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Date: July 13, 2011  
Refer To: ENV-RCRA-11-0119  
LAUR: 11-03323

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

Dear Mr. Kieling:

**SUBJECT: SUBMITTAL OF CLOSURE PLAN FOR TECHNICAL AREA (TA) 39-57  
INTERIM STATUS OPEN DETONATION UNIT, LOS ALAMOS NATIONAL  
LABORATORY, EPA ID# NM0890010515**

The purpose of this letter is to transmit the referenced closure plan, as required by Section 1.4.1 of the renewed Los Alamos National Laboratory (LANL) Hazardous Waste Permit (Permit). For the interim status units listed in Table J-1 that will not be operated, Permit Section 1.4.1 requires the National Nuclear Security Administration and Los Alamos National Security, LLC (NNSA/LANS, collectively the Permittees) to submit a notice of intent to close or a revised closure plan within 180 days of the effective date of the Permit.

The Permittees propose not to operate the open detonation unit at TA-39-57, and hereby request the review and approval of this plan by the New Mexico Environment Department- Hazardous Waste Bureau (NMED). Pursuant to Permit Section 1.4.1, closure of these interim status units will be initiated in accordance with 40 CFR § 265.113(a) no later than 270 days after the effective date of the Permit.

Prior to completing closure of the unit, this closure plan may be amended in accordance with Section 4.3 of this closure plan and 40 CFR § 265.112(c). Amendments would occur, if necessary and appropriate, to update the closure process and/or the sampling and analysis plan. An amended closure plan would then be submitted to the NMED-HWB for approval prior to completing the activities in the plan.

Section 1.4.1 of the Permit requires that a closure plan must be submitted to the NMED-HWB within 180 days of the effective date of the Permit. Therefore, this transmittal was due no later than June 28, 2011. The Las Conchas Wildfire forced closure of LANL beginning Monday, June 27, 2011 and the Permittees requested a two-week extension from the date the Laboratory re-opened for this compliance

July 13, 2011

deadline. The NMED-HWB granted this extension request on June 28, 2011. The Laboratory re-opened on July 6, 2011.

Until closure is complete and has been certified in accordance with Section 8.0 of this closure plan and 40 CFR § 265.115, a copy of the approved closure plan, any approved revisions, and closure activity documentation associated with the closure will remain on file with hazardous waste compliance personnel at LANL and at the U.S. Department of Energy/ National Nuclear Security Administration (DOE/NNSA) Los Alamos Site Office (LASO).

The opportunity to present and discuss our closure plans with you and your staff would be appreciated. Please contact Mark Haagenstad of the Water Quality and RCRA Group at (505) 665-2014 if additional information would be helpful.

Sincerely,



Anthony R. Grieggs  
Group Leader  
Water Quality & RCRA Group  
Los Alamos National Laboratory

Sincerely,



Gene E. Turner  
Environmental Permitting Manager  
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LA-UR-11-03323  
July 2011

## **Closure Plan**

# **Technical Area 39 Open Detonation Unit (TA-39-57)**

Prepared by:

*Los Alamos National Laboratory*

*ENV-RCRA Group*

*Los Alamos, New Mexico 87545*

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## List of Acronyms and Abbreviations

40 CFR	Title 40, U.S. Code of Federal Regulations
CWA	Clean Water Act
DOE	U.S. Department of Energy
EPA	U.S. Environmental Protection Agency
HE	Federal Facility Compliance Agreement - Administrative Order
FFCA/AO	High Explosives
IP	Individual Permit
IFGMP	Interim Facility Wide Ground Water Monitoring Plan
LANL	Los Alamos National Laboratory
MSGP	Multi-Sector General Permit
NIOSH	National Institute of Occupational Safety and Health
NPDES	National Pollutant Discharge Elimination System
NMED	New Mexico Environment Department
OD	open detonation
QA/QC	quality assurance/quality control
RCRA	Resource Conservation and Recovery Act
SAP	Sampling and Analysis Plan
SW-846	<i>Test Methods for Evaluating Solid Waste, Physical/Chemical Methods</i> , EPA-SW-846, U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, U.S. Government Printing Office, Washington, D.C.
TA	Technical Area
TALs	Target Action Levels

## CLOSURE PLAN

### TECHNICAL AREA 39 OPEN DETONATION UNIT

#### 1.0 INTRODUCTION

This closure plan describes the activities necessary to close the interim status hazardous waste open detonation (OD) thermal treatment unit at Technical Area 39 (TA-39) at the Los Alamos National Laboratory (LANL), hereinafter referred to as the TA-39-57 OD 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 hazardous waste thermal treatment units at LANL under the Resource Conservation and Recovery Act (RCRA) and the New Mexico Hazardous Waste Act.

Until closure is complete and has been certified in accordance with Section 8.0 of this closure plan and 40 CFR § 265.115, a copy of the approved closure plan, any approved revisions, and closure activity documentation associated with the closure will be on file with hazardous waste compliance personnel at LANL and at the U.S. Department of Energy (DOE) Los Alamos Site Office. Prior to closure of the unit, this closure plan may be amended in accordance with Section 4.2 of this closure plan and 40 CFR § 265.112(c), as necessary and appropriate, to provide, at a minimum, updated sampling and analysis plans and to incorporate updated decontamination technologies. Amended closure plans will be submitted to the New Mexico Environment Department (NMED) for approval prior to implementing closure decontamination and sampling activities.

The TA-39-57 OD Unit is collocated within or near other hazardous waste management units not yet scheduled for corrective action; therefore, if closure performance standards listed in Section 4.1 cannot be attained, the TA-39-57 OD Unit will undergo cleanup in conjunction with the overall corrective action processes to be implemented at TA-39. Buildings associated with the TA-39-57 OD Unit will also be removed as part of cleanup of TA-39. Final closure of TA-39 will be in accordance with the requirements set forth in 40 CFR 265 Subpart G and P.

#### 2.0 DESCRIPTION OF UNIT TO BE CLOSED

This section provides an overview of past operations and waste management practices at the TA-39-57 OD Unit. It includes the location of the unit, a description of the unit, and past operational and waste management practices associated with it.

##### 2.1 Description of the Treatment Unit

TA-39 is located in the southern portion of LANL and includes much of the mesa between Water Canyon on the north and Ancho Canyon on the south (LANL, 1993). Mesa-top elevations at TA-39 range from approximately 6,500 to 7,000 feet above mean sea level. The area was established in 1959 for testing of explosive materials and has been used continuously for that purpose. TA-39 contains a number of structures located in the north fork of Ancho Canyon (LANL, 1993). The remainder of TA-39 is unoccupied and serves as a buffer zone for open detonation operations.

The TA-39-57 OD Unit is associated with the Control Building (Building TA-39-57). The location and layout of this unit is shown on Figure 2.

The TA-39-57 OD Unit was used to treat hazardous explosive waste by OD. Hazardous waste treated at the TA-39-57 OD Unit included waste generated during research and development activities and processing and recovery operations at various TAs throughout LANL. Non-treatment related, experimental test detonations were also performed at the TA-39-57 OD Unit.

The TA-39-57 OD Unit is a relatively flat sand-covered area, measuring approximately 40 by 40-feet, and is located in the canyon bottom. Steep canyon walls rise to heights of 100 feet or greater in the immediate vicinity of the unit, roughly forming a semicircle around the unit. The canyon walls serve to attenuate the force of the blasts. The associated Building TA-39-57 is a reinforced concrete structure extending partially beneath the detonation area. In early 2007, a metal weather enclosure measuring approximately 70 by 20-feet was erected at TA-39-57 for experimental activities. Clean base course was placed on the firing point and the structure was erected on top of the base course. The enclosure has a wood floor throughout.

