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June 21, 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. 1889**

Dear Mr. Peters:

Tetra Tech, Inc. (Tetra Tech) is submitting these data validation reports for sixty-six air samples and four field blanks were collected at the E Palestine Site. The samples were collected on March 31 and April 1, 2023 and were analyzed for acrylates by Eurofins Analytics, LLC's laboratory in Ashland, Virginia. The final laboratory data package was received on May 26, 2023.

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

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

If you have any questions regarding this data validation report, please feel free to contact me.

Sincerely,
Heather Fiedler
Heather Fiedler
Environmental Chemist

Digitally signed by
Heather Fiedler
Date: 2023.06.21
09:35:19 -06'00'

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

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ATTACHMENT

**DATA VALIDATION REPORT
EUROFINS ANALYTICS, LLC REPORT NOS. B094-177, B094-178,
B094-179 AND B094-180**

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

Site Name	E Palestine Site - ER	TO/TOLIN No.	68HE0520F0032/0001EB201
Document Tracking No.	1889a	Laboratory	Eurofins Analytics, LLC, Ashland VA
Laboratory Report No.	B094-177	Analyses	
Analyses		2-Ethylhexyl acrylate and n-Butyl Acrylate analysis by laboratory standard operating procedure (SOP) IHGC-P029	
Samples and Matrix	Fourteen air samples, including one field blank.		
Collection Date(s)	04/01/2023		
Field Duplicate Pairs	None		
Field QC Blanks	EPD-ST-FB-040123-1		

INTRODUCTION

This checklist summarizes the Stage 2A validation performed on the subject laboratory report, in accordance with the U.S. Environmental Protection Agency (EPA) *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use* (January 2009). Analytical data were evaluated in general accordance with the Tetra Tech *Quality Assurance Project Plan, East Palestine Train Derailment Site East Palestine, Columbiana County, Ohio, EPA Region 5, Revision 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 the findings of this validation effort.

Data completeness:

Within Criteria	Exceedance/Notes
Y	<p>The laboratory report included the following note: “The method reference, Rohm & Haas IH9805 is referenced to the AIHA certification as IHGC-P029.” The method is referred to by the abbreviation “Rohm & Haas IH9805” or “IHGC-P029.”</p> <p>Samples EPD-ST-WA-03-040123-1, EPD-ST-WA-03-040123-1, and EPD-ST-8H-DW-A-040123-1 were canceled due to weather impact. Samples EPD-ST-WA-06-040123-1 and EPD-ST-WA-05-040123-1 were not shipped to the laboratory due to pump failures.</p> <p>Level II data package did not have required QC forms thus a level IV package was reviewed.</p>

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

	<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>A unique sample ID was not provided for LCSD. Unique IDs are needed to keep from overwriting QC sample IDs when EDDs are uploaded to the client database. The LCSD ID (in the Samp_No and Lab_Samp_No fields) in the EDD were manually revised to match the laboratory report.</p> <p>The extraction date information in the EDD did not match the laboratory report or was blank. The project management team confirmed that this information was not needed in the EDD; therefore, all extraction date information except the field header was deleted from the EDD.</p> <p>The sample analysis time was reported as a default value of 12 AM or 00:00 hours for the LCSD in the analysis date field. The analysis date was correct. The sample analysis time for the LCSD was not required for the EDD; therefore, this value was not manually revised.</p>
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Data completeness(continued):

Within Criteria	Exceedance/Notes
Y	None.

Sample preservation, receipt, and holding times:

Within Criteria	Exceedance/Notes
Y	None.

Method blanks:

Within Criteria	Exceedance/Notes
Y	None.

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

Field blanks:

Within Criteria	Exceedance/Notes
Y	None.

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
NA	

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

LCSs/LCSDs:

Within Criteria	Exceedance/Notes
Y	<p>The laboratory report and EDD have minor discrepancies in the LCS and LCSD percent recovery values for n-Butyl acrylate and 2-Ethylhexyl acrylate. This issue was verified with the laboratory to be a significant figures issue. The LCS was outside of control limits for 2-Ethylhexyl acrylate. Recovery was biased high and sample results were non-detect. No qualifications were applied.</p> <p>The LCS/LCSD results and/or recovery values provided in the EDD did not match the laboratory report. The laboratory was contacted to verify that the values in the laboratory report were correct. The LCS/LCSD results and/or recovery values in the EDD were manually revised to match the laboratory report.</p>

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 EDD and attached qualified data table.

