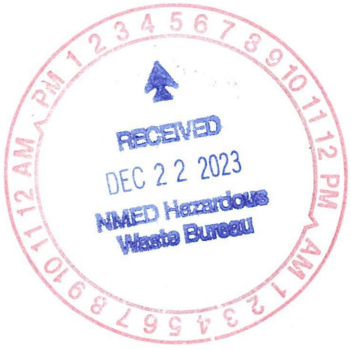
DEPARTMENT OF ENERGY
Environmental Management Los Alamos Field Office (EM-LA)
Los Alamos, New Mexico 87544



EMLA-24-BF083-2-1

December 22, 2023

Mr. Rick Shean
Designated Agency Manager
Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East, Building 1
Santa Fe, NM 87505-6313

Subject: Submittal of the Response to the 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

Dear Mr. Shean:

Enclosed please find two hard copies with electronic files of the "Response to the 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," dated November 9, 2023.

If you have any questions, please contact Brenda Bowlby at (360) 930-4353 brenda.bowlby@em-la.doe.gov) or Susan Wacaster at (505) 709-8704 (susan.wacaster@em.doe.gov).

Sincerely,

Digitally signed by Brian G. Harcek
Date: 2023.12.21 11:18:41 -07'00'

Arturo Q. Duran For
Compliance and Permitting Manager
U.S. Department of Energy
Environmental Management
Los Alamos Field Office

Enclosure(s): Two hard copies with electronic files:

1. Response to the 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, Dated November 9, 2023 (EM2023-0857).

cc (letter and enclosure[s] emailed):
Laurie King, EPA Region 6, Dallas, TX
Raymond Martinez, San Ildefonso Pueblo, NM
Dino Chavarria, Santa Clara Pueblo, NM
Steve Yanicak, NMED-DOE-OB
Neelam Dhawan, NMED-HWB
Michael Petersen, NMED-HWB
Jeannette Hyatt, LANL
Stephen Hoffman, NA-LA
John Evans, EM-LA
Sarah Eli Gilbertson, EM-LA
Brian Harcek, EM-LA
Thomas McCrory, EM-LA
Michael Mikolanis, EM-LA
Kent Rich, EM-LA
Cheryl Rodriguez, EM-LA
Susan Wacaster, EM-LA
William Alexander, N3B
Adam Barras, N3B
Teri Bidwell, N3B
Robert Edwards III, N3B
Dana Lindsay, N3B
Christian Maupin, N3B
Kevin Reid, N3B
Vince Rodriguez, N3B
Bradley Smith, N3B
Jeffrey Stevens, N3B
Troy Thomson, N3B
Jennifer von Rohr, N3B
emla.docs@em.doe.gov
n3brecords@em-la.doe.gov
Public Reading Room (EPRR)
PRS website

Response to the 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 Dated November 9, 2023

INTRODUCTION

To facilitate review of this response, the New Mexico Environment Department's (NMED's) comments are included verbatim. The U.S. Department of Energy (DOE) Environmental Management Los Alamos Field Office responses follow each NMED comment. All information associated with analysis of radionuclides is voluntarily provided to NMED in accordance with DOE policy.

GENERAL COMMENTS

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

DOE Response

1. DOE previously concurred with NMED to operate the soil-vapor extraction (SVE) system initially for a 4-week period. As stated in "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)" (PMR), "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." DOE plans to run the SVE system for 4 weeks as previously agreed to with NMED.

   The basis for the 4-week run is supported by previous results, as presented in the "Interim Measures Final Report for Soil-Vapor Extraction of Volatile Organic Compounds from Material Disposal Area L, Technical Area 54, Revision 1" (IM Report). The greatest decrease in volatile organic compound (VOC) concentration occurs during the initial 4-week period, as illustrated in the following plots of 1,1,1-trichloroethane (1,1,1-TCA) concentrations from the SVE West (Figure 1) and SVE East (Figure 2) units.

