ERID-259153

Environmental Protection Division
Environmental Compliance Programs (ENV-CP)
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Los Alamos, New Mexico 87545
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National Nuclear Security Administration
Los Alamos Field Office, A316
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(505) 667-5794/Fax (505) 667-5948

Date: JUL 28 2014
Symbol: ENV-DO-14-0169
LAUR: 14-25375
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: 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 (LANL) Hazardous Waste Facility Permit, EPA ID # NM0890010515

The purpose of this letter is to notify the New Mexico Environment Department's Hazardous Waste Bureau (NMED-HWB) of several Class 1 permit modifications to the Los Alamos National Laboratory (LANL) Hazardous Waste Facility Permit (Permit). This Permit was issued to the Department of Energy (DOE) and Los Alamos National Security, LLC (LANS), the Permittees, in November 2010.

On December 19, 2013, NMED-HWB approved the addition of the Technical Area (TA)-63 Transuranic Waste Facility container storage unit to the Permit. The unit has not been built but construction is scheduled to begin later in 2014. The included modifications reflect design changes to the facility that has evolved since the original facility design was approved by NMED-HWB. Design changes within the permitted unit involve the substitution of dry pipe fire suppression systems in the container storage buildings, a change in the designed depth of the retention basin, and a change in the soil vapor monitoring well completions. Other facility changes outside the permitted unit include the addition of a vehicle barrier around portions of the site, a change in the security fence to coordinate with the vehicle barrier, and a change in the location of a generator. These changes will involve text revisions to the facility description in Attachment A, *Unit Descriptions*, and a figure drawing revision in Attachment N, *Figures*, of the Permit.

The Permittees have prepared this permit modification in accordance with Title 40 of the Code of Federal Regulations (40 CFR) § 270.42(a)(1). The changes made to the Permit as part of this modification all fall under the conditions of Appendix I of 40 CFR §270.42. Permit Section A.6 of Attachment A, requires text updates for the fire suppression system that fall under Item A.3 of Appendix I and administrative and

informational changes that fall under Item A.1. A full description of the permit modifications, rationale for the classification types, and the necessary changes has been included in Enclosure 1.

This permit modification notification includes this letter and an enclosure that contains a description of the permit modification, text edits of the Permit sections, a replacement figure, and a signed certification page. 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 files used to create the hardcopy.

Notification of this modification will be sent to the NMED-HWB-maintained LANL facility mailing list in accordance with 40 CFR § 270.42(a)(1)(ii) within seven days of the transmittal of this permit modification request. If you have comments or questions regarding this permit modification, please contact Gene Turner, DOE, at (505) 667-5794 or Mark Haagenstad, LANS, at (505) 665-2014.

Sincerely,

A R Grieggs for

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

Sincerely,

Kimberly Davis Lebak

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

AMD:KDL:MPH:GAB/kt

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

Cy: Laurie King, USEPA/Region 6, Dallas, TX (E-File)
Dave Cobrain, NMED/HWB, Santa Fe, NM, (E-File)
Tim Hall, NMED/HWB, Santa Fe, NM, (E-File)
Peter Maggiore, NA-LA, (E-File)
Gene E. Turner, NA-LA, (E-File)
Eric L. Trujillo, NA-LA, (E-File)
Carl A. Beard, PADOPS, (E-File to aosburn@lanl.gov)
Michael T. Brandt, ADESH, (E-File)
Alison M. Dorries, ENV-DO, (E-File)
Brett A. Cederdahl, PM1, (E-File)
Edward W. Artiglia, ES-EPD, (E-File)
Jermaine A. Herrera, MOF-DO, (E-File)
Mark P. Haagenstad, ENV-CP, (E-File)

Cy (continued):
Gian A. Bacigalupa, ENV-CP, (E-File)
Jeff A. Carmichael, ENV-CP, (E-File)
lasomailbox@nnsa.doe.gov, (E-File)
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COPY

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NATIONAL LABORATORY

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RECEIVED
JUL 27 2014
NMED
Hazardous Waste Bureau

Date: JUL 28 2014
Symbol: ENV-DO-14-0169
LAUR: 14-25375
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: 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 (LANL) Hazardous Waste Facility Permit, EPA ID # NM0890010515

The purpose of this letter is to notify the New Mexico Environment Department's Hazardous Waste Bureau (NMED-HWB) of several Class 1 permit modifications to the Los Alamos National Laboratory (LANL) Hazardous Waste Facility Permit (Permit). This Permit was issued to the Department of Energy (DOE) and Los Alamos National Security, LLC (LANS), the Permittees, in November 2010.

On December 19, 2013, NMED-HWB approved the addition of the Technical Area (TA)-63 Transuranic Waste Facility container storage unit to the Permit. The unit has not been built but construction is scheduled to begin later in 2014. The included modifications reflect design changes to the facility that has evolved since the original facility design was approved by NMED-HWB. Design changes within the permitted unit involve the substitution of dry pipe fire suppression systems in the container storage buildings, a change in the designed depth of the retention basin, and a change in the soil vapor monitoring well completions. Other facility changes outside the permitted unit include the addition of a vehicle barrier around portions of the site, a change in the security fence to coordinate with the vehicle barrier, and a change in the location of a generator. These changes will involve text revisions to the facility description in Attachment A, *Unit Descriptions*, and a figure drawing revision in Attachment N, *Figures*, of the Permit.

The Permittees have prepared this permit modification in accordance with Title 40 of the Code of Federal Regulations (40 CFR) § 270.42(a)(1). The changes made to the Permit as part of this modification all fall under the conditions of Appendix I of 40 CFR §270.42. Permit Section A.6 of Attachment A, requires text updates for the fire suppression system that fall under Item A.3 of Appendix I and administrative and

ENCLOSURE 1

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

ENV-DO-14-0169

LA-UR-14-25375

Date: JUL 2 8 2014

Permit Modification Notification

This document contains a notification for several Class 1 permit modifications to the Los Alamos National Laboratory (LANL) Hazardous Waste Facility Permit (Permit). This Permit was issued to the Department of Energy (DOE) and Los Alamos National Security, LLC (LANS), 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. The unit has not been built but construction is scheduled to begin in the summer of 2014. The modifications included in this submittal reflect design changes to the facility that have been developed since the original design was approved by the NMED-HWB. Design changes within the permitted unit involve the substitution of dry pipe fire suppression systems in the container storage buildings from the original design for wet pipe systems, a change in the designed depth of the retention basin, and a change in the soil vapor monitoring well completions. Other facility changes outside the permitted unit include the addition of a Metalith™ vehicle barrier around portions of the site, a change in the security fence to coordinate with the Metalith™ barrier, and a change in the location of one generator. All the changes meet the criteria for Class 1 permit modification notifications as contained in Title 40 of the Code of Federal Regulations (40 CFR §270.42, Appendix I, *Classification of Permit Modification*).

These changes will involve minor text revisions to the facility description in Permit Attachment A, *Unit Descriptions (*Section A.6, beginning on page 37*)*, and revisions to Figure 55 drawings in Permit Attachment N, *Figures,* of the Permit. The text and figure modifications are provided in Attachments 2 through 8 of this document. The modifications to the text of the Permit have been identified using redline and strikeout format. Table 1, *Summary of Changes 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 description of the changes made at that location and 3) a justification for the change and any necessary explanation about the change. Attachment 8, *Revised Permit Text and Figure*, includes the specific changes to the Permit for Attachment A and a replacement Figure 55. A certification page is included in Attachment 9 in accordance with the requirements of 40 CFR § 270.11.

A. Dry Pipe Fire Suppression System

Description

There has been a design revision for the fire suppression system within the storage buildings at the TA-63 TWF involving a substitution in the fire suppression equipment to be used at the facility. Originally, a wet pipe system was described in the TWF Permit Modification Request (PMR) submitted to the NMED-HWB by the Permittees (*Permit Modification Request for Technical Area 63 Transuranic Waste Facility Hazardous Waste Container Storage Unit*, Rev. 3.0, LA-UR-12-24928, October 2012). This has been changed to a dry pipe system. The purpose of the change is to improve firefighting capabilities in the storage buildings and to prevent the possibility of fire water being released from the system in the event of freezing.

Dry pipe fire suppression systems are installed in spaces in which the ambient temperature may be cold enough to freeze the water in a wet pipe system, rendering the system inoperable. Typically, dry pipe systems are most often used in unheated buildings, in parking garages, or in outside structures attached to heated buildings. At the TWF specifically, the design change to a dry pipe system has been developed to provide a more robust fire protection system 1) if the storage buildings should require freeze protection in the case of a power outage or 2) if the inside building conditions become cold enough to freeze during waste management activities such as transporting waste containers into the buildings through the open bay doors during winter conditions.

Dry pipe systems are different from wet pipe systems because the final distribution piping to the sprinklers in the buildings contains compressed air or another pressurized gas instead of water. The use of air keeps the sprinkler piping system from freezing and the source of fire suppression water is separated from the system by a valve upstream of the sprinkler distribution piping. Water is not present in the distribution piping until the system operates. The piping is filled with air below the water supply pressure. A dry pipe valve (a specialized type of check valve) prevents the higher water supply pressure from forcing water into the piping. The dry pipe valve is kept above freezing temperatures by an enclosure with heating capabilities. When one or more of the automatic sprinklers is exposed, for a sufficient time, to a temperature at or above the sprinkler temperature rating, it opens, allowing the air in the piping to vent from that sprinkler. Each sprinkler operates individually. As the air pressure in the piping drops, the pressure differential across the dry pipe valve changes, opening the valve and allowing water to enter the entire sprinkler distribution piping system. Figures 1 and 2 of Attachment 1 of this document provide further details regarding the components of a typical dry pipe fire suppression system.

The above discussion supports the replacement of the descriptive term “wet pipe” to “dry pipe” for the fire suppression equipment described in Permit Attachment A.6. This design change also affects Figures 2-9, 2-16, 2-17, 2-19, 2-27, and 2-28 originally submitted with the TWF PMR. Those figures described the plan layout of the storage buildings and the original details of the fire suppression water distribution systems. New and revised figures have been included with this submittal in Attachment 1 (*see* Figures 3-14) to support the administrative record for the project by providing the new and revised information. The revisions from the original figures are limited to adding final enclosures for the dry pipe valving to the storage building plan layouts and adding the dry pipe valving components to the existing water distribution piping systems. The purpose of the enclosures for the dry pipe valving will be to contain the valving and heating equipment. The enclosures will not be a structural addition to the storage buildings.

Rationale for Class 1 Permit Modification

The Permittees are submitting these changes 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 change in the type of fire suppression system is limited to an equipment upgrade and does not affect the presence or capacity of the system.

Specific Changes to the Permit

This design change affects only one section of the approved Permit in Attachment A, *Unit*

Descriptions, Permit Section A.6.8, *Required Equipment*. In the fourth paragraph on page 44 of Attachment A, it is stated that: "Fire protection systems for the TWF storage buildings, including the Storage and Characterization Building 63-0154, include a wet pipe sprinkler system for fire suppression." The description of the sprinkler system has been altered to "dry pipe." The description of the fire suppression system in the Fire Control Equipment Section of Permit Table D-5, *TA-63 Transuranic Waste Facility Emergency Equipment*, does not require this change.

B. Vehicle Barrier Design Changes

Description

The TWF facility will be located at the intersection of Pajarito Road and Puye Road at LANL. As described in Section 3.1.1 of the TWF PMR, vehicle barriers will be used to protect the TWF from traffic on Pajarito and Puye Roads. These vehicle barriers were not planned to be within the boundaries of the permitted unit but would be present near the roads to provide direct protection from the various types of vehicles commonly present on LANL property. At the time the permit modification request was written and submitted, these vehicle barriers were being reviewed in accordance with DOE protection requirements associated with facilities managing radioactive materials. As a result of that review, the size of the vehicle barriers has been increased significantly to improve safety by minimizing the potential occurrence of a large transport vehicle impacting into the facility and creating direct damage to the storage buildings or a fuel fire.

The design plan for the vehicle barriers will involve the placement of a prefabricated steel wall structure (Metalith™) as a perimeter security system along the shoulder of Pajarito and Puye Roads. The Metalith™ is a prefabricated steel barrier unit constructed from 16 and 18-gauge corrugated steel panels that are connected with stainless steel pins, and formed into multiple course assemblies resembling boxes of varying heights, thickness, and shapes. Soil or sand is then used as ballast fill in these assemblies to provide mass and support. These assemblies will be nominally 12 feet high and 12 feet wide at the TWF. They will be situated in a continuous line facing the roads with no gaps or spaces between. The line formed will be approximately 1100 feet long.

The barrier will extend along the northern part of the TWF on Puye Road to near building 63-0150 and also along the western portion of the TWF along Pajarito Road extending to building 63-0160 (*see* Figures 11-13 in Attachment 1 for more detail).

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.1, for an informational change. The Metalith™ barrier will not be located within the boundary of the TWF permitted storage unit. The changes described are therefore outside the boundary of the TWF permitted unit and do not involve waste management equipment, procedures, or emergency equipment.

Specific Changes to the Permit

This design change affects only one portion of the approved Permit in Permit Attachment N, Figure 55, *Technical Area (TA) 63 Transuranic Waste Facility*. The figure has been modified to

include the location of the Metalith™ barrier (*see* Attachment 7).

C. Security Fence

Description

As depicted in the TWF PMR and Figure 55 of the Permit, the TWF security fence was previously shown immediately surrounding the permitted storage unit on the east, north, and west sides. As part of this permit modification notification, the position of the security fence surrounding the TWF has been partially altered to incorporate the line of the Metalith™ vehicle barriers rather than running near the boundary of the permitted unit on the sides facing the Puye and Pajarito Roads. The change has been made to improve the ability of the fence to provide protection from the entry of personnel and livestock by increasing the distance from the boundary of the permitted unit and to coordinate with and utilize the increased height of the vehicle barriers on the affected sides.

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 40 CFR §270.42, Appendix I, *Classification of Permit Modification*, Item A.1, for administrative and informational changes. The security system has been improved with the higher Metalith™ vehicle barriers and the original security fence line is only altered as necessary to tie into the barriers. The described change is located outside the boundary of the TWF permitted unit and does not involve waste management equipment, procedures, or emergency equipment. Secure access points and procedures for the fence have not been affected.

Specific Changes to the Permit

This design change affects two sections of the approved Permit. Attachment A, *Unit Descriptions*, Permit Section A.6.7, *Security and Access Control*, states that: "The TWF is enclosed by a security fence with controlled access gates. The security fence is comprised of 8 foot high chain link." These sentences have been altered to reflect the current plans for the fence as follows: "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." The trademarked name for the Metalith™ barriers has not been used to preserve the generic equipment descriptions in the Permit. As described, the security fence line is also shown in Attachment N, *Figures*, Figure 55. Figure 55 has been modified to reflect the revised security fence line. See Attachments 3 and 7 for the text and figure changes.

D. Increase in Depth of Retention Basin

Description

There has been a minor design change to the TWF retention basin. The retention basin is designed to collect storm water or snow melt run-off from the concrete pavement via the slope of the concrete pad. In the event of a fire at the unit, the retention basin is also designed to collect fire suppression water that could flow out of the storage buildings or from other unit structures to the concrete pad. The design change is limited to the bottom of the retention basin only and involves a change to the contour in order to improve the removal of collected water and increase

the designed freeboard for the basin walls. The original slope of the retention basin has been decreased from 2% to 0.5%. The total basin depth will change from 3.5 feet to 5.5 feet but the design volume capacity of the basin (137,450 gallons) will remain the same. The modified design detail is included in Figure 14 of Attachment 1 in this document.

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.1, for administrative and informational changes. The change described does not include waste management equipment, procedures, or emergency equipment.

Specific Changes to the Permit

This design change affects one section of the approved Permit in Attachment A, Permit Section A.6.5, *Retention Basin,* page 42, which describes the dimensions of the retention basin to be 125 ft by 42 ft by 3.5 ft deep. The sentence has been modified to provide a better description of the retention basin by substituting a depth of 5.5 ft (*see* Attachment 4).

E. Generator Structure Addition

Description

The structures and surrounding buildings at the TWF site are shown in Attachment N, *Figures*, Figure 55 of the Permit. The design of the facility has been changed to include an auxiliary power generator structure on the east side of the facility and across the road from the Operations Support Building.

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.1, for administrative and informational changes. This addition does not involve waste management equipment, procedures, or emergency equipment described in the Permit. The change is limited to providing information regarding the support facilities outside the boundary of the permitted unit.

