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National Nuclear Security Administration
Los Alamos Field Office, MS A316
Environmental Projects Office
Los Alamos, New Mexico 87544
(505) 667-4255/FAX (505) 606-2132

May 21, 2014

Ryan Flynn, Cabinet Secretary
New Mexico Environment Department
Harold Runnels Building
1190 St. Francis Dr., Room 4050
Santa Fe, NM 87505

Dear Mr. Flynn:

On May 19, 2014, the U.S. Department of Energy (DOE) and Los Alamos National Security, LLC (LANS) ("Permittees") received Administrative Order No. 5-19001 (Order) issued by the New Mexico Environment Department (NMED). The Order, at paragraph 18, requires the Permittees to submit a LANL Nitrate Salt–Bearing Waste Container Isolation Plan (Isolation Plan) by 2:00 pm on May 21, 2014.

Enclosed please find a copy of LANL's proposed Isolation Plan for NMED review and approval.

Please contact Jeff Mousseau at (505) 606-2337 (jmousseau@lanl.gov) or Peter Maggiore at (505) 665-5025 (peter.maggiore@nnsa.doe.gov) if you have any questions regarding the Isolation Plan.

Sincerely,

Charles F. McMillan, Director
Los Alamos National Laboratory
PO Box 1663, MS K499
Los Alamos, New Mexico 87545

Sincerely,

Kimberly Davis Lebak

Kimberly Davis Lebak, Manager
Los Alamos Field Office
U.S. Department of Energy
3747 West Jemez Road, MS A316
Los Alamos, New Mexico 87544

JM/PM/KR:sm

Enclosure: LANL Nitrate Salt–Bearing Waste Container Isolation Plan (LA-UR-14-23605)

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LANL Nitrate Salt-Bearing Waste Container Isolation Plan

May 21, 2014

I. Introduction

On May 19, 2014, the Department of Energy (DOE) and the Los Alamos National Security, LLC (LANS) ("Permittees") received Administrative Order No. 5-19001 ("Order") issued by the New Mexico Environment Department (NMED). The Order, at paragraph 18, requires the Permittees to submit a *LANL Nitrate Salt Bearing Waste Container Isolation Plan* ("Isolation Plan") by 2:00 PM on May 21, 2014. As described below, the Isolation Plan describes how the Permittees will isolate, secure and/or treat all nitrate salt-bearing waste containers currently stored at Los Alamos National Laboratory (LANL), so that a potential release from any nitrate salt-bearing container at LANL does not pose a threat to human health or the environment. The plan also includes a schedule of implementation for isolating, securing and/or treating nitrate salt-bearing waste containers currently stored at LANL.

II. Background

On May 1, 2014, the Waste Isolation Pilot Plant (WIPP) declared a potentially inadequate safety analysis (PISA) on the possibility of unremediated nitrate salt-bearing waste contained in waste packages at WIPP. On May 2, 2014, LANS convened a critique to perform an extent of condition on the PISA issued by WIPP. As a result of the critique, the Permittees implemented several corrective and precautionary actions immediately to ensure protection of human health and the environment. The Permittees identified the current storage locations of all remediated and unremediated nitrate salt-bearing waste containers. The Permittees moved all remediated nitrate salt-bearing waste containers into TA-54, Area G, Dome 230 (because Dome 230 has an active fire suppression system) and daily temperature measurements of each container commenced. Additionally, continuous radiological air monitoring was initiated in Dome 230. Finally, any further processing of nitrated salt waste streams was suspended and all transuranic (TRU) waste shipments from LANL were paused.

On May 15, 2014, WIPP released photographs showing a LANL drum containing remediated nitrate salt-bearing waste had breached in Panel 7, Room 7. The cause of this breach and other potentially impacted drums is currently unknown, but is being actively investigated by multiple parties.

On May 16, 2014, the Permittees convened a critique to review the new information. A PISA was declared (ORPS NA-LASO-LANL-WASTEMGT-2014-0004) on the possibility of inadequate safety basis controls specified for the remediated nitrate salt-bearing waste. As a

result of the critique, the Permittees implemented several corrective and precautionary actions immediately to ensure protection of human health and the environment (described below).

III. Waste Container Categories

The current inventory of nitrate salt-bearing waste containers stored at LANL can be divided into three categories: 1) remediated nitrate salt-bearing wastes (which are part of the 3706 Campaign); 2) unremediated nitrate salt-bearing wastes and; 3) cemented legacy and newly generated nitrate salt-bearing wastes.