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.
NF	The tentatively identified compound was manually searched for but was not found in the sample.

E PALESTINE SITE - ER AIR ANALYTICAL RESULTS SUMMARY
EUROFINS ANALYTICS REPORT NO. B094-177

Sample_ID	Method	CAS#	Analyte	Lab_Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
EPD-ST-WA-03-040123-2	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.027	U			0.027 ppm	0.027	U
EPD-ST-WA-03-040123-2	IHGC-P029	141-32-2	n-Butyl acrylate	0.018	U			0.018 ppm	0.018	U
EPD-ST-FB-040123-1	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	2.8	U			2.8 ug	2.8	U
EPD-ST-FB-040123-1	IHGC-P029	141-32-2	n-Butyl acrylate	1.3	U			1.3 ug	1.3	U
EPD-ST-WA-04-040123-1	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.028	U			0.028 ppm	0.028	U
EPD-ST-WA-04-040123-1	IHGC-P029	141-32-2	n-Butyl acrylate	0.019	U			0.019 ppm	0.019	U
EPD-ST-WA-02-040123-1	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.03	U			0.03 ppm	0.030	U
EPD-ST-WA-02-040123-1	IHGC-P029	141-32-2	n-Butyl acrylate	0.02	U			0.02 ppm	0.020	U
EPD-ST-UW-E-040123-1	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.03	U			0.03 ppm	0.030	U
EPD-ST-UW-E-040123-1	IHGC-P029	141-32-2	n-Butyl acrylate	0.02	U			0.02 ppm	0.020	U
EPD-ST-WA-04-040123-2	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.031	U			0.031 ppm	0.031	U
EPD-ST-WA-04-040123-2	IHGC-P029	141-32-2	n-Butyl acrylate	0.02	U			0.02 ppm	0.020	U
EPD-ST-WA-02-040123-2	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.03	U			0.03 ppm	0.030	U
EPD-ST-WA-02-040123-2	IHGC-P029	141-32-2	n-Butyl acrylate	0.02	U			0.02 ppm	0.020	U
EPD-ST-UW-E-040123-2	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.03	U			0.03 ppm	0.030	U
EPD-ST-UW-E-040123-2	IHGC-P029	141-32-2	n-Butyl acrylate	0.02	U			0.02 ppm	0.020	U
EPD-ST-WA-06-040123-2	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.032	U			0.032 ppm	0.032	U
EPD-ST-WA-06-040123-2	IHGC-P029	141-32-2	n-Butyl acrylate	0.022	U			0.022 ppm	0.022	U
EPD-ST-WA-05-040123-2	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.034	U			0.034 ppm	0.034	U
EPD-ST-WA-05-040123-2	IHGC-P029	141-32-2	n-Butyl acrylate	0.023	U			0.023 ppm	0.023	U
EPD-ST-WA-01-040123-1	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.03	U			0.03 ppm	0.030	U
EPD-ST-WA-01-040123-1	IHGC-P029	141-32-2	n-Butyl acrylate	0.02	U			0.02 ppm	0.020	U
EPD-ST-WA-01-040123-2	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.036	U			0.036 ppm	0.036	U
EPD-ST-WA-01-040123-2	IHGC-P029	141-32-2	n-Butyl acrylate	0.024	U			0.024 ppm	0.024	U
EPD-ST-DW-A-040123-1	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.03	U			0.03 ppm	0.030	U
EPD-ST-DW-A-040123-1	IHGC-P029	141-32-2	n-Butyl acrylate	0.02	U			0.02 ppm	0.020	U
EPD-ST-DW-A-040123-2	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.034	U			0.034 ppm	0.034	U
EPD-ST-DW-A-040123-2	IHGC-P029	141-32-2	n-Butyl acrylate	0.022	U			0.022 ppm	0.022	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.	1889b	Laboratory	Eurofins Analytics, LLC, Ashland VA
Laboratory Report No.	B094-178	Analyses	
Analyses		2-Ethylhexyl acrylate and n-Butyl Acrylate analysis by laboratory standard operating procedure (SOP) IHGC-P029	
Samples and Matrix	Nineteen air samples, including one field blank.		
Collection Date(s)	04/01/2023		
Field Duplicate Pairs	None		
Field QC Blanks	EPD-ST-FB-040123-2		

INTRODUCTION

This checklist summarizes the Stage 2A validation performed on the subject laboratory report, in accordance with the U.S. Environmental Protection Agency (EPA) *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use* (January 2009). Analytical data were evaluated in general accordance with the Tetra Tech *Quality Assurance Project Plan, East Palestine Train Derailment Site East Palestine, Columbiana County, Ohio, EPA Region 5, Revision 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 the findings of this validation effort. .

