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R4_EastPalestine@epa.gov

March 17, 2023

Mr. Josh Peters
On-Scene Coordinator
U.S. Environmental Protection Agency, Region 5
Superfund and Emergency Management Division
2565 Plymouth Road
Ann Arbor, Michigan 45105

**Subject: Data Validation Report
E Palestine Site - ER
EPA Contract No.: 68HE0519D0005
Task Order/Task Order Line Item No.: 68HE0520F0032/0001EB201
Document Tracking No. 1684**

Dear Mr. Peters:

Tetra Tech, Inc. (Tetra Tech) is submitting this data validation report for twenty-five air samples (including two air field blanks) collected at the E Palestine Site. The samples were collected February 9 through 12, 2023, and were analyzed for acrylates by Eurofins Analytics. The final laboratory data package was received on February 16, 2023.

Analytical data were evaluated in general accordance with 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 or qualification 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 call me at (312) 201-7435.

Sincerely,

A handwritten signature in black ink that reads 'Taylor M. Cooper'.

Taylor Cooper
Environmental Chemist

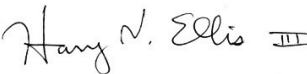
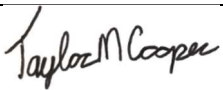
Enclosure

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

ATTACHMENT

**DATA VALIDATION REPORT
EUROFINS ANALYTICS REPORT NO. B045-150**

**DATA VALIDATION CHECKLIST – STAGE 3
EPA REGION 5 START CONTRACT**

Site Name	E Palestine Site - ER	TO/TOLIN No.	68HE0520F0032/0001EB201
Document Tracking No.	1684	Technical Reviewer (signature and date)	 16 March 2023
Data Reviewer (signature and date)	 03/13/2023 Taylor Cooper	Laboratory	Eurofins Analytics – Ashland, VA
Laboratory Report No.	B045-150	Analyses	
		2-Ethylhexyl acrylate and n-butyl acrylate by method Rohm & Haas IH9805	
Samples and Matrix		Twenty-five air samples (including two air field blanks)	
Collection Date(s)		February 9 through 12, 2023	
Field Duplicate Pairs		None	
Field QC Blanks		EPD-ST-FB-01-021223 and EPD-ST-FB-02-021223	

INTRODUCTION

This checklist summarizes the Stage 3 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, Superfund Technical Assessment and Response Team (START V), EPA Region 5, Revision 4* (August 2022) and the EPA *National Functional Guidelines (NFG) for Organic Superfund Methods Data Review* (November 2020).

OVERALL EVALUATION

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

Data completeness:

Within Criteria	Exceedance/Notes
	The analytical data package provided results in micrograms (μg), milligrams per meters cubed (mg/m^3), and parts per million by volume (ppmV). The electronic data deliverable (EDD) received from the laboratory only provided sample results in ppmV, except for the field blanks, which were only reported in μg . The attached data summary table contains results in ppmV (field samples) and μg (field blanks). Sample results were only reported to the RL.



**DATA VALIDATION CHECKLIST – STAGE 3
EPA REGION 5 START CONTRACT**

Sample preservation, receipt, and holding times:

Within Criteria	Exceedance/Notes
Y	

Instrument Performance Checks:

Within Criteria	Exceedance/Notes
NA	

Initial Calibration:

Within Criteria	Exceedance/Notes
Y	

Continuing Calibration:

Within Criteria	Exceedance/Notes
Y	

Calibration Verification:

Within Criteria	Exceedance/Notes
Y	



**DATA VALIDATION CHECKLIST – STAGE 3
EPA REGION 5 START CONTRACT**

Method blanks:

Within Criteria	Exceedance/Notes
Y	

Field blanks:

Within Criteria	Exceedance/Notes
Y	

Interference Check Samples (ICS) (ICP metals only):

Within Criteria	Exceedance/Notes
NA	

Surrogates and labeled compounds:

Within Criteria	Exceedance/Notes
NA	

MS/MSDs:

Within Criteria	Exceedance/Notes
NA	

Post digestion spikes:

Within Criteria	Exceedance/Notes
NA	



**DATA VALIDATION CHECKLIST – STAGE 3
EPA REGION 5 START CONTRACT**

Serial dilutions:

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	

Sample dilutions:

Within Criteria	Exceedance/Notes
Y	Sample dilutions were based on the air volume collected which ranged from 0 L (for field blanks) to 19.8 L.

