Los Alamos NATIONAL LABORATORY EST 1943

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Date: DEC 17 2015
Symbol: ENV-DO-15-0311
LA-UR: 15-28457
Locates Action No.: N/A

Mr. John E. Kieling, Bureau Chief
Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505-6303

Dear Mr. Kieling:

Subject: **Transmittal of Class 1 Permit Modification to remove Technical Area 55 Structure 185 from the Los Alamos National Laboratory (LANL) Hazardous Waste Facility Permit, EPA ID No. NM0890010515**

The purpose of this letter is to submit a request for the removal of Technical Area (TA) 55 Structure 185 container storage area, from the Los Alamos National Laboratory (LANL) Hazardous Waste Facility Permit (Permit), issued to the Department of Energy and Los Alamos National Security, LLC (DOE/LANS) (the Permittees) in November 2010. As stated in the enclosed affidavits, the unit was never used from the time of the effective date of the Permit, January 1, 2011 through December 31, 2014. For calendar year 2015, TA-55-185 was not used and will not be used to manage hazardous waste.

The TA-55-185 unit was constructed prior to the issuance of the Permit and was included as a permitted unit thereafter; however, this structure was never used for the management of hazardous waste. Therefore, the Permittees believe that the removal of the unit from the Permit is an administrative change to the Permit and meets the requirements for a Class 1 modification under 40 Code of Federal Register (CFR) § 270.42(a) and Appendix I of 40 CFR § 270.42, Items A.1 and A.8.

The administrative revisions required for this permit modification request include the removal of language related to TA-55-185 from Permit Section 3.13.1, (*General Operating Conditions*) and Permit Attachments A (*Technical Area (TA) – Unit Descriptions*), B (*Part A Application)*, D (*Contingency Plan*) and J (*Hazardous Waste Management Units*). Also included is the removal of Permit Attachment G.25 (*Technical Area 55, Building 185 Indoor Container Storage Unit Closure Plan)* as well as the removal of

Figure 46 from Attachment N (*Figures*). This permit modification request also includes an update to Figure 39 of Attachment N (*Figures*), to remove the identification of TA-55-185 as a permitted unit.

This transmittal letter includes three enclosures. Enclosure 1 contains replacement pages, with changes shown in redline for Permit Attachments A, B, D, J, G.25; Permit Section 3.0; and replacement figures for Attachments N. Enclosure 2 contains the affidavits concerning waste management activities for each calendar year the unit was not in use. Enclosure 3 contains a signed certification page. Three hard copies and one electronic copy of this submittal will be delivered to the New Mexico Environment Department Hazardous Waste Bureau (NMED-HWB). The electronic copy contains a reproduction of the hardcopy in portable document format (PDF) along with all the word processing files used to create the hardcopy.

Upon approval of this Class 1 permit modification request, the modification will be put into effect and notice will be sent to the NMED-HWB maintained LANL facility mailing list in accordance with 40 CFR §270.42(a)(1)(ii) within ninety days of the transmittal of this request.

If you have comments or questions regarding this permit modification request, please contact Gene Turner (DOE) at (505) 667-5794 or Mark Haagenstad (LANS) at (505) 665-2014.

Sincerely,

Alison M. Dorries
Division Leader
Environmental Protection Division
Los Alamos National Security LLC

Sincerely,

Kimberly Davis Lebak
Manager
Los Alamos Field Office
U.S. Department of Energy

AMD:KDL:MPH:TAD/lm

Enclosures: (1) Description of proposed permit changes and replacement figures
(2) Affidavits
(3) Certifications

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The administrative revisions required for this permit modification request include the removal of language related to TA-55-185 from Permit Section 3.13.1, (*General Operating Conditions*) and Permit Attachments A (*Technical Area (TA) – Unit Descriptions*), B (*Part A Application)*, D (*Contingency Plan*) and J (*Hazardous Waste Management Units*). Also included is the removal of Permit Attachment G.25 (*Technical Area 55, Building 185 Indoor Container Storage Unit Closure Plan)* as well as the removal of

ENCLOSURE 1

PROPOSED PERMIT CHANGES AND REPLACEMENT FIGURES

ENV-DO-15-0311

LA-UR-15-28457

Date: DEC 1 7 2015

3.13 TA-55 CONTAINER STORAGE REQUIREMENTS

3.13.1 General Operating Conditions

The Permittees shall ensure that storage of hazardous or mixed waste in containers at TA-55 occurs only in the permitted units B45, B40, B05, K13, the vault located at TA-55-4~~, TA-55-185~~, and the outdoor container storage pad located northwest of TA-55-4, and as identified in Attachment A (*Technical Area Unit Descriptions*) and Attachment J (*Hazardous Waste Management Units*).

3.14 TA-63 CONTAINER STORAGE REQUIREMENTS

3.14.1 General Operating Conditions

The Permittees shall ensure that storage and characterization of hazardous waste in containers at the Transuranic Waste Facility (TWF) occurs only on the permitted unit pad at TA-63, and as identified in Attachment A (*Technical Area Unit Descriptions)* and Attachment J (*Hazardous Waste Management Units*). This includes five storage buildings, the storage and characterization building, the characterization trailers, and the outside areas of the concrete pad within the unit boundary subject to the provisions of Permit Section 3.5.1, *Storage Configuration and Minimum Aisle Space*.

(1) The Permittees shall store all hazardous waste containers known or suspected of holding free liquids on secondary containment pallets. If containers with free liquid are stored in the characterization trailers without secondary containment pallets for longer than 24 hours, the Permittees shall follow the reporting conditions of Permit Section 1.9.14, Other Noncompliance.

(2) The Permittees shall not store containers with ignitable or reactive waste (E.P.A. Hazardous Waste Numbers D001 or D003) within 15 meters of the permitted unit's security fence shown in Figure 55 (*see* 40 CFR §264.176 and §270.32(b)(2)).

(3) The Permittees shall only accept TRU and mixed TRU waste containers at the TWF if they are closed and equipped with filter vents approved for containers destined for the Waste Isolation Pilot Plant. The Permittees shall not open waste containers during storage or characterization at the TWF, although the Permittees may replace filter vents on TRU and mixed TRU waste containers if necessary (*see* 40 CFR §270.32(b)(2)).

(4) The Permittees shall not accept the following waste for storage at the TWF:

a. Remote-handled TRU waste

ATTACHMENT A

TECHNICAL AREA (TA) - UNIT DESCRIPTIONS

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A.4.6.3 TA-54 West

The foundation at TA-54-38 is above grade to prevent run-on of storm water. Storm drains and trenches are maintained to collect any precipitation or snowmelt that may enter the Facility through the loading bays. The outdoor permitted unit is maintained to be sloped away from TA-54-38 towards the edges of the pad allowing storm water to flow to the edges of the pad. All containers of waste stored at the TA-54 West permitted units are located in areas with sloped floors and sumps or are elevated by design, on dollies, or on pallets. This prevents the containers from coming into contact with liquids. Positive surface drainage throughout TA-54 West directs potential run-on away from the TA-54 West permitted units. A drainage swale and curbing direct storm water runoff toward an outfall on the northeast side of the storage pad.

A.5 TA-55

TA-55 is located in the north central portion of Los Alamos National Laboratory on a mesa between a branch of Mortandad Canyon on the north and Two Mile Canyon on the south (*see* Figure 38 in Attachment N (*Figures)).* TA-55 is a plutonium processing facility, which began operating in 1978. Hazardous and mixed waste container storage at TA-55 is conducted at seven permitted units. These permitted units are identified as B40, B05, K13, B45, the Vault, and the Container Storage Pad, ~~and TA-55-185~~. The B05 and~~,~~ B45~~, and TA-55-185~~ permitted units are used to store containers with only non-liquid bearing waste (*i.e.*, solid form). These permitted units all reside in a building; therefore, run-on and run-off from storm events are not applicable. In the event of a water leak from facility systems, the TA-55-4 basement has sumps to contain the liquid.

A.5.1 B40

The B40 permitted unit is used to store containers of hazardous and mixed waste that may contain liquids. B40 is located in the southwest section of the TA-55-4 basement, as shown on Figure 40 in Attachment N (*Figures)*. The permitted unit is L-shaped and has long dimensions of 61.5 by 55 feet (ft). The maximum storage capacity of this unit is 21,500 gallons (gal), the equivalent of 391 55-gal drums. The types of waste containers holding hazardous or mixed waste that are stored in B40 include: 5-, 10-, 12-, 15-, 30-, 55-, and 85-gal drums; large waste boxes; special order waste boxes; and standard waste boxes (SWB).

A.5.2 B05

The B05 permitted unit is used to store containers of hazardous and mixed waste that do not contain liquids. B05 is located in the southwest section of the TA-55-4 basement, as shown in Figure 42 in Attachment N (*Figures)*. The permitted unit is rectangular shaped and is 26 ft long by 10 ft wide. The maximum storage capacity of this unit is 3,600 gal, the equivalent of 66 55-gal drums. The types of waste containers holding hazardous or mixed waste that will be stored in B05 include 30-, 55-, and 85-gal drums, large waste boxes; and SWBs.

approximately 22 feet long and 8 feet 4 inches wide (sdd Figure 45 in Attachment N (Figures)). The building is a manufactured steel building that is designed for hazardous waste storage.

~~A.5.7 TA-55-185~~

~~TA-55-185 is used to store containers of hazardous and mixed waste that do not contain liquids. TA-55-185 is located west of TA-55-4, as shown on Figures 39 and 46 in Attachment N (*Figures*). The building was constructed in 1991 and consists of a steel frame with fiberglass insulation, metal walls, and a concrete floor. The TA-55-185 permitted unit is approximately 60 ft long by 40 ft wide, and has a maximum storage capacity of 30,000 gal, the equivalent of 546 55-gal drums. The types of waste containers holding hazardous or mixed waste that are stored at TA-55-185 include: 30-, 55-, and 85-gal drums; large waste boxes; and SWBs.~~

~~A.5.8~~A.5.7 Mixed Waste Storage Tank System

There is one storage tank unit at TA-55 that is comprised of two tank components, the evaporator glovebox tank and the stabilization unit pencil tanks. The two tank components share a common piping and pumping system.

The evaporator glovebox tank was constructed in 1986. The stabilization unit pencil tanks were constructed in 1985, installed from 1987-88, and were considered existing tanks until new components were installed in 1996. These new components were determined to be a major, non-routine modification; therefore, the stabilization unit pencil tanks are subject to the new tank system regulations and are addressed as new tanks in accordance with the requirements of 40 CFR § 264.192, which is incorporated herein by reference.

The TA-55 storage tank unit is located at TA-55, Building 4, in Room 401 and has a maximum capacity of 560 Liters (L) (137 gallons [gal]). The storage tank system consists of two components, with six tanks, that are used to store evaporator bottoms solutions prior to stabilization.

Liquid waste comes primarily from the evaporator as evaporator bottoms in approximately 25-L batches. Unrecyclable evaporator distillate waste (corrosive only) is also cemented when the low-level acid waste line to the TA-50 Radioactive Liquid Waste Treatment Facility is closed. Liquid waste generated from a source other than the evaporator (such as C-AAC analytical residues) is transferred to the Cementation Unit glovebox in plastic bottles up to 2L in volume via the trolley system.

The evaporator bottoms solutions are initially stored in the evaporator glovebox tank component, where they are sampled for radionuclides, oxides, and metals. They remain in the evaporator glovebox tank component until the radionuclide content is known. If the sampling results show radionuclide concentrations below the discard limit, the solutions are transferred to the stabilization unit pencil tanks component for storage pending the remaining analytical results. Upon completion of the remaining analyses, the solutions are transferred directly to the stabilization unit for treatment. If the sampling results show concentrations above the

discard limit, the solutions are recirculated. Figure 47 in Attachment N (*Figures*) provides a general arrangement diagram and a process flow diagram for the TA-55 storage tank system.

The storage tank unit is connected to three main piping systems, which include the solution feed, ventilation, and vacuum piping systems. Each tank component has a separate header that connects to each of the piping systems. The wet-vacuum piping system is used for all transfers; and the vent-piping system is used to break vacuum. The wet-vacuum and vent-piping systems use vacuum traps to capture carryover liquid and prevent contamination of the lines downstream. One vacuum pump serves the storage tank system for liquid transfers and for vacuum sparging. The following attachment subsections provide descriptions of each of the tank system components and associated ancillary equipment.

