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August 29, 2023

Mr. Josh Peters
On-Scene Coordinator
U.S. Environmental Protection Agency, Region 5
Superfund and Emergency Management Division
2565 Plymouth Road
Ann Arbor, MI 48105

**Subject: Data Validation Report
E Palestine Site - ER
EPA Contract No.: 68HE0519D0005
Task Order/Task Order Line Item No.: 68HE0520F0032/0001EB201
Document Tracking No. 2014**

Dear Mr. Peters:

Tetra Tech, Inc. (Tetra Tech) is submitting these data validation reports for fifty-nine air samples (including three duplicates and seven field blanks) collected at the E Palestine site. The samples were collected on June 19 and 20, 2023, and were analyzed for acrylates by Eurofins Analytics, LLC. The final laboratory data package was received on June 27, 2023.

Analytical data were evaluated in general accordance with the Tetra Tech *Quality Assurance Project Plan, East Palestine Train Derailment Site, East Palestine, Columbiana County, Ohio, EPA Region 5, Revision 3* (April 2023), the Tetra Tech *Quality Assurance Project Plan, Superfund Technical Assessment and Response Team (START V), EPA Region 5, Revision 4* (August 2022), and the *National Functional Guidelines (NFG) for Organic Superfund Methods Data Review* (November 2020).

No rejection or qualification of results was required for these data packages. The results may be used as reported by the laboratory.

If you have any questions regarding these data validation reports, please feel free to contact me via the project manager.

Sincerely,

Diane MacMillan
Digitally signed by
Diane MacMillan
Date: 2023.08.29
15:55:53 -06'00'

Chemical Engineer, P.E.

Enclosure

cc: Karl Schultz, Tetra Tech Program Manager
Dustin Grams, Tetra Tech Project Manager
Mayra Arroyo Ortiz, Tetra Tech Project Document Control Coordinator
TO-TOLIN File

ATTACHMENT

**DATA VALIDATION REPORTS
EUROFINS ANALYTICS, LLC REPORT NOS. B172-024, B173-020,
B173-023, B173-025**

**DATA VALIDATION CHECKLIST – STAGE 2A
EPA REGION 5 START CONTRACT**

| | | | |
|-----------------------|---|--------------|--------------------------------------|
| Site Name | E Palestine Site - ER | TO/TOLIN No. | 68HE0520F0032/0001EB201 |
| Document Tracking No. | 2014a | | |
| Laboratory Report No. | B172-024 | Laboratory | Eurofins Analytics LLC, —Ashland, VA |
| Analyses | 2-Ethylhexyl acrylate and n-butyl acrylate by laboratory standard operating procedure (SOP) IHGC-P029 | | |
| Samples and Matrix | Nine air samples, including one field blank | | |
| Collection Date(s) | 6/19/2023 | | |
| Field Duplicate Pairs | None | | |
| Field QC Blanks | EPD-ST-FB-061923-1 | | |

INTRODUCTION

This checklist summarizes the Stage 2A validation performed on the subject laboratory report, in accordance with the U.S. Environmental Protection Agency (EPA) *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use* (January 2009). Analytical data were evaluated in general accordance with the Tetra Tech *Quality Assurance Project Plan, East Palestine Train Derailment Site, East Palestine, Columbiana County, Ohio, EPA Region 5, Revision 4* (April 2023), the Tetra Tech *Quality Assurance Project Plan, Superfund Technical Assessment and Response Team (START V), EPA Region 5, Revision 4* (August 2022), and the EPA *National Functional Guidelines (NFG) for Organic Superfund Methods Data Review* (November 2020).

OVERALL EVALUATION

No rejection or qualification of results was required for this data package. The results may be used as reported by the laboratory.

Data completeness:

| Within Criteria | Exceedance/Notes |
|-----------------|--|
| Y | The results for the field blank were reported in units of micrograms (µg) while the other sample results were reported in units of µg, milligram per cubic meter (mg/m ³), and parts per million (ppm) (volume) in the laboratory report and only ppm in the electronic data deliverable (EDD) |

**DATA VALIDATION CHECKLIST – STAGE 2A
EPA REGION 5 START CONTRACT**

Data completeness (continued):

| Within Criteria | Exceedance/Notes |
|------------------------|---|
| Y | <p>The sample analysis time is reported as a default value of 00:00 hours for the LCSD in the analysis date field of the laboratory EDD. Since the sample analysis time for the LCSD is not required for the validated EDD, this value was not manually revised.</p> <p>Rohm & Haas IH9805 is cited in the AIHA certification as “IHGC-P029” and may be cited by the abbreviation “Rohm & Haas IH9805” or “IHGC-P029” interchangeably throughout the laboratory report.</p> |

Sample preservation, receipt, and holding times:

| Within Criteria | Exceedance/Notes |
|------------------------|--|
| Y | <p>The “Sample Receiving Date” listed on the COC was incorrectly reported as 5/6/2023. However, the “Received by Date/Time” on the COC reflects the correct sample receiving date and time (6/21/23 10:38); therefore, the COC was not revised.</p> <p>The EDD listed the Date Received as 6/21/23 0:00; these data were manually revised to reflect the correct received time of 10:38.</p> |

Method blanks:

| Within Criteria | Exceedance/Notes |
|------------------------|-------------------------|
| Y | |

Field blanks:

| Within Criteria | Exceedance/Notes |
|------------------------|-------------------------|
| Y | |

Surrogates and labeled compounds:

| Within Criteria | Exceedance/Notes |
|------------------------|-------------------------|
| NA | |

**DATA VALIDATION CHECKLIST – STAGE 2A
EPA REGION 5 START CONTRACT**

MS/MSDs:

| Within Criteria | Exceedance/Notes |
|--------------------|------------------|
| NA | |

