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Environmental Management
Los Alamos Field Office
1200 Trinity Drive, Suite 400
Los Alamos, New Mexico 87544
(505) 257-7950/FAX (505) 606-2132

Date: August 10, 2021
Refer To: N3B-2021-0197

Ricardo Maestas, Acting Chief
Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East, Building 1
Santa Fe, NM 87505-6313

Subject: Class 1 Permit Modification Request Requiring Prior Approval for Treatment at TA-54-0375 for the Los Alamos National Laboratory Hazardous Waste Facility Permit, EPA ID No. NM0890010515

Dear Mr. Maestas:

Enclosed is a Class 1 permit modification request requiring prior approval from the New Mexico Environment Department (NMED) Hazardous Waste Bureau (HWB) to modify the Los Alamos National Laboratory (LANL) Hazardous Waste Facility Permit (the Permit) issued to the U.S. Department of Energy (DOE); Triad National Security, LLC; and Newport News Nuclear BWXT-Los Alamos, LLC (N3B) (the Permittees). The Permittees request the addition of a treatment process at a permitted unit, and the enclosed permit modification provides proposed revisions to text and figures in the Permit Part 7, as well as to Attachments A, C, E, G.12, J, and N.

This proposed permit modification request has been prepared in accordance with 40 Code of Federal Regulations (CFR) Section 270.42 "Permit Modification at the Request of the Permittee," paragraph (a). This modification request includes the addition of treatment of hazardous waste by stabilization (including absorption) and neutralization at one permitted storage unit, minor administrative changes, and the addition and/or replacement of equipment with functionally equivalent components. Item F.1.c in Appendix I, "Modification Table," of 40 CFR 270.2 states that the Permittees may submit a proposed Class 1 permit modification of a hazardous waste facility permit to add a treatment process necessary to treat hazardous wastes that are restricted from land disposal to meet some or all applicable treatment standards. Item A.1 in 40 CFR 270.42(a)(2), Appendix I, allows for administrative and informational changes to be made to the Permit. The Permittees are making administrative changes (i.e., numerical ordering of treatment units) to ensure consistency throughout the Permit. Item A.3 in 40 CFR 270.42(a)(2), Appendix I, allows for the addition and replacement of equipment with functionally equivalent components. The Permittees are adding temporary waste-handling equipment (hydraulic shear, pipe rollers, pipe racks, winch, and gantry cranes) to permitted hazardous waste management unit Technical Area 54 (TA-54), Area G, Pad 11, Dome 0375, inside the Perma-Con®. The equipment will be used to support waste-

management operations and to size-reduce the corrugated metal pipe (CMP) transuranic waste stream at TA-54. Upon completion of the CMP size-reduction campaign, the equipment will be decontaminated and properly disposed of off-site.

Although the primary waste stream that will be processed in Dome 0375 will be the CMPs, it will likely be necessary for the Permittees to treat containerized legacy waste located at TA-54, Area G, to remove the Resource Conservation and Recovery Act hazardous waste characteristics of ignitability, corrosivity, and reactivity. The treatment of the waste in containers is intended to remove U.S. Environmental Protection Agency (EPA) Hazardous Waste Numbers D001, D002, and D003 (ignitability, corrosivity, and reactivity, respectively).

The Permittees request to add a treatment process, make minor administrative changes for consistency, and to add waste handling equipment to TA-54, Area G, Pad 11, Dome 375 (TA-54-0375). Per 40 CFR 270.42, Appendix I, Item F.1.c, and 40 CFR 270.42(a)(2), Appendix I, Items A.1 and A.3, the Permittees may submit a proposed Class 1* (i.e., requires prior approval by NMED) permit modification to add a treatment process necessary to treat hazardous wastes that are restricted from land disposal to meet some or all applicable treatment standards.

The Permittees must sort, size-reduce, segregate, and repack mixed waste at TA-54 to meet the waste acceptance criteria for disposal at the Waste Isolation Pilot Plant located in Carlsbad, New Mexico. During this process, some wastes will require treatment using neutralization and absorption to remove EPA Hazardous Waste Numbers D001 and D002. In addition, some containerized wastes (55-gallon and 85-gallon drums) may require the removal of aerosol cans to remove the D003 code. The aerosol cans will be removed/segregated from the waste stream and sent off-site for treatment and disposal.

The changes described in the request do not substantially alter the permitted container storage requirements or facility and add only permit conditions to describe the treatment process and associated waste management requirements as well as the addition of waste handling equipment for size-reduction of the CMPs. This permit modification request adds temporary, mobile equipment for the CMP size-reduction campaign and treatment processes to an already existing permitted container storage unit that has been previously used for processing and repackaging of waste. The storage capacity of the unit will not be increased by this permit modification, and the permit modification will not significantly change the overall waste processing operations at the facility. Past waste processing at the facility includes container repackaging, sorting, and segregating.

This permit modification request was prepared for review and approval by NMED pursuant to 20.4.1900 New Mexico Administrative Code, incorporating 40 CFR 270.42(a). Upon approval of this Class 1 permit modification request, the modification will be put into effect and notice will be sent to the NMED-HWB-maintained LANL facility mailing list in accordance with 40 CFR 270.42(a)(1)(ii) within 90 days of approval of this request.

If you have questions, please contact Emily Day at (505) 695-4243 (emily.day@em-la.doe.gov) or Arturo Duran at (505) 257-7907 (arturo.duran@em.doe.gov).

Sincerely,

Joseph Murdock
Program Manager
Environment, Safety and Health
N3B-Los Alamos

Sincerely,

ARTURO DURAN
Digitally signed by ARTURO DURAN
Date: 2021.08.02 11:47:39 -06'00'

Arturo Q. Duran, Compliance and Permitting Manager
Office of Quality and Regulatory Compliance
U.S. Department of Energy
Environmental Management
Los Alamos Field Office

Enclosure(s): Three hard copies with electronic files:

1. Class 1 Permit Modification Request Requiring Prior Approval for Treatment of Hazardous Waste at TA-54-0375 for Los Alamos National Laboratory Hazardous Waste Facility Permit, EPA ID No. NM0890010515 (EM2021-0225)

cc (letter and enclosure[s] emailed):
Laurie King, EPA Region 6, Dallas, TX
Chris Catechis, NMED-DOE-OB/-RPD
Steve Yanicak, NMED-DOE-OB
Siona Briley, NMED-HWB
Neelam Dhawan, NMED-HWB
Mitchell Schatz, NMED-HWB
Caitlin Stone, NMED-HWB
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Peter Maggiore, NA-LA
Adrienne Nash, NA-LA
Gabriel Pugh, NA-LA
M. Lee Bishop, EM-LA
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Public Reading Room (EPRR and HPRR)
PRS website

August 2021
EM2021-0225

Class 1 Permit Modification Request Requiring Prior Approval for Treatment of Hazardous Waste at TA-54-0375 for Los Alamos National Laboratory Hazardous Waste Facility Permit, EPA ID No. NM0890010515

N3B Los Alamos

CERTIFICATION

NEWPORT NEWS NUCLEAR BWXT-LOS ALAMOS, LLC

Class 1 Permit Modification Request Requiring Prior Approval for Treatment of Hazardous Waste at TA-54-0375 for Los Alamos National Laboratory Hazardous Waste Facility Permit, EPA ID No. NM0890010515

CERTIFICATION STATEMENT OF AUTHORIZATION

In accordance with the New Mexico Administrative Code Title 20, Chapter 4, Part 1 (incorporating the Code of Federal Regulations, Title 40 CFR § 270.11):

> "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision according to 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."

July 26, 2021

Joseph Murdock
Environment, Safety and Health Program Manager
Newport News Nuclear BWXT-Los Alamos, LLC

Date

ARTURO DURAN

Digitally signed by ARTURO DURAN
Date: 2021.08.02 11:48:10 -06'00'

Arturo Q. Duran, Permitting and Compliance Manager
Office of Quality and Regulatory Compliance
U.S. Department of Energy
Environmental Management
Los Alamos Field Office

Date

CONTENTS

Appendixes

1.0 INTRODUCTION

This document requests a Class 1 permit modification to the Los Alamos National Laboratory (LANL) Hazardous Waste Facility Permit (Permit) issued to the U.S. Department of Energy (DOE), Triad National Security, LLC; and Newport News Nuclear BWXT-Los Alamos, LLC (N3B), collectively the Permittees. The U.S. Environmental Protection Agency (EPA) ID number for this facility is NM0890010515. This Class 1 permit modification request has been prepared in accordance with 40 Code of Federal Regulations (CFR) 270.42(a)(2), Appendix I, Item F.1.c; 40 CFR 270.42(a)(2), Appendix I, Item A.1; and 40 CFR 270.42(a)(2), Appendix I, Item A.3. Item F.1.c in 40 CFR 270.42(a)(2), Appendix I, allows for the modification of a hazardous waste facility permit with prior approval from the regulatory agency to add a treatment process that is necessary for treatment of hazardous wastes that are restricted from land disposal to meet some or all applicable treatment standards. Item A.1 in 40 CFR 270.42(a)(2), Appendix I, allows for administrative and informational changes to be made to the Permit. The Permittees are making administrative changes (i.e., numerical ordering of treatment units) to ensure consistency throughout the Permit. Item A.3 in 40 CFR 270.42(a)(2), Appendix I, allows for the addition and replacement of equipment with functionally equivalent components. The Permittees are adding temporary waste-handling equipment (hydraulic shear, conveyer system [e.g., pipe rollers], winch, and gantry cranes) to permitted hazardous waste management unit Technical Area 54 (TA-54), Area G, Pad 11, Dome 0375, inside the Perma-Con®. The equipment will be used to support waste-management operations for size-reducing the corrugated metal pipe (CMP) transuranic (TRU) waste stream at TA-54. Upon completion of the CMP size-reduction campaign, the waste handling equipment will be decontaminated and properly disposed of off-site.

This permit modification proposes the addition of a treatment process for containerized mixed waste within a Resource Conservation and Recovery Act– (RCRA-) permitted facility if liquids are encountered that may carry the hazardous waste characteristics of ignitability, corrosivity, and reactivity (D001, D002, and D003) and to address liquids that may be encountered as a result of the size-reduction process for the CMPs. This permit modification request has been drafted for review and approval by the New Mexico Environmental Department (NMED) pursuant to the 20.4.1.900 New Mexico Administrative Code incorporating 40 CFR 270.42(a).

2.0 BACKGROUND

On June 28, 2021, NMED approved the Permittees' request to modify the Permit to include stabilization and neutralization in containers at TA-54-0412, Outdoor Permitted Unit (N3B-21-0063, April 15, 2021). Part 7 was modified to describe the requirements for stabilization and neutralization in containers at TA-54-0412. The proposed stabilization and neutralization process at TA-54-0375 will be subject to the same requirements. TA-54-0375 will also be used to process the CMPs. Text describing incorporation of the treatment processes for stabilization (including absorption) and neutralization of hazardous waste to remove D001, D002, and D003 waste codes at TA-54-0375 is proposed within the Permit, Attachment A, "Technical Area (TA) - Unit Descriptions" (see Appendix A).

