APPENDIX C

Data Usability Assessment Report and ADEC Laboratory Data Review Checklist

This Page Intentionally Left Blank

LABORATORY DATA CONSULTANTS, INC.
2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

North Wind Environmental Services
764 East Winchester St., Suite 150
Murray, UT 84107
ATTN: Jill Jones
jill.jones@northwindgrp.com

April 1, 2022

SUBJECT: Port Heiden, Data Validation

Dear Ms Jones,

Enclosed are the final validation reports for the fractions listed below. This SDG was received on October 12, 2021. Attachment 1 is a summary of the samples that were reviewed for each analysis.

Revision: Added qualifiers to volatile results for samples 215-MW-09-091521 and 066-MW-05-091521 because they were collected using a peristaltic pump.

LDC Project #52283_RV4:

SDG #	**Fraction**
L1405623	Volatiles, Metals, Total Petroleum as Extractables, Wet Chemistry

The data validation was performed under Stage 2B validation guidelines. The analyses were validated using the following documents and variances, as applicable to each method:

- Final Uniform Federal Policy for Quality Assurance Project Plan for Long-Term Management and Remedial Action Operation Activities Port Heiden Radio Relay Station, Alaska (August 2021)
- U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.3 (2019)
- DoD General Validation Guidelines (November 2019)
- USEPA National Functional Guidelines (NFG) for Organic Superfund Methods Data Review (January 2017)
- USEPA National Functional Guidelines (NFG) for Inorganic Superfund Methods Data Review (January 2017)
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; update IV, February 2007; update V, July 2014; update VI, July 2018

Please feel free to contact us if you have any questions.

Sincerely,

Christina Rink

Christina Rink
Project Manager/Senior Chemist
crink@lab-data.com

LABORATORY DATA CONSULTANTS, INC.
2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

Northwind Environemental Services
764 East Winchester St., Suite 150
Murray, UT 84107
ATTN: Jill Jones
jill.jones@northwindgrp.com

March 21, 2022

SUBJECT: Port Heiden, Data Validation

Dear Ms Jones,

Enclosed are the final validation reports for the fractions listed below. This SDG was received on October 12, 2021. Attachment 1 is a summary of the samples that were reviewed for each analysis.

Revision: Added the manganese method blank hit.

LDC Project #52283_RV3:

SDG #	Fraction
L1405623	Volatiles, Metals, Total Petroleum as Extractables, Wet Chemistry

The data validation was performed under Stage 2B validation guidelines. The analyses were validated using the following documents and variances, as applicable to each method:

- Final Uniform Federal Policy for Quality Assurance Project Plan for Long-Term Management and Remedial Action Operation Activities Port Heiden Radio Relay Station, Alaska (August 2021)
- U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.3 (2019)
- DoD General Validation Guidelines (November 2019)
- USEPA National Functional Guidelines (NFG) for Organic Superfund Methods Data Review (January 2017)
- USEPA National Functional Guidelines (NFG) for Inorganic Superfund Methods Data Review (January 2017)
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; update IV, February 2007; update V, July 2014; update VI, July 2018

Please feel free to contact us if you have any questions.

Sincerely,

Christina Rink

Christina Rink
Project Manager/Senior Chemist
crink@lab-data.com

LABORATORY DATA CONSULTANTS, INC.
2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

Northwind Environemental Services
764 East Winchester St., Suite 150
Murray, UT 84107
ATTN: Jill Jones
jill.jones@northwindgrp.com

March 9, 2022

SUBJECT: Port Heiden, Data Validation

Dear Ms Jones,

Enclosed are the final validation reports for the fractions listed below. This SDG was received on October 12, 2021. Attachment 1 is a summary of the samples that were reviewed for each analysis.

Revision: Corrected the TPH units.

LDC Project #52283_RV2:

SDG #	Fraction
L1405623	Volatiles, Metals, Total Petroleum as Extractables, Wet Chemistry

The data validation was performed under Stage 2B validation guidelines. The analyses were validated using the following documents and variances, as applicable to each method:

- Final Uniform Federal Policy for Quality Assurance Project Plan for Long-Term Management and Remedial Action Operation Activities Port Heiden Radio Relay Station, Alaska (August 2021)
- U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.3 (2019)
- DoD General Validation Guidelines (November 2019)
- USEPA National Functional Guidelines (NFG) for Organic Superfund Methods Data Review (January 2017)
- USEPA National Functional Guidelines (NFG) for Inorganic Superfund Methods Data Review (January 2017)
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; update IV, February 2007; update V, July 2014; update VI, July 2018

Please feel free to contact us if you have any questions.

Sincerely,

Christina Rink

Christina Rink
Project Manager/Senior Chemist
crink@lab-data.com

LABORATORY DATA CONSULTANTS, INC.
2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

Northwind Environemental Services
764 East Winchester St., Suite 150
Murray, UT 84107
ATTN: Jill Jones
jill.jones@northwindgrp.com

March 2, 2022

SUBJECT: Port Heiden, Data Validation

Dear Ms Jones,

Enclosed are the final validation reports for the fractions listed below. This SDG was received on October 12, 2021. Attachment 1 is a summary of the samples that were reviewed for each analysis.

Revision: Updated the field duplicate section for the VOCs, metals, and TPH. Add qualifiers due to method blank contamination to the associated TPH results.

LDC Project #52283_RV1:

SDG #	**Fraction**
L1405623	Volatiles, Metals, Total Petroleum as Extractables, Wet Chemistry

The data validation was performed under Stage 2B validation guidelines. The analyses were validated using the following documents and variances, as applicable to each method:

- Final Uniform Federal Policy for Quality Assurance Project Plan for Long-Term Management and Remedial Action Operation Activities Port Heiden Radio Relay Station, Alaska (August 2021)
- U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.3 (2019)
- DoD General Validation Guidelines (November 2019)
- USEPA National Functional Guidelines (NFG) for Organic Superfund Methods Data Review (January 2017)
- USEPA National Functional Guidelines (NFG) for Inorganic Superfund Methods Data Review (January 2017)
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; update IV, February 2007; update V, July 2014; update VI, July 2018

Please feel free to contact us if you have any questions.

Sincerely,

Christina Rink

Christina Rink
Project Manager/Senior Chemist
crink@lab-data.com

Stage 2B **LDC# 52283 (Northwind Environmental Services - Murray, UT / Port Heiden)**

LDC	SDG#	DATE REC'D	(3) DATE DUE	VOA (8260D)		Fe,Mn (6010D)		TPH-E (8015)		Alk. (2320B)		NO_3/ NO_2-N (353.2)		SO_4 (300.0)		TKN (351.2)																			
Matrix:	Water/Soil			W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	L1405623	10/12/21	11/02/21	26	0	15	0	23	0	15	0	15	0	15	0	15	0																		
Total	T/CR			26	0	15	0	23	0	15	0	15	0	15	0	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	124

Shaded cells indicate Stage 4 validation (all other cells are Stage 2B validation).

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Port Heiden

LDC Report Date: April 1, 2022

Parameters: Volatiles

Validation Level: Stage 2B

Laboratory: Pace Analytical National, Mount Juliet, TN.

Sample Delivery Group (SDG): L1405623

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
GLO-MW04-091221	L1405623-01	Water	09/12/21
DSA-MW06-091321	L1405623-02	Water	09/13/21
DSA-MW07-091321	L1405623-03	Water	09/13/21
RRS-MW05-091321	L1405623-04	Water	09/13/21
RRS-MW06-091321	L1405623-05	Water	09/13/21
DSA-MW06-091321-DUP	L1405623-06	Water	09/13/21
BLO-MW05-091421	L1405623-07	Water	09/14/21
BLO-MW06-091421	L1405623-08	Water	09/14/21
BLO-MW07-091421	L1405623-09	Water	09/14/21
BLO-MW07-091421-DUP	L1405623-10	Water	09/14/21
DSA-MW05-091421	L1405623-11	Water	09/14/21
DSA-MW05-091421-DUP	L1405623-12	Water	09/14/21
DSA-MW01-091421	L1405623-13	Water	09/14/21
DSA-MW02-091421	L1405623-14	Water	09/14/21
BLO-MW01-091421	L1405623-15	Water	09/14/21
TB091221	L1405623-16	Water	09/12/21
TB091321	L1405623-17	Water	09/13/21
TB091421	L1405623-18	Water	09/14/21
215-MW-12-091521	L1405623-19	Water	09/15/21
215-MW08-091521	L1405623-20	Water	09/15/21
215-MW09-091521	L1405623-21	Water	09/15/21
066-MW-06-091521	L1405623-22	Water	09/15/21
066-MW-07-091521	L1405623-23	Water	09/15/21
066-MW-04-091521	L1405623-24	Water	09/15/21
066-MW-07-091521-DUP	L1405623-25	Water	09/15/21

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
066-MW-05-091521	L1405623-26	Water	09/15/21
BLO-MW01-091421MS	L1405623-15MS	Water	09/14/21
BLO-MW01-091421MSD	L1405623-15MSD	Water	09/14/21
215-MW-12-091521MS	L1405623-19MS	Water	09/15/21
215-MW-12-091521MSD	L1405623-19MSD	Water	09/15/21

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Final Uniform Federal Policy for Quality Assurance Project Plan for Long-Term Management and Remedial Action Operation Activities Port Heiden Radio Relay Station, Alaska (August 2021), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.3 (2019), the DoD General Validation Guidelines (November 2019), and a modified outline of the USEPA National Functional Guidelines (NFG) for Organic Superfund Methods Data Review (January 2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Volatile Organic Analytes (VOCs) by Environmental Protection Agency (EPA) SW 846 Method 8260D

All sample results were subjected to Stage 2B data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The analyte was analyzed for and positively identified by the laboratory; however the analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

X (Exclusion of data recommended): The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Exclusion of the data is recommended.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria with the following exceptions. These samples were not received by the laboratory.

Sample	Analyte	Finding	Criteria	Flag	A or P
TB091221 TB091321 TB091421	All analytes	A headspace was apparent in the sample containers.	There should be no headspace in the sample containers.	UJ (all non-detects)	A

All technical holding time requirements were met with the following exceptions:

Sample	Analyte	Total Days From Sample Collection Until Analysis	Required Holding Time (in Days) From Sample Collection Until Analysis	Flag	A or P
GLO-MW04-091221	Acrolein Bromomethane Hexachlorobutadiene 1,1,1,2-Tetrachloroethane 1,2,4-Trichlorobenzene 1,1,1-Trichloroethane Trichloroethene	15	14	UJ (all non-detects)	A

II. GC/MS Instrument Performance Check

A bromofluorobenzene (BFB) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

For analytes where average relative response factors (RRFs) were utilized, the percent relative standard deviations (%RSD) were less than or equal to 15.0%.

In the case where the laboratory used a calibration curve to evaluate the analytes, all coefficients of determination (r^2) were greater than or equal to 0.990.

Average relative response factors (RRF) for all analytes were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0% for all analytes with the following exceptions:

Date	Analyte	%D	Associated Samples	Flag	A or P
09/17/21 (MS 16)	1,2,3-Trimethylbenzene 1,2-Dibromo-3-chloropropane Chloromethane Dichlorodifluoromethane	20.70 23.70 20.90 30.20	GLO-MW04-091221 DSA-MW06-091321 DSA-MW07-091321 RRS-MW05-091321 RRS-MW06-091321 DSA-MW06-091321-DUP BLO-MW05-091421 BLO-MW06-091421 BLO-MW07-091421 BLO-MW07-091421-DUP DSA-MW05-091421 DSA-MW05-091421-DUP DSA-MW01-091421 DSA-MW02-091421	UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects)	A
09/17/21 (MS 21)	1,2,3-Trimethylbenzene Bromomethane Hexachlorobutadiene	35.10 23.30 23.10	TB091221 TB091321 TB091421 215-MW-12-091521 215-MW08-091521 215-MW09-091521 066-MW-06-091521 066-MW-07-091521 066-MW-04-091521 066-MW-07-091521-DUP 066-MW-05-091521	UJ (all non-detects) UJ (all non-detects) UJ (all non-detects)	A
08/30/21	1,1,2-Trichloro-1,2,2-trifluoroethane 1,2,3-Trimethylbenzene	21.80 36.20	215-MW-12-091521 066-MW-06-091521 066-MW-07-091521 066-MW-04-091521 066-MW-07-091521-DUP	UJ (all non-detects) UJ (all non-detects)	A
09/24/21	Acrolein Bromomethane 1,2,3-Trimethylbenzene	25.40 26.40 29.90	BLO-MW01-091421	UJ (all non-detects) UJ (all non-detects) UJ (all non-detects)	A
09/27/21	Acrolein	142	GLO-MW04-091221 DSA-MW06-091321 DSA-MW07-091321 RRS-MW05-091321 RRS-MW06-091321 DSA-MW06-091321-DUP BLO-MW05-091421 BLO-MW06-091421 BLO-MW07-091421 BLO-MW07-091421-DUP DSA-MW05-091421 DSA-MW05-091421-DUP DSA-MW01-091421 DSA-MW02-091421	UJ (all non-detects)	A

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all analytes with the following exceptions:

Date	Analyte	%D	Associated Samples	Flag	A or P
09/24/21 (MS 21)	1,1,1-Trichloroethane Carbon tetrachloride Chloroethane Naphthalene	24 20.1 25.10 33.10	TB091221 TB091321 TB091421 215-MW-12-091521 215-MW08-091521 215-MW09-091521 066-MW-06-091521 066-MW-07-091521 066-MW-04-091521 066-MW-07-091521-DUP 066-MW-05-091521	UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects)	A
09/28/21	Trichloroethene Trichlorofluoromethane	23.60 20.90	TB091221 TB091321 TB091421 215-MW08-091521 215-MW09-091521 066-MW-05-091521	UJ (all non-detects) UJ (all non-detects)	A
09/28/21	1,1-Dichloroethane 1,2-Dichloropropane 2,2-Dichloropropane Acrolein Acetonitrile Chloroethane Di-isopropyl ether Vinyl chloride	25.60 28.60 22 28.40 22.10 34.90 33.60 24.10	BLO-MW01-091421	UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects)	A

The percent differences (%D) of the ending continuing calibration verifications (CCVs) were less than or equal to 50.0% for all analytes with the following exceptions:

Date	Analyte	%D	Associated Samples	Flag	A or P
09/28/21	Chloroethane	63.8	BLO-MW01-091421	UJ (all non-detects)	A

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

Samples TB091221, TB091321, and TB091421 were identified as trip blanks. No contaminants were found.

VII. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits with the following exceptions:

Sample	Surrogate	%R (Limits)	Affected Analyte	Flag	A or P
TB091421	Bromofluorobenzene	84.9 (85-114)	All analytes	UJ (all non-detects)	P

VIII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits with the following exceptions. All concentrations in the parent sample that were not detected above the LOD were not flagged. Potential matrix interference observed; however, the LCS met recovery goals for analytes listed below, thus it is our opinion that this QC failure does not adversely affect the associated data, and the data are acceptable for their intended use.

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	Flag	A or P
215-MW-12-091521MS/MSD (215-MW-12-091521)	Acrolein	-	172 (39-155)	None	-
215-MW-12-091521MS/MSD (215-MW-12-091521)	n-Butylbenzene	66 (75-128)	-	UJ (all non-detects)	A

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	Flag	A or P
BLO-MW01-091421MS/MSD (BLO-MW01-091421)	Acrolein	-	156 (39.0-155)	None	-
	Acrylonitrile	142 (63.0-135)	148 (63.0-135)		
	Bromobenzene	132 (80.0-120)	139 (80.0-120)		
	Bromodichloromethane	142 (79.0-125)	146 (79.0-125)		
	sec-Butylbenzene	132 (77.0-126)	139 (77.0-126)		
	tert-Butylbenzene	144 (78.0-124)	150 (78.0-124)		
	Carbon tetrachloride	160 (72.0-136)	162 (72.0-136)		
	Chlorobenzene	119 (82.0-118)	122 (82.0-118)		
	Chloroethane	179 (60.0-138)	193 (60.0-138)		
	Chloroform	147 (79.0-124)	153 (79.0-124)		
	Chloromethane	152 (50.0-139)	165 (50.0-139)		
	2-Chlorotoluene	131 (79.0-122)	136 (79.0-122)		
	4-Chlorotoluene	134 (78.0-122)	140 (78.0-122)		
	Dibromomethane	131 (79.0-123)	138 (79.0-123)		
	1,2-Dichlorobenzene	124 (80.0-119)	130 (80.0-119)		
	1,3-Dichlorobenzene	122 (80.0-119)	128 (80.0-119)		
	1,4-Dichlorobenzene	-	125 (79.0-118)		
	Dichlorodifluoromethane	173 (32.0-152)	186 (32.0-152)		
	1,1-Dichloroethane	157 (77.0-125)	165 (77.0-125)		
	1,2-Dichloroethane	141 (73.0-128)	148 (73.0-128)		
	1,1-Dichloroethene	140 (71.0-131)	143 (71.0-131)		
	trans-1,2-Dichloroethene	139 (75.0-124)	141 (75.0-124)		
	1,2-Dichloropropane	156 (78.0-122)	164 (78.0-122)		
	1,1-Dichloropropene	147 (79.0-125)	158 (79.0-125)		
	1,3-Dichloropropane	122 (80.0-119)	126 (80.0-119)		
	cis-1,3-Dichloropropene	137 (75.0-124)	136 (75.0-124)		
	1,3-Dichloropropane	158 (60.0-139)	166 (60.0-139)		
	cis-1,3-Dichloropropene	137 (75.0-124)	171 (75.0-124)		
	2,2-Dichloropropane	158 (60.0-139)	166 (60.0-139)		
	Di-isopropyl ether	161 (67.0-128)	171 (67.0-128)		
	p-Isopropyltoluene	131 (77.0-127)	165 (77.0-127)		
	2-Butanone	-	144 (56.0-143)		
	Methylene chloride	-	127 (74.0-124)		
	4-Methyl-2-pentanone	136 (67.0-130)	141 (67.0-130)		
	Methyl-tert-butyl ether	129 (71.0-124)	141 (71.0-124)		
	n-Propylbenzene	135 (76.0-126)	144 (76.0-126)		
	1,1,2,2-Tetrachloroethane	130 (71.0-121)	138 (71.0-121)		
	1,1,2-Trichloro-1,2,2-trifluoroethane	143 (70.0-136)	146 (70.0-136)		
	Toluene	126 (80.0-121)	129 (80.0-121)		
	1,1,1-Trichloroethane	155 (74.0-131)	162 (74.0-131)		
	1,1,2-Trichloroethane	127 (80.0-119)	127 (80.0-119)		
	Trichlorofluoromethane	148 (65.0-141)	146 (65.0-141)		
	1,2,3-Trichloropropane	131 (73.0-122)	139 (73.0-122)		
	1,2,4-Trimethylbenzene	136 (76.0-124)	145 (76.0-124)		
	1,2,3-Trimethylbenzene	128 (82.0-120)	138 (82.0-120)		
	1,3,5-Trimethylbenzene	131 (75.0-124)	136 (75.0-124)		
	Vinyl chloride	182 (58.0-137)	206 (58.0-137)		
	Xylenes, total	128 (79.0-121)	129 (79.0-121)		
BLO-MW01-091421MS/MSD (BLO-MW01-091421)	Benzene	142 (79.0-120)	150 (79.0-120)	J (all detects)	A
	cis-1,2-Dichloroethene	144 (78.0-123)	158 (78.0-123)	J (all detects)	
	Ethylbenzene	130 (79.0-121)	130 (79.0-121)	J (all detects)	
	Isopropylbenzene	-	134 (72.0-131)	J (all detects)	
	Trichloroethene	136 (79.0-123)	138 (79.0-123)	J (all detects)	

Relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	RPD (Limits)	Flag	A or P
215-MW-12-091521MS/MSD (215-MW-12-091521)	Styrene 1,1,2-Trichloro-1,2,2-trifluoroethane n-Butylbenzene	22.4 (≤20) 20.2 (≤20) 24.0 (≤20)	None	-
BLO-MW01-091421MS/MSD (BLO-MW01-091421)	Acrolein p-Isopropyltoluene	31.8 (≤20) 23.4 (≤20)	None	-

IX. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits with the following exceptions:

LCS ID (Associated Samples)	Analyte	LCS %R (Limits)	LCSD %R (Limits)	Flag	A or P
LCS/LCSD R3709169-1,2 (TB091221 TB091321 TB091421 215-MW08-091521 215-MW09-091521 066-MW-05-091521)	Trichloroethene	124 (79-123)	-	NA	-
LCS/LCSD R3709865-1,3 (BLO-MW01-091421)	Chloroethane 1,1-Dichloroethane 1,2-Dichloropropane Di-isopropyl ether	- 126 (77-125) 129 (78-122) 134 (67-128)	139 (60-138) 130 (77-125) 133 (78-122) 132 (67-128)	NA	-

Relative percent differences (RPD) were within QC limits with the following exceptions:

LCS ID (Associated Samples)	Analyte	RPD (Limits)	Flag	A or P
LCS/LCSD R3709169-1,2 (TB091221 TB091321 TB091421 215-MW-12-091521 215-MW08-091521 066-MW-06-091521 066-MW-07-091521 066-MW-04-091521 066-MW-07-091521-DUP)	Naphthalene	20.3 (≤20)	NA	-

LCS ID (Associated Samples)	Analyte	RPD (Limits)	Flag	A or P
LCS/LCSD R3710660-1,2 (GLO-MW04-091221 DSA-MW06-091321 DSA-MW07-091321 RRS-MW05-091321 RRS-MW06-091321 DSA-MW06-091321-DUP BLO-MW05-091421 BLO-MW06-091421 BLO-MW07-091421 BLO-MW07-091421-DUP DSA-MW05-091421 DSA-MW05-091421-DUP DSA-MW01-091421 DSA-MW02-091421)	Acrolein	53.3 (≤20)	NA	-

X. Field Duplicates

Samples DSA-MW06-091321 and DSA-MW06-091321-DUP, samples BLO-MW07-091421 and BLO-MW07-091421-DUP, samples 066-MW-07-091521 and 066-MW-07-091521-DUP, and samples DSA-MW05-091421 and DSA-MW05-091421-DUP were identified as field duplicates. No results were detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/L)		RPD (Limits)	Difference (Limits)	Flag	A or P
	DSA-MW06-091321	DSA-MW06-091321-DUP				
Trichlorofluoromethane	0.707	0.753	-	0.046 (≤5.00)	-	-

Analyte	Concentration (ug/L)		RPD (Limits)	Difference (Limits)	Flag	A or P
	DSA-MW05-091421	DSA-MW05-091421-DUP				
1,2-Dichloroethane	0.102	0.153	-	0.051 (≤1.00)	-	-
Trichloroethene	4.00	4.27	-	0.27 (≤1.0)	-	-

XI. Internal Standards

All internal standard areas and retention times were within QC limits.

XII. Target Analyte Quantitation

Raw data were not reviewed for Stage 2B validation.

XIII. Target Analyte Identification

Raw data were not reviewed for Stage 2B validation.

XIV. System Performance

Raw data were not reviewed for Stage 2B validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Peristaltic pumps were used to collect samples 215-MW-09-091521 and 066-MW-05-091521. Peristaltic pumps should not be used for volatile analysis due to the loss of volatiles from the creation of a vacuum in the intake line that draws the sample to the land surface. As a result, the total xylenes result in sample 215-MW-09-091521 and the ethylbenzene and total xylenes result in sample 066-MW-05-091521 were qualified as estimated biased low (J-).

Due to sample receipt, technical holding time, ICV %D, continuing calibration %D, surrogate %R, and MS/MSD %R, data were qualified as estimated in twenty-six samples.

Port Heiden
Volatiles - Data Qualification Summary - SDG L1405623

Sample	Analyte	Flag	A or P	Reason
TB091221 TB091321 TB091421	All analytes	UJ (all non-detects)	A	Sample receipt (headspace)
GLO-MW04-091221	Acrolein Bromomethane Hexachlorobutadiene 1,1,1,2-Tetrachloroethane 1,2,4-Trichlorobenzene 1,1,1-Trichloroethane Trichloroethene	UJ (all non-detects)	A	Technical holding times
GLO-MW04-091221 DSA-MW06-091321 DSA-MW07-091321 RRS-MW05-091321 RRS-MW06-091321 DSA-MW06-091321-DUP BLO-MW05-091421 BLO-MW06-091421 BLO-MW07-091421 BLO-MW07-091421-DUP DSA-MW05-091421 DSA-MW05-091421-DUP DSA-MW01-091421 DSA-MW02-091421	1,2,3-Trimethylbenzene 1,2-Dibromo-3-chloropropane Chloromethane Dichlorodifluoromethane	UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects)	A	Initial calibration verification (%D)
TB091221 TB091321 TB091421 215-MW-12-091521 215-MW08-091521 215-MW09-091521 066-MW-06-091521 066-MW-07-091521 066-MW-04-091521 066-MW-07-091521-DUP 066-MW-05-091521	1,2,3-Trimethylbenzene Bromomethane Hexachlorobutadiene	UJ (all non-detects) UJ (all non-detects) UJ (all non-detects)	A	Initial calibration verification (%D)
215-MW-12-091521 066-MW-06-091521 066-MW-07-091521 066-MW-04-091521 066-MW-07-091521-DUP	1,1,2-Trichloro-1,2,2-trifluoroethane 1,2,3-Trimethylbenzene	UJ (all non-detects) UJ (all non-detects)	A	Initial calibration verification (%D)
BLO-MW01-091421	Acrolein Bromomethane 1,2,3-Trimethylbenzene	UJ (all non-detects) UJ (all non-detects) UJ (all non-detects)	A	Initial calibration verification (%D)

Sample	Analyte	Flag	A or P	Reason
GLO-MW04-091221 DSA-MW06-091321 DSA-MW07-091321 RRS-MW05-091321 RRS-MW06-091321 DSA-MW06-091321-DUP BLO-MW05-091421 BLO-MW06-091421 BLO-MW07-091421 BLO-MW07-091421-DUP DSA-MW05-091421 DSA-MW05-091421-DUP DSA-MW01-091421 DSA-MW02-091421	Acrolein	UJ (all non-detects)	A	Initial calibration verification (%D)
TB091221 TB091321 TB091421 215-MW-12-091521 215-MW08-091521 215-MW09-091521 066-MW-06-091521 066-MW-07-091521 066-MW-04-091521 066-MW-07-091521-DUP 066-MW-05-091521	1,1,1-Trichloroethane Carbon tetrachloride Chloroethane Naphthalene	UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects)	A	Continuing calibration (%D)
TB091221 TB091321 TB091421 215-MW08-091521 215-MW09-091521 066-MW-05-091521	Trichloroethene Trichlorofluoromethane	UJ (all non-detects) UJ (all non-detects)	A	Continuing calibration (%D)
BLO-MW01-091421	1,1-Dichloroethane 1,2-Dichloropropane 2,2-Dichloropropane Acrolein Acetonitrile Chloroethane Di-isopropyl ether Vinyl chloride	UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects)	A	Continuing calibration (%D)
BLO-MW01-091421	Chloroethane	UJ (all non-detects)	A	Continuing calibration (ending CCV %D)
TB091421	All analytes	UJ (all non-detects)	P	Surrogates (%R)
n-Butylbenzene	215-MW-12-091521	UJ (all non-detects)	A	Matrix spike/Matrix spike duplicate (%R)
Benzene cis-1,2-Dichloroethene Ethylbenzene Isopropylbenzene Trichloroethene	BLO-MW01-091421	J (all detects) J (all detects) J (all detects) J (all detects) J (all detects)	A	Matrix spike/Matrix spike duplicate (%R)
215-MW-09-091521	Total xylenes	J- (all detects)	A	Overall Assessment of Data

Sample	Analyte	Flag	A or P	Reason
066-MW-05-091521	Ethylbenzene Total xylenes	J- (all detects) J- (all detects)	A	Overall Assessment of Data

Port Heiden
Volatiles - Laboratory Blank Data Qualification Summary - SDG L1405623

No Sample Data Qualified in this SDG

Port Heiden
Volatiles - Field Blank Data Qualification Summary - SDG L1405623

No Sample Data Qualified in this SDG

LDC #: 52283A1a **VALIDATION COMPLETENESS WORKSHEET** Date: 10/29/21
SDG #: L1405623 Stage 2B Page: 1 of 2
Laboratory: Pace Analytical National, Mount Juliet, TN Reviewer: JM
2nd Reviewer:

METHOD: GC/MS Volatiles (EPA SW 846 Method 8260D)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	SW/SW	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A/SW	RSD ≤15% r2 ICV ≤20%
IV.	Continuing calibration	SW	CCV ≤20/50%
V.	Laboratory Blanks	A	
VI.	Field blanks	ND	TB = 16, 17, 18
VII.	Surrogate spikes	SW	
VIII.	Matrix spike/Matrix spike duplicates	SW	
IX.	Laboratory control samples	SW	
X.	Field duplicates	SW	D = 2/6, 9/10, 11/12, 23/25
XI.	Internal standards	A	
XII.	Target analyte quantitation	N	
XIII.	Target analyte identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID		Lab ID	Matrix	Date
1	GLO-MW04-091221		L1405623-01	Water	09/12/21
2	DSA-MW06-091321	D1	L1405623-02	Water	09/13/21
3	DSA-MW07-091321		L1405623-03	Water	09/13/21
4	RRS-MW05-091321		L1405623-04	Water	09/13/21
5	RRS-MW06-091321		L1405623-05	Water	09/13/21
6	DSA-MW06-091321-DUP	D1	L1405623-06	Water	09/13/21
7	BLO-MW05-091421		L1405623-07	Water	09/14/21
8	BLO-MW06-091421		L1405623-08	Water	09/14/21
9	BLO-MW07-091421	D2	L1405623-09	Water	09/14/21
10	BLO-MW07-091421-DUP	D2	L1405623-10	Water	09/14/21
11	DSA-MW05-091421	D3	L1405623-11	Water	09/14/21
12	DSA-MW05-091421-DUP	D3	L1405623-12	Water	09/14/21
13	DSA-MW01-091421		L1405623-13	Water	09/14/21
14	DSA-MW02-091421		L1405623-14	Water	09/14/21

LDC #: 52283A1a **VALIDATION COMPLETENESS WORKSHEET** Date: 10/29/21
SDG #: L1405623 Stage 2B Page: 2 of 2
Laboratory: Pace Analytical National, Mount Juliet, TN Reviewer: JVG
2nd Reviewer:

METHOD: GC/MS Volatiles (EPA SW 846 Method 8260D)

	Client ID		Lab ID	Matrix	Date
15	BLO-MW01-091421		L1405623-15	Water	09/14/21
16	TB091221		L1405623-16	Water	09/12/21
17	TB091321		L1405623-17	Water	09/13/21
18	TB091421		L1405623-18	Water	09/14/21
19	215-MW-12-091521		L1405623-19	Water	09/15/21
20	215-MW08-091521		L1405623-20	Water	09/15/21
21	215-MW09-091521		L1405623-21	Water	09/15/21
22	066-MW-06-091521		L1405623-22	Water	09/15/21
23	066-MW-07-091521	D4	L1405623-23	Water	09/15/21
24	066-MW-04-091521		L1405623-24	Water	09/15/21
25	066-MW-07-091521-DUP	D4	L1405623-25	Water	09/15/21
26	066-MW-05-091521		L1405623-26	Water	09/15/21
27	BLO-MW01-091421MS		L1405623-15MS	Water	09/14/21
28	BLO-MW01-091421MSD		L1405623-15MSD	Water	09/14/21
29	215-MW-12-091521MS		L1405623-19MS	Water	09/15/21
30	215-MW-12-091521MSD		L1405623-19MSD	Water	09/15/21
31					
32					
33					

Notes:

1	(MB) R3708982-4		(1-14)				
2	(MB) R3707832-3		(18,19,22-25)				
3	(MB) R3709169-3		(16-26)				
4	(MB) R3710660-3		(1-14) (FFFF,B,LLL,UU,KKK,N,S)				
5	(MB) R3709848-3		(16,17,20,21,26) (JJ,MMM,X1)				
6	(MB) R3709865-2		(15)				
7	(MB) R3711725-4		(15) (MM, MMM)				

TARGET COMPOUND WORKSHEET

METHOD: VOA

A. Chloromethane	AA. Tetrachloroethene	AAA. 1,3,5-Trimethylbenzene	AAAA. Ethyl tert-butyl ether	A1. 1,3-Butadiene	A2.
B. Bromomethane	BB. 1,1,2,2-Tetrachloroethane	BBB. 4-Chlorotoluene	BBBB. tert-Amyl methyl ether	B1. Hexane	B2.
C. Vinyl choride	CC. Toluene	CCC. tert-Butylbenzene	CCCC. 1-Chlorohexane	C1. Heptane	C2.
D. Chloroethane	DD. Chlorobenzene	DDD. 1,2,4-Trimethylbenzene	DDDD. Isopropyl alcohol	D1. Propylene	D2.
E. Methylene chloride	EE. Ethylbenzene	EEE. sec-Butylbenzene	EEEE. Acetonitrile	E1. Freon 11	E2.
F. Acetone	FF. Styrene	FFF. 1,3-Dichlorobenzene	FFFF. Acrolein	F1. Freon 12	F2.
G. Carbon disulfide	GG. Xylenes, total	GGG. p-Isopropyltoluene	GGGG. Acrylonitrile	G1. Freon 113	G2.
H. 1,1-Dichloroethene	HH. Vinyl acetate	HHH. 1,4-Dichlorobenzene	HHHH. 1,4-Dioxane	H1. Freon 114	H2.
I. 1,1-Dichloroethane	II. 2-Chloroethylvinyl ether	III. n-Butylbenzene	IIII. Isobutyl alcohol	I1. 2-Nitropropane	I2.
J. 1,2-Dichloroethene, total	JJ. Dichlorodifluoromethane	JJJ. 1,2-Dichlorobenzene	JJJJ. Methacrylonitrile	J1. Dimethyl disulfide	J2.
K. Chloroform	KK. Trichlorofluoromethane	KKK. 1,2,4-Trichlorobenzene	KKKK. Propionitrile	K1. 2,3-Dimethyl pentane	K2.
L. 1,2-Dichloroethane	LL. Methyl-tert-butyl ether	LLL. Hexachlorobutadiene	LLLL. Ethyl ether	L1. 2,4-Dimethyl pentane	L2.
M. 2-Butanone	MM. 1,2-Dibromo-3-chloropropane	MMM. Naphthalene	MMMM. Benzyl chloride	M1. 3,3-Dimethyl pentane	M2.
N. 1,1,1-Trichloroethane	NN. Methyl ethyl ketone	NNN. 1,2,3-Trichlorobenzene	NNNN. Iodomethane	N1. 2-Methylpentane	N2.
O. Carbon tetrachloride	OO. 2,2-Dichloropropane	OOO. 1,3,5-Trichlorobenzene	OOOO.1,1-Difluoroethane	O1. 3-Methylpentane	O2.
P. Bromodichloromethane	PP. Bromochloromethane	PPP. trans-1,2-Dichloroethene	PPPP. Tetrahydrofuran	P1. 3-Ethylpentane	P2.
Q. 1,2-Dichloropropane	QQ. 1,1-Dichloropropene	QQQ. cis-1,2-Dichloroethene	QQQQ. Methyl acetate	Q1. 2,2-Dimethylpentane	Q2.
R. cis-1,3-Dichloropropene	RR. Dibromomethane	RRR. m,p-Xylenes	RRRR. Ethyl acetate	R1. 2,2,3- Trimethylbutane	R2.
S. Trichloroethene	SS. 1,3-Dichloropropane	SSS. o-Xylene	SSSS. Cyclohexane	S1. 2,2,4-Trimethylpentane	S2.
T. Chlorodibromomethane	TT. 1,2-Dibromoethane	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	TTTT. Methylcyclohexane	T1. 2-Methylhexane	T2.
U. 1,1,2-Trichloroethane	UU. 1,1,1,2-Tetrachloroethane	UUU. 1,2-Dichlorotetrafluoroethane	UUUU. Allyl chloride	U1. Nonanal	U2.
V. Benzene	VV. Isopropylbenzene	VVV. 4-Ethyltoluene	VVVV. Methyl methacrylate	V1. 2-Methylnaphthalene	V2.
W. trans-1,3-Dichloropropene	WW. Bromobenzene	WWW. Ethanol	WWWW. Ethyl methacrylate	W1. Methanol	W2.
X. Bromoform	XX. 1,2,3-Trichloropropane	XXX. Di-isopropyl ether	XXXX. cis-1,4-Dichloro-2-butene	X1. 1,2,3-Trimethylbenzene	X2.
Y. 4-Methyl-2-pentanone	YY. n-Propylbenzene	YYY. tert-Butanol	YYYY. trans-1,4-Dichloro-2-butene	Y1. 2-Propanol	Y2.
Z. 2-Hexanone	ZZ. 2-Chlorotoluene	ZZZ. tert-Butyl alcohol	ZZZZ. Pentachloroethane	Z1.	Z2.

LDC #: 52283A 19

VALIDATION FINDINGS WORKSHEET
Technical Holding Times

Reviewer: JVG

All circled dates have exceeded the technical holding times.
(Y) N N/A Were all cooler temperatures within validation criteria?
(Y) N N/A Were air bubbles > 1/4 inch or was headspace present in the vials?

METHOD : GC/MS VOA (EPA SW 846 Method 8260D)

Sample ID	Matrix	Preserved	Sampling Date	Extraction date	(Analysis date)	Total # of Days	Qualifier
16, 17, 18	Analyzed with headspace						J/UJ/A
(ND)							
1 (ND)	W	Y	09/12/21	—	09/27/21	15	J/UJ/A
							(qual FFFF)
							B
							LLL
							UU
							kkk
							N
							S

TECHNICAL HOLDING TIME CRITERIA

Water unpreserved:	Aromatic within 7 days, non-aromatic within 14 days of sample collection.
Water preserved:	Within 14 days of sample collection.
Soil:	Within 14 days of sample collection.
Encores/Terracores unpreserved:	Analyzed within 48 hours
Encores/Terracores preserved:	Analyzed within 14 days

LDC #: 52283A1a

VALIDATION FINDINGS WORKSHEET
Initial Calibration Verification

Reviewer: JVG

METHOD: GC/MS VOA (EPA SW 846 Method 8260D)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Was an initial calibration verification standard analyzed after each ICAL for each instrument?

Y (N) N/A Were all %D within the validation criteria of ≤20/30%D?

#	Date	Standard ID	Compound	Finding %D (Limit: ≤(20)/~~30~~.0%)	Associated Samples	Qualifications
	09/17/21	0917_20-6 (MS16)	X1	20.70	1-14, MB1 (ND)	J/NJ/A
			MM	23.70		
			A	20.90		
			JJ	30.20		
	09/17/21	0917_20-6 (MS21)	X1	35.10	16-26, MB3 (ND)	
			B	23.30		
			LLL	23.10		
	08/30/21	0829_23-4 (MS23)	TTT	21.80	19, 22-25, MB2 (ND)	(ND)
			X1	36.20		
	09/24/21	0923_23-4 (MS36)	FFFF	25.40	15, MB6 (ND)	
			B	26.40		
			X1	29.90		
	09/27/21	0923_20-4 (MS55)	FFFF	142	1-14, MB4 (ND)	

LDC #: 52283A1a

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Reviewer: JVG

METHOD: GC/MS VOA (EPA SW 846 Method 8260D)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?

Y N N/A Were percent differences (%D) ≤20 % and relative response factors (RRF) within the method criteria?

#	Date	Standard ID	Compound	Finding %D (Limit: <20.0%)	Finding RRF (Limit)	Associated Samples	Qualifications
MS21	09/24/21	0924_02	N	24		16-26, MB3	(ND) J/UJ/A
			O	20.1			
			D	25.10			
			MMM	33.10			
			S	23.60		16-18, 20, 21, 26, MB3	
			KK	20.90			
	09/28/21	0928_11-1	I	25.60		15, MB6 (ND)	
			Q	28.60			
			OO	22			
			FFFF	28.40			
			EEEE	22.10			
			D	34.90			
			XXX	33.60			
			C	24.10			
		0928_25-1 (ending)	D	63.8 (≤50%)			

Note: * = Ave RRF failed method criteria but within validation criteria

LDC #: 52283 A1Q

VALIDATION FINDINGS WORKSHEET
Surrogate Spikes

Page: 1 of 1
Reviewer: JVG

METHOD: GC/MS VOA (EPA SW 846 Method 8260 D)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Were all surrogate %R within QC limits?

Y (N) N/A If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R outside of criteria?

#	Sample ID	Surrogate	%Recovery (Limits)	Qualifications
	18 (ND)	BFB	84.9 (85-114)	J/UJ/P
			( )	
			( )	
			( )	
			( )	
			( )	
			( )	
			( )	
			( )	
			( )	
			( )	
			( )	
			( )	
			( )	
			( )	
			( )	
			( )	
			( )	
			( )	
			( )	
			( )	
			( )	
			( )	
			( )	
			( )	
			( )	

SMC1 (TOL) = Toluene-d8
SMC2 (BFB) = Bromofluorobenzene
SMC3 (DCE) = 1,2-Dichloroethane-d4
SMC4 (DFM) = Dibromofluoromethane

LDC #: 52283 A1a

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Page: 1 of 1
Reviewer: JVG

METHOD : GC/MS VOA (EPA SW 846 Method 8260 D)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.

Y N N/A Was a MS/MSD analyzed every 20 samples of each matrix?

Y N N/A Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

#	MS/MSD ID	Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
	29/30	FFFF	( )	172 (39-155)	( )	19 (ND)	J dets/A
		III	66 (75-128)	( )	( )		J/UJ/A
		FF	( )	( )	22.4 (20)		J dets/A
		TTT	( )	( )	20.2 ( )		
		III	( )	( )	24.0 ( )		
			( )	( )	( )		
			( )	( )	( )		
	27/28	See	attached)	( )	( )	15	(%R, %RPD) J dets/A
			( )	( )	( )	(All ND except	
			( )	( )	( )	V, QQQ, EE, VV, S)	
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		

3A-OR

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

L1405623-15

SAMPLE NO.:
R3709865-4
R3709865-5

27/28

p. 1 of 2

MS Sample / File ID:	R3709865-4 / 0928_22	**SDG:**	L1405623
MSD Sample / File ID:	R3709865-5 / 0928_23	**Analytical Batch:**	WG1747768
OS Sample / File ID:	L1405623-15 / 0928_19	**Matrix:**	GW
Instrument ID:	VOCMS36		
Analytical Method:	8260D		

Analyte		Spike Amount	OS Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	RPD	RPD Limit
		ug/l	ug/l	ug/l	ug/l	%	%		%	%	%
Acetone		25.0	25.0	33.0	34.0	132	136	1	39.0 - 160	2.99	20
Acrolein	FFFF	25.0	25.0	28.3	39.0	113	156*	1	39.0 - 155	31.8*	20
Acrylonitrile	GGGG	25.0	5.00	35.5	37.1	142*	148*	1	63.0 - 135	4.41	20
Benzene	V	5.00	1.42	8.50	8.90	142*	150*	1	79.0 - 120	4.60	20
Bromobenzene	WW	5.00	0.500	6.62	6.93	132*	139*	1	80.0 - 120	4.58	20
Bromodichloromethane	P	5.00	0.500	7.12	7.28	142*	146*	1	79.0 - 125	2.22	20
Bromoform		5.00	0.500	5.16	5.10	103	102	1	66.0 - 130	1.17	20
Bromomethane		5.00	2.00	6.06	5.68	121	114	1	53.0 - 141	6.47	20
n-Butylbenzene		5.00	0.632	6.26	6.71	113	122	1	75.0 - 128	6.94	20
sec-Butylbenzene	EEE	5.00	0.147	6.74	7.10	132*	139*	1	77.0 - 126	5.20	20
tert-Butylbenzene	CCC	5.00	0.698	7.88	8.21	144*	150*	1	78.0 - 124	4.10	20
Carbon tetrachloride	O	5.00	0.500	8.02	8.08	160*	162*	1	72.0 - 136	0.745	20
Chlorobenzene	DD	5.00	0.500	5.96	6.09	119*	122*	1	82.0 - 118	2.16	20
Chlorodibromomethane		5.00	0.500	5.96	6.06	119	121	1	74.0 - 126	1.66	20
Chloroethane	D	5.00	2.00	8.94	9.66	179*	193*	1	60.0 - 138	7.74	20
Chloroform	K	5.00	2.00	7.34	7.64	147*	153*	1	79.0 - 124	4.01	20
Chloromethane	A	5.00	1.00	7.60	8.25	152*	165*	1	50.0 - 139	8.20	20
2-Chlorotoluene	ZZ	5.00	0.500	6.54	6.79	131*	136*	1	79.0 - 122	3.75	20
4-Chlorotoluene	BBB	5.00	0.500	6.68	6.99	134*	140*	1	78.0 - 122	4.54	20
1,2-Dibromoethane		5.00	0.500	5.41	5.60	108	112	1	77.0 - 121	3.45	20
Dibromomethane	RR	5.00	0.500	6.56	6.92	131*	138*	1	79.0 - 123	5.34	20
1,2-Dichlorobenzene	JJJ	5.00	0.500	6.22	6.52	124*	130*	1	80.0 - 119	4.71	20
1,3-Dichlorobenzene	FFF	5.00	0.500	6.09	6.40	122*	128*	1	80.0 - 119	4.96	20
1,4-Dichlorobenzene	HHH	5.00	0.500	5.82	6.24	116	125*	1	79.0 - 118	6.97	20
Dichlorodifluoromethane	JJ	5.00	2.00	8.64	9.31	173*	186*	1	32.0 - 152	7.47	20
1,1-Dichloroethane	I	5.00	0.500	7.85	8.25	157*	165*	1	77.0 - 125	4.97	20
1,2-Dichloroethane	L	5.00	0.500	7.04	7.41	141*	148*	1	73.0 - 128	5.12	20
1,1-Dichloroethene	H	5.00	0.500	7.01	7.16	140*	143*	1	71.0 - 131	2.12	20
cis-1,2-Dichloroethene	QQQ	5.00	9.81	17.0	17.7	144*	158*	1	78.0 - 123	4.03	20
trans-1,2-Dichloroethene	PPP	5.00	0.500	6.95	7.07	139*	141*	1	75.0 - 124	1.71	20
1,2-Dichloropropane	Q	5.00	0.500	7.82	8.19	156*	164*	1	78.0 - 122	4.62	20
1,1-Dichloropropene	QQ	5.00	0.500	7.34	7.88	147*	158*	1	79.0 - 125	7.10	20
1,3-Dichloropropane	SS	5.00	0.500	6.12	6.30	122*	126*	1	80.0 - 119	2.90	20
cis-1,3-Dichloropropene	R	5.00	0.500	6.83	6.81	137*	136*	1	75.0 - 124	0.293	20
trans-1,3-Dichloropropene	W	5.00	0.500	5.78	6.09	116	122	1	73.0 - 127	5.22	20
2,2-Dichloropropane	OO	5.00	0.500	7.92	8.30	158*	166*	1	60.0 - 139	4.69	20
Di-isopropyl ether	XXX	5.00	0.500	8.05	8.56	161*	171*	1	67.0 - 128	6.14	20
Ethylbenzene	EE	5.00	3.61	10.1	10.1	130*	130*	1	79.0 - 121	0.000	20
Hexachloro-1,3-butadiene		5.00	0.500	6.00	6.58	120	132	1	66.0 - 134	9.22	20
Isopropylbenzene	VV	5.00	3.42	9.59	10.1	123	134*	1	72.0 - 131	5.18	20
p-Isopropyltoluene	GGG	5.00	0.500	6.53	8.26	131*	165*	1	77.0 - 127	23.4*	20
2-Butanone (MEK)	M	25.0	1.90	36.0	37.9	136	144*	1	56.0 - 143	5.14	20
Methylene Chloride	E	5.00	2.00	6.14	6.34	123	127*	1	74.0 - 124	3.21	20

*: Value outside the established quality control limits.

D: Surrogate recovery cannot be used for control limit evaluation due to dilution.

3A-OR

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

L1405623-15

SAMPLE NO.:
R3709865-4
R3709865-5

27/28

P. 2 of 2

MS Sample / File ID:	R3709865-4 / 0928_22	**SDG:**	L1405623
MSD Sample / File ID:	R3709865-5 / 0928_23	**Analytical Batch:**	WG1747768
OS Sample / File ID:	L1405623-15 / 0928_19	**Matrix:**	GW
Instrument ID:	VOCMS36		
Analytical Method:	8260D		

Analyte		Spike Amount	OS Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	RPD	RPD Limit
		ug/l	ug/l	ug/l	ug/l	%	%		%	%	%
4-Methyl-2-pentanone (MIBK)	Y	25.0	5.00	34.0	35.2	136*	141*	1	67.0 - 130	3.47	20
Methyl tert-butyl ether	LL	5.00	0.500	6.47	7.04	129*	141*	1	71.0 - 124	8.44	20
n-Propylbenzene	YY	5.00	0.871	7.60	8.08	135*	144*	1	76.0 - 126	6.12	20
Styrene		5.00	0.500	5.84	6.02	117	120	1	78.0 - 123	3.04	20
1,1,1,2-Tetrachloroethane		5.00	0.500	5.78	6.04	116	121	1	78.0 - 124	4.40	20
1,1,2,2-Tetrachloroethane	BB	5.00	0.500	6.49	6.88	130*	138*	1	71.0 - 121	5.83	20
1,1,2-Trichlorotrifluoroethane	TTT	5.00	0.500	7.16	7.32	143*	146*	1	70.0 - 136	2.21	20
Tetrachloroethene		5.00	0.306	6.53	6.54	124	125	1	74.0 - 129	0.153	20
Toluene	CC	5.00	0.500	6.28	6.45	126*	129*	1	80.0 - 121	2.67	20
1,2,3-Trichlorobenzene		5.00	0.500	6.01	6.32	120	126	1	69.0 - 129	5.03	20
1,2,4-Trichlorobenzene		5.00	0.500	6.13	6.50	123	130	1	69.0 - 130	5.86	20
1,1,1-Trichloroethane	N	5.00	0.500	7.73	8.09	155*	162*	1	74.0 - 131	4.55	20
1,1,2-Trichloroethane	U	5.00	0.500	6.34	6.37	127*	127*	1	80.0 - 119	0.472	20
Trichloroethene	S	5.00	5.31	12.1	12.2	136*	138*	1	79.0 - 123	0.823	20
Trichlorofluoromethane	KK	5.00	2.00	7.39	7.29	148*	146*	1	65.0 - 141	1.36	20
1,2,3-Trichloropropane	XX	5.00	1.00	6.55	6.95	131*	139*	1	73.0 - 122	5.93	20
1,2,4-Trimethylbenzene	DDD	5.00	0.346	7.17	7.62	136*	145*	1	76.0 - 124	6.09	20
1,2,3-Trimethylbenzene	X1	5.00	0.133	6.53	7.03	128*	138*	1	82.0 - 120	7.37	20
1,3,5-Trimethylbenzene	AAA	5.00	0.400	6.95	7.20	131*	136*	1	75.0 - 124	3.53	20
Vinyl chloride	C	5.00	0.500	9.09	10.3	182*	206*	1	58.0 - 137	12.5	20
Xylenes, Total	GG	15.0	2.35	21.5	21.7	128*	129*	1	79.0 - 121	0.926	20

*: Value outside the established quality control limits.

D: Surrogate recovery cannot be used for control limit evaluation due to dilution.

LDC #: 52283A1a

VALIDATION FINDINGS WORKSHEET
Laboratory Control Samples (LCS)

Reviewer: JVG

METHOD: GC/MS VOA (EPA SW 846 Method 8260D)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Was a LCS required?

Y (N) N/A Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?

#	LCS/LCSD ID	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
	LCS/D R3709169-1,2	S	124 (79-123)	( )	( )	16-18, 20, 21, 26, MB3	(ND) J dets/P
		MMM	( )	( )	20.3 (20)	16-20, 22-25, MB3	↓ ↓
			( )	( )	( )		
			( )	( )	( )		
	LCS/D R3710660-1,2	FFFF	( )	( )	53.3 (20)	1-14, MB4 (ND)	J dets/P
			( )	( )	( )		
			( )	( )	( )		
	LCS/D R3709865-1,3	D	( )	139 (60-138)	( )	15, MB6 (ND)	J dets/P
		I	126 (77-125)	130 (77-125)	( )	↓ ↓	↓
		Q	129 (78-122)	133 (78-122)	( )		
		XXX	134 (67-128)	132 (67-128)	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		

LDC#: 52283A1a

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: JVG

METHOD: GCMS VOA (EPA SW 846 Method 8260D)

Compound	Concentration (ug/L)		RPD (≤30%)	Difference (ug/L)	Limits (±LOQ)	Qualifications (Parent Only)
	2	6				
KK	0.707	0.753		0.046	≤5.00	

Compound	Concentration (ug/L)		RPD (≤30%)	Difference (ug/L)	Limits (±LOQ)	Qualifications (Parent Only)
	11	12				
L	0.102	0.153		0.051	≤1.00	
S	4.00	4.27		0.27	≤1.0	

V:\Josephine\FIELD DUPLICATES\50000\52283A1a northwind port heiden.wpd

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Port Heiden

LDC Report Date: March 19, 2022

Parameters: Metals

Validation Level: Stage 2B

Laboratory: Pace Analytical National, Mount Juliet, TN.

Sample Delivery Group (SDG): L1405623

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
GLO-MW04-091221	L1405623-01	Water	09/12/21
DSA-MW06-091321	L1405623-02	Water	09/13/21
DSA-MW07-091321	L1405623-03	Water	09/13/21
RRS-MW05-091321	L1405623-04	Water	09/13/21
RRS-MW06-091321	L1405623-05	Water	09/13/21
DSA-MW06-091321-DUP	L1405623-06	Water	09/13/21
BLO-MW05-091421	L1405623-07	Water	09/14/21
BLO-MW06-091421	L1405623-08	Water	09/14/21
BLO-MW07-091421	L1405623-09	Water	09/14/21
BLO-MW07-091421-DUP	L1405623-10	Water	09/14/21
DSA-MW05-091421	L1405623-11	Water	09/14/21
DSA-MW05-091421-DUP	L1405623-12	Water	09/14/21
DSA-MW01-091421	L1405623-13	Water	09/14/21
DSA-MW02-091421	L1405623-14	Water	09/14/21
BLO-MW01-091421	L1405623-15	Water	09/14/21
BLO-MW01-091421MS	L1405623-15MS	Water	09/14/21
BLO-MW01-091421MSD	L1405623-15MSD	Water	09/14/21

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Final Uniform Federal Policy for Quality Assurance Project Plan for Long-Term Management and Remedial Action Operation Activities Port Heiden Radio Relay Station, Alaska (August 2021), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.3 (2019), the DoD General Validation Guidelines (November 2019), and a modified outline of the USEPA National Functional Guidelines (NFG) for Inorganic Superfund Methods Data Review (January 2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Iron and Manganese by Environmental Protection Agency (EPA) SW 846 Method 6010D

All sample results were subjected to Stage 2B data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The analyte was analyzed for and positively identified by the laboratory; however the analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

X (Exclusion of data recommended): The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Exclusion of the data is recommended.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition.

All technical holding time requirements were met.

II. Instrument Calibration

Initial and continuing calibrations were performed as required by the method.

The initial calibration verification (ICV) and continuing calibration verification (CCV) standards were within QC limits.

III. ICP Interference Check Sample Analysis

The frequency of interference check sample (ICS) analysis was met. All criteria were within QC limits.

IV. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks with the following exceptions:

Blank ID	Analyte	Concentration	Associated Samples
MB (Prep blank)	Manganese	1.61 ug/L	All samples in SDG L1405623

Sample concentrations were compared to concentrations detected in the laboratory blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated laboratory blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
RRS-MW06-091321	Manganese	5.92 ug/L	5.92U ug/L

V. Field Blanks

No field blanks were identified in this SDG.

VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. For BLO-MW01-091421MS/MSD, no data were qualified for manganese percent recoveries (%R) outside the QC limits since the parent sample results were greater than 4X the spike concentration. Relative percent differences

(RPD) were within QC limits.

VII. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

VIII. Serial Dilution

Serial dilution analysis was performed on an associated project sample. Percent differences (%D) were within QC limits.

IX. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

X. Field Duplicates

Samples DSA-MW06-091321 and DSA-MW06-091321-DUP, samples BLO-MW07-091421 and BLO-MW07-091421-DUP, and samples DSA-MW05-091421 and DSA-MW05-091421--DUP were identified as field duplicates. No results were detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/L)		RPD (Limits)	Difference (Limits)	Flag	A or P
	DSA-MW06-091321	DSA-MW06-091321-DUP				
Iron	2890	2710	6 (≤30)	-	-	-
Manganese	473	471	0 (≤30)	-	-	-

Analyte	Concentration (ug/L)		RPD (Limits)	Difference (Limits)	Flag	A or P
	BLO-MW07-091421	BLO-MW07-091421-DUP				
Iron	7730	12100	44 (≤30)	-	J (all detects)	A
Manganese	164	219	29 (≤30)	-	-	-

Analyte	Concentration (ug/L)		RPD (Limits)	Difference (Limits)	Flag	A or P
	DSA-MW05-091421	DSA-MW05-091421--DUP				
Iron	3670	2100	54 (≤30)	-	J (all detects)	A
Manganese	130	85.8	41 (≤30)	-	J (all detects)	A

XI. Target Analyte Quantitation

Raw data were not reviewed for Stage 2B validation.

XII. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Due to field duplicate RPD, data were qualified as estimated in four samples.

Due to laboratory blank contamination, one result was qualified as not detected.

Port Heiden
Metals - Data Qualification Summary - SDG L1405623

Sample	Analyte	Flag	A or P	Reason
BLO-MW07-091421 BLO-MW07-091421-DUP	Iron	J (all detects)	A	Field duplicates (RPD)
DSA-MW05-091421 DSA-MW05-091421--DUP	Iron Manganese	J (all detects) J (all detects)	A	Field duplicates (RPD)

Port Heiden
Metals - Laboratory Blank Data Qualification Summary - SDG L1405623

Sample	Analyte	Modified Final Concentration	A or P
RRS-MW06-091321	Manganese	5.92U ug/L	A

Port Heiden
Metals - Field Blank Data Qualification Summary - SDG L1405623

No Sample Data Qualified in this SDG

LDC #: 52283A4b
SDG #: L1405623
Laboratory: Pace Analytical National, Mount Juliet, TN

VALIDATION COMPLETENESS WORKSHEET
Stage 2B

Date: 10/27/21
Page: 1 of 1
Reviewer:
2nd Reviewer:

METHOD: Fe & Mn (EPA SW 846 Method 6010D)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A/A	
II.	Instrument Calibration	A	
III.	ICP Interference Check Sample (ICS) Analysis	A	
IV.	Laboratory Blanks	A SW	
V.	Field Blanks	N	
VI.	Matrix Spike/Matrix Spike Duplicates	SW	16/17: Mn>4x
VII.	Duplicate sample analysis	N	
VIII.	Serial Dilution	A	
IX.	Laboratory control samples	A	
X.	Field Duplicates	SW	(2,6) (9,10) (11,12)
XI.	Target Analyte Quantitation	N	
XII.	Overall Assessment of Data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	GLO-MW04-091221	L1405623-01	Water	09/12/21
2	DSA-MW06-091321	L1405623-02	Water	09/13/21
3	DSA-MW07-091321	L1405623-03	Water	09/13/21
4	RRS-MW05-091321	L1405623-04	Water	09/13/21
5	RRS-MW06-091321	L1405623-05	Water	09/13/21
6	DSA-MW06-091321-DUP	L1405623-06	Water	09/13/21
7	BLO-MW05-091421	L1405623-07	Water	09/14/21
8	BLO-MW06-091421	L1405623-08	Water	09/14/21
9	BLO-MW07-091421	L1405623-09	Water	09/14/21
10	BLO-MW07-091421-DUP	L1405623-10	Water	09/14/21
11	DSA-MW05-091421	L1405623-11	Water	09/14/21
12	DSA-MW05-091421-DUP	L1405623-12	Water	09/14/21
13	DSA-MW01-091421	L1405623-13	Water	09/14/21
14	DSA-MW02-091421	L1405623-14	Water	09/14/21
15	BLO-MW01-091421	L1405623-15	Water	09/14/21
16	BLO-MW01-091421MS	L1405623-15MS	Water	09/14/21
17	BLO-MW01-091421MSD	L1405623-15MSD	Water	09/14/21

All elements are applicable to each sample as noted below.

Sample ID	Target Analyte List
All	Fe, Mn

Analysis Method

ICP	Fe, Mn
ICP-MS	
CVAA	

VALIDATION FINDINGS WORKSHEET
Laboratory Blank Contamination (PB/ICB/CCB)

METHOD: Trace Metals (EPA SW 846 Methods 6010/6020/7000)
Soil preparation factor applied (if applicable):

Sample Concentration, unless otherwise noted: ug/L Associated Samples:All

				Sample Identification								
Analyte	**PB (ug/L)**	**Maximum ICB/CCB (units)**	**Action Level**	5								
Mn	1.61		8.05	5.92U								

Comments: The listed analyte concentrtaion is the highest ICB or CCB detected in the analysis. The action level, when applicable, is established at 5X the highest ICB, CCB, or PB concentration.

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Method: Metals

Analyte	Concentration (ug/L)		RPD (≤ 30)	Diff.	Diff. Limits	Qualifiers (Parents Only)
	2	6				
Iron	2890	2710	6			
Manganese	473	471	0			

Analyte	Concentration (ug/L)		RPD (≤ 30)	Diff.	Diff. Limits	Qualifiers (Parents Only)
	9	10				
Iron	7730	12100	44			Jdet/A
Manganese	164	219	29			~~Jdet/A~~

Analyte	Concentration (ug/L)		RPD (≤ 30)	Diff.	Diff. Limits	Qualifiers (Parents Only)
	11	12				
Iron	3670	2100	54			Jdet/A
Manganese	130	85.8	41			Jdet/A

LDC Report# 52283A6

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Port Heiden

LDC Report Date: November 4, 2021

Parameters: Wet Chemistry

Validation Level: Stage 2B

Laboratory: Pace Analytical National, Mount Juliet, TN.

Sample Delivery Group (SDG): L1405623

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
GLO-MW04-091221	L1405623-01	Water	09/12/21
DSA-MW06-091321	L1405623-02	Water	09/13/21
DSA-MW07-091321	L1405623-03	Water	09/13/21
RRS-MW05-091321	L1405623-04	Water	09/13/21
RRS-MW06-091321	L1405623-05	Water	09/13/21
DSA-MW06-091321-DUP	L1405623-06	Water	09/13/21
BLO-MW05-091421	L1405623-07	Water	09/14/21
BLO-MW06-091421	L1405623-08	Water	09/14/21
BLO-MW07-091421	L1405623-09	Water	09/14/21
BLO-MW07-091421-DUP	L1405623-10	Water	09/14/21
DSA-MW05-091421	L1405623-11	Water	09/14/21
DSA-MW05-091421-DUP	L1405623-12	Water	09/14/21
DSA-MW01-091421	L1405623-13	Water	09/14/21
DSA-MW02-091421	L1405623-14	Water	09/14/21
BLO-MW01-091421	L1405623-15	Water	09/14/21
GLO-MW04-091221DUP	L1405623-01DUP	Water	09/12/21
DSA-MW06-091321MS	L1405623-02MS	Water	09/13/21
DSA-MW05-091421DUP	L1405623-11DUP	Water	09/14/21
DSA-MW02-091421DUP	L1405623-14DUP	Water	09/14/21
BLO-MW01-091421MS	L1405623-15MS	Water	09/14/21
BLO-MW01-091421MSD	L1405623-15MSD	Water	09/14/21
BLO-MW01-091421DUP	L1405623-15DUP	Water	09/14/21

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Final Uniform Federal Policy for Quality Assurance Project Plan for Long-Term Management and Remedial Action Operation Activities Port Heiden Radio Relay Station, Alaska (August 2021), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.3 (2019), the DoD General Validation Guidelines (November 2019), and a modified outline of the USEPA National Functional Guidelines (NFG) for Inorganic Superfund Methods Data Review (January 2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following methods:

Alkalinity by Standard Method 2320B
Nitrate/Nitrite as Nitrogen by Environmental Protection Agency (EPA) Method 353.2
Sulfate by EPA Method 300.0
Total Kjeldahl Nitrogen by EPA 351.2

All sample results were subjected to Stage 2B data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The analyte was analyzed for and positively identified by the laboratory; however the analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

X (Exclusion of data recommended): The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Exclusion of the data is recommended.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition.

All technical holding time requirements were met.

II. Initial Calibration

All criteria for the initial calibration of each method were met.

III. Continuing Calibration

Continuing calibration frequency and analysis criteria were met for each method when applicable.

IV. Laboratory Blanks

Laboratory blanks were analyzed as required by the methods. No contaminants were found in the laboratory blanks.

V. Field Blanks

No field blanks were identified in this SDG.

VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

VII. Duplicate Sample Analysis

Duplicate (DUP) sample analysis was performed on an associated project sample. Results were within QC limits.

VIII. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the methods. Percent recoveries (%R) were within QC limits.

IX. Field Duplicates

Samples DSA-MW06-091321 and DSA-MW06-091321-DUP, samples BLO-MW07-091421 and BLO-MW07-091421-DUP, and samples DSA-MW05-091421 and DSA-MW05-091421-DUP were identified as field duplicates. No results were detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/L)		RPD (Limits)	Difference (Limits)	Flag	A or P
	DSA-MW06-091321	DSA-MW06-091321-DUP				
Alkalinity	77200	75500	2 (≤ 30)	-	-	-
Alkalinity, Bicarbonate	77200	75500	2 (≤ 30)	-	-	-
Sulfate	4630	4670	-	40 (≤5000)	-	-

Analyte	Concentration (ug/L)		RPD (Limits)	Difference (Limits)	Flag	A or P
	BLO-MW07-091421	BLO-MW07-091421-DUP				
Alkalinity	52800	52800	0 (≤ 30)	-	-	-
Alkalinity, Bicarbonate	52800	52800	0 (≤ 30)	-	-	-
NO3/NO2-N	63.4	67.8	-	4.4 (≤100)	-	-
Sulfate	2610	2590	-	20 (≤5000)	-	-

Analyte	Concentration (ug/L)		RPD (Limits)	Difference (Limits)	Flag	A or P
	DSA-MW05-091421	DSA-MW05-091421-DUP				
Alkalinity	74600	74800	0 (≤ 30)	-	-	-
Alkalinity, Bicarbonate	74600	74800	0 (≤ 30)	-	-	-
Sulfate	11200	10900	-	300 (≤5000)	-	-

X. Target Analyte Quantitation

Raw data were not reviewed for Stage 2B validation.

XI. Overall Assessment of Data

The analysis was conducted within all specifications of the methods. No results were rejected in this SDG.

Port Heiden
Wet Chemistry - Data Qualification Summary - SDG L1405623

No Sample Data Qualified in this SDG

Port Heiden
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG L1405623

No Sample Data Qualified in this SDG

Port Heiden
Wet Chemistry - Field Blank Data Qualification Summary - SDG L1405623

No Sample Data Qualified in this SDG

LDC #: 52283A6 **VALIDATION COMPLETENESS WORKSHEET** Date: 10/27/21
SDG #: L1405623 Stage 2B Page: 1 of 2
Laboratory: Pace Analytical National, Mount Juliet, TN Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: (Analyte) Alkalnity (SM2320B), Nitrate/Nitrite-N (EPA Method 353.2), Sulfate (EPA Method 300.0), TKN (EPA Method 351.2)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A, A	
II	Initial calibration	A	
III.	Calibration verification	A	
IV	Laboratory Blanks	A	
V	Field blanks	N	
VI.	Matrix Spike/Matrix Spike Duplicates	A	
VII.	Duplicate sample analysis	A	
VIII.	Laboratory control samples	A	LCS
IX.	Field duplicates	SW	(2,6) (9,10) (11,12)
X.	Target Analyte Quantitation	N	
XI	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	GLO-MW04-091221	L1405623-01	Water	09/12/21
2	DSA-MW06-091321	L1405623-02	Water	09/13/21
3	DSA-MW07-091321	L1405623-03	Water	09/13/21
4	RRS-MW05-091321	L1405623-04	Water	09/13/21
5	RRS-MW06-091321	L1405623-05	Water	09/13/21
6	DSA-MW06-091321-DUP	L1405623-06	Water	09/13/21
7	BLO-MW05-091421	L1405623-07	Water	09/14/21
8	BLO-MW06-091421	L1405623-08	Water	09/14/21
9	BLO-MW07-091421	L1405623-09	Water	09/14/21
10	BLO-MW07-091421-DUP	L1405623-10	Water	09/14/21
11	DSA-MW05-091421	L1405623-11	Water	09/14/21
12	DSA-MW05-091421-DUP	L1405623-12	Water	09/14/21
13	DSA-MW01-091421	L1405623-13	Water	09/14/21
14	DSA-MW02-091421	L1405623-14	Water	09/14/21
15	BLO-MW01-091421	L1405623-15	Water	09/14/21
16	GLO-MW04-091221DUP	L1405623-01DUP	Water	09/12/21
17	DSA-MW06-091321MS	L1405623-02MS	Water	09/13/21

LDC #: 52283A6 **VALIDATION COMPLETENESS WORKSHEET** Date: 10/27/21
SDG #: L1405623 Stage 2B Page: 2 of 2
Laboratory: Pace Analytical National, Mount Juliet, TN Reviewer: a
2nd Reviewer: JC

METHOD: (Analyte) Alkalnity (SM2320B), Nitrate/Nitrite-N (EPA Method 353.2), Sulfate (EPA Method 300.0), TKN (EPA Method 351.2)

	Client ID	Lab ID	Matrix	Date
18	DSA-MW05-091421DUP	L1405623-11DUP	Water	09/14/21
19	DSA-MW02-091421DUP	L1405623-14DUP	Water	09/14/21
20	BLO-MW01-091421MS	L1405623-15MS	Water	09/14/21
21	BLO-MW01-091421MSD	L1405623-15MSD	Water	09/14/21
22	BLO-MW01-091421DUP	L1405623-15DUP	Water	09/14/21
23				
24				
25				

Notes:

All elements are applicable to each sample as noted below.

Sample ID	Target Analyte List
All	Alkalinity, Sulfate, TKN, NO3/NO2-N
QC:	
16	Sulfate
17	Sulfate
18	TKN
19	NO3/NO2-N
20, 21	Sulfate, TKN, NO3/NO2-N
22	Alkalinity

Method: Inorganics

Analyte	Concentration (ug/L)		RPD (≤ 30)	Diff.	Diff. Limits	Qualifiers (Parents Only)
	2	6				
Alkalinity	77200	75500	2			
Alkalinity, Bicarbonate	77200	75500	2			
Sulfate	4630	4670		40	(≤5000)	

Analyte	Concentration (ug/L)		RPD (≤ 30)	Diff.	Diff. Limits	Qualifiers (Parents Only)
	9	10				
Alkalinity	52800	52800	0			
Alkalinity, Bicarbonate	52800	52800	0			
NO3/NO2-N	63.4	67.8		4.4	(≤100)	
Sulfate	2610	2590		20	(≤5000)	

Analyte	Concentration (ug/L)		RPD (≤ 30)	Diff.	Diff. Limits	Qualifiers (Parents Only)
	11	12				
Alkalinity	74600	74800	0			
Alkalinity, Bicarbonate	74600	74800	0			
Sulfate	11200	10900		300	(≤5000)	

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Port Heiden

LDC Report Date: March 9, 2022

Parameters: Total Petroleum Hydrocarbons as Extractables

Validation Level: Stage 2B

Laboratory: Pace Analytical National, Mount Juliet, TN.