Laboratory duplicates:

| Within Criteria | Exceedance/Notes |
|--------------------|------------------|
| NA | |

Field duplicates:

| Within Criteria | Exceedance/Notes |
|--------------------|------------------|
| NA | |

LCSs/LCSDs:

| Within Criteria | Exceedance/Notes |
|--------------------|---|
| Y | The Level IV laboratory report and EDD has a minor discrepancy in the LCSD results (+/- 1 ug) that were verified with the laboratory to be a significant figures issue. No qualifications were applied. |

Sample dilutions:

| Within Criteria | Exceedance/Notes |
|--------------------|------------------|
| NA | |

**DATA VALIDATION CHECKLIST – STAGE 2A
EPA REGION 5 START CONTRACT**

Re-extraction and reanalysis:

| Within Criteria | Exceedance/Notes |
|--------------------|------------------|
| NA | |

MDLs/RLs:

| Within Criteria | Exceedance/Notes |
|--------------------|--|
| Y | Method detection limits were not reported. Non-detect sample results are reported as less than the reporting limit in the laboratory report and at the reporting limit (flagged U) in the EDD and attached qualified data table. |

Tentatively identified compounds:

| Within Criteria | Exceedance/Notes |
|--------------------|------------------|
| NA | |

Other [none]:

| Within Criteria | Exceedance/Notes |
|--------------------|------------------|
| NA | |

DATA VALIDATION CHECKLIST – STAGE 2A EPA REGION 5 START CONTRACT

Overall Qualifications:

See results summary pages attached for changes to the laboratory qualifiers based upon this validation. The following is a list of qualifiers and definitions that may be used for the validation of this data package:

| | |
|----|---|
| J | The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample. |
| J+ | The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased high. |
| J- | The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased low. |
| NJ | The analysis indicates the presence of an analyte that has been “tentatively identified” and the associated value is the approximate concentration of the analyte in the sample. |
| R | The sample result is rejected as unusable due to serious deficiencies in one or more quality control criteria. The analyte may or may not be present in the sample. |
| U | The analyte was analyzed for, but was not detected at or above the associated value (reporting limit). |
| UJ | The analyte was analyzed for, but was not detected at or above the associated value (reporting limit), which is considered approximate due to deficiencies in one or more quality control criteria. |

E PALESTINE SITE - ER AIR ANALYTICAL RESULTS SUMMARY

EUROFINS ANALYTICS REPORT NO. B172-024

| Sample_ID | Method | CAS# | Analyte | Lab_Result | Lab_Qual | MDL | RL | Units | VAL_Result | VAL_Qual |
|--------------------------|-----------|----------|-----------------------|------------|----------|-----|-------|-------|------------|----------|
| EPD-ST-8H-DW-E-061923-1 | IHGC-P029 | 103-11-7 | 2-Ethylhexyl acrylate | 0.014 | U | | 0.014 | ppm | 0.014 | U |
| EPD-ST-8H-DW-E-061923-1 | IHGC-P029 | 141-32-2 | n-Butyl acrylate | 0.01 | U | | 0.01 | ppm | 0.01 | U |
| EPD-ST-8H-UW-A-061923-1 | IHGC-P029 | 103-11-7 | 2-Ethylhexyl acrylate | 0.014 | U | | 0.014 | ppm | 0.014 | U |
| EPD-ST-8H-UW-A-061923-1 | IHGC-P029 | 141-32-2 | n-Butyl acrylate | 0.01 | U | | 0.01 | ppm | 0.01 | U |
| EPD-ST-8H-WA-01-061923-1 | IHGC-P029 | 103-11-7 | 2-Ethylhexyl acrylate | 0.014 | U | | 0.014 | ppm | 0.014 | U |
| EPD-ST-8H-WA-01-061923-1 | IHGC-P029 | 141-32-2 | n-Butyl acrylate | 0.009 | U | | 0.009 | ppm | 0.009 | U |
| EPD-ST-8H-WA-02-061923-1 | IHGC-P029 | 103-11-7 | 2-Ethylhexyl acrylate | 0.014 | U | | 0.014 | ppm | 0.014 | U |
| EPD-ST-8H-WA-02-061923-1 | IHGC-P029 | 141-32-2 | n-Butyl acrylate | 0.009 | U | | 0.009 | ppm | 0.009 | U |
| EPD-ST-8H-WA-03-061923-1 | IHGC-P029 | 103-11-7 | 2-Ethylhexyl acrylate | 0.014 | U | | 0.014 | ppm | 0.014 | U |
| EPD-ST-8H-WA-03-061923-1 | IHGC-P029 | 141-32-2 | n-Butyl acrylate | 0.01 | U | | 0.01 | ppm | 0.01 | U |
| EPD-ST-8H-WA-04-061923-1 | IHGC-P029 | 103-11-7 | 2-Ethylhexyl acrylate | 0.014 | U | | 0.014 | ppm | 0.014 | U |
| EPD-ST-8H-WA-04-061923-1 | IHGC-P029 | 141-32-2 | n-Butyl acrylate | 0.01 | U | | 0.01 | ppm | 0.01 | U |
| EPD-ST-8H-WA-05-061923-1 | IHGC-P029 | 103-11-7 | 2-Ethylhexyl acrylate | 0.015 | U | | 0.015 | ppm | 0.015 | U |
| EPD-ST-8H-WA-05-061923-1 | IHGC-P029 | 141-32-2 | n-Butyl acrylate | 0.01 | U | | 0.01 | ppm | 0.01 | U |
| EPD-ST-8H-WA-06-061923-1 | IHGC-P029 | 103-11-7 | 2-Ethylhexyl acrylate | 0.016 | U | | 0.016 | ppm | 0.016 | U |
| EPD-ST-8H-WA-06-061923-1 | IHGC-P029 | 141-32-2 | n-Butyl acrylate | 0.01 | U | | 0.01 | ppm | 0.01 | U |
| EPD-ST-FB-061923-1 | IHGC-P029 | 103-11-7 | 2-Ethylhexyl acrylate | 2.8 | U | | 2.8 | ug | 2.8 | U |
| EPD-ST-FB-061923-1 | IHGC-P029 | 141-32-2 | n-Butyl acrylate | 1.3 | U | | 1.3 | ug | 1.3 | U |

