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NEW MEXICO ENVIRONMENT DEPARTMENT

Hazardous Waste Bureau

BILL RICHARDSON
Governor

DIANE DENISH
Lieutenant Governor

2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505-6303
Phone (505) 476-6000 Fax (505) 476-6030
www.nmenv.state.nm.us

RON CURRY
Secretary

JON GOLDSTEIN
Deputy Secretary

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

December 23, 2008

David Gregory
Federal Project Director
Los Alamos Site Office
Department of Energy
528 35th Street, Mail Stop A316
Los Alamos, NM 87544

David McInroy
Remediation Services Deputy Project Director
Los Alamos National Laboratory
P.O. Box 1663, MS M992
Los Alamos, NM 87545

RE: NOTICE OF DISAPPROVAL FOR PHASE II INVESTIGATION REPORT FOR THE TA-16-340 COMPLEX [CONSOLIDATED UNITS 13-003(a)-99 AND 16-003(n)-99 AND SOLID WASTE MANAGEMENT UNITS 16-003(o), 16-026(j2), AND 16-029(f)]
LOS ALAMOS NATIONAL LABORATORY
EPA ID #NM0890010515
HWB-LANL-08-032

Dear Messrs. Gregory and McInroy:

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) *Phase II Investigation Report for the TA-16-340 Complex [Consolidated Units 13-003(a)-99 and 16-003(n)-99 and Solid Waste Management Units 16-003(o), 16-026(j2) and 16-029(f)*], dated September 2008 and referenced by LA-UR-08-6071/EP2008-0491. NMED has reviewed this document and hereby issues this Notice of Disapproval (NOD).

General Comments:

1. The only area within the Technical Area (TA) 16-340 Complex where industrial risk exceeded the target risk level of 1E-05 was at Solid Waste Management Unit (SWMU) 16-003(o). The primary drivers for the excess risk were benzo(a)pyrene (BaP) and arsenic. The

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figure that presents the 2008 soil removal locations (Figure 3.1-2) for SWMU 16-003(o), shows an area around the 7500 foot contour line where soils with elevated levels of BaP and arsenic were not excavated (more clearly shown on Figure 2.3-1). The report did not contain a discussion of how the locations for soil removal were determined and why this area of soil with elevated levels of contamination was not included in the corrective action. Based upon the description for this area and from review of the topographic map, the steepness of the area may have been a contributing factor for excluding the area from soil removal. The Permittees must clarify why this area of contaminated soil was not included in the 2008 soil removal activities.

2. As part of the assessment of the potential for contaminants to migrate to groundwater, pore water concentrations were compared to derived screening levels. These screening levels are dependent on the Henry's Law constant for individual constituents. The physical and chemical properties for the constituents detected in pore water were obtained from either the New Mexico Soil Screening Levels (NMED SSLs) Guidance document or the Pennsylvania Department of Environmental Protection chemical and physical properties database. For the ecological screening assessment, physical and chemical properties were taken from the Risk Assessment Information System (RAIS) database. It is not clear why the Pennsylvania database was used over the Region 6 medium-specific screening level (MSSL) database or why multiple databases were applied for physical and chemical data. While no real discrepancies were noted, the Permittees must clarify the rationale for the use of different databases in the same assessment.

3. It is noted that the Permittees applied either United States Environmental Protection Agency (EPA) Region 6 media-specific screening levels (MSSLs) or EPA Region 9 preliminary remediation goals (PRGs), if NMED SSLs were not available. This hierarchy of screening levels is based on the March 1, 2005, Order on Consent (Section VIII). In July 2008 (and updated in September 2008), Regional Screening Levels (RSLs) were posted as inter-regional screening levels for EPA Regions 3, 6, and 9. These new RSLs supersede the previously used MSSLs and PRGs. As noted on the regional web pages, use of the individual regional screening levels should be discontinued. The RSLs are posted at (http://www.epa.gov/region09/waste/sfund/prg/rsl-table.html or http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/index.htm). The Phase II investigations were conducted between June and August of 2008. Thus, the risk evaluation would have been conducted after August 2008 and the new RSLs should have been applied. A preliminary comparison of the screening levels used in the report to the RSLs (where a MSSL or PRG was applied) was conducted. Since the assessment as presented in the report is conservative (i.e., use of a RSL would not result in a higher risk/hazard), no modification of the screening is warranted. Please note that for all future risk evaluations the RSLs should be used over either MSSLs or PRGs.

