33

NEW MEXICO ENVIRONMENT DEPARTMENT

ENTERED

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DAVE MARTIN
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CERTIFIED MAIL - RETURN RECEIPT REQUESTED

January 13, 2011

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Michael Graham
Associate Director Environmental Programs
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RE: NOTICE OF DISAPPROVAL
INVESTIGATION WORK PLAN (IWP) FOR
CHAQUEHUI CANYON AGGREGATE AREA, REVISION 1
LOS ALAMOS NATIONAL LABORATORY (LANL)
EPA ID #NM0890010515
HWB-LANL-09-072

Dear Messrs. Rael and Graham:

The New Mexico Environment Department (NMED) has received the United States Department of Energy (DOE) and the Los Alamos National Security L.L.C.'s (LANS) (collectively, the Permittees) Investigation Work Plan for Chaquehui Canyon Aggregate Area, Revision 1 (IWP), dated November 2010 and referenced by LA-UR-10-7226/EP2010-0485. NMED has reviewed the Work Plan and hereby issues this Notice of Disapproval (NOD). The Permittees must address the following comments.

34257

General Comments:

1) In Sections 4.1.1.1 (SWMU 33-002(a), Septic System, Previous Investigations), page 13, 4.1.1.2 (SWMU 33-002(b), Seepage Pit, Previous Investigations), page 16, and 4.1.1.3 (SWMU 33-002(c), Seepage Pit, Previous Investigations), page 19, the Permittees provide lists of particular sampling locations and the respective COPCs for which the vertical extent of contamination was not defined during the Voluntary Corrective Action (VCA). While NMED agrees with the locations and contaminants included in the lists, the Permittees did not include all locations and COPCs for which the vertical extent has not been defined. Specifically, for the sites and sampling locations listed below:

   a) For SWMU 33-002(a), the Permittees must add:
      - 33-01652 – toluene
      - 33-01696 – acetone
      - 33-24716 – calcium, naphthalene
      - 33-24717 – calcium
      - 33-24719 – 2-methylnaphthalene
      - 33-24720 – bis(2-ethylhexyl)phthalate
      - 33-24721 – calcium, tritium
      - 33-24722 – barium, calcium, fluorene
      - 33-24723 – calcium, copper
      - 33-24724 – barium, calcium
      - 33-24725 – barium
      - 33-24726 – copper, zinc
      - 33-25097 – butanone(2-), tetrachloroethene
      - 33-25098 – di-n-butylphthalate
      - 33-25110 – Aroclor 1254, tetrachloroethene, TPH-DRO
      - 33-25112 – tetrachloroethene, tritium
      - 33-25113 – Aroclor 1254
      - 33-25114 – tritium
      - 33-25115 – di-n-butylphthalate
      - 33-25116 – bromobenzene

   b) For SWMU 33-002(b), the Permittees must add:
      - 33-01328 – barium, calcium, copper, lead, selenium
      - 33-25083 – Aroclor 1254, methylene chloride
      - 33-25084 – barium, tritium
      - 33-25087 – Aroclor 1254, fluoranthene, phenanthrene, pyrene
      - 33-25088 – calcium, tritium
      - 33-25092 – copper, acenaphthene, strontium-90
      - 33-25094 – di-n-butylphthalate

- 33-25095 – benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, fluoranthene, phenanthrene, pyrene, americium-241, tritium
- 33-25096 – tetrachloroethene
- 33-25123 – calcium, acetone
- 33-25124 – tetrachloroethene, toluene, trichloroethene
- 33-25125 – acetone, tetrachloroethene, toluene, trichloroethene

c) For SWMU 33-002(c), the Permittees must add:
- 33-01697 – chromium, di-n-butylphthalate
- 33-24727 – barium, selenium, Aroclor 1254, Aroclor 1260, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, indeno(1,2,3-cd)pyrene, fluoranthene, phenanthrene
- 33-24728 – calcium, selenium, anthracene, Aroclor 1254, Aroclor 1260, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, chrysene, fluoranthene, indeno(1,2,3-cd)pyrene, phenanthrene, pyrene
- 33-24729 – selenium, fluorene, methylnaphthalene[2-]
- 33-25085 – tritium
- 33-25086 – calcium, benzo(a)anthracene, benzo(a)pyrene, benzo(k)fluoranthene, chrysene, fluoranthene
- 33-25118 – mercury, TPH-DRO
- 33-25120 – calcium, selenium
- 33-25121 – barium, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, fluoranthene, phenanthrene, pyrene
- 33-25122 – calcium, selenium

Revise the IWP to include the locations and analytes listed above for which vertical extent has not been defined, and revise the IWP to include these COPCs in the analyses conducted on samples collected under this plan.