Re-extraction and reanalysis:

Within Criteria	Exceedance/Notes
NA	



**DATA VALIDATION CHECKLIST – STAGE 3
EPA REGION 5 START CONTRACT**

Second column confirmation (GC and HPLC analyses only):

Within Criteria	Exceedance/Notes
Y	

Internal Standards:

Within Criteria	Exceedance/Notes
NA	The laboratory used an external standard.

Target analyte identification:

Within Criteria	Exceedance/Notes
Y	

Analyte quantitation and MDLs/RLs:

Within Criteria	Exceedance/Notes
Y	Detections below the reporting limit (RL) were qualified as nondetect (flagged U) by the laboratory. Method detection limits (MDL) were not reported by the laboratory.

Tentatively identified compounds:

Within Criteria	Exceedance/Notes
NA	



**DATA VALIDATION CHECKLIST – STAGE 3
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.



STAGE 3 DATA VALIDATION ORGANICS CHECKLIST FOR RECALCULATIONS

Data Package Number: B045-150

Method: Rohm Haas IH9805

Validation Element	Objective	Sample ID, Run Date, and Run Time	Results (include units) and Notes (Use check mark to indicate correct result; include hand-calculated result if performed)
Initial Calibration	Confirm (in raw data) that an initial calibration begins each analytical sequence, before all QC or env. samples are analyzed, using the correct number of standards (and calibration blank, if required).	ICAL 2/9/23 @ 23:02 Section 3 Pages 2-67	✓
	Confirm (in raw data) that an initial calibration occurs at the required frequency.	NA	✓
	Confirm that initial calibration criteria are met. Spot-recalculate initial calibration results.	NA	Calculated RRF: See ICAL recalculation spreadsheet
		NA	Calculated \overline{RRF} : See ICAL recalculation spreadsheet
		NA	Calculated %RSD See ICAL recalculation spreadsheet
ICV	Check result	EHAC ICV 100 n-Butyl Acrylate	$(87.72800-0.00)/0.932304 = 94.09806$ ug/mL
	Recalculate one RRF	Signal 1 2/10/23 @ 01:30	$(87.72800/94.09802) = 0.9323044$
	Recalculate one %R	Section 3 Pages 4, 12, 73	$[(94-100)/100]*100 = 6.0\%$

STAGE 3 DATA VALIDATION ORGANICS CHECKLIST FOR RECALCULATIONS
Data Package Number: B045-150 **Method: Rohm Haas IH9805**

Validation Element	Objective	Sample ID, Run Date, and Run Time	Results (include units) and Notes (Use check mark to indicate correct result; include hand-calculated result if performed)
A CCV applicable to our samples	Check result	EHAC CCV 100 2-Ethylhexyl acrylate	$(109.45177-0.00)/1.02923 = 106.343354 \text{ ug/mL}$
	Recalculate one RRF	Signal 1 2/15/23 @ 05:16	$(109.45177/106.34287) = 1.02923$
	Recalculate one %D	Section 3 Pages 2, 17, 85	$[(106-100)/100]*100 = 6.0\%$
Method Blank	Check result	LRB IHG230214A 2/14/23 @ 17:42 Section 3; Page 100	Nondetect for both analytes
LCS	Check result	LCS IHG230214A 2/14/23 @ 19:46 n-Butyl Acrylate	$(167.11380-0.00)/0.932304 = 179.2481851 \text{ ug/mL}$ $(78.9+(3.57*\text{LN}(179.24809)))/100 = 0.9742391184$ $179.24809/0.974291184 = 183.98778 \text{ ug}$
	Recalculate one %R	Section 1 Page 10, 22 Section 3 Page 158	$(184/200) \times 100 = 92\%$
LCSD	Check result	LCSD NBAR IHG230214A 2/14/23 @ 20:11 n-Butyl Acrylate	$(164.29184-0.00)/0.932304 = 176.22132 \text{ ug/mL}$ $(78.9+(3.57*\text{LN}(176.22123)))/100 = 0.9736311249$ $176.22123/0.9736311249 = 180.9938338 \text{ ug}$
	Recalculate one %R	Section 1 Page 10, 23 Section 3 Page 160	$(181/200) \times 100 = 90.5\%$
	Recalculate one RPD value between LCS and LCSD	Section 1 Page 23	$[(184-181)/\{(184+181)/2\}] \times 100 = 1.64$