Corrugated Metal Pipes

The CMP waste unit category consists of 158 CMPs filled with cement from a batch treatment process that mixed Portland cement with several liquid waste streams containing americium and plutonium at the TA-21 building 257 (21-257) Radioactive Liquid Waste Treatment Facility. Each CMP is 20 ft long with a diameter of 30 in. About 95% of the cemented liquid waste came from an americium processing operation at the DP West Plutonium Facility. The CMPs were filled with cemented waste from late 1975 to 1978 and

maintained in a pit at Material Disposal Area (MDA) T (adjacent to building 21-257) at TA-21. The CMPs were later retrieved and transported to TA-54 and placed in retrievable storage in Pit 29. The CMPs are part of the LA-CIN04.001 waste stream, which is part of the S3000 (Homogenous Solids) waste stream and S3100 (Inorganic Homogenous Solid Wastes) waste matrix code. The hazardous waste numbers listed in Attachments B and C will not change with this permit modification. Because the CMPs are included in the S3000 (Homogenous Solids) waste stream and the hazardous waste numbers are already included for the permitted unit, no changes are necessary to the Attachment B, Part A form.

Once retrieved from Pit 29, the CMPs will be wrapped in plastic, capped on both ends, and appropriately labeled. Once the integrity of the CMPs has been confirmed (i.e., properly wrapped and no visible leaks), they will be loaded on a flatbed truck and transported to Pad 10 for staging. While being staged on Pad 10, the CMPs will be placed on specially constructed pallets (to prevent movement) and placed in a planer array, two by two, with the required spacing to allow for inspections in accordance with the requirements of Permit Attachment E, “Inspection Plan.” Additionally, new demarcation lines will be painted on Pad 10 to indicate the appropriate locations for staging the CMPs. The CMPs will be transported from Pad 10 to Dome 0375 by truck and placed onto the Perma-Con® loading dock using a forklift with a spreader beam or other lifting device. Temporary pipe racks will be placed on the loading dock for moving the CMP into position for transport to the shear. The CMP will be removed from the flatbed truck or from storage within Dome 0375 with a forklift or other lifting device. The forklift will move the CMP into Dome 0375 and place it on pipe rollers secured to the loading dock or on storage pallets within Dome 0375 for subsequent processing. The line of pipe rollers, extending from the loading dock into the Perma-Con® just past the shear, will be located as far to the north as possible to line up with the hydraulic shear in Room 123. This will allow the CMP to be supported before, during, and after it is cut into sections.

A conceptual design layout has been provided for informational purposes (Figure 1).

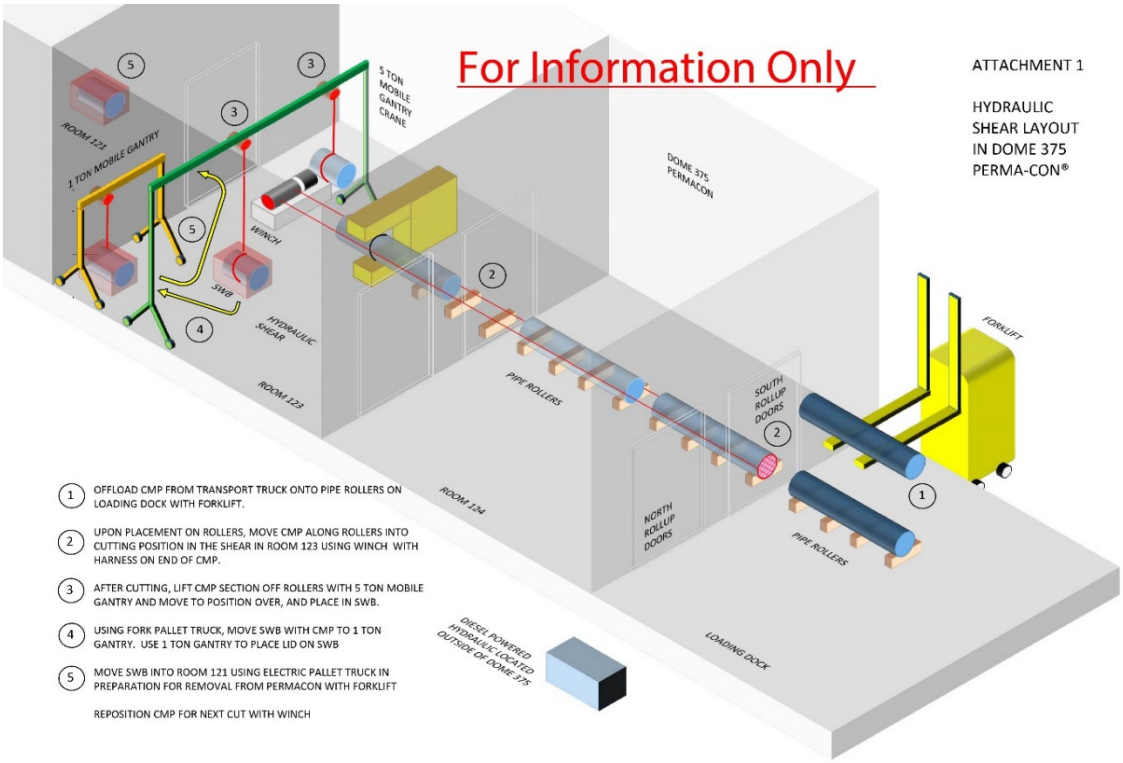

Figure 1 Conceptual design layout

Waste in Containers (55-gallon drums, 85-gallon drums)

The primary type of containerized hazardous waste stream to be treated is from the S3000 waste matrices, which consist of S3100 (Inorganic Homogeneous Solid Wastes), S3200 (Organic Homogeneous Solid Wastes), and S3900 (Solidified Inorganics), S4000 (Soil/Gravel), and the S5000 (Debris) waste matrix, which consists of S5400 (Heterogeneous Debris Waste). These translate to the CIN01, CIN02, CIN03, CIN04, MHD01, MHD03, MHD04, MHD05, MHD08, MHD09, MIN02, MIN03, MIN04, MIN05, and MIN06 waste streams. The waste streams to be treated are from historical processes and recovery operations. Mixed low-level waste (MLLW) streams may be homogeneous or heterogeneous as defined in the Permit, Section C.1.2.1. The waste streams will vary depending on the historical process. In some cases, the liquids within these containers have been characterized as hazardous waste with the characteristics of D001 and D002. The aerosol can waste includes waste containers with liquids, which has been characterized as hazardous waste with the characteristics of ignitability (D001) and reactivity (D003).

To remove the D001 and D003 codes, aerosol cans will be removed/segregated from the waste stream and sent off-site for treatment and disposal.

The Permittees propose to conduct treatment by stabilization (including absorption) and neutralization at a permitted container storage unit located at TA-54, Area G, Pad 11, Dome 0375. Waste containers will be transported from permitted container storage units within TA-54 to TA-54-0375 by forklifts (using drum grapplers, when appropriate), flatbed trucks, closed-box trucks, or trailers. Dome 0375 has routinely been used for waste sorting, segregation, and size-reduction activities. To maintain safety and compliance, the activities necessary to treat these wastes have been extensively researched, and the path forward described herein has been established for the wastes.

Information regarding the Permittees' recharacterization efforts, evaluation, and testing of effective treatment methods and evaluation of locations and physical methods to conduct treatment processes is provided in the following documents:

- DOE/WIPP (U.S. Department of Energy/Waste Isolation Pilot Plant), July 2017. "Basis of Knowledge for Evaluating Oxidizing Chemicals in TRU Waste," U.S. Department of Energy document DOE/WIPP-17-3589, Carlsbad, New Mexico. Note: This Basis of Knowledge (BoK) is from the "Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant, Appendix H, Enhanced Acceptable Knowledge," U.S. Department of Energy document DOE/WIPP-02-3122.
- Haschke, J., Allen, T., and Morales, L. "Surface and Corrosion Chemistry of Plutonium," Los Alamos Science, no. 26 (2000), 253-273. Jozefaciuk, G., Bowanko, G. "Effect of Acid and Alkali Treatments on Surface Areas and Adsorption Energies of Selected Minerals," Clays and Clay Minerals 50, no. 6 (2002), 771-783.
- LANL (Los Alamos National Laboratory), March 2016. "Assessment of Options for the Treatment of Nitrate Salt Wastes at Los Alamos National Laboratory – 16541," Los Alamos National Laboratory document LA-UR-15-29314, Los Alamos, New Mexico.
- LANL (Los Alamos National Laboratory), October 2017. "Summary Report of Comprehensive Laboratory Testing to Establish the Effectiveness of Proposed Treatment Methods for Unremediated and Remediated Nitrate Salt Waste Streams," Los Alamos National Laboratory document LA-UR-17-23322, Los Alamos, New Mexico.
- Schoen, J., June 12, 2017. "Chemical Compatibility Evaluation for Waste Stream LA-CIN01.001," AK Source Document CCE03, Revision 0. (Note: This author is a Central Characterization Program [CCP] Acceptable Knowledge Expert.)

3.0 PERMIT MODIFICATION BASIS

This permit modification request has been prepared in accordance with 40 CFR 270.42(a)(2), Appendix I, Item F.1.c; 40 CFR 270.42(a)(2), Appendix I, Item A.1; and 40 CFR 270.42(a)(2), Appendix I, Item A.3. Item F.1.c in 40 CFR 270.42(a)(2), Appendix I, allows for the modification of a hazardous waste facility permit with prior approval from the regulatory agency to add treatment processes that are necessary for treatment of hazardous wastes that are restricted from land disposal to meet some or all applicable treatment standards. Item A.1 in 40 CFR 270.42(a)(2), Appendix I, allows for administrative and informational changes to be made to the Permit. Item A.3 in 40 CFR 270.42(a)(2), Appendix I, allows for the addition and replacement of equipment with functionally equivalent components. It is necessary for the Permittees to treat containerized wastes to remove the RCRA hazardous waste characteristics of ignitability, corrosivity, and reactivity and treat liquids that may be encountered during the size-reduction process for the CMPs. However, liquids are not expected to be encountered during the CMP size-reduction process. According to the criteria of Appendix I, the addition of this treatment process and the addition of the temporary waste handling equipment can be incorporated into the Permit using a Class 1 modification requiring prior regulatory agency approval. This process is appropriate because the only changes proposed to the permitted storage unit are related to the addition of the treatment process and installation of temporary equipment and are limited to the stated purpose of the class description. Storage volumes will not increase as a result of this permit modification.

4.0 DESCRIPTION

This permit modification request proposes changes to a permitted unit at TA-54-0375. All proposed changes are shown in redline-strikeout format for proposed revisions to text in Permit Part 7 and the following Permit attachments:

- Attachment A, Technical Area (TA) - Unit Descriptions (changes shown in redline)
- Attachment C, Waste Analysis Plan (changes shown in redline)
- Attachment E, Inspection Plan (changes shown in redline)
- Attachment G.12, Technical Area 54, Area G, Pad 11, Outdoor Container Storage and Treatment Unit Closure Plan (changes shown in redline). This attachment also includes the revised Figure G.12-1.
- Attachment J, Hazardous Waste Management Units (changes shown in redline)
- Revised Figures (Attachment N, Figures 27 and Figure 36, and Figure G.12-1)

Appendix A contains changes to the Permit Part 7 and Attachments A, C, E, G.12, and J. Appendix B contains the replacement figures.

