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December 7, 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. 2197**

Dear Mr. Peters:

Tetra Tech, Inc. (Tetra Tech) is submitting this data validation report for 96 air samples (including 6 field duplicate pairs, 4 field blank samples, and 3 media blank samples) collected at the E Palestine site. The samples were collected on May 10, 14, 23, and 24, 2023 and were analyzed for acrylates by Eurofins Analytics, LLC. The final laboratory data package was received on October 3, 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. The results may be used as reported by the laboratory.

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

Sincerely,

**Kayla Phye** Digitally signed by Kayla Phye  
Date: 2023.12.07 19:44:38  
-07'00'

Environmental Chemist

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

**ATTACHMENTS**

**DATA VALIDATION REPORT  
EUROFINS ANALYTICS, LLC REPORT NOS.  
B132-309, B136-199, B145-018, B146-012**

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

Site Name	E Palestine Site – ER	TO/TOLIN No.	68HE0520F0032/0001EB201
Document Tracking No.	2197a		
Laboratory Report No.	B132-309	Laboratory	Eurofins Analytics, LLC – Ashland, VA
Analyses	n-Butyl acrylate by NIOSH Method 1450M		
Samples and Matrix	29 air samples including 1 field blank sample, 1 media blank sample, and 2 field duplicate pairs		
Collection Date(s)	05/10/2023		
Field Duplicate Pairs	EPD-PB-CM-06-051023-1/EPD-PB-CM-066-051023-1 EPD-PB-CM-07-051023-1/EPD-PB-CM-077-051023-1		
Field QC Blanks	EPD-PB-FB-01-051023-1 and EPD-PB-MB-01-051023-1		

**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 (QAPP), 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 (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 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/m<sup>3</sup>), and parts per million (ppm) (volume) in the laboratory report and only in units of ppm 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>To facilitate sample reporting, large sample delivery groups may be logged by the laboratory separately by individual pages of the chain of custody (COC) form. The ratio of field quality control (QC) samples (field blank samples, media blank samples, and field duplicate samples) to non-QC field samples is monitored independent of this validation and therefore the ratio of field QC samples to non-QC field samples was not verified during this validation. No qualifications were applied because all field sample results were nondetect.</p> <p>Note, the following fields in the laboratory EDD may be formatted as date only or as date/time: Date_Collected, Date_Received, Date_Extracted, and Date_Analyzed. The time value was not required to be provided in the EDD. If no time value was provided, then the entered value may appear as date only or with a default time value of 0:00, 00:00, or similar.</p> <p>The extraction date in the laboratory EDD do not match the laboratory report or are absent. During the data validation effort, the extraction dates were added or corrected (as needed) to match those in the preparation log in the laboratory report.</p> <p>A unique sample ID for the laboratory control sample duplicate (LCSD) was not provided in the laboratory EDD. Unique sample IDs are needed to avoid overwriting other QC sample data when validated EDDs are uploaded to the Scribe database. The LCSD ID in the Samp_No and Lab_Samp_No fields of the validated EDD were manually revised to match those in the laboratory report.</p>

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

**Sample preservation, receipt, and holding times:**

Within Criteria	Exceedance/Notes
Y	

**Method blanks:**

Within Criteria	Exceedance/Notes
N	Nondetect result for laboratory reagent blank (LRB) LRB IHG230512B was reported as “0” in the laboratory EDD rather than at the reporting limit (RL) and the nondetect result for the laboratory media blank LMB IHG230512B was reported at a value between the method detection limit (MDL) and the RL. The laboratory was contacted on August 28, 2023, and agreed to report nondetect laboratory method blank and LRB results at the RL in future laboratory EDDs. No qualifications were applied.

**Field blanks:**

Within Criteria	Exceedance/Notes
N	Only 1 field blank sample was included in this data package although the site-specific QAPP specifies the collection of 1 field blank sample per 20 field samples; therefore, this data package should have included 2 field blank samples. No qualifications were applied because all sample results were nondetect.