STAGE 3 DATA VALIDATION ORGANICS CHECKLIST FOR RECALCULATIONS

Data Package Number: B045-150

Method: Rohm Haas IH9805

Validation Element	Objective	Sample ID, Run Date, and Run Time	Results (include units) and Notes (Use check mark to indicate correct result; include hand-calculated result if performed)
Sample Result for 2-Ethylhexyl acrylate	Check result	EPD-ST-07-01-020923 (B045-150-001F) 2/14/23 @ 21:00 Section 1; Page 36	All samples nondetect for both analytes
RL for 2-Ethylhexyl acrylate	Check result	EPD-ST-07-01-020923 (B045-150-001F) 2/14/23 @ 21:00 Section 1; Page 12	2-Ethylhexyl Acrylate $((2.8\text{mg/L} \times 0.001\text{L} \times 0.001\text{L} \times 1\text{DF}) / (0.001\text{L} \times 0.001\text{L})) = 2.8\text{ mg/L}$
Convert μg to ppmV (air only) for 2-Ethylhexyl acrylate	Check result	EPD-ST-07-01-020923 (B045-150-001F) 2/14/23 @ 21:00	$pV = nrt$ $n = pV / rt$ $n = (314.60674\mu\text{g} \times 1\text{g}) / (10\text{e}6\mu\text{g} \times 184.27\text{ g/mol}) = 1.70731395 \times 10\text{e-}10\text{ mol}$ $v = nrt / p$ $v = [(1.70731395 \times 10\text{e-}10) \times 0.08206 \times 298.15] / 1$ $v = 4.17714658 \times 10\text{e-}9\text{L} \times 10\text{e}6$ $= 0.04177\text{ ppmV}$

Report: B045-150

Initial Calibration

2/9/2023

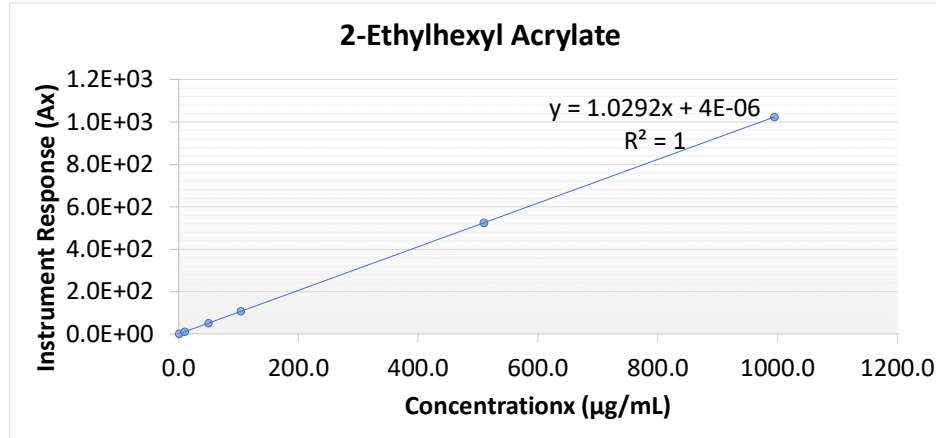
GC12 Instrument

Column: DB-624

Section 3 page 2, 42-53

Concentration _x (µg/mL)	Instrument Response (A _x)
0.961918	0.990039
10.21943	10.51820
49.92698	51.38658
104.21037	107.25692
509.65880	524.55847
994.75106	1023.83221

