QUARTERLY PROGRESS REPORT NO. 19-3

MAY, JUNE, JULY 2019

RCRA POST-CLOSURE PERMIT NO. AKD 04867 9682

TESORO ALASKA COMPANY, LLC

KENAI, ALASKA

August 31, 2019

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List of Abbreviations and Acronyms

µg/L	micrograms per liter
AS	air sparge
BTEX	benzene, toluene, ethylbenzene, and xylenes
CAPP	corrective action program plan
CAMP	corrective action modification plan per Permit condition III.D.1
cfm	cubic feet per meter
COC	contaminant(s) of concern (Permit table 2)
COPC	contaminant(s) of potential concern (Permit table 8)
EPA	Environmental Protection Agency
IP	indicator parameter(s) (Permit table 3)
LTF	Lower Tank Farm
Permit	Tesoro's Alaska refinery Part B Post-Closure Permit
PRM	Phillips Remedial Measure
psi	pounds per square inch
Q##-#	quarter (year-quarter)
QPR (##-#)	quarterly progress report (year-quarter)
UCA	upper confined aquifer
SI	surface impoundment
TCE	trichloroethene
Tesoro	Tesoro Alaska Company

1.0 INTRODUCTION

Tesoro Alaska Company, LLC (Tesoro) is implementing the requirements outlined in the Region 10 Environmental Protection Agency (EPA) Post-Closure Permit No. AKD 04867 9682 (Permit) for Tesoro's refinery in Kenai, Alaska (Figure 1), effective November 1, 2017. Information regarding the performance of the EPA-approved groundwater corrective action program plan (CAPP) is provided herein, and includes activities that were completed or in-progress during the May- July 2019 quarter (summer quarter).

In winter and summer quarters, Tesoro performs routine system monitoring, and sampling or gauging required by active corrective action modification plans (CAMPs). Winter and summer Quarterly Progress Reports (QPRs) are condensed to include only summaries of activities and systems data.

In spring and fall quarters, Tesoro performs comprehensive monitoring including gauging and sampling monitoring wells required by Permit Table 4 for indicator parameters (IPs), contaminants of concern (COCs), and/or contaminants of potential concern (COPCs), and additional wells required by active CAMPs. Spring and fall QPRs are more comprehensive and include data analysis, a summary of corrective action changes, potentiometric surface maps, semi-annual effectiveness demonstrations, and systems data.

2.0 CORRECTIVE ACTIONS SUMMARY

All Permit required corrective action system performance criteria were met this quarter, except A-aquifer groundwater extraction rates (discussed below). A brief summary of each corrective action area is presented below. Figure 2 illustrates system location and area designations and Figure 3 illustrates aquifer designation in relation to overall site features. The surface impoundment (SI) area is in the A-aquifer, but is discussed separately because of the disconnected plume and unique conditions. Analytical results are summarized in Table 2 and the laboratory report is included in Appendix A.

2.1 SURFACE IMPOUNDMENT (SI) AREA

Tesoro operated the SI air sparge (AS) system in accordance with Permit Table D-6. Table 3A presents SI AS system monitoring records required by Permit Table D-10. Flow in cubic feet per minute (cfm) and pressure in pounds per square foot (psi) were recorded weekly for each AS well. All performance criteria were met.

Tesoro collected eight groundwater samples as a part of the SI Area Remedy Enhancement Pilot Study, the sixth of eight required sampling events. The samples were analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX), vinyl chloride, and trichloroethene (TCE). Discussion of the SI area status will be provided in the next comprehensive Quarterly Report.

2.2 A-AQUIFER

The A-Aquifer groundwater extraction system was below the target 60 gallons per minute (gpm) for 6 out of 13 weeks due to the shut-down of recovery well R-40. Recovery well R-40 was restarted August 19, 2019. A-Aquifer extraction rates ranged from 44 gpm to 56 gpm during weeks which target rates were not met. Table 4 presents the groundwater extraction system flow rates and volumes, recorded weekly as required by Permit Table D-10. Table 5 presents groundwater injection rates, recorded weekly. The Calgon treatment system operated continuously, the latest carbon replacement was installed October 3, 2018.

Tesoro operated the Phillips Remedial Measure (PRM), Highway AS System and the Highway Vapor Extraction system during this quarter. All system data were collected in accordance with Permit Table D-6 and are provided in Tables 3B, 3C, 3D, and Tables 6A and 6B.

Tesoro collected four supplemental groundwater samples to monitor the southern portion of the plume near E-072RR. These wells are down- and side-gradient of E-72RR, which has had elevated benzene concentrations in previous quarters. Three samples were collected down gradient of the Lower Tank Farm (LTF) area as a part of the LTF AS shut-down requirements and four samples were collected down gradient of the swamp. Discussion of the results will be provided in the next comprehensive Quarterly Report.

2.3 B-AQUIFER

Tesoro operated the B-Aquifer groundwater extraction system in accordance with Permit Table D-6. Table 4 presents the groundwater extraction system monitoring records required by Permit Table D-10. Flow and volume were recorded weekly for each pumping well. Table 5 presents groundwater injection rates, recorded weekly. All performance criteria were met.

Two supplemental groundwater samples were collected from the northern portion of the B-Aquifer to monitor the northern boundary. Discussion of the results will be provided in the next comprehensive Quarterly Report.

2.4 UPPER CONFINED AQUIFER (UCA)

Industrial pumping rates for the UCA wells and total volume are presented in Table 7.

No supplemental wells were sampled in the UCA.

3.0 ADMINISTRATIVE ACTIVITIES

Activity	Summary
None	None

Upcoming Activities	Summary
EPA Site Visit	EPA plans to visit the Kenai Refinery on August 23, 2019

4.0 INDEX OF QPR APPENDICES

QPR NO.	QUARTER	APPENDIX
QPR 01	Nov-Dec 95-Jan 96	A - Laboratory Analytical Reports
		B - Groundwater Velocity Calculations
		C - Daily Ground Water Recovery Totals
		D - Biannual Assessment of Effectiveness of Corrective Actions
QPR 02	Feb-Mar-Apr 96	A - Laboratory Analytical Reports
		B - Daily Ground Water Recovery Totals
QPR 03	May-Jun-Jul 96	A - Boring Logs and Well Completion Diagrams for New Piezometers; Revised Permit Figures 3 and 4
		B - Boring Log and Well Completion Diagram for New Recovery Well R-45; Revised Permit Figure 2
		C - Laboratory Analytical Reports
		D - Groundwater Velocity Calculations
		E - Daily Ground Water Recovery Totals
		F - Workplans for Pilot Testing Alternate Groundwater Treatment Actions
		G - Biannual assessment of Effectiveness of Corrective Actions
QPR 04	Aug-Sep-Oct 96	A - Laboratory Analytical Reports and Data Validation Memoranda
		B - Groundwater Velocity Calculations
		C - Daily Ground Water Recovery Totals
		D - PRC Environmental Management, Inc. Correspondence and Response
QPR 05	Nov-Dec 96-Jan 97	A - Additional Gauging Data
		B - Data Validation Summary and Laboratory Reports
		C - Comparison of Sample Handling Methods on Dissolved Lead Concentrations
		D - Daily Groundwater and Product Recovery Totals
QPR 06	Feb-Mar-Apr 97	A - Data Validation Summary and Laboratory Reports
		B - Daily Groundwater and Product Recovery Totals
		C - Well E-72 Replacement and Abandonment Report
		D - Well E-103B Installation Report
		E - Piezometer P-45 Installation Report
		F - Revised Survey Data

QPR NO.	QUARTER	APPENDIX
		G - Notification Letters
		H - Revised Permit Tables and Figures
		I - Well E-17 Replacement and Abandonment Report
QPR 07	May-Jun-Jul 97	A - Additional Gauging Data
		B - Summary of Analytical Data
		C - Data Validation Summary and ARI Laboratory Reports
		D - Data Validation Summary and MAS Laboratory Reports
		E - Revised Groundwater Contour Maps
		F - Daily Groundwater and Product Recovery Totals
		G - ADEC Notification Letters
		H - New Survey Data
		I - Additional Analytical Data for E-122 and SPZ-3
		J - E-77 Investigation Borehole and Monitoring Well Location Map
		K - Responses to EPA Comments
		L - Revised Permit Tables and Figures
		M - Boring and Well Construction Logs (E-101B, E-121B, E-137B, E-168, 97B-23)
QPR-08	Aug-Sep-Oct 97	A - Additional Gauging Data
		B - Summary of Analytical Data
		C - Data Validation Summary and Laboratory Reports
		D - Daily Groundwater and Product Recovery Totals
		E - Notification Letter
		F - Interim Measures Data
		G - Beach Inspection Log
QPR-09	Nov-Dec 97-Jan 98	A - Quarterly Gauging Data
		B - Summary of Analytical Data
		C - Data Validation Summary and Laboratory Reports
		D - Daily Groundwater and Product Recovery Totals
		E - New Survey Data
		F - Notification Letter
		G - Interim Monitoring Program Data
		H - Boring and Well Construction Logs (E-173, E-174)

QPR NO.	QUARTER	APPENDIX
QPR-10	Feb-Mar-Apr 98	A - Quarterly Gauging Data
		B - Summary of Analytical Data
		C - Data Validation Summary and Laboratory Reports
		D - Daily Groundwater and Product Recovery Totals
		E - SPZ-1 and SPZ-2 Well Construction Diagrams
		F - ADEC Notification Letters
		G - Interim Monitoring Program Data
		H - New Survey Data
		I - Well Installation Report (R-46 To R-49; P-46 To P-49; E-173, -175, -176)
		J - Response to EPA Comments (regarding QPR 7)
QPR 11	May-Jun-Jul 98	A - Quarterly Gauging Data
		B - Summary of Analytical Data
		C - Data Validation Summary and Laboratory Reports
		D - Daily Groundwater and Product Recovery Totals
		E - SI Area Laboratory Reports
		F - Well Installation Report (E-177A/B; SMW-29, -30)
		G - ADEC Notification Letters
		H - Interim Measures Monitoring Data and Beach Logs
		I - PM Area Lab Reports
		J - Revised Permit Figures
QPR 12	Aug-Sep-Oct 98	A - Quarterly Gauging Data
		B - Summary of Analytical Data
		C - Data Validation Summary and Laboratory Reports
		D - Daily Groundwater and Product Recovery Totals
		E - Interim Monitoring Program Data
		F - Well Installation Report (E-178 To E-183)
		G - ADEC Notice of Violation #98-075
		H - Revised Permit Figure 4 and Table 1B
QPR 13	Nov-Dec 98-Jan 99	A - Quarterly Gauging Data
		B - Summary of Analytical Data
		C - Data Validation Summary and Laboratory Reports
		D - Daily Groundwater and Product Recovery Totals
		E - Interim Monitoring Program Data

QPR NO.	QUARTER	APPENDIX
		F - ADEC Notification Letter
		G - Well Installation & Abandonment Report (E-182 to E-194; Abandon E-39)
		H - Revised Permit Figure 4 and Permit Table 1D
QPR 14	Feb-Mar-Apr 99	A - Quarterly Gauging Data
		B - Summary of Analytical Data
		C - Data Validation Summary and Laboratory Reports
		D - Daily Groundwater and Product Recovery Totals
		E - Expanded Interim Monitoring Program Data
		F - Well Installation Report (E-195 to E-201)
		G - Sheetpile Wall Monitoring Points Survey Data
		H - Boardwalk Plume Corrective Action Modification Plan
		I - Revised Permit Figure 4
		J - Revised Permit Attachment DD - Security Plan
		K - Revised Permit Attachment EE - Inspection Plan
		J - Revised Permit Attachment FF - Training Plan
QPR 15	May-Jun-Jul 99	A - Quarterly Gauging Data
		B - Summary of Analytical Data
		C - Data Validation Summary and Laboratory Reports
		D - Daily Groundwater and Product Recovery Totals
		E - Expanded Interim Monitoring Program Data
		F - ADEC Notification Letters
		G - Well Installation Report (E-202 to E-208)
		H - Revised Permit Tables
		I - Revised Permit Figures
		J - Boardwalk Plume Corrective Action Modification Report
		K - E-77 Area Investigation Report
QPR 16	Aug-Sep-Oct 99	A - Quarterly Gauging Data
		B - Summary of Analytical Data
		C - Data Validation Summary and Laboratory Reports
		D - Daily Groundwater and Product Recovery Totals
		E - Expanded Interim Monitoring Program Data
		F - ADEC Notification Letters
		G - Revised Permit Table 1B

QPR NO.	QUARTER	APPENDIX
		H - Well Installation Report (E-209, -210; TW-5)
		I - Revised Permit Attachment GG - Contingency Plan
QPR 17	Nov-Dec 99-Jan 2000	A - Quarterly Gauging Data
		B - Summary of Analytical Data
		C - Data Validation Summary and Laboratory Reports
		D - Daily Groundwater and Product Recovery Totals
		E - Expanded Interim Monitoring Program Data
		F - ADEC Compliance Reports
		G - Well Installation Report (E-211 to E-214; I-1 to I-5; PI-1, -4, -5)
		H - Response To EPA Comments
		I - Revised Permit Figure 4
		J - Revised Permit Attachment EE - Inspection Plan
QPR 18	Feb-Mar-Apr 2000	A - Quarterly Gauging Data
		B - Summary of Analytical Data
		C - Data Validation Summary and Laboratory Reports
		D - Daily Groundwater and Product Recovery Totals
		E - Expanded Interim Monitoring Program Data
		F - ADEC Compliance Reports
		G - SI Area Supplemental Sampling Report
		H - Injection System Startup Report - E-150 Lobe Area
		I - Well Installation Report (DW-1; O-1 to O-7)
		J - Revised Permit Figure 4
		K - Revised Permit Attachment GG - Contingency Plan
QPR 19	May-Jun-Jul 2000	A - Quarterly Gauging Data
		B - Summary of Analytical Data
		C - Data Validation Summary and Laboratory Reports
		D - Daily Groundwater and Product Recovery Totals
		E - Expanded Interim Monitoring Program Data
		F - UCA Potentiometric Surface Elevation Correction Procedures
		G - ADEC Notification Letters
		H - Monitoring Well Installation Report (E-215 to E-218A/B)
		I - Corrective Action Modification Assessment Report; Boardwalk Plume
		J - E-77 Supplemental Monitoring Report

QPR NO.	QUARTER	APPENDIX
		K - Wharf Lobe Supplemental Sampling Report
		L - Revised Permit Figure 4
		M - Revised Permit Attachment FF - Training Plan
QPR 20	Aug-Sep-Oct 2000	A - Quarterly Gauging Data
		B - Summary of Analytical Data
		C - Data Validation Summary and Laboratory Reports
		D - Daily Groundwater and Product Recovery Totals
		E - Expanded Interim Monitoring Program Data
		F - ADEC Notification Letters
QPR 21	Nov-Dec 2000-Jan 01	A - Quarterly Gauging Data
		B - Summary of Analytical Data
		C - Data Validation Summary and Laboratory Reports
		D - Daily Groundwater and Product Recovery Totals
		E - Expanded Interim Monitoring Program Data
		F - ADEC Compliance Reports
		G - Monitoring Well Installation Report (E-224 - E-227; R-50 - R-53; P-50 - P-53; TW-5A; I-6 - I-9; PI-6A - PI-9)
		H - Revised Permit Figure 4
Separate Submittal	Nov. 16, 2000	*B-Aquifer Interim Corrective Measures Plan* [EPA approval dated Jan. 30, 2001]
QPR 22	Feb-Mar-Apr 01	A - Quarterly Gauging Data
		B - Summary of Analytical Data
		C - Data Validation Summary and Laboratory Reports
		D - Daily Groundwater and Product Recovery Totals
		E - Expanded Interim Monitoring Program Data
		F - ADEC Notification Letters
		G - B-Aquifer Interim Corrective Measures Startup Report
		H - A-Aquifer Supplemental Corrective Measures Plan
		I - Revised Permit Tables and Figures
QPR 23	May-Jun-Jul 01	A - Data Validation and Lab Reports
		B - Well Installation Report (E-228, RR2AS to RR-6AS, RR-8AS to RR-17AS, RR-14SVE

QPR NO.	QUARTER	APPENDIX
		C - Well Decommissioning Report (E-E, E-13, E-113, E-124, DW-1, O-1, O-3, O-6, O-7)
		D - Revised Permit Documents
		E - B-Aquifer Corrective Measure and Monitoring Plan [EPA approval dated May 27, 2003]
		F - UCA Natural Attenuation Supplemental Sampling Report and Work Plan [EPA approval dated Feb. 18, 2003]
QPR 24	Aug-Sep-Oct 01	A - Data Validation and Lab Reports
		B - Revised Permit Documents
QPR 25	Nov-Dec 01-Jan 02	A - Data Validation and Lab Reports
		B - Well Installation Report
		C - E-228 Investigation Report
QPR 26	Feb-Mar-Apr 02	A - Data Validation and Lab Reports
		B - E-228 CAMP Investigation Status Report
		C - Startup Monitoring Report For Lower Tank Farm (LTF) Supplemental Corrective Measure (SCM)
QPR 27	May-Jun-Jul 02	A - Data Validation and Lab Reports
		B - Well Installation Report for Wells E-231 and E-232A/B and Borehole 02B-01
		C - E-228 Corrective Action Modification Plan (CAMP) Report
		D - Research of Sample E-38 (Collected on 9/12/01) for the Presence of 1,2-Dichloroethane (1,2-DCA)
QPR 28	Aug-Sep-Oct 02	A - Data Validation and Lab Reports
		B - Revised Permit Documents
		C - Research of Sample E-38 (Collected on 9/12/01) for the Presence of 1,2-Dichloroethane (1,2-DCA)
QPR 29	Nov-Dec 02-Jan 03	A - Data Validation and Lab Reports
		B - Assessment of Quarter 28 Analytical Data from Wells E-137B and E-161
QPR 30	Feb-Mar-Apr 03	A - Data Validation and Lab Reports
		B - Revised Permit Table 4
QPR 31	May-Jun-Jul 03	A - Data Validation and Lab Reports

QPR NO.	QUARTER	APPENDIX
QPR 32	Aug-Sep-Oct 03	A - Data Validation and Lab Reports B - Compilation of Historical Analytical Data for Selected Wells
QPR 33	Nov-Dec 03-Jan 04	A - Data Validation and Lab Reports B - Compilation of Historical Analytical Data for Selected Wells
QPR 34	Feb-Mar-Apr 04	A - Data Validation and Lab Reports B - Compilation of Historical Analytical Data for Selected Wells C - Response of Unconfined Aquifer to the Shut Down of the SI Corrective Measure D - Environmental Indicator Determination Information
QPR 35	May-Jun-Jul 04	A - Data Validation and Lab Reports B - Well E-112 Abandonment Report
QPR 36	Aug-Sep-Oct 04	A - Data Validation and Lab Reports
Separate Submittal	Aug. 4, 2004	*No-Purge Groundwater Sampling Evaluation and Plan* [EPA approval dated Feb. 14, 2005]
QPR 37	Nov-Dec 04-Jan 05	A - Data Validation and Lab Reports B - Historical Data for the Monitoring Wells Sampled this Quarter
QPR 38	Feb-Mar-Apr 05	A - Data Validation and Lab Reports B - Historical Data for the Monitoring Wells Sampled this Quarter C - Supplemental Corrective Measure Work Plan, SI Area Air Sparging System [EPA approval dated Aug. 11, 2005]
QPR 39	May-Jun-Jul 05	A - Data Validation and Lab Reports B - Historical Data for the Monitoring Wells Sampled this Quarter C - Well Installation Report (SMW31, -32, -33, and SAS-01 Through -25)
QPR 40	Aug-Sep-Oct 05	A - Data Validation and Lab Reports B - Historical Data for the Monitoring Wells Sampled this Quarter C - FFS for the SI Air Sparge Supplemental System
QPR 41	Nov-Dec 05-Jan 06	A - Data Validation and Lab Reports B - Historical Data for the Monitoring Wells Sampled this Quarter
QPR 42	Feb-Mar-Apr 06	A - Data Validation and Lab Reports B - Historical Data for the Monitoring Wells Sampled this Quarter

QPR NO.	QUARTER	APPENDIX
		C - Response of Unconfined Aquifer to the Shut Down of the SI Corrective Measure
		D - Revised Permit Table 4
		E - Well Abandonment Report (IWS-1, IWS-2, SMW-I-3)
QPR 43	May-Jun-Jul 06	A - Data Validation and Lab Reports
		B - Historical Data for the Monitoring Wells Sampled this Quarter
		C - Well Installation Report for PIRM Air Sparge Wells PAS-01 through PAS-15
QPR 44	Aug-Sep-Oct 06	A - Data Validation and Lab Reports
		B - Historical Data for the Monitoring Wells Sampled this Quarter
		C - Response of Unconfined Aquifer to the Shut Down of the PIRM Corrective Measure
QPR 45	Nov-Dec 06-Jan 07	A - Data Validation and Lab Reports
		B - Historical Data for the Monitoring Wells Sampled this Quarter
QPR 46	Feb-Mar-Apr 07	A - Data Validation and Lab Reports
		B - Historical Data for the Monitoring Wells Sampled this Quarter
		C - Corrected Permit figure 5
QPR 47	May-Jun-Jul-07	A - Data Validation and Lab Reports
		B - Historical Data for the Monitoring Wells Sampled this Quarter
		C - Well Installation Report for Injection Wells I-6A through I-9A
QPR 48	Aug-Sep-Oct-07	A - Data Validation and Lab Reports
		B - Historical Data for the Monitoring Wells Sampled this Quarter
		C - Monitored Natural Attenuation Implementation Plan, Wharf Lobe Corrective Measure [EPA approval dated Feb. 25, 2008]
		D - Revised Permit Table 5 and Permit Figure 12
QPR 49	Nov-Dec 07-Jan 08	A - Data Validation and Lab Reports
		B - Historical Data for the Monitoring Wells Sampled this Quarter
QPR 50	Feb-Mar-Apr 08	A - Data Validation and Lab Reports
		B - Historical Data for the Monitoring Wells Sampled this Quarter
		C - Revised Permit Table 4 and Permit Figure 6
QPR 51	May-Jun-Jul 08	A - Data Validation and Lab Reports

QPR NO.	QUARTER	APPENDIX
		B - Historical Data for the Monitoring Wells Sampled this Quarter
		C - PIRM Air Sparging Startup Report
		D - Well Installation Report – Recovery Wells R-50R, R-51R, and R-52R
QPR 52	Aug-Sep-Oct-08	A - Data Validation and Lab Reports
		B - Historical Data for the Monitoring Wells Sampled this Quarter
		C - Well Installation Report – Production Well TW-8
		D - Progress Report – B-Aquifer CAMP
Separate Submittal	Aug. 21, 2008	*Corrective Action Modification Plan for the B-Unconfined Aquifer*
		[EPA approval dated Aug. 28, 2008]
QPR 53	Nov-Dec 08-Jan 09	A - Data Validation and Lab Reports
		B - Historical Data for the Monitoring Wells Sampled this Quarter
		C - 2009 SI Corrective Action Modification and Monitored Natural Attenuation Validation Plan
		D - 2009 PIRM Air Sparge Transition Plan
		E - Class 1 Permit Modifications, Revised Table D-6
QPR 54	Feb-Mar-Apr 09	A - Data Validation and Lab Reports
		B - Historical Data for the Monitoring Wells Sampled this Quarter
		C - Corrective Action Modification Plan (CAMP) for UCA Well E-198
		D - Revised Permit tables 5 and D-6
QPR 55	May-Jun-Jul 09	A - Data Validation and Lab Reports
		B - Historical Data for the Monitoring Wells Sampled this Quarter
		C - 2009 SI Corrective Action Modification and Monitored Natural Attenuation Validation Plan (Revised 7/29/09)
		[EPA approval dated Aug. 6, 2009]
		D - Beach Seep Sample Location Map
QPR 56	Aug-Sep-Oct 09	A - Data Validation and Lab Reports
		B - Historical Data for the Monitoring Wells Sampled this Quarter
		C - Well Installation Report: Monitoring Wells E-234A&B, E-235A&B, & E-236 and Air Sparge Wells HAS-01 through HAS-17
Separate submittal	Feb 4, 2010	*2009 PIRM Air Sparge Media Transfer Evaluation Report*
QPR 57	Nov-Dec 09-Jan 10	A - Data Validation and Lab Reports