**Surrogates and labeled compounds:**

Within Criteria	Exceedance/Notes
NA	

**MS/MSDs:**

Within Criteria	Exceedance/Notes
NA	

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

**Laboratory duplicates:**

Within Criteria	Exceedance/Notes
NA	

**Field duplicates:**

Within Criteria	Exceedance/Notes
N	Only 2 field duplicate samples were included in this data package although the site-specific QAPP specifies the collection of 1 field duplicate sample per 10 field samples. Based on professional judgement, no qualifications were applied.

**LCSs/LCSDs:**

Within Criteria	Exceedance/Notes
N	The site-specific QAPP requires a LRB, laboratory media blank, laboratory control sample (LCS), and LCSD to be analyzed per batch of 20 samples. However, the laboratory analyzed 29 field samples in 1 sample preparation batch that included 1 LRB, laboratory media blank, LCS, and LCSD, when the batch should have included 2 LRBs, laboratory media blanks, LCSs, and LCSDs. The laboratory was contacted on August 8, 2023 about this deviation from the site-specific QAPP and agreed that they would follow the QC sample frequency requirements in the site-specific QAPP in future reports. 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	

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

**MDLs/RLs:**

Within Criteria	Exceedance/Notes
Y	MDLs were not reported. Nondetect sample results were reported as less than the RL in the laboratory report and at the RL (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. B132-309

Sample ID	Method	CAS#	Analyte	Lab Result	Lab Qual	RL	Units	VAL_Result	VAL_Qual
EPD-PB-BKBA-01-051023-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-BKBA-02-051023-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-CM-06-051023-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-CM-066-051023-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-CM-07-051023-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-CM-077-051023-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-CM-08-051023-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-CM-09-051023-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-CM-10-051023-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-CM-11-051023-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-CM-12-051023-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-CM-14-051023-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-DW-E-051023-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-FB-01-051023-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	2	U	2	ug	2	U
EPD-PB-MB-01-051023-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	2	U	2	ug	2	U
EPD-PB-OD-01-051023-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-OD-02-051023-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-OD-03-051023-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-OD-04-051023-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-OD-05-051023-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-OD-06-051023-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-OD-07-051023-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-UW-A-051023-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-WA-01-051023-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-WA-02-051023-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-WA-03-051023-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-WA-04-051023-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-WA-05-051023-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-WA-06-051023-1	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.	2197b		
Laboratory Report No.	B136-199	Laboratory	Eurofins Analytics, LLC – Ashland, VA
Analyses	n-Butyl acrylate by NIOSH Method 1450M		
Samples and Matrix	29 air samples including 1 field blank sample, 1 media blank sample, and 2 field duplicate pairs		
Collection Date(s)	05/14/2023		
Field Duplicate Pairs	EPD-PB-CM-10-051423-1/EPD-PB-CM-100-051423-1 EPD-PB-WA-01-051423-1/EPD-PB-WA-011-051423-1		
Field QC Blanks	EPD-PB-FB-01-051423-1 and EPD-PB-MB-01-051423-1		

**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 (QAPP), 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 (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 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 and only in units of ppm 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>To facilitate sample reporting, large sample delivery groups may be logged by the laboratory separately by individual pages of the chain of custody (COC) form. The ratio of field quality control (QC) samples (field blank samples, media blank samples, and field duplicate samples) to non-QC field samples is monitored independent of this validation and therefore the ratio of field QC samples to non-QC field samples was not verified during this validation. No qualifications were applied because all field sample results were nondetect.</p> <p>Note, the following fields in the laboratory EDD may be formatted as date only or as date/time: Date_Collected, Date_Received, Date_Extracted, and Date_Analyzed. The time value was not required to be provided in the EDD. If no time value was provided, then the entered value may appear as date only or with a default time value of 0:00, 00:00, or similar.</p>

**Sample preservation, receipt, and holding times:**

Within Criteria	Exceedance/Notes
Y	

**Method blanks:**

Within Criteria	Exceedance/Notes
Y	

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

**Field blanks:**

Within Criteria	Exceedance/Notes
N	Only 1 field blank sample was included in this data package although the site-specific QAPP specifies the collection of 1 field blank sample per 20 field samples; therefore, this data package should have included 2 field blank samples. No qualifications were applied because all sample results were nondetect.