Sample Delivery Group (SDG): L1405623

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
GLO-MW04-091221	L1405623-01	Water	09/12/21
DSA-MW06-091321	L1405623-02	Water	09/13/21
DSA-MW07-091321	L1405623-03	Water	09/13/21
RRS-MW05-091321	L1405623-04	Water	09/13/21
RRS-MW06-091321	L1405623-05	Water	09/13/21
DSA-MW06-091321-DUP	L1405623-06	Water	09/13/21
BLO-MW05-091421	L1405623-07	Water	09/14/21
BLO-MW06-091421	L1405623-08	Water	09/14/21
BLO-MW07-091421	L1405623-09	Water	09/14/21
BLO-MW07-091421-DUP	L1405623-10	Water	09/14/21
DSA-MW05-091421	L1405623-11	Water	09/14/21
DSA-MW05-091421-DUP	L1405623-12	Water	09/14/21
DSA-MW01-091421	L1405623-13	Water	09/14/21
DSA-MW02-091421	L1405623-14	Water	09/14/21
BLO-MW01-091421	L1405623-15	Water	09/14/21
215-MW-12-091521	L1405623-19	Water	09/15/21
215-MW08-091521	L1405623-20	Water	09/15/21
215-MW09-091521	L1405623-21	Water	09/15/21
066-MW-06-091521	L1405623-22	Water	09/15/21
066-MW-07-091521	L1405623-23	Water	09/15/21
066-MW-04-091521	L1405623-24	Water	09/15/21
066-MW-07-091521-DUP	L1405623-25	Water	09/15/21
066-MW-05-091521	L1405623-26	Water	09/15/21
BLO-MW01-091421MS	L1405623-15MS	Water	09/14/21
BLO-MW01-091421MSD	L1405623-15MSD	Water	09/14/21
215-MW-12-091521MS	L1405623-19MS	Water	09/15/21

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
215-MW-12-091521MSD	L1405623-19MSD	Water	09/15/21

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Final Uniform Federal Policy for Quality Assurance Project Plan for Long-Term Management and Remedial Action Operation Activities Port Heiden Radio Relay Station, Alaska (August 2021), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.3 (2019), the DoD General Validation Guidelines (November 2019), and a modified outline of the USEPA National Functional Guidelines (NFG) for Organic Superfund Methods Data Review (January 2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Total Petroleum Hydrocarbons (TPH) as Extractables by Environmental Protection Agency (EPA) SW 846 Method 8015

All sample results were subjected to Stage 2B data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The analyte was analyzed for and positively identified by the laboratory; however the analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

X (Exclusion of data recommended): The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Exclusion of the data is recommended.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

A curve fit, based on the initial calibration, was established for quantitation. The coefficient of determination (r^2) was greater than or equal to 0.990.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0% for all analytes with the following exceptions:

Date	Analyte	%D	Associated Samples	Flag	A or P
04/29/21	TPH (GC/FID) High Fraction	27.20	BLO-MW05-091421 BLO-MW06-091421 BLO-MW07-091421 BLO-MW07-091421-DUP DSA-MW05-091421 DSA-MW05-091421-DUP DSA-MW01-091421 DSA-MW02-091421 BLO-MW01-091421 215-MW08-091521 215-MW09-091521 066-MW-06-091521 066-MW-07-091521 066-MW-04-091521	J (all detects) UJ (all non-detects)	A
09/24/21	TPH (GC/FID) High Fraction	25.10	215-MW-12-091521 066-MW-07-091521-DUP 066-MW-05-091521	J (all detects) UJ (all non-detects)	A

III. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all analytes with the following exceptions:

Date	Analyte	%D	Associated Samples	Flag	A or P
09/23/21	TPH (GC/FID) High Fraction	21.70	BLO-MW05-091421 BLO-MW06-091421	UJ (all non-detects)	A

Date	Analyte	%D	Associated Samples	Flag	A or P
09/27/21 (0927_021)	TPH (GC/FID) High Fraction	22.40	BLO-MW07-091421 BLO-MW07-091421-DUP DSA-MW05-091421 DSA-MW05-091421-DUP DSA-MW01-091421 DSA-MW02-091421 215-MW08-091521	UJ (all non-detects)	A
09/27/21 (0927_039)	TPH (GC/FID) High Fraction	21.80	BLO-MW01-091421 215-MW09-091521 066-MW-06-091521 066-MW-07-091521 066-MW-04-091521	J (all detects) UJ (all non-detects)	A
09/30/21	TPH (GC/FID) High Fraction	23.60	215-MW-12-091521 066-MW-07-091521-DUP 066-MW-05-091521	J (all detects) UJ (all non-detects)	A

IV. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks with the following exceptions:

Blank ID	Analyte	Concentration	Associated Samples
MB 3708137-1	TPH (GC/FID) High Fraction	25.8 ug/L	GLO-MW04-091221 DSA-MW06-091321 DSA-MW07-091321 RRS-MW05-091321 RRS-MW06-091321 DSA-MW06-091321-DUP

Sample concentrations were compared to concentrations detected in the laboratory blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated laboratory blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
DSA-MW06-091321	TPH (GC/FID) High Fraction	66.5 ug/L	66.5U ug/L
DSA-MW07-091321	TPH (GC/FID) High Fraction	93.6 ug/L	93.6U ug/L
RRS-MW05-091321	TPH (GC/FID) High Fraction	95.8 ug/L	95.8U ug/L
RRS-MW06-091321	TPH (GC/FID) High Fraction	56.7 ug/L	56.7U ug/L

Sample	Analyte	Reported Concentration	Modified Final Concentration
DSA-MW06-091321-DUP	TPH (GC/FID) High Fraction	72.0 ug/L	72.0U ug/L

V. Field Blanks

No field blanks were identified in this SDG.

VI. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were not within the QC limits for BLO-MW01-091421MS/MSD. No data were qualified for MS/MSD samples analyzed greater than or equal to a 5X dilution. Relative percent differences (RPD) were within QC limits.

VIII. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

IX. Field Duplicates

Samples DSA-MW06-091321 and DSA-MW06-091321-DUP, samples BLO-MW07-091421 and BLO-MW07-091421-DUP, samples DSA-MW05-091421 and DSA-MW05-091421-DUP, and samples 066-MW-07-091521 and 066-MW-07-091521-DUP were identified as field duplicates. No results were detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/L)		RPD (Limits)	Difference (Limits)	Flag	A or P
	DSA-MW06-091321	DSA-MW06-091321-DUP				
TPH (GC/FID) High Fraction	66.5	72.0	-	5.5 (≤100)	-	-

Analyte	Concentration (ug/L)		RPD (Limits)	Difference (Limits)	Flag	A or P
	066-MW-07-091521	066-MW-07-091521-DUP				
TPH (GC/FID) High Fraction	50U	171	-	121 (≤100)	J (all detects) UJ (all non-detects)	A

X. Target Analyte Quantitation

Raw data were not reviewed for Stage 2B validation.

XI. Target Analyte Identification

Raw data were not reviewed for Stage 2B validation.

XII. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Due to ICV %D, continuing calibration %D, and field duplicate difference, data were qualified as estimated in seventeen samples.

Due to laboratory blank contamination, data were qualified as not detected in five samples.

Detected concentrations of TPH flagged as estimated. Samples should have been analyzed by Alaska Method 102.

Port Heiden
Total Petroleum Hydrocarbons as Extractables - Data Qualification Summary - SDG L1405623

Sample	Analyte	Flag	A or P	Reason
BLO-MW05-091421 BLO-MW06-091421 BLO-MW07-091421 BLO-MW07-091421-DUP DSA-MW05-091421 DSA-MW05-091421-DUP DSA-MW01-091421 DSA-MW02-091421 BLO-MW01-091421 215-MW08-091521 215-MW09-091521 066-MW-06-091521 066-MW-07-091521 066-MW-04-091521 215-MW-12-091521 066-MW-07-091521-DUP 066-MW-05-091521	TPH (GC/FID) High Fraction	J (all detects) UJ (all non-detects)	A	Initial calibration verification (%D)
BLO-MW05-091421 BLO-MW06-091421 BLO-MW07-091421 BLO-MW07-091421-DUP DSA-MW05-091421 DSA-MW05-091421-DUP DSA-MW01-091421 DSA-MW02-091421 215-MW08-091521	TPH (GC/FID) High Fraction	UJ (all non-detects)	A	Continuing calibration (%D)
BLO-MW01-091421 215-MW09-091521 066-MW-06-091521 066-MW-07-091521 066-MW-04-091521 215-MW-12-091521 066-MW-07-091521-DUP 066-MW-05-091521	TPH (GC/FID) High Fraction	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
066-MW-07-091521 066-MW-07-091521-DUP	TPH (GC/FID) High Fraction	J (all detects) UJ (all non-detects)	A	Field duplicates (Difference)
GLO-MW04-091221	TPH (GC/FID) High Fraction	J (all detects)	A	Incorrect Method

Port Heiden
Total Petroleum Hydrocarbons as Extractables - Laboratory Blank Data Qualification Summary - SDG L1405623

Sample	Analyte	Modified Final Concentration	A or P
DSA-MW06-091321	TPH (GC/FID) High Fraction	66.5U ug/L	A
DSA-MW07-091321	TPH (GC/FID) High Fraction	93.6U ug/L	A

Sample	Analyte	Modified Final Concentration	A or P
RRS-MW05-091321	TPH (GC/FID) High Fraction	95.8U ug/L	A
RRS-MW06-091321	TPH (GC/FID) High Fraction	56.7U ug/L	A
DSA-MW06-091321-DUP	TPH (GC/FID) High Fraction	72.0U ug/L	A

Port Heiden
Total Petroleum Hydrocarbons as Extractables - Field Blank Data Qualification Summary - SDG L1405623

No Sample Data Qualified in this SDG

LDC #: 52283A8 **VALIDATION COMPLETENESS WORKSHEET** Date: 10/29/21
SDG #: L1405623 Stage 2B Page: 1 of 1
Laboratory: Pace Analytical National, Mount Juliet, TN Reviewer: JVG
2nd Reviewer:

METHOD: GC TPH as Extractables (EPA SW 846 Method 8015)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A/A	
II.	Initial calibration/ICV	A/SW	r2 ICV ≤20%
III.	Continuing calibration	SW	CCV ≤20%
IV.	Laboratory Blanks	SW	
V.	Field blanks	N	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	SW	
VIII.	Laboratory control samples	A	LCS/D
IX.	Field duplicates	SW	D = 2/6, 9/10, 11/12, 20/22
X.	Target analyte quantitation	N	
XI.	Target analyte identification	N	
XII	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID		Lab ID	Matrix	Date
1	GLO-MW04-091221		L1405623-01	Water	09/12/21
2	DSA-MW06-091321	D1	L1405623-02	Water	09/13/21
3	DSA-MW07-091321		L1405623-03	Water	09/13/21
4	RRS-MW05-091321		L1405623-04	Water	09/13/21
5	RRS-MW06-091321		L1405623-05	Water	09/13/21
6	DSA-MW06-091321-DUP	D1	L1405623-06	Water	09/13/21
7	BLO-MW05-091421		L1405623-07	Water	09/14/21
8	BLO-MW06-091421		L1405623-08	Water	09/14/21
9	BLO-MW07-091421	D2	L1405623-09	Water	09/14/21
10	BLO-MW07-091421-DUP	D2	L1405623-10	Water	09/14/21
11	DSA-MW05-091421	D3	L1405623-11	Water	09/14/21
12	DSA-MW05-091421-DUP	D3	L1405623-12	Water	09/14/21
13	DSA-MW01-091421		L1405623-13	Water	09/14/21
14	DSA-MW02-091421		L1405623-14	Water	09/14/21
15	BLO-MW01-091421		L1405623-15	Water	09/14/21
16	215-MW-12-091521		L1405623-19	Water	09/15/21
17	215-MW08-091521		L1405623-20	Water	09/15/21

LDC #: 52283A8 **VALIDATION COMPLETENESS WORKSHEET** Date: 10/29/21

SDG #: L1405623 Stage 2B Page: 1 of 1

Laboratory: Pace Analytical National, Mount Juliet, TN Reviewer: JVG

2nd Reviewer:

METHOD: GC TPH as Extractables (EPA SW 846 Method 8015)

	Client ID		Lab ID	Matrix	Date
18	215-MW09-091521		L1405623-21	Water	09/15/21
19	066-MW-06-091521		L1405623-22	Water	09/15/21
20	066-MW-07-091521	D4	L1405623-23	Water	09/15/21
21	066-MW-04-091521		L1405623-24	Water	09/15/21
22	066-MW-07-091521-DUP	D4	L1405623-25	Water	09/15/21
23	066-MW-05-091521		L1405623-26	Water	09/15/21
24	BLO-MW01-091421MS		L1405623-15MS	Water	09/14/21
25	BLO-MW01-091421MSD		L1405623-15MSD	Water	09/14/21
26	215-MW-12-091521MS		L1405623-19MS	Water	09/15/21
27	215-MW-12-091521MSD		L1405623-19MSD	Water	09/15/21
28					
29					

Notes:

1	(MB) R3708137-1		(1-6)				
2	(MB) R3708122-1		(7-8)				
3	(MB) R3709282-1		(9-15, 17-21)				
4	(MB) R3711047-1		(16, 22, 23)				

LDC #: 52283 A8

VALIDATION FINDINGS WORKSHEET
Initial Calibration Verification

Page: 1 of 1
Reviewer: JVG

METHOD: / GC __ HPLC

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".
What type of initial calibration verification calculation was performed? __%D or __%R
(Y) N N/A Was an initial calibration verification standard analyzed after each ICAL for each instrument?
Y (N) N/A Did the initial calibration verification standards meet the %D / %R validation criteria of ≤20.0% / 80-120%?

#	Date	Standard ID	Detector/ Column	Compound	%D (Limit ≤ 20.0)	Associated Samples	Qualifications
	04/29/21	0429_023		TPH (GC/FID) High Fraction	27.20	7-15, 17-21, MB2, MB3	(ND+Det) J/UJ/A
	09/24/21	0924_028		↓	25.10	16, 22, 23, MB4	(ND+Det) ↓

ICV-gc.wpd

LDC #: 52283A8

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Page: 1 of 1
Reviewer: JVG

METHOD: / GC __ HPLC

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".
What type of continuing calibration calculation was performed? ___%D or ___%R
Y N N/A Were continuing calibration standards analyzed at the required frequencies?
Y (N) N/A Did the continuing calibration standards meet the %D / %R validation criteria of ≤20.0% / 80-120%?
Level IV Only
Y N (N/A) Were the retention times for all calibrated compounds within their respective acceptance windows?

#	Date	Standard ID	Detector/ Column	Compound	%D (Limit ≤ 20.0)	RT (limit)	Associated Samples	Qualifications
	09/23/21	0923_012		TPH (GC/FID) High Fraction	21.70	( )	7, 8, MB2 (ND)	J/UJ/A
						( )		
						( )		
	09/27/21	0927_021			22.40	( )	9-14, 17 (ND)	
						( )		
						( )		
	09/27/21	0927_039			21.80	( )	15, 18-21 (ND + Det)	
						( )		
						( )		
	09/30/21	0930_005		✓	23.60	( )	16, 22, 23, MB4 (ND + Det)	✓
						( )		
						( )		
	09/27/21	0927_005		✓	24.7	( )	MB3	NA (QC only)
						( )		
						( )		
						( )		
						( )		
						( )		
						( )		
						( )		
						( )		
						( )		
						( )		
						( )		
						( )		

LDC #: 52283A8

VALIDATION FINDINGS WORKSHEET
Blanks

Page: 1 of 1
Reviewer: JVG

METHOD: / GC ___ HPLC

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were all samples associated with a given method blank?
Y N N/A Was a method blank performed for each matrix and whenever a sample extraction procedure was performed?
Y N N/A Was a method blank performed with each extraction batch?
Y N N/A Were any contaminants found in the method blanks? If yes, please see findings below.

Level IV/D Only

Y N N/A (Gasoline and aromatics only)Was a method blank analyzed with each 24 hour batch?
Y N N/A Was a method blank analyzed for each analytical / extraction batch of ≤20 samples?

Blank extraction date: _____ **Blank analysis date:** _____ **Associated samples:** 1-6 (either ND/>5x)

Conc. units: mg/L

Compound	Blank ID	Sample Identification						
	MB 370813?-1 (5x)	2	3	4	5	6		
TPH (GC FID) High Fraction	0.0258	0.129	66.5 U	93.6U	95.8U	56.7U	72.0U	

Blank extraction date: _____ **Blank analysis date:** _____ **Associated samples:** _____

Conc. units: _____

Compound	Blank ID	Sample Identification						

ALL CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
All contaminants within five times the method blank concentration were qualified as not detected, "U".

LDC #: 52283 A8

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Reviewer: JVG

METHOD: ✓ **GC** ___ **HPLC**

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were matrix spike (MS) and matrix spike duplicate (MSD) analyzed in this SDG?

Y N N/A Was an MS/MSD analyzed every 20 samples for each matrix or whenever a sample extraction was performed?

Y N N/A Were the MS/MSD percent recoveries (%R) and relative percent differences (RPD) within QC limits?

#	MS/MSD ID	Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
	24/25	TPH (GC/FID) High Fraction	207 (36-132)	187 (36-132)	( )	15	NQ
			( )	( )	( )		(dil)
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		

LDC#: 52283A8

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: JVG

METHOD: GCMS VOA (EPA SW 846 Method 8260D)

Compound	Concentration (ug/L)		RPD (≤30%)	Difference (ug/L)	Limits (±LOQ)	Qualifications (Parent Only)
	2	6				
TPH (GC/FID) High Fraction	66.5	72.0		5.5	≤100	

Compound	Concentration (ug/L)		RPD (≤30%)	Difference (ug/L)	Limits (±LOQ)	Qualifications (Parent Only)
	20	22				
TPH (GC/FID) High Fraction	50U	171		121	≤100	J/UJ/A

V:\Josephine\FIELD DUPLICATES\50000\52283A8 northwind port heiden.wpd

Laboratory Data Review Checklist

Completed By:

Josephine Go, Stella Cuenco, Christina Rink-Ashdown

Title:

Chemist, Principal Chemist, Senior Chemist

Date:

11/8/2021

Consultant Firm:

Laboratory Data Consultants, Inc.

Laboratory Name:

Pace Analytical, Mount Juliet, TN

Laboratory Report Number:

L1405623

Laboratory Report Date:

10/5/2021

CS Site Name:

OT001-Former Composite Building; WP002-Black Lagoon Outfall; SS006-Former Pipeline Corridor; LF007- Radio Relay Station Landfill

ADEC File Number:

2637.38.002.05; 2637.38.002.08; 2637.38.002.02; 2637.38.002.11

Hazard Identification Number:

185; 186; 179; 27143

L1405623

Laboratory Report Date:

10/5/2021

CS Site Name:

OT001-Former Composite Building; WP002-Black Lagoon Outfall; SS006-Former Pipeline Corridor; LF007- Radio Relay Station Landfill

Note: Any N/A or No box checked must have an explanation in the comments box.

1. Laboratory

   a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?

   Yes☒ No☐ N/A☐ Comments:

   b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?

   Yes☐ No☐ N/A☒ Comments:

   No samples were transferred.

2. Chain of Custody (CoC)

   a. CoC information completed, signed, and dated (including released/received by)?

   Yes☒ No☐ N/A☐ Comments:

   b. Correct analyses requested?

   Yes☒ No☐ N/A☐ Comments:

3. Laboratory Sample Receipt Documentation

   a. Sample/cooler temperature documented and within range at receipt (0° to 6° C)?

   Yes☒ No☐ N/A☐ Comments:

   b. Sample preservation acceptable – acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?

   Yes☒ No☐ N/A☐ Comments:

L1405623

Laboratory Report Date:

10/5/2021

CS Site Name:

OT001-Former Composite Building; WP002-Black Lagoon Outfall; SS006-Former Pipeline Corridor; LF007- Radio Relay Station Landfill

c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?

Yes☐ No☒ N/A☐ Comments:

For method 8260D, samples TB091221, TB091321, and TB091421 contained headspace when received by the laboratory. The results were qualified as non-detect estimated (UJ).

d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, etc.?

Yes☒ No☐ N/A☐ Comments:

e. Data quality or usability affected?

Comments:

Data is usable as qualified.

4. Case Narrative

a. Present and understandable?

Yes☒ No☐ N/A☐ Comments:

b. Discrepancies, errors, or QC failures identified by the lab?

Yes☒ No☐ N/A☐ Comments:

c. Were all corrective actions documented?

Yes☒ No☐ N/A☐ Comments:

d. What is the effect on data quality/usability according to the case narrative?

Comments:

Data is usable.

L1405623

Laboratory Report Date:

10/5/2021

CS Site Name:

OT001-Former Composite Building; WP002-Black Lagoon Outfall; SS006-Former Pipeline Corridor; LF007- Radio Relay Station Landfill

5. Samples Results

a. Correct analyses performed/reported as requested on COC?

Yes☒ No☐ N/A☐ Comments:

b. All applicable holding times met?

Yes☐ No☒ N/A☐ Comments:

For method 8260D, sample GLO-MW04-091221 was analyzed outside the 14 day holding time for acrolein, bromomethane, hexachlorobutadiene, 1,1,1,2-tetrachloroethane, 1,2,4-trichlorobenzene, 1,1,1-trichloroethane, and trichloroethene. The results were qualified as non-detect estimated (UJ).

c. All soils reported on a dry weight basis?

Yes☐ No☒ N/A☐ Comments:

No soil samples were analyzed.

d. Are the reported LOQs less than the Cleanup Level or the minimum required detection level for the project?

Yes☐ No☒ N/A☐ Comments:

The following analytes have PALs below the LOQ: 1,2-dibromoethane, 1,1,2,2,-tetrachloroethane, 1,1,2-trichloroethane, 1,2,3-trichloropropane, and vinyl chloride.

e. Data quality or usability affected?

The analytes that have PALs below the LOQ could potentially exceed the PAL and be non-detected by the laboratory.

6. QC Samples

a. Method Blank

i. One method blank reported per matrix, analysis and 20 samples?

Yes☒ No☐ N/A☐ Comments:

L1405623

Laboratory Report Date:

10/5/2021

CS Site Name:

OT001-Former Composite Building; WP002-Black Lagoon Outfall; SS006-Former Pipeline Corridor; LF007- Radio Relay Station Landfill

ii. All method blank results less than limit of quantitation (LOQ) or project specified objectives?

Yes☒ No☐ N/A☐ Comments:

For method 8015, TPH (GC/FID) High Fraction was detected in the method blank at a concentration less than the LOQ.
For method 6010D, Manganese was detected in the method blank at a concentration less than the LOQ.

iii. If above LOQ or project specified objectives, what samples are affected?

Comments:

For method 8015, several samples were associated to the detect in the method blank for TPH (GC/FID) High Fraction.
For method 6010D, several samples were associated to the detect in the method blank for manganese.

iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes☐ No☐ N/A☐ Comments:

For method 8015, the five associated results were qualified as non-detect (U) due to method blank contamination.
For method 6010D, one associated result was qualified as non-detect (U) due to method blank contamination.

v. Data quality or usability affected?

Comments:

Data is usable as qualified.

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)

Yes☒ No☐ N/A☐ Comments:

ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?

Yes☒ No☐ N/A☐ Comments:

L1405623

Laboratory Report Date:

10/5/2021

CS Site Name:

OT001-Former Composite Building; WP002-Black Lagoon Outfall; SS006-Former Pipeline Corridor; LF007- Radio Relay Station Landfill

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

Yes☐ No☒ N/A☐ Comments:

For method 8260D, several LCS/LCSD %Rs were above the acceptable limits however the associated results were non-detect so no sample qualification was necessary.

iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from LCS/LCSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

Yes☐ No☒ N/A☐ Comments:

For method 8260D, several LCS/LCSD RPDs were above the acceptable limits however the associated results were non-detect so no sample qualification was necessary.

v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

For method 8260D, several samples were associated to the %R and RPD exceedances.

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes☒ No☐ N/A☐ Comments:

For method 8260D, no samples were qualified since the results were all non-detected.

vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

Data is usable.

c. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

Note: Leave blank if not required for project

i. Organics – One MS/MSD reported per matrix, analysis and 20 samples?

Yes☒ No☐ N/A☐ Comments:

L1405623

Laboratory Report Date:

10/5/2021

CS Site Name:

OT001-Former Composite Building; WP002-Black Lagoon Outfall; SS006-Former Pipeline Corridor; LF007- Radio Relay Station Landfill

ii. Metals/Inorganics – one MS and one MSD reported per matrix, analysis and 20 samples?

Yes☒ No☐ N/A☐ Comments:

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable?

Yes☐ No☒ N/A☐ Comments:

For method 8260D, the non-detect n-butylbenzene result in sample 215-MW-12-091521 was below the acceptable limits in the MS and qualified as estimated (UJ).
For method 8260D, the detect benzene, cis-1,2-dichloroethene, ethylbenzene, isopropyl benzene, and trichloroethene results in sample BLO-MWO1-091421 were above the acceptable limits in the MS/MSD and qualified as estimated (J).
Additionally for method 8260D, several MS/MSD %Rs were above the acceptable limits however the associated result was non-detect so no sample qualification was necessary.
For method 6010D, although manganese was outside the acceptable limit, the parent sample was greater than four times the spike concentration, so no sample qualification was necessary.
For method 8015, although TPH was outside the acceptable limit, the parent sample was greater than four times the spike concentration, so no sample qualification was necessary.

iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from MS/MSD, and or sample/sample duplicate.

Yes☐ No☒ N/A☐ Comments:

For method 8260D, several MS/MSD RPDs were above the acceptable limits however the associated result was non-detect so no sample qualification was necessary.

v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

For method 8260D, the non-detect n-butylbenzene result in sample 215-MW-12-091521 was qualified as estimated (UJ).
For method 8260D, the detect benzene, cis-1,2-dichloroethene, ethylbenzene, isopropyl benzene, and trichloroethene results in sample BLO-MWO1-091421 were qualified as estimated (J).

L1405623

Laboratory Report Date:

10/5/2021

CS Site Name:

OT001-Former Composite Building; WP002-Black Lagoon Outfall; SS006-Former Pipeline Corridor; LF007- Radio Relay Station Landfill

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes☒ No☐ N/A☐ Comments:

For method 8260D, the non-detect n-butylbenzene result in sample 215-MW-12-091521 was qualified as estimated (UJ).
For method 8260D, the detect benzene, cis-1,2-dichloroethene, ethylbenzene, isopropyl benzene, and trichloroethene results in sample BLO-MWO1-091421 were qualified as estimated (J).

vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

Data is usable as qualified.

d. Surrogates – Organics Only or Isotope Dilution Analytes (IDA) – Isotope Dilution Methods Only

i. Are surrogate/IDA recoveries reported for organic analyses – field, QC and laboratory samples?

Yes☒ No☐ N/A☐ Comments:

ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods 50-150 %R for field samples and 60-120 %R for QC samples; all other analyses see the laboratory report pages)

Yes☐ No☒ N/A☐ Comments:

For method 8260D, sample TB091421 has low surrogate %R.

iii. Do the sample results with failed surrogate/IDA recoveries have data flags? If so, are the data flags clearly defined?

Yes☒ No☐ N/A☐ Comments:

For method 8260D, sample TB091421 was qualified as non-detect estimated (UJ).

iv. Data quality or usability affected?

Comments:

Data is usable as qualified.

L1405623

Laboratory Report Date:

10/5/2021

CS Site Name:

OT001-Former Composite Building; WP002-Black Lagoon Outfall; SS006-Former Pipeline Corridor; LF007- Radio Relay Station Landfill

e. Trip Blanks

i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples? (If not, enter explanation below.)

Yes☒ No☐ N/A☐ Comments:

ii. Is the cooler used to transport the trip blank and VOA samples clearly indicated on the COC? (If not, a comment explaining why must be entered below)

Yes☒ No☐ N/A☐ Comments:

iii. All results less than LOQ and project specified objectives?

Yes☒ No☐ N/A☐ Comments:

iv. If above LOQ or project specified objectives, what samples are affected?

Comments:

v. Data quality or usability affected?

Comments:

Data is usable.

f. Field Duplicate

i. One field duplicate submitted per matrix, analysis and 10 project samples?

Yes☒ No☐ N/A☐ Comments:

ii. Submitted blind to lab?

Yes☐ No☒ N/A☐ Comments:

L1405623

Laboratory Report Date:

10/5/2021

CS Site Name:

OT001-Former Composite Building; WP002-Black Lagoon Outfall; SS006-Former Pipeline Corridor; LF007- Radio Relay Station Landfill

iii. Precision – All relative percent differences (RPD) less than specified project objectives? (Recommended: 30% water, 50% soil)

RPD (%) = Absolute value of: $\frac{(R_1-R_2)}{((R_1+R_2)/2)} \times 100$

Where R_1 = Sample Concentration
R_2 = Field Duplicate Concentration

Yes☐ No☒ N/A☐ Comments:

For method 6010D, the iron results in samples BLO-MW07-091421 and BLO-MW07-091421-DUP and the iron and manganese results in samples DSA-MW05-091421 and DSA-MW05-091421-DUP exceeded the 30 % acceptance limits.
For method 8015, the TPH (GC/FID) High Fraction results in samples 066-MW-07-091521 and 066-MW-07-091521-DUP exceeded the difference limit.

iv. Data quality or usability affected? (Use the comment box to explain why or why not.)

Comments:

For method 6010D, iron and manganese results in samples BLO-MW07-091421, BLO-MW07-091421-DUP, DSA-MW05-091421, and DSA-MW05-091421-DUP were qualified as detect estimated (J).
For method 8015, the TPH (GC/FID) High Fraction results in samples 066-MW-07-091521 and 066-MW-07-091521-DUP were qualified as estimated (J/UJ).
Data is usable as qualified.

g. Decontamination or Equipment Blank (If not applicable, a comment stating why must be entered below)?

Yes☐ No☒ N/A☐ Comments:

Decontamination or Equipment Blank samples were not included in this report.

i. All results less than LOQ and project specified objectives?

Yes☐ No☐ N/A☒ Comments:

Decontamination or Equipment Blank samples were not included in this report.

ii. If above LOQ or project specified objectives, what samples are affected?

Comments:

L1405623

Laboratory Report Date:

10/5/2021

CS Site Name:

OT001-Former Composite Building; WP002-Black Lagoon Outfall; SS006-Former Pipeline Corridor; LF007- Radio Relay Station Landfill

iii. Data quality or usability affected?

Comments:

N/A

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

a. Defined and appropriate?

Yes☒ No☐ N/A☐ Comments:

For methods 8260D and 8015, several samples were qualified due to calibration %D exceedances. (See DVR)
For method 8260D, peristalic pumps were used to collect samples 215-MW-09-091521 and 066-MW-05-091521. Perstaltic pumps should not be used for volatile analysis due to the loss of volatiles from the creation of a vacuum in the intake line that draws the sample to the land surface. As a result the total xylenes result in sample 215-MW-09-091521 and the ethylbenzene and total xylenes result in sample 066-MW-05-091521 were qualified as estimated (J-).

This Page Intentionally Left Blank

APPENDIX D

Laboratory Analytical Reports
(Laboratory IV Report included on CD)

This Page Intentionally Left Blank

ANALYTICAL REPORT

March 18, 2022

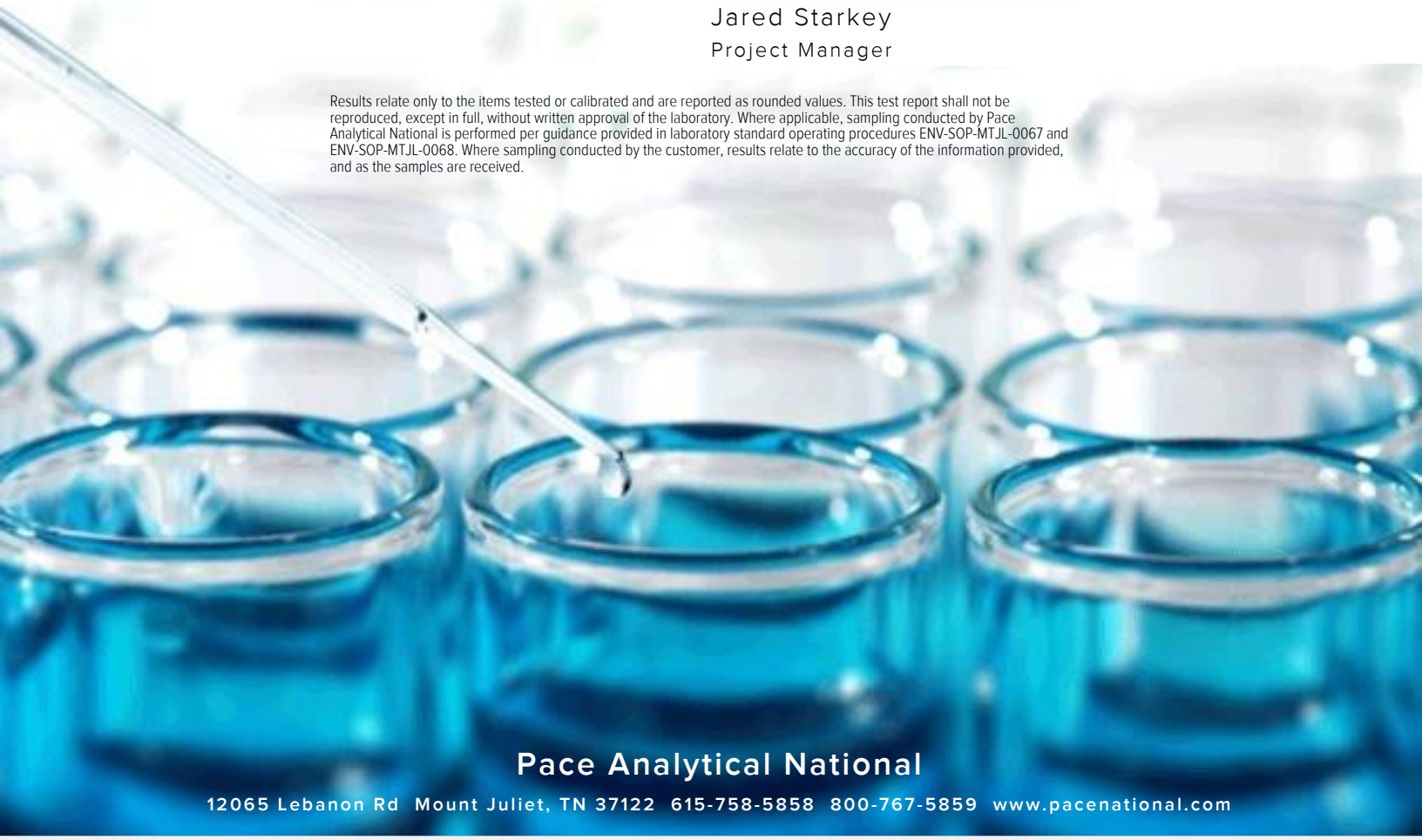
Revised Report

North Wind Site Services, LLC- AK

Sample Delivery Group:	L1405623
Samples Received:	09/18/2021
Project Number:	060068
Description:	SouthORC Port Heiden NPDL 21-034
Site:	PORT HEIDEN
Report To:	Jill Jones 7910 King Street Anchorage, AK 99518

Entire Report Reviewed By:

Jared Starkey
Project Manager



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

GLO-MW04-091221 L1405623-01 GW

Collected by: HN/DC | Collected date/time: 09/12/21 14:00 | Received date/time: 09/18/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2320 B-2011	WG1746766	1	09/26/21 18:18	09/26/21 18:18	AMH	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1746883	1	09/26/21 23:01	09/26/21 23:01	MCG	Mt. Juliet, TN
Wet Chemistry by Method 351.2	WG1748190	1	09/24/21 18:02	09/29/21 15:10	KEG	Mt. Juliet, TN
Wet Chemistry by Method 353.2	WG1747087	1	09/28/21 17:05	09/28/21 17:05	JER	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1745399	1	09/24/21 09:36	09/27/21 03:46	JDG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1746600	1	09/26/21 19:17	09/26/21 19:17	JHH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1747089	1	09/27/21 13:58	09/27/21 13:58	ADM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1744295	1	09/23/21 02:07	09/23/21 10:46	WCR	Mt. Juliet, TN

DSA-MW06-091321 L1405623-02 GW

Collected by: HN/DC | Collected date/time: 09/13/21 13:30 | Received date/time: 09/18/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2320 B-2011	WG1746766	1	09/26/21 18:22	09/26/21 18:22	AMH	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1746883	1	09/26/21 23:33	09/26/21 23:33	MCG	Mt. Juliet, TN
Wet Chemistry by Method 351.2	WG1748190	1	09/24/21 18:02	09/29/21 15:12	KEG	Mt. Juliet, TN
Wet Chemistry by Method 353.2	WG1747087	1	09/28/21 17:06	09/28/21 17:06	JER	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1745399	1	09/24/21 09:36	09/27/21 03:48	JDG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1746600	1	09/26/21 19:38	09/26/21 19:38	JHH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1747089	1	09/27/21 14:18	09/27/21 14:18	ADM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1744295	1	09/23/21 02:07	09/23/21 11:12	WCR	Mt. Juliet, TN

DSA-MW07-091321 L1405623-03 GW

Collected by: HN/DC | Collected date/time: 09/13/21 14:30 | Received date/time: 09/18/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2320 B-2011	WG1746766	1	09/26/21 18:25	09/26/21 18:25	AMH	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1746883	1	09/27/21 00:06	09/27/21 00:06	MCG	Mt. Juliet, TN
Wet Chemistry by Method 351.2	WG1748190	1	09/24/21 18:02	09/29/21 15:13	KEG	Mt. Juliet, TN
Wet Chemistry by Method 353.2	WG1747087	1	09/28/21 17:07	09/28/21 17:07	JER	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1745399	1	09/24/21 09:36	09/27/21 03:51	JDG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1746600	1	09/26/21 19:58	09/26/21 19:58	JHH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1747089	1	09/27/21 14:37	09/27/21 14:37	ADM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1744295	1	09/23/21 02:07	09/23/21 11:38	WCR	Mt. Juliet, TN

RRS-MW05-091321 L1405623-04 GW

Collected by: HN/DC | Collected date/time: 09/13/21 16:15 | Received date/time: 09/18/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2320 B-2011	WG1746766	1	09/26/21 18:30	09/26/21 18:30	AMH	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1746883	1	09/27/21 00:23	09/27/21 00:23	MCG	Mt. Juliet, TN
Wet Chemistry by Method 351.2	WG1748190	1	09/24/21 18:02	09/29/21 15:17	KEG	Mt. Juliet, TN
Wet Chemistry by Method 353.2	WG1747087	1	09/28/21 17:12	09/28/21 17:12	JER	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1745399	1	09/24/21 09:36	09/27/21 03:54	JDG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1746600	1	09/26/21 20:19	09/26/21 20:19	JHH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1747089	1	09/27/21 14:56	09/27/21 14:56	ADM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1744295	1	09/23/21 02:07	09/23/21 12:04	WCR	Mt. Juliet, TN

RRS-MW06-091321 L1405623-05 GW

Collected by: HN/DC | Collected date/time: 09/13/21 20:20 | Received date/time: 09/18/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2320 B-2011	WG1746766	1	09/26/21 18:39	09/26/21 18:39	AMH	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1746883	1	09/27/21 00:39	09/27/21 00:39	MCG	Mt. Juliet, TN
Wet Chemistry by Method 351.2	WG1748190	1	09/24/21 18:02	09/29/21 15:19	KEG	Mt. Juliet, TN
Wet Chemistry by Method 353.2	WG1747087	1	09/28/21 17:14	09/28/21 17:14	JER	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1745399	1	09/24/21 09:36	09/27/21 03:56	JDG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1746600	1	09/26/21 20:39	09/26/21 20:39	JHH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1747089	1	09/27/21 15:15	09/27/21 15:15	ADM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1744295	1	09/23/21 02:07	09/23/21 12:31	WCR	Mt. Juliet, TN

DSA-MW06-091321-DUP L1405623-06 GW

Collected by: HN/DC | Collected date/time: 09/13/21 13:30 | Received date/time: 09/18/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2320 B-2011	WG1746766	1	09/26/21 18:43	09/26/21 18:43	AMH	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1746883	1	09/27/21 00:55	09/27/21 00:55	MCG	Mt. Juliet, TN
Wet Chemistry by Method 351.2	WG1748190	1	09/24/21 18:02	09/29/21 15:20	KEG	Mt. Juliet, TN
Wet Chemistry by Method 353.2	WG1747087	1	09/28/21 17:15	09/28/21 17:15	JER	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1745399	1	09/24/21 09:36	09/27/21 03:59	JDG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1746600	1	09/26/21 21:00	09/26/21 21:00	JHH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1747089	1	09/27/21 15:34	09/27/21 15:34	ADM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1744295	1	09/23/21 02:07	09/23/21 12:57	WCR	Mt. Juliet, TN

BLO-MW05-091421 L1405623-07 GW

Collected by: HN/DC | Collected date/time: 09/14/21 10:35 | Received date/time: 09/18/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2320 B-2011	WG1746766	1	09/26/21 18:46	09/26/21 18:46	AMH	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1746883	1	09/27/21 01:45	09/27/21 01:45	MCG	Mt. Juliet, TN
Wet Chemistry by Method 351.2	WG1746199	1	09/24/21 18:03	09/29/21 13:52	KEG	Mt. Juliet, TN
Wet Chemistry by Method 353.2	WG1747087	1	09/28/21 17:16	09/28/21 17:16	JER	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1745399	1	09/24/21 09:36	09/27/21 04:02	JDG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1746600	1	09/26/21 21:21	09/26/21 21:21	JHH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1747089	1	09/27/21 15:53	09/27/21 15:53	ADM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1744651	1	09/23/21 12:14	09/23/21 19:04	WCR	Mt. Juliet, TN

BLO-MW06-091421 L1405623-08 GW

Collected by: HN/DC | Collected date/time: 09/14/21 12:05 | Received date/time: 09/18/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2320 B-2011	WG1746766	1	09/26/21 18:49	09/26/21 18:49	AMH	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1746883	1	09/27/21 02:01	09/27/21 02:01	MCG	Mt. Juliet, TN
Wet Chemistry by Method 351.2	WG1746199	1	09/24/21 18:03	09/29/21 13:54	KEG	Mt. Juliet, TN
Wet Chemistry by Method 353.2	WG1747087	1	09/28/21 17:18	09/28/21 17:18	JER	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1745399	1	09/24/21 09:36	09/27/21 04:04	JDG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1746600	1	09/26/21 21:41	09/26/21 21:41	JHH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1747089	1	09/27/21 16:12	09/27/21 16:12	ADM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1744651	1	09/23/21 12:14	09/23/21 19:30	WCR	Mt. Juliet, TN

BLO-MW07-091421 L1405623-09 GW

Collected by: HN/DC | Collected date/time: 09/14/21 13:10 | Received date/time: 09/18/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2320 B-2011	WG1746766	1	09/26/21 18:53	09/26/21 18:53	AMH	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1746883	1	09/27/21 02:18	09/27/21 02:18	MCG	Mt. Juliet, TN
Wet Chemistry by Method 351.2	WG1746199	1	09/24/21 18:03	09/29/21 13:55	KEG	Mt. Juliet, TN
Wet Chemistry by Method 353.2	WG1747087	1	09/28/21 17:19	09/28/21 17:19	JER	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1745399	1	09/24/21 09:36	09/27/21 04:07	JDG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1746600	1	09/26/21 22:02	09/26/21 22:02	JHH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1747089	1	09/27/21 16:32	09/27/21 16:32	ADM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1746498	1	09/26/21 21:23	09/27/21 20:50	DMG	Mt. Juliet, TN

BLO-MW07-091421-DUP L1405623-10 GW

Collected by: HN/DC | Collected date/time: 09/14/21 13:10 | Received date/time: 09/18/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2320 B-2011	WG1746888	1	09/27/21 13:28	09/27/21 13:28	AMH	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1746883	1	09/27/21 02:34	09/27/21 02:34	MCG	Mt. Juliet, TN
Wet Chemistry by Method 351.2	WG1746199	1	09/24/21 18:03	09/29/21 13:56	KEG	Mt. Juliet, TN
Wet Chemistry by Method 353.2	WG1747087	1	09/28/21 17:20	09/28/21 17:20	JER	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1745399	1	09/24/21 09:36	09/27/21 04:15	JDG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1746600	1	09/26/21 22:22	09/26/21 22:22	JHH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1747089	1	09/27/21 16:51	09/27/21 16:51	ADM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1746498	1	09/26/21 21:23	09/27/21 21:16	DMG	Mt. Juliet, TN

DSA-MW05-091421 L1405623-11 GW

Collected by: HN/DC | Collected date/time: 09/14/21 15:50 | Received date/time: 09/18/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2320 B-2011	WG1746888	1	09/27/21 13:31	09/27/21 13:31	AMH	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1746883	1	09/27/21 02:50	09/27/21 02:50	MCG	Mt. Juliet, TN
Wet Chemistry by Method 351.2	WG1746199	1	09/24/21 18:03	09/29/21 13:58	KEG	Mt. Juliet, TN
Wet Chemistry by Method 353.2	WG1747087	1	09/28/21 17:21	09/28/21 17:21	JER	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1745399	1	09/24/21 09:36	09/27/21 04:17	JDG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1746600	1	09/26/21 22:43	09/26/21 22:43	JHH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1747089	1	09/27/21 17:10	09/27/21 17:10	ADM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1746498	1.18	09/26/21 21:23	09/27/21 21:42	DMG	Mt. Juliet, TN

DSA-MW05-091421-DUP L1405623-12 GW

Collected by: HN/DC | Collected date/time: 09/14/21 15:50 | Received date/time: 09/18/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2320 B-2011	WG1746888	1	09/27/21 13:34	09/27/21 13:34	AMH	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1746883	1	09/27/21 03:07	09/27/21 03:07	MCG	Mt. Juliet, TN
Wet Chemistry by Method 351.2	WG1746199	1	09/24/21 18:03	09/29/21 14:00	KEG	Mt. Juliet, TN
Wet Chemistry by Method 353.2	WG1747087	1	09/28/21 17:23	09/28/21 17:23	JER	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1745399	1	09/24/21 09:36	09/27/21 04:20	JDG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1746600	1	09/26/21 23:03	09/26/21 23:03	JHH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1747089	1	09/27/21 17:29	09/27/21 17:29	ADM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1746498	1	09/26/21 21:23	09/27/21 22:07	DMG	Mt. Juliet, TN

DSA-MW01-091421 L1405623-13 GW

Collected by: HN/DC | Collected date/time: 09/14/21 17:20 | Received date/time: 09/18/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2320 B-2011	WG1746888	1	09/27/21 13:38	09/27/21 13:38	AMH	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1746883	1	09/27/21 03:23	09/27/21 03:23	MCG	Mt. Juliet, TN
Wet Chemistry by Method 351.2	WG1746199	1	09/24/21 18:03	09/29/21 14:02	KEG	Mt. Juliet, TN
Wet Chemistry by Method 353.2	WG1747087	1	09/28/21 17:24	09/28/21 17:24	JER	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1745399	1	09/24/21 09:36	09/27/21 04:23	JDG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1746600	1	09/26/21 23:24	09/26/21 23:24	JHH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1747089	1	09/27/21 17:48	09/27/21 17:48	ADM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1746498	1	09/26/21 21:23	09/27/21 22:33	DMG	Mt. Juliet, TN

DSA-MW02-091421 L1405623-14 GW

Collected by: HN/DC | Collected date/time: 09/14/21 18:18 | Received date/time: 09/18/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2320 B-2011	WG1746888	1	09/27/21 13:42	09/27/21 13:42	AMH	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1746883	1	09/27/21 03:40	09/27/21 03:40	MCG	Mt. Juliet, TN
Wet Chemistry by Method 351.2	WG1746199	1	09/24/21 18:03	09/29/21 14:06	KEG	Mt. Juliet, TN
Wet Chemistry by Method 353.2	WG1747087	1	09/28/21 17:29	09/28/21 17:29	JER	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1745399	1	09/24/21 09:36	09/27/21 04:26	JDG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1746600	5	09/26/21 23:44	09/26/21 23:44	JHH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1747089	5	09/27/21 18:08	09/27/21 18:08	ADM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1746498	1	09/26/21 21:23	09/27/21 22:59	DMG	Mt. Juliet, TN

BLO-MW01-091421 L1405623-15 GW

Collected by: HN/DC | Collected date/time: 09/14/21 19:35 | Received date/time: 09/18/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 2320 B-2011	WG1746888	1	09/27/21 14:10	09/27/21 14:10	AMH	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1746883	1	09/27/21 03:56	09/27/21 03:56	MCG	Mt. Juliet, TN
Wet Chemistry by Method 351.2	WG1746199	1	09/24/21 18:03	09/29/21 14:07	KEG	Mt. Juliet, TN
Wet Chemistry by Method 353.2	WG1747087	1	09/28/21 17:32	09/28/21 17:32	JER	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1745399	1	09/24/21 09:36	09/27/21 03:15	JDG	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG1745399	5	09/24/21 09:36	09/27/21 19:29	JDG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1747768	1	09/28/21 13:50	09/28/21 13:50	BMB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1748148	1	09/29/21 12:27	09/29/21 12:27	BMB	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1746498	10	09/26/21 21:23	09/28/21 08:19	DMG	Mt. Juliet, TN

TB091221 L1405623-16 GW

Collected by: HN/DC | Collected date/time: 09/12/21 13:30 | Received date/time: 09/18/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1745346	1	09/24/21 11:41	09/24/21 11:41	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1747347	1	09/28/21 14:28	09/28/21 14:28	BMB	Mt. Juliet, TN

TB091321 L1405623-17 GW

Collected by: HN/DC | Collected date/time: 09/13/21 12:00 | Received date/time: 09/18/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1745346	1	09/24/21 12:02	09/24/21 12:02	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1747347	1	09/28/21 14:47	09/28/21 14:47	BMB	Mt. Juliet, TN

1 Cp
2 Tc
3 Ss
4 Cn
5 Ds
6 Sr
7 Qc
8 Gl
9 Al
10 Sc

TB091421 L1405623-18 GW

Collected by: HN/DC | Collected date/time: 09/14/21 10:15 | Received date/time: 09/18/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1744312	1	09/22/21 17:02	09/22/21 17:02	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1745346	1	09/24/21 12:24	09/24/21 12:24	ACG	Mt. Juliet, TN

215-MW-12-091521 L1405623-19 GW

Collected by: HN/DC | Collected date/time: 09/15/21 13:12 | Received date/time: 09/18/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1744312	1	09/22/21 18:24	09/22/21 18:24	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1748087	1	09/29/21 06:33	09/30/21 13:32	WCR	Mt. Juliet, TN

215-MW-08-091521 L1405623-20 GW

Collected by: HN/DC | Collected date/time: 09/15/21 14:20 | Received date/time: 09/18/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1745346	1	09/24/21 13:49	09/24/21 13:49	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1747347	1	09/28/21 15:44	09/28/21 15:44	BMB	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1746498	1	09/26/21 21:23	09/28/21 00:43	DMG	Mt. Juliet, TN

215-MW-09-091521 L1405623-21 GW

Collected by: HN/DC | Collected date/time: 09/15/21 15:11 | Received date/time: 09/18/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1745346	1	09/24/21 14:10	09/24/21 14:10	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1746498	1	09/26/21 21:23	09/28/21 04:25	DMG	Mt. Juliet, TN

066-MW-06-091521 L1405623-22 GW

Collected by: HN/DC | Collected date/time: 09/15/21 16:28 | Received date/time: 09/18/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1744312	1	09/22/21 19:25	09/22/21 19:25	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1746498	1	09/26/21 21:23	09/28/21 04:52	DMG	Mt. Juliet, TN

066-MW-07-091521 L1405623-23 GW

Collected by: HN/DC | Collected date/time: 09/15/21 18:45 | Received date/time: 09/18/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1744312	1	09/22/21 19:46	09/22/21 19:46	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1746498	1	09/26/21 21:23	09/28/21 05:18	DMG	Mt. Juliet, TN

066-MW-04-091521 L1405623-24 GW

Collected by: HN/DC | Collected date/time: 09/15/21 19:32 | Received date/time: 09/18/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1744312	1	09/22/21 20:06	09/22/21 20:06	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1746498	1	09/26/21 21:23	09/28/21 05:44	DMG	Mt. Juliet, TN

066-MW-07-091521-DUP L1405623-25 GW

Collected by: HN/DC
Collected date/time: 09/15/21 18:45
Received date/time: 09/18/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1744312	1	09/22/21 20:27	09/22/21 20:27	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1748087	1	09/29/21 06:33	09/30/21 14:32	WCR	Mt. Juliet, TN

066-MW-05-091521 L1405623-26 GW

Collected by: HN/DC
Collected date/time: 09/15/21 20:20
Received date/time: 09/18/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1745346	1	09/24/21 15:57	09/24/21 15:57	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1748087	1	09/29/21 06:33	09/30/21 14:52	WCR	Mt. Juliet, TN

Unless qualified or notated within the narrative below, all sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Jared Starkey
Project Manager

Report Revision History

Level II Report - Version 1: 10/05/21 19:13
Level IV Report - Version 2: 10/11/21 13:30
Level II Report - Version 3: 11/11/21 09:51
Level IV Report - Version 4: 11/11/21 10:14
Level II Report - Version 5: 02/03/22 14:23
Level IV Report - Version 6: 02/03/22 14:31
Level II Report - Version 7: 03/08/22 16:08
Level IV Report - Version 8: 03/08/22 16:24

Project Comments

ERPIMS
BTEX -19 through -26

Sample Delivery Group (SDG) Narrative

The following samples were prepared and/or analyzed past recommended holding time. Concentrations should be considered minimum values.

Batch	Method	Lab Sample ID
WG1747089	8260D	L1405623-01

Analyzed from headspace vial.

Batch	Method	Lab Sample ID
WG1745346	8260D	L1405623-16, 17, 18
WG1747347	8260D	L1405623-16, 17

Wet Chemistry by Method 351.2

The sample matrix interfered with the ability to make any accurate determination; spike value is high.

Batch	Lab Sample ID	Analytes
WG1746199	(MS) R3710250-7	Kjeldahl Nitrogen, TKN

Metals (ICP) by Method 6010D

The same analyte is found in the associated blank.

Batch	Analyte	Lab Sample ID
WG1745399	Manganese	L1405623-04, 05, 13

The sample concentration is too high to evaluate accurate spike recoveries.

Batch	Lab Sample ID	Analytes
WG1745399	(MS) R3709125-4, (MSD) R3709125-5	Manganese

Volatile Organic Compounds (GC/MS) by Method 8260D

The reported concentration is an estimate. The continuing calibration standard associated with this data responded low. Data is likely to show a low bias concerning the result.

Batch	Lab Sample ID	Analytes
WG1747768	L1405623-15	Acrolein

Surrogate recovery limits have been exceeded; values are outside upper control limits.

Batch	Analyte	Lab Sample ID
WG1744312	1,2-Dichloroethane-d4	(MSD) R3707832-5

Surrogate recovery limits have been exceeded; values are outside lower control limits.

Batch	Analyte	Lab Sample ID
WG1744312	4-Bromofluorobenzene	L1405623-18

The associated batch QC was above the established quality control range for accuracy.

Batch	Lab Sample ID	Analytes
WG1745346	(LCS) R3709169-1, L1405623-16, 17, 18	Trichloroethene
WG1747768	(LCS) R3709865-1, (LCSD) R3709865-3, L1405623-15	1,1-Dichloroethane, 1,2-Dichloropropane, Chloroethane and Di-isopropyl ether

The associated batch QC was outside the established quality control range for precision.

Batch	Lab Sample ID	Analytes
WG1745346	(LCSD) R3709169-2, L1405623-16, 17, 18	Naphthalene
WG1747089	(LCSD) R3710660-2, L1405623-01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13, 14	Acrolein

The sample matrix interfered with the ability to make any accurate determination; spike value is high.

Batch	Lab Sample ID	Analytes
WG1747768	(MS) R3709865-4, (MSD) R3709865-5, L1405623-15	51 analytes

The associated batch QC was outside the established quality control range for precision.

Batch	Lab Sample ID	Analytes
WG1747768	(MSD) R3709865-5, L1405623-15	Acrolein and p-Isopropyltoluene

Semi-Volatile Organic Compounds (GC) by Method 8015

The same analyte is found in the associated blank.

Batch	Analyte	Lab Sample ID
WG1744295	TPH (GC/FID) High Fraction	L1405623-01, 02, 03, 04, 05, 06

The sample concentration is too high to evaluate accurate spike recoveries.

Batch	Lab Sample ID	Analytes
WG1746498	(MS) R3709282-3, (MSD) R3709282-4, L1405623-15	TPH (GC/FID) High Fraction

DETECTION SUMMARY

Wet Chemistry by Method 2320 B-2011

Client ID	Lab Sample ID	Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
				ug/l		ug/l	ug/l	ug/l		date / time	
GLO-MW04-091221	L1405623-01	Alkalinity		63700		8450	10000	20000	1	09/26/2021 18:18	WG1746766
GLO-MW04-091221	L1405623-01	Alkalinity,Bicarbonate		63700		8450	10000	20000	1	09/26/2021 18:18	WG1746766
DSA-MW06-091321	L1405623-02	Alkalinity		77200		8450	10000	20000	1	09/26/2021 18:22	WG1746766
DSA-MW06-091321	L1405623-02	Alkalinity,Bicarbonate		77200		8450	10000	20000	1	09/26/2021 18:22	WG1746766
DSA-MW07-091321	L1405623-03	Alkalinity		103000		8450	10000	20000	1	09/26/2021 18:25	WG1746766
DSA-MW07-091321	L1405623-03	Alkalinity,Bicarbonate		103000		8450	10000	20000	1	09/26/2021 18:25	WG1746766
RRS-MW05-091321	L1405623-04	Alkalinity		59600		8450	10000	20000	1	09/26/2021 18:30	WG1746766
RRS-MW05-091321	L1405623-04	Alkalinity,Bicarbonate		59600		8450	10000	20000	1	09/26/2021 18:30	WG1746766
RRS-MW06-091321	L1405623-05	Alkalinity		117000		8450	10000	20000	1	09/26/2021 18:39	WG1746766
RRS-MW06-091321	L1405623-05	Alkalinity,Bicarbonate		117000		8450	10000	20000	1	09/26/2021 18:39	WG1746766
DSA-MW06-091321-DUP	L1405623-06	Alkalinity		75500		8450	10000	20000	1	09/26/2021 18:43	WG1746766
DSA-MW06-091321-DUP	L1405623-06	Alkalinity,Bicarbonate		75500		8450	10000	20000	1	09/26/2021 18:43	WG1746766
BLO-MW05-091421	L1405623-07	Alkalinity		66100		8450	10000	20000	1	09/26/2021 18:46	WG1746766
BLO-MW05-091421	L1405623-07	Alkalinity,Bicarbonate		66100		8450	10000	20000	1	09/26/2021 18:46	WG1746766
BLO-MW06-091421	L1405623-08	Alkalinity		45200		8450	10000	20000	1	09/26/2021 18:49	WG1746766
BLO-MW06-091421	L1405623-08	Alkalinity,Bicarbonate		45200		8450	10000	20000	1	09/26/2021 18:49	WG1746766
BLO-MW07-091421	L1405623-09	Alkalinity		52800		8450	10000	20000	1	09/26/2021 18:53	WG1746766
BLO-MW07-091421	L1405623-09	Alkalinity,Bicarbonate		52800		8450	10000	20000	1	09/26/2021 18:53	WG1746766
BLO-MW07-091421-DUP	L1405623-10	Alkalinity		52800		8450	10000	20000	1	09/27/2021 13:28	WG1746888
BLO-MW07-091421-DUP	L1405623-10	Alkalinity,Bicarbonate		52800		8450	10000	20000	1	09/27/2021 13:28	WG1746888
DSA-MW05-091421	L1405623-11	Alkalinity		74600		8450	10000	20000	1	09/27/2021 13:31	WG1746888
DSA-MW05-091421	L1405623-11	Alkalinity,Bicarbonate		74600		8450	10000	20000	1	09/27/2021 13:31	WG1746888
DSA-MW05-091421-DUP	L1405623-12	Alkalinity		74800		8450	10000	20000	1	09/27/2021 13:34	WG1746888
DSA-MW05-091421-DUP	L1405623-12	Alkalinity,Bicarbonate		74800		8450	10000	20000	1	09/27/2021 13:34	WG1746888
DSA-MW01-091421	L1405623-13	Alkalinity		97500		8450	10000	20000	1	09/27/2021 13:38	WG1746888
DSA-MW01-091421	L1405623-13	Alkalinity,Bicarbonate		97500		8450	10000	20000	1	09/27/2021 13:38	WG1746888
DSA-MW02-091421	L1405623-14	Alkalinity		135000		8450	10000	20000	1	09/27/2021 13:42	WG1746888
DSA-MW02-091421	L1405623-14	Alkalinity,Bicarbonate		135000		8450	10000	20000	1	09/27/2021 13:42	WG1746888
BLO-MW01-091421	L1405623-15	Alkalinity		966000		8450	10000	20000	1	09/27/2021 14:10	WG1746888
BLO-MW01-091421	L1405623-15	Alkalinity,Bicarbonate		966000		8450	10000	20000	1	09/27/2021 14:10	WG1746888

Wet Chemistry by Method 300.0

Client ID	Lab Sample ID	Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
				ug/l		ug/l	ug/l	ug/l		date / time	
GLO-MW04-091221	L1405623-01	Sulfate	14808-79-8	3490	J	594	2500	5000	1	09/26/2021 23:01	WG1746883
DSA-MW06-091321	L1405623-02	Sulfate	14808-79-8	4630	J	594	2500	5000	1	09/26/2021 23:33	WG1746883
DSA-MW07-091321	L1405623-03	Sulfate	14808-79-8	3270	J	594	2500	5000	1	09/27/2021 00:06	WG1746883
RRS-MW05-091321	L1405623-04	Sulfate	14808-79-8	2870	J	594	2500	5000	1	09/27/2021 00:23	WG1746883
RRS-MW06-091321	L1405623-05	Sulfate	14808-79-8	4120	J	594	2500	5000	1	09/27/2021 00:39	WG1746883
DSA-MW06-091321-DUP	L1405623-06	Sulfate	14808-79-8	4670	J	594	2500	5000	1	09/27/2021 00:55	WG1746883
BLO-MW05-091421	L1405623-07	Sulfate	14808-79-8	2620	J	594	2500	5000	1	09/27/2021 01:45	WG1746883
BLO-MW06-091421	L1405623-08	Sulfate	14808-79-8	3620	J	594	2500	5000	1	09/27/2021 02:01	WG1746883
BLO-MW07-091421	L1405623-09	Sulfate	14808-79-8	2610	J	594	2500	5000	1	09/27/2021 02:18	WG1746883
BLO-MW07-091421-DUP	L1405623-10	Sulfate	14808-79-8	2590	J	594	2500	5000	1	09/27/2021 02:34	WG1746883
DSA-MW05-091421	L1405623-11	Sulfate	14808-79-8	11200		594	2500	5000	1	09/27/2021 02:50	WG1746883
DSA-MW05-091421-DUP	L1405623-12	Sulfate	14808-79-8	10900		594	2500	5000	1	09/27/2021 03:07	WG1746883
DSA-MW01-091421	L1405623-13	Sulfate	14808-79-8	5670		594	2500	5000	1	09/27/2021 03:23	WG1746883
DSA-MW02-091421	L1405623-14	Sulfate	14808-79-8	7940		594	2500	5000	1	09/27/2021 03:40	WG1746883

Wet Chemistry by Method 300.0

Client ID	Lab Sample ID	Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
				ug/l		ug/l	ug/l	ug/l		date / time	
BLO-MW01-091421	L1405623-15	Sulfate	14808-79-8	2590	J	594	2500	5000	1	09/27/2021 03:56	WG1746883

Wet Chemistry by Method 351.2

Client ID	Lab Sample ID	Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
				ug/l		ug/l	ug/l	ug/l		date / time	
BLO-MW01-091421	L1405623-15	Kjeldahl Nitrogen, TKN	7727-37-9	660		140	150	250	1	09/29/2021 14:07	WG1746199

Wet Chemistry by Method 353.2

Client ID	Lab Sample ID	Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
				ug/l		ug/l	ug/l	ug/l		date / time	
GLO-MW04-091221	L1405623-01	Nitrate-Nitrite	7727-37-9	275		50.0	50.0	100	1	09/28/2021 17:05	WG1747087
DSA-MW07-091321	L1405623-03	Nitrate-Nitrite	7727-37-9	66.1	J	50.0	50.0	100	1	09/28/2021 17:07	WG1747087
RRS-MW05-091321	L1405623-04	Nitrate-Nitrite	7727-37-9	52.7	J	50.0	50.0	100	1	09/28/2021 17:12	WG1747087
RRS-MW06-091321	L1405623-05	Nitrate-Nitrite	7727-37-9	947		50.0	50.0	100	1	09/28/2021 17:14	WG1747087
BLO-MW05-091421	L1405623-07	Nitrate-Nitrite	7727-37-9	1130		50.0	50.0	100	1	09/28/2021 17:16	WG1747087
BLO-MW06-091421	L1405623-08	Nitrate-Nitrite	7727-37-9	81.6	J	50.0	50.0	100	1	09/28/2021 17:18	WG1747087
BLO-MW07-091421	L1405623-09	Nitrate-Nitrite	7727-37-9	63.4	J	50.0	50.0	100	1	09/28/2021 17:19	WG1747087
BLO-MW07-091421-DUP	L1405623-10	Nitrate-Nitrite	7727-37-9	67.8	J	50.0	50.0	100	1	09/28/2021 17:20	WG1747087
DSA-MW01-091421	L1405623-13	Nitrate-Nitrite	7727-37-9	929		50.0	50.0	100	1	09/28/2021 17:24	WG1747087
DSA-MW02-091421	L1405623-14	Nitrate-Nitrite	7727-37-9	1950		50.0	50.0	100	1	09/28/2021 17:29	WG1747087

Metals (ICP) by Method 6010D

Client ID	Lab Sample ID	Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
				ug/l		ug/l	ug/l	ug/l		date / time	
GLO-MW04-091221	L1405623-01	Iron	7439-89-6	1680		20.5	50.0	100	1	09/27/2021 03:46	WG1745399
GLO-MW04-091221	L1405623-01	Manganese	7439-96-5	62.9		0.855	5.00	10.0	1	09/27/2021 03:46	WG1745399
DSA-MW06-091321	L1405623-02	Iron	7439-89-6	2890		20.5	50.0	100	1	09/27/2021 03:48	WG1745399
DSA-MW06-091321	L1405623-02	Manganese	7439-96-5	473		0.855	5.00	10.0	1	09/27/2021 03:48	WG1745399
DSA-MW07-091321	L1405623-03	Iron	7439-89-6	50000		20.5	50.0	100	1	09/27/2021 03:51	WG1745399
DSA-MW07-091321	L1405623-03	Manganese	7439-96-5	2000		0.855	5.00	10.0	1	09/27/2021 03:51	WG1745399
RRS-MW05-091321	L1405623-04	Iron	7439-89-6	1170		20.5	50.0	100	1	09/27/2021 03:54	WG1745399
RRS-MW05-091321	L1405623-04	Manganese	7439-96-5	14.3	B	0.855	5.00	10.0	1	09/27/2021 03:54	WG1745399
RRS-MW06-091321	L1405623-05	Iron	7439-89-6	285		20.5	50.0	100	1	09/27/2021 03:56	WG1745399
RRS-MW06-091321	L1405623-05	Manganese	7439-96-5	5.92	B J	0.855	5.00	10.0	1	09/27/2021 03:56	WG1745399
DSA-MW06-091321-DUP	L1405623-06	Iron	7439-89-6	2710		20.5	50.0	100	1	09/27/2021 03:59	WG1745399
DSA-MW06-091321-DUP	L1405623-06	Manganese	7439-96-5	471		0.855	5.00	10.0	1	09/27/2021 03:59	WG1745399
BLO-MW05-091421	L1405623-07	Iron	7439-89-6	14300		20.5	50.0	100	1	09/27/2021 04:02	WG1745399
BLO-MW05-091421	L1405623-07	Manganese	7439-96-5	354		0.855	5.00	10.0	1	09/27/2021 04:02	WG1745399
BLO-MW06-091421	L1405623-08	Iron	7439-89-6	34000		20.5	50.0	100	1	09/27/2021 04:04	WG1745399
BLO-MW06-091421	L1405623-08	Manganese	7439-96-5	622		0.855	5.00	10.0	1	09/27/2021 04:04	WG1745399
BLO-MW07-091421	L1405623-09	Iron	7439-89-6	7730		20.5	50.0	100	1	09/27/2021 04:07	WG1745399
BLO-MW07-091421	L1405623-09	Manganese	7439-96-5	164		0.855	5.00	10.0	1	09/27/2021 04:07	WG1745399
BLO-MW07-091421-DUP	L1405623-10	Iron	7439-89-6	12100		20.5	50.0	100	1	09/27/2021 04:15	WG1745399
BLO-MW07-091421-DUP	L1405623-10	Manganese	7439-96-5	219		0.855	5.00	10.0	1	09/27/2021 04:15	WG1745399
DSA-MW05-091421	L1405623-11	Iron	7439-89-6	3670		20.5	50.0	100	1	09/27/2021 04:17	WG1745399
DSA-MW05-091421	L1405623-11	Manganese	7439-96-5	130		0.855	5.00	10.0	1	09/27/2021 04:17	WG1745399

DETECTION SUMMARY

Metals (ICP) by Method 6010D

Client ID	Lab Sample ID	Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
				ug/l		ug/l	ug/l	ug/l		date / time	
DSA-MW05-091421-DUP	L1405623-12	Iron	7439-89-6	2100		20.5	50.0	100	1	09/27/2021 04:20	WG1745399
DSA-MW05-091421-DUP	L1405623-12	Manganese	7439-96-5	85.8		0.855	5.00	10.0	1	09/27/2021 04:20	WG1745399
DSA-MW01-091421	L1405623-13	Iron	7439-89-6	215		20.5	50.0	100	1	09/27/2021 04:23	WG1745399
DSA-MW01-091421	L1405623-13	Manganese	7439-96-5	9.45	B J	0.855	5.00	10.0	1	09/27/2021 04:23	WG1745399
DSA-MW02-091421	L1405623-14	Iron	7439-89-6	2010		20.5	50.0	100	1	09/27/2021 04:26	WG1745399
DSA-MW02-091421	L1405623-14	Manganese	7439-96-5	39.7		0.855	5.00	10.0	1	09/27/2021 04:26	WG1745399
BLO-MW01-091421	L1405623-15	Iron	7439-89-6	3550		20.5	50.0	100	1	09/27/2021 03:15	WG1745399
BLO-MW01-091421	L1405623-15	Manganese	7439-96-5	12600		4.28	25.0	50.0	5	09/27/2021 19:29	WG1745399

Volatile Organic Compounds (GC/MS) by Method 8260D

Client ID	Lab Sample ID	Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
				ug/l		ug/l	ug/l	ug/l		date / time	
DSA-MW06-091321	L1405623-02	Trichlorofluoromethane	75-69-4	0.707	J	0.160	2.00	5.00	1	09/26/2021 19:38	WG1746600
DSA-MW06-091321-DUP	L1405623-06	Trichlorofluoromethane	75-69-4	0.753	J	0.160	2.00	5.00	1	09/26/2021 21:00	WG1746600
DSA-MW05-091421	L1405623-11	1,2-Dichloroethane	107-06-2	0.102	J	0.0819	0.500	1.00	1	09/26/2021 22:43	WG1746600
DSA-MW05-091421	L1405623-11	Trichloroethene	79-01-6	4.00		0.190	0.500	1.00	1	09/27/2021 17:10	WG1747089
DSA-MW05-091421-DUP	L1405623-12	1,2-Dichloroethane	107-06-2	0.153	J	0.0819	0.500	1.00	1	09/26/2021 23:03	WG1746600
DSA-MW05-091421-DUP	L1405623-12	Trichloroethene	79-01-6	4.27		0.190	0.500	1.00	1	09/27/2021 17:29	WG1747089
DSA-MW01-091421	L1405623-13	Trichloroethene	79-01-6	8.11		0.190	0.500	1.00	1	09/27/2021 17:48	WG1747089
DSA-MW02-091421	L1405623-14	1,1,1-Trichloroethane	71-55-6	1.09	J	0.745	2.50	5.00	5	09/27/2021 18:08	WG1747089
DSA-MW02-091421	L1405623-14	Trichloroethene	79-01-6	407		0.950	2.50	5.00	5	09/27/2021 18:08	WG1747089
BLO-MW01-091421	L1405623-15	Benzene	71-43-2	1.42	J5	0.0941	0.500	1.00	1	09/28/2021 13:50	WG1747768
BLO-MW01-091421	L1405623-15	n-Butylbenzene	104-51-8	0.632	J	0.157	0.500	1.00	1	09/28/2021 13:50	WG1747768
BLO-MW01-091421	L1405623-15	sec-Butylbenzene	135-98-8	0.147	J J5	0.125	0.500	1.00	1	09/28/2021 13:50	WG1747768
BLO-MW01-091421	L1405623-15	tert-Butylbenzene	98-06-6	0.698	J J5	0.127	0.500	1.00	1	09/28/2021 13:50	WG1747768
BLO-MW01-091421	L1405623-15	cis-1,2-Dichloroethene	156-59-2	9.81	J5	0.126	0.500	1.00	1	09/28/2021 13:50	WG1747768
BLO-MW01-091421	L1405623-15	Ethylbenzene	100-41-4	3.61	J5	0.137	0.500	1.00	1	09/28/2021 13:50	WG1747768
BLO-MW01-091421	L1405623-15	Isopropylbenzene	98-82-8	3.42	J5	0.105	0.500	1.00	1	09/28/2021 13:50	WG1747768
BLO-MW01-091421	L1405623-15	2-Butanone (MEK)	78-93-3	1.90	J J5	1.19	5.00	10.0	1	09/28/2021 13:50	WG1747768
BLO-MW01-091421	L1405623-15	Naphthalene	91-20-3	23.1		1.00	2.00	5.00	1	09/29/2021 12:27	WG1748148
BLO-MW01-091421	L1405623-15	n-Propylbenzene	103-65-1	0.871	J J5	0.0993	0.500	1.00	1	09/28/2021 13:50	WG1747768
BLO-MW01-091421	L1405623-15	Tetrachloroethene	127-18-4	0.306	J	0.300	0.500	1.00	1	09/28/2021 13:50	WG1747768
BLO-MW01-091421	L1405623-15	1,2,3-Trimethylbenzene	526-73-8	0.133	J J5	0.104	0.500	1.00	1	09/28/2021 13:50	WG1747768
BLO-MW01-091421	L1405623-15	1,2,4-Trimethylbenzene	95-63-6	0.346	J J5	0.322	0.500	1.00	1	09/28/2021 13:50	WG1747768
BLO-MW01-091421	L1405623-15	1,3,5-Trimethylbenzene	108-67-8	0.400	J J5	0.104	0.500	1.00	1	09/28/2021 13:50	WG1747768
BLO-MW01-091421	L1405623-15	Trichloroethene	79-01-6	5.31	J5	0.190	0.500	1.00	1	09/28/2021 13:50	WG1747768
BLO-MW01-091421	L1405623-15	Xylenes, Total	1330-20-7	2.35	J J5	0.174	1.50	3.00	1	09/28/2021 13:50	WG1747768
TB091221	L1405623-16	Benzene	71-43-2	0.110	J	0.0941	0.500	1.00	1	09/24/2021 11:41	WG1745346
215-MW-09-091521	L1405623-21	Xylenes, Total	1330-20-7	10.8		0.174	1.50	3.00	1	09/24/2021 14:10	WG1745346
066-MW-05-091521	L1405623-26	Ethylbenzene	100-41-4	0.334	J	0.137	0.500	1.00	1	09/24/2021 15:57	WG1745346
066-MW-05-091521	L1405623-26	Xylenes, Total	1330-20-7	0.352	J	0.174	1.50	3.00	1	09/24/2021 15:57	WG1745346