The changes comprise the addition of a treatment process at TA-54-0375 for MLLW and mixed TRU waste from the S3000 (Homogeneous Solids), S4000 (Soil/Gravel), and S5000 (Debris) waste matrices to remove the RCRA hazardous waste characteristics of D001, D002, and D003 and the addition of temporary waste handling equipment for the size-reduction of CMPs. Wastes requiring treatment are currently stored at various permitted units at TA-54, Area G. The CMPs are currently in retrievable storage in Pit 9 at TA-54. The waste matrices include but are not limited to (monolithic) solid homogenous waste, cemented sludge wastes, and debris. TA-54-0375 is currently permitted for waste storage.

There are no changes required to the storage and transport processes described within Permit Part 3, “Storage in Containers,” and Permit Attachment A, “Technical Area (TA) - Unit Descriptions,” to

implement the proposed treatment processes for mixed waste with liquids. Waste containers are transported to the permitted unit by flatbed trucks, closed-box trucks, or trailers. The permitted unit has design features (currently described in Attachment A, A.4.2.9, Pad 11) that promote safe unloading and handling of waste containers from these trucks and trailers. Waste containers will be stored at the units in accordance with the conditions outlined in Permit Part 3 and all applicable subsections. Treatment of mixed waste will occur within Perma-Con® within the TA-54-0375 Permitted Unit. TA-54-0375 provides confinement for the proposed operations and is well configured to safely accommodate the neutralization and stabilization process with zeolite. The Perma-Con® within TA-54-0375 is equipped with a high-efficiency particulate air filtration system and is under negative pressure during waste processing activities.

No changes are required to Attachment B, Part A Application Form, because waste treatment process code T04 for "Other Treatment" was added to the "Process Codes and Design Capacities" for TA-54, Area G, in the Class 1 Permit Modification for TA-54-0231 approved by NMED on June 29, 2020.

No changes to emergency systems or equipment will be made as a result of this permit modification. Therefore, Attachment D, "Contingency Plan," will not be modified as part of this permit modification.

4.1 Safety and Traffic

4.1.1 Vehicle Traffic Control within TA-54, Area G

Roadways are kept in good condition, and the area has a posted speed limit of 15 mph. During internal waste receipt and offloading activities, additional traffic restrictions such as prohibiting traffic and assigning station flaggers are employed as a safety precaution. During elevated waste movements (e.g., lifting the waste container from the ground to the flatbed truck), supporting controls such as use of spotters are implemented. Vehicle barriers are strategically located throughout TA-54, Area G, to protect stored waste. Vehicles vary in size from small utility trucks to large earthmoving equipment. Vehicle traffic volume is low to moderate because of access requirements and physical layout. All vehicle traffic access to the Pajarito corridor and TA-54 is restricted to badged personnel only.

4.1.2 Waste Movement Controls

Waste containers are transported to the permitted unit by flatbed truck, closed-box truck, or trailer. The permitted unit has design features that promote safe unloading and handling of waste containers from these trucks and trailers. Waste containers will be stored at the units in accordance with the conditions outlined in Permit Part 3 and all applicable subsections. A forklift or other manual, mechanical, or hydraulic drum-handling equipment will be used to move containers stored at permitted units at TA-54, Area G. Palletized drums will be handled with a forklift equipped with tines or other types of mechanical or hydraulic drum-handling equipment. Individual drums of waste will be manipulated with a drum-grapple attachment on the forklift or other manual, mechanical, and hydraulic drum-handling equipment. Small containers will be handled manually or with a dolly.

CMPs will be transported from Pad 10 to Dome 0375 by truck and placed onto the Perma-Con® loading dock using a forklift with a spreader beam or other lifting device. Pipe racks will be placed on the loading dock for moving the CMP into position for transport to the shear. The CMP will be removed from the flatbed truck or from storage within Dome 0375 with a forklift or other lifting device. The forklift will move the CMP into Dome 0375 and place it on pipe rollers secured to the loading dock or on storage pallets within Dome 0375 for subsequent processing. The line of pipe rollers, extending from the loading dock into the Perma-Con® just past the shear, will be located as far to the north as possible to line up with the

hydraulic shear in Room 123. This will allow the CMP to be supported before, during, and after it is cut into sections.

4.1.3 Distance from Property Boundary

Hazardous wastes, specifically D001 and D003 wastes, will be treated at a distance of at least 120 ft from the north TA-54 property fence and inside the Perma-Con® in TA-54-0375.

4.1.4 Safety Basis Summary

N3B has a rigorous safety program (including a safety basis) that includes an industrial health and safety program and additional safety management programs. Some of the additional safety management programs are also found in the safety basis, but others act independently from the safety basis requirements. The safety basis covers worker safety as required by DOE-STD-3009-94 and other DOE standards and orders. It refers frequently to various safety management programs such as the radiation protection program and the hazardous material and waste management program. The safety basis is required by 10 CFR 830, Subpart B, and is regulated by DOE, which is subject to the requirements of the Price Anderson Amendment Act. The safety basis is also upheld by technical safety requirements that consist of derived controls for the protection of the public, the worker, and the collocated worker.

During waste operations at TA-54, N3B is required to abide by safety procedures and policies that include (1) N3B-SD100, Integrated Safety Management System, (2) N3B-P300, “Integrated Work Management,” and (3) N3B-PD100, “DOE EM-LA-Approved 10 CFR 851 Worker Safety and Health Program Description.”

4.2 Treatment by Neutralization and Stabilization in Containers

Neutralization (via pH adjustment) will be utilized when necessary as pretreatment prior to the stabilization process to ensure the liquid waste falls within a pH range in which the zeolite absorbs most efficiently. The treatment process described herein includes verifying pH, and if necessary, adding an appropriate amount of hydrochloric acid (HCl) or sodium hydroxide (NaOH) and then stabilizing the liquid waste by absorbing with zeolite. The HCl or NaOH is used to bring the pH of the liquid waste to within the 3–10 range so that the zeolite can perform optimally. If liquid waste is outside of the optimal 3–10 pH range, HCl or NaOH will be added incrementally and iteratively to liquid waste. The liquids will then be stabilized with zeolite to a minimum ratio of 3:1 (three parts zeolite to one part liquid waste). Treatment will occur under mobile fume hoods for 55-gal. and 85-gal. drums. The fume hoods are attached to the ventilation system when in use.

In cases where there is insufficient volume of liquid waste, the neutralization step of the treatment process will not be performed, and these minute quantities of liquids will only be stabilized with zeolite or a Waste Isolation Pilot Plant– (WIPP-) approved absorbent.

Debris within the waste containers will not require additional treatment and will be either placed back into the parent waste container or directly into the daughter container with the treated waste. Debris waste may be stored temporarily in a container within TA-54-0375 or resized as necessary to be packaged in a waste container. Any cellulosic material found within the parent container will be treated with zeolite at a 3:1 zeolite ratio. Prohibited items such as aerosol cans will be segregated and may be stored temporarily in a container within TA-54-0375 for repackaging.

The treated waste will be repackaged into a new, certified 55-gal. container and characterized by Central Characterization Program (CCP) personnel in accordance with the WIPP waste acceptance criteria (WAC) and the WACs of other receiving facilities. Waste removed from the parent container will be treated as designated and repackaged into a daughter container. All contents of a single waste container will be processed, or treated if necessary, within a single shift. If the contents cannot be treated within a single shift, the waste will not be left unattended mid-treatment. Instead, the waste containers (parent and daughter) will be closed.

4.2.1 Post Treatment

All treated waste will be packaged into containers, and the characteristics of D001, D002, and D003 will be removed from the waste streams to meet the required waste treatment standards. The containerized treated waste will be placed back into storage at TA-54, Area G, to await final disposal.

4.3 Size-Reduction of CMPs

Dome 0375 and the Perma-Con® will be used for size reduction and repackaging of the CMPs. During the size reduction and repackaging, one CMP at a time will be removed from a flatbed truck with a forklift or other lifting device. The forklift will move the CMP into Dome 0375 and place it on a pipe roller conveyance system at the loading dock of the Perma-Con®. The conveyance system and a winch system are used to move the CMP into the Perma-Con® via room 124. The conveyance system will move the CMP through room 124 and into room 123 where a hydraulic shear and gantry cranes will cut the CMP into approximately 4-ft sections and then place the cut sections into standard waste boxes (SWBs) for shipment off-site. A containment tray will be installed under the shear and under the cutting location on the CMP to collect the small amounts of debris and dust that may result from the shearing operation. Room 121 is used to temporarily stage SWBs for shipment to permitted on-site storage where they await characterization prior to shipment for off-site disposal. This process is repeated for all 158 CMPs.

5.0 DISCUSSIONS OF PROPOSED CHANGES TO THE PERMIT

Proposed changes to the Permit are described below and are shown in redline-strikeout formatting within Appendix A of this document. Microsoft Word files of the proposed permit revisions are included on CD as Appendix C.

5.1 Part 7, Treatment in Containers

Proposed permit conditions for treatment by neutralization and stabilization have been included in Part 7 of the Permit, Treatment in Containers. The Permittees propose that TA-54-0375 be added to the text within this part of the Permit for stabilization in containers.

5.2 Attachment A, Technical Area (TA) - Unit Descriptions

Descriptive text revisions identified in Attachment A, section A.4.2.9, include

- changes to the title of the TA-54-0375 Outdoor Permitted Unit to indicate that it is a storage and treatment unit,
- a description of the temporary equipment used and the process for size-reduction of the CMPs as well as for treatment of containers at the TA-54-0375 Outdoor Permitted Unit,

- changes to the description of the treatment process flow at the TA-54-0375 Outdoor Permitted Unit, and
- corrections to locations of support structures for the permitted unit.

5.3 Attachment C, Waste Analysis Plan

In this attachment to the Permit, descriptions that characterize wastes prior to treatment at TA-54-0375, and descriptions of sampling and analysis for verification of treatment methodology, have also been included within section C.3.2.4, Characterization Procedures Prior to and after Treatment of Mixed TRU Waste, and associated subsections. There are no changes required to the waste sampling or analysis methods associated with this permit modification request. Table C-20, Description of Stabilization Waste Streams at Technical Area 50, Building 69, and Technical Area 54, Dome 231 and Technical Area 54, Building 412, has been revised to add TA-54-0375 and reflect the addition of waste stream descriptions for wastes to be stabilized in containers.

5.4 Attachment E, Inspection Plan

Attachment E, TA-54 Inspection Plan, has been modified to include the treatment unit at TA-54-0375.