Specific Changes to the Permit

This design change affects two sections of the approved Permit. A sentence has been added to Attachment A, Permit Section A.6.6., *Other Project Structures*, to incorporate the unit in the facility description. The sentence states: "A back-up power generator is located east of the Operations Support Building" (*see* Attachment 5). Additionally, Figure 55 has been modified to show the generator location to the east of the main TWF facility (*see* Attachment 7).

F. Soil Vapor Monitoring Well Surface Completions

Description

The construction details for the five soil vapor monitoring wells described in Attachment A, *Unit Descriptions*, Section A.6.10, *Subsurface Vapor Monitoring*, include the installation of surface completions consisting of traffic-rated flush mount surface monuments. The design of the

completions has been changed to use above ground protective pipe casings instead of the surface flush mount units. The change has been made to provide better protection for the head of the soil vapor monitoring sampling tube and to minimize issues associated with matching the grading of the concrete pad for the three on-site wells. If necessary for traffic considerations, the casings will be surrounded with steel bumper posts or bollards to prevent contact. The casings will be constructed to be similar to other soil vapor monitoring wells associated with TA-50 Material Disposal Area C as referenced in the Permit. This addition does not involve waste management equipment, procedures, or emergency equipment described in the Permit.

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.1, for administrative and informational changes.

Specific Changes to the Permit

This design change affects one section of the approved Permit. A sentence has been revised in Attachment A, Permit Section A.6.10, *Subsurface Vapor Monitoring*, to describe the well surface completion. The sentence originally stated: "Final construction of the vapor monitoring wells requires the installation of surface completions consisting of traffic rated, flush mount steel surface monuments." This has been revised to read: "Final construction of the vapor monitoring wells requires the installation of above ground steel protective casings to protect the wells." (*see* Attachment 6).

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

Permit Section	Revision Description	40 CFR §270.42, Appendix I Item	Justification
Permit Attachment A, *Unit Descriptions*, Section A.6.8, *Required Equipment*	Replacement in required equipment description to include dry pipe fire suppression system	A.3	The change is needed in the facility description to provide information regarding the design change upgrading the fire suppression system components.
Permit Attachment N, Figure 55, *Technical Area (TA) 63 Transuranic Waste Facility*	Addition of Metalith™ barrier structure	A.1	The permit figure has been revised to provide updated information for structures surrounding the permitted unit.
Permit Attachment A, *Unit Descriptions*, Section A.6.7, *Security and Access Control*	Addition of text to include Metalith™ barrier and security fence relocation.	A.1	The change is needed in the facility description to provide information regarding the design change upgrading the vehicle barrier and the security fence relocation. The facility description is the only text portion of the Permit affected.
Attachment N, Figure 55, *Technical Area (TA) 63 Transuranic Waste Facility*	Replacement of security fence configuration.	A.1	The permit figure has been revised to provide updated information for structures surrounding the permitted unit.
Attachment A, *Unit Descriptions*, Section A.6.5, *Retention Basin*	Replacement of retention basin design depth	A.1	The change is needed in the facility description to provide information regarding the design change affecting the final design depth of the retention basin. The facility description is the only text portion of the Permit affected.
Attachment A, *Unit Descriptions*, Section A.6.6, *Other Project Structures*	Addition of generator structure	A.1	The change is needed in the facility description to provide updated information for structures surrounding the permitted unit.
Attachment N, Figure 55, *Technical Area (TA) 63 Transuranic Waste Facility*	Addition of generator structure	A.1	The permit figure has been revised to provide updated information for structures surrounding the permitted unit.
Attachment A, *Unit Descriptions*, Section A.6.10, *Subsurface Vapor Monitoring*	Replacement of flush mount well completions	A.1	The change is needed in the facility description to provide updated information regarding the design change to the soil vapor monitoring system components. The facility description is the only portion of the Permit affected.

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Attachment 1

Design Figures

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List of Figures for Attachment 1

Figure No.	Title
1	Typical Dry Pipe Fire Suppression Distribution System (Example)
2	Representative Dry Pipe Valving Details (Example)
3	Storage Building Floor Plan
4	Storage Building Fire Protection Plan
5	Storage Building Fire Protection P&ID
6	Storage Building Fire Sprinkler Diagram
7	Storage & Waste Characterization Building Floor Plan
8	Storage & Waste Characterization Building Fire Protection Plan
9	Storage & Waste Characterization Building Fire Protection P&ID
10	Storage & Waste Characterization Building Fire Sprinkler Diagram
11	Overall Site Plan
12	Overall Metalith Barrier Plan
13	Metalith Barrier Sections
14	Retention Basin Depth Change

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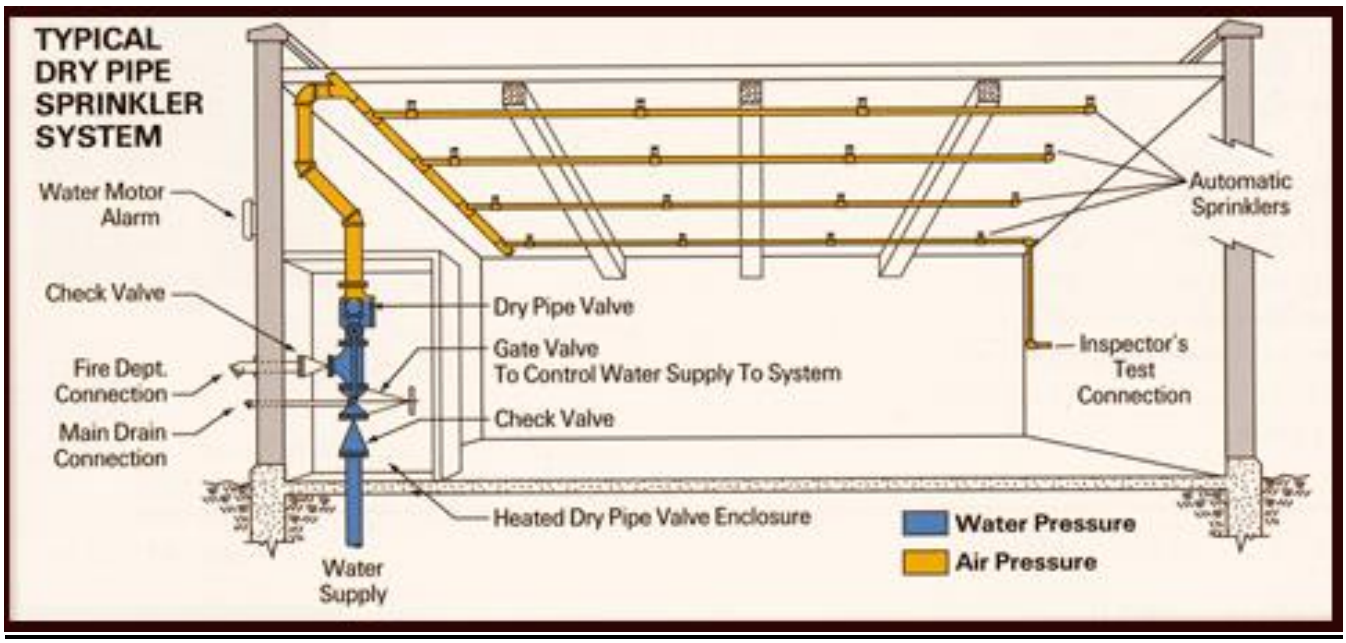

Figure 1: Typical Dry Pipe Fire Suppression Distribution System (Example)

(Taken from: http://tmpcc.com:news, 2008)

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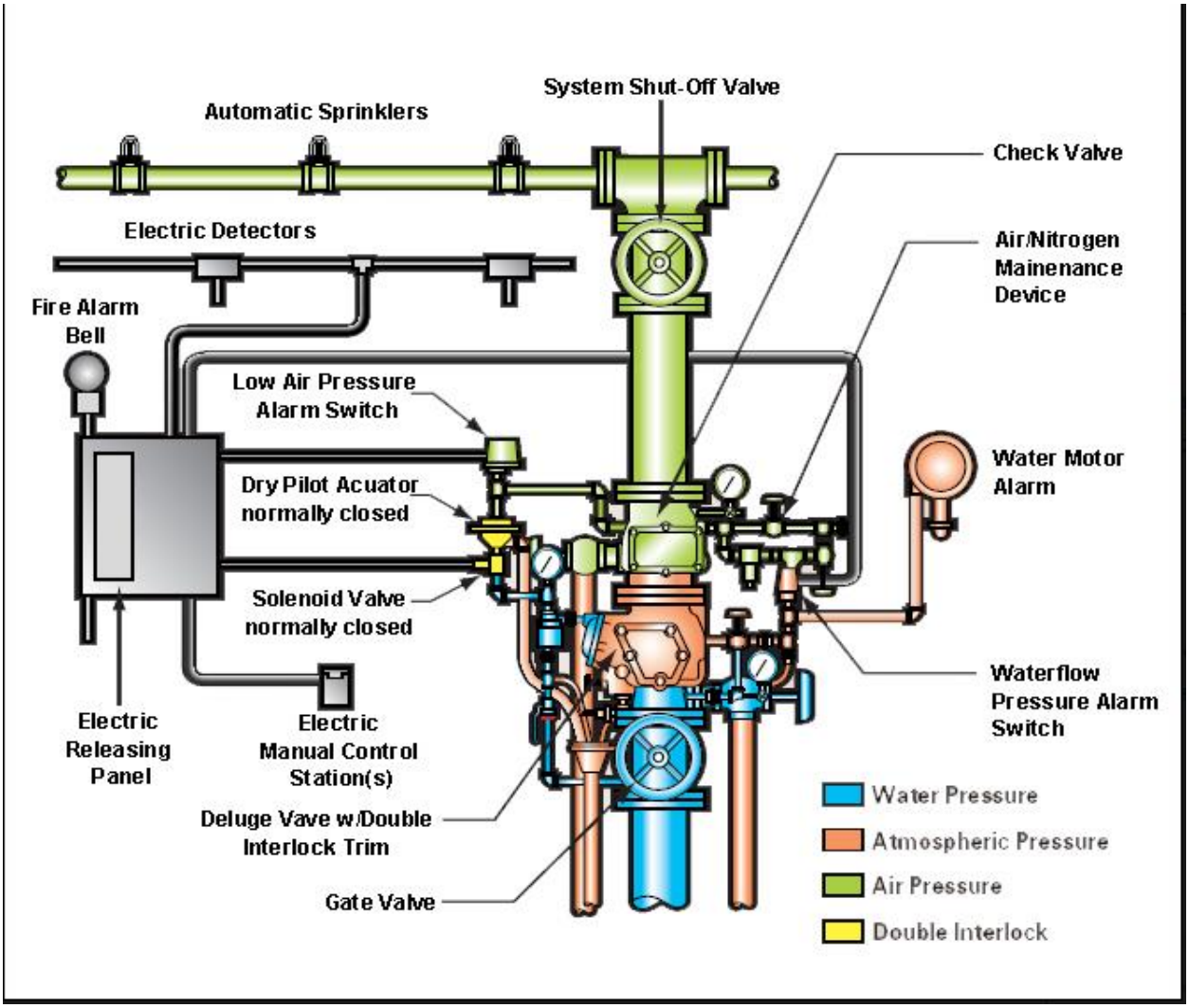

Figure 2: Representative Dry Pipe Valving Details (Example)

(Taken from: http://mh-mechanicalengineering.blogspot.com, 2012)

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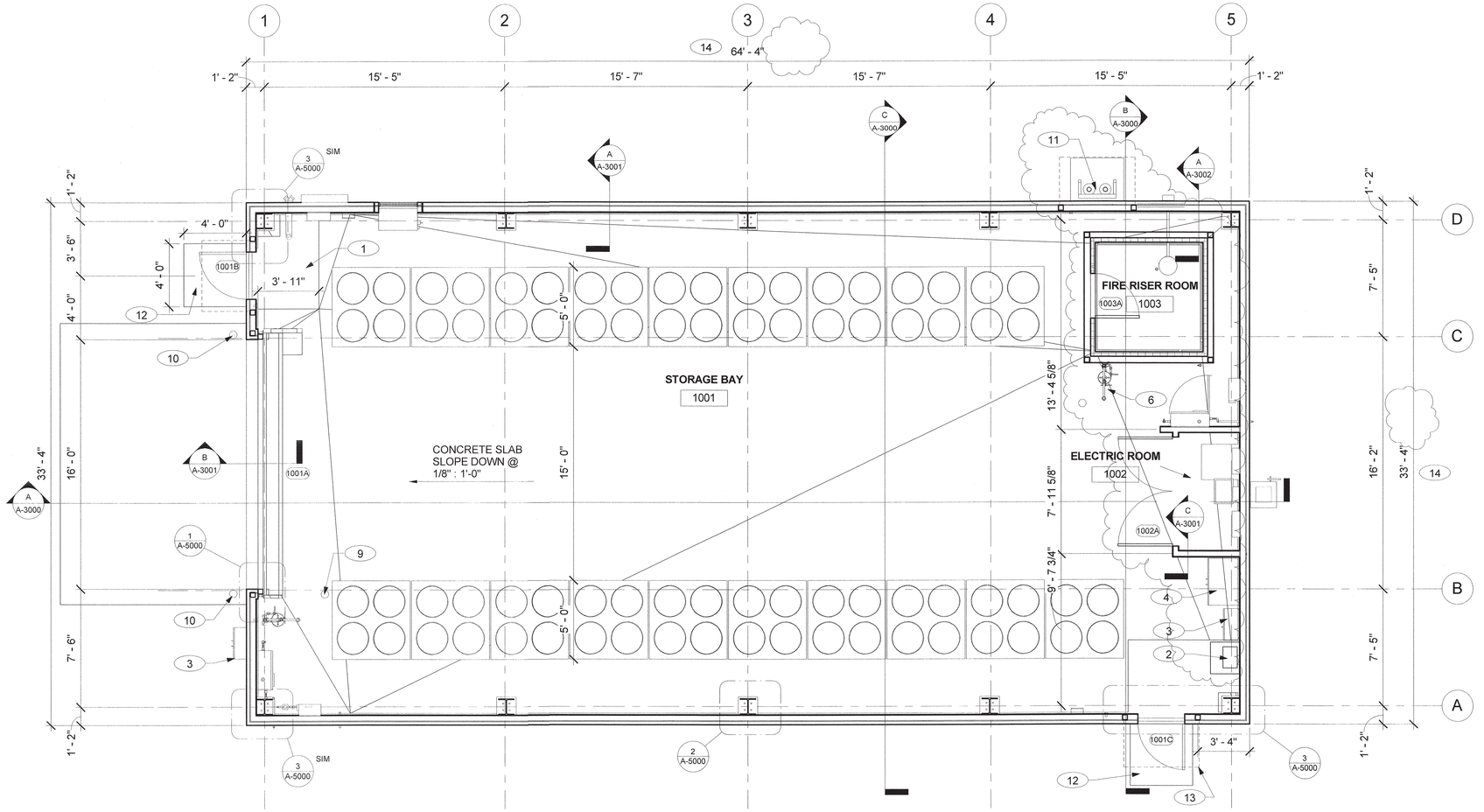


Figure 3: Floor Plan

GENERAL NOTES

1. IF THIS SHEET IS NOT 24" x 36", THEN IT IS A RECUCED SIZE PLOT, USE GRAPHIC SCALE ACCORDINGLY.
2. THIS DRAWING WAS GENERATED IN REVIT 2011.
3. PALLETS AND STORAGE CANISTERS ARE NOT IN CONCRACT.
4. 36" HIGH ABOVE FINISHED FLOOR STAINLESS STEEL CORNER GUARDS AT OUTSIDE CORNERS, TYPICAL.

KEYED NOTES

1. LANDING, SEE STRUCTURAL SHEET S-1000
2. COMPUTER WORK STATION SEE DETAIL 4/A-5002
3. SPILL KIT
4. SUPPLY CABINET
5. DECONTAMINATION EQUIPMENT CABINET
6. EYE WASH AND SHOWER
7. FIRE RISER
8. FIRE EXTINGUISHER
9. BOLLARD, SEE DETAIL 7/A-5002
10. PERMANENT BOLLARD, SEE DETAIL 7/A-5002
11. FIRE SUPPRESSION SYSTEM NITROGEN GAS CYLINDER RACK
12. CONCRETE STOOP, TYPICAL - SEE SHEET C55443 C-5004
13. EDGE OF AWNING ABOVE
14. BUILDING DIMENSIONS ARE SAFETY CLASS. MAXIMUM WIDTH IS 33.8 FEET. MAXIMUM LENGTH IS 64.8 FEET.

