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Date: SEP 11 2016  
Symbol: EPC-DO-16-203  
LA-UR: 16-25163  
Locates Action No.: N/A

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

Dear Mr. Kieling:

**Subject: Supplement to Notification of Class 1 Permit Modification Construction Updates for the Technical Area 63 Transuranic Waste Facility Container Storage Unit, Los Alamos National Laboratory, Hazardous Waste Facility Permit, EPA ID # NM0890010515**

The purpose of this letter is to submit additional information to the New Mexico Environment Department Hazardous Waste Bureau (NMED-HWB) related to a Class 1 permit modification to the Los Alamos National Laboratory (LANL) Hazardous Waste Facility Permit (the Permit) for the Technical Area (TA)-63 Transuranic Waste Facility (TWF) container storage unit. The original Permit was issued to the Department of Energy (DOE) and Los Alamos National Security, LLC (LANS), the Permittees, in November 2010.

Construction of the facility began in August 2014 and is scheduled for completion in August 2016. On March 11, 2016, the Permittees submitted a Class 1 Permit Modification Notification to revise the description of the facility in the Permit. These revisions include minor changes to the project design that developed or had been constrained during construction activities after the original design was approved by the NMED-HWB.

This submittal provides additional information and revisions to the permit text as a result of meetings between the Permittees and representatives of the NMED-HWB on April 27, and May 19, 2016. This information provides an improved description of the facility and justification for the text changes. As a result, some minor changes to the permit text have also been made. These changes affect four of the items previously described in the 2016 Permit modification notice. All the changes meet the criteria for a Class 1 permit modification as contained in Title 40 of the Code of Federal Regulations (40 CFR §270.42, Appendix I, *Classification of Permit Modification*). A full description of the revisions associated with the permit





modification, rationale for the classification types, the necessary permit revisions, and a signed certification page are included in Enclosure 1.

Three hard copies and one electronic copy of this submittal will be delivered to the NMED-HWB. The hardcopy submittal contains pages or sections where text has been changed rather than copies of full attachments of the Permit. The electronic copy will only be provided to NMED-HWB and contains a reproduction of the hardcopy in portable document format (PDF) along with all the word processing and figure files used to create the hardcopy.

If you have comments or questions regarding this permit modification, please contact Karen Armijo, DOE, at (505) 665-7314 or Mark Haagenstad, LANS, at (505) 665-2014.

Sincerely,



John C. Bretzke  
Division Leader  
Environmental Protection and Compliance Division  
Los Alamos National Security, LLC  
Los Alamos National Laboratory

Sincerely,



Karen E. Armijo  
Permitting and Compliance Program Manager  
National Nuclear Security Administration  
Los Alamos Field Office  
U.S. Department of Energy

JCB:KEA:MPH:GB/lm

Enclosure: (1) Supplement - Class 1 Permit Modification Construction Updates for the Technical Area 63 Transuranic Waste Facility Container Storage Unit, Los Alamos National Laboratory Hazardous Waste Facility Permit

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Mr. John E. Kieling  
EPC-DO-16-203

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Cy (continued):

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# **ENCLOSURE 1**

**Supplement -  
Class 1 Permit Modification  
Construction Updates for the  
Technical Area 63 Transuranic Waste Facility  
Container Storage Unit,  
Los Alamos National Laboratory  
Hazardous Waste Facility Permit**

**EPC-DO-16-203**

**LA-UR-16-25163**

**Date:**           **SEP 01 2016**

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## Permit Modification Notification

This document contains supplemental information for a Class 1 permit modification to the Los Alamos National Laboratory (LANL) Hazardous Waste Facility Permit (the Permit). The Permit was issued to the Department of Energy (DOE) and Los Alamos National Security, LLC (LANS), collectively described herein as “the Permittees,” in November 2010 by the New Mexico Environment Department – Hazardous Waste Bureau (NMED-HWB). On December 20, 2013, the NMED-HWB approved the addition of the Technical Area (TA)-63 Transuranic Waste Facility (TWF) container storage unit to the Permit.