**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
N	Only 2 field duplicate samples were included in this data package although the site-specific QAPP specifies the collection of 1 field duplicate sample per 10 field samples. Based on professional judgement, no qualifications were applied.

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

**LCSs/LCSDs:**

Within Criteria	Exceedance/Notes
N	The site-specific QAPP requires a laboratory reagent blank (LRB), laboratory media blank, laboratory control sample (LCS), LCS duplicate (LCSD) to be analyzed per batch of 20 samples. However, the laboratory analyzed 29 field samples in 1 sample preparation batch that included 1 LRB, laboratory media blank, LCS, and LCSD, when the batch should have included 2 LRBs, laboratory media blanks, LCSs, and LCSDs. The laboratory was contacted on August 8, 2023 about this deviation from the site-specific QAPP and agreed that they would follow the QC sample frequency requirements in the site-specific QAPP in future reports. 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 (MDL) were not reported. Nondetect sample results were reported as less than the RL in the laboratory report and at the RL (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. B136-199

Sample ID	Method	CAS#	Analyte	Lab Result	Lab Qual	RL	Units	VAL_Result	VAL_Qual
EPD-PB-BKBA-01-051423-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-BKBA-02-051423-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-CM-06-051423-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-CM-07-051423-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-CM-08-051423-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-CM-09-051423-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-CM-100-051423-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-CM-10-051423-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-CM-11-051423-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-CM-12-051423-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-CM-14-051423-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-DW-C-051423-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-FB-01-051423-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	2	U	2	ug	2	U
EPD-PB-MB-01-051423-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	2	U	2	ug	2	U
EPD-PB-OD-01-051423-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-OD-02-051423-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-OD-03-051423-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-OD-04-051423-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-OD-05-051423-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-OD-06-051423-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-OD-07-051423-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-UW-G-051423-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-WA-01-051423-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-WA-011-051423-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-WA-02-051423-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-WA-03-051423-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-WA-04-051423-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-WA-05-051423-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-WA-06-051423-1	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.	2197c		
Laboratory Report No.	B145-018	Laboratory	Eurofins Analytics, LLC – Ashland, VA
Analyses	n-Butyl acrylate by NIOSH Method 1450M		
Samples and Matrix	29 air samples including 1 field blank sample, 1 media blank sample, and 2 field duplicate pairs		
Collection Date(s)	05/23/2023		
Field Duplicate Pairs	EPD-PB-CM-10-052323-1/EPD-PB-CM-100-052323-1 EPD-PB-OD-03-052323-1/EPD-PB-OD-033-052323-1		
Field QC Blanks	EPD-PB-FB-01-052323-1 and EPD-PB-MB-01-052323-1		

**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 (QAPP), 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 (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 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/m<sup>3</sup>), and parts per million (ppm) (volume) in the laboratory report and only in units of ppm 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>To facilitate sample reporting, large sample delivery groups may be logged by the laboratory separately by individual pages of the chain of custody (COC) form. The ratio of field quality control (QC) samples (field blank samples, media blank samples, and field duplicate samples) to non-QC field samples is monitored independent of this validation and therefore the ratio of field QC samples to non-QC field samples was not verified during this validation. No qualifications were applied because all field sample results were nondetect.</p> <p>Note, the following fields in the laboratory EDD may be formatted as date only or as date/time: Date_Collected, Date_Received, Date_Extracted, and Date_Analyzed. The time value was not required to be provided in the EDD. If no time value was provided, then the entered value may appear as date only or with a default time value of 0:00, 00:00, or similar.</p> <p>The extraction date in the laboratory EDD do not match the laboratory report or are absent. During the data validation effort, the extraction dates were added or corrected (as needed) to match those in the preparation log in the laboratory report.</p> <p>A unique sample ID for the laboratory control spike duplicate (LCSD) was not provided in the laboratory EDD. Unique sample IDs are needed to avoid overwriting other QC sample data when validated EDDs are uploaded to the Scribe database. The LCSD ID in the Samp_No and Lab_Samp_No fields of the validated EDD were manually revised to match those in the laboratory report.</p> <p>Sample EPD-PB-OD-02-052323-1 originally had the total sample collection time listed as “0” on the COC form. This was amended to “720” on May 30, 2023 and no further changes were required.</p>

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

**Sample preservation, receipt, and holding times:**

Within Criteria	Exceedance/Notes
Y	

**Method blanks:**

Within Criteria	Exceedance/Notes
N	Nondetect results for laboratory method blank LMB IHG230525B and laboratory reagent blank (LRB) LRB IHG230525B were reported as “0” in the laboratory EDD rather than at the reporting limit (RL). The laboratory was contacted on August 28, 2023, and agreed to report nondetect laboratory method blank and LRB results at the RL in future laboratory EDDs. No qualifications were applied.