Data completeness:

Within Criteria	Exceedance/Notes
Y	<p>Level II SDG did not have required QC forms thus a level IV package was reviewed. QC forms were missing from the original laboratory report, a revised report was issued.</p> <p>The laboratory report included the following note: “The method reference, Rohm & Haas IH9805 is referenced to the AIHA certification as IHGC-P029.” The method is referred to by the abbreviation “Rohm & Haas IH9805” or “IHGC-P029.”</p> <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/m³), and parts per million (ppm) (volume) in the laboratory report and only ppm in the electronic data deliverable (EDD).</p>

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

	<p>A unique sample ID was not provided for LCSD. Unique IDs are needed to keep from overwriting QC sample IDs when EDDs are uploaded to the client database. The LCSD ID (in the Samp_No and Lab_Samp_No fields) in the EDD were manually revised to match the laboratory report.</p> <p>The extraction date information in the EDD did not match the laboratory report or was blank. The project management team confirmed that this information was not needed in the EDD; therefore, all extraction date information except the field header was deleted from the EDD.</p> <p>The sample analysis time was reported as a default value of 12 AM or 00:00 hours for the LCSD in the analysis date field. The analysis date was correct. The sample analysis time for the LCSD was not required for the EDD; therefore, this value was not manually revised.</p>
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Sample preservation, receipt, and holding times:

Within Criteria	Exceedance/Notes
Y	None

Method blanks:

Within Criteria	Exceedance/Notes
Y	None

Field blanks:

Within Criteria	Exceedance/Notes
Y	None

Surrogates and labeled compounds:

Within Criteria	Exceedance/Notes
NA	

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

MS/MSDs:

Within Criteria	Exceedance/Notes
NA	

Laboratory duplicates:

Within Criteria	Exceedance/Notes
NA	

Field duplicates:

Within Criteria	Exceedance/Notes
NA	

LCSs/LCSDs:

Within Criteria	Exceedance/Notes
Y	<p>The laboratory report and EDD have minor discrepancies in the LCSD percent recovery and lab result values for 2-Ethylhexyl acrylate and n-butyl acrylate. The discrepancy in lab results for 2-Ethylhexyl was greater than 1 ug. This issue was verified with the laboratory to be a significant figures issue. No qualifications were applied.</p> <p>The LCS/LCSD results and/or recovery values provided in the EDD did not match the laboratory report. The laboratory was contacted to verify that the values in the laboratory report were correct. The LCS/LCSD results and/or recovery values in the EDD were manually revised to match the laboratory report.</p>

Sample dilutions:

Within Criteria	Exceedance/Notes
NA	

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

Re-extraction and reanalysis:

Within Criteria	Exceedance/Notes
NA	

MDLs/RLs:

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

Tentatively identified compounds:

Within Criteria	Exceedance/Notes
NA	

Other [none]:

Within Criteria	Exceedance/Notes
NA	

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.

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

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.
NF	The tentatively identified compound was manually searched for but was not found in the sample.