LANL BUILDING OFFICIAL
SIG
05567
DATE 12·12·13
13·094
APPRC /ED
REVIEWED FOR LANL STANDARDS COMPLIANCE PER ISO 341 - E. CH - 6

STATE OF NEW MEXICO
Richard W. Kaselow
NO. 2648
REGISTERED ARCHITECT
11/6/2013

NO	DATE	CLASS REV	ADC	DESCRIPTION	DWN	DSGN	CHKD	SUB	APP
1	11-06-13	U		REVISED FLOOR PLAN					

WEIDLINGER-NAVARRO JV NORTHERN NM

TRU WASTE FACILITY PROJECT
STORAGE BUILDING
FLOOR PLAN

DRAWN	A. GALLEGOS
DESIGN	D.WALLERSTEDT
CHECKED	T. LEACH
DATE	11-06-13

BLDG 63-0149 TA-63

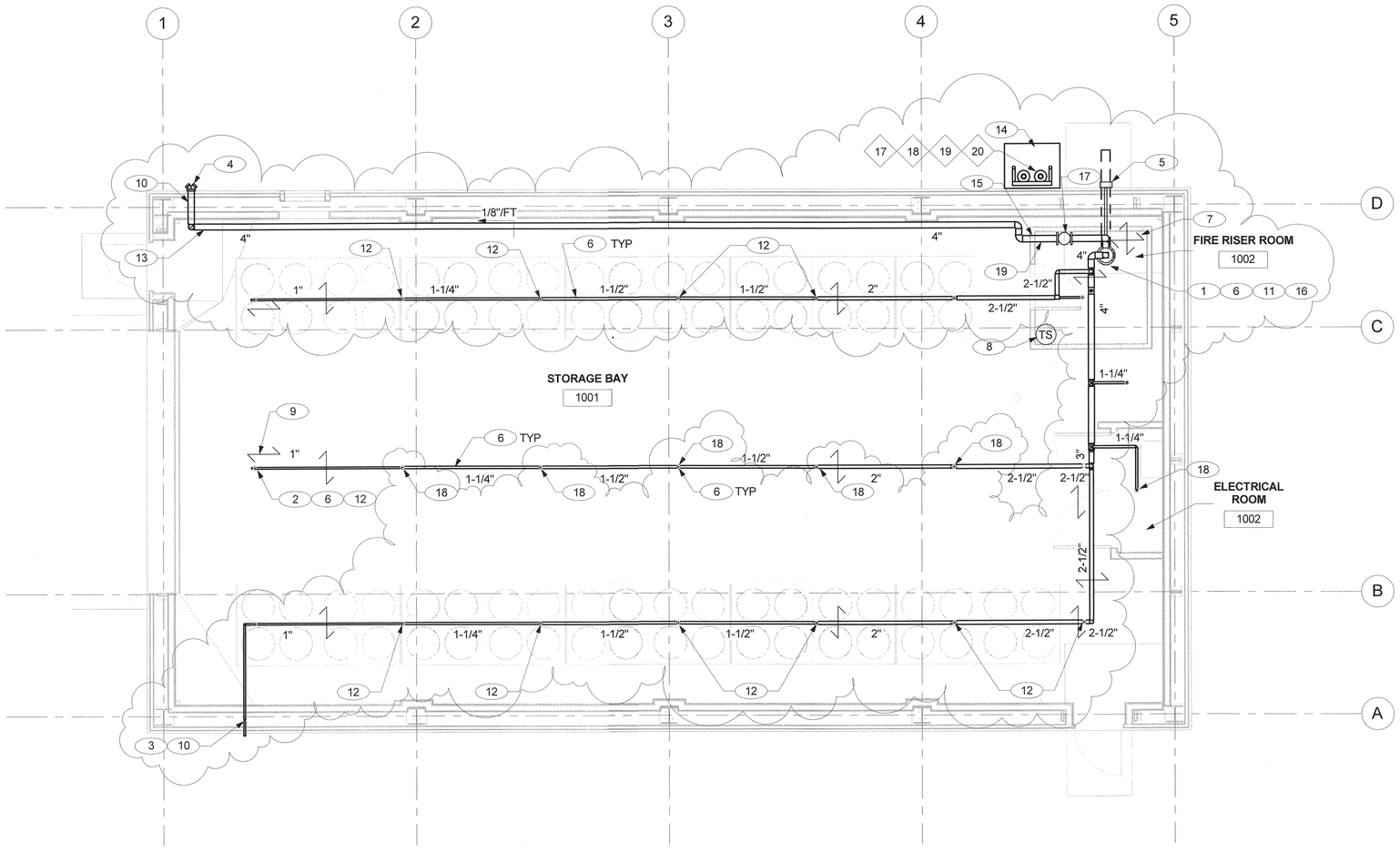
SUBMITTED: BRIAN SULLIVAN
APPROVED FOR RELEASE: ED ARTIGLIA

Los Alamos NATIONAL LABORATORY
P0 Box 1663
Los Alamos, New Mexico 87545

SHEET A-1050
285 OF 827

CLASSIFICATION U
REVIEWER ED ARTIGLIA DATE 11-06-13
PROJECT ID 102355
DRAWING NO C55444
REV 1

TRU WASTE FACILITY PROJECT 10/31/2013 1:07:55 PM P:_TECHNOLOGY\LANL\102355 - TRU Waste Facility\500 CAD\STORAGE BLDGS\ARCHREVIT\Storage Bldg 149 - Arch.rvt



FIRE PROTECTION PLAN

0 1' 2' 4' 6' 8'

1/4"=1'-0"

Figure 4: Storage Building Fire Protection Plan

GENERAL NOTES

1. IF THIS SHEET IS NOT 24"x36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY.
2. THIS DRAWING WAS GENERATED IN REVIT 2011.
3. SEE SHEET F-0001 FOR SYMBOLS, LEGEND, ABBREVIATION AND STRUCTURAL BRACING INFORMATION.
4. FOR SEISMIC BRACING, SEE DETAILS 2 AND 3 ON SHEET F-5000.
5. SEE CALCULATION 11-001-FCAL-001 FOR HYDRAULIC CALCULATIONS.
6. THE SPRINKLER LAYOUT SHOWS DESIGN INTENT. THE FIRE PROTECTION SUBCONTRACTOR IS RESPONSIBLE TO PROVIDE SHOP DRAWINGS AND SUPPORTING CALCULATIONS.
7. PITCH PIPE TO DRAIN TO RISER PER NFPA 13.

KEYED NOTES

1. 6" FIRE PROTECTION RISER WITH DRY PIPE VALVE, SEE DETAIL 1 ON SHEET F-5000.
2. UPRIGHT SPRINKLER, TYPICAL OF 22.
3. INSPECTOR'S TEST STATION.
4. FIRE DEPARTMENT CONNECTION.
5. WALL POST INDICATOR VALVE, SEE PIPE THRU WALL PENETRATION DETAIL 5 ON SHEET F-5000.
6. FIRE PROTECTION COMPONENTS ARE CLASSIFIED AS SAFETY SIGNIFICANT ML-2.
7. SEE DETAIL 3 ON SHEET F-5000 FOR SWAY BRACING.
8. SAFETY SIGNIFICANT TEMPERATURE SENSOR.
9. SEE DETAIL 2 ON SHEET F-5000 FOR SWAY BRACING.
10. SEE DETAIL 5 ON SHEET F-5000 FOR PIPE THRU WALL PENETRATION.
11. SEE DETAIL 2 ON SHEET F-5001 FOR THERMAL BLOCK PENETRATION.
12. INSTALL HIGH TEMPERATURE RATED (286° F) SPRINKLER HEAD NEAR UNIT HEATER.
13. BOTTOM OF 4" PIPE AT 6'-10" AFF AT THIS LOCATION.
14. 2 BOTTLE N2 RACK.
15. SEE DETAIL 3 ON SHEET F-5001 FOR ENCLOSURE WALL PENETRATION.
16. SEE DETAIL 1 ON SHEET F-5001 FOR ENCLOSURE CEILING PENETRATION.
17. CHECK VALVE WITH AUTOMATIC DRIP DRAIN.
18. STANDARD 165° F HEAD.
19. PROVIDE DRY SYSTEM AUXILIARY DRAIN. DRAIN SHALL CONSIST OF A VALVE NOT SMALLER THAN 1/2" AND A PLUG OR A NIPPLE AND CAP.

NO	DATE	CLASS REV	ADC	DESCRIPTION	DWN	DSGN	CHKD	SUB	APP
1	11-06-13	U		REVISED FIRE PROTECTION SYSTEM					

LANL BUILDING OFFICIAL
RA Trujillo
105567
12·12·13
13-094
APPROVED
REVIEWED FOR LANL STANDARDS COMPLIANCE PER ISD 341-2, CH 16

CHARLES MOYERS NEW MEXICO 16030 LICENSED PROFESSIONAL ENGINEER
11-06-13

WEIDLINGER-NAVARRO JV NORTHERN NM

TRU WASTE FACILITY PROJECT
STORAGE BUILDING

FIRE PROTECTION PLAN

BLDG 63-0149 TA-63

DRAWN	D. BROERMAN
DESIGN	E. MIYODA
CHECKED	C. MOYERS
DATE	11-06-13

SUBMITTED: BRIAN SULLIVAN
APPROVED FOR RELEASE: ED ARTIGLIA

Los Alamos NATIONAL LABORATORY
P0 Box 1663
Los Alamos, New Mexico 87545

SHEET F-1000
299 OF 827

CLASSIFICATION U
REVIEWER ED ARTIGLIA DATE 11-06-13
PROJECT ID 102355
DRAWING NO C55444
REV 1

TRU WASTE FACILITY PROJECT 10/28/2013 10:39:33 AM P:_TECHNOLOGY\LANL\102355 - TRU Waste Facility\500 CAD\STORAGE BLDGS\M-P-FIRE\REVIT\Storage Building 1 - Mech.rvt

KEYED NOTES

1. PIPING, PRESSURE SWITCH (PSHL–008), AND PRESSURE INDICATOR (PI–023) PROVIDED WITH DPV–007 TRIM.
2. AIR MAINTENANCE DEVICE INCLUDES PRV–002, SET BY MANUFACTURER FOR REQUIRED DPV–007 PRESSURE.

OUTSIDE BUILDING
INSIDE STORAGE BUILDING
INSIDE RISER ROOM
TE 008
TSL 008
ALARM AT 55°F
SAP ALRM
SS
PS–003
TO WATER GONG
PS
FACP ALRM
FACP SUPR
TS
PIV
PIV–003
PI 011
TEST VALVE
V–085
V–052
V–053
CV–014
PI 010
V–051
ESS RTU
ALARM AT 57°F
TSL 021
TE 021
G6
C55443–C–6000
6"
4"
DPV–003
1/2"
SPRINKLERS
STORAGE BUILDING 63–0152
CV–013
2" DRAIN
V–044
NC
N2
PI 023
PRV 002
STR–002
AIR MAINTENANCE DEVICE 2
1/4"
SAP ALRM
PSHL 008
V–086
V–087
NO
V–088
V–089
CV–026
CV–027
NFPA 13
ASME B31.3 CATEGORY D
RTU ALRM
PSHL 007
SET @ 65 PSIG
PSV 007
PI 024
1–1/4"
3/4"
V–095
5/8"
V–094
PCV 002
V–090
V–092
CV–029
V–091
CV–028
V–093
1
2
ASME B31.3 CATEGORY D
ASME B31.3 NORMAL FLUID SERVICE
NITROGEN SUPPLY

Figure 5: Storage Building Fire Protection P&ID

FIRE PROTECTION P & ID
SCALE: NONE

"PRIORITY DRAWING"

NO	DATE	CLASS REV	ADC	DESCRIPTION	DWN	DSGN	CHKD	SUB	APP
2	01–06–14	U		DRN 14.63.0144.0036 ~~DCF 14.63.0144.0497~~ UPDATED CV & PS NUMBER					
1	11–06–13	U		REVISED ENTIRE SHEET	DB	CM	CM	BS	

LANL BUILDING OFFICIAL Bdg R Narayanan Ext 105567 Date 1.8.14 Activity 13-0995-RI APPROVED
REVIEWED FOR LANL STANDARDS COMPLIANCE PER ISD 241-2, CH-18
CHARLES MOYERS NEW MEXICO 16030 REGISTERED PROFESSIONAL ENGINEER 1-06-2014

WEIDLINGER-NAVARRO JV NORTHERN NM

TRU WASTE FACILITY PROJECT
STORAGE BUILDING
FIRE PROTECTION P & ID
BLDG 63–0149 TA–63

DRAWN D. BROERMAN
DESIGN E. MIYODA
CHECKED C. MOYERS
DATE 11–06–13

SUBMITTED BRIAN SULLIVAN
APPROVED FOR RELEASE ED ARTIGLIA

Los Alamos NATIONAL LABORATORY
P0 Box 1663
Los Alamos, New Mexico 87545

SHEET F–6000
303 OF 827

CLASSIFICATION U
REVIEWER ED ARTIGLIA
DATE 11–06–13

PROJECT ID 102355
DRAWING NO C55444
REV 2

File Location: P:_TECHNOLOGY\LANL\102355 – TRU WASTE FACILITY\500 CAD\STORAGE BLDGS\W-P-FIRE\ACAD\55444-F-6000-R2.DWG
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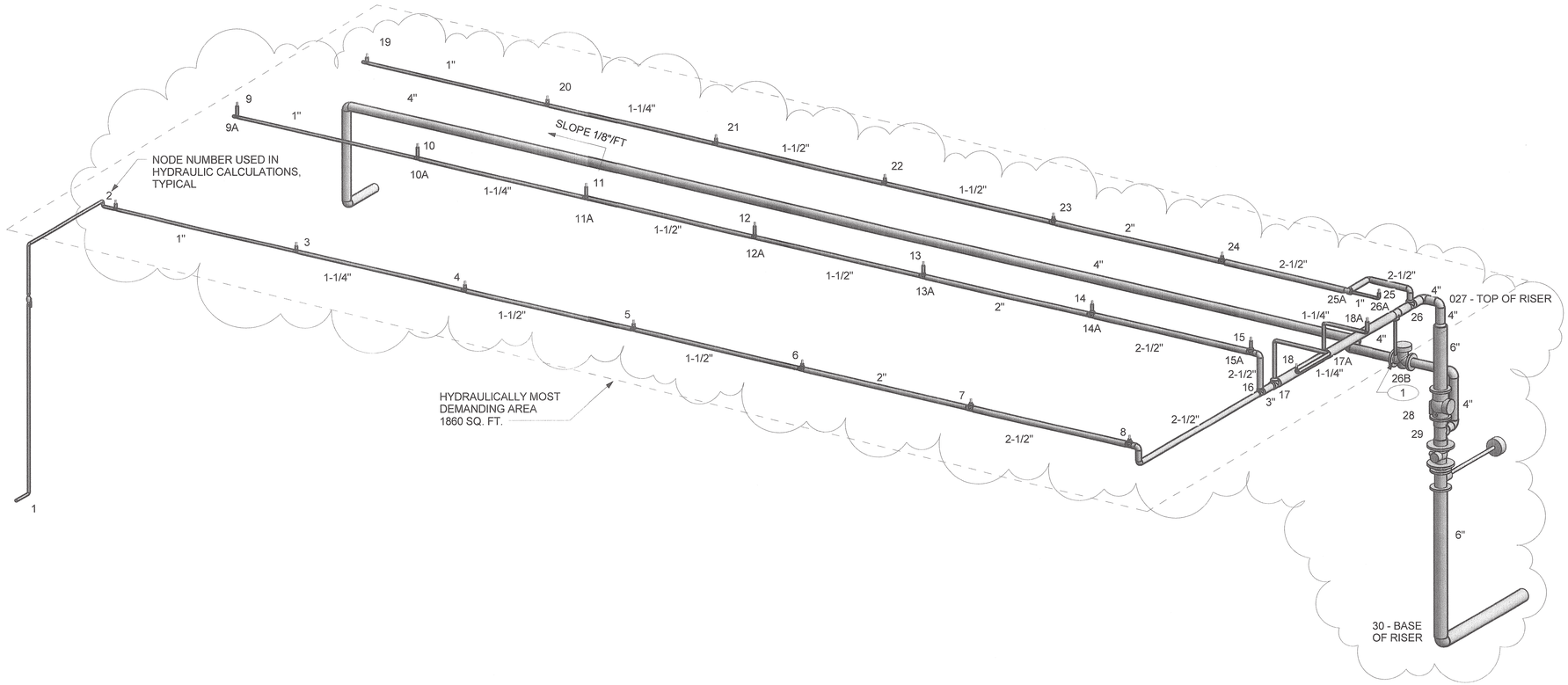

GENERAL NOTES

1. THIS DRAWING WAS GENERATED IN REVIT 2011.
2. SEE SHEET F-0001 FOR SYMBOLS, LEGEND, ABBREVIATION AND STRUCTURAL BRACING INFORMATION.
3. SEE CALCULATION 11-001-FCAL-001 FOR HYDRAULIC CALCULATIONS.
4. THE SPRINKLER LAYOUT SHOWS DESIGN INTENT. THE FIRE PROTECTION SUBCONTRACTOR IS RESPONSIBLE TO PROVIDE SHOP DRAWINGS AND SUPPORTING CALCULATIONS.
5. DEFLECTORS OF SPRINKLERS SHALL BE ALIGNED PARALLEL TO ROOF.

