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ENVIRONMENT DEPARTMENT

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CERTIFIED MAIL - RETURN RECEIPT REQUESTED

August 29, 2014

Charles F. McMillan, Director
Los Alamos National Laboratory
P.O. Box 1663, MS K499
Los Alamos, NM 87545

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

RE: LANL NITRATE SALT BEARING WASTE CONTAINER ISOLATION PLAN
LOS ALAMOS NATIONAL LABORATORY
EPA I.D. NUMBER NM0890010515

Dear Mr. McMillan and Ms. Davis Lebak:

On May 19, 2014, the New Mexico Environment Department ("NMED") issued an Administrative Order ("Order") requiring the Department of Energy ("DOE") and Los Alamos National Security, LLC ("LANS"; collectively, with DOE the "Permittees") to submit a Los Alamos National Laboratory ("LANL") Nitrate Salt-Bearing Waste Container Isolation Plan ("Plan"). The Plan was received by NMED on May 21, 2014. On May 23, 2014, NMED sent a letter to the Permittees approving the plan contingent on the submittal of additional requirements.

A revised Plan was received by NMED on May 29, 2014, and has been reviewed. In light of the recent notification of D001 and D002 assignment to containers subject to the revised Plan, as well as uncertainties with regard to some containers at LANL that are not subject to the revised Plan, NMED hereby approves the revised Plan with modifications, as described in the comments below. In order to ensure the continued protection of human health and the environment, the Permittees shall address all of the items enumerated below, incorporate changes, and resubmit the Plan to NMED no later than September 19, 2014 for final review and approval.

THE PLAN

1. On August 28, 2014, the Permittees verbally informed NMED that they had reduced the frequency of headspace gas sampling on container 68685 from daily to twice per week. The Permittees shall resume daily HSG sampling of this container effective immediately, and revise the Plan to incorporate this requirement.

2. During conversations with the Permittees, NMED has become aware that at least one standard waste box (SWB) (Container SB50522) with a container of remediated nitrate salt-bearing waste has elevated concentrations of hydrogen gas (H_2) and carbon dioxide (CO_2). Container SB50522 is isolated in Cell 1 of the Permacon in Building TA-54-375, along with 17 other SWBs.

   The Permittees have informed NMED that they had been collecting daily headspace gas sampling and hourly temperature measurements for container SB50522. On August 28, 2014, the Permittees verbally informed NMED that they had reduced the frequency of HSG sampling on this container from daily to twice per week. The Permittees shall resume daily HSG sampling of this container effective immediately, and revise the Plan to incorporate this requirement.

   NMED notes that the lower explosive level (LEL) for H_2 for Container SB50522 is 4%, or approximately 40,000 parts per million (ppm). The Permittees have informed NMED that they have observed H_2 concentrations in this container of approximately 28,000 ppm, or about 70% of the LEL, and that CO_2 levels have been as high as approximately 76,000 ppm. The Permittees have also stated that 35,000 ppm (approximately 87.5% of the LEL) for H_2 is an "action level," but did not describe any specific actions that will be taken, and that the ratio of these two gases indicates that radiolysis is occurring.

   The revised Plan shall include the following information for Container SB50522:
   a. The container identification numbers and waste stream identification numbers for each of the four containers in the SWB;
   b. The range (high to low) of H_2 and CO_2 levels the Permittees have observed during headspace gas sampling;
   c. The range of temperature measurements the Permittees have observed during hourly temperature measurements;
   d. Results of headspace gas sampling for the four containers prior to packaging them into the SWB;
   e. An explanation of why the Permittees believe the H_2 and CO_2 levels are elevated for this SWB, including a review and evaluation of the H_2 and CO_2 levels for each of the waste streams contained within the SWB (i.e., do sampling and analyses of H_2 and CO_2 for containers in these waste stream indicate elevated levels for the waste stream?);
   f. An explanation of why the Permittees believe the ratio of CO_2 to H_2 observed in the SWB indicates radiolysis is occurring and that it does not indicate some other reaction is taking place in one of the four inner containers.