Construction of the facility began in August 2014 and is scheduled for completion in August 2016. On March 11, 2016, the Permittees submitted a Class 1 Permit Modification Notification (2016 Permit Modification) to the NMED-HWB. The purpose of the modification was to revise the description of the facility in the Permit to include minor changes to the project that had been incorporated after the 2013 approval (LANL, 2016). The permit revisions included in that submittal reflected changes to the facility that developed or were constrained during construction activities after the original design was approved by the NMED-HWB. Construction changes described in the submittal involved minor location changes, changes in structure dimensions that require revisions to the descriptions contained in the Permit, and changes in equipment specifications.

This submittal provides additional information and revisions to the permit text as a result of discussions between the Permittees and representatives of the NMED-HWB on April 27 and May 19, 2016. This information provides an improved description of the facility and justification for the text changes. As a result, some minor changes to the proposed permit text have also been made. These changes affect four of the items previously described in the 2016 Permit Modification. The following item descriptions in this submittal provide details for these changes. All the changes meet the criteria for Class 1 permit modification as contained in Title 40 of the Code of Federal Regulations (40 CFR §270.42, Appendix I, *Classification of Permit Modification*).

These changes involve minor text revisions to the facility description in Permit Attachment A, *Technical Area (TA)-Unit Descriptions* and Permit Attachment J, *Hazardous Waste Management Units*. The text and figure modifications are provided in Attachments 1 through 5 of this document. The modifications to the text of the Permit have been identified using redline and strikeout format. Table 1, *Summary of Additional Revisions to the Permit Associated with the Technical Area 63 TWF*, describes the following: 1) each location within the Permit where changes are required, 2) a brief description of the changes made at that location and 3) a justification for the change and any necessary explanation about the change. A certification page is included in Attachment 6 in accordance with the requirements of 40 CFR §270.11.

### A. Facility Area Calculation (Revision to Item B in the 2016 Permit Modification)

#### Description

The TA-63 TWF area discussion given in Permit Attachment A, *Technical Area (TA)-Unit*

*Descriptions*, includes the original estimation of the area of the permitted storage unit as 1.81 acres and 78,843 square feet. This original approximation was based upon the plans developed for the facility design. A review of the site area from the project construction figures indicates the need for a minor adjustment to the area of the permitted storage unit. The corrected area of 1.82 acres or 79, 239 square feet is an increase of approximately 0.5%. Additionally, the original permit text references the TA-63 TWF without making the permitted unit distinction.

The increase in surface area does not affect the waste management storage conditions in the Permit and reflects a more accurate description of the as-built facility. The increase in area also does not affect the calculated number of samples in the unit closure plan (Permit Attachment G.27) that will be needed to demonstrate decontamination of the concrete pad when operations cease at the facility.

During the discussions with the NMED-HWB, the option of changing the location of the unit boundaries to account for a smaller surface area matching the original permit description was identified. After evaluation, this option was determined to have potential impacts on storm water run-on conditions on the south side of the permitted unit and was perceived as a negative change. For these reasons, changing the surface area figure in the Permit to match the area as constructed appears to be the least problematic choice.

The sentence has been revised to replace the acreage and square footage figures in Permit Attachment A. The sentence has also been edited to more accurately identify the TWF permitted storage unit. In addition, the area figure has been added to Permit Attachment J, Table J-1, *Active Portion of the Facility*, for consistency as requested by NMED-HWB. (See Attachment 1)

#### **Rationale for Class 1 Permit Modification**

The Permittees are submitting this change to the NMED-HWB as a Class 1 permit modification notification pursuant to the conditions of 40 CFR §270.42, Appendix I, *Classification of Permit Modification*, Item A.3, for an upgrade with functionally equivalent components. The change in area of the permitted unit is minor and does not affect the waste management operations at the facility or the storage requirements in the Permit.

#### **B. Pad Runoff Grade Description (Revision to Item C in the 2016 Permit Modification)**

##### **Description**

As included in Permit Attachment A, *Technical Area (TA)-Unit Descriptions*, Section A.6.1, *Concrete Pad*, Section A.6.5, *Retention Basin*, and Section A.6.9, *Control of Run-On/Run-off*, the slope of the concrete pad directing run-off to the TA-63 TWF retention basin was described as nominally or approximately 2%. As constructed at the facility, the runoff slope of the concrete pad is not constant due to the need to contour the areas between the boundaries of the pad and the storage buildings while maintaining a sufficient slope to direct runoff to the retention basin. Due to this factor, the range of slopes present at the site expressed in percentages is varied and the 2% criteria given in the text also represents an inaccurate bounding value. As such, the description in the permit is no longer correct. Therefore, the affected sections of the facility description have been revised to replace the description with a range of percentages for the concrete pad slopes. As shown in the figure in Attachment 2 of this submittal, these slopes vary from 1.1% to 2.5%. This range has been added to the permit description. This permit revision

does not affect or change the function of the slope to promote drainage to the retention basin. This design change affects several portions of the Permit in Permit Attachment A, *Technical Area (TA)-Unit Descriptions* (see Attachment 3):