E PALESTINE SITE - ER AIR ANALYTICAL RESULTS SUMMARY
EUROFINS ANALYTICS REPORT NO. B094-178

Sample_ID	Method	CAS#	Analyte	Lab_Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
EPD-ST-8H-DW-C-040123-2	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.019	U			0.02 ppm	0.019	U
EPD-ST-8H-DW-C-040123-2	IHGC-P029	141-32-2	n-Butyl acrylate	0.012	U			0.01 ppm	0.012	U
EPD-ST-8H-WA-04-040123-2	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.019	U			0.02 ppm	0.019	U
EPD-ST-8H-WA-04-040123-2	IHGC-P029	141-32-2	n-Butyl acrylate	0.012	U			0.01 ppm	0.012	U
EPD-ST-DW-C-040123-3	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.034	U			0.03 ppm	0.034	U
EPD-ST-DW-C-040123-3	IHGC-P029	141-32-2	n-Butyl acrylate	0.023	U			0.02 ppm	0.023	U
EPD-ST-DW-C-040123-4	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.03	U			0.03 ppm	0.030	U
EPD-ST-DW-C-040123-4	IHGC-P029	141-32-2	n-Butyl acrylate	0.02	U			0.02 ppm	0.020	U
EPD-ST-FB-040123-2	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	2.8	U			2.8 ug	2.8	U
EPD-ST-FB-040123-2	IHGC-P029	141-32-2	n-Butyl acrylate	1.3	U			1.3 ug	1.3	U
EPD-ST-UW-G-040123-3	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.026	U			0.03 ppm	0.026	U
EPD-ST-UW-G-040123-3	IHGC-P029	141-32-2	n-Butyl acrylate	0.017	U			0.02 ppm	0.017	U
EPD-ST-UW-G-040123-4	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.029	U			0.03 ppm	0.029	U
EPD-ST-UW-G-040123-4	IHGC-P029	141-32-2	n-Butyl acrylate	0.019	U			0.02 ppm	0.019	U
EPD-ST-WA-01-040123-3	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.03	U			0.03 ppm	0.030	U
EPD-ST-WA-01-040123-3	IHGC-P029	141-32-2	n-Butyl acrylate	0.02	U			0.02 ppm	0.020	U
EPD-ST-WA-01-040123-4	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.03	U			0.03 ppm	0.030	U
EPD-ST-WA-01-040123-4	IHGC-P029	141-32-2	n-Butyl acrylate	0.02	U			0.02 ppm	0.020	U
EPD-ST-WA-02-040123-3	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.031	U			0.03 ppm	0.031	U
EPD-ST-WA-02-040123-3	IHGC-P029	141-32-2	n-Butyl acrylate	0.02	U			0.02 ppm	0.020	U
EPD-ST-WA-02-040123-4	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.03	U			0.03 ppm	0.030	U
EPD-ST-WA-02-040123-4	IHGC-P029	141-32-2	n-Butyl acrylate	0.02	U			0.02 ppm	0.020	U
EPD-ST-WA-03-040123-3	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.025	U			0.03 ppm	0.025	U
EPD-ST-WA-03-040123-3	IHGC-P029	141-32-2	n-Butyl acrylate	0.017	U			0.02 ppm	0.017	U
EPD-ST-WA-03-040123-4	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.03	U			0.03 ppm	0.030	U
EPD-ST-WA-03-040123-4	IHGC-P029	141-32-2	n-Butyl acrylate	0.02	U			0.02 ppm	0.020	U
EPD-ST-WA-04-040123-3	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.03	U			0.03 ppm	0.030	U
EPD-ST-WA-04-040123-3	IHGC-P029	141-32-2	n-Butyl acrylate	0.02	U			0.02 ppm	0.020	U
EPD-ST-WA-04-040123-4	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.032	U			0.03 ppm	0.032	U
EPD-ST-WA-04-040123-4	IHGC-P029	141-32-2	n-Butyl acrylate	0.022	U			0.02 ppm	0.022	U
EPD-ST-WA-05-040123-3	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.031	U			0.03 ppm	0.031	U
EPD-ST-WA-05-040123-3	IHGC-P029	141-32-2	n-Butyl acrylate	0.021	U			0.02 ppm	0.021	U
EPD-ST-WA-05-040123-4	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.03	U			0.03 ppm	0.030	U
EPD-ST-WA-05-040123-4	IHGC-P029	141-32-2	n-Butyl acrylate	0.02	U			0.02 ppm	0.020	U
EPD-ST-WA-06-040123-3	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.032	U			0.03 ppm	0.032	U
EPD-ST-WA-06-040123-3	IHGC-P029	141-32-2	n-Butyl acrylate	0.022	U			0.02 ppm	0.022	U
EPD-ST-WA-06-040123-4	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.029	U			0.03 ppm	0.029	U
EPD-ST-WA-06-040123-4	IHGC-P029	141-32-2	n-Butyl acrylate	0.019	U			0.02 ppm	0.019	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.	1889c	Laboratory	Eurofins Analytics, LLC, Ashland VA
Laboratory Report No.	B094-179	Analyses	
Analyses		2-Ethylhexyl acrylate and n-Butyl Acrylate analysis by laboratory standard operating procedure (SOP) IHGC-P029	
Samples and Matrix	Nineteen air samples including one field blank.		
Collection Date(s)	03/31/2023		
Field Duplicate Pairs	None		
Field QC Blanks	EPD-ST-FB-033123-2		