5.5 Attachment G.12, Technical Area 54, Area G, Pad 11, Outdoor Container Storage Unit Closure Plan

Throughout Attachment G.12, changes have been made to reflect that the unit will be utilized for treatment as well as storage of waste. Figure G.12-1, Technical Area 54, Area G, Pad 11, Outdoor Container Storage Unit Grid Sampling and Additional Sampling Locations, was also revised to reflect that it is a storage and treatment unit and to show the location of the Perma-Con® and the new waste handling equipment for size-reduction of the CMPs. It has also been updated to remove several support trailers that did not manage hazardous waste.

5.6 Attachment J, Hazardous Waste Management Units

Table J-1, “Active Portion of the Facility,” in Permit Attachment J, was changed to reflect the addition of a treatment process to the TA-54-0375 Outdoor Permitted Unit within the General Information column of the table.

5.7 Attachment N, Figures

Figures 27 and 36 in Attachment N have been updated to include the footprint of the TA-54-0375 Perma-Con® and a description of its usage as a storage and treatment unit. Figure 36 has also been updated to show the removal of several support trailers that did not manage hazardous waste.

Appendix A

Redline Pages of Hazardous Waste Facility Permit, Part 7, Attachment A, Attachment C, Attachment E, Attachment G.12, and Attachment J

PART 7: TREATMENT IN CONTAINERS

Permittees (DOE, Triad, and N3B) have a duty to meet the additional Permit requirements of this Part, Sections 7.1 through 7.6.

7.1 GENERAL CONDITIONS

(1) The Permittees shall treat waste by stabilization in containers at TA-50-0069 Indoor Permitted Unit and stabilization (including absorption) and neutralization at TA-54, Area G, Pad 9, Dome 231 Perma-Con, TA-54, Area G, Pad 11, Dome 0375 and TA-54, Area G, Pad 1, Building 412 in accordance with this Permit Part and the requirements of 40 CFR Part 264, Subpart I, which is incorporated herein by reference.

(2) The Permittees shall, in accordance with this Permit Part, maintain and operate the equipment utilized for stabilization treatment as described in Attachment A (*Technical Area Unit Descriptions*) for TA-50-69 and for stabilization (including absorption) and neutralization as described in Attachment A, (Technical Area Unit Descriptions) for TA-54, Area G, Pad 9, Dome 231 Perma-Con, TA-54, Area G, Pad 11, Dome 0375 and TA-54, Area G, Pad 1, Building 412.

(3) The Permittees shall treat by stabilization in containers only in the permitted units identified with process code T04 in attachment J, Table J-1. The Permittees shall not store or treat waste in quantities that exceed the operating capacities identified in Table J-1.

(4) The Permittees shall treat by stabilization only those wastes with EPA Hazardous Waste Numbers listed in association with the applicable permitted storage unit and stabilization process in Attachment B (*Part A Application*).

(5) The Permittees shall ensure that wastes or treatment reagents are not used in the stabilization process if they could cause the equipment used for treatment to rupture, leak, corrode, or otherwise fail.

7.2 GLOVE BAG/GLOVEBOX INTEGRITY AND CONTAINMENT

(1) The Permittees shall maintain in the Facility Operating Record the written integrity assessment of the glove bag/glovebox system used to treat nitrate salt-bearing waste and other wastes with the characteristics of ignitability, corrosivity, and reactivity.

(2) The Permittees shall use appropriate controls and practices to prevent spill and releases from the glove bag/glovebox containment system.

7.3 TREATMENT REQUIREMENTS

(1) The Permittees shall ensure that nitrate salt-bearing waste is treated within an enclosed glove bag/glovebox or other containment equipment.

(2) The stabilization (including absorption) treatment processes will consist of blending water and zeolite with waste solids or stabilizing liquid waste by blending with zeolite or other Waste Isolation Pilot Plan (WIPP)-approved absorbents.

(3) The neutralization process will consist of verifying pH and adding hydrochloric acid (HCl) or sodium hydroxide (NaOH) incrementally and iteratively to aqueous waste to bring pH to within a 3-10 range. Pourable liquids in the waste drums will have their pH measured with a calibrated pH meter, prior to the neutralization process.

In cases where there is insufficient volume of liquid waste, the neutralization step of the treatment process will not be performed and these minute quantities of liquids will be stabilized only with zeolite or a WIPP-approved absorbent.

7.4 RELEASES WITHIN THE PERMITTED UNIT

(1) Any release, or the potential for a release, from or at the TA-50-69 Indoor Permitted Unit, the TA-54, Area G, Pad 9, Dome 231 Perma-Con Permitted Unit, ~~or~~ the TA-54, Area G, Pad 11, Dome 0375 Permitted Unit or the TA-54, Area G, Pad 1, Building 412 Permitted Unit that the Permittees do not deem a threat to human health or the environment must be reported to the Department in accordance with Permit Section 1.9.13.

(2) The Permittees shall ensure that any release of waste from the TA-50-69 Indoor Permitted Unit, the TA-54, Area G, Pad 9, Dome 231 Perma-Con Permitted Unit, TA-54, Area G, Pad 11, Dome 0375 Permitted Unit or the TA-54, Area G, Pad 1, Building 412 Permitted Unit to the environment (*e.g.,* soil, surface water, groundwater, atmosphere) is reported to the Department by e-mail or facsimile within 24 hours of its detection. Within 5 days of detection of a release to the environment, the Permittees shall submit a written report to the Department containing the information required by Permit Section 1.9.12.2.

7.5 INCOMPATIBLE WASTES

(1) The Permittees shall ensure that potentially incompatible waste is either treated or segregated to eliminate the possibility of combining materials that are incompatible.

7.6 CONFIRMATION ANALYSIS

(1) Characterization for treated waste will be conducted in accordance Permit Attachment C (*Waste Analysis Plan,* Section C.3.2.4.2 *Characterization Procedures for Waste Treated by Stabilization*).

(2) Pre-treatment and treatment verification samples will be collected in accordance with the subsection of Permit Attachment C.3.2.4 *Characterization Procedures Prior to and After Treatment of Mixed TRU Wastes.*

ATTACHMENT A

TECHNICAL AREA (TA) - UNIT DESCRIPTIONS

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equipped with a badge reader and is locked at all times unless used by authorized personnel for maintenance purposes.

~~A.4.2.9~~A.4.3 ~~—~~Pad 11

This asphalt pad is approximately 4 inches thick, measures approximately 478 ft long by 137 ft wide, and is sloped approximately 1 to 2% to the southeast. Storage ~~dome 375~~Dome 0375 is located on the western portion of pad 11 and is used for storage of hazardous, mixed low level, and mixed transuranic waste. It measures approximately 300 ft long by 100 ft wide (*see* Figure 36 in Attachment N (*Figures)*). The building is an aluminum A-frame truss design that is anchored to a concrete ring wall. The dome is of modular construction utilizing a membrane or fabric covering. It is equipped with 14 personnel doors and two roll-up doors, one each at the east and west ends of the building. Ramped entrances allow for safe movement of container handling equipment and vehicle access. Dome ~~375~~0375 contains a ~~modular panel containment structure~~Perma-Con® (approximately 120 feet long x 60 feet wide) used for size reduction, decontamination, segregation, waste assay, reclassification activities, and repackaging of transuranic waste prior to shipment offsite. ~~Dome 375~~

Dome 0375 and the Perma-Con® will be used for size reduction and repackaging of the corrugated metal pipes (CMPs). During the size reduction and repackaging, one CMP at a time will be removed from a flatbed truck or from storage within Dome 0375 with a forklift or other lifting device. The forklift will move the CMP into Dome 0375 and place it on a pipe racks and pipe rollers at the loading dock of the Perma-Con®. The pipe racks/pipe rollers and a winch system are used to move the CMP into the Perma-Con® via room 124. The pipe racks/pipe rollers will move the CMP through room 124 and into room 123 where a hydraulic shear and gantry cranes will cut the CMP into approximately 4-ft sections and then place the cut sections into SWBs for shipment off-site (*see* Figure 36 in Attachment N *(Figures)*). A containment tray, equipped with localized HEPA-filtered ventilation equipment, will be installed under the shear and under the cutting location on the CMP to collect the small amounts of debris and dust that may result from the shearing operation. Room 121 is used to temporarily stage SWBs for shipment to permitted on-site storage where they await characterization prior to shipment for off-site disposal. This process is repeated for all 158 CMPs. Dome 0375 also contains four structures that serve as an office area, a control area, and rooms for donning and doffing anti-contamination clothing. These structures are support structures and will not be used to store hazardous waste. ~~There is a restroom trailer (approximately 15 feet long x 8.5 feet wide) and an office trailer (approximately 60 feet long x 36 feet wide) located on the south eastern portion of Pad 11.~~

Waste treatment, storage and repackaging are performed in the Perma-Con® within Dome 0375. The Perma-Con® is equipped with a HEPA filtration system and a fire detection system. Additional emergency and safety equipment for Dome 0375 can be found in Attachment D, Contingency Plan.

Mobile equipment such as gantry cranes, fume hoods, dedicated ventilation units, drum shakers and drum lifts are used in the treatment and repackaging processes. Containers holding hazardous or mixed waste with free liquids will be stored on portable spill pallets or pans.

Containers vary in size and will determine the quantity of waste to be treated. These include 55- gallon drums, 85-gallon drums and SWBs.

Waste characterization data shall be used to determine whether waste is amenable to stabilization and whether pretreatment via neutralization is necessary. Neutralization may be performed as a pre-treatment option via pH adjustment to facilitate subsequent treatment via stabilization with zeolite.

When deemed necessary, neutralization will be performed in containers within the Perma-Con® in TA-54-0375. The neutralization step will consist of verifying pH and adding HCl or NaOH to bring the waste within a 3 to 10 pH range to ensure waste is amenable to stabilization with zeolite. The liquids will then be stabilized with zeolite in a minimum ratio of 3:1 (three parts zeolite to one part liquid waste). In cases where there is insufficient volume of liquid waste, the neutralization step of the treatment process will not be performed, and these minute quantities of liquids will only be stabilized with zeolite or a WIPP-approved absorbent.

Debris waste (i.e., waste containing no liquids) do not require additional treatment and will either be placed back into the parent container or placed directly into the daughter container with the treated waste.

~~A.4.3~~A.4.4 TA-54 West

The two permitted units at TA-54 West include the indoor low bay and the high bay at TA-54-38 and the outdoor storage pad which surrounds the north, east, and south sides of TA-54-38 and the loading dock at TA-54-38. The permitted units at TA-54 West are used to store solid mixed low level and mixed transuranic waste (*see* Figure 37 in Attachment N (*Figures)*).

The permitted units at TA-54-38 West may receive any container that may be stored at the units in accordance with Permit Section 3.3 (e.g. 85-gallon drums, 100-gallon drums, and ten-drum overpacks); however, most often the units receive WIPP-ready 55-gallon drums and SWBs for final preparation and packaging. All waste containers are handled in a manner that will not cause them to rupture.