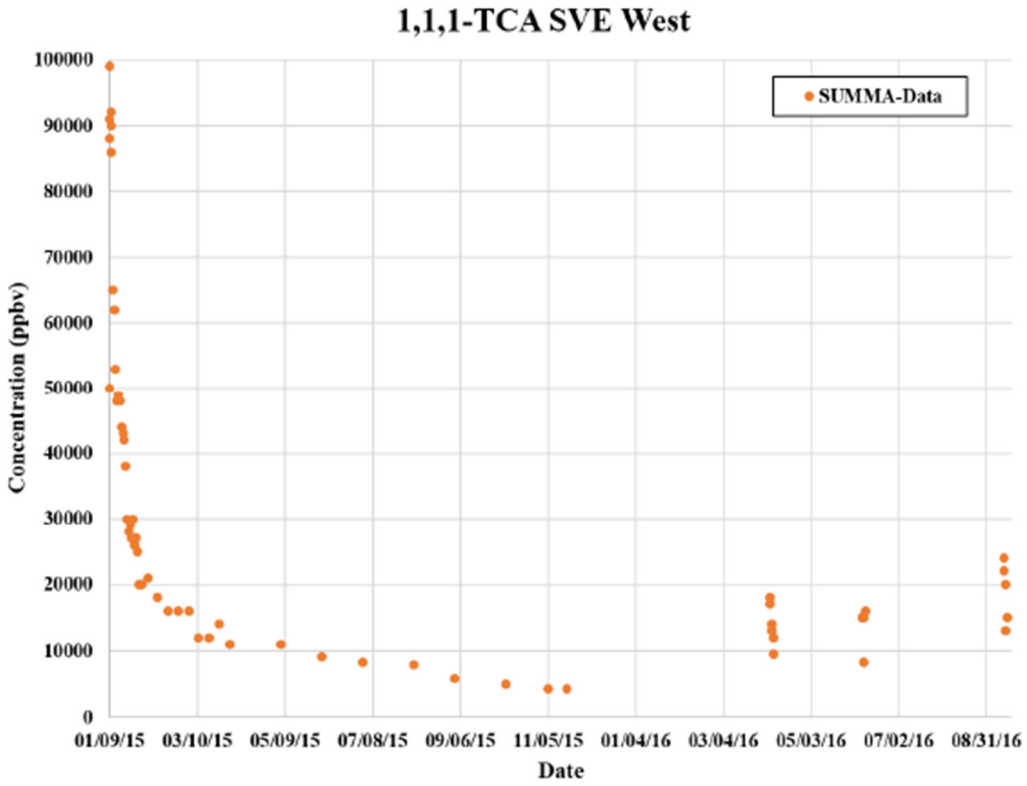


Figure 1 1,1,1-trichloroethane (1,1,1-TCA) concentrations from the SVE West

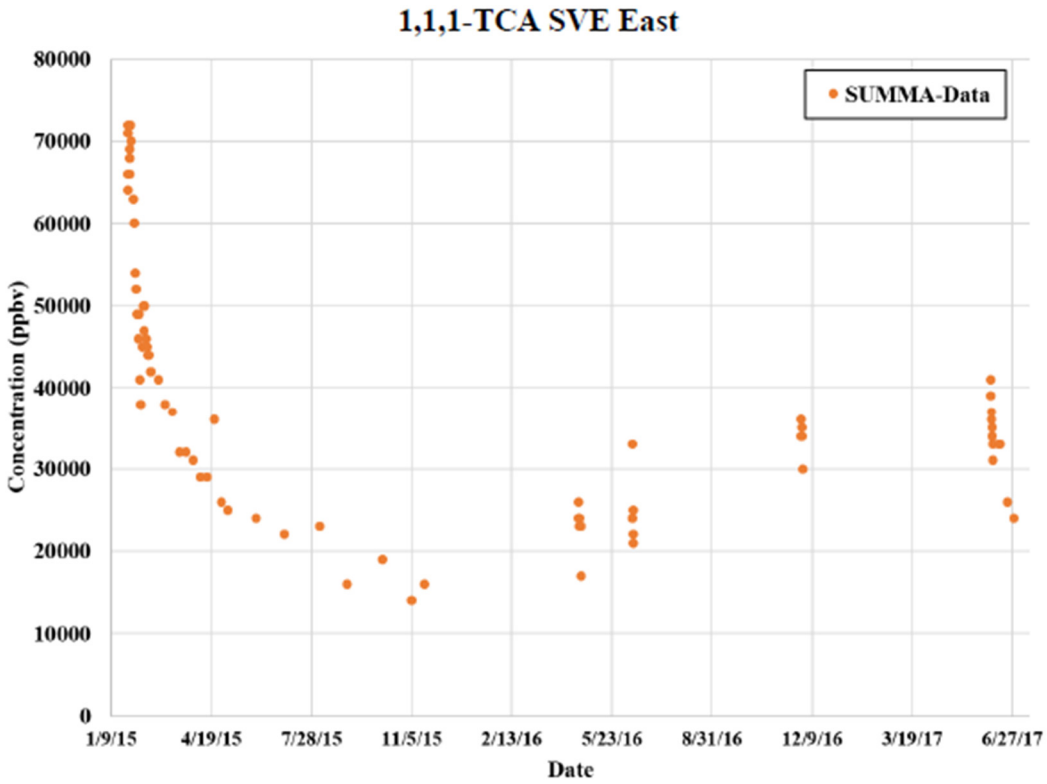


Figure 2 1,1,1-trichloroethane (1,1,1-TCA) concentrations from the SVE East

As discussed in the IM Report, the SVE system is most effective for removing VOC mass from the upper vadose zone, and the primary goal of the IM is to ensure that new leakage can be removed from the upper vadose zone before it can impact groundwater.

SPECIFIC COMMENTS:

NMED Comment

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 a 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.*

DOE Response

2. The data validation report is attached (Attachment 1) for samples MD54-22-258153 and MD54-22-258154 from borehole 54-24399 collected in October 2022. There were no quality issues associated with the samples or analysis, and there were no reasons to reject the results. The results stand as reported in the PMR. Continued monitoring will be conducted to evaluate trends in the detected values. Future results will be discussed in the PMR.

NMED Comment

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.*

DOE Response

3. The design of the SVE system was optimized for extraction of VOCs in the source region, and to be able to respond to new leakage in shallow regions near the Material Disposal Area (MDA) L disposal shafts. The highest VOC concentrations are within 150 ft of the surface, and the permeability of the Bandelier Tuff cooling units Qbt1g, Qbt1vc, and Qbt1vu allows efficient soil vapor extraction. The permeability of the lower Bandelier Tuff Otowi Member is too low (1×10^{-12} m^2) to allow efficient extraction. The Cerros del Rio basalt has very low VOC concentrations and extremely high permeability (1×10^{-9} m^2). The screened extraction interval of the SVE system is very effective for source removal but is not designed for removal in the deeper Cerros del Rio basalt.

