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October 6, 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. 2067**

Dear Mr. Peters:

Tetra Tech, Inc. (Tetra Tech) is submitting these data validation reports for 100 air samples (including eight field duplicate samples, five field blank samples, and four media blanks) collected at the E Palestine site. The samples were collected on May 1 and 2, 2023, and were analyzed for acrylates by Eurofins Analytics, LLC. The final laboratory data package was received on September 6, 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, 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 qualification or rejection of results was required for these data packages.

If you have any questions regarding this data validation report, please contact me via the project manager.

Sincerely,

Celina Barnett-Cashman
Digitally signed by Celina Barnett-Cashman
Date: 2023.10.06 15:50:04 -05'00'

Environmental Chemist

Enclosure

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

ATTACHMENTS

**DATA VALIDATION REPORTS
EUROFINS ANALYTICS, LLC REPORT NOS.
B124-009, B124-010, B124-012 AND B124-013**

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

Site Name	E Palestine Site - ER	TO/TOLIN No.	68HE0520F0032/0001EB201
Document Tracking No.	2067a	Laboratory	Eurofins Analytics, LLC – Ashland, VA
Laboratory Report No.	B124-009		
Analyses	n-Butyl acrylate by NIOSH Method 1450M		
Samples and Matrix	Twenty-nine air samples including one field blank, one media blank, and two field duplicate pairs		
Collection Date(s)	05/02/2023		
Field Duplicate Pairs	EPD-PB-WA-02-050223-1/EPD-PB-WA-022-050223-1 EPD-PB-WA-04-050223-1/EPD-PB-WA-044-050223-1		
Field QC Blanks	EPD-PB-FB-01-050223-1 and EPD-PB-MB-01-050223-1		

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, 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 EPA *National Functional Guidelines 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 VALIDATION CHECKLIST – STAGE 2A
EPA REGION 5 START CONTRACT**

Data completeness:

Within Criteria	Exceedance/Notes
N	<p>The results for the field blank and media blank were reported in units of micrograms (µg), while the other field sample results were reported in units of µg, milligrams per cubic meter (mg/m3), and parts per million (ppm) (volume) in the laboratory report. Only units of ppm were reported in the laboratory electronic data deliverable (EDD).</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> <p>The sample analysis time is reported as a default value of 00:00 hours for the laboratory control sample duplicate (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>

Sample preservation, receipt, and holding times:

Within Criteria	Exceedance/Notes
N	The second page of the chain of custody (COC) was not signed and dated upon laboratory receipt. The laboratory was contacted and confirmed that signing one page of multiple page COC is consistent with their laboratory SOP; therefore, no qualification was applied.

Method blanks:

Within Criteria	Exceedance/Notes
N	Laboratory method blank (LMB IHG230504B) and laboratory reagent blank (LRB IHG230504B) were reported as nondetect (flagged U) with a result of 0 ug in the laboratory EDD rather than at the reporting limit. The laboratory was contacted on August 28, 2023, and resolved LRB and LMB results in future laboratory EDDs. No qualifications were applied.

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

Field blanks:

Within Criteria	Exceedance/Notes
Y	

Surrogates and labeled compounds:

Within Criteria	Exceedance/Notes
NA	

MS/MSDs:

Within Criteria	Exceedance/Notes
NA	

Laboratory duplicates:

Within Criteria	Exceedance/Notes
NA	

Field duplicates:

Within Criteria	Exceedance/Notes
Y	

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

LCs/LCSDs:

Within Criteria	Exceedance/Notes
N	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 29 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.

Sample dilutions:

Within Criteria	Exceedance/Notes
NA	

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 validated EDD and attached analytical results summary.

Tentatively identified compounds:

Within Criteria	Exceedance/Notes
NA	

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

Other [None]:

Within Criteria	Exceedance/Notes
NA	

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, LLC REPORT NO. B124-009

Samp_ID	Method	CAS_#	Analyte	Lab_Result	Lab_Qual	RL	Units	VAL_Result	VAL_Qual
EPD-PB-BKBA-01-050223-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	0.0091 U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-BKBA-02-050223-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	0.0091 U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-CM-06-050223-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	0.0091 U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-CM-07-050223-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	0.0091 U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-CM-08-050223-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	0.0091 U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-CM-09-050223-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	0.0091 U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-CM-10-050223-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	0.0091 U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-CM-11-050223-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	0.0091 U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-CM-12-050223-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	0.0091 U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-CM-14-050223-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	0.0091 U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-DW-B-050223-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	0.0091 U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-FB-01-050223-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	2 U	2 U	2	ug	2 U	2 U
EPD-PB-MB-01-050223-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	2 U	2 U	2	ug	2 U	2 U
EPD-PB-OD-01-050223-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	0.0091 U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-OD-02-050223-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	0.0091 U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-OD-03-050223-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	0.0091 U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-OD-04-050223-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	0.0091 U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-OD-05-050223-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	0.0091 U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-OD-06-050223-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	0.0091 U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-OD-07-050223-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	0.0091 U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-UW-F-050223-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	0.0091 U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-WA-01-050223-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	0.0091 U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-WA-02-050223-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	0.0091 U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-WA-022-050223-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	0.0091 U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-WA-03-050223-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	0.0091 U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-WA-04-050223-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	0.0091 U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-WA-044-050223-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	0.0091 U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-WA-05-050223-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	0.0091 U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-WA-06-050223-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	0.0091 U	0.0091	ppm	0.0091 U	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.	2067b	Laboratory	Eurofins Analytics, LLC – Ashland, VA
Laboratory Report No.	B124-010		
Analyses	n-Butyl acrylate by NIOSH Method 1450M		
Samples and Matrix	Twenty-nine air samples including one field blank, one media blank, and two field duplicate pairs		
Collection Date(s)	05/01/2023		
Field Duplicate Pairs	EPD-PB-CM-08-050123-1/EPD-PB-CM-088-050123-1 EPD-PB-OD-05-050123-1/EPD-PB-OD-055-050123-1		
Field QC Blanks	EPD-PB-FB-01-050123-1, EPD-PB-MB-01-050123-1		

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, 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 EPA *National Functional Guidelines 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 VALIDATION CHECKLIST – STAGE 2A
EPA REGION 5 START CONTRACT**

Data completeness:

Within Criteria	Exceedance/Notes
N	<p>The results for the field blank and media blank were reported in units of micrograms (µg) while the other field sample results were reported in units of µg, milligrams per cubic meter (mg/m3), and parts per million (ppm) (volume) in the laboratory report. Only units of ppm were reported in the laboratory electronic data deliverable (EDD).</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> <p>The sample analysis time is reported as a default value of 00:00 hours for the laboratory control sample duplicate (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>

Sample preservation, receipt, and holding times:

Within Criteria	Exceedance/Notes
N	<p>The second page of the chain of custody (COC) was not signed and dated upon laboratory receipt. The laboratory was contacted and confirmed that signing one page of multiple page COC is consistent with their laboratory SOP; therefore, no qualification was applied.</p>

Method blanks:

Within Criteria	Exceedance/Notes
N	<p>Laboratory method blank (LMB IHG230504D) and laboratory reagent blank (LRB IHG230504D) were reported as nondetect (flagged U) at 0 ug rather than the reporting limit in the laboratory EDD. The laboratory was contacted on August 28, 2023, and resolved the LMB and LRB results in future laboratory EDDs. No qualifications were applied.</p>

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

Field blanks:

Within Criteria	Exceedance/Notes
Y	

Surrogates and labeled compounds:

Within Criteria	Exceedance/Notes
NA	

MS/MSDs:

Within Criteria	Exceedance/Notes
NA	

Laboratory duplicates:

Within Criteria	Exceedance/Notes
NA	

Field duplicates:

Within Criteria	Exceedance/Notes
Y	

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

LCs/LCSDs:

Within Criteria	Exceedance/Notes
N	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 29 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.

Sample dilutions:

Within Criteria	Exceedance/Notes
NA	

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 validated EDD and attached analytical results summary.

Tentatively identified compounds:

Within Criteria	Exceedance/Notes
NA	

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

Other [None]:

Within Criteria	Exceedance/Notes
NA	

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, LLC REPORT NO. B124-010

Samp_ID	Method	CAS_#	Analyte	Lab_Result	Lab_Qual	RL	Units	VAL_Result	VAL_Qual
EPD-PB-BKBA-01-050123-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	0.0091 U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-BKBA-02-050123-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	0.0091 U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-CM-06-050123-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	0.0091 U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-CM-07-050123-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	0.0091 U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-CM-08-050123-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	0.0091 U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-CM-088-050123-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	0.0091 U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-CM-09-050123-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	0.0091 U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-CM-10-050123-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	0.0091 U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-CM-11-050123-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	0.0091 U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-CM-12-050123-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	0.0091 U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-CM-14-050123-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	0.0091 U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-DW-A-050123-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	0.0091 U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-FB-01-050123-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	2 U	2 U	2	ug	2 U	2 U
EPD-PB-MB-01-050123-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	2 U	2 U	2	ug	2 U	2 U
EPD-PB-OD-01-050123-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	0.0091 U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-OD-02-050123-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	0.0091 U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-OD-03-050123-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	0.0091 U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-OD-04-050123-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	0.0091 U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-OD-05-050123-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	0.0091 U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-OD-055-050123-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	0.0091 U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-OD-06-050123-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	0.0091 U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-OD-07-050123-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	0.0091 U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-UW-E-050123-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	0.0091 U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-WA-01-050123-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	0.0091 U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-WA-02-050123-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	0.0091 U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-WA-03-050123-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	0.0091 U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-WA-04-050123-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	0.0091 U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-WA-05-050123-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	0.0091 U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-WA-06-050123-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	0.0091 U	0.0091	ppm	0.0091 U	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.	2067c	Laboratory	Eurofins Analytics, LLC – Ashland, VA
Laboratory Report No.	B124-012		
Analyses	n-Butyl acrylate by NIOSH Method 1450M		
Samples and Matrix	Thirty-Two air samples including two field blanks, two media blanks, and two field duplicate pairs		
Collection Date(s)	05/02/2023		
Field Duplicate Pairs	EPD-PB-CM-06-050223-02/EPD-PB-CM-066-050223-02 EPD-PB-WA-05-050223-02/EPD-PB-WA-055-050223-02 EPD-PB-BKBA-01-050223-2/ EPD-PB-BKBA-011-050223-2		
Field QC Blanks	EPD-PB-FB-02-050223-2, EPD-PB-FB-03-050223-2, EPD-PB-MB-02-050223-2, and EPD-PB-MB-03-050223-2		

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, 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 EPA *National Functional Guidelines 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 VALIDATION CHECKLIST – STAGE 2A
EPA REGION 5 START CONTRACT**

Data completeness:

Within Criteria	Exceedance/Notes
N	<p>The results for the field blank and media blank were reported in units of micrograms (µg) while the other field sample results were reported in units of µg, milligrams per cubic meter (mg/m3), and parts per million (ppm) (volume) in the laboratory report. Only units of ppm were reported in the laboratory electronic data deliverable (EDD).</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> <p>The sample analysis time is reported as a default value of 00:00 hours for the laboratory control sample duplicate (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>

Sample preservation, receipt, and holding times:

Within Criteria	Exceedance/Notes
N	The second page of the chain of custody (COC) was not signed and dated upon laboratory receipt. The laboratory was contacted and confirmed that signing one page of multiple page COC is consistent with their laboratory SOP; therefore, no qualification was applied.

Method blanks:

Within Criteria	Exceedance/Notes
N	Laboratory method blank (LMB IHG230504E) and laboratory reagent blank (LRB IHG230504E) were reported as nondetect (flagged U) with a result of 0 ug in the laboratory EDD rather than at the reporting limit. The laboratory was contacted on August 28, 2023, and resolved the LMB and LRB results in future laboratory EDDs. No qualifications were applied.

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

Field blanks:

Within Criteria	Exceedance/Notes
Y	

Surrogates and labeled compounds:

Within Criteria	Exceedance/Notes
NA	

MS/MSDs:

Within Criteria	Exceedance/Notes
NA	

Laboratory duplicates:

Within Criteria	Exceedance/Notes
NA	

Field duplicates:

Within Criteria	Exceedance/Notes
Y	

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

LCs/LCSDs:

Within Criteria	Exceedance/Notes
N	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 32 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.

Sample dilutions:

Within Criteria	Exceedance/Notes
NA	

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 validated EDD and attached analytical results summary.

Tentatively identified compounds:

Within Criteria	Exceedance/Notes
NA	

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

Other [None]:

Within Criteria	Exceedance/Notes
NA	

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, LLC REPORT NO. B124-012

Samp_ID	Method	CAS_#	Analyte	Lab_Result	Lab_Qual	RL	Units	VAL_Result	VAL_Qual
EPD-PB-BKBA-01-050223-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-BKBA-011-050223-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-BKBA-02-050223-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-CM-06-050223-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-CM-066-050223-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-CM-07-050223-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-CM-08-050223-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-CM-09-050223-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-CM-10-050223-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-CM-11-050223-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-CM-12-050223-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-CM-14-050223-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-DW-C-050223-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-FB-02-050223-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	2 U	U	2	ug	2 U	2 U
EPD-PB-FB-03-050223-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	2 U	U	2	ug	2 U	2 U
EPD-PB-MB-02-050223-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	2 U	U	2	ug	2 U	2 U
EPD-PB-MB-03-050223-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	2 U	U	2	ug	2 U	2 U
EPD-PB-OD-01-050223-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-OD-02-050223-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-OD-03-050223-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-OD-04-050223-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-OD-05-050223-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-OD-06-050223-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-OD-07-050223-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-UW-G-050223-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-WA-01-050223-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-WA-02-050223-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-WA-03-050223-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-WA-04-050223-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-WA-05-050223-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-WA-055-050223-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	U	0.0091	ppm	0.0091 U	0.0091 U
EPD-PB-WA-06-050223-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091 U	U	0.0091	ppm	0.0091 U	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.	2067d	Laboratory	Eurofins Analytics, LLC – Ashland, VA
Laboratory Report No.	B124-013	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)	05/02/2023		
Field Duplicate Pairs	EPD-ST-8H-WA-03-050223-2/EPD-ST-8H-WA-33-050223-2		
Field QC Blanks	EPD-ST-FB-050223-2		

