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

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.

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.

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.

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

[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".

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

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.

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.

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-

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

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

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

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

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.

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.

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.

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

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.

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.

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

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.

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.