Waste is generally brought into the TA-54-38 West Outdoor Pad through the south-eastern vehicle gate and placed in storage on the northern portion of the TA-54-38 West Outdoor Pad. At the outdoor unit, waste is not stored in front of gates or within 10 feet of the fence line or within 60 feet of the building. No paved or unpaved roadways are located within 5 feet of the waste storage area. From the outdoor permitted unit, containers are generally moved into the Low Bay at TA-54-38 West and made amenable for placement in a WIPP-compliant shipping container. Normal operations for making the individual waste containers ready for shipment include stretch wrapping 14 drum configurations (or drum payloads) and ratchet strapping SWBs one on top of the other. Generally, these Type A container configurations are then moved by forklift into the High Bay where they are loaded into TRUPACT II Type B shipping containers using a bridge crane.

Empty TRUPACT II containers that are received from WIPP are usually moved into the High Bay using the western bay door and are opened and inspected prior to waste being placed within the High Bay. After the containers are opened, the drum payloads or SWBs are placed

ATTACHMENT C

WASTE ANALYSIS PLAN

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waste characterization determined through VE is recorded in the associated waste's AK documentation.

Standardized training for VE shall be developed. Visual examination operators shall be trained in the specific waste generating processes, typical packaging configurations, and waste material parameters expected to be found in each waste stream at the generator site. The training shall be site specific to include the various waste configurations generated at the site. Operators must requalify at least every two years.

C.3.2.2 Characterization to Meet LDR Requirements

The Permittees shall characterize MTRUW to determine its land disposal restriction status in accordance with Attachment Section C.5.2.

C.3.2.3 WIPP Characterization

Most MTRUW waste at the Facility is destined for disposal at the Waste Isolation Pilot Project (WIPP) in Carlsbad, New Mexico. Therefore, prior to shipment to WIPP, additional characterization to meet WIPP certification procedures will be implemented to meet requirements of the WIPP permit for these wastes. Waste information that is derived from the WIPP waste characterization will be used for Facility MTRUW characterization as additional information for AK.

C.3.2.4 Characterization Procedures Prior to and After Treatment of Mixed TRU Wastes

The Permittees shall adhere to the waste characterization procedures specific to waste treatment in the stabilization unit at TA-55, Building 4, Room 401; for the stabilization process of blending with zeolite at the TA-50, Building 69 (TA-50-0069) Indoor Permitted Unit; and the stabilization/neutralization treatment processes at TA-54, Area G, Pad 9, Dome 231 (TA-54-0231), ~~and~~ TA-54, Area G, Pad 1, Building 412 (TA-54-0412) and TA-54, Area G, Pad 11, Dome 0375 (TA-54-0375). The stabilization unit at TA-55 is a miscellaneous unit pursuant to 40 CFR Part 264, Subpart X and is used to treat liquid and solid mixed wastes by stabilization in cement to form a noncorrosive solid matrix. The stabilization treatment process at TA-50 occurs within a glovebox at a permitted storage unit and is used to treat liquid and solid mixed waste by blending with water and zeolite to form a noncorrosive and non-ignitable solid matrix. The stabilization treatment process at TA-54-0231 occurs within a glove bag at a permitted storage unit and is used to treat liquid and solid waste by neutralizing pourable liquids and adding zeolite or another Waste Isolation Pilot Plan (WIPP)-approved absorbent to form a noncorrosive and non-ignitable solid matrix. The stabilization treatment process at TA-54-0412 occurs within the pre-engineered containment tent within TA-54-0412 at a permitted storage unit and is used to treat liquid and solid waste by neutralizing pourable liquids and adding zeolite or another Waste Isolation Pilot Plan (WIPP)-approved absorbent to form a noncorrosive and non-ignitable solid matrix. Treatment will occur under fume hoods for 55-gallon and 85-gallon drums. The fume hoods are attached to the ventilation system when in use. The stabilization treatment process at TA-54-0375 occurs within the PermaCon® within TA-54-0375 at a permitted storage unit and is used to treat liquid and solid waste by neutralizing pourable liquids

and adding zeolite or another WIPP-approved absorbent to form a noncorrosive and non-ignitable solid matrix. Treatment will occur inside the PermaCon®, which is equipped with a HEPA filtration system and is under negative pressure during waste processing activities.

The stabilization unit at TA-55 treats homogeneous liquid and solid mixed waste generated primarily from R&D and processing and recovery operations at TA-55 and at the Chemistry and Metallurgy Research Building at TA-3. The liquid wastes (Summary Category Group L1000) generally consist of evaporator bottoms solutions and laboratory solutions that may exhibit the hazardous characteristics of corrosivity and toxicity for metals (including arsenic, barium, cadmium, chromium, lead, mercury, and silver) as defined in 40 CFR §§ 261.22 and 261.24, which are incorporated herein by reference. The homogeneous solid process wastes (Summary Category Group S3000) consist of process residue from the evaporator, process leached solids, filter cake, and other miscellaneous solids. This waste stream typically exhibits the hazardous characteristic of toxicity (for metals) and corrosivity. These waste streams are mixed with cement in 55-gallon drums and allowed to cure into a noncorrosive solid matrix. Table C-19 provides a description of the waste streams associated with the stabilization unit and identifies their potentially applicable EPA Hazardous Waste Numbers. The resulting cemented waste is identified by Summary Category Group S3000 and typically carries the Waste Matrix Code S3100.

The glovebox at the TA-50-0069 Indoor Permitted Unit is used to treat nitrate salt-bearing waste by stabilization in containers. Liquids and solid waste that exhibit the hazardous characteristics of ignitability, corrosivity (for liquids only), and toxicity for metals (including arsenic, barium, cadmium, chromium, lead, mercury, and silver) as defined in 40 CFR §§261.22 and 261.24, which are incorporated herein by reference, are treated at the unit to remove only the ignitability and corrosivity characteristics. Table C-20 provides a description of the waste streams associated with the stabilization within a bowl in a glovebox located within in TA-50-0069 and the stabilization (including absorption) and neutralization inside a Perma-Con in building TA-54-0231, and identifies their potentially applicable EPA Hazardous Waste Numbers prior to treatment. After treatment, only the EPA Hazardous Waste Numbers for ignitability and corrosivity (D001 and D002) will be removed from the treated waste. All other Hazardous Waste Numbers will still apply to the treated waste.

The Permitted Units at TA-54-0231, TA-54-0375 and TA-54-0412 are used to treat mixed transuranic waste from the S3000 waste matrix (homogenous solids) to remove the Resource Conservation and Recovery Act (RCRA) hazardous waste characteristics of ignitability (D001), corrosivity (D002) and reactivity (D003). Treatment of cemented sludge waste will occur within glove bags located inside the Permitted Unit, a Perma-Con in TA-54-0231. At TA-54-0375, treatment of waste will occur within the PermaCon® within Dome 0375. At TA-54-0412, treatment of waste will occur within the pre-engineered containment tent within Building 412. ~~0~~Treatment activities include neutralization of liquids, and stabilization of liquids using zeolite or another WIPP-approved absorbent. Table C-20 provides a description of the waste streams associated with the stabilization (including absorption) and neutralization inside a glove bag located within a Perma-Con in TA-54-0231, within the PermaCon® in TA-54-0375, and within the pre-engineered containment tent in TA-54-0412; and identifies their potentially applicable

EPA Hazardous Waste Numbers (HWNs) prior to treatment. After treatment, only the EPA HWNs D001 and D002 will be removed from the treated waste. To remove the D003 HWN, aerosol cans will be removed/segregated from the waste stream and sent off-site for treatment and disposal. All other HWNs that have not been removed by treatment or segregation will still apply to the treated waste.

C.3.2.4.1 Characterization Procedures for Waste to Be Treated by Stabilization

The Permittees shall conduct chemical and physical characterization prior to treatment of MTRUW. The Permittees shall use documented AK, as described in Attachment Section C.3.1.1, to determine whether or not the waste stream is regulated as a hazardous waste. The Permittees shall use process knowledge, chemical analytical data, or both to adequately characterize the MTRUW prior to stabilization and neutralization, if necessary (at TA-54-0231, ~~and~~ TA-54-0375 and TA-54-0412 only). If process information is not sufficient, the Permittees shall periodically sample and analyze the wastes to be treated by stabilization for pH and for TC metals listed in 40 CFR § 261.24 to establish a baseline, as appropriate. Based on documented AK, the wastes treated by stabilization at TA-55 do not contain VOCs or SVOCs. Parameters and analytical methods for specific hazardous constituents are presented in Table C-18.

The neutralization process will consist of verifying the pH and adding hydrochloric acid (HCl) or sodium hydroxide (NaOH) incrementally and iteratively to aqueous waste to bring the pH within a 3 -10 range. Pourable liquids in the waste drums will have their pH measured with a calibrated pH meter prior to the neutralization process and will generally follow EPA Method 9040C (as updated), pH Electrometric Measurement for pH testing. However, because of the need for "real-time" pH screening results at the time of waste processing, strict adherence to all aspects of EPA method 9040C may not be possible. The Permittees may use an equivalent method, if approved in advance by NMED. The liquids will be neutralized, if necessary, and stabilized with zeolite in a minimum ratio of 3:1 (three parts zeolite to one part liquid waste). The treated waste will be repackaged into a new certified 55-gal. daughter drum and characterized and certified by Central Characterization Program (CCP) personnel in accordance with the WIPP WAC. All measuring tools used in the stabilization process (*i.e.,* glass/plastic pipettes, graduated cylinders, beakers, etc.) must be resistant to a wide variety of reagents.

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C.3.2.4.2 Characterization Procedures for Waste Treated by Stabilization

The Permittees shall characterize waste treated by stabilization (*i.e.*, MTRUW) in accordance with Attachment Section C.3.2. For treatment at the TA-50-0069 Indoor Permitted Unit, samples will be collected from a minimum of 1% of treated waste containers from each waste stream and analyzed at an onsite laboratory to confirm chemical composition when compared to that of the surrogates tested.

NMED may require additional sampling of waste from the TA-54-0231, TA-54-0375 and TA-54-0412 treatment processes.