**DATA VALIDATION CHECKLIST – STAGE 2A
EPA REGION 5 START CONTRACT**

| | | | |
|------------------------------|--|---------------------|--------------------------------------|
| Site Name | E Palestine Site - ER | TO/TOLIN No. | 68HE0520F0032/0001EB201 |
| Document Tracking No. | 2014b | | |
| Laboratory Report No. | B173-020 | Laboratory | Eurofins Analytics LLC,– Ashland, VA |
| Analyses | n-Butyl acrylate analysis by NIOSH Method 1450M | | |
| Samples and Matrix | Thirty-one air samples, including two duplicate pairs and four field blanks | | |
| Collection Date(s) | 6/20/2023 | | |
| Field Duplicate Pairs | EPD-PB-CM-10-062023-2/ EPD-PB-CM-100-062023-2 EPD-PB-BKBA-02-062023-2/ EPD-PB-BKBA-022-062023-2 | | |
| Field QC Blanks | EPD-PB-FB-02-062023-2, EPD-PB-MB-02-062023-2, EPD-PB-MB-03-062023-2, EPD-PB-FB-03-062023-2 | | |

INTRODUCTION

This checklist summarizes the Stage 2A validation performed on the subject laboratory report, in accordance with the U.S. Environmental Protection Agency (EPA) *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use* (January 2009). Analytical data were evaluated in general accordance with the Tetra Tech *Quality Assurance Project Plan, East Palestine Train Derailment Site, East Palestine, Columbiana County, Ohio, EPA Region 5, Revision 4* (April 2023), the Tetra Tech *Quality Assurance Project Plan, Superfund Technical Assessment and Response Team (START V), EPA Region 5, Revision 4* (August 2022), and the EPA *National Functional Guidelines (NFG) for Organic Superfund Methods Data Review* (November 2020).

OVERALL EVALUATION

No rejection or qualification of results was required for this data package. The results may be used as reported by the laboratory.

Data completeness:

| Within Criteria | Exceedance/Notes |
|------------------------|--|
| Y | EPD-PB-OD-03-062023-2 was marked “Void” on the COC due to a problem encountered during field sampling. This sample was not sent for analysis. The results for the field blank were reported in units of micrograms (µg) while the other sample results were reported in units of µg, milligram per cubic meter (mg/m ³), and parts per million (ppm) (volume) in the laboratory report and only ppm in the electronic data deliverable (EDD). |

**DATA VALIDATION CHECKLIST – STAGE 2A
EPA REGION 5 START CONTRACT**

Data completeness (continued):

| Within Criteria | Exceedance/Notes |
|-----------------|--|
| Y | <p>The sample analysis time was reported as a default value of 12 AM or 00:00 hours for the LCSD in the analysis date field. The analysis date was correct. The sample analysis time for the LCSD was not required for the EDD; therefore, this value was not manually revised.</p> <p>The site-specific QAPP specifies analysis of acrylates in air by Eurofins Analytics, LLC standard operating procedure (SOP) IHGC-001-v.22-3. The laboratory confirmed that NIOSH Method 1450M, which is mentioned in the laboratory deliverables, is equivalent to SOP IHGC-001-v.22-3; therefore, these method references may be used interchangeably.</p> |

Sample preservation, receipt, and holding times:

| Within Criteria | Exceedance/Notes |
|-----------------|---|
| Y | <p>The “Sample Receiving Date” listed on the COC was incorrectly reported as 5/6/2023. However, the “Received by Date/Time” on the COC reflects the correct sample receiving date and time (6/22/23 10:33); therefore, the COC was not manually revised.</p> <p>The EDD listed the Date Received as 6/22/23 0:00; these data were manually revised to reflect the correct received time of 10:33.</p> |

Method blanks:

| Within Criteria | Exceedance/Notes |
|-----------------|------------------|
| Y | |

Field blanks:

| Within Criteria | Exceedance/Notes |
|-----------------|------------------|
| Y | |

**DATA VALIDATION CHECKLIST – STAGE 2A
EPA REGION 5 START CONTRACT**

Surrogates and labeled compounds:

| Within Criteria | Exceedance/Notes |
|--------------------|------------------|
| N/A | |

MS/MSDs:

| Within Criteria | Exceedance/Notes |
|--------------------|------------------|
| N/A | |

Laboratory duplicates:

| Within Criteria | Exceedance/Notes |
|--------------------|------------------|
| N/A | |

Field duplicates:

| Within Criteria | Exceedance/Notes |
|--------------------|------------------|
| N/A | |

LCSs/LCSDs:

| Within Criteria | Exceedance/Notes |
|--------------------|--|
| Y | The site-specific QAPP requires a laboratory reagent blank (LRB), laboratory media blank (LMB), laboratory control sample (LCS), and LCS duplicate (LCSD) to be analyzed per batch of 20 samples. However, the laboratory analyzed 31 field samples in one sample preparation batch that included one LRB, LMB, LCS, and LCSD, when the batch should have included two LRBs, LMBs, LCSs, and LCSDs. The laboratory was contacted about this deviation from the site-specific QAPP and agreed that moving forward they would follow the quality control (QC) sample frequency requirements in the site-specific QAPP. No qualifications were applied based on professional judgment because the QC sample results met the QAPP acceptance criteria and the QC sample results from previous datasets for this project have met the QAPP acceptance criteria. |