- Section A.6.1, *Concrete Pad*, states that “The pad is sloped at an approximate 2% grade to promote drainage of storm water and potential fire suppression water to the retention pond...” This has been altered to read “The pad is sloped in a range from 1.1% to 2.5% to drain storm water and potential fire suppression water to the retention pond...”
- Section A.6.5 *Retention Basin*, contains a statement that “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...” This sentence has been revised by deleting the parenthetical phrase “nominally 2%” and replacing it with the phrase “ranging from 1.1% to 2.5%.”
- Section A.6.9 *Control of Run-On/Run-off*, states that “The TWF site slopes nominally at a 2% grade to promote drainage to the retention pond.” This sentence has been replaced with “The concrete pad within the permitted unit at TWF is sloped in a range from 1.1% to 2.5% to drain storm water to the retention pond.”

#### **Rationale for Class 1 Permit Modification**

The Permittees are submitting this change to the NMED-HWB as a Class 1 permit modification notification pursuant to the conditions of 40 CFR §270.42, Appendix I, *Classification of Permit Modification*, Item A.3, for an upgrade with functionally equivalent components. The basis for this is that the presence and purpose of the slope has not changed although the numeric description requires correction.

#### **C. Storage Pad Perimeter Gutter (Revision to Item D in the 2016 Permit Modification)**

##### **Description**

Permit Attachment A, *Technical Area (TA)-Unit Descriptions*, Section A.6.1, *Concrete Pad*, includes a statement that the perimeter of the concrete pad at the TA-63 TWF has a 24 inch gutter and 6 inch high curb to provide run-off control. As constructed, the gutter is slightly smaller and has a width in a range of between 15 and 18 inches. This statement has been changed to provide a better description of the dimensions for the gutter. The 24 inch requirement in the sentence “The perimeter of the pad has a 24” gutter and 6” high curb to provide run-off control” has been revised to state that the “perimeter of the pad has a 15” to 18” gutter...”. This change does not affect the presence or capacity of the system to provide for run-off control. (See Attachment 4).

##### **Rationale for Class 1 Permit Modification**

The Permittees are submitting this change to the NMED-HWB as a Class 1 permit modification notification pursuant to the conditions of 40 CFR §270.42, Appendix I, *Classification of Permit Modification*, Item A.3, for an upgrade with functionally equivalent components. The basis for this is that the presence and function of the gutter has not changed although the numeric description requires correction.

## **D. Fire Water System (Revision to Item H in the 2016 Permit Modification)**

### **Description**

The discussion of the TA-63 TWF fire protection system has been revised to address changes that have developed since the original design. These include the description of the fire water storage tank and components of the water supply system.

As originally designed and described in Permit Attachment A, *Technical Area (TA)-Unit Descriptions*, the TA-63 TWF had a fire suppression system including a 150,000 gallon tank and electric and diesel powered fire pumps to distribute water to automatic sprinkler systems in the storage buildings. The design capacity for the fire water storage tank was increased to a usable volume of 196,000 gallons and the tank has been constructed to that capacity. This volume represents a positive 31% increase in water available for a fire event.

This increase in volume is not conceptually related to the volume of the retention basin but this relationship was not described sufficiently in the 2016 Permit Modification. As discussed in Permit Section A.6.5, the needed volume for the retention basin was derived from National Fire Protection Association (NFPA) standards and storm water factors rather than by the need to capture the entire volume of available water at the TA-63 TWF. The retention basin is designed to collect water from this area in two types of events. Primarily, surface storm water or melt water run-off from the concrete pavement in this area is directed to the retention basin via the slope of the concrete pad. Secondly, in the event of a fire at the unit, fire suppression water will potentially flow out of the storage buildings or from other structures in the permitted unit to the concrete pad and then to the retention basin. The fire water storage tank is located outside the permitted unit and the retention basin will not collect water if the tank leaks or there is an unplanned release from the tank.