   As stated in the PMR, 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. The schedule for future operation of the SVE units will be included in the PMR. As previously agreed, if total VOC concentrations in any ports in the sentry boreholes rise above 2000 ppmv at any time, with a trend of consistent increase with each consecutive measurement for ports to depths of 100 ft, DOE will run the SVE system as continuously as possible until concentrations drop below 2000 ppmv.

NMED Comment

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.*

DOE Response

4. In the PMR, the vapor-phase monitoring data was compared with NMED's vapor intrusion screening levels (VISLs). Concentrations of VOCs in the shallowest borehole port depth, located closest to buildings with occupants, were compared with the VISLs for soil gas. Eight VOCs (carbon tetrachloride; chloroform; 1,1- dichloroethane (1,1-DCA); 1,2-DCA; 1,2-dichloropropane (1,2-DCP); perchloroethylene (PCE); 1,1,2-TCA; and trichloroethene were detected above VISLs. This information was shared with the Newport News Nuclear BWXT-Los Alamos, LLC (N3B) Environment, Safety, Health, and Quality (ESH&Q) organization. ESH&Q is currently evaluating whether interior sampling is warranted based on National Institute for Occupational Safety and Health and

Occupational Safety and Health Administration standards for vapor exposure. N3B ESH&Q will report status of the evaluation to site management.

NMED Comment

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.*

DOE Response

5. As stated in the PMR, the SVE units will be operated in the spring and fall seasons to continue mass removal.

NMED Comment

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.*

DOE Response

6. As stated in the PMR, the SVE units will be operated in the spring and fall seasons to continue mass removal. Effluent totals and plume status will be reported annually in the PMR. As previously agreed, if total VOC concentrations in any ports in the sentry boreholes rise above 2000 ppmv at any time, with a trend of consistent increase with each consecutive measurement for ports to depths of 100 ft, DOE will run the SVE system as continuously as possible until concentrations drop below 2000 ppmv.