**DATA VALIDATION CHECKLIST – STAGE 2A
EPA REGION 5 START CONTRACT**

Sample dilutions:

| Within Criteria | Exceedance/Notes |
|------------------------|-------------------------|
| N/A | |

Re-extraction and reanalysis:

| Within Criteria | Exceedance/Notes |
|------------------------|-------------------------|
| N/A | |

MDLs/RLs:

| Within Criteria | Exceedance/Notes |
|------------------------|--|
| Y | Method detection limits were not reported. Non-detect sample results are reported as less than the reporting limit in the laboratory report and at the reporting limit (flagged U) in the EDD and attached qualified data table. |

Tentatively identified compounds:

| Within Criteria | Exceedance/Notes |
|------------------------|-------------------------|
| N/A | |

Other [none]:

| Within Criteria | Exceedance/Notes |
|------------------------|-------------------------|
| N/A | |

DATA VALIDATION CHECKLIST – STAGE 2A EPA REGION 5 START CONTRACT

Overall Qualifications:

See results summary pages attached for changes to the laboratory qualifiers based upon this validation. The following is a list of qualifiers and definitions that may be used for the validation of this data package:

| | |
|----|---|
| J | The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample. |
| J+ | The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased high. |
| J- | The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased low. |
| NJ | The analysis indicates the presence of an analyte that has been “tentatively identified” and the associated value is the approximate concentration of the analyte in the sample. |
| R | The sample result is rejected as unusable due to serious deficiencies in one or more quality control criteria. The analyte may or may not be present in the sample. |
| U | The analyte was analyzed for, but was not detected at or above the associated value (reporting limit). |
| UJ | The analyte was analyzed for, but was not detected at or above the associated value (reporting limit), which is considered approximate due to deficiencies in one or more quality control criteria. |

E PALESTINE SITE - ER AIR ANALYTICAL RESULTS SUMMARY
EUROFINS ANALYTICS REPORT NO. B173-120

| Sample_ID | Method | CAS# | Analyte | Lab_Result | Lab_Qual | MDL | RL | Units | VAL_Result | VAL_Qual |
|--------------------------|--------------------|----------|------------------|------------|----------|-----|--------|-------|------------|----------|
| EPD-PB-BKBA-01-062023-2 | NIOSH Method 1450M | 141-32-2 | n-Butyl acrylate | 0.0091 | U | | 0.0091 | ppm | 0.0091 | U |
| EPD-PB-BKBA-02-062023-2 | NIOSH Method 1450M | 141-32-2 | n-Butyl acrylate | 0.0091 | U | | 0.0091 | ppm | 0.0091 | U |
| EPD-PB-BKBA-022-062023-2 | NIOSH Method 1450M | 141-32-2 | n-Butyl acrylate | 0.0091 | U | | 0.0091 | ppm | 0.0091 | U |
| EPD-PB-CM-06-062023-2 | NIOSH Method 1450M | 141-32-2 | n-Butyl acrylate | 0.0091 | U | | 0.0091 | ppm | 0.0091 | U |
| EPD-PB-CM-07-062023-2 | NIOSH Method 1450M | 141-32-2 | n-Butyl acrylate | 0.0091 | U | | 0.0091 | ppm | 0.0091 | U |
| EPD-PB-CM-08-062023-2 | NIOSH Method 1450M | 141-32-2 | n-Butyl acrylate | 0.0091 | U | | 0.0091 | ppm | 0.0091 | U |
| EPD-PB-CM-09-062023-2 | NIOSH Method 1450M | 141-32-2 | n-Butyl acrylate | 0.0091 | U | | 0.0091 | ppm | 0.0091 | U |
| EPD-PB-CM-100-062023-2 | NIOSH Method 1450M | 141-32-2 | n-Butyl acrylate | 0.0091 | U | | 0.0091 | ppm | 0.0091 | U |
| EPD-PB-CM-10-062023-2 | NIOSH Method 1450M | 141-32-2 | n-Butyl acrylate | 0.0091 | U | | 0.0091 | ppm | 0.0091 | U |
| EPD-PB-CM-11-062023-2 | NIOSH Method 1450M | 141-32-2 | n-Butyl acrylate | 0.0091 | U | | 0.0091 | ppm | 0.0091 | U |
| EPD-PB-CM-12-062023-2 | NIOSH Method 1450M | 141-32-2 | n-Butyl acrylate | 0.0091 | U | | 0.0091 | ppm | 0.0091 | U |
| EPD-PB-CM-14-062023-2 | NIOSH Method 1450M | 141-32-2 | n-Butyl acrylate | 0.0091 | U | | 0.0091 | ppm | 0.0091 | U |
| EPD-PB-DW-G-062023-2 | NIOSH Method 1450M | 141-32-2 | n-Butyl acrylate | 0.0091 | U | | 0.0091 | ppm | 0.0091 | U |
| EPD-PB-FB-02-062023-2 | NIOSH Method 1450M | 141-32-2 | n-Butyl acrylate | 2 | U | | 2 | ug | 2 | U |
| EPD-PB-FB-03-062023-2 | NIOSH Method 1450M | 141-32-2 | n-Butyl acrylate | 2 | U | | 2 | ug | 2 | U |
| EPD-PB-MB-02-062023-2 | NIOSH Method 1450M | 141-32-2 | n-Butyl acrylate | 2 | U | | 2 | ug | 2 | U |
| EPD-PB-MB-03-062023-2 | NIOSH Method 1450M | 141-32-2 | n-Butyl acrylate | 2 | U | | 2 | ug | 2 | U |
| EPD-PB-OD-01-062023-2 | NIOSH Method 1450M | 141-32-2 | n-Butyl acrylate | 0.0091 | U | | 0.0091 | ppm | 0.0091 | U |
| EPD-PB-OD-02-062023-2 | NIOSH Method 1450M | 141-32-2 | n-Butyl acrylate | 0.0091 | U | | 0.0091 | ppm | 0.0091 | U |
| EPD-PB-OD-033-062023-2 | NIOSH Method 1450M | 141-32-2 | n-Butyl acrylate | 0.0091 | U | | 0.0091 | ppm | 0.0091 | U |
| EPD-PB-OD-04-062023-2 | NIOSH Method 1450M | 141-32-2 | n-Butyl acrylate | 0.0091 | U | | 0.0091 | ppm | 0.0091 | U |
| EPD-PB-OD-05-062023-2 | NIOSH Method 1450M | 141-32-2 | n-Butyl acrylate | 0.0091 | U | | 0.0091 | ppm | 0.0091 | U |
| EPD-PB-OD-06-062023-2 | NIOSH Method 1450M | 141-32-2 | n-Butyl acrylate | 0.0091 | U | | 0.0091 | ppm | 0.0091 | U |
| EPD-PB-OD-07-062023-2 | NIOSH Method 1450M | 141-32-2 | n-Butyl acrylate | 0.0091 | U | | 0.0091 | ppm | 0.0091 | U |
| EPD-PB-UW-C-062023-2 | NIOSH Method 1450M | 141-32-2 | n-Butyl acrylate | 0.0091 | U | | 0.0091 | ppm | 0.0091 | U |
| EPD-PB-WA-01-062023-2 | NIOSH Method 1450M | 141-32-2 | n-Butyl acrylate | 0.0091 | U | | 0.0091 | ppm | 0.0091 | U |
| EPD-PB-WA-02-062023-2 | NIOSH Method 1450M | 141-32-2 | n-Butyl acrylate | 0.0091 | U | | 0.0091 | ppm | 0.0091 | U |
| EPD-PB-WA-03-062023-2 | NIOSH Method 1450M | 141-32-2 | n-Butyl acrylate | 0.0091 | U | | 0.0091 | ppm | 0.0091 | U |
| EPD-PB-WA-04-062023-2 | NIOSH Method 1450M | 141-32-2 | n-Butyl acrylate | 0.0091 | U | | 0.0091 | ppm | 0.0091 | U |
| EPD-PB-WA-05-062023-2 | NIOSH Method 1450M | 141-32-2 | n-Butyl acrylate | 0.0091 | U | | 0.0091 | ppm | 0.0091 | U |
| EPD-PB-WA-06-062023-2 | NIOSH Method 1450M | 141-32-2 | n-Butyl acrylate | 0.0091 | U | | 0.0091 | ppm | 0.0091 | U |

