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September 25, 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. 1983**

Dear Mr. Peters:

Tetra Tech, Inc. (Tetra Tech) is submitting this data validation report for 103 air samples (including 9 field duplicate samples and 11 field blank samples) collected at the E Palestine Site. The samples were collected on June 5, 2023 and June 6, 2023, and were analyzed for acrylates by Eurofins Analytics, LLC at their Ashland, Virginia laboratory. The final laboratory data package was received on June 16, 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 rejection of results was required for these data packages. The results may be used as qualified based on the findings of this validation effort.

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

Sincerely,

Sandy
Anagnostopoulos

Digitally signed by Sandy
Anagnostopoulos
Date: 2023.09.26 16:12:58
-05'00'

Quality Control Coordinator

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

ATTACHMENT

**DATA VALIDATION REPORT
EUROFINS ANALYTICS, LLC REPORT NOS.
B158-003, B158-004, B159-026, AND B159-029**

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

Site Name	E Palestine Site - ER	TO/TOLIN No.	68HE0520F0032/0001EB201
Document Tracking No.	1983a		
Laboratory Report No.	B158-003	Laboratory	Eurofins Analytics, LLC – Ashland, VA
Analyses	n-Butyl acrylate analysis by NIOSH Method 1450M		
Samples and Matrix	32 air samples, including 4 field blanks and 3 field duplicate pairs		
Collection Date(s)	06/05/2023		
Field Duplicate Pairs	EPD-PB-OD-02-060523-2/EPD-PB-OD-022-060523-2 EPD-PB-WA-01-060523-2/EPD-PB-WA-011-060523-2 EPD-PB-CM-11-060523-2/EPD-PB-CM-111-060523-2		
Field QC Blanks	EPD-PB-FB-02-060523-2, EDP-PB-FB-03-060523-2, EPD-PB-MB-02-060523-2, and EPD-PB-MB-03-060523-2		

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 (NFG) for Organic Superfund Methods Data Review* (November 2020).

OVERALL EVALUATION

No rejection of results was required for this data package. The results may be used as qualified based on this validation effort.

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

Data completeness:

Within Criteria	Exceedance/Notes
Y	<p>The results for the field blanks and media blanks were reported in units of micrograms (µg) while the other sample results were reported in units of µg, milligram per cubic meter (mg/m³), and parts per million (ppm) (volume) in the laboratory report and only ppm in the electronic data deliverable (EDD).</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 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> <p>The extraction date and time information in the laboratory EDD did not match the laboratory report or was blank. During the data validation effort, extraction times were deleted from the validated EDD and the extraction dates were corrected (as needed) to match those in the preparation log in the laboratory report.</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
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**

LCSs/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.

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

Tentatively identified compounds:

Within Criteria	Exceedance/Notes
NA	

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. B158-003

Sample_ID	Method	CAS#	Analyte	Lab_Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
EPD-PB-BKBA-01-060523-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-BKBA-02-060523-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-CM-06-060523-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-CM-07-060523-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-CM-08-060523-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-CM-09-060523-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-CM-10-060523-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-CM-11-060523-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-CM-111-060523-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-CM-12-060523-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-CM-14-060523-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-DW-F-060523-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-FB-02-060523-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	2	U		2	ug	2	U
EPD-PB-FB-03-060523-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	2	U		2	ug	2	U
EPD-PB-MB-02-060523-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	2	U		2	ug	2	U
EPD-PB-MB-03-060523-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	2	U		2	ug	2	U
EPD-PB-OD-01-060523-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-OD-02-060523-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-OD-022-060523-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-OD-03-060523-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-OD-04-060523-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-OD-05-060523-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-OD-06-060523-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-OD-07-060523-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-UW-B-060523-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-WA-01-060523-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-WA-011-060523-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-WA-02-060523-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-WA-03-060523-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-WA-04-060523-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-WA-05-060523-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-WA-06-060523-2	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.	1983b		
Laboratory Report No.	B158-004	Laboratory	Eurofins Analytics, LLC – Ashland VA
Analyses	n-Butyl acrylate analysis by NIOSH Method 1450M		
Samples and Matrix	29 air samples, including 2 field blanks and 2 field duplicate pairs		
Collection Date(s)	06/05/2023		
Field Duplicate Pairs	EPD-PB-CM-11-060523-1/EPD-PB-CM-111-060523-1 EPD-PB-OD-07-060523-1/EPD-PB-OD-077-060523-1		
Field QC Blanks	EPD-PB-FB-01-060523-1 and EPD-PB-MB-01-060523-1		

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 of results was required for this data package. The results may be used as qualified based on this validation effort.