Slope:	1.0292
Intercept:	3.630E-06
r:	1.0000
R ² :	1.0000



E PALESTINE SITE - ER AIR ANALYTICAL RESULTS SUMMARY
EUROFINS ANALYTICS REPORT NO. B045150

Sample ID	Method	CAS#	Analyte	Lab Result	Lab Qual	RL	Units	VAL_Result	VAL_Qual
EPD-ST-01-01-021023	Rohm & Haas IH9805	103-11-7	2-Ethylhexyl acrylate	0.048	U		0.048 ppmV	0.048	U
EPD-ST-01-01-021023	Rohm & Haas IH9805	141-32-2	n-Butyl acrylate	0.032	U		0.032 ppmV	0.032	U
EPD-ST-01-01-021123	Rohm & Haas IH9805	103-11-7	2-Ethylhexyl acrylate	0.04	U		0.04 ppmV	0.04	U
EPD-ST-01-01-021123	Rohm & Haas IH9805	141-32-2	n-Butyl acrylate	0.027	U		0.027 ppmV	0.027	U
EPD-ST-02-01-021223	Rohm & Haas IH9805	103-11-7	2-Ethylhexyl acrylate	0.04	U		0.04 ppmV	0.04	U
EPD-ST-02-01-021223	Rohm & Haas IH9805	141-32-2	n-Butyl acrylate	0.027	U		0.027 ppmV	0.027	U
EPD-ST-03-01-021023	Rohm & Haas IH9805	103-11-7	2-Ethylhexyl acrylate	0.042	U		0.042 ppmV	0.042	U
EPD-ST-03-01-021023	Rohm & Haas IH9805	141-32-2	n-Butyl acrylate	0.028	U		0.028 ppmV	0.028	U
EPD-ST-03-01-021123	Rohm & Haas IH9805	103-11-7	2-Ethylhexyl acrylate	0.027	U		0.027 ppmV	0.027	U
EPD-ST-03-01-021123	Rohm & Haas IH9805	141-32-2	n-Butyl acrylate	0.018	U		0.018 ppmV	0.018	U
EPD-ST-04-01-021023	Rohm & Haas IH9805	103-11-7	2-Ethylhexyl acrylate	0.06	U		0.06 ppmV	0.06	U
EPD-ST-04-01-021023	Rohm & Haas IH9805	141-32-2	n-Butyl acrylate	0.04	U		0.04 ppmV	0.04	U
EPD-ST-04-01-021123	Rohm & Haas IH9805	103-11-7	2-Ethylhexyl acrylate	0.019	U		0.019 ppmV	0.019	U
EPD-ST-04-01-021123	Rohm & Haas IH9805	141-32-2	n-Butyl acrylate	0.013	U		0.013 ppmV	0.013	U
EPD-ST-05-01-020923	Rohm & Haas IH9805	103-11-7	2-Ethylhexyl acrylate	0.04	U		0.04 ppmV	0.04	U
EPD-ST-05-01-020923	Rohm & Haas IH9805	141-32-2	n-Butyl acrylate	0.027	U		0.027 ppmV	0.027	U
EPD-ST-05-01-021023	Rohm & Haas IH9805	103-11-7	2-Ethylhexyl acrylate	0.07	U		0.07 ppmV	0.07	U
EPD-ST-05-01-021023	Rohm & Haas IH9805	141-32-2	n-Butyl acrylate	0.047	U		0.047 ppmV	0.047	U
EPD-ST-05-01-021123	Rohm & Haas IH9805	103-11-7	2-Ethylhexyl acrylate	0.047	U		0.047 ppmV	0.047	U
EPD-ST-05-01-021123	Rohm & Haas IH9805	141-32-2	n-Butyl acrylate	0.031	U		0.031 ppmV	0.031	U
EPD-ST-06-01-021023	Rohm & Haas IH9805	103-11-7	2-Ethylhexyl acrylate	0.044	U		0.044 ppmV	0.044	U
EPD-ST-06-01-021023	Rohm & Haas IH9805	141-32-2	n-Butyl acrylate	0.029	U		0.029 ppmV	0.029	U
EPD-ST-06-01-021123	Rohm & Haas IH9805	103-11-7	2-Ethylhexyl acrylate	0.056	U		0.056 ppmV	0.056	U
EPD-ST-06-01-021123	Rohm & Haas IH9805	141-32-2	n-Butyl acrylate	0.038	U		0.038 ppmV	0.038	U
EPD-ST-07-01-020923	Rohm & Haas IH9805	103-11-7	2-Ethylhexyl acrylate	0.042	U		0.042 ppmV	0.042	U
EPD-ST-07-01-020923	Rohm & Haas IH9805	141-32-2	n-Butyl acrylate	0.028	U		0.028 ppmV	0.028	U
EPD-ST-07-01-021023	Rohm & Haas IH9805	103-11-7	2-Ethylhexyl acrylate	0.036	U		0.036 ppmV	0.036	U
EPD-ST-07-01-021023	Rohm & Haas IH9805	141-32-2	n-Butyl acrylate	0.024	U		0.024 ppmV	0.024	U
EPD-ST-07-01-021123	Rohm & Haas IH9805	103-11-7	2-Ethylhexyl acrylate	0.073	U		0.073 ppmV	0.073	U
EPD-ST-07-01-021123	Rohm & Haas IH9805	141-32-2	n-Butyl acrylate	0.049	U		0.049 ppmV	0.049	U
EPD-ST-08-01-021023	Rohm & Haas IH9805	103-11-7	2-Ethylhexyl acrylate	0.046	U		0.046 ppmV	0.046	U
EPD-ST-08-01-021023	Rohm & Haas IH9805	141-32-2	n-Butyl acrylate	0.031	U		0.031 ppmV	0.031	U
EPD-ST-08-01-021123	Rohm & Haas IH9805	103-11-7	2-Ethylhexyl acrylate	0.042	U		0.042 ppmV	0.042	U
EPD-ST-08-01-021123	Rohm & Haas IH9805	141-32-2	n-Butyl acrylate	0.028	U		0.028 ppmV	0.028	U