**DATA VALIDATION CHECKLIST – STAGE 2A
EPA REGION 5 START CONTRACT**

| | | | |
|------------------------------|---|---------------------|---------------------------------------|
| Site Name | E Palestine Site - ER | TO/TOLIN No. | 68HE0520F0032/0001EB201 |
| Document Tracking No. | 2014c | | |
| Laboratory Report No. | B173-023 | Laboratory | Eurofins Analytics LLC, — Ashland, VA |
| Analyses | 2-Ethylhexyl acrylate and n-butyl acrylate by laboratory standard operating procedure (SOP) IHGC-P029 | | |
| Samples and Matrix | Nine air samples, including one field blank | | |
| Collection Date(s) | 6/20/2023 | | |
| Field Duplicate Pairs | None | | |
| Field QC Blanks | EPD-ST-FB-062023-1 | | |

INTRODUCTION

This checklist summarizes the Stage 2A validation performed on the subject laboratory report, in accordance with the U.S. Environmental Protection Agency (EPA) *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use* (January 2009). Analytical data were evaluated in general accordance with the Tetra Tech *Quality Assurance Project Plan, East Palestine Train Derailment Site, East Palestine, Columbiana County, Ohio, EPA Region 5, Revision 4* (April 2023), the Tetra Tech *Quality Assurance Project Plan, Superfund Technical Assessment and Response Team (START V), EPA Region 5, Revision 4* (August 2022), and the EPA *National Functional Guidelines (NFG) for Organic Superfund Methods Data Review* (November 2020).

OVERALL EVALUATION

No rejection or qualification of results was required for this data package. The results may be used as reported by the laboratory.

Data completeness:

| Within Criteria | Exceedance/Notes |
|------------------------|---|
| Y | The results for the field blank were reported in units of micrograms (µg) while the other sample results were reported in units of µg, milligram per cubic meter (mg/m ³), and parts per million (ppm) (volume) in the laboratory report and only ppm in the electronic data deliverable (EDD). |

**DATA VALIDATION CHECKLIST – STAGE 2A
EPA REGION 5 START CONTRACT**

Data completeness (continued):

| Within Criteria | Exceedance/Notes |
|-----------------|---|
| Y | <p>The sample analysis time is reported as a default value of 00:00 hours for the LCSD in the analysis date field of the laboratory EDD. Since the sample analysis time for the LCSD is not required for the validated EDD, this value was not manually revised.</p> <p>Rohm & Haas IH9805 is cited in the AIHA certification as “IHGC-P029” and may be cited by the abbreviation “Rohm & Haas IH9805” or “IHGC-P029” interchangeably throughout the laboratory report.</p> |

Sample preservation, receipt, and holding times:

| Within Criteria | Exceedance/Notes |
|-----------------|--|
| N | <p>The “Sample Receiving Date” listed on the COC was incorrectly reported as 5/6/2023. However, the “Received by Date/Time” on the COC reflects the correct sample receiving date and time (6/22/23 11:02); therefore, the COC was not revised.</p> <p>The EDD listed the Date Received as 6/22/23 0:00; these data were manually revised to reflect the correct received time of 11:02.</p> |

Method blanks:

| Within Criteria | Exceedance/Notes |
|-----------------|------------------|
| Y | |