QPR NO.	QUARTER	APPENDIX
		B - Historical Data for the Monitoring Wells Sampled this Quarter C - *2009 PIRM Air Sparge Media Transfer Evaluation Report* (previously submitted Feb. 4, 2010)
Separate submittal	May 7, 2010	*2009 PIRM SVE System and Air Sparge System Expansion Work Plan* [EPA comments dated May 27, 2010]
QPR 58	Feb-Mar-Apr 10	A - Data Validation and Lab Reports B - Historical Data for the Monitoring Wells Sampled this Quarter C - *SI 2010 TCE Corrective Action Modification Plan (CAMP)* [EPA comments and conditional approval, dated August 25, 2010] (Plan revised & re-submitted in QPR 60)
-		D - *PM 2010 Highway AS/SVE Interim Measures Plan (IMP)* E - *PIRM 2010 AS/SVE Pilot Test Plan* [EPA comments and conditional approval, dated August 9, 2010] F - *Wharf 2010 Standby Plan*
QPR 59	May-Jun-Jul 10	A - Data Validation and Lab Reports B - Historical Data for the Monitoring Wells Sampled this Quarter C - *SI Well Installation Report* – Monitoring Wells SMW-34 and SMW-35 D - *PM/PIRM Well Installation Report* – Monitoring Wells E-237 and E-238; Soil Vapor Extraction Wells HSVE-1 through HSVE-6 and PSVE-6; Soil Vapor Monitoring Points (HMVP-1 through HMVP-3); and Air Sparge Wells PAS-16 through PAS-2 E - *Revised PIRM 2010 SVE Pilot Test and Air Sparge System Expansion Work Plan*, (red-lined version submitted on August 13, 2010) [EPA approval dated August 23, 2010] F - Revised Table 5B (Quarterly Progress Report 54) and Table 5C (Quarterly Progress Report 58)
Separate submittal	August 13, 2010	*Revised PIRM 2010 SVE Pilot Test and Air Sparge System Expansion Work Plan (redline version) and Response to EPA Comments dated August 9, 2010* [EPA approval dated August 23, 2010]
QPR 60	Aug-Sep-Oct 10	A - Data Validation and Lab Reports B - Historical Data for the Monitoring Wells Sampled this Quarter

QPR NO.	QUARTER	APPENDIX
		C - *REVISED SI 2010 Potassium Permanganate In-Situ Chemical Oxidation (ISCO) Pilot Test,* (originally submitted in QPR 58) [EPA comments and conditional approval, dated August 25, 2010]
QPR 61	Nov-Dec 10-Jan 11	A - Data Validation and Lab Reports B - Historical Data for the Monitoring Wells Sampled this Quarter C - *SI 2010 TCE Potassium Permanganate In-situ Chemical Oxidation (ISCO) Report* D - *PM 2011 Highway AS/SVE System Installation and Operation Work Plan*
Separate submittal	May 27, 2011	*Soil Vapor Extraction System Startup Report, PIRM Area*, dated May 25, 2011.
QPR 62	Feb-Mar-Apr 11	A - Data Validation and Lab Reports B - Historical Data for the Monitoring Wells Sampled this Quarter C - *Soil Vapor Extraction System Startup Report, PIRM Area* dated May 25, 2011 (submitted previously on May 27, 2011). [EPA comments dated October 21, 2011]
Separate submittal	July 26, 2011	*Final PM 2011 Highway Area ASSVE System Installation and Operation Work Plan – Phase 1*, dated July 25, 2011.
QPR 63	May-Jun-Jul 11	A - Data Validation and Lab Reports B - Historical Data for the Monitoring Wells Sampled this Quarter C - *Final PM 2011 Highway Area ASSVE System Installation and Operation Work Plan – Phase 1* dated July 25, 2011 (previously submitted on July 26, 2011) [EPA approval dated July 28, 2011]
QPR 64	Aug-Sep-Oct 11	A - Data Validation and Lab Reports B - Historical Data for the Monitoring Wells Sampled this Quarter C - *Well Abandonment Report, SI Monitoring Well SMW-13*
QPR 65	Nov-Dec 11-Jan 12	A - Data Validation and Lab Reports B - Historical Data for the Monitoring Wells Sampled this Quarter C - *Final PM 2011 Highway Area AS/SVE System Installation and Operation Work Plan – Phase 1 (submitted February 6, 2012)*
Separate submittal	February 6, 2012	*Final PM 2011 Highway Area AS/SVE System Installation and Operation Work Plan – Phase 1*
Separate submittal	May 16, 2012	*PM Highway Area AS/SVE System Phase 1 Startup Report*

QPR NO.	QUARTER	APPENDIX
QPR 66	Feb-Mar-Apr 2012	A - Data Validation and Lab Reports B - Historical Data for the Monitoring Wells Sampled this Quarter C - *PM Highway Area AS/SVE System Phase 1 Startup Report*
QPR 67	May-Jun-Jul 2012	A - Data Validation and Lab Reports B - Historical Data for the Monitoring Wells Sampled this Quarter C - B-Aquifer Potentiometric Surface Elevation Maps, June 5 and June 28, 2012 D - Revised Permit Figures 2, 3, and 4
Separate submittal	October 9, 2012	*Memorandum: PIRM Area Deep Benzene Plume (DBP) Update,* (electronically submitted to EPA on October 16, 2012). [EPA comments and conditional approval, dated November 6, 2012]
QPR 68	Aug-Sept-Oct 2012	A - Data Validation and Lab Reports B - Historical Data for the Monitoring Wells Sampled this Quarter C - *2012 SI TCE Corrective Action Modification Plan (CAMP)* D - PIRM SVE Capture Evaluation Data
QPR 69	Nov-Dec 12-Jan 13	A - Data Validation and Lab Reports B - Historical Data for the Monitoring Wells Sampled this Quarter C - *Well Installation Report: E-239, E-240, E-242, E-243, PAS-21 through PAS-32, PAS-21R, PSVE-7, PVMP-1*
QPR 70	Feb-Mar-Apr 2013	A - Data Validation and Lab Reports B - Historical Data for the Monitoring Wells Sampled this Quarter C - *Well Installation Report: Production Well TW-2B* D - Revised Permit Table 4
Separate submittal	May 14, 2013	Letter to EPA with proposed deep benzene plume (DBP) interim measures [EPA approval and additional comments, dated August 14, 2013]
QPR 71	May-Jun-Jul 2013	A - Data Validation and Lab Reports B - Historical Data for the Monitoring Wells Sampled this Quarter C - *Well Installation Report: E-244, E-245A/B, PAS-34, PSVE-8* D - *2013 Deep Benzene Plume (DBP) Response Report*
QPR 72	Aug-Sept-Oct 2013	A - Data Validation and Lab Reports B - Historical Data for the Monitoring Wells Sampled this Quarter

QPR NO.	QUARTER	APPENDIX
Separate submittal	September 12, 2013	*Response to EPA Comments Dated August 14, 2013, Tesoro PIRM Deep Benzene Plume*
QPR 73	Nov-Dec 13-Jan 14	A - Data Validation and Lab Reports B - Historical Data for the Monitoring Wells Sampled this Quarter C - *Well Installation Report: Highway System Wells: E-246A/B, HAS-18 through HAS-21, HSVE-8, HVMP-10 and HVMP-11* D - *PM Swamp Corrective Action Modification Plan (CAMP)*
QPR 74	Feb-Mar-Apr 2014	A - Data Validation and Lab Reports B - Historical Data for the Monitoring Wells Sampled this Quarter C - *Well Installation and Abandonment Report: Highway System Wells: Monitoring Wells E-077RR, E-247A/B, and E-248A/B, Air Sparge Wells HAS-23 and HAS-24, and Abandoned Well E-077R*
Separate submittal	April 21, 2014	*PM Swamp CAMP Update* [EPA approval and additional comments, dated June 5, 2014]
Class 2 Permit Mod Request	May 28, 2014	*Request for Class 2 Permit Modification* for allowing A-aquifer groundwater to be treated in the Calgon granulated activated carbon (GAC) unit [EPA approval, dated September 16, 2014]
Class 1 Permit Modification	July 24, 2014	*Class 1 Permit Modification* for change in company name to Tesoro Alaska Company, LLC
Separate submittal	August 8, 2014	*PM Swamp CAMP Update*
QPR 75	May-Jun-Jul 2014	A - Data Validation and Lab Reports B - Historical Data for the Monitoring Wells Sampled this Quarter C - *PM Swamp CAMP Report*
Separate submittal	August 11, 2014	*August PM Swamp CAMP Memo* to EPA
QPR 76	Aug-Sept-Oct 2014	A - Data Validation and Lab Reports B - Historical Data for the Monitoring Wells Sampled this Quarter C - *E-219 CAMP, Restarting the Lower Tank Farm (LTF) Air Sparge and Soil Vapor Extraction (AS/SVE) System*
QPR 77	Nov-Dec 14-Jan 15	A - Data Validation and Lab Reports B - Historical Data for the Monitoring Wells Sampled this Quarter

QPR NO.	QUARTER	APPENDIX
		C - SI Potentiometric Contour Maps
		D - Revised Permit Table 4
		E - *Well Installation Report – Monitoring Wells MW-93A/B, Recovery Wells R-54 and R-55*
		F - *2015 B-Aquifer Corrective Action Modification Plan (CAMP)*
QPR 78	Feb-Mar-Apr 2015	A - Data Validation and Lab Reports
		B - Historical Data for the Monitoring Wells Sampled this Quarter
		C - *SI Potentiometric Surface Contour Map, April 2015*
		D - Revised Permit Table 4
QPR 79	May-Jun-Jul 2015	A - Data Validation and Lab Reports
		B - Historical Data for the Monitoring Wells Sampled this Quarter
		C - SI Potentiometric Surface Contour Map
QPR 80	Aug-Sept-Oct 2015	A - Data Validation and Lab Reports
		B - Historical Data for the Monitoring Wells Sampled this Quarter
Separate submittal	November 5, 2015	*R-21 Replacement Well Screen Depth*
		[EPA approval e-mail dated November 5, 2015]
Separate submittal	January 13, 2016	*Recovery Well R-21R and R-56 Installation Work Plan*
Separate submittal	January 22, 2016	*Work Plan for Well Installation: E-249 to E-254, TPZ-1 to TPZ-4, and Replacement for E-064*
QPR 16-1 (81)	Nov-Dec 15, Jan 16	A - Data Validation and Lab Reports
		B - Historical Data for the Monitoring Wells Sampled this Quarter
		C - SI Area Data Review and Plan for Remedy Enhancement
		D - Modeling Feasibility Study of B-aquifer Plume Capture Alternatives
QPR 16-2	Feb-Mar-Apr 2016	A - Data Validation and Lab Reports
		B - Historical Data for the Monitoring Wells Sampled this Quarter
		C - *SI Potentiometric Surface Contour Map, March 2016*
		D - Decommissioning Report
		E - R-21R Aquifer Testing Work Plan

QPR NO.	QUARTER	APPENDIX
QPR 16-3	May-Jun-Jul 2016	A - Data Validation and Lab Reports
		B - Historical Analytical Data
		C - Well Installation Report
		D - R-21R Aquifer Testing Report
Separate Submittal	September 29, 2016	*RCRA Post-Closure Permit 10-year Renewal Application*
Separate Submittal	October 5, 2016	*Proposal for SVE System Shut-Down*
QPR 16-4	Aug-Sep-Oct 2016	A - Data Validation and Lab Reports
		B - Historical Data for the Monitoring Wells Sampled this Quarter
		C - Air Optimization Test Results for SI Area
		D - Maps and Hydrographs for Injection Trench Area
QPR 17-1	Nov-Dec '16, Jan '17	A - Data Validation and Lab Reports
		B - Historical Data for the Monitoring Wells Sampled this Quarter
		C - Well Installation Information
QPR 17-2	Feb-Mar-Apr 2017	A - Data Validation and Lab Reports
		B - Historical Data for the Monitoring Wells Sampled this Quarter
		C - LTF CAMP
QPR 17-3	May-June-July 2017	A - Data Validation and Lab Reports
		B - Historical Data for the Monitoring Wells Sampled this Quarter
Separate Submittal	September 7, 2017	SI Area Pilot Study Work Plan Approval
		[EPA/ADEC approval e-mail dated September 7, 2017]
Separate Submittal	October 31, 2017	Treated Groundwater Injection Plan
		[ADEC approval e-mail dated October 31, 2017]
QPR 17-4	Aug-Sept-Oct 2017	A - Data Validation and Lab Reports
		B - Historical Data for the Monitoring Wells Sampled this Quarter
		C - Installation Report
		D - Decommissioning Report
		E - 2017 B-Aquifer CAMP
QPR 18-1	Nov-Dec 17, Jan 18	A - Data Validation and Lab Reports

QPR NO.	QUARTER	APPENDIX
QPR 18-2	Feb-Apr 2018	A - Data Validation and Lab Reports
		B - Historical Data for the Monitoring Wells Sampled this Quarter
QPR 18-3	May-July 2018	A - Data Validation and Lab Reports
		B - SI Area Remedy Enhancement Pilot Study Interim Report
		C - R-51RR Well Replacement Installation Report
QPR 18-4	May-July 2018	A - Data Validation and Lab Reports
		B - Historical Data for the Monitoring Wells Sampled this Quarter
		C - SI Area Remedy Enhancement Pilot Study Interim Report
Separate Submittal	Feb 7, 2019	Cook Inlet Bluff Sheet Pile Wall Inspection, Maintenance and Pending Repair or Replacement
QPR 19-1	May-July 2018	A - Data Validation and Lab Reports
		B - Southern Plume Review
Separate Submittal	March 26, 2019	Sheet Pile Wall Beach Sheet Notification Letter
Separate Submittal	April 15, 2019	Table 2B Revision for Quarterly Report 18-2
Separate Submittal	May 7, 2019	Sheet Pile Wall Beach Sheen 60-Day Report
QPR 19-2	Feb-Apr 2019	A - Data Validation and Lab Reports
		B - SI Area Remedy Enhancement Pilot Study Interim Report
		C - Time Plots
		D - SI Interim Report
		E - LTF Report
QPR 19-3	May-July 2019	A - Data Validation and Lab Reports

5.0 INDEX OF CAMPS

CAMP	Summary	Status
1999 Boardwalk Plume Lobe CAMP	Modify the corrective measures system to more effectively meet the performance standards for the boardwalk plume.	Closed
2000 B-Aquifer Interim Corrective Measures Plan	Installation of groundwater pumping and injection systems.	Closed
2001 B-Aquifer Corrective Measure and Monitoring Plan	Describes required water level monitoring, water quality monitoring, and treatment monitoring.	Included in Permit
2002 E-228 CAMP	Evaluation if E-228 was within capture zone, including source area evaluation, natural attenuation evaluation, and groundwater flow and capture zone evaluation.	Updated in 2013 and Subsequently Closed
2009 CAMP for UCA Well E-198	Evaluation of elevated benzene concentrations in E-198, including pressurization test and supplemental sampling.	Updated in 2013 and Subsequently Closed
2009 SI CAMP	Air sparge combined with natural attenuation as the corrective measure for the SI plume.	Included in Permit
2012 SI TCE CAMP	System maintenance and additional sampling of downgradient wells to evaluate the effectiveness of the actions.	Active
2013 B-Aquifer CAMP	Address dissolved-phase contamination that occurs in the B-aquifer and lower portion of the merged UCA.	Updated in 2015
2013 E-228 CAMP	Evaluation if E-228 was within capture zone, including source area evaluation, natural attenuation evaluation, and groundwater flow and capture zone evaluation.	Closed
2013 E-198 CAMP	Evaluation of elevated benzene concentrations in E-198, including pressurization test and supplemental sampling.	Closed

CAMP	Summary	Status
2014 PM Swamp CAMP	Additional surface water sampling, groundwater sampling, sediment sampling, and gauging.	Updated in 2014
2014 E-219 CAMP	Lower Tank Farm AS/SVE restart.	Updated in 2017
2014 PM Area Swamp CAMP Update	Expansion of air sparge system, installation of monitoring wells, additional groundwater, and surface water sampling, and additional gauging.	Active
2015 B-Aquifer CAMP	New recovery wells, well redevelopment, pipeline modifications, additional gauging and capture evaluation, and additional sampling.	Updated in 2017
2017 LFT CAMP	Lower Tank Farm AS/SVE restart and monitoring	Closed
2017 B-Aquifer CAMP	New recovery wells, monitoring wells, pumping rates and monitoring.	Active

TABLES

TABLE 1. WATER LEVEL DATA – POTENTIOMETRIC SURFACE ELEVATIONS

PLACEHOLDER

TABLE 1. NOT REQUIRED IN WINTER AND SUMMER QUARTERS

TABLE 2. ANALYTICAL RESULTS - INDICATOR PARAMETERS
QUARTER 19-3

Well ID	Date Sampled	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Xylenes, Total (µg/L)	Trichloro-ethene (µg/L)	Vinyl Chloride (µg/L)
E-010	01/15/19	**3310**	82.8	**114**	**1140**	ND (1)	ND (0.15)
E-072RR	06/12/19	**1900**	858	315	**879**	ND (1)	ND (0.15)
E-097	06/12/19	**200**	ND (1)	ND (1)	ND (3)	ND (1)	ND (0.15)
E-127	06/10/19	ND (0.4)	ND (1)	ND (1)	ND (3)	ND (1)	ND (0.15)
E-162	06/12/19	**35.4**	ND (1)	ND (1)	10.3	ND (1)	ND (0.15)
E-217A	06/11/19	1.06	ND (1)	ND (1)	ND (3)	ND (1)	ND (0.15)
E-227	06/12/19	**1570**	4.75	**335**	**807**	ND (1)	ND (0.15)
E-244	06/12/19	**273**	ND (1)	ND (1)	ND (3)	ND (1)	ND (0.15)
E-247A	06/12/19	**25**	ND (1)	ND (1)	ND (3)	ND (1)	ND (0.15)
E-248A	06/11/19	**15.5**	ND (1)	ND (1)	ND (3)	ND (1)	ND (0.15)
E-251A	06/11/19	ND (0.4)	ND (1)	ND (1)	ND (3)	ND (1)	ND (0.15)
E-251B	06/11/19	ND (0.4)	ND (1)	ND (1)	ND (3)	ND (1)	ND (0.15)
E-254	06/11/19	**28.1**	ND (1)	ND (1)	ND (3)	ND (1)	ND (0.15)
MW-92	06/11/19	**5.55**	ND (1)	ND (1)	ND (3)	ND (1)	ND (0.15)
IWS-06	06/25/19	1.24	ND (1)	ND (1)	ND (3)	17.7	ND (0.15)
SMW-06	12/04/18	ND (0.4)	ND (1)	ND (1)	ND (3)	1.03	ND (0.15)
SMW-09	06/24/19	0.519	ND (1)	ND (1)	ND (3)	ND (1)	**0.389**
SMW-21A	06/24/19	ND (0.4)	ND (1)	ND (1)	ND (3)	**2.38**	ND (0.15)
SMW-29	06/24/19	0.85	ND (1)	ND (1)	ND (3)	2.6	ND (0.15)
SMW-31	06/24/19	3.52	ND (1)	ND (1)	ND (3)	**26.3**	**0.736**
SMW-35	06/25/19	3.77	ND (1)	ND (1)	ND (3)	ND (1)	**2.68**
SMW-I-1	06/24/19	4.01	1.28	ND (1)	ND (3)	**34.1**	ND (0.15)
	TGPS	**4.6**	**1,100**	**15**	**190**	**2.8**	**0.19**

BOLD Results exceed TGPS

TGPS Target Groundwater Protection Standards, from Permit table 2

ND Analyte was not present in a concentration above detection level

J-/+ Estimated concentration low/high

-- Not analyzed

The method detection limit (MDL) was used as the reporting limit.

TABLE 3A. SI AIR SPARGE SYSTEM PERFORMANCE DATA
QUARTER 19-3

	SAS-1		SAS-2		SAS-3		SAS-4	
Week ending:	CFM	PSI	CFM	PSI	CFM	PSI	CFM	PSI
5/3/2019	9	1	5	7	8	8	10	5
5/10/2019	10	2	5	6	8	8	10	7
5/24/2019	10	2	5	6	7	8	10	7
5/31/2019	10	1	5	6	8	8	12	5
6/7/2019	7	1.5	5	6	8	7	3	3.5
6/14/2019	7	1	3	6	8	7	12	3
6/21/2019	7	1	5	6	8	7	12	7
6/28/2019	7	1	4	7	5	5	12	7
7/5/2019	7	2	2	7	7	7	11	7
7/12/2019	7	2	5	2	8	8	11	7
7/19/2019	7	2	5	7	6	8	11	7
7/26/2019	2	2	5	7	7	7	7	5
8/2/2019	8	2	5	7	7	7	7	4

	SAS-5		SAS-6		SAS-7		SAS-8	
Week ending:	CFM	PSI	CFM	PSI	CFM	PSI	CFM	PSI
5/3/2019	10	10	11	7	7	7	9	8
5/10/2019	10	10	12	8	5	10	8	8
5/24/2019	10	10	12	7	5	10	8	8
5/31/2019	6	10	13	9	5	7	8	8
6/7/2019	6	10	11	7	3	6.5	8	8
6/14/2019	6	10	12	7	5	6	8	8
6/21/2019	6	10	12	7	5	3	8	7
6/28/2019	6	10	7	7	5	3	8	8
7/5/2019	6	10	7	7	5	3	8	7
7/12/2019	7	10	11	8	5	4	8	8
7/19/2019	7	10	8	8	5	4	8	8
7/26/2019	7	10	11	7	5	7	8	8
8/2/2019	7	10	8	7	2	6	9	8

	SAS-9		SAS-10		SAS-11		SAS-12	
Week ending:	CFM	PSI	CFM	PSI	CFM	PSI	CFM	PSI
5/3/2019	5	12	0	0	11	10	11	10
5/10/2019	5	12	0	0	5	11	11	10
5/24/2019	5	12	0	0	5	11	11	10
5/31/2019	5	8	0	0	3	10	7	12
6/7/2019	6	11	0	0	3	10	10	9
6/14/2019	6	11	0	0	2	9	11	10
6/21/2019	6	11	0	0	2	9	11	10
6/28/2019	5	8	0	0	2	9	5	7
7/5/2019	2	8	0	0	2	9	6	8
7/12/2019	6	11	0	0	5	9	8	10
7/19/2019	6	9	0	0	1	10	7	9
7/26/2019	6	10	0	0	1	10	9	10
8/2/2019	6	9	0	0	2	9	7	8

TABLE 3A. SI AIR SPARGE SYSTEM PERFORMANCE DATA
QUARTER 19-3

	SAS-13		SAS-14		SAS-15		SAS-16	
Week ending:	CFM	PSI	CFM	PSI	CFM	PSI	CFM	PSI
5/3/2019	13	6	16	7	7	6	12	8
5/10/2019	14	6	13	8	6	6	12	9
5/24/2019	14	7	12	7	7	7	13	10
5/31/2019	13	6	9	7	5	7	11	9
6/7/2019	8	6	9	7	8	4	7	7.5
6/14/2019	13	6	8	7	7	4	11	7
6/21/2019	13	6	8	7	7	4	11	7
6/28/2019	13	6	8	8	5	1	11	7
7/5/2019	13	6	7	7	2	1	11	7
7/12/2019	13	7	9	8	8	4	12	7
7/19/2019	13	7	8	8	7	3	12	7
7/26/2019	10	6	8	8	9	4	9	8
8/2/2019	9	6	9	8	7	3	8	8

	SAS-17		SAS-18		SAS-19		SAS-20	
Week ending:	CFM	PSI	CFM	PSI	CFM	PSI	CFM	PSI
5/3/2019	10	7	10	9	10	10	8	7
5/10/2019	9	7	10	9	10	9	6	8
5/24/2019	10	7	10	10	10	9	6	8
5/31/2019	7	6	9	10	10	10	5	6
6/7/2019	7	6	10	8	7	9	5	6
6/14/2019	9	6	10	7	10	9	6	6
6/21/2019	9	5	11	7	10	9	6	5
6/28/2019	8	7	6	7	10	9	6	6
7/5/2019	7	5	7	7	10	9	4	5
7/12/2019	7	6	10	8	10	9	5	6
7/19/2019	8	7	8	8	10	9	6	6
7/26/2019	7	7	10	8	7	9	6	6
8/2/2019	9	6	8	8	7	7	7	5

	SAS-21		SAS-22		TOTAL CFM		Minimum
Week ending:	CFM	PSI	CFM	PSI	Odds	Evens	Total
5/3/2019	10	7	2	5	100	94	35
5/10/2019	10	8	7	7	92	94	35
5/24/2019	10	7	7	7	93	94	35
5/31/2019	11	9	7	5	83	86	35
6/7/2019	10	6	5	6	73	73	35
6/14/2019	11	6	7	6	84	88	35
6/21/2019	11	6	7	6	84	91	35
6/28/2019	6	6	7	6	72	74	35
7/5/2019	6	6	7	7	67	70	35
7/12/2019	10	7	7	7	86	86	35
7/19/2019	7	7	7	7	77	80	35
7/26/2019	10	7	2	3	71	75	35
8/2/2019	7	7	3	3	71	71	35

Notes:
cfm - cubic feet per minute
psi - pounds per square inch
Minimum total rate per permit Table D-6