Table C-20
Description of Stabilization Waste Streams at Technical Area 50, Building 69; Technical Area 54, Dome 231; Technical Area 54, Dome 0375; and Technical Area 54, Building 412

(This table is for informational purposes only)

Summary Category Group	Waste Matrix Code	Waste Description[a]	Waste-Generating Activity	Basis for Hazardous Waste Designation	Potential EPA Hazardous Waste Numbers	Potential Hazardous Waste Constituents and /or Characteristics	Regulatory Limits[b] (milligrams per liter)	Potential Underlying Hazardous Constituents[c]
S3000 - Homogeneous	S3100	Homogeneous Inorganic, Cemented	Plutonium processing operations	Acceptable Knowledge	D001 D002 D003[e] D004 D005 D006 D007 D008 D009 D010 D011 D018 D019 D021 D022 D035 D038 D039 D040 F001 F002 F003 F004[e] F005 F006[e] F007[e] F008[e]	Ignitable Corrosive Reactivity Arsenic Barium hydroxide Cadmium Chromium Lead Mercury Selenium Silver Benzene Carbon tetrachloride Chlorobenzene Chloroform Methyl ethyl ketone Pyridine Tetrachloroethylene Trichloroethylene Spent halogenated solvents Spent halogenated solvents Spent non-halogenated solvents Spent non-halogenated solvents Spent non-halogenated solvents Wastewater treatment sludges Spent cyanide plating solutions Spent strip/clean solutions	NA[d] NA[d] NA[d] 5.0 100.0 1.0 5.0 5.0 0.2 1.0 5.0 0.5 0.5 100.0 6.0 200.0 5.0[e] 0.7 0.5 NA[d] NA[d] NA[d] NA[d] NA[d] NA[d] NA[d] NA[d]	
		Homogeneous Inorganic, Cemented Organics	Plutonium processing operations	Acceptable Knowledge				
		Homogeneous Inorganic, Non-cemented	Plutonium processing operations	Acceptable Knowledge				
		Homogeneous Inorganic, Salts	Plutonium processing operations	Acceptable Knowledge				

Table C-20 (continued)

(This table is for informational purposes only)

Summary Category Group	Waste Matrix Code	Waste Description[a]	Waste-Generating Activity	Basis for Hazardous Waste Designation	Potential EPA Hazardous Waste Numbers	Potential Hazardous Waste Constituents and/or Characteristics	Regulatory Limits[b] (milligrams per liter)	Potential Underlying Hazardous Constituents[c]
S3000 - Homogeneous	S3100	Homogeneous Inorganic, Vermiculite	Plutonium processing operations	Acceptable Knowledge	D001	Ignitable	NA[d]	
					D002	Corrosive	NA[d]	
					D003[e]	Reactivity	NA[d]	
					D004	Arsenic	5.0	
					D005	Barium hydroxide	100.0	
					D006	Cadmium	1.0	
					D007	Chromium	5.0	
					D008	Lead	5.0	
					D009	Mercury	0.2	
					D010	Selenium	1.0	
					D011	Silver	5.0	
					D018	Benzene	0.5	
					D019	Carbon tetrachloride	0.5	
					D021	Chlorobenzene	100.0	
					D022	Chloroform	6.0	
					D027	1,4-Dichlorobenzene	7.5	
					D028	1,2-Dichloroethane	0.5	
					D030	2,4-Dinitrotoluene	0.13[e]	
					D032	Hexachlorobenzene	0.13[e]	
					D033	Hexachlorobutadiene	0.5	
					D034	Hexachloroethane	3.0	
					D035	Methyl ethyl ketone	200.0	
					D036	Nitrobenzene	2.0	
					D037	Pentachlorophenol	100.0	
					D038	Pyridine	5.0[e]	
					D039	Tetrachloroethylene	0.7	
					D040	Trichloroethylene	0.5	
					D042	2,4,6-Trichlorophenol	2.0	
					D043	Vinyl Chloride	0.2	
					F001	Spent halogenated solvents	NA[d]	
					F002	Spent halogenated solvents	NA[d]	
					F003	Spent non-halogenated solvents	NA[d]	
					F004[e]	Spent non-halogenated solvents	NA[d]	
					F005	Spent non-halogenated solvents	NA[d]	
					F006[e]	Wastewater treatment sludges	NA[d]	
					F007[e]	Spent cyanide plating solutions	NA[d]	
					F008[e]	Spent strip/clean solutions	NA[d]	

Table C-20 (continued)

(This table is for informational purposes only)

Summary Category Group	Waste Matrix Code	Waste Description[a]	Waste-Generating Activity	Basis for Hazardous Waste Designation	Potential EPA Hazardous Waste Numbers	Potential Hazardous Waste Constituents and/or Characteristics	Regulatory Limits[b] (milligrams per liter)	Potential Underlying Hazardous Constituents[c]
S5000 - Debris	S5300	Combustible Debris	Plutonium processing operations	Acceptable Knowledge	D001	Ignitable	NA[d]	
					D002	Corrosive	NA[d]	
					D003	Reactive	NA[d]	
					D004	Arsenic	5.0	
					D005	Barium hydroxide	100.0	
	S5400	Heterogeneous Debris	Plutonium processing operations; D&D	Acceptable Knowledge	D006	Cadmium	1.0	
					D007	Chromium	5.0	
					D008	Lead	5.0	
					D009	Mercury	0.2	
					D010	Selenium	1.0	
					D011	Silver	5.0	
					D018	Benzene	0.5	
					D019	Carbon tetrachloride	0.5	
					D021	Chlorobenzene	100.0	
					D022	Chloroform	6.0	
					D035	Methyl ethyl ketone	200.0	
					D038	Pyridine	5.0[e]	
					D039	Tetrachloroethylene	0.7	
					D040	Trichloroethylene	0.5	
					D043	Vinyl Chloride	0.2	
					F001	Spent halogenated solvents	NA[d]	
					F002	Spent halogenated solvents	NA[d]	
					F003	Spent non-halogenated solvents	NA[d]	
					F004	Spent non-halogenated solvents	NA[d]	
					F005	Spent non-halogenated solvents	NA[d]	
					U080	Methylene Chloride	NA[d]	

[a] This table is based on information from the *Acceptable Knowledge Information Summary for Los Alamos National Laboratory Transuranic Waste Streams (*AKIS), (TWCP-AK-2.1, 1-019, R.0)(LA-UR-03-4870); and from waste characterization documentation information maintained by the Facility and Waste Operations Division. Waste with EPA Hazardous Waste Numbers that are not included in the Waste Isolation Pilot Plant (WIPP) Hazardous Waste Facility Permit will not be transported to WIPP. Additionally, recharacterization efforts for nitrate salt-bearing waste have been conducted and documented in several documents as outlined in Enclosure 3 of *Response to Ordered Action 2/3; Attachment A to Settlement Agreement and Stipulated Final Order HWB-14-20; Los Alamos National Laboratory.*

[b] A solid waste exhibits the characteristic of toxicity if, using the Toxicity Characteristic Leaching Procedure, Test Method 1331 in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" (EPA, 1986), the extract from a representative sample of solid waste contains any of the contaminants listed at a concentration equal to or greater than the respective value given in the New Mexico Administrative Code , Title 20, Chapter 4, Part 1, Subpart II, Part 261, Subpart C[6-14-00].

[c] Potential underlying hazardous constituents (UHC) have been included, where the information is available. UHC characterization for the purpose of Land Disposal Restrictions will apply for mixed transuranic waste to be disposed of at WIPP.

[d] Not Applicable: Refers to the absence of regulatory limits for ignitable, corrosive and reactive characteristic waste and F-, P-, and U-listed wastes.

[e] Potential EPA Hazardous Waste Numbers only present at TA-54-0231, TA-54-0375 and TA-54-0412.

[f] Quantitation limit is greater than the calculated regulatory level. The quantitation limit therefore becomes the regulatory level.

ATTACHMENT E

INSPECTION PLAN

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INSPECTION PLAN

TA-54
ATTACHMENT E
INSPECTION PLAN

This Attachment Section presents additional inspection requirements specific to the container storage units at Technical Area (TA) 54. The Permittees shall conduct inspections at the frequency specified in the general inspection Section to identify problems in time to correct them before they harm human health or the environment.

E.1 INSPECTION REQUIREMENTS FOR TRUPACT-II CONTAINERS

The Permittees shall visually inspect waste containers prior to their placement in the TRUPACT-II containers to ensure their integrity. The inspection shall include a close examination of the cover and closure devices for visible cracks, holes, gaps, or other open spaces into the interior of the waste container when the cover and closure devices are secured in the closed position. The TRUPACT-II shall be loaded with waste containers and sealed with a locking-ring closure mechanism. After the TRUPACT-II has been sealed, the Permittees shall inspect the outside of the TRUPACT-II to ensure its integrity and that there has been no human intervention.

E.2 INSPECTION REQUIREMENTS FOR TA-54 DOME 215 HOLDING TANK

The 10,000 gallon holding tank is located at Area L, Dome 215. The tanks is used to collect liquid that may result from fire-suppression activities and that is in excess of the capacity inside the rind wall located around the dome to prevent run-on into the dome. The Permittees shall inspect the storage tank for any detectable fluids each month. If any fluids are detected in the holding tank, the Waste Management Coordinator and the Shift Operations Manager to ensure that a chemical analysis of the fluid is performed and fluid is removed within 3 days. The following inspection requirements should be applied to the monthly inspections conducted on the 10,000 gallon holding tank and shall be documented on separate forms.

E.3 STABILIZATION UNITS

The Permittees shall inspect the stabilization units located at TA-54-0231, TA-54-0375 and TA-54-0412 -according to the schedule provided below.

E.3.1 Daily (During Operation)

The Permittees shall inspect the stabilization unit each operating day (*i.e.,* when mixed waste is treated in the unit). In the daily inspection of the stabilization unit, the Permittees shall inspect the following items, as applicable:

1. Work surfaces and floors
2. Secondary containment structures
3. Labels
4. Structural integrity of stabilization unit
5. (Un)loading area

6. Communication equipment

E.3.2 Weekly

The Permittees shall inspect the stabilization unit weekly for the following items as applicable;

1. Warning signs
2. Work surfaces and floors
3. Secondary containment structure
4. Labels
5. Structural integrity of the stabilization unit
6. (Un)loading area
7. Communication equipment

ATTACHMENT G.12
TECHNICAL AREA 54, AREA G, PAD 11
OUTDOOR CONTAINER STORAGE AND TREATMENT UNIT
CLOSURE PLAN

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1.0 INTRODUCTION

This closure plan describes the activities necessary to close the outdoor hazardous waste container storage unit and the Dome 0375 Treatment Unit at Technical Area (TA)-54, Area G, Pad 11 at the Los Alamos National Laboratory (Facility), hereinafter referred to as the permitted unit. The information provided in this closure plan addresses the closure requirements specified in Permit Part 9 and the Code of Federal Regulations (CFR), Title 40, Part 264, Subparts G and I for hazardous waste management units operated at the Facility under the Resource Conservation and Recovery Act (RCRA) and the New Mexico Hazardous Waste Act.

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

2.0 DESCRIPTION OF UNIT TO BE CLOSED

~~A~~S ~~s~~pecific descriptions of the permitted units can be found in Permit Attachment A (*Technical Area Unit Descriptions*). Additional features and equipment located in the permitted units and not discussed within the Permit are described below.

The permitted unit, which was constructed in 1998, is located in the western portion of Area G and consists of an asphalt pad that measures 478 feet long and 137 feet wide or approximately 65,500 square feet. It consists of four inches of asphalt built over underlying base course which overlies a minimum of six inches of tuff fill. It also has a dome (Dome 0375).

The permitted unit is sloped from 1% to 2% to the south/southeast for drainage and has curbing on the south and east sides as well. Drainage is directed to a series of four 5 inch-wide by 27 foot-long drains, all connected to two underground 8-inch diameter polyvinyl chloride pipes which discharge to a concrete lined ditch located near the southeast corner of the pad.