TA-39-57 OD unit is located approximately 50 feet northeast from the closest arroyo, which serves as a tributary to Ancho Canyon. An earthen berm north of the firing pad diverts surface water run-on away from the firing pad and to the northeast into a tributary of Ancho Canyon. There is a rock check dam at the lower end of the site within the channel. The vegetated median southeast of the firing point serves as a retention area for storm water run-off from the firing site. A grassy area south of the site is a potential run-off attenuation area.

## **2.2 Description of the Wastes Treated at the Unit**

The waste streams treated at the TA-39-57 OD Unit by open detonation would have included excess explosives, assemblies containing explosives, and explosives contaminated prep room debris. Excess explosives include bulk pieces, initiating devices (detonators/squibs), powders, developmental energetic materials, excess propellants, and explosive assemblies. High Explosives (HE) contaminated materials generated at the TA-39-57 OD Unit that were treated by open detonation included cellulose (kimwipes, paper towels, swabs, sheets of paper, etc.); plastics (weigh boats, gloves, plastic bags, anti-static bags, vials w/ stoppers, etc.); glass vials with stoppers; and metals (wire, thin plates, small targets).

Firing site debris generated by experimental activities, or rarely, waste treatment, would not routinely contain detonable quantities of explosives, although it may have contained trace quantities of non-hazardous residual HE. Firing site debris was surveyed by an RCT and dispositioned as either low level waste with DU contamination or as non-hazardous waste for offsite disposal. It is not treated by open detonation unless the firing leader observed unreacted HE in the debris during his post-shot survey. If explosive debris were not rendered safe immediately, through immediate detonation, it was stored in the satellite accumulation area within Building TA-39-57 and was treated as soon as possible.

The wastes treated were both homogeneous (e.g., solid explosives, scrap explosives) and heterogeneous (e.g., explosives-contaminated paper, rags, wood). These wastes were assigned the following EPA Hazardous Waste Numbers: D001 for ignitability; D003 for reactivity; D005 (for the barium in the explosives); D006; D007; D008; D009; D011; D018; D022; D028; D029; D030; D035 D036; D038; D040; F001; F002; F003; F004; and F005 (for spent solvents on the explosives-contaminated rags and wipes). Historically, there were no significant changes in waste

compositions. The wastes were treated to remove the characteristic of reactivity, although other characteristic (ignitability, toxicity for barium) and listed (solvents on the explosives-contaminated rags and wipes) hazardous waste that may have been present in the wastes being treated.

### **2.3 Description of Treatments Conducted at the Unit**

Waste containers for explosives-contaminated waste and explosive material generally consisted of paper-lined cardboard boxes, wooden boxes, or small boxes. Most wastes contaminated with explosives and pieces of consolidated explosives were not packaged together. Explosives-contaminated waste were placed within container, sealed, and labeled appropriately. These waste containers were then stored in an accumulation area.

Wastes to be treated at the TA-39-57 OD Unit were collected from various accumulation areas at LANL. When loading waste, the cargo compartment of the transport vehicle was visually assessed to ensure that it was clean and contained no loose items such as tools or pieces of metal. For transport, the wastes were placed in an enclosed compartment or secured with tie-downs. Wastes were transported by appropriately trained personnel in a designated vehicle to the TA-39-57 OD Unit on the day of planned treatment. Only the amount of waste that could be treated in one treatment event was transported to the unit. A maximum of 1,000 pounds of waste explosives may have been detonated per treatment event at the TA-39-57 OD Unit.

The waste was unloaded from the vehicle and placed at the OD location by qualified technicians/specialists. Depending on preparation activities, the time during which waste may have remained at the unit typically ranges from several minutes to a few hours. A visual examination was conducted after unloading to ensure that no explosive material remained in the transport vehicle. OD of waste was accomplished by using a predetermined amount of explosive to initiate the detonation. The detonation may have created temperatures up to 3,000 degrees Fahrenheit (1,649 degrees Celsius). Initiation for all waste treatment operations was performed remotely by qualified personnel from inside the Building TA-39-57. Thermal treatment operations were conducted in accordance with the most recent, approved versions of LANL operating procedures.

Procedures for OD required a thorough survey of the area after detonation, collection of identifiable pieces of material not consumed by the detonation, and subsequent detonation of these materials. The Firing Leader determined when it was safe to re-enter the detonation site.

Pieces of damaged explosives resulting from a misfire, sensitivity experiment, incomplete detonation, or exposure to severe testing were packaged separately from excess explosives. The waste explosives were managed and stored appropriately according to operating procedures.

### **3.0 ESTIMATE OF MAXIMUM WASTE TREATED**

Since RCRA Subtitle C regulations became effective in November 1980, an average of 1450 pounds of waste has been treated annually at the OD unit. Based on this estimate, approximately 29,000 pounds of waste may have been treated at the OD unit through 2010.

### **4.0 GENERAL CLOSURE INFORMATION**

#### **4.1 Closure Performance Standard**

The TA-39-57 OD Unit will be closed to meet the following performance standards:

- remove all hazardous waste residues and hazardous constituents; and

- ensure contaminated media do not contain concentrations of hazardous constituents greater than established clean-up levels. The Permit does not address the closure of interim status units; however, the clean-up levels within Section 11.4 of the described in Section 11.4 of the *Los Alamos National Laboratory Hazardous Waste Facility Permit* (NMED, 2010) will be used. For soils the clean-up levels will be established based on residential use. LANL will also demonstrate that there is no potential to contaminate groundwater.

If LANL is unable to achieve any one of the clean closure standards above, LANL will:

- Coordinate cleanup closure activities for the TA-39-57 OD Unit with the corrective action cleanup processes at TA-39 in its entirety;
- comply with requirements in 40 CFR 265.113(b)(1)(ii)(C) and (2);
- control hazardous waste residues, hazardous constituents, and, as applicable, contaminated media such that they do not exceed a total excess cancer risk of  $10^{-5}$  for carcinogenic substances and, for non-carcinogenic substances, a target Hazard Index of 1.0 for human receptors, and meet LANL's *Screening Level Ecological Risk Assessment Methods* (as updated and approved by the Department);
- minimize the need for further maintenance;
- control, minimize, or eliminate, to the extent necessary to protect human health and the environment, the post-closure escape of hazardous waste, hazardous constituents, leachate, contaminated run-off, or hazardous waste decomposition products to the ground, groundwater, surface waters, or to the atmosphere; and
- comply with the closure requirements of 40 CFR Part 265 Subparts G and P.

Closure of the TA-39-57 OD Unit will be deemed complete when: 1) all surfaces and equipment have been decontaminated, or otherwise properly managed as waste; 2) closure has been certified by an independent, professional engineer licensed in the State of New Mexico; and 3) closure certification has been submitted to, and approved by, NMED.

