventing Releases to the Atmosphere

Releases to the atmosphere are not anticipated at the TA-3-29 CSU because containers are kept closed during storage. The only exceptions to this practice are when, upon inspection, it is determined that a container currently in storage needs to be overpacked or repackaged in a new container.

G.2.5 Special Requirements for Ignitible, Reactive, and Incompatible Wastes [20 NMAC 4.1, Subpart IX, 270.14(b)(9), 270.15(c) and (d); 20 NMAC 4.1, Subpart V, 264.17, 264.176, and 264.177]

Special requirements for ignitable, reactive, or incompatible waste at the TA-3-29 CSU is presented in Section 2.8 of this permit application. This information is provided to meet the requirements of 20 NMAC 4.1, Subpart V, 264.17(a), 264.176, and 264.177(a)(b) and (c); and 20 NMAC 4.1, Subpart IX, 270.14(b)(9) and 270.15(d) [1-1-97].

G.2.6 Air Emission Standards for Containers [40 CFR, Part 264, Subpart CC]

The hazardous wastes stored in containers at TA-3-29 may be subject to the Code of Federal Regulations (CFR), Title 40, Part 264, Subpart CC, "Air Emission Standards for Tanks, Surface Impoundments, and Containers," based on the applicability criteria specified in 40 CFR 264.1080. Subpart CC standards for containers, as currently set forth by the U.S. Environmental Protection Agency, require that containers of hazardous waste be covered so there are no detectable emissions. These standards are not applicable to mixed waste management units. The standards are also not applicable to containers of hazardous waste with less than 500 parts per million by weight (ppmw) volatile organics, containers of less than 0.1 cubic meters (m^3) (approximately 26 gallons) capacity, or that have received waste prior to the effective date of regulation (December 6, 1996). LANL requires

that Subpart CC requirements be met by the generator as part of the waste characterization process. The generator determines whether the concentration of volatile organics in a waste stream at the point of generation is less than 500 ppmw, or is equal to or greater than 500 ppmw. The generator documents this determination for that waste stream, as described in Appendix B of the LANL General Part B (LANL, 1998).

Containers of less than 0.46 m^3 (approximately 119 gallons) capacity and that meet U.S. Department of Transportation (DOT) specifications under 49 CFR, Part 178, will be kept closed during storage pursuant to 40 CFR 264.1086(b)(1)(ii). Containers undergoing waste characterization activities may be opened for access for the purposes described in 40 CFR 264.1086(c). 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 DOT specifications, and contain wastes of greater than 500 ppmw volatile organics will be subject to a visual inspection and monitoring program as required by 40 CFR 264.1088(b) and addressed in Attachment C of this document.

G.3 REFERENCES

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

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

Purtyman, 1984, "Hydrologic Characteristics of the Main Aquifer in the Los Alamos Area: Development of Ground Water Supplies," Los Alamos National Laboratory Report LA-9957-MS, Los Alamos, New Mexico.

Figure G-1
Technical Area 3, Building 29, Container Storage Locations

[This figure has been provided to the New Mexico Environment Department under separate cover as Unclassified Controlled Nuclear Information (UCNI) defined by Section 148 of the Atomic Energy Act.]

Figure G-2
Technical Area 3, Building 29, Actinide Source- Term Waste Test Program Enclosures

[This figure has been provided to the New Mexico Environment Department under separate cover as Unclassified Controlled Nuclear Information (UCNI) defined by Section 148 of the Atomic Energy Act.]