4. A complete exposure pathway is defined for a construction worker, but not evaluated. Risks to a construction worker may occur upon further development of this site. The Permittees were directed to evaluate a construction worker scenario for the 16-340 Complex in the

approval letter for the Investigation Work Plan that was issued on June 28, 2004. The Permittees state that they will also evaluate the construction worker scenario and provide the results to construction/D&D organizations prior to conducting any construction work at the site. The Permittees must conduct a construction worker evaluation and include it in the revised Report, even if future development of the site is not immediately anticipated.

5. NMED will include the requirements and schedule for groundwater, surface water and pore gas monitoring at the time of approval of the Report. No response is required.

Specific Comments:

1. Section 4.7, Surface Water Conditions, Page 23:
NMED Comment: The erosion potential (EP) scores reported in the Draft NPDES permit are different from the values reported in this Investigation Report. Appendix A of the Draft NPDES permit reports an EP value of 70.0 for SWMUs 16-003(n) and 16-003(o), and a value of 67.0 for SWMU 16-026(j2). These latest surface water assessments indicate a high potential for erosion from these sites. Revise the text and associated surface water assessment for these sites based on the most recent EP scores.

2. Table 5.2-1, Summary of Human Health Screening Levels for Chemicals and Radionuclides, Pages 65-68:
NMED Comment: Minor editorial comments were noted with the footnotes on Table 5.2-1: carbon disulfide does not require a footnote; a footnote "a" should be added to 1,3-dinitrobenzene; and a footnote "a" should be added to 1,3,5-trinitrobenzene. Revise the table accordingly.

3. **Appendix H, Analytical Data Review and Assessment, Section H-8.3.1, Page H-28:**
Permittees Statement: The lateral extent of barium and copper is also defined because barium and copper were detected at lower concentrations at 2008 boreholes 16-603400 and 16-603401, located downgradient of the sumps and at the top end of the former fishladder Structure.

NMED Comment: Copper was detected at 33 mg/kg at sampling location 16-603400; that is higher than most of the detected concentrations reported for copper at the former sumps. Revise the text accordingly.

4. **Appendix H, Analytical Data Review and Assessment, Section H-8.3.1, Page H-31:**
Permittees Statement: The lateral extent is defined at the former fishladder structure because arsenic was not detected at the most downgradient 2008 locations (16-603406 and 16-603407), it was also detected at lower concentrations at historical locations 16-25651 and 16-25653.

NMED Comment: Arsenic was detected at historical locations 16-23651 and 16-23653, and not at locations 16-25651 and 16-25653. Correct the typographical error.

5. **Appendix H, Analytical Data Review and Assessment, Section H-8.3.2, Page H-34**:
Permittees Statement: Acetone was detected in multiple historical and 2008 samples. The maximum concentration (0.212 mg/kg[J]), was detected at historical location 16-603406.

NMED Comment: Acetone was not detected at historical location 16-603406 but was detected at location 16-24906 (0.212 mg/kg). Location 16-603406 is not a historical location, but a 2008 sampling location. Revise the text accordingly.

6. Appendix H, Analytical Data Review and Assessment, Section H-8.3.2, Page H-36:
Permittees Statement: Acetone and propylene concentrations decreased from July 2008 to August 2008 in borehole 16-603511. Acetone and propylene were either not detected or were reported at low levels during 2005 sampling at boreholes 16-23691 and/or 16-23693.

NMED Comment: Above statement is inaccurate. Acetone and propylene concentrations increased from July 2008 to August 2008, not decreased at depths of 95-103 ft (see Table H-5.4-1) in borehole 16-603511. Contrary to the above statement, acetone was detected in a poregas sample obtained from borehole 16-23691 (175-176 ft) at 285 $\mu g/m^3$ in 2005; this was the highest detected concentration of acetone. Resolve the discrepancies and revise the text accordingly.

7. Appendix H, Analytical Data Review and Assessment, Section H-8.4.1, Page H-38:
Permittees Statement: Five of these 11 inorganic COPCs (barium, chromium, copper, nickel, and perchlorate) listed above were not detected during 2008 investigation, either at downgradient locations or at deeper depths, from the historical contamination.

NMED Comment: Chromium was detected at 8.34mg/kg at location 16-603405 during 2008 investigations (see Table 6.3-9). Perchlorate was not analyzed for during 2008 investigations. Revise the text and Plate 6 accordingly.