#### 4.2 Closure Schedule

Notification of closure will occur at least 45 days prior to when closure is expected to begin (see 40 CFR § 265.112(d)(1)). Closure activities will begin according to the requirements in 40 CFR § 265.112(d)(2). However, pursuant to 40 CFR § 265.112(e), removing hazardous wastes and decontaminating or dismantling equipment in accordance with an approved closure plan may be conducted at any time before or after notification of closure. Notification of the structural assessment (assessment), as described in Section 5.1.1 and 5.1.2 of this closure plan, will occur at least 30 days prior to the scheduled assessment. The records review (review) and assessment will be completed and a written amended closure plan will be submitted, if necessary, to the NMED for review and approval in accordance with 40 CFR 265.112(c). Upon approval of the modified closure plan, if applicable, the unit surfaces and related equipment will be decontaminated. Soil sampling and decontamination verification sampling activities will be conducted to demonstrate that the soils, surfaces, and related equipment at the unit meet the closure performance standards in accordance with 40 CFR 265.111. All closure activities will be completed within 180 days after the final receipt of waste. Submittal of the final closure report and certification will be submitted to NMED 240 days after initiating closure. In the event that

closure of the unit cannot proceed according to schedule, the NMED will be notified in accordance with the extension request requirements in 40 CFR 265.113(b) and comply with closure requirements in 40 CFR 265.113(b)(1)(ii)(C) and (2).

## **5.0 CLOSURE PROCEDURES**

Closure activities at the unit will 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 contaminated surfaces and equipment associated with the unit; sampling to verify the closure performance standards in Section 4.1 of this closure plan have been achieved; and submittal of a final closure certification report. The following sections describe more specifically these closure activities applicable to the TA-39-57 OD Unit.

### **5.1 Records Review and Structural Assessment**

Prior to commencing closure decontamination and sampling activities, the TA-39-57 OD Unit Operating and Inspection Records will be reviewed and a structural assessment will be conducted to determine any previous finding(s) or action(s) that may influence closure activities or potential sampling locations.

#### **5.1.1 Records Review**

The TA-39-57 OD Unit Operating Record (including, but not limited to, inspection and contingency plan implementation records) will be reviewed at the time of closure and in accordance with the schedule in Section 4.2 of this closure plan. The goals of the review will be to:

1. Confirm the specific hazardous waste constituents of concern listed in Table 2 of this closure plan;
2. update the above-mentioned list as necessary; and
3. identify additional sampling locations (*e.g.*, locations of spills or chronic conditions identified in the TA-39-57 OD Unit Operating and Inspection Records).

A determination will be made on whether any spills or releases, defects, deterioration, damage, or hazards affecting waste containment or treatment occurred or developed during the operational life of the TA-39-57 OD Unit. If the records indicate any such incidents, LANL will amend this closure plan (Section 4.3) in order to update the Sampling and Analysis Plan (SAP) (Section 6.0) to incorporate the locations of these incidents as additional sampling locations. All additional sampling procedures, as applicable, will be included in the amended closure plan.

#### **5.1.2 Structural Assessment**

The structural assessment is an evaluation of the unit's physical condition. The assessment will include inspecting the unit for any conditions that indicate a potential for release of hazardous constituents. If the assessment reveals any evidence of a release (*e.g.*, stains), the closure plan will be amended in order to update the SAP (Section 6.0) to incorporate these additional sampling locations. All additional sampling procedures, as applicable, will be included in the amended closure plan. This assessment will be documented with photographs, drawings, and other documentation, as necessary.

## **5.2 Decontamination and Removal of Structures and Related Equipment**

In accordance with 40 CFR § 265.112(b)(4), the unit's structures and related equipment will be decontaminated, or removed, or both and managed according to Section 7.0 of this closure plan. All structures and related equipment that are removed will be considered solid and potentially hazardous waste when removed, and will be disposed of in accordance with Section 7.0. Decontamination activities will 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.

### **5.2.1 Removal of Structures and Related Equipment**

Building TA-39-57 and the metal building will not be removed as part of closure of the TA-39-57 OD Unit, but will be assessed as part of TA-39 in its entirety. At the time of closure of TA-39, the removal of these structures will be in accordance with Section 7.0 of this closure plan. Any related equipment will be removed as part of closure of the TA-39-57 OD Unit.

### **5.2.2 Decontamination of Structures and Related Equipment**

Structures or equipment at the unit are not expected to be left in place at final closure of TA-39. However, if equipment, identified during the assessment, is expected to be left in place, it will be decontaminated by pressure washing or steam cleaning and sampled according to Section 6.1. The steam cleaning or pressure washing solution will consist of a surfactant detergent (*e.g.*, Alconox®) and water mixed in accordance with the manufacturer's recommendations. Portable berms or other such devices (*e.g.*, absorbent socks, plastic sheeting, wading pools) will collect excess wash water and provide complete containment during the decontamination process.

### **5.2.3 Equipment Used During Decontamination Activities**

Reusable protective clothing, tools, and equipment used during decontamination activities will be cleaned with a wash water solution. Residue, disposable equipment, and small reusable equipment that cannot be decontaminated will be containerized and managed as waste in accordance with Section 7.0.

## **6.0 SAMPLING AND ANALYSIS PLAN**

This SAP identifies the specific sampling and analysis requirements for this unit and ensures the closure requirements of 40 CFR Part 265 Subparts G and P are met. It also describes the sampling, analysis, and quality assurance/quality control (QA/QC) methods that will be used to demonstrate that LANL has met the closure performance standards in Section 4.1 of this closure plan. LANL will comply with all the requirements in this closure plan section (6.0). Although the Permit (NMED, 2010) does not address the closure of interim status units, LANL will also follow the methodology for SAPs set forth in Permit Section 9.4.7.1 and the sampling and analysis methods set forth in Permit Section 11.10.

This SAP is designed to verify decontamination of surfaces, equipment, and materials; and determine whether a release of hazardous constituents to any environmental media has occurred. It includes:

1. The hazardous waste constituents of concern listed in Table 2 that will be included in the analysis for soil, wipe, and chip samples. This list includes all hazardous constituents defined as:
  - a. any constituent identified in 40 CFR Part 261 Appendix VII that caused the United States Environmental Protection Agency (EPA) to list a hazardous waste in 40 CFR Part 261 Subpart D;
  - b. any constituent identified in 40 CFR Part 261, Appendix VIII; or
  - c. any constituent identified in 40 CFR Part 264 Appendix IX, perchlorate, and nitrates.
2. The list of hazardous constituents of concern will be utilized to select the EPA approved analytical methods capable of detecting those constituents.
3. A site plan for verification and soil samples. The site plan includes:
  - a. Figure 3 depicting the boundaries of the units and verification and soil sampling locations. The locations include:
  - b. locations of known spills or other releases of hazardous waste or hazardous constituents during operation of the units;
  - c. other potential release locations; and
  - d. a rationale for the number and locations of samples.
4. Type of samples. The type of samples to be collected (*e.g.*, wipe, soil) and the rationale for the selection of the sample type.
5. Sampling methods including a description of the EPA-approved sampling methods and procedures that will be used to collect each type of sample as specified in *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods* (SW-846) (EPA, 1986).
6. A description of the approved EPA laboratory analytical methods that will be used to measure hazardous constituent concentrations (see Table 4).
7. QA/QC procedures. This SAP includes a description of the QA/QC procedures that include, but are not limited to:
  - a. duplicates, trip blanks, equipment blanks;
  - b. a description of methods for decontamination of re-usable sampling equipment; and
  - c. a description of all sample preservation, handling, labeling, and chain-of-custody procedures.

### 6.1 Sampling Activities

Sampling activities will be conducted to demonstrate that unit-related equipment, surfaces, and soils meet the closure performance standards in Section 4.1. All samples will be collected and analyzed in accordance with the procedures in Sections 6.2, 6.3, and 6.4 of this closure plan. Soil sample locations are shown in Figure 3. These locations include, but are not limited to, soils surrounding the unit; soils in the vicinity of the unit; and soils at the storm water discharge point.

- Discrete soil samples as identified in Figure 3.
- Wipe sample(s) will be collected from each piece of decontaminated equipment related to the unit.