This plan addresses isolation, securing and/or treatment of the remediated (3706 Campaign) and unremediated, nitrate salt-bearing wastes. In this plan, "remediated" containers are defined as LANL unconsolidated nitrate salts that were remediated with kitty litter and were repackaged into new drums. "Unremediated" containers are defined as LANL unconsolidated nitrate salts drums to which absorbent material has not been added.

The third category, cemented legacy and newly generated cemented nitrate salt-bearing wastes, is not addressed in this plan because, as discussed in Section VI, per the definitions of ignitable and reactive in 40 CFR §264.21 and §264.23, legacy cemented nitrate salt-bearing waste generated since 1991, as well as newly generated cemented nitrate salt-bearing waste generated at Technical Area (TA)-55, is not ignitable or reactive.

IV. Immediate Actions for Remediated Nitrate Salt-Bearing Waste Containers

There are currently 57 remediated nitrate salt-bearing waste containers at LANL. The Permittees validated this number through review of data from the Waste Characterization and Action Tracking System (WCATS) database and a field walk-down verification. Below is a description of the activities the Permittees have already taken and/or are currently underway to address isolating, securing, and/or treating the remediated nitrate salt-bearing waste containers.

1) The Permittees installed a tamper-indicating device (TID) on the TRU waste drum (i.e., the sister drum) related to the suspect drum at WIPP (one of two possibilities, but not yet confirmed). This sister drum is currently on site at TA-54, Area G. The drum was overpacked into a standard waste box (SWB) and additional tamper seals were installed on the SWB.
2) The Permittees have overpacked the 57 remediated nitrate salt-bearing waste containers at LANL into standard waste boxes (SWBs). These containers are currently in isolated storage in Dome 230, which has an active fire protection system.
3) The Permittees will move all remediated nitrate salt-bearing waste SWBs at LANL to the Permacons in Dome 375 and Dome 231 located at TA-54, Area G. Both Permacons are constructed of stainless steel frame and sheeting and are contamination-control structures that are temperature-controlled and equipped with a High Efficiency Particulate Air (HEPA) filtration and fire suppression system. The Permacons in Domes 375 and 231 are

authorized under the LANL Facility Hazardous Waste Permit for storage of potentially characteristic mixed TRU wastes.

4) The Permittees are currently monitoring the temperature of the remediated nitrate salt-bearing waste containers on a daily basis and performing visual inspections of these containers on an hourly basis, 24 hours per day, to identify abnormal conditions (e.g., signs of smoking, evidence of deterioration, any other abnormal conditions). Additionally, the use of continuous air monitoring (CAMs) alarms has been initiated and will continue until further notice. Lastly, the Emergency Response/Hazardous Materials organization has been briefed on the storage configuration. Action levels will be established and response instructions prepared. Should an abnormal condition be observed, the Permittees will implement their emergency response plan and provide notice to NMED within 24 hours.
5) Remediated nitrate salt-bearing SWBs are spaced an adequate distance apart to limit any potential interactions between SWBs; where possible, fire resistant curtains will be used in lieu of spacing. While preparations for use of the Dome 375 Permacon are in process (decontamination and removal of equipment and supplies), these SWBs continue to be stored in Dome 230, which has an active fire suppression system.
6) The Permittees are updating all procedures and safety basis documents to convert the processing facilities into storage facilities.
7) SWBs will display the required labels for all inner containers or will be reclassified as a new container in WCATS.
8) The Permittees have established a "Remediation Team" to identify a path forward for remediation of these containers as necessary and appropriate.

V. Immediate Actions for Unremediated Nitrate Salt –Bearing Waste Containers

There are currently 29 unremediated nitrate salt-bearing waste containers at LANL. The Permittees validated this number through review of data from the WCATS database and a field walk-down verification. Below is a description of the activities DOE/LANS have implemented and intend to implement to address isolating, securing, and/or treating the unremediated nitrate salt-bearing waste containers.