Field blanks:

| Within Criteria | Exceedance/Notes |
|-----------------|------------------|
| Y | |

Surrogates and labeled compounds:

| Within Criteria | Exceedance/Notes |
|-----------------|------------------|
| N/A | |

**DATA VALIDATION CHECKLIST – STAGE 2A
EPA REGION 5 START CONTRACT**

MS/MSDs:

| Within Criteria | Exceedance/Notes |
|--------------------|------------------|
| N/A | |

Laboratory duplicates:

| Within Criteria | Exceedance/Notes |
|--------------------|------------------|
| N/A | |

Field duplicates:

| Within Criteria | Exceedance/Notes |
|--------------------|------------------|
| N/A | |

LCSs/LCSDs:

| Within Criteria | Exceedance/Notes |
|--------------------|--|
| Y | The Level IV laboratory report and the EDD have one or more minor discrepancies in the LCSD results (+/- 1 ug) and percent recoveries (+/- 1%) that were verified with the laboratory to be a significant figures issue. No qualifications were applied. |

Sample dilutions:

| Within Criteria | Exceedance/Notes |
|--------------------|------------------|
| N/A | |

**DATA VALIDATION CHECKLIST – STAGE 2A
EPA REGION 5 START CONTRACT**

Re-extraction and reanalysis:

| Within Criteria | Exceedance/Notes |
|------------------------|-------------------------|
| N/A | |

MDLs/RLs:

| Within Criteria | Exceedance/Notes |
|------------------------|--|
| Y | Method detection limits were not reported. Non-detect sample results are reported as less than the reporting limit in the laboratory report and at the reporting limit (flagged U) in the EDD and attached qualified data table. |

Tentatively identified compounds:

| Within Criteria | Exceedance/Notes |
|------------------------|-------------------------|
| N/A | |

Other [none]:

| Within Criteria | Exceedance/Notes |
|------------------------|-------------------------|
| N/A | |

DATA VALIDATION CHECKLIST – STAGE 2A EPA REGION 5 START CONTRACT

Overall Qualifications:

See results summary pages attached for changes to the laboratory qualifiers based upon this validation. The following is a list of qualifiers and definitions that may be used for the validation of this data package:

| | |
|----|---|
| J | The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample. |
| J+ | The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased high. |
| J- | The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased low. |
| NJ | The analysis indicates the presence of an analyte that has been “tentatively identified” and the associated value is the approximate concentration of the analyte in the sample. |
| R | The sample result is rejected as unusable due to serious deficiencies in one or more quality control criteria. The analyte may or may not be present in the sample. |
| U | The analyte was analyzed for, but was not detected at or above the associated value (reporting limit). |
| UJ | The analyte was analyzed for, but was not detected at or above the associated value (reporting limit), which is considered approximate due to deficiencies in one or more quality control criteria. |

E PALESTINE SITE - ER AIR ANALYTICAL RESULTS SUMMARY

EUROFINS ANALYTICS REPORT NO. B173-023

| Sample_ID | Method | CAS# | Analyte | Lab_Result | Lab_Qual | MDL | RL | Units | VAL_Result | VAL_Qual |
|--------------------------|-----------|----------|-----------------------|------------|----------|-----|-------|-------|------------|----------|
| EPD-ST-8H-DW-G-062023-1 | IHGC-P029 | 103-11-7 | 2-Ethylhexyl acrylate | 0.014 | U | | 0.014 | ppm | 0.014 | U |
| EPD-ST-8H-DW-G-062023-1 | IHGC-P029 | 141-32-2 | n-Butyl acrylate | 0.01 | U | | 0.01 | ppm | 0.01 | U |
| EPD-ST-8H-UW-C-062023-1 | IHGC-P029 | 103-11-7 | 2-Ethylhexyl acrylate | 0.014 | U | | 0.014 | ppm | 0.014 | U |
| EPD-ST-8H-UW-C-062023-1 | IHGC-P029 | 141-32-2 | n-Butyl acrylate | 0.009 | U | | 0.009 | ppm | 0.009 | U |
| EPD-ST-8H-WA-01-062023-1 | IHGC-P029 | 103-11-7 | 2-Ethylhexyl acrylate | 0.014 | U | | 0.014 | ppm | 0.014 | U |
| EPD-ST-8H-WA-01-062023-1 | IHGC-P029 | 141-32-2 | n-Butyl acrylate | 0.01 | U | | 0.01 | ppm | 0.01 | U |
| EPD-ST-8H-WA-02-062023-1 | IHGC-P029 | 103-11-7 | 2-Ethylhexyl acrylate | 0.014 | U | | 0.014 | ppm | 0.014 | U |
| EPD-ST-8H-WA-02-062023-1 | IHGC-P029 | 141-32-2 | n-Butyl acrylate | 0.009 | U | | 0.009 | ppm | 0.009 | U |
| EPD-ST-8H-WA-03-062023-1 | IHGC-P029 | 103-11-7 | 2-Ethylhexyl acrylate | 0.015 | U | | 0.015 | ppm | 0.015 | U |
| EPD-ST-8H-WA-03-062023-1 | IHGC-P029 | 141-32-2 | n-Butyl acrylate | 0.01 | U | | 0.01 | ppm | 0.01 | U |
| EPD-ST-8H-WA-04-062023-1 | IHGC-P029 | 103-11-7 | 2-Ethylhexyl acrylate | 0.014 | U | | 0.014 | ppm | 0.014 | U |
| EPD-ST-8H-WA-04-062023-1 | IHGC-P029 | 141-32-2 | n-Butyl acrylate | 0.009 | U | | 0.009 | ppm | 0.009 | U |
| EPD-ST-8H-WA-05-062023-1 | IHGC-P029 | 103-11-7 | 2-Ethylhexyl acrylate | 0.014 | U | | 0.014 | ppm | 0.014 | U |
| EPD-ST-8H-WA-05-062023-1 | IHGC-P029 | 141-32-2 | n-Butyl acrylate | 0.009 | U | | 0.009 | ppm | 0.009 | U |
| EPD-ST-8H-WA-06-062023-1 | IHGC-P029 | 103-11-7 | 2-Ethylhexyl acrylate | 0.014 | U | | 0.014 | ppm | 0.014 | U |
| EPD-ST-8H-WA-06-062023-1 | IHGC-P029 | 141-32-2 | n-Butyl acrylate | 0.01 | U | | 0.01 | ppm | 0.01 | U |
| EPD-ST-FB-062023-1 | IHGC-P029 | 103-11-7 | 2-Ethylhexyl acrylate | 2.8 | U | | 2.8 | ug | 2.8 | U |
| EPD-ST-FB-062023-1 | IHGC-P029 | 141-32-2 | n-Butyl acrylate | 1.3 | U | | 1.3 | ug | 1.3 | U |