- One verification wipe sample will be collected from the floor at the entry way of the Building TA-39-57.

Removal of the associated structures at the TA-39-57 OD Unit will occur at the time of closure of TA-39 in its entirety. Prior to removal of the Building TA-39-57 chip samples will be collected along the concrete walls and floors. Prior to removal of the metal weather enclosure wipe samples will be collected along the building walls and from locations along the floor.

## 6.2 Sample Collection Procedures

Samples will be collected in accordance with the procedures identified in this SAP which incorporates guidance from the EPA (EPA, 2002), DOE (DOE, 1995), and other NMED-approved procedures.

### 6.2.1 Surface Water and Groundwater Sampling

Surface water sampling is not included as part of the TA-36-57 closure activities because surface water compliance is demonstrated as part of compliance with the Clean Water Act (CWA) and the National Pollutant Discharge Elimination System (NPDES) permit program. The TA-39-57 OD unit was subject to the 2008 CWA Multi-Sector General Permit (MSGP) for storm water until the modified LANL Storm water Individual Permit (IP) became effective on November 1, 2010. Section 1.6.1 of the 2008 MSGP, notes that there may be situations in which EPA may require a discharger to apply for and/or obtain authorization to discharge under either an IP or an alternative NPDES general permit. EPA required the DOE to apply for an individual NPDES permit for LANL by December 31, 2004, pursuant to the Federal Facility Compliance Agreement - Administrative Order Docket No. CWA-06-205-1701 (FFCA/AO) entered into between the EPA and the DOE in February 2005 (EPA, 2005). Further, Section 1.6.1 of the 2008 MSGP explains that for existing dischargers authorized to discharge under the MSGP, EPA's "notice will set a deadline to file the permit application, and will include a statement that on the effective date of the individual NPDES permit, or the alternative general permit as it applies to you, coverage under this general permit will terminate."

LANL's Individual Permit contains non-numeric technology-based effluent limitations, coupled with a comprehensive, coordinated monitoring program and corrective action where necessary, to minimize pollutants in LANL's storm water discharges. LANL is also required to implement site-specific control measures (including BMPs) to address the non-numeric technology-based effluent limits contained in the IP, followed by confirmation monitoring against New Mexico water-quality criteria-equivalent target action levels (TALs) to determine the effectiveness of the site-specific measures. If TALs are exceeded, corrective actions detailed in the IP are initiated and additional confirmation monitoring is conducted following completion of corrective actions. Monitoring for the IP will start in 2011.

Groundwater in the vicinity of TA-39-57 is monitored as part of the LANL Interim Facility-Wide Groundwater Monitoring Plan (IFGMP). Under the 2010 IFGMP (LANL, 2010), surface water is monitored down gradient of TA-39-57 at the mouth of Ancho Canyon, near the confluence with the Rio Grande. Regional groundwater is monitored in four separate depth intervals at well R-31. Additional groundwater monitoring takes place down gradient of TA-39-57 at Ancho Spring in Ancho Canyon and at Springs 6, 6A, 8A, 9, and 9B in White Rock Canyon.

### 6.2.2 Soil Sampling

Sampling activities shall consist of collection of discrete surface and subsurface samples within the treatment area, beneath the treatment unit, from nearby drainages and from the soils located beneath the floor and base course of the metal weather enclosure. Soil samples will be collected from depths of 0-6 and 6-12 inches bgs. One discrete soil sample will be collected from the drainage located east of the TA-39-57 OD Unit, at one and five foot depths, sample locations are shown in Figure 3. Soil samples will be analyzed to determine if hazardous constituents are present in soils at, or in the vicinity of, the unit and to determine if there is an immediate threat to the environment. Soil sample analysis will be completed using the methods listed in Table 4 (Summary of Analytical Methods).

Soil samples will be collected using a spade, scoop, auger, trowel or other tool as specified in approved methods for the type of analyte to be sampled (EPA, 1986 or EPA, 2002). Samples will be kept at their at-depth temperature or lower, protected from ultraviolet light, sealed tightly in the recommended container, and analyzed within the specific holding times listed in Table 5.

### 6.2.3 Wipe Sampling

Surface wipe samples will be collected and analyzed to determine if residual hazardous constituents remain on surfaces and equipment at the unit. One wipe sample will also be collected from the floor, near the entry way of the Building TA-39-57. Samples will be collected in accordance with the National Institute of Occupational Safety and Health (NIOSH) *Manual of Analytical Methods* (NIOSH, 1994). The appropriate wipe sample method will consider the type of surface being sampled, the type of constituent being sampled, the solution used, and the desired constituent detection limit.

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

### 6.2.4 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 will be scraped, as necessary, to remove residue, cleaned prior to each use with a wash solution, rinsed several times with tap water, and air-dried to prevent cross-contamination of samples. Sampling equipment rinsate blanks will be collected and analyzed only if reusable sampling equipment is used.

## 6.3 Sample Management Procedures

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

### **6.3.1 Sample Documentation**

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

#### **6.3.1.1 Chain-of-Custody**

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

1. in a person's physical possession;
2. in view of the person in possession; or
3. secured by that person in a restricted access area to prevent tampering.

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

#### **6.3.1.2 Sample Labels and Custody Seals**

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

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

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

#### **6.3.1.3 Sample Logbook**

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

- the sample location;
- suspected composition;

- sample identification number;
- volume/mass of sample taken;
- purpose of sampling;
- description of sample point and sampling methodology;
- date and time of collection;
- name of the sample collector;
- sample destination and how it will be transported;
- observations; and
- name(s) of personnel responsible for the observations.

### **6.3.2 Sample Handling, Preservation, and Storage**

Samples will be collected and containerized in appropriate pre-cleaned sample containers. Table 5 presents the requirements in SW-846 (EPA, 1986) for sample containers, preservation techniques, and holding times. Samples that require cooling to 4 degrees Celsius will be placed in a cooler with ice or ice gel or in a refrigerator immediately upon collection.

### **6.3.3 Packaging and Transportation of Samples**

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

Off-site transportation of samples will occur via private, contract, or common motor carrier, air carrier, or freight. All off-site transportation will be processed through LANL 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.

## **6.4 Sample Analysis Requirements**

Samples will be analyzed for all hazardous constituents listed in Table 2; if at closure it has been determined that other constituents listed in Appendix VIII of 40 CFR Part 261 and in Appendix IX of 40 CFR Part 264 were managed or treated at the units over their operational history, this closure plan will be amended to include those constituents for sampling and analysis. Samples will be analyzed by an independent laboratory using the methods outlined in Table 4. Analytes, test methods and instrumentation, target detection limits, and rationale for metals and organic analyses are presented in Table 4. If any of the information from these tables has changed at the time of closure, LANL will amend this closure plan to update all methods in this SAP.

### **6.4.1 Analytical Laboratory Requirements**

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

- a documented comprehensive QA/QC program;

- technical analytical expertise;
- a document control/records management plan; and
- the capability to perform data reduction, validation, and reporting.

The selection of the analytical testing methods identified in Table 4 is based on the following considerations:

- the physical form of the waste;
- constituents of interest;
- required detection limits (*e.g.*, regulatory thresholds); and
- information requirements (*e.g.*, waste classification).

#### **6.4.2 Quality Assurance/Quality Control**

All sampling and analysis will be conducted in accordance with QA/QC procedures defined by the latest revision of SW-846 (EPA, 1986) or other NMED-approved procedures. Field sampling procedures and laboratory analyses will be evaluated through the use of QA/QC samples to assess the overall quality of the data produced. QC samples evaluate precision, accuracy, and 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.