Semi-Volatile Organic Compounds (GC) by Method 8015

Client ID	Lab Sample ID	Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
				ug/l		ug/l	ug/l	ug/l		date / time	
GLO-MW04-091221	L1405623-01	TPH (GC/FID) High Fraction	68334-30-5	183	B	24.7	50.0	100	1	09/23/2021 10:46	WG1744295
DSA-MW06-091321	L1405623-02	TPH (GC/FID) High Fraction	68334-30-5	66.5	B J	24.7	50.0	100	1	09/23/2021 11:12	WG1744295
DSA-MW07-091321	L1405623-03	TPH (GC/FID) High Fraction	68334-30-5	93.6	B J	24.7	50.0	100	1	09/23/2021 11:38	WG1744295
RRS-MW05-091321	L1405623-04	TPH (GC/FID) High Fraction	68334-30-5	95.8	B J	24.7	50.0	100	1	09/23/2021 12:04	WG1744295

DETECTION SUMMARY

Semi-Volatile Organic Compounds (GC) by Method 8015

Client ID	Lab Sample ID	Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
				ug/l		ug/l	ug/l	ug/l		date / time	
RRS-MW06-091321	L1405623-05	TPH (GC/FID) High Fraction	68334-30-5	56.7	B J	24.7	50.0	100	1	09/23/2021 12:31	WG1744295
DSA-MW06-091321-DUP	L1405623-06	TPH (GC/FID) High Fraction	68334-30-5	72.0	B J	24.7	50.0	100	1	09/23/2021 12:57	WG1744295
BLO-MW01-091421	L1405623-15	TPH (GC/FID) High Fraction	68334-30-5	13000	V	247	500	1000	10	09/28/2021 08:19	WG1746498
215-MW-12-091521	L1405623-19	TPH (GC/FID) High Fraction	68334-30-5	125		24.7	50.0	100	1	09/30/2021 13:32	WG1748087
215-MW-08-091521	L1405623-20	TPH (GC/FID) High Fraction	68334-30-5	52.4	J	24.7	50.0	100	1	09/28/2021 00:43	WG1746498
215-MW-09-091521	L1405623-21	TPH (GC/FID) High Fraction	68334-30-5	3430		24.7	50.0	100	1	09/28/2021 04:25	WG1746498
066-MW-06-091521	L1405623-22	TPH (GC/FID) High Fraction	68334-30-5	48.1	J	24.7	50.0	100	1	09/28/2021 04:52	WG1746498
066-MW-04-091521	L1405623-24	TPH (GC/FID) High Fraction	68334-30-5	85.8	J	24.7	50.0	100	1	09/28/2021 05:44	WG1746498
066-MW-07-091521-DUP	L1405623-25	TPH (GC/FID) High Fraction	68334-30-5	171		24.7	50.0	100	1	09/30/2021 14:32	WG1748087
066-MW-05-091521	L1405623-26	TPH (GC/FID) High Fraction	68334-30-5	1290		24.7	50.0	100	1	09/30/2021 14:52	WG1748087

Additional Information - Results for field analyses are not accredited to ISO 17025

Analyte	Result	Units
Cooler#	1	
Cooler Temperature	0.4	Deg. C

Wet Chemistry by Method 2320 B-2011

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Alkalinity		63700		8450	10000	20000	1	09/26/2021 18:18	WG1746766
Alkalinity,Bicarbonate		63700		8450	10000	20000	1	09/26/2021 18:18	WG1746766
Alkalinity,Carbonate		10000	U	8450	10000	20000	1	09/26/2021 18:18	WG1746766
Alkalinity,Hydroxide		10000	U	8450	10000	20000	1	09/26/2021 18:18	WG1746766

Sample Narrative:

L1405623-01 WG1746766: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 300.0

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Sulfate	14808-79-8	3490	J	594	2500	5000	1	09/26/2021 23:01	WG1746883

Wet Chemistry by Method 351.2

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Kjeldahl Nitrogen, TKN	7727-37-9	150	U	140	150	250	1	09/29/2021 15:10	WG1748190

Wet Chemistry by Method 353.2

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Nitrate-Nitrite	7727-37-9	275		50.0	50.0	100	1	09/28/2021 17:05	WG1747087

Metals (ICP) by Method 6010D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Iron	7439-89-6	1680		20.5	50.0	100	1	09/27/2021 03:46	WG1745399
Manganese	7439-96-5	62.9		0.855	5.00	10.0	1	09/27/2021 03:46	WG1745399

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Acetone	67-64-1	25.0	U	11.3	25.0	50.0	1	09/26/2021 19:17	WG1746600
Acrolein	107-02-8	25.0	J3 T8 U	2.54	25.0	50.0	1	09/27/2021 13:58	WG1747089
Acrylonitrile	107-13-1	5.00	U	0.671	5.00	10.0	1	09/26/2021 19:17	WG1746600
Benzene	71-43-2	0.500	U	0.0941	0.500	1.00	1	09/26/2021 19:17	WG1746600
Bromobenzene	108-86-1	0.500	U	0.118	0.500	1.00	1	09/26/2021 19:17	WG1746600
Bromodichloromethane	75-27-4	0.500	U	0.136	0.500	1.00	1	09/26/2021 19:17	WG1746600
Bromoform	75-25-2	0.500	U	0.129	0.500	1.00	1	09/26/2021 19:17	WG1746600
Bromomethane	74-83-9	2.00	T8 U	0.605	2.00	5.00	1	09/27/2021 13:58	WG1747089
n-Butylbenzene	104-51-8	0.500	U	0.157	0.500	1.00	1	09/26/2021 19:17	WG1746600
sec-Butylbenzene	135-98-8	0.500	U	0.125	0.500	1.00	1	09/26/2021 19:17	WG1746600
tert-Butylbenzene	98-06-6	0.500	U	0.127	0.500	1.00	1	09/26/2021 19:17	WG1746600
Carbon tetrachloride	56-23-5	0.500	U	0.128	0.500	1.00	1	09/26/2021 19:17	WG1746600
Chlorobenzene	108-90-7	0.500	U	0.116	0.500	1.00	1	09/26/2021 19:17	WG1746600
Chlorodibromomethane	124-48-1	0.500	U	0.140	0.500	1.00	1	09/26/2021 19:17	WG1746600
Chloroethane	75-00-3	2.00	U	0.192	2.00	5.00	1	09/26/2021 19:17	WG1746600

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result ug/l	Qualifier	DL ug/l	LOD ug/l	LOQ ug/l	Dilution	Analysis date / time	Batch
Chloroform	67-66-3	2.00	U	0.111	2.00	5.00	1	09/26/2021 19:17	WG1746600
Chloromethane	74-87-3	1.00	U	0.960	1.00	2.50	1	09/26/2021 19:17	WG1746600
2-Chlorotoluene	95-49-8	0.500	U	0.106	0.500	1.00	1	09/26/2021 19:17	WG1746600
4-Chlorotoluene	106-43-4	0.500	U	0.114	0.500	1.00	1	09/26/2021 19:17	WG1746600
1,2-Dibromoethane	106-93-4	0.500	U	0.126	0.500	1.00	1	09/26/2021 19:17	WG1746600
1,2-Dibromo-3-Chloropropane	96-12-8	2.00	U	0.276	2.00	5.00	1	09/26/2021 19:17	WG1746600
Dibromomethane	74-95-3	0.500	U	0.122	0.500	1.00	1	09/26/2021 19:17	WG1746600
1,2-Dichlorobenzene	95-50-1	0.500	U	0.107	0.500	1.00	1	09/26/2021 19:17	WG1746600
1,3-Dichlorobenzene	541-73-1	0.500	U	0.110	0.500	1.00	1	09/26/2021 19:17	WG1746600
1,4-Dichlorobenzene	106-46-7	0.500	U	0.120	0.500	1.00	1	09/26/2021 19:17	WG1746600
Dichlorodifluoromethane	75-71-8	2.00	U	0.374	2.00	5.00	1	09/26/2021 19:17	WG1746600
1,1-Dichloroethane	75-34-3	0.500	U	0.100	0.500	1.00	1	09/26/2021 19:17	WG1746600
1,2-Dichloroethane	107-06-2	0.500	U	0.0819	0.500	1.00	1	09/26/2021 19:17	WG1746600
1,1-Dichloroethene	75-35-4	0.500	U	0.188	0.500	1.00	1	09/26/2021 19:17	WG1746600
cis-1,2-Dichloroethene	156-59-2	0.500	U	0.126	0.500	1.00	1	09/26/2021 19:17	WG1746600
trans-1,2-Dichloroethene	156-60-5	0.500	U	0.149	0.500	1.00	1	09/26/2021 19:17	WG1746600
1,2-Dichloropropane	78-87-5	0.500	U	0.149	0.500	1.00	1	09/26/2021 19:17	WG1746600
1,3-Dichloropropane	142-28-9	0.500	U	0.110	0.500	1.00	1	09/26/2021 19:17	WG1746600
2,2-Dichloropropane	594-20-7	0.500	U	0.161	0.500	1.00	1	09/26/2021 19:17	WG1746600
1,1-Dichloropropene	563-58-6	0.500	U	0.142	0.500	1.00	1	09/26/2021 19:17	WG1746600
cis-1,3-Dichloropropene	10061-01-5	0.500	U	0.111	0.500	1.00	1	09/26/2021 19:17	WG1746600
trans-1,3-Dichloropropene	10061-02-6	0.500	U	0.118	0.500	1.00	1	09/26/2021 19:17	WG1746600
Di-isopropyl ether	108-20-3	0.500	U	0.105	0.500	1.00	1	09/26/2021 19:17	WG1746600
Ethylbenzene	100-41-4	0.500	U	0.137	0.500	1.00	1	09/26/2021 19:17	WG1746600
Hexachloro-1,3-butadiene	87-68-3	0.500	T8 U	0.337	0.500	1.00	1	09/27/2021 13:58	WG1747089
Isopropylbenzene	98-82-8	0.500	U	0.105	0.500	1.00	1	09/26/2021 19:17	WG1746600
p-Isopropyltoluene	99-87-6	0.500	U	0.120	0.500	1.00	1	09/26/2021 19:17	WG1746600
2-Butanone (MEK)	78-93-3	5.00	U	1.19	5.00	10.0	1	09/26/2021 19:17	WG1746600
Methylene Chloride	75-09-2	2.00	U	0.430	2.00	5.00	1	09/26/2021 19:17	WG1746600
4-Methyl-2-pentanone (MIBK)	108-10-1	5.00	U	0.478	5.00	10.0	1	09/26/2021 19:17	WG1746600
Methyl tert-butyl ether	1634-04-4	0.500	U	0.101	0.500	1.00	1	09/26/2021 19:17	WG1746600
Naphthalene	91-20-3	2.00	U	1.00	2.00	5.00	1	09/26/2021 19:17	WG1746600
n-Propylbenzene	103-65-1	0.500	U	0.0993	0.500	1.00	1	09/26/2021 19:17	WG1746600
Styrene	100-42-5	0.500	U	0.118	0.500	1.00	1	09/26/2021 19:17	WG1746600
1,1,1,2-Tetrachloroethane	630-20-6	0.500	T8 U	0.147	0.500	1.00	1	09/27/2021 13:58	WG1747089
1,1,2,2-Tetrachloroethane	79-34-5	0.500	U	0.133	0.500	1.00	1	09/26/2021 19:17	WG1746600
Tetrachloroethene	127-18-4	0.500	U	0.300	0.500	1.00	1	09/26/2021 19:17	WG1746600
Toluene	108-88-3	0.500	U	0.278	0.500	1.00	1	09/26/2021 19:17	WG1746600
1,2,3-Trichlorobenzene	87-61-6	0.500	U	0.230	0.500	1.00	1	09/26/2021 19:17	WG1746600
1,2,4-Trichlorobenzene	120-82-1	0.500	T8 U	0.481	0.500	1.00	1	09/27/2021 13:58	WG1747089
1,2,3-Trimethylbenzene	526-73-8	0.500	U	0.104	0.500	1.00	1	09/26/2021 19:17	WG1746600
1,2,4-Trimethylbenzene	95-63-6	0.500	U	0.322	0.500	1.00	1	09/26/2021 19:17	WG1746600
1,3,5-Trimethylbenzene	108-67-8	0.500	U	0.104	0.500	1.00	1	09/26/2021 19:17	WG1746600
1,1,1-Trichloroethane	71-55-6	0.500	T8 U	0.149	0.500	1.00	1	09/27/2021 13:58	WG1747089
1,1,2-Trichloroethane	79-00-5	0.500	U	0.158	0.500	1.00	1	09/26/2021 19:17	WG1746600
Trichloroethene	79-01-6	0.500	T8 U	0.190	0.500	1.00	1	09/27/2021 13:58	WG1747089
Trichlorofluoromethane	75-69-4	2.00	U	0.160	2.00	5.00	1	09/26/2021 19:17	WG1746600
1,1,2-Trichlorotrifluoroethane	76-13-1	0.500	U	0.180	0.500	1.00	1	09/26/2021 19:17	WG1746600
1,2,3-Trichloropropane	96-18-4	1.00	U	0.237	1.00	2.50	1	09/26/2021 19:17	WG1746600
Vinyl chloride	75-01-4	0.500	U	0.234	0.500	1.00	1	09/26/2021 19:17	WG1746600
Xylenes, Total	1330-20-7	1.50	U	0.174	1.50	3.00	1	09/26/2021 19:17	WG1746600
(S) Toluene-d8	*2037-26-5*	*97.5*				*89.0-112*		*09/26/2021 19:17*	WG1746600
(S) Toluene-d8	*2037-26-5*	*103*				*89.0-112*		*09/27/2021 13:58*	WG1747089
(S) 4-Bromofluorobenzene	*460-00-4*	*88.7*				*85.0-114*		*09/26/2021 19:17*	WG1746600
(S) 4-Bromofluorobenzene	*460-00-4*	*101*				*85.0-114*		*09/27/2021 13:58*	WG1747089
(S) 1,2-Dichloroethane-d4	*17060-07-0*	*98.3*				*81.0-118*		*09/26/2021 19:17*	WG1746600

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
(S) 1,2-Dichloroethane-d4	*17060-07-0*	*103*				*81.0-118*		*09/27/2021 13:58*	WG1747089

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
TPH (GC/FID) High Fraction	68334-30-5	183	B	24.7	50.0	100	1	09/23/2021 10:46	WG1744295
(S) o-Terphenyl	*84-15-1*	*81.5*				*56.0-125*		*09/23/2021 10:46*	WG1744295

Additional Information - Results for field analyses are not accredited to ISO 17025

Analyte	Result	Units
Cooler#	1	
Cooler Temperature	0.4	Deg. C

Wet Chemistry by Method 2320 B-2011

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Alkalinity		77200		8450	10000	20000	1	09/26/2021 18:22	WG1746766
Alkalinity,Bicarbonate		77200		8450	10000	20000	1	09/26/2021 18:22	WG1746766
Alkalinity,Carbonate		10000	U	8450	10000	20000	1	09/26/2021 18:22	WG1746766
Alkalinity,Hydroxide		10000	U	8450	10000	20000	1	09/26/2021 18:22	WG1746766

Sample Narrative:
L1405623-02 WG1746766: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 300.0

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Sulfate	14808-79-8	4630	J	594	2500	5000	1	09/26/2021 23:33	WG1746883

Wet Chemistry by Method 351.2

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Kjeldahl Nitrogen, TKN	7727-37-9	150	U	140	150	250	1	09/29/2021 15:12	WG1748190

Wet Chemistry by Method 353.2

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Nitrate-Nitrite	7727-37-9	50.0	U	50.0	50.0	100	1	09/28/2021 17:06	WG1747087

Metals (ICP) by Method 6010D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Iron	7439-89-6	2890		20.5	50.0	100	1	09/27/2021 03:48	WG1745399
Manganese	7439-96-5	473		0.855	5.00	10.0	1	09/27/2021 03:48	WG1745399

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Acetone	67-64-1	25.0	U	11.3	25.0	50.0	1	09/26/2021 19:38	WG1746600
Acrolein	107-02-8	25.0	J3 U	2.54	25.0	50.0	1	09/27/2021 14:18	WG1747089
Acrylonitrile	107-13-1	5.00	U	0.671	5.00	10.0	1	09/26/2021 19:38	WG1746600
Benzene	71-43-2	0.500	U	0.0941	0.500	1.00	1	09/26/2021 19:38	WG1746600
Bromobenzene	108-86-1	0.500	U	0.118	0.500	1.00	1	09/26/2021 19:38	WG1746600
Bromodichloromethane	75-27-4	0.500	U	0.136	0.500	1.00	1	09/26/2021 19:38	WG1746600
Bromoform	75-25-2	0.500	U	0.129	0.500	1.00	1	09/26/2021 19:38	WG1746600
Bromomethane	74-83-9	2.00	U	0.605	2.00	5.00	1	09/27/2021 14:18	WG1747089
n-Butylbenzene	104-51-8	0.500	U	0.157	0.500	1.00	1	09/26/2021 19:38	WG1746600
sec-Butylbenzene	135-98-8	0.500	U	0.125	0.500	1.00	1	09/26/2021 19:38	WG1746600
tert-Butylbenzene	98-06-6	0.500	U	0.127	0.500	1.00	1	09/26/2021 19:38	WG1746600
Carbon tetrachloride	56-23-5	0.500	U	0.128	0.500	1.00	1	09/26/2021 19:38	WG1746600
Chlorobenzene	108-90-7	0.500	U	0.116	0.500	1.00	1	09/26/2021 19:38	WG1746600
Chlorodibromomethane	124-48-1	0.500	U	0.140	0.500	1.00	1	09/26/2021 19:38	WG1746600
Chloroethane	75-00-3	2.00	U	0.192	2.00	5.00	1	09/26/2021 19:38	WG1746600

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result ug/l	Qualifier	DL ug/l	LOD ug/l	LOQ ug/l	Dilution	Analysis date / time	Batch
Chloroform	67-66-3	2.00	U	0.111	2.00	5.00	1	09/26/2021 19:38	WG1746600
Chloromethane	74-87-3	1.00	U	0.960	1.00	2.50	1	09/26/2021 19:38	WG1746600
2-Chlorotoluene	95-49-8	0.500	U	0.106	0.500	1.00	1	09/26/2021 19:38	WG1746600
4-Chlorotoluene	106-43-4	0.500	U	0.114	0.500	1.00	1	09/26/2021 19:38	WG1746600
1,2-Dibromoethane	106-93-4	0.500	U	0.126	0.500	1.00	1	09/26/2021 19:38	WG1746600
1,2-Dibromo-3-Chloropropane	96-12-8	2.00	U	0.276	2.00	5.00	1	09/26/2021 19:38	WG1746600
Dibromomethane	74-95-3	0.500	U	0.122	0.500	1.00	1	09/26/2021 19:38	WG1746600
1,2-Dichlorobenzene	95-50-1	0.500	U	0.107	0.500	1.00	1	09/26/2021 19:38	WG1746600
1,3-Dichlorobenzene	541-73-1	0.500	U	0.110	0.500	1.00	1	09/26/2021 19:38	WG1746600
1,4-Dichlorobenzene	106-46-7	0.500	U	0.120	0.500	1.00	1	09/26/2021 19:38	WG1746600
Dichlorodifluoromethane	75-71-8	2.00	U	0.374	2.00	5.00	1	09/26/2021 19:38	WG1746600
1,1-Dichloroethane	75-34-3	0.500	U	0.100	0.500	1.00	1	09/26/2021 19:38	WG1746600
1,2-Dichloroethane	107-06-2	0.500	U	0.0819	0.500	1.00	1	09/26/2021 19:38	WG1746600
1,1-Dichloroethene	75-35-4	0.500	U	0.188	0.500	1.00	1	09/26/2021 19:38	WG1746600
cis-1,2-Dichloroethene	156-59-2	0.500	U	0.126	0.500	1.00	1	09/26/2021 19:38	WG1746600
trans-1,2-Dichloroethene	156-60-5	0.500	U	0.149	0.500	1.00	1	09/26/2021 19:38	WG1746600
1,2-Dichloropropane	78-87-5	0.500	U	0.149	0.500	1.00	1	09/26/2021 19:38	WG1746600
1,3-Dichloropropane	142-28-9	0.500	U	0.110	0.500	1.00	1	09/26/2021 19:38	WG1746600
2,2-Dichloropropane	594-20-7	0.500	U	0.161	0.500	1.00	1	09/26/2021 19:38	WG1746600
1,1-Dichloropropene	563-58-6	0.500	U	0.142	0.500	1.00	1	09/26/2021 19:38	WG1746600
cis-1,3-Dichloropropene	10061-01-5	0.500	U	0.111	0.500	1.00	1	09/26/2021 19:38	WG1746600
trans-1,3-Dichloropropene	10061-02-6	0.500	U	0.118	0.500	1.00	1	09/26/2021 19:38	WG1746600
Di-isopropyl ether	108-20-3	0.500	U	0.105	0.500	1.00	1	09/26/2021 19:38	WG1746600
Ethylbenzene	100-41-4	0.500	U	0.137	0.500	1.00	1	09/26/2021 19:38	WG1746600
Hexachloro-1,3-butadiene	87-68-3	0.500	U	0.337	0.500	1.00	1	09/27/2021 14:18	WG1747089
Isopropylbenzene	98-82-8	0.500	U	0.105	0.500	1.00	1	09/26/2021 19:38	WG1746600
p-Isopropyltoluene	99-87-6	0.500	U	0.120	0.500	1.00	1	09/26/2021 19:38	WG1746600
2-Butanone (MEK)	78-93-3	5.00	U	1.19	5.00	10.0	1	09/26/2021 19:38	WG1746600
Methylene Chloride	75-09-2	2.00	U	0.430	2.00	5.00	1	09/26/2021 19:38	WG1746600
4-Methyl-2-pentanone (MIBK)	108-10-1	5.00	U	0.478	5.00	10.0	1	09/26/2021 19:38	WG1746600
Methyl tert-butyl ether	1634-04-4	0.500	U	0.101	0.500	1.00	1	09/26/2021 19:38	WG1746600
Naphthalene	91-20-3	2.00	U	1.00	2.00	5.00	1	09/26/2021 19:38	WG1746600
n-Propylbenzene	103-65-1	0.500	U	0.0993	0.500	1.00	1	09/26/2021 19:38	WG1746600
Styrene	100-42-5	0.500	U	0.118	0.500	1.00	1	09/26/2021 19:38	WG1746600
1,1,1,2-Tetrachloroethane	630-20-6	0.500	U	0.147	0.500	1.00	1	09/27/2021 14:18	WG1747089
1,1,2,2-Tetrachloroethane	79-34-5	0.500	U	0.133	0.500	1.00	1	09/26/2021 19:38	WG1746600
Tetrachloroethene	127-18-4	0.500	U	0.300	0.500	1.00	1	09/26/2021 19:38	WG1746600
Toluene	108-88-3	0.500	U	0.278	0.500	1.00	1	09/26/2021 19:38	WG1746600
1,2,3-Trichlorobenzene	87-61-6	0.500	U	0.230	0.500	1.00	1	09/26/2021 19:38	WG1746600
1,2,4-Trichlorobenzene	120-82-1	0.500	U	0.481	0.500	1.00	1	09/27/2021 14:18	WG1747089
1,2,3-Trimethylbenzene	526-73-8	0.500	U	0.104	0.500	1.00	1	09/26/2021 19:38	WG1746600
1,2,4-Trimethylbenzene	95-63-6	0.500	U	0.322	0.500	1.00	1	09/26/2021 19:38	WG1746600
1,3,5-Trimethylbenzene	108-67-8	0.500	U	0.104	0.500	1.00	1	09/26/2021 19:38	WG1746600
1,1,1-Trichloroethane	71-55-6	0.500	U	0.149	0.500	1.00	1	09/27/2021 14:18	WG1747089
1,1,2-Trichloroethane	79-00-5	0.500	U	0.158	0.500	1.00	1	09/26/2021 19:38	WG1746600
Trichloroethene	79-01-6	0.500	U	0.190	0.500	1.00	1	09/27/2021 14:18	WG1747089
Trichlorofluoromethane	75-69-4	0.707	J	0.160	2.00	5.00	1	09/26/2021 19:38	WG1746600
1,1,2-Trichlorotrifluoroethane	76-13-1	0.500	U	0.180	0.500	1.00	1	09/26/2021 19:38	WG1746600
1,2,3-Trichloropropane	96-18-4	1.00	U	0.237	1.00	2.50	1	09/26/2021 19:38	WG1746600
Vinyl chloride	75-01-4	0.500	U	0.234	0.500	1.00	1	09/26/2021 19:38	WG1746600
Xylenes, Total	1330-20-7	1.50	U	0.174	1.50	3.00	1	09/26/2021 19:38	WG1746600
(S) Toluene-d8	*2037-26-5*	*101*				*89.0-112*		*09/26/2021 19:38*	WG1746600
(S) Toluene-d8	*2037-26-5*	*103*				*89.0-112*		*09/27/2021 14:18*	WG1747089
(S) 4-Bromofluorobenzene	*460-00-4*	*91.6*				*85.0-114*		*09/26/2021 19:38*	WG1746600
(S) 4-Bromofluorobenzene	*460-00-4*	*98.8*				*85.0-114*		*09/27/2021 14:18*	WG1747089
(S) 1,2-Dichloroethane-d4	*17060-07-0*	*97.9*				*81.0-118*		*09/26/2021 19:38*	WG1746600

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
(S) 1,2-Dichloroethane-d4	*17060-07-0*	*105*				*81.0-118*		*09/27/2021 14:18*	WG1747089

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
TPH (GC/FID) High Fraction	68334-30-5	66.5	B J	24.7	50.0	100	1	09/23/2021 11:12	WG1744295
(S) o-Terphenyl	*84-15-1*	*59.5*				*56.0-125*		*09/23/2021 11:12*	WG1744295

Additional Information - Results for field analyses are not accredited to ISO 17025

Analyte	Result	Units
Cooler#	1	
Cooler Temperature	0.4	Deg. C

Wet Chemistry by Method 2320 B-2011

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Alkalinity		103000		8450	10000	20000	1	09/26/2021 18:25	WG1746766
Alkalinity,Bicarbonate		103000		8450	10000	20000	1	09/26/2021 18:25	WG1746766
Alkalinity,Carbonate		10000	U	8450	10000	20000	1	09/26/2021 18:25	WG1746766
Alkalinity,Hydroxide		10000	U	8450	10000	20000	1	09/26/2021 18:25	WG1746766

Sample Narrative:

L1405623-03 WG1746766: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 300.0

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Sulfate	14808-79-8	3270	J	594	2500	5000	1	09/27/2021 00:06	WG1746883

Wet Chemistry by Method 351.2

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Kjeldahl Nitrogen, TKN	7727-37-9	150	U	140	150	250	1	09/29/2021 15:13	WG1748190

Wet Chemistry by Method 353.2

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Nitrate-Nitrite	7727-37-9	66.1	J	50.0	50.0	100	1	09/28/2021 17:07	WG1747087

Metals (ICP) by Method 6010D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Iron	7439-89-6	50000		20.5	50.0	100	1	09/27/2021 03:51	WG1745399
Manganese	7439-96-5	2000		0.855	5.00	10.0	1	09/27/2021 03:51	WG1745399

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Acetone	67-64-1	25.0	U	11.3	25.0	50.0	1	09/26/2021 19:58	WG1746600
Acrolein	107-02-8	25.0	J3 U	2.54	25.0	50.0	1	09/27/2021 14:37	WG1747089
Acrylonitrile	107-13-1	5.00	U	0.671	5.00	10.0	1	09/26/2021 19:58	WG1746600
Benzene	71-43-2	0.500	U	0.0941	0.500	1.00	1	09/26/2021 19:58	WG1746600
Bromobenzene	108-86-1	0.500	U	0.118	0.500	1.00	1	09/26/2021 19:58	WG1746600
Bromodichloromethane	75-27-4	0.500	U	0.136	0.500	1.00	1	09/26/2021 19:58	WG1746600
Bromoform	75-25-2	0.500	U	0.129	0.500	1.00	1	09/26/2021 19:58	WG1746600
Bromomethane	74-83-9	2.00	U	0.605	2.00	5.00	1	09/27/2021 14:37	WG1747089
n-Butylbenzene	104-51-8	0.500	U	0.157	0.500	1.00	1	09/26/2021 19:58	WG1746600
sec-Butylbenzene	135-98-8	0.500	U	0.125	0.500	1.00	1	09/26/2021 19:58	WG1746600
tert-Butylbenzene	98-06-6	0.500	U	0.127	0.500	1.00	1	09/26/2021 19:58	WG1746600
Carbon tetrachloride	56-23-5	0.500	U	0.128	0.500	1.00	1	09/26/2021 19:58	WG1746600
Chlorobenzene	108-90-7	0.500	U	0.116	0.500	1.00	1	09/26/2021 19:58	WG1746600
Chlorodibromomethane	124-48-1	0.500	U	0.140	0.500	1.00	1	09/26/2021 19:58	WG1746600
Chloroethane	75-00-3	2.00	U	0.192	2.00	5.00	1	09/26/2021 19:58	WG1746600

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result ug/l	Qualifier	DL ug/l	LOD ug/l	LOQ ug/l	Dilution	Analysis date / time	Batch
Chloroform	67-66-3	2.00	U	0.111	2.00	5.00	1	09/26/2021 19:58	WG1746600
Chloromethane	74-87-3	1.00	U	0.960	1.00	2.50	1	09/26/2021 19:58	WG1746600
2-Chlorotoluene	95-49-8	0.500	U	0.106	0.500	1.00	1	09/26/2021 19:58	WG1746600
4-Chlorotoluene	106-43-4	0.500	U	0.114	0.500	1.00	1	09/26/2021 19:58	WG1746600
1,2-Dibromoethane	106-93-4	0.500	U	0.126	0.500	1.00	1	09/26/2021 19:58	WG1746600
1,2-Dibromo-3-Chloropropane	96-12-8	2.00	U	0.276	2.00	5.00	1	09/26/2021 19:58	WG1746600
Dibromomethane	74-95-3	0.500	U	0.122	0.500	1.00	1	09/26/2021 19:58	WG1746600
1,2-Dichlorobenzene	95-50-1	0.500	U	0.107	0.500	1.00	1	09/26/2021 19:58	WG1746600
1,3-Dichlorobenzene	541-73-1	0.500	U	0.110	0.500	1.00	1	09/26/2021 19:58	WG1746600
1,4-Dichlorobenzene	106-46-7	0.500	U	0.120	0.500	1.00	1	09/26/2021 19:58	WG1746600
Dichlorodifluoromethane	75-71-8	2.00	U	0.374	2.00	5.00	1	09/26/2021 19:58	WG1746600
1,1-Dichloroethane	75-34-3	0.500	U	0.100	0.500	1.00	1	09/26/2021 19:58	WG1746600
1,2-Dichloroethane	107-06-2	0.500	U	0.0819	0.500	1.00	1	09/26/2021 19:58	WG1746600
1,1-Dichloroethene	75-35-4	0.500	U	0.188	0.500	1.00	1	09/26/2021 19:58	WG1746600
cis-1,2-Dichloroethene	156-59-2	0.500	U	0.126	0.500	1.00	1	09/26/2021 19:58	WG1746600
trans-1,2-Dichloroethene	156-60-5	0.500	U	0.149	0.500	1.00	1	09/26/2021 19:58	WG1746600
1,2-Dichloropropane	78-87-5	0.500	U	0.149	0.500	1.00	1	09/26/2021 19:58	WG1746600
1,3-Dichloropropane	142-28-9	0.500	U	0.110	0.500	1.00	1	09/26/2021 19:58	WG1746600
2,2-Dichloropropane	594-20-7	0.500	U	0.161	0.500	1.00	1	09/26/2021 19:58	WG1746600
1,1-Dichloropropene	563-58-6	0.500	U	0.142	0.500	1.00	1	09/26/2021 19:58	WG1746600
cis-1,3-Dichloropropene	10061-01-5	0.500	U	0.111	0.500	1.00	1	09/26/2021 19:58	WG1746600
trans-1,3-Dichloropropene	10061-02-6	0.500	U	0.118	0.500	1.00	1	09/26/2021 19:58	WG1746600
Di-isopropyl ether	108-20-3	0.500	U	0.105	0.500	1.00	1	09/26/2021 19:58	WG1746600
Ethylbenzene	100-41-4	0.500	U	0.137	0.500	1.00	1	09/26/2021 19:58	WG1746600
Hexachloro-1,3-butadiene	87-68-3	0.500	U	0.337	0.500	1.00	1	09/27/2021 14:37	WG1747089
Isopropylbenzene	98-82-8	0.500	U	0.105	0.500	1.00	1	09/26/2021 19:58	WG1746600
p-Isopropyltoluene	99-87-6	0.500	U	0.120	0.500	1.00	1	09/26/2021 19:58	WG1746600
2-Butanone (MEK)	78-93-3	5.00	U	1.19	5.00	10.0	1	09/26/2021 19:58	WG1746600
Methylene Chloride	75-09-2	2.00	U	0.430	2.00	5.00	1	09/26/2021 19:58	WG1746600
4-Methyl-2-pentanone (MIBK)	108-10-1	5.00	U	0.478	5.00	10.0	1	09/26/2021 19:58	WG1746600
Methyl tert-butyl ether	1634-04-4	0.500	U	0.101	0.500	1.00	1	09/26/2021 19:58	WG1746600
Naphthalene	91-20-3	2.00	U	1.00	2.00	5.00	1	09/26/2021 19:58	WG1746600
n-Propylbenzene	103-65-1	0.500	U	0.0993	0.500	1.00	1	09/26/2021 19:58	WG1746600
Styrene	100-42-5	0.500	U	0.118	0.500	1.00	1	09/26/2021 19:58	WG1746600
1,1,1,2-Tetrachloroethane	630-20-6	0.500	U	0.147	0.500	1.00	1	09/27/2021 14:37	WG1747089
1,1,2,2-Tetrachloroethane	79-34-5	0.500	U	0.133	0.500	1.00	1	09/26/2021 19:58	WG1746600
Tetrachloroethene	127-18-4	0.500	U	0.300	0.500	1.00	1	09/26/2021 19:58	WG1746600
Toluene	108-88-3	0.500	U	0.278	0.500	1.00	1	09/26/2021 19:58	WG1746600
1,2,3-Trichlorobenzene	87-61-6	0.500	U	0.230	0.500	1.00	1	09/26/2021 19:58	WG1746600
1,2,4-Trichlorobenzene	120-82-1	0.500	U	0.481	0.500	1.00	1	09/27/2021 14:37	WG1747089
1,2,3-Trimethylbenzene	526-73-8	0.500	U	0.104	0.500	1.00	1	09/26/2021 19:58	WG1746600
1,2,4-Trimethylbenzene	95-63-6	0.500	U	0.322	0.500	1.00	1	09/26/2021 19:58	WG1746600
1,3,5-Trimethylbenzene	108-67-8	0.500	U	0.104	0.500	1.00	1	09/26/2021 19:58	WG1746600
1,1,1-Trichloroethane	71-55-6	0.500	U	0.149	0.500	1.00	1	09/27/2021 14:37	WG1747089
1,1,2-Trichloroethane	79-00-5	0.500	U	0.158	0.500	1.00	1	09/26/2021 19:58	WG1746600
Trichloroethene	79-01-6	0.500	U	0.190	0.500	1.00	1	09/27/2021 14:37	WG1747089
Trichlorofluoromethane	75-69-4	2.00	U	0.160	2.00	5.00	1	09/26/2021 19:58	WG1746600
1,1,2-Trichlorotrifluoroethane	76-13-1	0.500	U	0.180	0.500	1.00	1	09/26/2021 19:58	WG1746600
1,2,3-Trichloropropane	96-18-4	1.00	U	0.237	1.00	2.50	1	09/26/2021 19:58	WG1746600
Vinyl chloride	75-01-4	0.500	U	0.234	0.500	1.00	1	09/26/2021 19:58	WG1746600
Xylenes, Total	1330-20-7	1.50	U	0.174	1.50	3.00	1	09/26/2021 19:58	WG1746600
(S) Toluene-d8	*2037-26-5*	*102*				*89.0-112*		*09/26/2021 19:58*	WG1746600
(S) Toluene-d8	*2037-26-5*	*104*				*89.0-112*		*09/27/2021 14:37*	WG1747089
(S) 4-Bromofluorobenzene	*460-00-4*	*87.9*				*85.0-114*		*09/26/2021 19:58*	WG1746600
(S) 4-Bromofluorobenzene	*460-00-4*	*99.3*				*85.0-114*		*09/27/2021 14:37*	WG1747089
(S) 1,2-Dichloroethane-d4	*17060-07-0*	*94.3*				*81.0-118*		*09/26/2021 19:58*	WG1746600

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
(S) 1,2-Dichloroethane-d4	*17060-07-0*	*103*				*81.0-118*		*09/27/2021 14:37*	WG1747089

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
TPH (GC/FID) High Fraction	68334-30-5	93.6	B J	24.7	50.0	100	1	09/23/2021 11:38	WG1744295
(S) o-Terphenyl	*84-15-1*	*70.0*				*56.0-125*		*09/23/2021 11:38*	WG1744295

Additional Information - Results for field analyses are not accredited to ISO 17025

Analyte	Result	Units
Cooler#	1	
Cooler Temperature	0.4	Deg. C

Wet Chemistry by Method 2320 B-2011

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Alkalinity		59600		8450	10000	20000	1	09/26/2021 18:30	WG1746766
Alkalinity,Bicarbonate		59600		8450	10000	20000	1	09/26/2021 18:30	WG1746766
Alkalinity,Carbonate		10000	U	8450	10000	20000	1	09/26/2021 18:30	WG1746766
Alkalinity,Hydroxide		10000	U	8450	10000	20000	1	09/26/2021 18:30	WG1746766

Sample Narrative:
L1405623-04 WG1746766: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 300.0

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Sulfate	14808-79-8	2870	J	594	2500	5000	1	09/27/2021 00:23	WG1746883

Wet Chemistry by Method 351.2

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Kjeldahl Nitrogen, TKN	7727-37-9	150	U	140	150	250	1	09/29/2021 15:17	WG1748190

Wet Chemistry by Method 353.2

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Nitrate-Nitrite	7727-37-9	52.7	J	50.0	50.0	100	1	09/28/2021 17:12	WG1747087

Metals (ICP) by Method 6010D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Iron	7439-89-6	1170		20.5	50.0	100	1	09/27/2021 03:54	WG1745399
Manganese	7439-96-5	14.3	B	0.855	5.00	10.0	1	09/27/2021 03:54	WG1745399

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Acetone	67-64-1	25.0	U	11.3	25.0	50.0	1	09/26/2021 20:19	WG1746600
Acrolein	107-02-8	25.0	J3 U	2.54	25.0	50.0	1	09/27/2021 14:56	WG1747089
Acrylonitrile	107-13-1	5.00	U	0.671	5.00	10.0	1	09/26/2021 20:19	WG1746600
Benzene	71-43-2	0.500	U	0.0941	0.500	1.00	1	09/26/2021 20:19	WG1746600
Bromobenzene	108-86-1	0.500	U	0.118	0.500	1.00	1	09/26/2021 20:19	WG1746600
Bromodichloromethane	75-27-4	0.500	U	0.136	0.500	1.00	1	09/26/2021 20:19	WG1746600
Bromoform	75-25-2	0.500	U	0.129	0.500	1.00	1	09/26/2021 20:19	WG1746600
Bromomethane	74-83-9	2.00	U	0.605	2.00	5.00	1	09/27/2021 14:56	WG1747089
n-Butylbenzene	104-51-8	0.500	U	0.157	0.500	1.00	1	09/26/2021 20:19	WG1746600
sec-Butylbenzene	135-98-8	0.500	U	0.125	0.500	1.00	1	09/26/2021 20:19	WG1746600
tert-Butylbenzene	98-06-6	0.500	U	0.127	0.500	1.00	1	09/26/2021 20:19	WG1746600
Carbon tetrachloride	56-23-5	0.500	U	0.128	0.500	1.00	1	09/26/2021 20:19	WG1746600
Chlorobenzene	108-90-7	0.500	U	0.116	0.500	1.00	1	09/26/2021 20:19	WG1746600
Chlorodibromomethane	124-48-1	0.500	U	0.140	0.500	1.00	1	09/26/2021 20:19	WG1746600
Chloroethane	75-00-3	2.00	U	0.192	2.00	5.00	1	09/26/2021 20:19	WG1746600

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result ug/l	Qualifier	DL ug/l	LOD ug/l	LOQ ug/l	Dilution	Analysis date / time	Batch
Chloroform	67-66-3	2.00	U	0.111	2.00	5.00	1	09/26/2021 20:19	WG1746600
Chloromethane	74-87-3	1.00	U	0.960	1.00	2.50	1	09/26/2021 20:19	WG1746600
2-Chlorotoluene	95-49-8	0.500	U	0.106	0.500	1.00	1	09/26/2021 20:19	WG1746600
4-Chlorotoluene	106-43-4	0.500	U	0.114	0.500	1.00	1	09/26/2021 20:19	WG1746600
1,2-Dibromoethane	106-93-4	0.500	U	0.126	0.500	1.00	1	09/26/2021 20:19	WG1746600
1,2-Dibromo-3-Chloropropane	96-12-8	2.00	U	0.276	2.00	5.00	1	09/26/2021 20:19	WG1746600
Dibromomethane	74-95-3	0.500	U	0.122	0.500	1.00	1	09/26/2021 20:19	WG1746600
1,2-Dichlorobenzene	95-50-1	0.500	U	0.107	0.500	1.00	1	09/26/2021 20:19	WG1746600
1,3-Dichlorobenzene	541-73-1	0.500	U	0.110	0.500	1.00	1	09/26/2021 20:19	WG1746600
1,4-Dichlorobenzene	106-46-7	0.500	U	0.120	0.500	1.00	1	09/26/2021 20:19	WG1746600
Dichlorodifluoromethane	75-71-8	2.00	U	0.374	2.00	5.00	1	09/26/2021 20:19	WG1746600
1,1-Dichloroethane	75-34-3	0.500	U	0.100	0.500	1.00	1	09/26/2021 20:19	WG1746600
1,2-Dichloroethane	107-06-2	0.500	U	0.0819	0.500	1.00	1	09/26/2021 20:19	WG1746600
1,1-Dichloroethene	75-35-4	0.500	U	0.188	0.500	1.00	1	09/26/2021 20:19	WG1746600
cis-1,2-Dichloroethene	156-59-2	0.500	U	0.126	0.500	1.00	1	09/26/2021 20:19	WG1746600
trans-1,2-Dichloroethene	156-60-5	0.500	U	0.149	0.500	1.00	1	09/26/2021 20:19	WG1746600
1,2-Dichloropropane	78-87-5	0.500	U	0.149	0.500	1.00	1	09/26/2021 20:19	WG1746600
1,3-Dichloropropane	142-28-9	0.500	U	0.110	0.500	1.00	1	09/26/2021 20:19	WG1746600
2,2-Dichloropropane	594-20-7	0.500	U	0.161	0.500	1.00	1	09/26/2021 20:19	WG1746600
1,1-Dichloropropene	563-58-6	0.500	U	0.142	0.500	1.00	1	09/26/2021 20:19	WG1746600
cis-1,3-Dichloropropene	10061-01-5	0.500	U	0.111	0.500	1.00	1	09/26/2021 20:19	WG1746600
trans-1,3-Dichloropropene	10061-02-6	0.500	U	0.118	0.500	1.00	1	09/26/2021 20:19	WG1746600
Di-isopropyl ether	108-20-3	0.500	U	0.105	0.500	1.00	1	09/26/2021 20:19	WG1746600
Ethylbenzene	100-41-4	0.500	U	0.137	0.500	1.00	1	09/26/2021 20:19	WG1746600
Hexachloro-1,3-butadiene	87-68-3	0.500	U	0.337	0.500	1.00	1	09/27/2021 14:56	WG1747089
Isopropylbenzene	98-82-8	0.500	U	0.105	0.500	1.00	1	09/26/2021 20:19	WG1746600
p-Isopropyltoluene	99-87-6	0.500	U	0.120	0.500	1.00	1	09/26/2021 20:19	WG1746600
2-Butanone (MEK)	78-93-3	5.00	U	1.19	5.00	10.0	1	09/26/2021 20:19	WG1746600
Methylene Chloride	75-09-2	2.00	U	0.430	2.00	5.00	1	09/26/2021 20:19	WG1746600
4-Methyl-2-pentanone (MIBK)	108-10-1	5.00	U	0.478	5.00	10.0	1	09/26/2021 20:19	WG1746600
Methyl tert-butyl ether	1634-04-4	0.500	U	0.101	0.500	1.00	1	09/26/2021 20:19	WG1746600
Naphthalene	91-20-3	2.00	U	1.00	2.00	5.00	1	09/26/2021 20:19	WG1746600
n-Propylbenzene	103-65-1	0.500	U	0.0993	0.500	1.00	1	09/26/2021 20:19	WG1746600
Styrene	100-42-5	0.500	U	0.118	0.500	1.00	1	09/26/2021 20:19	WG1746600
1,1,1,2-Tetrachloroethane	630-20-6	0.500	U	0.147	0.500	1.00	1	09/27/2021 14:56	WG1747089
1,1,2,2-Tetrachloroethane	79-34-5	0.500	U	0.133	0.500	1.00	1	09/26/2021 20:19	WG1746600
Tetrachloroethene	127-18-4	0.500	U	0.300	0.500	1.00	1	09/26/2021 20:19	WG1746600
Toluene	108-88-3	0.500	U	0.278	0.500	1.00	1	09/26/2021 20:19	WG1746600
1,2,3-Trichlorobenzene	87-61-6	0.500	U	0.230	0.500	1.00	1	09/26/2021 20:19	WG1746600
1,2,4-Trichlorobenzene	120-82-1	0.500	U	0.481	0.500	1.00	1	09/27/2021 14:56	WG1747089
1,2,3-Trimethylbenzene	526-73-8	0.500	U	0.104	0.500	1.00	1	09/26/2021 20:19	WG1746600
1,2,4-Trimethylbenzene	95-63-6	0.500	U	0.322	0.500	1.00	1	09/26/2021 20:19	WG1746600
1,3,5-Trimethylbenzene	108-67-8	0.500	U	0.104	0.500	1.00	1	09/26/2021 20:19	WG1746600
1,1,1-Trichloroethane	71-55-6	0.500	U	0.149	0.500	1.00	1	09/27/2021 14:56	WG1747089
1,1,2-Trichloroethane	79-00-5	0.500	U	0.158	0.500	1.00	1	09/26/2021 20:19	WG1746600
Trichloroethene	79-01-6	0.500	U	0.190	0.500	1.00	1	09/27/2021 14:56	WG1747089
Trichlorofluoromethane	75-69-4	2.00	U	0.160	2.00	5.00	1	09/26/2021 20:19	WG1746600
1,1,2-Trichlorotrifluoroethane	76-13-1	0.500	U	0.180	0.500	1.00	1	09/26/2021 20:19	WG1746600
1,2,3-Trichloropropane	96-18-4	1.00	U	0.237	1.00	2.50	1	09/26/2021 20:19	WG1746600
Vinyl chloride	75-01-4	0.500	U	0.234	0.500	1.00	1	09/26/2021 20:19	WG1746600
Xylenes, Total	1330-20-7	1.50	U	0.174	1.50	3.00	1	09/26/2021 20:19	WG1746600
(S) Toluene-d8	*2037-26-5*	*102*				*89.0-112*		*09/26/2021 20:19*	WG1746600
(S) Toluene-d8	*2037-26-5*	*104*				*89.0-112*		*09/27/2021 14:56*	WG1747089
(S) 4-Bromofluorobenzene	*460-00-4*	*93.9*				*85.0-114*		*09/26/2021 20:19*	WG1746600
(S) 4-Bromofluorobenzene	*460-00-4*	*101*				*85.0-114*		*09/27/2021 14:56*	WG1747089
(S) 1,2-Dichloroethane-d4	*17060-07-0*	*93.7*				*81.0-118*		*09/26/2021 20:19*	WG1746600

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
(S) 1,2-Dichloroethane-d4	*17060-07-0*	*101*				*81.0-118*		*09/27/2021 14:56*	WG1747089

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
TPH (GC/FID) High Fraction	68334-30-5	95.8	B J	24.7	50.0	100	1	09/23/2021 12:04	WG1744295
(S) o-Terphenyl	*84-15-1*	*72.0*				*56.0-125*		*09/23/2021 12:04*	WG1744295

Additional Information - Results for field analyses are not accredited to ISO 17025

Analyte	Result	Units
Cooler#	1	
Cooler Temperature	0.4	Deg. C

Wet Chemistry by Method 2320 B-2011

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Alkalinity		117000		8450	10000	20000	1	09/26/2021 18:39	WG1746766
Alkalinity,Bicarbonate		117000		8450	10000	20000	1	09/26/2021 18:39	WG1746766
Alkalinity,Carbonate		10000	U	8450	10000	20000	1	09/26/2021 18:39	WG1746766
Alkalinity,Hydroxide		10000	U	8450	10000	20000	1	09/26/2021 18:39	WG1746766

Sample Narrative:
L1405623-05 WG1746766: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 300.0

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Sulfate	14808-79-8	4120	J	594	2500	5000	1	09/27/2021 00:39	WG1746883

Wet Chemistry by Method 351.2

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Kjeldahl Nitrogen, TKN	7727-37-9	150	U	140	150	250	1	09/29/2021 15:19	WG1748190

Wet Chemistry by Method 353.2

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Nitrate-Nitrite	7727-37-9	947		50.0	50.0	100	1	09/28/2021 17:14	WG1747087

Metals (ICP) by Method 6010D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Iron	7439-89-6	285		20.5	50.0	100	1	09/27/2021 03:56	WG1745399
Manganese	7439-96-5	5.92	B J	0.855	5.00	10.0	1	09/27/2021 03:56	WG1745399

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Acetone	67-64-1	25.0	U	11.3	25.0	50.0	1	09/26/2021 20:39	WG1746600
Acrolein	107-02-8	25.0	J3 U	2.54	25.0	50.0	1	09/27/2021 15:15	WG1747089
Acrylonitrile	107-13-1	5.00	U	0.671	5.00	10.0	1	09/26/2021 20:39	WG1746600
Benzene	71-43-2	0.500	U	0.0941	0.500	1.00	1	09/26/2021 20:39	WG1746600
Bromobenzene	108-86-1	0.500	U	0.118	0.500	1.00	1	09/26/2021 20:39	WG1746600
Bromodichloromethane	75-27-4	0.500	U	0.136	0.500	1.00	1	09/26/2021 20:39	WG1746600
Bromoform	75-25-2	0.500	U	0.129	0.500	1.00	1	09/26/2021 20:39	WG1746600
Bromomethane	74-83-9	2.00	U	0.605	2.00	5.00	1	09/27/2021 15:15	WG1747089
n-Butylbenzene	104-51-8	0.500	U	0.157	0.500	1.00	1	09/26/2021 20:39	WG1746600
sec-Butylbenzene	135-98-8	0.500	U	0.125	0.500	1.00	1	09/26/2021 20:39	WG1746600
tert-Butylbenzene	98-06-6	0.500	U	0.127	0.500	1.00	1	09/26/2021 20:39	WG1746600
Carbon tetrachloride	56-23-5	0.500	U	0.128	0.500	1.00	1	09/26/2021 20:39	WG1746600
Chlorobenzene	108-90-7	0.500	U	0.116	0.500	1.00	1	09/26/2021 20:39	WG1746600
Chlorodibromomethane	124-48-1	0.500	U	0.140	0.500	1.00	1	09/26/2021 20:39	WG1746600
Chloroethane	75-00-3	2.00	U	0.192	2.00	5.00	1	09/26/2021 20:39	WG1746600

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result ug/l	Qualifier	DL ug/l	LOD ug/l	LOQ ug/l	Dilution	Analysis date / time	Batch
Chloroform	67-66-3	2.00	U	0.111	2.00	5.00	1	09/26/2021 20:39	WG1746600
Chloromethane	74-87-3	1.00	U	0.960	1.00	2.50	1	09/26/2021 20:39	WG1746600
2-Chlorotoluene	95-49-8	0.500	U	0.106	0.500	1.00	1	09/26/2021 20:39	WG1746600
4-Chlorotoluene	106-43-4	0.500	U	0.114	0.500	1.00	1	09/26/2021 20:39	WG1746600
1,2-Dibromoethane	106-93-4	0.500	U	0.126	0.500	1.00	1	09/26/2021 20:39	WG1746600
1,2-Dibromo-3-Chloropropane	96-12-8	2.00	U	0.276	2.00	5.00	1	09/26/2021 20:39	WG1746600
Dibromomethane	74-95-3	0.500	U	0.122	0.500	1.00	1	09/26/2021 20:39	WG1746600
1,2-Dichlorobenzene	95-50-1	0.500	U	0.107	0.500	1.00	1	09/26/2021 20:39	WG1746600
1,3-Dichlorobenzene	541-73-1	0.500	U	0.110	0.500	1.00	1	09/26/2021 20:39	WG1746600
1,4-Dichlorobenzene	106-46-7	0.500	U	0.120	0.500	1.00	1	09/26/2021 20:39	WG1746600
Dichlorodifluoromethane	75-71-8	2.00	U	0.374	2.00	5.00	1	09/26/2021 20:39	WG1746600
1,1-Dichloroethane	75-34-3	0.500	U	0.100	0.500	1.00	1	09/26/2021 20:39	WG1746600
1,2-Dichloroethane	107-06-2	0.500	U	0.0819	0.500	1.00	1	09/26/2021 20:39	WG1746600
1,1-Dichloroethene	75-35-4	0.500	U	0.188	0.500	1.00	1	09/26/2021 20:39	WG1746600
cis-1,2-Dichloroethene	156-59-2	0.500	U	0.126	0.500	1.00	1	09/26/2021 20:39	WG1746600
trans-1,2-Dichloroethene	156-60-5	0.500	U	0.149	0.500	1.00	1	09/26/2021 20:39	WG1746600
1,2-Dichloropropane	78-87-5	0.500	U	0.149	0.500	1.00	1	09/26/2021 20:39	WG1746600
1,3-Dichloropropane	142-28-9	0.500	U	0.110	0.500	1.00	1	09/26/2021 20:39	WG1746600
2,2-Dichloropropane	594-20-7	0.500	U	0.161	0.500	1.00	1	09/26/2021 20:39	WG1746600
1,1-Dichloropropene	563-58-6	0.500	U	0.142	0.500	1.00	1	09/26/2021 20:39	WG1746600
cis-1,3-Dichloropropene	10061-01-5	0.500	U	0.111	0.500	1.00	1	09/26/2021 20:39	WG1746600
trans-1,3-Dichloropropene	10061-02-6	0.500	U	0.118	0.500	1.00	1	09/26/2021 20:39	WG1746600
Di-isopropyl ether	108-20-3	0.500	U	0.105	0.500	1.00	1	09/26/2021 20:39	WG1746600
Ethylbenzene	100-41-4	0.500	U	0.137	0.500	1.00	1	09/26/2021 20:39	WG1746600
Hexachloro-1,3-butadiene	87-68-3	0.500	U	0.337	0.500	1.00	1	09/27/2021 15:15	WG1747089
Isopropylbenzene	98-82-8	0.500	U	0.105	0.500	1.00	1	09/26/2021 20:39	WG1746600
p-Isopropyltoluene	99-87-6	0.500	U	0.120	0.500	1.00	1	09/26/2021 20:39	WG1746600
2-Butanone (MEK)	78-93-3	5.00	U	1.19	5.00	10.0	1	09/26/2021 20:39	WG1746600
Methylene Chloride	75-09-2	2.00	U	0.430	2.00	5.00	1	09/26/2021 20:39	WG1746600
4-Methyl-2-pentanone (MIBK)	108-10-1	5.00	U	0.478	5.00	10.0	1	09/26/2021 20:39	WG1746600
Methyl tert-butyl ether	1634-04-4	0.500	U	0.101	0.500	1.00	1	09/26/2021 20:39	WG1746600
Naphthalene	91-20-3	2.00	U	1.00	2.00	5.00	1	09/26/2021 20:39	WG1746600
n-Propylbenzene	103-65-1	0.500	U	0.0993	0.500	1.00	1	09/26/2021 20:39	WG1746600
Styrene	100-42-5	0.500	U	0.118	0.500	1.00	1	09/26/2021 20:39	WG1746600
1,1,1,2-Tetrachloroethane	630-20-6	0.500	U	0.147	0.500	1.00	1	09/27/2021 15:15	WG1747089
1,1,2,2-Tetrachloroethane	79-34-5	0.500	U	0.133	0.500	1.00	1	09/26/2021 20:39	WG1746600
Tetrachloroethene	127-18-4	0.500	U	0.300	0.500	1.00	1	09/26/2021 20:39	WG1746600
Toluene	108-88-3	0.500	U	0.278	0.500	1.00	1	09/26/2021 20:39	WG1746600
1,2,3-Trichlorobenzene	87-61-6	0.500	U	0.230	0.500	1.00	1	09/26/2021 20:39	WG1746600
1,2,4-Trichlorobenzene	120-82-1	0.500	U	0.481	0.500	1.00	1	09/27/2021 15:15	WG1747089
1,2,3-Trimethylbenzene	526-73-8	0.500	U	0.104	0.500	1.00	1	09/26/2021 20:39	WG1746600
1,2,4-Trimethylbenzene	95-63-6	0.500	U	0.322	0.500	1.00	1	09/26/2021 20:39	WG1746600
1,3,5-Trimethylbenzene	108-67-8	0.500	U	0.104	0.500	1.00	1	09/26/2021 20:39	WG1746600
1,1,1-Trichloroethane	71-55-6	0.500	U	0.149	0.500	1.00	1	09/27/2021 15:15	WG1747089
1,1,2-Trichloroethane	79-00-5	0.500	U	0.158	0.500	1.00	1	09/26/2021 20:39	WG1746600
Trichloroethene	79-01-6	0.500	U	0.190	0.500	1.00	1	09/27/2021 15:15	WG1747089
Trichlorofluoromethane	75-69-4	2.00	U	0.160	2.00	5.00	1	09/26/2021 20:39	WG1746600
1,1,2-Trichlorotrifluoroethane	76-13-1	0.500	U	0.180	0.500	1.00	1	09/26/2021 20:39	WG1746600
1,2,3-Trichloropropane	96-18-4	1.00	U	0.237	1.00	2.50	1	09/26/2021 20:39	WG1746600
Vinyl chloride	75-01-4	0.500	U	0.234	0.500	1.00	1	09/26/2021 20:39	WG1746600
Xylenes, Total	1330-20-7	1.50	U	0.174	1.50	3.00	1	09/26/2021 20:39	WG1746600
(S) Toluene-d8	*2037-26-5*	*101*				*89.0-112*		*09/26/2021 20:39*	WG1746600
(S) Toluene-d8	*2037-26-5*	*103*				*89.0-112*		*09/27/2021 15:15*	WG1747089
(S) 4-Bromofluorobenzene	*460-00-4*	*89.1*				*85.0-114*		*09/26/2021 20:39*	WG1746600
(S) 4-Bromofluorobenzene	*460-00-4*	*99.3*				*85.0-114*		*09/27/2021 15:15*	WG1747089
(S) 1,2-Dichloroethane-d4	*17060-07-0*	*95.5*				*81.0-118*		*09/26/2021 20:39*	WG1746600

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
(S) 1,2-Dichloroethane-d4	*17060-07-0*	*102*				*81.0-118*		*09/27/2021 15:15*	WG1747089

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
TPH (GC/FID) High Fraction	68334-30-5	56.7	B J	24.7	50.0	100	1	09/23/2021 12:31	WG1744295
(S) o-Terphenyl	*84-15-1*	*68.4*				*56.0-125*		*09/23/2021 12:31*	WG1744295

Additional Information - Results for field analyses are not accredited to ISO 17025

Analyte	Result	Units
Cooler#	1	
Cooler Temperature	0.4	Deg. C

Wet Chemistry by Method 2320 B-2011

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Alkalinity		75500		8450	10000	20000	1	09/26/2021 18:43	WG1746766
Alkalinity,Bicarbonate		75500		8450	10000	20000	1	09/26/2021 18:43	WG1746766
Alkalinity,Carbonate		10000	U	8450	10000	20000	1	09/26/2021 18:43	WG1746766
Alkalinity,Hydroxide		10000	U	8450	10000	20000	1	09/26/2021 18:43	WG1746766

Sample Narrative:

L1405623-06 WG1746766: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 300.0

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Sulfate	14808-79-8	4670	J	594	2500	5000	1	09/27/2021 00:55	WG1746883

Wet Chemistry by Method 351.2

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Kjeldahl Nitrogen, TKN	7727-37-9	150	U	140	150	250	1	09/29/2021 15:20	WG1748190

Wet Chemistry by Method 353.2

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Nitrate-Nitrite	7727-37-9	50.0	U	50.0	50.0	100	1	09/28/2021 17:15	WG1747087

Metals (ICP) by Method 6010D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Iron	7439-89-6	2710		20.5	50.0	100	1	09/27/2021 03:59	WG1745399
Manganese	7439-96-5	471		0.855	5.00	10.0	1	09/27/2021 03:59	WG1745399

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Acetone	67-64-1	25.0	U	11.3	25.0	50.0	1	09/26/2021 21:00	WG1746600
Acrolein	107-02-8	25.0	J3 U	2.54	25.0	50.0	1	09/27/2021 15:34	WG1747089
Acrylonitrile	107-13-1	5.00	U	0.671	5.00	10.0	1	09/26/2021 21:00	WG1746600
Benzene	71-43-2	0.500	U	0.0941	0.500	1.00	1	09/26/2021 21:00	WG1746600
Bromobenzene	108-86-1	0.500	U	0.118	0.500	1.00	1	09/26/2021 21:00	WG1746600
Bromodichloromethane	75-27-4	0.500	U	0.136	0.500	1.00	1	09/26/2021 21:00	WG1746600
Bromoform	75-25-2	0.500	U	0.129	0.500	1.00	1	09/26/2021 21:00	WG1746600
Bromomethane	74-83-9	2.00	U	0.605	2.00	5.00	1	09/27/2021 15:34	WG1747089
n-Butylbenzene	104-51-8	0.500	U	0.157	0.500	1.00	1	09/26/2021 21:00	WG1746600
sec-Butylbenzene	135-98-8	0.500	U	0.125	0.500	1.00	1	09/26/2021 21:00	WG1746600
tert-Butylbenzene	98-06-6	0.500	U	0.127	0.500	1.00	1	09/26/2021 21:00	WG1746600
Carbon tetrachloride	56-23-5	0.500	U	0.128	0.500	1.00	1	09/26/2021 21:00	WG1746600
Chlorobenzene	108-90-7	0.500	U	0.116	0.500	1.00	1	09/26/2021 21:00	WG1746600
Chlorodibromomethane	124-48-1	0.500	U	0.140	0.500	1.00	1	09/26/2021 21:00	WG1746600
Chloroethane	75-00-3	2.00	U	0.192	2.00	5.00	1	09/26/2021 21:00	WG1746600

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Chloroform	67-66-3	2.00	U	0.111	2.00	5.00	1	09/26/2021 21:00	WG1746600
Chloromethane	74-87-3	1.00	U	0.960	1.00	2.50	1	09/26/2021 21:00	WG1746600
2-Chlorotoluene	95-49-8	0.500	U	0.106	0.500	1.00	1	09/26/2021 21:00	WG1746600
4-Chlorotoluene	106-43-4	0.500	U	0.114	0.500	1.00	1	09/26/2021 21:00	WG1746600
1,2-Dibromoethane	106-93-4	0.500	U	0.126	0.500	1.00	1	09/26/2021 21:00	WG1746600
1,2-Dibromo-3-Chloropropane	96-12-8	2.00	U	0.276	2.00	5.00	1	09/26/2021 21:00	WG1746600
Dibromomethane	74-95-3	0.500	U	0.122	0.500	1.00	1	09/26/2021 21:00	WG1746600
1,2-Dichlorobenzene	95-50-1	0.500	U	0.107	0.500	1.00	1	09/26/2021 21:00	WG1746600
1,3-Dichlorobenzene	541-73-1	0.500	U	0.110	0.500	1.00	1	09/26/2021 21:00	WG1746600
1,4-Dichlorobenzene	106-46-7	0.500	U	0.120	0.500	1.00	1	09/26/2021 21:00	WG1746600
Dichlorodifluoromethane	75-71-8	2.00	U	0.374	2.00	5.00	1	09/26/2021 21:00	WG1746600
1,1-Dichloroethane	75-34-3	0.500	U	0.100	0.500	1.00	1	09/26/2021 21:00	WG1746600
1,2-Dichloroethane	107-06-2	0.500	U	0.0819	0.500	1.00	1	09/26/2021 21:00	WG1746600
1,1-Dichloroethene	75-35-4	0.500	U	0.188	0.500	1.00	1	09/26/2021 21:00	WG1746600
cis-1,2-Dichloroethene	156-59-2	0.500	U	0.126	0.500	1.00	1	09/26/2021 21:00	WG1746600
trans-1,2-Dichloroethene	156-60-5	0.500	U	0.149	0.500	1.00	1	09/26/2021 21:00	WG1746600
1,2-Dichloropropane	78-87-5	0.500	U	0.149	0.500	1.00	1	09/26/2021 21:00	WG1746600
1,3-Dichloropropane	142-28-9	0.500	U	0.110	0.500	1.00	1	09/26/2021 21:00	WG1746600
2,2-Dichloropropane	594-20-7	0.500	U	0.161	0.500	1.00	1	09/26/2021 21:00	WG1746600
1,1-Dichloropropene	563-58-6	0.500	U	0.142	0.500	1.00	1	09/26/2021 21:00	WG1746600
cis-1,3-Dichloropropene	10061-01-5	0.500	U	0.111	0.500	1.00	1	09/26/2021 21:00	WG1746600
trans-1,3-Dichloropropene	10061-02-6	0.500	U	0.118	0.500	1.00	1	09/26/2021 21:00	WG1746600
Di-isopropyl ether	108-20-3	0.500	U	0.105	0.500	1.00	1	09/26/2021 21:00	WG1746600
Ethylbenzene	100-41-4	0.500	U	0.137	0.500	1.00	1	09/26/2021 21:00	WG1746600
Hexachloro-1,3-butadiene	87-68-3	0.500	U	0.337	0.500	1.00	1	09/27/2021 15:34	WG1747089
Isopropylbenzene	98-82-8	0.500	U	0.105	0.500	1.00	1	09/26/2021 21:00	WG1746600
p-Isopropyltoluene	99-87-6	0.500	U	0.120	0.500	1.00	1	09/26/2021 21:00	WG1746600
2-Butanone (MEK)	78-93-3	5.00	U	1.19	5.00	10.0	1	09/26/2021 21:00	WG1746600
Methylene Chloride	75-09-2	2.00	U	0.430	2.00	5.00	1	09/26/2021 21:00	WG1746600
4-Methyl-2-pentanone (MIBK)	108-10-1	5.00	U	0.478	5.00	10.0	1	09/26/2021 21:00	WG1746600
Methyl tert-butyl ether	1634-04-4	0.500	U	0.101	0.500	1.00	1	09/26/2021 21:00	WG1746600
Naphthalene	91-20-3	2.00	U	1.00	2.00	5.00	1	09/26/2021 21:00	WG1746600
n-Propylbenzene	103-65-1	0.500	U	0.0993	0.500	1.00	1	09/26/2021 21:00	WG1746600
Styrene	100-42-5	0.500	U	0.118	0.500	1.00	1	09/26/2021 21:00	WG1746600
1,1,1,2-Tetrachloroethane	630-20-6	0.500	U	0.147	0.500	1.00	1	09/27/2021 15:34	WG1747089
1,1,2,2-Tetrachloroethane	79-34-5	0.500	U	0.133	0.500	1.00	1	09/26/2021 21:00	WG1746600
Tetrachloroethene	127-18-4	0.500	U	0.300	0.500	1.00	1	09/26/2021 21:00	WG1746600
Toluene	108-88-3	0.500	U	0.278	0.500	1.00	1	09/26/2021 21:00	WG1746600
1,2,3-Trichlorobenzene	87-61-6	0.500	U	0.230	0.500	1.00	1	09/26/2021 21:00	WG1746600
1,2,4-Trichlorobenzene	120-82-1	0.500	U	0.481	0.500	1.00	1	09/27/2021 15:34	WG1747089
1,2,3-Trimethylbenzene	526-73-8	0.500	U	0.104	0.500	1.00	1	09/26/2021 21:00	WG1746600
1,2,4-Trimethylbenzene	95-63-6	0.500	U	0.322	0.500	1.00	1	09/26/2021 21:00	WG1746600
1,3,5-Trimethylbenzene	108-67-8	0.500	U	0.104	0.500	1.00	1	09/26/2021 21:00	WG1746600
1,1,1-Trichloroethane	71-55-6	0.500	U	0.149	0.500	1.00	1	09/27/2021 15:34	WG1747089
1,1,2-Trichloroethane	79-00-5	0.500	U	0.158	0.500	1.00	1	09/26/2021 21:00	WG1746600
Trichloroethene	79-01-6	0.500	U	0.190	0.500	1.00	1	09/27/2021 15:34	WG1747089
Trichlorofluoromethane	75-69-4	0.753	J	0.160	2.00	5.00	1	09/26/2021 21:00	WG1746600
1,1,2-Trichlorotrifluoroethane	76-13-1	0.500	U	0.180	0.500	1.00	1	09/26/2021 21:00	WG1746600
1,2,3-Trichloropropane	96-18-4	1.00	U	0.237	1.00	2.50	1	09/26/2021 21:00	WG1746600
Vinyl chloride	75-01-4	0.500	U	0.234	0.500	1.00	1	09/26/2021 21:00	WG1746600
Xylenes, Total	1330-20-7	1.50	U	0.174	1.50	3.00	1	09/26/2021 21:00	WG1746600
(S) Toluene-d8	*2037-26-5*	*103*				*89.0-112*		*09/26/2021 21:00*	WG1746600
(S) Toluene-d8	*2037-26-5*	*106*				*89.0-112*		*09/27/2021 15:34*	WG1747089
(S) 4-Bromofluorobenzene	*460-00-4*	*97.4*				*85.0-114*		*09/26/2021 21:00*	WG1746600
(S) 4-Bromofluorobenzene	*460-00-4*	*96.4*				*85.0-114*		*09/27/2021 15:34*	WG1747089
(S) 1,2-Dichloroethane-d4	*17060-07-0*	*98.6*				*81.0-118*		*09/26/2021 21:00*	WG1746600

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
(S) 1,2-Dichloroethane-d4	*17060-07-0*	*96.6*				*81.0-118*		*09/27/2021 15:34*	WG1747089

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
TPH (GC/FID) High Fraction	68334-30-5	72.0	B J	24.7	50.0	100	1	09/23/2021 12:57	WG1744295
(S) o-Terphenyl	*84-15-1*	*64.2*				*56.0-125*		*09/23/2021 12:57*	WG1744295

Additional Information - Results for field analyses are not accredited to ISO 17025

Analyte	Result	Units
Cooler#	1	
Cooler Temperature	0.4	Deg. C

Wet Chemistry by Method 2320 B-2011

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Alkalinity		66100		8450	10000	20000	1	09/26/2021 18:46	WG1746766
Alkalinity,Bicarbonate		66100		8450	10000	20000	1	09/26/2021 18:46	WG1746766
Alkalinity,Carbonate		10000	U	8450	10000	20000	1	09/26/2021 18:46	WG1746766
Alkalinity,Hydroxide		10000	U	8450	10000	20000	1	09/26/2021 18:46	WG1746766

Sample Narrative:
L1405623-07 WG1746766: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 300.0

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Sulfate	14808-79-8	2620	J	594	2500	5000	1	09/27/2021 01:45	WG1746883

Wet Chemistry by Method 351.2

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Kjeldahl Nitrogen, TKN	7727-37-9	150	U	140	150	250	1	09/29/2021 13:52	WG1746199

Wet Chemistry by Method 353.2

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Nitrate-Nitrite	7727-37-9	1130		50.0	50.0	100	1	09/28/2021 17:16	WG1747087

Metals (ICP) by Method 6010D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Iron	7439-89-6	14300		20.5	50.0	100	1	09/27/2021 04:02	WG1745399
Manganese	7439-96-5	354		0.855	5.00	10.0	1	09/27/2021 04:02	WG1745399

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Acetone	67-64-1	25.0	U	11.3	25.0	50.0	1	09/26/2021 21:21	WG1746600
Acrolein	107-02-8	25.0	J3 U	2.54	25.0	50.0	1	09/27/2021 15:53	WG1747089
Acrylonitrile	107-13-1	5.00	U	0.671	5.00	10.0	1	09/26/2021 21:21	WG1746600
Benzene	71-43-2	0.500	U	0.0941	0.500	1.00	1	09/26/2021 21:21	WG1746600
Bromobenzene	108-86-1	0.500	U	0.118	0.500	1.00	1	09/26/2021 21:21	WG1746600
Bromodichloromethane	75-27-4	0.500	U	0.136	0.500	1.00	1	09/26/2021 21:21	WG1746600
Bromoform	75-25-2	0.500	U	0.129	0.500	1.00	1	09/26/2021 21:21	WG1746600
Bromomethane	74-83-9	2.00	U	0.605	2.00	5.00	1	09/27/2021 15:53	WG1747089
n-Butylbenzene	104-51-8	0.500	U	0.157	0.500	1.00	1	09/26/2021 21:21	WG1746600
sec-Butylbenzene	135-98-8	0.500	U	0.125	0.500	1.00	1	09/26/2021 21:21	WG1746600
tert-Butylbenzene	98-06-6	0.500	U	0.127	0.500	1.00	1	09/26/2021 21:21	WG1746600
Carbon tetrachloride	56-23-5	0.500	U	0.128	0.500	1.00	1	09/26/2021 21:21	WG1746600
Chlorobenzene	108-90-7	0.500	U	0.116	0.500	1.00	1	09/26/2021 21:21	WG1746600
Chlorodibromomethane	124-48-1	0.500	U	0.140	0.500	1.00	1	09/26/2021 21:21	WG1746600
Chloroethane	75-00-3	2.00	U	0.192	2.00	5.00	1	09/26/2021 21:21	WG1746600

