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November 9, 2023

Arturo Duran
Designated Agency Manager
Department of Energy-EM
1200 Trinity Drive, Suite 400
Los Alamos, NM 87544

RE: REVIEW
PERIODIC MONITORING REPORT FOR 2022 VAPOR-SAMPLING AND SOIL-VAPOR EXTRACTION AT MATERIAL DISPOSAL AREA L, SOLID WASTE MANAGEMENT UNIT 54-006, AT TECHNICAL AREA 54 (MAY 2023)
LOS ALAMOS NATIONAL LABORATORY
EPA ID #NM0890010515
HWB-LANL-23-029

Dear Mr. Duran:

The New Mexico Environment Department (NMED) has received the United States Department of Energy's (DOE) *Periodic Monitoring Report for 2022 Vapor-Sampling and Soil-Vapor Extraction at Material Disposal Area L, Solid Waste Management Unit 54-006, at Technical Area 54* (Report), dated May 2023 and referenced by EM2023-0049. The Report was received by NMED on April 20, 2023.

NMED reviewed the Report and has the following comments:

General Comment:

1. NMED is concerned about rebound and possible leakage occurring after ceasing operations of the soil-vapor extraction (SVE) units following ten months of continuous SVE removal. Vapor-monitoring data was collected following the shutdown of the two SVE units in November 2015. DOE is proposing to initiate operation of the SVE units twice annually, in the spring and fall, to continue mass removal, following the recommendations of the Interim Measure Final Report, Revision 1[1]. However, the presence of 1,4-dioxane exceeding Tier 1 Screening Levels in the deepest sampling ports in the basalt in borehole 54-24399 and the fifteen (15) VOCs exceeding Tier I groundwater screening levels indicate that the operations schedule of the SVE units must be adjusted to adapt to changing subsurface concentration data until a final remedy is implemented at MDA L. DOE must expand the active SVE unit operation and must operate the SVE units for three (3) months twice annually, in the spring and fall. The data for the expanded

[1] Los Alamos National Laboratory, June 29, 2022. "Interim Measures Final Report for Soil-Vapor Extraction of Volatile Organic Compounds from Material Disposal Area L, Technical Area 54, Revision 1," Los Alamos National Laboratory Document EM2022-0290, Los Alamos, New Mexico.

SVE operation must be reported in future Periodic Monitoring Reports for NMED review.

Specific Comments:

2. **Executive Summary, pg. v.**

   DOE Statement: "The October 2022 data show concentrations of 1,4-dioxane that are greater than Tier I SLs in the two deepest sample ports in the basalt in borehole 54-24399. The measured value in the deepest sample is greater than the method detection limit; however, it is much less than the analytical laboratory's report detection limit (i.e., quantitation limit). The measured value from the shallower of the two samples was greater than the report detection limit. Data from the first round of sampling for 2022 (July 2022) show no detection, and a focused validation of the raw data will be performed to verify that the measured detections are valid."

   NMED Comment: The Report references focused data validation regarding the Tier 1 Screen Level exceedance of 1,4-dioxane in borehole 54-24399 in sample ports in the basalt. Provide NMED with the focused data validation results.

3. **Section 2.0, *Scope of Activities*, pg. 3.**

   DOE Statement: "Operate the SVE units in the spring and fall seasons to continue mass removal. The first run is planned for a duration of four weeks and could start in the spring or fall of 2023, depending on the maintenance required to restore the SVE system to operational status. The results of the effluent analyses for the initial operation cycle will be used to determine run times for the next operation cycle. Thereafter, the operation schedule of the SVE units will be adjusted as necessary to adapt to changing subsurface concentration data, and will continue until a final remedy is implemented at MDA L."

   NMED Comment: Provide an evaluation in the upcoming Periodic Monitoring Report for the 2023 Vapor-Sampling and Soil-Vapor Extraction that discusses if the operation schedule of the SVE units should be adjusted to adapt to changing subsurface concentration data, including exceedance above Tier 1 Screening Levels in deep sampling ports in the basalt.

4. **Section 5.2.3, *Evaluation of VOC Pore-Gas Data for Human Health Using Vapor Intrusion Screening Levels*, pg. 10.**

   DOE Statement: "The majority of MDA L is covered by asphalt, which tends to block upwardly migrating VOCs. However, the trailers at MDA L are not on asphalt; thus, the asphalt could focus upward VOC migration toward the trailers. There are no monitoring boreholes near the trailers shown in Figure 1.1-3 (trailers 54-0037, -0051, -0060, -0083, and -0084, which are located east of the lower portion of the Mesita del Buey Rd. label on the figure).

