



**NEW MEXICO
ENVIRONMENT DEPARTMENT**



**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**

SUSANA MARTINEZ
Governor
JOHN A. SANCHEZ
Lieutenant Governor

RYAN FLYNN
Cabinet Secretary
BUTCH TONGATE
Deputy Secretary

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

**ERID-525146
EP2014-5291**

August 21, 2014



Peter Maggiore
Assistant Manager
U.S. Department of Energy
National Nuclear Security Administration
Los Alamos Field Office
3747 West Jemez Rd, MS A316
Los Alamos, NM 87544

Jeffrey D. Mousseau
Associate Director Environmental Programs
Los Alamos National Security, L.L.C.
P.O. Box 1663, MS M991
Los Alamos, NM 87545

**RE: DISAPPROVAL
INVESTIGATION REPORT FOR AREA OF CONCERN 01-007(K) IN THE
UPPER LOS ALAMOS CANYON AGGREGATE AREA
LOS ALAMOS NATIONAL LABORATORY
EPA ID#NM0890018
HWB-LANL-14-018**

Dear Messrs. Maggiore and Mousseau:

The New Mexico Environment Department (NMED) is in receipt of the United States Department of Energy (DOE) and Los Alamos National Security, L.L.C.'s (collectively, the Permittees) document entitled *Investigation Report for Area of Concern 01-007(k) in the Upper Los Alamos Canyon Aggregate Area* (Report), dated March 2014 and referenced by LA-UR-14-21403/EP2014-0043. NMED has reviewed the Report and issues this Disapproval.

General Comment:

For the vapor intrusion pathway, it was noted that soil data were used to calculate risks and hazards to receptors in indoor air in Tables G-4.3-1 and G-4.3-2. According to US Environmental Protection Agency's (EPA) (2002) *OSWER Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (Subsurface Vapor Intrusion Guidance)*, use of bulk soil data is not currently

recommended because of the “large uncertainties associated with measuring concentrations of volatile contaminants introduced during soil sampling, preservation, and chemical analysis, as well as the uncertainties associated with soil partitioning calculations”. Use of active soil-gas data is recommended to estimate indoor air concentrations and to assess risks and hazards from exposure to indoor air. However, it is noted that volatile organic compounds (VOCs) were not abundantly detected during the initial investigation of Area of Concern (AOC) 01-007(k) as noted in the *Investigation Report for Upper Los Alamos Aggregate Canyon, Revision* (February 2010). Because acetone and methylene chloride were the only VOCs previously detected, there was not sufficient concern to suspect a source for VOCs and to require active soil gas for this investigation. The forthcoming revision to the NMED Soil Screening Guidance includes a tiered approach for assessing VOCs and the need to conduct a quantitative assessment. Since there is no suspected source for continued release of acetone and methylene chloride, and the concentrations are decreasing with depth, the vapor intrusion pathway is potentially complete and the discussion and use of the bulk soil model are sufficient as a qualitative discussion for this pathway. Note that for future vapor intrusion investigations where the vapor intrusion pathway has been identified as a complete pathway, the use of active soil-gas data will be required.

Specific Comments

1. **Section 4.1, Current and Future Land Use, page 11:**

The Permittees’ state that residential scenario is evaluated for comparison purposes per the Consent Order. However, the site is located on private property, residential use is a reasonable foreseeable future land use, and had to be evaluated since the land use will be not under the Permittees’ control. No response to this comment is required.

2. **Section 4.2, Screening Levels, page 11:**

Text in Section 4.2 discusses the use of the trivalent chromium soil screening level (SSL) for total chromium results. It is agreed that the use of the trivalent chromium SSL is acceptable when there is no source for hexavalent chromium. Note that NMED will be providing an SSL for total chromium and guidance on how to address chromium in risk assessments in the forthcoming revision of *Risk Assessment Guidance for Site Investigations and Remediation (NMED 2012)*. No response to this comment is required.

3. **Section 5.1, Identification of COPCs, pages 12-13:**

The Permittees state that some constituents of concern may be eliminated from the data analyses and risk assessments, if they are from non-site related sources. This approach would be acceptable if the Permittees can make a clear demonstration using historical site information and/or by collecting site specific background data from locations not impacted by the site activities. However, cleanup may still be necessary, in which case it would be incumbent on the Permittee to seek financial relief from the responsible party that the Permittee identifies as the source of contamination. Also See Comment #9.

4. Section 5.1.1, Inorganic Chemical and radionuclide background Comparisons, page 14:

To identify chemicals of potential concern (COPC), the Permittees state that “[t]he sampling results are compared with the [background value] BV and the maximum background concentration for the appropriate media”. However, it should be noted that according to 2012 NMED risk assessment guidance, if the maximum detected concentration from a site is greater than the background reference value and too few samples and/or positive detections are available to conduct a statistical comparison and additional data are not proposed, then the constituent must be retained as a COPC. Comparison to the range of background is not sufficient grounds alone to eliminate a COPC. Step 3 of the NMED site attribution analysis does allow for additional lines of evidence to support elimination of a constituent as a COPC. Site history is listed as a line of evidence that may be used; however, sufficient site history must be available to justify why the constituent would not be present due to historical activities. Consistent with EPA guidance (*Risk Assessment Guidance for Superfund Volume I Human Health Evaluation Manual (Part A)*, 1989), if there is historical evidence to suggest that the constituent could be present at the site, then the constituent must be retained as a COPC.