~~A.5.8.1~~A.5.7.1 Evaporator Glovebox Tank Component

The evaporator glovebox tank component is located in the northwest corner of TA-55-4, Room 401. It is approximately 8 feet (ft) high, 4-ft wide, and 13-ft long and consists of two welded-steel trays, eight glass columns, and associated ancillary equipment. The overall capacity of the evaporator glovebox tank component is approximately 270 L (71 gal). The evaporator glovebox tank component is fabricated from 0.1875-inch (in.), 316 stainless steel with a 2B finish conforming to the American Society for Testing and Materials (ASTM) "A240-Standard Specification for Heat-Resisting Chromium and Chromium-Nickel Stainless Steel Plate, Sheet and Strip for Pressure Vessels," hereinafter referred to as ASTM A240 (ASTM, 1998). The lower half of the tank is fabricated with additional layers of materials welded to the outside of the 0.1875-in.-thick stainless-steel enclosure. These materials consist of 0.25-in.-thick lead shielding, conforming to ASTM "B29-Standard Specification for Refined Lead" (ASTM, 1997a), and an outer layer of 0.0625-in. 316 stainless steel cladding. The tank component is of welded construction with all welds blended, ground, and polished to blend with adjacent material. All joints are vacuum tight.

The support frame and legs of the evaporator glovebox tank component are constructed of carbon steel and conform to ASTM "A36-Standard Specification for Structural Steel for Welding" (ASTM, 1987). The support frame is bolted to the base of the tank component for stabilization. In addition, the legs of the tank component are bolted to the support frame and secured to the 10-in.-thick concrete floor of Room 401 with anchor bolts. The 10-in.-thick concrete floor was constructed to conform to the reinforced concrete building code requirements of the American Concrete Institute (ACI) "318-71-Building Code Requirements for Structural Concrete and Commentary," hereinafter referred to as ACI 318-71 (ACI, 1995). The reinforcing steel was detailed and fabricated in accordance with ACI "315-Details and Detailing of Concrete Reinforcement," hereinafter referred to as ACI 315 (ACI, 1992). The design construction and tolerance of the framework around the concrete is in accordance with ACI "347-Guide to Formwork for Concrete," hereinafter referred to as ACI 347 (ACI, 1994). The window portions of the evaporator glovebox tank component are constructed of 0.25-in. leaded glass, laminated on both sides with 0.125-in. clear glass, and installed with a neoprene gasket. Additionally, each window is backed with 0.25-in. safety glass installed with a neoprene gasket/seal that provides airtight containment. The dual glass configuration is secured to the tank component with a welded frame consisting of a 0.25-in.-thick lead

shielding and a 0.0625-in. 316 stainless steel cladding similar to the additional layers of materials welded to the outside of the lower half of the tank component. The welded window frames are bolted to the tank component. Replacement windows and gaskets, if and when needed, shall be made of the same or similar materials.

The glove portions of the evaporator glovebox tank component are constructed of neoprene and Hypalon®. Each glove is tested for material continuity by the manufacturer before acceptance and installation in the evaporator glovebox tank component. Each glove is selected for its resistance to nitric acid. Replacement gloves, when needed, are made of the same or similar materials.

The evaporator bottoms solutions are vacuum-transferred from the steel trays to the glass columns. Each glass column is individually filled and visually monitored during transfer from the steel trays to a glass column. To prevent overfill, the evaporator bottoms are automatically directed to a vacuum trap when the maximum capacity of a column is reached. The maximum capacity of the vacuum trap is approximately 5.5 L. The glass columns and the vacuum trap are constructed of PYREX® glass, manufactured by Corning, with stainless steel end plates. Replacement parts for the columns and vacuum trap will be of the same or similar materials. The glass columns are equipped with a vacuum sparging system designed to homogeneously mix the evaporator bottoms prior to sampling or transfer.

The piping associated with the evaporator glovebox tank component includes the transfer line from the evaporator, the wet-vacuum line, the lean-residue transfer line, and the ventilation lines entering and exiting the evaporator glovebox tank component. All piping and associated valves are constructed of single-walled, 316 stainless steel. The transfer line from the evaporator is 1.0-in. pipe, the wet-vacuum line and the lean-residue transfer line are 0.75-in. pipe, and the ventilation lines are 2.0-in. pipe. Pipe diameters may change in the event that a portion of the piping requires replacement. The evaporator glovebox tank component's ancillary equipment is supported by a steel channel Uni-strut® support frame. The Uni-strut® support frame is secured to the concrete ceiling with anchor bolts and provides the component's ancillary equipment with support and protection against physical damage and excessive stress that could potentially result from settlement, vibration, expansion, or contraction. Replacement supports are made of the same or similar materials.

The evaporator glovebox tank component does not operate under pressure; therefore, excessive stress due to expansion and contraction is not anticipated.

A helium leak-test using a mass spectrometer was performed on the evaporator glovebox tank component upon fabrication at Silver Engineering and again after it was installed and made operational at its present location in TA-55-4, Room 401. Because secondary containment is provided for this tank, the requirements in 40 CFR § 264.193(i), incorporated herein by reference, are not applicable.

~~A.5.8.2~~A.5.7.2 Stabilization Unit Pencil Tanks Component

The stabilization unit pencil tanks component consists of five vertical tanks located perpendicular to the west wall of TA-55-4 in Room 401. Each of the pencil tanks has a working capacity of 50 L (13 gal), an outside diameter of 6.625 in., a straight side height of 10 ft, a wall thickness of 0.28 in., and a conical bottom. The pencil tanks are constructed of 316 stainless steel. The stainless steel materials are corrosion-resistant and are compatible with the liquid waste stored in the tanks. The vent trap and the vacuum trap operating within the stabilization unit pencil tanks component have an outside diameter of 6.625 in. The vent trap has a straight side height of 9 in. and a maximum capacity of approximately 4 L. The vacuum trap has a straight side height of 37 in., a conical bottom, and a maximum capacity of approximately 17 L. The vent trap and the vacuum trap are constructed of 316 stainless steel for corrosion resistance and materials compatibility with the waste. All of the pencil tanks were designed in accordance with the standards applicable at the time of construction, including American Society of Mechanical Engineers (ASME) "Boiler and Pressure Vessel Code" (BPVC) (ASME, 1998), hereinafter referred to as ASME BPVC, Section VIII, Division 1. The pencil tanks are installed such that, if necessary, they can be replaced.

~~A.5.8.3~~A.5.7.3 Ancillary Equipment

The piping associated with the stabilization unit pencil tanks component includes the header/manifold, vacuum manifold, and lower manifold for the stabilization unit pencil tanks component; the vent trap, vent line, and drain line; the transfer line from the evaporator glovebox tank component to the stabilization unit pencil tanks component header/manifold; and the transfer line from the lower manifold to the stabilization unit. All inter-tank piping and transfer piping is single-walled 0.75-in., Schedule 40, stainless steel pipe. All tank-to-piping connections are flanged.

The stabilization unit pencil tanks component is equipped with a vacuum trap that is designed to collect any mists or carryover liquid that might accumulate in the vacuum or vent lines. The vacuum trap is equipped with a sight glass for local level indication and is normally empty. Each stabilization unit pencil tank is equipped with three sight glasses located on the side of each tank for overfill protection.

The stabilization unit pencil tanks component is erected upon a 10-in.-thick concrete floor in TA-55-4, Room 401. The 10-in.-thick concrete floor provides a foundation that will maintain the load of the tank component when full. The concrete floor and ceiling were constructed to conform to the building code requirements of ACI 318-71 for reinforced concrete (ACI, 1995). The reinforcing steel was detailed and fabricated in accordance with ACI 315 (ACI, 1992). The design, construction, and tolerance of the framework around the concrete is in accordance with ACI 347 (ACI, 1994). The stabilization unit pencil tanks component and its ancillary equipment are elevated and supported by a steel channel, Uni-strut® support frame. The Uni-strut® support frame is secured to the concrete floor with anchor bolts and provides the ancillary equipment with support and protection against physical damage and excessive stress due to settlement and vibration.

In accordance with 40 CFR § 264.192(a), incorporated herein by reference, a written assessment has been prepared attesting that the stabilization unit pencil tanks component has sufficient structural integrity and is acceptable for handling mixed waste. The written assessment was reviewed and certified by an independent, qualified, registered professional engineer.

~~A.5.8.4~~A.5.7.4 Secondary Containment

The storage tank unit is located at TA-55-4, inside Room 401. This room has a floor and walls that completely surround the tank system and serve as secondary containment, therefore, the secondary containment meets the requirements of 40 CFR § 264.193(1)(iv), incorporated herein by reference, for an external liner system. The walls and floor of Room 401 prevent the migration of wastes or accumulated liquids to any soil, groundwater, or surface water and are capable of collecting releases and accumulated liquids until the material is removed. Because the storage tank system and secondary containment are inside a building, run-on or precipitation will not affect the containment capacity. The capacity of the containment area is sufficient to contain 100 percent of the capacity of the largest liquid-bearing tank within its boundary.

The floor of Room 401 consists of 10-in.-thick reinforced concrete slab that is compatible with the wastes stored in the storage tank system and will effectively prevent migration of waste. The concrete in Room 401 is sealed with an epoxy or similar coating to aid in decontamination should a spill occur. In addition, tertiary containment is provided by the floor of the basement level of TA-55-4, which also consists of 10 in. of concrete. The construction joints in the floor slab and exterior walls are all constructed with chemical-resistant water stops in place. The conduit piping penetrating the floor of the room is secured with rubber boots, bushings, and flanges. All penetrations (*i.e.*, holes for conduit) in the floor have been sealed to prevent liquids from entering the penetrations.

Additional leak detection will be provided by continuous air monitors (CAM) at various locations throughout Room 401. CAMs will detect any airborne alpha contamination that would be present if a leak were to occur at any point in the system. Additionally, radiological control technicians periodically monitor for radioactive contamination and would detect any leaks during monitoring.

~~A.5.9~~A.5.8 Mixed Waste Stabilization Unit

The stabilization unit treats homogeneous liquid and solid mixed waste generated primarily from R&D and processing and recovery operations at TA-55 and at the Chemistry and Metallurgy Research Building at TA-3. The liquid wastes (Summary Category Group L1000) generally consist of evaporator bottoms solutions and laboratory solutions that may exhibit the hazardous characteristics of corrosivity and toxicity for metals (including arsenic, barium, cadmium, chromium, lead, mercury, and silver), as defined in 40 CFR §§ 261.22 and 261.24, respectively. The homogeneous solid process wastes (Summary Category Group S3000) generally consist of process residue from the evaporator, process leached solids, filter cake, and other miscellaneous solids. This waste stream typically exhibits the hazardous

The majority of the piping associated with the stabilization unit is 316 stainless steel. Tygon® tubing is used to transfer sodium hydroxide and the contents of the pH column to the drums. The cement is transferred into the glovebox and drums from a hopper/screw feeder through rubber tubing.

The homogeneous solid process wastes generated at TA-55 are delivered to the Cementation Unit in a closed container from the generator glovebox through a trolley system. The generator is instructed to size reduce the waste to minus 8 mesh. The Stabilization Unit personnel confirm this and do the size reduction if necessary. The particulate waste is poured into the waste drum just before or during the addition of cement to the drum and homogeneously mixed with the cement paste.

The stabilization unit is located in a vacuum-pressurized glovebox at TA-55-4 inside Room 401. Room 401 provides secondary containment for the stabilization unit. The floor of the room is recessed approximately 2.5 in. The room itself is approximately 60 ft long by 75 ft wide. The capacity of the secondary containment area is greater than 100 percent of the volume of waste that is treated in the stabilization unit at any one time. The entire floor is constructed of a 10-in.-thick reinforced concrete slab. Eight continuous air monitors installed at various locations throughout TA-55-4, Room 401 detect any airborne alpha contamination that would be present if a leak were to occur resulting in a release outside of glovebox GB-454.