KEYED NOTES

(1) DRY PENDENT SPRINKLER LOCATED IN FIRE RISER ROOM.

ISOMETRIC VIEW

Figure 6: Storage Building Fire Sprinkler Diagram

FIRE SPRINKLER DIAGRAM

SCALE: NONE

NO	DATE	CLASS REV	ADC	DESCRIPTION	DWN	DSGN	CHKD	SUB	APP
1	11-06-13	U		REVISED FIRE PROTECTION SYSTEM					

WEIDLINGER-ASSOCIATES JV NORTHERN NM

TRU WASTE FACILITY PROJECT
STORAGE BUILDING

FIRE SPRINKLER DIAGRAM

BLDG 63-0149 TA-63

DRAWN	D. BROERMAN
DESIGN	E. MIYODA
CHECKED	C. MOYERS
DATE	11-06-13

SUBMITTED: BRIAN SULLIVAN
APPROVED FOR RELEASE: ED ARTIGLIA

Los Alamos NATIONAL LABORATORY
P0 Box 1663
Los Alamos, New Mexico 87545

SHEET F-6001
304 OF 827

CLASSIFICATION U
REVIEWER ED ARTIGLIA
DATE 11-06-13

PROJECT ID 102355
DRAWING NO C55444
REV 1

LANL BUILDING OFFICIAL
DATE 12-12-13
APPROVED

REVIEWED FOR LANL STANDARDS COMPLIANCE PURSUANT TO LIR 10
CHARLES MOYERS
NEW MEXICO
16030
LICENSED PROFESSIONAL ENGINEER
11-06-13

TRU WASTE FACILITY PROJECT 10/28/2013 10:44:07 AM P:_TECHNOLOGY\LANL\102355 - TRU Waste Facility\500 CAD\STORAGE BLDGS\M-P-FIRE\REVIT\Storage Building 1 - Mech.rvt

P:_TECHNOLOGY\LANL\102355 - TRU Waste Facility\500 CAD\STORAGE BLDG -TE ROOM\ARCH\REVIT\Storage Bldg 2 - Arch.rvt
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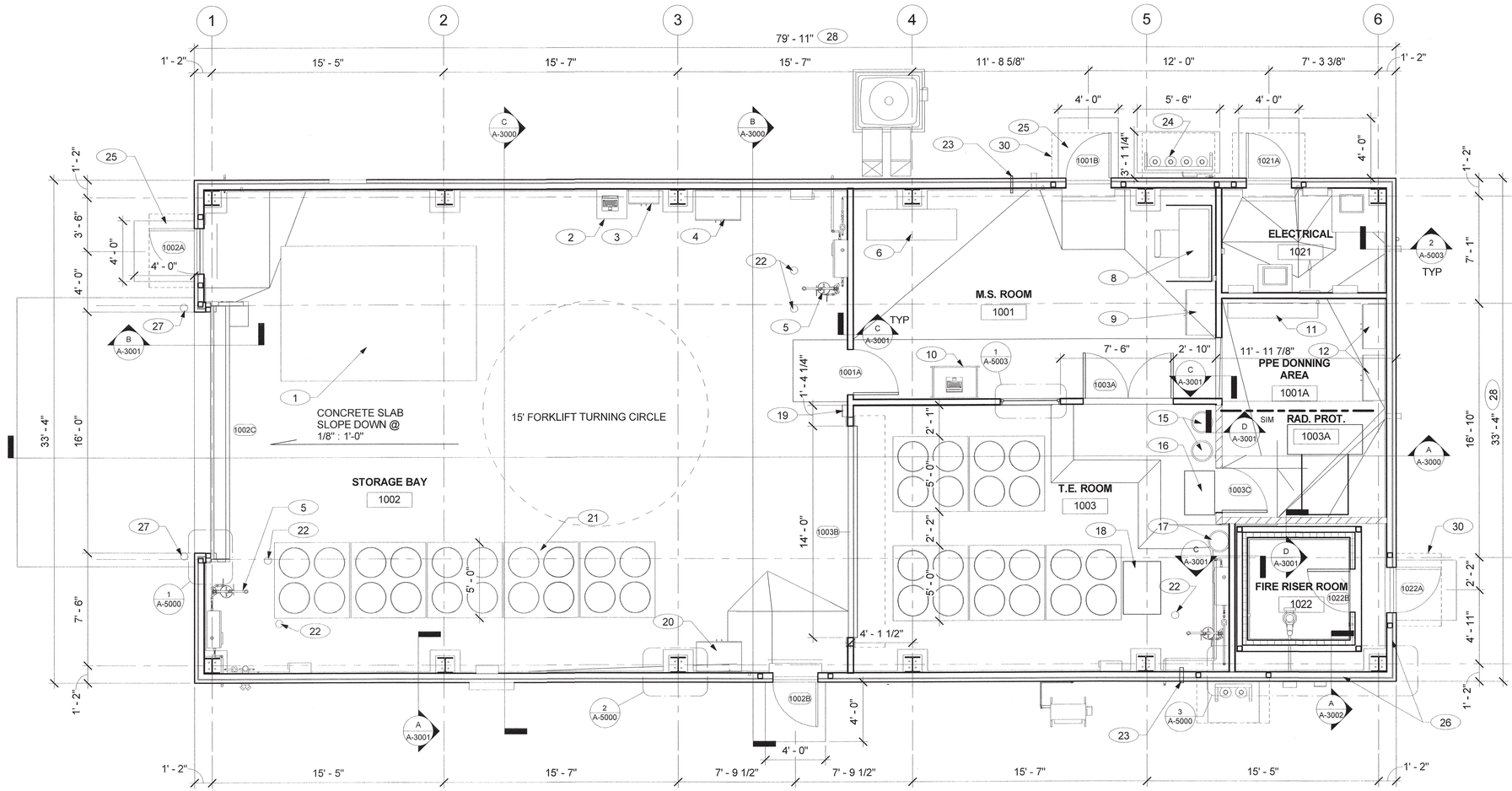


FLOOR PLAN

0 1' 2' 4' 6' 8'

1/4"=1'-0"

Figure 7: Storage & Waste Characterization Building Floor Plan

GENERAL NOTES

1. IF THIS SHEET IS NOT 24" x 36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY
2. THIS DRAWING WAS GENERATED IN REVIT 2011.
3. AT THE ELECTRICAL AND MECHANICAL ROOMS, ADD DOOR PLACARDS - LAMINATED PHENOLIC PLASTIC 3/16" THICK x 2" x 6" BEIGE WITH BLACK 1" HIGH LETTERING ENGRAVED HELVETICA BOLD LABELED "ELECTRICAL" AND "MECHANICAL" CENTERED 60" ABOVE THE FLOOR ON THE EXTERIOR SIDE OF THE DOOR WITH ADHESIVE.
4. 36" HIGH ABOVE FINISH FLOOR STAINLESS STEEL CORNER GUARDS AT OUTSIDE CORNERS, TYPICAL.

KEYED NOTES

1. LARGE CONTAINER AREA
2. COMPUTER WORKSTATION, SEE DETAIL 4/A-5002
3. SPILL KIT
4. SUPPLY CABINET
5. EYE WASH AND SHOWER STATION
6. MASS SPECTROMETER (NIC)
7. NOT USED
8. RP-1 COUNTING (NIC)
9. RP-1 STORAGE
10. COMPUTER CART (NIC)
11. BENCH
12. PPE STORAGE
13. PCM
14. FIRE RISER
15. LAUNDRY BIN (NIC)
16. STEP-OFF PAD
17. WASTE BIN (NIC)
18. HEPA FILTER CART (NIC)
19. FIRE EXTINGUISHER
20. DECONTAMINATION EQUIPMENT CABINET (NIC)
21. STORAGE CONTAINERS & PALLETS (NIC)
22. REMOVABLE BOLLARD, SEE DETAIL 6/A-5002
23. VENT TUBE, SEE SHEET M-1000
24. P-10 GAS BOTTLE RACK LOCATION, SEE DETAIL 3/P-5000
25. CONCRETE STOOP, TYPICAL - SEE SHEET C55443 C-5004.
26. ONE HOUR RATED WALL 10 FEET EITHER SIDE OF WALL MOUNTED POST INDICATOR VALVE
27. PERMANENT BOLLARD, SEE DETAIL 7/A-5002
28. BUILDING DIMENSIONS ARE SAFETY CLASS, ML-1. MAXIMUM LENGTH IS 80.4 FEET. MAXIMUM WIDTH IS 33.8 FEET
29. FIRE SUPRESSION SYSTEM GAS BOTTLE RACK
30. EDGE OF AWNING ABOVE, TYPICAL

NO	DATE	CLASS REV	ADC	DESCRIPTION	DWN	DSGN	CHKD	SUB	APP
1	11-06-13	U	SK	REVISED FLOOR PLAN	AG	RK	RK	AC	A

WEIDLINGER-NAVARRO JV NORTHERN NM

TRU WASTE FACILITY PROJECT
STORAGE AND CHARACTERIZATION BUILDING

FLOOR PLAN

BLDG 63-0154 TA-63

DRAWN	A. GALLEGOS
DESIGN	D.WALLERSTEDT
CHECKED	T. LEACH
DATE	11-06-13

SUBMITTED: BRIAN SULLIVAN
APPROVED FOR RELEASE: ED ARTIGLIA

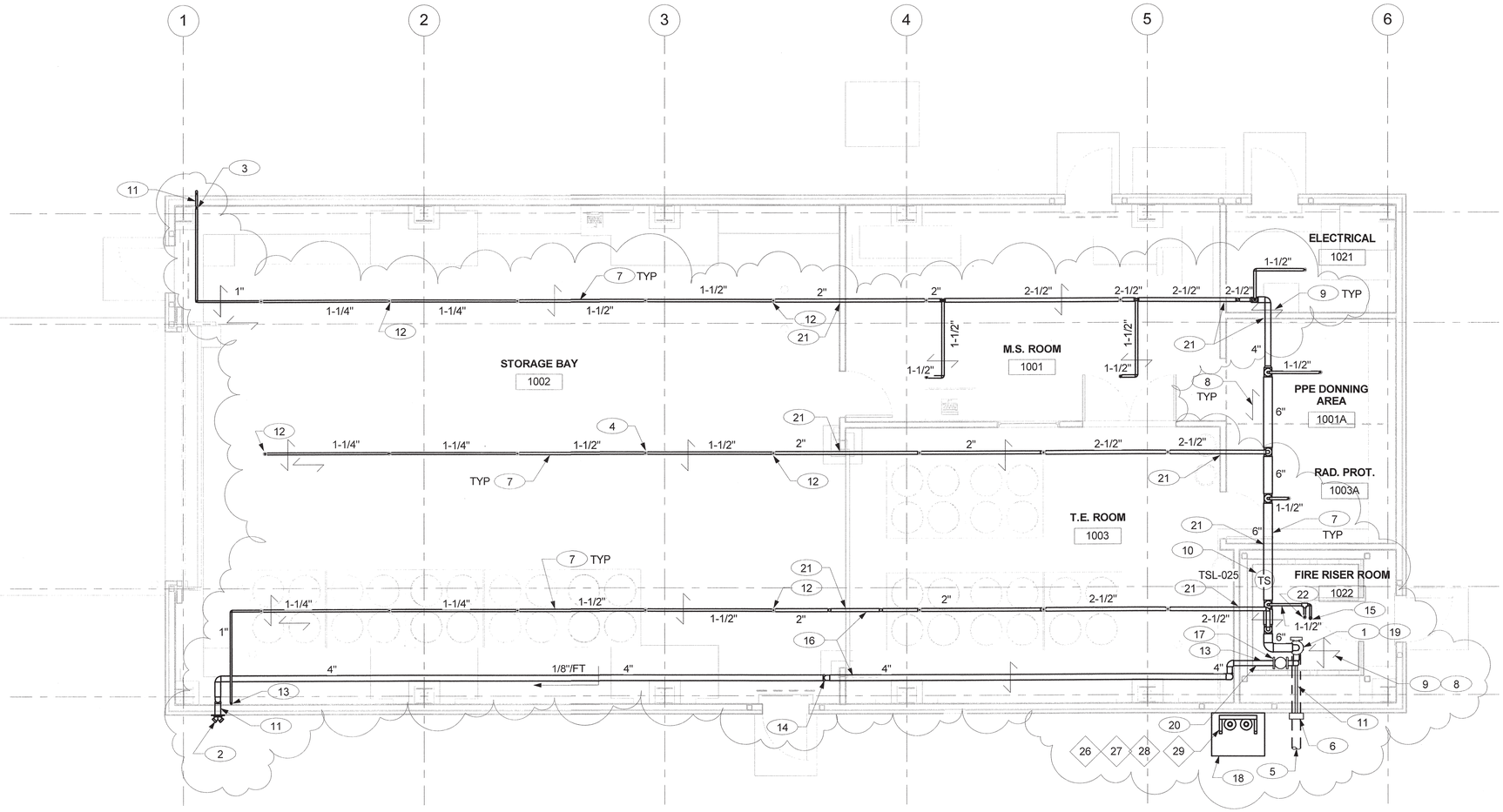
LANL BUILDING OFFICIAL
SIG RA Trout
ID 105567
DATE 12.12.13
ALTR # 13-094
APPROVED
REVIEWED FOR LANL STANDARDS COMPLIANCE PER ISD 341-2, CH 16

STATE OF NEW MEXICO
Richard W. Kaselow
NO. 2648
11/6/2013
REGISTERED ARCHITECT

Los Alamos NATIONAL LABORATORY
P0 Box 1663
Los Alamos, New Mexico 87545

SHEET A-1050
662 OF 827

CLASSIFICATION U
REVIEWER ED ARTIGLIA
DATE 11-06-13
PROJECT ID 102355
DRAWING NO C55445
REV 1



FIRE PROTECTION PLAN

0 1' 2' 4' 6' 8'

1/4"=1'-0"

Figure 8: Storage & Waste Characterization Building Fire Protection Plan

GENERAL NOTES:

1. IF THIS SHEET IS NOT 24"x36", IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY.
2. THIS DRAWING WAS GENERATED IN REVIT 2011.
3. SEE SHEETS F-0001 AND F-0002 FOR ABBREVIATIONS, GENERAL NOTES, LEGEND AND STRUCTURAL BRACING.
4. FOR SEISMIC BRACING SEE DETAILS 2 AND 3 ON SHEET F-5000.
5. SEE CALCULATION 11-001-FCAL-001 FOR HYDRAULIC CALCULATIONS.
6. SEE DETAIL 3 ON SHEET F-5001 FOR FLOOR PENETRATION DETAIL.
7. THE SPRINKLER LAYOUT SHOWS DESIGN INTENT. THE FIRE PROTECTION SUBCONTRACTOR IS RESPONSIBLE TO PROVIDE SHOP DRAWINGS AND SUPPORTING CALCULATIONS.
8. PITCH PIPE TO DRAIN TO RISER PER NFPA 13, UNLESS NOTED OTHERWISE.