TABLE 3B. PRM AIR SPARGE SYSTEM PERFORMANCE DATA
QUARTER 19-3

	PAS-7		PAS-8		PAS-9		PAS-10	
Week ending:	CFM	PSI	CFM	PSI	CFM	PSI	CFM	PSI
5/3/2019	1.3	10	0.9	14	0	15	0.3	5
5/10/2019	1	10	0.6	14	0.1	14	0.4	4
5/24/2019	1	11	0.6	14	0	14	0.3	2
5/31/2019	1	13	0.6	15	0	15	0.4	5
6/7/2019	0.7	13	0.4	13	0	15	0.4	5
6/14/2019	0.7	13	0.4	13	0	15	0.4	5
6/21/2019	0.4	14	0.3	15	0	>15	0.3	7
6/28/2019	0.4	14	0.4	15	0	>15	0.2	7
7/5/2019	10	10	0.1	13	0	>15	0.2	5
7/12/2019	0.6	13	0.4	14	0	12	0.2	6
7/19/2019	0.6	13	0.4	14	0	13	0.2	6
7/26/2019	0.6	13	0.4	14	0	13	0.2	6
8/2/2019	0.7	12	0.5	12	0	>15	0.3	7

	PAS-11		PAS-12		PAS-13		PAS-16	
Week ending:	CFM	PSI	CFM	PSI	CFM	PSI	CFM	PSI
5/3/2019	0.7	13	0.7	9	0.5	5	0.5	14
5/10/2019	0.6	13	0.7	8	0.6	4	0.6	14
5/24/2019	0.6	14	0.7	7	0.6	4	0.6	13
5/31/2019	0.6	14	0.6	8	0.5	5	0.3	14
6/7/2019	0.5	15	0.3	7	0.2	4	0.1	10
6/14/2019	0.5	15	0.3	7	0.2	4	0.1	10
6/21/2019	0.1	>15	0.5	9	0.5	5	0.1	14
6/28/2019	0.1	>15	0.5	9	0.5	5	0.2	14
7/5/2019	5	13	3	7	3	3	5	13
7/12/2019	0.7	12	0.4	11	0.4	5	0.5	14
7/19/2019	0.7	12	0.4	11	0.4	5	0.5	14
7/26/2019	0.6	12	0.4	11	0.3	5	0.5	14
8/2/2019	0.8	10	0.5	11	0.5	6	0.5	14

	PAS-17		PAS-18		PAS-19		PAS-21	
Week ending:	CFM	PSI	CFM	PSI	CFM	PSI	CFM	PSI
5/3/2019	0.2	15	0.7	11	0	15	0.1	15
5/10/2019	0.4	15	0.8	10.5	0.2	15	0.2	15
5/24/2019	0.2	15	0.7	10	0.2	15	0	15
5/31/2019	0.2	15	0.6	11	0.1	15	0.2	15
6/7/2019	0.1	11	0.1	9	0	15	0.3	15
6/14/2019	0.1	11	0.1	9	0	15	0.3	15
6/21/2019	0.1	15	0.5	12	0	>15	0	>15
6/28/2019	0.1	15	0.4	12	0	>15	0	>15
7/5/2019	2	14	8	9	1	>15	0.2	>15
7/12/2019	0.1	>15	0.5	11	0.3	>15	0.3	>15
7/19/2019	0.1	>15	0.4	10	0.3	>15	0.3	>15
7/26/2019	0.1	>15	0.4	10	0.3	>15	0.3	>15
8/2/2019	0.2	>15	0.6	12	0.4	>15	0.1	>15

TABLE 3B. PRM AIR SPARGE SYSTEM PERFORMANCE DATA
QUARTER 19-3

	PAS-22		PAS-23		PAS-24		PAS-25	
Week ending:	CFM	PSI	CFM	PSI	CFM	PSI	CFM	PSI
5/3/2019	0.5	6	0.3	0	0	15	0	15
5/10/2019	0.6	6	0.3	1	0.2	15	0.1	15
5/24/2019	0.5	4	0.3	2	0	14	0	15
5/31/2019	0.5	5	0.4	1	0	15	0	15
6/7/2019	0.2	6	0.2	1	0	15	0	15
6/14/2019	0.2	6	0.2	1	0	15	0	15
6/21/2019	0.5	7	0.4	0	0	>15	0	>15
6/28/2019	0.4	7	0.4	0	0	>15	0	>15
7/5/2019	4	4	3	0	0	>15	0	>15
7/12/2019	0.5	4	0.4	1	0	>15	0	>15
7/19/2019	0.5	4	0.4	1	0	>15	0	>15
7/26/2019	0.5	4	0.4	1	0	>15	0	>15
8/2/2019	0.5	6	0.4	0	0	>15	0	>15

	PAS-26		PAS-27		PAS-28		PAS-29	
Week ending:	CFM	PSI	CFM	PSI	CFM	PSI	CFM	PSI
5/3/2019	0.2	15	0.3	15	0	15	0	15
5/10/2019	0.3	15	0.5	15	0	15	0.1	15
5/24/2019	0.1	15	0.2	15	0	15	0	15
5/31/2019	0.3	15	0.5	15	0	15	0	15
6/7/2019	0.3	15	0.4	15	0	15	0	15
6/14/2019	0.3	15	0.4	15	0	15	0	15
6/21/2019	0.3	>15	0.3	>15	0	>15	0	>15
6/28/2019	0.3	>15	0.2	>15	0	>15	0	>15
7/5/2019	0.2	>15	0.2	>15	0	>15	0	>15
7/12/2019	0.3	>15	0.2	>15	0	>15	0	>15
7/19/2019	0.3	>15	0.2	>15	0	>15	0	>15
7/26/2019	0.2	>15	0.2	>15	0	>15	0	>15
8/2/2019	0.3	>15	0.3	>15	0	>15	0	>15

	PAS-30		PAS-31		PAS-32		PAS-33		Total
Week ending:	CFM	PSI	CFM	PSI	CFM	PSI	CFM	PSI	CFM
5/3/2019	0	16	0.2	15	0	17	0.4	0	7.8
5/10/2019	0.1	15	0.4	15	0.1	15	0.4	1	9.3
5/24/2019	0.1	16	0.4	15	0	16	0.4	0	7.5
5/31/2019	0.1	14	0.3	15	0	17	0.4	0	7.6
6/7/2019	0	15	0	15	0	0	0	0	4.2
6/14/2019	0	15	0	15	0	15	0.3	0	4.5
6/21/2019	0	16	0.1	>15	0	17	0.4	0	4.8
6/28/2019	0	16	0.1	17	0	16	0.3	0	4.5
7/5/2019	1	15	1	>15	0	15	3	0	49.9
7/12/2019	0.1	15	0.5	>15	0	16	0.3	0	6.7
7/19/2019	0.1	15	0.5	>15	0	16	0.3	0	6.6
7/26/2019	0	15	0.1	>15	0.5	16	0	0	6
8/2/2019	0	16	0.4	>15	0	16	0.4	0	7.4

Notes:
cfm - cubic feet per minute
psi - pounds per square inch
PAS-34 was off during Quarter 19-1

TABLE 3C. HIGHWAY AIR SPARGE SYSTEM PERFORMANCE DATA
QUARTER 19-3

	HAS-01		HAS-02		HAS-03		HAS-04	
Week ending:	CFM	PSI	CFM	PSI	CFM	PSI	CFM	PSI
5/3/2019	0	0	0	0	3	18	6	20
5/10/2019	0	0	0	0	4	17	5	20
5/24/2019	0	0	0	0	4	19	5	20
5/31/2019	0	0	0	0	2	21	1	21
6/7/2019	0	0	0	0	4	17	6	20
6/14/2019	0	0	0	0	1	21	6	21
6/21/2019	0	0	0	0	4	21	6	22
6/28/2019	0	0	0	0	5	20	6	22
7/5/2019	0	0	0	0	0	16	1	21
7/12/2019	0	0	0	0	5	16	8	23
7/19/2019	0	0	0	0	6	16	8	21
7/26/2019	0	0	0	0	6	17	8	21
8/2/2019	0	0	0	0	6	17	6	21

	HAS-05		HAS-06		HAS-07		HAS-08	
Week ending:	CFM	PSI	CFM	PSI	CFM	PSI	CFM	PSI
5/3/2019	2	18	0	21	1	22	4	20
5/10/2019	2	19	0	19	1	24	4	19
5/24/2019	2	19	0	19	1	24	4	19
5/31/2019	1	18	0	21	0	25	0	21
6/7/2019	1	21	0	21	0	24	3	20
6/14/2019	1	22	0	21	1	26	1	21
6/21/2019	1	21	0	21	1	26	2	21
6/28/2019	1	20	0	20	1	25	2	21
7/5/2019	0	19	0	20	0	24	0	19
7/12/2019	2	21	0	22	1	24	2	21
7/19/2019	2	20	0	21	1	24	3	20
7/26/2019	3	20	0	21	1	23	4	19
8/2/2019	4	20	0	20	1	23	3	19

	HAS-09		HAS-10		HAS-11		HAS-12	
Week ending:	CFM	PSI	CFM	PSI	CFM	PSI	CFM	PSI
5/3/2019	6	20	6	18	0.5	21	1	22
5/10/2019	6	22	5	17	1	22	3	21
5/24/2019	7	20	5	17	0	20	3	20
5/31/2019	5	24	0	18	0	24	0	22
6/7/2019	6	22	5	17	0	23	2	22
6/14/2019	5	24	7	20	1	24	2	22
6/21/2019	5	21	5	20	0	24	0	23
6/28/2019	5	20	5	20	0	24	0	22
7/5/2019	2	17	0	18	8	19	0	22
7/12/2019	4	18	4	20	4	20	2	23
7/19/2019	5	18	5	19	4	20	3	23
7/26/2019	5	17	5	19	4	20	3	23
8/2/2019	5	19	5	20	4	20	2	22

TABLE 3C. HIGHWAY AIR SPARGE SYSTEM PERFORMANCE DATA
QUARTER 19-3

	HAS-13		HAS-14		HAS-15		HAS-16	
Week ending:	CFM	PSI	CFM	PSI	CFM	PSI	CFM	PSI
5/3/2019	6	16	6	20	6	19	6	20
5/10/2019	8	17	7	21	7	19	5	18
5/24/2019	5	19	7	20	3	19	5	17
5/31/2019	7	21	0	21	8	22	0	20
6/7/2019	7	17	5	23	6	20	7	20
6/14/2019	7	21	6	22	8	22	7	21
6/21/2019	5	19	6	22	4	20.5	3	21
6/28/2019	5	20	6	22	4	20	3	20
7/5/2019	0	15	0	21	0	18	0	20
7/12/2019	5	16	6	23	4	18	3	21
7/19/2019	4	17	8	22	4	17	2	23
7/26/2019	4	17	9	20	4	17	3	22
8/2/2019	5	17	6	23	4	17	1	23

	HAS-17		HAS-18		HAS-19		HAS-20	
Week ending:	CFM	PSI	CFM	PSI	CFM	PSI	CFM	PSI
5/3/2019	6	16	6	15	5.5	16	5	18
5/10/2019	6	15	6	14	5	16	4	16
5/24/2019	5	17	6	14	5	16	4	17
5/31/2019	6	20	0	15	5	18	0	20
6/7/2019	6	15	9	15	4	17	4	18
6/14/2019	6	19	8	16	5	19	5	19
6/21/2019	4.5	17	6.5	15	5	18	5	20
6/28/2019	4	16	6	15	4	18	5	20
7/5/2019	1	16	0	14	0	15	0	19
7/12/2019	5	16	5	15	9	15	4	23
7/19/2019	5	16	6	15	9	16	4	18
7/26/2019	5	16	6	15	10	16	4	18
8/2/2019	5	16	8	22	10	17	7	20

	HAS-21		HAS-22		HAS-23		HAS-24		Total
Week ending:	CFM	PSI	CFM	PSI	CFM	PSI	CFM	PSI	CFM
5/3/2019	6	17	4	20	6	10	4	16	96
5/10/2019	6	18	5	18	3	13	3	14	96
5/24/2019	6	19	5	18	3	16	3	14	88
5/31/2019	7	21	0	21	3	15	0	20	45
6/7/2019	6	17	2	20	4	13	3	17	90
6/14/2019	7	21	2	21	3	16	3	18	92
6/21/2019	5	19.5	1	21	5.5	15	6	21	80.5
6/28/2019	5	20	1	20	5	16	5	20	78
7/5/2019	0	14	0	20	0	7	0	20	12
7/12/2019	10	16	2	23	10	9	5	22	100
7/19/2019	9	16	2	20	10	9	5	18	105
7/26/2019	9	17	2	20	10	9	5	18	110
8/2/2019	9	17	2	20	10	10	7	17	110

Notes:
cfm - cubic feet per minute
psi - pounds per square inch

TABLE 4. RECOVERY WELL PUMPING RATE
QUARTER 19-3

A-AQUIFER

Week ending:	R-21R GPM	R-40 GPM	R-41 GPM	COMBINED TOTAL GPM	MIN GPM	
5/3/2019	33	0	44	77	60	
5/10/2019	31	0	39	70	60	
5/24/2019	35	0	38	73	60	
5/31/2019	28	0	35	63	60	
6/7/2019	30	0	14	44	60	*
6/14/2019	33	0	15	48	60	*
6/21/2019	34	0	16	50	60	*
6/28/2019	35	0	17	52	60	*
7/5/2019	31	0	33	64	60	
7/12/2019	27	0	36	63	60	
7/19/2019	27	0	36	63	60	
7/26/2016	30	0	21	51	60	*
8/2/2019	30	0	26	56	60	*

B-AQUIFER

Week ending:	R-50 GPM	R-51 GPM	R-52 GPM	R-54 GPM	R-55 GPM	R-56 GPM	COMBINED TOTAL GPM	MIN GPM
5/3/2019	0	0	13	25	21	34	93	60
5/10/2019	0	0	12	26	22	35	95	60
5/24/2019	0	0	13	20	21	34	88	60
5/31/2019	0	0	13	26	12	33	84	60
6/7/2019	0	0	14	25	21	33	93	60
6/14/2019	0	0	16	30	23	35	104	60
6/21/2019	0	0	16	31	22	36	105	60
6/28/2019	0	0	17	30	21	36	104	60
7/5/2019	0	0	0	25	20	36	81	60
7/12/2019	0	0	16	24	20	37	97	60
7/19/2019	0	0	17	23	20	39	99	60
7/26/2016	0	0	17	27	18	41	103	60
8/2/2019	0	0	19	23	39	32	113	60

*A-Aquifer total below 60 gallons per minute, well R-40 expected to be restarted in August 2019

TABLE 4. RECOVERY WELL PUMPING RATE
QUARTER 19-3

CALGON

Week ending:	GPM	GPD	MAX GPD
5/3/2019	160	230400	1000000
5/10/2019	159	228960	1000000
5/24/2019	157	226080	1000000
5/31/2019	158	227520	1000000
6/7/2019	158	227520	1000000
6/14/2019	160	230400	1000000
6/21/2019	157	226080	1000000
6/28/2019	160	230400	1000000
7/5/2019	151	217440	1000000
7/12/2019	151	217440	1000000
7/19/2019	157	226080	1000000
7/26/2016	154	221760	1000000
8/2/2019	167	240480	1000000

Note:

gpm- gallons per minute

TABLE 5. GROUNDWATER INJECTION RATE
QUARTER 19-3

B-INJECTION

Week ending:	I-6	I-7	I-8	I-9	COMBINED TOTAL	MIN
	GPM	GPM	GPM	GPM	GPM	GPM
11/2/2018	20	20	21	26	87	30
11/9/2018	22	18	20	26	86	30
11/16/2018	22	18	20	24	84	30
11/23/2018	23	19	20	26	88	30
11/30/2018	0	0	0	0	0*	30
12/7/2018	0	0	0	0	0*	30
12/14/2018	21	25	21	23	90	30
12/21/2018	24	25	21	23	93	30
12/28/2018	16	21	20	27	84	30
1/4/2019	15	20	22	26	83	30
1/11/2019	20	21	22	25	88	30
1/18/2019	21	18	23	26	88	30
1/25/2019	21	22	21	25	89	30

A-INJECTION

Week ending:	IR-29	IR-30	IR-31	IR-32	COMBINED TOTAL	MIN
	GPM	GPM	GPM	GPM	GPM	GPM
11/2/2018	65	51	50	45	211	60
11/9/2018	0	56.5	57	50	163.5	60
11/16/2018	0	54	51	47	152	60
11/23/2018	0	52	50	45	147	60
11/30/2018	0	46	44	39	129	60
12/7/2018	0	51.8	49.3	44.6	145.7	60
12/14/2018	0	54.3	51.7	46.1	152.1	60
12/21/2018	0	54	51	44	149	60
12/28/2018	0	41	39	35	115	60
1/4/2019	0	51.3	48.7	44.3	144.3	60
1/11/2019	0	53	50	46	149	60
1/18/2019	0	53	50	45	148	60
1/25/2019	0	54	50	44	148	60

* System off due to earthquake (11/30 thorugh 12/13)

gpm- gallons per minute

Note: I-1, I-2, and I-5 were not running during this reporting period

TABLE 6. HIGHWAY SOIL VAPOR EXTRAVTION SYSTEM PERFORMANCE DATA
QUARTER 19-3

	SVE-1	SVE-2	SVE-3	SVE-4	SVE-5	SVE-6	SVE-7	SVE-8
Week ending:	CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM
5/3/2019	0	12	24	32	28	26	20	16
5/10/2019	2	5	25	31	30	26	20	16
5/24/2019	0	14	22	28	26	20	20	16
5/31/2019	0	6	24	32	30	26	17	22
6/7/2019	0	8	22	30	28	24	18	12
6/14/2019	0	12	22	32	28	24	20	14
6/21/2019	0	10	24	32	28	24	20	14
6/28/2019	0	10	24	30	30	24	20	16
7/5/2019	0	10	24	30	30	24	20	14
7/12/2019	0	12	22	32	28	24	20	14
7/19/2019	0	14	24	32	30	24	20	7
7/26/2019	0	14	22	32	28	24	20	14
8/2/2019	0	14	24	32	22	24	20	16

Note:
cfm - cubic feet per minute

TABLE 7. UCA INDUSTRIAL PUMPING
QUARTER 19-3

	WELL T2B		WELL T1		WELL T7	
Date	Total GAL	GPD	Total GAL	GPD	GAL	GPD
5/6/2019	67503881	524,812	12207	13	104853	111
5/13/2019	70940079	490,885	12207	0	105478	89
6/4/2019	82320380	517,286	12336	6	107930	111
6/10/2019	53529	2,955,525	12457	20	108620	115
6/21/2019	3681757	329,839	12457	0	109686	97
6/24/2019	7209042	1,175,762	12457	0	110450	255
7/1/2019	10913587	529,221	12455	0	111381	133
7/8/2019	14164652	464,438	12456	0	112594	173
7/15/2019	17534723	481,439	12727	39	113583	141
7/22/2019	21066524	504,543	12727	0	114503	131
7/29/2019	22376866	187,192	12727	0	115219	102

Notes:
gal- gallons
gpd- gallons per day

FIGURES

N

0 2,000'

SOURCE: USGS 7.5' QUAD SHEET
KENAI (C-4) NW, AK
PROVISIONAL EDITION 1986

Trihydro CORPORATION

1252 Commerce Drive
Laramie, WY 82070
www.trihydro.com
(P) 307/745.7474 (F) 307/745.7729

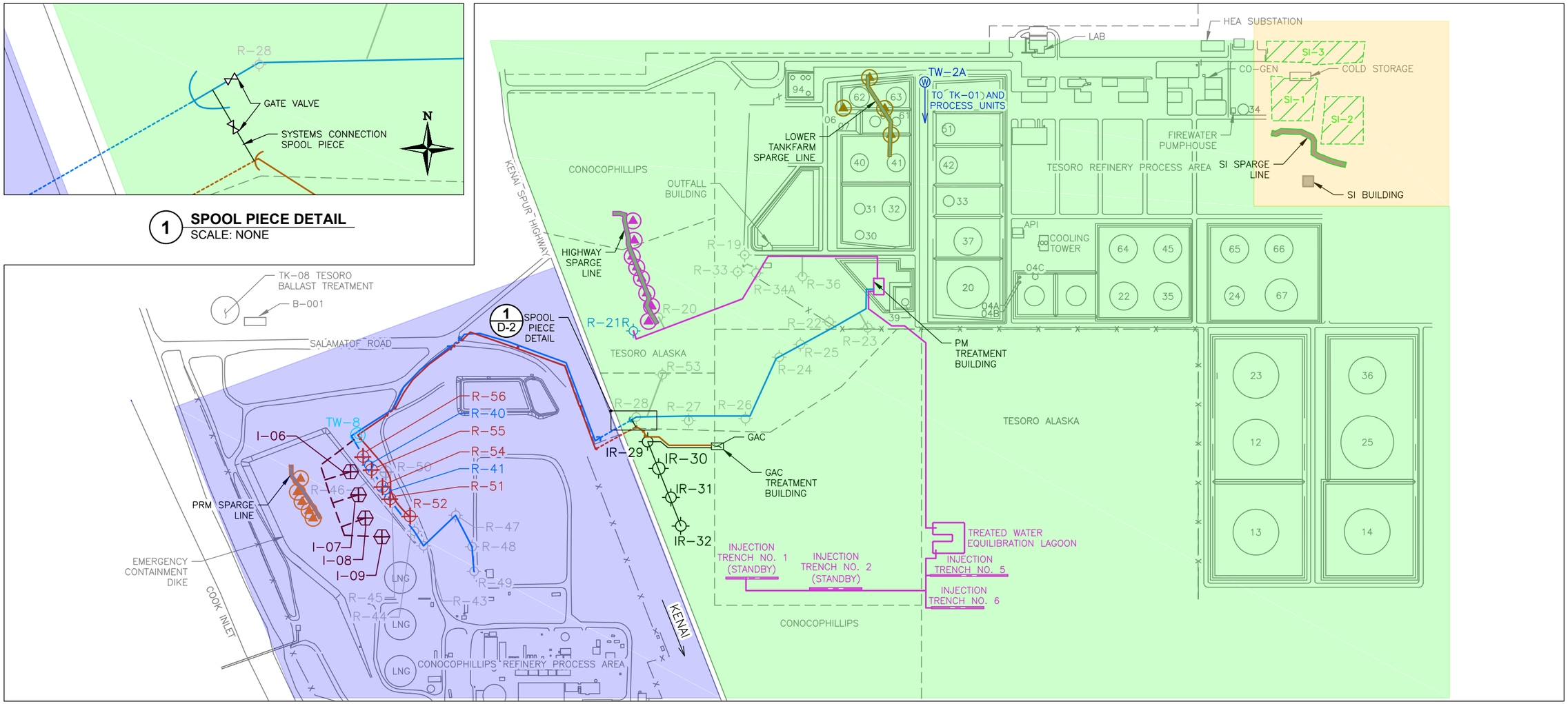
FIGURE 1

SITE LOCATION MAP

QUARTERLY PROGRESS REPORT
TESORO KENAI REFINERY
KENAI, ALASKA

Drawn By: DH	Checked By: SP	Scale: 1" = 2,000'	Date: 11/21/16	File: Fig1_Kenai_Site_Location.mxd

1 SPOOL PIECE DETAIL
SCALE: NONE



Source Drawing From: Kent & Sullivan Inc., Circa 2007

EXPLANATION

- PRM VAPOR EXTRACTION WELL
- HIGHWAY VAPOR EXTRACTION WELL
- LOWER TANKFARM VAPOR EXTRACTION WELL
- TW-8 — PRODUCTION WELL AND DESIGNATION FOR PRM AND B-AQUIFER INJECTION SYSTEM
- R-41 — PRM RECOVERY WELL AND DESIGNATION
- R-52 — B-AQUIFER RECOVERY WELL AND DESIGNATION
- I-09 — B-AQUIFER INJECTION WELL AND DESIGNATION
- R-41 — PRM RECOVERY WELL AND DESIGNATION
- IR-32 — INJECTION WELL AND DESIGNATION
- R-50 — OFFLINE B-AQUIFER RECOVERY WELL AND DESIGNATION
- PRM AIR SPARGE LINE
- HIGHWAY AIR SPARGE LINE
- LOWER TANKFARM AIR SPARGE LINE
- SI AIR SPARGE LINE
- PRM RECOVERY WELL PIPELINE (DASHED WHERE SEGMENTS ARE UNDERGROUND)
- PM RECOVERY WELL PIPELINE
- B-AQUIFER RECOVERY WELL PIPELINE (DASHED WHERE SEGMENTS ARE UNDERGROUND)
- B-AQUIFER INJECTION WELL PIPELINE
- GAC TREATMENT PIPELINE
- PM INJECTION TRENCH
- SI CLOSED SURFACE IMPOUNDMENT
- PRM AREA
- PM AREA
- SI AREA

AS	AIR SPARGE	PRM	PHILLIPS REMEDIAL MEASURE
GAC	GRANULAR ACTIVATED CARBON	PM	PHILLIPS MARATHON
HEA	HOMER ELECTRIC ASSOCIATION	SI	SURFACE IMPOUNDMENT
LNG	LIQUID NATURAL GAS	VE	VAPOR EXTRACTION
NO.	NUMBER		