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result ug/l	Qualifier	DL ug/l	LOD ug/l	LOQ ug/l	Dilution	Analysis date / time	Batch
Chloroform	67-66-3	2.00	U	0.111	2.00	5.00	1	09/26/2021 21:21	WG1746600
Chloromethane	74-87-3	1.00	U	0.960	1.00	2.50	1	09/26/2021 21:21	WG1746600
2-Chlorotoluene	95-49-8	0.500	U	0.106	0.500	1.00	1	09/26/2021 21:21	WG1746600
4-Chlorotoluene	106-43-4	0.500	U	0.114	0.500	1.00	1	09/26/2021 21:21	WG1746600
1,2-Dibromoethane	106-93-4	0.500	U	0.126	0.500	1.00	1	09/26/2021 21:21	WG1746600
1,2-Dibromo-3-Chloropropane	96-12-8	2.00	U	0.276	2.00	5.00	1	09/26/2021 21:21	WG1746600
Dibromomethane	74-95-3	0.500	U	0.122	0.500	1.00	1	09/26/2021 21:21	WG1746600
1,2-Dichlorobenzene	95-50-1	0.500	U	0.107	0.500	1.00	1	09/26/2021 21:21	WG1746600
1,3-Dichlorobenzene	541-73-1	0.500	U	0.110	0.500	1.00	1	09/26/2021 21:21	WG1746600
1,4-Dichlorobenzene	106-46-7	0.500	U	0.120	0.500	1.00	1	09/26/2021 21:21	WG1746600
Dichlorodifluoromethane	75-71-8	2.00	U	0.374	2.00	5.00	1	09/26/2021 21:21	WG1746600
1,1-Dichloroethane	75-34-3	0.500	U	0.100	0.500	1.00	1	09/26/2021 21:21	WG1746600
1,2-Dichloroethane	107-06-2	0.500	U	0.0819	0.500	1.00	1	09/26/2021 21:21	WG1746600
1,1-Dichloroethene	75-35-4	0.500	U	0.188	0.500	1.00	1	09/26/2021 21:21	WG1746600
cis-1,2-Dichloroethene	156-59-2	0.500	U	0.126	0.500	1.00	1	09/26/2021 21:21	WG1746600
trans-1,2-Dichloroethene	156-60-5	0.500	U	0.149	0.500	1.00	1	09/26/2021 21:21	WG1746600
1,2-Dichloropropane	78-87-5	0.500	U	0.149	0.500	1.00	1	09/26/2021 21:21	WG1746600
1,3-Dichloropropane	142-28-9	0.500	U	0.110	0.500	1.00	1	09/26/2021 21:21	WG1746600
2,2-Dichloropropane	594-20-7	0.500	U	0.161	0.500	1.00	1	09/26/2021 21:21	WG1746600
1,1-Dichloropropene	563-58-6	0.500	U	0.142	0.500	1.00	1	09/26/2021 21:21	WG1746600
cis-1,3-Dichloropropene	10061-01-5	0.500	U	0.111	0.500	1.00	1	09/26/2021 21:21	WG1746600
trans-1,3-Dichloropropene	10061-02-6	0.500	U	0.118	0.500	1.00	1	09/26/2021 21:21	WG1746600
Di-isopropyl ether	108-20-3	0.500	U	0.105	0.500	1.00	1	09/26/2021 21:21	WG1746600
Ethylbenzene	100-41-4	0.500	U	0.137	0.500	1.00	1	09/26/2021 21:21	WG1746600
Hexachloro-1,3-butadiene	87-68-3	0.500	U	0.337	0.500	1.00	1	09/27/2021 15:53	WG1747089
Isopropylbenzene	98-82-8	0.500	U	0.105	0.500	1.00	1	09/26/2021 21:21	WG1746600
p-Isopropyltoluene	99-87-6	0.500	U	0.120	0.500	1.00	1	09/26/2021 21:21	WG1746600
2-Butanone (MEK)	78-93-3	5.00	U	1.19	5.00	10.0	1	09/26/2021 21:21	WG1746600
Methylene Chloride	75-09-2	2.00	U	0.430	2.00	5.00	1	09/26/2021 21:21	WG1746600
4-Methyl-2-pentanone (MIBK)	108-10-1	5.00	U	0.478	5.00	10.0	1	09/26/2021 21:21	WG1746600
Methyl tert-butyl ether	1634-04-4	0.500	U	0.101	0.500	1.00	1	09/26/2021 21:21	WG1746600
Naphthalene	91-20-3	2.00	U	1.00	2.00	5.00	1	09/26/2021 21:21	WG1746600
n-Propylbenzene	103-65-1	0.500	U	0.0993	0.500	1.00	1	09/26/2021 21:21	WG1746600
Styrene	100-42-5	0.500	U	0.118	0.500	1.00	1	09/26/2021 21:21	WG1746600
1,1,1,2-Tetrachloroethane	630-20-6	0.500	U	0.147	0.500	1.00	1	09/27/2021 15:53	WG1747089
1,1,2,2-Tetrachloroethane	79-34-5	0.500	U	0.133	0.500	1.00	1	09/26/2021 21:21	WG1746600
Tetrachloroethene	127-18-4	0.500	U	0.300	0.500	1.00	1	09/26/2021 21:21	WG1746600
Toluene	108-88-3	0.500	U	0.278	0.500	1.00	1	09/26/2021 21:21	WG1746600
1,2,3-Trichlorobenzene	87-61-6	0.500	U	0.230	0.500	1.00	1	09/26/2021 21:21	WG1746600
1,2,4-Trichlorobenzene	120-82-1	0.500	U	0.481	0.500	1.00	1	09/27/2021 15:53	WG1747089
1,2,3-Trimethylbenzene	526-73-8	0.500	U	0.104	0.500	1.00	1	09/26/2021 21:21	WG1746600
1,2,4-Trimethylbenzene	95-63-6	0.500	U	0.322	0.500	1.00	1	09/26/2021 21:21	WG1746600
1,3,5-Trimethylbenzene	108-67-8	0.500	U	0.104	0.500	1.00	1	09/26/2021 21:21	WG1746600
1,1,1-Trichloroethane	71-55-6	0.500	U	0.149	0.500	1.00	1	09/27/2021 15:53	WG1747089
1,1,2-Trichloroethane	79-00-5	0.500	U	0.158	0.500	1.00	1	09/26/2021 21:21	WG1746600
Trichloroethene	79-01-6	0.500	U	0.190	0.500	1.00	1	09/27/2021 15:53	WG1747089
Trichlorofluoromethane	75-69-4	2.00	U	0.160	2.00	5.00	1	09/26/2021 21:21	WG1746600
1,1,2-Trichlorotrifluoroethane	76-13-1	0.500	U	0.180	0.500	1.00	1	09/26/2021 21:21	WG1746600
1,2,3-Trichloropropane	96-18-4	1.00	U	0.237	1.00	2.50	1	09/26/2021 21:21	WG1746600
Vinyl chloride	75-01-4	0.500	U	0.234	0.500	1.00	1	09/26/2021 21:21	WG1746600
Xylenes, Total	1330-20-7	1.50	U	0.174	1.50	3.00	1	09/26/2021 21:21	WG1746600
(S) Toluene-d8	*2037-26-5*	*98.4*				*89.0-112*		*09/26/2021 21:21*	WG1746600
(S) Toluene-d8	*2037-26-5*	*102*				*89.0-112*		*09/27/2021 15:53*	WG1747089
(S) 4-Bromofluorobenzene	*460-00-4*	*94.8*				*85.0-114*		*09/26/2021 21:21*	WG1746600
(S) 4-Bromofluorobenzene	*460-00-4*	*99.1*				*85.0-114*		*09/27/2021 15:53*	WG1747089
(S) 1,2-Dichloroethane-d4	*17060-07-0*	*94.3*				*81.0-118*		*09/26/2021 21:21*	WG1746600

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
(S) 1,2-Dichloroethane-d4	*17060-07-0*	*102*				*81.0-118*		*09/27/2021 15:53*	WG1747089

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
TPH (GC/FID) High Fraction	68334-30-5	50.0	U	24.7	50.0	100	1	09/23/2021 19:04	WG1744651
(S) o-Terphenyl	*84-15-1*	*80.0*				*56.0-125*		*09/23/2021 19:04*	WG1744651

Additional Information - Results for field analyses are not accredited to ISO 17025

Analyte	Result	Units
Cooler#	1	
Cooler Temperature	0.4	Deg. C

Wet Chemistry by Method 2320 B-2011

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Alkalinity		45200		8450	10000	20000	1	09/26/2021 18:49	WG1746766
Alkalinity,Bicarbonate		45200		8450	10000	20000	1	09/26/2021 18:49	WG1746766
Alkalinity,Carbonate		10000	U	8450	10000	20000	1	09/26/2021 18:49	WG1746766
Alkalinity,Hydroxide		10000	U	8450	10000	20000	1	09/26/2021 18:49	WG1746766

Sample Narrative:
L1405623-08 WG1746766: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 300.0

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Sulfate	14808-79-8	3620	J	594	2500	5000	1	09/27/2021 02:01	WG1746883

Wet Chemistry by Method 351.2

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Kjeldahl Nitrogen, TKN	7727-37-9	150	U	140	150	250	1	09/29/2021 13:54	WG1746199

Wet Chemistry by Method 353.2

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Nitrate-Nitrite	7727-37-9	81.6	J	50.0	50.0	100	1	09/28/2021 17:18	WG1747087

Metals (ICP) by Method 6010D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Iron	7439-89-6	34000		20.5	50.0	100	1	09/27/2021 04:04	WG1745399
Manganese	7439-96-5	622		0.855	5.00	10.0	1	09/27/2021 04:04	WG1745399

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Acetone	67-64-1	25.0	U	11.3	25.0	50.0	1	09/26/2021 21:41	WG1746600
Acrolein	107-02-8	25.0	J3 U	2.54	25.0	50.0	1	09/27/2021 16:12	WG1747089
Acrylonitrile	107-13-1	5.00	U	0.671	5.00	10.0	1	09/26/2021 21:41	WG1746600
Benzene	71-43-2	0.500	U	0.0941	0.500	1.00	1	09/26/2021 21:41	WG1746600
Bromobenzene	108-86-1	0.500	U	0.118	0.500	1.00	1	09/26/2021 21:41	WG1746600
Bromodichloromethane	75-27-4	0.500	U	0.136	0.500	1.00	1	09/26/2021 21:41	WG1746600
Bromoform	75-25-2	0.500	U	0.129	0.500	1.00	1	09/26/2021 21:41	WG1746600
Bromomethane	74-83-9	2.00	U	0.605	2.00	5.00	1	09/27/2021 16:12	WG1747089
n-Butylbenzene	104-51-8	0.500	U	0.157	0.500	1.00	1	09/26/2021 21:41	WG1746600
sec-Butylbenzene	135-98-8	0.500	U	0.125	0.500	1.00	1	09/26/2021 21:41	WG1746600
tert-Butylbenzene	98-06-6	0.500	U	0.127	0.500	1.00	1	09/26/2021 21:41	WG1746600
Carbon tetrachloride	56-23-5	0.500	U	0.128	0.500	1.00	1	09/26/2021 21:41	WG1746600
Chlorobenzene	108-90-7	0.500	U	0.116	0.500	1.00	1	09/26/2021 21:41	WG1746600
Chlorodibromomethane	124-48-1	0.500	U	0.140	0.500	1.00	1	09/26/2021 21:41	WG1746600
Chloroethane	75-00-3	2.00	U	0.192	2.00	5.00	1	09/26/2021 21:41	WG1746600

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result ug/l	Qualifier	DL ug/l	LOD ug/l	LOQ ug/l	Dilution	Analysis date / time	Batch
Chloroform	67-66-3	2.00	U	0.111	2.00	5.00	1	09/26/2021 21:41	WG1746600
Chloromethane	74-87-3	1.00	U	0.960	1.00	2.50	1	09/26/2021 21:41	WG1746600
2-Chlorotoluene	95-49-8	0.500	U	0.106	0.500	1.00	1	09/26/2021 21:41	WG1746600
4-Chlorotoluene	106-43-4	0.500	U	0.114	0.500	1.00	1	09/26/2021 21:41	WG1746600
1,2-Dibromoethane	106-93-4	0.500	U	0.126	0.500	1.00	1	09/26/2021 21:41	WG1746600
1,2-Dibromo-3-Chloropropane	96-12-8	2.00	U	0.276	2.00	5.00	1	09/26/2021 21:41	WG1746600
Dibromomethane	74-95-3	0.500	U	0.122	0.500	1.00	1	09/26/2021 21:41	WG1746600
1,2-Dichlorobenzene	95-50-1	0.500	U	0.107	0.500	1.00	1	09/26/2021 21:41	WG1746600
1,3-Dichlorobenzene	541-73-1	0.500	U	0.110	0.500	1.00	1	09/26/2021 21:41	WG1746600
1,4-Dichlorobenzene	106-46-7	0.500	U	0.120	0.500	1.00	1	09/26/2021 21:41	WG1746600
Dichlorodifluoromethane	75-71-8	2.00	U	0.374	2.00	5.00	1	09/26/2021 21:41	WG1746600
1,1-Dichloroethane	75-34-3	0.500	U	0.100	0.500	1.00	1	09/26/2021 21:41	WG1746600
1,2-Dichloroethane	107-06-2	0.500	U	0.0819	0.500	1.00	1	09/26/2021 21:41	WG1746600
1,1-Dichloroethene	75-35-4	0.500	U	0.188	0.500	1.00	1	09/26/2021 21:41	WG1746600
cis-1,2-Dichloroethene	156-59-2	0.500	U	0.126	0.500	1.00	1	09/26/2021 21:41	WG1746600
trans-1,2-Dichloroethene	156-60-5	0.500	U	0.149	0.500	1.00	1	09/26/2021 21:41	WG1746600
1,2-Dichloropropane	78-87-5	0.500	U	0.149	0.500	1.00	1	09/26/2021 21:41	WG1746600
1,3-Dichloropropane	142-28-9	0.500	U	0.110	0.500	1.00	1	09/26/2021 21:41	WG1746600
2,2-Dichloropropane	594-20-7	0.500	U	0.161	0.500	1.00	1	09/26/2021 21:41	WG1746600
1,1-Dichloropropene	563-58-6	0.500	U	0.142	0.500	1.00	1	09/26/2021 21:41	WG1746600
cis-1,3-Dichloropropene	10061-01-5	0.500	U	0.111	0.500	1.00	1	09/26/2021 21:41	WG1746600
trans-1,3-Dichloropropene	10061-02-6	0.500	U	0.118	0.500	1.00	1	09/26/2021 21:41	WG1746600
Di-isopropyl ether	108-20-3	0.500	U	0.105	0.500	1.00	1	09/26/2021 21:41	WG1746600
Ethylbenzene	100-41-4	0.500	U	0.137	0.500	1.00	1	09/26/2021 21:41	WG1746600
Hexachloro-1,3-butadiene	87-68-3	0.500	U	0.337	0.500	1.00	1	09/27/2021 16:12	WG1747089
Isopropylbenzene	98-82-8	0.500	U	0.105	0.500	1.00	1	09/26/2021 21:41	WG1746600
p-Isopropyltoluene	99-87-6	0.500	U	0.120	0.500	1.00	1	09/26/2021 21:41	WG1746600
2-Butanone (MEK)	78-93-3	5.00	U	1.19	5.00	10.0	1	09/26/2021 21:41	WG1746600
Methylene Chloride	75-09-2	2.00	U	0.430	2.00	5.00	1	09/26/2021 21:41	WG1746600
4-Methyl-2-pentanone (MIBK)	108-10-1	5.00	U	0.478	5.00	10.0	1	09/26/2021 21:41	WG1746600
Methyl tert-butyl ether	1634-04-4	0.500	U	0.101	0.500	1.00	1	09/26/2021 21:41	WG1746600
Naphthalene	91-20-3	2.00	U	1.00	2.00	5.00	1	09/26/2021 21:41	WG1746600
n-Propylbenzene	103-65-1	0.500	U	0.0993	0.500	1.00	1	09/26/2021 21:41	WG1746600
Styrene	100-42-5	0.500	U	0.118	0.500	1.00	1	09/26/2021 21:41	WG1746600
1,1,1,2-Tetrachloroethane	630-20-6	0.500	U	0.147	0.500	1.00	1	09/27/2021 16:12	WG1747089
1,1,2,2-Tetrachloroethane	79-34-5	0.500	U	0.133	0.500	1.00	1	09/26/2021 21:41	WG1746600
Tetrachloroethene	127-18-4	0.500	U	0.300	0.500	1.00	1	09/26/2021 21:41	WG1746600
Toluene	108-88-3	0.500	U	0.278	0.500	1.00	1	09/26/2021 21:41	WG1746600
1,2,3-Trichlorobenzene	87-61-6	0.500	U	0.230	0.500	1.00	1	09/26/2021 21:41	WG1746600
1,2,4-Trichlorobenzene	120-82-1	0.500	U	0.481	0.500	1.00	1	09/27/2021 16:12	WG1747089
1,2,3-Trimethylbenzene	526-73-8	0.500	U	0.104	0.500	1.00	1	09/26/2021 21:41	WG1746600
1,2,4-Trimethylbenzene	95-63-6	0.500	U	0.322	0.500	1.00	1	09/26/2021 21:41	WG1746600
1,3,5-Trimethylbenzene	108-67-8	0.500	U	0.104	0.500	1.00	1	09/26/2021 21:41	WG1746600
1,1,1-Trichloroethane	71-55-6	0.500	U	0.149	0.500	1.00	1	09/27/2021 16:12	WG1747089
1,1,2-Trichloroethane	79-00-5	0.500	U	0.158	0.500	1.00	1	09/26/2021 21:41	WG1746600
Trichloroethene	79-01-6	0.500	U	0.190	0.500	1.00	1	09/27/2021 16:12	WG1747089
Trichlorofluoromethane	75-69-4	2.00	U	0.160	2.00	5.00	1	09/26/2021 21:41	WG1746600
1,1,2-Trichlorotrifluoroethane	76-13-1	0.500	U	0.180	0.500	1.00	1	09/26/2021 21:41	WG1746600
1,2,3-Trichloropropane	96-18-4	1.00	U	0.237	1.00	2.50	1	09/26/2021 21:41	WG1746600
Vinyl chloride	75-01-4	0.500	U	0.234	0.500	1.00	1	09/26/2021 21:41	WG1746600
Xylenes, Total	1330-20-7	1.50	U	0.174	1.50	3.00	1	09/26/2021 21:41	WG1746600
(S) Toluene-d8	*2037-26-5*	*95.8*				*89.0-112*		*09/26/2021 21:41*	WG1746600
(S) Toluene-d8	*2037-26-5*	*102*				*89.0-112*		*09/27/2021 16:12*	WG1747089
(S) 4-Bromofluorobenzene	*460-00-4*	*89.3*				*85.0-114*		*09/26/2021 21:41*	WG1746600
(S) 4-Bromofluorobenzene	*460-00-4*	*98.0*				*85.0-114*		*09/27/2021 16:12*	WG1747089
(S) 1,2-Dichloroethane-d4	*17060-07-0*	*94.3*				*81.0-118*		*09/26/2021 21:41*	WG1746600

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
(S) 1,2-Dichloroethane-d4	*17060-07-0*	*104*				*81.0-118*		*09/27/2021 16:12*	WG1747089

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
TPH (GC/FID) High Fraction	68334-30-5	50.0	U	24.7	50.0	100	1	09/23/2021 19:30	WG1744651
(S) o-Terphenyl	*84-15-1*	*60.0*				*56.0-125*		*09/23/2021 19:30*	WG1744651

Additional Information - Results for field analyses are not accredited to ISO 17025

Analyte	Result	Units
Cooler#	1	
Cooler Temperature	0.4	Deg. C

Wet Chemistry by Method 2320 B-2011

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Alkalinity		52800		8450	10000	20000	1	09/26/2021 18:53	WG1746766
Alkalinity,Bicarbonate		52800		8450	10000	20000	1	09/26/2021 18:53	WG1746766
Alkalinity,Carbonate		10000	U	8450	10000	20000	1	09/26/2021 18:53	WG1746766
Alkalinity,Hydroxide		10000	U	8450	10000	20000	1	09/26/2021 18:53	WG1746766

Sample Narrative:
L1405623-09 WG1746766: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 300.0

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Sulfate	14808-79-8	2610	J	594	2500	5000	1	09/27/2021 02:18	WG1746883

Wet Chemistry by Method 351.2

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Kjeldahl Nitrogen, TKN	7727-37-9	150	U	140	150	250	1	09/29/2021 13:55	WG1746199

Wet Chemistry by Method 353.2

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Nitrate-Nitrite	7727-37-9	63.4	J	50.0	50.0	100	1	09/28/2021 17:19	WG1747087

Metals (ICP) by Method 6010D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Iron	7439-89-6	7730		20.5	50.0	100	1	09/27/2021 04:07	WG1745399
Manganese	7439-96-5	164		0.855	5.00	10.0	1	09/27/2021 04:07	WG1745399

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Acetone	67-64-1	25.0	U	11.3	25.0	50.0	1	09/26/2021 22:02	WG1746600
Acrolein	107-02-8	25.0	J3 U	2.54	25.0	50.0	1	09/27/2021 16:32	WG1747089
Acrylonitrile	107-13-1	5.00	U	0.671	5.00	10.0	1	09/26/2021 22:02	WG1746600
Benzene	71-43-2	0.500	U	0.0941	0.500	1.00	1	09/26/2021 22:02	WG1746600
Bromobenzene	108-86-1	0.500	U	0.118	0.500	1.00	1	09/26/2021 22:02	WG1746600
Bromodichloromethane	75-27-4	0.500	U	0.136	0.500	1.00	1	09/26/2021 22:02	WG1746600
Bromoform	75-25-2	0.500	U	0.129	0.500	1.00	1	09/26/2021 22:02	WG1746600
Bromomethane	74-83-9	2.00	U	0.605	2.00	5.00	1	09/27/2021 16:32	WG1747089
n-Butylbenzene	104-51-8	0.500	U	0.157	0.500	1.00	1	09/26/2021 22:02	WG1746600
sec-Butylbenzene	135-98-8	0.500	U	0.125	0.500	1.00	1	09/26/2021 22:02	WG1746600
tert-Butylbenzene	98-06-6	0.500	U	0.127	0.500	1.00	1	09/26/2021 22:02	WG1746600
Carbon tetrachloride	56-23-5	0.500	U	0.128	0.500	1.00	1	09/26/2021 22:02	WG1746600
Chlorobenzene	108-90-7	0.500	U	0.116	0.500	1.00	1	09/26/2021 22:02	WG1746600
Chlorodibromomethane	124-48-1	0.500	U	0.140	0.500	1.00	1	09/26/2021 22:02	WG1746600
Chloroethane	75-00-3	2.00	U	0.192	2.00	5.00	1	09/26/2021 22:02	WG1746600

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result ug/l	Qualifier	DL ug/l	LOD ug/l	LOQ ug/l	Dilution	Analysis date / time	Batch
Chloroform	67-66-3	2.00	U	0.111	2.00	5.00	1	09/26/2021 22:02	WG1746600
Chloromethane	74-87-3	1.00	U	0.960	1.00	2.50	1	09/26/2021 22:02	WG1746600
2-Chlorotoluene	95-49-8	0.500	U	0.106	0.500	1.00	1	09/26/2021 22:02	WG1746600
4-Chlorotoluene	106-43-4	0.500	U	0.114	0.500	1.00	1	09/26/2021 22:02	WG1746600
1,2-Dibromoethane	106-93-4	0.500	U	0.126	0.500	1.00	1	09/26/2021 22:02	WG1746600
1,2-Dibromo-3-Chloropropane	96-12-8	2.00	U	0.276	2.00	5.00	1	09/26/2021 22:02	WG1746600
Dibromomethane	74-95-3	0.500	U	0.122	0.500	1.00	1	09/26/2021 22:02	WG1746600
1,2-Dichlorobenzene	95-50-1	0.500	U	0.107	0.500	1.00	1	09/26/2021 22:02	WG1746600
1,3-Dichlorobenzene	541-73-1	0.500	U	0.110	0.500	1.00	1	09/26/2021 22:02	WG1746600
1,4-Dichlorobenzene	106-46-7	0.500	U	0.120	0.500	1.00	1	09/26/2021 22:02	WG1746600
Dichlorodifluoromethane	75-71-8	2.00	U	0.374	2.00	5.00	1	09/26/2021 22:02	WG1746600
1,1-Dichloroethane	75-34-3	0.500	U	0.100	0.500	1.00	1	09/26/2021 22:02	WG1746600
1,2-Dichloroethane	107-06-2	0.500	U	0.0819	0.500	1.00	1	09/26/2021 22:02	WG1746600
1,1-Dichloroethene	75-35-4	0.500	U	0.188	0.500	1.00	1	09/26/2021 22:02	WG1746600
cis-1,2-Dichloroethene	156-59-2	0.500	U	0.126	0.500	1.00	1	09/26/2021 22:02	WG1746600
trans-1,2-Dichloroethene	156-60-5	0.500	U	0.149	0.500	1.00	1	09/26/2021 22:02	WG1746600
1,2-Dichloropropane	78-87-5	0.500	U	0.149	0.500	1.00	1	09/26/2021 22:02	WG1746600
1,3-Dichloropropane	142-28-9	0.500	U	0.110	0.500	1.00	1	09/26/2021 22:02	WG1746600
2,2-Dichloropropane	594-20-7	0.500	U	0.161	0.500	1.00	1	09/26/2021 22:02	WG1746600
1,1-Dichloropropene	563-58-6	0.500	U	0.142	0.500	1.00	1	09/26/2021 22:02	WG1746600
cis-1,3-Dichloropropene	10061-01-5	0.500	U	0.111	0.500	1.00	1	09/26/2021 22:02	WG1746600
trans-1,3-Dichloropropene	10061-02-6	0.500	U	0.118	0.500	1.00	1	09/26/2021 22:02	WG1746600
Di-isopropyl ether	108-20-3	0.500	U	0.105	0.500	1.00	1	09/26/2021 22:02	WG1746600
Ethylbenzene	100-41-4	0.500	U	0.137	0.500	1.00	1	09/26/2021 22:02	WG1746600
Hexachloro-1,3-butadiene	87-68-3	0.500	U	0.337	0.500	1.00	1	09/27/2021 16:32	WG1747089
Isopropylbenzene	98-82-8	0.500	U	0.105	0.500	1.00	1	09/26/2021 22:02	WG1746600
p-Isopropyltoluene	99-87-6	0.500	U	0.120	0.500	1.00	1	09/26/2021 22:02	WG1746600
2-Butanone (MEK)	78-93-3	5.00	U	1.19	5.00	10.0	1	09/26/2021 22:02	WG1746600
Methylene Chloride	75-09-2	2.00	U	0.430	2.00	5.00	1	09/26/2021 22:02	WG1746600
4-Methyl-2-pentanone (MIBK)	108-10-1	5.00	U	0.478	5.00	10.0	1	09/26/2021 22:02	WG1746600
Methyl tert-butyl ether	1634-04-4	0.500	U	0.101	0.500	1.00	1	09/26/2021 22:02	WG1746600
Naphthalene	91-20-3	2.00	U	1.00	2.00	5.00	1	09/26/2021 22:02	WG1746600
n-Propylbenzene	103-65-1	0.500	U	0.0993	0.500	1.00	1	09/26/2021 22:02	WG1746600
Styrene	100-42-5	0.500	U	0.118	0.500	1.00	1	09/26/2021 22:02	WG1746600
1,1,1,2-Tetrachloroethane	630-20-6	0.500	U	0.147	0.500	1.00	1	09/27/2021 16:32	WG1747089
1,1,2,2-Tetrachloroethane	79-34-5	0.500	U	0.133	0.500	1.00	1	09/26/2021 22:02	WG1746600
Tetrachloroethene	127-18-4	0.500	U	0.300	0.500	1.00	1	09/26/2021 22:02	WG1746600
Toluene	108-88-3	0.500	U	0.278	0.500	1.00	1	09/26/2021 22:02	WG1746600
1,2,3-Trichlorobenzene	87-61-6	0.500	U	0.230	0.500	1.00	1	09/26/2021 22:02	WG1746600
1,2,4-Trichlorobenzene	120-82-1	0.500	U	0.481	0.500	1.00	1	09/27/2021 16:32	WG1747089
1,2,3-Trimethylbenzene	526-73-8	0.500	U	0.104	0.500	1.00	1	09/26/2021 22:02	WG1746600
1,2,4-Trimethylbenzene	95-63-6	0.500	U	0.322	0.500	1.00	1	09/26/2021 22:02	WG1746600
1,3,5-Trimethylbenzene	108-67-8	0.500	U	0.104	0.500	1.00	1	09/26/2021 22:02	WG1746600
1,1,1-Trichloroethane	71-55-6	0.500	U	0.149	0.500	1.00	1	09/27/2021 16:32	WG1747089
1,1,2-Trichloroethane	79-00-5	0.500	U	0.158	0.500	1.00	1	09/26/2021 22:02	WG1746600
Trichloroethene	79-01-6	0.500	U	0.190	0.500	1.00	1	09/27/2021 16:32	WG1747089
Trichlorofluoromethane	75-69-4	2.00	U	0.160	2.00	5.00	1	09/26/2021 22:02	WG1746600
1,1,2-Trichlorotrifluoroethane	76-13-1	0.500	U	0.180	0.500	1.00	1	09/26/2021 22:02	WG1746600
1,2,3-Trichloropropane	96-18-4	1.00	U	0.237	1.00	2.50	1	09/26/2021 22:02	WG1746600
Vinyl chloride	75-01-4	0.500	U	0.234	0.500	1.00	1	09/26/2021 22:02	WG1746600
Xylenes, Total	1330-20-7	1.50	U	0.174	1.50	3.00	1	09/26/2021 22:02	WG1746600
(S) Toluene-d8	*2037-26-5*	*95.9*				*89.0-112*		*09/26/2021 22:02*	WG1746600
(S) Toluene-d8	*2037-26-5*	*103*				*89.0-112*		*09/27/2021 16:32*	WG1747089
(S) 4-Bromofluorobenzene	*460-00-4*	*87.8*				*85.0-114*		*09/26/2021 22:02*	WG1746600
(S) 4-Bromofluorobenzene	*460-00-4*	*99.2*				*85.0-114*		*09/27/2021 16:32*	WG1747089
(S) 1,2-Dichloroethane-d4	*17060-07-0*	*96.6*				*81.0-118*		*09/26/2021 22:02*	WG1746600

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
(S) 1,2-Dichloroethane-d4	*17060-07-0*	*103*				*81.0-118*		*09/27/2021 16:32*	WG1747089

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
TPH (GC/FID) High Fraction	68334-30-5	50.0	U	24.7	50.0	100	1	09/27/2021 20:50	WG1746498
(S) o-Terphenyl	*84-15-1*	*93.0*				*56.0-125*		*09/27/2021 20:50*	WG1746498

Additional Information - Results for field analyses are not accredited to ISO 17025

Analyte	Result	Units
Cooler#	1	
Cooler Temperature	0.4	Deg. C

Wet Chemistry by Method 2320 B-2011

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Alkalinity		52800		8450	10000	20000	1	09/27/2021 13:28	WG1746888
Alkalinity,Bicarbonate		52800		8450	10000	20000	1	09/27/2021 13:28	WG1746888
Alkalinity,Carbonate		10000	U	8450	10000	20000	1	09/27/2021 13:28	WG1746888
Alkalinity,Hydroxide		10000	U	8450	10000	20000	1	09/27/2021 13:28	WG1746888

Sample Narrative:

L1405623-10 WG1746888: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 300.0

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Sulfate	14808-79-8	2590	J	594	2500	5000	1	09/27/2021 02:34	WG1746883

Wet Chemistry by Method 351.2

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Kjeldahl Nitrogen, TKN	7727-37-9	150	U	140	150	250	1	09/29/2021 13:56	WG1746199

Wet Chemistry by Method 353.2

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Nitrate-Nitrite	7727-37-9	67.8	J	50.0	50.0	100	1	09/28/2021 17:20	WG1747087

Metals (ICP) by Method 6010D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Iron	7439-89-6	12100		20.5	50.0	100	1	09/27/2021 04:15	WG1745399
Manganese	7439-96-5	219		0.855	5.00	10.0	1	09/27/2021 04:15	WG1745399

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Acetone	67-64-1	25.0	U	11.3	25.0	50.0	1	09/26/2021 22:22	WG1746600
Acrolein	107-02-8	25.0	J3 U	2.54	25.0	50.0	1	09/27/2021 16:51	WG1747089
Acrylonitrile	107-13-1	5.00	U	0.671	5.00	10.0	1	09/26/2021 22:22	WG1746600
Benzene	71-43-2	0.500	U	0.0941	0.500	1.00	1	09/26/2021 22:22	WG1746600
Bromobenzene	108-86-1	0.500	U	0.118	0.500	1.00	1	09/26/2021 22:22	WG1746600
Bromodichloromethane	75-27-4	0.500	U	0.136	0.500	1.00	1	09/26/2021 22:22	WG1746600
Bromoform	75-25-2	0.500	U	0.129	0.500	1.00	1	09/26/2021 22:22	WG1746600
Bromomethane	74-83-9	2.00	U	0.605	2.00	5.00	1	09/27/2021 16:51	WG1747089
n-Butylbenzene	104-51-8	0.500	U	0.157	0.500	1.00	1	09/26/2021 22:22	WG1746600
sec-Butylbenzene	135-98-8	0.500	U	0.125	0.500	1.00	1	09/26/2021 22:22	WG1746600
tert-Butylbenzene	98-06-6	0.500	U	0.127	0.500	1.00	1	09/26/2021 22:22	WG1746600
Carbon tetrachloride	56-23-5	0.500	U	0.128	0.500	1.00	1	09/26/2021 22:22	WG1746600
Chlorobenzene	108-90-7	0.500	U	0.116	0.500	1.00	1	09/26/2021 22:22	WG1746600
Chlorodibromomethane	124-48-1	0.500	U	0.140	0.500	1.00	1	09/26/2021 22:22	WG1746600
Chloroethane	75-00-3	2.00	U	0.192	2.00	5.00	1	09/26/2021 22:22	WG1746600

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result ug/l	Qualifier	DL ug/l	LOD ug/l	LOQ ug/l	Dilution	Analysis date / time	Batch
Chloroform	67-66-3	2.00	U	0.111	2.00	5.00	1	09/26/2021 22:22	WG1746600
Chloromethane	74-87-3	1.00	U	0.960	1.00	2.50	1	09/26/2021 22:22	WG1746600
2-Chlorotoluene	95-49-8	0.500	U	0.106	0.500	1.00	1	09/26/2021 22:22	WG1746600
4-Chlorotoluene	106-43-4	0.500	U	0.114	0.500	1.00	1	09/26/2021 22:22	WG1746600
1,2-Dibromoethane	106-93-4	0.500	U	0.126	0.500	1.00	1	09/26/2021 22:22	WG1746600
1,2-Dibromo-3-Chloropropane	96-12-8	2.00	U	0.276	2.00	5.00	1	09/26/2021 22:22	WG1746600
Dibromomethane	74-95-3	0.500	U	0.122	0.500	1.00	1	09/26/2021 22:22	WG1746600
1,2-Dichlorobenzene	95-50-1	0.500	U	0.107	0.500	1.00	1	09/26/2021 22:22	WG1746600
1,3-Dichlorobenzene	541-73-1	0.500	U	0.110	0.500	1.00	1	09/26/2021 22:22	WG1746600
1,4-Dichlorobenzene	106-46-7	0.500	U	0.120	0.500	1.00	1	09/26/2021 22:22	WG1746600
Dichlorodifluoromethane	75-71-8	2.00	U	0.374	2.00	5.00	1	09/26/2021 22:22	WG1746600
1,1-Dichloroethane	75-34-3	0.500	U	0.100	0.500	1.00	1	09/26/2021 22:22	WG1746600
1,2-Dichloroethane	107-06-2	0.500	U	0.0819	0.500	1.00	1	09/26/2021 22:22	WG1746600
1,1-Dichloroethene	75-35-4	0.500	U	0.188	0.500	1.00	1	09/26/2021 22:22	WG1746600
cis-1,2-Dichloroethene	156-59-2	0.500	U	0.126	0.500	1.00	1	09/26/2021 22:22	WG1746600
trans-1,2-Dichloroethene	156-60-5	0.500	U	0.149	0.500	1.00	1	09/26/2021 22:22	WG1746600
1,2-Dichloropropane	78-87-5	0.500	U	0.149	0.500	1.00	1	09/26/2021 22:22	WG1746600
1,3-Dichloropropane	142-28-9	0.500	U	0.110	0.500	1.00	1	09/26/2021 22:22	WG1746600
2,2-Dichloropropane	594-20-7	0.500	U	0.161	0.500	1.00	1	09/26/2021 22:22	WG1746600
1,1-Dichloropropene	563-58-6	0.500	U	0.142	0.500	1.00	1	09/26/2021 22:22	WG1746600
cis-1,3-Dichloropropene	10061-01-5	0.500	U	0.111	0.500	1.00	1	09/26/2021 22:22	WG1746600
trans-1,3-Dichloropropene	10061-02-6	0.500	U	0.118	0.500	1.00	1	09/26/2021 22:22	WG1746600
Di-isopropyl ether	108-20-3	0.500	U	0.105	0.500	1.00	1	09/26/2021 22:22	WG1746600
Ethylbenzene	100-41-4	0.500	U	0.137	0.500	1.00	1	09/26/2021 22:22	WG1746600
Hexachloro-1,3-butadiene	87-68-3	0.500	U	0.337	0.500	1.00	1	09/27/2021 16:51	WG1747089
Isopropylbenzene	98-82-8	0.500	U	0.105	0.500	1.00	1	09/26/2021 22:22	WG1746600
p-Isopropyltoluene	99-87-6	0.500	U	0.120	0.500	1.00	1	09/26/2021 22:22	WG1746600
2-Butanone (MEK)	78-93-3	5.00	U	1.19	5.00	10.0	1	09/26/2021 22:22	WG1746600
Methylene Chloride	75-09-2	2.00	U	0.430	2.00	5.00	1	09/26/2021 22:22	WG1746600
4-Methyl-2-pentanone (MIBK)	108-10-1	5.00	U	0.478	5.00	10.0	1	09/26/2021 22:22	WG1746600
Methyl tert-butyl ether	1634-04-4	0.500	U	0.101	0.500	1.00	1	09/26/2021 22:22	WG1746600
Naphthalene	91-20-3	2.00	U	1.00	2.00	5.00	1	09/26/2021 22:22	WG1746600
n-Propylbenzene	103-65-1	0.500	U	0.0993	0.500	1.00	1	09/26/2021 22:22	WG1746600
Styrene	100-42-5	0.500	U	0.118	0.500	1.00	1	09/26/2021 22:22	WG1746600
1,1,1,2-Tetrachloroethane	630-20-6	0.500	U	0.147	0.500	1.00	1	09/27/2021 16:51	WG1747089
1,1,2,2-Tetrachloroethane	79-34-5	0.500	U	0.133	0.500	1.00	1	09/26/2021 22:22	WG1746600
Tetrachloroethene	127-18-4	0.500	U	0.300	0.500	1.00	1	09/26/2021 22:22	WG1746600
Toluene	108-88-3	0.500	U	0.278	0.500	1.00	1	09/26/2021 22:22	WG1746600
1,2,3-Trichlorobenzene	87-61-6	0.500	U	0.230	0.500	1.00	1	09/26/2021 22:22	WG1746600
1,2,4-Trichlorobenzene	120-82-1	0.500	U	0.481	0.500	1.00	1	09/27/2021 16:51	WG1747089
1,2,3-Trimethylbenzene	526-73-8	0.500	U	0.104	0.500	1.00	1	09/26/2021 22:22	WG1746600
1,2,4-Trimethylbenzene	95-63-6	0.500	U	0.322	0.500	1.00	1	09/26/2021 22:22	WG1746600
1,3,5-Trimethylbenzene	108-67-8	0.500	U	0.104	0.500	1.00	1	09/26/2021 22:22	WG1746600
1,1,1-Trichloroethane	71-55-6	0.500	U	0.149	0.500	1.00	1	09/27/2021 16:51	WG1747089
1,1,2-Trichloroethane	79-00-5	0.500	U	0.158	0.500	1.00	1	09/26/2021 22:22	WG1746600
Trichloroethene	79-01-6	0.500	U	0.190	0.500	1.00	1	09/27/2021 16:51	WG1747089
Trichlorofluoromethane	75-69-4	2.00	U	0.160	2.00	5.00	1	09/26/2021 22:22	WG1746600
1,1,2-Trichlorotrifluoroethane	76-13-1	0.500	U	0.180	0.500	1.00	1	09/26/2021 22:22	WG1746600
1,2,3-Trichloropropane	96-18-4	1.00	U	0.237	1.00	2.50	1	09/26/2021 22:22	WG1746600
Vinyl chloride	75-01-4	0.500	U	0.234	0.500	1.00	1	09/26/2021 22:22	WG1746600
Xylenes, Total	1330-20-7	1.50	U	0.174	1.50	3.00	1	09/26/2021 22:22	WG1746600
(S) Toluene-d8	*2037-26-5*	*102*				*89.0-112*		*09/26/2021 22:22*	WG1746600
(S) Toluene-d8	*2037-26-5*	*101*				*89.0-112*		*09/27/2021 16:51*	WG1747089
(S) 4-Bromofluorobenzene	*460-00-4*	*91.6*				*85.0-114*		*09/26/2021 22:22*	WG1746600
(S) 4-Bromofluorobenzene	*460-00-4*	*98.9*				*85.0-114*		*09/27/2021 16:51*	WG1747089
(S) 1,2-Dichloroethane-d4	*17060-07-0*	*101*				*81.0-118*		*09/26/2021 22:22*	WG1746600

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
(S) 1,2-Dichloroethane-d4	*17060-07-0*	*101*				*81.0-118*		*09/27/2021 16:51*	WG1747089

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
TPH (GC/FID) High Fraction	68334-30-5	50.0	U	24.7	50.0	100	1	09/27/2021 21:16	WG1746498
(S) o-Terphenyl	*84-15-1*	*91.0*				*56.0-125*		*09/27/2021 21:16*	WG1746498

Additional Information - Results for field analyses are not accredited to ISO 17025

Analyte	Result	Units
Cooler#	1	
Cooler Temperature	0.4	Deg. C

Wet Chemistry by Method 2320 B-2011

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Alkalinity		74600		8450	10000	20000	1	09/27/2021 13:31	WG1746888
Alkalinity,Bicarbonate		74600		8450	10000	20000	1	09/27/2021 13:31	WG1746888
Alkalinity,Carbonate		10000	U	8450	10000	20000	1	09/27/2021 13:31	WG1746888
Alkalinity,Hydroxide		10000	U	8450	10000	20000	1	09/27/2021 13:31	WG1746888

Sample Narrative:

L1405623-11 WG1746888: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 300.0

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Sulfate	14808-79-8	11200		594	2500	5000	1	09/27/2021 02:50	WG1746883

Wet Chemistry by Method 351.2

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Kjeldahl Nitrogen, TKN	7727-37-9	150	U	140	150	250	1	09/29/2021 13:58	WG1746199

Wet Chemistry by Method 353.2

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Nitrate-Nitrite	7727-37-9	50.0	U	50.0	50.0	100	1	09/28/2021 17:21	WG1747087

Metals (ICP) by Method 6010D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Iron	7439-89-6	3670		20.5	50.0	100	1	09/27/2021 04:17	WG1745399
Manganese	7439-96-5	130		0.855	5.00	10.0	1	09/27/2021 04:17	WG1745399

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Acetone	67-64-1	25.0	U	11.3	25.0	50.0	1	09/26/2021 22:43	WG1746600
Acrolein	107-02-8	25.0	J3 U	2.54	25.0	50.0	1	09/27/2021 17:10	WG1747089
Acrylonitrile	107-13-1	5.00	U	0.671	5.00	10.0	1	09/26/2021 22:43	WG1746600
Benzene	71-43-2	0.500	U	0.0941	0.500	1.00	1	09/26/2021 22:43	WG1746600
Bromobenzene	108-86-1	0.500	U	0.118	0.500	1.00	1	09/26/2021 22:43	WG1746600
Bromodichloromethane	75-27-4	0.500	U	0.136	0.500	1.00	1	09/26/2021 22:43	WG1746600
Bromoform	75-25-2	0.500	U	0.129	0.500	1.00	1	09/26/2021 22:43	WG1746600
Bromomethane	74-83-9	2.00	U	0.605	2.00	5.00	1	09/27/2021 17:10	WG1747089
n-Butylbenzene	104-51-8	0.500	U	0.157	0.500	1.00	1	09/26/2021 22:43	WG1746600
sec-Butylbenzene	135-98-8	0.500	U	0.125	0.500	1.00	1	09/26/2021 22:43	WG1746600
tert-Butylbenzene	98-06-6	0.500	U	0.127	0.500	1.00	1	09/26/2021 22:43	WG1746600
Carbon tetrachloride	56-23-5	0.500	U	0.128	0.500	1.00	1	09/26/2021 22:43	WG1746600
Chlorobenzene	108-90-7	0.500	U	0.116	0.500	1.00	1	09/26/2021 22:43	WG1746600
Chlorodibromomethane	124-48-1	0.500	U	0.140	0.500	1.00	1	09/26/2021 22:43	WG1746600
Chloroethane	75-00-3	2.00	U	0.192	2.00	5.00	1	09/26/2021 22:43	WG1746600

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result ug/l	Qualifier	DL ug/l	LOD ug/l	LOQ ug/l	Dilution	Analysis date / time	Batch
Chloroform	67-66-3	2.00	U	0.111	2.00	5.00	1	09/26/2021 22:43	WG1746600
Chloromethane	74-87-3	1.00	U	0.960	1.00	2.50	1	09/26/2021 22:43	WG1746600
2-Chlorotoluene	95-49-8	0.500	U	0.106	0.500	1.00	1	09/26/2021 22:43	WG1746600
4-Chlorotoluene	106-43-4	0.500	U	0.114	0.500	1.00	1	09/26/2021 22:43	WG1746600
1,2-Dibromoethane	106-93-4	0.500	U	0.126	0.500	1.00	1	09/26/2021 22:43	WG1746600
1,2-Dibromo-3-Chloropropane	96-12-8	2.00	U	0.276	2.00	5.00	1	09/26/2021 22:43	WG1746600
Dibromomethane	74-95-3	0.500	U	0.122	0.500	1.00	1	09/26/2021 22:43	WG1746600
1,2-Dichlorobenzene	95-50-1	0.500	U	0.107	0.500	1.00	1	09/26/2021 22:43	WG1746600
1,3-Dichlorobenzene	541-73-1	0.500	U	0.110	0.500	1.00	1	09/26/2021 22:43	WG1746600
1,4-Dichlorobenzene	106-46-7	0.500	U	0.120	0.500	1.00	1	09/26/2021 22:43	WG1746600
Dichlorodifluoromethane	75-71-8	2.00	U	0.374	2.00	5.00	1	09/26/2021 22:43	WG1746600
1,1-Dichloroethane	75-34-3	0.500	U	0.100	0.500	1.00	1	09/26/2021 22:43	WG1746600
1,2-Dichloroethane	107-06-2	0.102	J	0.0819	0.500	1.00	1	09/26/2021 22:43	WG1746600
1,1-Dichloroethene	75-35-4	0.500	U	0.188	0.500	1.00	1	09/26/2021 22:43	WG1746600
cis-1,2-Dichloroethene	156-59-2	0.500	U	0.126	0.500	1.00	1	09/26/2021 22:43	WG1746600
trans-1,2-Dichloroethene	156-60-5	0.500	U	0.149	0.500	1.00	1	09/26/2021 22:43	WG1746600
1,2-Dichloropropane	78-87-5	0.500	U	0.149	0.500	1.00	1	09/26/2021 22:43	WG1746600
1,3-Dichloropropane	142-28-9	0.500	U	0.110	0.500	1.00	1	09/26/2021 22:43	WG1746600
2,2-Dichloropropane	594-20-7	0.500	U	0.161	0.500	1.00	1	09/26/2021 22:43	WG1746600
1,1-Dichloropropene	563-58-6	0.500	U	0.142	0.500	1.00	1	09/26/2021 22:43	WG1746600
cis-1,3-Dichloropropene	10061-01-5	0.500	U	0.111	0.500	1.00	1	09/26/2021 22:43	WG1746600
trans-1,3-Dichloropropene	10061-02-6	0.500	U	0.118	0.500	1.00	1	09/26/2021 22:43	WG1746600
Di-isopropyl ether	108-20-3	0.500	U	0.105	0.500	1.00	1	09/26/2021 22:43	WG1746600
Ethylbenzene	100-41-4	0.500	U	0.137	0.500	1.00	1	09/26/2021 22:43	WG1746600
Hexachloro-1,3-butadiene	87-68-3	0.500	U	0.337	0.500	1.00	1	09/27/2021 17:10	WG1747089
Isopropylbenzene	98-82-8	0.500	U	0.105	0.500	1.00	1	09/26/2021 22:43	WG1746600
p-Isopropyltoluene	99-87-6	0.500	U	0.120	0.500	1.00	1	09/26/2021 22:43	WG1746600
2-Butanone (MEK)	78-93-3	5.00	U	1.19	5.00	10.0	1	09/26/2021 22:43	WG1746600
Methylene Chloride	75-09-2	2.00	U	0.430	2.00	5.00	1	09/26/2021 22:43	WG1746600
4-Methyl-2-pentanone (MIBK)	108-10-1	5.00	U	0.478	5.00	10.0	1	09/26/2021 22:43	WG1746600
Methyl tert-butyl ether	1634-04-4	0.500	U	0.101	0.500	1.00	1	09/26/2021 22:43	WG1746600
Naphthalene	91-20-3	2.00	U	1.00	2.00	5.00	1	09/26/2021 22:43	WG1746600
n-Propylbenzene	103-65-1	0.500	U	0.0993	0.500	1.00	1	09/26/2021 22:43	WG1746600
Styrene	100-42-5	0.500	U	0.118	0.500	1.00	1	09/26/2021 22:43	WG1746600
1,1,1,2-Tetrachloroethane	630-20-6	0.500	U	0.147	0.500	1.00	1	09/27/2021 17:10	WG1747089
1,1,2,2-Tetrachloroethane	79-34-5	0.500	U	0.133	0.500	1.00	1	09/26/2021 22:43	WG1746600
Tetrachloroethene	127-18-4	0.500	U	0.300	0.500	1.00	1	09/26/2021 22:43	WG1746600
Toluene	108-88-3	0.500	U	0.278	0.500	1.00	1	09/26/2021 22:43	WG1746600
1,2,3-Trichlorobenzene	87-61-6	0.500	U	0.230	0.500	1.00	1	09/26/2021 22:43	WG1746600
1,2,4-Trichlorobenzene	120-82-1	0.500	U	0.481	0.500	1.00	1	09/27/2021 17:10	WG1747089
1,2,3-Trimethylbenzene	526-73-8	0.500	U	0.104	0.500	1.00	1	09/26/2021 22:43	WG1746600
1,2,4-Trimethylbenzene	95-63-6	0.500	U	0.322	0.500	1.00	1	09/26/2021 22:43	WG1746600
1,3,5-Trimethylbenzene	108-67-8	0.500	U	0.104	0.500	1.00	1	09/26/2021 22:43	WG1746600
1,1,1-Trichloroethane	71-55-6	0.500	U	0.149	0.500	1.00	1	09/27/2021 17:10	WG1747089
1,1,2-Trichloroethane	79-00-5	0.500	U	0.158	0.500	1.00	1	09/26/2021 22:43	WG1746600
Trichloroethene	79-01-6	4.00		0.190	0.500	1.00	1	09/27/2021 17:10	WG1747089
Trichlorofluoromethane	75-69-4	2.00	U	0.160	2.00	5.00	1	09/26/2021 22:43	WG1746600
1,1,2-Trichlorotrifluoroethane	76-13-1	0.500	U	0.180	0.500	1.00	1	09/26/2021 22:43	WG1746600
1,2,3-Trichloropropane	96-18-4	1.00	U	0.237	1.00	2.50	1	09/26/2021 22:43	WG1746600
Vinyl chloride	75-01-4	0.500	U	0.234	0.500	1.00	1	09/26/2021 22:43	WG1746600
Xylenes, Total	1330-20-7	1.50	U	0.174	1.50	3.00	1	09/26/2021 22:43	WG1746600
(S) Toluene-d8	*2037-26-5*	*98.8*				*89.0-112*		*09/26/2021 22:43*	WG1746600
(S) Toluene-d8	*2037-26-5*	*103*				*89.0-112*		*09/27/2021 17:10*	WG1747089
(S) 4-Bromofluorobenzene	*460-00-4*	*90.6*				*85.0-114*		*09/26/2021 22:43*	WG1746600
(S) 4-Bromofluorobenzene	*460-00-4*	*98.4*				*85.0-114*		*09/27/2021 17:10*	WG1747089
(S) 1,2-Dichloroethane-d4	*17060-07-0*	*94.0*				*81.0-118*		*09/26/2021 22:43*	WG1746600

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
(S) 1,2-Dichloroethane-d4	*17060-07-0*	*101*				*81.0-118*		*09/27/2021 17:10*	WG1747089

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
TPH (GC/FID) High Fraction	68334-30-5	59.0	U	29.1	59.0	118	1.18	09/27/2021 21:42	WG1746498
(S) o-Terphenyl	*84-15-1*	*96.2*				*56.0-125*		*09/27/2021 21:42*	WG1746498

Sample Narrative:

L1405623-11 WG1746498: Dilution due to sample volume.

Additional Information - Results for field analyses are not accredited to ISO 17025

Analyte	Result	Units
Cooler#	1	
Cooler Temperature	0.4	Deg. C

Wet Chemistry by Method 2320 B-2011

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Alkalinity		74800		8450	10000	20000	1	09/27/2021 13:34	WG1746888
Alkalinity,Bicarbonate		74800		8450	10000	20000	1	09/27/2021 13:34	WG1746888
Alkalinity,Carbonate		10000	U	8450	10000	20000	1	09/27/2021 13:34	WG1746888
Alkalinity,Hydroxide		10000	U	8450	10000	20000	1	09/27/2021 13:34	WG1746888

Sample Narrative:

L1405623-12 WG1746888: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 300.0

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Sulfate	14808-79-8	10900		594	2500	5000	1	09/27/2021 03:07	WG1746883

Wet Chemistry by Method 351.2

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Kjeldahl Nitrogen, TKN	7727-37-9	150	U	140	150	250	1	09/29/2021 14:00	WG1746199

Wet Chemistry by Method 353.2

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Nitrate-Nitrite	7727-37-9	50.0	U	50.0	50.0	100	1	09/28/2021 17:23	WG1747087

Metals (ICP) by Method 6010D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Iron	7439-89-6	2100		20.5	50.0	100	1	09/27/2021 04:20	WG1745399
Manganese	7439-96-5	85.8		0.855	5.00	10.0	1	09/27/2021 04:20	WG1745399

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Acetone	67-64-1	25.0	U	11.3	25.0	50.0	1	09/26/2021 23:03	WG1746600
Acrolein	107-02-8	25.0	J3 U	2.54	25.0	50.0	1	09/27/2021 17:29	WG1747089
Acrylonitrile	107-13-1	5.00	U	0.671	5.00	10.0	1	09/26/2021 23:03	WG1746600
Benzene	71-43-2	0.500	U	0.0941	0.500	1.00	1	09/26/2021 23:03	WG1746600
Bromobenzene	108-86-1	0.500	U	0.118	0.500	1.00	1	09/26/2021 23:03	WG1746600
Bromodichloromethane	75-27-4	0.500	U	0.136	0.500	1.00	1	09/26/2021 23:03	WG1746600
Bromoform	75-25-2	0.500	U	0.129	0.500	1.00	1	09/26/2021 23:03	WG1746600
Bromomethane	74-83-9	2.00	U	0.605	2.00	5.00	1	09/27/2021 17:29	WG1747089
n-Butylbenzene	104-51-8	0.500	U	0.157	0.500	1.00	1	09/26/2021 23:03	WG1746600
sec-Butylbenzene	135-98-8	0.500	U	0.125	0.500	1.00	1	09/26/2021 23:03	WG1746600
tert-Butylbenzene	98-06-6	0.500	U	0.127	0.500	1.00	1	09/26/2021 23:03	WG1746600
Carbon tetrachloride	56-23-5	0.500	U	0.128	0.500	1.00	1	09/26/2021 23:03	WG1746600
Chlorobenzene	108-90-7	0.500	U	0.116	0.500	1.00	1	09/26/2021 23:03	WG1746600
Chlorodibromomethane	124-48-1	0.500	U	0.140	0.500	1.00	1	09/26/2021 23:03	WG1746600
Chloroethane	75-00-3	2.00	U	0.192	2.00	5.00	1	09/26/2021 23:03	WG1746600

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result ug/l	Qualifier	DL ug/l	LOD ug/l	LOQ ug/l	Dilution	Analysis date / time	Batch
Chloroform	67-66-3	2.00	U	0.111	2.00	5.00	1	09/26/2021 23:03	WG1746600
Chloromethane	74-87-3	1.00	U	0.960	1.00	2.50	1	09/26/2021 23:03	WG1746600
2-Chlorotoluene	95-49-8	0.500	U	0.106	0.500	1.00	1	09/26/2021 23:03	WG1746600
4-Chlorotoluene	106-43-4	0.500	U	0.114	0.500	1.00	1	09/26/2021 23:03	WG1746600
1,2-Dibromoethane	106-93-4	0.500	U	0.126	0.500	1.00	1	09/26/2021 23:03	WG1746600
1,2-Dibromo-3-Chloropropane	96-12-8	2.00	U	0.276	2.00	5.00	1	09/26/2021 23:03	WG1746600
Dibromomethane	74-95-3	0.500	U	0.122	0.500	1.00	1	09/26/2021 23:03	WG1746600
1,2-Dichlorobenzene	95-50-1	0.500	U	0.107	0.500	1.00	1	09/26/2021 23:03	WG1746600
1,3-Dichlorobenzene	541-73-1	0.500	U	0.110	0.500	1.00	1	09/26/2021 23:03	WG1746600
1,4-Dichlorobenzene	106-46-7	0.500	U	0.120	0.500	1.00	1	09/26/2021 23:03	WG1746600
Dichlorodifluoromethane	75-71-8	2.00	U	0.374	2.00	5.00	1	09/26/2021 23:03	WG1746600
1,1-Dichloroethane	75-34-3	0.500	U	0.100	0.500	1.00	1	09/26/2021 23:03	WG1746600
1,2-Dichloroethane	107-06-2	0.153	J	0.0819	0.500	1.00	1	09/26/2021 23:03	WG1746600
1,1-Dichloroethene	75-35-4	0.500	U	0.188	0.500	1.00	1	09/26/2021 23:03	WG1746600
cis-1,2-Dichloroethene	156-59-2	0.500	U	0.126	0.500	1.00	1	09/26/2021 23:03	WG1746600
trans-1,2-Dichloroethene	156-60-5	0.500	U	0.149	0.500	1.00	1	09/26/2021 23:03	WG1746600
1,2-Dichloropropane	78-87-5	0.500	U	0.149	0.500	1.00	1	09/26/2021 23:03	WG1746600
1,3-Dichloropropane	142-28-9	0.500	U	0.110	0.500	1.00	1	09/26/2021 23:03	WG1746600
2,2-Dichloropropane	594-20-7	0.500	U	0.161	0.500	1.00	1	09/26/2021 23:03	WG1746600
1,1-Dichloropropene	563-58-6	0.500	U	0.142	0.500	1.00	1	09/26/2021 23:03	WG1746600
cis-1,3-Dichloropropene	10061-01-5	0.500	U	0.111	0.500	1.00	1	09/26/2021 23:03	WG1746600
trans-1,3-Dichloropropene	10061-02-6	0.500	U	0.118	0.500	1.00	1	09/26/2021 23:03	WG1746600
Di-isopropyl ether	108-20-3	0.500	U	0.105	0.500	1.00	1	09/26/2021 23:03	WG1746600
Ethylbenzene	100-41-4	0.500	U	0.137	0.500	1.00	1	09/26/2021 23:03	WG1746600
Hexachloro-1,3-butadiene	87-68-3	0.500	U	0.337	0.500	1.00	1	09/27/2021 17:29	WG1747089
Isopropylbenzene	98-82-8	0.500	U	0.105	0.500	1.00	1	09/26/2021 23:03	WG1746600
p-Isopropyltoluene	99-87-6	0.500	U	0.120	0.500	1.00	1	09/26/2021 23:03	WG1746600
2-Butanone (MEK)	78-93-3	5.00	U	1.19	5.00	10.0	1	09/26/2021 23:03	WG1746600
Methylene Chloride	75-09-2	2.00	U	0.430	2.00	5.00	1	09/26/2021 23:03	WG1746600
4-Methyl-2-pentanone (MIBK)	108-10-1	5.00	U	0.478	5.00	10.0	1	09/26/2021 23:03	WG1746600
Methyl tert-butyl ether	1634-04-4	0.500	U	0.101	0.500	1.00	1	09/26/2021 23:03	WG1746600
Naphthalene	91-20-3	2.00	U	1.00	2.00	5.00	1	09/26/2021 23:03	WG1746600
n-Propylbenzene	103-65-1	0.500	U	0.0993	0.500	1.00	1	09/26/2021 23:03	WG1746600
Styrene	100-42-5	0.500	U	0.118	0.500	1.00	1	09/26/2021 23:03	WG1746600
1,1,1,2-Tetrachloroethane	630-20-6	0.500	U	0.147	0.500	1.00	1	09/27/2021 17:29	WG1747089
1,1,2,2-Tetrachloroethane	79-34-5	0.500	U	0.133	0.500	1.00	1	09/26/2021 23:03	WG1746600
Tetrachloroethene	127-18-4	0.500	U	0.300	0.500	1.00	1	09/26/2021 23:03	WG1746600
Toluene	108-88-3	0.500	U	0.278	0.500	1.00	1	09/26/2021 23:03	WG1746600
1,2,3-Trichlorobenzene	87-61-6	0.500	U	0.230	0.500	1.00	1	09/26/2021 23:03	WG1746600
1,2,4-Trichlorobenzene	120-82-1	0.500	U	0.481	0.500	1.00	1	09/27/2021 17:29	WG1747089
1,2,3-Trimethylbenzene	526-73-8	0.500	U	0.104	0.500	1.00	1	09/26/2021 23:03	WG1746600
1,2,4-Trimethylbenzene	95-63-6	0.500	U	0.322	0.500	1.00	1	09/26/2021 23:03	WG1746600
1,3,5-Trimethylbenzene	108-67-8	0.500	U	0.104	0.500	1.00	1	09/26/2021 23:03	WG1746600
1,1,1-Trichloroethane	71-55-6	0.500	U	0.149	0.500	1.00	1	09/27/2021 17:29	WG1747089
1,1,2-Trichloroethane	79-00-5	0.500	U	0.158	0.500	1.00	1	09/26/2021 23:03	WG1746600
Trichloroethene	79-01-6	4.27		0.190	0.500	1.00	1	09/27/2021 17:29	WG1747089
Trichlorofluoromethane	75-69-4	2.00	U	0.160	2.00	5.00	1	09/26/2021 23:03	WG1746600
1,1,2-Trichlorotrifluoroethane	76-13-1	0.500	U	0.180	0.500	1.00	1	09/26/2021 23:03	WG1746600
1,2,3-Trichloropropane	96-18-4	1.00	U	0.237	1.00	2.50	1	09/26/2021 23:03	WG1746600
Vinyl chloride	75-01-4	0.500	U	0.234	0.500	1.00	1	09/26/2021 23:03	WG1746600
Xylenes, Total	1330-20-7	1.50	U	0.174	1.50	3.00	1	09/26/2021 23:03	WG1746600
(S) Toluene-d8	*2037-26-5*	*97.6*				*89.0-112*		*09/26/2021 23:03*	WG1746600
(S) Toluene-d8	*2037-26-5*	*100*				*89.0-112*		*09/27/2021 17:29*	WG1747089
(S) 4-Bromofluorobenzene	*460-00-4*	*90.6*				*85.0-114*		*09/26/2021 23:03*	WG1746600
(S) 4-Bromofluorobenzene	*460-00-4*	*99.6*				*85.0-114*		*09/27/2021 17:29*	WG1747089
(S) 1,2-Dichloroethane-d4	*17060-07-0*	*96.3*				*81.0-118*		*09/26/2021 23:03*	WG1746600

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
(S) 1,2-Dichloroethane-d4	*17060-07-0*	*102*				*81.0-118*		*09/27/2021 17:29*	WG1747089

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
TPH (GC/FID) High Fraction	68334-30-5	50.0	U	24.7	50.0	100	1	09/27/2021 22:07	WG1746498
(S) o-Terphenyl	*84-15-1*	*91.5*				*56.0-125*		*09/27/2021 22:07*	WG1746498

Additional Information - Results for field analyses are not accredited to ISO 17025

Analyte	Result	Units
Cooler#	1	
Cooler Temperature	0.4	Deg. C

Wet Chemistry by Method 2320 B-2011

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Alkalinity		97500		8450	10000	20000	1	09/27/2021 13:38	WG1746888
Alkalinity,Bicarbonate		97500		8450	10000	20000	1	09/27/2021 13:38	WG1746888
Alkalinity,Carbonate		10000	U	8450	10000	20000	1	09/27/2021 13:38	WG1746888
Alkalinity,Hydroxide		10000	U	8450	10000	20000	1	09/27/2021 13:38	WG1746888

Sample Narrative:

L1405623-13 WG1746888: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 300.0

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Sulfate	14808-79-8	5670		594	2500	5000	1	09/27/2021 03:23	WG1746883

Wet Chemistry by Method 351.2

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Kjeldahl Nitrogen, TKN	7727-37-9	150	U	140	150	250	1	09/29/2021 14:02	WG1746199

Wet Chemistry by Method 353.2

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Nitrate-Nitrite	7727-37-9	929		50.0	50.0	100	1	09/28/2021 17:24	WG1747087

Metals (ICP) by Method 6010D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Iron	7439-89-6	215		20.5	50.0	100	1	09/27/2021 04:23	WG1745399
Manganese	7439-96-5	9.45	B J	0.855	5.00	10.0	1	09/27/2021 04:23	WG1745399

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Acetone	67-64-1	25.0	U	11.3	25.0	50.0	1	09/26/2021 23:24	WG1746600
Acrolein	107-02-8	25.0	J3 U	2.54	25.0	50.0	1	09/27/2021 17:48	WG1747089
Acrylonitrile	107-13-1	5.00	U	0.671	5.00	10.0	1	09/26/2021 23:24	WG1746600
Benzene	71-43-2	0.500	U	0.0941	0.500	1.00	1	09/26/2021 23:24	WG1746600
Bromobenzene	108-86-1	0.500	U	0.118	0.500	1.00	1	09/26/2021 23:24	WG1746600
Bromodichloromethane	75-27-4	0.500	U	0.136	0.500	1.00	1	09/26/2021 23:24	WG1746600
Bromoform	75-25-2	0.500	U	0.129	0.500	1.00	1	09/26/2021 23:24	WG1746600
Bromomethane	74-83-9	2.00	U	0.605	2.00	5.00	1	09/27/2021 17:48	WG1747089
n-Butylbenzene	104-51-8	0.500	U	0.157	0.500	1.00	1	09/26/2021 23:24	WG1746600
sec-Butylbenzene	135-98-8	0.500	U	0.125	0.500	1.00	1	09/26/2021 23:24	WG1746600
tert-Butylbenzene	98-06-6	0.500	U	0.127	0.500	1.00	1	09/26/2021 23:24	WG1746600
Carbon tetrachloride	56-23-5	0.500	U	0.128	0.500	1.00	1	09/26/2021 23:24	WG1746600
Chlorobenzene	108-90-7	0.500	U	0.116	0.500	1.00	1	09/26/2021 23:24	WG1746600
Chlorodibromomethane	124-48-1	0.500	U	0.140	0.500	1.00	1	09/26/2021 23:24	WG1746600
Chloroethane	75-00-3	2.00	U	0.192	2.00	5.00	1	09/26/2021 23:24	WG1746600

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result ug/l	Qualifier	DL ug/l	LOD ug/l	LOQ ug/l	Dilution	Analysis date / time	Batch
Chloroform	67-66-3	2.00	U	0.111	2.00	5.00	1	09/26/2021 23:24	WG1746600
Chloromethane	74-87-3	1.00	U	0.960	1.00	2.50	1	09/26/2021 23:24	WG1746600
2-Chlorotoluene	95-49-8	0.500	U	0.106	0.500	1.00	1	09/26/2021 23:24	WG1746600
4-Chlorotoluene	106-43-4	0.500	U	0.114	0.500	1.00	1	09/26/2021 23:24	WG1746600
1,2-Dibromoethane	106-93-4	0.500	U	0.126	0.500	1.00	1	09/26/2021 23:24	WG1746600
1,2-Dibromo-3-Chloropropane	96-12-8	2.00	U	0.276	2.00	5.00	1	09/26/2021 23:24	WG1746600
Dibromomethane	74-95-3	0.500	U	0.122	0.500	1.00	1	09/26/2021 23:24	WG1746600
1,2-Dichlorobenzene	95-50-1	0.500	U	0.107	0.500	1.00	1	09/26/2021 23:24	WG1746600
1,3-Dichlorobenzene	541-73-1	0.500	U	0.110	0.500	1.00	1	09/26/2021 23:24	WG1746600
1,4-Dichlorobenzene	106-46-7	0.500	U	0.120	0.500	1.00	1	09/26/2021 23:24	WG1746600
Dichlorodifluoromethane	75-71-8	2.00	U	0.374	2.00	5.00	1	09/26/2021 23:24	WG1746600
1,1-Dichloroethane	75-34-3	0.500	U	0.100	0.500	1.00	1	09/26/2021 23:24	WG1746600
1,2-Dichloroethane	107-06-2	0.500	U	0.0819	0.500	1.00	1	09/26/2021 23:24	WG1746600
1,1-Dichloroethene	75-35-4	0.500	U	0.188	0.500	1.00	1	09/26/2021 23:24	WG1746600
cis-1,2-Dichloroethene	156-59-2	0.500	U	0.126	0.500	1.00	1	09/26/2021 23:24	WG1746600
trans-1,2-Dichloroethene	156-60-5	0.500	U	0.149	0.500	1.00	1	09/26/2021 23:24	WG1746600
1,2-Dichloropropane	78-87-5	0.500	U	0.149	0.500	1.00	1	09/26/2021 23:24	WG1746600
1,3-Dichloropropane	142-28-9	0.500	U	0.110	0.500	1.00	1	09/26/2021 23:24	WG1746600
2,2-Dichloropropane	594-20-7	0.500	U	0.161	0.500	1.00	1	09/26/2021 23:24	WG1746600
1,1-Dichloropropene	563-58-6	0.500	U	0.142	0.500	1.00	1	09/26/2021 23:24	WG1746600
cis-1,3-Dichloropropene	10061-01-5	0.500	U	0.111	0.500	1.00	1	09/26/2021 23:24	WG1746600
trans-1,3-Dichloropropene	10061-02-6	0.500	U	0.118	0.500	1.00	1	09/26/2021 23:24	WG1746600
Di-isopropyl ether	108-20-3	0.500	U	0.105	0.500	1.00	1	09/26/2021 23:24	WG1746600
Ethylbenzene	100-41-4	0.500	U	0.137	0.500	1.00	1	09/26/2021 23:24	WG1746600
Hexachloro-1,3-butadiene	87-68-3	0.500	U	0.337	0.500	1.00	1	09/27/2021 17:48	WG1747089
Isopropylbenzene	98-82-8	0.500	U	0.105	0.500	1.00	1	09/26/2021 23:24	WG1746600
p-Isopropyltoluene	99-87-6	0.500	U	0.120	0.500	1.00	1	09/26/2021 23:24	WG1746600
2-Butanone (MEK)	78-93-3	5.00	U	1.19	5.00	10.0	1	09/26/2021 23:24	WG1746600
Methylene Chloride	75-09-2	2.00	U	0.430	2.00	5.00	1	09/26/2021 23:24	WG1746600
4-Methyl-2-pentanone (MIBK)	108-10-1	5.00	U	0.478	5.00	10.0	1	09/26/2021 23:24	WG1746600
Methyl tert-butyl ether	1634-04-4	0.500	U	0.101	0.500	1.00	1	09/26/2021 23:24	WG1746600
Naphthalene	91-20-3	2.00	U	1.00	2.00	5.00	1	09/26/2021 23:24	WG1746600
n-Propylbenzene	103-65-1	0.500	U	0.0993	0.500	1.00	1	09/26/2021 23:24	WG1746600
Styrene	100-42-5	0.500	U	0.118	0.500	1.00	1	09/26/2021 23:24	WG1746600
1,1,1,2-Tetrachloroethane	630-20-6	0.500	U	0.147	0.500	1.00	1	09/27/2021 17:48	WG1747089
1,1,2,2-Tetrachloroethane	79-34-5	0.500	U	0.133	0.500	1.00	1	09/26/2021 23:24	WG1746600
Tetrachloroethene	127-18-4	0.500	U	0.300	0.500	1.00	1	09/26/2021 23:24	WG1746600
Toluene	108-88-3	0.500	U	0.278	0.500	1.00	1	09/26/2021 23:24	WG1746600
1,2,3-Trichlorobenzene	87-61-6	0.500	U	0.230	0.500	1.00	1	09/26/2021 23:24	WG1746600
1,2,4-Trichlorobenzene	120-82-1	0.500	U	0.481	0.500	1.00	1	09/27/2021 17:48	WG1747089
1,2,3-Trimethylbenzene	526-73-8	0.500	U	0.104	0.500	1.00	1	09/26/2021 23:24	WG1746600
1,2,4-Trimethylbenzene	95-63-6	0.500	U	0.322	0.500	1.00	1	09/26/2021 23:24	WG1746600
1,3,5-Trimethylbenzene	108-67-8	0.500	U	0.104	0.500	1.00	1	09/26/2021 23:24	WG1746600
1,1,1-Trichloroethane	71-55-6	0.500	U	0.149	0.500	1.00	1	09/27/2021 17:48	WG1747089
1,1,2-Trichloroethane	79-00-5	0.500	U	0.158	0.500	1.00	1	09/26/2021 23:24	WG1746600
Trichloroethene	79-01-6	8.11		0.190	0.500	1.00	1	09/27/2021 17:48	WG1747089
Trichlorofluoromethane	75-69-4	2.00	U	0.160	2.00	5.00	1	09/26/2021 23:24	WG1746600
1,1,2-Trichlorotrifluoroethane	76-13-1	0.500	U	0.180	0.500	1.00	1	09/26/2021 23:24	WG1746600
1,2,3-Trichloropropane	96-18-4	1.00	U	0.237	1.00	2.50	1	09/26/2021 23:24	WG1746600
Vinyl chloride	75-01-4	0.500	U	0.234	0.500	1.00	1	09/26/2021 23:24	WG1746600
Xylenes, Total	1330-20-7	1.50	U	0.174	1.50	3.00	1	09/26/2021 23:24	WG1746600
(S) Toluene-d8	*2037-26-5*	*107*				*89.0-112*		*09/26/2021 23:24*	WG1746600
(S) Toluene-d8	*2037-26-5*	*104*				*89.0-112*		*09/27/2021 17:48*	WG1747089
(S) 4-Bromofluorobenzene	*460-00-4*	*93.4*				*85.0-114*		*09/26/2021 23:24*	WG1746600
(S) 4-Bromofluorobenzene	*460-00-4*	*97.6*				*85.0-114*		*09/27/2021 17:48*	WG1747089
(S) 1,2-Dichloroethane-d4	*17060-07-0*	*94.9*				*81.0-118*		*09/26/2021 23:24*	WG1746600