INTRODUCTION

This checklist summarizes the Stage 2A validation performed on the subject laboratory report, in accordance with the U.S. Environmental Protection Agency (EPA) *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use* (January 2009). Analytical data were evaluated in general accordance with the Tetra Tech *Quality Assurance Project Plan, East Palestine Train Derailment Site East Palestine, Columbiana County, Ohio, EPA Region 5, Revision 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 the findings of this validation effort. .

Data completeness:

Within Criteria	Exceedance/Notes
Y	<p>The laboratory report included the following note: “The method reference, Rohm & Haas IH9805 is referenced to the AIHA certification as IHGC-P029.” The method is referred to by the abbreviation “Rohm & Haas IH9805” or “IHGC-P029.”</p> <p>Level II data package did not have required QC forms thus a level IV package was reviewed.</p> <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/m³), and parts per million (ppm) (volume) in the laboratory report and only ppm in the electronic data deliverable (EDD).</p>

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

	<p>A unique sample ID was not provided for LCSD. Unique IDs are needed to keep from overwriting QC sample IDs when EDDs are uploaded to the client database. The LCSD ID (in the Samp_No and Lab_Samp_No fields) in the EDD were manually revised to match the laboratory report.</p> <p>The extraction date information in the EDD did not match the laboratory report or was blank. The project management team confirmed that this information was not needed in the EDD; therefore, all extraction date information except the field header was deleted from the EDD.</p> <p>The sample analysis time was reported as a default value of 12 AM or 00:00 hours for the LCSD in the analysis date field. The analysis date was correct. The sample analysis time for the LCSD was not required for the EDD; therefore, this value was not manually revised.</p>
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Sample preservation, receipt, and holding times:

Within Criteria	Exceedance/Notes
Y	None.

Method blanks:

Within Criteria	Exceedance/Notes
Y	None.

Field blanks:

Within Criteria	Exceedance/Notes
Y	None.

Surrogates and labeled compounds:

Within Criteria	Exceedance/Notes
NA	

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

MS/MSDs:

Within Criteria	Exceedance/Notes
NA	

Laboratory duplicates:

Within Criteria	Exceedance/Notes
NA	

Field duplicates:

Within Criteria	Exceedance/Notes
NA	

LCSs/LCSDs:

Within Criteria	Exceedance/Notes
Y	<p>The laboratory report and EDD have a minor discrepancy in the LCS percent recovery values for 2-Ethylhexyl that was verified with the laboratory to be a significant figures issue. No qualifications were applied.</p> <p>The LCS/LCSD results and/or recovery values provided in the EDD did not match the laboratory report. The laboratory was contacted to verify that the values in the laboratory report were correct. The LCS/LCSD results and/or recovery values in the EDD were manually revised to match the laboratory report.</p>

Sample dilutions:

Within Criteria	Exceedance/Notes
NA	

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

Re-extraction and reanalysis:

Within Criteria	Exceedance/Notes
NA	

MDLs/RLs:

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

Tentatively identified compounds:

Within Criteria	Exceedance/Notes
NA	

Other [none]:

Within Criteria	Exceedance/Notes
NA	

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.

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

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.
NF	The tentatively identified compound was manually searched for but was not found in the sample.

