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CERTIFIED MAIL - RETURN RECEIPT REQUESTED

January 17, 2019

William S. Goodrum, Manager
National Nuclear Security Administration
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Los Alamos, NM 87544

Enrique Torres, Division Leader
Environment Protection & Compliance Division
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Los Alamos, NM 87545

RE: FINAL ACTION AND RESPONSE TO COMMENTS
CLOSURE PLAN FOR TECHNICAL AREA 16-399 OPEN BURN UNIT
LOS ALAMOS NATIONAL LABORATORY
EPA ID #NM0890010515

Dear Messrs. Goodrum and Torres,

On January 17, 2019 the New Mexico Environment Department (NMED) took final administrative action on the Department of Energy (DOE) and the Los Alamos National Security LLC (LANS) Closure Plan for Technical Area (TA) 16-399 Open Burn Unit. Triad National Security LLC (Triad) replaced LANS as a new co-operator and permittee, on November 1, 2018, DOE and Triad are collectively referred to as Permittees. NMED hereby issues the Closure Plan for TA-16-399.

The Permittees submitted *Interim Status Closure Plan Open Burning Treatment Unit Technical Area 16-399 Burn Tray, Revision 2.0*) on December 11, 2012 (LA-UR-12-26782). On November 19, 2013 NMED issued a Draft Closure Plan for public comment. The Draft Closure Plan was subject to 30-day public comment period that ended on December 19, 2013, during which NMED received written comments from the public and the Permittees.

NMED considered the written comments received during this time period and modified the Closure Plan accordingly. Attached is NMED's response to public comments submitted on the Draft Closure Plan for TA-16-399. An electronic version of the final Closure Plan that incorporates NMED's modifications is enclosed with the letter. Additional information on this

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Closure Plan, including NMED's response to comments and the final version of the Closure Plan is available on the Hazardous Waste Bureau's website at https://www.env.nm.gov/hazardous-waste/lanl-permit/

If you have any questions regarding this correspondence, please contact Neelam Dhawan at (505) 476-6042.

Sincerely,

John E. Kieling
Chief
Hazardous Waste Bureau

Attachments:
1) Copy of the Closure Plan
2) Response to Public Comments

cc w/o attachments:
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S. Briley, NMED HWB
M. Schatz, NMED HWB
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File: 2019 LANL TA-16: Closure Plan TA-16-399 Open Burn Unit Facility Letter
LANL-12-040

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CLOSURE PLAN
OPEN BURNING TREATMENT UNIT
TECHNICAL AREA 16-399 BURN TRAY
JANUARY 2019

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DEFINITIONS

Terms used in this interim status Closure Plan (Closure Plan) shall have the same meanings as those in the HWA, RCRA, and their implementing regulations unless this Closure Plan specifically provides otherwise. Where a term is not defined in the HWA, RCRA, implementing regulations, or this Closure Plan, the meaning of the term shall be determined by a standard dictionary reference, EPA guidelines or publications, or the generally accepted scientific or industrial meaning of the term.

Active Portion means that portion of a facility where treatment, storage, or disposal operations are being or have been conducted after the effective date of 40 CFR Part 261 and which is not a closed portion as defined in 40 CFR § 260.10.

Day means a calendar day unless otherwise specified. Business day means Monday through Friday, other than a federal or State legal holiday.

Department or NMED refers to the New Mexico Environment Department and any successor and predecessor agencies.

Discharge means the accidental or intentional spilling, leaking, pumping, pouring, emitting, emptying, or dumping of hazardous waste into or on any land or water.

Facility means the Los Alamos National Laboratory site comprised of approximately 40 square miles, located on the Pajarito Plateau in Los Alamos County in north central New Mexico, approximately 60 miles north-northeast of Albuquerque and 25 miles northwest of Santa Fe, and owned by the United States Department of Energy.

Final Closure means the closure of all hazardous waste management units at the Facility in accordance with all applicable closure requirements so that hazardous waste management activities under 40 CFR Parts 264 and 265 are no longer conducted at the Facility.

Hazardous Constituent or **Hazardous Waste Constituent** means: 1) any constituent identified in 40 CFR Part 261 Appendix VII that caused EPA to list a hazardous waste in 40 CFR Part 261 Subpart D; or 2) any constituent identified in 40 CFR Part 261, Appendix VIII. For purposes of closure, post-closure, or corrective action, "hazardous constituent" and "hazardous waste constituent" also means any constituent identified in 40 CFR Part 264 Appendix IX, perchlorate, and nitrates.

Hazardous Waste means a solid waste that is: 1) not excluded from regulation under 40 CFR § 261.4(b); and 2) is either listed in 40 CFR Part 261, Subpart D, exhibits any of the characteristics identified in 40 CFR Part 261, Subpart C, or is a mixture of solid waste and one or more hazardous wastes listed in 40 CFR Part 261, Subpart D.

For purposes of corrective action, **"hazardous waste"** shall have the meaning set forth in the HWA, Section 74-4-3(K).

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Hazardous waste may be a "**mixed waste**," which means it is waste that contains hazardous waste subject to the HWA and RCRA, and source, special nuclear, or byproduct material subject to the Atomic Energy Act, 42 USC § 2011, *et seq.* (AEA).

Hazardous Waste Management Unit means a contiguous area of land on or in which hazardous waste is placed, or the largest area in which there is significant likelihood of mixing hazardous waste constituents in the same area. A container alone does not constitute a unit; the unit includes containers and the land or pad upon which they are placed. At the Facility, hazardous waste management units include both permitted units and interim status units.

Interim Status Unit means any hazardous waste management unit that was in operation before the effective date of the statutory or regulatory amendments that caused the unit to become subject to permitting requirements, that meets the requirements for interim status under § 3005(e) of RCRA, 42 U.S.C. § 6925(e), for which interim status has not been terminated pursuant to section 3005(e)(2) of RCRA, 42 U.S.C. § 6925(e)(2), and that has not been issued a permit by EPA or the Department.

Permit means the Los Alamos National Laboratory Hazardous Waste Facility Permit originally dated November 2010 including all attachments thereto and all modifications to the Permit.

Permittees means collectively the United States Department of Energy (DOE) and the Triad National Security L.L.C. (Triad). [Note: Los Alamos National Security L.L.C. (LANS) was replaced by Triad as a Permittee on November 1, 2018]

Release means any accidental or intentional spilling, leaking, pouring, emitting, emptying, discharging, injecting, pumping, escaping, leaching, or dumping of any hazardous waste or hazardous constituents inside a permitted unit or from a permitted unit to the environment, including the abandonment or discarding of barrels, containers, and other closed receptacles containing hazardous waste or hazardous constituents.

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1.0 INTRODUCTION

This Closure Plan describes the activities necessary to close one of the interim status hazardous waste open burning treatment units at Technical Area (TA) 16 at the Los Alamos National Laboratory (LANL or the Facility), hereinafter referred to as the "TA-16-399 Burn Tray" or "the Unit". The information provided in this Closure Plan addresses the closure requirements specified in the Code of Federal Regulations (CFR), Title 40, Part 265, Subparts G and P for the thermal treatment unit operated at the Facility under the Resource Conservation and Recovery Act (RCRA), the New Mexico Hazardous Waste Act, and is consistent with the standards outlined in the Permit. Closure of the open burning treatment unit must be completed in accordance with Section 4.1 of this Closure Plan.

The Unit will be closed by removal of the burn tray, the cement pad and electrical box and collection and analysis of surface and subsurface soil and tuff samples. Until closure is complete and has been certified in accordance with Permit Part 9.5 and 40 CFR §265.115, a copy of the approved Closure Plan, any approved revisions to the plan, and closure activity documentation associated with the closure must be on file with hazardous waste compliance personnel at the Facility and at the U.S. Department of Energy (DOE) Los Alamos Field Office. Prior to closure of the Unit, this Closure Plan may be amended whenever: (1) newly identified hazardous constituents are determined to have been managed at the unit, and (2) new sampling locations are required as a result of the record review and structural assessment. Any amended Closure Plans must be submitted to the New Mexico Environment Department (the Department or NMED) for approval prior to implementing closure activities.

2.0 DESCRIPTION OF UNIT TO BE CLOSED

TA-16 is located in the southwestern quadrant of the Facility at the west end of the Pajarito Plateau near the foothills of the Jemez Mountains (see Figure 1). Elevation ranges from approximately 7,700 feet at the west end of the TA to approximately 6,800 feet at the lower east end. Topography is varied, ranging from steep canyon walls to sloping mesa tops. The TA-16 Burn Ground consists of the TA-16-388 Flash Pad and the TA-16-399 Burn Tray, but only the TA-16-399 Burn Tray is addressed in this Closure Plan. The open burn (OB) units were managed by the high explosives (HE) engineering personnel (Operators) who were responsible for the safe treatment, storage, and handling of HE waste and HE contaminated wastes generated by the HE production facilities at LANL.

2.1 Description of the Unit and the Wastes Treated at the Unit

The TA-16-399 Burn Tray (see Figure 2) is comprised of a 4-foot wide, by 16-foot long steel tray supported by 1.5-foot high legs and is lined with firebricks (see Figure 3). The maximum treatment capacity of the TA-16-399 Burn Tray is 1,000 pounds of waste per burn.

The Unit consists of: a burn tray, firebrick, burn tray cover, wheels, tracks, a concrete pad, an electrical box and is surrounded by a chain-link fence.

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The burn tray, burn tray cover, concrete pad, electric box, and firebrick will be removed from the Unit. The fencing shall remain after the closure of the Unit. The remaining equipment must be assessed for damages, and decontaminated prior to closure of the Unit.

2.2 Description of Waste Treated at the Unit

The Permittees state that the TA-16-399 burn tray was used to treat a single waste stream by open burning to destroy the characteristic of reactivity (D003). Bulk explosives waste stream consists of: Octahydro-1,3,5,7- tetranitro-1,3,5,7- tetrazocine (HMX); cyclo-1,3,5-trimethylene-2,4,6-trinitramine (RDX): 2,2-bis[(nitroxy)methyl]-1,3-propanediol dinitrate (PETN); 2,4,6-trinitrotoluene (TNT); and triamino trinitrobenzene (TATB). Additionally, mixtures of explosives were treated including: ammonium nitrate-fuel oil (ANFO), Composition B, Cyclotol, IMX-101, PBX 9404, PBX 9407, PBX 9501, PBX 9502, X0233, X0533, XTX 8003, XTX 8004, LX-02, LX-07, LX-10 and LX-14.

The Permittees were unable to provide records of waste treated at the Burn Tray from 1951 to 1980. Therefore, in addition to constituents identified in Table 2, analysis of target analyte metals, nitrates, perchlorate, volatile organic chemicals (VOCs) , semi volatile organic chemicals (SVOCs), diesel range organics (DRO), gasoline range organics (GRO), kerosene, dioxins/furans, and HE degradation products must be added to the analytical suite.

2.3 Treatment Method

The high explosives trained personnel packed waste explosives in cardboard and wooden boxes and transported the boxes to the Unit for treatment. The burn tray Operators rolled back the cover from the tray, and placed padding on the tray, while the high explosives trained personnel removed the explosives from the boxes and set them on the padding. The burn tray Operators then dampened the padding with kerosene. The Permittees report that approximately one-half gallon of kerosene was used during each treatment event. The burn tray Operators then connected electric matches (*e.g.*, squibs) to the firing cables and saturated the train of excelsior with kerosene, the burn tray Operators ran the train from the squibs to the padding for ignition. The burn tray Operators ignited all open burning treatment events remotely from a control building. The burn tray Operators allowed the waste to burn of its own accord, and observed the burn from the control building. After the burn was complete, the burn tray Operators waited for the tray to cool before putting the burn tray cover back in place. The burn tray Operators waited 24 hours after the treatment to remove any residue or ash from the burn tray. The Permittees report that treatment methods at this Unit were consistent during the operational period of 1980 to July 18, 2012; however, the treatment method used between the initial use of the Unit in 1951 and 1980 are not known.

3.0 ESTIMATE OF MAXIMUM WASTE TREATED

According to the Permittees' record (1980-2012), the maximum treatment capacity of the TA-16-399 Burn Tray was 1,000 pounds of waste per burn and treatment events range in volume from 30 pounds to 350 pounds. The Permittees report that approximately 255,685 pounds of HE waste has been treated at the TA-16-399 Burn Tray since 1980. The Permittees report that TA-

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16-399 Burn Tray was operated as a treatment Unit from 1951 to 1980 (Vigil-Holterman, Luciana, 2010) but did not provide a record of waste treated during that time period.

4.0 GENERAL CLOSURE INFORMATION

4.1 Closure Performance Standards

Closure plans are required to be submitted in accordance with 40 CFR § 265.112. At a minimum, closure plans must describe how a unit will be closed to meet the interim status performance standards set forth in the closure plan and in accordance with 40 CFR § 265.111. Closure plans shall include a sampling and analysis plan (SAP). The SAP shall include:

a) verification of the decontamination of the surfaces, structures and all related equipment;

b) determination whether a release of hazardous constituents to any environmental media has occurred;

c) a list of hazardous constituents, as defined in 40 CFR 261.10 and 261.30 to be sampled and analyzed. The Permittees may propose to NMED a list of hazardous constituents of concern limited to only those related to the hazardous wastes managed at the unit if the Permittees can provide a complete Facility operating record with respect to hazardous waste management operations at the unit undergoing closure;

d) a site plan for verification soil samples shall include:
   i. a figure depicting boundaries of the unit and verification soil sampling locations. The locations shall include, but not be limited to, where applicable: discharge points (*e.g.,* storm water run-off locations) (See Figure 5);
      - Sumps and catch basins;
      - Secondary containment areas;
      - Conveyance systems (*e.g.,* pipe drains, drainage swales);
      - Location of spills or the releases of hazardous waste or hazardous constituents during operation of the Unit;
      - Loading and unloading areas;
      - Other potential release locations; and
      - Sampling grid location points.
   ii. rationale for the selected number and locations of samples.

e) Type of Samples. The type of sample to be collected (*e.g.,* soil) and the rationale for the selection of sampling types must be provided.

f) Sampling Methods. A description of the approved EPA SW-846 sampling methods and procedures that will be used to collect each type of sample must be included.

g) Analytical Methods. A description of the approved EPA SW-846 laboratory analytical methods that will be used to measure concentrations of hazardous constituents must be included.