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

Data completeness:

Within Criteria	Exceedance/Notes
Y	<p>The results for the field blank and media blank were reported in units of micrograms (µg) while the other sample results were reported in units of µg, milligram per cubic meter (mg/m³), and parts per million (ppm) (volume) in the laboratory report and only ppm in the electronic data deliverable (EDD).</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 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> <p>The extraction date and time information in the laboratory EDD did not match the laboratory report or was blank. During the data validation effort, extraction times were deleted from the validated EDD and the extraction dates were corrected (as needed) to match those in the preparation log in the laboratory report.</p>

Sample preservation, receipt, and holding times:

Within Criteria	Exceedance/Notes
Y	A revised chain of custody was received by the laboratory to correct the total time for samples EPD-PB-OD-04-060523-1 and EPD-WA-03-060523-1 and to correct the sample ID for EPD-PB-FB-01-060523-1.

Method blanks:

Within Criteria	Exceedance/Notes
Y	

**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**

LCSs/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.

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

Tentatively identified compounds:

Within Criteria	Exceedance/Notes
NA	

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. B158-004

Sample_ID	Method	CAS#	Analyte	Lab_Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
EPD-PB-BKBA-01-060523-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-BKBA-02-060523-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-CM-06-060523-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-CM-07-060523-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-CM-08-060523-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-CM-09-060523-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-CM-10-060523-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-CM-11-060523-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-CM-111-060523-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-CM-12-060523-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-CM-14-060523-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-DW-F-060523-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-FB-01-060523-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	2	U		2	ug	2	U
EPD-PB-MB-01-060523-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	2	U		2	ug	2	U
EPD-PB-OD-01-060523-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-OD-02-060523-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-OD-03-060523-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-OD-04-060523-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-OD-05-060523-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-OD-06-060523-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-OD-07-060523-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-OD-077-060523-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-UW-B-060523-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-WA-01-060523-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-WA-02-060523-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-WA-03-060523-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-WA-04-060523-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-WA-05-060523-1	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-WA-06-060523-1	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.	1983c		
Laboratory Report No.	B159-026	Laboratory	Eurofins Analytics, LLC – Ashland VA
Analyses	n-Butyl acrylate analysis by NIOSH Method 1450M		
Samples and Matrix	32 air samples, including 4 field blanks and 3 field duplicate pairs		
Collection Date(s)	6/6/2023		
Field Duplicate Pairs	EPD-PB-WA-03-060623-2/EPD-PB-WA-033-060623-2 EPD-PB-CM-14-060623-2/ EPD-PB-CM-144-060623-2 EPD-PB-CM-122-060623-2/EPD-PB-CM-12-060623-2		
Field QC Blanks	EPD-PB-FB-02-060623-2, EPD-PB-FB-03-060623-2, EPD-PB-MB-02-060623-2, and EPD-PB-MB-03-050623-2		

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 (NFG) for Organic Superfund Methods Data Review* (November 2020).

OVERALL EVALUATION

No rejection of results was required for this data package. The results may be used as qualified based on this validation effort.

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

Data completeness:

Within Criteria	Exceedance/Notes
Y	<p>The results for the field blanks and media blanks were reported in units of micrograms (µg) while the other sample results were reported in units of µg, milligram per cubic meter (mg/m³), and parts per million (ppm) (volume) in the laboratory report and only ppm in the electronic data deliverable (EDD).</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 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> <p>The extraction date and time information in the laboratory EDD did not match the laboratory report or was blank. During the data validation effort, extraction times were deleted from the validated EDD and the extraction dates were corrected (as needed) to match those in the preparation log in the laboratory report.</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
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**

LCSs/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 were 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.

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

Tentatively identified compounds:

Within Criteria	Exceedance/Notes
NA	

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. B159-026

Sample_ID	Method	CAS#	Analyte	Lab_Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
EPD-PB-BKBA-01-060623-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-BKBA-02-060623-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-CM-06-060623-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-CM-07-060623-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-CM-08-060623-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-CM-09-060623-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-CM-10-060623-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-CM-11-060623-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-CM-12-060623-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-CM-122-060623-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-CM-14-060623-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-CM-144-060623-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-DW-D-060623-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.009	U		0.009	ppm	0.009	U
EPD-PB-FB-02-060623-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	2	U		2	ug	2	U
EPD-PB-FB-03-060623-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	2	U		2	ug	2	U
EPD-PB-MB-02-060623-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	2	U		2	ug	2	U
EPD-PB-MB-03-060623-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	2	U		2	ug	2	U
EPD-PB-OD-01-060623-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-OD-02-060623-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-OD-03-060623-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-OD-04-060623-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-OD-05-060623-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-OD-06-060623-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-OD-07-060623-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.009	U		0.009	ppm	0.009	U
EPD-PB-UW-H-060623-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-WA-01-060623-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-WA-02-060623-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-WA-03-060623-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-WA-033-060623-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-WA-04-060623-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-WA-05-060623-2	NIOSH Method 1450M	141-32-2	n-Butyl acrylate	0.0091	U		0.0091	ppm	0.0091	U
EPD-PB-WA-06-060623-2	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.	1983d		
Laboratory Report No.	B159-029	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	10 air samples including, 1 field blank and 1 field duplicate pair		
Collection Date(s)	6/6/2023		
Field Duplicate Pairs	EPD-ST-WA-02-060623-2/EPD-ST-WA-22-060623-2		
Field QC Blanks	EPD-ST-FB-060623-2		

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 (NFG) for Organic Superfund Methods Data Review* (November 2020).