2) The Permittees have not included all COPCs in the analyses specified for many of the SWMUs and AOCs. Specifically,

a) Include analysis for tritium for all samples collected from the following areas:
- SWMU 33-010(f)
- SWMU 33-004(a)
- Consolidated Unit 33-005(a)-00
- AOC 33-008(c)
- SWMU-33-012(a)
- SWMU-33-004(b)
- SWMU-33-004(j)
- SWMU-33-006(a)
- SWMU-33-008(a)

- SWMU-33-010(c)
- SWMU-33-010(h)
- SWMU-33-010(g)
- SWMU-33-011(b)

b) Include analysis by gamma spectroscopy for all samples collected from the following areas:
   - SWMU 33-010(f)
   - SWMU-33-004(b)

c) Include analysis for explosive compounds for all samples obtained from the following areas:
   - SWMU 33-004(h)
   - AOC C-33-003

Revise the IWP to include the analyses specified above for the above-listed sites.

3) In Sections 4.1.1.5 (SWMU 33-002(e), Outfall, Previous Investigations), 4.1.5.2 (Previous Investigations), 4.3.2.2 (Previous Investigations) and 4.3.3.1 (SWMU 33-004(j), Drainline and Outfall, Previous Investigations), the Permittees present misleading statements regarding sample analysis results. For instance, in Section 4.1.1.5, page 21, paragraph 3, the Permittees state, "[t]ritium was the only radionuclide detected or detected above BV/FV." According to the preceding paragraph, tritium was the only radionuclide included in the sample analysis. Similarly, this scenario applies to uranium in Section 4.1.5.2 and cesium-137 in Section 4.3.2.2. In Section 4.3.3.1, the Permittees state, "[n]o organic chemicals were detected, and no radionuclides were detected or detected above BVs/FVs." This statement is similarly misleading because, according to the previous paragraph, cesium-137 was the only radionuclide included in the sample analysis. Revise the IWP to remove these conclusory statements, or provide any omitted information upon which these conclusions are based.

4) In Sections 4.1.6.3 (Proposed Activities) and 4.1.8.3 (Proposed Activities), the Permittees propose to collect one or no sample(s) from beneath the pads. In order to properly characterize the contamination below a pad, a total of five samples are required, four from within the pad footprint near each of the four sides and one from the center of the pad. Revise the IWP to include these samples for all areas where a pad was utilized to store or house materials that contained COPCs and/or support equipment containing COPCs.

5) In most of the figures and plates included in the IWP, the Permittees include both a 10-ft and a 20-ft contour in the legend. The 20-ft contours are duplicative of and indistinguishable from the 10-ft contours on the figures and plates. This only applies to the 20-ft contours and not to the 2-ft or 100-ft contours. Revise all figures and plates within the IWP to utilize 10-ft contours and remove the 20-ft contour from figure legends.

Also, all figures and plates displaying site features must include a short description and structure number below the SWMU or AOC labels. In Figure 4.1-1 (Site features and decision-level sampling locations for Consolidated Unit 33-002(a)-99), page 85, this information is provided for all but one of the SWMUs. All figures and plates must include information describing the SWMU or AOC in the same format that the label for SWMU 33-002(b) is presented on Figure 4.1-1. Revise all figures and plates that display site features to include descriptions of the SWMUs and AOCs presented in the plate or figure.

6) In Tables 4.1-2, 4.1-3, 4.1-4, 4.3-2, 4.3-3, and 4.3-4, the Permittees provide sampling results from past investigations. While the Permittees provide background values for the inorganics and radionuclides, they do not provide the Residential SSLs or SALs. Although the Industrial SSLs/SALs are provided in a separate table, these values must be included in the tables of results for comparison. Revise the sampling result tables listed above to include both Industrial and Residential SSLs/SALs.

Specific Comments:

1) **Section 4.1.1.1, SWMU 33-002(a), Septic System, Previous Investigations, page 10**

Permittees' Statement: "Twenty-one samples were analyzed for tritium; 20 samples were analyzed for gamma-emitting radionuclides and uranium; 21 samples were analyzed for metals, uranium, SVOCs, VOCs, PCBs, and HE; and 22 samples were samples were analyzed for VOCs."

NMED Comment: The Permittees have provided inconsistent statements regarding the number of samples analyzed for both uranium and VOCs. It is unclear whether 20 or 21 samples were analyzed for uranium. Similarly, it is unclear whether 21 or 22 samples were analyzed for VOCs. Also, "samples were" is repeated in the last part of this statement. Revise the IWP to correct these discrepancies and typographical errors.

2) **Section 4.1.1.5, SWMU 33-002(e), Outfall, Description and History, page 20**

Permittees' Statement: "This outfall was created when the SWMU 33-002(b) seepage pit was deactivated and disconnected from the building 33-0086 drainline."

NMED Comment: The Permittees have provided no dates regarding the history of this SWMU. Although dates of events connected to this outfall are discussed under Section 4.1.1.2 (SWMU 33-002(b), Seepage Pit), these dates and events should also be included in the outfall description and history. Revise the text in this section to include dates of use.