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h) Quality Assurance and Quality Control Procedures. The SAP must include a description of the quality assurance and quality control (QA/QC) procedures that include, but are not limited to:
   i. Duplicates, trip blanks, equipment blanks;
   ii. A description of methods for decontamination of re-usable sampling equipment; and
   iii. A description of all sample preservation, handling, labeling, and chain of custody procedures.

Closure of a Unit shall be deemed complete when: 1) all surfaces and equipment have been decontaminated, or otherwise removed and properly managed as waste; 2) closure has been completed in accordance with this Closure Plan and certified by an independent, professional engineer licensed in the State of New Mexico; and 3) a closure report including closure certification as required by 40 CFR 265.115, has been submitted to, and approved by, the Department. If residential clean-up levels are not achieved during closure, the Permittees shall submit a post closure care plan for approval by the Department. The proposed post closure care plan will be made available for public comment and opportunity for public hearing in accordance with applicable sections of 40 CFR §§ 265.118 and 270.

4.2 Closure Schedule

The following section provides the schedule of closure activities (also see Table 1 in this Closure Plan).

Closure activities must begin no later than 45 days after approval of this plan. However, in accordance with Permit Sections 9.4.1, 9.4.2 and 40 CFR § 265.112(e), removing hazardous wastes, decontaminating or dismantling equipment, in accordance with an approved Closure Plan, may be conducted at any time before notification of closure. The records review has been completed, and the structural assessment was conducted on July 19, 2012. The review and structural assessment are described in Sections 5.1.1 and 5.1.2 of the Closure Plan. Upon approval of the Closure Plan, if applicable, the Unit surfaces and related equipment must be decontaminated or dispositioned as discussed in Section 5.2. All closure activities must be completed within 180 days after beginning closure. The final submittal of the closure certification report must be submitted to NMED 60 days after completing closure in accordance with Permit Section 9.5. In the event, closure of the Unit cannot proceed according to schedule, the NMED must be notified in accordance with the extension request requirements in 40 CFR § 265.113(b) and comply with the applicable closure requirements in 40 CFR § 265.113(b)(1) and (2).

4.3 Amendment of the Closure Plan

The Permittees may amend this Closure Plan in accordance with the requirements in 40 CFR § 265.112(c). If the results of the review or assessment require any changes to this Closure Plan (e.g., the sampling and analysis plan), the Permittees shall submit an amended Closure Plan to NMED, for review and approval, in accordance with this Section (4.3). Associated public

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comment periods and opportunities for public hearing will be in adherence with 40 CFR § 265.112(c).

5.0 CLOSURE PROCEDURES

Closure activities at the Unit shall include: a physical review of the Unit and a review of the Unit's records; proper management and disposal of hazardous waste residues, if applicable, and removal and cleaning of all contaminated surfaces and equipment associated with the Unit; sampling to verify the closure performance standards in Section 4.1 of this Closure Plan and Permit Sections 11.4 and 11.5 have been achieved; and submittal of a final closure certification report. The following sections describe these closure activities applicable to the Unit.

5.1 Records Review and Structural Assessment

Before starting closure decontamination and sampling activities, the operating and inspection records for the Unit must be reviewed and a structural assessment must be conducted to determine any previous finding(s) or action(s) that may influence closure activities or potential sampling locations. Specific results of the records review and structural assessment must be included within the closure certification report.

5.1.1 Records Review

The Facility Operating Record (including, but not limited to, inspection and contingency plan implementation records) has been reviewed in accordance with Permit Section 9.4.6.1. The goals of the review were to:

a. confirm the specific hazardous waste constituents of concern listed in Table 2;

b. update the above-mentioned list as necessary;

c. update the estimated quantity of waste treated in Section 3.0 in the Closure Plan; and

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

The Permittees have determined that there have been no spills or releases, defects, deterioration, damage, or hazards (*e.g.*, damage to the concrete pad or other Unit materials) affecting waste containment or treatment during the operational period of 1980 - 2012 of the Unit during which waste classified as hazardous waste was treated. Sections 3.0 and 6.1 and Table 2 of the Closure Plan have been updated to reflect changes made in support of the records review and structural assessment. The Permittees report that records are not available to review prior to 1980; therefore, release of contaminants may have occurred between 1951 and 1980.

5.1.2 Structural Assessment

The structural assessment is an assessment of the Unit's physical condition. The assessment for the Unit was conducted on July 19, 2012, in accordance to Permit Section 9.4.6.2. The assessment included inspecting the Unit's concrete pad (for any existing cracks or conditions that indicate a potential for release of hazardous constituents) and assessing the Unit for evidence of any releases. The assessment did not reveal any evidence of a release (*e.g.*, stains) or damage

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(*e.g.*, cracks, gaps, chips) to the pad. The assessment was photographed, documented, and will be submitted to the NMED as part of the closure report.

5.2 Decontamination and Removal of Structures and Equipment

In accordance with 40 CFR § 265.112(b)(4), the Unit related equipment and materials, must be decontaminated, or removed and managed according to Section 7.0 of this Closure Plan and Permit Section 9.4.4. All surfaces and related equipment that are removed and not intended for recycle shall be considered solid and potentially hazardous waste when removed, and must be disposed of in accordance with Section 7.0 of the Closure Plan and Permit Section 9.4.3. Decontamination activities must ensure the removal of all hazardous waste residues and hazardous waste constituents from the Unit to meet the closure performance standards in Section 4.1 of this plan and Permit Section 9.4.4.

5.2.1 Removal of Structures and Related Equipment

The burn tray, metal cover, tracks and rims (without the rubber tires) must be flashed at the TA-16-388 Flash Pad, if a high explosives spot test is conducted and the results are positive or residual high explosives are expected on the equipment. Prior to shipment off-site, a HE spot test must be completed for verification purposes in accordance with Permit Section 9.4.3. The electronic ignition assembly must be removed from the Unit at closure and recycled or disposed. In addition, the electrical box and the concrete pad must be removed from the Unit at the time of closure. The bricks must be removed and must be disposed of or reused.

5.2.2 Decontamination of Structures and Related Equipment

If decontamination of structures and related equipment is conducted prior to removal, portable berms or other devices (*e.g.*, absorbent socks, plastic sheeting, and wading pools) must be used to collect excess wash water and provide containment during the decontamination process.

With the exception of the fence, no other equipment at the Unit will be left in place. The burn tray will be flashed at Unit 16-388 prior to shipment offsite for disposal or recycling.

5.2.3 Equipment Used During Decontamination Activities

Reusable protective clothing, tools, and equipment used during decontamination activities must be cleaned with a wash water solution that consists of a non-phosphate surfactant detergent (*e.g.*, Alconox ®) and water mixed in accordance with the manufacturers' recommendations and in accordance with Permit Section 11.10.2.11. Residue and disposable equipment must be containerized, characterized, and managed as waste in accordance with Section 7.0 of this Closure Plan and with Permit Section 9.4.5. All activities must be documented in the Closure Certification Report submitted to NMED no later than 60 days following completion of closure activities.

6.0 SAMPLING AND ANALYSIS PLAN

This Sampling and Analysis Plan (SAP) is designed to verify decontamination of surfaces, equipment, and materials; and determine whether a release of hazardous constituents to any

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environmental media has occurred. The SAP shall include:

a. Hazardous constituents of concern based on the available records (Table 2), and the additional constituents of concern included in Section 2.2 for which analysis is required. This includes all potential hazardous constituents managed at this site and:

    i. any constituent identified in 40 CFR Part 261, Appendix VIII; or

    ii. any constituent identified in 40 CFR Part 264 Appendix IX, dioxins, furans, perchlorates, DRO, GRO, and nitrates.

b. The constituents of concern identified in Section 6.0.a. shall be utilized to select the analytical methods capable of detecting these constituents (Table 4).

c. A site plan (Figure 4) depicting the boundaries of the Unit and verification and soil sampling locations. The locations include a minimum of eleven grab sample locations that represent locations immediately around the Unit, underneath the concrete pad, and locations where run-off likely occurred from the Unit and the closest surface water monitoring location (Figure 5).

d. Subsurface samples must be collected from tuff at soil/tuff interface from four sampling locations to determine whether there was any contamination transport to the subsurface.

e. The type of samples to be collected (*e.g.*, soil, tuff) and the rationale for the selection of the sample type.

f. Sampling methods including a description of the approved EPA sampling methods and procedures that must be used to collect each type of sample as specified in *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods* (SW-846) (EPA, 1986).

g. A description of the approved EPA SW-846 laboratory analytical methods that must be used to measure hazardous constituent concentrations (see Table 4).

h. A description of quality assurance and quality control (QA/QC) procedures that include, but are not limited to:

    i. field duplicates, trip blanks, equipment blanks;

    ii. a description of methods for decontamination of re-usable sampling equipment; and

    iii. a description of all sample preservation, handling, labeling, and chain-of-custody procedures.

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6.1 Sampling Activities

Sampling activities must be conducted in order to demonstrate that Unit-related equipment and soils in and around the Unit meet the closure performance standards in Section 4.1. All samples shall be collected and analyzed in accordance with the procedures in Sections 6.1, 6.2, 6.3, 6.4, 6.5, and 6.6 of this Closure Plan.

6.1.1 Sample Collection Procedures

Samples must be collected in accordance with the procedures identified in this SAP which incorporates guidance from the EPA (EPA, 1986 and EPA, 2002), DOE (DOE, 1995), and other Department-approved procedures and shall comply with Sections 9.4.7.1 and 11.10 of the Permit. Before samples are collected, the sampling plan must be approved by the area Explosives Safety Officer. The Explosives Safety Officer must evaluate the area to determine the potential for detonable explosives or explosives contamination and whether or not any extracted samples may be released from the area without initial internal explosives analysis. All samples must be tested by the high explosives spot test immediately upon collection and have a high explosives handler present when performing the sampling. If samples test positive on the high explosives spot test, they must be handled, packaged, stored, and transported from the site as material determined to present an explosive hazard.

6.1.2 Soil Sampling

Soil samples must be collected from six locations outside the fence line of the TA-16-399 Burn Tray. Soil samples must be collected from five additional locations within the fence line (See Figure 4). A minimum of 11 surface samples must be collected from the top two inches of soil and four samples must be collected from a 0 to 12 inches depth from below the soil/tuff interface. Care must be taken in sample collection to prevent mixing of top sandy soil with tuff samples. The soil sample locations are in areas of potential deposition from air to soil and areas of disposition related to storm water runoff. Soil samples must be collected using a Teflon scoop for surface samples and a stainless-steel auger for samples collected at 6-12 inch depths. The sample collection process must be completed in accordance with American Society for Testing and Materials (ASTM), Active Standard D4823-95 (2008) Standard Guide for Core Sampling and ASTM D5633-04 (2008) for scoop sampling. Global positioning system (GPS) data utilizing Trimble GeoExplorer Unit must be collected for each sample location.

Soil sample analysis must include the following: 11 surface samples from a 0-2 inch depth (See Figure 4, Locations 1-11) and four subsurface samples from a depth of 0-12 inches below soil/tuff interface (See Figure 4, Locations 3, 6, 8, and 11) at TA-16-399 to be analyzed for:

a. Target analyte list (TAL) metal analysis for 24 analytes using *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846)* Methods 6010B, 6020 (inductively coupled plasma – mass spectrometry), and 7471A;

b. Dioxins/Furans analysis using EPA Method 8290A;

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c. High explosives analysis for 20 target compounds using EPA Method 8330B or 8321A with a modification to add explosive compounds generated specifically at LANL listed in Tables 2 and 4 of the Closure Plan;

d. Analysis for SVOCs using EPA Method 8270C;

e. Analysis for VOCs using EPA Method 8260B;

f. Perchlorate anion (ClO_4^-) by EPA Method 6850 or 6860;

g. DRO and GRO by EPA Method 8015B; and

h. Nitrates by EPA Method 9056A.

Field quality control samples: One field duplicate soil sample must be collected for each analytical suite. A single trip blank for VOC analysis must be submitted per day per shipping cooler.

The samples must be shipped to an independent contract analytical laboratory for analysis using the methods described above. Results and data from the sample collection activity must be submitted with the TA-16-399 closure report.

6.1.3 Cleaning of Sampling Equipment

A disposable sampler is considered clean only when directly removed from a factory-sealed wrapper. Reusable decontamination equipment, including protective clothing and tools, and sampling equipment used during closure activities must be scraped, as necessary, to remove residue and cleaned prior to each use in accordance with Permit Section 11.10.2.11. Sampling equipment rinsate blanks must be collected and analyzed only if reusable sampling equipment is used.

6.2 Sample Management Procedures

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

6.3 Sample Documentation

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

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6.3.1 Chain-of-Custody

Chain-of-custody forms must be maintained by sampling personnel and Sample Management Office personnel until the samples are relinquished to the analytical laboratory. Chain of custody protocols must ensure the integrity of the samples and provide for an accurate and defensible written record of the sampling possession and handling from the time of collection until laboratory analysis. One chain-of-custody form may be used to document all of the samples collected from a single sampling event. The sample collector shall be responsible for the integrity of the samples collected until properly transferred to another person. Chain-of custody forms must be maintained in accordance with Permit Section 11.10.

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

6.3.2 Sample Labels and Custody Seals

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

a. a unique sample identification number;

b. name of the sample collector;

c. date and time of collection;

d. type of preservatives used, if any; and

e. the location where the sample was collected, GPS coordinates must be recorded.