**Field blanks:**

Within Criteria	Exceedance/Notes
N	Only 1 field blank sample was included in this data package although the site-specific QAPP specifies the collection of 1 field blank sample per 20 field samples; therefore, this data package should have included 2 field blank samples. No qualifications were applied because all sample results were nondetect.

**Surrogates and labeled compounds:**

Within Criteria	Exceedance/Notes
NA	

**MS/MSDs:**

Within Criteria	Exceedance/Notes
NA	

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

**Laboratory duplicates:**

Within Criteria	Exceedance/Notes
NA	

**Field duplicates:**

Within Criteria	Exceedance/Notes
N	The site-specific QAPP specifies the collection of 1 field duplicate sample per 10 field samples; therefore, 2 field duplicate samples should have been collected. Only 1 field duplicate sample was collected; based on professional judgement, no qualifications were applied.

**LCSs/LCSDs:**

Within Criteria	Exceedance/Notes
N	The site-specific QAPP requires a LRB, laboratory media blank, laboratory control sample (LCS), and LCSD to be analyzed per batch of 20 samples. However, the laboratory analyzed 29 field samples in 1 sample preparation batch that included 1 LRB, laboratory media blank, LCS, and LCSD, when the batch should have included 2 LRBs, laboratory media blanks, LCSs, and LCSDs. The laboratory was contacted on August 8, 2023 about this deviation from the site-specific QAPP and agreed that they would follow the QC sample frequency requirements in the site-specific QAPP in future reports. 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	

**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 (MDL) were not reported. Nondetect sample results were reported as less than the RL in the laboratory report and at the RL (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. B145-018

Sample ID	Method	CAS No.	Analyte	Lab Result	Lab Qual	RL	Units	VAL_Result	VAL_Qual
EPD-PB-BKBA-01-052323-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-BKBA-02-052323-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-CM-06-052323-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-CM-07-052323-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-CM-08-052323-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-CM-09-052323-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-CM-100-052323-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-CM-10-052323-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-CM-11-052323-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-CM-12-052323-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-CM-14-052323-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-DW-F-052323-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-FB-01-052323-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	2	U	2	ug	2	U
EPD-PB-MB-01-052323-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	2	U	2	ug	2	U
EPD-PB-OD-01-052323-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-OD-02-052323-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-OD-03-052323-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-OD-033-052323-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-OD-04-052323-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-OD-05-052323-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-OD-06-052323-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-OD-07-052323-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-UW-B-052323-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.009	U	0.009	ppm	0.009	U
EPD-PB-WA-01-052323-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-WA-02-052323-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-WA-03-052323-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-WA-04-052323-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-WA-05-052323-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U	0.0091	ppm	0.0091	U
EPD-PB-WA-06-052323-1	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.	2197d		
Laboratory Report No.	B146-012	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 sample		
Collection Date(s)	05/24/2023		
Field Duplicate Pairs	None		
Field QC Blanks	EPD-ST-FB-052423-1		

**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 (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 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 and only in units of ppm in the laboratory electronic data deliverable (EDD).</p> <p>Rohm &amp; Haas IH9805 was cited in the American Industrial Hygiene Association certification as “IHGC-P029” and may be cited by the abbreviation “Rohm &amp; Haas IH9805” or “IHGC-P029” interchangeably throughout the laboratory report.</p> <p>Note, the following fields in the laboratory EDD may be formatted as date only or as date/time: Date_Collected, Date_Received, Date_Extracted, and Date_Analyzed. The time value was not required to be provided in the EDD. If no time value was provided, then the entered value may appear as date only or with a default time value of 0:00, 00:00, or similar.</p> <p>The relative percent difference (RPD) between the laboratory control spike (LCS) and LCS duplicate (LCSD) were inconsistent between the level II report and the level IV report. A revised report was received.</p>