KEYED NOTES:

1. 6" FIRE PROTECTION RISER WITH DRY PIPE VALVE, SEE DETAIL 1 ON SHEET F-5000.
2. FIRE DEPARTMENT CONNECTION.
3. INSPECTOR'S TEST STATION, SEE WALL PENETRATION DETAIL 5 ON SHEET F-5000.
4. UPRIGHT SPRINKLER HEAD (165° F), TYPICAL, UNLESS NOTED OTHERWISE.
5. SEE SHEET C-1007 FOR CONTINUATION.
6. WALL MOUNTED POST INDICATOR VALVE, SEE WALL PENTRATION DETAIL 5 ON SHEET F-5000.
7. FIRE PROTECTION COMPONENTS ARE CLASSIFIED AS SAFETY SIGNIFICANT, ML-2.
8. SEE DETAIL 2 ON SHEET F-5000.
9. SEE DETAIL 3 ON SHEET F-5000.
10. SAFETY SIGNIFICANT TEMPERATURE SENSOR.
11. SEE DETAIL 5 ON SHEET F-5000 FOR PIPE PENETRATION.
12. INSTALL HIGH TEMPERATURE RATED (286° F) SPRINKLER HEAD NEAR UNIT HEATER.
13. PROVIDE DRY SYSTEM AUXILIARY DRAIN. DRAIN SHALL CONSIST OF A VALVE NOT SMALLER THAN 1/2" AND A PLUG OR A NIPPLE AND CAP.
14. PIPE AT 10'-6" AFF AT THIS LOCATION.
15. PENDANT SPRINKLER (165° F).
16. ROUTE PIPE OVER DOOR AND FRAMING.
17. 4" CHECK VALVE.
18. 2 BOTTLE N2 RACK, SEE DETAIL 7 ON F-5000.
19. SEE DETAIL 1 ON SHEET F-5001 FOR ENCLOSURE CEILING PENETRATION.
20. SEE DETAIL 3 ON SHEET F-5001 FOR ENCLOSURE WALL PENETRATION.
21. SIMILAR TO DETAIL 5 ON SHEET F-5000, PIPE PENETRATION DETAIL.
22. UPRIGHT SPRINKLER HEAD LOCATED ABOVE FIRE RISER ROOM.

NO	DATE	CLASS REV	ADC	DESCRIPTION	DWN	DSGN	CHKD	SUB	APP
1	11-06-13	U		REVISED FIRE PROTECTION SYSTEM					

WEIDLINGER-NAVARRO JV NORTHERN NM

TRU WASTE FACILITY PROJECT
STORAGE & CHARACTERIZATION BUILDING

FIRE PROTECTION PLAN

BLDG 63-0154 TA-63

DRAWN	D. BROERMAN
DESIGN	E. MIYODA
CHECKED	C. MOYERS
DATE	11-06-13

SUBMITTED: BRIAN SULLIVAN

APPROVED FOR RELEASE: ED ARTIGLIA

Los Alamos NATIONAL LABORATORY
P0 Box 1663
Los Alamos, New Mexico 87545

SHEET F-1000

676 OF 827

CLASSIFICATION U | REVIEWER ED ARTIGLIA | DATE 11-06-13

PROJECT ID 102355 | DRAWING NO C55445 | REV 1

LANL BUILDING OFFICIAL
Sig RA Howe
ZP 105567
Date 12.12.13
Bldg 13.094
APPROVED
REVIEWED FOR LANL STANDARDS COMPLIANCE PER ISD 341-2, CH-16

CHARLES MOYERS NEW MEXICO 16030 LICENSED PROFESSIONAL ENGINEER
11-06-13

TRU WASTE FACILITY PROJECT 10/25/2013 2:47:18 PM P:_TECHNOLOGY\LANL\102355 - TRU Waste Facility\500 CAD\STORAGE BLDG -TE ROOM\M-P-FIRE\REVIT\Storage Building 2 - Mech.rvt

KEYED NOTES

1. PIPING, PRESSURE SWITCH (PSHL-012), AND PRESSURE INDICATOR (PI-035) PROVIDED WITH DPV-007 TRIM.
2. AIR MAINTENANCE DEVICE INCLUDES PRV-002, SET BY MANUFACTURER FOR REQUIRED DPV-007 PRESSURE.

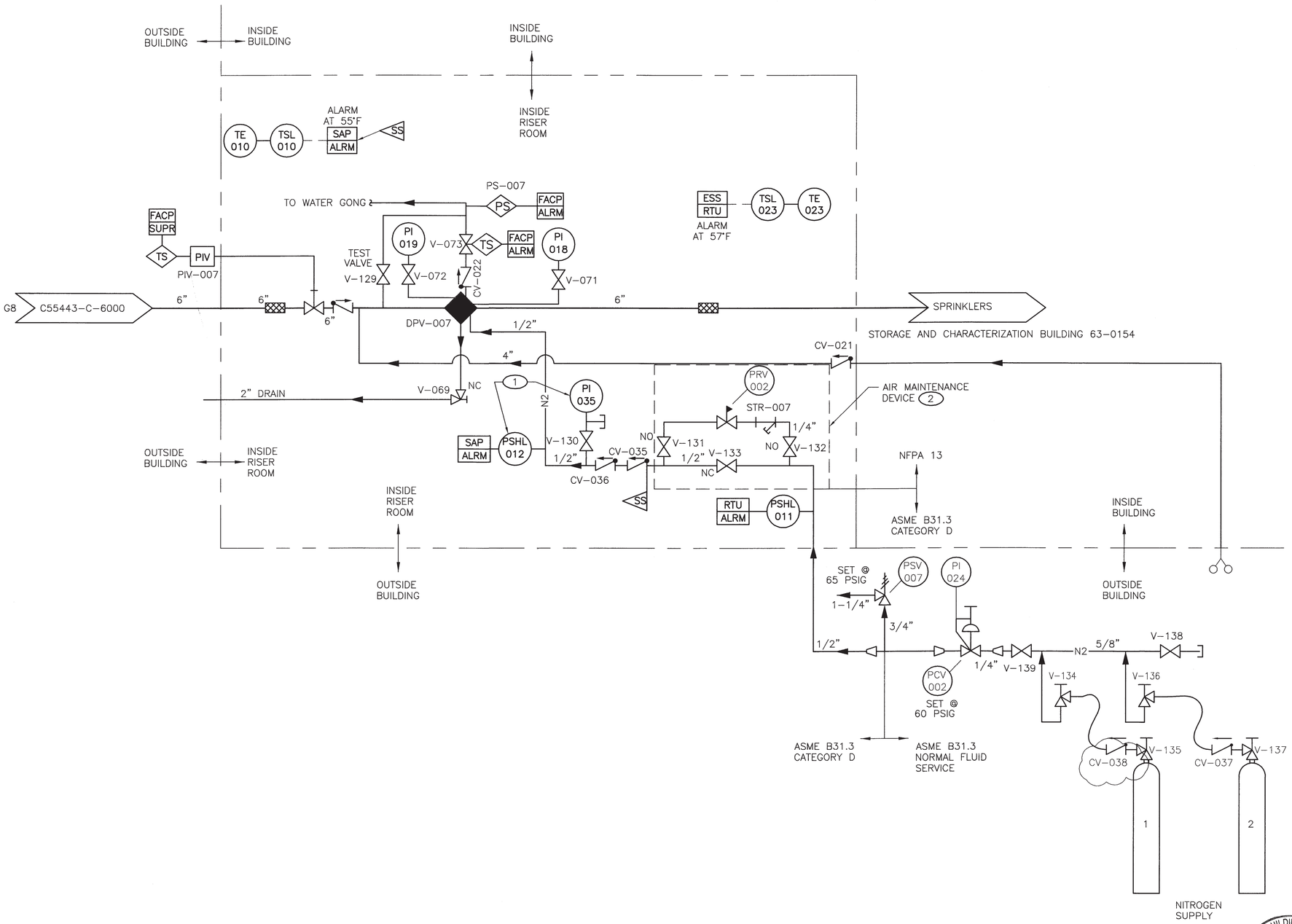


Figure 9: Storage & Waste Characterization Building Fire Protection P & ID

FIRE PROTECTION P & ID
SCALE: NONE

LANL BUILDING OFFICIAL
SIG. [signature]
ID# 105567
DATE 1.8.14
AUTH# 13.094.R1
APPROVED
REVIEWED FOR LANL STANDARDS COMPLIANCE PER ISO 3-1 - 2 CH. 18

CHARLES MOYERS NEW MEXICO 16030 REGISTERED PROFESSIONAL ENGINEER
1-06-2014

"PRIORITY DRAWING"

NO	DATE	CLASS REV	ADC	DESCRIPTION	DWN	DSGN	CHKD	SUB	APP
2	01-06-14	U		DRN 14.63.0144.0041 ~~DCF 14.63.0144.0497~~ UPDATED CV, PI, & PS NUMBER	DB	CM	CM	BS	
1	11-06-13	U		REVISED ENTIRE SHEET	DB	CM	CM	BS	

WEIDLINGER-ASSOCIATES JV NORTHERN NM

TRU WASTE FACILITY PROJECT
STORAGE AND CHARACTERIZATION BUILDING

FIRE PROTECTION P & ID

BLDG 63-0154 TA-63

DRAWN	D. BROERMAN
DESIGN	E. MIYODA
CHECKED	C. MOYERS
DATE	11-06-13

SUBMITTED: BRIAN SULLIVAN
APPROVED FOR RELEASE: ED ARTIGLIA

Los Alamos NATIONAL LABORATORY
P0 Box 1663
Los Alamos, New Mexico 87545

SHEET F-6000
680 OF 827

CLASSIFICATION U | REVIEWER ED ARTIGLIA | DATE 11-06-13

PROJECT ID 102355 | DRAWING NO C55445 | REV 2

File Location: P:_TECHNOLOGY\LANL\102355 - TRU WASTE FACILITY\500 CAD\STORAGE BLDG -TE ROOM\M-P-FIRE\ACAD\55445-F-6000-R2.DWG
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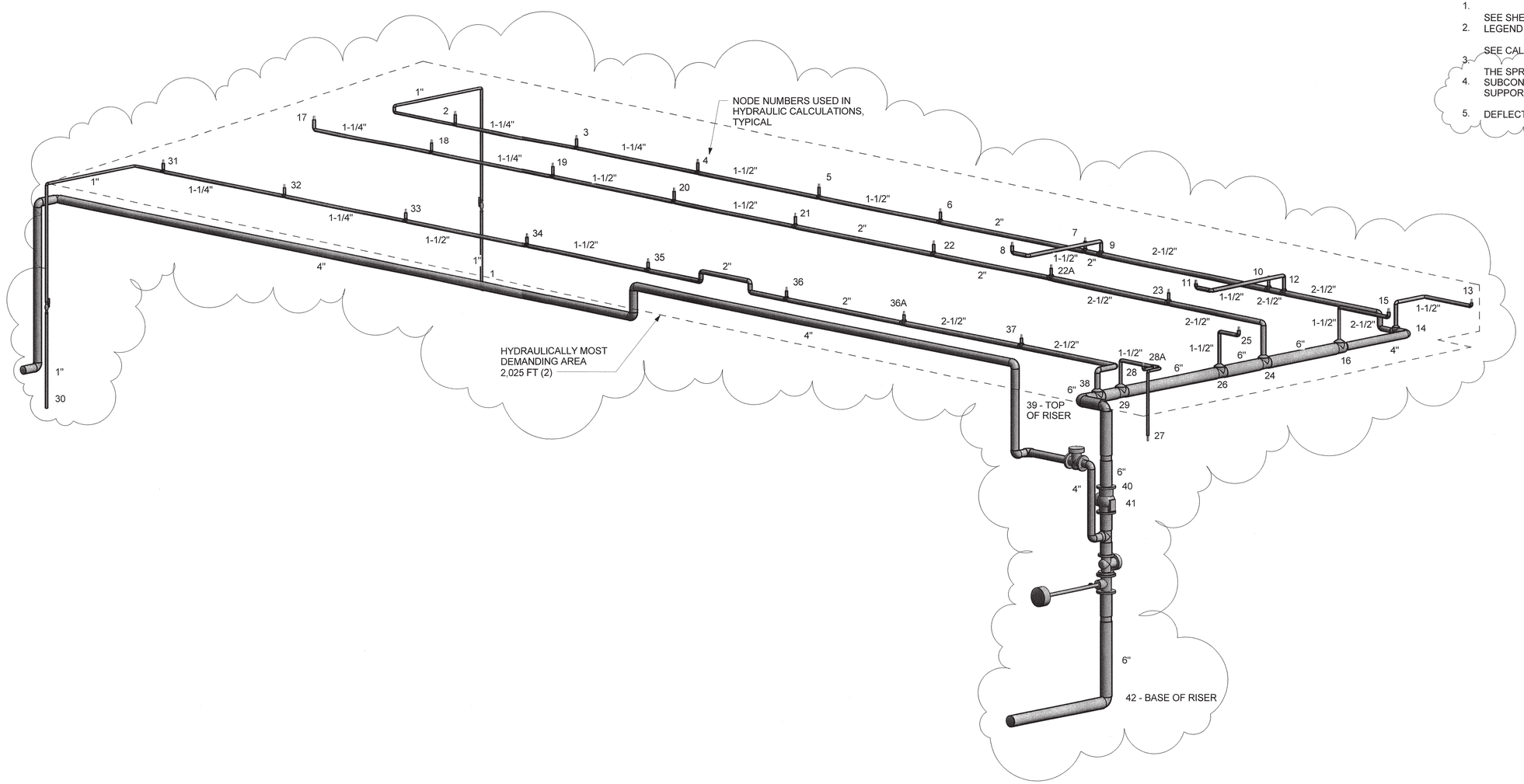
GENERAL NOTES:

1. THIS DRAWING WAS GENERATED IN REVIT 2011.
2. SEE SHEETS F-0001 AND F-0002 FOR ABBREVIATIONS, GENERAL NOTES, LEGEND AND STRUCTURAL BRACING.
3. SEE CALCULATION 11-001-FCAL-001 FOR HYDRAULIC CALCULATIONS.
4. THE SPRINKLER LAYOUT SHOWS DESIGN INTENT. THE FIRE PROTECTION SUBCONTRACTOR IS RESPONSIBLE TO PROVIDE SHOP DRAWINGS AND SUPPORTING CALCULATIONS.
5. DEFLECTORS OF SPRINKLERS SHALL BE ALIGNED PARALLEL TO ROOF.



ISOMETRIC VIEW

FIRE SPRINKLER DIAGRAM

SCALE: NONE

Figure 10: Storage & Waste Characterization Building Fire Sprinkler Diagram

LANL BUILDING OFFICIAL
SIG R A Trowl
ID # 105567
DATE 12.12.13
AUTH # 13-094
APPROVED
REVIEWED FOR LANL STANDARDS COMPLIANCE PER ISD 341 - 2, CH. 16

CHARLES MOYERS NEW MEXICO 16030 LICENSED PROFESSIONAL ENGINEER
11-06-13

NO	DATE	CLASS REV	ADC	DESCRIPTION	DWN	DSGN	CHKD	SUB	APP
1	11-06-13	U		REVISED FIRE PROTECTION SYSTEM					

WEIDLINGER-ASSOCIATES JV NORTHERN NM

TRU WASTE FACILITY PROJECT
STORAGE & CHARACTERIZATION BUILDING

FIRE SPRINKLER DIAGRAM

BLDG 63-0154 TA-63

DRAWN	D. BROERMAN
DESIGN	E. MIYODA
CHECKED	C. MOYERS
DATE	11-06-13

SUBMITTED: BRIAN SULLIVAN
APPROVED FOR RELEASE: ED ARTIGLIA

Los Alamos NATIONAL LABORATORY
P0 Box 1663
Los Alamos, New Mexico 87545

SHEET F-6001
681 OF 827

CLASSIFICATION U
REVIEWER ED ARTIGLIA DATE 11-06-13

PROJECT ID 102355
DRAWING NO C55445
REV 1

TRU WASTE FACILITY PROJECT 10/25/2013 2:47:38 PM P:_TECHNOLOGY\LANL\102355 - TRU Waste Facility\500 CAD\STORAGE BLDG -TE ROOM\M-P-FIRE\REVIT\Storage Building 2 - Mech.rvt