N

0 500'

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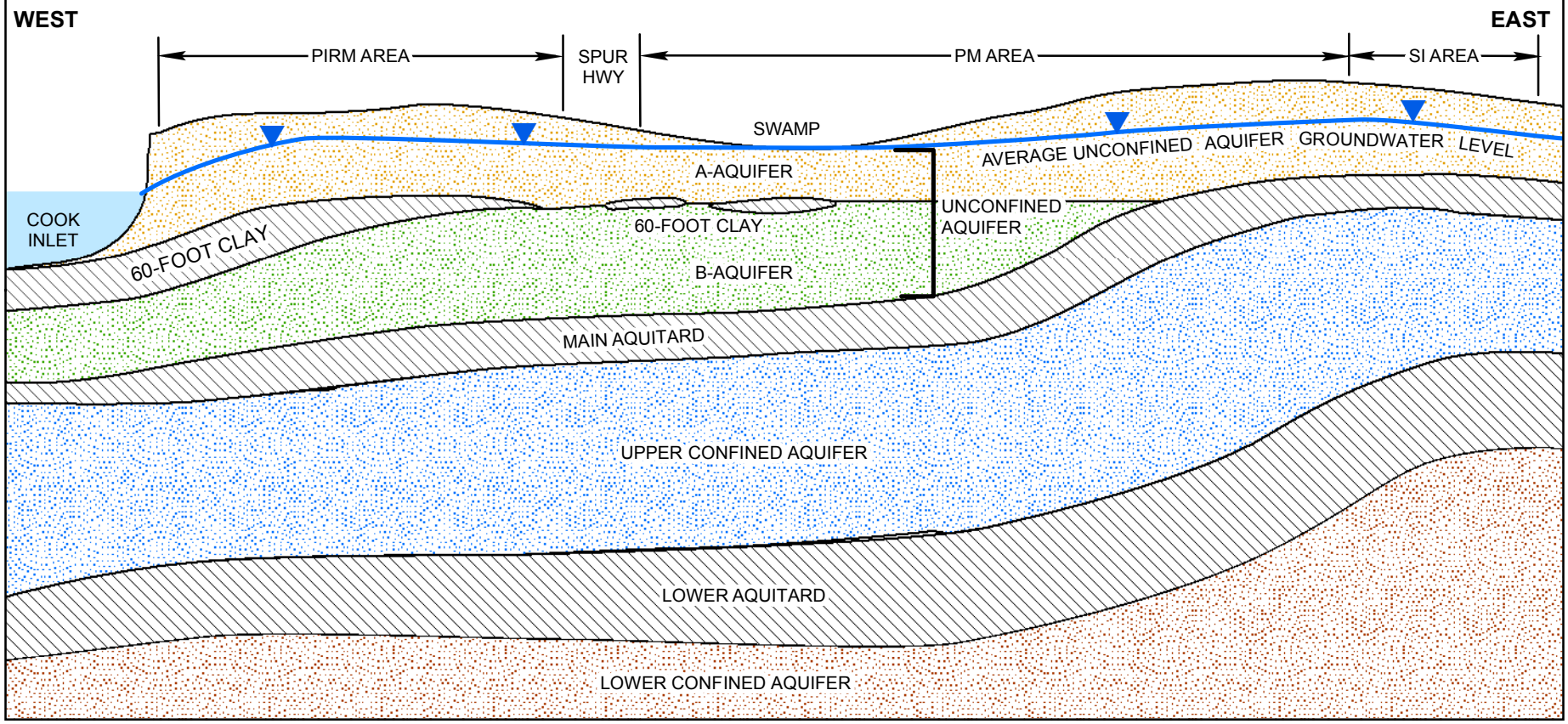
FIGURE 2

AREA DESIGNATIONS AND CORRECTIVE MEASURES SYSTEM

KENAI TESORO REFINERY
KENAI, ALASKA

Drawn By: JLP	Checked By: SP	Scale: NONE	Date: 2/16/2018	File: 39B-KR_CORRECTIVEMEASURESYS_201802

M:\STOV\TESORO\CADD\KENAIREFINERY\RESOURCECONSERVATIONANDRECOVERYACT_PERMIT\PERMIT\AS-SUBMITTED_201707\TESORO_KENAI_PERMIT\39B-KR_CORRECTIVEMEASURESYS_201802



NOTE:

NOT TO SCALE

Trihydro CORPORATION
1252 Commerce Drive
Laramie, WY 82070
www.trihydro.com
(P) 307/745.7474 (F) 307/745.7729

FIGURE 3

DIAGRAMMATIC CROSS SECTION ILLUSTRATING AQUIFER IDENTIFICATION

TESORO KENAI REFINERY
KENAI, ALASKA

Drawn By: DH	Checked By: SP	Scale: Not to Scale	Date: 2/16/18	File: Fig3_XSecAquifers.mxd

M:\STOV\TESORO\GIS\PROJECTS\TESORO KENAI\MAPPING\QUARTERLY\REPORTS\2018\02_Q18-1\FIG3_XSECAQUIFERS.MXD

APPENDIX A

DATA VALIDATIONS AND LABORATORY REPORTS

A1. DATA VALIDATIONS

A2. LABORATORY REPORTS

APPENDIX A1

DATA VALIDATIONS

QUALITY CONTROL SUMMARY

Trihydro completed a quality assurance/quality control (QA/QC) review of the analytical results. Results of the QA/QC review for data are summarized below and are presented in the ADEC Laboratory Data Review Checklist. The sample results are reported under SGS project number 1193051. On June 20 through 12, 2019, 14 water samples, with the addition of one trip blank, two blind duplicates and MS/MSD samples were submitted in one batch to the laboratory. The samples were received at SGS in good condition, preserved and at a temperature of 4.8 °C. The samples were analyzed per Trihydro request, data and usability not effected.

Sample results were reviewed to determine overall precision of sampling and analysis as well as matrix homogeneity for BTEX. All relative percent differenced (RPD) from laboratory control sample/duplicate (LCS/LCSD) were within range; data quality/usability were not affected. The following summary highlights the data evaluation findings for this sampling event:

- No data are rejected.
- The completeness objectives (greater than 85 percent complete) for this project are met with 100% completeness.
- The precision and accuracy of the laboratory data, as measured by laboratory quality control indicators, demonstrate that the data are useable as qualified for the purposes of this project.
- The precision measurements for result comparisons between primary and duplicate field samples are acceptable for the purpose of this project and are marked with applicable qualifiers.

Laboratory Data Review Checklist

Completed By:

Stephanie Plate

Title:

Environmental Engineer

Date:

8/20/2019

CS Report Name:

QTR 19-3

Report Date:

6/19/2019

Consultant Firm:

Trihydro Corporation

Laboratory Name:

SGS North America

Laboratory Report Number:

1193051

ADEC File Number:

Hazard Identification Number:

1193051

1. Laboratory

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

   ☒ Yes ☐ No Comments:

   SGS North America,

   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 Comments:

2. Chain of Custody (CoC)

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

   ☒ Yes ☐ No Comments:

   The COC's were signed and dated as relinquished by the field personnel and as received by the laboratory.

   b. Correct Analyses requested?

   ☒ Yes ☐ No Comments:

3. Laboratory Sample Receipt Documentation

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

   ☒ Yes ☐ No Comments:

   Cooler temperature documented at 4.8°C.

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

   ☒ Yes ☐ No Comments:

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

   ☒ Yes ☐ No Comments:

   Samples arrived intact and in good condition.

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 Comments:

e. Data quality or usability affected?

Comments:

No effect on data quality or usability.

4. Case Narrative

a. Present and understandable?

☒ Yes ☐ No Comments:

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

☒ Yes ☐ No Comments:

c. Were all corrective actions documented?

☒ Yes ☐ No Comments:

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

Comments:

None

5. Samples Results

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

☒ Yes ☐ No Comments:

b. All applicable holding times met?

☒ Yes ☐ No Comments:

c. All soils reported on a dry weight basis?

(●) Yes ( ) No Comments:

NA; no soil samples submitted

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

(●) Yes ( ) No Comments:

e. Data quality or usability affected?

( ) Yes (●) No Comments:

Data quality or usability not affected

6. QC Samples

a. Method Blank

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

(●) Yes ( ) No Comments:

ii. All method blank results less than limit of quantitation (LOQ)?

(●) Yes ( ) No Comments:

iii. If above LOQ, what samples are affected?

Comments:

No method blank results above PQL, therefore no samples affected.

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

(●) Yes ( ) No Comments:

v. Data quality or usability affected?

Comments:

No data quality or usability effects observed for associated samples.

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 Comments:

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

(●) Yes ( ) No Comments:

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

(●) Yes ( ) No Comments:

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

(●) Yes ( ) No Comments:

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

Comments:

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

( ) Yes (●) No Comments:

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

Comments:

No, Quality and usability evaluated by project team.

c. Surrogates – Organics Only

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

◉ Yes ○ No Comments:

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

◉ Yes ○ No Comments:

% recoveries meets QC criteria

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

◉ Yes ○ No Comments:

NA

iv. Data quality or usability affected?

Comments:

Data quality/usability were not affected.

d. Trip blank – Volatile analyses only (GRO, BTEX, Volatile Chlorinated Solvents, etc.): Water and Soil

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

◉ Yes ○ No 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 Comments:

iii. All results less than LOQ?

◉ Yes ○ No Comments:

iv. If above LOQ, what samples are affected?

Comments:

v. Data quality or usability affected?

Comments:

Data quality/usability were not affected.

e. Field Duplicate

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

(•) Yes ( ) No Comments:

ii. Submitted blind to lab?

(•) Yes ( ) No Comments:

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

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

Where R_1 = Sample Concentration
R_2 = Field Duplicate Concentration

(•) Yes ( ) No Comments:

NA

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

Comments:

No data quality or usability effects observed

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

(•) Yes ( ) No ( ) Not Applicable

New and clean dedicated equipment was used for each sample location.

i. All results less than LOQ?

(•) Yes ( ) No Comments:

ii. If above LOQ, what samples are affected?

Comments:

NA

iii. Data quality or usability affected?

Comments:

No data quality or usability effects observed

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

a. Defined and appropriate?

(•) Yes ( ) No Comments:

There were no additional data quality or usability effects observed.

QUALITY CONTROL SUMMARY

Trihydro completed a quality assurance/quality control (QA/QC) review of the analytical results. Results of the QA/QC review for data are summarized below and are presented in the ADEC Laboratory Data Review Checklist. The sample results are reported under SGS project number 1193351. On June 24 and 25, 2019, 17 water samples, with the addition of two duplicates, one trip blanks, and one equipment blank sample, were submitted as two batches to the laboratory. The samples were received at SGS in good condition, preserved and at temperature of 3.9 °C and 2.6 °C.

Sample results were reviewed to determine overall precision of sampling and analysis as well as matrix homogeneity for BTEX. All relative percent differenced (RPD) from laboratory control sample/duplicate (LCS/LCSD) were within range. All duplicated sample RPDs were well below the recommended percentage (30% water). The following summary highlights the data evaluation findings for this sampling event:

- No data are rejected.
- The completeness objectives (greater than 85 percent complete) for this project are met with 100% completeness.
- The precision and accuracy of the laboratory data, as measured by laboratory quality control indicators, demonstrate that the data are useable as qualified for the purposes of this project.
- The precision measurements for result comparisons between primary and duplicate field samples are acceptable for the purpose of this project and are marked with applicable qualifiers.

Laboratory Data Review Checklist

Completed By:

Stephanie Plate

Title:

Environmental Engineer

Date:

8/20/2019

CS Report Name:

QTR 19-3

Report Date:

7/30/2019

Consultant Firm:

Trihydro Corporation

Laboratory Name:

SGS North America

Laboratory Report Number:

1193351

ADEC File Number:

Hazard Identification Number:

1193351

1. Laboratory

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

   ☒ Yes ☐ No Comments:

   SGS North America

   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 Comments:

2. Chain of Custody (CoC)

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

   ☒ Yes ☐ No Comments:

   The COC's were signed and dated as relinquished by the field personnel and as received by the laboratory.

   b. Correct Analyses requested?

   ☒ Yes ☐ No Comments:

3. Laboratory Sample Receipt Documentation

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

   ☒ Yes ☐ No Comments:

   Cooler temperatures documented at 2.6 and 3.9°C.

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

   ☒ Yes ☐ No Comments:

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

   ☒ Yes ☐ No Comments:

   Samples arrived intact and in good condition.

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 Comments:

No Discrepancies.

e. Data quality or usability affected?

Comments:

No effect on data quality or usability.

4. Case Narrative

a. Present and understandable?

(•) Yes ( ) No Comments:

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

(•) Yes ( ) No Comments:

c. Were all corrective actions documented?

(•) Yes ( ) No Comments:

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

Comments:

The laboratory case narrative identifies any QA/QC deficiencies. Data quality/usability were determined by the Project Team and samples were not affected.

5. Samples Results

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

(•) Yes ( ) No Comments:

b. All applicable holding times met?

(•) Yes ( ) No Comments:

c. All soils reported on a dry weight basis?

(●) Yes ( ) No Comments:

NA; no soil samples submitted

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

(●) Yes ( ) No Comments:

e. Data quality or usability affected?

( ) Yes (●) No Comments:

Data quality or usability not affected

6. QC Samples

a. Method Blank

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

(●) Yes ( ) No Comments:

ii. All method blank results less than limit of quantitation (LOQ)?

(●) Yes ( ) No Comments:

iii. If above LOQ, what samples are affected?

Comments:

No method blank results above PQL, therefore no samples affected.

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

(●) Yes ( ) No Comments:

v. Data quality or usability affected?

Comments:

No data quality or usability effects observed for associated samples.

1193351

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 Comments:

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

(•) Yes ( ) No Comments:

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

(•) Yes ( ) No Comments:

% recoveries meet QC criteria

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

(•) Yes ( ) No Comments:

RPD meets QC criteria

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

Comments:

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

(•) Yes ( ) No Comments:

NA

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

Comments:

Data quality/usability were not affected.

c. Surrogates – Organics Only

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

◉ Yes ○ No Comments:

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

◉ Yes ○ No Comments:

% recoveries meets QC criteria

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

◉ Yes ○ No Comments:

iv. Data quality or usability affected?

Comments:

Data quality/usability were not affected.

d. Trip blank – Volatile analyses only (GRO, BTEX, Volatile Chlorinated Solvents, etc.): Water and Soil

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

◉ Yes ○ No 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 Comments:

iii. All results less than LOQ?

◉ Yes ○ No Comments:

iv. If above LOQ, what samples are affected?

Comments:

v. Data quality or usability affected?

Comments:

Data quality/usability were not affected.

e. Field Duplicate

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

◉ Yes ○ No Comments:

ii. Submitted blind to lab?

◉ Yes ○ No Comments:

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

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

Where R_1 = Sample Concentration
R_2 = Field Duplicate Concentration

◉ Yes ○ No Comments:

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

Comments:

No data quality or usability effects observed

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

◉ Yes ○ No ○ Not Applicable

New and clean dedicated equipment was used for each sample location. Equipment Blank results non-detect.

1193351

i. All results less than LOQ?

◉ Yes ○ No Comments:

ii. If above LOQ, what samples are affected?

Comments:

NA

iii. Data quality or usability affected?

Comments:

No data quality or usability effects observed

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

a. Defined and appropriate?

◉ Yes ○ No Comments:

There were no additional data quality or usability effects observed.

APPENDIX A2

(PLEASE SEE ATTACHED USB)

LABORATORY REPORTS

Laboratory Report of Analysis

To: Tesoro Alaska Petroleum-Kenai
312 Tyee St
Soldotna, AK 99669
(907)306-3334

Report Number: **1193051**

Client Project: **19-3 39B-004-001**

Dear Stephanie Plate,

Enclosed are the results of the analytical services performed under the referenced project for the received samples and associated QC as applicable. The samples are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards. Copies of this report and supporting data will be retained in our files for a period of ten years in the event they are required for future reference. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. Any samples submitted to our laboratory will be retained for a maximum of fourteen (14) days from the date of this report unless other archiving requirements were included in the quote.

If there are any questions about the report or services performed during this project, please call Chuck at (907) 562-2343. We will be happy to answer any questions or concerns which you may have.

Thank you for using SGS North America Inc. for your analytical services. We look forward to working with you again on any additional analytical needs.

Sincerely,
SGS North America Inc.

_____

Chuck Homestead Date
Project Manager
Charles.Homestead@sgs.com

SGS North America Inc. 200 West Potter Drive, Anchorage, AK 99518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

Case Narrative

SGS Client: **Tesoro Alaska Petroleum-Kenai**
SGS Project: **1193051**
Project Name/Site: **19-3 39B-004-001**
Project Contact: **Stephanie Plate**

Refer to sample receipt form for information on sample condition.

*QC comments may be associated with the field samples found in this report. When applicable, comments will be applied to associated field samples.

Print Date: 06/18/2019 4:06:36PM

Laboratory Qualifiers

Enclosed are the analytical results associated with the above work order. The results apply to the samples as received. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. This document is issued by the Company under its General Conditions of Service accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx>. Attention is drawn to the limitation of liability, indenmification and jurisdiction issues defined therein.

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the context or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS maintains a formal Quality Assurance/Quality Control (QA/QC) program. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request. The laboratory certification numbers are AK00971 (DW Chemistry & Microbiology) & 17-021 (CS) for ADEC and 2944.01 for DOD ELAP/ISO17025 (RCRA methods: 1020B, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035A, 6020A, 7470A, 7471B, 8015C, 8021B, 8082A, 8260C, 8270D, 8270D-SIM, 9040C, 9045D, 9056A, 9060A, AK101 and AK102/103). Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS QAP and, when applicable, other regulatory authorities.

The following descriptors or qualifiers may be found in your report:

*	The analyte has exceeded allowable regulatory or control limits.
!	Surrogate out of control limits.
B	Indicates the analyte is found in a blank associated with the sample.
CCV/CVA/CVB	Continuing Calibration Verification
CCCV/CVC/CVCA/CVCB	Closing Continuing Calibration Verification
CL	Control Limit
DF	Analytical Dilution Factor
DL	Detection Limit (i.e., maximum method detection limit)
E	The analyte result is above the calibrated range.
GT	Greater Than
IB	Instrument Blank
ICV	Initial Calibration Verification
J	The quantitation is an estimation.
LCS(D)	Laboratory Control Spike (Duplicate)
LLQC/LLIQC	Low Level Quantitation Check
LOD	Limit of Detection (i.e., 1/2 of the LOQ)
LOQ	Limit of Quantitation (i.e., reporting or practical quantitation limit)
LT	Less Than
MB	Method Blank
MS(D)	Matrix Spike (Duplicate)
ND	Indicates the analyte is not detected.
RPD	Relative Percent Difference
U	Indicates the analyte was analyzed for but not detected.

Note: Sample summaries which include a result for "Total Solids" have already been adjusted for moisture content. All DRO/RRO analyses are integrated per SOP.

SGS North America Inc. 200 West Potter Drive, Anchorage, AK 99518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
DUP-2	1193051001	06/12/2019	06/13/2019	Water (Surface, Eff., Ground)
DUP-3	1193051002	06/11/2019	06/13/2019	Water (Surface, Eff., Ground)
E-072RR	1193051003	06/12/2019	06/13/2019	Water (Surface, Eff., Ground)
E-097	1193051004	06/12/2019	06/13/2019	Water (Surface, Eff., Ground)
E-127	1193051005	06/10/2019	06/13/2019	Water (Surface, Eff., Ground)
E-162	1193051006	06/12/2019	06/13/2019	Water (Surface, Eff., Ground)
E-217A	1193051007	06/11/2019	06/13/2019	Water (Surface, Eff., Ground)
E-227	1193051008	06/12/2019	06/13/2019	Water (Surface, Eff., Ground)
E-244	1193051009	06/12/2019	06/13/2019	Water (Surface, Eff., Ground)
E-247A	1193051010	06/12/2019	06/13/2019	Water (Surface, Eff., Ground)
E-248A	1193051011	06/11/2019	06/13/2019	Water (Surface, Eff., Ground)
E-251A	1193051012	06/11/2019	06/13/2019	Water (Surface, Eff., Ground)
E-251B	1193051013	06/11/2019	06/13/2019	Water (Surface, Eff., Ground)
E-251B MS	1193051014	06/11/2019	06/13/2019	Water (Surface, Eff., Ground)
E-251B MSD	1193051015	06/11/2019	06/13/2019	Water (Surface, Eff., Ground)
E-254	1193051016	06/11/2019	06/13/2019	Water (Surface, Eff., Ground)
MW-92	1193051017	06/11/2019	06/13/2019	Water (Surface, Eff., Ground)
Trip Blank	1193051018	06/10/2019	06/13/2019	Water (Surface, Eff., Ground)

Method	Method Description
SW8260C	Volatile Organic Compounds (W)

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Detectable Results Summary

Client Sample ID: **DUP-2**
Lab Sample ID: 1193051001
Volatile GC/MS

Parameter	Result	Units
Benzene	1850	ug/L
Ethylbenzene	328	ug/L
o-Xylene	300	ug/L
P & M -Xylene	600	ug/L
Toluene	873	ug/L
Xylenes (total)	900	ug/L

Client Sample ID: **DUP-3**
Lab Sample ID: 1193051002
Volatile GC/MS

Parameter	Result	Units
Benzene	29.5	ug/L

Client Sample ID: **E-072RR**
Lab Sample ID: 1193051003
Volatile GC/MS

Parameter	Result	Units
Benzene	1900	ug/L
Ethylbenzene	315	ug/L
Naphthalene	2.15	ug/L
o-Xylene	294	ug/L
P & M -Xylene	584	ug/L
Toluene	858	ug/L
Xylenes (total)	879	ug/L

Client Sample ID: **E-097**
Lab Sample ID: 1193051004
Volatile GC/MS

Parameter	Result	Units
Benzene	200	ug/L

Client Sample ID: **E-162**
Lab Sample ID: 1193051006
Volatile GC/MS

Parameter	Result	Units
Benzene	35.4	ug/L
P & M -Xylene	10.3	ug/L
Xylenes (total)	10.3	ug/L

Client Sample ID: **E-217A**
Lab Sample ID: 1193051007
Volatile GC/MS

Parameter	Result	Units
Benzene	1.06	ug/L

Client Sample ID: **E-227**
Lab Sample ID: 1193051008
Volatile GC/MS

Parameter	Result	Units
Benzene	1570	ug/L
Ethylbenzene	335	ug/L
Naphthalene	53.1	ug/L
o-Xylene	19.8	ug/L
P & M -Xylene	767	ug/L
Toluene	4.75	ug/L
Xylenes (total)	807	ug/L

Client Sample ID: **E-244**
Lab Sample ID: 1193051009
Volatile GC/MS

Parameter	Result	Units
Benzene	273	ug/L

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Detectable Results Summary

Client Sample ID: **E-247A**
Lab Sample ID: 1193051010
Volatile GC/MS

Parameter	Result	Units
Benzene	25.0	ug/L

Client Sample ID: **E-248A**
Lab Sample ID: 1193051011
Volatile GC/MS

Parameter	Result	Units
Benzene	15.5	ug/L

Client Sample ID: **E-254**
Lab Sample ID: 1193051016
Volatile GC/MS

Parameter	Result	Units
Benzene	28.1	ug/L

Client Sample ID: **MW-92**
Lab Sample ID: 1193051017
Volatile GC/MS

Parameter	Result	Units
Benzene	5.55	ug/L

SGS North America Inc.
200 West Potter Drive, Anchorage, AK 99518
t 907.562.2343 **f** 907.561.5301 www.us.sgs.com

Results of **DUP-2**

Client Sample ID: **DUP-2**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193051001
Lab Project ID: 1193051

Collection Date: 06/12/19 08:00
Received Date: 06/13/19 13:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	1850		4.00	1.20	ug/L	10		06/18/19 01:12
Ethylbenzene	328		10.0	3.10	ug/L	10		06/18/19 01:12
Naphthalene	10.0	U	10.0	3.10	ug/L	10		06/18/19 01:12
o-Xylene	300		10.0	3.10	ug/L	10		06/18/19 01:12
P & M -Xylene	600		20.0	6.20	ug/L	10		06/18/19 01:12
Toluene	873		10.0	3.10	ug/L	10		06/18/19 01:12
Trichloroethene	10.0	U	10.0	3.10	ug/L	10		06/18/19 01:12
Vinyl chloride	1.50	U	1.50	0.500	ug/L	10		06/18/19 01:12
Xylenes (total)	900		30.0	10.0	ug/L	10		06/18/19 01:12
Surrogates								
1,2-Dichloroethane-D4 (surr)	100		81-118		%	10		06/18/19 01:12
4-Bromofluorobenzene (surr)	101		85-114		%	10		06/18/19 01:12
Toluene-d8 (surr)	99.2		89-112		%	10		06/18/19 01:12

Batch Information

Analytical Batch: VMS19051
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 06/18/19 01:12
Container ID: 1193051001-A