1) The Permittees will move all unremediated nitrate salt-bearing waste containers to the Permacons in Domes 375 or 231. Both Permacons are constructed of stainless steel frame and sheeting, and are contamination-control structures which are temperature-controlled and equipped with a HEPA filtration and fire suppression system.
2) The Permittees will monitor the temperature of the unremediated nitrate salt-bearing waste containers on a daily basis and perform visual inspections of the these containers on an hourly basis, 24 hours per day, to identify abnormal conditions (e.g., signs of smoking, evidence of deterioration, any other abnormal conditions). These containers are 55-gallon drums overpacked into 85-gallon drums. Additionally, the use of continuous air monitoring

(CAMs) alarms has been initiated and will continue until further notice. Lastly, the Emergency Response/Hazardous Materials organization has been briefed on the storage configuration. Action levels will be established and response instructions prepared. Should an abnormal condition be observed, the Permittees will implement its emergency response plan and provide notice to NMED within 24 hours.

3) Unremediated nitrate salt-bearing containers will be spaced an adequate distance apart to limit any potential interactions with other containers; where possible fire resistant curtains will be used in lieu of spacing. While preparations for use of the 375 Permacon are in process (decontamination and removal of equipment and supplies), these containers continue to be stored in Dome 232.
4) The Permittees are updating all procedures and safety basis documents to convert the processing facilities into storage facilities.
5) The Permittees established a "Remediation Team" to identify a path forward for remediation of these containers as necessary and appropriate.

VI. Cemented Legacy and Newly Generated Cemented Nitrate Salt-Bearing Waste

Since 1991, the nitrate salt waste stream generated from the evaporator process at TA-55 has been sent to cement fixation immediately upon generation. Remediated and unremediated nitrate salt-bearing waste containers generated at TA-55 prior to 1991 are discussed above. The cementation process removes characteristics of ignitability and reactivity from the nitrate salt waste stream. Nitrate salt waste containers generated at TA-55 after 1991 have been cemented per MST-12 Procedure no. 485-REC-R00, *Treatment of Evaporator "Bottoms"* (July 1984) or NMT-2 Safe Operating Procedure no. 485-REC-R01, *Computer Operated Nitric Acid Volume Reduction and Treatment of Evaporator Bottoms* (September 1991) and are therefore not ignitable per the definition in 40 CFR §264.21 (Characteristic of Ignitability) or reactive per the definition in §264.23 (Characteristic of Reactivity). There are approximately 378 containers of post-1991 cemented nitrate salt containers within the LANL Area G inventory. Based on the above facts, the Permittees recommend that no further controls be implemented for the cemented legacy and newly generated cemented nitrate salt-bearing waste generated since 1991.

VII. Schedule

Activity	Due Date
Remediated Nitrate Salt-Bearing Waste Containers	
1) & 2) Overpacking (into SWBs) of all nitrate salt-bearing wastes at LANL	5/18/14
3) Movement of SWBs to designated areas (e.g., Domes 230, 231 and 375) – Currently all remediated nitrate salt-bearing drums are in Dome 230	Move to Dome 230 completed on 5/1/14. All remaining moves complete by 6/3/14

4) Daily/Hourly monitoring of containers	Daily monitoring began on 5/1/14; Hourly monitoring began on 5/17/14
5) Appropriate spacing of SWBs	Completed in Dome 230 on 5/1/14. Completed in Dome 375 & 231 Permacons by 6/3/14
6) Updating procedures/safety basis documents as appropriate	5/30/14
7) Labels for SWBs (display inner container label)	Completed 5/18/14
8) Remediation Team kick off	Completed 5/20/14
Unremediated Nitrate Salt-Bearing Containers	
1) Movement of 85-gallon drums to designated areas (e.g., Domes 230, 231 and 375)	Began in Dome 230 on 5/1/14; All remaining moves complete by 6/3/14
2) Daily/Hourly monitoring of containers	Daily/Hourly; began on 5/20/14
3) Appropriate spacing of containers	Completed in Dome 230 on 5/1/14. Completed in Domes 375 and 231 Permacons by 6/3/14
4) Updating procedures/safety basis documents as appropriate	5/30/14
5) Remediation Team kick off	Completed 5/20/14

VIII. Daily Updates/Submissions

The Permitees shall provide daily updates to NMED during pre-scheduled technical calls. These updates shall be memorialized in written submissions provided to NMED via electronic mail (email) by close of business (COB) on a daily basis until NMED indicates otherwise.

All submissions related to this Order shall be placed in both the electronic and hard-copy Information Repositories within five (5) working days of submission to NMED.

All submissions required by NMED's Order will be sent to the following addresses:

Bureau Chief
Hazardous Waste Bureau
2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87508-6303

and

Division Director
Environmental Health Division
Harold Runnels Building
1190 Saint Francis Drive, PO Box 5469
Santa Fe, New Mexico 87502-5469