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
(S) 1,2-Dichloroethane-d4	*17060-07-0*	*97.1*				*81.0-118*		*09/27/2021 17:48*	WG1747089

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
TPH (GC/FID) High Fraction	68334-30-5	50.0	U	24.7	50.0	100	1	09/27/2021 22:33	WG1746498
(S) o-Terphenyl	*84-15-1*	*89.5*				*56.0-125*		*09/27/2021 22:33*	WG1746498

Additional Information - Results for field analyses are not accredited to ISO 17025

Analyte	Result	Units
Cooler#	1	
Cooler Temperature	0.4	Deg. C

Wet Chemistry by Method 2320 B-2011

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Alkalinity		135000		8450	10000	20000	1	09/27/2021 13:42	WG1746888
Alkalinity,Bicarbonate		135000		8450	10000	20000	1	09/27/2021 13:42	WG1746888
Alkalinity,Carbonate		10000	U	8450	10000	20000	1	09/27/2021 13:42	WG1746888
Alkalinity,Hydroxide		10000	U	8450	10000	20000	1	09/27/2021 13:42	WG1746888

Sample Narrative:

L1405623-14 WG1746888: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 300.0

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Sulfate	14808-79-8	7940		594	2500	5000	1	09/27/2021 03:40	WG1746883

Wet Chemistry by Method 351.2

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Kjeldahl Nitrogen, TKN	7727-37-9	150	U	140	150	250	1	09/29/2021 14:06	WG1746199

Wet Chemistry by Method 353.2

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Nitrate-Nitrite	7727-37-9	1950		50.0	50.0	100	1	09/28/2021 17:29	WG1747087

Metals (ICP) by Method 6010D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Iron	7439-89-6	2010		20.5	50.0	100	1	09/27/2021 04:26	WG1745399
Manganese	7439-96-5	39.7		0.855	5.00	10.0	1	09/27/2021 04:26	WG1745399

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Acetone	67-64-1	125	U	56.5	125	250	5	09/26/2021 23:44	WG1746600
Acrolein	107-02-8	125	J3 U	12.7	125	250	5	09/27/2021 18:08	WG1747089
Acrylonitrile	107-13-1	25.0	U	3.36	25.0	50.0	5	09/26/2021 23:44	WG1746600
Benzene	71-43-2	2.50	U	0.471	2.50	5.00	5	09/26/2021 23:44	WG1746600
Bromobenzene	108-86-1	2.50	U	0.590	2.50	5.00	5	09/26/2021 23:44	WG1746600
Bromodichloromethane	75-27-4	2.50	U	0.680	2.50	5.00	5	09/26/2021 23:44	WG1746600
Bromoform	75-25-2	2.50	U	0.645	2.50	5.00	5	09/26/2021 23:44	WG1746600
Bromomethane	74-83-9	10.0	U	3.03	10.0	25.0	5	09/27/2021 18:08	WG1747089
n-Butylbenzene	104-51-8	2.50	U	0.785	2.50	5.00	5	09/26/2021 23:44	WG1746600
sec-Butylbenzene	135-98-8	2.50	U	0.625	2.50	5.00	5	09/26/2021 23:44	WG1746600
tert-Butylbenzene	98-06-6	2.50	U	0.635	2.50	5.00	5	09/26/2021 23:44	WG1746600
Carbon tetrachloride	56-23-5	2.50	U	0.640	2.50	5.00	5	09/26/2021 23:44	WG1746600
Chlorobenzene	108-90-7	2.50	U	0.580	2.50	5.00	5	09/26/2021 23:44	WG1746600
Chlorodibromomethane	124-48-1	2.50	U	0.700	2.50	5.00	5	09/26/2021 23:44	WG1746600
Chloroethane	75-00-3	10.0	U	0.960	10.0	25.0	5	09/26/2021 23:44	WG1746600

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result ug/l	Qualifier	DL ug/l	LOD ug/l	LOQ ug/l	Dilution	Analysis date / time	Batch
Chloroform	67-66-3	10.0	U	0.555	10.0	25.0	5	09/26/2021 23:44	WG1746600
Chloromethane	74-87-3	5.00	U	4.80	5.00	12.5	5	09/26/2021 23:44	WG1746600
2-Chlorotoluene	95-49-8	2.50	U	0.530	2.50	5.00	5	09/26/2021 23:44	WG1746600
4-Chlorotoluene	106-43-4	2.50	U	0.570	2.50	5.00	5	09/26/2021 23:44	WG1746600
1,2-Dibromoethane	106-93-4	2.50	U	0.630	2.50	5.00	5	09/26/2021 23:44	WG1746600
1,2-Dibromo-3-Chloropropane	96-12-8	10.0	U	1.38	10.0	25.0	5	09/26/2021 23:44	WG1746600
Dibromomethane	74-95-3	2.50	U	0.610	2.50	5.00	5	09/26/2021 23:44	WG1746600
1,2-Dichlorobenzene	95-50-1	2.50	U	0.535	2.50	5.00	5	09/26/2021 23:44	WG1746600
1,3-Dichlorobenzene	541-73-1	2.50	U	0.550	2.50	5.00	5	09/26/2021 23:44	WG1746600
1,4-Dichlorobenzene	106-46-7	2.50	U	0.600	2.50	5.00	5	09/26/2021 23:44	WG1746600
Dichlorodifluoromethane	75-71-8	10.0	U	1.87	10.0	25.0	5	09/26/2021 23:44	WG1746600
1,1-Dichloroethane	75-34-3	2.50	U	0.500	2.50	5.00	5	09/26/2021 23:44	WG1746600
1,2-Dichloroethane	107-06-2	2.50	U	0.409	2.50	5.00	5	09/26/2021 23:44	WG1746600
1,1-Dichloroethene	75-35-4	2.50	U	0.940	2.50	5.00	5	09/26/2021 23:44	WG1746600
cis-1,2-Dichloroethene	156-59-2	2.50	U	0.630	2.50	5.00	5	09/26/2021 23:44	WG1746600
trans-1,2-Dichloroethene	156-60-5	2.50	U	0.745	2.50	5.00	5	09/26/2021 23:44	WG1746600
1,2-Dichloropropane	78-87-5	2.50	U	0.745	2.50	5.00	5	09/26/2021 23:44	WG1746600
1,3-Dichloropropane	142-28-9	2.50	U	0.550	2.50	5.00	5	09/26/2021 23:44	WG1746600
2,2-Dichloropropane	594-20-7	2.50	U	0.805	2.50	5.00	5	09/26/2021 23:44	WG1746600
1,1-Dichloropropene	563-58-6	2.50	U	0.710	2.50	5.00	5	09/26/2021 23:44	WG1746600
cis-1,3-Dichloropropene	10061-01-5	2.50	U	0.555	2.50	5.00	5	09/26/2021 23:44	WG1746600
trans-1,3-Dichloropropene	10061-02-6	2.50	U	0.590	2.50	5.00	5	09/26/2021 23:44	WG1746600
Di-isopropyl ether	108-20-3	2.50	U	0.525	2.50	5.00	5	09/26/2021 23:44	WG1746600
Ethylbenzene	100-41-4	2.50	U	0.685	2.50	5.00	5	09/26/2021 23:44	WG1746600
Hexachloro-1,3-butadiene	87-68-3	2.50	U	1.69	2.50	5.00	5	09/27/2021 18:08	WG1747089
Isopropylbenzene	98-82-8	2.50	U	0.525	2.50	5.00	5	09/26/2021 23:44	WG1746600
p-Isopropyltoluene	99-87-6	2.50	U	0.600	2.50	5.00	5	09/26/2021 23:44	WG1746600
2-Butanone (MEK)	78-93-3	25.0	U	5.95	25.0	50.0	5	09/26/2021 23:44	WG1746600
Methylene Chloride	75-09-2	10.0	U	2.15	10.0	25.0	5	09/26/2021 23:44	WG1746600
4-Methyl-2-pentanone (MIBK)	108-10-1	25.0	U	2.39	25.0	50.0	5	09/26/2021 23:44	WG1746600
Methyl tert-butyl ether	1634-04-4	2.50	U	0.505	2.50	5.00	5	09/26/2021 23:44	WG1746600
Naphthalene	91-20-3	10.0	U	5.00	10.0	25.0	5	09/26/2021 23:44	WG1746600
n-Propylbenzene	103-65-1	2.50	U	0.497	2.50	5.00	5	09/26/2021 23:44	WG1746600
Styrene	100-42-5	2.50	U	0.590	2.50	5.00	5	09/26/2021 23:44	WG1746600
1,1,1,2-Tetrachloroethane	630-20-6	2.50	U	0.735	2.50	5.00	5	09/27/2021 18:08	WG1747089
1,1,2,2-Tetrachloroethane	79-34-5	2.50	U	0.665	2.50	5.00	5	09/26/2021 23:44	WG1746600
Tetrachloroethene	127-18-4	2.50	U	1.50	2.50	5.00	5	09/26/2021 23:44	WG1746600
Toluene	108-88-3	2.50	U	1.39	2.50	5.00	5	09/26/2021 23:44	WG1746600
1,2,3-Trichlorobenzene	87-61-6	2.50	U	1.15	2.50	5.00	5	09/26/2021 23:44	WG1746600
1,2,4-Trichlorobenzene	120-82-1	2.50	U	2.41	2.50	5.00	5	09/27/2021 18:08	WG1747089
1,2,3-Trimethylbenzene	526-73-8	2.50	U	0.520	2.50	5.00	5	09/26/2021 23:44	WG1746600
1,2,4-Trimethylbenzene	95-63-6	2.50	U	1.61	2.50	5.00	5	09/26/2021 23:44	WG1746600
1,3,5-Trimethylbenzene	108-67-8	2.50	U	0.520	2.50	5.00	5	09/26/2021 23:44	WG1746600
1,1,1-Trichloroethane	71-55-6	1.09	J	0.745	2.50	5.00	5	09/27/2021 18:08	WG1747089
1,1,2-Trichloroethane	79-00-5	2.50	U	0.790	2.50	5.00	5	09/26/2021 23:44	WG1746600
Trichloroethene	79-01-6	407		0.950	2.50	5.00	5	09/27/2021 18:08	WG1747089
Trichlorofluoromethane	75-69-4	10.0	U	0.800	10.0	25.0	5	09/26/2021 23:44	WG1746600
1,1,2-Trichlorotrifluoroethane	76-13-1	2.50	U	0.900	2.50	5.00	5	09/26/2021 23:44	WG1746600
1,2,3-Trichloropropane	96-18-4	5.00	U	1.19	5.00	12.5	5	09/26/2021 23:44	WG1746600
Vinyl chloride	75-01-4	2.50	U	1.17	2.50	5.00	5	09/26/2021 23:44	WG1746600
Xylenes, Total	1330-20-7	7.50	U	0.870	7.50	15.0	5	09/26/2021 23:44	WG1746600
(S) Toluene-d8	*2037-26-5*	*102*				*89.0-112*		*09/26/2021 23:44*	WG1746600
(S) Toluene-d8	*2037-26-5*	*104*				*89.0-112*		*09/27/2021 18:08*	WG1747089
(S) 4-Bromofluorobenzene	*460-00-4*	*90.3*				*85.0-114*		*09/26/2021 23:44*	WG1746600
(S) 4-Bromofluorobenzene	*460-00-4*	*102*				*85.0-114*		*09/27/2021 18:08*	WG1747089
(S) 1,2-Dichloroethane-d4	*17060-07-0*	*95.9*				*81.0-118*		*09/26/2021 23:44*	WG1746600

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
(S) 1,2-Dichloroethane-d4	*17060-07-0*	*100*				*81.0-118*		*09/27/2021 18:08*	WG1747089

Sample Narrative:

L1405623-14 WG1746600: Target compounds too high to run at a lower dilution.

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
TPH (GC/FID) High Fraction	68334-30-5	50.0	U	24.7	50.0	100	1	09/27/2021 22:59	WG1746498
(S) o-Terphenyl	*84-15-1*	*89.5*				*56.0-125*		*09/27/2021 22:59*	WG1746498

Additional Information - Results for field analyses are not accredited to ISO 17025

Analyte	Result	Units
Cooler#	1	
Cooler Temperature	0.4	Deg. C

Wet Chemistry by Method 2320 B-2011

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Alkalinity		966000		8450	10000	20000	1	09/27/2021 14:10	WG1746888
Alkalinity,Bicarbonate		966000		8450	10000	20000	1	09/27/2021 14:10	WG1746888
Alkalinity,Carbonate		10000	U	8450	10000	20000	1	09/27/2021 14:10	WG1746888
Alkalinity,Hydroxide		10000	U	8450	10000	20000	1	09/27/2021 14:10	WG1746888

Sample Narrative:

L1405623-15 WG1746888: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 300.0

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Sulfate	14808-79-8	2590	J	594	2500	5000	1	09/27/2021 03:56	WG1746883

Wet Chemistry by Method 351.2

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Kjeldahl Nitrogen, TKN	7727-37-9	660		140	150	250	1	09/29/2021 14:07	WG1746199

Wet Chemistry by Method 353.2

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Nitrate-Nitrite	7727-37-9	50.0	U	50.0	50.0	100	1	09/28/2021 17:32	WG1747087

Metals (ICP) by Method 6010D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Iron	7439-89-6	3550		20.5	50.0	100	1	09/27/2021 03:15	WG1745399
Manganese	7439-96-5	12600		4.28	25.0	50.0	5	09/27/2021 19:29	WG1745399

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Acetone	67-64-1	25.0	U	11.3	25.0	50.0	1	09/28/2021 13:50	WG1747768
Acrolein	107-02-8	25.0	C4 J3 J5 U	2.54	25.0	50.0	1	09/28/2021 13:50	WG1747768
Acrylonitrile	107-13-1	5.00	J5 U	0.671	5.00	10.0	1	09/28/2021 13:50	WG1747768
Benzene	71-43-2	1.42	J5	0.0941	0.500	1.00	1	09/28/2021 13:50	WG1747768
Bromobenzene	108-86-1	0.500	J5 U	0.118	0.500	1.00	1	09/28/2021 13:50	WG1747768
Bromodichloromethane	75-27-4	0.500	J5 U	0.136	0.500	1.00	1	09/28/2021 13:50	WG1747768
Bromoform	75-25-2	0.500	U	0.129	0.500	1.00	1	09/28/2021 13:50	WG1747768
Bromomethane	74-83-9	2.00	U	0.605	2.00	5.00	1	09/28/2021 13:50	WG1747768
n-Butylbenzene	104-51-8	0.632	J	0.157	0.500	1.00	1	09/28/2021 13:50	WG1747768
sec-Butylbenzene	135-98-8	0.147	J J5	0.125	0.500	1.00	1	09/28/2021 13:50	WG1747768
tert-Butylbenzene	98-06-6	0.698	J J5	0.127	0.500	1.00	1	09/28/2021 13:50	WG1747768
Carbon tetrachloride	56-23-5	0.500	J5 U	0.128	0.500	1.00	1	09/28/2021 13:50	WG1747768
Chlorobenzene	108-90-7	0.500	J5 U	0.116	0.500	1.00	1	09/28/2021 13:50	WG1747768
Chlorodibromomethane	124-48-1	0.500	U	0.140	0.500	1.00	1	09/28/2021 13:50	WG1747768
Chloroethane	75-00-3	2.00	J4 J5 U	0.192	2.00	5.00	1	09/28/2021 13:50	WG1747768

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result ug/l	Qualifier	DL ug/l	LOD ug/l	LOQ ug/l	Dilution	Analysis date / time	Batch
Chloroform	67-66-3	2.00	J5 U	0.111	2.00	5.00	1	09/28/2021 13:50	WG1747768
Chloromethane	74-87-3	1.00	J5 U	0.960	1.00	2.50	1	09/28/2021 13:50	WG1747768
2-Chlorotoluene	95-49-8	0.500	J5 U	0.106	0.500	1.00	1	09/28/2021 13:50	WG1747768
4-Chlorotoluene	106-43-4	0.500	J5 U	0.114	0.500	1.00	1	09/28/2021 13:50	WG1747768
1,2-Dibromoethane	106-93-4	0.500	U	0.126	0.500	1.00	1	09/28/2021 13:50	WG1747768
1,2-Dibromo-3-Chloropropane	96-12-8	2.00	U	0.276	2.00	5.00	1	09/29/2021 12:27	WG1748148
Dibromomethane	74-95-3	0.500	J5 U	0.122	0.500	1.00	1	09/28/2021 13:50	WG1747768
1,2-Dichlorobenzene	95-50-1	0.500	J5 U	0.107	0.500	1.00	1	09/28/2021 13:50	WG1747768
1,3-Dichlorobenzene	541-73-1	0.500	J5 U	0.110	0.500	1.00	1	09/28/2021 13:50	WG1747768
1,4-Dichlorobenzene	106-46-7	0.500	J5 U	0.120	0.500	1.00	1	09/28/2021 13:50	WG1747768
Dichlorodifluoromethane	75-71-8	2.00	J5 U	0.374	2.00	5.00	1	09/28/2021 13:50	WG1747768
1,1-Dichloroethane	75-34-3	0.500	J4 J5 U	0.100	0.500	1.00	1	09/28/2021 13:50	WG1747768
1,2-Dichloroethane	107-06-2	0.500	J5 U	0.0819	0.500	1.00	1	09/28/2021 13:50	WG1747768
1,1-Dichloroethene	75-35-4	0.500	J5 U	0.188	0.500	1.00	1	09/28/2021 13:50	WG1747768
cis-1,2-Dichloroethene	156-59-2	9.81	J5	0.126	0.500	1.00	1	09/28/2021 13:50	WG1747768
trans-1,2-Dichloroethene	156-60-5	0.500	J5 U	0.149	0.500	1.00	1	09/28/2021 13:50	WG1747768
1,2-Dichloropropane	78-87-5	0.500	J4 J5 U	0.149	0.500	1.00	1	09/28/2021 13:50	WG1747768
1,3-Dichloropropane	142-28-9	0.500	J5 U	0.110	0.500	1.00	1	09/28/2021 13:50	WG1747768
2,2-Dichloropropane	594-20-7	0.500	J5 U	0.161	0.500	1.00	1	09/28/2021 13:50	WG1747768
1,1-Dichloropropene	563-58-6	0.500	J5 U	0.142	0.500	1.00	1	09/28/2021 13:50	WG1747768
cis-1,3-Dichloropropene	10061-01-5	0.500	J5 U	0.111	0.500	1.00	1	09/28/2021 13:50	WG1747768
trans-1,3-Dichloropropene	10061-02-6	0.500	U	0.118	0.500	1.00	1	09/28/2021 13:50	WG1747768
Di-isopropyl ether	108-20-3	0.500	J4 J5 U	0.105	0.500	1.00	1	09/28/2021 13:50	WG1747768
Ethylbenzene	100-41-4	3.61	J5	0.137	0.500	1.00	1	09/28/2021 13:50	WG1747768
Hexachloro-1,3-butadiene	87-68-3	0.500	U	0.337	0.500	1.00	1	09/28/2021 13:50	WG1747768
Isopropylbenzene	98-82-8	3.42	J5	0.105	0.500	1.00	1	09/28/2021 13:50	WG1747768
p-Isopropyltoluene	99-87-6	0.500	J3 J5 U	0.120	0.500	1.00	1	09/28/2021 13:50	WG1747768
2-Butanone (MEK)	78-93-3	1.90	J J5	1.19	5.00	10.0	1	09/28/2021 13:50	WG1747768
Methylene Chloride	75-09-2	2.00	J5 U	0.430	2.00	5.00	1	09/28/2021 13:50	WG1747768
4-Methyl-2-pentanone (MIBK)	108-10-1	5.00	J5 U	0.478	5.00	10.0	1	09/28/2021 13:50	WG1747768
Methyl tert-butyl ether	1634-04-4	0.500	J5 U	0.101	0.500	1.00	1	09/28/2021 13:50	WG1747768
Naphthalene	91-20-3	23.1		1.00	2.00	5.00	1	09/29/2021 12:27	WG1748148
n-Propylbenzene	103-65-1	0.871	J J5	0.0993	0.500	1.00	1	09/28/2021 13:50	WG1747768
Styrene	100-42-5	0.500	U	0.118	0.500	1.00	1	09/28/2021 13:50	WG1747768
1,1,1,2-Tetrachloroethane	630-20-6	0.500	U	0.147	0.500	1.00	1	09/28/2021 13:50	WG1747768
1,1,2,2-Tetrachloroethane	79-34-5	0.500	J5 U	0.133	0.500	1.00	1	09/28/2021 13:50	WG1747768
Tetrachloroethene	127-18-4	0.306	J	0.300	0.500	1.00	1	09/28/2021 13:50	WG1747768
Toluene	108-88-3	0.500	J5 U	0.278	0.500	1.00	1	09/28/2021 13:50	WG1747768
1,2,3-Trichlorobenzene	87-61-6	0.500	U	0.230	0.500	1.00	1	09/28/2021 13:50	WG1747768
1,2,4-Trichlorobenzene	120-82-1	0.500	U	0.481	0.500	1.00	1	09/28/2021 13:50	WG1747768
1,2,3-Trimethylbenzene	526-73-8	0.133	J J5	0.104	0.500	1.00	1	09/28/2021 13:50	WG1747768
1,2,4-Trimethylbenzene	95-63-6	0.346	J J5	0.322	0.500	1.00	1	09/28/2021 13:50	WG1747768
1,3,5-Trimethylbenzene	108-67-8	0.400	J J5	0.104	0.500	1.00	1	09/28/2021 13:50	WG1747768
1,1,1-Trichloroethane	71-55-6	0.500	J5 U	0.149	0.500	1.00	1	09/28/2021 13:50	WG1747768
1,1,2-Trichloroethane	79-00-5	0.500	J5 U	0.158	0.500	1.00	1	09/28/2021 13:50	WG1747768
Trichloroethene	79-01-6	5.31	J5	0.190	0.500	1.00	1	09/28/2021 13:50	WG1747768
Trichlorofluoromethane	75-69-4	2.00	J5 U	0.160	2.00	5.00	1	09/28/2021 13:50	WG1747768
1,1,2-Trichlorotrifluoroethane	76-13-1	0.500	J5 U	0.180	0.500	1.00	1	09/28/2021 13:50	WG1747768
1,2,3-Trichloropropane	96-18-4	1.00	J5 U	0.237	1.00	2.50	1	09/28/2021 13:50	WG1747768
Vinyl chloride	75-01-4	0.500	J5 U	0.234	0.500	1.00	1	09/28/2021 13:50	WG1747768
Xylenes, Total	1330-20-7	2.35	J J5	0.174	1.50	3.00	1	09/28/2021 13:50	WG1747768
(S) Toluene-d8	*2037-26-5*	*99.6*				*89.0-112*		*09/28/2021 13:50*	WG1747768
(S) Toluene-d8	*2037-26-5*	*101*				*89.0-112*		*09/29/2021 12:27*	WG1748148
(S) 4-Bromofluorobenzene	*460-00-4*	*110*				*85.0-114*		*09/28/2021 13:50*	WG1747768
(S) 4-Bromofluorobenzene	*460-00-4*	*113*				*85.0-114*		*09/29/2021 12:27*	WG1748148
(S) 1,2-Dichloroethane-d4	*17060-07-0*	*114*				*81.0-118*		*09/28/2021 13:50*	WG1747768

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result ug/l	Qualifier	DL ug/l	LOD ug/l	LOQ ug/l	Dilution	Analysis date / time	Batch
(S) 1,2-Dichloroethane-d4	*17060-07-0*	*95.1*				*81.0-118*		*09/29/2021 12:27*	WG1748148

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	CAS #	Result ug/l	Qualifier	DL ug/l	LOD ug/l	LOQ ug/l	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	68334-30-5	13000	V	247	500	1000	10	09/28/2021 08:19	WG1746498
(S) o-Terphenyl	*84-15-1*	*121*				*56.0-125*		*09/28/2021 08:19*	WG1746498

Additional Information - Results for field analyses are not accredited to ISO 17025

Analyte	Result	Units
Cooler#	1	
Cooler Temperature	0.4	Deg. C

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result ug/l	Qualifier	DL ug/l	LOD ug/l	LOQ ug/l	Dilution	Analysis date / time	Batch
Acetone	67-64-1	25.0	U	11.3	25.0	50.0	1	09/24/2021 11:41	WG1745346
Acrolein	107-02-8	25.0	U	2.54	25.0	50.0	1	09/24/2021 11:41	WG1745346
Acrylonitrile	107-13-1	5.00	U	0.671	5.00	10.0	1	09/24/2021 11:41	WG1745346
Benzene	71-43-2	0.110	J	0.0941	0.500	1.00	1	09/24/2021 11:41	WG1745346
Bromobenzene	108-86-1	0.500	U	0.118	0.500	1.00	1	09/24/2021 11:41	WG1745346
Bromodichloromethane	75-27-4	0.500	U	0.136	0.500	1.00	1	09/24/2021 11:41	WG1745346
Bromoform	75-25-2	0.500	U	0.129	0.500	1.00	1	09/24/2021 11:41	WG1745346
Bromomethane	74-83-9	2.00	U	0.605	2.00	5.00	1	09/24/2021 11:41	WG1745346
n-Butylbenzene	104-51-8	0.500	U	0.157	0.500	1.00	1	09/24/2021 11:41	WG1745346
sec-Butylbenzene	135-98-8	0.500	U	0.125	0.500	1.00	1	09/24/2021 11:41	WG1745346
tert-Butylbenzene	98-06-6	0.500	U	0.127	0.500	1.00	1	09/24/2021 11:41	WG1745346
Carbon tetrachloride	56-23-5	0.500	U	0.128	0.500	1.00	1	09/24/2021 11:41	WG1745346
Chlorobenzene	108-90-7	0.500	U	0.116	0.500	1.00	1	09/24/2021 11:41	WG1745346
Chlorodibromomethane	124-48-1	0.500	U	0.140	0.500	1.00	1	09/24/2021 11:41	WG1745346
Chloroethane	75-00-3	2.00	U	0.192	2.00	5.00	1	09/24/2021 11:41	WG1745346
Chloroform	67-66-3	2.00	U	0.111	2.00	5.00	1	09/24/2021 11:41	WG1745346
Chloromethane	74-87-3	1.00	U	0.960	1.00	2.50	1	09/24/2021 11:41	WG1745346
2-Chlorotoluene	95-49-8	0.500	U	0.106	0.500	1.00	1	09/24/2021 11:41	WG1745346
4-Chlorotoluene	106-43-4	0.500	U	0.114	0.500	1.00	1	09/24/2021 11:41	WG1745346
1,2-Dibromoethane	106-93-4	0.500	U	0.126	0.500	1.00	1	09/24/2021 11:41	WG1745346
1,2-Dibromo-3-Chloropropane	96-12-8	2.00	U	0.276	2.00	5.00	1	09/24/2021 11:41	WG1745346
Dibromomethane	74-95-3	0.500	U	0.122	0.500	1.00	1	09/24/2021 11:41	WG1745346
1,2-Dichlorobenzene	95-50-1	0.500	U	0.107	0.500	1.00	1	09/24/2021 11:41	WG1745346
1,3-Dichlorobenzene	541-73-1	0.500	U	0.110	0.500	1.00	1	09/24/2021 11:41	WG1745346
1,4-Dichlorobenzene	106-46-7	0.500	U	0.120	0.500	1.00	1	09/24/2021 11:41	WG1745346
Dichlorodifluoromethane	75-71-8	2.00	U	0.374	2.00	5.00	1	09/28/2021 14:28	WG1747347
1,1-Dichloroethane	75-34-3	0.500	U	0.100	0.500	1.00	1	09/24/2021 11:41	WG1745346
1,2-Dichloroethane	107-06-2	0.500	U	0.0819	0.500	1.00	1	09/24/2021 11:41	WG1745346
1,1-Dichloroethene	75-35-4	0.500	U	0.188	0.500	1.00	1	09/24/2021 11:41	WG1745346
cis-1,2-Dichloroethene	156-59-2	0.500	U	0.126	0.500	1.00	1	09/24/2021 11:41	WG1745346
trans-1,2-Dichloroethene	156-60-5	0.500	U	0.149	0.500	1.00	1	09/24/2021 11:41	WG1745346
1,2-Dichloropropane	78-87-5	0.500	U	0.149	0.500	1.00	1	09/24/2021 11:41	WG1745346
1,3-Dichloropropane	142-28-9	0.500	U	0.110	0.500	1.00	1	09/24/2021 11:41	WG1745346
2,2-Dichloropropane	594-20-7	0.500	U	0.161	0.500	1.00	1	09/24/2021 11:41	WG1745346
1,1-Dichloropropene	563-58-6	0.500	U	0.142	0.500	1.00	1	09/24/2021 11:41	WG1745346
cis-1,3-Dichloropropene	10061-01-5	0.500	U	0.111	0.500	1.00	1	09/24/2021 11:41	WG1745346
trans-1,3-Dichloropropene	10061-02-6	0.500	U	0.118	0.500	1.00	1	09/24/2021 11:41	WG1745346
Di-isopropyl ether	108-20-3	0.500	U	0.105	0.500	1.00	1	09/24/2021 11:41	WG1745346
Ethylbenzene	100-41-4	0.500	U	0.137	0.500	1.00	1	09/24/2021 11:41	WG1745346
Hexachloro-1,3-butadiene	87-68-3	0.500	U	0.337	0.500	1.00	1	09/24/2021 11:41	WG1745346
Isopropylbenzene	98-82-8	0.500	U	0.105	0.500	1.00	1	09/24/2021 11:41	WG1745346
p-Isopropyltoluene	99-87-6	0.500	U	0.120	0.500	1.00	1	09/24/2021 11:41	WG1745346
2-Butanone (MEK)	78-93-3	5.00	U	1.19	5.00	10.0	1	09/24/2021 11:41	WG1745346
Methylene Chloride	75-09-2	2.00	U	0.430	2.00	5.00	1	09/24/2021 11:41	WG1745346
4-Methyl-2-pentanone (MIBK)	108-10-1	5.00	U	0.478	5.00	10.0	1	09/24/2021 11:41	WG1745346
Methyl tert-butyl ether	1634-04-4	0.500	U	0.101	0.500	1.00	1	09/24/2021 11:41	WG1745346
Naphthalene	91-20-3	2.00	J3 U	1.00	2.00	5.00	1	09/24/2021 11:41	WG1745346
n-Propylbenzene	103-65-1	0.500	U	0.0993	0.500	1.00	1	09/24/2021 11:41	WG1745346
Styrene	100-42-5	0.500	U	0.118	0.500	1.00	1	09/24/2021 11:41	WG1745346

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result ug/l	Qualifier	DL ug/l	LOD ug/l	LOQ ug/l	Dilution	Analysis date / time	Batch
1,1,1,2-Tetrachloroethane	630-20-6	0.500	U	0.147	0.500	1.00	1	09/24/2021 11:41	WG1745346
1,1,2,2-Tetrachloroethane	79-34-5	0.500	U	0.133	0.500	1.00	1	09/24/2021 11:41	WG1745346
Tetrachloroethene	127-18-4	0.500	U	0.300	0.500	1.00	1	09/24/2021 11:41	WG1745346
Toluene	108-88-3	0.500	U	0.278	0.500	1.00	1	09/24/2021 11:41	WG1745346
1,2,3-Trichlorobenzene	87-61-6	0.500	U	0.230	0.500	1.00	1	09/24/2021 11:41	WG1745346
1,2,4-Trichlorobenzene	120-82-1	0.500	U	0.481	0.500	1.00	1	09/24/2021 11:41	WG1745346
1,2,3-Trimethylbenzene	526-73-8	0.500	U	0.104	0.500	1.00	1	09/24/2021 11:41	WG1745346
1,2,4-Trimethylbenzene	95-63-6	0.500	U	0.322	0.500	1.00	1	09/24/2021 11:41	WG1745346
1,3,5-Trimethylbenzene	108-67-8	0.500	U	0.104	0.500	1.00	1	09/24/2021 11:41	WG1745346
1,1,1-Trichloroethane	71-55-6	0.500	U	0.149	0.500	1.00	1	09/24/2021 11:41	WG1745346
1,1,2-Trichloroethane	79-00-5	0.500	U	0.158	0.500	1.00	1	09/24/2021 11:41	WG1745346
Trichloroethene	79-01-6	0.500	J4 U	0.190	0.500	1.00	1	09/24/2021 11:41	WG1745346
Trichlorofluoromethane	75-69-4	2.00	U	0.160	2.00	5.00	1	09/24/2021 11:41	WG1745346
1,1,2-Trichlorotrifluoroethane	76-13-1	0.500	U	0.180	0.500	1.00	1	09/24/2021 11:41	WG1745346
1,2,3-Trichloropropane	96-18-4	1.00	U	0.237	1.00	2.50	1	09/24/2021 11:41	WG1745346
Vinyl chloride	75-01-4	0.500	U	0.234	0.500	1.00	1	09/24/2021 11:41	WG1745346
Xylenes, Total	1330-20-7	1.50	U	0.174	1.50	3.00	1	09/24/2021 11:41	WG1745346
(S) Toluene-d8	*2037-26-5*	*98.1*				*89.0-112*		*09/24/2021 11:41*	WG1745346
(S) Toluene-d8	*2037-26-5*	*97.6*				*89.0-112*		*09/28/2021 14:28*	WG1747347
(S) 4-Bromofluorobenzene	*460-00-4*	*105*				*85.0-114*		*09/24/2021 11:41*	WG1745346
(S) 4-Bromofluorobenzene	*460-00-4*	*102*				*85.0-114*		*09/28/2021 14:28*	WG1747347
(S) 1,2-Dichloroethane-d4	*17060-07-0*	*106*				*81.0-118*		*09/24/2021 11:41*	WG1745346
(S) 1,2-Dichloroethane-d4	*17060-07-0*	*92.8*				*81.0-118*		*09/28/2021 14:28*	WG1747347

Additional Information - Results for field analyses are not accredited to ISO 17025

Analyte	Result	Units
Cooler#	1	
Cooler Temperature	0.4	Deg. C

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Acetone	67-64-1	25.0	U	11.3	25.0	50.0	1	09/24/2021 12:02	WG1745346
Acrolein	107-02-8	25.0	U	2.54	25.0	50.0	1	09/24/2021 12:02	WG1745346
Acrylonitrile	107-13-1	5.00	U	0.671	5.00	10.0	1	09/24/2021 12:02	WG1745346
Benzene	71-43-2	0.500	U	0.0941	0.500	1.00	1	09/24/2021 12:02	WG1745346
Bromobenzene	108-86-1	0.500	U	0.118	0.500	1.00	1	09/24/2021 12:02	WG1745346
Bromodichloromethane	75-27-4	0.500	U	0.136	0.500	1.00	1	09/24/2021 12:02	WG1745346
Bromoform	75-25-2	0.500	U	0.129	0.500	1.00	1	09/24/2021 12:02	WG1745346
Bromomethane	74-83-9	2.00	U	0.605	2.00	5.00	1	09/24/2021 12:02	WG1745346
n-Butylbenzene	104-51-8	0.500	U	0.157	0.500	1.00	1	09/24/2021 12:02	WG1745346
sec-Butylbenzene	135-98-8	0.500	U	0.125	0.500	1.00	1	09/24/2021 12:02	WG1745346
tert-Butylbenzene	98-06-6	0.500	U	0.127	0.500	1.00	1	09/24/2021 12:02	WG1745346
Carbon tetrachloride	56-23-5	0.500	U	0.128	0.500	1.00	1	09/24/2021 12:02	WG1745346
Chlorobenzene	108-90-7	0.500	U	0.116	0.500	1.00	1	09/24/2021 12:02	WG1745346
Chlorodibromomethane	124-48-1	0.500	U	0.140	0.500	1.00	1	09/24/2021 12:02	WG1745346
Chloroethane	75-00-3	2.00	U	0.192	2.00	5.00	1	09/24/2021 12:02	WG1745346
Chloroform	67-66-3	2.00	U	0.111	2.00	5.00	1	09/24/2021 12:02	WG1745346
Chloromethane	74-87-3	1.00	U	0.960	1.00	2.50	1	09/24/2021 12:02	WG1745346
2-Chlorotoluene	95-49-8	0.500	U	0.106	0.500	1.00	1	09/24/2021 12:02	WG1745346
4-Chlorotoluene	106-43-4	0.500	U	0.114	0.500	1.00	1	09/24/2021 12:02	WG1745346
1,2-Dibromoethane	106-93-4	0.500	U	0.126	0.500	1.00	1	09/24/2021 12:02	WG1745346
1,2-Dibromo-3-Chloropropane	96-12-8	2.00	U	0.276	2.00	5.00	1	09/24/2021 12:02	WG1745346
Dibromomethane	74-95-3	0.500	U	0.122	0.500	1.00	1	09/24/2021 12:02	WG1745346
1,2-Dichlorobenzene	95-50-1	0.500	U	0.107	0.500	1.00	1	09/24/2021 12:02	WG1745346
1,3-Dichlorobenzene	541-73-1	0.500	U	0.110	0.500	1.00	1	09/24/2021 12:02	WG1745346
1,4-Dichlorobenzene	106-46-7	0.500	U	0.120	0.500	1.00	1	09/24/2021 12:02	WG1745346
Dichlorodifluoromethane	75-71-8	2.00	U	0.374	2.00	5.00	1	09/28/2021 14:47	WG1747347
1,1-Dichloroethane	75-34-3	0.500	U	0.100	0.500	1.00	1	09/24/2021 12:02	WG1745346
1,2-Dichloroethane	107-06-2	0.500	U	0.0819	0.500	1.00	1	09/24/2021 12:02	WG1745346
1,1-Dichloroethene	75-35-4	0.500	U	0.188	0.500	1.00	1	09/24/2021 12:02	WG1745346
cis-1,2-Dichloroethene	156-59-2	0.500	U	0.126	0.500	1.00	1	09/24/2021 12:02	WG1745346
trans-1,2-Dichloroethene	156-60-5	0.500	U	0.149	0.500	1.00	1	09/24/2021 12:02	WG1745346
1,2-Dichloropropane	78-87-5	0.500	U	0.149	0.500	1.00	1	09/24/2021 12:02	WG1745346
1,3-Dichloropropane	142-28-9	0.500	U	0.110	0.500	1.00	1	09/24/2021 12:02	WG1745346
2,2-Dichloropropane	594-20-7	0.500	U	0.161	0.500	1.00	1	09/24/2021 12:02	WG1745346
1,1-Dichloropropene	563-58-6	0.500	U	0.142	0.500	1.00	1	09/24/2021 12:02	WG1745346
cis-1,3-Dichloropropene	10061-01-5	0.500	U	0.111	0.500	1.00	1	09/24/2021 12:02	WG1745346
trans-1,3-Dichloropropene	10061-02-6	0.500	U	0.118	0.500	1.00	1	09/24/2021 12:02	WG1745346
Di-isopropyl ether	108-20-3	0.500	U	0.105	0.500	1.00	1	09/24/2021 12:02	WG1745346
Ethylbenzene	100-41-4	0.500	U	0.137	0.500	1.00	1	09/24/2021 12:02	WG1745346
Hexachloro-1,3-butadiene	87-68-3	0.500	U	0.337	0.500	1.00	1	09/24/2021 12:02	WG1745346
Isopropylbenzene	98-82-8	0.500	U	0.105	0.500	1.00	1	09/24/2021 12:02	WG1745346
p-Isopropyltoluene	99-87-6	0.500	U	0.120	0.500	1.00	1	09/24/2021 12:02	WG1745346
2-Butanone (MEK)	78-93-3	5.00	U	1.19	5.00	10.0	1	09/24/2021 12:02	WG1745346
Methylene Chloride	75-09-2	2.00	U	0.430	2.00	5.00	1	09/24/2021 12:02	WG1745346
4-Methyl-2-pentanone (MIBK)	108-10-1	5.00	U	0.478	5.00	10.0	1	09/24/2021 12:02	WG1745346
Methyl tert-butyl ether	1634-04-4	0.500	U	0.101	0.500	1.00	1	09/24/2021 12:02	WG1745346
Naphthalene	91-20-3	2.00	J3 U	1.00	2.00	5.00	1	09/24/2021 12:02	WG1745346
n-Propylbenzene	103-65-1	0.500	U	0.0993	0.500	1.00	1	09/24/2021 12:02	WG1745346
Styrene	100-42-5	0.500	U	0.118	0.500	1.00	1	09/24/2021 12:02	WG1745346

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result ug/l	Qualifier	DL ug/l	LOD ug/l	LOQ ug/l	Dilution	Analysis date / time	Batch
1,1,1,2-Tetrachloroethane	630-20-6	0.500	U	0.147	0.500	1.00	1	09/24/2021 12:02	WG1745346
1,1,2,2-Tetrachloroethane	79-34-5	0.500	U	0.133	0.500	1.00	1	09/24/2021 12:02	WG1745346
Tetrachloroethene	127-18-4	0.500	U	0.300	0.500	1.00	1	09/24/2021 12:02	WG1745346
Toluene	108-88-3	0.500	U	0.278	0.500	1.00	1	09/24/2021 12:02	WG1745346
1,2,3-Trichlorobenzene	87-61-6	0.500	U	0.230	0.500	1.00	1	09/24/2021 12:02	WG1745346
1,2,4-Trichlorobenzene	120-82-1	0.500	U	0.481	0.500	1.00	1	09/24/2021 12:02	WG1745346
1,2,3-Trimethylbenzene	526-73-8	0.500	U	0.104	0.500	1.00	1	09/24/2021 12:02	WG1745346
1,2,4-Trimethylbenzene	95-63-6	0.500	U	0.322	0.500	1.00	1	09/24/2021 12:02	WG1745346
1,3,5-Trimethylbenzene	108-67-8	0.500	U	0.104	0.500	1.00	1	09/24/2021 12:02	WG1745346
1,1,1-Trichloroethane	71-55-6	0.500	U	0.149	0.500	1.00	1	09/24/2021 12:02	WG1745346
1,1,2-Trichloroethane	79-00-5	0.500	U	0.158	0.500	1.00	1	09/24/2021 12:02	WG1745346
Trichloroethene	79-01-6	0.500	J4 U	0.190	0.500	1.00	1	09/24/2021 12:02	WG1745346
Trichlorofluoromethane	75-69-4	2.00	U	0.160	2.00	5.00	1	09/24/2021 12:02	WG1745346
1,1,2-Trichlorotrifluoroethane	76-13-1	0.500	U	0.180	0.500	1.00	1	09/24/2021 12:02	WG1745346
1,2,3-Trichloropropane	96-18-4	1.00	U	0.237	1.00	2.50	1	09/24/2021 12:02	WG1745346
Vinyl chloride	75-01-4	0.500	U	0.234	0.500	1.00	1	09/24/2021 12:02	WG1745346
Xylenes, Total	1330-20-7	1.50	U	0.174	1.50	3.00	1	09/24/2021 12:02	WG1745346
(S) Toluene-d8	*2037-26-5*	*101*				*89.0-112*		*09/24/2021 12:02*	WG1745346
(S) Toluene-d8	*2037-26-5*	*96.8*				*89.0-112*		*09/28/2021 14:47*	WG1747347
(S) 4-Bromofluorobenzene	*460-00-4*	*109*				*85.0-114*		*09/24/2021 12:02*	WG1745346
(S) 4-Bromofluorobenzene	*460-00-4*	*103*				*85.0-114*		*09/28/2021 14:47*	WG1747347
(S) 1,2-Dichloroethane-d4	*17060-07-0*	*106*				*81.0-118*		*09/24/2021 12:02*	WG1745346
(S) 1,2-Dichloroethane-d4	*17060-07-0*	*92.1*				*81.0-118*		*09/28/2021 14:47*	WG1747347

Additional Information - Results for field analyses are not accredited to ISO 17025

Analyte	Result	Units
Cooler#	1	
Cooler Temperature	0.4	Deg. C

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Acetone	67-64-1	25.0	U	11.3	25.0	50.0	1	09/24/2021 12:24	WG1745346
Acrolein	107-02-8	25.0	U	2.54	25.0	50.0	1	09/24/2021 12:24	WG1745346
Acrylonitrile	107-13-1	5.00	U	0.671	5.00	10.0	1	09/24/2021 12:24	WG1745346
Benzene	71-43-2	0.500	U	0.0941	0.500	1.00	1	09/24/2021 12:24	WG1745346
Bromobenzene	108-86-1	0.500	U	0.118	0.500	1.00	1	09/24/2021 12:24	WG1745346
Bromodichloromethane	75-27-4	0.500	U	0.136	0.500	1.00	1	09/24/2021 12:24	WG1745346
Bromoform	75-25-2	0.500	U	0.129	0.500	1.00	1	09/24/2021 12:24	WG1745346
Bromomethane	74-83-9	2.00	U	0.605	2.00	5.00	1	09/24/2021 12:24	WG1745346
n-Butylbenzene	104-51-8	0.500	U	0.157	0.500	1.00	1	09/24/2021 12:24	WG1745346
sec-Butylbenzene	135-98-8	0.500	U	0.125	0.500	1.00	1	09/24/2021 12:24	WG1745346
tert-Butylbenzene	98-06-6	0.500	U	0.127	0.500	1.00	1	09/24/2021 12:24	WG1745346
Carbon tetrachloride	56-23-5	0.500	U	0.128	0.500	1.00	1	09/24/2021 12:24	WG1745346
Chlorobenzene	108-90-7	0.500	U	0.116	0.500	1.00	1	09/24/2021 12:24	WG1745346
Chlorodibromomethane	124-48-1	0.500	U	0.140	0.500	1.00	1	09/24/2021 12:24	WG1745346
Chloroethane	75-00-3	2.00	U	0.192	2.00	5.00	1	09/24/2021 12:24	WG1745346
Chloroform	67-66-3	2.00	U	0.111	2.00	5.00	1	09/24/2021 12:24	WG1745346
Chloromethane	74-87-3	1.00	U	0.960	1.00	2.50	1	09/24/2021 12:24	WG1745346
2-Chlorotoluene	95-49-8	0.500	U	0.106	0.500	1.00	1	09/24/2021 12:24	WG1745346
4-Chlorotoluene	106-43-4	0.500	U	0.114	0.500	1.00	1	09/24/2021 12:24	WG1745346
1,2-Dibromoethane	106-93-4	0.500	U	0.126	0.500	1.00	1	09/24/2021 12:24	WG1745346
1,2-Dibromo-3-Chloropropane	96-12-8	2.00	U	0.276	2.00	5.00	1	09/24/2021 12:24	WG1745346
Dibromomethane	74-95-3	0.500	U	0.122	0.500	1.00	1	09/24/2021 12:24	WG1745346
1,2-Dichlorobenzene	95-50-1	0.500	U	0.107	0.500	1.00	1	09/24/2021 12:24	WG1745346
1,3-Dichlorobenzene	541-73-1	0.500	U	0.110	0.500	1.00	1	09/24/2021 12:24	WG1745346
1,4-Dichlorobenzene	106-46-7	0.500	U	0.120	0.500	1.00	1	09/24/2021 12:24	WG1745346
Dichlorodifluoromethane	75-71-8	2.00	U	0.374	2.00	5.00	1	09/22/2021 17:02	WG1744312
1,1-Dichloroethane	75-34-3	0.500	U	0.100	0.500	1.00	1	09/24/2021 12:24	WG1745346
1,2-Dichloroethane	107-06-2	0.500	U	0.0819	0.500	1.00	1	09/24/2021 12:24	WG1745346
1,1-Dichloroethene	75-35-4	0.500	U	0.188	0.500	1.00	1	09/24/2021 12:24	WG1745346
cis-1,2-Dichloroethene	156-59-2	0.500	U	0.126	0.500	1.00	1	09/24/2021 12:24	WG1745346
trans-1,2-Dichloroethene	156-60-5	0.500	U	0.149	0.500	1.00	1	09/24/2021 12:24	WG1745346
1,2-Dichloropropane	78-87-5	0.500	U	0.149	0.500	1.00	1	09/24/2021 12:24	WG1745346
1,3-Dichloropropane	142-28-9	0.500	U	0.110	0.500	1.00	1	09/24/2021 12:24	WG1745346
2,2-Dichloropropane	594-20-7	0.500	U	0.161	0.500	1.00	1	09/24/2021 12:24	WG1745346
1,1-Dichloropropene	563-58-6	0.500	U	0.142	0.500	1.00	1	09/24/2021 12:24	WG1745346
cis-1,3-Dichloropropene	10061-01-5	0.500	U	0.111	0.500	1.00	1	09/24/2021 12:24	WG1745346
trans-1,3-Dichloropropene	10061-02-6	0.500	U	0.118	0.500	1.00	1	09/24/2021 12:24	WG1745346
Di-isopropyl ether	108-20-3	0.500	U	0.105	0.500	1.00	1	09/24/2021 12:24	WG1745346
Ethylbenzene	100-41-4	0.500	U	0.137	0.500	1.00	1	09/24/2021 12:24	WG1745346
Hexachloro-1,3-butadiene	87-68-3	0.500	U	0.337	0.500	1.00	1	09/24/2021 12:24	WG1745346
Isopropylbenzene	98-82-8	0.500	U	0.105	0.500	1.00	1	09/24/2021 12:24	WG1745346
p-Isopropyltoluene	99-87-6	0.500	U	0.120	0.500	1.00	1	09/24/2021 12:24	WG1745346
2-Butanone (MEK)	78-93-3	5.00	U	1.19	5.00	10.0	1	09/24/2021 12:24	WG1745346
Methylene Chloride	75-09-2	2.00	U	0.430	2.00	5.00	1	09/24/2021 12:24	WG1745346
4-Methyl-2-pentanone (MIBK)	108-10-1	5.00	U	0.478	5.00	10.0	1	09/24/2021 12:24	WG1745346
Methyl tert-butyl ether	1634-04-4	0.500	U	0.101	0.500	1.00	1	09/24/2021 12:24	WG1745346
Naphthalene	91-20-3	2.00	J3 U	1.00	2.00	5.00	1	09/24/2021 12:24	WG1745346
n-Propylbenzene	103-65-1	0.500	U	0.0993	0.500	1.00	1	09/24/2021 12:24	WG1745346
Styrene	100-42-5	0.500	U	0.118	0.500	1.00	1	09/24/2021 12:24	WG1745346

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
1,1,1,2-Tetrachloroethane	630-20-6	0.500	U	0.147	0.500	1.00	1	09/24/2021 12:24	WG1745346
1,1,2,2-Tetrachloroethane	79-34-5	0.500	U	0.133	0.500	1.00	1	09/24/2021 12:24	WG1745346
Tetrachloroethene	127-18-4	0.500	U	0.300	0.500	1.00	1	09/24/2021 12:24	WG1745346
Toluene	108-88-3	0.500	U	0.278	0.500	1.00	1	09/24/2021 12:24	WG1745346
1,2,3-Trichlorobenzene	87-61-6	0.500	U	0.230	0.500	1.00	1	09/24/2021 12:24	WG1745346
1,2,4-Trichlorobenzene	120-82-1	0.500	U	0.481	0.500	1.00	1	09/24/2021 12:24	WG1745346
1,2,3-Trimethylbenzene	526-73-8	0.500	U	0.104	0.500	1.00	1	09/24/2021 12:24	WG1745346
1,2,4-Trimethylbenzene	95-63-6	0.500	U	0.322	0.500	1.00	1	09/24/2021 12:24	WG1745346
1,3,5-Trimethylbenzene	108-67-8	0.500	U	0.104	0.500	1.00	1	09/24/2021 12:24	WG1745346
1,1,1-Trichloroethane	71-55-6	0.500	U	0.149	0.500	1.00	1	09/24/2021 12:24	WG1745346
1,1,2-Trichloroethane	79-00-5	0.500	U	0.158	0.500	1.00	1	09/24/2021 12:24	WG1745346
Trichloroethene	79-01-6	0.500	J4 U	0.190	0.500	1.00	1	09/24/2021 12:24	WG1745346
Trichlorofluoromethane	75-69-4	2.00	U	0.160	2.00	5.00	1	09/24/2021 12:24	WG1745346
1,1,2-Trichlorotrifluoroethane	76-13-1	0.500	U	0.180	0.500	1.00	1	09/24/2021 12:24	WG1745346
1,2,3-Trichloropropane	96-18-4	1.00	U	0.237	1.00	2.50	1	09/24/2021 12:24	WG1745346
Vinyl chloride	75-01-4	0.500	U	0.234	0.500	1.00	1	09/24/2021 12:24	WG1745346
Xylenes, Total	1330-20-7	1.50	U	0.174	1.50	3.00	1	09/24/2021 12:24	WG1745346
(S) Toluene-d8	*2037-26-5*	*101*				*89.0-112*		*09/22/2021 17:02*	WG1744312
(S) Toluene-d8	*2037-26-5*	*99.4*				*89.0-112*		*09/24/2021 12:24*	WG1745346
(S) 4-Bromofluorobenzene	*460-00-4*	*84.9*	J2			*85.0-114*		*09/22/2021 17:02*	WG1744312
(S) 4-Bromofluorobenzene	*460-00-4*	*109*				*85.0-114*		*09/24/2021 12:24*	WG1745346
(S) 1,2-Dichloroethane-d4	*17060-07-0*	*117*				*81.0-118*		*09/22/2021 17:02*	WG1744312
(S) 1,2-Dichloroethane-d4	*17060-07-0*	*107*				*81.0-118*		*09/24/2021 12:24*	WG1745346

Additional Information - Results for field analyses are not accredited to ISO 17025

Analyte	Result	Units
Cooler#	1	
Cooler Temperature	0.4	Deg. C

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Benzene	71-43-2	0.500	U	0.0941	0.500	1.00	1	09/22/2021 18:24	WG1744312
Ethylbenzene	100-41-4	0.500	U	0.137	0.500	1.00	1	09/22/2021 18:24	WG1744312
Toluene	108-88-3	0.500	U	0.278	0.500	1.00	1	09/22/2021 18:24	WG1744312
Xylenes, Total	1330-20-7	1.50	U	0.174	1.50	3.00	1	09/22/2021 18:24	WG1744312
(S) Toluene-d8	*2037-26-5*	*102*				*89.0-112*		*09/22/2021 18:24*	WG1744312
(S) 4-Bromofluorobenzene	*460-00-4*	*88.1*				*85.0-114*		*09/22/2021 18:24*	WG1744312
(S) 1,2-Dichloroethane-d4	*17060-07-0*	*116*				*81.0-118*		*09/22/2021 18:24*	WG1744312

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
TPH (GC/FID) High Fraction	68334-30-5	125		24.7	50.0	100	1	09/30/2021 13:32	WG1748087
(S) o-Terphenyl	*84-15-1*	*76.0*				*56.0-125*		*09/30/2021 13:32*	WG1748087

1 Cp
2 Tc
3 Ss
4 Cn
5 Ds
6 Sr
7 Qc
8 Gl
9 Al
10 Sc

Additional Information - Results for field analyses are not accredited to ISO 17025

Analyte	Result	Units
Cooler#	1	
Cooler Temperature	0.4	Deg. C

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Benzene	71-43-2	0.500	U	0.0941	0.500	1.00	1	09/24/2021 13:49	WG1745346
Dichlorodifluoromethane	75-71-8	2.00	U	0.374	2.00	5.00	1	09/28/2021 15:44	WG1747347
Ethylbenzene	100-41-4	0.500	U	0.137	0.500	1.00	1	09/24/2021 13:49	WG1745346
Toluene	108-88-3	0.500	U	0.278	0.500	1.00	1	09/24/2021 13:49	WG1745346
Xylenes, Total	1330-20-7	1.50	U	0.174	1.50	3.00	1	09/24/2021 13:49	WG1745346
(S) Toluene-d8	*2037-26-5*	*101*				*89.0-112*		*09/24/2021 13:49*	WG1745346
(S) Toluene-d8	*2037-26-5*	*96.9*				*89.0-112*		*09/28/2021 15:44*	WG1747347
(S) 4-Bromofluorobenzene	*460-00-4*	*108*				*85.0-114*		*09/24/2021 13:49*	WG1745346
(S) 4-Bromofluorobenzene	*460-00-4*	*100*				*85.0-114*		*09/28/2021 15:44*	WG1747347
(S) 1,2-Dichloroethane-d4	*17060-07-0*	*101*				*81.0-118*		*09/24/2021 13:49*	WG1745346
(S) 1,2-Dichloroethane-d4	*17060-07-0*	*96.8*				*81.0-118*		*09/28/2021 15:44*	WG1747347

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
TPH (GC/FID) High Fraction	68334-30-5	52.4	J	24.7	50.0	100	1	09/28/2021 00:43	WG1746498
(S) o-Terphenyl	*84-15-1*	*93.0*				*56.0-125*		*09/28/2021 00:43*	WG1746498

Additional Information - Results for field analyses are not accredited to ISO 17025

Analyte	Result	Units
Cooler#	1	
Cooler Temperature	0.4	Deg. C

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Benzene	71-43-2	0.500	U	0.0941	0.500	1.00	1	09/24/2021 14:10	WG1745346
Ethylbenzene	100-41-4	0.500	U	0.137	0.500	1.00	1	09/24/2021 14:10	WG1745346
Toluene	108-88-3	0.500	U	0.278	0.500	1.00	1	09/24/2021 14:10	WG1745346
Xylenes, Total	1330-20-7	10.8		0.174	1.50	3.00	1	09/24/2021 14:10	WG1745346
(S) Toluene-d8	*2037-26-5*	*99.9*				*89.0-112*		*09/24/2021 14:10*	WG1745346
(S) 4-Bromofluorobenzene	*460-00-4*	*101*				*85.0-114*		*09/24/2021 14:10*	WG1745346
(S) 1,2-Dichloroethane-d4	*17060-07-0*	*106*				*81.0-118*		*09/24/2021 14:10*	WG1745346

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
TPH (GC/FID) High Fraction	68334-30-5	3430		24.7	50.0	100	1	09/28/2021 04:25	WG1746498
(S) o-Terphenyl	*84-15-1*	*107*				*56.0-125*		*09/28/2021 04:25*	WG1746498

Additional Information - Results for field analyses are not accredited to ISO 17025

Analyte	Result	Units
Cooler#	1	
Cooler Temperature	0.4	Deg. C

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Benzene	71-43-2	0.500	U	0.0941	0.500	1.00	1	09/22/2021 19:25	WG1744312
Ethylbenzene	100-41-4	0.500	U	0.137	0.500	1.00	1	09/22/2021 19:25	WG1744312
Toluene	108-88-3	0.500	U	0.278	0.500	1.00	1	09/22/2021 19:25	WG1744312
Xylenes, Total	1330-20-7	1.50	U	0.174	1.50	3.00	1	09/22/2021 19:25	WG1744312
(S) Toluene-d8	*2037-26-5*	*101*				*89.0-112*		*09/22/2021 19:25*	WG1744312
(S) 4-Bromofluorobenzene	*460-00-4*	*89.9*				*85.0-114*		*09/22/2021 19:25*	WG1744312
(S) 1,2-Dichloroethane-d4	*17060-07-0*	*116*				*81.0-118*		*09/22/2021 19:25*	WG1744312

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
TPH (GC/FID) High Fraction	68334-30-5	48.1	J	24.7	50.0	100	1	09/28/2021 04:52	WG1746498
(S) o-Terphenyl	*84-15-1*	*93.0*				*56.0-125*		*09/28/2021 04:52*	WG1746498

Additional Information - Results for field analyses are not accredited to ISO 17025

Analyte	Result	Units
Cooler#	1	
Cooler Temperature	0.4	Deg. C

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Benzene	71-43-2	0.500	U	0.0941	0.500	1.00	1	09/22/2021 19:46	WG1744312
Ethylbenzene	100-41-4	0.500	U	0.137	0.500	1.00	1	09/22/2021 19:46	WG1744312
Toluene	108-88-3	0.500	U	0.278	0.500	1.00	1	09/22/2021 19:46	WG1744312
Xylenes, Total	1330-20-7	1.50	U	0.174	1.50	3.00	1	09/22/2021 19:46	WG1744312
(S) Toluene-d8	*2037-26-5*	*102*				*89.0-112*		*09/22/2021 19:46*	WG1744312
(S) 4-Bromofluorobenzene	*460-00-4*	*90.0*				*85.0-114*		*09/22/2021 19:46*	WG1744312
(S) 1,2-Dichloroethane-d4	*17060-07-0*	*117*				*81.0-118*		*09/22/2021 19:46*	WG1744312

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
TPH (GC/FID) High Fraction	68334-30-5	50.0	U	24.7	50.0	100	1	09/28/2021 05:18	WG1746498
(S) o-Terphenyl	*84-15-1*	*85.0*				*56.0-125*		*09/28/2021 05:18*	WG1746498

Additional Information - Results for field analyses are not accredited to ISO 17025

Analyte	Result	Units
Cooler#	1	
Cooler Temperature	0.4	Deg. C

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Benzene	71-43-2	0.500	U	0.0941	0.500	1.00	1	09/22/2021 20:06	WG1744312
Ethylbenzene	100-41-4	0.500	U	0.137	0.500	1.00	1	09/22/2021 20:06	WG1744312
Toluene	108-88-3	0.500	U	0.278	0.500	1.00	1	09/22/2021 20:06	WG1744312
Xylenes, Total	1330-20-7	1.50	U	0.174	1.50	3.00	1	09/22/2021 20:06	WG1744312
(S) Toluene-d8	*2037-26-5*	*103*				*89.0-112*		*09/22/2021 20:06*	WG1744312
(S) 4-Bromofluorobenzene	*460-00-4*	*89.5*				*85.0-114*		*09/22/2021 20:06*	WG1744312
(S) 1,2-Dichloroethane-d4	*17060-07-0*	*117*				*81.0-118*		*09/22/2021 20:06*	WG1744312

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
TPH (GC/FID) High Fraction	68334-30-5	85.8	J	24.7	50.0	100	1	09/28/2021 05:44	WG1746498
(S) o-Terphenyl	*84-15-1*	*96.5*				*56.0-125*		*09/28/2021 05:44*	WG1746498

Additional Information - Results for field analyses are not accredited to ISO 17025

Analyte	Result	Units
Cooler#	1	
Cooler Temperature	0.4	Deg. C

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Benzene	71-43-2	0.500	U	0.0941	0.500	1.00	1	09/22/2021 20:27	WG1744312
Ethylbenzene	100-41-4	0.500	U	0.137	0.500	1.00	1	09/22/2021 20:27	WG1744312
Toluene	108-88-3	0.500	U	0.278	0.500	1.00	1	09/22/2021 20:27	WG1744312
Xylenes, Total	1330-20-7	1.50	U	0.174	1.50	3.00	1	09/22/2021 20:27	WG1744312
(S) Toluene-d8	*2037-26-5*	*100*				*89.0-112*		*09/22/2021 20:27*	WG1744312
(S) 4-Bromofluorobenzene	*460-00-4*	*90.0*				*85.0-114*		*09/22/2021 20:27*	WG1744312
(S) 1,2-Dichloroethane-d4	*17060-07-0*	*115*				*81.0-118*		*09/22/2021 20:27*	WG1744312

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
TPH (GC/FID) High Fraction	68334-30-5	171		24.7	50.0	100	1	09/30/2021 14:32	WG1748087
(S) o-Terphenyl	*84-15-1*	*77.0*				*56.0-125*		*09/30/2021 14:32*	WG1748087

1 Cp
2 Tc
3 Ss
4 Cn
5 Ds
6 Sr
7 Qc
8 Gl
9 Al
10 Sc

Additional Information - Results for field analyses are not accredited to ISO 17025

Analyte	Result	Units
Cooler#	1	
Cooler Temperature	0.4	Deg. C

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
Benzene	71-43-2	0.500	U	0.0941	0.500	1.00	1	09/24/2021 15:57	WG1745346
Ethylbenzene	100-41-4	0.334	J	0.137	0.500	1.00	1	09/24/2021 15:57	WG1745346
Toluene	108-88-3	0.500	U	0.278	0.500	1.00	1	09/24/2021 15:57	WG1745346
Xylenes, Total	1330-20-7	0.352	J	0.174	1.50	3.00	1	09/24/2021 15:57	WG1745346
(S) Toluene-d8	*2037-26-5*	*101*				*89.0-112*		*09/24/2021 15:57*	WG1745346
(S) 4-Bromofluorobenzene	*460-00-4*	*107*				*85.0-114*		*09/24/2021 15:57*	WG1745346
(S) 1,2-Dichloroethane-d4	*17060-07-0*	*103*				*81.0-118*		*09/24/2021 15:57*	WG1745346

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	CAS #	Result	Qualifier	DL	LOD	LOQ	Dilution	Analysis	Batch
		ug/l		ug/l	ug/l	ug/l		date / time	
TPH (GC/FID) High Fraction	68334-30-5	1290		24.7	50.0	100	1	09/30/2021 14:52	WG1748087
(S) o-Terphenyl	*84-15-1*	*73.5*				*56.0-125*		*09/30/2021 14:52*	WG1748087

1 Cp
2 Tc
3 Ss
4 Cn
5 Ds
6 Sr
7 Qc
8 Gl
9 Al
10 Sc

Method Blank (MB)

(MB) R3708869-2 09/26/21 17:14

Analyte	MB Result ug/l	MB Qualifier	MB DL ug/l	MB LOD ug/l	MB LOQ ug/l
Alkalinity	10000	U	8450	10000	20000
Alkalinity,Bicarbonate	10000	U	8450	10000	20000
Alkalinity,Carbonate	10000	U	8450	10000	20000
Alkalinity,Hydroxide	10000	U	8450	10000	20000

Sample Narrative:

BLANK: Endpoint pH 4.5

L1405458-11 Original Sample (OS) • Duplicate (DUP)

(OS) L1405458-11 09/26/21 17:18 • (DUP) R3708869-4 09/26/21 17:21

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Alkalinity	83200	78700	1	5.50		20
Alkalinity,Bicarbonate	83200	78700	1	5.50		20
Alkalinity,Carbonate	10000	10000	1	0.000	U	20
Alkalinity,Hydroxide	10000	10000	1	0.000	U	20

Sample Narrative:

OS: Endpoint pH 4.5 Headspace

DUP: Endpoint pH 4.5

L1405485-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1405485-08 09/26/21 18:10 • (DUP) R3708869-6 09/26/21 18:14

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Alkalinity	941000	924000	1	1.76		20
Alkalinity,Bicarbonate	941000	924000	1	1.76		20
Alkalinity,Carbonate	10000	10000	1	0.000	U	20
Alkalinity,Hydroxide	10000	10000	1	0.000	U	20

Sample Narrative:

OS: Endpoint pH 4.5 Headspace

DUP: Endpoint pH 4.5

Laboratory Control Sample (LCS)

(LCS) R3708869-1 09/26/21 17:11

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Alkalinity	100000	102000	102	85.0-115	

Sample Narrative:

LCS: Endpoint pH 4.5

Method Blank (MB)

(MB) R3709172-2 09/27/21 13:12

Analyte	MB Result ug/l	MB Qualifier	MB DL ug/l	MB LOD ug/l	MB LOQ ug/l
Alkalinity	10000	U	8450	10000	20000
Alkalinity,Bicarbonate	10000	U	8450	10000	20000
Alkalinity,Carbonate	10000	U	8450	10000	20000
Alkalinity,Hydroxide	10000	U	8450	10000	20000

Sample Narrative:

BLANK: Endpoint pH 4.5

L1405623-15 Original Sample (OS) • Duplicate (DUP)

(OS) L1405623-15 09/27/21 14:10 • (DUP) R3709172-3 09/27/21 14:13

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Alkalinity	966000	959000	1	0.654		20
Alkalinity,Bicarbonate	966000	959000	1	0.654		20
Alkalinity,Carbonate	10000	10000	1	0.000	U	20
Alkalinity,Hydroxide	10000	10000	1	0.000	U	20

Sample Narrative:

OS: Endpoint pH 4.5 Headspace

DUP: Endpoint pH 4.5

L1406810-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1406810-01 09/27/21 15:06 • (DUP) R3709172-4 09/27/21 15:10

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Alkalinity	97100	99700	1	2.63		20
Alkalinity,Bicarbonate	97100	99700	1	2.63		20
Alkalinity,Carbonate	10000	10000	1	0.000	U	20
Alkalinity,Hydroxide	10000	10000	1	0.000	U	20

Sample Narrative:

OS: Endpoint pH 4.5 Headspace

DUP: Endpoint pH 4.5

Laboratory Control Sample (LCS)

(LCS) R3709172-1 09/27/21 13:08

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Alkalinity	100000	101000	101	85.0-115	

Sample Narrative:

LCS: Endpoint pH 4.5

Method Blank (MB)

(MB) R3709159-1 09/26/21 21:14

Analyte	MB Result ug/l	MB Qualifier	MB DL ug/l	MB LOD ug/l	MB LOQ ug/l
Sulfate	2500	U	594	2500	5000

L1405623-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1405623-01 09/26/21 23:01 • (DUP) R3709159-3 09/26/21 23:17

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Sulfate	3490	3490	1	0.0917	J	15

L1405756-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1405756-03 09/27/21 05:51 • (DUP) R3709159-7 09/27/21 06:07

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Sulfate	1190	1160	1	2.48	J	15

Laboratory Control Sample (LCS)

(LCS) R3709159-2 09/26/21 21:30

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Sulfate	40000	38500	96.3	90.0-110	

L1405623-02 Original Sample (OS) • Matrix Spike (MS)

(OS) L1405623-02 09/26/21 23:33 • (MS) R3709159-4 09/26/21 23:50

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Sulfate	50000	4630	56500	104	1	90.0-110	

L1405623-15 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1405623-15 09/27/21 03:56 • (MS) R3709159-5 09/27/21 04:12 • (MSD) R3709159-6 09/27/21 05:02

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Sulfate	50000	2590	51200	51300	97.2	97.4	1	90.0-110			0.204	15

QUALITY CONTROL SUMMARY

L1405623-07,08,09,10,11,12,13,14,15

Method Blank (MB)

(MB) R3710250-1 09/29/21 13:49

Analyte	MB Result ug/l	MB Qualifier	MB DL ug/l	MB LOD ug/l	MB LOQ ug/l
Kjeldahl Nitrogen, TKN	150	U	140	150	250

L1405623-11 Original Sample (OS) • Duplicate (DUP)

(OS) L1405623-11 09/29/21 13:58 • (DUP) R3710250-3 09/29/21 13:59

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Kjeldahl Nitrogen, TKN	150	150	1	0.000	U	20

L1405821-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1405821-06 09/29/21 14:18 • (DUP) R3710250-6 09/29/21 14:22

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Kjeldahl Nitrogen, TKN	6840	6980	1	2.03		20

Laboratory Control Sample (LCS)

(LCS) R3710250-2 09/29/21 13:51

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Kjeldahl Nitrogen, TKN	10200	10500	103	74.0-124	

L1405623-15 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1405623-15 09/29/21 14:07 • (MS) R3710250-4 09/29/21 14:08 • (MSD) R3710250-5 09/29/21 14:10

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Kjeldahl Nitrogen, TKN	5000	660	6050	6000	108	107	1	90.0-110			0.830	20