E PALESTINE SITE - ER AIR ANALYTICAL RESULTS SUMMARY
EUROFINS ANALYTICS REPORT NO. B094-179

Sample_ID	Method	CAS#	Analyte	Lab_Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
EPD-ST-WA-03-033123-4	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.031	U			0.031 ppm	0.031	U
EPD-ST-WA-03-033123-4	IHGC-P029	141-32-2	n-Butyl acrylate	0.021	U			0.021 ppm	0.021	U
EPD-ST-8H-WA-03-033123-2	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.021	U			0.021 ppm	0.021	U
EPD-ST-8H-WA-03-033123-2	IHGC-P029	141-32-2	n-Butyl acrylate	0.014	U			0.014 ppm	0.014	U
EPD-ST-DW-A-033123-4	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.031	U			0.031 ppm	0.031	U
EPD-ST-DW-A-033123-4	IHGC-P029	141-32-2	n-Butyl acrylate	0.021	U			0.021 ppm	0.021	U
EPD-ST-8H-DW-A-033123-2	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.018	U			0.018 ppm	0.018	U
EPD-ST-8H-DW-A-033123-2	IHGC-P029	141-32-2	n-Butyl acrylate	0.012	U			0.012 ppm	0.012	U
EPD-ST-WA-05-033123-4	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.031	U			0.031 ppm	0.031	U
EPD-ST-WA-05-033123-4	IHGC-P029	141-32-2	n-Butyl acrylate	0.021	U			0.021 ppm	0.021	U
EPD-ST-WA-06-033123-4	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.03	U			0.03 ppm	0.030	U
EPD-ST-WA-06-033123-4	IHGC-P029	141-32-2	n-Butyl acrylate	0.02	U			0.02 ppm	0.020	U
EPD-ST-UW-E-033123-4	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.03	U			0.03 ppm	0.030	U
EPD-ST-UW-E-033123-4	IHGC-P029	141-32-2	n-Butyl acrylate	0.02	U			0.02 ppm	0.020	U
EPD-ST-WA-02-033123-4	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.031	U			0.031 ppm	0.031	U
EPD-ST-WA-02-033123-4	IHGC-P029	141-32-2	n-Butyl acrylate	0.021	U			0.021 ppm	0.021	U
EPD-ST-WA-01-033123-4	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.03	U			0.03 ppm	0.030	U
EPD-ST-WA-01-033123-4	IHGC-P029	141-32-2	n-Butyl acrylate	0.02	U			0.02 ppm	0.020	U
EPD-ST-WA-04-033123-4	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.031	U			0.031 ppm	0.031	U
EPD-ST-WA-04-033123-4	IHGC-P029	141-32-2	n-Butyl acrylate	0.021	U			0.021 ppm	0.021	U
EPD-ST-FB-033123-2	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	2.8	U			2.8 ug	2.8	U
EPD-ST-FB-033123-2	IHGC-P029	141-32-2	n-Butyl acrylate	1.3	U			1.3 ug	1.3	U
EPD-ST-WA-03-033123-3	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.03	U			0.03 ppm	0.03	U
EPD-ST-WA-03-033123-3	IHGC-P029	141-32-2	n-Butyl acrylate	0.02	U			0.02 ppm	0.02	U
EPD-ST-DW-A-033123-3	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.029	U			0.029 ppm	0.029	U
EPD-ST-DW-A-033123-3	IHGC-P029	141-32-2	n-Butyl acrylate	0.02	U			0.02 ppm	0.020	U
EPD-ST-WA-05-033123-3	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.031	U			0.031 ppm	0.031	U
EPD-ST-WA-05-033123-3	IHGC-P029	141-32-2	n-Butyl acrylate	0.02	U			0.02 ppm	0.020	U
EPD-ST-WA-06-033123-3	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.032	U			0.032 ppm	0.032	U
EPD-ST-WA-06-033123-3	IHGC-P029	141-32-2	n-Butyl acrylate	0.021	U			0.021 ppm	0.021	U
EPD-ST-UW-E-033123-3	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.03	U			0.03 ppm	0.030	U
EPD-ST-UW-E-033123-3	IHGC-P029	141-32-2	n-Butyl acrylate	0.02	U			0.02 ppm	0.020	U
EPD-ST-WA-02-033123-3	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.035	U			0.035 ppm	0.035	U
EPD-ST-WA-02-033123-3	IHGC-P029	141-32-2	n-Butyl acrylate	0.024	U			0.024 ppm	0.024	U
EPD-ST-WA-01-033123-3	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.032	U			0.032 ppm	0.032	U
EPD-ST-WA-01-033123-3	IHGC-P029	141-32-2	n-Butyl acrylate	0.022	U			0.022 ppm	0.022	U
EPD-ST-WA-04-033123-3	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.036	U			0.036 ppm	0.036	U
EPD-ST-WA-04-033123-3	IHGC-P029	141-32-2	n-Butyl acrylate	0.024	U			0.024 ppm	0.024	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.	1889d	Laboratory	Eurofins Analytics, LLC, Ashland VA
Laboratory Report No.	B094-180	Analyses	
Analyses		2-Ethylhexyl acrylate and n-Butyl Acrylate analysis by laboratory standard operating procedure (SOP) IHGC-P029	
Samples and Matrix		Eighteen air samples, including one field blank.	
Collection Date(s)		03/31/2023	
Field Duplicate Pairs		None	
Field QC Blanks		EPD-ST-FB-033123-1	