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

6.3.3 Sample Logbook

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

a. the sample location;

b. suspected composition;

c. sample identification number;

d. volume/mass of sample taken;

e. purpose of sampling;

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f. description of sample point and sampling methodology;

g. date and time of collection;

h. name of the sample collector;

i. sample destination and how it will be transported;

j. observations;

k. name(s) of personnel responsible for the observations; and

l. any deviations from the sampling plan must be noted in the sample logbook and reported in the TA-16-399 closure certification report.

6.4 Sample Handling, Preservation, and Storage

Samples must be collected and containerized in appropriate pre-cleaned sample containers. Samples that require cooling to 4 degrees Celsius must be placed in a cooler with ice or ice gel or in a refrigerator immediately upon collection.

6.5 Packaging and Transportation of Samples

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

The samples must be maintained at appropriate temperatures after collection and throughout the shipping process. All samples must be chilled to four degrees Celsius before shipment occurs. Samples must be then wrapped, placed in the DOT approved shipping container with ample blue ice to hold the required temperature. Temperature blanks must be placed in the cooler and sealed with custody tape. Off-site transportation of samples must occur via contract, or common motor carrier, air carrier, or freight. All off-site transportation must be processed through the Permittees' packaging and transportation organization unless the shipper is specifically authorized through formal documentation by that organization to independently tender shipments to common motor or air carriers. All shipments must be sent overnight delivery. Once received, the analytical laboratory must verify that the custody tape is still intact and measure the temperature of the cooler. All sample information and observations must be recorded and presented in the analytical data package. For all discrepancies, the sender must be notified for resolution.

6.6 Sample Analysis Requirements

Samples must be analyzed for all the hazardous constituents listed in Table 2 and Table 4. Samples must be analyzed by an independent laboratory using the methods outlined in SW-846. Analytes, test methods and instrumentation, estimated quantitation limits, and rationale for metals and organic analyses shall be included in the closure Report. If any of the information

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from this plan has changed at the time of closure, the Permittee shall request that NMED amend this Closure Plan to update all methods in this sampling and analysis plan (SAP).

6.6.1 Analytical Laboratory Requirements

The analytical laboratory must perform the detailed qualitative and quantitative chemical analyses specified in Section 6.6.2 of this plan. The analytical laboratory must also comply with the mandates outlined in Permit Section 11.10.3. The analytical laboratory must have:

a. a documented comprehensive QA/QC program;

b. technical analytical expertise;

c. a document control/records management plan; and

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

The selection of the analytical testing methods identified in Section 6.0 of this plan, must be based on the following considerations:

a. the physical form of the waste;

b. constituents of interest;

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

d. information requirements (*e.g.*, waste classification).

6.6.2 Quality Assurance/Quality Control

All sampling and analysis must be conducted in accordance with quality assurance (QA)/quality control (QC) procedures defined by the latest revision of "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" (*SW-846*) (EPA, 1986) or other Department-approved procedures. Field sampling procedures and laboratory analyses must be evaluated through the use of QA/QC samples to assess the overall quality of the data produced as specified in the applicable portions of Permit Sections 11.10.2.4.vii, 11.10.2.8.iv and 11.10.3.1. QC samples evaluate precision, accuracy, and the potential for sample contamination associated with the sampling and analysis process which is described in the following sections. Information on calculations necessary to evaluate the QC results is also described below. Analysis must be conducted in accordance with procedures described in SW-846 (EPA 1986, as updated) and Permit Section 11.10.3.

6.6.2.1 Field Quality Control

The field QC samples that must be collected include trip blanks, and field duplicates as required by the applicable requirements of Permit Section 9.4.7.1, 11.10.2.4.vii, and 11.10.2.9.iv. Field QC samples must be given a unique sample identification number and submitted to the analytical laboratory as blind samples. Field QC samples must be identified on the applicable forms so that the results can be applied to the associated sample.

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6.6.2.2 Analytical Laboratory Quality Control Samples

QA/QC considerations are an integral part of analytical laboratory operations. Laboratory QA ensures that analytical methods generate data that are technically sound, statistically valid, and that can be documented. QC procedures described in EPA SW-846 are the tools employed to measure the degree to which these QA objectives are met, and include method blank, matrix spike, and laboratory duplicate samples. The results for analytical laboratory QC samples must be reported along with the regular sample analyses.

6.7 Data Reduction, Verification, Validation, and Reporting

Data reduction is the conversion of raw data to reportable units, transfer of data between recording media, and computation of summary statistics, standard errors, confidence intervals, and statistical tests and must be in accordance with provisions of Permit Section 11.10.3.5. Analytical data generated by the activities described in this Closure Plan must be verified and validated by the analytical laboratory and provided to the Permittee and NMED in an electronic data deliverable format for upload to the LANL's public environmental management system as referenced in 1.10.1 of the Permit.

6.8 Data Reporting Requirements

Analytical results must include all pertinent information about the condition and appearance of the sample-as-received. The level II laboratory analytical data packages shall be included with the closure report for this Unit. The analytical reports must be prepared in accordance with the provisions of Permit Section 11.10.3.1.iv.

7.0 WASTE MANAGEMENT

By removing any hazardous waste or hazardous waste constituents during closure, the Permittees may become a generator of hazardous waste. The Permittee shall control, handle, characterize, and dispose of all wastes generated during closure activities in accordance with this Section (7.0), Permit Section 9.4.5, Permit Attachment C, and Facility waste management procedures, and shall be in compliance with applicable state, federal, and local requirements (*see* 40 CFR § 265.114). These wastes shall include, but are not limited to:

a. demolition debris;

b. concrete;

c. containerized waste;

d. personnel protective equipment;

e. soil;

f. decontamination wash water; and

g. decontamination waste.

The different types of wastes generated at closure, including the Unit's decontaminated structures and related equipment, and their disposition options (*e.g.*, reuse, recycling, or disposal) are listed in Table 3 of this Closure Plan. Disposable equipment and other small equipment that cannot be decontaminated shall be containerized and managed as waste.

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8.0 CLOSURE CERTIFICATION REPORT

Upon completion of the closure activities at the Unit, the Permittee shall submit, by registered mail, a closure certification report for Department review and approval. The Report shall document that the Unit has been closed in compliance with the specifications in this Closure Plan and Permit Section 9.5. The Report shall summarize all activities conducted during closure.

Documentation supporting the certification of an independent professional engineer licensed in New Mexico must be furnished to the Department before the closure of the Unit will be approved.

9.0 DEPARTMENT CLOSURE ASSESSMENT

Upon submittal of the closure certification report described in Section 8.0 of this Closure Plan, the Permittees shall arrange an on-site closure review with representatives of the Department to assess the completion of the closure activities at the Unit.

10.0 POSTINGS TO ELECTRONIC INFORMATION REPOSITORY

The Permittees have an Electronic Information Repository, currently called the Electronic Public Reading Room. The Permittees shall add new documents to the electronic IR within ten days after the documents are submitted to, or received from, the Department in accordance with provisions of Permit Section 1.10 (*See* 40 CFR § 124.33(f)). The documents to be made available to public for this Closure Plan include:

a. Closure Plan Submitted to NMED with all attachments and appendices;
b. Notice of Disapproval;
c. NMED approved Closure Plan with all attachments and appendices;
d. Amendments to the Closure Plan, if any;
e. Closure Certification Report: and
f. Post Closure Plan, if required.

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11.0 REFERENCES

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

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

EPA, 2000. US Environmental Protection Agency, Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity, Authorization to Discharge under the NPDES, NPDES Permits No. NMR05A734 and NMR05A735, issued to the University of California and the DOE, respectively. Effective December 23, 2000.

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

EPA, 2005. EPA, 2005. U.S. Environmental Protection Agency Region 6, *In the Matter of United States Department of Energy and the Los Alamos National Laboratory, NPDES Nos. NMR05A735, NMR05A734, and NM0028355, Federal Facility Compliance Agreement.* Effective February 2005.

EPA, 2005. U.S. Environmental Protection Agency Region 6, Administrative Order Docket No. CWA-06-205-1734, NPDES Permit No. NMR05A734. Effective March 2005.

EPA, 2007. U.S. Environmental Protection Agency Region 6, *Authorization to Discharge Under the National Pollutant Discharge Elimination System*, NPDES Permit No.. NM0028355, issued to the DOE and Los Alamos National Security, LLC. Effective August 1, 2007.

EPA, 2008. U.S. Environmental Protection Agency, *Multi-Sector General Permit for Storm Water Discharge Associated with Industrial Activities*, Notice of Intent to Discharge, Permit Tracking Number NMR05GB21, Los Alamos National Security, LLC. Effective January 8, 2009.

EPA, 2009. U.S. Environmental Protection Agency Region 6, *Individual Permit for Storm Water Discharge from SWMUs and AOCs*, NPDES Permit No. NM003075, issued to the DOE and Los Alamos National Security, LLC. Effective April 1, 2009.

EPA, 2010. U.S. Environmental Protection Agency Region 6, *Individual Permit for Storm Water Discharge from SWMUs and AOCs, Final Permit Modification Decision*, NPDES Permit No. NM003075, issued to the DOE and Los Alamos National Security, LLC. Effective November 1, 2010.

LANL, 2006. *Closure Plan for Technical Areas 16, 50, 54 and 55, Revision 0.0.* LA-UR-06-6913. September 26, 2006.

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LANL, 2009. *Closure Evaluation of the Ecological Risk Screening Assessment for Dioxin/Furans for the Open Burn Treatment Units (TA-16-388 and TA-16-399 June 2009.* DCN: NMED-2009-13. June 30, 2009.

LANL, 2012. *Interim Status Closure Plan Open Burning Treatment Unit Technical Area 16-399 Burn Tray, Revision 2.0.* LA-UR-12-26782. December 11, 2012.

LANL, 2015. *Ecorisk Database (Release 3.1),* ESH ID600921Los Alamos National Laboratory, Los Alamos, New Mexico.

LANL, 2016. *2017 Interim Facility-Wide Groundwater Monitoring Plan for the 2017 Monitoring Year, October 2016-September 2017,* Los Alamos National Laboratory documentEP2016-0045, Los Alamos, New Mexico).

NMED, 2010. *Los Alamos National Laboratory Hazardous Waste Permit.* November 2010, New Mexico Environment Department, Santa Fe, New Mexico.

NMED, 2017. *New Mexico Environment Department Risk Assessment Guidance for Site Investigations and Remediation.* March 2017, New Mexico Environment Department, Santa Fe, New Mexico.

Vigil-Holterman, Luciana. State of New Mexico before the Secretary of Environment. *Application of the United States Department of Energy and Los Alamos National Security, LLC for Hazardous Waste Facility Permit for Los Alamos National Laboratory,* Testimony, April 5, 2012 (HWB-09-37(P) and HWB-10-04(P)). Exhibit JJ, page 9 and OB Testimony page 1282, line 8. Kathy Townsend Court Reporters

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Table 1

Closure Schedule for the Technical Area 16-399 Open Burning Treatment Unit

Activity	Maximum Time Required
Begin closure activities	45 days after approval of the Closure Plan
Conduct records review	Completed November 2012
Conduct structural assessment	Completed on July 19, 2012
Documentation of structural assessment	Submit to Department no later than 45 days after approval of Closure Plan
Complete all closure activities	No later than 180 days of initiating closure activities
Submit final closure certification report to the Department.	No later than 60 days after completion of closure activities

Note: The schedule above indicates calendar days in which the listed activities shall be completed from the day closure activities are initiated. Some activities may be conducted simultaneously.

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Table 2

Hazardous Waste Constituents of Concern at the TA-16-399 Open Burning Treatment Unit[a]

Category	EPA Hazardous Waste Numbers	Specific Constituents
High explosives and associated compounds	D003	HMX, RDX, TNT, PETN, TATB, Tetryl, and mixtures of explosives including; ANFO, Composition B, Cyclotol, IMX-101, PBX 9404, PBX 9407, PBX 9501, PBX 9502, X0233, X0533, XTX 8003, XTX 8004, LX-02, LX-07, LX-10, and LX-14
Toxic Metals	D004, D005, D006, D007, D008, D009, D010, D011	Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium, Silver
Semi-volatile Organic Compounds	D030, D036, F004	2,4-Dinitrotoluene, Nitrobenzene
Other constituents of concern		Dioxins/Furans, Perchlorate, and kerosene

[a] Based on the Unit operating record 1980-2012.
PETN = pentaerythrioltetranitrate (2,2-bis[(nitroxy)methyl]-1,3-propanediol dinitrate)
HMX = cyclotetramethylenetetranitramine (octahydro, 1,3,5,7-tetranitro, 1,3,5,7-tetrazocine)
RDX = cyclonite (cyclo-1,3,5-trimethylene-2,4,6-trinitramine)
TNT = 2,4,6-trinitrotoluene
TATB = 1,3,5-triamino-2,4,6-trinitrobenzene

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Table 3

Potential Waste Materials, Waste Types, and Disposal Options

Potential Waste Materials	Waste Types	Disposal Options
Personal protective equipment (PPE)	Non-hazardous solid waste	Subtitle D landfill
	Hazardous waste	The PPE must be treated to meet Land Disposal Restriction (LDR) treatment standards, if necessary, and disposed in a Subtitle C or D landfill, as appropriate.
Decontamination water	Non-hazardous liquid waste	High Explosives Waste Treatment Facility (HEWTF) or sanitary sewer
	Hazardous waste	Waste must be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D landfill, as appropriate.
Metal covers/trays	Non-hazardous metals	Subtitle D landfill
	Hazardous waste	Treated to remove HE and recycled or disposed of in subtitle C or D landfill.
Firebrick associated with the Unit	Non-Hazardous/Hazardous	Firebrick must be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D landfill, as appropriate
Soil and tuff	Non-hazardous solid waste	Subtitle D landfill
	Hazardous waste	Waste must be treated to LDR treatment standards, if necessary, and disposed in a Subtitle C or D landfill, as appropriate.
Discarded waste management equipment	Non-hazardous solid waste	Recycled, salvaged, or sent to a Subtitle D landfill
	Hazardous waste	Waste must be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D landfill, as appropriate.
Discarded sampling and decontamination equipment	Non-hazardous solid waste	Subtitle D landfill
	Hazardous waste	Waste must be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D landfill, as appropriate.