L1405821-11 Original Sample (OS) • Matrix Spike (MS)

(OS) L1405821-11 09/29/21 14:29 • (MS) R3710250-7 09/29/21 14:30

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Kjeldahl Nitrogen, TKN	5000	5590	11200	112	1	90.0-110	J5

Method Blank (MB)

(MB) R3710295-1 09/29/21 14:45

Analyte	MB Result ug/l	MB Qualifier	MB DL ug/l	MB LOD ug/l	MB LOQ ug/l
Kjeldahl Nitrogen, TKN	150	U	140	150	250

L1405521-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1405521-01 09/29/21 14:50 • (DUP) R3710295-3 09/29/21 14:51

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Kjeldahl Nitrogen, TKN	8700	7610	1	13.4		20

L1405540-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1405540-04 09/29/21 15:08 • (DUP) R3710295-7 09/29/21 15:09

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Kjeldahl Nitrogen, TKN	1970	2200	1	11.0		20

Laboratory Control Sample (LCS)

(LCS) R3710295-2 09/29/21 14:46

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Kjeldahl Nitrogen, TKN	10200	10500	103	74.0-124	

L1405540-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1405540-01 09/29/21 14:57 • (MS) R3710295-4 09/29/21 15:01 • (MSD) R3710295-5 09/29/21 15:02

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Kjeldahl Nitrogen, TKN	5000	1040	6360	6460	106	108	1	90.0-110			1.56	20

L1405540-03 Original Sample (OS) • Matrix Spike (MS)

(OS) L1405540-03 09/29/21 15:05 • (MS) R3710295-6 09/29/21 15:06

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Kjeldahl Nitrogen, TKN	5000	1240	5940	94.0	1	90.0-110	

QUALITY CONTROL SUMMARY

L1405623-01,02,03,04,05,06,07,08,09,10,11,12,13,14,15

Method Blank (MB)

(MB) R3709835-1 09/28/21 16:57

Analyte	MB Result ug/l	MB Qualifier	MB DL ug/l	MB LOD ug/l	MB LOQ ug/l
Nitrate-Nitrite	50.0	U	50.0	50.0	100

L1405623-14 Original Sample (OS) • Duplicate (DUP)

(OS) L1405623-14 09/28/21 17:29 • (DUP) R3709835-4 09/28/21 17:30

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Nitrate-Nitrite	1950	1950	1	0.000		20

L1405554-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1405554-01 09/28/21 17:43 • (DUP) R3709835-7 09/28/21 17:44

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Nitrate-Nitrite	6450	6400	5	0.778		20

Laboratory Control Sample (LCS)

(LCS) R3709835-2 09/28/21 16:58

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Nitrate-Nitrite	2500	2550	102	90.0-110	

L1405554-02 Original Sample (OS) • Matrix Spike (MS)

(OS) L1405554-02 09/28/21 17:46 • (MS) R3709835-3 09/28/21 17:04

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Nitrate-Nitrite	2500	101	2560	98.4	1	90.0-110	

L1405623-15 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1405623-15 09/28/21 17:32 • (MS) R3709835-5 09/28/21 17:33 • (MSD) R3709835-6 09/28/21 17:34

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Nitrate-Nitrite	2500	50.0	2530	2440	101	97.6	1	90.0-110			3.62	20

QUALITY CONTROL SUMMARY

L1405623-01,02,03,04,05,06,07,08,09,10,11,12,13,14,15

Method Blank (MB)

(MB) R3709125-1 09/27/21 03:10

Analyte	MB Result ug/l	MB Qualifier	MB DL ug/l	MB LOD ug/l	MB LOQ ug/l
Iron	50.0	U	20.5	50.0	100
Manganese	1.61	J	0.855	5.00	10.0

Laboratory Control Sample (LCS)

(LCS) R3709125-2 09/27/21 03:13

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Iron	10000	9280	92.8	87.0-115	
Manganese	1000	916	91.6	90.0-114	

L1405623-15 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1405623-15 09/27/21 03:15 • (MS) R3709125-4 09/27/21 03:21 • (MSD) R3709125-5 09/27/21 03:23

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Iron	10000	3550	12600	12800	90.7	92.5	1	87.0-115			1.45	20
Manganese	1000	11900	12500	12400	63.1	54.2	1	90.0-114	E V	E V	0.711	20

Method Blank (MB)

(MB) R3707832-3 09/22/21 13:04

Analyte	MB Result ug/l	MB Qualifier	MB DL ug/l	MB LOD ug/l	MB LOQ ug/l
Benzene	0.500	U	0.0941	0.500	1.00
Dichlorodifluoromethane	2.00	U	0.374	2.00	5.00
Ethylbenzene	0.500	U	0.137	0.500	1.00
Toluene	0.500	U	0.278	0.500	1.00
Xylenes, Total	1.50	U	0.174	1.50	3.00
(S) Toluene-d8	*104*				*89.0-112*
(S) 4-Bromofluorobenzene	*91.8*				*85.0-114*
(S) 1,2-Dichloroethane-d4	*114*				*81.0-118*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3707832-1 09/22/21 11:18 • (LCSD) R3707832-2 09/22/21 12:02

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	5.00	4.80	5.14	96.0	103	79.0-120			6.84	20
Dichlorodifluoromethane	5.00	5.31	5.41	106	108	32.0-152			1.87	20
Ethylbenzene	5.00	4.97	4.80	99.4	96.0	79.0-121			3.48	20
Toluene	5.00	5.00	4.88	100	97.6	80.0-121			2.43	20
Xylenes, Total	15.0	15.1	15.1	101	101	79.0-121			0.000	20
(S) Toluene-d8				*102*	*101*	*89.0-112*				
(S) 4-Bromofluorobenzene				*93.2*	*93.9*	*85.0-114*				
(S) 1,2-Dichloroethane-d4				*112*	*112*	*81.0-118*				

L1405623-19 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1405623-19 09/22/21 18:24 • (MS) R3707832-4 09/22/21 23:12 • (MSD) R3707832-5 09/22/21 23:32

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	5.00	0.500	4.83	5.57	96.6	111	1	79.0-120			14.2	20
Dichlorodifluoromethane	5.00	2.00	5.20	5.81	104	116	1	32.0-152			11.1	20
Ethylbenzene	5.00	0.500	4.50	5.15	90.0	103	1	79.0-121			13.5	20
Toluene	5.00	0.500	4.56	5.13	91.2	103	1	80.0-121			11.8	20
Xylenes, Total	15.0	1.50	13.2	15.3	88.0	102	1	79.0-121			14.7	20
(S) Toluene-d8					*100*	*99.7*		*89.0-112*				
(S) 4-Bromofluorobenzene					*94.6*	*94.3*		*85.0-114*				
(S) 1,2-Dichloroethane-d4					*118*	*119*		*81.0-118*		J1		

Method Blank (MB)

(MB) R3709169-3 09/24/21 09:32

Analyte	MB Result ug/l	MB Qualifier	MB DL ug/l	MB LOD ug/l	MB LOQ ug/l
Acetone	25.0	U	11.3	25.0	50.0
Acrolein	25.0	U	2.54	25.0	50.0
Acrylonitrile	5.00	U	0.671	5.00	10.0
Benzene	0.500	U	0.0941	0.500	1.00
Bromobenzene	0.500	U	0.118	0.500	1.00
Bromodichloromethane	0.500	U	0.136	0.500	1.00
Bromoform	0.500	U	0.129	0.500	1.00
Bromomethane	2.00	U	0.605	2.00	5.00
n-Butylbenzene	0.500	U	0.157	0.500	1.00
sec-Butylbenzene	0.500	U	0.125	0.500	1.00
tert-Butylbenzene	0.500	U	0.127	0.500	1.00
Carbon tetrachloride	0.500	U	0.128	0.500	1.00
Chlorobenzene	0.500	U	0.116	0.500	1.00
Chlorodibromomethane	0.500	U	0.140	0.500	1.00
Chloroethane	2.00	U	0.192	2.00	5.00
Chloroform	2.00	U	0.111	2.00	5.00
Chloromethane	1.00	U	0.960	1.00	2.50
2-Chlorotoluene	0.500	U	0.106	0.500	1.00
4-Chlorotoluene	0.500	U	0.114	0.500	1.00
1,2-Dibromo-3-Chloropropane	2.00	U	0.276	2.00	5.00
1,2-Dibromoethane	0.500	U	0.126	0.500	1.00
Dibromomethane	0.500	U	0.122	0.500	1.00
1,2-Dichlorobenzene	0.500	U	0.107	0.500	1.00
1,3-Dichlorobenzene	0.500	U	0.110	0.500	1.00
1,4-Dichlorobenzene	0.500	U	0.120	0.500	1.00
1,1-Dichloroethane	0.500	U	0.100	0.500	1.00
1,2-Dichloroethane	0.500	U	0.0819	0.500	1.00
1,1-Dichloroethene	0.500	U	0.188	0.500	1.00
cis-1,2-Dichloroethene	0.500	U	0.126	0.500	1.00
trans-1,2-Dichloroethene	0.500	U	0.149	0.500	1.00
1,2-Dichloropropane	0.500	U	0.149	0.500	1.00
1,1-Dichloropropene	0.500	U	0.142	0.500	1.00
1,3-Dichloropropane	0.500	U	0.110	0.500	1.00
cis-1,3-Dichloropropene	0.500	U	0.111	0.500	1.00
trans-1,3-Dichloropropene	0.500	U	0.118	0.500	1.00
2,2-Dichloropropane	0.500	U	0.161	0.500	1.00
Di-isopropyl ether	0.500	U	0.105	0.500	1.00
Ethylbenzene	0.500	U	0.137	0.500	1.00
Hexachloro-1,3-butadiene	0.500	U	0.337	0.500	1.00
Isopropylbenzene	0.500	U	0.105	0.500	1.00

Method Blank (MB)

(MB) R3709169-3 09/24/21 09:32

Analyte	MB Result ug/l	MB Qualifier	MB DL ug/l	MB LOD ug/l	MB LOQ ug/l
p-Isopropyltoluene	0.500	U	0.120	0.500	1.00
2-Butanone (MEK)	5.00	U	1.19	5.00	10.0
Methylene Chloride	2.00	U	0.430	2.00	5.00
4-Methyl-2-pentanone (MIBK)	5.00	U	0.478	5.00	10.0
Methyl tert-butyl ether	0.500	U	0.101	0.500	1.00
Naphthalene	2.00	U	1.00	2.00	5.00
n-Propylbenzene	0.500	U	0.0993	0.500	1.00
Styrene	0.500	U	0.118	0.500	1.00
1,1,1,2-Tetrachloroethane	0.500	U	0.147	0.500	1.00
1,1,2,2-Tetrachloroethane	0.500	U	0.133	0.500	1.00
1,1,2-Trichlorotrifluoroethane	0.500	U	0.180	0.500	1.00
Tetrachloroethene	0.500	U	0.300	0.500	1.00
Toluene	0.500	U	0.278	0.500	1.00
1,2,3-Trichlorobenzene	0.500	U	0.230	0.500	1.00
1,2,4-Trichlorobenzene	0.500	U	0.481	0.500	1.00
1,1,1-Trichloroethane	0.500	U	0.149	0.500	1.00
1,1,2-Trichloroethane	0.500	U	0.158	0.500	1.00
Trichloroethene	0.500	U	0.190	0.500	1.00
Trichlorofluoromethane	2.00	U	0.160	2.00	5.00
1,2,3-Trichloropropane	1.00	U	0.237	1.00	2.50
1,2,4-Trimethylbenzene	0.500	U	0.322	0.500	1.00
1,2,3-Trimethylbenzene	0.500	U	0.104	0.500	1.00
1,3,5-Trimethylbenzene	0.500	U	0.104	0.500	1.00
Vinyl chloride	0.500	U	0.234	0.500	1.00
Xylenes, Total	1.50	U	0.174	1.50	3.00
(S) Toluene-d8	*104*				*89.0-112*
(S) 4-Bromofluorobenzene	*113*				*85.0-114*
(S) 1,2-Dichloroethane-d4	*110*				*81.0-118*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3709169-1 09/24/21 08:06 • (LCSD) R3709169-2 09/24/21 08:28

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Acetone	25.0	25.1	23.2	100	92.8	39.0-160			7.87	20
Acrolein	25.0	29.0	29.9	116	120	39.0-155			3.06	20
Acrylonitrile	25.0	24.4	25.2	97.6	101	63.0-135			3.23	20
Benzene	5.00	5.53	5.33	111	107	79.0-120			3.68	20
Bromobenzene	5.00	5.03	4.58	101	91.6	80.0-120			9.37	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3709169-1 09/24/21 08:06 • (LCSD) R3709169-2 09/24/21 08:28

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Bromodichloromethane	5.00	5.36	5.45	107	109	79.0-125			1.67	20
Bromoform	5.00	4.45	4.74	89.0	94.8	66.0-130			6.31	20
Bromomethane	5.00	4.82	4.22	96.4	84.4	53.0-141			13.3	20
n-Butylbenzene	5.00	4.59	4.62	91.8	92.4	75.0-128			0.651	20
sec-Butylbenzene	5.00	5.18	4.82	104	96.4	77.0-126			7.20	20
tert-Butylbenzene	5.00	5.26	4.76	105	95.2	78.0-124			9.98	20
Carbon tetrachloride	5.00	5.58	5.25	112	105	72.0-136			6.09	20
Chlorobenzene	5.00	5.22	4.85	104	97.0	82.0-118			7.35	20
Chlorodibromomethane	5.00	5.23	4.98	105	99.6	74.0-126			4.90	20
Chloroethane	5.00	6.26	5.50	125	110	60.0-138			12.9	20
Chloroform	5.00	5.62	5.41	112	108	79.0-124			3.81	20
Chloromethane	5.00	5.55	5.63	111	113	50.0-139			1.43	20
2-Chlorotoluene	5.00	4.96	4.74	99.2	94.8	79.0-122			4.54	20
4-Chlorotoluene	5.00	4.82	4.53	96.4	90.6	78.0-122			6.20	20
1,2-Dibromo-3-Chloropropane	5.00	4.76	4.73	95.2	94.6	62.0-128			0.632	20
1,2-Dibromoethane	5.00	5.24	4.90	105	98.0	77.0-121			6.71	20
Dibromomethane	5.00	5.43	5.29	109	106	79.0-123			2.61	20
1,2-Dichlorobenzene	5.00	5.03	4.86	101	97.2	80.0-119			3.44	20
1,3-Dichlorobenzene	5.00	5.14	4.85	103	97.0	80.0-119			5.81	20
1,4-Dichlorobenzene	5.00	4.75	4.55	95.0	91.0	79.0-118			4.30	20
1,1-Dichloroethane	5.00	5.28	5.38	106	108	77.0-125			1.88	20
1,2-Dichloroethane	5.00	5.84	5.47	117	109	73.0-128			6.54	20
1,1-Dichloroethene	5.00	5.19	4.78	104	95.6	71.0-131			8.22	20
cis-1,2-Dichloroethene	5.00	5.31	5.30	106	106	78.0-123			0.189	20
trans-1,2-Dichloroethene	5.00	5.53	5.03	111	101	75.0-124			9.47	20
1,2-Dichloropropane	5.00	5.07	5.08	101	102	78.0-122			0.197	20
1,1-Dichloropropene	5.00	5.70	5.36	114	107	79.0-125			6.15	20
1,3-Dichloropropane	5.00	4.96	4.89	99.2	97.8	80.0-119			1.42	20
cis-1,3-Dichloropropene	5.00	4.88	4.69	97.6	93.8	75.0-124			3.97	20
trans-1,3-Dichloropropene	5.00	4.70	4.67	94.0	93.4	73.0-127			0.640	20
2,2-Dichloropropane	5.00	5.37	5.03	107	101	60.0-139			6.54	20
Di-isopropyl ether	5.00	5.27	5.13	105	103	67.0-128			2.69	20
Ethylbenzene	5.00	5.31	5.19	106	104	79.0-121			2.29	20
Hexachloro-1,3-butadiene	5.00	4.63	4.86	92.6	97.2	66.0-134			4.85	20
Isopropylbenzene	5.00	5.39	5.04	108	101	72.0-131			6.71	20
p-Isopropyltoluene	5.00	5.22	4.78	104	95.6	77.0-127			8.80	20
2-Butanone (MEK)	25.0	24.2	24.5	96.8	98.0	56.0-143			1.23	20
Methylene Chloride	5.00	5.43	5.50	109	110	74.0-124			1.28	20
4-Methyl-2-pentanone (MIBK)	25.0	24.9	23.5	99.6	94.0	67.0-130			5.79	20
Methyl tert-butyl ether	5.00	5.61	5.40	112	108	71.0-124			3.81	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3709169-1 09/24/21 08:06 • (LCSD) R3709169-2 09/24/21 08:28

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Naphthalene	5.00	6.23	5.08	125	102	61.0-128		J3	20.3	20
n-Propylbenzene	5.00	5.03	4.71	101	94.2	76.0-126			6.57	20
Styrene	5.00	4.91	4.46	98.2	89.2	78.0-123			9.61	20
1,1,1,2-Tetrachloroethane	5.00	5.24	5.28	105	106	78.0-124			0.760	20
1,1,2,2-Tetrachloroethane	5.00	4.14	4.17	82.8	83.4	71.0-121			0.722	20
1,1,2-Trichlorotrifluoroethane	5.00	5.12	4.93	102	98.6	70.0-136			3.78	20
Tetrachloroethene	5.00	5.66	5.04	113	101	74.0-129			11.6	20
Toluene	5.00	5.27	4.87	105	97.4	80.0-121			7.89	20
1,2,3-Trichlorobenzene	5.00	4.59	4.51	91.8	90.2	69.0-129			1.76	20
1,2,4-Trichlorobenzene	5.00	4.85	4.58	97.0	91.6	69.0-130			5.73	20
1,1,1-Trichloroethane	5.00	6.20	5.77	124	115	74.0-131			7.18	20
1,1,2-Trichloroethane	5.00	5.34	5.27	107	105	80.0-119			1.32	20
Trichloroethene	5.00	6.18	5.83	124	117	79.0-123	J4		5.83	20
Trichlorofluoromethane	5.00	5.57	5.76	111	115	65.0-141			3.35	20
1,2,3-Trichloropropane	5.00	5.11	4.59	102	91.8	73.0-122			10.7	20
1,2,4-Trimethylbenzene	5.00	5.30	4.88	106	97.6	76.0-124			8.25	20
1,2,3-Trimethylbenzene	5.00	5.08	4.98	102	99.6	82.0-120			1.99	20
1,3,5-Trimethylbenzene	5.00	5.19	4.92	104	98.4	75.0-124			5.34	20
Vinyl chloride	5.00	5.65	4.99	113	99.8	58.0-137			12.4	20
Xylenes, Total	15.0	16.6	15.0	111	100	79.0-121			10.1	20
(S) Toluene-d8				*99.9*	*101*	*89.0-112*				
(S) 4-Bromofluorobenzene				*104*	*106*	*85.0-114*				
(S) 1,2-Dichloroethane-d4				*104*	*110*	*81.0-118*				

Method Blank (MB)

(MB) R3708982-4 09/26/21 16:37

Analyte	MB Result ug/l	MB Qualifier	MB DL ug/l	MB LOD ug/l	MB LOQ ug/l
Acetone	25.0	U	11.3	25.0	50.0
Acrylonitrile	5.00	U	0.671	5.00	10.0
Benzene	0.500	U	0.0941	0.500	1.00
Bromobenzene	0.500	U	0.118	0.500	1.00
Bromodichloromethane	0.500	U	0.136	0.500	1.00
Bromoform	0.500	U	0.129	0.500	1.00
n-Butylbenzene	0.500	U	0.157	0.500	1.00
sec-Butylbenzene	0.500	U	0.125	0.500	1.00
tert-Butylbenzene	0.500	U	0.127	0.500	1.00
Carbon tetrachloride	0.500	U	0.128	0.500	1.00
Chlorobenzene	0.500	U	0.116	0.500	1.00
Chlorodibromomethane	0.500	U	0.140	0.500	1.00
Chloroethane	2.00	U	0.192	2.00	5.00
Chloroform	2.00	U	0.111	2.00	5.00
Chloromethane	1.00	U	0.960	1.00	2.50
2-Chlorotoluene	0.500	U	0.106	0.500	1.00
4-Chlorotoluene	0.500	U	0.114	0.500	1.00
1,2-Dibromo-3-Chloropropane	2.00	U	0.276	2.00	5.00
1,2-Dibromoethane	0.500	U	0.126	0.500	1.00
Dibromomethane	0.500	U	0.122	0.500	1.00
1,2-Dichlorobenzene	0.500	U	0.107	0.500	1.00
1,3-Dichlorobenzene	0.500	U	0.110	0.500	1.00
1,4-Dichlorobenzene	0.500	U	0.120	0.500	1.00
Dichlorodifluoromethane	2.00	U	0.374	2.00	5.00
1,1-Dichloroethane	0.500	U	0.100	0.500	1.00
1,2-Dichloroethane	0.500	U	0.0819	0.500	1.00
1,1-Dichloroethene	0.500	U	0.188	0.500	1.00
cis-1,2-Dichloroethene	0.500	U	0.126	0.500	1.00
trans-1,2-Dichloroethene	0.500	U	0.149	0.500	1.00
1,2-Dichloropropane	0.500	U	0.149	0.500	1.00
1,1-Dichloropropene	0.500	U	0.142	0.500	1.00
1,3-Dichloropropane	0.500	U	0.110	0.500	1.00
cis-1,3-Dichloropropene	0.500	U	0.111	0.500	1.00
trans-1,3-Dichloropropene	0.500	U	0.118	0.500	1.00
2,2-Dichloropropane	0.500	U	0.161	0.500	1.00
Di-isopropyl ether	0.500	U	0.105	0.500	1.00
Ethylbenzene	0.500	U	0.137	0.500	1.00
Isopropylbenzene	0.500	U	0.105	0.500	1.00
p-Isopropyltoluene	0.500	U	0.120	0.500	1.00
2-Butanone (MEK)	5.00	U	1.19	5.00	10.0

Method Blank (MB)

(MB) R3708982-4 09/26/21 16:37

Analyte	MB Result ug/l	MB Qualifier	MB DL ug/l	MB LOD ug/l	MB LOQ ug/l
Methylene Chloride	2.00	U	0.430	2.00	5.00
4-Methyl-2-pentanone (MIBK)	5.00	U	0.478	5.00	10.0
Methyl tert-butyl ether	0.500	U	0.101	0.500	1.00
Naphthalene	2.00	U	1.00	2.00	5.00
n-Propylbenzene	0.500	U	0.0993	0.500	1.00
Styrene	0.500	U	0.118	0.500	1.00
1,1,2,2-Tetrachloroethane	0.500	U	0.133	0.500	1.00
1,1,2-Trichlorotrifluoroethane	0.500	U	0.180	0.500	1.00
Tetrachloroethene	0.500	U	0.300	0.500	1.00
Toluene	0.500	U	0.278	0.500	1.00
1,2,3-Trichlorobenzene	0.500	U	0.230	0.500	1.00
1,1,2-Trichloroethane	0.500	U	0.158	0.500	1.00
Trichlorofluoromethane	2.00	U	0.160	2.00	5.00
1,2,3-Trichloropropane	1.00	U	0.237	1.00	2.50
1,2,4-Trimethylbenzene	0.500	U	0.322	0.500	1.00
1,2,3-Trimethylbenzene	0.500	U	0.104	0.500	1.00
1,3,5-Trimethylbenzene	0.500	U	0.104	0.500	1.00
Vinyl chloride	0.500	U	0.234	0.500	1.00
Xylenes, Total	1.50	U	0.174	1.50	3.00
(S) Toluene-d8	*102*				*89.0-112*
(S) 4-Bromofluorobenzene	*91.6*				*85.0-114*
(S) 1,2-Dichloroethane-d4	*94.1*				*81.0-118*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3708982-1 09/26/21 14:54 • (LCSD) R3708982-2 09/26/21 15:15

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Acetone	25.0	26.3	29.6	105	118	39.0-160			11.8	20
Acrylonitrile	25.0	23.4	25.2	93.6	101	63.0-135			7.41	20
Benzene	5.00	4.34	4.29	86.8	85.8	79.0-120			1.16	20
Bromobenzene	5.00	4.99	4.75	99.8	95.0	80.0-120			4.93	20
Bromodichloromethane	5.00	4.11	4.13	82.2	82.6	79.0-125			0.485	20
Bromoform	5.00	4.58	4.59	91.6	91.8	66.0-130			0.218	20
n-Butylbenzene	5.00	4.23	4.06	84.6	81.2	75.0-128			4.10	20
sec-Butylbenzene	5.00	4.41	4.40	88.2	88.0	77.0-126			0.227	20
tert-Butylbenzene	5.00	4.40	4.03	88.0	80.6	78.0-124			8.78	20
Carbon tetrachloride	5.00	4.10	4.07	82.0	81.4	72.0-136			0.734	20
Chlorobenzene	5.00	4.49	4.68	89.8	93.6	82.0-118			4.14	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3708982-1 09/26/21 14:54 • (LCSD) R3708982-2 09/26/21 15:15

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Chlorodibromomethane	5.00	4.60	4.49	92.0	89.8	74.0-126			2.42	20
Chloroethane	5.00	4.78	4.88	95.6	97.6	60.0-138			2.07	20
Chloroform	5.00	4.08	4.30	81.6	86.0	79.0-124			5.25	20
Chloromethane	5.00	4.95	4.87	99.0	97.4	50.0-139			1.63	20
2-Chlorotoluene	5.00	4.67	4.60	93.4	92.0	79.0-122			1.51	20
4-Chlorotoluene	5.00	4.63	4.49	92.6	89.8	78.0-122			3.07	20
1,2-Dibromo-3-Chloropropane	5.00	4.13	4.38	82.6	87.6	62.0-128			5.88	20
1,2-Dibromoethane	5.00	4.62	4.50	92.4	90.0	77.0-121			2.63	20
Dibromomethane	5.00	4.54	4.39	90.8	87.8	79.0-123			3.36	20
1,2-Dichlorobenzene	5.00	4.53	4.24	90.6	84.8	80.0-119			6.61	20
1,3-Dichlorobenzene	5.00	4.09	4.17	81.8	83.4	80.0-119			1.94	20
1,4-Dichlorobenzene	5.00	4.62	4.34	92.4	86.8	79.0-118			6.25	20
Dichlorodifluoromethane	5.00	4.23	4.50	84.6	90.0	32.0-152			6.19	20
1,1-Dichloroethane	5.00	4.30	4.57	86.0	91.4	77.0-125			6.09	20
1,2-Dichloroethane	5.00	4.41	4.71	88.2	94.2	73.0-128			6.58	20
1,1-Dichloroethene	5.00	4.13	4.21	82.6	84.2	71.0-131			1.92	20
cis-1,2-Dichloroethene	5.00	4.36	4.32	87.2	86.4	78.0-123			0.922	20
trans-1,2-Dichloroethene	5.00	4.27	4.35	85.4	87.0	75.0-124			1.86	20
1,2-Dichloropropane	5.00	4.52	4.64	90.4	92.8	78.0-122			2.62	20
1,1-Dichloropropene	5.00	4.33	4.51	86.6	90.2	79.0-125			4.07	20
1,3-Dichloropropane	5.00	4.59	4.58	91.8	91.6	80.0-119			0.218	20
cis-1,3-Dichloropropene	5.00	4.45	4.71	89.0	94.2	75.0-124			5.68	20
trans-1,3-Dichloropropene	5.00	4.82	4.82	96.4	96.4	73.0-127			0.000	20
2,2-Dichloropropane	5.00	4.27	4.23	85.4	84.6	60.0-139			0.941	20
Di-isopropyl ether	5.00	4.60	4.90	92.0	98.0	67.0-128			6.32	20
Ethylbenzene	5.00	4.40	4.58	88.0	91.6	79.0-121			4.01	20
Isopropylbenzene	5.00	4.13	4.21	82.6	84.2	72.0-131			1.92	20
p-Isopropyltoluene	5.00	4.44	4.39	88.8	87.8	77.0-127			1.13	20
2-Butanone (MEK)	25.0	26.2	28.2	105	113	56.0-143			7.35	20
Methylene Chloride	5.00	4.31	4.38	86.2	87.6	74.0-124			1.61	20
4-Methyl-2-pentanone (MIBK)	25.0	27.3	27.6	109	110	67.0-130			1.09	20
Methyl tert-butyl ether	5.00	4.17	4.40	83.4	88.0	71.0-124			5.37	20
Naphthalene	5.00	4.10	4.03	82.0	80.6	61.0-128			1.72	20
n-Propylbenzene	5.00	5.05	4.76	101	95.2	76.0-126			5.91	20
Styrene	5.00	4.19	4.06	83.8	81.2	78.0-123			3.15	20
1,1,2,2-Tetrachloroethane	5.00	5.09	5.29	102	106	71.0-121			3.85	20
1,1,2-Trichlorotrifluoroethane	5.00	4.16	3.91	83.2	78.2	70.0-136			6.20	20
Tetrachloroethene	5.00	4.50	4.19	90.0	83.8	74.0-129			7.13	20
Toluene	5.00	4.50	4.42	90.0	88.4	80.0-121			1.79	20
1,2,3-Trichlorobenzene	5.00	4.04	3.84	80.8	76.8	69.0-129			5.08	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3708982-1 09/26/21 14:54 • (LCSD) R3708982-2 09/26/21 15:15

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
1,1,2-Trichloroethane	5.00	4.51	4.45	90.2	89.0	80.0-119			1.34	20
Trichlorofluoromethane	5.00	4.01	3.96	80.2	79.2	65.0-141			1.25	20
1,2,3-Trichloropropane	5.00	5.81	5.00	116	100	73.0-122			15.0	20
1,2,4-Trimethylbenzene	5.00	4.51	4.48	90.2	89.6	76.0-124			0.667	20
1,2,3-Trimethylbenzene	5.00	4.69	4.48	93.8	89.6	82.0-120			4.58	20
1,3,5-Trimethylbenzene	5.00	5.03	4.76	101	95.2	75.0-124			5.52	20
Vinyl chloride	5.00	4.14	4.25	82.8	85.0	58.0-137			2.62	20
Xylenes, Total	15.0	12.7	12.3	84.7	82.0	79.0-121			3.20	20
(S) Toluene-d8				*101*	*98.3*	*89.0-112*				
(S) 4-Bromofluorobenzene				*90.0*	*89.8*	*85.0-114*				
(S) 1,2-Dichloroethane-d4				*96.3*	*97.4*	*81.0-118*				

Method Blank (MB)

(MB) R3710660-3 09/27/21 12:03

Analyte	MB Result ug/l	MB Qualifier	MB DL ug/l	MB LOD ug/l	MB LOQ ug/l
Acrolein	25.0	U	2.54	25.0	50.0
Bromomethane	2.00	U	0.605	2.00	5.00
Hexachloro-1,3-butadiene	0.500	U	0.337	0.500	1.00
1,1,1,2-Tetrachloroethane	0.500	U	0.147	0.500	1.00
1,2,4-Trichlorobenzene	0.500	U	0.481	0.500	1.00
1,1,1-Trichloroethane	0.500	U	0.149	0.500	1.00
Trichloroethene	0.500	U	0.190	0.500	1.00
(S) Toluene-d8	*105*				*89.0-112*
(S) 4-Bromofluorobenzene	*101*				*85.0-114*
(S) 1,2-Dichloroethane-d4	*98.0*				*81.0-118*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3710660-1 09/27/21 11:06 • (LCSD) R3710660-2 09/27/21 11:25

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Acrolein	25.0	23.3	13.5	93.2	54.0	39.0-155		J3	53.3	20
Bromomethane	5.00	4.38	4.07	87.6	81.4	53.0-141			7.34	20
Hexachloro-1,3-butadiene	5.00	4.64	4.49	92.8	89.8	66.0-134			3.29	20
1,1,1,2-Tetrachloroethane	5.00	4.82	4.68	96.4	93.6	78.0-124			2.95	20
1,2,4-Trichlorobenzene	5.00	4.25	4.38	85.0	87.6	69.0-130			3.01	20
1,1,1-Trichloroethane	5.00	4.84	4.74	96.8	94.8	74.0-131			2.09	20
Trichloroethene	5.00	4.76	4.63	95.2	92.6	79.0-123			2.77	20
(S) Toluene-d8				*104*	*106*	*89.0-112*				
(S) 4-Bromofluorobenzene				*98.9*	*96.8*	*85.0-114*				
(S) 1,2-Dichloroethane-d4				*105*	*104*	*81.0-118*				

Method Blank (MB)

(MB) R3709848-3 09/28/21 10:10

Analyte	MB Result ug/l	MB Qualifier	MB DL ug/l	MB LOD ug/l	MB LOQ ug/l
Dichlorodifluoromethane	2.00	U	0.374	2.00	5.00
(S) Toluene-d8	*99.2*				*89.0-112*
(S) 4-Bromofluorobenzene	*102*				*85.0-114*
(S) 1,2-Dichloroethane-d4	*87.3*				*81.0-118*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3709848-1 09/28/21 08:53 • (LCSD) R3709848-2 09/28/21 09:12

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Dichlorodifluoromethane	5.00	4.45	4.15	89.0	83.0	32.0-152			6.98	20
(S) Toluene-d8				*100*	*97.9*	*89.0-112*				
(S) 4-Bromofluorobenzene				*99.4*	*98.0*	*85.0-114*				
(S) 1,2-Dichloroethane-d4				*90.8*	*84.9*	*81.0-118*				

Method Blank (MB)

(MB) R3709865-2 09/28/21 11:45

Analyte	MB Result ug/l	MB Qualifier	MB DL ug/l	MB LOD ug/l	MB LOQ ug/l
Acetone	25.0	U	11.3	25.0	50.0
Acrolein	25.0	U	2.54	25.0	50.0
Acrylonitrile	5.00	U	0.671	5.00	10.0
Benzene	0.500	U	0.0941	0.500	1.00
Bromobenzene	0.500	U	0.118	0.500	1.00
Bromodichloromethane	0.500	U	0.136	0.500	1.00
Bromoform	0.500	U	0.129	0.500	1.00
Bromomethane	2.00	U	0.605	2.00	5.00
n-Butylbenzene	0.500	U	0.157	0.500	1.00
sec-Butylbenzene	0.500	U	0.125	0.500	1.00
tert-Butylbenzene	0.500	U	0.127	0.500	1.00
Carbon tetrachloride	0.500	U	0.128	0.500	1.00
Chlorobenzene	0.500	U	0.116	0.500	1.00
Chlorodibromomethane	0.500	U	0.140	0.500	1.00
Chloroethane	2.00	U	0.192	2.00	5.00
Chloroform	2.00	U	0.111	2.00	5.00
Chloromethane	1.00	U	0.960	1.00	2.50
2-Chlorotoluene	0.500	U	0.106	0.500	1.00
4-Chlorotoluene	0.500	U	0.114	0.500	1.00
1,2-Dibromoethane	0.500	U	0.126	0.500	1.00
Dibromomethane	0.500	U	0.122	0.500	1.00
1,2-Dichlorobenzene	0.500	U	0.107	0.500	1.00
1,3-Dichlorobenzene	0.500	U	0.110	0.500	1.00
1,4-Dichlorobenzene	0.500	U	0.120	0.500	1.00
Dichlorodifluoromethane	2.00	U	0.374	2.00	5.00
1,1-Dichloroethane	0.500	U	0.100	0.500	1.00
1,2-Dichloroethane	0.500	U	0.0819	0.500	1.00
1,1-Dichloroethene	0.500	U	0.188	0.500	1.00
cis-1,2-Dichloroethene	0.500	U	0.126	0.500	1.00
trans-1,2-Dichloroethene	0.500	U	0.149	0.500	1.00
1,2-Dichloropropane	0.500	U	0.149	0.500	1.00
1,1-Dichloropropene	0.500	U	0.142	0.500	1.00
1,3-Dichloropropane	0.500	U	0.110	0.500	1.00
cis-1,3-Dichloropropene	0.500	U	0.111	0.500	1.00
trans-1,3-Dichloropropene	0.500	U	0.118	0.500	1.00
2,2-Dichloropropane	0.500	U	0.161	0.500	1.00
Di-isopropyl ether	0.500	U	0.105	0.500	1.00
Ethylbenzene	0.500	U	0.137	0.500	1.00
Hexachloro-1,3-butadiene	0.500	U	0.337	0.500	1.00
Isopropylbenzene	0.500	U	0.105	0.500	1.00

Method Blank (MB)

(MB) R3709865-2 09/28/21 11:45

Analyte	MB Result ug/l	MB Qualifier	MB DL ug/l	MB LOD ug/l	MB LOQ ug/l
p-Isopropyltoluene	0.500	U	0.120	0.500	1.00
2-Butanone (MEK)	5.00	U	1.19	5.00	10.0
Methylene Chloride	2.00	U	0.430	2.00	5.00
4-Methyl-2-pentanone (MIBK)	5.00	U	0.478	5.00	10.0
Methyl tert-butyl ether	0.500	U	0.101	0.500	1.00
n-Propylbenzene	0.500	U	0.0993	0.500	1.00
Styrene	0.500	U	0.118	0.500	1.00
1,1,1,2-Tetrachloroethane	0.500	U	0.147	0.500	1.00
1,1,2,2-Tetrachloroethane	0.500	U	0.133	0.500	1.00
1,1,2-Trichlorotrifluoroethane	0.500	U	0.180	0.500	1.00
Tetrachloroethene	0.500	U	0.300	0.500	1.00
Toluene	0.500	U	0.278	0.500	1.00
1,2,3-Trichlorobenzene	0.500	U	0.230	0.500	1.00
1,2,4-Trichlorobenzene	0.500	U	0.481	0.500	1.00
1,1,1-Trichloroethane	0.500	U	0.149	0.500	1.00
1,1,2-Trichloroethane	0.500	U	0.158	0.500	1.00
Trichloroethene	0.500	U	0.190	0.500	1.00
Trichlorofluoromethane	2.00	U	0.160	2.00	5.00
1,2,3-Trichloropropane	1.00	U	0.237	1.00	2.50
1,2,4-Trimethylbenzene	0.500	U	0.322	0.500	1.00
1,2,3-Trimethylbenzene	0.500	U	0.104	0.500	1.00
1,3,5-Trimethylbenzene	0.500	U	0.104	0.500	1.00
Vinyl chloride	0.500	U	0.234	0.500	1.00
Xylenes, Total	1.50	U	0.174	1.50	3.00
(S) Toluene-d8	*104*				*89.0-112*
(S) 4-Bromofluorobenzene	*101*				*85.0-114*
(S) 1,2-Dichloroethane-d4	*110*				*81.0-118*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3709865-1 09/28/21 10:19 • (LCSD) R3709865-3 09/28/21 13:06

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Acetone	25.0	26.8	27.4	107	110	39.0-160			2.21	20
Acrolein	25.0	17.9	17.0	71.6	68.0	39.0-155			5.16	20
Acrylonitrile	25.0	30.5	29.5	122	118	63.0-135			3.33	20
Benzene	5.00	5.63	5.97	113	119	79.0-120			5.86	20
Bromobenzene	5.00	5.34	5.60	107	112	80.0-120			4.75	20
Bromodichloromethane	5.00	5.86	5.83	117	117	79.0-125			0.513	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3709865-1 09/28/21 10:19 • (LCSD) R3709865-3 09/28/21 13:06

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Bromoform	5.00	4.32	4.18	86.4	83.6	66.0-130			3.29	20
Bromomethane	5.00	4.78	5.34	95.6	107	53.0-141			11.1	20
n-Butylbenzene	5.00	4.65	4.89	93.0	97.8	75.0-128			5.03	20
sec-Butylbenzene	5.00	4.92	5.26	98.4	105	77.0-126			6.68	20
tert-Butylbenzene	5.00	5.20	5.55	104	111	78.0-124			6.51	20
Carbon tetrachloride	5.00	5.68	6.39	114	128	72.0-136			11.8	20
Chlorobenzene	5.00	4.81	4.92	96.2	98.4	82.0-118			2.26	20
Chlorodibromomethane	5.00	5.10	4.99	102	99.8	74.0-126			2.18	20
Chloroethane	5.00	6.75	6.93	135	139	60.0-138		J4	2.63	20
Chloroform	5.00	5.90	6.02	118	120	79.0-124			2.01	20
Chloromethane	5.00	5.77	6.35	115	127	50.0-139			9.57	20
2-Chlorotoluene	5.00	5.24	5.43	105	109	79.0-122			3.56	20
4-Chlorotoluene	5.00	5.48	5.63	110	113	78.0-122			2.70	20
1,2-Dibromoethane	5.00	4.66	4.49	93.2	89.8	77.0-121			3.72	20
Dibromomethane	5.00	5.62	5.45	112	109	79.0-123			3.07	20
1,2-Dichlorobenzene	5.00	4.94	5.15	98.8	103	80.0-119			4.16	20
1,3-Dichlorobenzene	5.00	5.18	5.18	104	104	80.0-119			0.000	20
1,4-Dichlorobenzene	5.00	4.92	4.72	98.4	94.4	79.0-118			4.15	20
Dichlorodifluoromethane	5.00	5.29	5.54	106	111	32.0-152			4.62	20
1,1-Dichloroethane	5.00	6.28	6.51	126	130	77.0-125	J4	J4	3.60	20
1,2-Dichloroethane	5.00	5.98	5.89	120	118	73.0-128			1.52	20
1,1-Dichloroethene	5.00	5.26	5.42	105	108	71.0-131			3.00	20
cis-1,2-Dichloroethene	5.00	5.63	5.73	113	115	78.0-123			1.76	20
trans-1,2-Dichloroethene	5.00	5.35	5.55	107	111	75.0-124			3.67	20
1,2-Dichloropropane	5.00	6.43	6.65	129	133	78.0-122	J4	J4	3.36	20
1,1-Dichloropropene	5.00	5.42	5.78	108	116	79.0-125			6.43	20
1,3-Dichloropropane	5.00	5.22	5.28	104	106	80.0-119			1.14	20
cis-1,3-Dichloropropene	5.00	5.64	5.65	113	113	75.0-124			0.177	20
trans-1,3-Dichloropropene	5.00	4.80	4.75	96.0	95.0	73.0-127			1.05	20
2,2-Dichloropropane	5.00	6.10	6.29	122	126	60.0-139			3.07	20
Di-isopropyl ether	5.00	6.68	6.62	134	132	67.0-128	J4	J4	0.902	20
Ethylbenzene	5.00	4.84	4.90	96.8	98.0	79.0-121			1.23	20
Hexachloro-1,3-butadiene	5.00	4.32	4.29	86.4	85.8	66.0-134			0.697	20
Isopropylbenzene	5.00	4.63	4.96	92.6	99.2	72.0-131			6.88	20
p-Isopropyltoluene	5.00	4.89	5.08	97.8	102	77.0-127			3.81	20
2-Butanone (MEK)	25.0	29.7	29.3	119	117	56.0-143			1.36	20
Methylene Chloride	5.00	5.07	5.13	101	103	74.0-124			1.18	20
4-Methyl-2-pentanone (MIBK)	25.0	28.2	27.4	113	110	67.0-130			2.88	20
Methyl tert-butyl ether	5.00	5.47	5.34	109	107	71.0-124			2.41	20
n-Propylbenzene	5.00	5.19	5.46	104	109	76.0-126			5.07	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3709865-1 09/28/21 10:19 • (LCSD) R3709865-3 09/28/21 13:06

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Styrene	5.00	4.53	4.56	90.6	91.2	78.0-123			0.660	20
1,1,1,2-Tetrachloroethane	5.00	4.83	4.84	96.6	96.8	78.0-124			0.207	20
1,1,2,2-Tetrachloroethane	5.00	5.34	5.35	107	107	71.0-121			0.187	20
1,1,2-Trichlorotrifluoroethane	5.00	4.99	5.13	99.8	103	70.0-136			2.77	20
Tetrachloroethene	5.00	4.69	5.03	93.8	101	74.0-129			7.00	20
Toluene	5.00	4.96	5.19	99.2	104	80.0-121			4.53	20
1,2,3-Trichlorobenzene	5.00	4.12	4.34	82.4	86.8	69.0-129			5.20	20
1,2,4-Trichlorobenzene	5.00	4.12	4.17	82.4	83.4	69.0-130			1.21	20
1,1,1-Trichloroethane	5.00	5.69	6.22	114	124	74.0-131			8.90	20
1,1,2-Trichloroethane	5.00	4.88	4.83	97.6	96.6	80.0-119			1.03	20
Trichloroethene	5.00	5.12	5.42	102	108	79.0-123			5.69	20
Trichlorofluoromethane	5.00	5.00	5.12	100	102	65.0-141			2.37	20
1,2,3-Trichloropropane	5.00	5.36	5.05	107	101	73.0-122			5.96	20
1,2,4-Trimethylbenzene	5.00	5.28	5.59	106	112	76.0-124			5.70	20
1,2,3-Trimethylbenzene	5.00	5.26	5.33	105	107	82.0-120			1.32	20
1,3,5-Trimethylbenzene	5.00	5.15	5.49	103	110	75.0-124			6.39	20
Vinyl chloride	5.00	6.20	6.86	124	137	58.0-137			10.1	20
Xylenes, Total	15.0	14.6	14.8	97.3	98.7	79.0-121			1.36	20
(S) Toluene-d8				*99.6*	*99.1*	*89.0-112*				
(S) 4-Bromofluorobenzene				*99.9*	*100*	*85.0-114*				
(S) 1,2-Dichloroethane-d4				*113*	*112*	*81.0-118*				

L1405623-15 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1405623-15 09/28/21 13:50 • (MS) R3709865-4 09/28/21 14:55 • (MSD) R3709865-5 09/28/21 15:16

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Acetone	25.0	25.0	33.0	34.0	132	136	1	39.0-160			2.99	20
Acrolein	25.0	25.0	28.3	39.0	113	156	1	39.0-155		J3 J5	31.8	20
Acrylonitrile	25.0	5.00	35.5	37.1	142	148	1	63.0-135	J5	J5	4.41	20
Benzene	5.00	1.42	8.50	8.90	142	150	1	79.0-120	J5	J5	4.60	20
Bromobenzene	5.00	0.500	6.62	6.93	132	139	1	80.0-120	J5	J5	4.58	20
Bromodichloromethane	5.00	0.500	7.12	7.28	142	146	1	79.0-125	J5	J5	2.22	20
Bromoform	5.00	0.500	5.16	5.10	103	102	1	66.0-130			1.17	20
Bromomethane	5.00	2.00	6.06	5.68	121	114	1	53.0-141			6.47	20
n-Butylbenzene	5.00	0.632	6.26	6.71	113	122	1	75.0-128			6.94	20
sec-Butylbenzene	5.00	0.147	6.74	7.10	132	139	1	77.0-126	J5	J5	5.20	20
tert-Butylbenzene	5.00	0.698	7.88	8.21	144	150	1	78.0-124	J5	J5	4.10	20
Carbon tetrachloride	5.00	0.500	8.02	8.08	160	162	1	72.0-136	J5	J5	0.745	20

L1405623-15 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1405623-15 09/28/21 13:50 • (MS) R3709865-4 09/28/21 14:55 • (MSD) R3709865-5 09/28/21 15:16

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chlorobenzene	5.00	0.500	5.96	6.09	119	122	1	82.0-118	J5	J5	2.16	20
Chlorodibromomethane	5.00	0.500	5.96	6.06	119	121	1	74.0-126			1.66	20
Chloroethane	5.00	2.00	8.94	9.66	179	193	1	60.0-138	J5	J5	7.74	20
Chloroform	5.00	2.00	7.34	7.64	147	153	1	79.0-124	J5	J5	4.01	20
Chloromethane	5.00	1.00	7.60	8.25	152	165	1	50.0-139	J5	J5	8.20	20
2-Chlorotoluene	5.00	0.500	6.54	6.79	131	136	1	79.0-122	J5	J5	3.75	20
4-Chlorotoluene	5.00	0.500	6.68	6.99	134	140	1	78.0-122	J5	J5	4.54	20
1,2-Dibromoethane	5.00	0.500	5.41	5.60	108	112	1	77.0-121			3.45	20
Dibromomethane	5.00	0.500	6.56	6.92	131	138	1	79.0-123	J5	J5	5.34	20
1,2-Dichlorobenzene	5.00	0.500	6.22	6.52	124	130	1	80.0-119	J5	J5	4.71	20
1,3-Dichlorobenzene	5.00	0.500	6.09	6.40	122	128	1	80.0-119	J5	J5	4.96	20
1,4-Dichlorobenzene	5.00	0.500	5.82	6.24	116	125	1	79.0-118		J5	6.97	20
Dichlorodifluoromethane	5.00	2.00	8.64	9.31	173	186	1	32.0-152	J5	J5	7.47	20
1,1-Dichloroethane	5.00	0.500	7.85	8.25	157	165	1	77.0-125	J5	J5	4.97	20
1,2-Dichloroethane	5.00	0.500	7.04	7.41	141	148	1	73.0-128	J5	J5	5.12	20
1,1-Dichloroethene	5.00	0.500	7.01	7.16	140	143	1	71.0-131	J5	J5	2.12	20
cis-1,2-Dichloroethene	5.00	9.81	17.0	17.7	144	158	1	78.0-123	J5	J5	4.03	20
trans-1,2-Dichloroethene	5.00	0.500	6.95	7.07	139	141	1	75.0-124	J5	J5	1.71	20
1,2-Dichloropropane	5.00	0.500	7.82	8.19	156	164	1	78.0-122	J5	J5	4.62	20
1,1-Dichloropropene	5.00	0.500	7.34	7.88	147	158	1	79.0-125	J5	J5	7.10	20
1,3-Dichloropropane	5.00	0.500	6.12	6.30	122	126	1	80.0-119	J5	J5	2.90	20
cis-1,3-Dichloropropene	5.00	0.500	6.83	6.81	137	136	1	75.0-124	J5	J5	0.293	20
trans-1,3-Dichloropropene	5.00	0.500	5.78	6.09	116	122	1	73.0-127			5.22	20
2,2-Dichloropropane	5.00	0.500	7.92	8.30	158	166	1	60.0-139	J5	J5	4.69	20
Di-isopropyl ether	5.00	0.500	8.05	8.56	161	171	1	67.0-128	J5	J5	6.14	20
Ethylbenzene	5.00	3.61	10.1	10.1	130	130	1	79.0-121	J5	J5	0.000	20
Hexachloro-1,3-butadiene	5.00	0.500	6.00	6.58	120	132	1	66.0-134			9.22	20
Isopropylbenzene	5.00	3.42	9.59	10.1	123	134	1	72.0-131		J5	5.18	20
p-Isopropyltoluene	5.00	0.500	6.53	8.26	131	165	1	77.0-127	J5	J3 J5	23.4	20
2-Butanone (MEK)	25.0	1.90	36.0	37.9	136	144	1	56.0-143		J5	5.14	20
Methylene Chloride	5.00	2.00	6.14	6.34	123	127	1	74.0-124		J5	3.21	20
4-Methyl-2-pentanone (MIBK)	25.0	5.00	34.0	35.2	136	141	1	67.0-130	J5	J5	3.47	20
Methyl tert-butyl ether	5.00	0.500	6.47	7.04	129	141	1	71.0-124	J5	J5	8.44	20
n-Propylbenzene	5.00	0.871	7.60	8.08	135	144	1	76.0-126	J5	J5	6.12	20
Styrene	5.00	0.500	5.84	6.02	117	120	1	78.0-123			3.04	20
1,1,1,2-Tetrachloroethane	5.00	0.500	5.78	6.04	116	121	1	78.0-124			4.40	20
1,1,2,2-Tetrachloroethane	5.00	0.500	6.49	6.88	130	138	1	71.0-121	J5	J5	5.83	20
1,1,2-Trichlorotrifluoroethane	5.00	0.500	7.16	7.32	143	146	1	70.0-136	J5	J5	2.21	20
Tetrachloroethene	5.00	0.306	6.53	6.54	124	125	1	74.0-129			0.153	20
Toluene	5.00	0.500	6.28	6.45	126	129	1	80.0-121	J5	J5	2.67	20

L1405623-15 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1405623-15 09/28/21 13:50 • (MS) R3709865-4 09/28/21 14:55 • (MSD) R3709865-5 09/28/21 15:16

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
1,2,3-Trichlorobenzene	5.00	0.500	6.01	6.32	120	126	1	69.0-129			5.03	20
1,2,4-Trichlorobenzene	5.00	0.500	6.13	6.50	123	130	1	69.0-130			5.86	20
1,1,1-Trichloroethane	5.00	0.500	7.73	8.09	155	162	1	74.0-131	J5	J5	4.55	20
1,1,2-Trichloroethane	5.00	0.500	6.34	6.37	127	127	1	80.0-119	J5	J5	0.472	20
Trichloroethene	5.00	5.31	12.1	12.2	136	138	1	79.0-123	J5	J5	0.823	20
Trichlorofluoromethane	5.00	2.00	7.39	7.29	148	146	1	65.0-141	J5	J5	1.36	20
1,2,3-Trichloropropane	5.00	1.00	6.55	6.95	131	139	1	73.0-122	J5	J5	5.93	20
1,2,4-Trimethylbenzene	5.00	0.346	7.17	7.62	136	145	1	76.0-124	J5	J5	6.09	20
1,2,3-Trimethylbenzene	5.00	0.133	6.53	7.03	128	138	1	82.0-120	J5	J5	7.37	20
1,3,5-Trimethylbenzene	5.00	0.400	6.95	7.20	131	136	1	75.0-124	J5	J5	3.53	20
Vinyl chloride	5.00	0.500	9.09	10.3	182	206	1	58.0-137	J5	J5	12.5	20
Xylenes, Total	15.0	2.35	21.5	21.7	128	129	1	79.0-121	J5	J5	0.926	20
(S) Toluene-d8					*101*	*97.6*		*89.0-112*				
(S) 4-Bromofluorobenzene					*108*	*105*		*85.0-114*				
(S) 1,2-Dichloroethane-d4					*112*	*114*		*81.0-118*				

1 Cp
2 Tc
3 Ss
4 Cn
5 Ds
6 Sr
7 Qc
8 Gl
9 Al
10 Sc

Method Blank (MB)

(MB) R3711725-4 09/29/21 08:14

Analyte	MB Result ug/l	MB Qualifier	MB DL ug/l	MB LOD ug/l	MB LOQ ug/l
1,2-Dibromo-3-Chloropropane	2.00	U	0.276	2.00	5.00
Naphthalene	2.00	U	1.00	2.00	5.00
(S) Toluene-d8	*107*				*89.0-112*
(S) 4-Bromofluorobenzene	*107*				*85.0-114*
(S) 1,2-Dichloroethane-d4	*95.7*				*81.0-118*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3711725-1 09/29/21 06:53 • (LCSD) R3711725-2 09/29/21 07:13

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
1,2-Dibromo-3-Chloropropane	5.00	4.46	4.89	89.2	97.8	62.0-128			9.20	20
Naphthalene	5.00	4.38	5.16	87.6	103	61.0-128			16.4	20
(S) Toluene-d8				*106*	*104*	*89.0-112*				
(S) 4-Bromofluorobenzene				*106*	*104*	*85.0-114*				
(S) 1,2-Dichloroethane-d4				*95.1*	*94.7*	*81.0-118*				

Method Blank (MB)

(MB) R3708137-1 09/23/21 09:28

Analyte	MB Result ug/l	MB Qualifier	MB DL ug/l	MB LOD ug/l	MB LOQ ug/l
TPH (GC/FID) High Fraction	25.8	J	24.7	50.0	100
(S) o-Terphenyl	*68.0*				*56.0-125*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3708137-2 09/23/21 09:54 • (LCSD) R3708137-3 09/23/21 10:20

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) High Fraction	1500	1420	1410	94.7	94.0	36.0-132			0.707	30
(S) o-Terphenyl				*95.0*	*90.0*	*56.0-125*				

Method Blank (MB)

(MB) R3708122-1 09/23/21 18:11

Analyte	MB Result ug/l	MB Qualifier	MB DL ug/l	MB LOD ug/l	MB LOQ ug/l
TPH (GC/FID) High Fraction	50.0	U	24.7	50.0	100
(S) o-Terphenyl	*71.0*				*56.0-125*

Laboratory Control Sample (LCS)

(LCS) R3708122-2 09/23/21 18:37

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) High Fraction	1500	1220	81.3	36.0-132	
(S) o-Terphenyl			*100*	*56.0-125*	

L1403333-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1403333-01 09/23/21 22:14 • (MS) R3708122-3 09/23/21 22:41 • (MSD) R3708122-4 09/23/21 23:07

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) High Fraction	1500	50.0	1110	1020	74.0	68.0	1	36.0-132			8.45	30
(S) o-Terphenyl					*79.0*	*69.0*		*56.0-125*				

Method Blank (MB)

(MB) R3709282-1 09/27/21 11:50

Analyte	MB Result ug/l	MB Qualifier	MB DL ug/l	MB LOD ug/l	MB LOQ ug/l
TPH (GC/FID) High Fraction	50.0	U	24.7	50.0	100
(S) o-Terphenyl	*92.5*				*56.0-125*

Laboratory Control Sample (LCS)

(LCS) R3709282-2 09/27/21 12:16

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) High Fraction	1500	1310	87.3	36.0-132	
(S) o-Terphenyl			*109*	*56.0-125*	

L1405623-15 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1405623-15 09/28/21 08:19 • (MS) R3709282-3 09/28/21 08:45 • (MSD) R3709282-4 09/28/21 09:11

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) High Fraction	1500	13000	16100	15800	207	187	10	36.0-132	V	V	1.88	30
(S) o-Terphenyl					*125*	*123*		*56.0-125*				

1 Cp
2 Tc
3 Ss
4 Cn
5 Ds
6 Sr
7 Qc
8 Gl
9 Al
10 Sc

Method Blank (MB)

(MB) R3711047-1 09/30/21 12:52

Analyte	MB Result ug/l	MB Qualifier	MB DL ug/l	MB LOD ug/l	MB LOQ ug/l
TPH (GC/FID) High Fraction	50.0	U	24.7	50.0	100
(S) o-Terphenyl	*78.0*				*56.0-125*

Laboratory Control Sample (LCS)

(LCS) R3711047-2 09/30/21 13:12

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) High Fraction	1500	1070	71.3	36.0-132	
(S) o-Terphenyl			*60.0*	*56.0-125*	

L1405623-19 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1405623-19 09/30/21 13:32 • (MS) R3711047-3 09/30/21 13:52 • (MSD) R3711047-4 09/30/21 14:12

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) High Fraction	1500	125	1130	1250	67.0	71.2	1	36.0-132			10.1	30
(S) o-Terphenyl					*82.5*	*66.7*		*56.0-125*				

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

DL	Detection Limit.
LOD	Limit of Detection.
LOQ	Limit of Quantitation.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
B	The same analyte is found in the associated blank.
C4	The reported concentration is an estimate. The continuing calibration standard associated with this data responded low. Data is likely to show a low bias concerning the result.
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.
J2	Surrogate recovery limits have been exceeded; values are outside lower control limits.
J3	The associated batch QC was outside the established quality control range for precision.
J4	The associated batch QC was outside the established quality control range for accuracy.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
T8	Sample(s) received past/too close to holding time expiration.
U	Below Detectable Limits: Indicates that the analyte was not detected.

GLOSSARY OF TERMS

Qualifier	Description
V	The sample concentration is too high to evaluate accurate spike recoveries.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

2057

Company Name/Address:	Billing Information:	Pres Chk
North Wind Services, LLC- Anchorage, AK **2525 C Street**	**Renee LaFata** **2525 C Street** **Suite 130** **Anchorage, AK 99503**	

Report to: **Jill Jones** / Renee LaFata

Email To: **jill.jones@northwindgrp.com** rlafata@northwindgrp.com

Project Description: South ORC Port Heiden

City/State Collected: Port Heiden, AK

Please Circle: PT MT CT ET (AT)

Phone: ~~907-277-5488~~ 907-602-3082

Client Project # 060068

Lab Project # **NORWINDAAK-DOD**

Collected by (print): M. McPherson / D. Carden

Site/Facility ID # **PORT HEIDEN**

P.O. # G-00000468

Collected by (signature):

Quote #

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Date Results Needed

Analysis / Container / Preservative

Chain of Custody Page 1 of 3

Pace Analytical®

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1405623

Table 1004

Acctnum: **NORWINDAAK**

Template: **T194329**

Prelogin: **P872356**

PM: **110 - Brian Ford**

PB:

Shipped Via: **FedEX Standard**

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No of Cntrs	Alkalinity 125mlHDPE-NoPres	BTEX 40ml/Amb-HCl	Fe, Mn 250mlHDPE-HNO3	Nitrate/Nitrite 250mlHDPE-H2SO4	VOCs 40mL VOA Glass -HCl	DRO 100mL glass - HCl	TKN 250mL HDPE - H2SO4	Sulfate 250mL HDPE - None	Remarks	Sample # (lab only)
GLO-MW04-091221	G	GW		9/12/21	1400	10	X		X	X	X	X	X	X		-01
DSA-MW06-091321	G	GW		9/13/21	1330	10	X		X	X	X	X	X	X		-02
DSA-MW07-091321	G	GW		9/13/21	1430	10	X		X	X	X	X	X	X		-03
RRS-MW05-091321	G	GW		9/13/21	1615	10	X		X	X	X	X	X	X		-04
RRS-MW06-091321	G	GW		9/13/21	2020	10	X		X	X	X	X	X	X		-05
DSA-MW06-091321-DUP	G	GW		9/13/21	1330	10	X		X	X	X	X	X	X	Dup	-06
BLO-MW05091421	G	GW		9/14/21	1035	10	X		X	X	X	X	X	X		-07
BLO-MW06-091421	G	GW		9/14/21	1205	10	X		X	X	X	X	X	X		-08
BLO-MW07-091421	G	GW		9/14/21	1310	[11] 10	X		X	X	X	X	X	X	see remarks	-09
BLO-MW07-091421-DUP	G	GW		9/14/21	1310	[11] 10	X		X	X	X	X	X	X	see Dup remarks	-10

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: BLO-MW-07 & DUP potential high concentrations. TBR HM

pH _____ Temp _____

Flow _____ Other _____

Samples returned via: __ UPS __ FedEx __ Courier _____

Tracking # 5163 7721 8617 5163 7721 8606 -5.5+0=5.5 A782
5163 7721 8591 +4.9+0=4.9 A782 5163 7721 8580 2.3+0=2.3 A782

Sample Receipt Checklist

COC Seal Present/Intact:	NP	Y N
COC Signed/Accurate:		Y N
Bottles arrive intact:		Y N
Correct bottles used:		Y N
Sufficient volume sent:		Y N
If Applicable		
VOA Zero Headspace:		Y N
Preservation Correct/Checked:		Y N
RAD Screen <0.5 mR/hr:		Y N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	If preservation required by Login: Date/Time
	9/17/21	1300		6	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: .4+0=.4 °C Bottles Received: 23	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 9/18/21 Time: 0845	Hold: Condition: NCF / OK

5163 4241 4151 5163 7721 8605 A782

~~9/15/21~~

Company Name/Address:	Billing Information:	Pres Chk
North Wind Services, LLC- Anchorage, AK **2525 C Street**	Renee LaFata 2525 C Street Suite 130 Anchorage, AK 99503	
Report to: **Jill Jones** / Renee LaFata	Email To: **jill.jones@northwindgrp.com** rlafata@northwindgrp.com	
Project Description: SeaORC Port Heiden	City/State Collected: Port Heiden, AK	Please Circle: (AT) PT MT CT ET
Phone: ~~907-277-5488~~ 907-602-3082	Client Project # 0600068	Lab Project # **NORWINDAAK-DOD**
Collected by (print): ~~M. Mahnken~~ D. Carden	Site/Facility ID # **PORT HEIDEN**	P.O. # 6-00000468
Collected by (signature):	***Rush?*** (Lab MUST Be Notified) ___ Same Day ___ Five Day ___ Next Day ___ 5 Day (Rad Only) ___ Two Day ___ 10 Day (Rad Only) ___ Three Day	Quote #
Immediately Packed on Ice N ___ Y X	Date Results Needed	No. of Cntrs

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Alkalinity 125mlHDPE-NoPres	BTEX 40mlAmb-HCl	Fe, Mn 250mlHDPE-HNO3	Nitrate/Nitrite 250mlHDPE-H2SO4	VOCs 40mL VOA Glass-HCl	DRO 100mL Glass-HCl	TKN 250mL HDPE-H2SO4	Sulfate 250mL HDPE-None			Remarks	Sample # (lab only)
DSA-MW05-091421	G	GW		9/14/21	1550	10	X		X	X	X	X	X	X			see notes	-11
DSA-MW05-091421-DUP	G	GW		9/14/21	1550	10	X		X	X	X	X	X	X			Dup	-12
DSA-MW01-091421	G	GW		9/14/21	1720	10	X		X	X	X	X	X	X				-13
DSA-MW02-091421	G	GW		9/14/21	1818	10	X		X	X	X	X	X	X			see notes	-14
BLO-MW01-091421	G	GW		9/14/21	1935	10	X		X	X	X	X	X	X				-15
BLO-MW01-091421-MS	G	GW		9/14/21	1935	10	X		X	X	X	X	X	X			Matrix Spike	-15
BLO-MW01-091421-MSD	G	GW		9/14/21	1935	10	X		X	X	X	X	X	X			Matrix Spike Dup	-16
TB091221	—	GW		9/12/21	1330	1					X							-17
TB091321		GW		9/13/21	1200	1					X							-18
TB091421		GW		9/14/21	1015	1					X							

Chain of Custody Page 2 of 3

Pace Analytical®

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1405623
Table #
Acctnum: **NORWINDAAK**
Template: **T194329**
Prelogin: **P872356**
PM: **110 - Brian Ford**
PB:
Shipped Via: **FedEX Standard**

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other _____

Remarks: All wells ~~except~~ except DSA-MW-01 are potential high concentrations.

pH _____ Temp _____
Flow _____ Other _____

Samples returned via: __ UPS __ FedEx __ Courier _____

Tracking # 5163 7721 8817 5163 7721 8606 → 5.5+0=5.5 ATBR
5163 7721 8591 → 4.9+0=4.9 ATBR 5163 7721 8580 2.3+0=2.3 A6mm
5370 4291 4151 → 1.2+0=1.3 ATBR

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
	9/17/21	1300	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

Trip Blank Received: Yes / No HCL / MeoH TBR

Temp: 1.4+0=1.4 °C Bottles Received: 230

Date: 9/18/21 Time: 0945

If preservation required by Login: Date/Time

Hold: Condition: NCF / OK

Sample Receipt Checklist

COC Seal Present/Intact:	NP	Y N
COC Signed/Accurate:		Y N
Bottles arrive intact:		Y N
Correct bottles used:		Y N
Sufficient volume sent:		Y N
If Applicable		
VOA Zero Headspace:		Y N
Preservation Correct/Checked:		Y N
RAD Screen <0.5 mR/hr:		Y N

Company Name/Address:
North Wind Services, LLC- Anchorage, AK

2525 C Street

Billing Information:
Renee LaFata
2525 C Street
Suite 130
Anchorage, AK 99503

Pres Chk

Report to:
Jill Jones / Renee LaFata

Email To: **jill.jones@northwindgrp.com**
rlafata@northwindgrp.com

Project Description:
SouthORC PortHeiden

City/State Collected: Port Heiden, AK

Please Circle: PT MT CT ET

Phone: ~~907-277-5488~~ 907-602-3082

Client Project #
060068

Lab Project #
NORWINDAAK-DOD

Collected by (print):
H. McPherson, D. Carden

Site/Facility ID #
PORT HEIDEN

P.O. #
6-00000468

Collected by (signature):

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Date Results Needed

Quote #

Immediately Packed on Ice N___ Y_X_

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Alkalinity 125mlHDPE-NoPres	BTEX 40mlAmb-HCl TB091521A 0910 TB091521B 0900	Fe, Mn 250mlHDPE-HNO3	Nitrate/Nitrite 250mlHDPE-H2SO4	VOCs 40mL VOA Glass-HCl	DRO 100mL Glass-HCl	TKN 250mL HDPE-H2SO4	Sulfate 250mL HDPE-None	Remarks	Sample # (lab only)
215-MW-12-091521	G	GW		9/15/21	1312	5		X				X				-19
215-MW-12-091521-MS	G	GW		9/15/21	1312	5		X				X			MS	-19
215-MW-12-091521-MSD	G	GW		9/15/21	1312	5		X				X			MSD	-19
215-MW-08-091521	G	GW		9/15/21	1420	5		X				X				-20
215-MW-09-091521	G	GW		9/15/21	1511	6		X				X			see remarks	-21
066-MW-06-091521	G	GW		9/15/21	1628	5		X				X				-22
066-MW-07-091521	G	GW		9/15/21	1845	5		X				X				-23
066-MW-04-091521	G	GW		9/15/21	1932	6		X				X			see remarks	-24
066-MW-07-091521-DUP	G	GW		9/15/21	1845	5		X				X			DUP	-25
066-MW-05-091521	G	GW		9/15/21	2020	6		X				X			see remarks	-26

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:
215-MW-09, 066-MW-04, 066-MW-05
potential high concentrations.

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking # 5163 7721 8617 | 5163 7721 8606 → 5.5+0=5.5 ADBR | 5163 7721 8591 → 4.9+0=4.9 ADBR | 5163 7721 8580 2.3+0=2.3 ADBR

Sample Receipt Checklist
COC Seal Present/Intact: __NP __Y __N
COC Signed/Accurate: __Y __N
Bottles arrive intact: __Y __N
Correct bottles used: __Y __N
Sufficient volume sent: __Y __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: __Y __N
RAD Screen <0.5 mR/hr: __Y __N

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCl / MeoH TBR	If preservation required by Login: Date/Time
	9/17/21	1300			
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: 1.4+0=1.4 °C Bottles Received: 23	
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 9/16/21 Time: 0945	Hold: Condition: NCF / OK

5200 4294 4115 → 1.2+0=1.2 ADBR

Chain of Custody Page 3 of 3

Pace Analytical

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1405623

Table #

Acctnum: **NORWINDAAK**

Template: **T194329**

Prelogin: **P872356**

PM: **110 - Brian Ford**

PB:

Shipped Via: **FedEx Standard**

9/18-NCF-L1405623 NORWINDAAK

R5

Time estimate: oh **Time spent:** oh **Grouping date:** 18 September

Members

HM Hailey Melson (responsible) JS Jared Starkey

- [ ] Parameter(s) past holding time
- [ ] Temperature not in range
- [ ] Improper container type
- [ ] pH not in range
- [ ] Insufficient sample volume
- [ ] Sample is biphasic
- [ ] Vials received with headspace
- [x] Broken container
- [x] Sufficient sample remains
- [ ] If broken container: Insufficient packing material around container
- [ ] If broken container: Insufficient packing material inside cooler
- [ ] If broken container: Improper handling by carrier:_____
- [ ] If broken container: Sample was frozen
- [ ] If broken container: Container lid not intact
- [ ] Client informed by Call
- [ ] Client informed by Email
- [ ] Client informed by Voicemail
- [ ] Date/Time:_____
- [ ] PM initials:_____
- [ ] Client Contact:_____

Comments

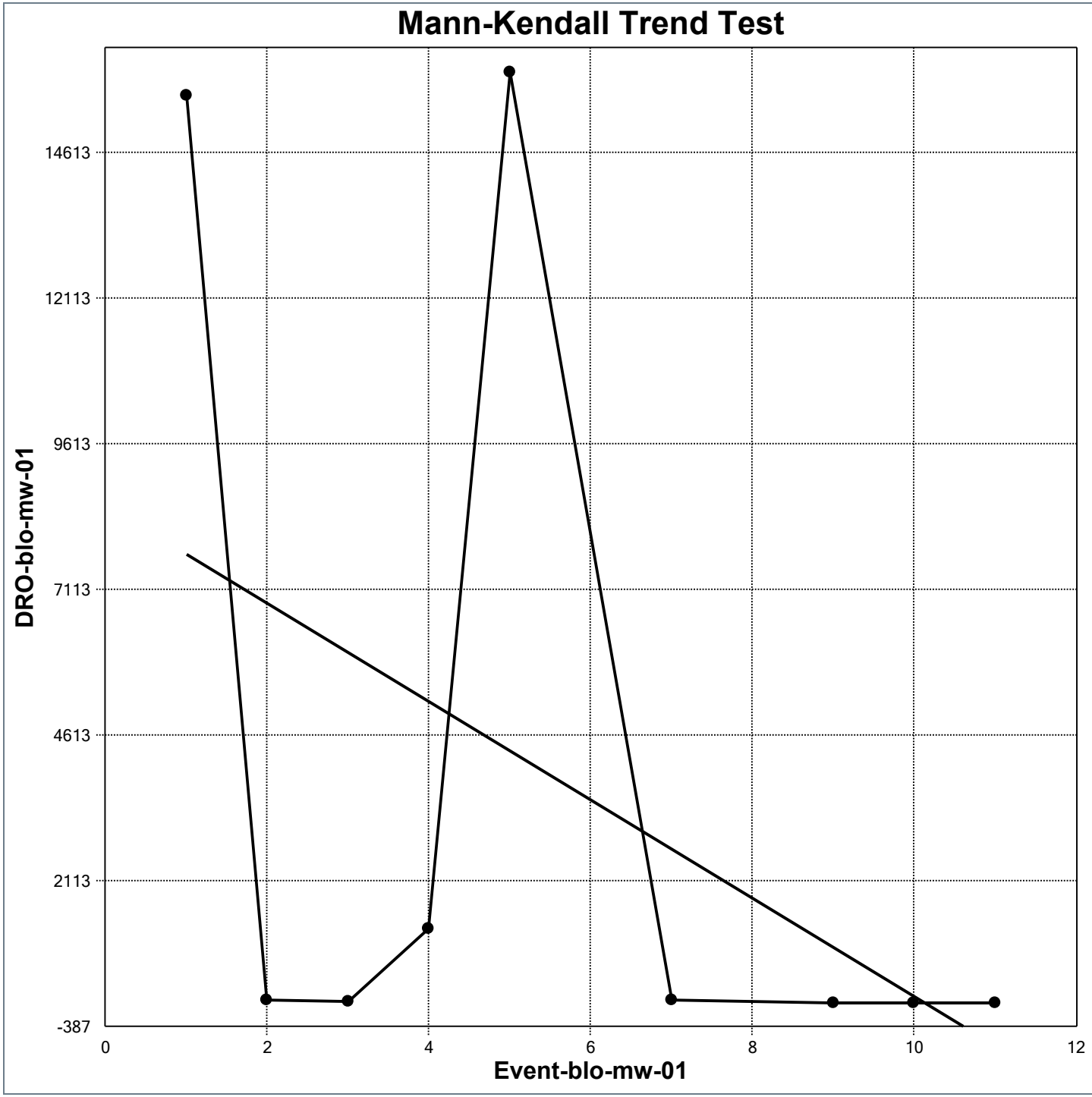
Hailey Melson *18 September 2021 9:01 PM*

1 vial received broken for 215-MW-12-091521 but sufficient sample remains.