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 85,900 gallons (11,500 cubic ft.) from the surface area of the unit). 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.). The combined volume from both events occurring at the same time was used as a conservative design approach. This results in a total design capacity for the retention basin of 112,300 gallons (approximately 15,000 cubic ft.). The designed total retention basin volume also included extra freeboard, resulting in a total capacity of 137,450 gallons (18,375 cubic ft.).

In the event of a fire at the TWF, the retention basin will serve the critical function of collecting the fire suppression water in the basin. The slope of the unit's concrete pad and the valley gutter serve to ensure that any water draining from the unit's storage buildings or the characterization trailers will be routed to the retention basin. This key design feature provides containment of possible contamination and a backup option for any emergency management activities. In such an event, collected water will remain in the basin until sampling and water-quality analysis can be performed to determine whether or not the water is contaminated. Upon completion of sampling and analysis, the water will be managed accordingly. In the event of such a fire or release, any further decontamination of the retention basin or of any overflow of the basin will be subject to the provisions of the implemented Permit Attachment D, *Contingency Plan*.

Additionally, the description of the fire pumps is no longer correct in this section of the Permit. The fire water pumps available as constructed are both electric with a diesel generator backup for the event of a loss of main electrical power.

This design change affects Permit Attachment A, *Technical Area (TA)-Unit Descriptions*, Section A.6.8, *Required Equipment*. The section states that "...Water will be supplied via the 150,000 gallon tank north of the Operations Support Building with a combination of electric and diesel powered fire pumps to distribute water to automatic sprinkler systems in the buildings..." The sentence has been revised to say "Water will be supplied via the 196,000 gallon tank north of the Operations Support Building with electric fire water pumps backed up with a diesel generator to distribute water to automatic sprinkler systems in the buildings." (See Attachment 5).

#### **Rationale for Class 1 Permit Modification**

The Permittees are submitting this change to the NMED-HWB as a Class 1 permit modification notification pursuant to the conditions of 40 CFR §270.42, Appendix I, *Classification of Permit Modification*, Item A.3, for equipment upgrading or replacement with functionally equivalent components. The changes in the fire suppression system are limited to equipment substitution with equivalent components and do not affect the presence or functionality of the system.

**Table 1. Summary of Additional Revisions to the Permit Associated with the TA-63 Transuranic Waste Facility**

<b>Permit Section</b>	<b>Revision Description</b>	<b>40 CFR §270.42, Appendix I Item</b>	<b>Justification</b>
Permit Attachment A, <i>Technical Area (TA)-Unit Descriptions.</i>	Facility area description	A.3	The change is needed in the facility description to provide a minor revision to the area of the TWF permitted unit.
Permit Attachment A, <i>Technical Area (TA)-Unit Descriptions, Sections A.6.1, A.6.5, and A.6.9.</i>	Pad runoff grade description	A.3	The change is needed in the facility description to provide more complete information regarding the concrete pad slope.
Permit Attachment A, <i>Technical Area (TA)-Unit Descriptions, Section A.6.1.</i>	Perimeter gutter description	A.3	The change is needed in the facility description to provide for a range of widths in the perimeter gutter as constructed.
Permit Attachment A, <i>Technical Area (TA)-Unit Descriptions, Section A.6.8.</i>	Fire system description	A.3	The change is needed in the facility description to provide updated information regarding the available fire control equipment.

## References

*Los Alamos National Laboratory Hazardous Waste Facility Permit*, issued by New Mexico Environment Department, Hazardous Waste Bureau, November 30, 2010 and subsequent revisions.

LANL, 2016. *Notification of Class 1 Permit Modification Updates Associated with the Technical Area 63 Transuranic Waste Facility Container Storage Unit of the Los Alamos National Laboratory Hazardous Waste Facility Permit*, March 11, 2016, LA-UR-16-21335. Los Alamos National Laboratory, Los Alamos, New Mexico.