OVERALL EVALUATION

No rejection of results was required for this data package. The results may be used as qualified based on this validation effort.

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

Data completeness:

Within Criteria	Exceedance/Notes
Y	<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, 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).</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 was 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 was not required for the validated EDD, this value was not manually revised.</p> <p>The extraction date and time information in the laboratory EDD did not match the laboratory report or was blank. During the data validation effort, the extraction times were deleted from the validated EDD and the extraction date was corrected (as needed) to match those in the preparation log in the laboratory report.</p>

Sample preservation, receipt, and holding times:

Within Criteria	Exceedance/Notes
N	<p>The site-specific QAPP sample preparation holding time limit was exceeded. The samples were collected on June 6, 2023, and prepared on June 14, 2023, which is one day past the 7-day holding time. All sample results were qualified as estimated, possibly biased low (flagged UJ).</p>

Method blanks:

Within Criteria	Exceedance/Notes
Y	

**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	

LCSs/LCSDs:

Within Criteria	Exceedance/Notes
N	The LCSD recovery for 2-Ethylhexyl acrylate exceeded the control limit. However, the average of the LCS and LCSD recovery were within the acceptance criteria, therefore, no qualification was applied.

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

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	

Other [None]:

Within Criteria	Exceedance/Notes
NA	

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

Overall Qualifications:

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E PALESTINE SITE - ER AIR ANALYTICAL RESULTS SUMMARY
EUROFINS ANALYTICS, LLC REPORT NO. B159-029

Sample_ID	Method	CAS#	Analyte	Lab_Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
EPD-ST-8H-DW-D-060623-2	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.015	U		0.015	ppm	0.015	UJ
EPD-ST-8H-DW-D-060623-2	IHGC-P029	141-32-2	n-Butyl acrylate	0.01	U		0.01	ppm	0.01	UJ
EPD-ST-8H-UW-H-060623-2	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.015	U		0.015	ppm	0.015	UJ
EPD-ST-8H-UW-H-060623-2	IHGC-P029	141-32-2	n-Butyl acrylate	0.01	U		0.01	ppm	0.01	UJ
EPD-ST-8H-WA-01-060623-2	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.015	U		0.015	ppm	0.015	UJ
EPD-ST-8H-WA-01-060623-2	IHGC-P029	141-32-2	n-Butyl acrylate	0.01	U		0.01	ppm	0.01	UJ
EPD-ST-8H-WA-02-060623-2	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.015	U		0.015	ppm	0.015	UJ
EPD-ST-8H-WA-02-060623-2	IHGC-P029	141-32-2	n-Butyl acrylate	0.01	U		0.01	ppm	0.01	UJ
EPD-ST-8H-WA-03-060623-2	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.014	U		0.014	ppm	0.014	UJ
EPD-ST-8H-WA-03-060623-2	IHGC-P029	141-32-2	n-Butyl acrylate	0.01	U		0.01	ppm	0.01	UJ
EPD-ST-8H-WA-04-060623-2	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.015	U		0.015	ppm	0.015	UJ
EPD-ST-8H-WA-04-060623-2	IHGC-P029	141-32-2	n-Butyl acrylate	0.01	U		0.01	ppm	0.01	UJ
EPD-ST-8H-WA-05-060623-2	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.015	U		0.015	ppm	0.015	UJ
EPD-ST-8H-WA-05-060623-2	IHGC-P029	141-32-2	n-Butyl acrylate	0.01	U		0.01	ppm	0.01	UJ
EPD-ST-8H-WA-06-060623-2	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.015	U		0.015	ppm	0.015	UJ
EPD-ST-8H-WA-06-060623-2	IHGC-P029	141-32-2	n-Butyl acrylate	0.01	U		0.01	ppm	0.01	UJ
EPD-ST-8H-WA-22-060623-2	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.015	U		0.015	ppm	0.015	UJ
EPD-ST-8H-WA-22-060623-2	IHGC-P029	141-32-2	n-Butyl acrylate	0.01	U		0.01	ppm	0.01	UJ
EPD-ST-FB-060623-2	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	2.8	U		2.8	ug	2.8	UJ
EPD-ST-FB-060623-2	IHGC-P029	141-32-2	n-Butyl acrylate	1.3	U		1.3	ug	1.3	UJ