E PALESTINE SITE - ER AIR ANALYTICAL RESULTS SUMMARY
EUROFINS ANALYTICS REPORT NO. B045150

Sample ID	Method	CAS#	Analyte	Lab Result	Lab Qual	RL	Units	VAL_Result	VAL_Qual
EPD-ST-09-01-021023	Rohm & Haas IH9805	103-11-7	2-Ethylhexyl acrylate	0.048	U		0.048 ppmV	0.048	U
EPD-ST-09-01-021023	Rohm & Haas IH9805	141-32-2	n-Butyl acrylate	0.032	U		0.032 ppmV	0.032	U
EPD-ST-09-01-021223	Rohm & Haas IH9805	103-11-7	2-Ethylhexyl acrylate	0.041	U		0.041 ppmV	0.041	U
EPD-ST-09-01-021223	Rohm & Haas IH9805	141-32-2	n-Butyl acrylate	0.027	U		0.027 ppmV	0.027	U
EPD-ST-10-01-021023	Rohm & Haas IH9805	103-11-7	2-Ethylhexyl acrylate	0.045	U		0.045 ppmV	0.045	U
EPD-ST-10-01-021023	Rohm & Haas IH9805	141-32-2	n-Butyl acrylate	0.03	U		0.03 ppmV	0.03	U
EPD-ST-10-01-021123	Rohm & Haas IH9805	103-11-7	2-Ethylhexyl acrylate	0.045	U		0.045 ppmV	0.045	U
EPD-ST-10-01-021123	Rohm & Haas IH9805	141-32-2	n-Butyl acrylate	0.03	U		0.03 ppmV	0.03	U
EPD-ST-11-01-021023	Rohm & Haas IH9805	103-11-7	2-Ethylhexyl acrylate	0.029	U		0.029 ppmV	0.029	U
EPD-ST-11-01-021023	Rohm & Haas IH9805	141-32-2	n-Butyl acrylate	0.019	U		0.019 ppmV	0.019	U
EPD-ST-11-01-021123	Rohm & Haas IH9805	103-11-7	2-Ethylhexyl acrylate	0.04	U		0.04 ppmV	0.04	U
EPD-ST-11-01-021123	Rohm & Haas IH9805	141-32-2	n-Butyl acrylate	0.027	U		0.027 ppmV	0.027	U
EPD-ST-FB-01-021223	Rohm & Haas IH9805	103-11-7	2-Ethylhexyl acrylate	2.8	U		2.8 ug	2.8	U
EPD-ST-FB-01-021223	Rohm & Haas IH9805	141-32-2	n-Butyl acrylate	1.3	U		1.3 ug	1.3	U
EPD-ST-FB-02-021223	Rohm & Haas IH9805	103-11-7	2-Ethylhexyl acrylate	2.8	U		2.8 ug	2.8	U
EPD-ST-FB-02-021223	Rohm & Haas IH9805	141-32-2	n-Butyl acrylate	1.3	U		1.3 ug	1.3	U