The stabilization unit is located within a negative pressure glovebox that is connected to the TA-55-4 facility ventilation system. The high-efficiency particulate air filters on the glovebox are on the air intake side of the ventilation and are designed to prevent escape of contamination from the glovebox in the event of a power failure. TA-55-4 is equipped with a backup generator that re-establishes power to all vital systems, providing exhaust to the glovebox. The unit is a batch waste treatment system. If a power failure occurs, all operations cease inside the glovebox until power is restored. In addition, the glovebox is located within three succeedingly greater pressure zones. These zones are (in order of increasing pressure) the glovebox, Room 401, and the main corridor outside of Room 401. These pressure zones are designed to create airflow into Room 401 and the glovebox and limit the potential for hazardous constituents to migrate to the atmosphere. Figure 48 in Permit Attachment N *(Figures)* provides a general arrangement diagram and a process flow diagram for the TA-55 stabilization unit.

~~A.5.10~~A.5.9 Security and Access Control

Security at TA-55 is maintained with both manmade and natural barriers. These barriers prevent the unknowing entry and minimize the possibility for unauthorized entry of persons or livestock into TA-55. Two 12-foot (ft) high chain-link security fences with razor wire at the top surround the entire perimeter of TA-55. Three entry gates allow access to TA-55. One entry gate is located at the main entrance to TA-55 on the southeast side of the facility, one entry gate is located on the road to TA-48 at the northwest end of TA-55, and one entry gate is located at the northeast corner of TA-55 (for access to TA-55, Building 28 [TA-55-28] only). An entry station is located adjacent to the entry gate at the main entrance to the facility. The

entry station is manned 24 hours a day by security personnel. Unescorted access to TA-55 is granted only to persons possessing appropriate security clearance and meeting specific training requirements.

TA-55 is patrolled by security personnel during both operational and nonoperational hours to ensure that the gates are locked and that unauthorized entry has not occurred. The entire length of both security fences is also inspected several times each day by on-site security personnel. The locations of the security fences, entry gates, and entry stations are shown on Figure 10 in Attachment N (*Figures)*.

In addition to the fence and entry gates, cliffs and canyons surrounding TA-55 provide natural barriers to discourage unauthorized entry.

Warning signs are posted on the perimeter fences at approximately 40 to 110-ft intervals and can be seen from any approach to TA-55. Warning signs are also posted at each access to the waste management units in sufficient numbers to be seen from any approach. The legends on the signs are bilingual (*i.e.*, English and Spanish) and indicate "No Trespassing by Order of the United States Department of Energy." The signs are legible from a distance of 25 ft.

~~A.5.11~~A.5.10 Emergency Equipment

Buildings at TA-55 are equipped with multiple audible and visual safety-alarm systems to alert personnel in the event of an emergency and to evacuate the area. These alarm systems are located both inside and outside buildings at TA-55 and are monitored and controlled by the facility monitor and control system (FMCS). The FMCS is in operation 24 hours a day and is located in the Operations Center at TA-55-4 with access through TA-55-3. Specific FMCS alarm systems at TA-55 are discussed below.

A TA-55 computer system monitors the smoke and heat sensors, fire-alarm pull boxes, and drop box push-button alarms located throughout TA-55. Fire-alarm pull boxes and/or drop box push-button alarms are located in the vicinity of the waste management units addressed in this permit. Fire-alarm pull boxes may be used by personnel to activate a local fire alarm when a fire or other emergency is discovered. Fire-alarm pull boxes are located in TA-55-4, Room 401, and throughout the basement in the vicinity of the container storage management units. The equipment includes portable eyewash stations and safety showers. Eyewash stations and safety showers are located in Room 401 and throughout the basement of TA-55-4. Eyewash stations are also located on the Container Storage Pad and outside on the south side of TA-55-4 near TA-55-185. Safety showers are readily available in the following locations: TA-55-4, Room 401; in the basement of TA-55-4; on the Container Storage Pad; and outside on the south side of TA-55-4. ~~TA-55-185 is equipped with a portable safety shower prior to wastes being managed there.~~ SDS provide useful exposure information and are available in Room 401 and in the basement of TA-55-4. ~~The SDS will also be located in TA-55-185 prior to wastes being managed there.~~

~~A.6~~ TA-63 TRANSURANIC WASTE FACILITY

corner of the retention basin and the curb and gutter at the opposite corner of the fence line along the eastern side of the unit. This is defined by the limits of the catchment that drains to the retention basin.

The retention basin is designed to capture storm water run-off and fire suppression water released in the event of a fire at the TWF, as described in Permit Section A.6.5.

The unit also includes a small storage building for calibration sources used for waste characterization activities. Outside the boundary of the unit, other site structures include an operations support building, a fire water storage tank, an associated utility building, a covered forklift charging station, and an equipment storage shed.

~~A.6.1~~A.5.11 Concrete Pad

The TWF pad consists of 8-inch thick reinforced concrete to provide support for the site structures and vehicle movement. The pad rests on leveled gravel base course and is nominally 8 inches thick. The existing ground at the site slopes from the northwest to the southeast. There is a significant grade difference from the northwest corner to the southwest corner of the site. Portions are lower in elevation than Pajarito Road and Puye Road. Given the elevation difference on the site, retaining walls were constructed along the northwest portion of the site. The pad is sloped at an approximate 2% grade to promote drainage of storm water and potential fire suppression water to the retention pond.

The perimeter of the pad has a 24" gutter and 6" high curb to provide run-off control. A valley gutter isolates the northern portion of the pad. Storm water and potentially contaminated fire suppression water flow from the northern portion of the pad flows to the valley gutter that drains to the retention basin. This feature substitutes for berms, dikes, or sumps specific to each storage building. The southern portion of the pad, which is outside the hazardous waste management unit where waste is not stored, slopes to the southeast and drains off the pad toward the parking lot. Figure 55 provides details regarding the pad configuration.

~~A.6.2~~A.5.12 Storage Buildings

The TWF includes six storage buildings, five of which are functionally identical and are described in this section. The remaining storage building is described in section A.6.3. The five buildings measure 33 x 64 ft or approximately 2112 square feet, and are 15 ft high. The storage buildings provide covered storage for hazardous, mixed low-level, and mixed TRU waste containers generated during current Facility operations. Multiple buildings are used to minimize the radioactive material content in individual storage buildings and to reduce the potential impact from accidents relative to a single larger building. These five storage buildings are designated 63-0149, 63-0150, 63-0151, 63-0152, and 63-0153.

The storage buildings are constructed as covered single-story structural steel frames. Each of the storage buildings and its structural members are designed to exceed the snow load for roof design, the design wind force for buildings, and the seismic loading for structural components, as described in American Society of Civil Engineers specification ASCE 7-05, *Minimum Design Loads for Buildings and Other Structures.* The steel frame is an ordinary moment frame with

joists to attach roof panels and girts to attach wall panels. The walls of the facility are rigid to provide protection from the elements and external forces. Gypsum board on light gauge metal studs with industrial coating finish the interior walls. The roof is a high quality metal standing seam. Batt insulation in the ceiling and on the inside of the walls reduces heat loss and gain inside the buildings. Electric heaters heat the interior to prevent fire suppression systems and eyewash stations from freezing. Cooling is provided by venting fans. In order to drain the building in the event of a fire, the floors are constructed to provide a shallow slope (1/8 inch to 1 foot) from the back end of the building towards the front, and then out the roll-up door opening and a loading ramp to the concrete pad outside the building.

The building floors (i.e., mat slabs) are six inches higher than the outside surface of the concrete pad to prevent run-on, and are sloped toward the roll-up door at the building entrances for drainage, in accordance with 40 CFR §264.175(b)(2) and (c).

The concrete floors are coated to provide a sealed surface and chemical resistance, although secondary containment pallets are used to meet the containment requirements of the Permit for potential liquid containing waste containers in the storage buildings and in compliance with 40 CFR §264.175(b)(1). The floor coating standards include:

- Minimum Class B per National Fire Protection Association (NFPA);
- Radiation resistant as determined by American Society for Testing and Materials, International specification ASTM D 4082; and
- Decontaminable to at least 95 percent of total activity removed and certified for Nuclear Coating Service level II.

~~A.6.3~~A.5.13 Storage and Characterization Building

The sixth storage building is divided into a storage area, a staging room used for the thermal equilibrium of containers to prepare for head space gas sampling, and additional support and analytical equipment rooms. The storage area in this building is used for a variety of containers including SWBs and SLB2s. In order to accurately analyze headspace gas, the container temperature must be allowed to equilibrate to a minimum of 64 degrees Fahrenheit for 72 hours. Sampling equipment is stored in the building for use in obtaining headspace gas samples and flammable gas samples from waste containers. Gas chromatography and mass spectrometry on the flammable gas sample occurs in an adjacent room.

The building dimensions are 80 x 33 ft (approximately 2640 square feet) and 15 feet high. The building is constructed to the same standards as the other storage buildings. The building is numbered 63-0154.

~~A.6.4~~A.5.14 Characterization Trailers

The TWF facility includes pads with utility hook-ups for the characterization trailers used to certify containers as meeting DOE WIPP waste acceptance criteria (WAC). The NDE and NDA

existing trailers are proposed to be moved at the unit, a request for a Permit modification must be submitted in accordance with Permit Section 3.1(3).

~~A.6.5~~A.5.15 Retention Basin

The retention basin is located south of the storage buildings and characterization trailers in the south-western corner of the permitted unit. The retention basin is designed to collect surface storm water or melt water run-off from the concrete pavement via the slope (nominally 2%) of the concrete pad, and in the event of a fire at the unit, fire suppression water that could flow out of the storage buildings or from other unit structures to the concrete pad.

The designed volume capacity for the retention basin includes the potential for a combination of both events. This includes run-off from a projected 25 year frequency and 2 hour duration precipitation event (1.94 inches of precipitation resulting in approximately 95,400 gallons (12,750 cubic ft.) from 1.81 acres). For a fire suppression event, an estimate of suppression water needed is calculated from NFPA 13 factors (380 gpm for 30 min. of sprinkler demand and 500 gpm for 30 min. fire hose stream allowance), for a total of approximately 26,400 gallons (3,530 cubic ft.). Volume from both events results in a total capacity of approximately 121,800 gallons (approximately 16,300 cubic ft.). The designed total retention basin volume also includes 0.5 ft of freeboard, resulting in a total capacity of 137,450 gallons (18,375 cubic ft.). The dimensions of the basin are 125 ft by 42 ft by 5.5 ft deep. The retention basin is equipped with a manual release valve that may be used to discharge collected water that meets appropriate surface water discharge standards, as required by Permit Section 3.14.2. The concrete mixture used for construction of the retention basin is supplemented with an additive to improve the concrete's water resistance.

Routine inspections of the retention basin pursuant to Permit Section 2.6, *General Inspection Requirements* and subsequent repairs as required by Permit Section 2.6.2, *Repair of Equipment and Structures* are conducted to ensure that the integrity of the retention basin is maintained.

~~A.6.6~~A.5.16 Other Project Structures

Other project structures are present at the TWF to provide support for the hazardous waste management activities at the unit. These structures are either located outside the boundary of the hazardous waste management unit or are not used to store or manage hazardous waste.

The Operations Support Building provides offices and services for operations personnel and management. Personnel are housed in the separate building to ensure that radiological exposures are as low as reasonably achievable (ALARA) by increasing distance from the waste management activities. The Operations Support Building is approximately 75 ft by 80 ft. Operations and characterization personnel are housed in this building, although it will not be occupied continuously. However, it provides storage of waste container data and monitoring of key operational parameters (e.g., fire alarm systems, safety equipment status indicators, and communication systems including the public address system) and specific safety structure, system, and component status. The building is located outside the security control fence; windows provide visual observation of the control area.

Vehicle access to the hazardous waste management unit is through a gated driveway located east of the concrete pad. Gates are kept closed and vehicle access to the controlled area within the unit fence line requires check-in at the Operations Support Building. Pedestrian access to the controlled area also requires check-in through the Operations Support Building.

A fire water supply tank and a utility building that houses two fire water pumps and instrumentation needed to ensure operation of the fire suppression system are located to the north of the Operations Support Building outside the controlled area fence. A back-up power generator is located east of the Operations Support Building.