**DATA VALIDATION CHECKLIST – STAGE 2A
EPA REGION 5 START CONTRACT**

| | | | |
|------------------------------|---|---------------------|---------------------------------------|
| Site Name | E Palestine Site - ER | TO/TOLIN No. | 68HE0520F0032/0001EB201 |
| Document Tracking No. | 2014d | | |
| Laboratory Report No. | B173-025 | Laboratory | Eurofins Analytics LLC, — Ashland, VA |
| Analyses | 2-Ethylhexyl acrylate and n-butyl acrylate by laboratory standard operating procedure (SOP) IHGC-P029 | | |
| Samples and Matrix | Ten air samples, including one field blank and one field duplicate pair | | |
| Collection Date(s) | 6/20/2023 | | |
| Field Duplicate Pairs | EPD-ST-8H-WA-06-062023-2/ EPD-ST-8H-WA-66-062023-2 | | |
| Field QC Blanks | EPD-ST-FB-062023-2 | | |

INTRODUCTION

This checklist summarizes the Stage 2A validation performed on the subject laboratory report, in accordance with the U.S. Environmental Protection Agency (EPA) *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use* (January 2009). Analytical data were evaluated in general accordance with the Tetra Tech *Quality Assurance Project Plan, East Palestine Train Derailment Site, East Palestine, Columbiana County, Ohio, EPA Region 5, Revision 4* (April 2023), the Tetra Tech *Quality Assurance Project Plan, Superfund Technical Assessment and Response Team (START V), EPA Region 5, Revision 4* (August 2022), and the EPA *National Functional Guidelines (NFG) for Organic Superfund Methods Data Review* (November 2020).

OVERALL EVALUATION

No rejection or qualification of results was required for this data package. The results may be used as reported by the laboratory.

Data completeness:

| Within Criteria | Exceedance/Notes |
|------------------------|---|
| Y | The results for the field blank were reported in units of micrograms (µg) while the other sample results were reported in units of µg, milligram per cubic meter (mg/m ³), and parts per million (ppm) (volume) in the laboratory report and only ppm in the electronic data deliverable (EDD). |

**DATA VALIDATION CHECKLIST – STAGE 2A
EPA REGION 5 START CONTRACT**

Data completeness (continued):

| Within Criteria | Exceedance/Notes |
|-----------------|---|
| Y | <p>The sample analysis time is reported as a default value of 00:00 hours for the LCSD in the analysis date field of the laboratory EDD. Since the sample analysis time for the LCSD is not required for the validated EDD, this value was not manually revised.</p> <p>Rohm & Haas IH9805 is cited in the AIHA certification as “IHGC-P029” and may be cited by the abbreviation “Rohm & Haas IH9805” or “IHGC-P029” interchangeably throughout the laboratory report.</p> |

Sample preservation, receipt, and holding times:

| Within Criteria | Exceedance/Notes |
|-----------------|---|
| N | <p>The “Sample Receiving Date” listed on the COC was incorrectly reported as 6/20/2023. However, the “Received by Date/Time” on the COC reflects the correct sample receiving date and time (6/22/23 11:36); therefore, the COC was not revised.</p> <p>The EDD listed the Date Received as 6/22/23 0:00; these data were manually revised to reflect the correct received time of 11:36.</p> |

Method blanks:

| Within Criteria | Exceedance/Notes |
|-----------------|------------------|
| Y | |

Field blanks:

| Within Criteria | Exceedance/Notes |
|-----------------|------------------|
| Y | |

Surrogates and labeled compounds:

| Within Criteria | Exceedance/Notes |
|-----------------|------------------|
| N/A | |

**DATA VALIDATION CHECKLIST – STAGE 2A
EPA REGION 5 START CONTRACT**

MS/MSDs:

| Within Criteria | Exceedance/Notes |
|--------------------|------------------|
| N/A | |

Laboratory duplicates:

| Within Criteria | Exceedance/Notes |
|--------------------|------------------|
| N/A | |

Field duplicates:

| Within Criteria | Exceedance/Notes |
|--------------------|------------------|
| N/A | |

LCSs/LCSDs:

| Within Criteria | Exceedance/Notes |
|--------------------|---|
| Y | The Level IV laboratory report and the EDD have one or more minor discrepancies in the LCS/LCSD results (+/- 1 ug) and/or percent recoveries (+/- 1%) that were verified with the laboratory to be a significant figures issue. No qualifications were applied. |

Sample dilutions:

| Within Criteria | Exceedance/Notes |
|--------------------|------------------|
| N/A | |

**DATA VALIDATION CHECKLIST – STAGE 2A
EPA REGION 5 START CONTRACT**

Re-extraction and reanalysis:

| Within Criteria | Exceedance/Notes |
|--------------------|------------------|
| N/A | |