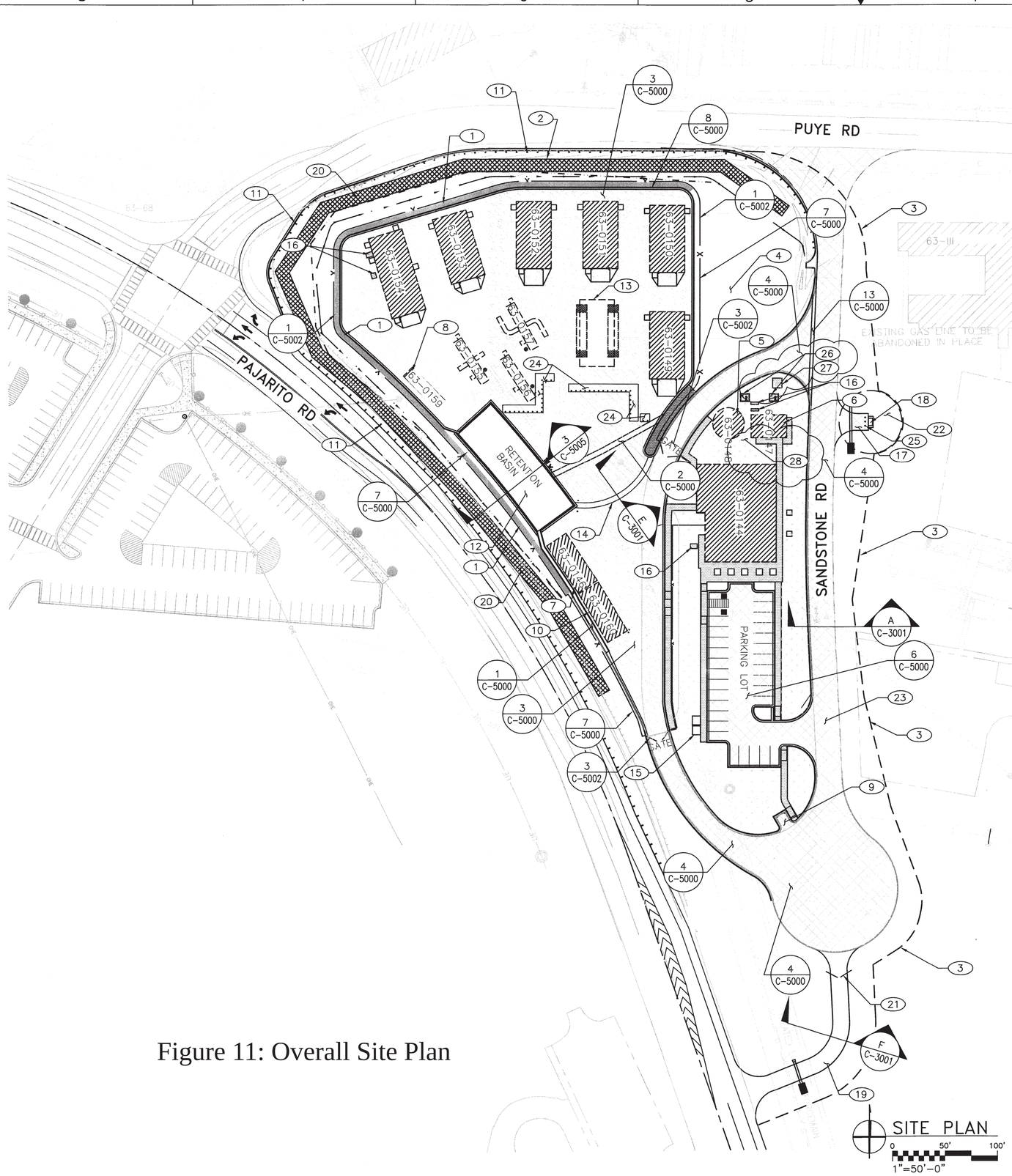


Figure 11: Overall Site Plan

KEYED NOTES

(27) TRANSFORMER PAD, SEE C55446-E-5002

(28) PROVIDE SALVAGED GRAVEL FROM OPERATION BUILDING 63-0144 NORTH TO SANDSTONE ROAD/ENTRY ROAD

GENERAL NOTES

1. FIELD VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION.
2. IF THIS SHEET IS NOT 24"x36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY.
3. EXISTING UTILITY LOCATIONS ARE APPROXIMATE ONLY AND SHALL BE FIELD LOCATED PRIOR TO CONSTRUCTION.
4. THE INTENT OF THIS SHEET IS TO GIVE AN OVERALL SITE PLAN VIEW. SEE SHEETS C-1001 & C-1002 FOR MORE DETAIL.
5. THE SUBCONTRACTOR SHALL SALVAGE & STORE FOR REUSE ON THIS PROJECT, THE EXISTING ON-SITE GRAVEL PRIOR TO CONSTRUCTION ACTIVITIES.

KEYED NOTES

(1) EXISTING RETAINING WALL BUILT PER TWF PHASE A
(2) EXISTING ROADSIDE SWALE BUILT PER TWF PHASE A
(3) LIMITS OF CONSTRUCTION.
(4) EXISTING MONITORING WELL TO REMAIN, DO NOT DISTURB
(5) FIRE WATER STORAGE DIAMETER=35ft, HEIGHT=28ft, VOLUME=200,000gal
(6) UTILITY BUILDING, SEE ARCHITECTURAL PLANS
(7) FORKLIFT CHARGING STATION
(8) CSMM STORAGE BUILDING
(9) DUMPSTER PAD
(10) EQUIPMENT STORAGE SHED
(11) THRIE BEAM SEE SHEET C-1025 & C-1026 FOR DETAILS
(12) RETENTION BASIN SEE SHEETS C-1017 & C-5005 FOR DETAILS
(13) AREA DESIGNATED AS FUTURE EXPANSION
(14) SOUTHERNMOST LIMITS OF THE TWF RCPA PERMITTED AREA
(15) LEEDS STORAGE AREA (TYP. 2)
(16) EQUIPMENT PADS, SEE C55446-S-5010
(17) 16' TURNOUT ACCESS (GENERATOR ACCESS)
(18) 4'-8"'W x 10-9"L GENERATOR PAD
(19) 16' EMERGENCY ACCESS, SEE SHEET C-1019 OF PLANS
(20) METALITH BARRIER, SEE SHEET C-1021 OF PLANS
(21) INSTALL 2-12' SWING GATES
(22) PROVIDE 30' RADIUS USING SALVAGED GRAVEL IN THIS AREA
(23) SANDSTONE RD SEE SHEET C-1019
(24) INSTALL BOLLARDS, SEE SHEET C-4000 AND C-4001 FOR DETAILS
(25) INSTALL BOLLARDS PER LANL STND DRAWING ST-G4010-39E1r0
(26) SEISMIC SWITCH, SEE C55446-E-4001

NO	DATE	CLASS REV	ADC	DESCRIPTION	DWN	DSGN	CHKD	SUB	APP
2	01-06-14	U		DRN-14-63-0144-0034 DCF-14-63-0144-0019 ADDED KEYED NOTES	DP	CLL	ESC	BS	
1	11-06-13	U		REVISED SITE LAYOUT	DP	CLL	ESC	BS	

WEIDLINGER-ASSOCIATES JV NORTHERN NM

TRU WASTE FACILITY PROJECT

OVERALL SITE PLAN

BLDG TA-63

DRAWN	D PADILLA
DESIGN	C LEY
CHECKED	E CORDOVA
DATE	11-06-13

SUBMITTED BRIAN SULLIVAN

APPROVED FOR RELEASE ED ARTIGLIA

LANL BUILDING OFFICIAL SIG RA Trout # 105567 DATE 1.8.14 ALOW 13-094-R1 APPROVED

REVIEWED FOR LANL STANDARDS COMPLIANCE PER ISD 341-2, CH. 18

EDWARD CORDOVA NEW MEXICO 15788 REGISTERED PROFESSIONAL ENGINEER 1/6/14

Los Alamos NATIONAL LABORATORY P0 Box 1663 Los Alamos, New Mexico 87545

SHEET C-1000

9 OF 827

CLASSIFICATION U | REVIEWER ED ARTIGLIA | DATE 11-06-13

PROJECT ID 102355 | DRAWING NO C55443 | REV 2

M:\TRN\10-100-205-05\CADD\SHEETS\102355-C-1000-R1.DWG 1/3/2014 1:12 PM

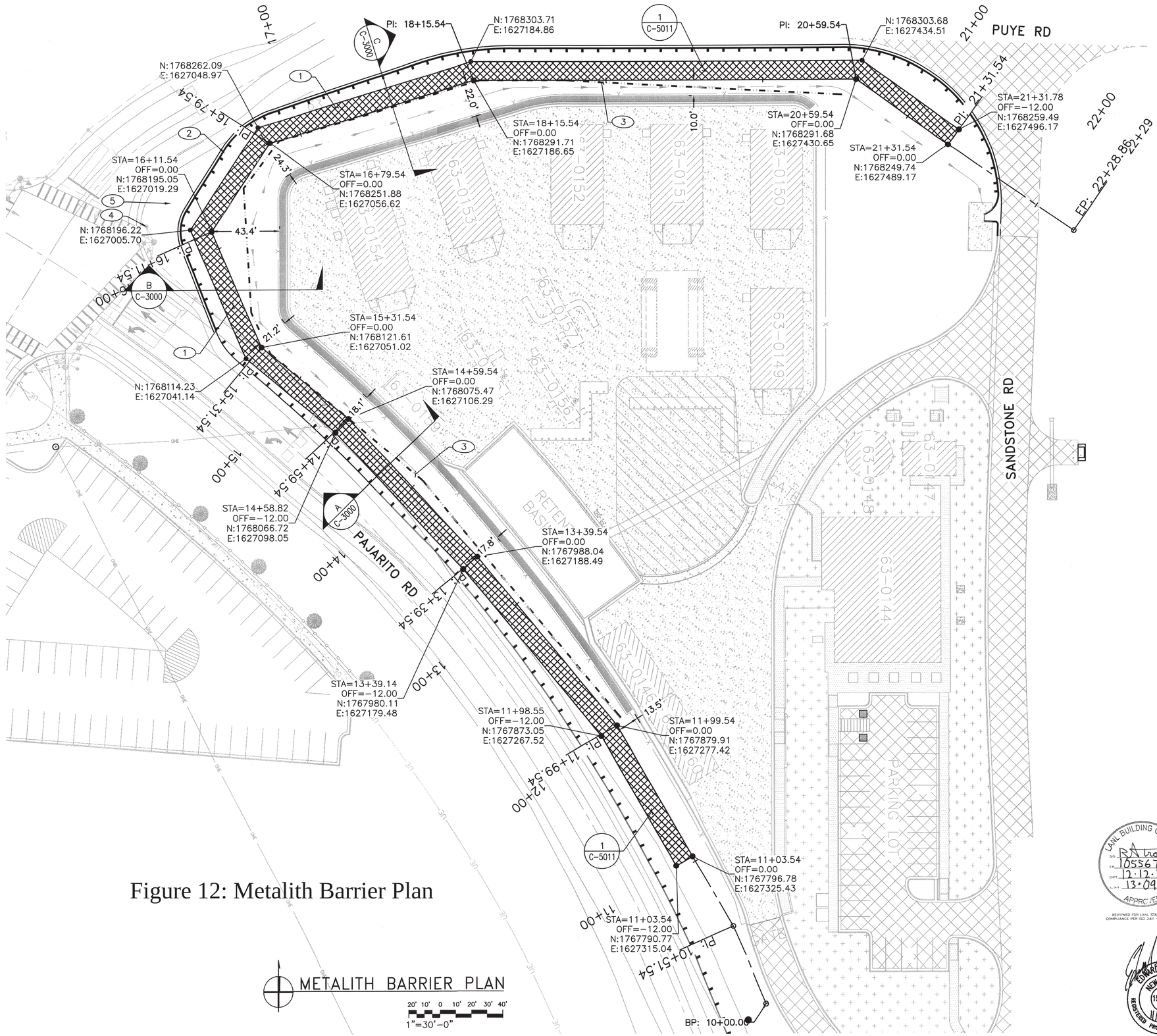


Figure 12: Metalith Barrier Plan

METALITH BARRIER PLAN

20' 10' 0 10' 20' 30' 40'
1"=30'-0"

GENERAL NOTES

1. FIELD VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION.
2. IF THIS SHEET IS NOT 24"x36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY.
3. EXISTING UTILITY LOCATIONS ARE APPROXIMATE ONLY AND SHALL BE FIELD LOCATED PRIOR TO CONSTRUCTION.
4. THE INTENT OF THIS SHEET IS TO GIVE AN OVERALL METALITH BARRIER PLAN VIEW. SEE SHEETS C-1022 & C-1023 FOR MORE DETAIL.
5. SEE TRU-WASTE FACILITY PHASE "A" SITE DESIGN AS-BUILTS FOR RETAINING WALL HEIGHT SHEETS S-1000, S-3000 AND S-3001

KEYED NOTES

(1) METALITH BARRIER (INFRASTRUCTURE DEFENSE TECHNOLOGIES, LLC 3575 MORREIM DRIVE, BELVIDERE, IL 61008)

(2) THRIE BEAM METAL BARRIER, SEE SHEET C-1025 & C-1026

(3) 2:1 MINIMUM OFFSET LINE FROM EXISTING RETAINING WALL

(4) ADJUST PULL BOX TO GRADE

(5) CAP AND BURY EXISTING CULVERT PIPE

LANL BUILDING OFFICIAL
DO 105567
DATE 12·12·13
A/E/C 13·094
APPROVED
REVIEWED FOR LANL STANDARDS COMPLIANCE PER ISD 341-2, CH 16