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Table 4

Summary of Analytical Methods

Analyte	EPA *SW-846* Analytical Method [a]	Analytical Technique	Estimated Quantitation Limits [b] (mg/kg)	Rationale
Metal Analysis				
Aluminum	6010B	ICP-AES	20	Determine the environmentally available metal concentration in the soil samples following strong acid digestion.
Antimony	6010B	ICP-AES	0.03	
Arsenic	6020	ICP-MS	1.5	
Barium	6010B	ICP-AES	0.5	
Beryllium	6020	ICP-MS	0.1	
Cadmium	6010B	ICP-AES	0.03	
Calcium	6010B	ICP-AES	30	
Chromium	6010B	ICP-AES	0.5	
Cobalt	6010B	ICP-AES	0.5	
Copper	6010B	ICP-AES	1	
Iron	6010B	ICP-AES	30	
Lead	6010B	ICP-AES	1	
Magnesium	6010B	ICP-AES	50	
Manganese	6010B	ICP-AES	1.0	
Mercury	7471A	CVAA	0.01	
Nickel	6020	ICP-MS	0.4	
Potassium	6010B	ICP-AES	30	
Selenium	6020	ICP-AES	1.5	
Silver	6020	ICP-MS	0.01	
Sodium	6010B	ICP-AES	20	
Thallium	6020	ICP-MS	0.2	
Vanadium	6010B	ICP-AES	0.5	
Zinc	6010B	ICP-AES	1	
Organic Analysis				
VOCs	8260B	GC/MS	0.001 to 0.005	Determine the solvent-extractable VOCs concentration in the soil samples.
SVOCs	8270C	GC/MS	0.033 to 0.33	Determine the solvent-extractable SVOCs concentration in the soil samples.
Other Analysis				
Dioxins/Furans	8290A	HRGC/MS	0.00001 to 0.0003	Determine the solvent extractable dioxin/furan concentration in the soil samples.

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Perchlorate [ClO_4^-]	6850 or 6860	HPLC/ESI/MS	0.002 mg/kg	Determine the water-soluble [ClO_4^-] concentration in the soil samples.
High Explosives and associated degradation products	8330B or 8321A [c]	HPLC/TS/MS	0.5 to 2.0	Determine the solvent-extractable high explosives concentrations in the samples.
Nitrates	9056A	IC		Determine the water-soluble NO_3 concentration in the soil samples.
Diesel range organics (DRO), gas range organics (GRO), and Kerosene	8015C			Determine the DRO and GRO concentration in the soil samples.

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

[b] Estimated quantitation limits listed for all methods are based LANL contract-required quantitation limits for subcontractor analytical laboratory services.

[c] Instrumentation published in Method SW-846-8321A can be used to identify the required analytes that would not be detected using Method SW-846-8330, thus a LANL-specific modification is used for Method SW-846-8321A to analyze for explosives compounds.

CVAA = Cold-vapor atomic absorption spectroscopy
ESI/MS = Electrospray ionization/mass spectrometry
GC/MS = Gas chromatography/mass spectrometry
IC=Ion Chromotography
HPLC = High performance liquid chromatography
HRGC/MS = High resolution gas chromatography/mass spectrometry
ICP-AES = Inductively coupled plasma-atomic emission spectrometrySVOC = Semivolatile organic compound(s)
TS/MS = Thermospray/mass spectrometry
VOC = Volatile organic compound(s)
mg/kg = milligrams per kilogram

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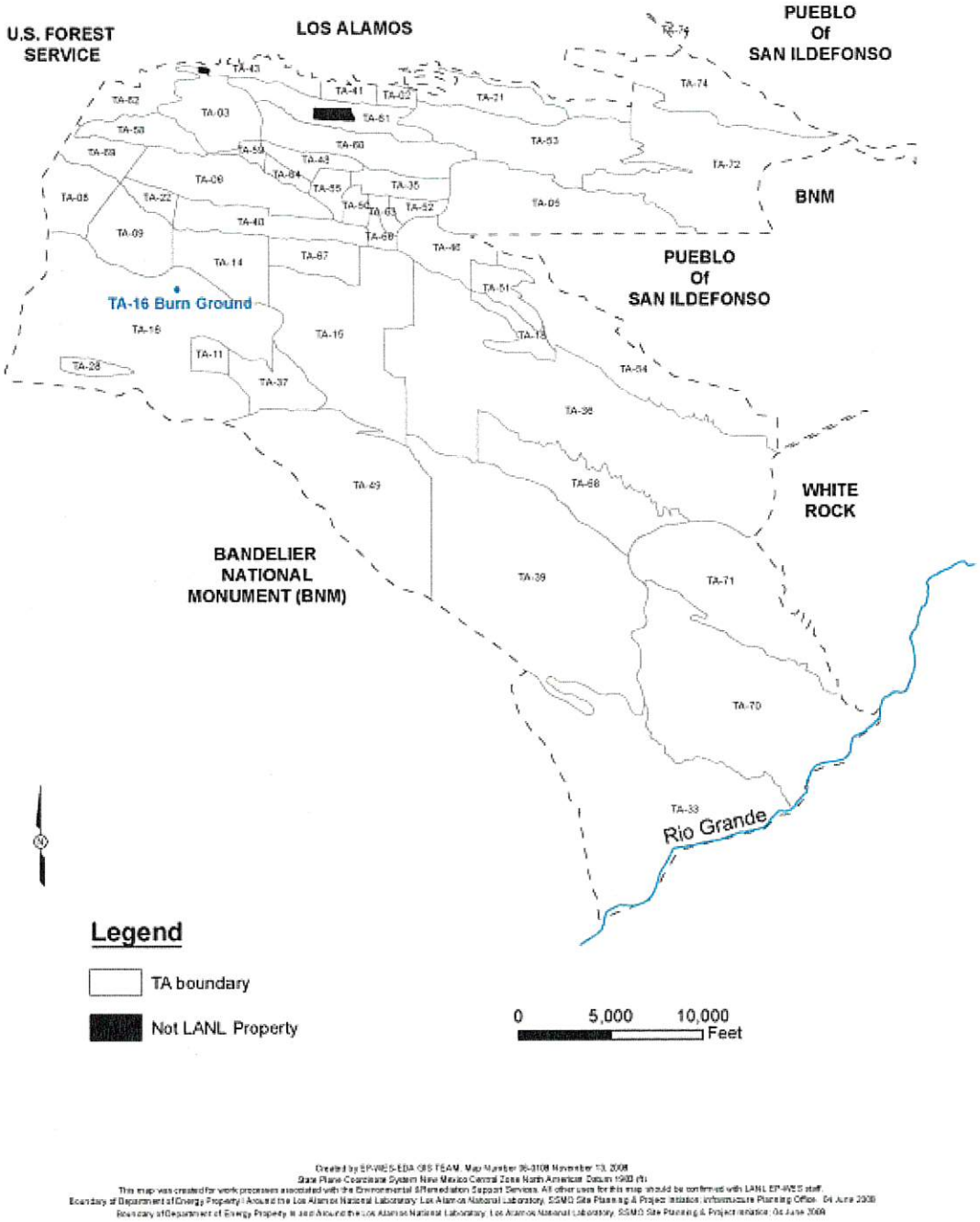


Figure 1: Technical Area 16 (TA-16) Location Map

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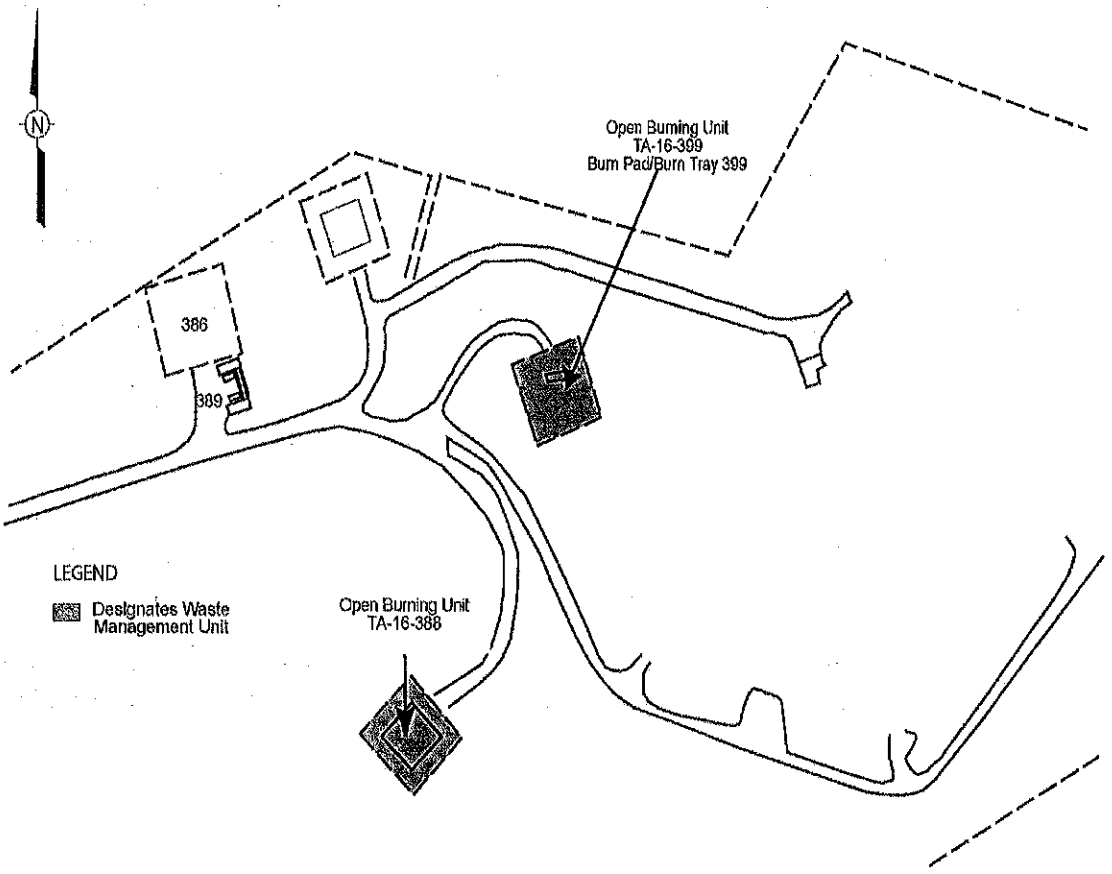


Figure 2: Technical Area 16-399 Open Burning Treatment Unit Layout

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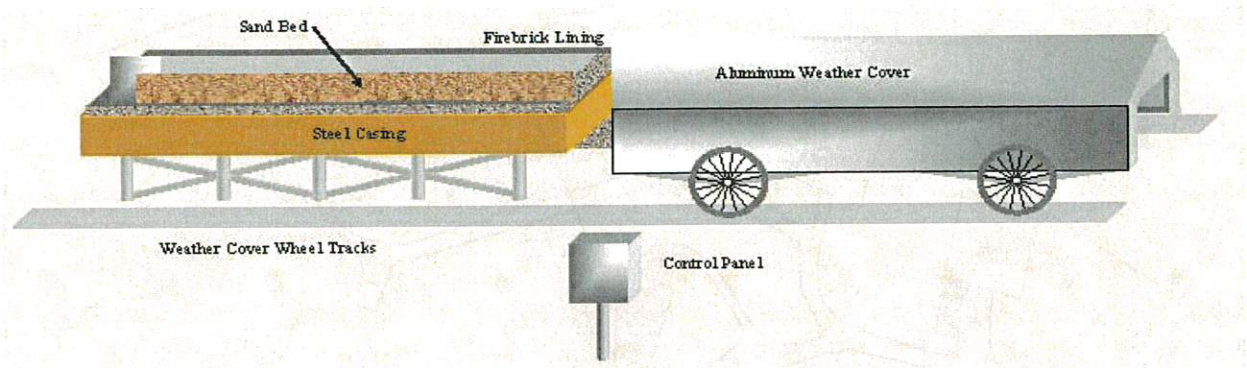