MDLs/RLs:

| Within Criteria | Exceedance/Notes |
|--------------------|--|
| Y | Method detection limits were not reported. Non-detect sample results are reported as less than the reporting limit in the laboratory report and at the reporting limit (flagged U) in the EDD and attached qualified data table. |

Tentatively identified compounds:

| Within Criteria | Exceedance/Notes |
|--------------------|------------------|
| N/A | |

Other [none]:

| Within Criteria | Exceedance/Notes |
|--------------------|------------------|
| N/A | |

DATA VALIDATION CHECKLIST – STAGE 2A EPA REGION 5 START CONTRACT

Overall Qualifications:

See results summary pages attached for changes to the laboratory qualifiers based upon this validation. The following is a list of qualifiers and definitions that may be used for the validation of this data package:

| | |
|----|---|
| J | The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample. |
| J+ | The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased high. |
| J- | The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased low. |
| NJ | The analysis indicates the presence of an analyte that has been “tentatively identified” and the associated value is the approximate concentration of the analyte in the sample. |
| R | The sample result is rejected as unusable due to serious deficiencies in one or more quality control criteria. The analyte may or may not be present in the sample. |
| U | The analyte was analyzed for, but was not detected at or above the associated value (reporting limit). |
| UJ | The analyte was analyzed for, but was not detected at or above the associated value (reporting limit), which is considered approximate due to deficiencies in one or more quality control criteria. |

E PALESTINE SITE - ER AIR ANALYTICAL RESULTS SUMMARY
EUROFINS ANALYTICS REPORT NO. B173-025

| Sample_ID | Method | CAS# | Analyte | Lab_Result | Lab_Qual | MDL | RL | Units | VAL_Result | VAL_Qual |
|--------------------------|-----------|----------|-----------------------|------------|----------|-----|----|-----------|------------|----------|
| EPD-ST-8H-DW-G-062023-2 | IHGC-P029 | 103-11-7 | 2-Ethylhexyl acrylate | 0.015 | U | | | 0.015 ppm | 0.015 | U |
| EPD-ST-8H-DW-G-062023-2 | IHGC-P029 | 141-32-2 | n-Butyl acrylate | 0.01 | U | | | 0.01 ppm | 0.01 | U |
| EPD-ST-8H-UW-C-062023-2 | IHGC-P029 | 103-11-7 | 2-Ethylhexyl acrylate | 0.015 | U | | | 0.015 ppm | 0.015 | U |
| EPD-ST-8H-UW-C-062023-2 | IHGC-P029 | 141-32-2 | n-Butyl acrylate | 0.01 | U | | | 0.01 ppm | 0.01 | U |
| EPD-ST-8H-WA-01-062023-2 | IHGC-P029 | 103-11-7 | 2-Ethylhexyl acrylate | 0.015 | U | | | 0.015 ppm | 0.015 | U |
| EPD-ST-8H-WA-01-062023-2 | IHGC-P029 | 141-32-2 | n-Butyl acrylate | 0.01 | U | | | 0.01 ppm | 0.01 | U |
| EPD-ST-8H-WA-02-062023-2 | IHGC-P029 | 103-11-7 | 2-Ethylhexyl acrylate | 0.015 | U | | | 0.015 ppm | 0.015 | U |
| EPD-ST-8H-WA-02-062023-2 | IHGC-P029 | 141-32-2 | n-Butyl acrylate | 0.01 | U | | | 0.01 ppm | 0.01 | U |
| EPD-ST-8H-WA-03-062023-2 | IHGC-P029 | 103-11-7 | 2-Ethylhexyl acrylate | 0.015 | U | | | 0.015 ppm | 0.015 | U |
| EPD-ST-8H-WA-03-062023-2 | IHGC-P029 | 141-32-2 | n-Butyl acrylate | 0.01 | U | | | 0.01 ppm | 0.01 | U |
| EPD-ST-8H-WA-04-062023-2 | IHGC-P029 | 103-11-7 | 2-Ethylhexyl acrylate | 0.015 | U | | | 0.015 ppm | 0.015 | U |
| EPD-ST-8H-WA-04-062023-2 | IHGC-P029 | 141-32-2 | n-Butyl acrylate | 0.01 | U | | | 0.01 ppm | 0.0100 | U |
| EPD-ST-8H-WA-05-062023-2 | IHGC-P029 | 103-11-7 | 2-Ethylhexyl acrylate | 0.015 | U | | | 0.015 ppm | 0.015 | U |
| EPD-ST-8H-WA-05-062023-2 | IHGC-P029 | 141-32-2 | n-Butyl acrylate | 0.01 | U | | | 0.01 ppm | 0.01 | U |
| EPD-ST-8H-WA-06-062023-2 | IHGC-P029 | 103-11-7 | 2-Ethylhexyl acrylate | 0.015 | U | | | 0.015 ppm | 0.015 | U |
| EPD-ST-8H-WA-06-062023-2 | IHGC-P029 | 141-32-2 | n-Butyl acrylate | 0.01 | U | | | 0.01 ppm | 0.01 | U |
| EPD-ST-8H-WA-66-062023-2 | IHGC-P029 | 103-11-7 | 2-Ethylhexyl acrylate | 0.015 | U | | | 0.015 ppm | 0.015 | U |
| EPD-ST-8H-WA-66-062023-2 | IHGC-P029 | 141-32-2 | n-Butyl acrylate | 0.01 | U | | | 0.01 ppm | 0.01 | U |
| EPD-ST-FB-062023-2 | IHGC-P029 | 103-11-7 | 2-Ethylhexyl acrylate | 2.8 | U | | | 2.8 ug | 2.8 | U |
| EPD-ST-FB-062023-2 | IHGC-P029 | 141-32-2 | n-Butyl acrylate | 1.3 | U | | | 1.3 ug | 1.3 | U |