INTRODUCTION

This checklist summarizes the Stage 2A validation performed on the subject laboratory report, in accordance with the U.S. Environmental Protection Agency (EPA) *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use* (January 2009). Analytical data were evaluated in general accordance with the Tetra Tech *Quality Assurance Project Plan, East Palestine Train Derailment Site East Palestine, Columbiana County, Ohio, EPA Region 5, Revision 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 the findings of this validation effort. .

Data completeness:

Within Criteria	Exceedance/Notes
N	<p>The laboratory report included the following note: “The method reference, Rohm & Haas IH9805 is referenced to the AIHA certification as IHGC-P029.” The method is referred to by the abbreviation “Rohm & Haas IH9805” or “IHGC-P029.”</p> <p>The client sample IDs in the laboratory report and the EDD are missing the number “3” in their format. For example, sample EPD-ST-UW-E-033123-1 is noted as EPD-ST-UW-E-03123-1 in the laboratory report and the EDD. This is the case for all samples. The “3” was added to all sample IDs in the qualified data table and throughout this report to ensure consistency with the sample IDs on the chain of custody.</p> <p>Sample EPD-ST-8H-DW-A-033023-1 was not shipped to the laboratory due to pump failure.</p>

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

	<p>Level II SDG did not have required QC forms thus a level IV package was reviewed.</p> <p>A unique sample ID was not provided for LCSD. Unique IDs are needed to keep from overwriting QC sample IDs when EDDs are uploaded to the client database. The LCSD ID (in the Samp_No and Lab_Samp_No fields) in the EDD were manually revised to match the laboratory report.</p> <p>The extraction date information in the EDD did not match the laboratory report or was blank. The project management team confirmed that this information was not needed in the EDD; therefore, all extraction date information except the field header was deleted from the EDD.</p> <p>The sample analysis time was reported as a default value of 12 AM or 00:00 hours for the LCSD in the analysis date field. The analysis date was correct. The sample analysis time for the LCSD was not required for the EDD; therefore, this value was not manually revised.</p>
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Data completeness(continued):

Within Criteria	Exceedance/Notes
N	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).

Sample preservation, receipt, and holding times:

Within Criteria	Exceedance/Notes
Y	None.

Method blanks:

Within Criteria	Exceedance/Notes
Y	None.

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

Field blanks:

Within Criteria	Exceedance/Notes
Y	None.

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
NA	

LCSs/LCSDs:

Within Criteria	Exceedance/Notes
Y	The laboratory report and EDD have minor discrepancies in the percent recovery values and lab results for 2-Ethylhexyl that was verified with the laboratory to be a significant figures issue. No qualifications were applied.

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

	The LCS/LCSD results and/or recovery values provided in the EDD did not match the laboratory report. The laboratory was contacted to verify that the values in the laboratory report were correct. The LCS/LCSD results and/or recovery values in the EDD were manually revised to match the laboratory report.
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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 EDD and attached qualified data table.

Tentatively identified compounds:

Within Criteria	Exceedance/Notes
NA	

Other [specify]:

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.
NF	The tentatively identified compound was manually searched for but was not found in the sample.