5. Section 6.2.3, Summary of Previous Investigations, page 18:

The text states that previous sampling had not been conducted at AOC 01-007(k). This statement is incorrect since sampling was conducted at this site in 2008. The results of the 2008 investigations were included in the *Investigation Report for Upper Los Alamos Aggregate Canyon, Revision 1*, February 2010 (IR). NMED subsequently issued a Certificate of Completion with Controls on September 10, 2010 for AOC 01-007(k). The characterization of the site was considered incomplete pending removal of structures located on the site. The presence of existing structures was considered adequate controls for the site at that time. The Permittees collected additional samples in 2013 because the Los Alamos Inn had been demolished. The Permittees did not submit a work plan with proposed additional sampling locations for NMED’s approval. Revise the text to clarify that additional investigations were conducted in 2013 to complete characterization of the site with the intent to change the status from corrective action complete with controls to corrective action complete without controls.

6. Section 6.2.4.3, Soil, Rock, and Sediment Sampling Analytical Results, page 20:

Cadmium was not retained as a COPC because it was not detected above the soil background concentration of 0.4 mg/kg. However, the detection limits were above the background value and below the maximum soil background concentration of 2.6 mg/kg. The Permittees must conduct a hypothesis test to verify that site concentrations are not different than background and address it in the uncertainty analyses.

7. Section 6.2.4.3, Soil, Rock, and Sediment Sampling Analytical Results, page 21:

Text in Section 6.2.4.3 states that nitrate was not retained as a COPC because it is naturally occurring, although a site-to-background comparison was not conducted as background levels for nitrate have not been established. Nitrate was previously detected at low levels in AOC 01-007(k) and was retained as a COPC and included in the risk

screens. While nitrates are naturally occurring, they are also indicative of sewage (e.g., old IMHOFF tanks, historic broken or leaking septic lines from buildings and structures that have been demolished). As noted in Section 6.1.2 of the current report, "potential contaminants at former TA-01 may have been released into the environment from septic systems, the industrial waste line, drainlines, and storm water drainages occurred as a result of normal site operations (e.g., discharges from outfalls) and accidental spills or releases. No documentation exists to estimate the volumes or rates of the flow of the effluent from septic system outlet pipes, industrial waste line, drainlines, or storm water drainages to outfalls." In looking at both the current report and the 2010 report for this area, historical evidence suggests a potential source(s) for nitrates and there is reason to suspect they could be site related; stating concentrations are likely background without any discussion of how the past activities described in Section 6.1.2 support this conclusion does not provide sufficient rationale to exclude nitrates as a COPC. As such, and for consistency with the 2010 investigation for AOC 01-007(k), nitrates must be retained as a COPC. Revise the report accordingly.

8. **Section 6.2.4.3, Soil, Rock, and Sediment Sampling Analytical Results, page 21:**
The Permittees state that "[a]s discussed in section 5.1, the PAHs detected at this site [benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, fluoranthene, and pyrene] are not related to site operations and are present from sources other than releases from the AOC and therefore are not assessed as COPCs." However, benzo(a)pyrene was not detected at the site according to Table 6.2-3. Revise the text accordingly.
9. **Section 6.2.4.3, Soil, Rock, and Sediment Sampling Analytical Results, page 21:**
Detected polyaromatic hydrocarbons (PAHs) (benzo(a)anthracene, benzo(b)fluoranthene, chrysene, fluoranthene, and pyrene) were eliminated as COPCs based on the presumption that PAHs are common in urban runoff, or are related to other naturally occurring or anthropogenic background sources, as discussed in Section 5.1, Identification of COPCs. It is not acceptable to eliminate PAHs as COPCs based on the rationale provided. If the PAHs are not related to site activities, then it must be demonstrated by comparing site concentrations to site-specific background values. It is acknowledged that the PAHs were detected sporadically and at low levels. However, unless it can be shown that they are not site related in a site-to-background analysis, then they must be retained as COPCs in the risk assessments. Revise the risk assessment accordingly.
10. **Table G-2.3-2, EPCs for AOC 01-007(k) for the Ecological Risk, page G-28:**
The number of detects listed for lead (3) and uranium-235/236 (2) appears to be incorrect. It is acknowledged that this typographical error does not affect the results. However, modify Table G-2.3-2 to display the correct number of detects for lead (34) and uranium-235/236 (7).
11. **Table G-4.2-6, Construction Worker Radionuclide Screening Evaluation for AOC 01-007(k), page G-35:**
The construction worker screening action level (SAL) listed for uranium-235/236 (150 picocuries per gram, pCi/g) is not consistent with the SAL of 100 pCi/g listed in Los

Alamos National Laboratory's (2012) *Derivation and Use of Radionuclide SALs, Revision 2*. Revise Table G-4.2-6 accordingly. It is noted that this does not affect the overall results of the risk assessment.

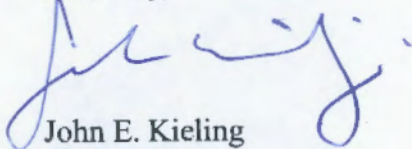
12. Appendix G, Attachment G-2, Vapor Intrusion Model Spreadsheets:

In the "DATAENTER" tab of the vapor intrusion spreadsheets, clarify the source of these input values: 'soil dry bulk density', 'soil total porosity', and 'soil water filled porosity'. It is not clear whether they are site-specific or if they are based on a default soil type; include the rationale for the selection of these values.

The Permittees must respond to all comments and submit a revised Report by **November 30, 2014**. 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 Disapproval.

Please contact Neelam Dhawan at (505) 476-6042 if you have questions.

Sincerely,



John E. Kieling
Chief
Hazardous Waste Bureau

cc: D. Cobrain, NMED HWB
N. Dhawan, NMED HWB
S. Yanicak, NMED DOE OB, MS M894
L. King, EPA 6PD-N
C. Rodriguez, DOE-NA-00-LA, MS A316
T. Haagenstad, EP-CAP, MS 992

File: Reading and LANL 2014 NOD IR for AOC 01-007(k) Upper Los Alamos Canyon AA