Prep Batch: VXX34272
Prep Method: SW5030B
Prep Date/Time: 06/17/19 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 06/18/2019 4:06:40PM

Results of **DUP-3**

Client Sample ID: **DUP-3**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193051002
Lab Project ID: 1193051

Collection Date: 06/11/19 08:00
Received Date: 06/13/19 13:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	29.5		0.400	0.120	ug/L	1		06/17/19 22:39
Ethylbenzene	1.00	U	1.00	0.310	ug/L	1		06/17/19 22:39
Naphthalene	1.00	U	1.00	0.310	ug/L	1		06/14/19 14:53
o-Xylene	1.00	U	1.00	0.310	ug/L	1		06/17/19 22:39
P & M -Xylene	2.00	U	2.00	0.620	ug/L	1		06/17/19 22:39
Toluene	1.00	U	1.00	0.310	ug/L	1		06/17/19 22:39
Trichloroethene	1.00	U	1.00	0.310	ug/L	1		06/14/19 14:53
Vinyl chloride	0.150	U	0.150	0.0500	ug/L	1		06/14/19 14:53
Xylenes (total)	3.00	U	3.00	1.00	ug/L	1		06/17/19 22:39
Surrogates								
1,2-Dichloroethane-D4 (surr)	98.8		81-118		%	1		06/14/19 14:53
4-Bromofluorobenzene (surr)	104		85-114		%	1		06/14/19 14:53
Toluene-d8 (surr)	99.5		89-112		%	1		06/14/19 14:53

Batch Information

Analytical Batch: VMS19045
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 06/14/19 14:53
Container ID: 1193051002-A

Prep Batch: VXX34263
Prep Method: SW5030B
Prep Date/Time: 06/14/19 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Analytical Batch: VMS19051
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 06/17/19 22:39
Container ID: 1193051002-A

Prep Batch: VXX34272
Prep Method: SW5030B
Prep Date/Time: 06/17/19 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 06/18/2019 4:06:40PM

Results of **E-072RR**

Client Sample ID: **E-072RR**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193051003
Lab Project ID: 1193051

Collection Date: 06/12/19 14:55
Received Date: 06/13/19 13:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	1900		8.00	2.40	ug/L	20		06/18/19 00:41
Ethylbenzene	315		20.0	6.20	ug/L	20		06/18/19 00:41
Naphthalene	2.15		1.00	0.310	ug/L	1		06/14/19 15:08
o-Xylene	294		20.0	6.20	ug/L	20		06/18/19 00:41
P & M -Xylene	584		40.0	12.4	ug/L	20		06/18/19 00:41
Toluene	858		20.0	6.20	ug/L	20		06/18/19 00:41
Trichloroethene	1.00	U	1.00	0.310	ug/L	1		06/14/19 15:08
Vinyl chloride	0.150	U	0.150	0.0500	ug/L	1		06/14/19 15:08
Xylenes (total)	879		60.0	20.0	ug/L	20		06/18/19 00:41
Surrogates								
1,2-Dichloroethane-D4 (surr)	93.4		81-118		%	1		06/14/19 15:08
4-Bromofluorobenzene (surr)	101		85-114		%	1		06/14/19 15:08
Toluene-d8 (surr)	101		89-112		%	1		06/14/19 15:08

Batch Information

Analytical Batch: VMS19051
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 06/18/19 00:41
Container ID: 1193051003-A

Prep Batch: VXX34272
Prep Method: SW5030B
Prep Date/Time: 06/17/19 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Analytical Batch: VMS19045
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 06/14/19 15:08
Container ID: 1193051003-A

Prep Batch: VXX34263
Prep Method: SW5030B
Prep Date/Time: 06/14/19 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 06/18/2019 4:06:40PM

Results of **E-097**

Client Sample ID: **E-097**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193051004
Lab Project ID: 1193051

Collection Date: 06/12/19 11:15
Received Date: 06/13/19 13:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	200		0.400	0.120	ug/L	1		06/14/19 15:23
Ethylbenzene	1.00	U	1.00	0.310	ug/L	1		06/17/19 22:55
Naphthalene	1.00	U	1.00	0.310	ug/L	1		06/14/19 15:23
o-Xylene	1.00	U	1.00	0.310	ug/L	1		06/17/19 22:55
P & M -Xylene	2.00	U	2.00	0.620	ug/L	1		06/17/19 22:55
Toluene	1.00	U	1.00	0.310	ug/L	1		06/17/19 22:55
Trichloroethene	1.00	U	1.00	0.310	ug/L	1		06/14/19 15:23
Vinyl chloride	0.150	U	0.150	0.0500	ug/L	1		06/14/19 15:23
Xylenes (total)	3.00	U	3.00	1.00	ug/L	1		06/17/19 22:55
Surrogates								
1,2-Dichloroethane-D4 (surr)	97.8		81-118		%	1		06/14/19 15:23
4-Bromofluorobenzene (surr)	105		85-114		%	1		06/14/19 15:23
Toluene-d8 (surr)	100		89-112		%	1		06/14/19 15:23

Batch Information

Analytical Batch: VMS19045
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 06/14/19 15:23
Container ID: 1193051004-A

Prep Batch: VXX34263
Prep Method: SW5030B
Prep Date/Time: 06/14/19 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Analytical Batch: VMS19051
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 06/17/19 22:55
Container ID: 1193051004-A

Prep Batch: VXX34272
Prep Method: SW5030B
Prep Date/Time: 06/17/19 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 06/18/2019 4:06:40PM

Results of **E-127**

Client Sample ID: **E-127**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193051005
Lab Project ID: 1193051

Collection Date: 06/10/19 12:10
Received Date: 06/13/19 13:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.400	U	0.400	0.120	ug/L	1		06/17/19 23:10
Ethylbenzene	1.00	U	1.00	0.310	ug/L	1		06/17/19 23:10
Naphthalene	1.00	U	1.00	0.310	ug/L	1		06/17/19 23:10
o-Xylene	1.00	U	1.00	0.310	ug/L	1		06/17/19 23:10
P & M -Xylene	2.00	U	2.00	0.620	ug/L	1		06/17/19 23:10
Toluene	1.00	U	1.00	0.310	ug/L	1		06/17/19 23:10
Trichloroethene	1.00	U	1.00	0.310	ug/L	1		06/17/19 23:10
Vinyl chloride	0.150	U	0.150	0.0500	ug/L	1		06/17/19 23:10
Xylenes (total)	3.00	U	3.00	1.00	ug/L	1		06/17/19 23:10
Surrogates								
1,2-Dichloroethane-D4 (surr)	106		81-118		%	1		06/17/19 23:10
4-Bromofluorobenzene (surr)	102		85-114		%	1		06/17/19 23:10
Toluene-d8 (surr)	99.6		89-112		%	1		06/17/19 23:10

Batch Information

Analytical Batch: VMS19051
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 06/17/19 23:10
Container ID: 1193051005-A

Prep Batch: VXX34272
Prep Method: SW5030B
Prep Date/Time: 06/17/19 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 06/18/2019 4:06:40PM

Results of **E-162**

Client Sample ID: **E-162**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193051006
Lab Project ID: 1193051

Collection Date: 06/12/19 12:45
Received Date: 06/13/19 13:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	35.4		0.400	0.120	ug/L	1		06/17/19 23:25
Ethylbenzene	1.00	U	1.00	0.310	ug/L	1		06/17/19 23:25
Naphthalene	1.00	U	1.00	0.310	ug/L	1		06/17/19 23:25
o-Xylene	1.00	U	1.00	0.310	ug/L	1		06/17/19 23:25
P & M -Xylene	10.3		2.00	0.620	ug/L	1		06/17/19 23:25
Toluene	1.00	U	1.00	0.310	ug/L	1		06/17/19 23:25
Trichloroethene	1.00	U	1.00	0.310	ug/L	1		06/17/19 23:25
Vinyl chloride	0.150	U	0.150	0.0500	ug/L	1		06/17/19 23:25
Xylenes (total)	10.3		3.00	1.00	ug/L	1		06/17/19 23:25
Surrogates								
1,2-Dichloroethane-D4 (surr)	107		81-118		%	1		06/17/19 23:25
4-Bromofluorobenzene (surr)	101		85-114		%	1		06/17/19 23:25
Toluene-d8 (surr)	98.5		89-112		%	1		06/17/19 23:25

Batch Information

Analytical Batch: VMS19051
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 06/17/19 23:25
Container ID: 1193051006-A

Prep Batch: VXX34272
Prep Method: SW5030B
Prep Date/Time: 06/17/19 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 06/18/2019 4:06:40PM

Results of **E-217A**

Client Sample ID: **E-217A**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193051007
Lab Project ID: 1193051

Collection Date: 06/11/19 12:10
Received Date: 06/13/19 13:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	1.06		0.400	0.120	ug/L	1		06/17/19 23:40
Ethylbenzene	1.00	U	1.00	0.310	ug/L	1		06/17/19 23:40
Naphthalene	1.00	U	1.00	0.310	ug/L	1		06/17/19 23:40
o-Xylene	1.00	U	1.00	0.310	ug/L	1		06/17/19 23:40
P & M -Xylene	2.00	U	2.00	0.620	ug/L	1		06/17/19 23:40
Toluene	1.00	U	1.00	0.310	ug/L	1		06/17/19 23:40
Trichloroethene	1.00	U	1.00	0.310	ug/L	1		06/17/19 23:40
Vinyl chloride	0.150	U	0.150	0.0500	ug/L	1		06/17/19 23:40
Xylenes (total)	3.00	U	3.00	1.00	ug/L	1		06/17/19 23:40
Surrogates								
1,2-Dichloroethane-D4 (surr)	106		81-118		%	1		06/17/19 23:40
4-Bromofluorobenzene (surr)	102		85-114		%	1		06/17/19 23:40
Toluene-d8 (surr)	98.8		89-112		%	1		06/17/19 23:40

Batch Information

Analytical Batch: VMS19051
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 06/17/19 23:40
Container ID: 1193051007-A

Prep Batch: VXX34272
Prep Method: SW5030B
Prep Date/Time: 06/17/19 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 06/18/2019 4:06:40PM

Results of **E-227**

Client Sample ID: **E-227**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193051008
Lab Project ID: 1193051

Collection Date: 06/12/19 15:45
Received Date: 06/13/19 13:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	1570		8.00	2.40	ug/L	20		06/18/19 00:56
Ethylbenzene	335		20.0	6.20	ug/L	20		06/18/19 00:56
Naphthalene	53.1		1.00	0.310	ug/L	1		06/14/19 16:22
o-Xylene	19.8		1.00	0.310	ug/L	1		06/14/19 16:22
P & M -Xylene	767		40.0	12.4	ug/L	20		06/18/19 00:56
Toluene	4.75		1.00	0.310	ug/L	1		06/14/19 16:22
Trichloroethene	1.00	U	1.00	0.310	ug/L	1		06/14/19 16:22
Vinyl chloride	0.150	U	0.150	0.0500	ug/L	1		06/14/19 16:22
Xylenes (total)	807		60.0	20.0	ug/L	20		06/18/19 00:56
Surrogates								
1,2-Dichloroethane-D4 (surr)	94.6		81-118		%	1		06/14/19 16:22
4-Bromofluorobenzene (surr)	100		85-114		%	1		06/14/19 16:22
Toluene-d8 (surr)	102		89-112		%	1		06/14/19 16:22

Batch Information

Analytical Batch: VMS19051
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 06/18/19 00:56
Container ID: 1193051008-A

Prep Batch: VXX34272
Prep Method: SW5030B
Prep Date/Time: 06/17/19 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Analytical Batch: VMS19045
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 06/14/19 16:22
Container ID: 1193051008-A

Prep Batch: VXX34263
Prep Method: SW5030B
Prep Date/Time: 06/14/19 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 06/18/2019 4:06:40PM

Results of **E-244**

Client Sample ID: **E-244**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193051009
Lab Project ID: 1193051

Collection Date: 06/12/19 13:55
Received Date: 06/13/19 13:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	273		4.00	1.20	ug/L	10		06/18/19 00:11
Ethylbenzene	1.00	U	1.00	0.310	ug/L	1		06/18/19 01:27
Naphthalene	1.00	U	1.00	0.310	ug/L	1		06/18/19 01:27
o-Xylene	1.00	U	1.00	0.310	ug/L	1		06/14/19 16:37
P & M -Xylene	2.00	U	2.00	0.620	ug/L	1		06/18/19 01:27
Toluene	1.00	U	1.00	0.310	ug/L	1		06/14/19 16:37
Trichloroethene	1.00	U	1.00	0.310	ug/L	1		06/14/19 16:37
Vinyl chloride	0.150	U	0.150	0.0500	ug/L	1		06/14/19 16:37
Xylenes (total)	3.00	U	3.00	1.00	ug/L	1		06/18/19 01:27
Surrogates								
1,2-Dichloroethane-D4 (surr)	96.4		81-118		%	1		06/14/19 16:37
4-Bromofluorobenzene (surr)	103		85-114		%	1		06/14/19 16:37
Toluene-d8 (surr)	99.2		89-112		%	1		06/14/19 16:37

Batch Information

Analytical Batch: VMS19051
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 06/18/19 00:11
Container ID: 1193051009-A

Prep Batch: VXX34272
Prep Method: SW5030B
Prep Date/Time: 06/17/19 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Analytical Batch: VMS19051
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 06/18/19 01:27
Container ID: 1193051009-A

Prep Batch: VXX34272
Prep Method: SW5030B
Prep Date/Time: 06/17/19 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Analytical Batch: VMS19045
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 06/14/19 16:37
Container ID: 1193051009-A

Prep Batch: VXX34263
Prep Method: SW5030B
Prep Date/Time: 06/14/19 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 06/18/2019 4:06:40PM

Results of **E-247A**

Client Sample ID: **E-247A**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193051010
Lab Project ID: 1193051

Collection Date: 06/12/19 10:10
Received Date: 06/13/19 13:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	25.0		0.400	0.120	ug/L	1		06/14/19 16:51
Ethylbenzene	1.00	U	1.00	0.310	ug/L	1		06/14/19 16:51
Naphthalene	1.00	U	1.00	0.310	ug/L	1		06/14/19 16:51
o-Xylene	1.00	U	1.00	0.310	ug/L	1		06/14/19 16:51
P & M -Xylene	2.00	U	2.00	0.620	ug/L	1		06/14/19 16:51
Toluene	1.00	U	1.00	0.310	ug/L	1		06/14/19 16:51
Trichloroethene	1.00	U	1.00	0.310	ug/L	1		06/14/19 16:51
Vinyl chloride	0.150	U	0.150	0.0500	ug/L	1		06/14/19 16:51
Xylenes (total)	3.00	U	3.00	1.00	ug/L	1		06/14/19 16:51
Surrogates								
1,2-Dichloroethane-D4 (surr)	99.5		81-118		%	1		06/14/19 16:51
4-Bromofluorobenzene (surr)	104		85-114		%	1		06/14/19 16:51
Toluene-d8 (surr)	99.9		89-112		%	1		06/14/19 16:51

Batch Information

Analytical Batch: VMS19045
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 06/14/19 16:51
Container ID: 1193051010-A

Prep Batch: VXX34263
Prep Method: SW5030B
Prep Date/Time: 06/14/19 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 06/18/2019 4:06:40PM

Results of **E-248A**

Client Sample ID: **E-248A**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193051011
Lab Project ID: 1193051

Collection Date: 06/11/19 13:50
Received Date: 06/13/19 13:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	15.5		0.400	0.120	ug/L	1		06/14/19 17:06
Ethylbenzene	1.00	U	1.00	0.310	ug/L	1		06/14/19 17:06
Naphthalene	1.00	U	1.00	0.310	ug/L	1		06/14/19 17:06
o-Xylene	1.00	U	1.00	0.310	ug/L	1		06/14/19 17:06
P & M -Xylene	2.00	U	2.00	0.620	ug/L	1		06/14/19 17:06
Toluene	1.00	U	1.00	0.310	ug/L	1		06/14/19 17:06
Trichloroethene	1.00	U	1.00	0.310	ug/L	1		06/14/19 17:06
Vinyl chloride	0.150	U	0.150	0.0500	ug/L	1		06/14/19 17:06
Xylenes (total)	3.00	U	3.00	1.00	ug/L	1		06/14/19 17:06
Surrogates								
1,2-Dichloroethane-D4 (surr)	100		81-118		%	1		06/14/19 17:06
4-Bromofluorobenzene (surr)	104		85-114		%	1		06/14/19 17:06
Toluene-d8 (surr)	99.5		89-112		%	1		06/14/19 17:06

Batch Information

Analytical Batch: VMS19045
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 06/14/19 17:06
Container ID: 1193051011-A

Prep Batch: VXX34263
Prep Method: SW5030B
Prep Date/Time: 06/14/19 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 06/18/2019 4:06:40PM

Results of **E-251A**

Client Sample ID: **E-251A**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193051012
Lab Project ID: 1193051

Collection Date: 06/11/19 10:00
Received Date: 06/13/19 13:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.400	U	0.400	0.120	ug/L	1		06/17/19 23:55
Ethylbenzene	1.00	U	1.00	0.310	ug/L	1		06/17/19 23:55
Naphthalene	1.00	U	1.00	0.310	ug/L	1		06/17/19 23:55
o-Xylene	1.00	U	1.00	0.310	ug/L	1		06/17/19 23:55
P & M -Xylene	2.00	U	2.00	0.620	ug/L	1		06/17/19 23:55
Toluene	1.00	U	1.00	0.310	ug/L	1		06/17/19 23:55
Trichloroethene	1.00	U	1.00	0.310	ug/L	1		06/17/19 23:55
Vinyl chloride	0.150	U	0.150	0.0500	ug/L	1		06/17/19 23:55
Xylenes (total)	3.00	U	3.00	1.00	ug/L	1		06/17/19 23:55
Surrogates								
1,2-Dichloroethane-D4 (surr)	110		81-118		%	1		06/17/19 23:55
4-Bromofluorobenzene (surr)	100		85-114		%	1		06/17/19 23:55
Toluene-d8 (surr)	101		89-112		%	1		06/17/19 23:55

Batch Information

Analytical Batch: VMS19051
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 06/17/19 23:55
Container ID: 1193051012-A

Prep Batch: VXX34272
Prep Method: SW5030B
Prep Date/Time: 06/17/19 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 06/18/2019 4:06:40PM

Results of **E-251B**

Client Sample ID: **E-251B**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193051013
Lab Project ID: 1193051

Collection Date: 06/11/19 09:15
Received Date: 06/13/19 13:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.400	U	0.400	0.120	ug/L	1		06/17/19 22:24
Ethylbenzene	1.00	U	1.00	0.310	ug/L	1		06/17/19 22:24
Naphthalene	1.00	U	1.00	0.310	ug/L	1		06/17/19 22:24
o-Xylene	1.00	U	1.00	0.310	ug/L	1		06/17/19 22:24
P & M -Xylene	2.00	U	2.00	0.620	ug/L	1		06/17/19 22:24
Toluene	1.00	U	1.00	0.310	ug/L	1		06/17/19 22:24
Trichloroethene	1.00	U	1.00	0.310	ug/L	1		06/17/19 22:24
Vinyl chloride	0.150	U	0.150	0.0500	ug/L	1		06/17/19 22:24
Xylenes (total)	3.00	U	3.00	1.00	ug/L	1		06/17/19 22:24
Surrogates								
1,2-Dichloroethane-D4 (surr)	105		81-118		%	1		06/17/19 22:24
4-Bromofluorobenzene (surr)	104		85-114		%	1		06/17/19 22:24
Toluene-d8 (surr)	99.6		89-112		%	1		06/17/19 22:24

Batch Information

Analytical Batch: VMS19051
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 06/17/19 22:24
Container ID: 1193051013-A

Prep Batch: VXX34272
Prep Method: SW5030B
Prep Date/Time: 06/17/19 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 06/18/2019 4:06:40PM

Results of **E-254**

Client Sample ID: **E-254**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193051016
Lab Project ID: 1193051

Collection Date: 06/11/19 10:45
Received Date: 06/13/19 13:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	28.1		0.400	0.120	ug/L	1		06/14/19 17:36
Ethylbenzene	1.00	U	1.00	0.310	ug/L	1		06/14/19 17:36
Naphthalene	1.00	U	1.00	0.310	ug/L	1		06/14/19 17:36
o-Xylene	1.00	U	1.00	0.310	ug/L	1		06/14/19 17:36
P & M -Xylene	2.00	U	2.00	0.620	ug/L	1		06/14/19 17:36
Toluene	1.00	U	1.00	0.310	ug/L	1		06/14/19 17:36
Trichloroethene	1.00	U	1.00	0.310	ug/L	1		06/14/19 17:36
Vinyl chloride	0.150	U	0.150	0.0500	ug/L	1		06/14/19 17:36
Xylenes (total)	3.00	U	3.00	1.00	ug/L	1		06/14/19 17:36
Surrogates								
1,2-Dichloroethane-D4 (surr)	101		81-118		%	1		06/14/19 17:36
4-Bromofluorobenzene (surr)	104		85-114		%	1		06/14/19 17:36
Toluene-d8 (surr)	99.4		89-112		%	1		06/14/19 17:36

Batch Information

Analytical Batch: VMS19045
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 06/14/19 17:36
Container ID: 1193051016-A

Prep Batch: VXX34263
Prep Method: SW5030B
Prep Date/Time: 06/14/19 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 06/18/2019 4:06:40PM

Results of **MW-92**

Client Sample ID: **MW-92**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193051017
Lab Project ID: 1193051

Collection Date: 06/11/19 13:00
Received Date: 06/13/19 13:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	5.55		0.400	0.120	ug/L	1		06/14/19 17:51
Ethylbenzene	1.00	U	1.00	0.310	ug/L	1		06/14/19 17:51
Naphthalene	1.00	U	1.00	0.310	ug/L	1		06/14/19 17:51
o-Xylene	1.00	U	1.00	0.310	ug/L	1		06/14/19 17:51
P & M -Xylene	2.00	U	2.00	0.620	ug/L	1		06/14/19 17:51
Toluene	1.00	U	1.00	0.310	ug/L	1		06/14/19 17:51
Trichloroethene	1.00	U	1.00	0.310	ug/L	1		06/14/19 17:51
Vinyl chloride	0.150	U	0.150	0.0500	ug/L	1		06/14/19 17:51
Xylenes (total)	3.00	U	3.00	1.00	ug/L	1		06/14/19 17:51
Surrogates								
1,2-Dichloroethane-D4 (surr)	104		81-118		%	1		06/14/19 17:51
4-Bromofluorobenzene (surr)	104		85-114		%	1		06/14/19 17:51
Toluene-d8 (surr)	99.9		89-112		%	1		06/14/19 17:51

Batch Information

Analytical Batch: VMS19045
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 06/14/19 17:51
Container ID: 1193051017-A

Prep Batch: VXX34263
Prep Method: SW5030B
Prep Date/Time: 06/14/19 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 06/18/2019 4:06:40PM

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193051018
Lab Project ID: 1193051

Collection Date: 06/10/19 07:30
Received Date: 06/13/19 13:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.400	U	0.400	0.120	ug/L	1		06/14/19 14:08
Ethylbenzene	1.00	U	1.00	0.310	ug/L	1		06/14/19 14:08
Naphthalene	1.00	U	1.00	0.310	ug/L	1		06/14/19 14:08
o-Xylene	1.00	U	1.00	0.310	ug/L	1		06/14/19 14:08
P & M -Xylene	2.00	U	2.00	0.620	ug/L	1		06/14/19 14:08
Toluene	1.00	U	1.00	0.310	ug/L	1		06/14/19 14:08
Trichloroethene	1.00	U	1.00	0.310	ug/L	1		06/14/19 14:08
Vinyl chloride	0.150	U	0.150	0.0500	ug/L	1		06/14/19 14:08
Xylenes (total)	3.00	U	3.00	1.00	ug/L	1		06/14/19 14:08
Surrogates								
1,2-Dichloroethane-D4 (surr)	100		81-118		%	1		06/14/19 14:08
4-Bromofluorobenzene (surr)	104		85-114		%	1		06/14/19 14:08
Toluene-d8 (surr)	100		89-112		%	1		06/14/19 14:08

Batch Information

Analytical Batch: VMS19045
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 06/14/19 14:08
Container ID: 1193051018-A

Prep Batch: VXX34263
Prep Method: SW5030B
Prep Date/Time: 06/14/19 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 06/18/2019 4:06:40PM

Method Blank

Blank ID: MB for HBN 1795069 [VXX/34263]
Blank Lab ID: 1513212

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1193051002, 1193051003, 1193051004, 1193051008, 1193051009, 1193051010, 1193051011, 1193051016, 1193051017, 1193051018