##### **6.4.2.1 Field Quality Control**

The field QC samples that may be collected include trip blanks, field blanks, field duplicates, and equipment rinsate blanks. Table 6 presents a summary of QC sample types, applicable analyses, frequency, and acceptance criteria. QC samples will be given a unique sample identification number and submitted to the analytical laboratory as blind samples. QC samples will be identified on the applicable forms so that the results can be applied to the associated sample.

##### **6.4.2.2 Analytical Laboratory 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 are the tools employed to measure the degree to which these QA objectives are met.

#### **6.4.3 Data Reduction, Verification, Validation, and Reporting**

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

#### **6.4.4 Data Reporting Requirements**

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

- a summary of analytical results for each sample;
- results from QC samples such as blanks, spikes, and calibrations;

- reference to standard methods or a detailed description of analytical procedures; and
- raw data printouts for comparison with summaries.

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

## 7.0 WASTE MANAGEMENT

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

1. demolition debris;
2. concrete;
3. containerized waste;
4. decontamination wash water;
5. decontamination waste; and
6. soil

The different types of wastes generated at closure, including the units' decontaminated structures and related equipment, and their disposition options are listed in Table 3 of this closure plan.

## 8.0 CLOSURE CERTIFICATION REPORT

Upon completion of the closure activities at the units, LANL will submit, by registered mail, a closure certification report (Report) for NMED review and approval. The Report will document that the units have been closed in compliance with the specifications in this closure plan. The Report will summarize all activities conducted during closure including, but not limited to:

- the results of all investigations;
- remediation waste management;
- decontamination;
- decontamination verification and soil sampling activities; and
- results of all chemical analyses and other characterization activities.

LANL will submit the Report to NMED no later than 60 days after completion of closure of the units. NMED may require interim reports that document the progress of closure. The certification will be signed by LANL and by an independent professional engineer registered in the State of New Mexico (*see* 40 CFR § 265.115).

The report will document the units' closure and contain, at a minimum, the following information:

1. a copy of the certification pursuant to 40 CFR § 265.115;
2. any variance, and the reason for the variance, from the activities approved in this closure plan;
3. documentation of the records review and structural assessment conducted;

4. a summary of all sampling results, showing:
  - a. sample identification;
  - b. sampling location;
  - c. data reported;
  - d. detection limit for each analyte;
  - e. a measure of analytical precision (*e.g.*, uncertainty, range, variance);
  - f. identification of analytical procedure;
  - g. identification of analytical laboratory;
5. a QA/QC statement on analytical data validation and decontamination verification;
6. the location of the file of supporting documentation, including:
  - a. field logbooks;
  - b. laboratory sample analysis reports;
  - c. QA/QC documentation; and
  - d. chain-of-custody forms;
7. storage or disposal location of hazardous waste resulting from closure activities;
8. a copy of the Human Health and Ecological Risk Assessment Reports, if a site-specific risk assessment was conducted for the units; and
9. a certification statement of the accuracy of the Closure Report.

Documentation supporting the independent registered professional engineer's certification must be furnished to NMED before LANL is released from the closure financial assurance requirements in 40 CFR § 265.143. If LANL leaves waste in place, they will submit to NMED a survey plat as required by 40 CFR § 265.116 in conjunction with the closure certification report.

## 9.0 REFERENCES

- DOE, 1995. *DOE Methods for Evaluating Environmental and Waste Management Samples*, DOE/EM-0089T, Rev. 2, Pacific Northwest Laboratory, Richland, Washington.
- EPA, 2005. Federal Facility Compliance Agreement - Administrative Order Docket No. CWA-06-205-1701 (FFCA/AO) *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. (February 2005)*, U.S. Environmental Protection Agency, Office of Solid Waste, U.S. Government Printing Office, Washington, DC.
- EPA, 2002. *RCRA Waste Sampling Draft Technical Guidance Planning, Implementation, and Assessment*, EPA530-D-02-002, U.S. Environmental Protection Agency, Office of Solid Waste, U.S. Government Printing Office, Washington, DC.
- 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, DC.
- LANL, 2010. "2010 Interim Facility-Wide Groundwater Monitoring Plan," Los Alamos National Laboratory document LA-UR-10-1777, Los Alamos, New Mexico. (LANL 2010, 109830).

LANL, 1993. *RFI Work Plan for Operable Unit 1132*, LA-UR-93-768, Los Alamos National Laboratory, Los Alamos, New Mexico.

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

NMED, 2010. *Los Alamos National Laboratory Hazardous Waste Facility Permit*, EPA No. NM0890010515, New Mexico Environment Department, Santa Fe, NM.

**Table 1**  
**Schedule for Closure of the TA-39-57 OD Unit**

Closure Activity	Schedule
Notify the Department of the initiation of closure.	Day 0
Remove all wastes including hazardous, mixed, and solid waste	No later than Day 90
Conduct records review	After initiating closure and before Structural Assessment
Conduct structural assessment	After removal of all wastes and before decontamination
Submit a request to modify the Closure Plan and the records review and structural assessment report	After conducting the records review and structural assessment and before decontamination
Complete all closure activities	No later than Day 180
Submit final Closure Report and Certification to the Department.	No later than Day 240

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.

**Table 2**  
**Hazardous Waste Constituents of Concern at the TA-39-57 OD Unit<sup>a</sup>**

Category	EPA Hazardous Waste Numbers	Specific Constituents
HE and associated compounds	D001, D003	HMX, RDX, TNT, PETN, Tertyl and Other Nitrobenzenes and Nitrotoluenes
Toxic Metals	D005, D006, D007, D008, D009, D011	Barium, Cadmium, Chromium, Lead, Mercury, , Silver
Semi-volatile Organic Compounds	D030, D036, F004, D038	2,4-Dinitrotoluene, Nitrobenzene, Pyridine
Volatile Organic Compounds	F001, F002, F003, F004, F005, D018, D022, D028, D029, D035; D040	Acetone, Ethanol, Benzene, MEK, Methylene Chloride, Toluene, MIBK, Xylene, Ethyl Acetate, Methanol, 1,2 dichloroethane (D028), 1,1 dichloroethylene Trichloroethylene, chloroform
Other constituents of concern		Perchlorates

<sup>a</sup> Based on the unit operating record.

PETN = pentaerythrioltetranitrate (2,2-bis[(nitroxy)methyl]-1,3-propanediol dinitrate

HMX = cyclotetramethylenetetranitramine

RDX = cyclonite

MEK= methyl ethyl ketone

TNT = trinitrotoluene

MIBK = 4-methyl-2-pentanone

**Table 3**  
**Potential Waste Materials, Waste Types, and Disposal Options**

Potential Waste Materials	Waste Types	Disposal Options
Personal protective equipment (PPE)	Non-regulated solid waste	Subtitle D landfill
	Hazardous waste	The PPE will be treated to meet Land Disposal Restriction (LDR) treatment standards, if necessary, and disposed in a Subtitle C or D landfill, as appropriate.
	Low-level radioactive solid waste	Either an authorized on-site or off-site radioactive waste disposal area.
	Mixed waste	Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D landfill or the Waste Isolation Pilot Plan (WIPP), as appropriate.
Decontamination wash water	Non-regulated liquid waste	High Explosives Waste Treatment Facility (HEWTF) or sanitary sewer
	Hazardous waste	Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D landfill, as appropriate.
	Radioactive liquid waste	Radioactive Liquid Waste Treatment Facility (RLWTF)
	Mixed waste	Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D landfill or WIPP, as appropriate.
Metal	Non-regulated solid waste	Subtitle D landfill
	Hazardous waste	Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D landfill, as appropriate.
	Low-level radioactive solid waste	Either an authorized on-site or off-site radioactive waste disposal area.
	Mixed waste	Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D landfill or WIPP, as appropriate.
Discarded waste management equipment	Non-regulated solid waste	Subtitle D landfill
	Hazardous waste	Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D landfill, as appropriate.
	Low-level radioactive solid waste	Either an authorized on-site or off-site radioactive waste disposal area.