Regional aquifer monitoring well R-46 is located outside of the hazardous waste management unit north of the site.

An equipment storage shed used to store items such as metal pallets, containers used to over-pack waste containers, and snow removal equipment is located on the west side of the TWF. There is no fire protection in this building. A separate building designated the Characterization Source and Matrix Management (CSMM) Building will house radioactive sealed sources for calibration of RTR and HENC sensors sources.

~~A.6.7~~A.5.17 Security and Access Control

The DOE restricts access to the entire Facility through a variety of methods. Guard stations control public access to Pajarito Road east and west of TA-63. Therefore, only properly identified LANS and DOE employees authorized to enter the facility or individuals under their escort have access to the TWF. The TWF is enclosed by a security barrier system with controlled access gates. This includes a continuous section of prefabricated steel vehicle barriers and an eight foot high chain link fence. Two vehicle access gates are integrated into the fence line. Controlled entry to the unit is provided by a system of access controls (badge readers and administrative controls are required prior to entrance) to ensure that only authorized personnel are granted access. These access controls also ensure that all facility personnel can be identified and located in an emergency.

The TWF is patrolled by facility security personnel to prevent unauthorized entry. Warning signs stating "Danger – Unauthorized Personnel Keep Out," are posted on the perimeter fences and gates in accordance with Permit Section 2.5.2, *Warning Signs*. The text on the signs are bilingual (i.e., English and Spanish) and indicate "No Trespassing by Order of the United States Department of Energy." The signs are legible from a distance of 25 feet.

~~A.6.8~~A.5.18 Required Equipment

In accordance with Permit Attachment D, *Contingency Plan*, emergency equipment is located throughout the TWF and includes fire alarms, fire response systems, alarm systems, internal communications, spill kits, and decontamination equipment.

The TWF is equipped with safety-alarm systems to alert personnel in the event of an emergency and to evacuate the area. These alarm systems are located both inside and outside the unit and are continuously monitored. The facility monitor/control system is located in the access control

or others at risk. In addition to the spill kits, cleanup equipment such as shovels, bags and drums are available at the TWF. Overpack drums and sorbents are also stored in an equipment storage shed on the west side of the TWF. Emergency personnel can also provide additional spill control equipment and assistance upon request depending on the size and severity of the spill. Personnel decontamination equipment at the TWF includes safety showers and eye wash stations located inside each of the storage buildings. These are situated in all waste storage buildings in accordance with OSHA requirements. Additional decontamination equipment may be provided by emergency personnel. SDS (e.g., for cleaners, solvents, used on site) are available at the Operations Support Building to provide exposure information in accordance with OSHA requirements.

~~A.6.9~~A.5.19 Control of Run-on/Run-off

Controlling run-on and run-off at the TWF locations where waste management operations occur is accomplished by the design of the buildings and the use of control structures with appropriate contouring of surface areas. Run-on of storm water into the storage buildings is prevented by walls that enclose raised floors and surface contouring that slopes away from the building to prevent storm water from pooling against the foundations, doors, and loading areas. The internal floors of the buildings are sloped toward the front doors to prevent flooding by precipitation or storm water in addition to providing internal drainage to the outside.

The TWF site slopes nominally at a 2% grade to promote drainage to the retention pond. A retention wall prevents slope failure between the surrounding roads and the site. The site is surfaced in concrete and includes a retention basin for collection and management of storm water and fire suppression water as described in Section A.6.5 above.

The secondary containment provided by secondary containment pallets has sufficient capacity to contain at least 10 % of the volume of containers or the volume of the largest container stored in the system, whichever is greater, pursuant to the requirements of 40 CFR §264.175(b)(3) and Permit Section 3.7, *Containment Systems*.

~~A.6.10~~A.5.20 Subsurface Vapor Monitoring

The Permittees shall install a subsurface vapor monitoring network consisting of a minimum of five vapor monitoring wells in the vicinity of the buildings located within the TWF facility to evaluate for vapor-phase contaminants that may migrate from MDA C. Two of the monitoring wells must be located as close as possible to the building foundations that are adjacent to the unit boundary facing MDA C and the utility corridor on Puye Road as depicted by locations VMW-1 and VMW-2 on Figure 56 in Attachment N (Figures). A third monitoring well must be located at a point on the western edge of the permitted unit as close as possible to the utility corridor on Pajarito Road as depicted by location VMW-3 on Figure 56. Two monitoring wells must be located between MDA C and Puye Rd as depicted by locations VMW-4 and VMW-5 on Figure 56. These five wells must be installed and operational within 90 days of completion of construction of the TWF buildings.

ATTACHMENT B

PART A APPLICATION

7. Process Codes and Design Capacities (Continued)

EXAMPLE FOR COMPLETING Item 7 (shown in line number X-1 below): A facility has a storage tank, which can hold 533.788 gallons.

Line Number		A. Process Code (From list above)			B. PROCESS DESIGN CAPACITY (1) Amount (Specify)	B. PROCESS DESIGN CAPACITY (2) Unit of Measure	C. Process Total Number of Units	For Official Use Only
X	1	S	0	2	533.788	G	001	
					Technical Area 55			
	1	S	0	1	17207,600	G	0067	
	2	S	0	2	137	G	001	
	3							
	4							
	5							
	6							
	7							
	8							
	9							
1	0							
1	1							
1	2							
1	3							

Note: If you need to list more than 13 process codes, attach an additional sheet(s) with the information in the same format as above. Number the lines sequentially, taking into account any lines that will be used for "other" process (i.e., D99, S99, T04 and X99) in Item 8.

8. Other Processes (Follow instructions from Item 7 for D99, S99, T04 and X99 process codes)

Line Number (Enter #s in sequence with Item 7)		A. Process Code (From list above)			B. PROCESS DESIGN CAPACITY (1) Amount (Specify)	B. PROCESS DESIGN CAPACITY (2) Unit of Measure	C. Process Total Number of Units	For Official Use Only
X	2	T	0	4	100.00	U	001	
	3	T	0	4	150	G	001	

ATTACHMENT D

CONTINGENCY PLAN

LIST OF TABLES

TABLE NO.	TITLE
D-1	Los Alamos National Laboratory-Wide Emergency Equipment
D-2	Waste Analysis Parameters and Test Methods
D-3	Evacuation Determination and Reentry Conditions
TA-3, D-1	TA-3 Emergency Equipment
TA-50, D-1	TA-50 Emergency Equipment
TA-54, D-1	TA-54 Area L Emergency Equipment
TA-54, D-2	TA-54 Area G Emergency Equipment
TA-54, D-3	TA-54 West Emergency Equipment
TA-55, D-1	TA-55 Building 4, First Floor Emergency Equipment
TA-55, D-2	TA-55 Building 4 Basement Emergency Equipment
TA-55, D-3	TA-55 Container Storage Pad Emergency Equipment
~~TA-55, D-4~~	~~TA-55 Building 185 Emergency Equipment~~
TA-55, D-5	TA-55 Transuranic Waste Facility Emergency Equipment

Emergency Management Coordinator, who will coordinate necessary emergency actions throughout the county.

D.1.7.3 Los Alamos Medical Center

The Facility maintains a fully equipped decontamination room adjacent to the emergency room at LAMC. In the event that a case is sent to LAMC, support for the emergency room staff is provided by Facility occupational medical personnel. Radiation protection, industrial hygiene, and HAZMAT personnel also provide assistance to the emergency room staff; assistance from additional Facility resources is provided, as necessary. Assistance is coordinated through SEO-3:EM personnel.

D.2 EMERGENCY EQUIPMENT AND COMMUNICATIONS

D.2.1 Emergency Equipment

The Permittees shall make available the lists of emergency equipment listed in Table D-1 for use at any of Permittees' hazardous or mixed waste management units. The list includes emergency equipment available in the HAZMAT vehicles and trailers as well as supplemental emergency equipment maintained by the LAFD, Maintenance Site Services, and occupational medicine personnel. A list of emergency equipment available for use at specific hazardous and/or mixed waste management units is identified in Attachment Tables TA-3, D-1; TA-50, D-1; TA-54, Area L, D-1; TA-54, Area G, D-2; TA-54 West, D-3; TA-55 Building 4 First Floor, D-1; TA-55 Building 4 Basement, D-2; TA-55 Container Storage Pad, D-3; ~~TA-55 Building 185,~~ D-4; and TA-63 Transuranic Waste Facility, D-5. Emergency equipment listed in these tables may be replaced and/or upgraded with functionally equivalent components and equipment, as necessary, for routine maintenance and repair.

D.2.2 Emergency Communications

The initial phase of an emergency may involve a small number of individuals at the affected area and that requires notification of the SEO-3:EM Duty Officer, utilizing local communication equipment and/or systems. When responding to hazardous and/or mixed waste emergencies, the Permittees shall ensure that SEO-3:EM personnel can provide communications between response units and emergency organizations.

D.2.2.1 Fire Alarms

Fire alarms are monitored 24 hours per day by trained personnel in the EOSC. Both the primary and backup buildings where the monitoring takes place have emergency power systems. The SEO-3:EM Duty Officer is notified when there is confirmed fire or smoke via the Los Alamos County Consolidated Dispatch Center.

mixed waste that present a potential threat to human health or the environment, as listed in Attachment Section D.3.1, require implementation of this Plan.

2. Hazardous and mixed wastes are stored on site at the Facility in a variety of containers. The general steps in handling hazardous and/or mixed waste spills are as follows:

1. Isolate the immediate area and deny entry to all unauthorized personnel;
2. Contain the spill by spreading sorbents or forming temporary dikes to prevent further migration (performed by properly trained personnel, if safe);
3. Monitor the spill area and sample the spilled waste and contaminated media.
4. Package the waste and contaminated media in sound containers;
5. Decontaminate the area and all involved equipment and personnel (followed by testing to assure adequate cleanup); and
6. Remove the waste and contaminated media (performed by appropriate waste management personnel).

3. The IC will determine the steps to be taken for spill mitigation. If initial mitigation of the spill is necessary and can be accomplished safely (by appropriately trained personnel) before the Emergency Manager arrives, a qualified member of the affected area's operating group will serve as the Facility Command Leader.

4. The Permittees shall ensure that hazardous and/or mixed waste spills are stabilized and cleaned up. During spill control and cleanup, all personnel shall wear appropriate personal protective equipment (PPE). Monitoring will be conducted to ensure that chemical and, as appropriate, radiological exposure is minimized. The collected material may be treated as hazardous or mixed waste, depending on the components present. Runoff from spills of listed hazardous or mixed waste that have migrated outside hazardous waste management areas must be contained and managed as hazardous or mixed waste, as appropriate. If the spill was from a characteristic hazardous or mixed waste and if it is determined by analysis that the runoff does not exhibit the characteristic (*i.e.*, ignitability, corrosivity, reactivity, and/or toxicity), the runoff need not be managed as characteristic waste. Temporary dikes may be constructed to contain runoff.

D.4.1 Spill Control Procedures

When a flammable organic solvent spill, a highly acidic spill, or a highly caustic spill has been stabilized with the contents of an organic solvent spill kit, an acid spill kit, or a caustic spill kit, respectively, the resulting material may be sorbed using a nonbiodegradable sorbent. Nonbiodegradable sorbent can be used to control any spill if it is known to be compatible with the spilled material. Appropriate containers or packaging shall be used to collect all spilled material and contaminated sorbent. Attachment Tables TA-3, D-1; TA-50, D-1; TA-54, Area L, D-1; TA-54, Area G, D-2; TA-54 West, D-3; TA-55 Building 4 First Floor, D-1; TA-55 Building 4 Basement, D-2; TA-55 Container Storage Pad, D-3; ~~TA-55 Building 185,~~ D-4; and TA-63 Transuranic Waste Facility, D-5 list emergency equipment available for spill control at specific units. The ultimate disposition of any contaminated sorbent or waste material shall be

explosion. Implementation of this Plan is required whenever there is an explosion at a permitted unit.