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
Benzene	0.200U	0.400	0.120	ug/L
Ethylbenzene	0.500U	1.00	0.310	ug/L
Naphthalene	0.500U	1.00	0.310	ug/L
o-Xylene	0.500U	1.00	0.310	ug/L
P & M -Xylene	1.00U	2.00	0.620	ug/L
Toluene	0.500U	1.00	0.310	ug/L
Trichloroethene	0.500U	1.00	0.310	ug/L
Vinyl chloride	0.0750U	0.150	0.0500	ug/L
Xylenes (total)	1.50U	3.00	1.00	ug/L
Surrogates				
1,2-Dichloroethane-D4 (surr)	99.7	81-118		%
4-Bromofluorobenzene (surr)	104	85-114		%
Toluene-d8 (surr)	100	89-112		%

Batch Information

Analytical Batch: VMS19045
Analytical Method: SW8260C
Instrument: VPA 780/5975 GC/MS
Analyst: FDR
Analytical Date/Time: 6/14/2019 11:45:00AM

Prep Batch: VXX34263
Prep Method: SW5030B
Prep Date/Time: 6/14/2019 12:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 06/18/2019 4:06:43PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1193051 [VXX34263]
Blank Spike Lab ID: 1513213
Date Analyzed: 06/14/2019 12:26

Spike Duplicate ID: LCSD for HBN 1193051 [VXX34263]
Spike Duplicate Lab ID: 1513214
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1193051002, 1193051003, 1193051004, 1193051008, 1193051009, 1193051010, 1193051011, 1193051016, 1193051017, 1193051018

Results by **SW8260C**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Benzene	30	29.5	98	30	30.3	101	(79-120)	2.60	(< 20)
Ethylbenzene	30	30.0	100	30	30.1	100	(79-121)	0.43	(< 20)
Naphthalene	30	27.5	92	30	26.6	89	(61-128)	3.20	(< 20)
o-Xylene	30	29.8	99	30	29.8	99	(78-122)	0.00	(< 20)
P & M -Xylene	60	59.2	99	60	59.9	100	(80-121)	1.20	(< 20)
Toluene	30	28.5	95	30	28.6	95	(80-121)	0.32	(< 20)
Trichloroethene	30	29.1	97	30	30.1	100	(79-123)	3.30	(< 20)
Vinyl chloride	30	30.0	100	30	32.1	107	(58-137)	6.80	(< 20)
Xylenes (total)	90	89.0	99	90	89.7	100	(79-121)	0.78	(< 20)
Surrogates									
1,2-Dichloroethane-D4 (surr)	30	95.4	95	30	96.1	96	(81-118)	0.77	
4-Bromofluorobenzene (surr)	30	102	102	30	102	102	(85-114)	0.10	
Toluene-d8 (surr)	30	101	101	30	99.6	100	(89-112)	1.30	

Batch Information

Analytical Batch: **VMS19045**
Analytical Method: **SW8260C**
Instrument: **VPA 780/5975 GC/MS**
Analyst: **FDR**

Prep Batch: **VXX34263**
Prep Method: **SW5030B**
Prep Date/Time: **06/14/2019 00:00**
Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

SGS North America Inc.
200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

Method Blank

Blank ID: MB for HBN 1795130 [VXX/34272]
Blank Lab ID: 1513456

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1193051001, 1193051002, 1193051003, 1193051004, 1193051005, 1193051006, 1193051007, 1193051008, 1193051009, 1193051012, 1193051013

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
Benzene	0.200U	0.400	0.120	ug/L
Ethylbenzene	0.500U	1.00	0.310	ug/L
Naphthalene	0.500U	1.00	0.310	ug/L
o-Xylene	0.500U	1.00	0.310	ug/L
P & M -Xylene	1.00U	2.00	0.620	ug/L
Toluene	0.500U	1.00	0.310	ug/L
Trichloroethene	0.500U	1.00	0.310	ug/L
Vinyl chloride	0.0750U	0.150	0.0500	ug/L
Xylenes (total)	1.50U	3.00	1.00	ug/L
Surrogates				
1,2-Dichloroethane-D4 (surr)	108	81-118		%
4-Bromofluorobenzene (surr)	102	85-114		%
Toluene-d8 (surr)	99.6	89-112		%

Batch Information

Analytical Batch: VMS19051
Analytical Method: SW8260C
Instrument: Agilent 7890-75MS
Analyst: FDR
Analytical Date/Time: 6/17/2019 8:38:00PM

Prep Batch: VXX34272
Prep Method: SW5030B
Prep Date/Time: 6/17/2019 12:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 06/18/2019 4:06:47PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1193051 [VXX34272]
Blank Spike Lab ID: 1513457
Date Analyzed: 06/17/2019 20:53

Spike Duplicate ID: LCSD for HBN 1193051 [VXX34272]
Spike Duplicate Lab ID: 1513458
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1193051001, 1193051002, 1193051003, 1193051004, 1193051005, 1193051006, 1193051007, 1193051008, 1193051009, 1193051012, 1193051013

Results by **SW8260C**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Benzene	30	30.3	101	30	30.3	101	(79-120)	0.10	(< 20)
Ethylbenzene	30	30.8	103	30	30.6	102	(79-121)	0.49	(< 20)
Naphthalene	30	28.0	93	30	28.7	96	(61-128)	2.80	(< 20)
o-Xylene	30	30.8	103	30	30.2	101	(78-122)	1.90	(< 20)
P & M -Xylene	60	60.5	101	60	60.5	101	(80-121)	0.05	(< 20)
Toluene	30	28.1	94	30	27.8	93	(80-121)	1.10	(< 20)
Trichloroethene	30	30.7	102	30	30.5	102	(79-123)	0.69	(< 20)
Vinyl chloride	30	27.9	93	30	27.0	90	(58-137)	3.40	(< 20)
Xylenes (total)	90	91.2	101	90	90.7	101	(79-121)	0.60	(< 20)
Surrogates									
1,2-Dichloroethane-D4 (surr)	30	101	101	30	99.9	100	(81-118)	0.80	
4-Bromofluorobenzene (surr)	30	100	100	30	101	101	(85-114)	0.36	
Toluene-d8 (surr)	30	99.9	100	30	97.6	98	(89-112)	2.30	

Batch Information

Analytical Batch: **VMS19051**
Analytical Method: **SW8260C**
Instrument: **Agilent 7890-75MS**
Analyst: **FDR**

Prep Batch: **VXX34272**
Prep Method: **SW5030B**
Prep Date/Time: **06/17/2019 00:00**
Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

Print Date: 06/18/2019 4:06:49PM

Matrix Spike Summary

Original Sample ID: 1513459
MS Sample ID: 1513460 MS
MSD Sample ID: 1513461 MSD

Analysis Date: 06/17/2019 22:24
Analysis Date: 06/18/2019 3:28
Analysis Date: 06/18/2019 3:43
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1193051001, 1193051002, 1193051003, 1193051004, 1193051005, 1193051006, 1193051007, 1193051008, 1193051009, 1193051012, 1193051013

Results by **SW8260C**

		Matrix Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Benzene	0.200U	30.0	31.5	105	30.0	31.7	106	79-120	0.60	(< 20)
Ethylbenzene	0.500U	30.0	32.2	107	30.0	31.7	106	79-121	1.50	(< 20)
Naphthalene	0.500U	30.0	31.2	104	30.0	30.0	100	61-128	4.00	(< 20)
o-Xylene	0.500U	30.0	32	107	30.0	31.7	106	78-122	0.97	(< 20)
P & M -Xylene	1.00U	60.0	63.6	106	60.0	62.9	105	80-121	1.10	(< 20)
Toluene	0.390J	30.0	29.5	97	30.0	29.4	97	80-121	0.20	(< 20)
Trichloroethene	0.500U	30.0	32	107	30.0	32.2	107	79-123	0.47	(< 20)
Vinyl chloride	0.0750U	30.0	28.4	95	30.0	28.2	94	58-137	0.99	(< 20)
Xylenes (total)	1.50U	90.0	95.6	106	90.0	94.5	105	79-121	1.10	(< 20)
Surrogates										
1,2-Dichloroethane-D4 (surr)		30.0	30	100	30.0	29.8	99	81-118	0.64	
4-Bromofluorobenzene (surr)		30.0	30.4	101	30.0	30.2	101	85-114	0.63	
Toluene-d8 (surr)		30.0	29.5	99	30.0	29.9	100	89-112	1.20	

Batch Information

Analytical Batch: VMS19051
Analytical Method: SW8260C
Instrument: Agilent 7890-75MS
Analyst: FDR
Analytical Date/Time: 6/18/2019 3:28:00AM

Prep Batch: VXX34272
Prep Method: Volatiles Extraction 8240/8260 FULL
Prep Date/Time: 6/17/2019 12:00:00AM
Prep Initial Wt./Vol.: 5.00mL
Prep Extract Vol: 5.00mL

Print Date: 06/18/2019 4:06:50PM

Billable Matrix Spike Summary

Original Sample ID: 1193051013
MS Sample ID: 1193051014 BMS
MSD Sample ID: 1193051015 BMSD

Analysis Date: 06/17/2019 22:24
Analysis Date: 06/18/2019 3:28
Analysis Date: 06/18/2019 3:43
Matrix: Water (Surface, Eff., Ground)

QC for Samples:

Results by **SW8260C**

		Matrix Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Benzene	0.400U	30.0	31.5	105	30.0	31.7	106	79-120	0.60	(< 20)
Ethylbenzene	1.00U	30.0	32.2	107	30.0	31.7	106	79-121	1.50	(< 20)
Naphthalene	1.00U	30.0	31.2	104	30.0	30.0	100	61-128	4.00	(< 20)
o-Xylene	1.00U	30.0	32	107	30.0	31.7	106	78-122	0.97	(< 20)
P & M -Xylene	2.00U	60.0	63.6	106	60.0	62.9	105	80-121	1.10	(< 20)
Toluene	1.00U	30.0	29.5	98	30.0	29.4	98	80-121	0.20	(< 20)
Trichloroethene	1.00U	30.0	32	107	30.0	32.2	107	79-123	0.47	(< 20)
Vinyl chloride	0.150U	30.0	28.4	95	30.0	28.2	94	58-137	0.99	(< 20)
Xylenes (total)	3.00U	90.0	95.6	106	90.0	94.5	105	79-121	1.10	(< 20)
Surrogates										
1,2-Dichloroethane-D4 (surr)		30.0	30	100	30.0	29.8	99	81-118	0.64	
4-Bromofluorobenzene (surr)		30.0	30.4	101	30.0	30.2	101	85-114	0.63	
Toluene-d8 (surr)		30.0	29.5	99	30.0	29.9	100	89-112	1.20	

Batch Information

Analytical Batch: VMS19051
Analytical Method: SW8260C
Instrument: Agilent 7890-75MS
Analyst: FDR
Analytical Date/Time: 6/18/2019 3:28:00AM

Prep Batch: VXX34272
Prep Method: Volatiles Extraction 8240/8260
Prep Date/Time: 6/17/2019 12:00:00AM
Prep Initial Wt./Vol.: 5.00mL
Prep Extract Vol: 5.00mL

Print Date: 06/18/2019 4:06:50PM

CHAIN OF CUSTODY

Trihydro Corporation
312 Tyee Street
Soldotna, Alaska 99669
(907) 262-2315 - (907) 262-2320 (fax)

Laboratory: SGS

Address:

1193051

Reporting Instructions
Send Report To: Stephanie Plate
(Trihydro Corporation)

Billing Information
Bill: Trihydro - (Our Client)
Our Client's P.O. No: 4500073969

Project Name: 19-3

Our Client: Tesoro

Our Project No: 39B-004-001

Sampler(s): JY, BT

Turnaround:
24-HR 48-HR 5-Day (2-WKS) Other
Data Deliverables:
(Standard) Level 3 Other
EDD Required? (Y) - N

Lab No.	Sample No.	Matrix	Date	Time	No. of Jars per Analysis: BTEX										Comments & Special Instructions
1 A-C	Dup-2	GW	6/12/19	08:00	3										
2 A-C	Dup-3	GW	6/11/19	08:00	3										
3 A-C	E-072RR	GW	6/12/19	14:55	3										
4 A-C	E-097	GW	6/12/19	11:15	3										
5 A-C	E-127	GW	6/10/19	12:10	3										
6 A-C	E-162	GW	6/12/19	12:45	3										
7 A-C	E-217A	GW	6/11/19	12:10	3										
8 A-C	E-227	GW	6/12/19	15:45	3										
9 A-C	E-244	GW	6/12/19	13:55	3										
10 A-C	E-247A	GW	6/12/19	10:10	3										

Relinquished By (Name and Company):	Date	Time	Received By (Name and Company):	Date	Time
Trihydro	6/13/2019	7:07 AM	Temp: 4.8°C DS2 COC 1F/1B	—	
			Michelle Allen MA	6/13/2019	13:10

CHAIN OF CUSTODY

Trihydro Corporation
312 Tyee Street
Soldotna, Alaska 99669
(907) 262-2315 - (907) 262-2320 (fax)

Laboratory: SGS
Address:

Lab Accession No.
1193051

Reporting Instructions
Send Report To: Stephanie Plate
(Trihydro Corporation)

Billing Information
Bill: Trihydro - Our Client
Our Client's P.O. No: 4500073969

Project Name: 19-3
Our Client: Tesoro
Our Project No: 39B-004-001
Sampler(s): JY, BT

Turnaround:
24-HR 48-HR 5-Day 2-WKS Other
Data Deliverables:
Standard Level 3 Other
EDD Required? Y - N

Lab No.	Sample No.	Matrix	Date	Time	No. of Jars per Analysis: BTEX										Comments & Special Instructions
1 A-C	E-248A	GW	6/11/19	13:50	3										
12 A-C	E-251A	GW	6/11/19	10:00	3										
13 14 15 A-C	E-251B	GW	6/11/19	09:15	9										Use for MS/MSD
16 A-C	E-254	GW	6/11/19	10:45	3										
17 A-C	MW-92	GW	6/11/19	13:00	3										
18 A-C	Trip Blank		6/10/2019	07:30	3										

Relinquished By (Name and Company):	Date	Time	Received By (Name and Company):	Date	Time
Trihydro	6/13/2019	7:07 AM	Temp: 4.8°C D52 COC IF/IB	—	
			Michelle Allen MA	6/13/2019	1370

808 - 1049 4912 **Air Freight** **808 ENA 1049 4912**

Shipper's Name and Address TRIHYDRO 50027
312 TYEE TREET
SOLDOTNA, ALASKA 99669
907, 252-3866

Consignee: SGS ENVIRONMENTAL 50012
200 W POTTER DR
ANCHORAGE, AK 99518
562, 2343

Ravn ALASKA

RAVN AIR
4700 OLD INTERNATIONAL AIRPORT ROAD
ANCHORAGE AK. 99502

It is agreed that the goods described herein are accepted in good order and undamaged condition (except as noted) for carriage SUBJECT TO THE "TERMS OF CONTRACT". The Shippers attention is drawn to the "TERMS OF CONTRACT LIMIT OF LIABILITY". The maximum liability by declaring a value of the goods and paying a supplemental charge of $0.75 per $100.00 up to a maximum of $5,000.00 declared value.

Accounting Information
GEN - GENERAL FREIGHT

Origin	ENA	Currency	USD
Destination	ANC	Charge Code	PP
Handling Information DEPTS 827 ARVS 10:00A ESTIMATED		Declared Value for Carriage	0

Pieces	Gross Weight	Nature of Goods	Chargeable Weight	Rate/Charge	Total	Length	Width	Height	Dim Weight
1		WET // WATER SAMPLES				24	15	9	17
1	27		27						17

Fee	Prepaid	Collect
Weight Charge	29.18	
Valuation Charge	0.00	
Tax	1.82	
Total Other Charges Due Agent	0.00	
Total Other Charges Due Carrier	0.00	
Total	31.00	
Signature of Issuing Carrier or its Agent	WB Date	WB Time
GREGORY FITE	13-JUN-19	0818

Other Charges			
FSC Fee	0.00	SSC Fee	0.00
DOC Fees	0.00	DG Fee	0.00
OTH Fees	0.00	P/U Fee	0.00
DEL Fees	0.00	TSC Fees	0.00

The shipper certifies that the particulars on the face hereof are correct, and that the shipment does not contain dangerous goods, and that all ITEMS ARE ACCEPTED AT SHIPPER'S RISK.

jeremy yancy
(Shipper's printed name and signature)

The consignee certifies that the shipment is received in good order except where noted below.

(Consignee's printed name and signature)

CARRIAGE SUBJECT TO "TERMS OF CONTRACT" found at https://www.flyravn.com/cargo-services/cargo-contract-carriage

Alert Expeditors Inc.

#394153

Citywide Delivery • 440-3351
Flamingo Drive • Anchorage, Alaska 99502

6/13/19
T. Taylor

SGS AK

:t ☐	Prepay ☐ Account ☐	Advance Charges ☐
ENA	PO# 7H 1049 4912	

Water Sample

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ɔed Signature

Total Charge

ived By:

e-Sample Receipt Form

SGS Workorder #: **1193051**

Review Criteria	Condition (Yes, No, N/A)	Exceptions Noted below
Chain of Custody / Temperature Requirements		N/A Exemption permitted if sampler hand carries/delivers.
Were Custody Seals intact? Note # & location	Yes	1F 1B
COC accompanied samples?	Yes	
DOD: Were samples received in COC corresponding coolers?	N/A	
		**Exemption permitted if chilled & collected <8 hours ago, or for samples where chilling is not required
Temperature blank compliant* (i.e., 0-6 °C after CF)?	Yes	Cooler ID: 1 @ 4.8 °C Therm. ID: D52
If samples received without a temperature blank, the "cooler temperature" will be documented instead & "COOLER TEMP" will be noted to the right. "ambient" or "chilled" will be noted if neither is available.		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
If >6°C, were samples collected <8 hours ago?	N/A	
If <0°C, were sample containers ice free?	N/A	
Note: Identify containers received at non-compliant temperature . Use form FS-0029 if more space is needed.		
Holding Time / Documentation / Sample Condition Requirements		Note: Refer to form F-083 "Sample Guide" for specific holding times.
Were samples received within holding time?	Yes	
Do samples **match COC**** (i.e.,sample IDs,dates/times collected)? **Note: If times differ <1hr, record details & login per COC. ***Note: If sample information on containers differs from COC, SGS will default to COC information	Yes	
Were analytical requests clear? (i.e., method is specified for analyses with multiple option for analysis (Ex: BTEX, Metals)	Yes	
		***Exemption permitted for metals (e.g,200.8/6020A).
Were proper containers (type/mass/volume/preservative***)used?	Yes	
Volatile / LL-Hg Requirements		
Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with samples?	Yes	One VOA for sample 2 received with Bubble > 0.6 cm
Were all water VOA vials free of headspace (i.e., bubbles ≤ 6mm)?	No	
Were all soil VOAs field extracted with MeOH+BFB?	N/A	

Note to Client: Any "No", answer above indicates non-compliance with standard procedures and may impact data quality.

Additional notes (if applicable):

Sample Containers and Preservatives

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition
1193051001-A	HCL to pH < 2	OK			
1193051001-B	HCL to pH < 2	OK			
1193051001-C	HCL to pH < 2	OK			
1193051002-A	HCL to pH < 2	OK			
1193051002-B	HCL to pH < 2	OK			
1193051002-C	HCL to pH < 2	BU			
1193051003-A	HCL to pH < 2	OK			
1193051003-B	HCL to pH < 2	OK			
1193051003-C	HCL to pH < 2	OK			
1193051004-A	HCL to pH < 2	OK			
1193051004-B	HCL to pH < 2	OK			
1193051004-C	HCL to pH < 2	OK			
1193051005-A	HCL to pH < 2	OK			
1193051005-B	HCL to pH < 2	OK			
1193051005-C	HCL to pH < 2	OK			
1193051006-A	HCL to pH < 2	OK			
1193051006-B	HCL to pH < 2	OK			
1193051006-C	HCL to pH < 2	OK			
1193051007-A	HCL to pH < 2	OK			
1193051007-B	HCL to pH < 2	OK			
1193051007-C	HCL to pH < 2	OK			
1193051008-A	HCL to pH < 2	OK			
1193051008-B	HCL to pH < 2	OK			
1193051008-C	HCL to pH < 2	OK			
1193051009-A	HCL to pH < 2	OK			
1193051009-B	HCL to pH < 2	OK			
1193051009-C	HCL to pH < 2	OK			
1193051010-A	HCL to pH < 2	OK			
1193051010-B	HCL to pH < 2	OK			
1193051010-C	HCL to pH < 2	OK			
1193051011-A	HCL to pH < 2	OK			
1193051011-B	HCL to pH < 2	OK			
1193051011-C	HCL to pH < 2	OK			
1193051012-A	HCL to pH < 2	OK			
1193051012-B	HCL to pH < 2	OK			
1193051012-C	HCL to pH < 2	OK			
1193051013-A	HCL to pH < 2	OK			
1193051013-B	HCL to pH < 2	OK			
1193051013-C	HCL to pH < 2	OK			
1193051014-A	HCL to pH < 2	OK			
1193051014-B	HCL to pH < 2	OK			
1193051014-C	HCL to pH < 2	OK			
1193051015-A	HCL to pH < 2	OK			
1193051015-B	HCL to pH < 2	OK			
1193051015-C	HCL to pH < 2	OK			
1193051016-A	HCL to pH < 2	OK			
1193051016-B	HCL to pH < 2	OK			
1193051016-C	HCL to pH < 2	OK			

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition
1193051017-A	HCL to pH < 2	OK			
1193051017-B	HCL to pH < 2	OK			
1193051017-C	HCL to pH < 2	OK			
1193051018-A	HCL to pH < 2	OK			
1193051018-B	HCL to pH < 2	OK			
1193051018-C	HCL to pH < 2	OK			

Container Condition Glossary

Containers for bacteriological, low level mercury and VOA vials are not opened prior to analysis and will be assigned condition code OK unless evidence indicates than an inappropriate container was submitted.

OK - The container was received at an acceptable pH for the analysis requested.
BU - The container was received with headspace greater than 6mm.
DM - The container was received damaged.
FR - The container was received frozen and not usable for Bacteria or BOD analyses.
IC - The container provided for microbiology analysis was not a laboratory-supplied, pre-sterilized container and therefore was not suitable for analysis.
PA - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt and the container is now at the correct pH. See the Sample Receipt Form for details on the amount and lot # of the preservative added.
PH - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt, but was insufficient to bring the container to the correct pH for the analysis requested. See the Sample Receipt Form for details on the amount and lot # of the preservative added.

Laboratory Report of Analysis

To: Tesoro Alaska Petroleum-Kenai
312 Tyee St
Soldotna, AK 99669
(907)306-3334

Report Number: **1193351**

Client Project: **19-3 39B-004-001**

Dear Stephanie Plate,

Enclosed are the results of the analytical services performed under the referenced project for the received samples and associated QC as applicable. The samples are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards. Copies of this report and supporting data will be retained in our files for a period of ten years in the event they are required for future reference. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. Any samples submitted to our laboratory will be retained for a maximum of fourteen (14) days from the date of this report unless other archiving requirements were included in the quote.

If there are any questions about the report or services performed during this project, please call Chuck at (907) 562-2343. We will be happy to answer any questions or concerns which you may have.

Thank you for using SGS North America Inc. for your analytical services. We look forward to working with you again on any additional analytical needs.

Sincerely,
SGS North America Inc.

_____

Chuck Homestead Date
Project Manager
Charles.Homestead@sgs.com

SGS North America Inc. 200 West Potter Drive, Anchorage, AK 99518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

Case Narrative

SGS Client: **Tesoro Alaska Petroleum-Kenai**
SGS Project: **1193351**
Project Name/Site: **19-3 39B-004-001**
Project Contact: **Stephanie Plate**

Refer to sample receipt form for information on sample condition.

DUP-1 (1193351001) PS

Volatile Fatty Acids were analyzed by SGS of Dayton, NJ.
RSK 175 Light Gases were analyzed by SGS of Orlando, FL.

SMW-21A (1193351006) PS

Volatile Fatty Acids were analyzed by SGS of Dayton, NJ.

E-010 (1193351012) PS

8260C - Sample has a pH greater than two; however, the sample was analyzed within 7 days from collection.

SMW-09 MS (1193351004) BMS

Volatile Fatty Acids, MS and MSD were analyzed by SGS of Dayton, NJ.
SM5310B - Total Organic Carbon - BMS recovery is outside of QC criteria. Refer to LCS for accuracy requirements.
300.0 - Anions - BMS recovery for Sulfate is outside of QC criteria. Refer to LCS for accuracy requirements.

SMW-09 MSD (1193351005) BMSD

SM5310B - Total Organic Carbon - BMSD recovery is outside of QC criteria. Refer to LCS for accuracy requirements.
300.0 - Anions - BMSD recovery for Sulfate is outside of QC criteria. Refer to LCS for accuracy requirements.

LCS for HBN 1795885 [MXX/32538 (1516790) LCS

200.8 - Metals LCS recovery for selenium does not meet QC criteria. The associated sample concentrations are less than the LOQ.

Trip Blank (1193351014) TB

8260C - Sample has a pH greater than 2; however, the sample was analyzed within 7 days of collection.

*QC comments may be associated with the field samples found in this report. When applicable, comments will be applied to associated field samples.

