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CERTIFIED MAIL – RETURN RECEIPT REQUESTED

Arturo Duran
Designated Agency Manager
Environmental Management
U.S. Department of Energy
Los Alamos Field Office
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RE: NOTICE OF DISAPPROVAL
PERIODIC MONITORING REPORT FOR 2019 VAPOR-SAMPLING ACTIVITIES AT MATERIAL
DISPOSAL AREA C, SOLID WASTE MANAGEMENT UNIT 50-009, AT TECHNICAL AREA 50
AUGUST 2020
LOS ALAMOS NATIONAL LABORATORY
EPA ID #NM0890010515
LANL-20-048

Dear Mr. Duran:

The New Mexico Environment Department (NMED) has received the United States Department of Energy's (DOE) *Periodic Monitoring Report for 2019 Vapor-Sampling Activities at Material Disposal Area C, Solid Waste Management Unit 50-009, at Technical Area 50* (Report), dated August 2020 and referenced by EM2020-0281. The Report was received by NMED on August 11, 2020.

NMED's review of the Report has found deficiencies regarding the presentation of the results of the subsurface vapor monitoring analytical data that require a revision of the Report. The review also identified other issues that need to be corrected in the revision. NMED hereby issues this letter of disapproval with the following comments.

Specific Comments:

1. Section 3.1 Tier I Groundwater Screening, Page 5:

DOE Statement: "Table 3.1-1 presents the calculated concentrations of contaminants in soil vapor corresponding to groundwater SLs (hereafter, Tier I SLs) for the Tier I screening. Table 3.1-2 presents the results of the Tier I screening for the first round of 2019 pore gas data. Two VOCs were identified that exceeded the Tier I SL. Table 3.1-3 presents the results of the Tier I screening for the second

round of pore gas data. Four VOCs were identified that exceeded the Tier I SLs."

- a. **NMED Comment:** Please correct Table 3.1-1 to show the correct *Tier I Pore-gas Concentrations Corresponding to Groundwater Standard* for acetone, cis 1,2-dichloroethene and trans 1,2-dichloroethene. Acetone is listed with a Tier I SL (screening Level) of 20,300 ug/m³ instead of 19,700 ug/m³ and dichloroethene[trans-1,2-] is listed with a Tier I SL of 16,700 ug/m³ instead of 38,300 ug/m³. Also correct the *Groundwater Screening Level* for dichloroethene[cis1,2-], which is listed twice on the table. Please list dichloroethene[cis1,2-] only once with the correct New Mexico Water Quality Control Commission (NMWQCC) standard (70 ug/L), Tier I SL (11,700 ug/m³) and Henry's constant (0.167).
- b. **NMED Comment:** Please correct Table 3.1-2 to show the correct *Tier I Screening Level Calculated Concentrations in Pore Gas Corresponding to Groundwater Standard* for dichloro-1,1,2,2-tetrafluoroethane [1,2-]. Tables 3.1-1, 3.1-3 and 3.2-2 indicate this to be "na" for this compound.

2. Section 5.1 2019 Pore-Gas Results, Page 6.

DOE Statement: *"VOC analytical data from the second and first sampling rounds, respectively, are presented in Tables 5.1-1 and 5.1-2."*

- a. **NMED Comment:** Please correct Table 5.1-1 to show only one *Groundwater Tier I SL* for propanol [2-]. The Tier 1 SL for propanol [2-] is listed with both "na" and 136 µg/m³ in this table. Tables 3.1-1, 3.1-2 and 3.1-3 indicate the Tier I SL for this compound is 136 µg/m³. Please review and correct as needed, all tables for the listed screening levels, standards, and detections for each compound in the revised report.
- b. **NMED Comment:** Please correct Table 5.1-2 with respect to the trichloroethene detections for Field Sample ID MD50-19-166043 for borehole 50-24822 at the 142-foot depth; for Sample ID MD50-19-166099 for borehole 50-603472 at the 146-foot depth; and for Sample ID MD50-19-166058 for borehole 50-603063 at the 228-foot depth. Intellus indicates these detections should be 20,407.9 ug/m³, 10,741 ug/m³ and 22,556 ug/m³, respectively.