Figure 3: Technical Area 16-399 Open Burning Treatment Unit Configuration

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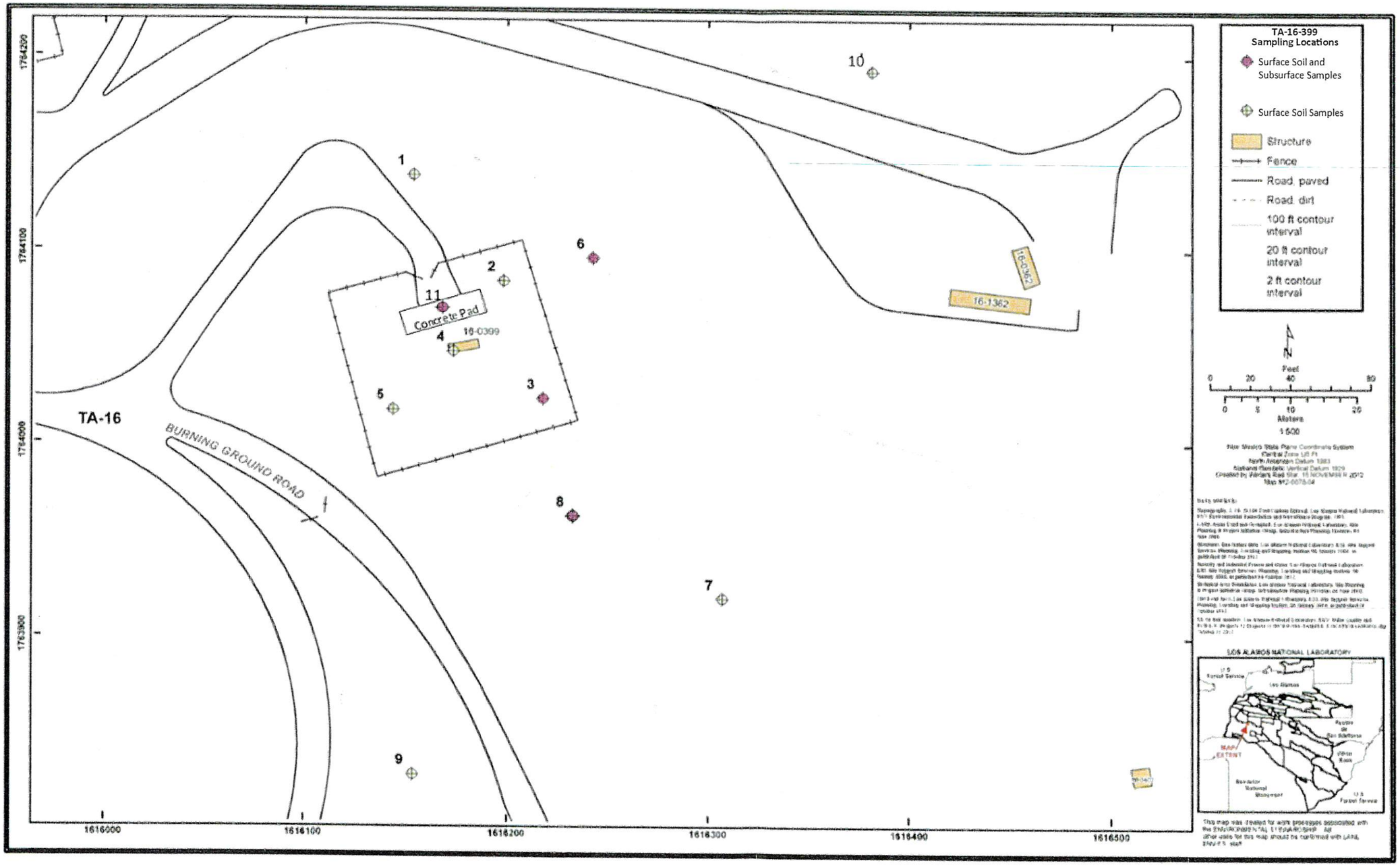


Figure 4: Technical Area 16-399 Soil Sample Locations for Closure of Unit

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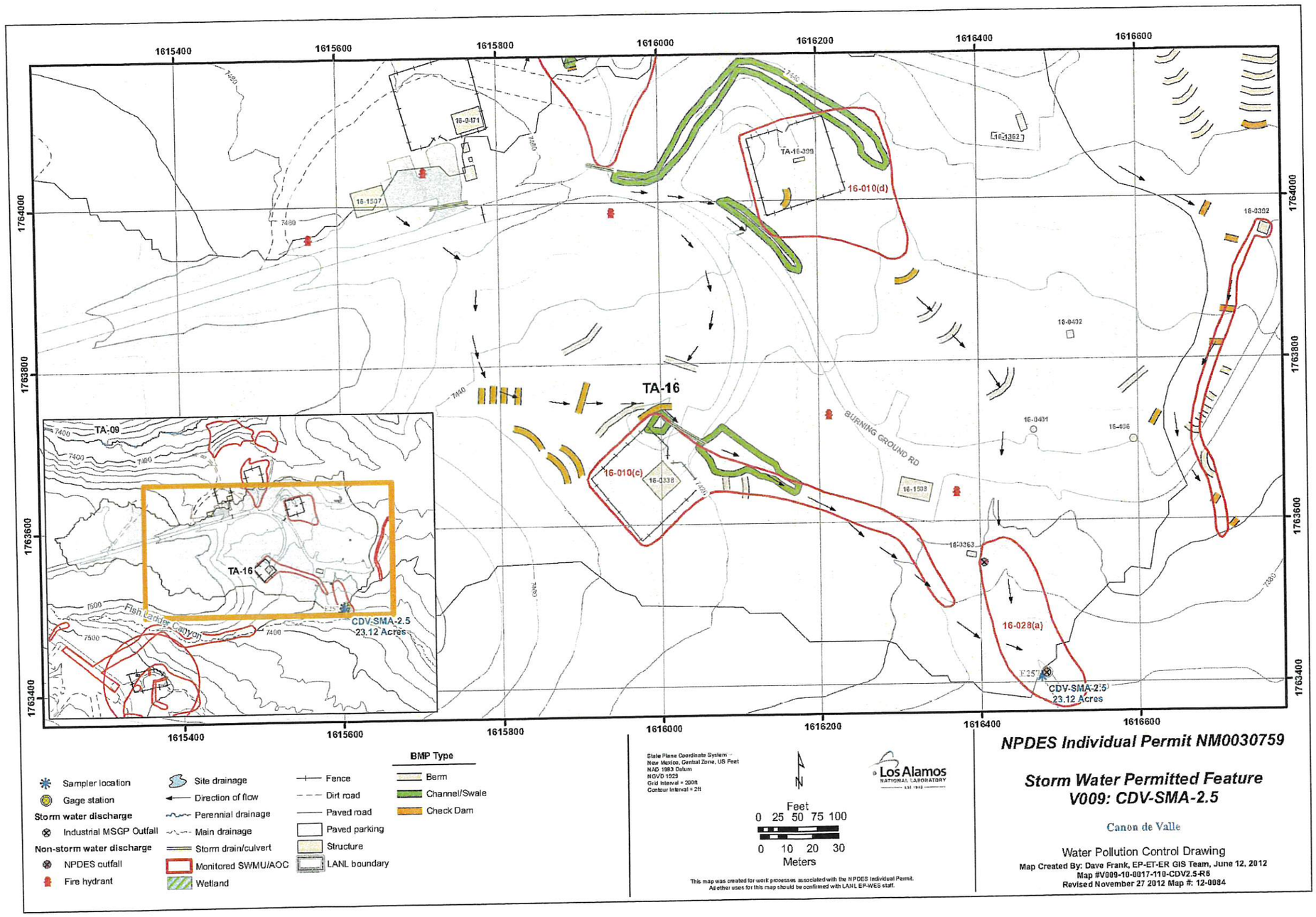


Figure 5: Storm Water Monitoring Station at TA-16 Burn Ground

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Los Alamos National Laboratory

Response to Comments on Draft Closure Plan, November 2013

Technical Area 16-399 Open Burn Unit

January 17, 2019

Section	Commenter	Comment Numbers
I	Permittees collectively the United States Department of Energy (DOE) and the Los Alamos National Security (LANS) L.L.C.*	1-30
II	Concerned Citizens for Nuclear Safety (CCNS), Honor Our Pueblo Existence (HOPE), Tewa Women United (TWU)	31-51
III	Other Comments: John Otter and Richard M. Weinstein	52-55

*Triad National Security, LLC. has replaced LANS as a Permittee, effective November 1, 2018

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I. Permittees Comments

1. **Permittees Comment (1):**
The word "DRAFT" within the title is not accurate to the final issuance of the closure plan. This is no longer a draft closure plan given that is has been noticed for approval. Please remove "DRAFT" from the title of the closure plan.

NMED Response
NMED added the word DRAFT to the title to clarify that this was not the final version of the Closure Plan (CP). The Draft Closure Plan was issued for public notice and NMED considered comments received during the public comment period before issuing this final version of the CP. The word DRAFT has been removed from the final version.

2. **Permittees Comment (2):**
Title included in Figure 1 does not match the title on the figure. Please change the title of the figure as follows: "Technical Area 16 (TA-16) Location Map ~~at the Facility~~".

NMED Response
NMED has changed the title of the Figure 1 to read: Figure 1: Technical Area 16 (TA-16) Location Map.

3. **Permittees Comment (3):**
Remove the reference to Figure 5 within the list, as there is no reference to it in the closure plan. Please remove the Figure 5 reference.

NMED Response
Figure 5 has been retained in the final version of the CP and Section 6.0 (c) (Sampling and Analysis Plan) has been modified to include a reference to Figure 5.

4. **Permittees Comment (4):**
There is a typographical error within the first line of the [Definition] section [page vi]. Please change "Plant" within the first sentence to "Plan".

NMED Response
The typographical error has been corrected.

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5. **Permittees Comment (5):**

There are two clarifications necessary within the definition for "Permit." Please change "Hazardous Waste Permit" to "Hazardous Waste Facility Permit" and please change "hereto" to "thereto" within the definition [page vii].

NMED Response

NMED has changed "Hazardous Waste Permit" to "Hazardous Waste Facility Permit" and "hereto" has been changed to "thereto" within the definition of the Permit.

6. **Permittees Comment (6):**

Within the first sentence of the section [1.0, page 1], the term "Draft" is not accurate to the final issuance of the closure plan. This is no longer a draft copy of the closure plan given that it has been noticed for approval. Please remove the word "Draft" from the first sentence of the section.

NMED Response

NMED added the word "Draft" to Section 1.0 (Introduction) to clarify that this was not the final version of the Closure Plan because NMED had not received comments from the public and the Permittees. The word DRAFT has been removed from the final version; which is being issued after considering the comments received during the comment period.

7. **Permittees Comment (7):**

Within the first sentence of the section [1.0, page 1], the term "Permittees" is not defined. Please include a definition within the closure plan for the term "Permittees" or change to "Facility" within the first sentence of the section.

NMED Response

The definition for the term "Permittees" has been added to the Definitions section of the CP.

8. **Permittees Comment (8):**

Within the second sentence of the section [1.0, page 1], there is a typographical error. Please change "thermal treatment units" to "thermal treatment unit" within the second sentence of the section.

NMED Response

NMED has changed "thermal treatment units" to "thermal treatment unit" in Section 1.0 (Introduction) of the CP.

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9. **Permittees Comment (9):**

There is a typographical error within the second sentence of the second paragraph [Section 1.0, page 1]. The unit in this closure plan is under interim status; therefore, 40 CFR Part 265 applies. Please change the regulatory reference from "264.115" to "265.115" within the second sentence of the second paragraph.

NMED Response

NMED has changed the regulatory reference from "40 CFR §264.115" to "40 CFR §265.115" in the CP.

10. **Permittees Comment (10):**

The name of the local Department of Energy office has changed and should be updated within the closure plan. Please change "Los Alamos Site Office" to "Los Alamos Field Office" within the second sentence of the second paragraph [Section 1.0, page 1].

NMED Response

NMED has changed the name of the local Department of Energy office from "Los Alamos Site Office" to "Los Alamos Field Office" in Section 1.0 of the CP.

11. **Permittees Comment (11):**

Incorrect permit section cited for amendment to the closure plan [Section 1.0, page 1]. Because the closure plan has been drafted for an interim status treatment unit, a permit modification request cannot be submitted to change an approved plan. Changes to the plan should be initiated through interim status requirements at Code of Federal Regulations, Title 40, § 265.112(c). Please change Permit Section 9.4.8" to "40 CFR § 265.112(c)" within the third sentence of the second paragraph.

NMED Response

NMED acknowledges that the Unit is an interim status unit and all references to 40 CFR § 264 have been replaced with 40 CFR § 265. However, NMED has retained references to the Permit sections because the requirements for closure of this Unit are similar to the closure requirements of the permitted units. The references to the relevant Permit sections is provided to give direction to the Permittees to follow the requirements listed in the Permit for closure of this interim status unit.

12. **Permittees Comment (12):**

Additional information is necessary for the unit description in the second paragraph of the section [2.1, page 1]. Please change the paragraph as follows: "The Unit consists of: a burn tray, firebrick, burn tray cover, wheels, tracks, a concrete pad, an electrical box, and is surrounded by a chain-link fence.

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NMED Response

The unit description has been changed to: "The Unit consists of: a burn tray, firebrick, burn tray cover, wheels, tracks, a concrete pad, an electrical box, and is surrounded by a chain-link fence" in Section 2.1 (Description of the Unit and the Wastes Treated at the Unit) of the CP.

13. **Permittees Comment (13):**

There is a typographical error within the last sentence of the section [2.2, page 2]. Please remove "PBX 9601" from the list of waste treated at the unit, as this explosive name does not exist.

NMED Response

NMED has removed PBX 9601 from Section 2.2 (Description of Wastes Treated at the Unit) of the CP.

14. **Permittees Comment (14):**

The reference to "burn tray Operators" should be revised as not all transport to the TA-16 Burn Ground is conducted by an operator at the T A-16 Burn Ground. Please change "burn tray Operators" within the first sentence of the paragraph to "high explosives trained personnel". Please change "burn tray Operators" within the first sentence of the paragraph [of Section 2.3, page 2] to "high explosives trained personnel".

NMED Response

The term "burn tray Operators" has been replaced with "high explosives trained personnel" in the first and second sentences of Section 2.3 (Treatment Methods) of the CP.

15. **Permittees Comment (15):**

For consistency with the remainder of the paragraph, the addition of a descriptor is necessary within the second sentence of the paragraph. Please change "The Operators" in the second sentence of the paragraph [of Section 2.3, page 2] to "burn tray Operators".

NMED Response

The word "the Operators" has been replaced by "burn tray operators" in Section 2.3, (Treatment Methods) of the CP.

16. **Permittees Comment (16):**

The permit section referenced is not relevant to closure performance standards and should be removed. Please remove the following from the first sentence of the section

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[4.1, page 2]: "and in accordance to the requirements described in the Permit Section 9.4.7 Closure Plans".

NMED Response

NMED has retained the references to the Permit, please see response to Comment # 11.

17. **Permittees Comment (17):**

Clarification must be added to the first sentence of the section [5.5, page 4] to allow for the instance that a high explosives spot test is conducted on the metal pieces of equipment and the results are negative. In this event, flashing of the metal is not required and is prohibited by interim status requirements for the unit at TA-16-388. Please add the following to the end of the first sentence of the section: "if a high explosives spot test is conducted and the results are positive or residual high explosives are expected on the equipment".