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Laboratory Qualifiers

Enclosed are the analytical results associated with the above work order. The results apply to the samples as received. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. This document is issued by the Company under its General Conditions of Service accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx>. Attention is drawn to the limitation of liability, indenmification and jurisdiction issues defined therein.

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the context or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS maintains a formal Quality Assurance/Quality Control (QA/QC) program. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request. The laboratory certification numbers are AK00971 (DW Chemistry (DW Chemistry (Provisionally Certified as of 6/20/19 for Turbidity by SM 2130B, and Copper by EPA 200.8) & Microbiology) & 17-021 (CS) for ADEC and 2944.01 for DOD ELAP/ISO17025 (RCRA methods: 1020B, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035A, 6020A, 7470A, 7471B, 8015C, 8021B, 8082A, 8260C, 8270D, 8270D-SIM, 9040C, 9045D, 9056A, 9060A, AK101 and AK102/103). SGS is only certified for the analytes listed on our Drinking Water Certification, and only those analytes will be reported to the State of Alaska for compliance. Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS QAP and, when applicable, other regulatory authorities.

The following descriptors or qualifiers may be found in your report:

*	The analyte has exceeded allowable regulatory or control limits.
!	Surrogate out of control limits.
B	Indicates the analyte is found in a blank associated with the sample.
CCV/CVA/CVB	Continuing Calibration Verification
CCCV/CVC/CVCA/CVCB	Closing Continuing Calibration Verification
CL	Control Limit
DF	Analytical Dilution Factor
DL	Detection Limit (i.e., maximum method detection limit)
E	The analyte result is above the calibrated range.
GT	Greater Than
IB	Instrument Blank
ICV	Initial Calibration Verification
J	The quantitation is an estimation.
LCS(D)	Laboratory Control Spike (Duplicate)
LLQC/LLIQC	Low Level Quantitation Check
LOD	Limit of Detection (i.e., 1/2 of the LOQ)
LOQ	Limit of Quantitation (i.e., reporting or practical quantitation limit)
LT	Less Than
MB	Method Blank
MS(D)	Matrix Spike (Duplicate)
ND	Indicates the analyte is not detected.
RPD	Relative Percent Difference
U	Indicates the analyte was analyzed for but not detected.

Note: Sample summaries which include a result for "Total Solids" have already been adjusted for moisture content. All DRO/RRO analyses are integrated per SOP.

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Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
DUP-1	1193351001	06/25/2019	06/26/2019	Water (Surface, Eff., Ground)
IWS-06	1193351002	06/25/2019	06/26/2019	Water (Surface, Eff., Ground)
SMW-09	1193351003	06/24/2019	06/26/2019	Water (Surface, Eff., Ground)
SMW-09 MS	1193351004	06/24/2019	06/26/2019	Water (Surface, Eff., Ground)
SMW-09 MSD	1193351005	06/24/2019	06/26/2019	Water (Surface, Eff., Ground)
SMW-21A	1193351006	06/24/2019	06/26/2019	Water (Surface, Eff., Ground)
SMW-29	1193351007	06/24/2019	06/26/2019	Water (Surface, Eff., Ground)
SMW-31	1193351008	06/24/2019	06/26/2019	Water (Surface, Eff., Ground)
SMW-35	1193351009	06/25/2019	06/26/2019	Water (Surface, Eff., Ground)
SMW-I-1	1193351010	06/25/2019	06/26/2019	Water (Surface, Eff., Ground)
SMW-06	1193351011	06/25/2019	06/26/2019	Water (Surface, Eff., Ground)
E-010	1193351012	06/25/2019	06/26/2019	Water (Surface, Eff., Ground)
EB 6-25	1193351013	06/25/2019	06/26/2019	Water (Surface, Eff., Ground)
Trip Blank	1193351014	06/24/2019	06/26/2019	Water (Surface, Eff., Ground)
DUP-1	1193351015	06/25/2019	06/26/2019	Water (Surface, Eff., Ground)
IWS-06	1193351016	06/25/2019	06/26/2019	Water (Surface, Eff., Ground)
SMW-06	1193351017	06/25/2019	06/26/2019	Water (Surface, Eff., Ground)
SMW-09	1193351018	06/24/2019	06/26/2019	Water (Surface, Eff., Ground)
SMW-21A	1193351019	06/24/2019	06/26/2019	Water (Surface, Eff., Ground)
SMW-29	1193351020	06/24/2019	06/26/2019	Water (Surface, Eff., Ground)
SMW-31	1193351021	06/24/2019	06/26/2019	Water (Surface, Eff., Ground)
SMW-35	1193351022	06/25/2019	06/26/2019	Water (Surface, Eff., Ground)
SMW-I-1	1193351023	06/25/2019	06/26/2019	Water (Surface, Eff., Ground)
SMW-09 MS	1193351024	06/24/2019	06/26/2019	Water (Surface, Eff., Ground)
SMW-09 MSD	1193351025	06/24/2019	06/26/2019	Water (Surface, Eff., Ground)

Method	Method Description
EPA 300.0	Ion Chromatographic Analysis (W)
EP200.8	Metals in Drinking Water by ICP-MS DISSO
EP200.8	Metals in Water by 200.8 ICP-MS
SM21 4500NO3-F	Nitrate/Nitrite Flow injection Pres.
SM23 4500S D	Sulfide by Colorimetric
SM 5310B	Total Organic Carbon
SW8260C	Volatile Organic Compounds (W)
SW8260C	Volatile Organic Compounds (W) FULL

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Detectable Results Summary

Client Sample ID: **DUP-1**
Lab Sample ID: 1193351001

	Parameter	Result	Units
Metals by ICP/MS	Iron	22100	ug/L
	Manganese	2790	ug/L
Volatile GC/MS	Benzene	3.34	ug/L
	cis-1,2-Dichloroethene	13.1	ug/L
	Isopropylbenzene (Cumene)	1.09	ug/L
	Trichloroethene	30.6	ug/L
Waters Department	Sulfate	39.8	mg/L
	Sulfide	1.65	mg/L
	Total Organic Carbon	34.8	mg/L

Client Sample ID: **IWS-06**
Lab Sample ID: 1193351002

	Parameter	Result	Units
Metals by ICP/MS	Iron	19700	ug/L
	Manganese	1950	ug/L
Volatile GC/MS	Benzene	1.24	ug/L
	cis-1,2-Dichloroethene	3.85	ug/L
	Trichloroethene	17.7	ug/L
Waters Department	Sulfate	24.6	mg/L
	Sulfide	1.95	mg/L
	Total Organic Carbon	54.2	mg/L

Client Sample ID: **SMW-09**
Lab Sample ID: 1193351003

	Parameter	Result	Units
Metals by ICP/MS	Iron	17600	ug/L
	Manganese	1340	ug/L
Volatile GC/MS	Benzene	0.519	ug/L
	Vinyl chloride	0.389	ug/L
Waters Department	Sulfate	16.9	mg/L
	Total Nitrate/Nitrite-N	0.624	mg/L
	Total Organic Carbon	3.04	mg/L

Client Sample ID: **SMW-21A**
Lab Sample ID: 1193351006

	Parameter	Result	Units
Metals by ICP/MS	Iron	659	ug/L
	Manganese	62.6	ug/L
Volatile GC/MS	Trichloroethene	2.38	ug/L
Waters Department	Sulfate	62.5	mg/L
	Total Nitrate/Nitrite-N	0.313	mg/L
	Total Organic Carbon	2.64	mg/L

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Detectable Results Summary

Client Sample ID: **SMW-29**
Lab Sample ID: 1193351007

	Parameter	Result	Units
Metals by ICP/MS	Iron	174000	ug/L
	Manganese	16100	ug/L
Volatile GC/MS	Benzene	0.850	ug/L
	cis-1,2-Dichloroethene	1.01	ug/L
	Trichloroethene	2.60	ug/L
Waters Department	Sulfate	1190	mg/L
	Total Nitrate/Nitrite-N	0.465	mg/L
	Total Organic Carbon	1.66	mg/L

Client Sample ID: **SMW-31**
Lab Sample ID: 1193351008

	Parameter	Result	Units
Metals by ICP/MS	Iron	16100	ug/L
	Manganese	1610	ug/L
Volatile GC/MS	Benzene	3.52	ug/L
	cis-1,2-Dichloroethene	12.8	ug/L
	Trichloroethene	26.3	ug/L
	Vinyl chloride	0.736	ug/L
Waters Department	Sulfate	23.3	mg/L
	Sulfide	0.410	mg/L
	Total Organic Carbon	2.86	mg/L

Client Sample ID: **SMW-35**
Lab Sample ID: 1193351009

	Parameter	Result	Units
Metals by ICP/MS	Iron	23400	ug/L
	Manganese	2960	ug/L
Volatile GC/MS	Benzene	3.77	ug/L
	cis-1,2-Dichloroethene	14.8	ug/L
	Isopropylbenzene (Cumene)	1.23	ug/L
	Trichloroethene	32.6	ug/L
	Vinyl chloride	2.68	ug/L
Waters Department	Sulfate	40.1	mg/L
	Sulfide	1.70	mg/L
	Total Organic Carbon	34.3	mg/L

Client Sample ID: **SMW-I-1**
Lab Sample ID: 1193351010

	Parameter	Result	Units
Metals by ICP/MS	Iron	25300	ug/L
	Manganese	1530	ug/L
Volatile GC/MS	Benzene	4.01	ug/L
	cis-1,2-Dichloroethene	7.79	ug/L
	Toluene	1.28	ug/L
	Trichloroethene	34.1	ug/L
Waters Department	Sulfate	2.68	mg/L
	Total Organic Carbon	1.92	mg/L

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Detectable Results Summary

Client Sample ID: **SMW-06**
Lab Sample ID: 1193351011
Metals by ICP/MS
Volatile GC/MS
Waters Department

Parameter	Result	Units
Manganese	207	ug/L
Trichloroethene	1.03	ug/L
Sulfate	398	mg/L
Total Nitrate/Nitrite-N	0.334	mg/L
Total Organic Carbon	1.29	mg/L

Client Sample ID: **E-010**
Lab Sample ID: 1193351012
Volatile GC/MS

Parameter	Result	Units
Benzene	3310	ug/L
Ethylbenzene	114	ug/L
Naphthalene	162	ug/L
o-Xylene	73.9	ug/L
P & M -Xylene	1070	ug/L
Toluene	82.8	ug/L
Xylenes (total)	1140	ug/L

Client Sample ID: **EB 6-25**
Lab Sample ID: 1193351013
Volatile GC/MS

Parameter	Result	Units
Benzene	0.471	ug/L
Naphthalene	3.93	ug/L

Client Sample ID: **DUP-1**
Lab Sample ID: 1193351015
Dissolved Metals by ICP/MS

Parameter	Result	Units
Iron	22300	ug/L
Manganese	2930	ug/L

Client Sample ID: **IWS-06**
Lab Sample ID: 1193351016
Dissolved Metals by ICP/MS

Parameter	Result	Units
Iron	18800	ug/L
Manganese	1970	ug/L

Client Sample ID: **SMW-06**
Lab Sample ID: 1193351017
Dissolved Metals by ICP/MS

Parameter	Result	Units
Manganese	142	ug/L

Client Sample ID: **SMW-09**
Lab Sample ID: 1193351018
Dissolved Metals by ICP/MS

Parameter	Result	Units
Iron	14600	ug/L
Manganese	1360	ug/L

Client Sample ID: **SMW-21A**
Lab Sample ID: 1193351019
Dissolved Metals by ICP/MS

Parameter	Result	Units
Manganese	21.3	ug/L

Client Sample ID: **SMW-29**
Lab Sample ID: 1193351020
Dissolved Metals by ICP/MS

Parameter	Result	Units
Iron	174000	ug/L
Manganese	15800	ug/L

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Detectable Results Summary

Client Sample ID: **SMW-31**
Lab Sample ID: 1193351021
Dissolved Metals by ICP/MS

Parameter	Result	Units
Iron	15600	ug/L
Manganese	1610	ug/L

Client Sample ID: **SMW-35**
Lab Sample ID: 1193351022
Dissolved Metals by ICP/MS

Parameter	Result	Units
Iron	22000	ug/L
Manganese	2900	ug/L

Client Sample ID: **SMW-I-1**
Lab Sample ID: 1193351023
Dissolved Metals by ICP/MS

Parameter	Result	Units
Iron	26000	ug/L
Manganese	1540	ug/L

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Results of **DUP-1**

Client Sample ID: **DUP-1**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351001
Lab Project ID: 1193351

Collection Date: 06/25/19 08:00
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Metals by ICP/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Iron	22100		250	78.0	ug/L	1		07/06/19 12:18
Manganese	2790		1.00	0.350	ug/L	1		07/06/19 12:18

Batch Information

Analytical Batch: MMS10554
Analytical Method: EP200.8
Analyst: ACF
Analytical Date/Time: 07/06/19 12:18
Container ID: 1193351001-D

Prep Batch: MXX32538
Prep Method: E200.2
Prep Date/Time: 07/05/19 11:15
Prep Initial Wt./Vol.: 20 mL
Prep Extract Vol: 50 mL

Print Date: 07/30/2019 11:07:42AM

Results of **DUP-1**

Client Sample ID: **DUP-1**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351001
Lab Project ID: 1193351

Collection Date: 06/25/19 08:00
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		07/02/19 17:04
1,1,1-Trichloroethane	1.00	U	1.00	0.310	ug/L	1		07/02/19 17:04
1,1,2,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		07/02/19 17:04
1,1,2-Trichloroethane	0.400	U	0.400	0.120	ug/L	1		07/02/19 17:04
1,1-Dichloroethane	1.00	U	1.00	0.310	ug/L	1		07/02/19 17:04
1,1-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		07/02/19 17:04
1,1-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		07/02/19 17:04
1,2,3-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		07/02/19 17:04
1,2,3-Trichloropropane	1.00	U	1.00	0.310	ug/L	1		07/02/19 17:04
1,2,4-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		07/02/19 17:04
1,2,4-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		07/02/19 17:04
1,2-Dibromo-3-chloropropane	10.0	U	10.0	3.10	ug/L	1		07/02/19 17:04
1,2-Dibromoethane	0.0750	U	0.0750	0.0180	ug/L	1		07/02/19 17:04
1,2-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		07/02/19 17:04
1,2-Dichloroethane	0.500	U	0.500	0.150	ug/L	1		07/02/19 17:04
1,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		07/02/19 17:04
1,3,5-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		07/02/19 17:04
1,3-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		07/02/19 17:04
1,3-Dichloropropane	0.500	U	0.500	0.150	ug/L	1		07/02/19 17:04
1,4-Dichlorobenzene	0.500	U	0.500	0.150	ug/L	1		07/02/19 17:04
2,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		07/02/19 17:04
2-Butanone (MEK)	10.0	U	10.0	3.10	ug/L	1		07/02/19 17:04
2-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		07/02/19 17:04
2-Hexanone	10.0	U	10.0	3.10	ug/L	1		07/02/19 17:04
4-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		07/02/19 17:04
4-Isopropyltoluene	1.00	U	1.00	0.310	ug/L	1		07/02/19 17:04
4-Methyl-2-pentanone (MIBK)	10.0	U	10.0	3.10	ug/L	1		07/02/19 17:04
Benzene	3.34		0.400	0.120	ug/L	1		07/02/19 17:04
Bromobenzene	1.00	U	1.00	0.310	ug/L	1		07/02/19 17:04
Bromochloromethane	1.00	U	1.00	0.310	ug/L	1		07/02/19 17:04
Bromodichloromethane	0.500	U	0.500	0.150	ug/L	1		07/02/19 17:04
Bromoform	1.00	U	1.00	0.310	ug/L	1		07/02/19 17:04
Bromomethane	5.00	U	5.00	1.50	ug/L	1		07/02/19 17:04
Carbon disulfide	10.0	U	10.0	3.10	ug/L	1		07/02/19 17:04
Carbon tetrachloride	1.00	U	1.00	0.310	ug/L	1		07/02/19 17:04
Chlorobenzene	0.500	U	0.500	0.150	ug/L	1		07/02/19 17:04
Chloroethane	1.00	U	1.00	0.310	ug/L	1		07/02/19 17:04

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Results of **DUP-1**

Client Sample ID: **DUP-1**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351001
Lab Project ID: 1193351

Collection Date: 06/25/19 08:00
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	1.00	U	1.00	0.310	ug/L	1		07/02/19 17:04
Chloromethane	1.00	U	1.00	0.310	ug/L	1		07/02/19 17:04
cis-1,2-Dichloroethene	13.1		1.00	0.310	ug/L	1		07/02/19 17:04
cis-1,3-Dichloropropene	0.500	U	0.500	0.150	ug/L	1		07/02/19 17:04
Dibromochloromethane	0.500	U	0.500	0.150	ug/L	1		07/02/19 17:04
Dibromomethane	1.00	U	1.00	0.310	ug/L	1		07/02/19 17:04
Dichlorodifluoromethane	1.00	U	1.00	0.310	ug/L	1		07/02/19 17:04
Ethylbenzene	1.00	U	1.00	0.310	ug/L	1		07/02/19 17:04
Freon-113	10.0	U	10.0	3.10	ug/L	1		07/02/19 17:04
Hexachlorobutadiene	1.00	U	1.00	0.310	ug/L	1		07/02/19 17:04
Isopropylbenzene (Cumene)	1.09		1.00	0.310	ug/L	1		07/02/19 17:04
Methylene chloride	5.00	U	5.00	1.00	ug/L	1		07/02/19 17:04
Methyl-t-butyl ether	10.0	U	10.0	3.10	ug/L	1		07/02/19 17:04
Naphthalene	1.00	U	1.00	0.310	ug/L	1		07/02/19 17:04
n-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		07/02/19 17:04
n-Propylbenzene	1.00	U	1.00	0.310	ug/L	1		07/02/19 17:04
o-Xylene	1.00	U	1.00	0.310	ug/L	1		07/02/19 17:04
P & M -Xylene	2.00	U	2.00	0.620	ug/L	1		07/02/19 17:04
sec-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		07/02/19 17:04
Styrene	1.00	U	1.00	0.310	ug/L	1		07/02/19 17:04
tert-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		07/02/19 17:04
Tetrachloroethene	1.00	U	1.00	0.310	ug/L	1		07/02/19 17:04
Toluene	1.00	U	1.00	0.310	ug/L	1		07/02/19 17:04
trans-1,2-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		07/02/19 17:04
trans-1,3-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		07/02/19 17:04
Trichloroethene	30.6		1.00	0.310	ug/L	1		07/02/19 17:04
Trichlorofluoromethane	1.00	U	1.00	0.310	ug/L	1		07/02/19 17:04
Vinyl acetate	10.0	U	10.0	3.10	ug/L	1		07/02/19 17:04
Vinyl chloride	0.150	U	0.150	0.0500	ug/L	1		07/02/19 17:04
Xylenes (total)	3.00	U	3.00	1.00	ug/L	1		07/02/19 17:04
Surrogates								
1,2-Dichloroethane-D4 (surr)	102		81-118		%	1		07/02/19 17:04
4-Bromofluorobenzene (surr)	101		85-114		%	1		07/02/19 17:04
Toluene-d8 (surr)	98.4		89-112		%	1		07/02/19 17:04

Print Date: 07/30/2019 11:07:42AM

Results of **DUP-1**

Client Sample ID: **DUP-1**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351001
Lab Project ID: 1193351

Collection Date: 06/25/19 08:00
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19116
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 07/02/19 17:04
Container ID: 1193351001-G

Prep Batch: VXX34359
Prep Method: SW5030B
Prep Date/Time: 07/02/19 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 07/30/2019 11:07:42AM

Results of **DUP-1**

Client Sample ID: **DUP-1**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351001
Lab Project ID: 1193351

Collection Date: 06/25/19 08:00
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Waters Department**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Sulfate	39.8		1.00	0.250	mg/L	5		07/09/19 00:17

Batch Information

Analytical Batch: WIC5932
Analytical Method: EPA 300.0
Analyst: DMM
Analytical Date/Time: 07/09/19 00:17
Container ID: 1193351001-A

Prep Batch: WXX12907
Prep Method: METHOD
Prep Date/Time: 07/08/19 16:20
Prep Initial Wt./Vol.: 10 mL
Prep Extract Vol: 10 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Total Organic Carbon	34.8		1.00	0.400	mg/L	1		07/02/19 10:37

Batch Information

Analytical Batch: WTC2931
Analytical Method: SM 5310B
Analyst: BMZ
Analytical Date/Time: 07/02/19 10:37
Container ID: 1193351001-E

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Total Nitrate/Nitrite-N	0.200	U	0.200	0.0500	mg/L	2		07/03/19 11:55

Batch Information

Analytical Batch: WFI2826
Analytical Method: SM21 4500NO3-F
Analyst: EWW
Analytical Date/Time: 07/03/19 11:55
Container ID: 1193351001-B

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Sulfide	1.65		0.500	0.155	mg/L	5		07/01/19 10:10

Print Date: 07/30/2019 11:07:42AM

Results of **DUP-1**

Client Sample ID: **DUP-1**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351001
Lab Project ID: 1193351

Collection Date: 06/25/19 08:00
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Waters Department**

Batch Information

Analytical Batch: WAT11386
Analytical Method: SM23 4500S D
Analyst: EWW
Analytical Date/Time: 07/01/19 10:10
Container ID: 1193351001-C

Print Date: 07/30/2019 11:07:42AM

Results of **IWS-06**

Client Sample ID: **IWS-06**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351002
Lab Project ID: 1193351

Collection Date: 06/25/19 09:45
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Metals by ICP/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Iron	19700		250	78.0	ug/L	1		07/06/19 12:21
Manganese	1950		1.00	0.350	ug/L	1		07/06/19 12:21

Batch Information

Analytical Batch: MMS10554
Analytical Method: EP200.8
Analyst: ACF
Analytical Date/Time: 07/06/19 12:21
Container ID: 1193351002-D

Prep Batch: MXX32538
Prep Method: E200.2
Prep Date/Time: 07/05/19 11:15
Prep Initial Wt./Vol.: 20 mL
Prep Extract Vol: 50 mL

Print Date: 07/30/2019 11:07:42AM

Results of **IWS-06**

Client Sample ID: **IWS-06**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351002
Lab Project ID: 1193351

Collection Date: 06/25/19 09:45
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		06/28/19 17:05
1,1,1-Trichloroethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:05
1,1,2,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		06/28/19 17:05
1,1,2-Trichloroethane	0.400	U	0.400	0.120	ug/L	1		06/28/19 17:05
1,1-Dichloroethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:05
1,1-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:05
1,1-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:05
1,2,3-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:05
1,2,3-Trichloropropane	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:05
1,2,4-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:05
1,2,4-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:05
1,2-Dibromo-3-chloropropane	10.0	U	10.0	3.10	ug/L	1		06/28/19 17:05
1,2-Dibromoethane	0.0750	U	0.0750	0.0180	ug/L	1		06/28/19 17:05
1,2-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:05
1,2-Dichloroethane	0.500	U	0.500	0.150	ug/L	1		06/28/19 17:05
1,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:05
1,3,5-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:05
1,3-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:05
1,3-Dichloropropane	0.500	U	0.500	0.150	ug/L	1		06/28/19 17:05
1,4-Dichlorobenzene	0.500	U	0.500	0.150	ug/L	1		06/28/19 17:05
2,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:05
2-Butanone (MEK)	10.0	U	10.0	3.10	ug/L	1		06/28/19 17:05
2-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:05
2-Hexanone	10.0	U	10.0	3.10	ug/L	1		06/28/19 17:05
4-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:05
4-Isopropyltoluene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:05
4-Methyl-2-pentanone (MIBK)	10.0	U	10.0	3.10	ug/L	1		06/28/19 17:05
Benzene	1.24		0.400	0.120	ug/L	1		06/28/19 17:05
Bromobenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:05
Bromochloromethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:05
Bromodichloromethane	0.500	U	0.500	0.150	ug/L	1		06/28/19 17:05
Bromoform	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:05
Bromomethane	5.00	U	5.00	1.50	ug/L	1		06/28/19 17:05
Carbon disulfide	10.0	U	10.0	3.10	ug/L	1		06/28/19 17:05
Carbon tetrachloride	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:05
Chlorobenzene	0.500	U	0.500	0.150	ug/L	1		06/28/19 17:05
Chloroethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:05

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Results of **IWS-06**

Client Sample ID: **IWS-06**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351002
Lab Project ID: 1193351