The permitted unit stores hazardous waste in both liquid and solid form in Dome 0375. The dome, which is an aluminum framework of trusses covered with tension-fitted ultraviolet resistant, fire-retardant coated, polyester fabric, is 300 feet long by 100 feet wide and covers a surface area of approximately 30,000 square feet. It is anchored with anchor bolts to the interior concrete ring wall and is equipped with two double-panel rolling doors, one at the east end of the dome and the other on the west end. It also has 14 personnel doors located approximately every 31 to 57 feet along the dome's length. These doors allow for adequate access both by vehicles and by personnel. The interior perimeter of the dome is surrounded by a concrete ring wall, which helps prevent run-on into and runoff from the dome. Asphalt ramps located at the vehicle entrances allow vehicles and container handling equipment to pass safely over the curb. Dome 0375 contains a ~~modular panel containment structure~~PermaCon® (approximately 120 feet long x 60 feet wide) used for size reduction, decontamination, segregation, waste assay, reclassification activities, and repackaging of transuranic waste prior to shipment offsite.

Dome 0375 and the Perma-Con® were used for size reduction and repackaging of the corrugated metal pipes (CMPs). During the size-reduction and repackaging, one CMP at a time was removed from a flatbed truck of from storage within Dome 0375 with a forklift or other lifting device. The forklift moved the CMP into Dome 0375 and placed it on pipe rollers and pipe racks at the loading dock of the Perma-Con®. The pipe rollers/pipe racks and a winch system were used to move the CMP into the Perma- Con® via

room 124. The pipe rollers/pipe racks moved the CMP through room 124 and into room 123 where a hydraulic shear and gantry cranes were used to cut the CMP into approximately 4-ft sections and then placed the cut sections into standard waste boxes (SWBs) (see Figure 36). A containment tray was installed under the shear and under the cutting location on the CMP to collect the small amounts of debris and dust that resulted from the shearing operation. Room 121 was used to temporarily stage SWBs for shipment to permitted on-site storage where they awaited characterization prior to shipment for off-site disposal. This process was repeated for all 158 CMPs. Structure 124 C was connected to the Perma-Con®. The external dimensions of the structure ~~is~~ are approximately 20 feet long, 8 feet wide and 8.5 feet high. The structure was a refrigeration unit, electrically driven, and ~~is~~ constructed of stainless steel internal and external panels. The ~~structure 124 C~~refrigeration unit ~~is~~ was connected to the roll-up door opening for the Perma-Con®~~modular containment structure~~, with the doors facing into the Perma-Con®~~modular containment structure~~. ~~There is a restroom trailer (approximately 15 feet long x 8.5 feet wide) on the south eastern portion of Pad 11. A transportainer that was used for the storage of tools and equipment, not for the management of hazardous waste, is also located on the Pad, east of Dome 375.~~

The permitted treatment process within the Perma-Con® within Dome 0375 was used to treat mixed transuranic waste from the S3000 (homogenous solids), S4000 (Soil/Gravel) and S5000 (Debris) waste matrices to deactivate the RCRA hazardous waste characteristics of D001, D002, and D003. Treatment occurred within the Perma-Con® for 55-gallon and 85-gallon drums. The Perma-Con® was equipped with high-efficiency particulate air filtration and was under negative pressure during waste processing activities. Permit Attachment A (*Technical Area [TA] Unit Descriptions*), Permit Attachment B (*Part A Application*), and Permit Attachment C (*Waste Analysis Plan*) include information regarding waste treatment practices and hazardous waste constituents treated at the permitted unit.

Dome 0375 also contains four structures that served as an office area, a control area, and rooms for donning and doffing anti-contamination clothing. These structures ~~are~~ were support structures and ~~will~~ were not ~~be~~ used to store hazardous waste. A single non-intrusive waste characterization structure, TA-54-0362, Real-Time Radiography (RTR) system #1 (RTR1) was removed from TA-54 Pad 11 in 2016.

The RTR1 design provided X-ray examination of waste drum contents without opening waste containers.

Permit Part 3 (*Storage in Containers*), Permit Attachment A (*Technical Area Unit Descriptions*), Permit Attachment B (*Part A Application*), and Permit Attachment C (*Waste Analysis Plan*), include information about waste management procedures and hazardous waste constituents stored at the permitted unit.

3.0 ESTIMATE OF MAXIMUM WASTE STORED

~~To date, no hazardous waste has been stored at the permitted unit.~~ The estimated volume for the maximum inventory of waste managed over the projected lifespan of the permitted unit is 1,501,000 gallons.

4.0 GENERAL CLOSURE REQUIREMENTS

4.1 Closure Performance Standard

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

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

b. ensure contaminated media do not contain concentrations of hazardous constituents greater than the clean-up levels established in accordance with Permit Sections 11.4 and 11.5. For soils the

Table G.12-6

List of Equipment at the Technical Area 54, Area G, Pad 11 Outdoor Container Storage Unit

Equipment	Decontamination	Disposal
Waste-handling equipment (e.g., conveyance system, hydraulic shear, winch, and gantry crane)	X	X
Equipment and spill kit cabinets	X	X
Container pallets	X	X
Communication equipment	X	X
Access barriers and chains	X	X

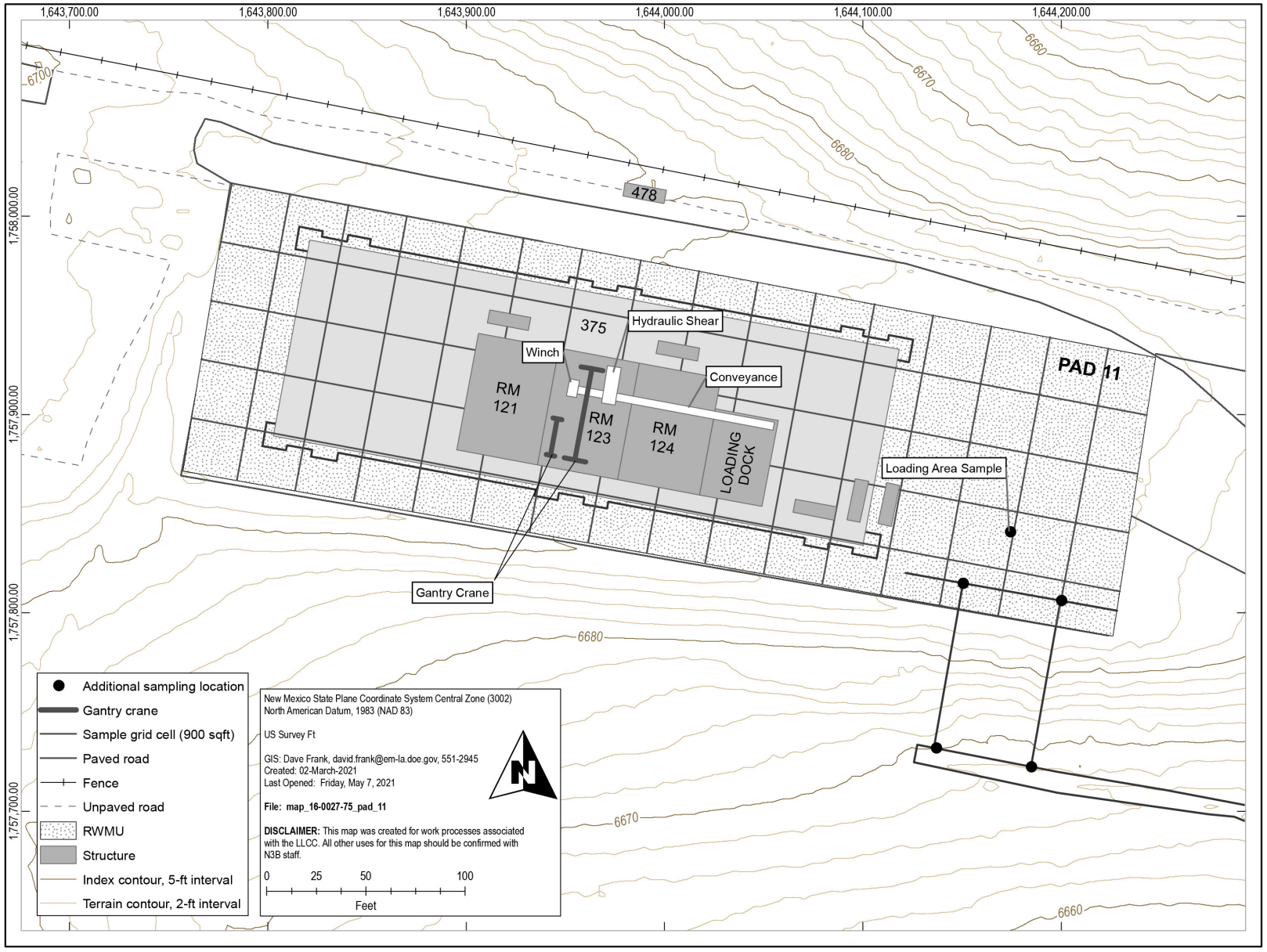

Figure G.12-1: Technical Area 54, Area G, Pad 11 Outdoor Container Storage Unit Grid Sampling and Additional Sampling Locations

ATTACHMENT J

HAZARDOUS WASTE MANAGEMENT UNITS

Unit Identifier	Process Codes	Operating Capacity	General Information	Type of Unit
		23,160 gal/day	Includes treatment process for macroencapsulation Approximately 62,700 square feet	an regulated unit)
TA-54 Area G Pad 9	S01 T04	1,446,720 gal 23,160 gal/day	Includes Storage Domes 229, 230, 231, and 232. Includes treatment process for macroencapsulation, stabilization (including absorption) and neutralization Total square footage – 158,000	Outdoor (associated with a regulated unit)
TA-54 Area G Pad 10	S01 T04	159,770 gal 23,160 gal/day	Includes Transuranic (TRU) Waste Characterization Facilities: TA-54-0547 (SuperHENC), TA-54-0498 (LANL HENC), TA-54-0545 and 546 (Storage trailers), and 438. Pad 10 is a consolidation of former Pads 2 and 4. Includes treatment process for macroencapsulation Approximately 89,600 square feet	Outdoor (associated with a regulated unit)
TA-54 Area G Pad 11	S01 T04	682,440 gal 23,160 gal/day	Includes Storage Dome 375. Includes treatment process for macroencapsulation Includes treatment process for stabilization (including absorption) and neutralization Total square footage – 65,500	Outdoor (associated with a regulated unit)

Appendix B

Replacement Figures for Hazardous Waste Facility Permit, Attachment G.12, Figure G.12-1, and Attachment N, Figures 27 and 36