**Table 3 (continued)**

**Potential Waste Materials, Waste Types, and Disposal Options**

Potential Waste Materials	Waste Types	Disposal Options
	Mixed waste	Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D landfill or WIPP, as appropriate.
Soil and tuff	Non-regulated solid waste	Subtitle D landfill
	Hazardous waste	Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D landfill, as appropriate.
	Low-level radioactive solid waste	Either an authorized on-site or off-site radioactive waste disposal area.
	Mixed waste	Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D landfill or WIPP, as appropriate.
Discarded concrete	Non-regulated solid waste	Subtitle D landfill
	Hazardous waste	Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D landfill, as appropriate.
	Low-level radioactive solid waste	Either an authorized on-site or off-site radioactive waste disposal area.
	Mixed waste	Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D landfill or WIPP, as appropriate.
Discarded sampling and decontamination equipment	Non-regulated solid waste	Subtitle D landfill
	Hazardous waste	Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D landfill, as appropriate.
	Low-level radioactive solid waste	Either an authorized on-site or off-site radioactive waste disposal area.
	Mixed waste	Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D landfill or WIPP, as appropriate.

**Table 4**  
**Summary of Analytical Methods**

Analyte	EPA SW-846 Analytical Method <sup>a</sup>	Test Methods/ Instrumentation	Target Detection Limit <sup>b</sup>	Rationale
<b>Metal Analysis</b>				
Barium	6010, 7010	ICP-AES,GFAA	200 ug/L	Determine the metal concentration in the samples.
Cadmium	6010, 7010	ICP-AES,GFAA	2 ug/L	
Chromium	6010, 7010	ICP-AES,GFAA	10 ug/L	
Lead	6010, 7010	ICP-AES,GFAA	5 ug/L	
Mercury	6010, 7010, 7471B	ICP-AES,GFAA, CVAA	0.2 ug/L	
Silver	6010, 7010	ICP-AES,GFAA	10 ug/L	
<b>Organic Analysis</b>				
Target compound list VOCs plus 10 TICs	8260B	GC/MS	10 mg/L	Determine the VOCs concentration in the samples.
Target compound list SVOCs plus 20 TICs	8270D, 8275	GC/MS	10 mg/L	Determine the SVOCs concentration in the samples.
<b>Other Analysis</b>				
Perchlorates	6850	HPLC-ESI/MS or MS/MS	1 µg/L	Determine concentration of perchlorate in the samples.

<sup>a</sup> EPA, 1986, and all approved updates, *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods* (SW-846).

<sup>b</sup> Detection limits listed for metals are for clean water. Detection limits for organics are expressed as practical quantitation limits. Actual detection limits may be higher depending on sample composition and matrix type.

- CVAA = Cold-vapor atomic absorption spectroscopy
- GC/MS = gas chromatography/mass spectrometry
- GFAA = Graphite furnace atomic absorption spectroscopy
- ICP-AES = Inductively coupled plasma-atomic emissionspectrometry
- HPLC = high performance liquid chromatograph
- ESI/MS = electrospray ionization/mass spectrometry
- MS/MS = tandem mass spectrometry
- SVOC = semi-volatile organic compound
- TIC = tentatively identified compound
- VOC = volatile organic compound
- mg/L = milligrams per liter
- ug/L = micrograms per liter.

**Table 5**  
**Sample Containers<sup>a</sup>, Preservation Techniques, and Holding Times<sup>b</sup>**

Analyte Class and Sample Type	Container Type and Materials	Preservation	Holding Time
<i>Metals</i>			
TCLP/Total Metals: Barium, Cadmium, Chromium, Lead, Silver	Aqueous Media: 500-mL Wide Mouth- Polyethylene or Glass with Teflon Liner	Aqueous Media: HNO <sub>3</sub> to pH <2 Cool to 4 °C	180 Days
	Solid Media: 125-mL Glass	Solid Media: Cool to 4 °C	
TCLP/Total Mercury	Aqueous Media: 500-mL Wide Mouth- Polyethylene or Glass with Teflon Liner	Aqueous Media: HNO <sub>3</sub> to pH <2 Cool to 4 °C	28 Days
	Solid Media: 125-mL Glass	Solid Media: Cool to 4 °C	
<i>Volatile Organic Compounds</i>			
Target Compound Volatile Organic Compounds	Aqueous Media: Two 40-mL Amber Glass Vials with Teflon-Lined Septa	Aqueous Media: HCl to pH<2 Cool to 4 °C	14 days
	Solid Media: 125-mL Glass or Two 40-mL Amber Glass Vials with Teflon- Lined Septa	Solid Media Cool to 4 °C Add 5 mL Methanol or Other Water Miscible Organic Solvent to 40-mL Glass Vials	
<i>Semi-Volatile Organic Compounds</i>			
Target Compound Semi-volatile Organic Compounds	Aqueous Media: Four 1-L Amber Glass with Teflon-Lined Lid	Aqueous Media: Cool to 4 °C	Seven days from field collection to preparative extraction. 40 days from preparative extraction to determinative analysis.
	Solid Media: 250-mL Glass	Solid Media: Cool to 4 °C	

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

<sup>b</sup> Information obtained from *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846)*, EPA, 1986, and all approved updates.