   These tables serve as a preliminary screening tool to evaluate on-site worker safety. The data will be shared with N3B Environment, Safety and Health, and if interior sampling is determined

to be warranted, a sampling plan will be developed and implemented."

NMED Comment: Provide an evaluation in the upcoming Periodic Monitoring Report for the 2023 Vapor-Sampling and Soil-Vapor Extraction that evaluates if additional VOC monitoring ports are needed to adequately evaluate potential on-site worker safety in the areas both covered by asphalt and for the trailers that are not on asphalt. Additionally, NMED encourages prioritizing employee safety by evaluating potential exposure through the implementation of hand-held monitoring devices.

5. **Section 6.0, *Summary*, pg. 11.**

DOE Statement: "VOC concentrations in the source areas rebounded, implying continued leakage from subsurface containers (e.g., Figure D-5.0-2 in Appendix D). The source areas are the disposal shafts shown in Figure 1.1-2."

NMED Comment: NMED encourages the proactive use of active SVE to reduce the existing plume and keep ongoing releases from expanding the footprint of the VOC plume.

6. **Section 6.0, *Summary*, pg. 11.**

DOE Statement: "Additionally, N3B will continue to monitor VOC concentrations in boreholes 54-01015 and 54-01016 to ensure that subsurface VOC values at all available monitoring points in the basalt are (1) consistent with the conceptual model (i.e., not changing rapidly or erratically) and (2) less than levels of concern for impacting groundwater. If either of these conditions begin to deviate from current conditions, N3B and NMED should meet again to discuss the adequacy of the current basalt monitoring locations for ensuring groundwater safety (Stauffer et al. 2019, 700871).
The IM Final Report, Rev. 1, specified operating the SVE units twice annually, in the spring and fall, to continue mass removal. The SVE units will also be operated at other times if borehole VOC concentrations indicate that the additional operation is necessary. This operation will be implemented beginning in 2023."

NMED Comment: The exceedances above Tier 1 concentrations of 1,4-dioxane in monitoring ports is an indication that additional operation of the SVE units may be necessary. The Report states that concentrations near the base of the Otowi on the east side of MDA L in borehole 54-27642 previously showed decreases from 2014 through 2021, but have increased to near pre-SVE values at 330 ft. Future submittals must include a discussion clarifying what VOC concentrations would indicate that additional operation of the SVE units is necessary.

7. **Figure D-2.0-2, *Comparison of the 2022 1,2-DCP data and interpolated plume,* pg. D-14.**

NMED Comment: The data collected from borehole 54-27642 indicates that concentrations exceed 50x the Tier 1 Screening Level in the lowest 2 sample ports. The color gradient for the interpolated plume in Figure D-2.0-2 does not represent the data collected from borehole 54-27642. Correct the Figures for 2022 Round 1 A-A' and C-C', and the Figures for 2022 Round 2 A-

A' and C-C' cross sections to display the higher concentrations at depth.

8. **Figure D-2.0-4, *Comparison of the 2022 methylene chloride data and interpolated plumes,* pg. D-15.**

   NMED Comment: The data collected from borehole 54-27642 indicates that concentrations exceed the Screening Level at the lowest sample port. The color gradient for the interpolated plume in Figure D-2.0-4 does not represent the data collected from borehole 54-27642. Correct the Figures for 2022 Round 1 C-C', and the Figure for 2022 Round 2 A-A' and C-C' cross sections to display the higher concentrations at depth.

9. **Figure D-2.0-5, *Comparison of the 2022 PCE data and interpolated plumes,* pg. D-16.**

   NMED Comment: The data collected from borehole 54-27642 indicates that concentrations exceed 25x the Tier 1 Screening Level in the lowest sample port. The color gradient for the interpolated plume in Figure D-2.0-5 does not represent the data collected from borehole 54-27642. Correct the Figures for 2022 Round 2 A-A' and C-C' cross sections to display the higher concentration at depth.

10. **Figure D-2.0-14, *Comparison of the 2022 1,1,2-TCA data and interpolated plumes*, pg. D-25.**

    NMED Comment: The data collected from borehole 54-27642 indicates that concentrations exceed 5x Tier 1 Screening Level in the two lowest sample ports. The color gradient for the interpolated plume in Figure D-2.0-14 does not represent the data collected from borehole 54-27642. Correct the Figures for 2022 Round 1 C-C' and for 2022 Round 2 C-C' cross sections to display the higher concentrations at depth.

NMED notes that this is a periodic monitoring report, and this review does not constitute approval of the reference documents and content of the Report. Please provide a response to NMED comments within 45 days of receipt of this letter.

Should you have any questions regarding this correspondence, please contact Michael Petersen at (505) 690-5107.

Sincerely,

Rick Shean

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