8. Appendix H, Analytical Data Review and Assessment, Section H-8.5.1, Page H-42:
Permittees Statement:

a. Arsenic, mercury, and thallium were only detected in one or two samples, and they were not detected in the downgradient well.
b. Cobalt showed a general increasing trend in concentrations from the upgradient to the downgradient well.
c. Manganese was detected at elevated concentrations in the middle alluvial well.

NMED Comment:

a. Arsenic was detected in only two samples, but was detected in the downgradient well (see Table 6.5-1).

b. Cobalt was detected at maximum concentrations in the middle alluvial well (i.e., 16-25279).
c. Manganese was detected at the maximum concentrations in samples collected from the most downgradient well (16-25278), and not the middle alluvial well (16-25279).

Revise the text accordingly.

9. Appendix H, Analytical Data Review and Assessment, Section H-8.5.4, Page H-43:
Permittees Statement: Beryllium, cadmium, chromium, cobalt, copper, cyanide, iron, lead, manganese, nickel, silicon dioxide, silver, strontium, sulfate, tin, uranium, vanadium, and zinc were detected at lower concentrations downstream in Fishladder Canyon at Cañon de Valle (based on one of the two samples collected at Fishladder Canyon at Cañon de Valle).

NMED Comment: Review of the data presented in Table 6.5-1 does not support the above statement. For example, one filtered sample collected at the downgradient location (at the confluence of Fishladder Canyon and Cañon de Valle) contained highest concentrations of iron, strontium, vanadium, and zinc. There were no clear trends for lead. The unfiltered sample collected at the same location contained highest concentrations of most of the inorganic chemicals. Revise the statement to reflect the detected concentrations accurately.

10. Appendix I, Section I-4.3, SWMU 16-003(o), Page I-13:
Permittees Statement: For SWMU 16-003(o), arsenic and benzo(a)pyrene have EPCs above their respective SSLs (Table I-4.3-11).

NMED Comment: The exposure point concentration (EPC) for arsenic is 10.2 mg/kg, which is below the Industrial Soil Screening Level (SSL) of 17.7mg/kg. Revise the text accordingly.

11. Appendix I, Section I-5.4.8, Pages I-23 through I-26:
NMED Comment: Several constituents were eliminated as constituents of potential ecological concern (COPEC) due to low detection frequencies, low potential for toxicity, and/or no available ecological screening level (ESL) in the Ecorisk database.

a. Constituents that have historically been used at a site and/or potentially are present due to site activities should not be excluded from a risk assessment based on a low frequency of detection. As historical data are not available to demonstrate that these constituents are not potentially site-related, the use of low detection frequency should not be used as a line of evidence for eliminating the constituents as a COPEC. The constituents must be retained as a COPEC and discussed in the uncertainty analysis. The Permittees must revise the text accordingly.

b. Constituents must also not be excluded based on the constituent not being included in the Ecorisk database or because a surrogate screening level was applied. Where an ESL is not available in Ecorisk database, other sources, such as the EPA's Integrated Risk Information System (IRIS) should be used to obtain toxicological data. When a surrogate

screening level is applied, the constituent must be retained and the associated risk addressed in the uncertainty analysis.

12. Appendix I, Table I-2.3-1, Consolidated Unit 13-003(a)-99, Page I-40:
NMED Comment: The exposure point concentration (EPC), the maximum detected concentration for benzo(a)pyrene should be 0.135mg/kg, not 0.22mg/kg as reported (see Table H-3.2-1). Revise the table and associated risk screening.

The Permittees must address all comments and submit a revised Report by January 22, 2009. As part of the response letter that accompanies the revised Report, the Permittees must include a table that details where all revisions have been made to the Report and that cross-references NMED's numbered comments. All submittals (including maps and tables) 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 Report (electronic copy) with the response to this NOD.

Please contact Neelam Dhawan at (505) 476-6042, should you have any questions.

Sincerely,

James P. Bearzi
Chief
Hazardous Waste Bureau

cc: D. Cobrain, NMED HWB
N. Dhawan, NMED HWB
K. Roberts, NMED HWB
S. Yanicak, NMED DOE OB, MS J993
T. Skibitski, NMED DOE OB
L. King, EPA 6PD-N
G. Rael, DOE LASO, MS A316
M. Graham, ADEP, MS M991

File: LANL 2008, TA 16, 340 Complex