3) **Section 4.1.2.1, SWMU 33-004(a), Septic System, Description and History, page 23**

Permittees' Statement: "SWMU 33-004(a) consists of a septic tank (structure 33-0031), associated drainlines, two seepage pits, and a drain field. The septic tank has a capacity of

1360 gal. and is located 50 ft northeast of building 33-0039 (Figure 4.1-9). This septic tank is in use and serves all major buildings at the TA-33 Main Site. Septic tank 33-0031 received sanitary wastewater from a laboratory/office building (33-0019) and a storage building (33-0027)."

NMED Comment: The Permittees did not include the timeframe that the septic system was utilized. Also, storage building (33-0027) is not shown on Figure 4.1-9. Revise the text and figure of the IWP to correct these discrepancies.

4) **Section 4.1.2.6, SWMU 33-017, Potential Soil Contamination, Description and History, page 30**

Permittees' Statement: "SWMU 33-017 is potentially impacted by runoff from the paved areas of the TA-33 Main Site complex by deposition from airborne releases from TA-33 Main Site facilities and by operational releases from an area east of building 33-39 used for vehicle maintenance."

NMED Comment: The Permittees' designation of "building 33-39" is not consistent with structure identification numbers. NMED assumes that the Permittees are referring to building 33-0039. Also, this sentence requires punctuation for clarification. Revise the IWP to resolve these issues.

5) **Section 4.1.3.1, SWMU 33-005(a), Former Septic System, Description and History, page 32**

Permittees' Statement: "SWMU 33-005(a) consists of the former septic system that served restrooms and change-room lavatories in former building 33-0021 (Figure 4.1-16). Drainlines discharged to a manhole (former structure 33-0074), which drained to a septic tank (former structure 33-0032). The outfall for the septic system was reported to be a few feet south of the septic tank (LANL 1992, 007671, pp. 3-21–3-25)."

NMED Comment: While this description in the text specifies that the outfall for the system was to the south, Figure 4.1-16 shows the drain line exiting from the septic tank to the west. Revise the text and/or figure of the IWP to resolve this discrepancy.

6) **Section 4.1.7.3, Proposed Activities, page 39**

Permittees' Statement: "The nature and extent of residual contamination have not been determined for this site. Ten samples will be collected from two depths (0 to 1 ft and 3 to 4 ft beneath the bottom of the sump) from two locations next to the sump and from three locations along the drainline (0 to 1 ft and 3 to 4 ft beneath the bottom of the drainline). In addition, eight samples will be collected from two depths (0 to 1 ft and 2 to 3 ft bgs) at four locations within the outfall and drainage downgradient of the outfall. All sample[s] will be analyzed for metals, VOCs, SVOCs, perchlorate, cyanide, isotopic uranium, and nitrate. In

addition, 20% of the samples will be analyzed for PCBs. Proposed sampling locations are shown in Figure 4.1-26. Table 4.0-1 summarizes the proposed sampling locations, depths, and analytical suites."

NMED Comment: The Permittees propose to sample next to the sump rather than below it. The sump can either be removed or drilled to allow the Permittees to sample directly below the sump. Revise the IWP to include removal and disposal of the sump or drilling through the base of the sump and sampling directly below the sump.

7) **Section 4.3.4.2, Previous Investigations, page 64**

Permittees' Statement: "VCA was implemented at SWMU 33-010(g) in 1995. The debris was field screened for radioactivity and metals. Debris smaller than 3 in. in diameter was removed if radioactive screening results were above background levels. A total of 4 yd^3 of nonhazardous/nonradioactive debris and 2 ft^2 of radioactive debris was removed."

NMED Comment: The Permittees have used a unit of area (ft^2) to describe a volume. Revise the IWP to resolve this error.

8) **Section 5.1.2, Geophysical Studies, page 67**

Permittees' Statement: "Geophysical surveys will be performed at selected sites to identify anomalies that would indicate the location of former waste disposal sites, including SWMU 33-008(a). Geophysical methods will include terrain conductivity (EM-31 or equivalent), high-sensitivity metal detection (EM-61 or equivalent), and GPR."

NMED Comment: The Permittees did not define the abbreviation "GPR" within the text or in Appendix A of the IWP. Revise the text and Appendix A of the IWP to include a definition of GPR. Ensure that all acronyms and abbreviations are defined within the text and included in Appendix A.

9) **Table 2.3-1, Industrial SSLs and SALs, page 157**

NMED Comment: The Permittees have only included the Industrial SSLs and SALs in the table. Revise the table to include Residential SSLs and SALs for comparative purposes.

The Permittees must address all comments herein and submit a revised Investigation Work Plan by February 18, 2011. All submittals (including maps) must be in the form of two paper copies and one electronic copy in accordance with Section XI.A of the Order. In addition, the Permittees must submit a redline-strikeout version that includes all changes and edits to the Investigation Work Plan (electronic copy) with the response to this NOD.

Please contact Ben Wear at (505) 476-6041 should you have any questions.

Sincerely,

James P. Bearzi
Chief
Hazardous Waste Bureau

cc:

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