APPENDIX E

Mann-Kendall Analysis

This Page Intentionally Left Blank



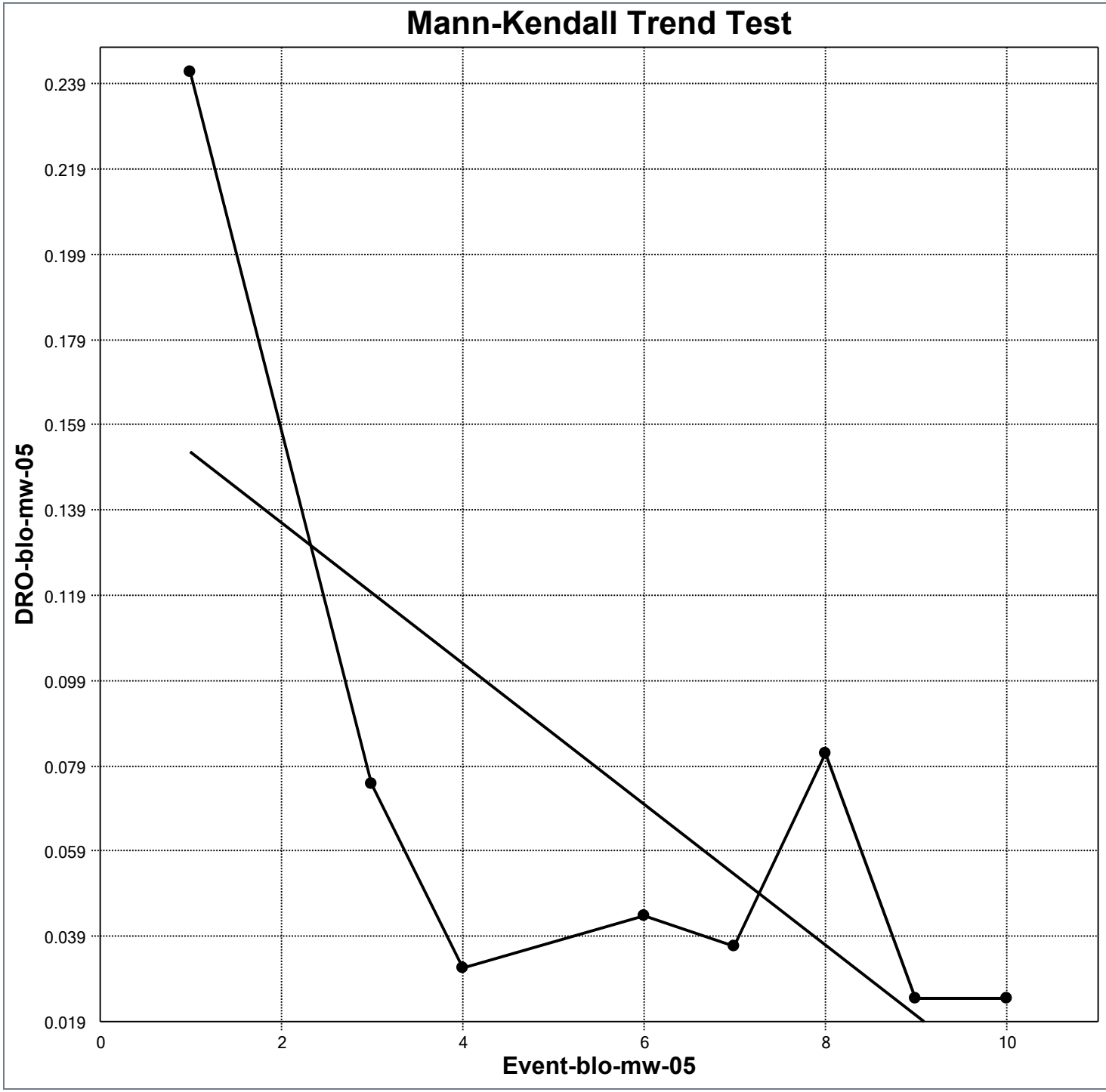
Mann-Kendall Trend Analysis

n	9
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	9.5917
Standardized Value of S	-2.1894
M-K Test Value (S)	-22
Tabulated p-value	0.0120
Approximate p-value	0.0143

OLS Regression Line (Blue)

OLS Regression Slope	-846.5468
OLS Regression Intercept	8,570.0484

Statistically significant evidence of a decreasing trend at the specified level of significance.



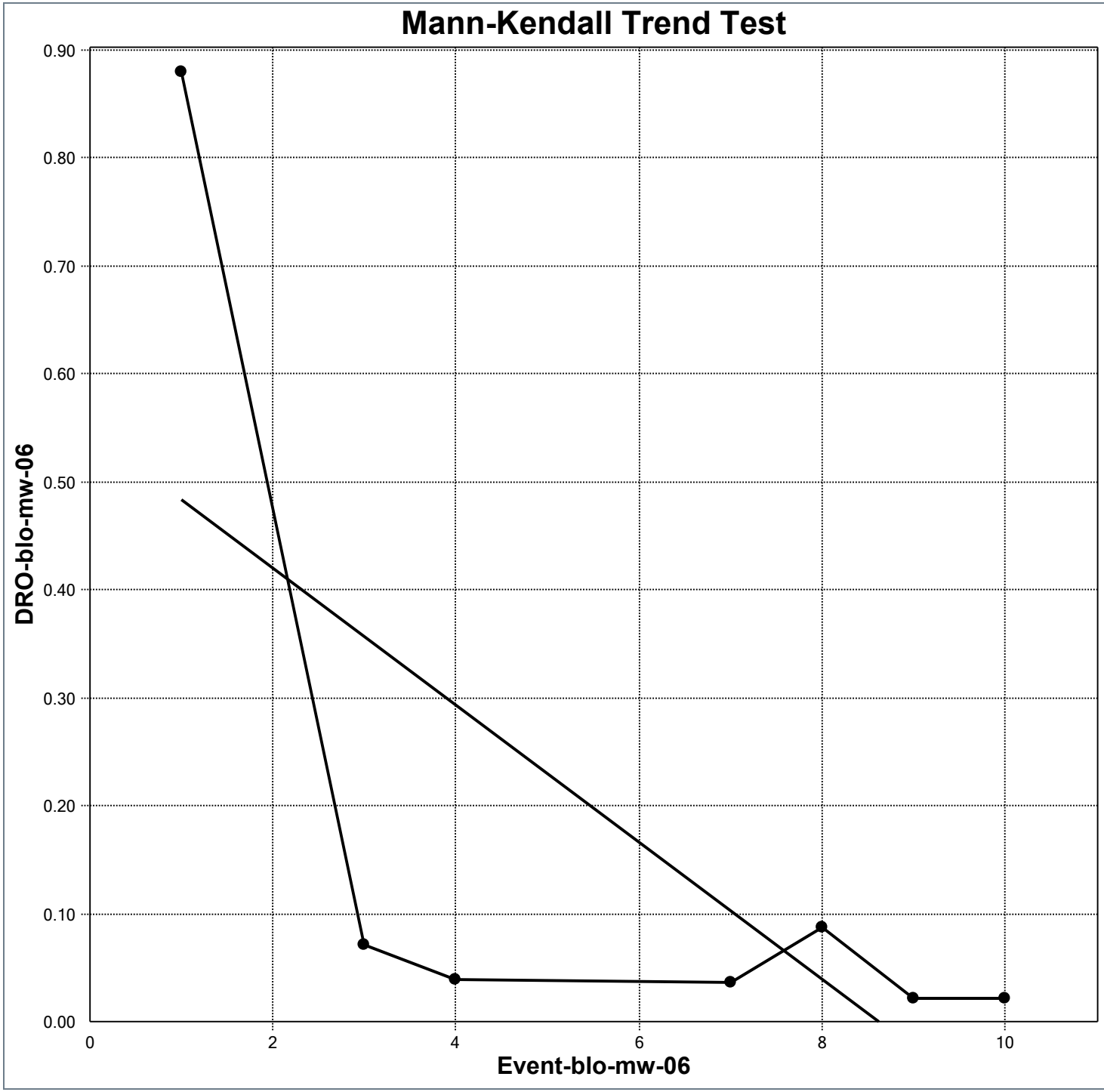
Mann-Kendall Trend Analysis

n	8
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	8.0208
Standardized Value of S	-1.7455
M-K Test Value (S)	-15
Tabulated p-value	0.0540
Approximate p-value	0.0405

OLS Regression Line (Blue)

OLS Regression Slope	-0.0165
OLS Regression Intercept	0.1694

Insufficient statistical evidence of a significant trend at the specified level of significance.



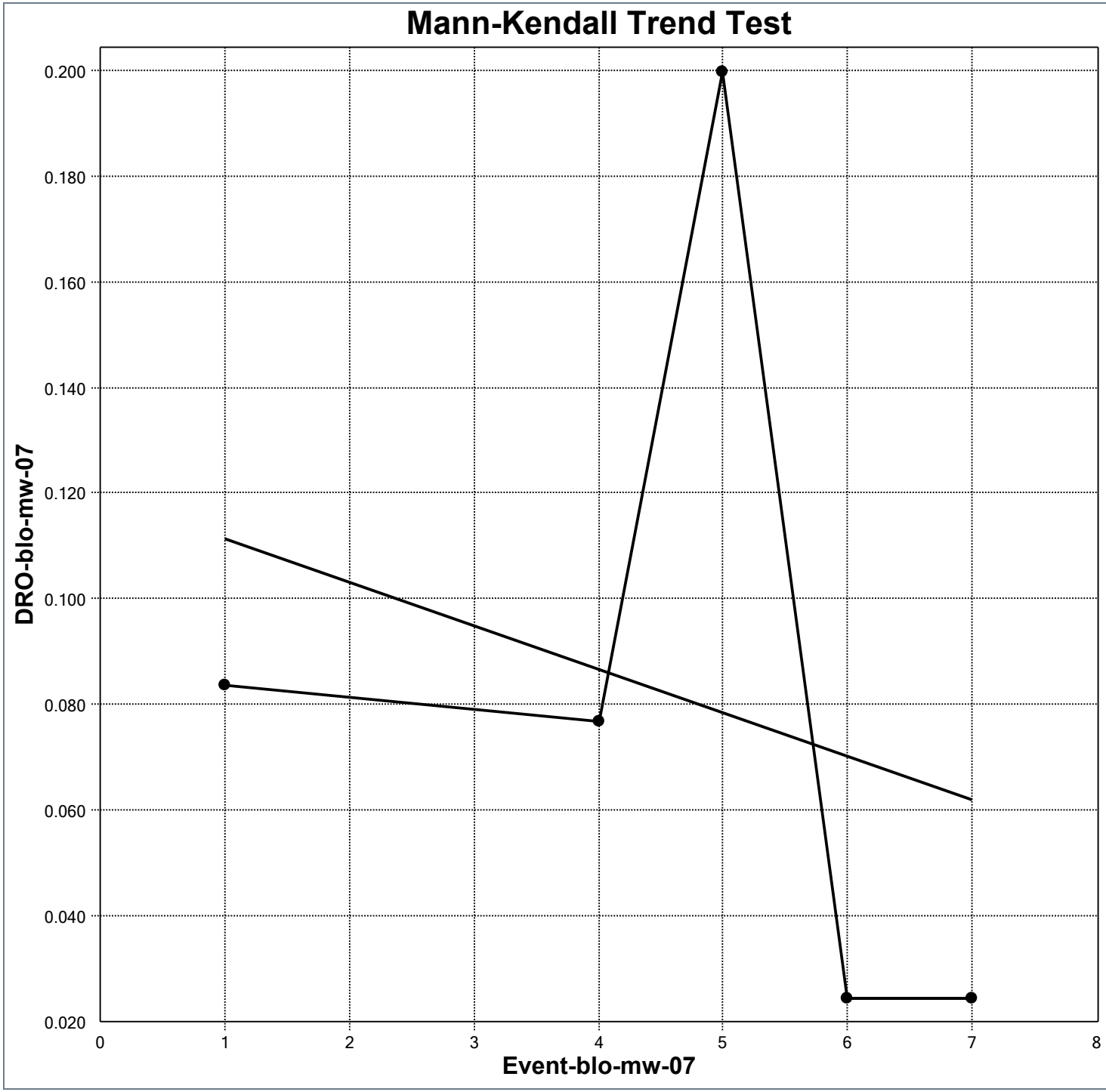
Mann-Kendall Trend Analysis

n	7
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	6.5828
Standardized Value of S	-1.9748
M-K Test Value (S)	-14
Tabulated p-value	0.0150
Approximate p-value	0.0241

OLS Regression Line (Blue)

OLS Regression Slope	-0.0636
OLS Regression Intercept	0.5502

Statistically significant evidence of a decreasing trend at the specified level of significance.



Mann-Kendall Trend Analysis

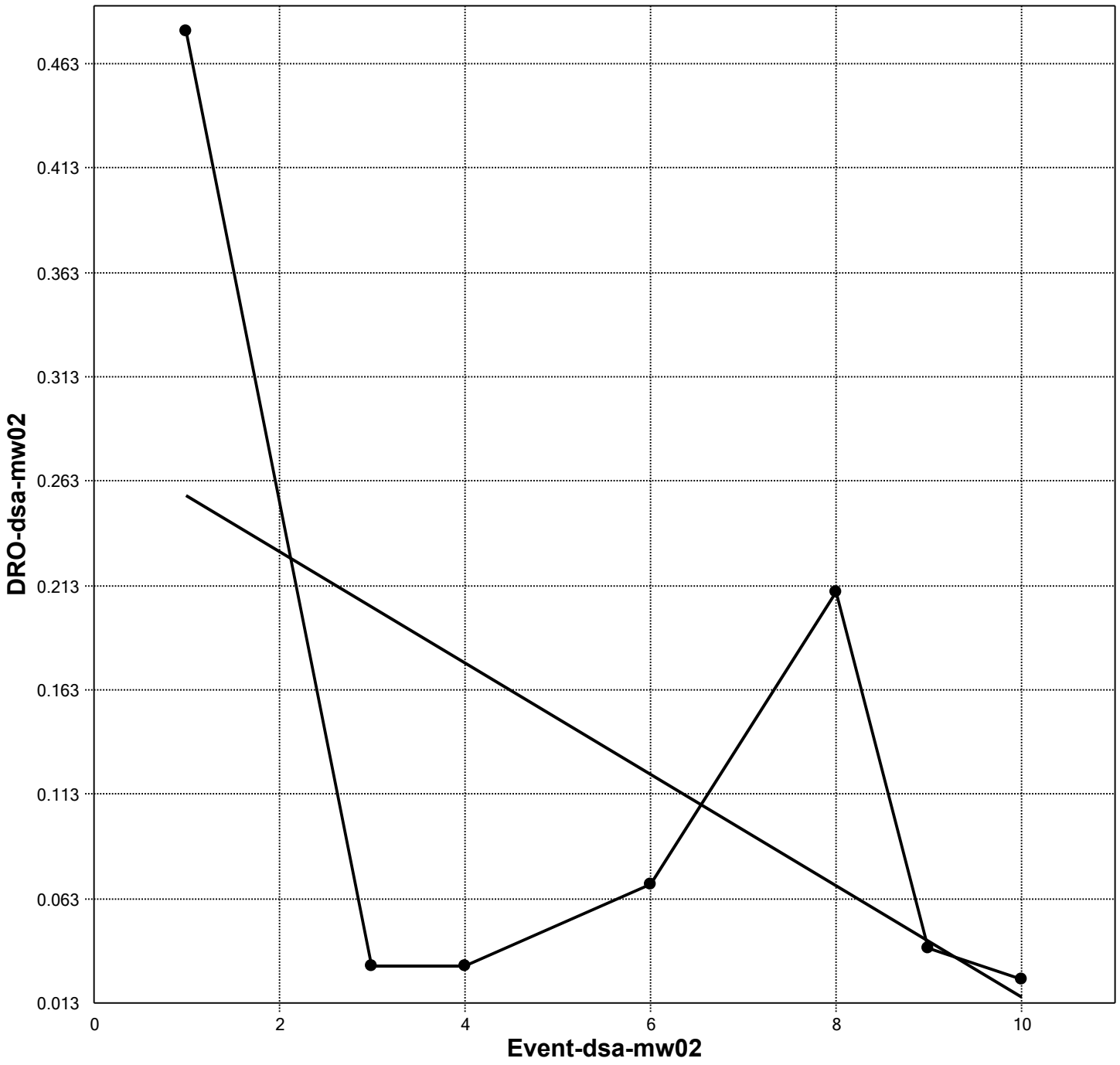
n	5
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	3.9581
Standardized Value of S	-1.0106
M-K Test Value (S)	-5
Tabulated p-value	0.2420
Approximate p-value	0.1561

OLS Regression Line (Blue)

OLS Regression Slope	-0.0082
OLS Regression Intercept	0.1200

Insufficient statistical evidence of a significant trend at the specified level of significance.

Mann-Kendall Trend Test



Mann-Kendall Trend Analysis

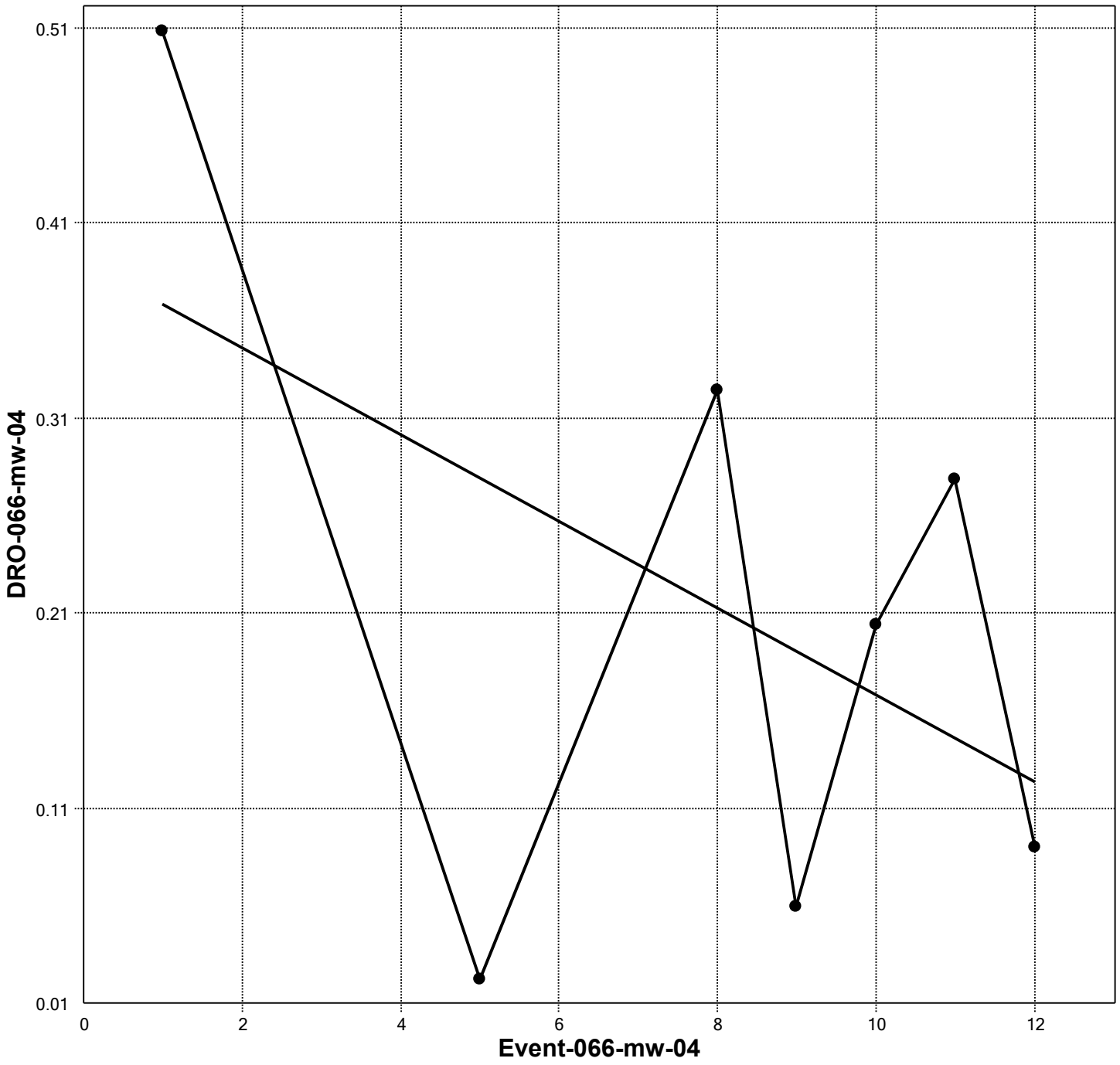
n	7
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	6.5828
Standardized Value of S	-0.7596
M-K Test Value (S)	-6
Tabulated p-value	0.1910
Approximate p-value	0.2238

OLS Regression Line (Blue)

OLS Regression Slope	-0.0267
OLS Regression Intercept	0.2829

Insufficient statistical evidence of a significant trend at the specified level of significance.

Mann-Kendall Trend Test



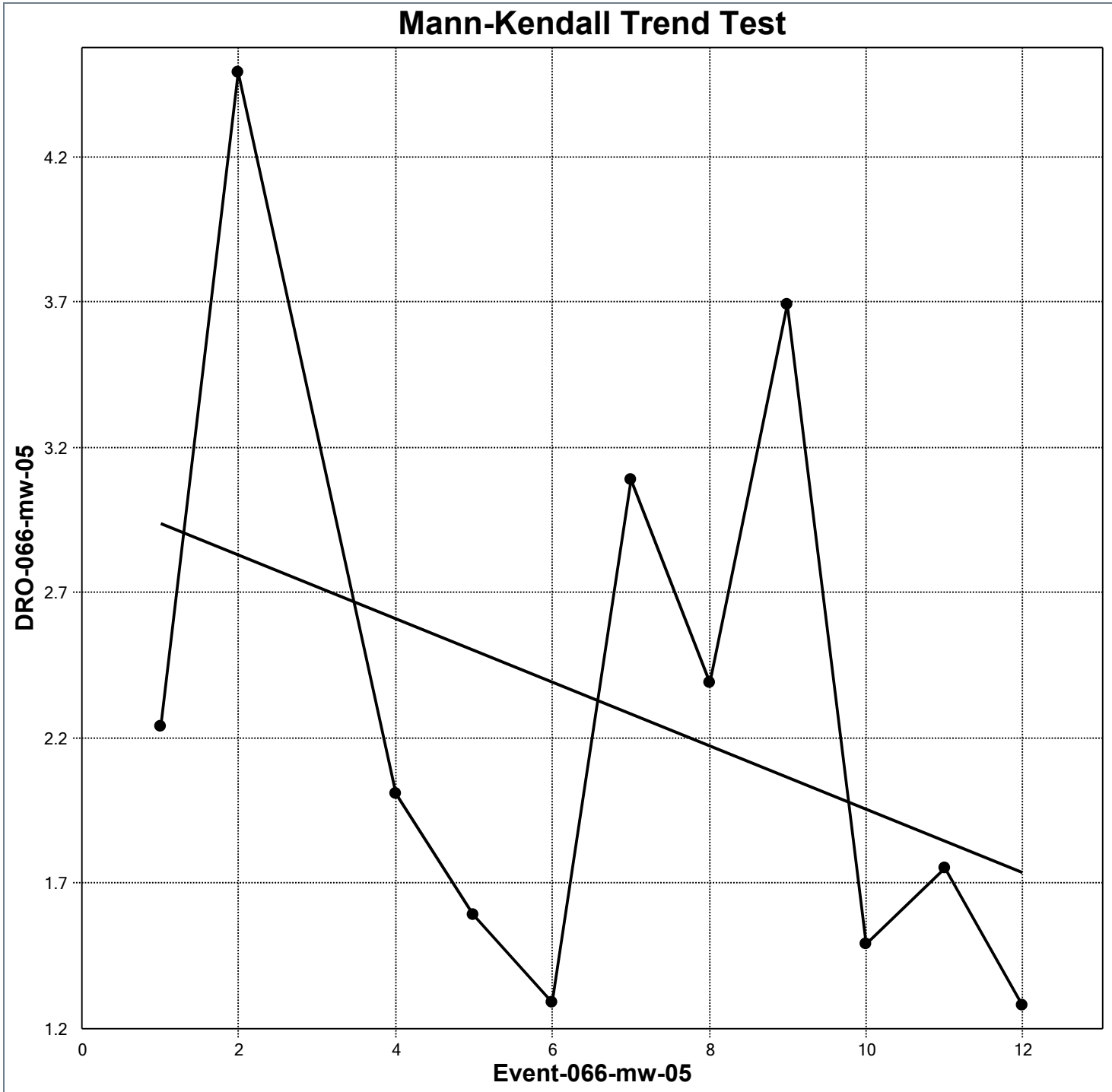
Mann-Kendall Trend Analysis

n	7
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	6.6583
Standardized Value of S	-0.3004
M-K Test Value (S)	-3
Tabulated p-value	0.3860
Approximate p-value	0.3819

OLS Regression Line (Blue)

OLS Regression Slope	-0.0223
OLS Regression Intercept	0.3865

Insufficient statistical evidence of a significant trend at the specified level of significance.



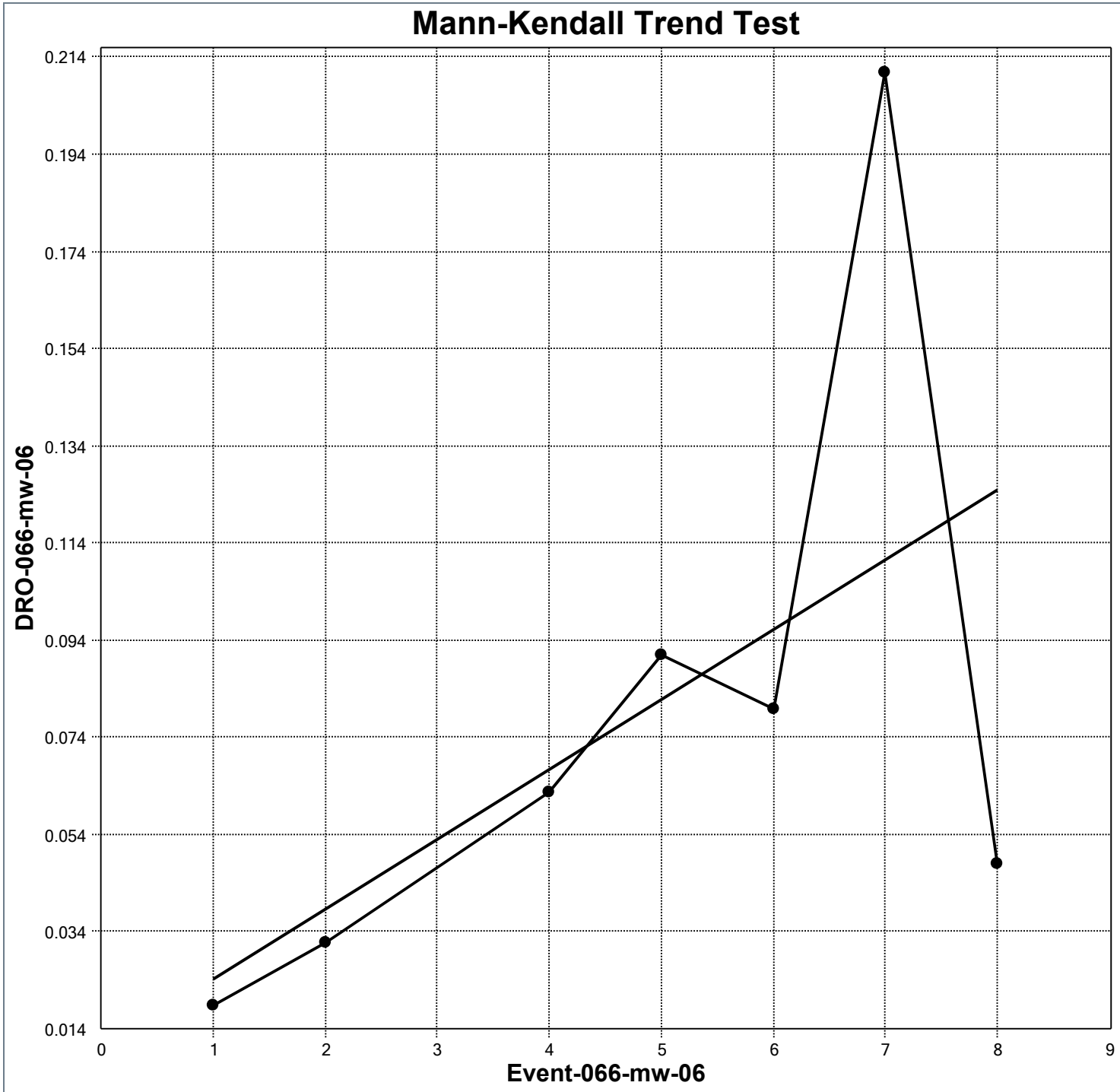
Mann-Kendall Trend Analysis

n	11
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	12.8452
Standardized Value of S	-1.2456
M-K Test Value (S)	-17
Tabulated p-value	0.1090
Approximate p-value	0.1065

OLS Regression Line (Blue)

OLS Regression Slope	-0.1091
OLS Regression Intercept	3.0550

Insufficient statistical evidence of a significant trend at the specified level of significance.



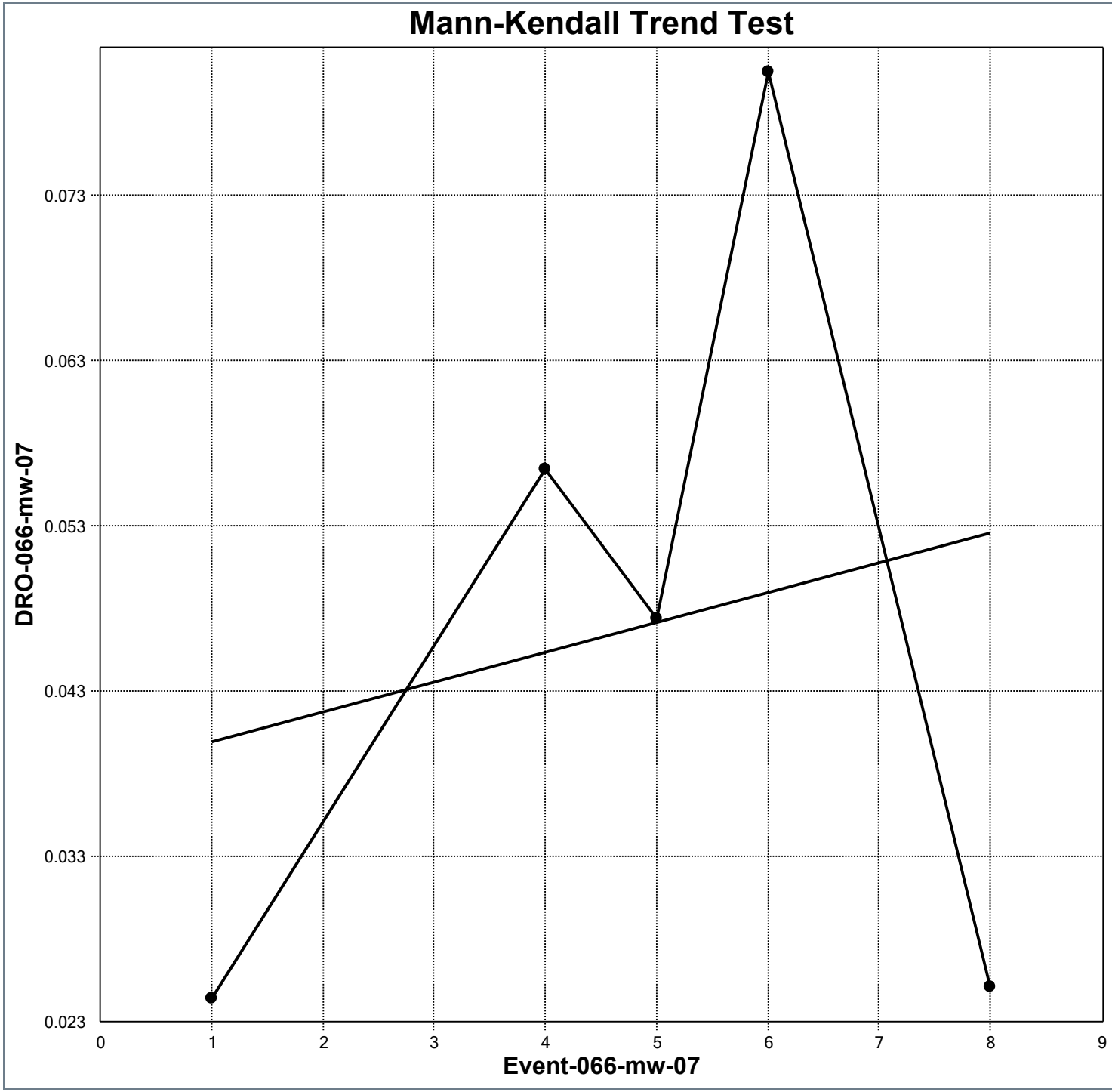
Mann-Kendall Trend Analysis

n	7
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	6.6583
Standardized Value of S	1.5019
M-K Test Value (S)	11
Tabulated p-value	0.0680
Approximate p-value	0.0666

OLS Regression Line (Blue)

OLS Regression Slope	0.0144
OLS Regression Intercept	0.0100

Insufficient statistical evidence of a significant trend at the specified level of significance.



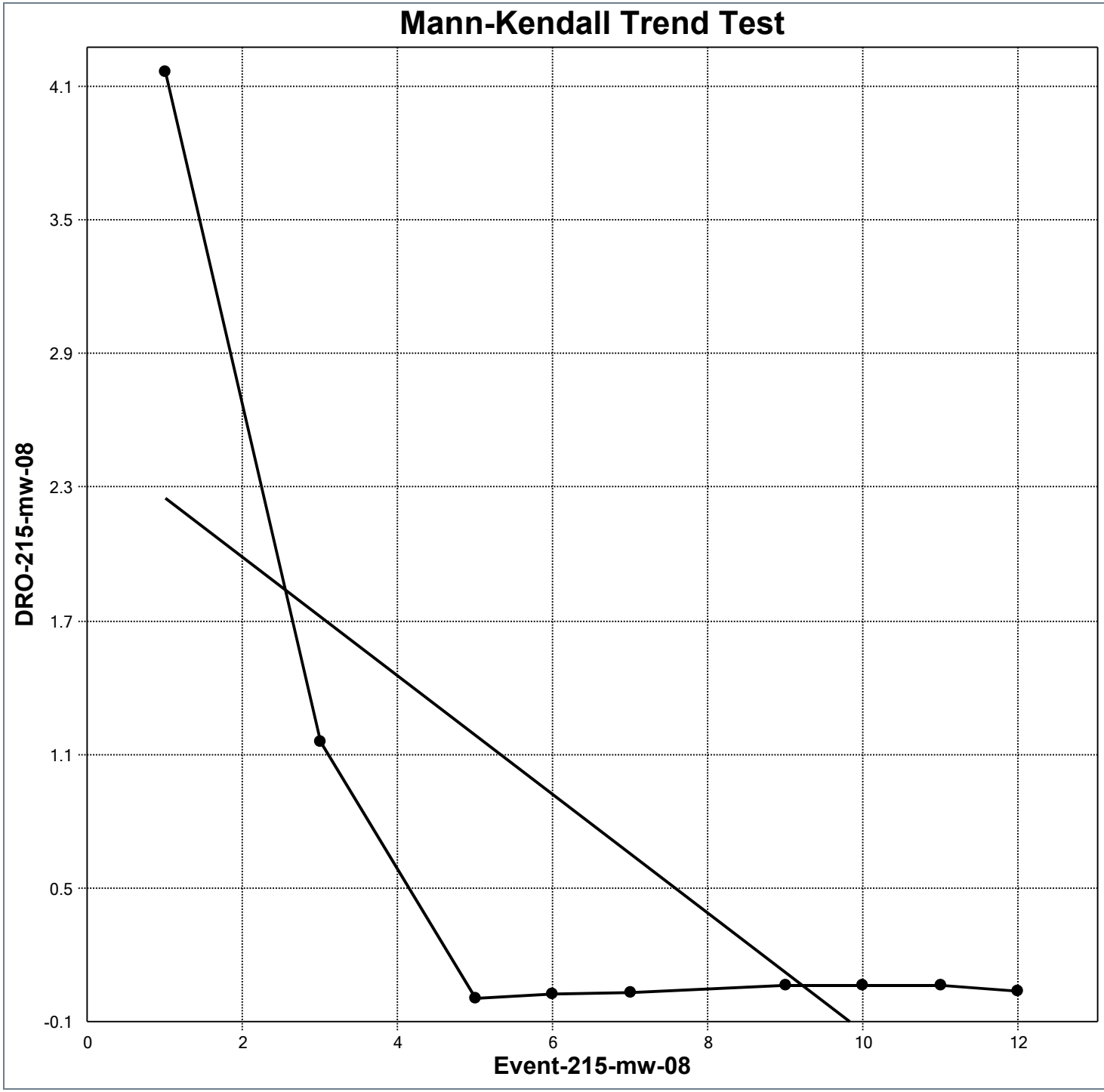
Mann-Kendall Trend Analysis

n	5
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	4.0825
Standardized Value of S	0.2449
M-K Test Value (S)	2
Tabulated p-value	0.4080
Approximate p-value	0.4032

OLS Regression Line (Blue)

OLS Regression Slope	0.0018
OLS Regression Intercept	0.0377

Insufficient statistical evidence of a significant trend at the specified level of significance.



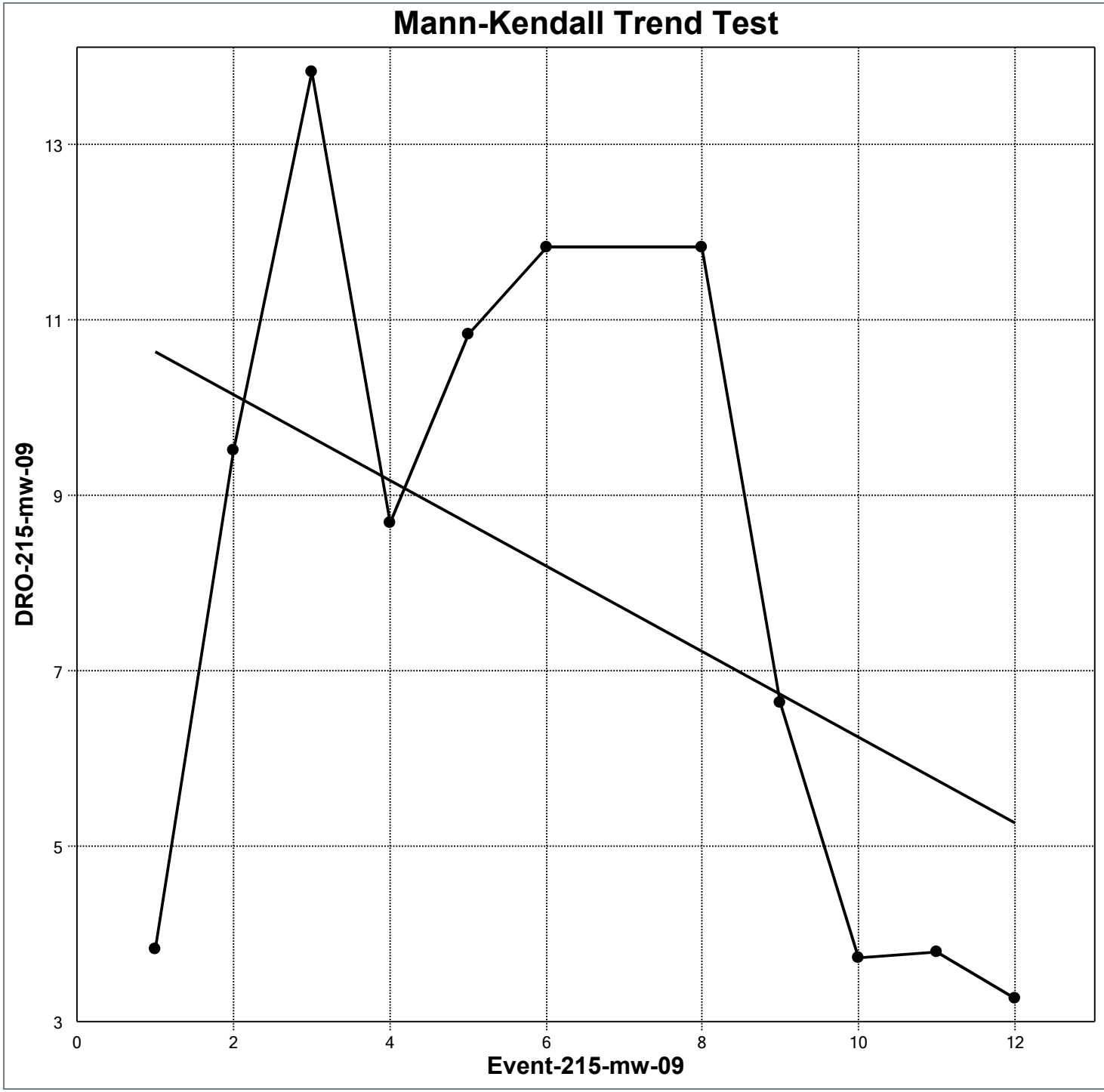
Mann-Kendall Trend Analysis

n	9
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	9.3986
Standardized Value of S	-0.2128
M-K Test Value (S)	-3
Tabulated p-value	0.4600
Approximate p-value	0.4157

OLS Regression Line (Blue)

OLS Regression Slope	-0.2659
OLS Regression Intercept	2.5295

Insufficient statistical evidence of a significant trend at the specified level of significance.



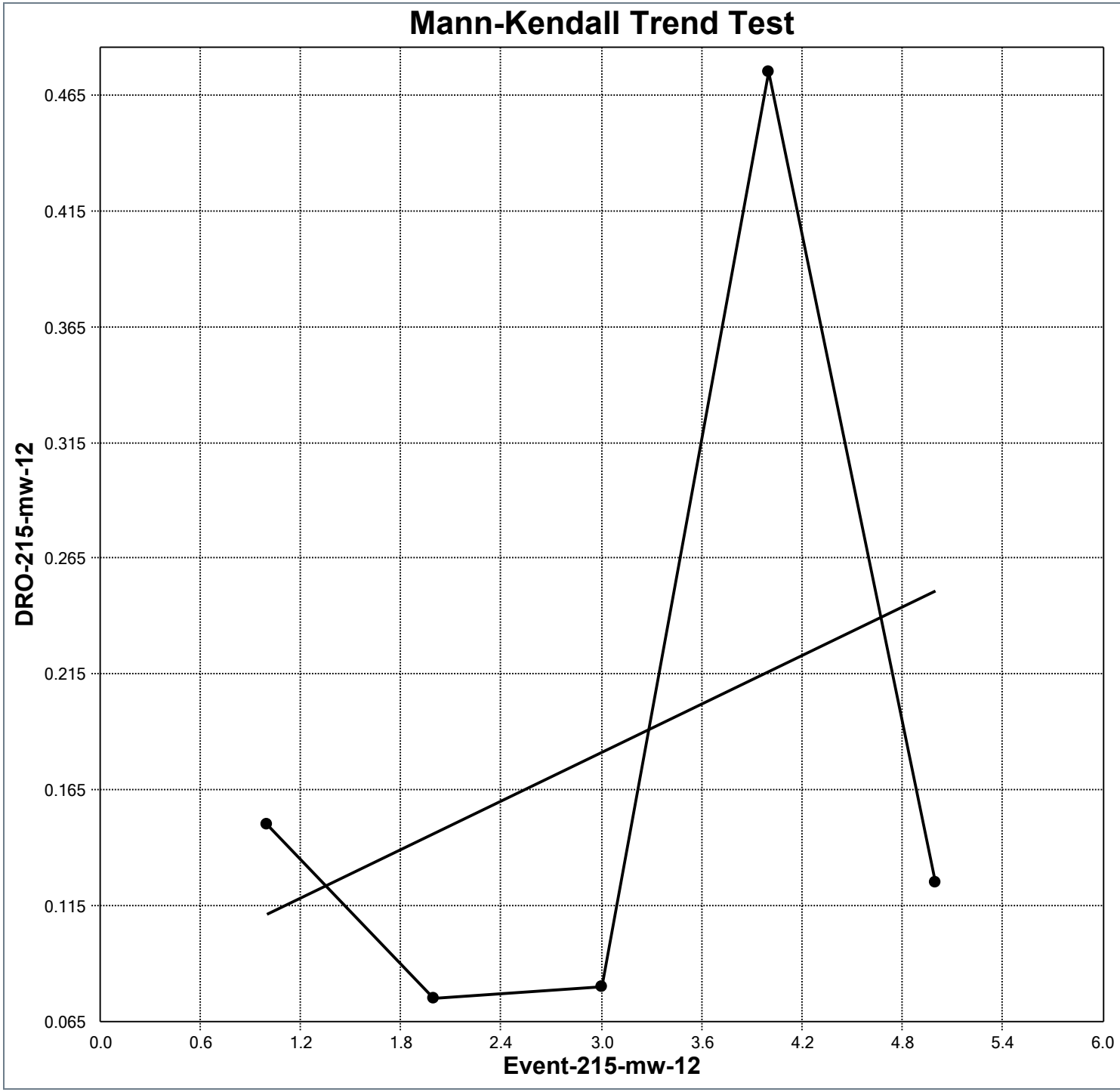
Mann-Kendall Trend Analysis

n	11
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	12.8062
Standardized Value of S	-1.4837
M-K Test Value (S)	-20
Tabulated p-value	0.0600
Approximate p-value	0.0690

OLS Regression Line (Blue)

OLS Regression Slope	-0.4885
OLS Regression Intercept	11.2994

Insufficient statistical evidence of a significant trend at the specified level of significance.



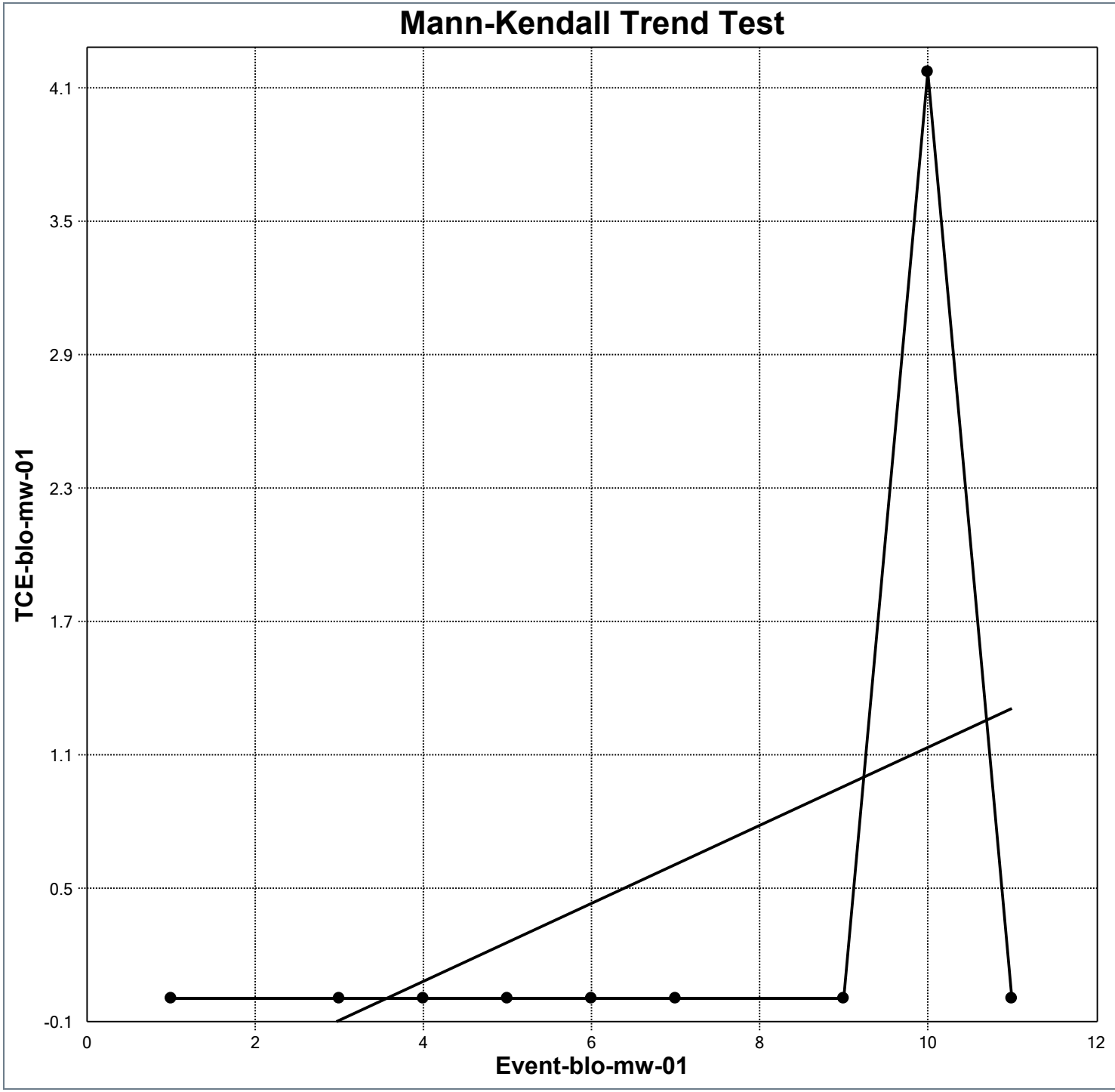
Mann-Kendall Trend Analysis

n	5
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	4.0825
Standardized Value of S	0.2449
M-K Test Value (S)	2
Tabulated p-value	0.4080
Approximate p-value	0.4032

OLS Regression Line (Blue)

OLS Regression Slope	0.0350
OLS Regression Intercept	0.0760

Insufficient statistical evidence of a significant trend at the specified level of significance.



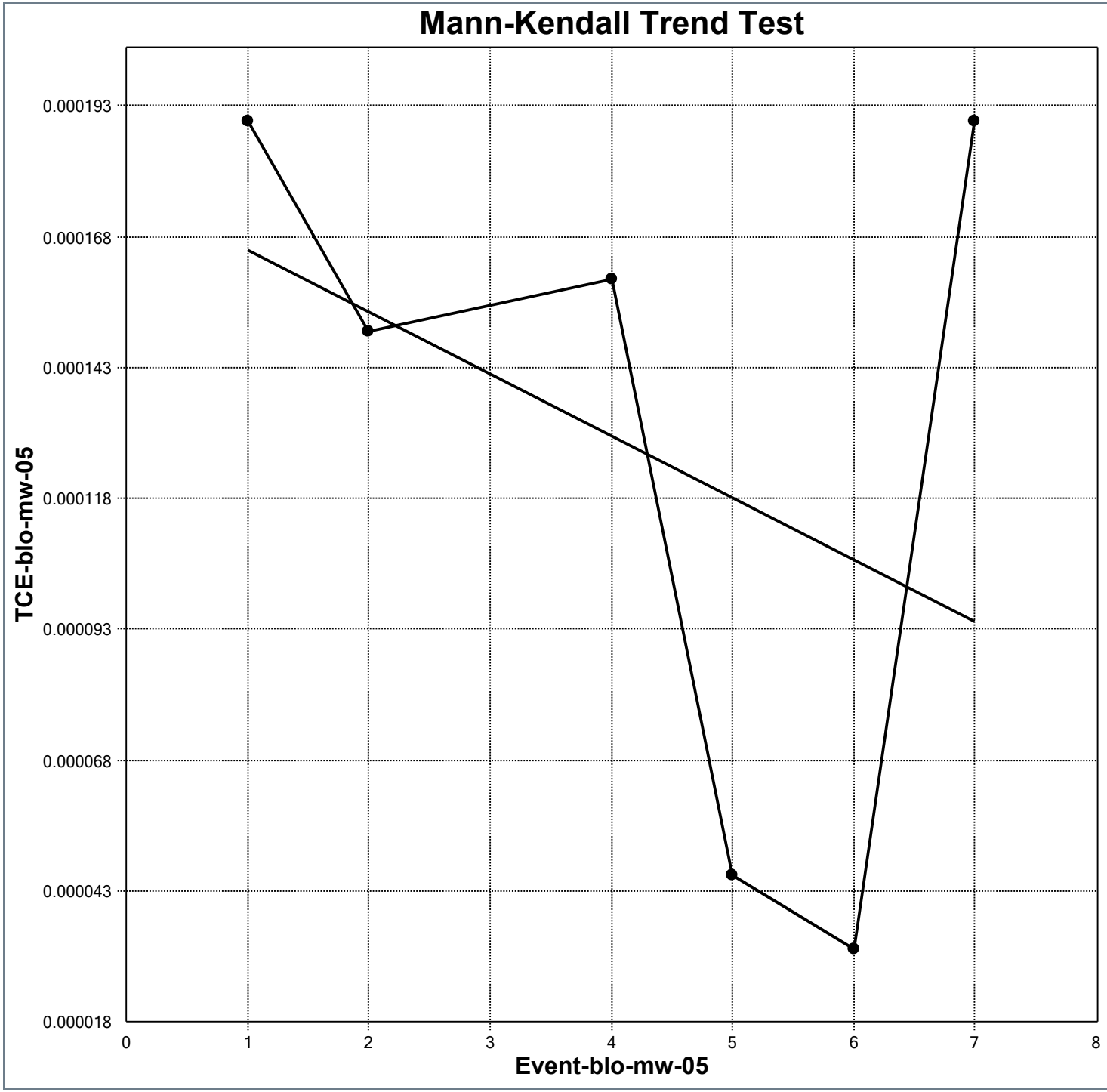
Mann-Kendall Trend Analysis

n	9
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	9.5394
Standardized Value of S	0.4193
M-K Test Value (S)	5
Tabulated p-value	0.3810
Approximate p-value	0.3375

OLS Regression Line (Blue)

OLS Regression Slope	0.1757
OLS Regression Intercept	-0.6261

Insufficient statistical evidence of a significant trend at the specified level of significance.



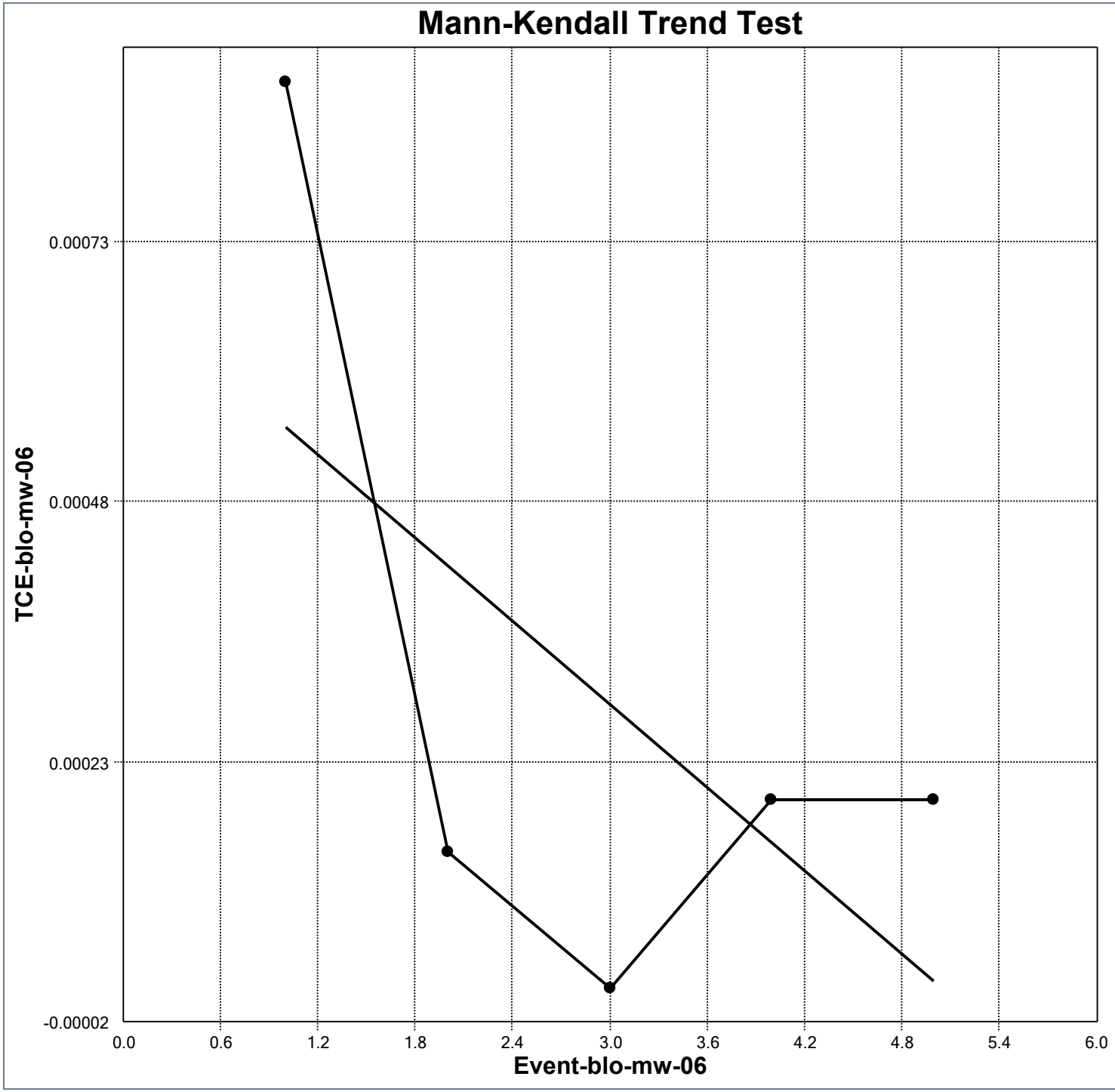
Mann-Kendall Trend Analysis

n	6
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	5.2281
Standardized Value of S	-0.5738
M-K Test Value (S)	-4
Tabulated p-value	0.2350
Approximate p-value	0.2830

OLS Regression Line (Blue)

OLS Regression Slope	0.0000
OLS Regression Intercept	0.0002

Insufficient statistical evidence of a significant trend at the specified level of significance.



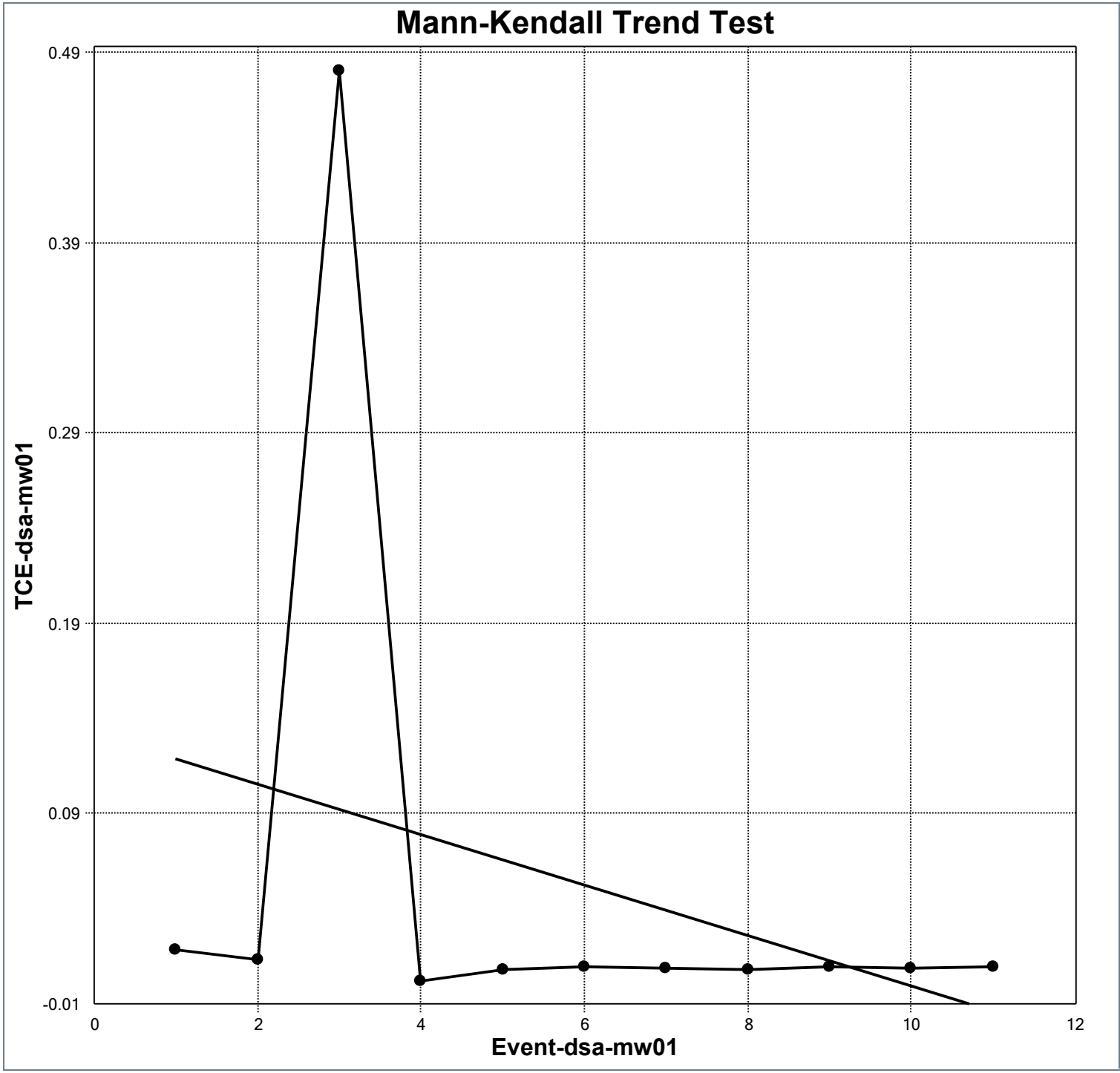
Mann-Kendall Trend Analysis

n	5
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	3.9581
Standardized Value of S	0.0000
M-K Test Value (S)	-1
Tabulated p-value	0.5920
Approximate p-value	0.5000

OLS Regression Line (Blue)

OLS Regression Slope	-0.0001
OLS Regression Intercept	0.0007

Insufficient statistical evidence of a significant trend at the specified level of significance.



Mann-Kendall Trend Analysis

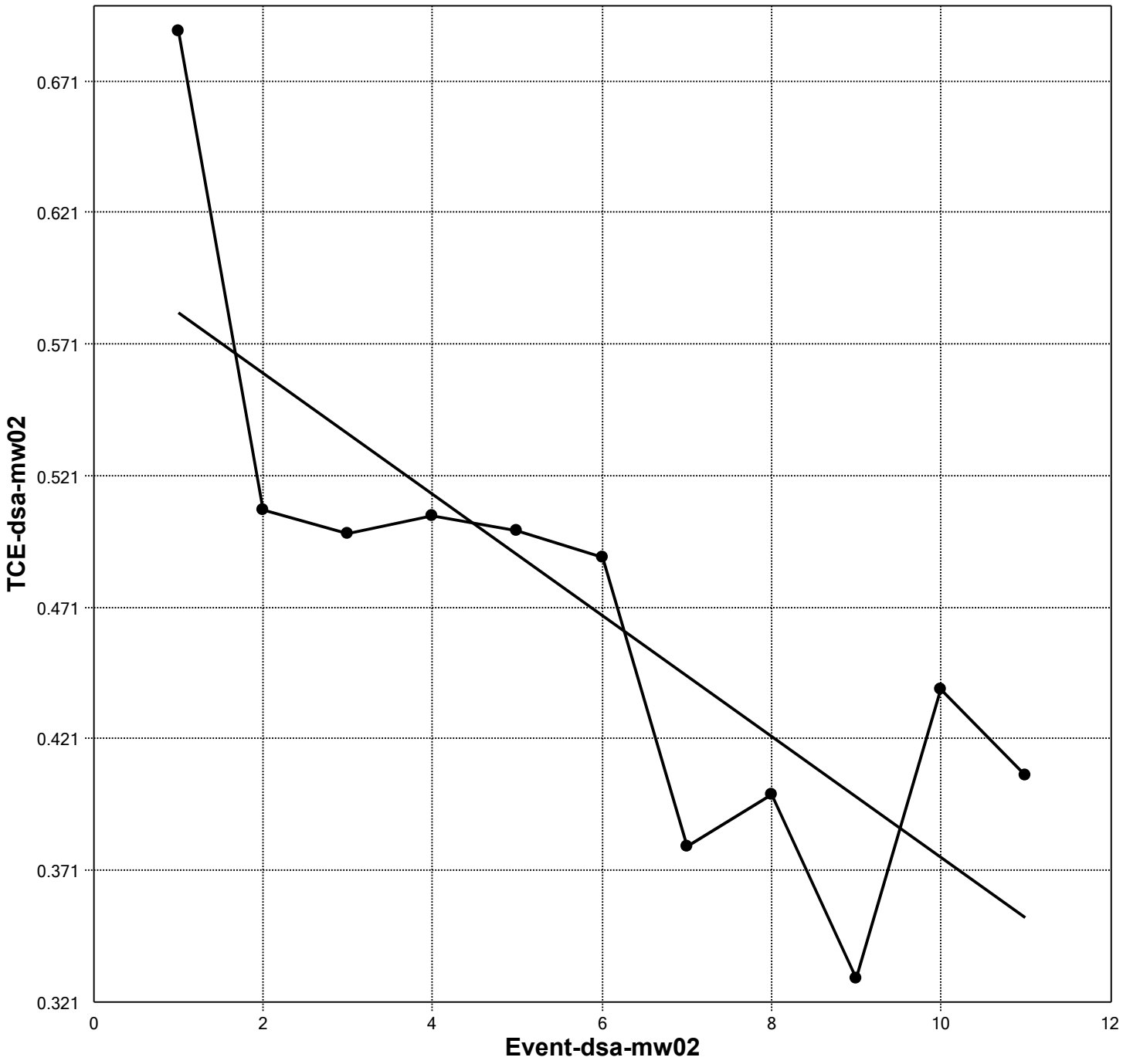
n	11
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	12.8452
Standardized Value of S	-0.4671
M-K Test Value (S)	-7
Tabulated p-value	0.3240
Approximate p-value	0.3202

OLS Regression Line (Blue)

OLS Regression Slope	-0.0133
OLS Regression Intercept	0.1306

Insufficient statistical evidence of a significant trend at the specified level of significance.

Mann-Kendall Trend Test



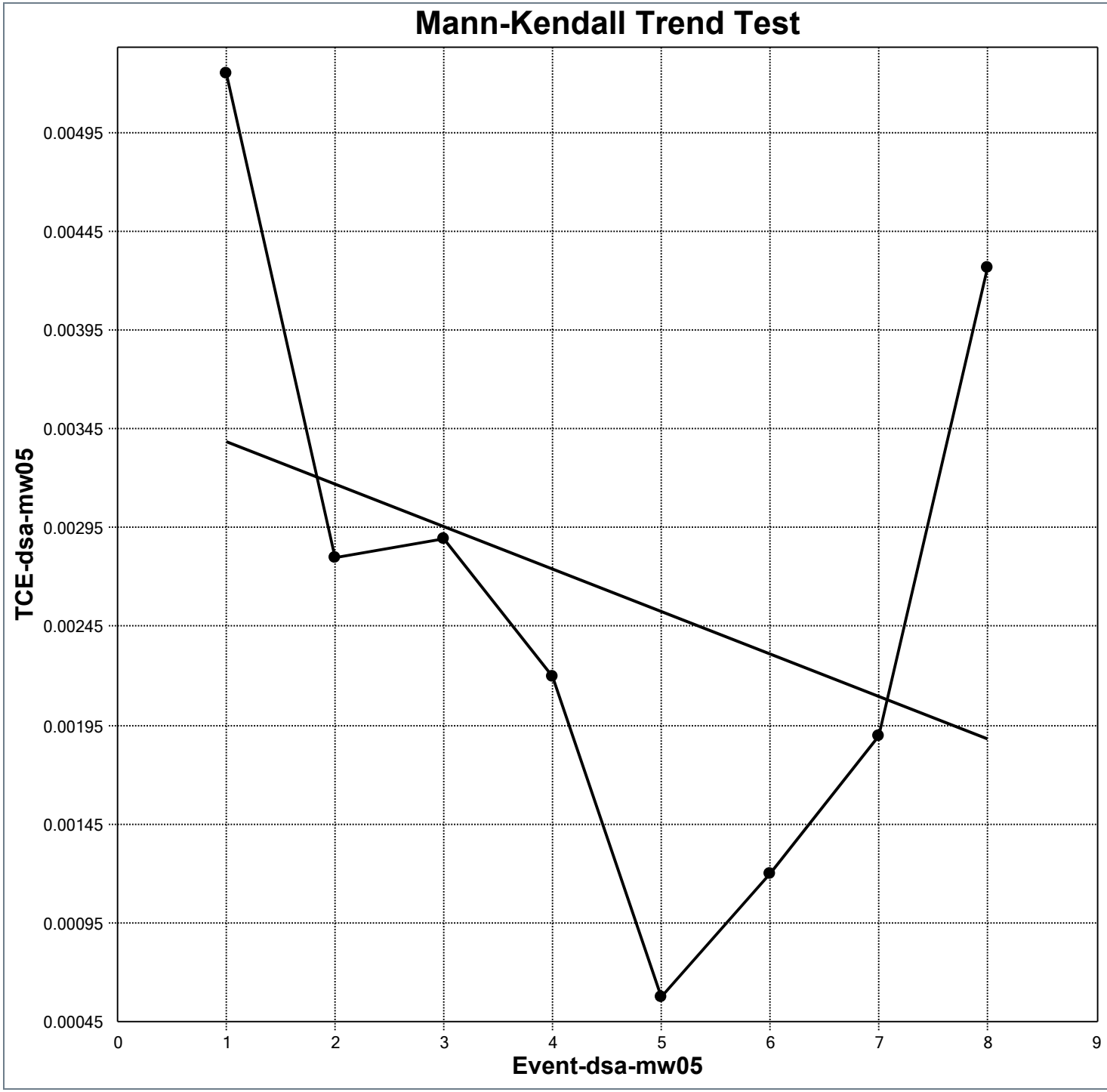
Mann-Kendall Trend Analysis

n	11
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	12.8452
Standardized Value of S	-2.8026
M-K Test Value (S)	-37
Tabulated p-value	0.0020
Approximate p-value	0.0025

OLS Regression Line (Blue)

OLS Regression Slope	-0.0230
OLS Regression Intercept	0.6060

Statistically significant evidence of a decreasing trend at the specified level of significance.