**Document:** Class 1 TA-63 TWF Update - Supplement  
**Date:** September 2016

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**Attachment 1**

**Permit Attachment A**

**Facility Area Description Revision**

**And**

**Permit Attachment J**

**Table J-1, Active Portion of the Facility Revisions**

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between Ten-Site Canyon, a tributary of Mortandad Canyon, on the north and Pajarito Canyon on the south in the central portion of the Facility (*see* Figure 54 in Attachment N (*Figures*)). The unit is built at the intersection of Pajarito Road and Puye Road, within the triangle formed by Building 63-111 to the east, Puye Road to the north, and Pajarito Road to the southwest.

The TWF consists of one hazardous waste management unit that is used to store containers of newly generated hazardous, mixed low-level, and mixed TRU waste. Waste containers may be characterized at the TWF, as described in Permit Sections A.6.4 and A.6.5, and in applicable sections of Permit Attachment C, *Waste Analysis Plan*. Characterization activities at the TWF include review of generator acceptable knowledge (AK) documentation, head-space and flammable gas sampling, non-destructive assay (NDA), and non-destructive examination (NDE). Waste containers will be accepted at the TWF only if they are closed and equipped with Waste Isolation Pilot Plant (WIPP) approved filter vents. Waste containers are not opened during storage or characterization at the TWF, although their filter vents may be replaced if necessary. Remote-handled TRU waste is not managed at the TWF.

The types of waste containers holding hazardous or mixed waste that are stored at the TWF include: 55- and 85-gallon drums; 55-gallon pipe overpack containers (POCs); Standard Waste Boxes (SWBs); Oversize Waste Boxes (OWBs); and Standard Large Box 2s (SLB2s).

Some TRU waste containers are determined through final waste characterization not to meet the WIPP requirements for TRU waste. Depending on the presence of hazardous constituents, these waste containers are reclassified as either low-level waste or mixed low-level waste and stored at the TWF until they are dispositioned appropriately.

Waste shipments are made from the LANL waste generating facilities to the TWF for storage and characterization. TRU waste is then shipped to the RCRA permitted Radioactive Assay and Nondestructive Testing (RANT) Facility at TA-54-38 West. The RANT Facility is used to load the TRU waste containers into TRUPACTs (steel shipment containers) required for off-site shipment to the WIPP. TRU waste may also be shipped from TWF to the RCRA permitted TA-50-69 Waste Characterization, Reduction, and Repackaging Facility (WCRRF) for repackaging and/or remediation of prohibited items if necessary. Low-level waste may be shipped from TWF to other LANL facilities or to off-site treatment or disposal facilities.

The TWF is constructed on 1.824 acres (798,239.843 square feet). The layout of the unit is depicted in Figure 55. The main structure for the unit is a concrete pad providing a physical base for six waste storage buildings, three waste characterization trailers, and outside storage of waste containers that are too large for placement in the buildings. The pad is surrounded by a security fence. The boundary of the hazardous waste management unit is limited to the northern portion of the concrete pad defined by those areas that drain to a retention basin. Along the northern and western sides of the unit, this is the edge of the concrete pad along the bottom of the retaining walls. On the east side, the edge of the curbing for the concrete pad is the boundary. The southern side of the boundary is defined by a painted line in compliance with Permit Section 3.5(2), *Management of Containers*. The line is situated approximately between the south east 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.