2. In the event of an explosion at the Facility, all personnel will immediately evacuate the area. Any injured personnel will be decontaminated at the site, if required and if time allows. An LAFD ambulance will transport these personnel to LAMC for treatment. If an injury is severe and requires immediate medical evacuation, the injured person will be wrapped to contain contamination, if necessary. In the case of an actual or potential explosion, on-site personnel will contact SEO-3:EM personnel immediately so that the Emergency Manager can ensure that all necessary emergency response personnel are alerted. The LAFD is notified automatically upon fire alarm activation. The Emergency Manager assumes incident command and will remain near but at a safe distance from the site in order to inform personnel responding to the explosion of the known hazards.

3. If a fire results from an explosion, the LAFD Senior Officer will, upon arrival at the scene, evaluate all available information and determine the appropriate firefighting methods and tactics. The LAFD Senior Officer will direct firefighting operations as the acting IC until SEO-3:EM formally assumes command.

D.6 FIRE

1. Fires and resultant releases of hazardous or mixed waste may result in a significant threat to human health or the environment. Implementation of this Plan is required whenever there is a fire at a permitted unit.

2. Fire alarms will be sounded automatically or manually to alert personnel that a fire hazard exists and to evacuate the area immediately if in the vicinity. Information related to the various fire alarms at the specific units is included in Attachment Tables TA-3, D-1; TA-50, D-1; TA-54, Area L, D-1; TA-54, Area G, D-2; TA-54 West, D-3; TA-55 Building 4 First Floor, D-1; TA-55 Building 4 Basement, D-2; TA-55 Container Storage Pad, D-3; ~~TA-55 Building 185,~~ D-4; and TA-63 Transuranic Waste Facility, D-5.

3. Depending on the size of the fire and the fuel source, portable fire extinguishers may be used. However, Facility policy does not encourage the use of portable fire extinguishers by employees unless they are properly trained. Instead, Facility policy encourages immediate evacuation of the area and notification of the Los Alamos County Emergency Coordinator by dialing 911. For any fire, including a fire that involves hazardous or mixed waste, the responsible Line Manager and SEO-3:EM personnel must be contacted immediately. The Emergency Manager will alert the LAFD and all other necessary emergency response personnel. If the fire spreads or increases in intensity, all personnel must follow protective actions as designated by the Emergency Manager. The Emergency Manager assumes incident command and will remain near the scene to advise personnel responding to the fire of the known hazards.

4. Upon arrival at the scene, the LAFD Senior Officer will evaluate all available information and determine the appropriate firefighting methods and tactics. The LAFD Senior Officer will direct

~~**TABLE D-4**~~

~~**TA-55 BUILDING 185**~~

~~**Emergency Equipment**~~

~~**FIRE CONTROL EQUIPMENT:**~~

~~Fire hydrants are located along the north, south, and west sides of TA-55, Building 4 (TA-55-4).~~

~~One fire alarm pull box is located inside TA-55-185.~~

~~Fire alarm pull boxes are located in TA-55, Building 42, at the northwest corner of TA-55-4.~~

~~One fire alarm pull box is located outside on the south side of TA-55-4.~~

~~**COMMUNICATION EQUIPMENT:**~~

~~One telephone is located inside TA-55-185.~~

~~A telephone is located on the east side of TA-55-11 and additional phones are located in TA-55-185 and on the south side of TA-55-4.~~

~~Two-way radios are available from the TA-55 Operations Center located at TA-55, Building 0004, and Room 218 for personnel working at TA-55-185.~~

~~Personal pagers are issued to and carried by assigned personnel working at TA-55-185. These pagers are accessed by telephone.~~

~~Alarms at TA-55-4:~~
~~The fire alarm is an area-wide whooping sound.~~
~~The evacuation alarm is a facility-wide mid-range pulsating tone.~~

~~The public address (PA) system activated from the TA-55-4 Operations Center may be used to announce an evacuation.~~

~~PA speakers are located on the west side of TA-55-4 near TA-55-185. Intercom systems to the TA-55-4 Operations Center are located on the south and north sides of TA-55-4.~~

~~**DECONTAMINATION EQUIPMENT:**~~

~~TA-55-185 will be equipped with a portable safety shower and eyewash station before wastes are managed there.~~

~~**PERSONAL PROTECTIVE EQUIPMENT:**~~

~~Change rooms with protective clothing available are located in TA-55-3.~~

~~Respirators located in TA-55-4 and in TA-55-3 are available for all personnel working in or near TA-55-185.~~

~~**OTHER:**~~

~~If transportation is needed for evacuation, vehicles may be obtained through SEO-3:EM or SEO-1:ER.~~

~~A forklift, pallet jack or drum handler is available inside of TA-55-185.~~

~~Two forklifts are available to NPI-7.~~

ATTACHMENT J

HAZARDOUS WASTE MANAGEMENT UNITS

Unit Identifier	Process Codes	Operating Capacity	General Information	Type of Unit
TA-55-4, K13	S01	2,500 gal	Located in basement Referred to as Area 4 Total square footage - 208	Indoor
TA-55-4, B05	S01	3,600 gal	Located in basement Referred to as Area 5 Non-liquid wastes only Total square footage - 260	Indoor
TA-55-4, B45	S01	11,000 gal	Located in basement Non-liquid wastes only Total square footage - 788	Indoor
TA-55-4, Vault	S01	4,000 gal	Located in basement Referred to as Area 6 Total square footage – 4,020	Indoor
TA-55-4-401 Mixed Waste Storage Tank System	S02	Storage - 137 gal	TA-55-4 Room 401 Unit divided into two components (Evaporator Glovebox Storage Tank System and Cementation Storage Tank System), ancillary equipment and secondary containment. Total square footage – 4,500	Indoor
TA-55-4-401 Mixed Waste Stabilization Unit	T04	Treatment - 150 gal / day	TA-55-4 Room 401 Total square footage – 4,500	Indoor
~~TA-55-185~~	~~S01~~	~~30,000 gal~~	~~Located west of TA-55-4~~ ~~Non-liquid wastes only~~ ~~Total square footage – 2,400~~	~~Indoor~~

Unit Identifier	Process Codes	General Information
TA-55-4-401 CSA for Evaporator Salt Precipitate (Area 10)	S01	This unit was included as part of the evaporator glovebox storage tank system in the June 1996 TA-55 Part B
TA-55-4-433 Mixed Waste Monitoring CSA	S01	(Area 11 – referenced as Area 10 in June 1996) Unit was never used for hazardous waste storage and was withdrawn in the 1998 Part A.
TA-55-4-432 CSA Glovebox Process Waste	S01	(Area 12 - referenced as Area 11 in June 1996) Unit was never used for hazardous waste storage and was withdrawn in the 1998 Part A.
TA-55-41 CSA Vault	S01	Unit was never used for hazardous waste storage and was withdrawn in the 1998 Part A.
TA-55-185	S01	Unit never managed hazardous waste.
TA-63 Chemical Waste Treatment Skid	T01	This unit was never constructed and was withdrawn in the 1998 Part A application.
TA-63 Liquid Waste Storage Tanks (6)	S02	These tanks were never constructed and were withdrawn in the 1998 Part A application.

~~ATTACHMENT G.25~~

~~TECHNICAL AREA 55, BUILDING 185~~

~~INDOOR CONTAINER STORAGE UNIT~~

~~CLOSURE PLAN~~

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1.0 INTRODUCTION

This closure plan describes the activities necessary to close the indoor hazardous waste container storage unit which is located in Building 185 at Technical Area 55 (TA-55-185) at the Los Alamos National Laboratory (Facility), hereinafter referred to as the permitted unit. The information provided in this closure plan addresses the closure requirements specified in Permit Part 9, the Code of Federal Regulations (CFR), Title 40, Part 264, Subparts G and I for hazardous waste management units operated at the Facility under the Resource Conservation and Recovery Act (RCRA) and the New Mexico Hazardous Waste Act.

Until closure is complete and has been certified in accordance with Permit Section 9.5, a copy of the approved closure plan or the hazardous waste facility permit containing the plan, any approved revisions, and closure activity documentation associated with the closure will be on file with hazardous waste compliance personnel at the Facility and at the U.S. Department of Energy (DOE) Los Alamos Site Office. Prior to closure of the permitted unit, this closure plan may be amended in accordance with Permit Section 9.4.8, as necessary and appropriate, to provide updated sampling and analysis plans and to incorporate updated decontamination technologies. Amended closure plans shall be submitted to the New Mexico Environment Department (Department) for approval prior to implementing closure activities.

2.0 DESCRIPTION OF UNIT TO BE CLOSED

A specific description of the permitted unit can be found in Permit Attachment A (*Technical Area Unit Descriptions*). Additional features and equipment located at the permitted unit and not discussed elsewhere within the Permit are described below.

The rectangular shaped permitted unit, which is located west of TA-55 Building 4, is a steel framed building with a concrete floor that measures 60 feet (ft) by 40 ft. The permitted unit is completely enclosed except for an access doorway on one wall and a metal roll up door and access doorway on the opposite wall. The waste typically stored at the permitted unit consists generally of hazardous and mixed waste in solid form.

The permitted unit was constructed in 1991 and stores hazardous wastes that include sludge, debris, and chemical wastes with regulated metal organic constituents. Permit Part 3 (*Storage in Containers*), Permit Attachment A (*Technical Area Unit Descriptions*), Permit Attachment B (*Part A Application*), and Permit Attachment C (*Waste Analysis Plan*) include additional information regarding waste management procedures and hazardous waste constituents stored at the permitted unit.

3.0 ESTIMATE OF MAXIMUM WASTE STORED

To date, no hazardous waste has been stored at the permitted unit. Throughout the life of this Permit it is estimated that 1,000 cubic meters of waste will be stored in the permitted unit.

4.0 GENERAL CLOSURE REQUIREMENTS

4.1 Closure Performance Standard

As required by Permit Section 9.2, the permitted unit will be closed to meet the following performance standards:

a. remove all hazardous waste residues and hazardous constituents; and

b. ensure contaminated media do not contain concentrations of hazardous constituents greater than the clean-up levels established in accordance with Permit Sections 11.4 and 11.5. For soils the cleanup levels shall be established based on residential use. The Permittees must also demonstrate that there is no potential to contaminate groundwater.

If the Permittees are unable to achieve either of the clean closure standards above, they must:

c. control hazardous waste residues, hazardous constituents, and, as applicable, contaminated media such that they do not exceed a total excess cancer risk of 10^{-5} for carcinogenic substances and, for non-carcinogenic substances, a target Hazard Index of 1.0 for human receptors, and meet Ecological Screening Levels established under Permit Section 11.5;

d. minimize the need for further maintenance;

e. control, minimize, or eliminate, to the extent necessary to protect human health and the environment, the post-closure escape of hazardous waste, hazardous constituents, leachate, contaminated runoff, or hazardous waste decomposition products to the ground, groundwater, surface waters, or to the atmosphere; and

f. comply with the closure requirements of Permit Part 9 (*Closure*) and 40 CFR Part 264 Subparts G and I for container storage units.

Closure of the permitted unit will be deemed complete when: 1) all surfaces and equipment have been decontaminated, or otherwise properly disposed of; 2) closure has been certified by an independent, professional engineer licensed in the State of New Mexico; and 3) closure certification has been submitted to, and approved by, the Department.

4.2 Closure Schedule

This closure plan schedule is intended to address closure requirements for the permitted unit within the authorized timeframe of the current Hazardous Waste Facility Permit (*see* Permit Section 9.4). The following section provides the schedule of closure activities (*see also* Table G.25-2 of this closure plan).

Notification of closure will occur at least 45 days before the Permittees expect to begin closure (*see* 40 CFR § 264.112(d)(1)) and closure activities will begin according to the requirements of 40 CFR 264.112(d)(2). However, pursuant to 40 CFR § 264.112(e), removing hazardous wastes and decontaminating or dismantling equipment in accordance with an approved closure plan may be conducted at any time before or after notification of closure. Notification of the structural assessment (assessment), as described in Section 5.2 of this closure plan, shall occur in accordance with Permit Section 9.4.6.2.