NMED Comment

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.*

DOE Response

7. Borehole 54-27642 has concentrations of 1,2-DCP exceeding 50× Tier1 in the deepest two ports during both rounds 1 and 2. These ports are encapsulated by the orange 50× contour for both rounds on the A–A' profile, as shown in Figure 3. During round 1, the concentrations are 79,400 µg/m^3 (137× Tier1) and 73,400 µg/m^3 (126× Tier1). The shallower (137×) port has a small red contour (100×) around it, but the contour for the deepest port (126×) is not visible because it is slightly smaller than the sample dot (see the left pair of images in Figure 3). The concentrations during round 2 (see the right pair of images in Figure 3) are 69,000 µg/m^3 (103× Tier1) and 59,100 µg/m^3 (102× Tier1), and likewise have red contours that are smaller than the data points because of how close they are to the 100× cutoff and are consequently are not visible. The plumes along the C-C' profile do not appear to incorporate borehole 54-27642 because the data for this borehole are being projected from ~65 ft away. The deep plume along the C–C' profile is supported by data, but the apparent discrepancy between the plume and the data is because of the difficulty in describing a three-dimensional model with a two-dimensional image. The figures will not be revised as the sample point indicates concentration value and port location.

Round 1 with and without sample point Round 2 with and without sample points

Figure 3 Figure D-2.0-2 sample point comparison for 2022 1,2-DCP data

NMED Comment

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.*

DOE Response

8. The methylene chloride concentrations at the deepest sample port of borehole 54-27642 during both rounds 1 and 2 are incorporated in the interpolated plumes, but the pertinent contours are smaller than the symbol for the sample, as shown in Figure 4. The left pair of images in Figure 4 show the 4200 µg/m^3 (6.3× Tier2) from round 1, both with and without the sample point. The right pair of images in Figure 4 show the 1150 µg/m^3 concentration (1.7× Tier2) from round 2 with and without the sample point. The plumes along the C-C' profile do not appear to incorporate borehole 54-27642 because the data for this borehole are being projected from ~65 ft away. The figures will not be revised as the sample point indicates concentration value and port location.

Round 1 with and without sample point Round 2 with and without sample points

Figure 4 Figure D-2.0-4 sample point comparison for 2022 methylene chloride data

NMED Comment

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 D2.0-5 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.*

DOE Response

9. The round 2 PCE concentration of 37,100 µg/m^3 (10.22× Tier2) at the deepest sample port of borehole 54-27642 is incorporated by the interpolated plume, but the 10× contour is much smaller than the symbol for the sample because this concentration was barely over the 10× threshold, as shown in the pair of images in Figure 5. The plumes along the C-C' profile do not appear to incorporate borehole 54-27642 because the data for this borehole are being projected from ~65 ft away. The figures will not be revised as the sample point indicates concentration value and port location.

Round 2 with and without sample points

Figure 5 Figure D-2.0-5 sample point comparison for 2022 PCE data

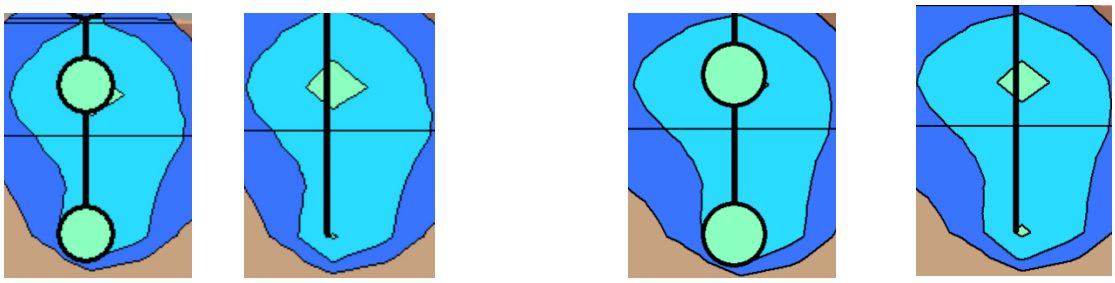
NMED Comment

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 5× 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.*

DOE Response

10. The 1,1,2-TCA concentrations at the deepest sample port of borehole 54-27642 during both rounds 1 and 2 are incorporated by the respective interpolated plumes, but the 5× Tier1 contours are smaller than the symbol for the sample, as shown in Figure 6. The left pair of images in Figure 6 show the 1240-µg/m^3 (7.3× Tier1) and 894-µg/m^3 (5.3× Tier1) concentrations from round 1, both with and without the sample points. The right pair of images in Figure 6 show the 1150-µg/m^3 (6.8× Tier1) and 960-µg/m^3 (5.7× Tier1) concentrations from round 2 with and without the sample points. The plumes along the C-C' profile do not appear to incorporate borehole 54-27642 because the data for this borehole are being projected from ~65 ft away. The figures will not be revised as the sample point indicates concentration value and port location.