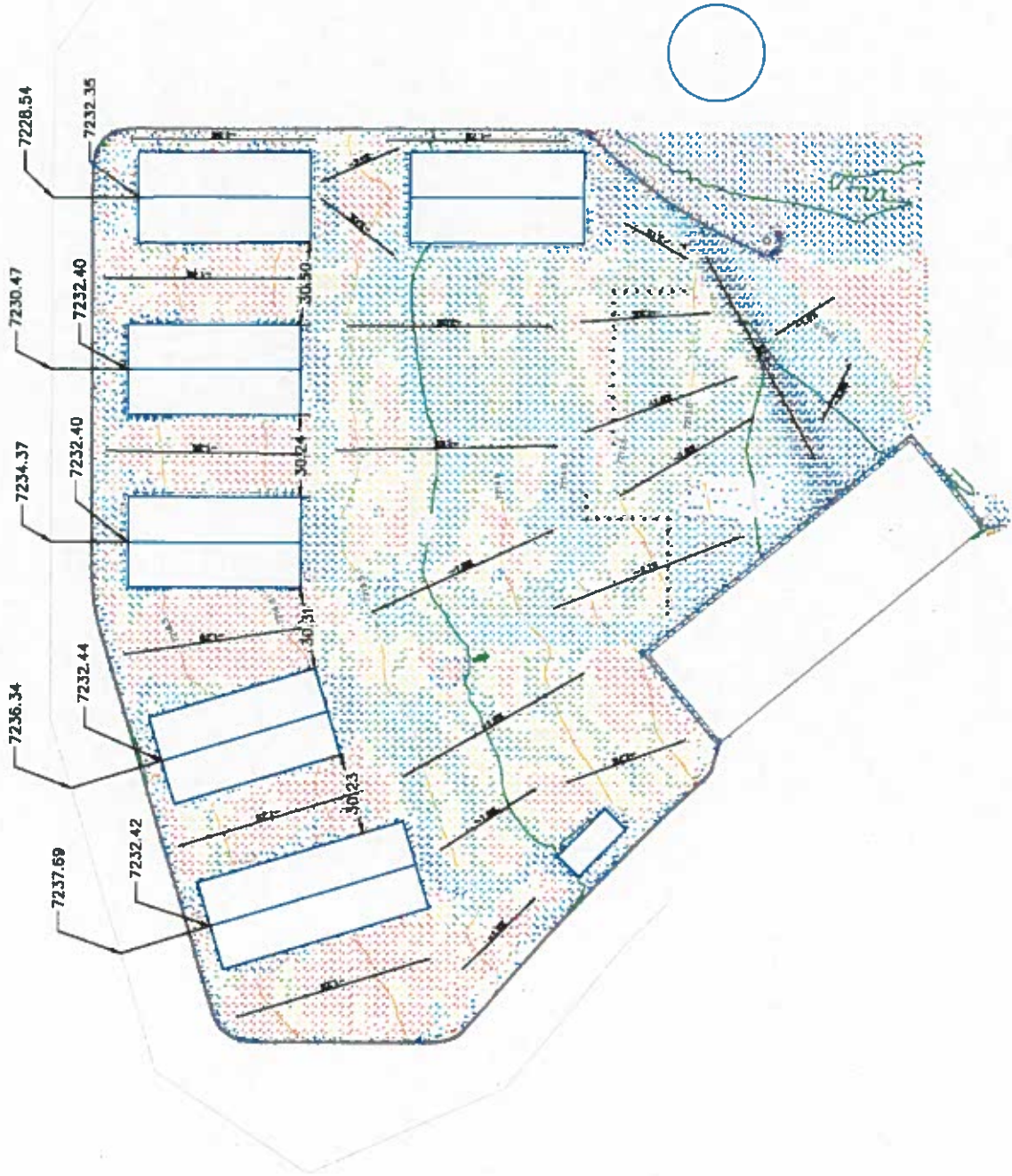
Unit Identifier	Process Codes	Operating Capacity	General Information	Type of Unit
			Total square footage – 4,500	
TA-55-4-401 Mixed Waste Stabilization Unit	T04	Treatment - 150 gal / day	TA-55-4 Room 401 Total square footage – 4,500	Indoor
TA-55-4 Outdoor Pad	S01	135,000 gal	Located outside and west of TA-55-4 Includes building TA-55-PF- 190 Total square footage – 11,100	Outdoor (not associated with a regulated unit)
TA-63 Transuranic Waste Facility	S01	105,875 gal	Includes TA-63-149 through 153 Storage Buildings, TA- 63-154 Storage and Characterization Building, TA-63-155 through 157 Characterization Trailers, and Outside Storage Pad  <u>Total square footage – 79, 239</u>	Outdoor (not associated with a regulated unit)

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**Attachment 2**  
**Permit Attachment A**  
**Facility Area Description Revisions**  
**Figure: TA-63 TWF Concrete Pad As-Built Slopes**

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**TA-63 TWF Concrete Pad As-Built Slopes**

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**Attachment 3**  
**Permit Attachment A**  
**Facility Area Description Revisions**  
**Pad Runoff Grade Revisions**

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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 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 ~~in a range from an approximate 1.12% to 2.5% grade to promote drainage of~~ storm water and potential fire suppression water to the retention pond.