**Sample preservation, receipt, and holding times:**

Within Criteria	Exceedance/Notes
Y	

**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
NA	

**MS/MSDs:**

Within Criteria	Exceedance/Notes
NA	

**Laboratory duplicates:**

Within Criteria	Exceedance/Notes
NA	

**Field duplicates:**

Within Criteria	Exceedance/Notes
N	Per the site-specific QAPP, 1 field duplicate sample is required per 20 samples collected. However, fewer than 1 field duplicate sample per 20 samples were collected with this sample group. Based on professional judgement, no qualifications were applied.

**LCSs/LCSDs:**

Within Criteria	Exceedance/Notes
Y	

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

**Sample dilutions:**

<b>Within Criteria</b>	<b>Exceedance/Notes</b>
NA	

**Re-extraction and reanalysis:**

<b>Within Criteria</b>	<b>Exceedance/Notes</b>
NA	

**MDLs/RLs:**

<b>Within Criteria</b>	<b>Exceedance/Notes</b>
Y	Method detection limits (MDL) were not reported. Nondetect sample results were reported as less than the RL in the laboratory report and at the RL (flagged U) in the validated EDD and attached analytical results summary.

**Tentatively identified compounds:**

<b>Within Criteria</b>	<b>Exceedance/Notes</b>
NA	

**Other [None]:**

<b>Within Criteria</b>	<b>Exceedance/Notes</b>
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. B146-012

Sample ID	Method	CAS No.	Analyte	Lab Result	Lab Qual	RL	Units	VAL_Result	VAL_Qual
EPD-ST-8H-DW-A-052423-1	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.014 U		0.014	ppm	0.014 U	
EPD-ST-8H-DW-A-052423-1	IHGC-P029	141-32-2	n-Butyl acrylate	0.009 U		0.009	ppm	0.009 U	
EPD-ST-8H-UW-E-052423-1	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.014 U		0.014	ppm	0.014 U	
EPD-ST-8H-UW-E-052423-1	IHGC-P029	141-32-2	n-Butyl acrylate	0.01 U		0.01	ppm	0.01 U	
EPD-ST-8H-WA-01-052423-1	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.015 U		0.015	ppm	0.015 U	
EPD-ST-8H-WA-01-052423-1	IHGC-P029	141-32-2	n-Butyl acrylate	0.01 U		0.01	ppm	0.01 U	
EPD-ST-8H-WA-02-052423-1	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.015 U		0.015	ppm	0.015 U	
EPD-ST-8H-WA-02-052423-1	IHGC-P029	141-32-2	n-Butyl acrylate	0.01 U		0.01	ppm	0.01 U	
EPD-ST-8H-WA-03-052423-1	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.015 U		0.015	ppm	0.015 U	
EPD-ST-8H-WA-03-052423-1	IHGC-P029	141-32-2	n-Butyl acrylate	0.01 U		0.01	ppm	0.01 U	
EPD-ST-8H-WA-04-052423-1	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.014 U		0.014	ppm	0.014 U	
EPD-ST-8H-WA-04-052423-1	IHGC-P029	141-32-2	n-Butyl acrylate	0.009 U		0.009	ppm	0.009 U	
EPD-ST-8H-WA-05-052423-1	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.013 U		0.013	ppm	0.013 U	
EPD-ST-8H-WA-05-052423-1	IHGC-P029	141-32-2	n-Butyl acrylate	0.009 U		0.009	ppm	0.009 U	
EPD-ST-8H-WA-06-052423-1	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.015 U		0.015	ppm	0.015 U	
EPD-ST-8H-WA-06-052423-1	IHGC-P029	141-32-2	n-Butyl acrylate	0.01 U		0.01	ppm	0.01 U	
EPD-ST-FB-052423-1	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	2.8 U		2.8	ug	2.8 U	
EPD-ST-FB-052423-1	IHGC-P029	141-32-2	n-Butyl acrylate	1.3 U		1.3	ug	1.3 U	