3. The revised Plan shall include the range of H_2 and CO_2 concentrations for all the SWBs on which the Permittees have conducted headspace gas sampling.

4. The revised Plan shall require the Permittees to conduct daily head space gas sampling of any SWB for which the Permittees observe H_2 concentrations at or above 20,000 ppm (~50% of the LEL). The Plan shall also require the Permittees to develop a schedule for NMED approval to periodically sample headspace gas of all the SWBs to ensure the protection of human health and the environment.

5. The revised Plan shall propose the actions the Permittees shall take to protect human health and the environment if H_2 concentrations on any SWB reach 30,000 ppm (~75% of the LEL).

6. The revised Plan shall propose the actions the Permittees will take to protect human health and the environment if the ratio of CO_2 to H_2 of any SWB indicates that a reaction other than radiolysis is occurring.

7. The revised Plan shall include all temperature and headspace gas sampling data the Permittees have collected since the Plan was implemented. The revised Plan shall also require the Permittees to include this data in the daily email updates.

8. On August 12, 2014, NMED requested via email the number of containers assigned to waste stream LA-CIN01.001 that are not in isolation. To date, NMED has received no response. The revised Plan shall require the Permittees to develop a schedule for isolating the remaining containers in waste stream LA-CIN01.001 at LANL that are not cemented monoliths that were generated at TA-55 and associated with the original LANL waste stream ID of TA-55-38. If the Permittees contend that some or all of these containers should not be isolated, the Permittees shall provide documentation demonstrating that these containers are free of unconsolidated nitrate salts by September 19, 2014. Otherwise, the schedule shall require isolation of these containers by September 19, 2014.

9. The revised Plan shall provide any updates to newly discovered information or completed activities that are relevant to this revised Plan since the Plan was submitted.

10. The revised Plan shall describe the regulatory basis for assigning the EPA Hazardous Waste Number D001 (ignitability) to the remediated and un-remediated containers, and D002 (corrosivity) to the un-remediated containers.

11. The revised Plan shall include all correspondence between LANL, Waste Control Specialists (WCS), the Waste Isolation Pilot Plant (WIPP), and any other agencies related to the assignment of EPA Hazardous Waste Number D001 that were shipped to WCS and/or WIPP, including copies of corrected manifests.

12. The revised Plan shall thoroughly describe the reasoning and analyses for the speculation that the waste in the remediated and un-remediated containers is an oxidizer and the assignment of EPA Hazardous Waste Number D001.

13. The revised Plan shall thoroughly describe the reasoning and analyses for the speculation that the waste in the un-remediated containers is corrosive and the assignment of EPA Hazardous Waste Number D002.

14. The revised Plan shall discuss the progress of remediation plans and schedules, including but not limited to, the processes, location and permit modification status for potential treatment to stabilize nitrate salts and remove the characteristics of ignitability (D001) and/or corrosivity (D002).

15. The revised Plan shall discuss how the isolation configuration continues to be protective of human health and the environment in light of the elevated concentrations of H_2 and CO_2 in SWBs and assignment of EPA Hazardous Waste Numbers D001 and D002. Include a discussion of the fire suppression systems, climate control, filtration systems, and any other mechanisms to protect human health and the environment in the event of a reaction within a container, a release, a fire, or an explosion.

OTHER NITRATE SALT-BEARING WASTE STREAMS

16. The Plan shall provide updates regarding identification of other waste streams or containers that have or been identified by WIPP, LANL, WCS, NMED or any other agency as requiring isolation.

If you have any questions regarding this matter, please contact John Kieling at (505) 476-6035.

Sincerely,

Ryan Flynn
Secretary
New Mexico Environment Department

cc: T. Blaine, Director, NMED EHD
J. Kendall, NMED OGC
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S. Pullen, NMED HWB
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