The perimeter of the pad has a 15 to 18 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 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

#### **A.6.5 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 ranging from 1.1% to 2.5%) 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 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.

if the composition of the release is known and they are sure their actions will not put themselves 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 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 concrete pad within the permitted unit at TWF site is sloped in a range from 1.1% to 2.5% slopes nominally at a 2% grade to promote drainage storm water 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 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.

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**Attachment 4**

**Permit Attachment A**  
**Perimeter Gutter Revision**

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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 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 ~~in a range from an approximate 1.12% to 2.5% grade to promote drainage of~~ storm water and potential fire suppression water to the retention pond.

The perimeter of the pad has a ~~15 to 18~~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 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

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**Attachment 5**

**Permit Attachment A**  
**Fire System Description Revision**

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station at the TWF; the system is also connected to the Los Alamos County Consolidated Dispatch Center. Specific facility monitor/control system equipment located at the TWF is discussed below. Emergency equipment is located throughout the TWF and includes fire alarms, fire response systems, alarm systems, internal communications, spill kits, and decontamination equipment.

Fire-alarm pull boxes and/or drop box push-button alarms are located pursuant to NFPA standards in the TWF where waste management activities are conducted. Fire-alarm pull boxes can be used by personnel to activate a local fire alarm when a fire or other emergency is discovered. Once manually activated, an alarm will sound in the TWF access control station and at the LAFD through Los Alamos County Consolidated Dispatch Center. The TWF is also equipped with automatic fire suppression alarm systems. The fire-suppression alarms will be activated when water flow is detected in the sprinkler pipes of the fire-suppression system. Upon activation of the fire-alarm system, an alarm will sound and red lights will flash to alert personnel of emergency conditions. All fire-alarm pull boxes and automatic fire-suppression systems located at the TWF are connected to the LAFD through Los Alamos County Consolidated Dispatch Center.

In addition to the alarms described above, a public address (PA) system is available to announce emergency conditions or to initiate an evacuation at the TWF. The PA system is audible throughout the TWF and is activated from the access control station in the Operations Support Building.

Personnel working at the TWF have the ability to communicate the location and nature of hazardous conditions using conventional telephones, or cellular telephones to call the access control station. This type of call will summon assistance from the EO-EM, local police and fire departments, and state emergency response teams, as necessary.

Fire control equipment is readily available in the hazardous waste management unit. Portable fire extinguishers are available and may be used by trained on-site personnel depending on the size of the fire and the fuel source. However, LANL policy encourages immediate evacuation of the area and notification of appropriate emergency personnel. Fire hydrants are located in accordance with NFPA standards on the west and east sides of the TWF pad and near the Operations Building. Water is supplied to the fire hydrants by a municipal water system which can provide adequate volume and pressure (i.e., greater than 1,000 gal per minute and 90 pounds per square inch static pressure) to multiple water hoses in the event of a fire. The LAFD will supply all water hoses needed in the event of a fire at the TWF. Fire protection systems for the TWF storage buildings, including the Storage and Characterization Building 63-0154, include a dry-pipe sprinkler system for fire suppression. Water will be supplied via the 196-150,000 gallon tank north of the Operations Support Building with a combination of electric and diesel-powered fire water pumps backed up with a diesel generator to that distribute water to automatic sprinkler systems in the buildings.

Spill response kits are available at the TWF in the storage areas to mitigate containable spills. These kits typically contain sorbents, neutralizers, personal protective equipment (PPE), and other equipment essential for containment of spills. Trained personnel will use the spill kits only

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**Attachment 6**  
**Certification**

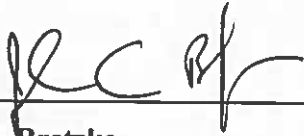
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### CERTIFICATION

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.



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**John C. Bretzke**  
Division Leader  
Environmental Protection and Compliance Division  
Los Alamos National Security, LLC  
Los Alamos National Laboratory  
Operator

8-25-2016

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**Date Signed**



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**Karen E. Armijo**  
Permitting and Compliance Program Manager  
National Nuclear Security Administration  
Los Alamos Field Office  
U.S. Department of Energy  
Owner/Operator

25 Aug 2016

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**Date Signed**