°C = degrees Celsius

L=Liter

mL = milliter

HNO<sub>3</sub> = nitric acid

HCL=hydrochloric acid

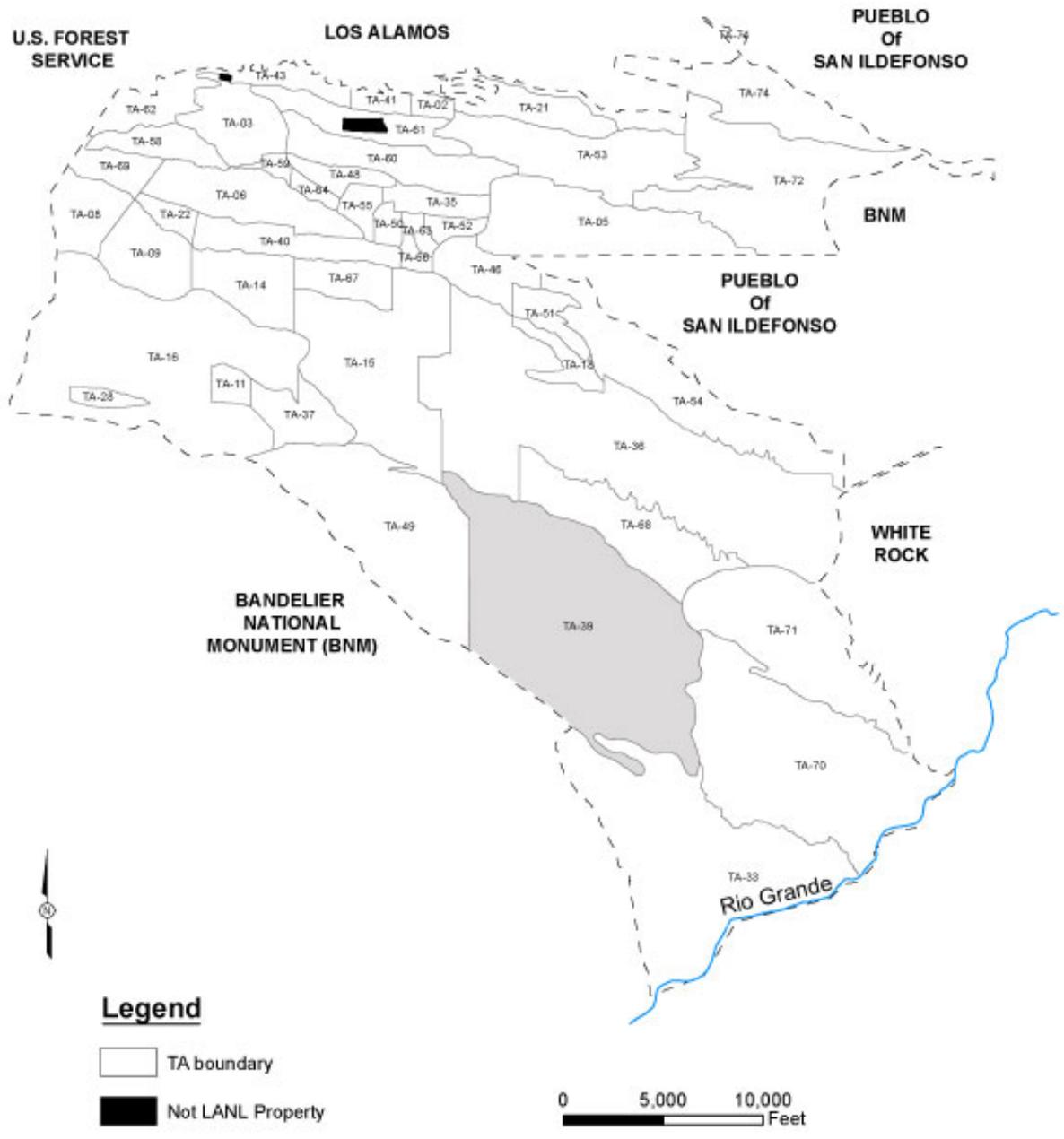
TCLP = Toxicity Characteristic Leaching Procedure

**Table 6**  
**Quality Control Sample Types, Applicable Analyses, Frequency, and Acceptance Criteria**

QC Sample Type	Applicable Analysis <sup>a</sup>	Frequency	Acceptance Criteria
Trip Blank	VOC	One set per shipping cooler containing samples to be analyzed for VOCs	Not Applicable
Field Blank	VOC/SVOC, metals	One sample daily per analysis	Not Applicable
Field Duplicate	Chemical	One for each sampling sequence	Relative percent difference less than or equal to 20 percent
Equipment Rinsate Blank <sup>b</sup>	VOC/SVOC, metals	One sample daily	Not Applicable

<sup>a</sup> For VOC and SVOC analysis, if blank shows detectable levels of any common laboratory contaminant (*e.g.*, methylene chloride, acetone, 2-butanone, toluene, and/or any phthalate ester), sample must exhibit that contaminant at a level 10 times the quantitation limit to be considered detectable. For all other contaminants, sample must exhibit the contaminant at a level 5 times the quantitation level to be considered detectable.

<sup>b</sup> Collected only if reusable sampling equipment used.



**Figure 1**  
 Location of Technical Area 39 at Los Alamos National Laboratory

Created by EPWES-EDA GIS TEAM, Map Number 26-2108 November 13, 2008  
 State Plane Coordinate System, New Mexico Central Zone, North American Datum 1983 (N)  
 This map was created for work processes associated with the Environmental Remediation Support Services. All other uses for this map should be confirmed with LANL EPWES staff.  
 Boundary of Department of Energy Property Around the Los Alamos National Laboratory, Los Alamos National Laboratory, SSMO Site Planning & Project Initiation, Infrastructure Planning Office, 04 June 2008  
 Boundary of Department of Energy Property Inside the Los Alamos National Laboratory, Los Alamos National Laboratory, SSMO Site Planning & Project Initiation, 04 June 2008