E PALESTINE SITE - ER AIR ANALYTICAL RESULTS SUMMARY
EUROFINS ANALYTICS REPORT NO. B094-180

Sample_ID	Method	CAS#	Analyte	Lab_Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
EPD-ST-8H-WA-03-033123-1	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.015	U			0.015 ppm	0.015	U
EPD-ST-8H-WA-03-033123-1	IHGC-P029	141-32-2	n-Butyl acrylate	0.01	U			0.01 ppm	0.010	U
EPD-ST-DW-A-033123-1	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.029	U			0.029 ppm	0.029	U
EPD-ST-DW-A-033123-1	IHGC-P029	141-32-2	n-Butyl acrylate	0.019	U			0.019 ppm	0.019	U
EPD-ST-DW-A-033123-2	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.03	U			0.03 ppm	0.030	U
EPD-ST-DW-A-033123-2	IHGC-P029	141-32-2	n-Butyl acrylate	0.02	U			0.02 ppm	0.020	U
EPD-ST-FB-033123-1	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	2.8	U			2.8 ug	2.8	U
EPD-ST-FB-033123-1	IHGC-P029	141-32-2	n-Butyl acrylate	1.3	U			1.3 ug	1.3	U
EPD-ST-UW-E-033123-1	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.03	U			0.03 ppm	0.030	U
EPD-ST-UW-E-033123-1	IHGC-P029	141-32-2	n-Butyl acrylate	0.02	U			0.02 ppm	0.020	U
EPD-ST-UW-E-033123-2	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.03	U			0.03 ppm	0.030	U
EPD-ST-UW-E-033123-2	IHGC-P029	141-32-2	n-Butyl acrylate	0.02	U			0.02 ppm	0.020	U
EPD-ST-WA-01-033123-1	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.029	U			0.029 ppm	0.029	U
EPD-ST-WA-01-033123-1	IHGC-P029	141-32-2	n-Butyl acrylate	0.02	U			0.02 ppm	0.020	U
EPD-ST-WA-01-033123-2	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.03	U			0.03 ppm	0.030	U
EPD-ST-WA-01-033123-2	IHGC-P029	141-32-2	n-Butyl acrylate	0.02	U			0.02 ppm	0.020	U
EPD-ST-WA-02-033123-1	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.031	U			0.031 ppm	0.031	U
EPD-ST-WA-02-033123-1	IHGC-P029	141-32-2	n-Butyl acrylate	0.021	U			0.021 ppm	0.021	U
EPD-ST-WA-02-033123-2	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.03	U			0.03 ppm	0.030	U
EPD-ST-WA-02-033123-2	IHGC-P029	141-32-2	n-Butyl acrylate	0.02	U			0.02 ppm	0.020	U
EPD-ST-WA-03-033123-1	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.029	U			0.029 ppm	0.029	U
EPD-ST-WA-03-033123-1	IHGC-P029	141-32-2	n-Butyl acrylate	0.02	U			0.02 ppm	0.020	U
EPD-ST-WA-03-033123-2	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.03	U			0.03 ppm	0.030	U
EPD-ST-WA-03-033123-2	IHGC-P029	141-32-2	n-Butyl acrylate	0.02	U			0.02 ppm	0.020	U
EPD-ST-WA-04-033123-1	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.035	U			0.035 ppm	0.035	U
EPD-ST-WA-04-033123-1	IHGC-P029	141-32-2	n-Butyl acrylate	0.023	U			0.023 ppm	0.023	U
EPD-ST-WA-04-033123-2	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.031	U			0.031 ppm	0.031	U
EPD-ST-WA-04-033123-2	IHGC-P029	141-32-2	n-Butyl acrylate	0.02	U			0.02 ppm	0.020	U
EPD-ST-WA-05-033123-1	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.036	U			0.036 ppm	0.036	U
EPD-ST-WA-05-033123-1	IHGC-P029	141-32-2	n-Butyl acrylate	0.024	U			0.024 ppm	0.024	U
EPD-ST-WA-05-033123-2	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.03	U			0.03 ppm	0.030	U
EPD-ST-WA-05-033123-2	IHGC-P029	141-32-2	n-Butyl acrylate	0.02	U			0.02 ppm	0.020	U
EPD-ST-WA-06-033123-1	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.031	U			0.031 ppm	0.031	U
EPD-ST-WA-06-033123-1	IHGC-P029	141-32-2	n-Butyl acrylate	0.021	U			0.021 ppm	0.021	U
EPD-ST-WA-06-033123-2	IHGC-P029	103-11-7	2-Ethylhexyl acrylate	0.032	U			0.032 ppm	0.032	U
EPD-ST-WA-06-033123-2	IHGC-P029	141-32-2	n-Butyl acrylate	0.021	U			0.021 ppm	0.021	U