Within 90 days after the final receipt of hazardous waste, the permitted unit will be emptied of all stored waste. Within ten days of completing hazardous waste removal or within 100 days of the final receipt of hazardous waste, the Permittees will conduct the records review (review) and assessment and submit an amended closure plan, if necessary, to the Department for review and approval as a permit modification. Upon approval of the modified closure plan, if applicable, the Permittees will decontaminate unit structures, surfaces, and equipment.

Decontamination verification sampling activities, and soil sampling if applicable, will be conducted to demonstrate that structures, surfaces, related equipment, and media, if applicable, at the permitted unit meet the closure performance standards in Permit Section 9.2.

All closure activities, including submittal of a final closure certification report to the Department for review and approval, will be completed within 180 days after the final receipt of waste. In the event that closure of the permitted unit cannot proceed according to schedule, the Permittees will notify the Department in accordance with the extension request requirements in Permit Section 9.4.1.1.

5.0 CLOSURE PROCEDURES

Closure activities at the permitted unit will include: removal of hazardous wastes; proper management and disposal of hazardous waste residues and contaminated surfaces, structures, and equipment associated with the permitted unit; verification that the closure performance standards in Permit Section 9.2 have been achieved; and submittal of a final closure certification report. The following sections describe closure activities applicable to the permitted unit.

5.1 Removal of Waste

In accordance with Permit Section 9.4.2, all stored hazardous wastes will be removed from the permitted unit scheduled for closure. Depending upon their size, containers will be removed with forklifts, container dollies, air pallets, or manually. Containers will be placed on flat bed trucks, trailers, or other appropriate vehicles for transport. Appropriate shipping documentation will accompany the wastes during transport. Containers holding hazardous wastes will be moved to a permitted on-site storage unit or a permitted off-site treatment, storage, or disposal facility.

5.2 Records Review and Structural Assessment

After waste removal and before starting closure decontamination and sampling activities, the Facility Operating and Inspection Records for the permitted unit will be reviewed and an assessment will be conducted to determine any previous finding(s) or action(s) that may influence closure activities or potential sampling locations.

5.2.1 Records Review

The Facility Operating and Inspection Records shall be reviewed as outlined in Permit Section 9.4.6.1. The goals of the review will be to:

a. confirm the specific hazardous waste constituents of concern; and

b. confirm additional sampling locations (*e.g.*, locations of spills or chronic conditions identified in the Operating and Inspection Records).

5.2.2 Structural Assessment

An assessment of the permitted unit's physical condition will be conducted in accordance with Permit Section 9.4.6.2. The assessment will include inspecting the floor, and walls for any existing cracks or conditions that indicate a potential for release of constituents. If a crack, gap, or stained area is present, the Permittees will amend this closure plan in order to update the sampling and analysis plan (SAP) (*see* Section

6.0 of this closure plan) to add these sampling locations and the applicable sampling methods and procedures. This inspection will be documented with photographs and drawings, as necessary.

5.3 Decontamination and Removal of Structures and Related Equipment

In accordance with Permit Section 9.4.3, all remaining hazardous waste and hazardous waste residues will be removed from the permitted unit. The permitted unit's surfaces, structures, and equipment will be decontaminated, removed, or both and managed appropriately. All waste material will be controlled, handled, characterized, and disposed of in accordance with Permit Attachment C (*Waste Analysis Plan*), Permit Section 9.4.5, and Facility waste management procedures.

5.3.1 Removal of Structures and Related Equipment

All surfaces and related equipment that are removed will not require decontamination, will be considered solid and potentially hazardous waste (as defined by this Permit) when removed, and will be disposed of in accordance with Permit Section 9.4.5 and Section 7.0 of this closure plan. To date, no equipment has been used at the permitted unit.

5.3.2 Decontamination of Structures and Related Equipment

All surfaces and related equipment that will be left in place or reused by the Facility will be decontaminated in accordance with Permit Section 9.4.3.1. At this time there is no equipment located at the unit that is expected to be decontaminated; however, if equipment is identified during the assessment it will be decontaminated in accordance with this section.

Decontamination of the surfaces of the permitted unit will include all features located within the unit (*e.g.*, walls, ceilings, railings). The entirety of the unit's floor and walls (up to 11 ft.) will be decontaminated by pressure washing or steam cleaning with a solution consisting of a surfactant detergent (*e.g.*, Alconox®) and water mixed in accordance with the manufacturer's recommendations. Portable berms or other devices (*e.g.*, absorbent socks, plastic sheeting, wading pools, or existing secondary containment) will collect excess water and provide containment during the decontamination process.

5.4 Equipment Used During Decontamination Activities

Reusable protective clothing, tools, and equipment used during closure decontamination activities will be cleaned with a wash water solution. Residues, disposable equipment, and small reusable equipment that cannot be decontaminated will be containerized and managed as waste as summarized in Table G.25-2 and in accordance with Permit Section 9.4.5 and Section 7.0 of this closure plan.

6.0 SAMPLING AND ANALYSIS PLAN

This SAP addresses the specific closure sampling and analysis requirements in Permit Section 9.4.7 and describes the sampling, analysis, and quality assurance/quality control (QA/QC) methods that will be used to demonstrate that the Permittees have met the closure performance standards outlined in Permit Section 9.2.

6.1 Decontamination Verification Sampling Activities

Decontamination verification sampling activities will be conducted at the permitted unit in order to verify that surfaces and related equipment at the permitted unit meet the closure performance standards in Permit Section 9.2. All samples will be collected and analyzed in accordance with the procedures in Sections 6.2, 6.3, and 6.4 of this closure plan.

One wipe sample will be collected from each piece of decontaminated equipment at the permitted unit. In compliance with Permit Section 9.4.7.1.i, this closure plan will ensure the collection of at least six wipe samples from the floor, two each from the long walls (up to 11 feet), and one each from the short walls (up to 11 feet) for a total of 12 wipe samples (*see* Figure G.25-1).

Solid chip samples may be collected and analyzed to determine if residual hazardous constituents remain in the concrete floor at the permitted unit.

6.2 Sample Collection Procedures

Samples will be collected in accordance with Permit Section 9.4.7.1 and the procedures identified in this SAP which incorporates guidance from the United States Environmental Protection Agency (USEPA) (EPA, 2002), DOE (DOE, 1995), and other Department-approved procedures.

6.2.1 Wipe Sampling

Surface wipe samples will be collected and analyzed to determine if residual hazardous constituents remain on the surfaces and related equipment at the permitted unit. Samples will be collected in accordance with the National Institute of Occupational Safety and Health (NIOSH) *Manual of Analytical Methods* (NIOSH, 1994). The appropriate wipe sample method will consider the type of surface being sampled, the type of constituent being sampled for, the solution used, and the desired constituent concentration detection limit.

The NIOSH method includes wiping a 100-square centimeter area at each discrete location with a gauze wipe wetted with a liquid solution appropriate for the desired analysis (*e.g.*, deionized water for lead). For wipe sampling, guidance from the analytical laboratory must be obtained prior to wipe verification sampling to confirm that the solution chosen for each analysis is appropriate for the analysis to be conducted and that wipe sampling is a proper technique for the analysis.

6.2.2 Solid Chip Sampling

Solid chip samples may be collected and analyzed to determine if residual hazardous constituents remain in the concrete floor at the permitted unit. Any non-porous inclusions from the sampling location will be removed by brushing or wiping. Using a chisel, drill, hole saw, or similar tool, a minimum 100 grams of the sample will be collected to a depth of 2 cm, or to an alternate depth specified in the assessment and transferred to an appropriate sampling container. The holding time and the preservation techniques to be used for each analysis will be determined from Table G.25-4.

6.2.3 Cleaning of Sampling Equipment

Reusable sampling equipment will be cleaned and rinsed prior to use. Sampling equipment rinsate blanks will be collected and analyzed only if reusable sampling equipment is used. Reusable decontamination equipment, including protective clothing and tools, used during closure activities will be scraped as

~~necessary to remove residue and cleaned with a wash water solution. Sampling equipment will be cleaned prior to each use with a wash solution, rinsed several times with tap water, and air dried to prevent cross-contamination of samples. A disposable sampler is considered clean if still in a factory-sealed wrapper.~~

~~6.3 Sample Management Procedures~~

~~The following sections provide a description of sample documentation, handling, preservation, storage, packaging, and transportation requirements that will be followed during the sampling activities associated with the closure.~~

~~6.3.1 Sample Documentation~~

~~Sampling personnel will complete and maintain records to document sampling and analysis activities. Sample documentation will include sample identification numbers, chain-of-custody forms, analysis requested, sample logbooks detailing sample collection activities, and shipping forms (if necessary).~~

~~6.3.1.1 Chain-of-Custody~~

~~Chain-of-custody forms will be maintained by sampling personnel until samples are relinquished to the analytical laboratory. This will ensure the integrity of the samples and provide for an accurate and defensible written record of the sampling possession and handling from the time of collection until laboratory analysis. One chain-of-custody form may be used to document all of the samples collected from a single sampling event. The sample collector will be responsible for the integrity of the samples collected until properly transferred to another person. The EPA considers a sample to be in a person's custody if it is:~~

- ~~a. in a person's physical possession;~~
- ~~b. in view of the person in possession; or~~
- ~~c. secured by that person in a restricted access area to prevent tampering.~~

~~The sample collector will document all pertinent sample collection data. Individuals relinquishing or receiving custody of the samples will sign, date, and note the time on the analysis request and chain-of-custody form. A chain-of-custody form must accompany all samples from collection through laboratory analysis. The analytical laboratory will return the completed chain-of-custody form to the Facility and it will become part of the permanent sampling record documenting the sampling efforts.~~

~~6.3.1.2 Sample Labels and Custody Seals~~

~~A sample label will be affixed to each sample container. The sample label will include the following information:~~

- ~~a. a unique sample identification number;~~
- ~~b. name of the sample collector;~~
- ~~c. date and time of collection;~~
- ~~d. type of preservatives used, if any; and~~
- ~~e. location from which the sample was collected.~~

A custody seal will be placed on each sample container to detect unauthorized tampering with the samples. These labels must be initialed, dated, and affixed by the sample collector in such a manner that it is necessary to break the seal to open the container.

6.3.1.3 Sample Logbook

All pertinent information on the sampling effort must be recorded in a bound logbook. Information must be recorded in ink and any cross-outs must be made with a single line with the change initialed and dated by the author. The sample logbook will include the following information:

a. the sample location;
b. suspected composition;
c. sample identification number;
d. volume/mass of sample taken;
e. purpose of sampling;
f. description of sample point and sampling methodology;
g. date and time of collection;
h. name of the sample collector;
i. sample destination and how it will be transported;
j. observations; and
k. name(s) of personnel responsible for the observations.

6.3.2 Sample Handling, Preservation, and Storage

Samples will be collected and containerized in appropriate pre-cleaned sample containers. Table G.25-4 presents the requirements in *SW-846* (EPA, 1986) for sample containers, preservation techniques, and holding times. Samples that require cooling to 4 degrees Celsius will be placed in a cooler with ice or ice gel or in a refrigerator immediately upon collection.

6.3.3 Packaging and Transportation of Samples

All packaging and transportation activities will meet safety expectations, QA requirements, DOE Orders, and relevant local, state, and federal laws (including 10 CFR and 49 CFR). Appropriate Facility documents establish the requirements for packaging design, testing, acquisition, acceptance, use, maintenance, and decommissioning and for on-site, intra-site, and off-site shipment preparation and transportation of general commodities, hazardous materials, substances, wastes, and defense program materials.

Off-site transportation of samples will occur via private, contract, or common motor carrier, air carrier, or freight. All off-site transportation will be processed through the Facility packaging and transportation organization unless the shipper is specifically authorized through formal documentation by the packaging and transportation organization to independently tender shipments to common motor or air carriers.

6.4 Sample Analysis Requirements

Samples will be analyzed for all hazardous constituents listed in Appendix VIII of 40 CFR Part 261 and in Appendix IX of 40 CFR Part 264 that have been stored at the permitted unit over its operational history. Samples will be analyzed by an independent laboratory using the methods outlined in Table G.25-3.