Round 1 with and without sample points Round 2 with and without sample points

Figure 6 Figure D-2.0-14 sample point comparison for 2022 1,1,2-TCA data

Attachment 1

N3B Data Validation Report for
Chain of Custody N3B-2023-16, Fall 2022 MDA L
Vapor Monitoring, dated February 3, 2023

N3B-Form-6046

Data Validation Report

Section I. General Information

COC: N3B-2023-16 **Validation Date:** 02/03/2023 **SDG:** 2210258

Contract Laboratory: Eurofins Air Toxics Lab

Project: Fall 2022 MDA-L Vapor Monitoring **Project Code:** CO-Pore **Send To:** Phil Stauffer, Kevin Reid, David Diehl

Analytical Suite (Check All That Apply):

☒ **N3B-AP-SDM-3001**, *Validation of Volatile Organic Compounds Analytical Data*	☐ **N3B-AP-SDM-3002**, *Validation of Semivolatile Organic Compounds Analytical Data*	☐ **N3B-AP-SDM-3003**, *Validation of Organochlorine Pesticides and Herbicides and Polychlorinated Biphenyls Analytical Data*	☐ **N3B-AP-SDM-3005**, *Validation of Metals Analytical Data*
☐ **N3B-AP-SDM-3006**, *Validation of Radiochemical Analytical Data*	☐ **N3B-AP-SDM-3007**, *Validation of General Chemistry Analytical Data*	☐ **N3B-AP-SDM-3008**, *Validation of High Explosives Analytical Data*	☐ **N3B-AP-SDM-3009**, *Validation of Analytical Data by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry*
☐ **N3B-AP-SDM-3011**, *Validation of Total Petroleum Hydrocarbons Gasoline Range Organics/Diesel Range Organics Analytical Data*	☐ **N3B-AP-SDM-3012**, *Validation of Analytical Data by Liquid Chromatography and Liquid Chromatography/Tandem Mass Spectrometry*	☐ **Other (Describe)**	

☐ **Scheduled Validation** ***or*** ☒ **Triggered Validation (Reason and Parameter(s)):**

Many low-level first time detects: 54-24399 P587.8 Carbon Disulfide 142 ug/m3; 54-24241 P153 Carbon Disulfide 47.3 ug/m3; 54-24241 P173 Acetone 227 ug/m3; 54-24241 P93 Vinyl Chloride 52.9 ug/m3; 54-24241 P193 Trichloroethane[1,1,2-] 32.3 ug/m3

Many new maxima near PQL: 54-24241 P113 Dioxane[1,4-] 3080 ug/m3; 54-24241 P133 Dioxane[1,4-] 951 ug/m3; 54-24241 P153 Trichloroethane[1,1,2-] 61.6 ug/m3; 54-24241 P173 Trichloroethane[1,1,2-] 55.6 ug/m3; 54-24241 P193 Dichloroethene[trans-1,2-] 99.9 ug/m3; 54-24241 P73 Vinyl Chloride 101 ug/m3; 54-24399 P566.7 Dioxane[1,4-] 236 ug/m3; 54-24399 P587.8 Dioxane[1,4-] 70.9 ug/m3

Section II. Data Set Review

Reviewed	Comment	Action	Item	Reviewed	Comment	Action	Item
☒	☐	☐	1. Chain-of-Custody Form(s)	☒	☐	☐	8. Blanks
☒	☐	☐	2. Holding Time/Preservation	☒	☐	☐	9. Matrix Spikes
☒	☐	☐	3. Case Narrative	☒	☐	☐	10. Preparation Data/Logs
☒	☐	☐	4. Sample Results Forms	☒	☐	☐	11. Standards Summary Data
☒	☐	☐	5. QC Sample Results Forms	☒	☐	☐	12. Calibration Data
☒	☐	☐	6. Duplicates	☒	☒	☐	13. Analysis Raw Data
☒	☐	☐	7. LCS	☒	☐	☐	14. OTHER:

Samples

Field Sample ID	Method	Matrix	Sample Date	Location
MD54-22-258146	EPA:TO15	GAS	10/04/2022	54-24241 P113
MD54-22-258147	EPA:TO15	GAS	10/04/2022	54-24241 P133
MD54-22-258148	EPA:TO15	GAS	10/04/2022	54-24241 P153

Data Validation Report

Field Sample ID	Method	Matrix	Sample Date	Location
MD54-22-258149	EPA:TO15	GAS	10/04/2022	54-24241 P173
MD54-22-258150	EPA:TO15	GAS	10/04/2022	54-24241 P193
MD54-22-258151	EPA:TO15	GAS	10/04/2022	54-24241 P73
MD54-22-258152	EPA:TO15	GAS	10/04/2022	54-24241 P93
MD54-22-258153	EPA:TO15	GAS	10/04/2022	54-24399 P566.7
MD54-22-258154	EPA:TO15	GAS	10/04/2022	54-24399 P587.8
MD54-22-258175 FD	EPA:TO15	GAS	10/04/2022	54-24399 P566.7
MD54-22-258178 FB	EPA:TO15	GAS	10/04/2022	54-24399 P566.7

VALIDATION REPORT

Data Assessment results are classified as either Action Items or Comments. Action Items are technical non-compliances which result in qualification of analytical results. Comments are technical non-compliances or contractual non-compliances which do not result in qualification of data. Data may be qualified as:

- *The analyte was detected at or above the required detection level, and no qualification is necessary (NQ);*
- *The analyte was analyzed for but not detected above the reported estimated quantitation limit (U);*
- *The analyte was positively identified, and the associated numerical value is the approximate concentration of the analyte in the sample (J);*
- *The analyte was analyzed for but not detected, and the associated value is an estimate (UJ);*
- *The analyte was positively identified, and the associated numerical value is the approximate concentration of the analyte in the sample, but likely to have a high+/low bias- (J-, J+); or*
- *The data are unusable and rejected (R).*

Multiple qualifiers may be associated with any given data point based on the number of problems identified; however, the assigned qualifier is based upon the following hierarchy: (R, J-/J+, J, UJ, U, NQ).

Action Items:

None.

Comments:

1. Analysis Raw Data: For 1,2-dichloropropane, m/z 41 was outside of the listed target range for all of the samples. The ratio was similar to that found in the continuing calibration verification, laboratory control samples, and matched well with the reference spectrum.
2. Analysis Raw Data: No quality deficiencies were identified associated with the first time detects and highest ever detects. There were several detects in the field blank and all qualifications based on this contamination were previously addressed during verification.

Additional Notes:

1. No detect statuses were changed as a result of this validation.
2. No data were rejected as a result of this validation.
3. All qualifications made during examination and verification are accurate as reported in the Automated Data Review Summary Report and EIM/IntellusNM.

Data Validation Report

Updates to EIM Qualifiers and/or Reason Codes

Location ID	Field Sample ID	Parameter Name	Report Result	Report Units	Existing Qualification		New Qualification	
					Validation Qualifier	Validation Reason Codes	Validation Qualifier	Validation Reason Codes

Validator Signature: Corey White Digitally signed by Corey White Date: 2023.02.06 08:55:46 -07'00' Z# 341159 Date 02/03/2023

Reviewer Signature: Helen Westbrook Digitally signed by Helen Westbrook Date: 2023.02.06 08:01:45 -07'00' Z# 374418 Date 02/06/2023

Sample:	MD54-22-258146
Analyte:	1,2-Dichloropropane
Reported Value:	2100

$$C_x = \frac{A_x * C_{IS} * DF}{A_{IS} * RRF}$$

C_x = Analyte Concentration (ppb)

A_x = Area of the analyte

C_{IS} = Internal Standard Concentration (ppb)

DF = Dilution Factor

A_{IS} = Area of the Internal Standard

RF = Average response factor from the initial calibration

C_x =	2132.251
A_x =	297919
C_{IS} =	400
DF =	4.24
A_{IS} =	572326
RF =	0.41404

Fill in all red outlined boxes