3. Section 5.3 Evaluation of VOC Pore-Gas Data as Related to Hypothetical Groundwater Contamination, Page 7

DOE Statement: *"Table 3.1-2 shows the two VOCs that exceeded Tier I SLs in the first sampling round, and Table 3.1-3 shows the four VOCs that exceeded Tier I SLs in the second sampling round. These VOCs are methylene chloride, trichloroethane[1,1,2-], and TCE. Because some groundwater SLs were exceeded, further screening was performed using the concentrations from the deepest pore-gas sample (i.e., the sample collected closest to the regional aquifer). The deepest sample, in which all three VOCs were detected, was collected from borehole location 50-613184 at a depth interval of 664.5 ft. The results of this screening show that all concentrations from the deep sample resulted in concentrations below the Tier I groundwater SL."*

- a. **NMED Comment:** Table 3.1-3 indicates 2-propanol was detected above the Tier I SL. Please include 2-propanol in the second sentence.
- b. **NMED Comment:** Section IV in Appendix E of the 2016 Compliance Order on Consent (CO)

provides NMED's general expectations and guidance for the presentation of subsurface vapor monitoring analytical data in Periodic Monitoring Reports (PMRs). Section IV)6 of the CO requires map and cross-sectional views in figures that show the analytical data of each contaminant detected in excess of the Tier I SLs during the current sampling events. The Report includes Figures D-1.0-2 and D-5.0-1 to illustrate the volatile organic compound (VOC) plume in map and cross-sectional view, however, these figures are from the 2012 CME and represent modeled TCE distributions from 2011 data. The Report does not contain figures that depict the January/February 2019 (first sampling round) and 2020 (second sampling round) results. In the revised report and subsequent PMRs, include map and cross-sectional figures of the distributions of individual contaminant (not total VOCs) concentrations detected above the Tier I SL at more than one location. At a minimum, isoconcentration maps and cross-sections like Figures D-3.0-1 through D-3.0-8 from the 2012 CME must be included in the revised report to depict the TCE distributions in the various strata detected during each recent sampling round.

4. Section D-1.0 Introduction, Appendix D, Page D-1

DOE Statement: *"All plots showing TCE concentration versus depth also include a red dashed vertical line that is the Tier I groundwater screening level of 2000 $\mu\text{g}/\text{m}^3$. This same screening level for TCE is shown as a horizontal red dashed line on all histograms."*

NMED Comment: The Tier I SL for TCE as provided on Tables 3.1-1, 3.1-2, 3.1-3, 5.1-1, 5.1-2 and 5.2-1 and as calculated in Section 3.0 using Henry's Law is 2020 ug/m^3 not 2000 $\mu\text{g}/\text{m}^3$. In the revision, please update all the histograms, time plots and notes in Figures D-2.0-1 through D-2.1-16, Figures D-3.0-1 through D-3.0-25, and Figures 4.0-1 through 4.0-18 to reflect the correct Tier I SL or provide an explanation why 2000 ug/m^3 is used instead of the calculated value. There are numerous inconsistencies of various Tier I SLs throughout the Report (see Comments Nos. 1 and 2) that make the Report difficult to follow. In the Report revision and all subsequent PMRs, please be consistent with each constituent Tier I SL throughout the Report and among all tables and figures. Also, in the figures requested in Comment No. 3, use the same Tier I SL as is used throughout the revised Report.

5. Section D-2.0 Plume Core Borehole Data, Appendix D, Page D-2

NMED Comment: In the Report revision, include a narrative for Boreholes 50-603470, 50-603471, and 50-613183, or provide an explanation in the narrative why these borings are not discussed.

6. Section D-3.4 Borehole 50-603467, Appendix D, Page D-3

DOE Statement: *"January 2020 data look suspicious as they are not following previous data trends."*

NMED Comment: In the Report revision, please include a narrative that provides evidence that the data is suspect, such as issues identified by the data validation (Appendix C) or the reasons provided in Section D-5.0 on page D-5 that explain a previous anomalous dataset at borehole 50-24822 (Figure D-3.0-1). As is, this statement is purely speculative. A statement that the data is anomalous with respect to previous trends would suffice if there are no known reasons for the change in the

time series concentration with depth plots.

7. **Section D-5.0 Plume Trends, Appendix D, Page D-5**

DOE Statement: *“Changes in plume concentrations through time from 2011 to 2020 support a conceptual model of VOC migration from higher concentration areas directly under the source region towards lower concentration regions around the edge of the plume both laterally and vertically. ... These regions have been circled in red in Figure D-5.0-1.*

In Figure D-5.0-1, the deepest ports (450–650 ft bgs) show very low TCE as a percent of the total VOC.”

NMED Comment: Figure D-5.0-1 is from the 2012 CME. An updated figure should be included to provide a visual comparison with the figure from the 2012 CME. See Comment No. 3.

Should you have any questions regarding this correspondence, please contact Christopher Krambis of my staff at (505) 476-3078.

Sincerely,

Neelam Dhawan

for

Kevin Pierard
Chief
Hazardous Waste Bureau

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File: Reading and LANL 2020, Notice of Disapproval for 2019 Vapor Sampling Periodic Monitoring Report at Material Disposal Area C