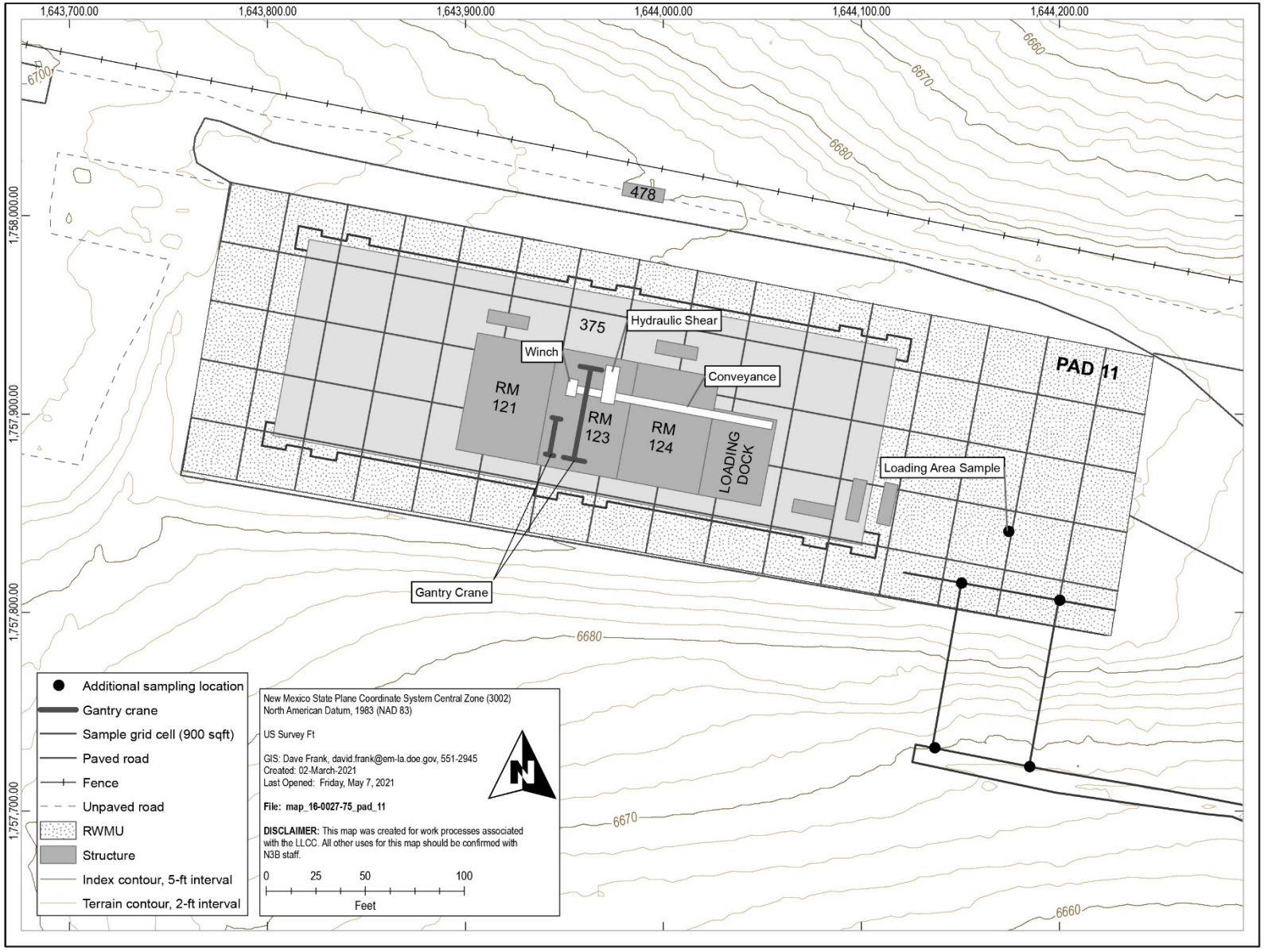

Figure G.12-1 TA-54, Area G, Pad 11 Outdoor Closure Plan

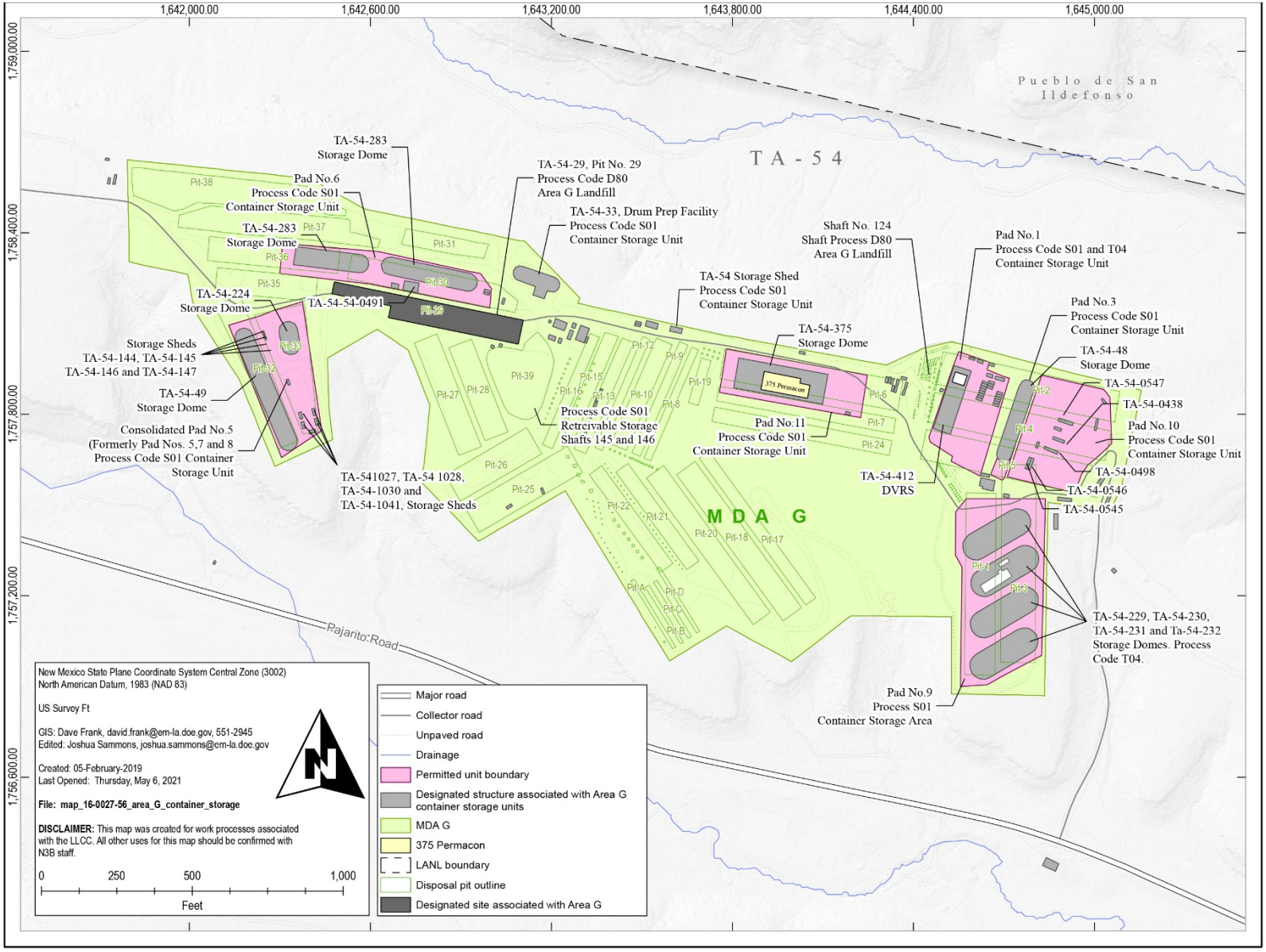

Figure 27 TA-54, Area G, Container Storage and Treatment Units

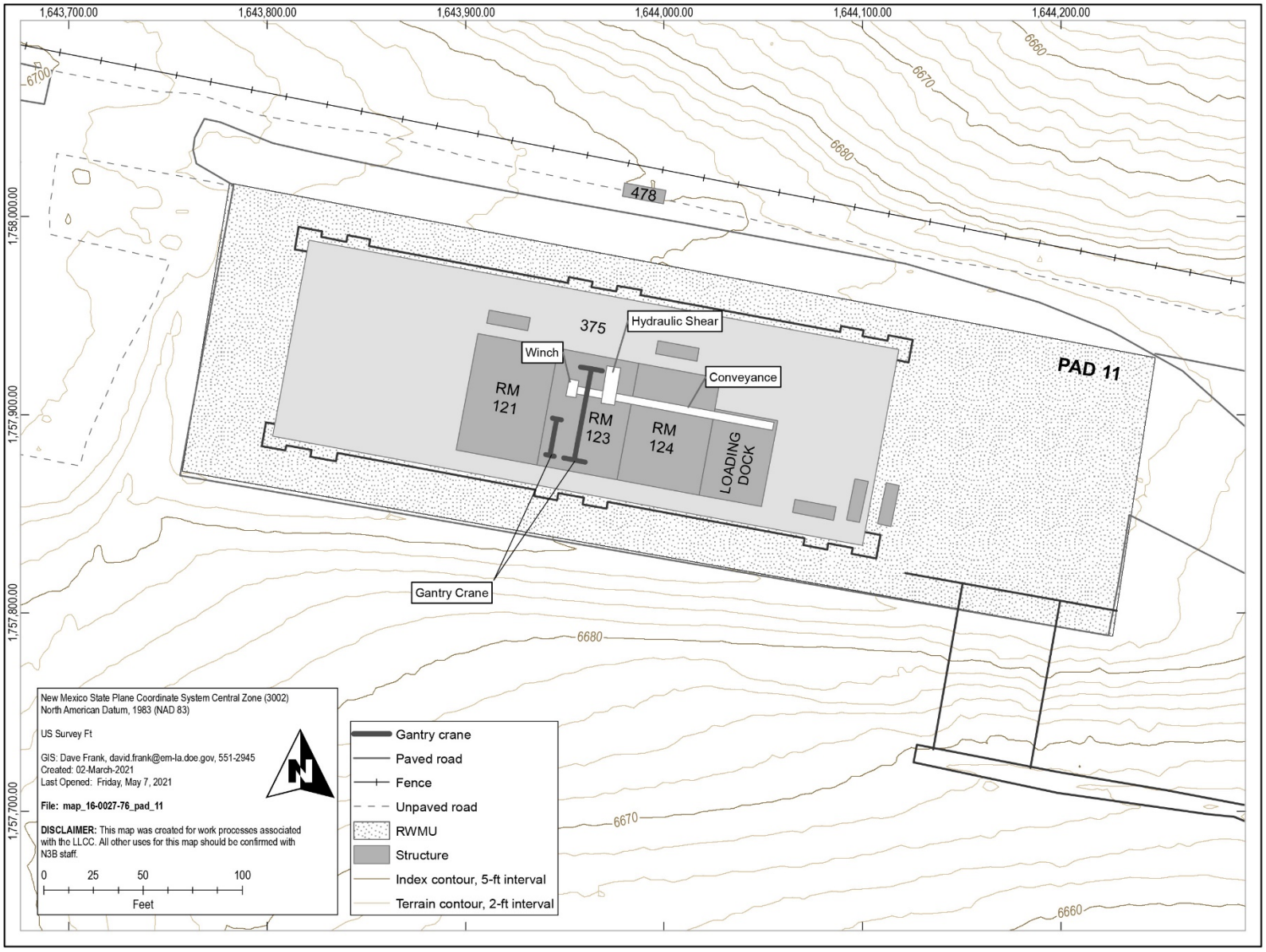

Figure 36 TA-54, Area G, Pad 11 (Dome 375)

Appendix C

Microsoft Word Files of Revised Hazardous Waste Facility Permit, Parts 1 to 11, Attachment A, Attachment C, Attachment E, Attachment G.12, and Attachment J (on CD included with this document)