~~Analytes, test methods and instrumentation, target detection limits, and rationale for metals and organic analyses are presented in Table G.25-3. If any of the information from these tables has changed at the time of closure, the Permittees will amend this closure plan to update all methods in this SAP.~~

~~6.4.1 Analytical Laboratory Requirements~~

~~The analytical laboratory will perform the detailed qualitative and quantitative chemical analyses specified in Section 6.4.2. This analytical laboratory will have:~~

~~a. a documented comprehensive QA/QC program;~~

~~b. technical analytical expertise;~~

~~c. a document control and records management plan; and~~

~~d. the capability to perform data reduction, validation, and reporting.~~

~~The selection of the analytical testing methods identified in Table G.25-3 is based on the following considerations:~~

~~e. the physical form of the waste;~~

~~f. constituents of concern;~~

~~g. required detection limits (*e.g.*, regulatory thresholds); and~~

~~h. information requirements (*e.g.*, waste classification).~~

~~6.4.2 Quality Assurance/Quality Control~~

~~All sampling and analysis will be conducted in accordance with QA/QC procedures defined by the latest revision of "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" (*SW-846*) (EPA, 1986) or other Department-approved procedures. Field sampling procedures and laboratory analyses will be evaluated through the use of QA/QC samples to assess the overall quality of the data produced. QC samples evaluate precision, accuracy, and potential sample contamination associated with the sampling and analysis process, and is described in the following sections, along with information on calculations necessary to evaluate the QC results.~~

~~6.4.2.1 Field Quality Control~~

~~The field QC samples that will be collected are trip blanks, field blanks, field duplicates, and equipment rinsate blanks. Table G.25-5 presents a summary of QC sample types, applicable analyses, frequency, and acceptance criteria. QC samples will be given a unique sample identification number and submitted to the analytical laboratory as blind samples. QC samples will be identified on the applicable forms so that the results can be applied to the associated sample.~~

~~6.4.2.2 Analytical Laboratory QC Samples~~

~~QA/QC considerations are an integral part of analytical laboratory operations. Laboratory QA ensures that analytical methods generate data that are technically sound, statistically valid, and that can be documented. QC procedures are the tools employed to measure the degree to which these QA objectives are met.~~

6.4.3 Data Reduction, Verification, Validation, and Reporting

Analytical data generated by the activities described in this closure plan will be verified and validated. Data reduction is the conversion of raw data to reportable units, transfer of data between recording media, and computation of summary statistics, standard errors, confidence intervals, and statistical tests.

6.4.4 Data Reporting Requirements

Analytical results will include all pertinent information about the condition and appearance of the sample as received. Analytical reports will include:

a. a summary of analytical results for each sample;

b. results from QC samples such as blanks, spikes, and calibrations;

c. reference to standard methods or a detailed description of analytical procedures; and

d. raw data printouts for comparison with summaries.

The laboratory will describe sample preparations that occur during the analysis in sufficient detail so that the data user can understand how the sample was analyzed.

7.0 WASTE MANAGEMENT

All waste generated during closure will be controlled, handled, characterized, and disposed of in accordance with Permit Section 9.4.5, Permit Attachment C (*Waste Analysis Plan*), and Facility waste management procedures. Closure activities may generate different types of waste materials; these wastes are listed with potential disposal options in Table G.25-2 of this closure plan. Subsequent disposition options for the decontaminated structures and equipment include reuse, recycling, or disposal. Reusable protective clothing, tools, and equipment used during decontamination will be cleaned with a wash water solution. Disposable equipment and other small equipment that cannot be decontaminated, as summarized in Table G.25-2, will be containerized and managed as waste.

8.0 CLOSURE CERTIFICATION REPORT

Upon completion of the closure activities at the permitted unit, a closure certification report will be prepared and submitted to the Department for review and approval in accordance with permit Part 9.5.

9.0 REFERENCES

DOE, 1995. "DOE Methods for Evaluating Environmental and Waste Management Samples," DOE/EM-0089T, Rev. 2. Prepared for the U.S. Department of Energy by Pacific Northwest Laboratory, Richland, Washington.

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

EPA, 2002. "RCRA Waste Sampling Draft Technical Guidance Planning, Implementation, and Assessment," EPA530-D-02-002, August 2002, Office of Solid Waste, U.S. Environmental Protection Agency, Washington, DC.

NIOSH, 1994. The National Institute for Occupational Health and Safety (NIOSH) *Manual of Analytical Methods*, 4th ed. Issue 1. 1994.

~~Table G.25-1~~

~~Closure Schedule for the Technical Area 55, Building 185 Indoor Container Storage Unit~~

~~Activity~~	~~Maximum Time Required~~
~~Notify the Department of intent to close.~~	~~-45 Days~~
~~Final receipt of waste.~~	~~Day 0~~
~~Complete waste removal.~~	~~Day 90~~
~~Complete a records review and structural assessment.~~	~~Day 100~~
~~Complete all closure activities and submit final closure certification report to the Department.~~	~~Day 180~~

Table G.25-2

Potential Waste Materials, Waste Types, and Disposal Options

Potential Waste Materials	Waste Types	Disposal Options
Personal protective equipment (PPE)	Non-regulated solid waste	Subtitle D landfill
	Hazardous waste	The PPE will be treated to meet Land Disposal Restriction (LDR) treatment standards, if necessary, and disposed in a Subtitle C or D landfill, as appropriate.
	Low-level radioactive solid waste	Either an authorized on-site radioactive waste disposal area that is not undergoing closure under RCRA or its state analog, or an authorized off-site radioactive waste disposal facility.
	Mixed waste	Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D landfill or the Waste Isolation Pilot Plant (WIPP), as appropriate.
Decontamination wash water	Non-regulated liquid waste	Sanitary sewer
	Hazardous waste	Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D landfill, as appropriate.
	Radioactive liquid waste	Radioactive Liquid Waste Treatment Facility (RLWTF)
	Mixed waste	Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D landfill or WIPP, as appropriate.
Metal	Non-regulated solid waste	Subtitle D landfill or recycled
	Hazardous waste	Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D landfill, as appropriate.
	Low-level radioactive solid waste	Either an authorized on-site radioactive waste disposal area that is not undergoing closure under RCRA or its state analog, or an authorized off-site radioactive waste disposal facility.
	Mixed waste	Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D landfill, or WIPP, as appropriate.
Discarded concrete	Low-level radioactive solid waste	Either an authorized on-site radioactive waste disposal area that is not undergoing closure under RCRA or its state analog.

Table G.25-2

Potential Waste Materials, Waste Types, and Disposal Options

~~Potential Waste Materials~~	~~Waste Types~~	~~Disposal Options~~
	~~Mixed waste~~	~~Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D landfill or WIPP, as appropriate.~~
	~~Non-regulated solid waste~~	~~Subtitle D landfill, recycled, or reused~~
	~~Hazardous waste~~	~~Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D landfill, as appropriate.~~
~~Discarded waste management equipment~~	~~Low-level radioactive solid waste~~	~~Either an authorized on-site radioactive waste disposal area that is not undergoing closure under RCRA or its state analog, or an authorized off-site radioactive waste disposal facility.~~
	~~Mixed waste~~	~~Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D landfill or WIPP, as appropriate.~~
	~~Non-regulated solid waste~~	~~Subtitle D landfill~~
	~~Hazardous waste~~	~~Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D landfill, as appropriate.~~
~~Sampling equipment~~	~~Low-level radioactive solid waste~~	~~Either an authorized on-site radioactive waste disposal area that is not undergoing closure under RCRA or its state analog, or an authorized off-site radioactive waste disposal facility.~~
	~~Mixed waste~~	~~Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D landfill or WIPP, as appropriate.~~
	~~Non-regulated solid waste~~	~~Subtitle D landfill~~
	~~Hazardous waste~~	~~Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D landfill, as appropriate.~~

Table G.25-3

Summary of Analytical Methods

Analyte	EPA SW-846 Analytical Method[a]	Test Methods/ Instrumentation	Target Detection Limit[b]	Rationale
		Metal Analysis		
Arsenic	7060A[c], 7061A	FLAA, GFAA	10 ug/L	Determine the metal concentration in the samples.
Barium	7080A[d], 7081[c]	FLAA,GFAA	200 ug/L	
Cadmium	7130[d], 7131A[c]	FLAA, GFAA	2 ug/L	
Chromium	7190[d], 7191[c]	FLAA, GFAA	10 ug/L	
Lead	7420[d], 7421[c]	FLAA, GFAA	5 ug/L	
Mercury	7470A, 7471A[c]	CVAA	0.2 ug/L	
Selenium	7740[c], 7741A	FLAA, GFAA	5 ug/L	
Silver	7760A[d], 7761[c]	FLAA, GFAA	10 ug/L	
		Organic Analysis		
Target compound list VOCs plus ten tentatively identified compounds (TIC)	8260B	GC/MS	10 mg/L	Determine the VOCs concentration in the samples.
Target compound list SVOCs plus 20 TICs	8270D c	GC/MS	10 mg/L	Determine the SVOCs concentration in the samples.

[a] U.S. Environmental Protection Agency (EPA), 1986 and all approved updates, "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," *SW-846*.

[b] Detection limits listed for metals are for clean water. Actual detection limits may be higher depending on sample composition and matrix type.

[c] Method being integrated into Method 7010, per the May 1998 *SW-846* Draft Update IVA.

[d] Method being integrated into Method 7000B, per the May 1998 *SW-846* Draft Update IVA.

[e] Method being revised to 7471B per the May 1998 SW-846 Draft Update IVA.

CVAA = Cold-vapor atomic absorption spectroscopy
FLAA = Flame atomic absorption spectroscopy
GFAA = Graphite furnace atomic absorption spectroscopy
ug/L = micrograms per liter.

Table G.25-4

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

Analyte Class and Sample Type	Container Type and Materials	Preservation	Holding Time
Metals			
TCLP/Total Metals: Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver	Aqueous Media: 500-mL Wide-Mouth Polyethylene or Glass with Teflon Liner	Aqueous Media: HNO_3 to pH <2 Cool to 4 °C	180 Days
	Solid Media: 125-mL Glass	Solid Media: Cool to 4 °C	
TCLP/Total Mercury	Aqueous Media: 500-mL Wide-Mouth Polyethylene or Glass with Teflon Liner	Aqueous Media: HNO_3 to pH <2 Cool to 4 °C	28 Days
	Solid Media: 125-mL Glass	Solid Media: Cool to 4 °C	
Volatile Organic Compounds			
Target Compound Volatile Organic Compounds	Aqueous Media: Two 40-mL Amber Glass Vials with Teflon-Lined Septa	Aqueous Media: HCl to pH<2 Cool to 4 °C	14 days
	Solid Media: 125-mL Glass or Two 40-mL Amber Glass Vials with Teflon-Lined Septa	Solid Media Cool to 4 °C Add 5 mL Methanol or Other Water Miscible Organic Solvent to 40-mL Glass Vials	
Semi-Volatile Organic Compounds			
Target Compound Semi-volatile Organic Compounds	Aqueous Media: Four 1-L Amber Glass with Teflon-Lined Lid	Aqueous Media: Cool to 4 °C	Seven days from field collection to preparative extraction. 40 days from preparative extraction to determinative analysis.
	Solid Media: 250-mL Glass	Solid Media: Cool to 4 °C	

[a] Smaller sample containers may be required due to health and safety concerns associated with potential radiation exposure, transportation requirements, and waste management considerations.

[b] Information obtained from "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," *SW-846*, U.S. Environmental Protection Agency, 1986 and all approved updates.