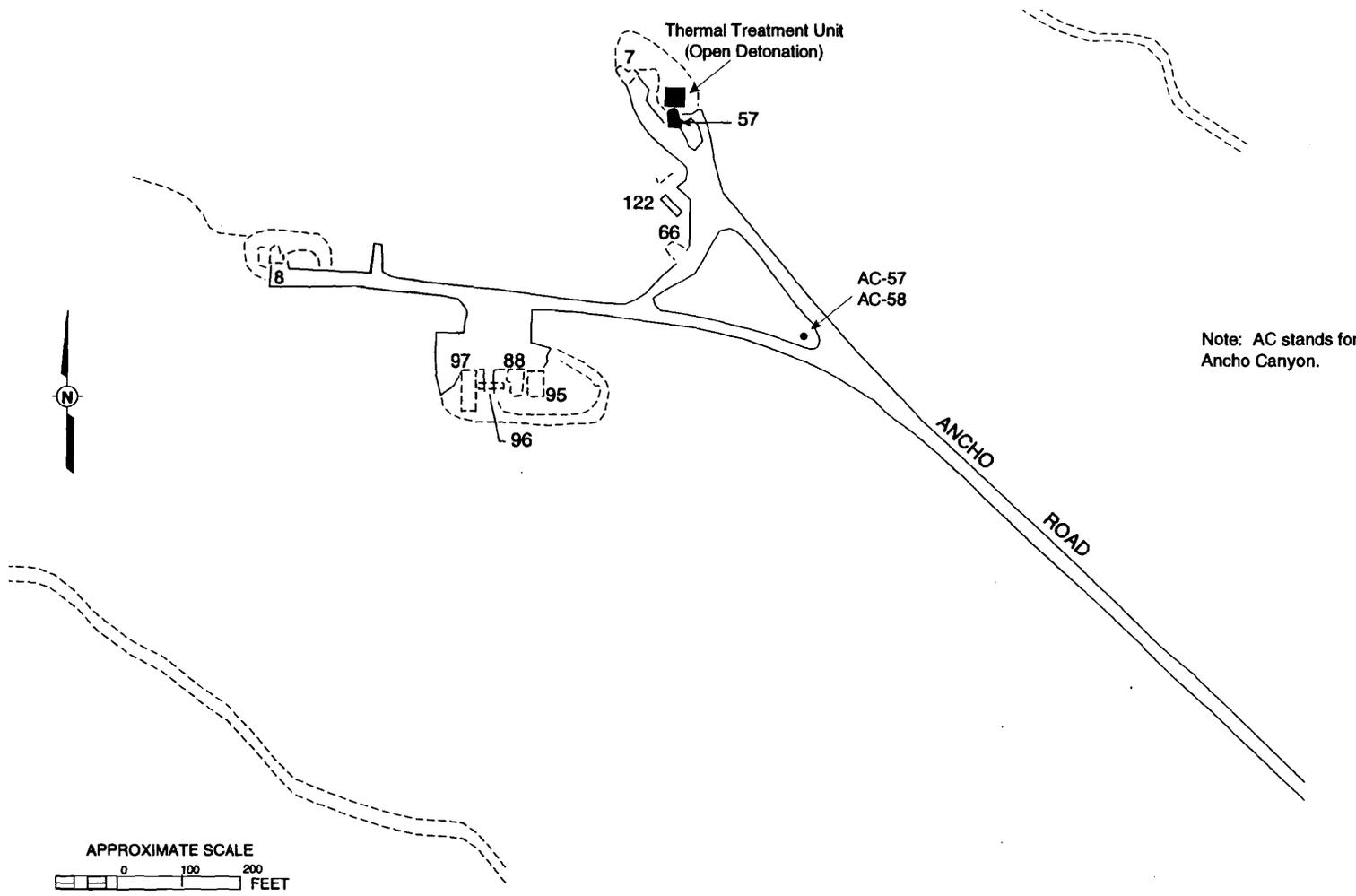


Figure 2. Location and Layout of the TA-39-57 Open Detonation Unit

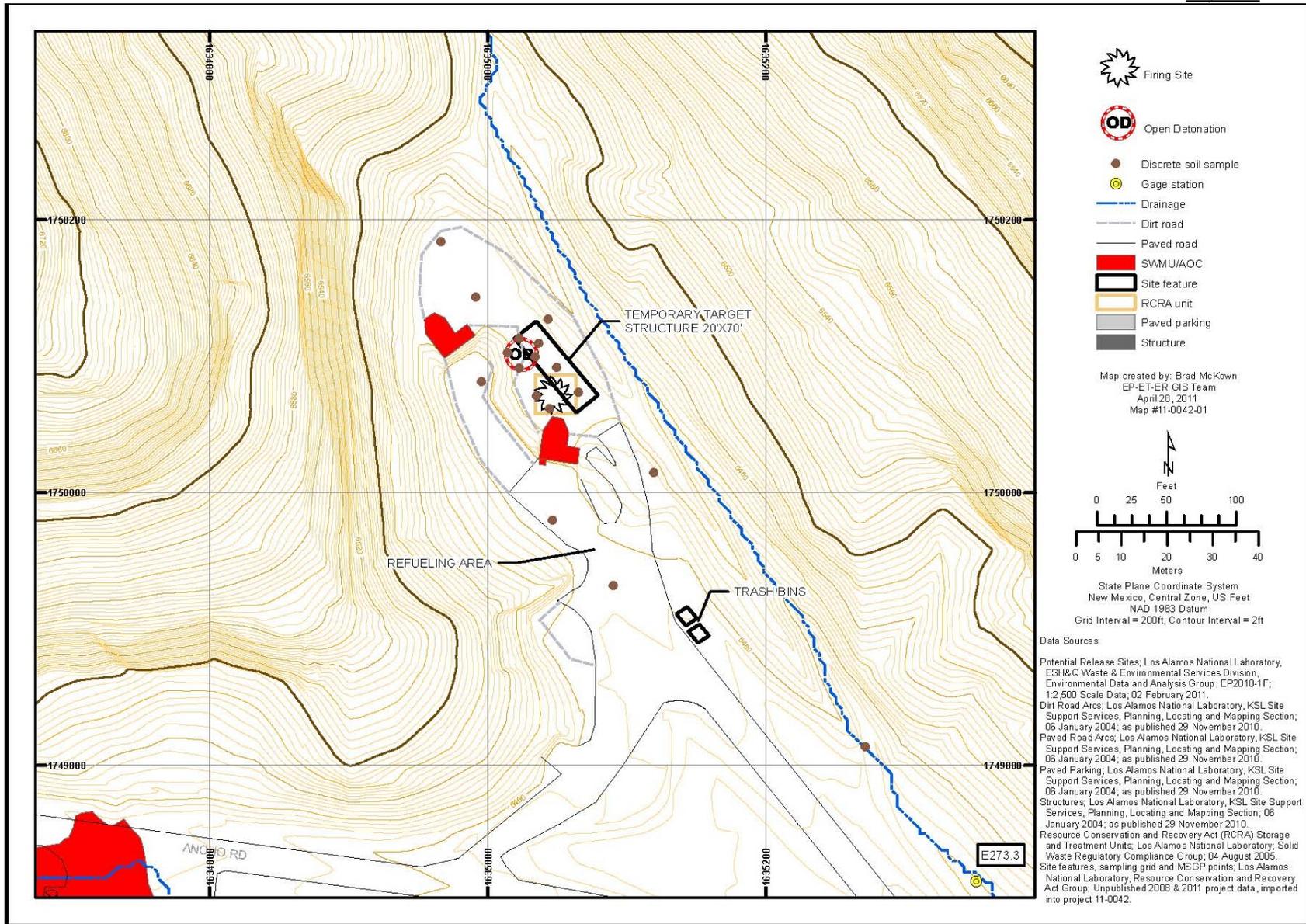
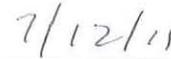


Figure 3. Sampling Locations for Closure of the TA-39-57 Open Detonation Units



CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.



**Dennis L. Hjeresen**

**Date Signed**

Division Director  
Environment Protection Division  
Los Alamos National Laboratory  
Operator



**Gene E. Turner**

**Date Signed**

Environmental Permitting Manager, Los Alamos Site Office  
National Nuclear Security Administration  
U.S. Department of Energy  
Owner/Operator



COPY

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 Los Alamos Site Office, A316  
 3747 West Jemez Road  
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 (505) 667-5794/FAX (505) 667-5948

Date: July 13, 2011  
 Refer To: ENV-RCRA-11-0119  
 LAUR: 11-03323

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

Dear Mr. Kieling:

**SUBJECT: SUBMITTAL OF CLOSURE PLAN FOR TECHNICAL AREA (TA) 39-57  
 INTERIM STATUS OPEN DETONATION UNIT, LOS ALAMOS NATIONAL**

SENDER: COMPLETE THIS SECTION	COMPLETE THIS SECTION ON DELIVERY	
<ul style="list-style-type: none"> <li>Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.</li> <li>Print your name and address on the reverse so that we can return the card to you.</li> <li>Attach this card to the back of the mailpiece, or on the front if space permits.</li> </ul>	A. Signature <input checked="" type="checkbox"/> Agent <input type="checkbox"/> Addressee	B. Received by (Printed Name) C. Date of Delivery
1. Article Addressed to:  Mr. John E. Kieling Hazardous Waste Bureau New Mexico Environment Department 2905 Rodeo Park Drive East, Building 1 Santa Fe, NM 87505	D. Is delivery address different from item 1? <input type="checkbox"/> Yes If YES, enter delivery address below: <input type="checkbox"/> No	
2. Article Number (Transfer from service label)	3. Service Type <input type="checkbox"/> Certified Mail <input type="checkbox"/> Express Mail <input type="checkbox"/> Registered <input type="checkbox"/> Return Receipt for Merchandise <input type="checkbox"/> Insured Mail <input type="checkbox"/> C.O.D.	
PS Form 3811, February 2004	4. Restricted Delivery? (Extra Fee) <input type="checkbox"/> Yes	102595-02-M-1540

*Handwritten notes on form:*  
 - Signature: Cynthia [unclear]  
 - Date: 7-14-11  
 - Article Number: 11-0119  
 - Delivery type: Hand-delivered

as required by Section 1.4.1 of the Permit (Permit). For the interim section 1.4.1 requires the National LLC (NNSA/LANS, collectively closure plan within 180 days of the TA-39-57, and hereby request the Department- Hazardous Waste interim status units will be initiated the effective date of the Permit. ended in accordance with Section would occur, if necessary and analysis plan. An amended closure to completing the activities in the

Section 1.4.1 of the Permit requires that a closure plan must be submitted to the NMED-HWB within 180 days of the effective date of the Permit. Therefore, this transmittal was due no later than June 28, 2011. The Las Conchas Wildfire forced closure of LANL beginning Monday, June 27, 2011 and the Permittees requested a two-week extension from the date the Laboratory re-opened for this compliance