NMED Response

The sentence "if a high explosives spot test is conducted and the results are positive or residual high explosives are expected on the equipment" has been added to the end of the first sentence of Section 5.2.1 (Removal of Structures and Related Equipment) of the CP.

18. **Permittees Comment (18):**

Reference to table within section [6.0, page 5] is not correct within item "f." of the section. Please remove "(see Table 4)" from item "f." within the section.

NMED Response

Item "f" is now item "g" within Section 6.0 (Sampling and Analysis Plan). NMED has included Table 4 in the Closure Plan and has retained the reference to Table 4 in the CP.

19. **Permittees Comment (19):**

Method referenced within item "c."[Section 6.1.2, page 6] is not the analytical method that is typically used to measure for high explosives within samples collected at the Facility. The method reference should be revised to include reference deemed more appropriate by Facility personnel to detect high explosives that may be present at the Facility. The instrumentation published in Method 8321A can be used to identify the required analytes that would not be detected using Method 8330B, thus a LANL-specific modification is used for Method 8321A to analyze for explosives compounds. Please change "EPA Method 8330B" within item "c." to "EPA Method 8321A with a modification to add explosives compounds generated specifically at the Facility".

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NMED Response

Since the Permittees have previously used both Methods 8321A and 8330B for analysis of HE and its degradation products, NMED has changed Section 6.1.2, (Soil Sampling) item "c" to read:

c. High explosives analysis for 20 target compounds using EPA Method 8330B or 8321A with a modification to add explosive compounds generated specifically at LANL listed in Tables 2 and 4 of the Closure Plan;

20. **Permittees Comment (20):**

There are two typographical errors within the second sentence of the section [6.1.3, page 7]. Please change "tieh" to "with" and "Permit Section 11.10.2.12" to "Permit Section 11.10.2.11" within the second sentence of the section.

NMED Response

The typographical errors have been corrected in Section 6.1.3 (Cleaning of Sampling Equipment) of the CP.

21. **Permittees Comment (21):**

Clarification language [in section 6.1.1, page 6] is necessary to include added safety measures in the event that results of high explosives spot tests on samples are positive. Please add the following to the end of the paragraph: "All samples must be tested by the high explosives spot test immediately upon collection and have a high explosives handler present when performing the sampling. If samples test positive on the high explosives spot test, the samples must be handled, packaged, stored, and transported from the site as material determined to present an explosive hazard.

NMED Response

NMED has corrected the end of the paragraph in Section 6.1.1 (Sample Collection Procedures) to state "All samples must be tested by the high explosives spot test immediately upon collection and have a high explosives handler present when performing the sampling. If samples test positive on the high explosives spot test, they must be handled, packaged, stored, and transported from the site as material determined to present an explosive hazard" of the CP.

22. **Permittees Comment (22):**

The location of the sample on the sample label is often recorded as a short-hand for the location rather than the full GPS coordinates to accommodate for the size constraints of most labels. The GPS coordinates are recorded within the log book and the short-hand location that is included on the sample label is referenced in the logbook with the GPS coordinates and the sample identification number. Please change "GPS coordinates

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recording the location the sample was collected" in item "e." [Section 6.3.2, page 8] to "the location the sample was collected".

NMED Response

NMED has revised Section 6.3.2 (Sample Labels and Custody Seals), item "e" to read:

e. the location where the sample was collected, GPS coordinates must be recorded.

In addition, Section 6.3.3 (Sample Logbook) item "l" was added:

"l. any deviations from the sampling plan must be noted in the sample logbook and reported in the TA-16-399 closure certification report."

23. **Permittees Comment (23):**

Within the second sentence of the section [6.4.1], the term "Permittees" is not defined (see Comment 7). Please change the term Permittees" to "Facility personnel" within the second sentence of the section.

NMED Response

The definition for the term "Permittees" has been added to the Definitions section of the CP. See NMED Response to Comment # 7.

24. **Permittees Comment (24):**

There are two typographical errors within the section [6.5.1, page 9] that make references to sections within the closure plan that do not exist. Please change "Section 6.4.2 of this plan" to "Section 6.5.2 of this plan" within the first sentence of the section. Also, please change "Section 6.2.1" to "Section 6.0" within the first sentence of the second paragraph of the section.

NMED Response

The format of the CP has been revised and Section 6.6.2 is now the appropriate reference for Quality Assurance/Quality Control Section and Section 6.1.2 is appropriate reference for Soil Sampling.

25. **Permittees Comment (25):**

The term "Permittees" within the first sentence of the section is not defined (see Comments 7 and 23). Please change the term "Permittees" to "Facility personnel" within the first sentence of the section [9.0, page 11].

NMED Response The definition for the term "Permittees" has been added to the Definitions section of the CP. See NMED Response to Comment # 7.

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26. **Permittees Comment (26):**

There is a typographical error within the listing of "Specific Constituents" for "High explosives and associated compounds". Please remove "PBX 9601" from the list of constituents [in Table 2, page 15].

NMED Response

NMED has removed PBX 9601 from Table 2 of the CP.

27. **Permittees Comment (27):**

Erroneous EPA Hazardous Waste Numbers must be removed for constituents of concern that were not constituents included within the hazardous wastes treated at the unit, but may have been used as fuel or could be by-products of treatment process. Please remove the last two rows within Table 2 that include "Diesel Range Organics" and "Nitrates" and change the "Other constituents of concern" row to include: "Dioxins/furans, Perchlorate, and kerosene, diesel range organics (such as carbon disulfide. BTEX, TPH), and nitrates".

NMED Response

NMED has removed the last two rows from Table 2 and added them to Table 4. Table 4 includes constituents of potential concern (COPCs) which may have been used as fuel or may be potentially present because of the gap in the knowledge of operational records from 1951 through 1980.

28. **Permittees Comment (28):**

Addition of a path forward for metal covers/trays that are not found to be hazardous. Please add a row to the table [3, page 16] that indicates that metal covers/trays that are found to be nonhazardous waste will be recycled or disposed of in a Subtitle D landfill.

NMED Response

A row has been added to Table 3 to indicate that metal covers/trays that are found to be non-hazardous waste will be recycled or disposed of in a Subtitle D landfill.

29. **Permittees Comment (29):**

Addition of a row to the table [Table 3, page 16] is necessary to include the firebrick associated with the unit which indicates that firebrick will be recycled or disposed of in a Subtitle C or D landfill.

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NMED Response

A row has been added to Table 3 to include the firebrick associated with the unit, which indicates that firebrick will be either recycled or disposed of in a Subtitle C or D landfill, as appropriate.

30. **Permittees Comment (30):**

Removal of this figure [5, page 21] is necessary, as it is not referenced within the closure plan. Please remove Figure 5.

NMED Response

Figure 5 is included in the final version of the CP and is referenced in Section 6.0 (c).

II. Concerned Citizens for Nuclear Safety (CCNS), Honor Our Pueblo Existence (HOPE), and Tewa Women United (TWU)

31. **CCNS, HOPE, TWU General Comment:**

General Objections -- Basis for Hearing Request:

CCNS, H.O.P.E. and TWU (Commenters) contend that information which is both necessary and useful for the New Mexico Hazardous Waste Bureau (HWB) to carrying out the requirements of the Resource Conservation and Recovery Act (RCRA) and the U.S. Environmental Protection Agency regulations implementing the RCRA in Title 40 of the Code of Federal Regulations as adopted by the New Mexico Hazardous Waste Act (HWA) and state regulations implementing the HWA is missing from portions of the closure plans for the TA-16-399 burn unit at the Los Alamos National Laboratory (LANL). Commenters request that the HWB require LANL to remedy these deficiencies prior to the adoption of the permit. In the event that HWB and LANL do not eliminate these deficiencies, Commenters request a public hearing with an opportunity to present evidence and direct testimony, cross examine witnesses, and raise and challenge issues of law in relation to these deficiencies and other deficiencies that may be revealed during the hearing process.

The TA-16-399 Burn Tray and the TA-16-388 Flash Pad are co-located within the TA-16 Burn Ground. The units began operations in 1951 and have operated under interim status for decades. 40 CFR Part 265, Subpart P. The units have been used for waste disposal operations at the top of a tributary watershed that flows to the southeast to Water Canyon. Historically, the open burn units have been addressed together. However, there are two separate Class 3 Permit Modification Requests (PMR) administrative processes going on concurrently: the PMR for TA-16-388 Flash Pad and the closure plan for the TA- 16-399 Burn Tray unit. In order to efficiently address both units, CCNS, H.O.P.E. and TWU respectfully request that NMED combine this permit modification request (PMR) and the TA-16-399 closure plan into one administrative process as has always been done before. For example, Attachment H, "Technical Area 16 Burn Ground Human Health and Ecological Risk-Screening Assessment" to the TA-

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16-388 Flash Pad application is for the TA-16 Burn Grounds, which encompasses both units.

Commenters are concerned that with the bifurcation of the administrative processes for the units, there will be duplication of efforts during any public hearing process. Commenters object to the fact that TA-16-399 Burn Tray Unit operated only under the interim status regulations, even though it began operations in 1951. The Applicants, the U.S. Department of Energy (DOE)/National Nuclear Security Administration (NNSA), owners of the facility, and the operators, DOE/NNSA and Los Alamos National Security (LANS), have had years to bring the Unit into the permitting process.

Although Commenters are grateful NMED has proposed to expand the analytical suite for soil sampling because the Permittees did not provide the required documentation of the waste treatment from 1951 to 1980. However, Commenters know that there are elevated levels of dioxins and furans in the soils surrounding both units and contend that the closure plan does not adequately address assessment and clean-up of these highly toxic chemicals.

NMED Response:
The CP is in compliance with appropriate regulations, see NMED's response to specific comments below. The deficiencies identified by commenters were addressed through the mediation process between NMED Office of General Counsel and the Environmental law Center Counsel representing commenter under the guidance of New Mexico Court of Appeals. The CP was modified to reflect changes agreed to by both the parties during the mediation process. Therefore, request for hearing is no longer applicable.

NMED considered commenters' request to combine the Permit Modification Request (PMR) for closure of TA-16-399 with the PMR to add TA-16-388 to the LANL Hazardous Waste Facility Permit due to the proximity of the sites. NMED has determined that these two PMRs cannot be combined: closure of a unit is a different process than adding a treatment unit to the Permit.

32. **CCNS, HOPE, TWU Comment (1):**
Necessary and Useful Information Missing from the Tables. COMMENT: The 2013 draft closure plan for TA-16-399 ("Closure Plan") omits the following useful tables from the 2010 draft: (1) Summary of Analytical Methods; (2) Recommended Sample Containers, Preservation Techniques, and Holding Times; (3) Recommended Quality Control Sample Types, Applicable Analyses, Frequency and Acceptance Criteria. Commenters contend these are both necessary and useful information for overseeing the closure process and the Resource Conservation and Recovery Act (RCRA) and the New Mexico Hazardous Waste Act (NMHWA) require provision of such information. LANL should be required to produce this information as it had been in the 2010 draft closure plan.

NMED Response
The NMED has modified the CP to retain Table 4 (Summary of Analytical Methods). The NMED removed the other two tables referred to in the comment from the CP

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because they were duplicative of the SW-864 procedures referenced in Section 6.1.2 (Soil Sampling). The tables were also removed to ensure target detection limits listed in the CP are achieved by using the most current EPA approved sampling methods at the time of sampling.

33. **CCNS, HOPE, TWU Comment (2):**
Necessary and Useful Information Missing from the Figures. COMMENT: The 2013 draft closure plan omits useful and necessary figures from the 2010 draft: (1) additional soil sampling locations; (2) surface water sampling locations. Although the 2013 draft closure plan does include a figure called "Storm Water Monitoring Station", the necessary and useful information provided from additional surface water sampling locations is now absent, as are the additional soil sampling locations. Commenters contend these are both necessary and useful information for overseeing the closure process and the Resource Conservation and Recovery Act (RCRA) and the New Mexico Hazardous Waste Act (NMHWA) require provision of such information. LANL should be required to produce it for the final permit as it had been in 2010.

NMED Response
Figure titled "Additional Soil Sampling Locations" was deleted and combined with Figure 4 (Technical Area 16-399 Soil Sample Locations for Closure of Unit) of the CP. NMED has also retained Figure 5 (Storm Water Monitoring Stations at TA-16 Burn Ground) that depicts sampling locations, contour lines, drainage areas, berms, and surface water sources.

34. **CCNS, HOPE, TWU Comment (3):**
Although the 2013 closure plan at Section 2.2. lists the type of materials incinerated in the burn tray, the draft permit of 2010 provided a statement of the quantity of High Explosives that had been burned since 1980 (Section 3.0). Knowing the actual quantities of the materials burned at the site necessary and useful information in assessing the success of final site remediation. Commenters contend that this information is required to be provided in order for the New Mexico Hazardous Waste Bureau (HWB) to carry out the duties the RCRA and the HWA.

NMED Response
The Permittees were unable to provide information about volumes and types of wastes burned at the unit; as a result, that information has not been included in this CP. The NMED amended the analytical suite to include 24 target analyte list (TAL) metals, HE, HE degradation products, kerosene, DROs, GROs, dioxins/furans, perchlorates, VOCs, and SVOCs to account for undocumented burn operations at the unit (1951-1980).