°C = degrees Celsius
mL = milliliter
HNO_3 = nitric acid
TCLP = Toxicity Characteristic Leaching Procedure

~~**Table G.25-5**~~

~~**Quality Control Sample Types, Applicable Analyses, Frequency, and Acceptance Criteria**~~

~~QC Sample Type~~	~~Applicable Analysis~~	~~Frequency~~	~~Acceptance Criteria~~
~~Field Blank~~	~~Metals~~	~~One sample daily per analysis~~	~~Not Applicable~~
~~Field Duplicate~~	~~Chemical~~	~~One for each sampling sequence~~	~~Relative percent difference less than or equal to 20 percent~~
~~Equipment Rinsate Blank[a]~~	~~Metals~~	~~One sample daily~~	~~Not Applicable~~

~~[a] Collected only if reusable sampling equipment used.~~

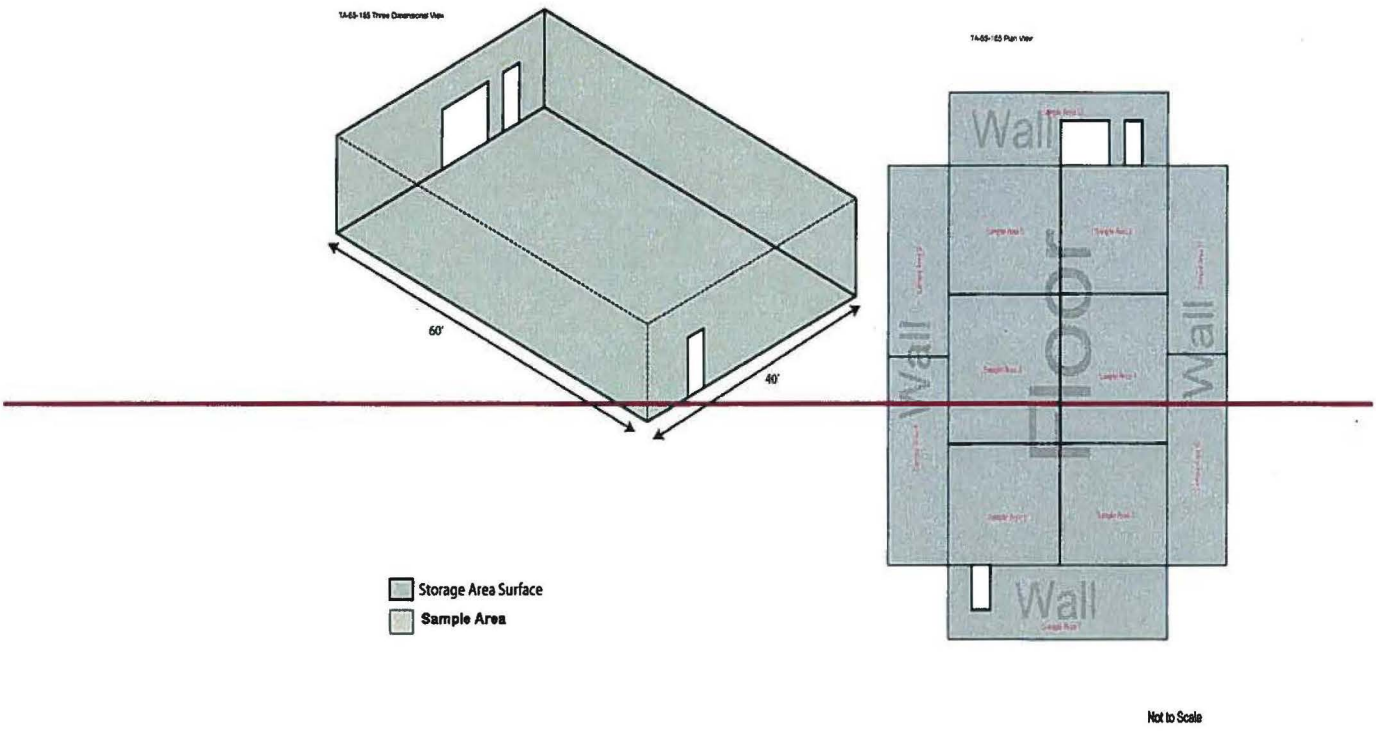


Figure G.25-1: Technical Area 55, Building 185, Indoor Container Storage Unit Grid Sampling Locations

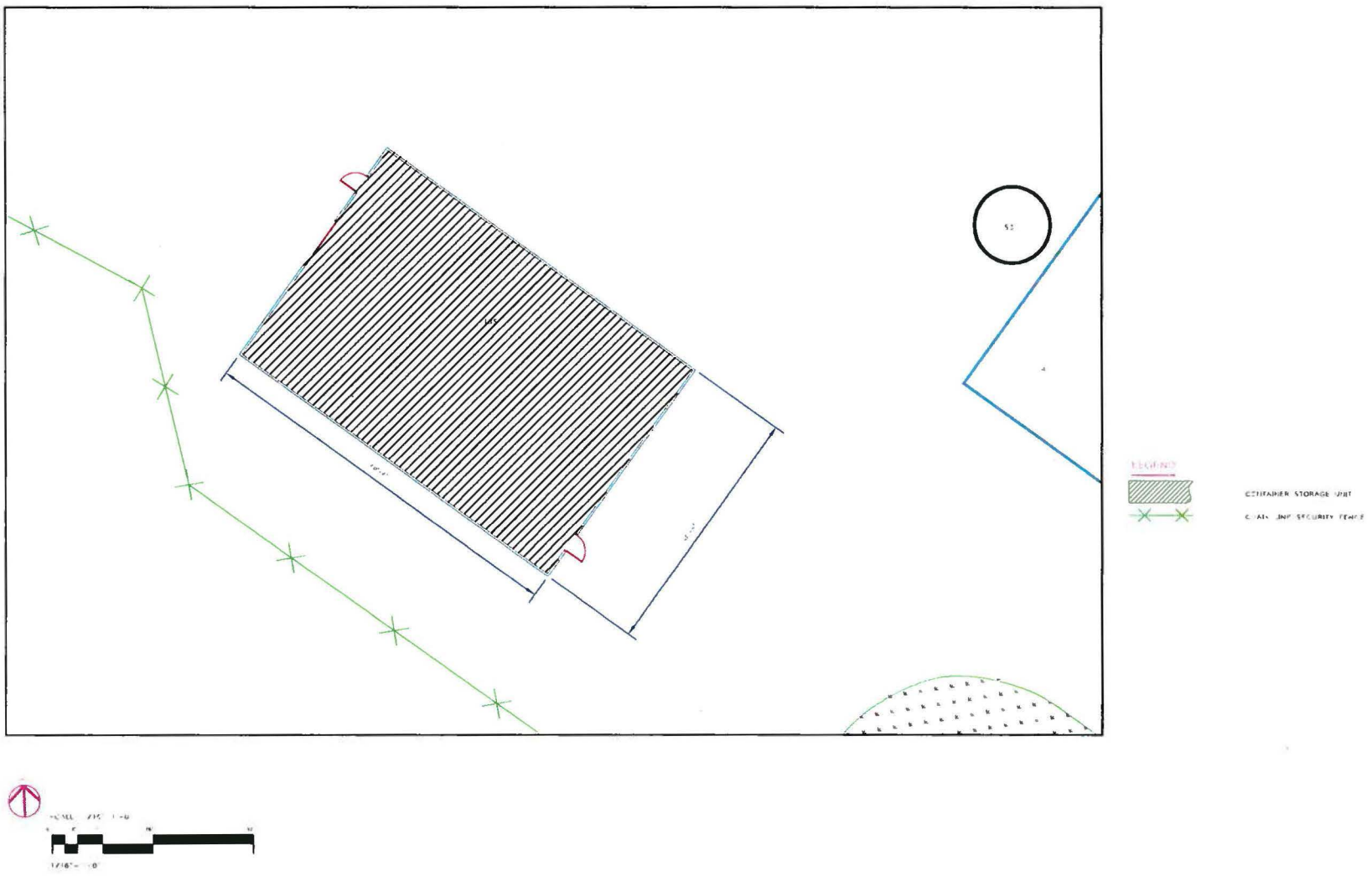


Figure 46
Technical Area (TA)-55, Building 185

ENCLOSURE 2

AFFIDAVITS

ENV-DO-15-0311

LA-UR-15-28457

Date: DEC 17 2015

AFFIDAVIT

1. I, Robert L. Dodge, am an employee of Los Alamos National Security, LLC, at Los Alamos National Laboratory (LANL) and have been employed at LANL for 14 years.

2. I am currently the Group Leader of Nuclear Process Infrastructure, Waste and Decontamination Services, and have been since November 2009.

3. The information in this affidavit reflects my personal knowledge of the TA-55-185, container storage unit as well as information provided to me by the employees who undertake waste management operations at the unit.

4. No hazardous waste management activities occurred in calendar year 2011 at the TA-55-185, container storage unit.

FURTHER AFFIANT SAYETH NAUGHT.

Robert L. Dodge

STATE OF NEW MEXICO)
)ss.
COUNTY OF LOS ALAMOS)

SUBSCRIBED, SWORN TO AND ACKNOWLEDGED before me this 26th day of June 2012, by Robert L. Dodge.

Lola L. Sandoval
NOTARY PUBLIC

My Commission Expires:

December 24, 2013

AFFIDAVIT

1. I, Robert L. Dodge, am an employee of Los Alamos National Security, LLC, at Los Alamos National Laboratory (LANL) and have been employed at LANL for 15 years.

2. I was the group leader of Nuclear Process Infrastructure, Waste and Decontamination Services, and oversaw hazardous and mixed low-level waste management operations at TA-55 from November 2009 through December 2012.

3. The information in this affidavit reflects my personal knowledge of the TA-55-185 and the TA-55, Building PF-4 Vault container storage units, as well as information provided to me by the employees who undertake waste management operations at the units.

4. No hazardous waste management activities occurred in calendar year 2012 at the TA-55-185 or the TA-55, Building PF-4 Vault container storage units.

FURTHER AFFIANT SAYETH NAUGHT.

Robert L. Dodge

STATE OF NEW MEXICO)
)ss.
COUNTY OF LOS ALAMOS)

SUBSCRIBED, SWORN TO AND ACKNOWLEDGED before me this 10TH day of June 2013, by ROBERT L. DODGE.

Rita Cordova
NOTARY PUBLIC

My Commission Expires:

May 31, 2017

AFFIDAVIT

1. I, Keith A. Lacy, am an employee of Los Alamos National Security, LLC, at Los Alamos National Laboratory (LANL) and have been employed at LANL for 16 years.

2. I was the group leader of Nuclear Process Infrastructure, Hazardous Materials Management group, and oversaw hazardous and mixed low-level waste management operations at TA-55 for 2013.

3. The information in this affidavit reflects my personal knowledge of the TA-55-185, as well as information provided to me by the employees who undertake waste management operations at the units.

4. No hazardous waste management activities occurred in calendar year 2013 at the TA-55-185 container storage unit.

FURTHER AFFIANT SAYETH NAUGHT.

Keith A. Lacy

STATE OF NEW MEXICO)
)ss.
COUNTY OF LOS ALAMOS)

SUBSCRIBED, SWORN TO AND ACKNOWLEDGED before me this 12th day of June 2014, by Rita Cordova.

RITA CORDOVA NOTARY PUBLIC STATE OF NEW MEXICO

Rita Cordova
NOTARY PUBLIC

My Commission Expires:

May 31, 2017

AFFIDAVIT

1. I, Keith A. Lacy, am an employee of Los Alamos National Security, LLC, at Los Alamos National Laboratory (LANL) and have been employed at LANL for 17 years.

2. I am the Group Leader of the Nuclear Process Infrastructure, Hazardous Materials Management group and oversaw hazardous and mixed low-level waste management operations at TA-55 in 2014.

3. The information in this affidavit reflects my personal knowledge of the TA-55-185 container storage unit, as well as information provided to me by the employees who undertake waste management operations at this unit.

4. No hazardous waste management activities occurred in the calendar year 2014 at the TA-55-185 container storage unit.

FURTHER AFFIANT SAYETH NAUGHT.

Keith Lacy

STATE OF NEW MEXICO)
)ss.
COUNTY OF LOS ALAMOS)

SUBSCRIBED, SWORN TO AND ACKNOWLEDGED before me this 17th day of June 2015, by **Rita Cordova**.

Rita Cordova
NOTARY PUBLIC

My Commission Expires:

May 31, 2017

RITA CORDOVA NOTARY PUBLIC STATE OF NEW MEXICO

ENCLOSURE 3

CERTIFICATIONS

ENV-DO-15-0311

LAUR-15-28457

Date: DEC 17 2015

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.

12/8/15

Alison M. Dorries
Division Leader
Environmental Protection Division
Los Alamos National Laboratory
Operator

Date Signed

12/16/15

Kimberly Davis Lebak
Manager
Los Alamos Field Office
U.S. Department of Energy

Date Signed