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, 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 EPA *National Functional Guidelines 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 VALIDATION CHECKLIST – STAGE 2A
EPA REGION 5 START CONTRACT**

Data completeness:

Within Criteria	Exceedance/Notes
N	<p>The results for the field blank were reported in units of micrograms (µg) while the other sample results were reported in units of µg, milligrams per cubic meter (mg/m³), and parts per million (ppm) (volume) in the laboratory report. Only in units of ppm were reported in the laboratory electronic data deliverable (EDD).</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> <p>The sample analysis time is reported as a default value of 00:00 hours for the laboratory control sample duplicate (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>

Sample preservation, receipt, and holding times:

Within Criteria	Exceedance/Notes
Y	

Method blanks:

Within Criteria	Exceedance/Notes
N	Laboratory method blank (LMB IHG230504F) and laboratory reagent blank (LRB IHG230504F) were reported as nondetect (flagged U) with a result of 0 ug in the laboratory EDD rather than at the reporting limit. The laboratory was contacted on August 28, 2023, and resolved the LMB and LRB results in future laboratory EDDs. No qualifications were applied.

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
NA	

MS/MSDs:

Within Criteria	Exceedance/Notes
NA	

Laboratory duplicates:

Within Criteria	Exceedance/Notes
NA	

Field duplicates:

Within Criteria	Exceedance/Notes
Y	

LCSs/LCSDs:

Within Criteria	Exceedance/Notes
Y	

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 validated EDD and attached analytical results summary.

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, LLC REPORT NO. B124-013

Samp_ID	Method	CAS_#	Analyte	Lab_Result	Lab_Qual	RL	Units	VAL_Result	VAL_Qual
EPD-ST-8H-DW-C-050223-2	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.014 U	U	0.014	ppm	0.014	U
EPD-ST-8H-DW-C-050223-2	IHGC-P029	141-32-2	n-Butyl acrylate	0.01 U	U	0.01	ppm	0.01	U
EPD-ST-8H-UW-G-050223-2	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.014 U	U	0.014	ppm	0.014	U
EPD-ST-8H-UW-G-050223-2	IHGC-P029	141-32-2	n-Butyl acrylate	0.01 U	U	0.01	ppm	0.01	U
EPD-ST-8H-WA-01-050223-2	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.015 U	U	0.015	ppm	0.015	U
EPD-ST-8H-WA-01-050223-2	IHGC-P029	141-32-2	n-Butyl acrylate	0.01 U	U	0.01	ppm	0.01	U
EPD-ST-8H-WA-02-050223-2	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.015 U	U	0.015	ppm	0.015	U
EPD-ST-8H-WA-02-050223-2	IHGC-P029	141-32-2	n-Butyl acrylate	0.01 U	U	0.01	ppm	0.01	U
EPD-ST-8H-WA-03-050223-2	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.014 U	U	0.014	ppm	0.014	U
EPD-ST-8H-WA-03-050223-2	IHGC-P029	141-32-2	n-Butyl acrylate	0.01 U	U	0.01	ppm	0.01	U
EPD-ST-8H-WA-04-050223-2	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.015 U	U	0.015	ppm	0.015	U
EPD-ST-8H-WA-04-050223-2	IHGC-P029	141-32-2	n-Butyl acrylate	0.01 U	U	0.01	ppm	0.01	U
EPD-ST-8H-WA-05-050223-2	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.013 U	U	0.013	ppm	0.013	U
EPD-ST-8H-WA-05-050223-2	IHGC-P029	141-32-2	n-Butyl acrylate	0.009 U	U	0.009	ppm	0.009	U
EPD-ST-8H-WA-06-050223-2	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.016 U	U	0.016	ppm	0.016	U
EPD-ST-8H-WA-06-050223-2	IHGC-P029	141-32-2	n-Butyl acrylate	0.011 U	U	0.011	ppm	0.011	U
EPD-ST-8H-WA-33-050223-2	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.015 U	U	0.015	ppm	0.015	U
EPD-ST-8H-WA-33-050223-2	IHGC-P029	141-32-2	n-Butyl acrylate	0.01 U	U	0.01	ppm	0.01	U
EPD-ST-FB-050223-2	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	2.8 U	U	2.8	ug	2.8	U
EPD-ST-FB-050223-2	IHGC-P029	141-32-2	n-Butyl acrylate	1.3 U	U	1.3	ug	1.3	U