EDWARD CORDOVA NEW MEXICO 15788 REGISTERED PROFESSIONAL ENGINEER 11/6/13

NO	DATE	CLASS REV	ADC	DESCRIPTION	DWN	DSGN	CHKD	SUB	APP
1	11-06-13	U		REVISED SITE LAYOUT	DP	CL	EC		

WEIDLINGER-ASSOCIATES JV NORTHERN NM

TRU WASTE FACILITY PROJECT

OVERALL METALITH BARRIER PLAN

BLDG TA-63

DRAWN	D PADILLA
DESIGN	C LEY
CHECKED	E CORDOVA
DATE	11-06-13

SUBMITTED: BRIAN SULLIVAN
APPROVED FOR RELEASE: ED ARTIGLIA

Los Alamos NATIONAL LABORATORY
PO Box 1663
Los Alamos, New Mexico 87545

SHEET C-1021
30 OF 827

CLASSIFICATION U
REVIEWER ED ARTIGLIA
DATE 11-06-13

PROJECT ID 102355
DRAWING NO C55443
REV 1

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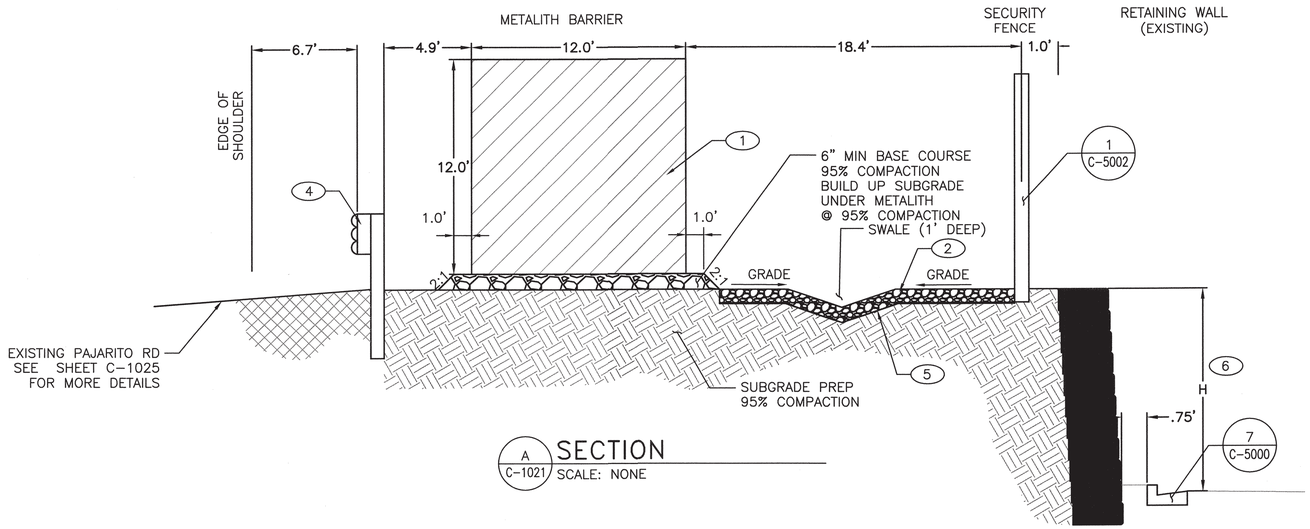
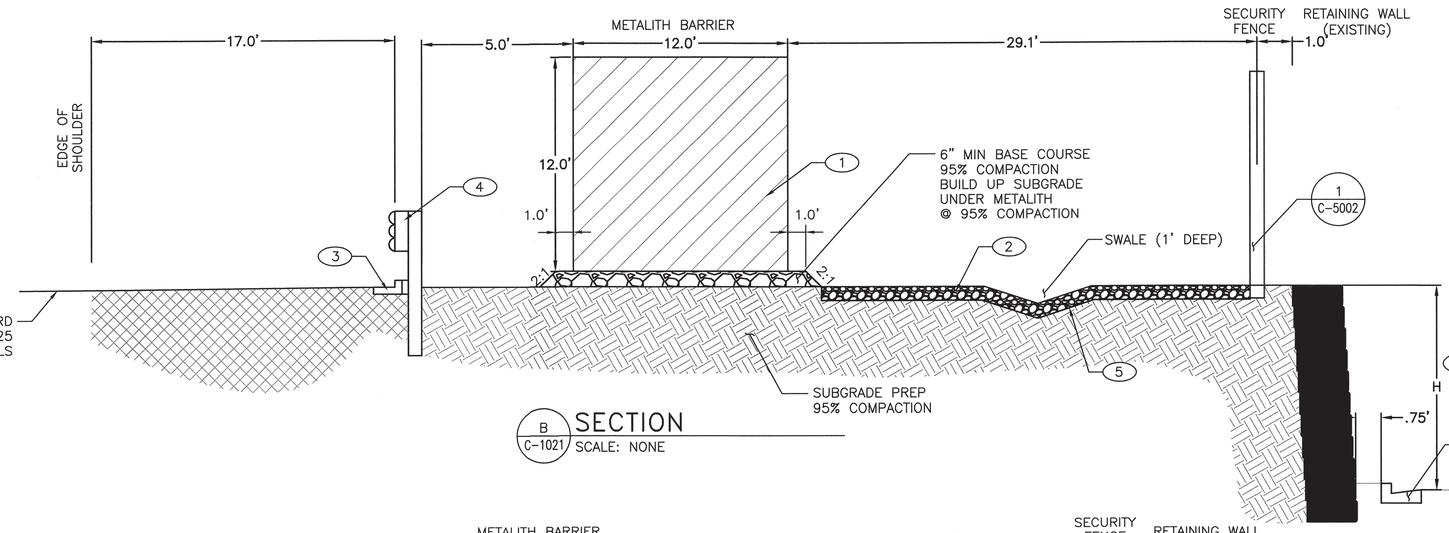
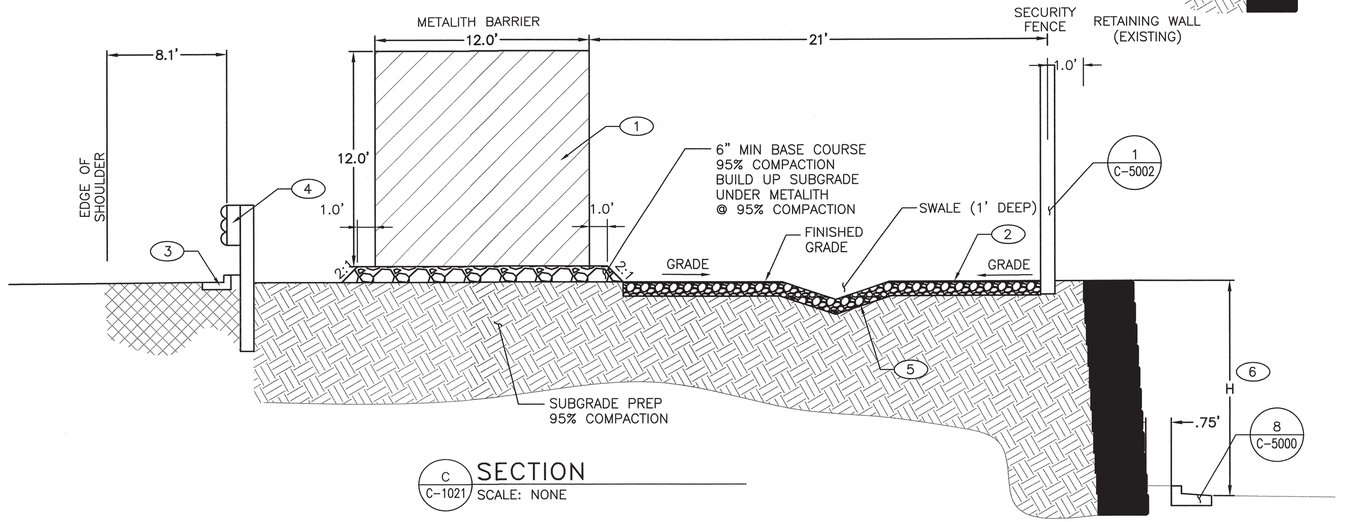


A C-1021 SECTION
SCALE: NONE



B C-1021 SECTION
SCALE: NONE



C C-1021 SECTION
SCALE: NONE

GENERAL NOTES

1. FIELD VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION.
2. IF THIS SHEET IS NOT 24"x36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY.

KEYED NOTES

1. METALITH BARRIER 12'Hx12'W. SEE MISCELLANEOUS DETAILS ON C-5011
2. OPEN SPACE, STABILIZE BY SALVAGED GRAVEL/SEEDING
3. STANDARD CURB AND GUTTER
4. NEW THRIE BEAM
5. FILTER FABRIC
6. H = HEIGHT OF WALL MEASUREMENT FOR THE BARRIER 2:1 OFFSET

Figure 13: Metalith Barrier Sections

Note: Security Fence will be removed behind Metalith Barrier as described in Section C of the discussion.

LANL BUILDING OFFICIAL
SIG
ZONE 10557
DATE 12·17·13
CONT 13·044
APPROVED
REVIEWED FOR LANL STANDARDS COMPLIANCE PER ISD 341 - 2, CH. 16

EDWARD CORDOVA NEW MEXICO 15788 REGISTERED PROFESSIONAL ENGINEER 11/6/13

NO	DATE	CLASS REV	ADC	DESCRIPTION	DWN	DSGN	CHKD	SUB	APP
1	11-06-13	U		ADDED ONSITE/OFFSITE BARRIERS	OP	CL	EC		

WEIDLINGER-NAVARRO JV NORTHERN NM

TRU WASTE FACILITY PROJECT

METALITH BARRIER SECTIONS

BLDG TA-63

DRAWN	D PADILLA
DESIGN	C LEY
CHECKED	E CORDOVA
DATE	11-06-13

SUBMITTED: BRIAN SULLIVAN
APPROVED FOR RELEASE: ED ARTIGLIA

Los Alamos NATIONAL LABORATORY
PO Box 1663
Los Alamos, New Mexico 87545

SHEET C-3000
36 OF 827

CLASSIFICATION U
REVIEWER ED ARTIGLIA
DATE 11-06-13

PROJECT ID 102355
DRAWING NO C55443
REV 1

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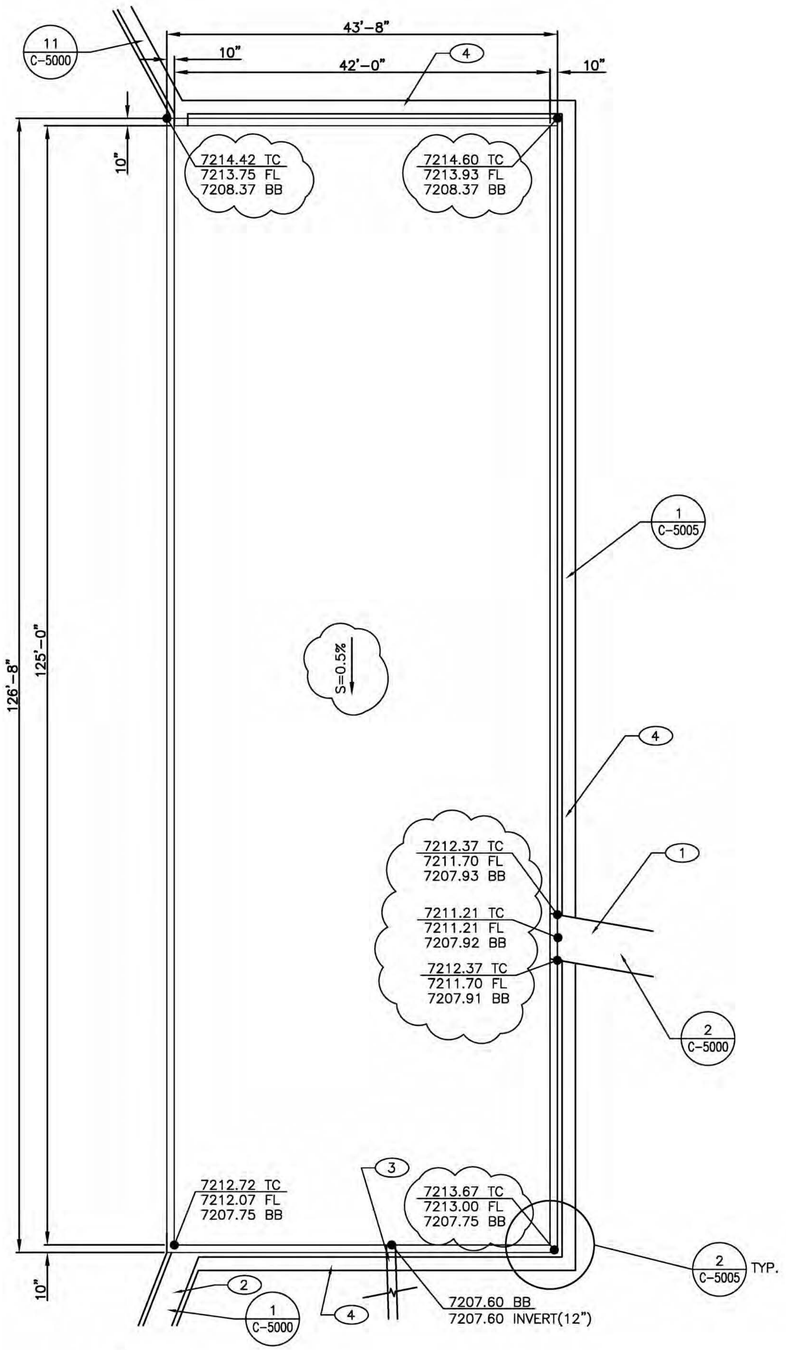

RETENTION BASIN FOUNDATION PLAN
SCALE: NONE

Figure 14: Retention Basin Depth Change

KEYED NOTES

1. 5' CONCRETE VALLEY GUTTER
2. CONCRETE SPILL WAY
3. 12" CULVERT PIPE WITH GATE VALVE
4. CONCRETE CURB & GUTTER

GENERAL STRUCTURAL NOTES

1. CODES AND STANDARDS:

   LANL ENGINEERING STANDARDS MANUAL (ESM)–ISD 341–2, CHAPTER 5 SECTION 11.

   DOE–STD–1020 "NATURAL PHENOMENA HAZARDS DESIGN AND EVALUATION CRITERIA FOR DEPARTMENT OF ENERGY FACILITIES"

   DOE–STD–1201–93 "NATURAL PHENOMENA HAZARDS PERFORMANCE CATEGORIZATION CRITERIA FOR STRUCTURES, SYSTEMS AND COMPONENTS"

   DOE–STD–1189–2008, "INTEGRATION OF SAFETY INTO THE DESIGN PROCESS"

   ASCE–7–05 MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES

   INTERNATIONAL BUILDING CODE IBC–2006

   ACI 318–08 "BUILDING CODE REQUIREMENTS FOR STRUCTURE CONCRETE" CODE AND COMMENTARY

   ASCE 4–98 SEISMIC ANALYSIS OF SAFETY–RELATED NUCLEAR STRUCTURES AND COMMENTARY

   ACI 349–01 CODE REQUIREMENTS FOR NUCLEAR SAFETY RELATED CONCRETE STRUCTURES

   BROOKHAVEN NATIONAL LABORATORY, BNL–BNL–52361, SEISMIC DESIGN AND EVALUATION GUIDELINES FOR THE DOE HIGH–LEVEL WASTE STORAGE TANKS AND APPURTENANCES

   GEOTECHNICAL REPORT WNNNM JV NO.: 11–002–GRPT–002

   ACI 350.2R–04 CONCRETE STRUCTURES FOR CONTAINMENT OF HAZARDOUS MATERIALS

2. DESIGN DATA:

   REINFORCED CONCRETE FOUNDATIONS – NOMINAL WEIGHT (150 pcf)
   REINFORCED CONCRETE COMPRESSIVE STRENGTH f'c = 4.0 ksi AT 28 DAYS

   GRADE 60 REINFORCING STEEL–DEFORMED BARS AND STIRRUPS, ASTM A615, fy = 60 ksi

   MINIMUM SPLICE LENGTH FOR CONTINUOUS #5 REINFORCING = 2'–2" AND FOR #6 REINFORCING = 2'–7".

   RETENTION BASIN SLAB & WALLS SHALL BE WATER CURED PER SPECIFICATIONS.

   DO NOT BACKFILL WALLS UNTIL CONCRETE HAS OBTAINED FULL 28 DAY STRENGTH. BACKFILL EVENLY AROUND BASIN.

   SEISMIC LOADS (ESM CHAPTER 5 – STRUCTURE, ASCE 7–05, SECTION 12 REFER TO PROJECT DESIGN CALCULATIONS.

   SEE SHEET C–1000 FOR LOCATION AND LAYOUT OF RETENTION BASIN.

3. RETENTION BASIN SHALL BE SEALED WITH XYPEX CONCRETE SEALANT OR APPROVED EQUAL IN ACCORDANCE WITH SPECIFICATION 09 9201.

NO	DATE	CLASS REV	ADC	DESCRIPTION	DWN	DSGN	CHKD	SUB	APP
3	03–27–14	U		DRN–14–63–0144–0043 UPDATE BASIN FOUNDATION ELEVATIONS	CH	KC	TM	BS	
2	03–20–14	U		UPDATE BASIN FOUNDATION ELEVATIONS	CH	KC	TM	BS	
1	11–06–13	U	EA	CLASSIFICATION UPDATE	CH	KC	TM	BS	EA

WEIDLINGER-NAVARRO JV NORTHERN NM

TRU WASTE FACILITY PROJECT

RETENTION BASIN FOUNDATION PLAN

BLDG TA–63

DRAWN	C HOGUE
DESIGN	K CHRISMAN
CHECKED	T MELTON
DATE	11–06–13

SUBMITTED: BRIAN SULLIVAN
APPROVED FOR RELEASE: ED ARTIGLIA

Los Alamos NATIONAL LABORATORY
PO Box 1663
Los Alamos, New Mexico 87545

SHEET C–1017
26 OF 827

CLASSIFICATION U
REVIEWER ED ARTIGLIA
DATE 11–06–13

PROJECT ID 102355
DRAWING NO C55443
REV 3

3-27-14
TOM W. MELTON NEW MEXICO 20554 PROFESSIONAL ENGINEER

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Attachment 2

Text Changes for Dry Pipe Fire Suppression System

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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 Emergency Management and Response Office, 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 ~~wet~~dry-pipe sprinkler system for fire suppression. 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 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 if the composition of the release is known and they are sure their actions will not put themselves

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Attachment 3

Text Changes for Security Fence

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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 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 ~~fence~~ barrier system with controlled access gates. ~~The security fence is comprised of 8 feet high chain link and by at least three strands of barbed wire angled to the outside.~~ 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 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 station at the TWF; the system is also connected to the Los Alamos County Consolidated

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Attachment 4

Text Changes for Retention Basin

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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 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 ~~3.5~~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.

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

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Attachment 5

Text Changes for Generator

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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 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 ~~fence~~ barrier system with controlled access gates. ~~The security fence is comprised of 8 feet high chain link and by at least three strands of barbed wire angled to the outside.~~ 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 Required Equipment

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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 station at the TWF; the system is also connected to the Los Alamos County Consolidated

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Attachment 6

Soil Vapor Monitoring Well Completion Text Change

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Vapor monitoring wells VMW-1, VMW-2, and VMW-3 shall be constructed with a single vapor monitoring port located in the center of a sampling interval between 5 ft and 10 ft below ground surface (bgs). Vapor monitoring wells VMW-4 and VMW-5 shall be constructed with two vapor monitoring ports located at 25 ft and 60 ft below ground surface (bgs). Boreholes will be advanced using hollow stem auger drilling methods. The vapor monitoring wells shall be constructed utilizing the same type of stainless steel (SS) tubing sampling system used at Vapor Monitoring Well 50-613183 at MDA C.