35. **CCNS, HOPE, TWU Comment (4):**
The closure plan states that kerosene was used to fuel combustion to dispose of explosives. Although the closure plan states the percentage composition of the explosive

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materials incinerated and also states that each burn utilized approximately 1/2 gallon of kerosene, there is no statement of the total amount of kerosene burned during the combustion processes between 1980 and 2012 when records were kept of such activities. Missing from the data LANL has provided in the closure plan is the total number of burns that took place. This prevents an accurate calculation of the likely amount of kerosene used during that 32 year period. Kerosene and its combustion by-products are hazardous substances in addition to the hazardous constituents of the explosives burned at this site. It is likely that some amount well over 1,000 gallons of kerosene was partially turned during the process of outdoor incineration of some 255,685 pounds of High Explosives type explosives between 1980 and 2012 (32 years). Given that the burn tray was used between 1951 and 2012, it is likely that significantly more kerosene was utilized during the "undocumented" period from 1951 to 1980 (29 years). LANL should be required to search for documentation of the total amount of kerosene utilized in initiating combustion at the burn unit and account for the likely total by-products of such combustion. All such incineration produces highly toxic, carcinogenic by-product chemicals:

Polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans (PCDD/PCDF) have never been produced intentionally but are unwanted byproducts of many chemical industrial processes and of all combustion processes. Almost all possible 210 congeners are released from these sources and, due to chemical, physical, and biological stability and long-range transport, are ubiquitous and have been detected in all environmental compartments. Due to the persistence of the 2,3,7,8-substituted congeners and the lipophilicity of these compounds, PCDD/PCDF accumulate in fatty tissues and in carbon-rich matrices such as soils and sediments.

PCDD/PCDF exhibit biological effects commonly associated with chlorinated organic chemicals. Dioxin exposures are associated with an increased risk of severe skin lesions, altered liver function and lipid metabolism, general weakness associated with drastic weight loss, changes in activity of various liver enzymes, depression of the immune system, and endocrine and nervous system abnormalities.2,3,7,8-Cl4DD is a potent teratogenic and fetotoxic chemical in animals and a potent promoter in rat liver carcinogenesis; it also causes cancers of the liver and other organs in animals.

United Nations Inter-Organization Program for the Sound Management of Chemicals, Dioxin and Furan Inventories: National and Regional Emission of PCDD/PCDF, UNEP Chemicals (1999) at 1 (emphasis added).

Commenters contend that all of the areas downwind and downstream of TA-16-399 require continued monitoring LANL's use of TA-16-399 for over sixty (60) years produced unknown quantities of dioxins, furans, soaked the ground with kerosene, and emitted and scattered the combustion products related to kerosene ignition (including, but not limited to, benzenes, xylenes, toluene), in addition to emitting and scattering the byproducts of the known High Explosives and unknown (1951-1980) by-products of undocumented hazardous materials in undocumented quantities. This area requires continued monitoring in order to comply with the requirements of RCRA and its implementing regulations under Title 40 of the Code of Federal Regulations.

NMED Response

The Permittees had conducted a record search but were unable to find records of burn activities between 1951 and 1980. As a result, NMED amended the analytical suite to

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include DRO/GRO (including kerosene), VOCs, SVOCs, dioxins/furans and perchlorates to account for undocumented burn operation at the facility (1951-1980) in the CP. The NMED agrees that the bioaccumulation of dioxins/furans are hazardous to human health and the environment and have required that dioxins/furans be included in the analytical suite.

Currently, surface water near the site is being monitored under the National Pollutant Discharge Elimination System (NPDES) permit issued by U.S. Environmental Protection Agency (EPA).

36. **CCNS, HOPE, TWU Comment (5):**

NMED's proposal that no surface water and groundwater samples will be collected and analyzed as part of the Closure Plan "since sampling would be duplicative of sampling practice already in place for the unit under the Inter [im] Facility-Wide Ground Water [Monitoring] Plan (IFGWMP) is not protective of human health, safety and the watershed, and will not assure that closure of the site adequately remediates the natural and human environment. Fact Sheet (November 19, 2013) at 3. COMMENT: The unit 399 site is located at the top of the watershed. In order to protect the watershed, all of these wells should be monitored along with surface water monitoring. Use of TA-16-399 for over sixty (60) years produced unknown quantities of dioxins, furans, soaked the ground with kerosene, and emitted and scattered the combustion products related to kerosene ignition (including, but not limited to, benzenes, xylenes, toluene), in addition to emitting and scattering the by-products of the known High Explosives and unknown (1951-1980) by-products of undocumented hazardous materials in undocumented quantities. This area requires continued monitoring in order to comply with the requirements of RCRA and its implementing regulations under Title 40 of the Code of Federal Regulations.

NMED Response

The open burn unit is part of the watershed for the area, and it is located near other solid waste management units (SWMUs) and areas of concern (AOCs) with similar hazardous constituents. The concentrations of contaminants detected during watershed monitoring cannot be differentiated from other potential sources in the vicinity of the Unit. The requirements for additional surface and ground water sampling in the area would be duplicative of monitoring being performed under the NPDES individual permit (IP) for storm water and the Interim Facility-Wide Groundwater Monitoring Plan (IFGMP) for groundwater. NMED has determined that monitoring currently conducted by the Permittees in the watershed area is adequate.

37. **CCNS, HOPE, TWU Comment (6):**

Section 6.4.1 Base Flow. See App. B and Table 6.4-1 The Permittees state, "Because extensive data were collected during the past decade, continued semiannual monitoring for metals, VOCs, and explosive compounds released from TA-16 is recommended for surface water and groundwater in the watershed." 2009 IFGWMP, EP2009-0143, p. 24. COMMENT: As stated above, this is a site at the top of the watershed. All of these wells along with surface water must be monitored for releases of hazardous constituents from

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the site. Use of TA-16-399 for over sixty (60) years produced unknown quantities of dioxins, furans, soaked the ground with kerosene, and emitted and scattered the combustion products related to kerosene ignition (including, but not limited to, benzenes, xylenes, toluene), in addition to emitting and scattering the by-products of the known High Explosives and unknown (1951-1980) by-products of undocumented hazardous materials in undocumented quantities. This area requires continued monitoring in order to comply with the requirements of RCRA and its implementing regulations under Title 40 of the Code of Federal Regulations.

NMED Response

The Unit needs to be thoroughly investigated prior to closure. The Permittees are required to conduct soil sampling as part of the closure of this Unit. Areas that are found to pose a threat to human health or the environment will be either excavated or addressed through a post-closure care plan in accordance with appropriate regulations. Surface water and groundwater near the Unit is monitored under the NPDES IP and the IFGMP. The target analyte list for these stations include metals, VOCs, SVOCs, dioxins/furans, and perchlorate. Surface water samples are collected following storm events, analyzed by an independent analytical laboratory, and reviewed by NMED. Sampling results are accessible to the public through the Permittees' INTELLUS database.

38. **CCNS, HOPE, TWU Comment (7):**

Section 6.4.2 Alluvial Groundwater. There are three alluvial wells in Fishladder Canyon (FLC-16-25278, FLC-16-25279, and FLC-16-25280); but only one alluvial water in lower Water Canyon (WCO-2) will be monitored. 2009 IFGWMP, EP2009-0143, p. 25. COMMENT: All of these wells should be monitored. Use of TA-16-399 for over sixty (60) years produced unknown quantities of dioxins, furans, soaked the ground with kerosene, and emitted and scattered the combustion products related to kerosene ignition (including, but not limited to, benzenes, xylenes, toluene), in addition to emitting and scattering the by-products of the known High Explosives and unknown (1951-1980) by-products of undocumented hazardous materials in undocumented quantities. This area requires continued monitoring in order to comply with the requirements of RCRA and its implementing regulations under Title 40 of the Code of Federal Regulations.

NMED Response

The NMED has reviewed the potential for contamination in the alluvial groundwater and has determined that potential ground water contamination is sufficiently monitored by the Permittees at this time. The target analytes list for these include metals, HE, DRO/GRO, VOCs, SVOCs, dioxins/furans, and perchlorate. These groundwater samples are collected regularly by the Permittees, analyzed by an independent analytical laboratory, and reviewed by NMED. All sampling results are accessible to the public through the Permittees' INTELLUS database.

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39. **CCNS, HOPE, TWU Comment (8):**

Section 6.4.3 Intermediate-Perched Groundwater. "The screening, described in section 1.7, identified several metal constituents (arsenic, beryllium, chromium, iron, manganese, and nickel) above the threshold." 2009 IFGWMP, EP2009- 0143, p. 25. COMMENT: There needs to be monitoring of the intermediate perched ground water below gradient of TA-16-399 as use of TA-16-399 for over sixty (60) years produced unknown quantities of dioxins, furans, soaked the ground with kerosene, and emitted and scattered the combustion products related to kerosene ignition (including, but not limited to, benzenes, xylenes, toluene), in addition to emitting and scattering the byproducts of the known High Explosives and unknown (1951-1980) by-products of undocumented hazardous materials in undocumented quantities. This area requires continued monitoring in order to comply with the requirements of RCRA and its implementing regulations under Title 40 of the Code of Federal Regulations.

NMED Response

NMED has reviewed the potential for intermediate-perched groundwater contamination and has determined that potential intermediate ground water contamination is currently sufficiently addressed as part of the annual sampling conducted for TA-16 Monitoring Group required by the IFGMP.

40. **CCNS, HOPE, TWU Comment (9):**

"Section 6.4.5 Springs. Because of their proximity to SWMUs and AOCs and the presence of explosive compounds and barium contamination at TA-16-399, Burning Ground Spring, Peter Spring, Fish Ladder Spring, SWSC Spring, and Martin Spring are included in the Interim Plan." 2009 IFGWMP, EP2009-0143, p. 26. COMMENT: The closure plan needs to require continued, consistent, regular and frequent monitoring of these springs as for over sixty (60) years LANL's use of TA-16-399 produced unknown quantities of dioxins, furans, soaked the ground with kerosene, and emitted and scattered the combustion products related to kerosene ignition (including, but not limited to, benzenes, xylenes, toluene), in addition to emitting and scattering the byproducts of the known High Explosives and unknown (1951-1980) by-products of undocumented hazardous materials in undocumented quantities. This area requires continued monitoring of both ground water and surface water in order to comply with the requirements of RCRA and implementing regulations in 40 CFR."

NMED Response

NMED has reviewed the potential for contamination of springs from the Unit and has determined that it is sufficiently monitored under the TA-16 Monitoring Group. Samples collected near the Unit are analyzed for HE, barium, trinitrotoluene (TNT) and cyclo-1,3,5-trimethylene-2,4,6-trinitraamine (RDX) as well as their degradation products. The monitoring is currently performed regularly by the Permittees under the IFGMP and reported to NMED. All sampling data are accessible to the public through the Permittees' INTELLUS database.

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41. **CCNS, HOPE, TWU Comment (10):**

Section 5.3 Structural Assessment. COMMENT: In over 60 years of operating this burn unit utilizing kerosene poured over excelsior to ignite explosives, there were undoubtedly accumulations of kerosene on the ground and concrete pad. There is no indication in the description of testing performed on July 19, 2012, that LANL drilled through the concrete pad to sample the soil below the unit. Given the nature of combustion utilized to dispose of explosive materials, the owner/operator should be required to thoroughly test the pad and ground below it for kerosene and its combustion by-products as well as dioxins and furans, particularly as some of these are listed in Table 2. The soil below the concrete pad could provide a ground water pathway for chemical pollutants to migrate into the regional aquifer. Commenters contend that to comply with RCRA, the soils below the pad should be thoroughly tested for constituents of concern based upon the material combusted with kerosene over more than sixty (60) years.

NMED Response

NMED has modified Section 5.2.1 (Removal of Structure and Related Equipment) of the CP as follows:

"In addition, the electrical box and the concrete pad must be removed from the Unit at the time of closure. The bricks must be removed and must be disposed of or reused".

NMED has modified Section 6.0 (Sampling and Analysis Plan) to include a minimum of eleven grab sampling locations of the CP. Two grab samples will be collected beneath the concrete pad, one from the soil surface, and the other from the soil/tuff interface. Figure 4 of the CP has also been modified accordingly.

42. **CCNS, HOPE, TWU Comment (11):**

Section 5.6 Decontamination of Structures and Related Equipment. COMMENT: The requirements of the same section in the draft 2010 closure plan were more thorough-going than those in the 2013 draft closure plan. No justification is provided in this section to indicate that LANL has done something to warrant easing the requirements set forth in the 2010 draft permit. Commenters contend that to comply with RCRA, the language in the 2010 closure plan should be in the current closure plan.

NMED Response

The requirements for cleanup have not been eased. However, the CP has been modified to require removal of the concrete pad, no other associated equipment with the exception of the fence will be left in place.

43. **CCNS, HOPE, TWU Comment (12):**

Section 6.0 Sampling and Analysis Plan. COMMENT: The requirements of the same section in the draft 2010 closure plan were more thorough-going than those in the 2013 draft closure plan. No justification is provided in this section to indicate that LANL has done something to warrant easing the requirements set forth in the 2010 draft permit. Commenters contend that to comply with RCRA, the language in the 2010 closure plan should be in the current closure plan.

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NMED Response

The reference to 40 CFR subpart G and P was removed from this section and moved into the Introduction and Closure Performance Standards sections. The requirements of 40 CFR 265 subparts G (Closure and Post-Closure Care) and P (Thermal Treatment) are currently included in Sections 1.0 (Introduction), 4.1 (Closure Performance Standards), 4.2 (Closure Schedule), 4.3 (Amendment of Closure Plan), 5.2 (Decontamination and Removal of Structures and Equipment), 6.0 (Sampling and Analysis Plan), and 7.0 (Waste Management) of the CP. NMED has not eased the requirements of the CP.

44. **CCNS, HOPE, TWU Comment (13):**

Section 6.1 Sampling Activities. COMMENT: The requirements of the same section in the draft 2010 closure plan were more thorough-going than those in the 2013 draft closure plan-nor do the Section 4.1 performance standards and procedures in sections 6.2, 6.3 and 6.4-provide the requirements of the 2010 draft closure plan. No justification is provided in this section to indicate that LANL has done something to warrant easing the requirements set forth in the 2010 draft permit. Commenters contend that to comply with RCRA, the language in the 2010 closure plan should be in the current closure plan.

NMED Response

The requirements of the CP have not been eased, NMED has removed text pertaining to surface water and groundwater monitoring since it would be duplicative of the monitoring preformed under the IP and IFGMP. Please see NMED's response to Comments # 34, 35, 36, 37, 38, and 39.