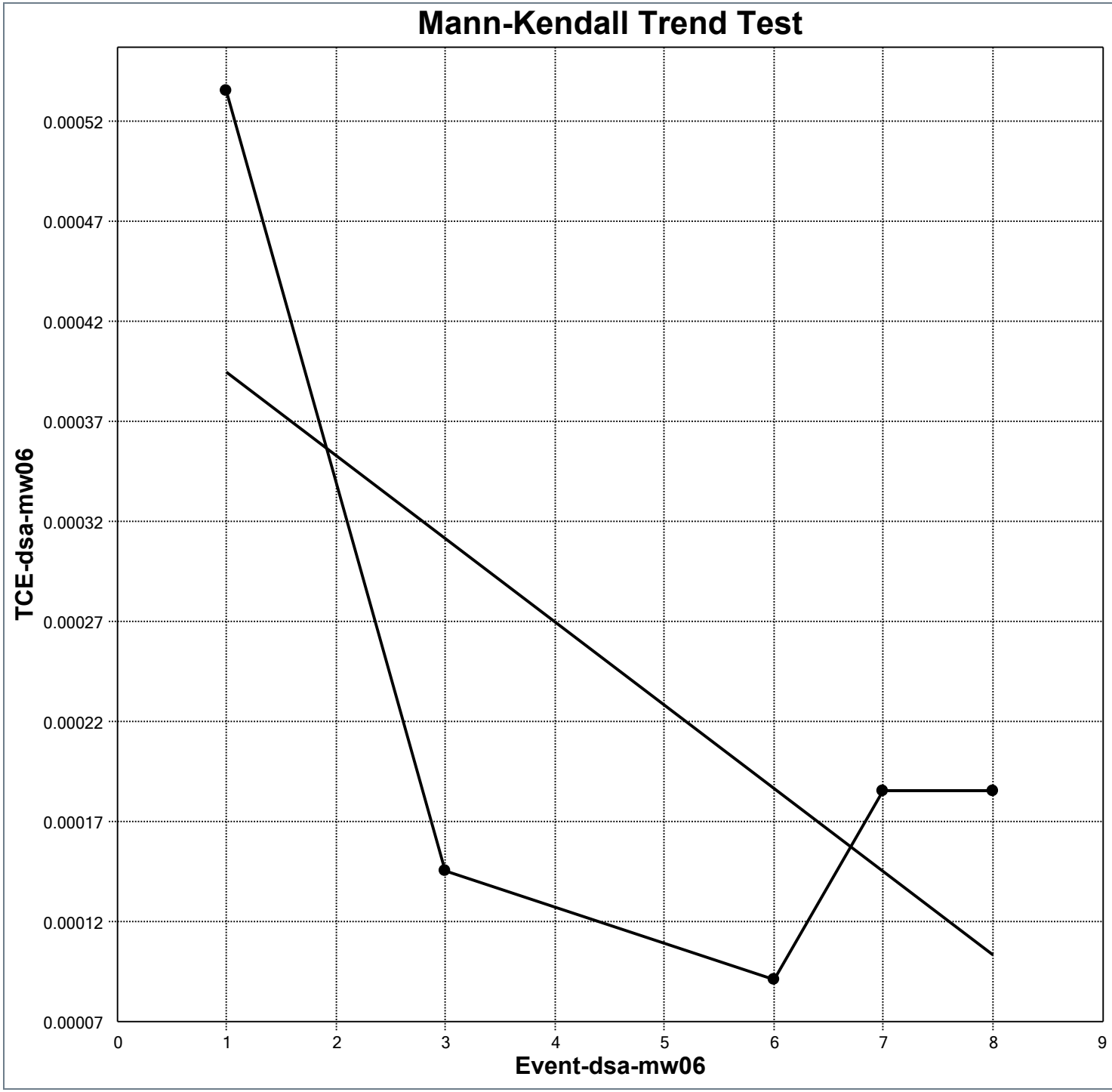
Mann-Kendall Trend Analysis

n	8
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	8.0829
Standardized Value of S	-0.8660
M-K Test Value (S)	-8
Tabulated p-value	0.1190
Approximate p-value	0.1932

OLS Regression Line (Blue)

OLS Regression Slope	-0.0002
OLS Regression Intercept	0.0036

Insufficient statistical evidence of a significant trend at the specified level of significance.



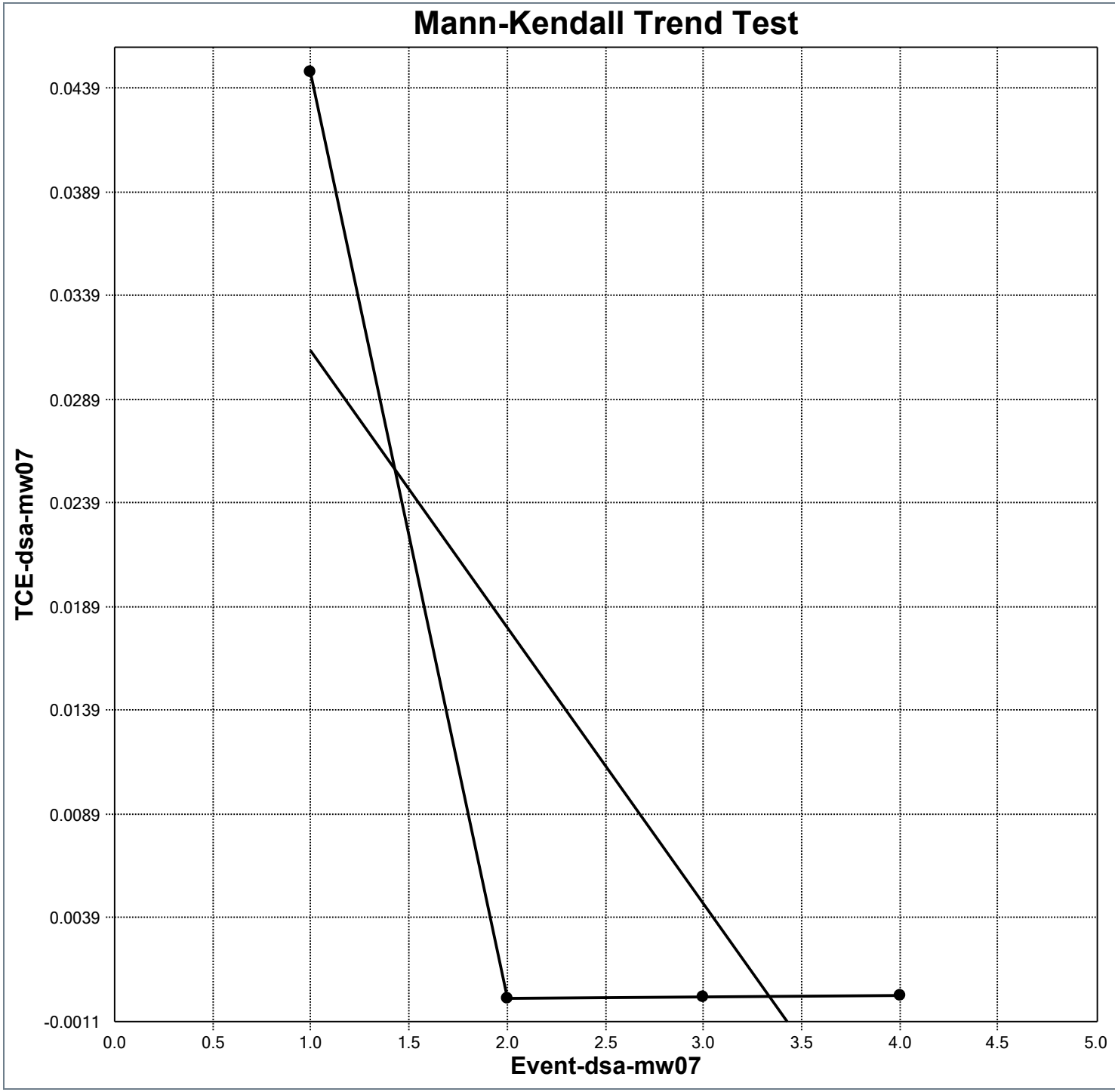
Mann-Kendall Trend Analysis

n	5
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	3.9581
Standardized Value of S	0.0000
M-K Test Value (S)	-1
Tabulated p-value	0.5920
Approximate p-value	0.5000

OLS Regression Line (Blue)

OLS Regression Slope	0.0000
OLS Regression Intercept	0.0004

Insufficient statistical evidence of a significant trend at the specified level of significance.



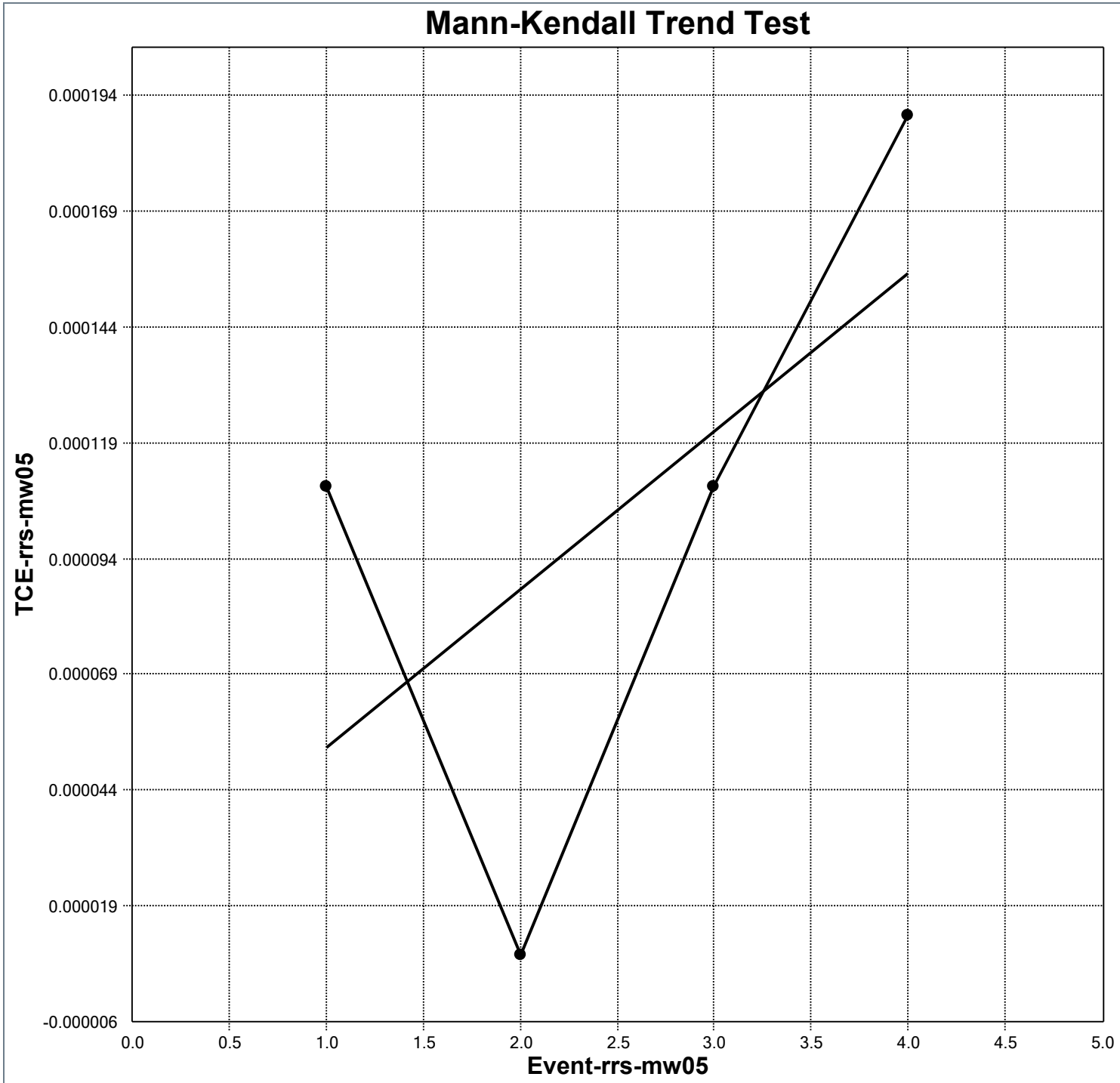
Mann-Kendall Trend Analysis

n	4
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	2.9439
Standardized Value of S	
M-K Test Value (S)	0
Tabulated p-value	0.6250
Approximate p-value	

OLS Regression Line (Blue)

OLS Regression Slope	-0.0133
OLS Regression Intercept	0.0446

Insufficient statistical evidence of a significant trend at the specified level of significance.



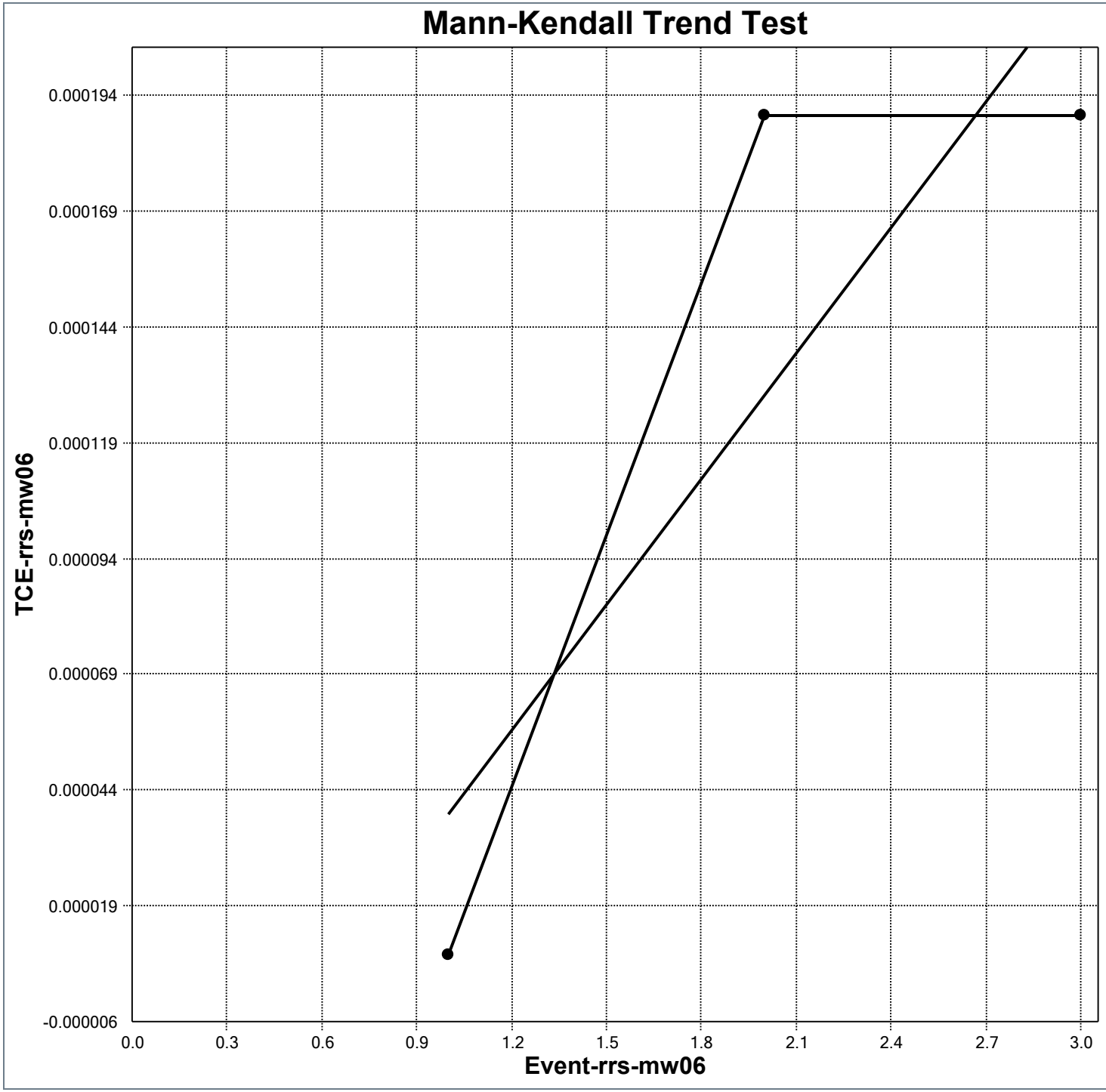
Mann-Kendall Trend Analysis

n	4
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	2.7689
Standardized Value of S	0.7223
M-K Test Value (S)	3
Tabulated p-value	0.3750
Approximate p-value	0.2351

OLS Regression Line (Blue)

OLS Regression Slope	0.0000
OLS Regression Intercept	0.0000

Insufficient statistical evidence of a significant trend at the specified level of significance.



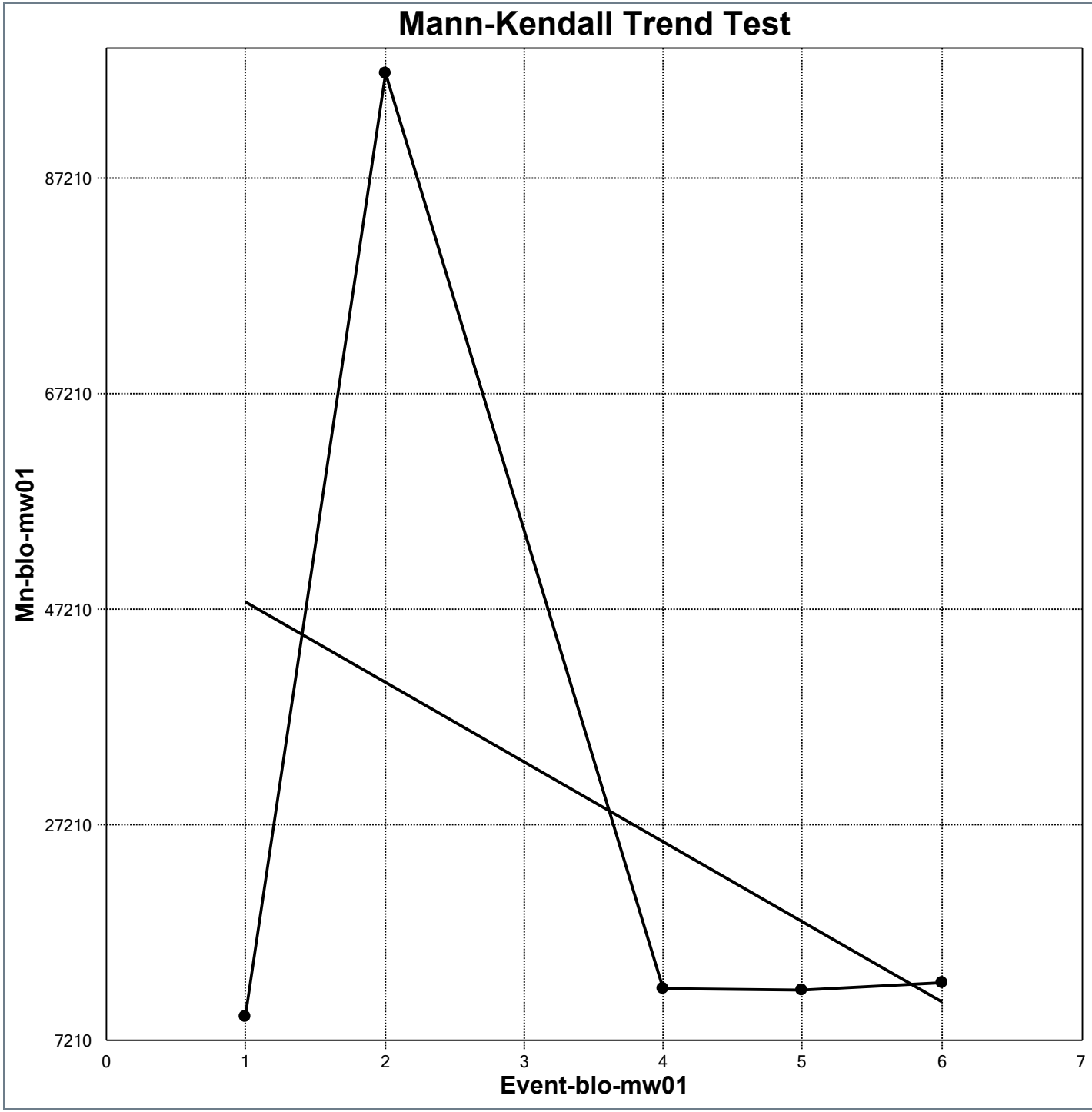
Mann-Kendall Trend Analysis

n	3
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	1.6330
Standardized Value of S	0.6124
M-K Test Value (S)	2
Tabulated p-value	
Approximate p-value	0.2701

OLS Regression Line (Blue)

OLS Regression Slope	0.0001
OLS Regression Intercept	-0.0001

Insufficient statistical evidence of a significant trend at the specified level of significance.



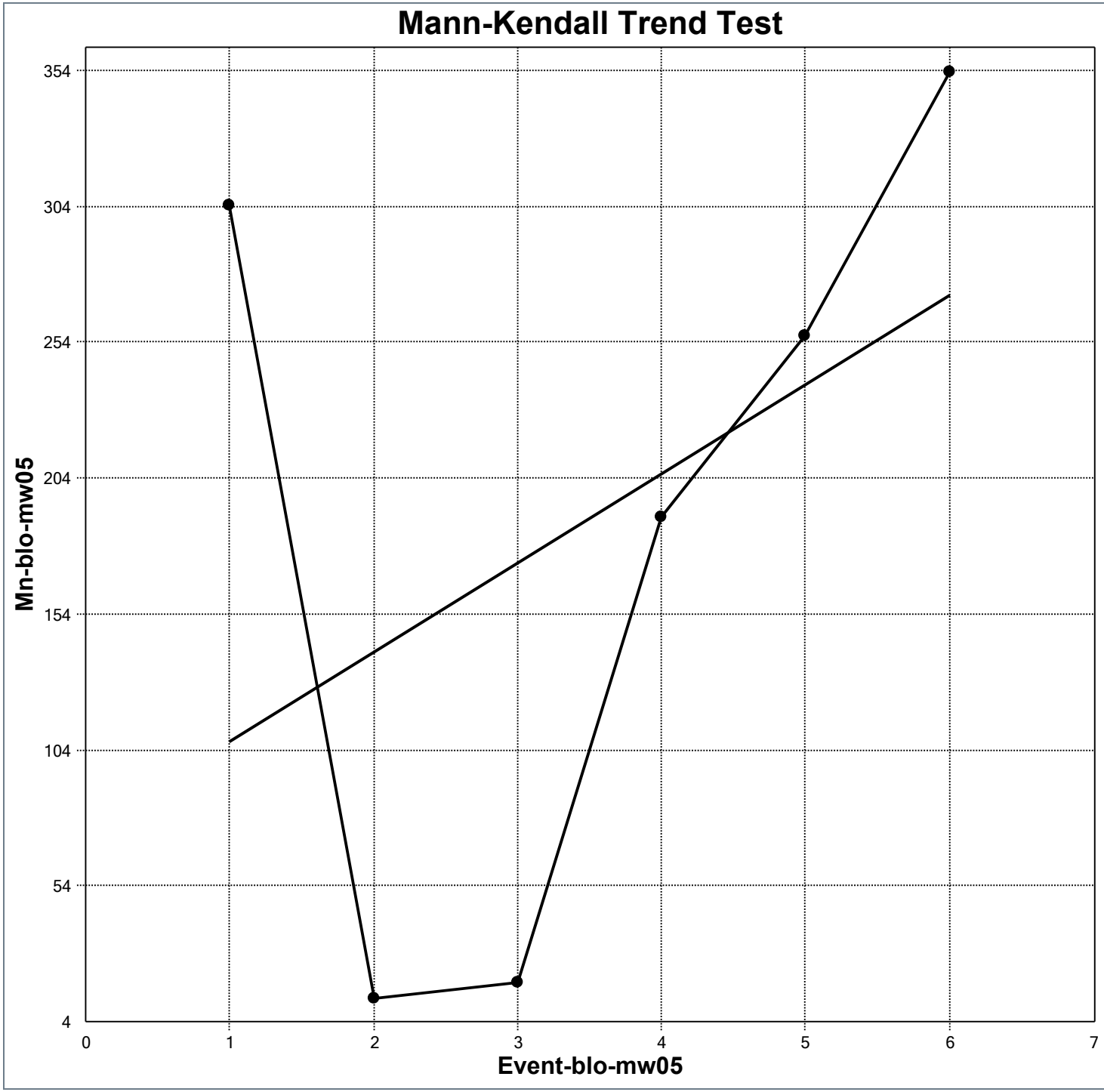
Mann-Kendall Trend Analysis

n	5
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	4.0825
Standardized Value of S	0.2449
M-K Test Value (S)	2
Tabulated p-value	0.4080
Approximate p-value	0.4032

OLS Regression Line (Blue)

OLS Regression Slope	-7,438.3721
OLS Regression Intercept	55,358.1395

Insufficient statistical evidence of a significant trend at the specified level of significance.



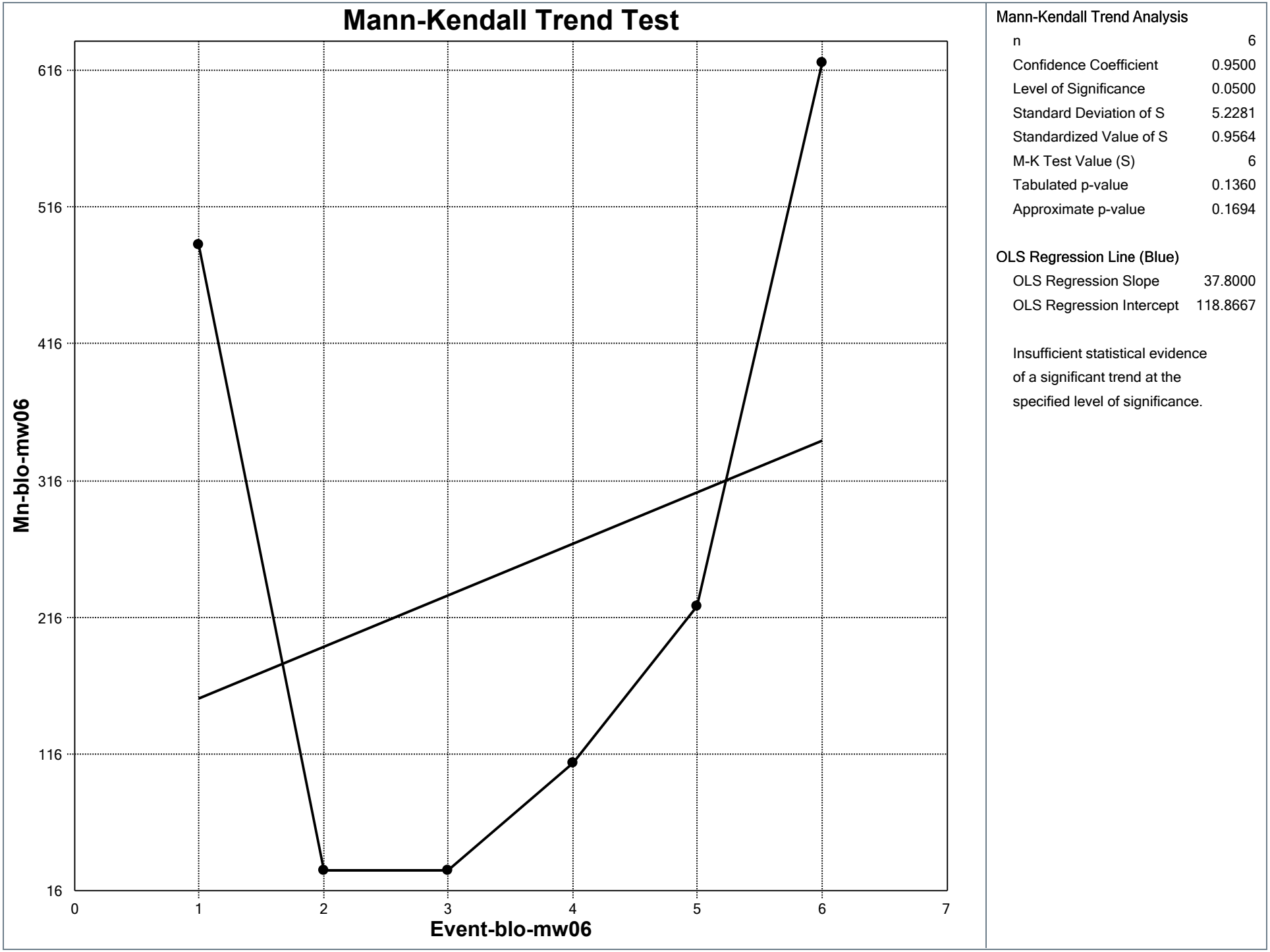
Mann-Kendall Trend Analysis

n	6
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	5.3229
Standardized Value of S	1.1272
M-K Test Value (S)	7
Tabulated p-value	0.1360
Approximate p-value	0.1298

OLS Regression Line (Blue)

OLS Regression Slope	32.8000
OLS Regression Intercept	74.8667

Insufficient statistical evidence of a significant trend at the specified level of significance.



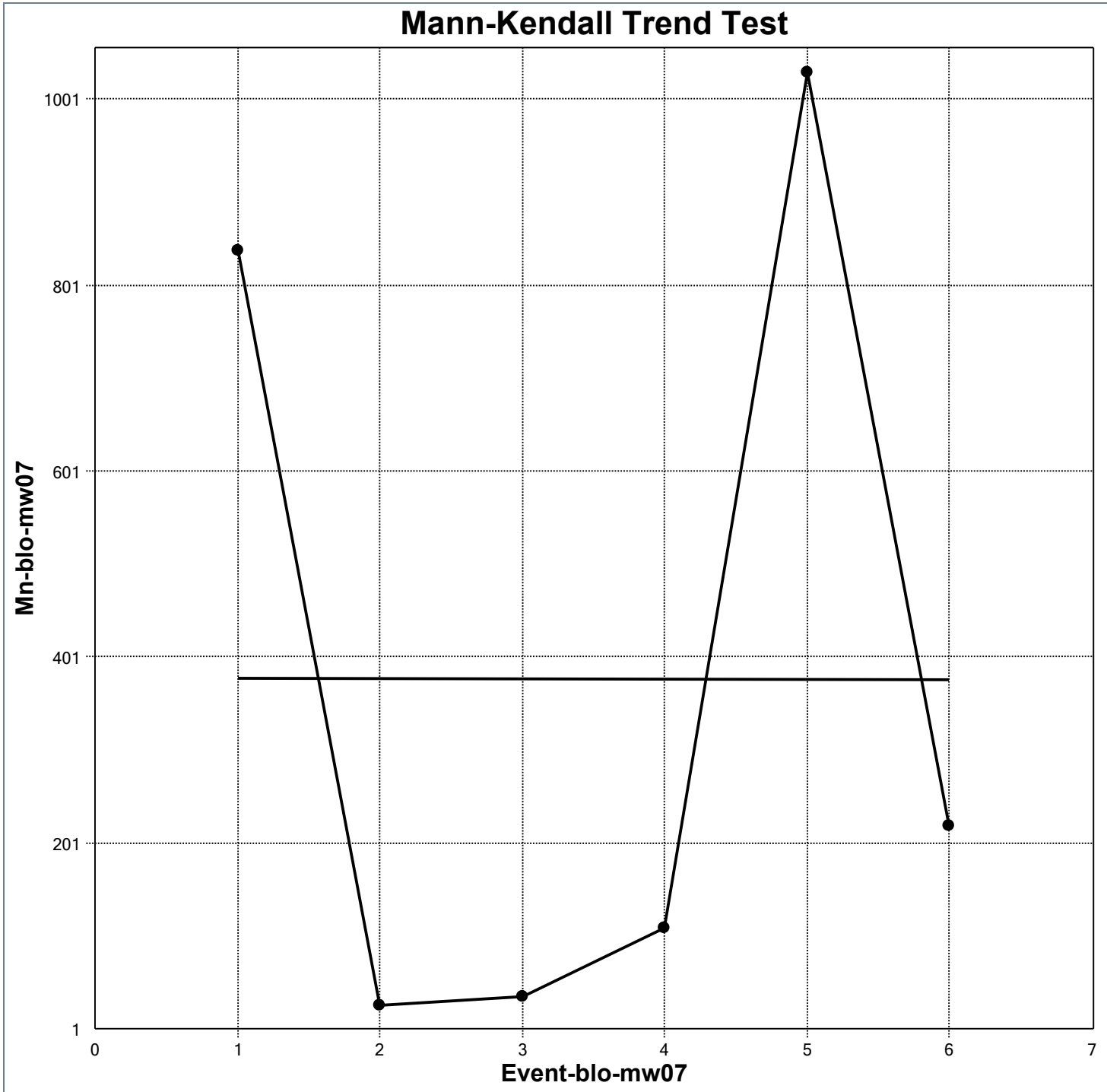
Mann-Kendall Trend Analysis

n	6
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	5.2281
Standardized Value of S	0.9564
M-K Test Value (S)	6
Tabulated p-value	0.1360
Approximate p-value	0.1694

OLS Regression Line (Blue)

OLS Regression Slope	37.8000
OLS Regression Intercept	118.8667

Insufficient statistical evidence of a significant trend at the specified level of significance.



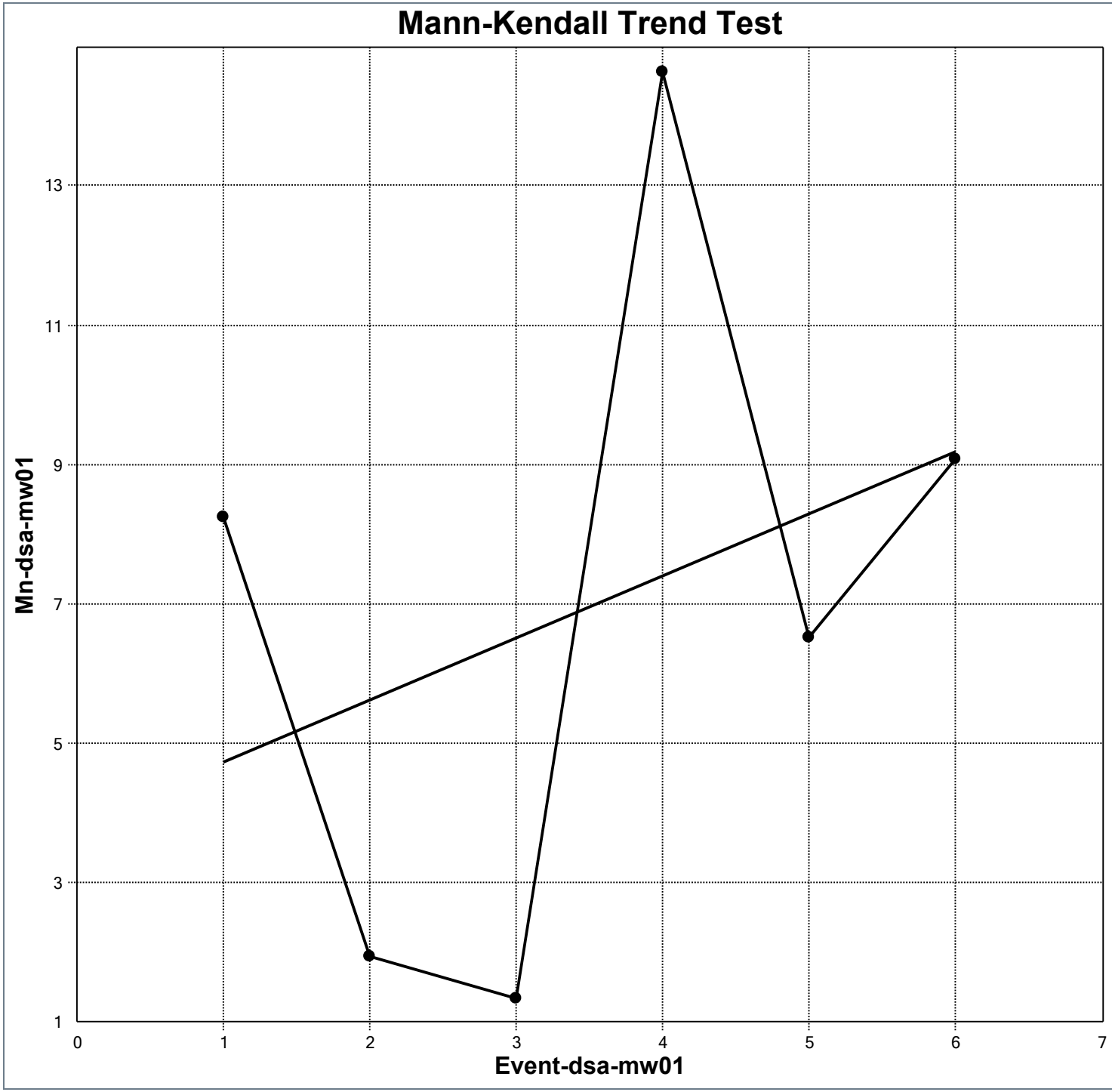
Mann-Kendall Trend Analysis

n	6
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	5.3229
Standardized Value of S	0.7515
M-K Test Value (S)	5
Tabulated p-value	0.2350
Approximate p-value	0.2262

OLS Regression Line (Blue)

OLS Regression Slope	-0.4000
OLS Regression Intercept	378.0667

Insufficient statistical evidence of a significant trend at the specified level of significance.



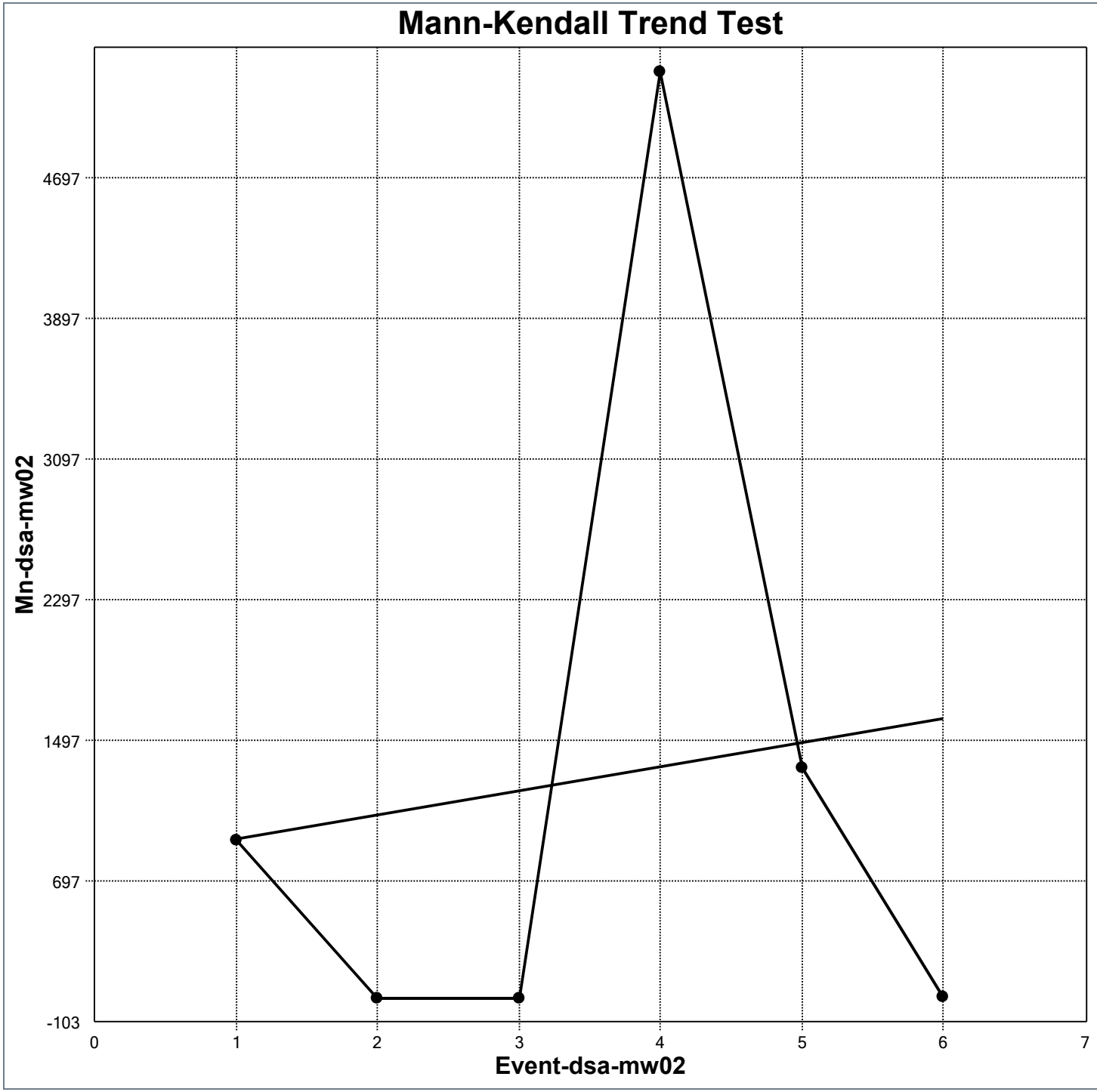
Mann-Kendall Trend Analysis

n	6
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	5.3229
Standardized Value of S	0.3757
M-K Test Value (S)	3
Tabulated p-value	0.3600
Approximate p-value	0.3536

OLS Regression Line (Blue)

OLS Regression Slope	0.8940
OLS Regression Intercept	4.1927

Insufficient statistical evidence of a significant trend at the specified level of significance.



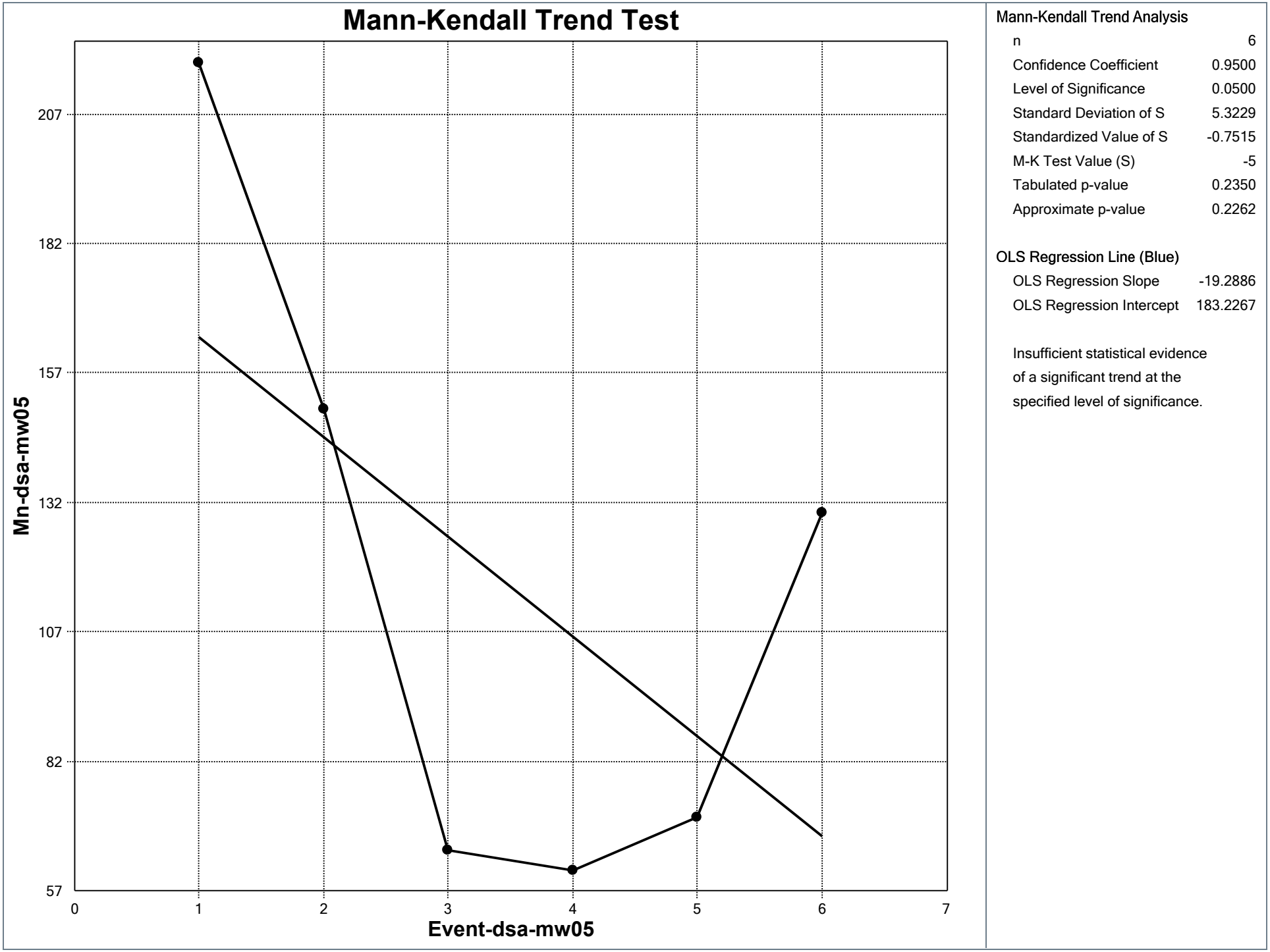
Mann-Kendall Trend Analysis

n	6
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	5.3229
Standardized Value of S	0.0000
M-K Test Value (S)	1
Tabulated p-value	0.5000
Approximate p-value	0.5000

OLS Regression Line (Blue)

OLS Regression Slope	135.8143
OLS Regression Intercept	802.7667

Insufficient statistical evidence of a significant trend at the specified level of significance.



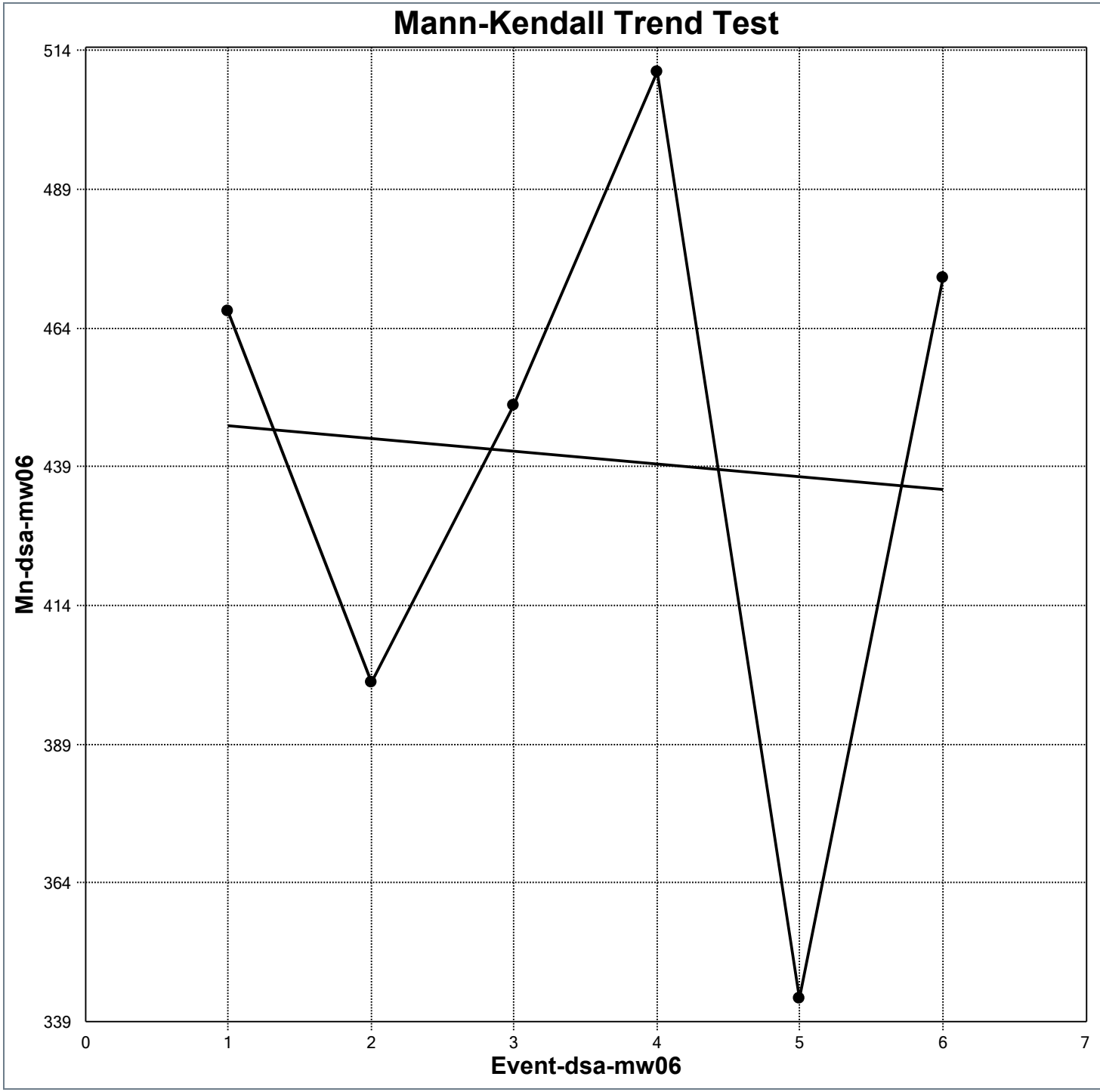
Mann-Kendall Trend Analysis

n	6
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	5.3229
Standardized Value of S	-0.7515
M-K Test Value (S)	-5
Tabulated p-value	0.2350
Approximate p-value	0.2262

OLS Regression Line (Blue)

OLS Regression Slope	-19.2886
OLS Regression Intercept	183.2267

Insufficient statistical evidence of a significant trend at the specified level of significance.



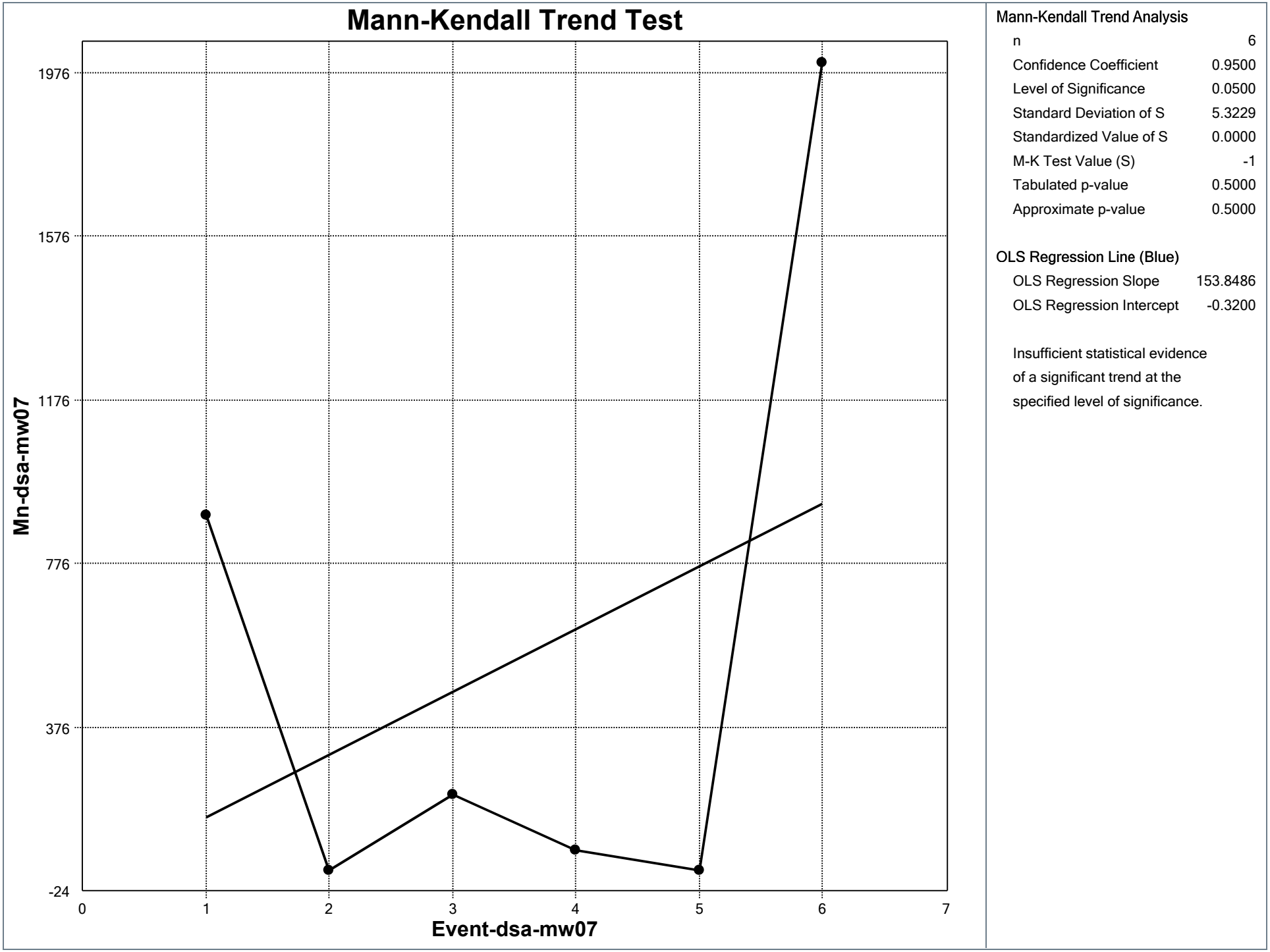
Mann-Kendall Trend Analysis

n	6
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	5.3229
Standardized Value of S	0.0000
M-K Test Value (S)	1
Tabulated p-value	0.5000
Approximate p-value	0.5000

OLS Regression Line (Blue)

OLS Regression Slope	-2.3143
OLS Regression Intercept	448.6000

Insufficient statistical evidence of a significant trend at the specified level of significance.



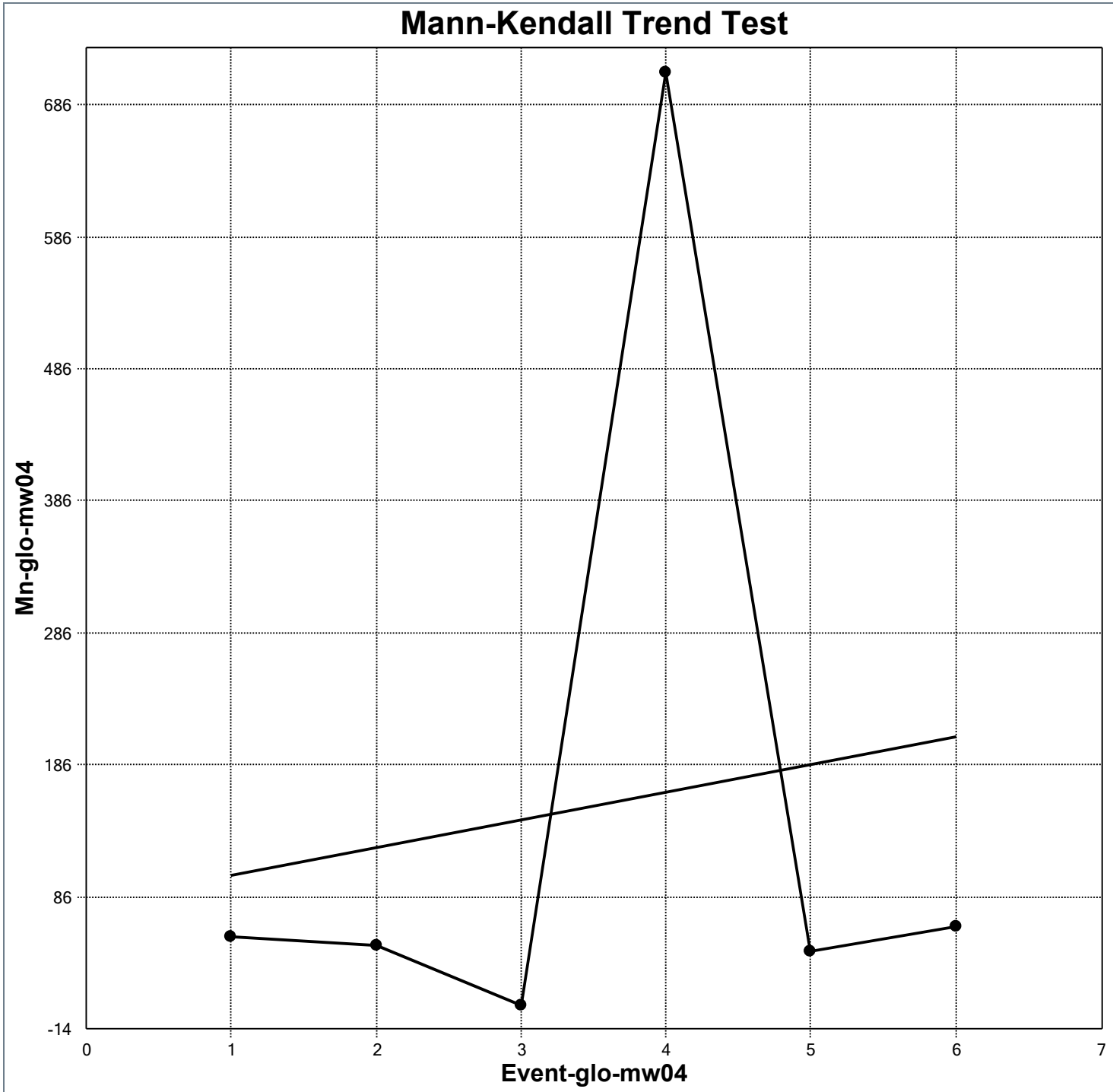
Mann-Kendall Trend Analysis

n	6
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	5.3229
Standardized Value of S	0.0000
M-K Test Value (S)	-1
Tabulated p-value	0.5000
Approximate p-value	0.5000

OLS Regression Line (Blue)

OLS Regression Slope	153.8486
OLS Regression Intercept	-0.3200

Insufficient statistical evidence of a significant trend at the specified level of significance.



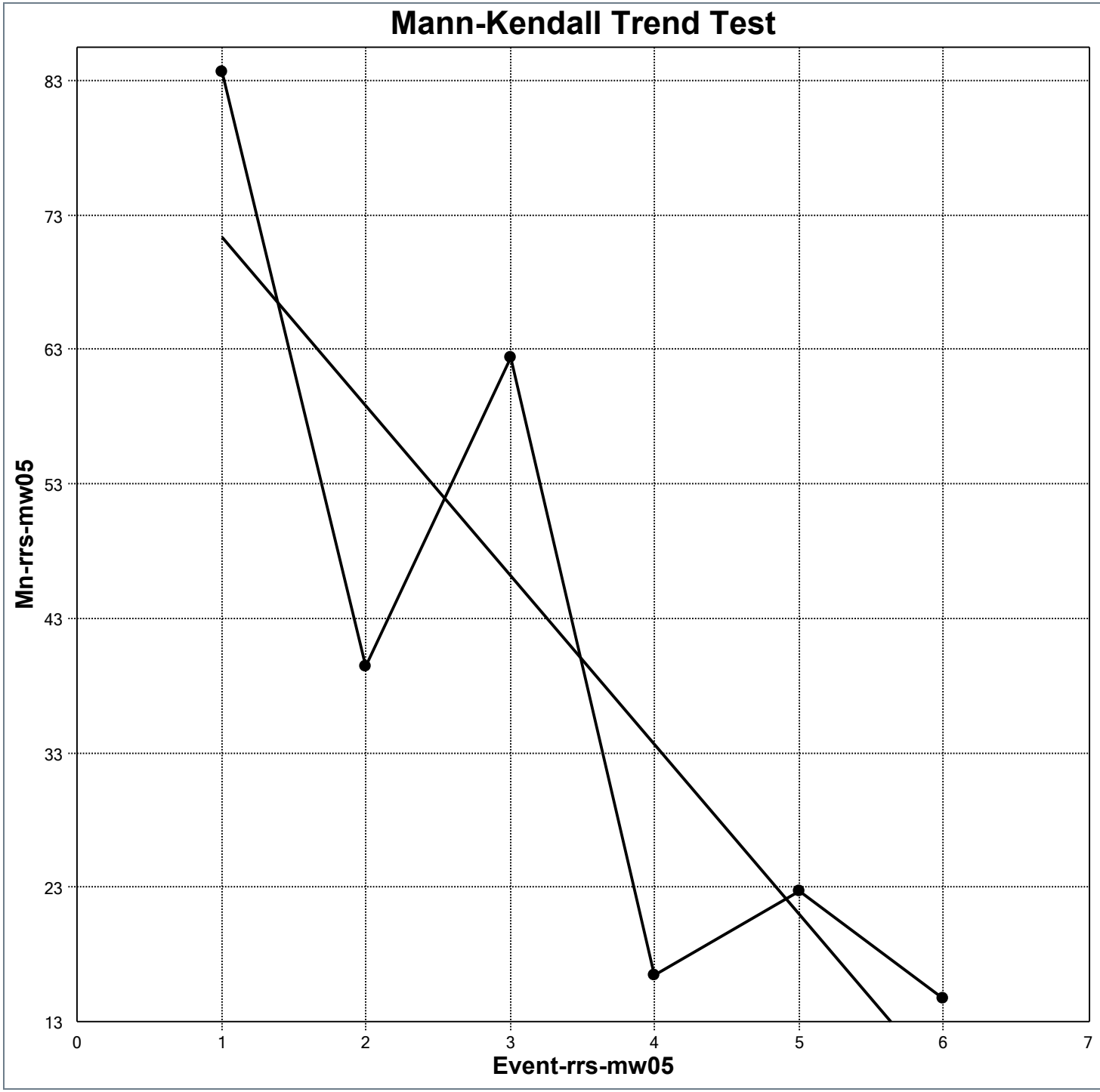
Mann-Kendall Trend Analysis

n	6
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	5.3229
Standardized Value of S	0.0000
M-K Test Value (S)	1
Tabulated p-value	0.5000
Approximate p-value	0.5000

OLS Regression Line (Blue)

OLS Regression Slope	20.9371
OLS Regression Intercept	80.8200

Insufficient statistical evidence of a significant trend at the specified level of significance.



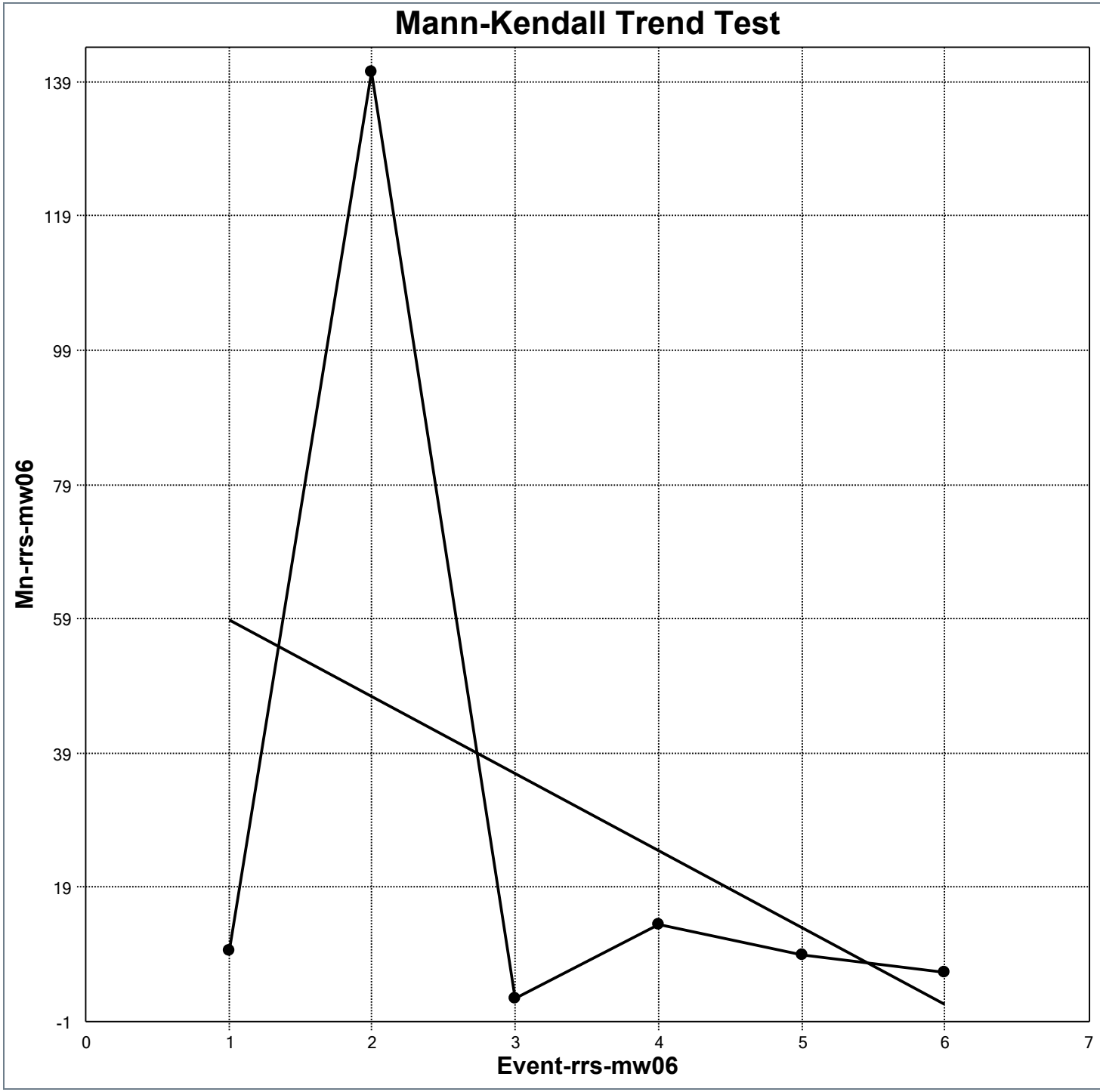
Mann-Kendall Trend Analysis

n	6
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	5.3229
Standardized Value of S	-1.8787
M-K Test Value (S)	-11
Tabulated p-value	0.0280
Approximate p-value	0.0301

OLS Regression Line (Blue)

OLS Regression Slope	-12.5886
OLS Regression Intercept	83.5267

Statistically significant evidence of a decreasing trend at the specified level of significance.



Mann-Kendall Trend Analysis

n	6
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	5.3229
Standardized Value of S	-0.7515
M-K Test Value (S)	-5
Tabulated p-value	0.2350
Approximate p-value	0.2262

OLS Regression Line (Blue)

OLS Regression Slope	-11.4200
OLS Regression Intercept	69.7067

Insufficient statistical evidence of a significant trend at the specified level of significance.

APPENDIX F

Response to ADEC Comments

This Page Intentionally Left Blank

THE STATE of ALASKA
GOVERNOR MIKE DUNLEAVY

Department of Environmental Conservation

DIVISION OF SPILL PREVENTION AND RESPONSE
Contaminated Sites Program

610 University Avenue
Fairbanks, AK 99709
Main: 907.451.2143
Fax: 907.451.2155

File #: 2637.38.002
2637.38.002.02
2637.38.002.05
2637.38.002.08
2637.38.002.11

October 26, 2022

Electronic Transmittal Only
Robert A. Johnston
United States Air Force
AFCEC/CZOP
10471 - 20th Street, Suite 347
JBER, AK 99506

Re: ADEC responses to comments for the *Final 2021 Remedial Action Operations and Land Use / Institutional Control Report, Port Heiden Radio Relay Station, Alaska,* Dated October 2022.

Dear Mr. Johnston:

The Alaska Department of Environmental Conservation (ADEC) received the above referenced document on October 24, 2022. The report describes the 2021 Land Use Control (LUC) and landfill cap inspection activities at the Former Composite Building OT001, the Landfill LF007, the Black Lagoon WP002, and the POL Pipeline SS006 in Port Heiden Radio Relay Station, Alaska. Groundwater monitoring was also conducted at OT001, WP002, and SS006.

ADEC has reviewed the responses to comments and conducted a comment backcheck (see enclosure). Please submit a clean final document for review and approval.

Please feel free to contact me at (907) 451-5960 or ginna.quesada@alaska.gov if you have any questions or comments.

Sincerely,

Ginna Quesada
Environmental Program Specialist

Enclosure: 2022.10.26 Port Heiden RRS RAO LUC Rpt_RTCs.docx

REVIEW COMMENTS

PROJECT: Port Heiden RRS

DOCUMENT: Final 2021 Remedial Action Operations and Land Use / Institutional Control Report, Port Heiden Radio Relay Station, Alaska, dated October 2022

ALASKA DEPT. OF ENVIRONMENTAL CONSERVATION	DATE: 10/26/2022 REVIEWER: Ginna Quesada PHONE: (907) 451-5960	Action taken on comment by: R. LaFata, North Wind-EA JV

Item No.	Drawing Sheet No., Spec. Para.	COMMENTS	REVIEW CONFERENCE A - comment accepted W - comment withdrawn (if neither, explain)	CONTRACTOR RESPONSE	ADEC/EPA RESPONSE ACCEPTANCE (A-AGREE) (D-DISAGREE)	CONTRACTOR RESPONSE
1	Section 2.3, Page 2-2	Does the USAF have any plans to repair the obstructed/damaged wells (GLO-MW03, DSA-MW04, PG1-MW01, UST-MW02)?		A Draft Well Installation and Repair Workplan was submitted to ADEC 8/10/22 that includes repairs to the wells at Site OT001 (GLO-MW04, DSA-MW05), and Site SS006 (215-MW09, 066-MW04, 066-MW05, 066-MW07.) Monitoring wells DSA -MW04, PGI-MW01, UST-MW02, and GLO-MW03 will need to be replaced, which may occur in 2023.	A	
2	Section 2.3, Page 2-3	Please make sure the laboratory analyzes the samples correctly next time. SW8015 is a method that wasn't approved in the work plan, is not an approved ADEC method in the Field Sampling Guidance. Please ensure the DRO results will be analyzed by AK102 in the future.		COCs are now pre-printed to include method of analysis.	A	
3	Section 2.5.3, Page 2-6	Please ensure the laboratory analyzes all trip blanks submitted with laboratory samples.		Noted.	A	
4	Section 3, Page 3-1	Results analyzed with Method SW8015 should all be flagged as estimated. Please revise the Data Quality Assessment Report to account for this error. Please make sure DRO sample results are analyzed with the AK102 method for future sample efforts.		All detected results analyzed by EPA Method SW8015 were flagged as estimated. Only one result was identified in the report that was revised as an estimated value (GLO-MW04-091221). This result was flagged as estimated in Section 2.5.1, Table 2 and pgs. 61 and 62 of the DVR in Appendix C.	A	

REVIEW COMMENTS **PROJECT: Port Heiden RRS**
DOCUMENT: Final 2021 Remedial Action Operations and Land Use / Institutional Control Report, Port Heiden Radio Relay Station, Alaska, dated October 2022

ALASKA DEPT. OF ENVIRONMENTAL CONSERVATION	DATE: 10/26/2022 REVIEWER: Ginna Quesada PHONE: (907) 451-5960	Action taken on comment by: R. LaFata, North Wind-EA JV

Item No.	Drawing Sheet No., Spec. Para.	COMMENTS	REVIEW CONFERENCE A - comment accepted W - comment withdrawn (if neither, explain)	CONTRACTOR RESPONSE	ADEC/EPA RESPONSE ACCEPTANCE (A-AGREE) (D-DISAGREE)	CONTRACTOR RESPONSE
5	Section 5.1.1, Page 5-1	Results with LODs exceeding ADEC cleanup levels should be estimated. With the elevated LOD above cleanup levels, it is uncertain if the non-detect result is true.		Agree. The LODs exceeding ADEC cleanup criteria have been flagged as estimated. Updated text in Section 2.5.1 and Section 5.1.1 to include elevated LODs above the ADEC cleanup criteria.	A	
6	Section 6, Page 6-1	Please note, the ADEC Field Sampling Guidance has been updated. The most current version of the guidance is January 2022.		Noted. The January 2022 Field Sampling Guidance will be used for the 2022 field event.	A	
7	Table 2 Summary of Analytical Results for OT001 and WP002 Groundwater Samples	All detected concentrations of TPH need to be flagged as estimated results. The samples should have been analyzed by AK102, however due to the SW8015 method being used instead which is a method that was not approved in the work plan, and not listed as appropriate for DRO in the ADEC Field Sampling Guidance, those results need to be flagged as estimated. Please ensure analyzing DRO samples by an incorrect method does not occur again.		Only one result was identified in the report that was revised as an estimated value (GLO-MW04-091221). This result was flagged as estimated in Section 2.5.1, Table 2 and pgs. 61 and 62 of the DVR in Appendix C.	A	
8	Appendix C, Data Usability Assessment (VOCs)	Under I. Sample Receipt and Technical Holding Times, there should be discussion about two of the trip blanks not being received by the laboratory. In the future, please ensure all sample jars sent to a laboratory are received. Under VIII. There are samples listed with having exceptions, but then the flag is N/A. Please explain how these exceptions do not affect data quality or usability, and please		Included information regarding the trip blanks not being received by the laboratory (page 10 of Appendix C). Revised "flag" to indicate none since all concentrations listed were non-detect; the LCS met recovery goals for the analytes listed in VIII. Included text that it is our opinion that this QC failure does not adversely	A	

REVIEW COMMENTS

PROJECT: Port Heiden RRS

DOCUMENT: Final 2021 Remedial Action Operations and Land Use / Institutional Control Report, Port Heiden Radio Relay Station, Alaska, dated October 2022

ALASKA DEPT. OF ENVIRONMENTAL CONSERVATION	DATE: 10/26/2022 REVIEWER: Ginna Quesada PHONE: (907) 451-5960	Action taken on comment by: R. LaFata, North Wind-EA JV

Item No.	Drawing Sheet No., Spec. Para.	COMMENTS	REVIEW CONFERENCE A - comment accepted W - comment withdrawn (if neither, explain)	CONTRACTOR RESPONSE	ADEC/EPA RESPONSE ACCEPTANCE (A-AGREE) (D-DISAGREE)	CONTRACTOR RESPONSE
		define what 'Not Applicable' for data quality flags. Under XV, all VOC results should be flagged as biased low since a peristaltic pump was used for sample collection. Per Section 6.4.5, "Any volatile organic groundwater data collected using peristaltic pumps should be considered biased low and generally will not be used for demonstrating the extent of the contamination, decreasing trends, or site closure decisions."		affect the associated data, and the data are acceptable for their intended use. Included the following under XV: Peristaltic pumps were used to collect samples 215-MW-09-091521 and 066-MW-05-091521. Peristaltic pumps should not be used for volatile analysis due to the loss of volatiles from the creation of a vacuum in the intake line that draws the sample to the land surface. As a result, the total xylenes result in sample 215-MW-09-091521 and the ethylbenzene and total xylenes result in sample 066-MW-05-091521 were qualified as estimated biased low (J-).		
9	Appendix C, Laboratory Data Review Checklist	Please fill out the CS Name, ADEC File Number and Hazard ID for all the laboratory data review checklists.		Revised Appendix C, Laboratory Data Review Checklist, to include CS Name, ADEC File Number and Hazard ID on each page of the checklist.	A	
10	Appendix C, Laboratory SDG L1405623	The chain of custody forms do not include the method numbers for the samples, listing the methods on the chain of custody may help ensure the laboratory analyzes the samples in accordance with the CS approved work plan.		COCs are now pre-printed to include method of analysis	A	
11	End of Comments					