Well boreholes for VMW-1, VMW-2, and VMW-3 must be advanced to the design depth of 10 ft bgs. A continuous 0.25 inch stainless steel sampling tube with a screened end opening must then be placed in the borehole centered in the sampling interval (5 ft to 10 ft bgs) depth and clean sand filter pack added as the auger(s) are withdrawn to create a vapor permeable medium in the interval 5 ft to 10 ft bgs. The vapor monitoring wells must then be sealed with 2.5 ft of hydrated bentonite clay overlain by 2 ft of bentonite-cement grout.

Well boreholes for VMW-4 and VMW-5 must be advanced to the design depth of 67.5 ft bgs. A minimum 5 ft hydrated bentonite clay plug must be placed above and below each sampling interval. A continuous 0.25 inch stainless steel sampling tube with a screened end opening must be placed in the borehole centered in the 5-foot sampling intervals and clean sand filter pack added as the auger(s) are withdrawn to create a vapor permeable medium in the intervals from 62.5 ft to 57.5 ft bgs and 22.5 ft to 27.5 ft bgs. Bentonite chips shall fill the borehole between sampling interval hydrated bentonite plugs and from the top of the 25 ft sampling interval to 5.5 ft bgs and overlain by a 5 ft bentonite cement grout surface seal.

Final construction of the vapor monitoring wells requires the installation of above ground steel protective casings to protect the wells~~surface completions consisting of traffic-rated, flush-mount steel surface monuments~~. The Permittees shall take measures to ensure that the surface monuments will not be damaged by snow removal or other maintenance equipment. The well surface seals must be allowed to cure for at least 24 hr before collecting vapor samples. Sampling will be performed by extracting formation air through the sand layer and into the SS tubing.

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Attachment 7

Permit Figure 55 Changes

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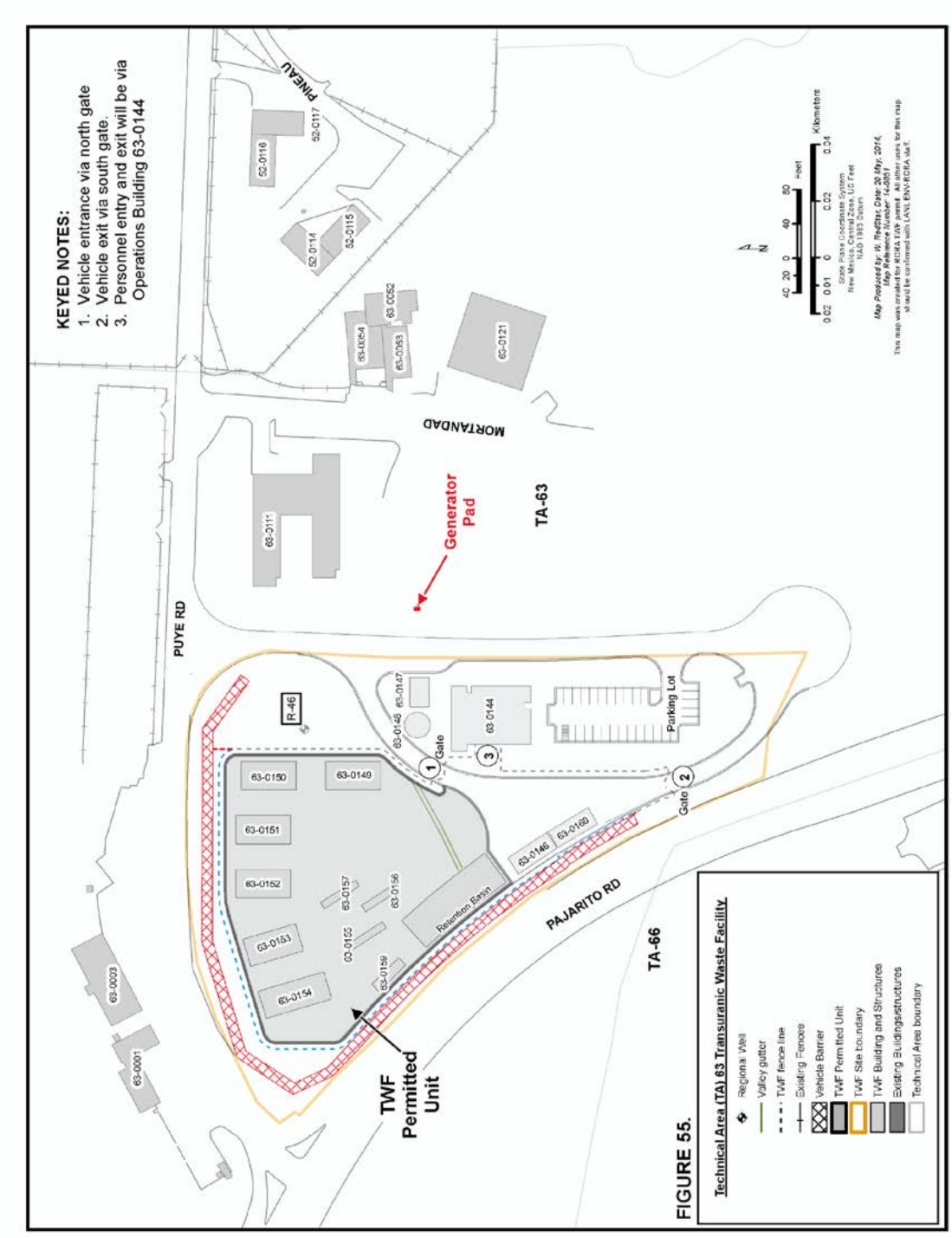

(Note: Additions shown in red, removals in blue)

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Attachment 8

Revised Permit Text and Figure

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ATTACHMENT A

TECHNICAL AREA (TA) - UNIT DESCRIPTIONS

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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 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. Material Safety Data Sheets (MSDS) provide useful exposure information and are available in Room 401 and in the basement of TA-55-4. The MSDS will also be located in TA-55-185 prior to wastes being managed there.

A.6 TA-63 TRANSURANIC WASTE FACILITY

The following section describes the Transuranic Waste Facility (TWF). Detailed descriptions of the unit's structures are included in the subsections. The TWF is located at TA-63 on a mesa 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 on1.81 acres (78,843 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.

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 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 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 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 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 equipment is provided for the TWF in mobile modified commercial trailers brought to the facility. The characterization trailers will house the following characterization equipment:

- Real Time Radiography (RTR) unit. The NDE equipment in the trailer is designed to provide X-ray examination of the contents of TRU waste drums.
- High-Efficiency Neutron Counter (HENC) unit. The NDA equipment in the trailer is designed to provide a passive neutron and gamma measurement of 55-gallon TRU waste drums.
- SuperHENC unit. The NDA equipment in the trailer is similar to the HENC but includes a high efficiency neutron counter and a gamma counter that are both designed to handle SWBs.

The RTR is a self-contained, non-intrusive X-ray unit, physically housed in a trailer 48 feet in length by 8 feet wide used to X-ray waste containers up to 85 gallons in volume. Radiography is a nondestructive qualitative and semi-quantitative technique that involves X-ray scanning of waste containers to identify and verify waste container contents. Radiography is used to examine the waste container to verify its physical form. This technique can detect prohibited items such as liquid wastes and gas cylinders, which are prohibited for WIPP disposal. Radiography examination must achieve the following to meet the WIPP WAC:

- Verify and document the physical form of each waste container.
- Identify any prohibited items in the waste container.
- Confirm that the physical form of the waste matches its waste stream description (i.e., homogeneous solids, soil/gravel, or debris waste [including uncategorized metals]).

The HENC is a self-contained, non-intrusive, passive assay unit, physically housed in a trailer 48 feet in length by 8 ½ feet wide by 12 ¾ feet high. The HENC is designed to assay 55-gallon (208 liter) drums containing fissionable radionuclides. The system simultaneously performs passive neutron counts and gamma spectrometry to detect gamma-emitting radionuclides for the purpose of determining quantitative concentrations of TRU constituents. The equipment and mobile container only require electrical power to operate. Approximately 10 to 13 drums a day can be processed through the HENC, with each drum taking approximately 45 minutes for examination. The HENC is a large rectangular-shaped neutron counter that is specifically designed to assay the container in a fixed geometry. The HENC system uses passive and add-a-source neutron analysis methods to assay the nuclide mass contained in 55-gal drums of TRU waste. Waste containers to be assayed are placed on a conveyor that feeds them into the system.

The SuperHENC operates on the same principle as the HENC, within a similar tractor trailer. The process however, is applicable to the assay of TRU radionuclides in waste packages such as SWBs. Data from this process is used to assay the radioactive content of SWBs containing TRU waste, sorting SWBs based on the 100 nanocurie per gram (nCi/g) TRU limit, and confirming radioisotopes identified using acceptable knowledge (AK).

The trailers are numbered 63-0155, 63-0156, and 63-0157 at TA-63. Additional trailers may be needed as characterization needs for the facility change. If additional trailers are needed or 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 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 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 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 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 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 Emergency Management and Response Office, 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 150,000 gallon tank north of the Operations Support Building with a combination of electric and diesel powered fire pumps 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 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. Material Safety Data Sheets MSDS (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 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*.

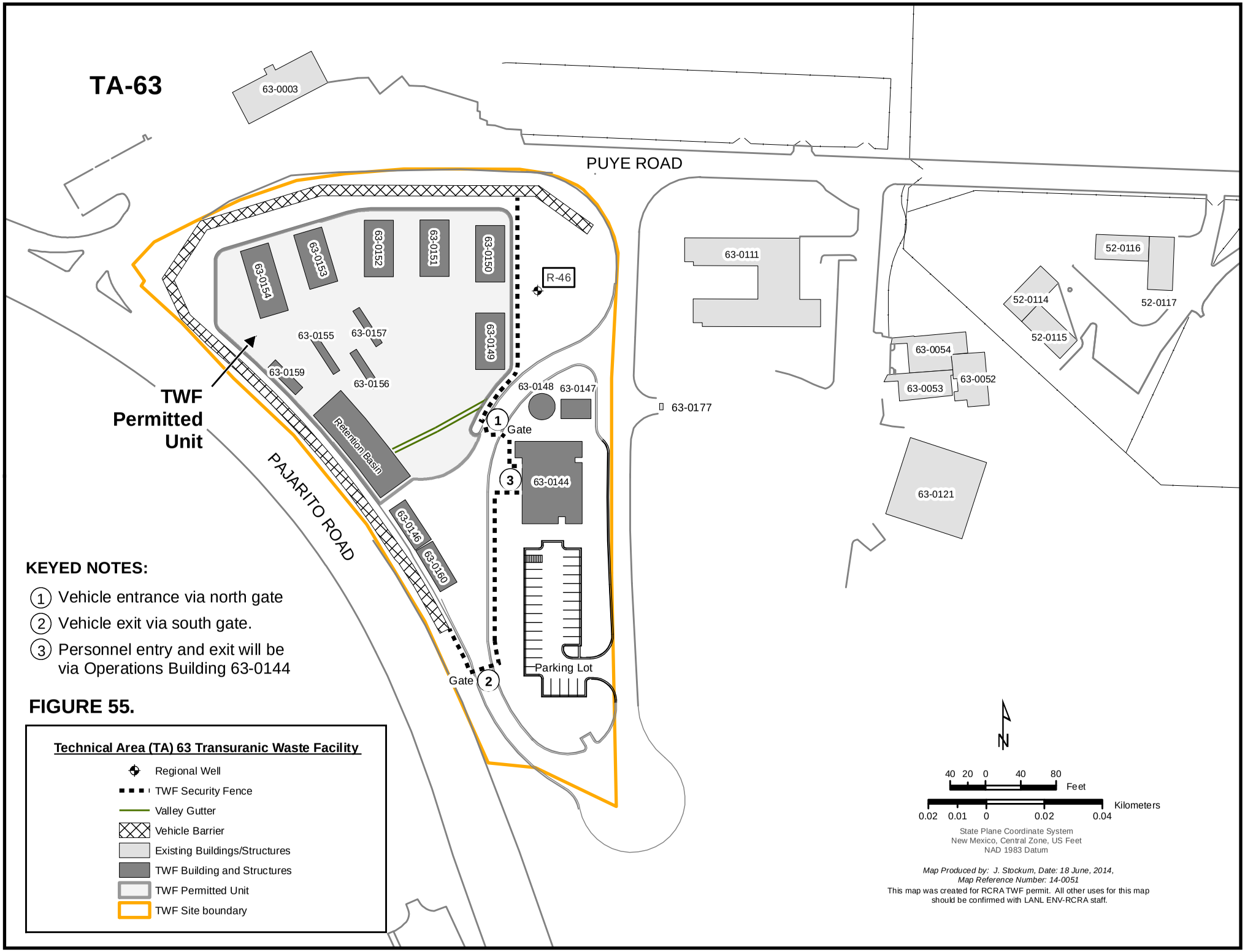
A.6.10 Subsurface Vapor Monitoring

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.

Vapor monitoring wells VMW-1, VMW-2, and VMW-3 shall be constructed with a single vapor monitoring port located in the center of a sampling interval between 5 ft and 10 ft below ground surface (bgs). Vapor monitoring wells VMW-4 and VMW-5 shall be constructed with two vapor monitoring ports located at 25 ft and 60 ft below ground surface (bgs). Boreholes will be advanced using hollow stem auger drilling methods. The vapor monitoring wells shall be constructed utilizing the same type of stainless steel (SS) tubing sampling system used at Vapor Monitoring Well 50-613183 at MDA C.

Well boreholes for VMW-1, VMW-2, and VMW-3 must be advanced to the design depth of 10 ft bgs. A continuous 0.25 inch stainless steel sampling tube with a screened end opening must then be placed in the borehole centered in the sampling interval (5 ft to 10 ft bgs) depth and clean sand filter pack added as the auger(s) are withdrawn to create a vapor permeable medium in the interval 5 ft to 10 ft bgs. The vapor monitoring wells must then be sealed with 2.5 ft of hydrated bentonite clay overlain by 2 ft of bentonite-cement grout.

Well boreholes for VMW-4 and VMW-5 must be advanced to the design depth of 67.5 ft bgs. A minimum 5 ft hydrated bentonite clay plug must be placed above and below each sampling interval. A continuous 0.25 inch stainless steel sampling tube with a screened end opening must be placed in the borehole centered in the 5-foot sampling intervals and clean sand filter pack added as the auger(s) are withdrawn to create a vapor permeable medium in the intervals from 62.5 ft to 57.5 ft bgs and 22.5 ft to 27.5 ft bgs. Bentonite chips shall fill the borehole between sampling interval hydrated bentonite plugs and from the top of the 25 ft sampling interval to 5.5 ft bgs and overlain by a 5 ft bentonite cement grout surface seal.
Final construction of the vapor monitoring wells requires the installation of above ground steel protective casings to protect the wells. The Permittees shall take measures to ensure that the surface monuments will not be damaged by snow removal or other maintenance equipment. The well surface seals must be allowed to cure for at least 24 hr before collecting vapor samples. Sampling will be performed by extracting formation air through the sand layer and into the SS tubing.


TA-63
63-0003
PUYE ROAD
63-0154
63-0153
63-0152
63-0151
63-0150
63-0155
63-0157
63-0149
63-0159
63-0156
R-46
TWF
Permitted
Unit
Retention Basin
PAJARITO ROAD
63-0148
63-0147
1
Gate
3
63-0144
63-0146
63-0160
Gate
2
Parking Lot
63-0111
63-0177
52-0116
52-0114
52-0117
52-0115
63-0054
63-0053
63-0052
63-0121
KEYED NOTES:
1 Vehicle entrance via north gate
2 Vehicle exit via south gate.
3 Personnel entry and exit will be via Operations Building 63-0144
FIGURE 55.
Technical Area (TA) 63 Transuranic Waste Facility
Regional Well
TWF Security Fence
Valley Gutter
Vehicle Barrier
Existing Buildings/Structures
TWF Building and Structures
TWF Permitted Unit
TWF Site boundary
N
40 20 0 40 80
Feet
0.02 0.01 0 0.02 0.04
Kilometers
State Plane Coordinate System
New Mexico, Central Zone, US Feet
NAD 1983 Datum
Map Produced by: J. Stockum, Date: 18 June, 2014,
Map Reference Number: 14-0051
This map was created for RCRA TWF permit. All other uses for this map
should be confirmed with LANL ENV-RCRA staff.

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Attachment 9

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.

D R Eniggs for

7/17/14

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

Date Signed

Kimberly Davis Lebak

7/23/14

Kimberly Davis Lebak
Manager, Los Alamos Field Office
National Nuclear Security Administration
U.S. Department of Energy
Owner/Operator

Date Signed