45. **CCNS, HOPE, TWU Comment (14):**

"Section 6.1.2 Soil Sampling. COMMENT: This section is commendable in that it provides more thorough requirements for sampling than the 2010 draft closure plan. Commenters commend NMED for having expanded the scope of required soil sampling under the closure plan."

NMED Response

Comment noted.

46. **CCNS, HOPE, TWU Comment (15):**

Section on Wipe Sampling no longer present: COMMENT: In the draft 2013 closure plan there was a description of and requirement for wipe sampling under section 6.2.3. This requirement stated: Surface wipe samples will be collected and analyzed to determine if residual hazardous constituents remain in the surfaces or related equipment at the unit. Samples will be collected in accordance with the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods (NIOSH, 1994). The appropriate wipe sample method will consider the type of surface being sampled, the type

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of constituent being sampled, the solution used, and the desired constituent concentration detection limit. The NIOSH method includes wiping a 100 square centimeter area at each discrete location with a gauze wipe wetted with a liquid solution appropriate for the desired analysis (e.g., deionized water for lead). For wipe sampling, guidance from the analytical laboratory shall be obtained prior to wipe verification sampling to confirm that the solution chosen for each analysis is appropriate for the analysis to be conducted and that wipe sampling is a proper technique for the analysis Id. Commenters contend that this requirement is necessary to achieve the objectives of RCRA and should be in the 2013 closure plan for the unit.

NMED Response

The EPA does not recommend wipe sampling as an analytical method due to the difficulty involved in interpreting the results (for more information please see https://archive.epa.gov/epawaste/hazard/web/html/faqs_sampl.html). The concrete pad will be removed and disposed of appropriately, with the exception of the fence no other equipment will be left in place (see Section 5.2.1, Removal of Structures and Related Equipment, of the CP).

47. **CCNS, HOPE, TWU Comment (16):**

Section 6.3.1 Chain-of-Custody. COMMENT: The requirements of the same section in the draft 2010 closure plan identified therein as 6.3.1.1) were more thorough-going and explicit and related to standard EPA requirements. Those in the 2013 draft closure plan lack that specificity and conformance to EPA standards. No justification is provided in this section to indicate that LANL has done something to warrant easing the requirements set forth in the 2010 draft permit. Commenters contend that to comply with RCRA, the chain-of-custody language in the 2010 closure plan should be in the current closure plan.

NMED Response

The specific definitions of chain of custody listed in the Permittees' 2010 Closure Plan are not inclusive of all possible scenarios and NMED has determined that the CP requirement to maintain the integrity of the sample is sufficient to ensure samples are handled appropriately. The Permittees are required to maintain all chain of custody forms in accordance with Permit Section 11.10.

48. **CCNS, HOPE, TWU Comment (17):**

Section 6.4 Sample Handling, Preservation, and Storage. COMMENT: The requirements of the same section in the draft 2010 closure plan (identified therein as 6.3.2) were more thoroughgoing, explicit, and related to standard EPA requirements. Those in the 2013 draft closure plan lack that specificity and conformance to EPA standards. No justification is provided in this section to indicate that LANL has done something to warrant easing the requirements set forth in the 2010 draft permit. Commenters contend that to comply with RCRA, the sample handling, preservation and storage language in the 2010 closure plan should be in the current closure plan.

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NMED Response

The reference to Table 6 has been removed from this section of the CP. NMED removed Table 6 from the CP because it was duplicative of the SW-864 procedures referenced in Section 6.1.2 (Soil Sampling) and Table 4. Table 6 was also removed to assure target detection limits listed in the CP are achieved by using the most current EPA approved sampling methods.

49. **CCNS, HOPE, TWU Comment (18):**

Section 6.5 Sample Analysis Requirements. COMMENT: The requirements of the same section in the draft 2010 closure plan (identified therein as 6.4) were more thorough-going and explicit and related to standard EPA requirements. Those in the 2013 draft closure plan lack that specificity and conformance to EPA standards. No justification is provided in this section to indicate that LANL has done something to warrant easing the requirements set forth in the 2010 draft permit. Commenters contend that to comply with RCRA, the sample analysis requirements in the 2010 closure plan should be in the current closure plan.

NMED Response

NMED has not eased the requirement set forth in the 2010 draft closure plan. NMED removed the reference to Appendix VIII of 40 CFR Part 261 and Appendix IX of 40 CFR Part 264 because it was duplicative of the requirements in Section 6.0 (Sampling and Analysis Plan) of the CP.

50. **CCNS, HOPE, TWU Comment (19):**

Section 8.0 Closure Certification Report. COMMENT: The requirements of the same section in the draft 2010 closure plan (identified therein as 8.0) were more thorough-going and explicit and related to standard EPA and NMED regulatory requirements. Those in the 2013 draft closure plan lack that specificity and conformance to EPA standards. No justification is provided in this section to indicate that LANL has done something to warrant easing the requirements set forth in the 2010 draft permit.

Commenters contend that to comply with RCRA, the closure certification report requirements should be at least as specific and complete as those set forth in the 2010 draft closure land and, significantly, contain languages specifying the timing of the closure plan and, significantly, contain language specifying the timing of the provision of the report, documentation supporting the independent registered professional engineer's certification tied to release from the closure financial assurance requirements in 40 CFR Section 265.143.

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NMED Response

NMED modified the language describing the activities to be performed during closure because it was duplicative of the information provided in Sections 4, 5, 6, and 7 of the CP. In addition, Section 8.0 (Closure Certification Report) of the CP requires that the closure certification report shall document closure activities in accordance with Section 9.5 of the Permit that includes similar requirements.

51. **CCNS, HOPE, TWU Comment (20)**

Section 9.0 Department Closure Assessment. COMMENT: Commenters commend NMED for including this requirement for a final agency inspection in the 2013 closure plan.

NMED Response

Comment noted.

III. Other Comments

52. **John Otter Comment (1):**

I am confused as to the treatment of the concrete pad in the Open Burn Unit. Herein are comments and questions on the Draft Closure Plan for Technical Area 16-399 Open Burn Unit at Los Alamos National Laboratory for the record. Section 5.5 of the Plan refers to Section 5.2 as the source of the information that the concrete pad will remain in place. I believe that reference should be to Section 5.3. Questions: Is there an incompatibility between section 5.3 and 5.4 in that 5.3 states "The concrete pad will remain in place" and 5.4 states that one of two options for dealing with the concrete pad is to remove it? Section 7.0 Table 3 does not list concrete as a Potential Waste Material. So the treatment of the removed concrete pad is unclear. Can the removed pad be contaminated? Does "removed' in the above wording from Section 5.4 mean to move the concrete pad from its existing position to somewhere else in the Unit (so that it "will remain in the Unit")? If not, what does "removed" mean? If the concrete pad is decontaminated, why not remove it from the Unit and thus allow greater remediation there?

NMED Response

NMED has modified the CP to state that the concrete pad and the electrical box will be removed, decontaminated, and disposed of in accordance with regulations.

53. **Richard M Weinstein Comment (1):**

"The New Mexico Environment Department, Hazardous Waste Bureau (hereinafter "Department") on November 19, 2013 publicly noticed its intent to grant approval for a Draft Closure Plan for Interim Status Open Burn Unit 399, located at Technical Area 16 located at the west end of the Pajarito Plateau near the foothills of the Jemez Mountains, in Los Alamos County, New Mexico, the Los Alamos National Laboratory (hereinafter "LANL").

There are two open burn units at TA that were granted approval by the Department some time ago, pursuant to Title 40 Code of Regulations §265.382, Open burning; waste

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explosives for the purpose of incinerating and detonating of high explosive hazardous waste materials, including waste explosives and military propellants, associated with development of conventional and atomic weapons for the US Department of Defense. The Department intends to grant approval in this Notice to close the one referenced above. Interim status for open burning, as the name implies is open not contained burning, of hazardous waste is prohibited except for the kind of activity conducted at two subject open burn areas cited in the Department's 4 page Fact Sheet and Public Notice. In 2.3 Treatment Method of the Fact Sheet, the method of open burning is described. In addition, and more importantly the Department in the 2.2 Description of Wastes Treated at the Unit of Fact Sheet describes the constituents of the "waste stream." that was openly burned at the unit. All of the wastes including Octahydrate 1,3,5,7, -tetranitro-1,3,5,7 tetrazocine (HMX); 2,4,6-trinitrotoluene (TNT) and triamino trinitrobenzene (TATB) and "mixtures of explosives as ammonium nitrate-fuel oil (ANFO), Composition B, Cyclotol, IMX-101, PBX 9404; PBX 9407; PBX950; PBX 9502; PBX 9601; X0233; X0533, XTX 8003; XTX 8004; LX- 02; LX-07, LX-10 and LX-14, are hazardous wastes listed in EPA's Hazardous Waste List. The Permittee claims that although there are records for open burn activities and effects for the period from 1980 to 2012, there are no similar records for the prior period from 1951 to 1980, when admittedly considerable efforts were undertaken to develop atomic weapons and high explosives were widely used as detonators for them. Apparently the Department has in its Fact Sheet and Draft Closure Plan accepted the fact that no records exist for open burn activities at the subject unit. At best, and with little explanation as to how the Department intends to address this matter, it states in the Fact Sheet on page 2 thereof, that in view of such fact: NMED proposes expanding the analytical suite since the Permittees were unable to provide documentation of waste treatment for the life of the Unit." It seems to be a step in the right direction but there is no explicit statement in the Fact Sheet to reflect the way the SAP will address this void in the record. Will there be any attempt to segregate the hazardous wastes of concern generated in the earlier period for which purportedly no records exist from those generated in the period when records of the open burns were in fact maintained by Permittees and provided in accordance with the permit to the Department? Will the Permittees be able to allege that they are not responsible to remediate and clean-up wastes generated in the non-record period? These questions should be answered in the responsiveness summary or discussed at a Public Hearing on the closure application before the Draft Closure Plan is approved by the Department.

NMED Response

The Factsheet is designed to provide general information about the closure of this Unit, specific information pertaining to the analytical suite and sampling procedures are provided in the CP. NMED addressed the void in the record (1951-1980) by expanding the analytical suite as stated in Section 6.1.2 (Soil Sampling) of the CP. The sampling will identify hazardous constituents currently present at the site regardless of time of placement. NMED cannot distinguish between the contamination that resulted from non-recorded and recorded burn operations. The Permittees are responsible to demonstrate through the implementation of the sampling and analysis plan that residual contamination is below applicable soil screening levels or submit a post-closure care plan.

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54. **Richard M Weinstein Comment (2):**

"For example, one entry states for "12/16/1976 LANL/Baytos Analysis for Residual Explosives from Drainage Ditches at Sump Effluent Outlets 5860 TA 16"; or another states for 8/1/1972; 8/1/1972 LANL/Baytos Analysis for Residual Explosives in Drainage Ditch Soil at Sump Effluent Outlets 5859 TA 16 12/9/1971 LANL/Baytos LANL/H.E. Balance Memo: Analysis of Soil Samples for Residual Explosives from Drainage Ditches at Sump Effluent Outlets 5858 TA 16 8/20/1971 LANL/Turner Environmental Studies at S-Site: Water and Soil Analyses for RDX - HMX, Barium, TNT, & Boron 5857 TA 16, where some of the same hazardous wastes that were sampled and studied then are proposed to be sampled now which are listed in Table 2, Hazardous Waste Constituents of Concern at the TA-16-399 Open Burning Unit in Draft Closure Plan; and the oldest record which is no more specific than 3/3/1970 LANL/Court right Russo Memo: Contamination Survey: Buildings and Structures, TA 16 5856 TA 16. Whether these are relevant to the open burn activities at the site of closure or not at least the Department should be willingly to review these entries especially with the plethora of data for the earlier period, and after such review of their own records expand the Fact Sheet to reflect their findings, if it finds data relevant to this matter.

Finally, and probably most importantly, my review of the documents and further review of the Department's website, specifically its Administrative Record for LANL from 2007 back to April 1965, a copy of which is annexed hereto as Exhibit A, revealed for the period from 1980 to 1951 some curious entries regarding TA 16, although not specifically identifying Open Burn Unit TA 16- 399."

NMED Response

NMED notes that the references cited in the above paragraph are not specific to the Unit. The required analytical suite was expanded to account for operations conducted prior to 1980 at the Unit, and not the entire Technical Area (TA)-16. Other SWMUs and AOCs at TA-16 are being or have been investigated and remediated under the Consent Order.

55. **Richard M Weinstein Comment (3):**

Finally, I would like to state that from my experience as a former attorney with the US Environmental Protection Agency and an author of a number of publications on Superfund and the Resource Conservation and Recovery Act of 1976, I would like to recognize the extensive work and effort the Department has to this point undertaken to assure as much as possible given the circumstances of this intended closure of a vital activity for the Nation's defense to protect the public health and welfare, and only request that a greater effort be undertaken to address some of the points I have made in this comment before the Department approves the Permittees application.

NMED Response

Comment noted.

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From:	Martinez, Cynthia, NMENV
To:	steve.goodrum@nnsa.doe.gov; Torres, Enrique
Cc:	Kieling, John, NMENV; Dhawan, Neelam, NMENV; Briley, Siona, NMENV; Schatz, Mitchell, NMENV; Yanicak, Steve, NMENV; "king.laurie@epa.gov"; karen.armijo@nnsa.doe.gov; aduran@doeal.gov; Padilla, Patrick L; locatesteam; rcra-prr@lanl.gov; Pamela T. Maestas; kate.ellers@em-la.doe.gov
Subject:	Letter to Mr. Goodrum and Mr. Torres
Date:	Thursday, January 17, 2019 3:07:00 PM
Attachments:	LANL 2019- TA-16 Closure Plan TA-16-399 Open Burn Unit Facility Letter LANL-12-040.pdf

Good Afternoon,

Please see attached letter, final action and response to comments and closure plan for TA-16-399 Open Burn Unit.

Cynthia Martinez
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