Collection Date: 06/25/19 09:45
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:05
Chloromethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:05
cis-1,2-Dichloroethene	3.85		1.00	0.310	ug/L	1		06/28/19 17:05
cis-1,3-Dichloropropene	0.500	U	0.500	0.150	ug/L	1		06/28/19 17:05
Dibromochloromethane	0.500	U	0.500	0.150	ug/L	1		06/28/19 17:05
Dibromomethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:05
Dichlorodifluoromethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:05
Ethylbenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:05
Freon-113	10.0	U	10.0	3.10	ug/L	1		06/28/19 17:05
Hexachlorobutadiene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:05
Isopropylbenzene (Cumene)	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:05
Methylene chloride	5.00	U	5.00	1.00	ug/L	1		06/28/19 17:05
Methyl-t-butyl ether	10.0	U	10.0	3.10	ug/L	1		06/28/19 17:05
Naphthalene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:05
n-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:05
n-Propylbenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:05
o-Xylene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:05
P & M -Xylene	2.00	U	2.00	0.620	ug/L	1		06/28/19 17:05
sec-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:05
Styrene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:05
tert-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:05
Tetrachloroethene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:05
Toluene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:05
trans-1,2-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:05
trans-1,3-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:05
Trichloroethene	17.7		1.00	0.310	ug/L	1		06/28/19 17:05
Trichlorofluoromethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:05
Vinyl acetate	10.0	U	10.0	3.10	ug/L	1		06/28/19 17:05
Vinyl chloride	0.150	U	0.150	0.0500	ug/L	1		06/28/19 17:05
Xylenes (total)	3.00	U	3.00	1.00	ug/L	1		06/28/19 17:05
Surrogates								
1,2-Dichloroethane-D4 (surr)	103		81-118		%	1		06/28/19 17:05
4-Bromofluorobenzene (surr)	101		85-114		%	1		06/28/19 17:05
Toluene-d8 (surr)	98.6		89-112		%	1		06/28/19 17:05

Print Date: 07/30/2019 11:07:42AM

Results of **IWS-06**

Client Sample ID: **IWS-06**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351002
Lab Project ID: 1193351

Collection Date: 06/25/19 09:45
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19110
Analytical Method: SW8260C
Analyst: NRB
Analytical Date/Time: 06/28/19 17:05
Container ID: 1193351002-G

Prep Batch: VXX34349
Prep Method: SW5030B
Prep Date/Time: 06/28/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 07/30/2019 11:07:42AM

Results of **IWS-06**

Client Sample ID: **IWS-06**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351002
Lab Project ID: 1193351

Collection Date: 06/25/19 09:45
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Waters Department**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Sulfate	24.6		1.00	0.250	mg/L	5		07/09/19 01:14

Batch Information

Analytical Batch: WIC5932
Analytical Method: EPA 300.0
Analyst: DMM
Analytical Date/Time: 07/09/19 01:14
Container ID: 1193351002-A

Prep Batch: WXX12907
Prep Method: METHOD
Prep Date/Time: 07/08/19 16:20
Prep Initial Wt./Vol.: 10 mL
Prep Extract Vol: 10 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Total Organic Carbon	54.2		1.00	0.400	mg/L	1		07/02/19 10:51

Batch Information

Analytical Batch: WTC2931
Analytical Method: SM 5310B
Analyst: BMZ
Analytical Date/Time: 07/02/19 10:51
Container ID: 1193351002-E

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Total Nitrate/Nitrite-N	0.200	U	0.200	0.0500	mg/L	2		07/03/19 11:57

Batch Information

Analytical Batch: WFI2826
Analytical Method: SM21 4500NO3-F
Analyst: EWW
Analytical Date/Time: 07/03/19 11:57
Container ID: 1193351002-B

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Sulfide	1.95		0.500	0.155	mg/L	5		07/01/19 10:10

Print Date: 07/30/2019 11:07:42AM

Results of **IWS-06**

Client Sample ID: **IWS-06**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351002
Lab Project ID: 1193351

Collection Date: 06/25/19 09:45
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Waters Department**

Batch Information

Analytical Batch: WAT11386
Analytical Method: SM23 4500S D
Analyst: EWW
Analytical Date/Time: 07/01/19 10:10
Container ID: 1193351002-C

Print Date: 07/30/2019 11:07:42AM

Results of **SMW-09**

Client Sample ID: **SMW-09**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351003
Lab Project ID: 1193351

Collection Date: 06/24/19 11:45
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Metals by ICP/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Iron	17600		250	78.0	ug/L	1		07/06/19 12:24
Manganese	1340		1.00	0.350	ug/L	1		07/06/19 12:24

Batch Information

Analytical Batch: MMS10554
Analytical Method: EP200.8
Analyst: ACF
Analytical Date/Time: 07/06/19 12:24
Container ID: 1193351003-G

Prep Batch: MXX32538
Prep Method: E200.2
Prep Date/Time: 07/05/19 11:15
Prep Initial Wt./Vol.: 20 mL
Prep Extract Vol: 50 mL

Print Date: 07/30/2019 11:07:42AM

Results of **SMW-09**

Client Sample ID: **SMW-09**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351003
Lab Project ID: 1193351

Collection Date: 06/24/19 11:45
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		06/28/19 17:18
1,1,1-Trichloroethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:18
1,1,2,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		06/28/19 17:18
1,1,2-Trichloroethane	0.400	U	0.400	0.120	ug/L	1		06/28/19 17:18
1,1-Dichloroethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:18
1,1-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:18
1,1-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:18
1,2,3-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:18
1,2,3-Trichloropropane	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:18
1,2,4-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:18
1,2,4-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:18
1,2-Dibromo-3-chloropropane	10.0	U	10.0	3.10	ug/L	1		06/28/19 17:18
1,2-Dibromoethane	0.0750	U	0.0750	0.0180	ug/L	1		06/28/19 17:18
1,2-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:18
1,2-Dichloroethane	0.500	U	0.500	0.150	ug/L	1		06/28/19 17:18
1,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:18
1,3,5-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:18
1,3-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:18
1,3-Dichloropropane	0.500	U	0.500	0.150	ug/L	1		06/28/19 17:18
1,4-Dichlorobenzene	0.500	U	0.500	0.150	ug/L	1		06/28/19 17:18
2,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:18
2-Butanone (MEK)	10.0	U	10.0	3.10	ug/L	1		06/28/19 17:18
2-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:18
2-Hexanone	10.0	U	10.0	3.10	ug/L	1		06/28/19 17:18
4-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:18
4-Isopropyltoluene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:18
4-Methyl-2-pentanone (MIBK)	10.0	U	10.0	3.10	ug/L	1		06/28/19 17:18
Benzene	0.519		0.400	0.120	ug/L	1		06/28/19 17:18
Bromobenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:18
Bromochloromethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:18
Bromodichloromethane	0.500	U	0.500	0.150	ug/L	1		06/28/19 17:18
Bromoform	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:18
Bromomethane	5.00	U	5.00	1.50	ug/L	1		06/28/19 17:18
Carbon disulfide	10.0	U	10.0	3.10	ug/L	1		06/28/19 17:18
Carbon tetrachloride	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:18
Chlorobenzene	0.500	U	0.500	0.150	ug/L	1		06/28/19 17:18
Chloroethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:18

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Results of **SMW-09**

Client Sample ID: **SMW-09**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351003
Lab Project ID: 1193351

Collection Date: 06/24/19 11:45
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:18
Chloromethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:18
cis-1,2-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:18
cis-1,3-Dichloropropene	0.500	U	0.500	0.150	ug/L	1		06/28/19 17:18
Dibromochloromethane	0.500	U	0.500	0.150	ug/L	1		06/28/19 17:18
Dibromomethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:18
Dichlorodifluoromethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:18
Ethylbenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:18
Freon-113	10.0	U	10.0	3.10	ug/L	1		06/28/19 17:18
Hexachlorobutadiene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:18
Isopropylbenzene (Cumene)	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:18
Methylene chloride	5.00	U	5.00	1.00	ug/L	1		06/28/19 17:18
Methyl-t-butyl ether	10.0	U	10.0	3.10	ug/L	1		06/28/19 17:18
Naphthalene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:18
n-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:18
n-Propylbenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:18
o-Xylene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:18
P & M -Xylene	2.00	U	2.00	0.620	ug/L	1		06/28/19 17:18
sec-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:18
Styrene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:18
tert-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:18
Tetrachloroethene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:18
Toluene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:18
trans-1,2-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:18
trans-1,3-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:18
Trichloroethene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:18
Trichlorofluoromethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:18
Vinyl acetate	10.0	U	10.0	3.10	ug/L	1		06/28/19 17:18
Vinyl chloride	0.389		0.150	0.0500	ug/L	1		06/28/19 17:18
Xylenes (total)	3.00	U	3.00	1.00	ug/L	1		06/28/19 17:18
Surrogates								
1,2-Dichloroethane-D4 (surr)	109		81-118		%	1		06/28/19 17:18
4-Bromofluorobenzene (surr)	104		85-114		%	1		06/28/19 17:18
Toluene-d8 (surr)	101		89-112		%	1		06/28/19 17:18

Print Date: 07/30/2019 11:07:42AM

Results of **SMW-09**

Client Sample ID: **SMW-09**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351003
Lab Project ID: 1193351

Collection Date: 06/24/19 11:45
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19105
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 06/28/19 17:18
Container ID: 1193351003-M

Prep Batch: VXX34337
Prep Method: SW5030B
Prep Date/Time: 06/28/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 07/30/2019 11:07:42AM

Results of **SMW-09**

Client Sample ID: **SMW-09**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351003
Lab Project ID: 1193351

Collection Date: 06/24/19 11:45
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Waters Department**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Sulfate	16.9		0.200	0.0500	mg/L	1		07/09/19 01:33

Batch Information

Analytical Batch: WIC5932
Analytical Method: EPA 300.0
Analyst: DMM
Analytical Date/Time: 07/09/19 01:33
Container ID: 1193351003-A

Prep Batch: WXX12907
Prep Method: METHOD
Prep Date/Time: 07/08/19 16:20
Prep Initial Wt./Vol.: 10 mL
Prep Extract Vol: 10 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Total Organic Carbon	3.04		1.00	0.400	mg/L	1		07/02/19 11:06

Batch Information

Analytical Batch: WTC2931
Analytical Method: SM 5310B
Analyst: BMZ
Analytical Date/Time: 07/02/19 11:06
Container ID: 1193351003-I

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Total Nitrate/Nitrite-N	0.624		0.200	0.0500	mg/L	2		07/03/19 11:58

Batch Information

Analytical Batch: WFI2826
Analytical Method: SM21 4500NO3-F
Analyst: EWW
Analytical Date/Time: 07/03/19 11:58
Container ID: 1193351003-C

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Sulfide	0.100	U	0.100	0.0310	mg/L	1		07/01/19 10:10

Print Date: 07/30/2019 11:07:42AM

Results of **SMW-09**

Client Sample ID: **SMW-09**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351003
Lab Project ID: 1193351

Collection Date: 06/24/19 11:45
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Waters Department**

Batch Information

Analytical Batch: WAT11386
Analytical Method: SM23 4500S D
Analyst: EWW
Analytical Date/Time: 07/01/19 10:10
Container ID: 1193351003-F

Print Date: 07/30/2019 11:07:42AM

Results of **SMW-21A**

Client Sample ID: **SMW-21A**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351006
Lab Project ID: 1193351

Collection Date: 06/24/19 14:40
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Metals by ICP/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Iron	659		250	78.0	ug/L	1		07/06/19 12:33
Manganese	62.6		1.00	0.350	ug/L	1		07/06/19 12:33

Batch Information

Analytical Batch: MMS10554
Analytical Method: EP200.8
Analyst: ACF
Analytical Date/Time: 07/06/19 12:33
Container ID: 1193351006-D

Prep Batch: MXX32538
Prep Method: E200.2
Prep Date/Time: 07/05/19 11:15
Prep Initial Wt./Vol.: 20 mL
Prep Extract Vol: 50 mL

Print Date: 07/30/2019 11:07:42AM

Results of **SMW-21A**

Client Sample ID: **SMW-21A**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351006
Lab Project ID: 1193351

Collection Date: 06/24/19 14:40
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		06/28/19 17:49
1,1,1-Trichloroethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:49
1,1,2,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		06/28/19 17:49
1,1,2-Trichloroethane	0.400	U	0.400	0.120	ug/L	1		06/28/19 17:49
1,1-Dichloroethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:49
1,1-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:49
1,1-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:49
1,2,3-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:49
1,2,3-Trichloropropane	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:49
1,2,4-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:49
1,2,4-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		07/01/19 18:42
1,2-Dibromo-3-chloropropane	10.0	U	10.0	3.10	ug/L	1		06/28/19 17:49
1,2-Dibromoethane	0.0750	U	0.0750	0.0180	ug/L	1		06/28/19 17:49
1,2-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:49
1,2-Dichloroethane	0.500	U	0.500	0.150	ug/L	1		06/28/19 17:49
1,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:49
1,3,5-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:49
1,3-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:49
1,3-Dichloropropane	0.500	U	0.500	0.150	ug/L	1		06/28/19 17:49
1,4-Dichlorobenzene	0.500	U	0.500	0.150	ug/L	1		06/28/19 17:49
2,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:49
2-Butanone (MEK)	10.0	U	10.0	3.10	ug/L	1		06/28/19 17:49
2-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:49
2-Hexanone	10.0	U	10.0	3.10	ug/L	1		06/28/19 17:49
4-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:49
4-Isopropyltoluene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:49
4-Methyl-2-pentanone (MIBK)	10.0	U	10.0	3.10	ug/L	1		06/28/19 17:49
Benzene	0.400	U	0.400	0.120	ug/L	1		07/01/19 18:42
Bromobenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:49
Bromochloromethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:49
Bromodichloromethane	0.500	U	0.500	0.150	ug/L	1		06/28/19 17:49
Bromoform	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:49
Bromomethane	5.00	U	5.00	1.50	ug/L	1		06/28/19 17:49
Carbon disulfide	10.0	U	10.0	3.10	ug/L	1		06/28/19 17:49
Carbon tetrachloride	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:49
Chlorobenzene	0.500	U	0.500	0.150	ug/L	1		06/28/19 17:49
Chloroethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:49

Print Date: 07/30/2019 11:07:42AM

Results of **SMW-21A**

Client Sample ID: **SMW-21A**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351006
Lab Project ID: 1193351

Collection Date: 06/24/19 14:40
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:49
Chloromethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:49
cis-1,2-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		07/01/19 18:42
cis-1,3-Dichloropropene	0.500	U	0.500	0.150	ug/L	1		06/28/19 17:49
Dibromochloromethane	0.500	U	0.500	0.150	ug/L	1		06/28/19 17:49
Dibromomethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:49
Dichlorodifluoromethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:49
Ethylbenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:49
Freon-113	10.0	U	10.0	3.10	ug/L	1		06/28/19 17:49
Hexachlorobutadiene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:49
Isopropylbenzene (Cumene)	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:49
Methylene chloride	5.00	U	5.00	1.00	ug/L	1		06/28/19 17:49
Methyl-t-butyl ether	10.0	U	10.0	3.10	ug/L	1		06/28/19 17:49
Naphthalene	1.00	U	1.00	0.310	ug/L	1		07/01/19 18:42
n-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:49
n-Propylbenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:49
o-Xylene	1.00	U	1.00	0.310	ug/L	1		07/01/19 18:42
P & M -Xylene	2.00	U	2.00	0.620	ug/L	1		07/01/19 18:42
sec-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:49
Styrene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:49
tert-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:49
Tetrachloroethene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:49
Toluene	1.00	U	1.00	0.310	ug/L	1		07/01/19 18:42
trans-1,2-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:49
trans-1,3-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:49
Trichloroethene	2.38		1.00	0.310	ug/L	1		07/01/19 18:42
Trichlorofluoromethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 17:49
Vinyl acetate	10.0	U	10.0	3.10	ug/L	1		06/28/19 17:49
Vinyl chloride	0.150	U	0.150	0.0500	ug/L	1		06/28/19 17:49
Xylenes (total)	3.00	U	3.00	1.00	ug/L	1		07/01/19 18:42
Surrogates								
1,2-Dichloroethane-D4 (surr)	110		81-118		%	1		06/28/19 17:49
4-Bromofluorobenzene (surr)	105		85-114		%	1		06/28/19 17:49
Toluene-d8 (surr)	100		89-112		%	1		06/28/19 17:49

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Results of **SMW-21A**

Client Sample ID: **SMW-21A**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351006
Lab Project ID: 1193351

Collection Date: 06/24/19 14:40
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19105
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 06/28/19 17:49
Container ID: 1193351006-G

Prep Batch: VXX34337
Prep Method: SW5030B
Prep Date/Time: 06/28/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Analytical Batch: VMS19112
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 07/01/19 18:42
Container ID: 1193351006-G

Prep Batch: VXX34353
Prep Method: SW5030B
Prep Date/Time: 07/01/19 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 07/30/2019 11:07:42AM

Results of **SMW-21A**

Client Sample ID: **SMW-21A**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351006
Lab Project ID: 1193351

Collection Date: 06/24/19 14:40
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Waters Department**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Sulfate	62.5		1.00	0.250	mg/L	5		07/09/19 08:41

Batch Information

Analytical Batch: WIC5932
Analytical Method: EPA 300.0
Analyst: DMM
Analytical Date/Time: 07/09/19 08:41
Container ID: 1193351006-A

Prep Batch: WXX12907
Prep Method: METHOD
Prep Date/Time: 07/08/19 16:20
Prep Initial Wt./Vol.: 10 mL
Prep Extract Vol: 10 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Total Organic Carbon	2.64		1.00	0.400	mg/L	1		07/02/19 11:58

Batch Information

Analytical Batch: WTC2931
Analytical Method: SM 5310B
Analyst: BMZ
Analytical Date/Time: 07/02/19 11:58
Container ID: 1193351006-E

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Total Nitrate/Nitrite-N	0.313		0.200	0.0500	mg/L	2		07/03/19 12:04

Batch Information

Analytical Batch: WFI2826
Analytical Method: SM21 4500NO3-F
Analyst: EWW
Analytical Date/Time: 07/03/19 12:04
Container ID: 1193351006-B

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Sulfide	0.100	U	0.100	0.0310	mg/L	1		07/01/19 10:10

Print Date: 07/30/2019 11:07:42AM

Results of **SMW-21A**

Client Sample ID: **SMW-21A**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351006
Lab Project ID: 1193351

Collection Date: 06/24/19 14:40
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Waters Department**

Batch Information

Analytical Batch: WAT11386
Analytical Method: SM23 4500S D
Analyst: EWW
Analytical Date/Time: 07/01/19 10:10
Container ID: 1193351006-C

Print Date: 07/30/2019 11:07:42AM

Results of **SMW-29**

Client Sample ID: **SMW-29**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351007
Lab Project ID: 1193351

Collection Date: 06/24/19 13:30
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Metals by ICP/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Iron	174000		2500	780	ug/L	10		07/06/19 13:46
Manganese	16100		10.0	3.50	ug/L	10		07/06/19 13:46

Batch Information

Analytical Batch: MMS10554
Analytical Method: EP200.8
Analyst: ACF
Analytical Date/Time: 07/06/19 13:46
Container ID: 1193351007-D

Prep Batch: MXX32538
Prep Method: E200.2
Prep Date/Time: 07/05/19 11:15
Prep Initial Wt./Vol.: 20 mL
Prep Extract Vol: 50 mL

Print Date: 07/30/2019 11:07:42AM

Results of **SMW-29**

Client Sample ID: **SMW-29**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351007
Lab Project ID: 1193351

Collection Date: 06/24/19 13:30
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		06/28/19 18:04
1,1,1-Trichloroethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:04
1,1,2,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		06/28/19 18:04
1,1,2-Trichloroethane	0.400	U	0.400	0.120	ug/L	1		06/28/19 18:04
1,1-Dichloroethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:04
1,1-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:04
1,1-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:04
1,2,3-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:04
1,2,3-Trichloropropane	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:04
1,2,4-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:04
1,2,4-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:04
1,2-Dibromo-3-chloropropane	10.0	U	10.0	3.10	ug/L	1		06/28/19 18:04
1,2-Dibromoethane	0.0750	U	0.0750	0.0180	ug/L	1		06/28/19 18:04
1,2-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:04
1,2-Dichloroethane	0.500	U	0.500	0.150	ug/L	1		06/28/19 18:04
1,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:04
1,3,5-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:04
1,3-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:04
1,3-Dichloropropane	0.500	U	0.500	0.150	ug/L	1		06/28/19 18:04
1,4-Dichlorobenzene	0.500	U	0.500	0.150	ug/L	1		06/28/19 18:04
2,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:04
2-Butanone (MEK)	10.0	U	10.0	3.10	ug/L	1		06/28/19 18:04
2-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:04
2-Hexanone	10.0	U	10.0	3.10	ug/L	1		06/28/19 18:04
4-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:04
4-Isopropyltoluene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:04
4-Methyl-2-pentanone (MIBK)	10.0	U	10.0	3.10	ug/L	1		06/28/19 18:04
Benzene	0.850		0.400	0.120	ug/L	1		07/01/19 18:12
Bromobenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:04
Bromochloromethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:04
Bromodichloromethane	0.500	U	0.500	0.150	ug/L	1		06/28/19 18:04
Bromoform	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:04
Bromomethane	5.00	U	5.00	1.50	ug/L	1		06/28/19 18:04
Carbon disulfide	10.0	U	10.0	3.10	ug/L	1		06/28/19 18:04
Carbon tetrachloride	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:04
Chlorobenzene	0.500	U	0.500	0.150	ug/L	1		06/28/19 18:04
Chloroethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:04

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Results of **SMW-29**

Client Sample ID: **SMW-29**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351007
Lab Project ID: 1193351

Collection Date: 06/24/19 13:30
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:04
Chloromethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:04
cis-1,2-Dichloroethene	1.01		1.00	0.310	ug/L	1		07/01/19 18:12
cis-1,3-Dichloropropene	0.500	U	0.500	0.150	ug/L	1		06/28/19 18:04
Dibromochloromethane	0.500	U	0.500	0.150	ug/L	1		06/28/19 18:04
Dibromomethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:04
Dichlorodifluoromethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:04
Ethylbenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:04
Freon-113	10.0	U	10.0	3.10	ug/L	1		06/28/19 18:04
Hexachlorobutadiene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:04
Isopropylbenzene (Cumene)	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:04
Methylene chloride	5.00	U	5.00	1.00	ug/L	1		06/28/19 18:04
Methyl-t-butyl ether	10.0	U	10.0	3.10	ug/L	1		06/28/19 18:04
Naphthalene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:04
n-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:04
n-Propylbenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:04
o-Xylene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:04
P & M -Xylene	2.00	U	2.00	0.620	ug/L	1		06/28/19 18:04
sec-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:04
Styrene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:04
tert-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:04
Tetrachloroethene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:04
Toluene	1.00	U	1.00	0.310	ug/L	1		07/01/19 18:12
trans-1,2-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:04
trans-1,3-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:04
Trichloroethene	2.60		1.00	0.310	ug/L	1		07/01/19 18:12
Trichlorofluoromethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:04
Vinyl acetate	10.0	U	10.0	3.10	ug/L	1		06/28/19 18:04
Vinyl chloride	0.150	U	0.150	0.0500	ug/L	1		07/01/19 18:12
Xylenes (total)	3.00	U	3.00	1.00	ug/L	1		06/28/19 18:04
Surrogates								
1,2-Dichloroethane-D4 (surr)	107		81-118		%	1		06/28/19 18:04
4-Bromofluorobenzene (surr)	105		85-114		%	1		06/28/19 18:04
Toluene-d8 (surr)	99.4		89-112		%	1		06/28/19 18:04

Print Date: 07/30/2019 11:07:42AM

Results of **SMW-29**

Client Sample ID: **SMW-29**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351007
Lab Project ID: 1193351

Collection Date: 06/24/19 13:30
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19105
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 06/28/19 18:04
Container ID: 1193351007-G

Prep Batch: VXX34337
Prep Method: SW5030B
Prep Date/Time: 06/28/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Analytical Batch: VMS19112
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 07/01/19 18:12
Container ID: 1193351007-G

Prep Batch: VXX34353
Prep Method: SW5030B
Prep Date/Time: 07/01/19 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 07/30/2019 11:07:42AM

Results of **SMW-29**

Client Sample ID: **SMW-29**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351007
Lab Project ID: 1193351

Collection Date: 06/24/19 13:30
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Waters Department**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Sulfate	1190		20.0	5.00	mg/L	100		07/09/19 09:02

Batch Information

Analytical Batch: WIC5932
Analytical Method: EPA 300.0
Analyst: DMM
Analytical Date/Time: 07/09/19 09:02
Container ID: 1193351007-A

Prep Batch: WXX12907
Prep Method: METHOD
Prep Date/Time: 07/08/19 16:20
Prep Initial Wt./Vol.: 10 mL
Prep Extract Vol: 10 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Total Organic Carbon	1.66		1.00	0.400	mg/L	1		07/02/19 12:17

Batch Information

Analytical Batch: WTC2931
Analytical Method: SM 5310B
Analyst: BMZ
Analytical Date/Time: 07/02/19 12:17
Container ID: 1193351007-E

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Total Nitrate/Nitrite-N	0.465		0.200	0.0500	mg/L	2		07/03/19 12:06

Batch Information

Analytical Batch: WFI2826
Analytical Method: SM21 4500NO3-F
Analyst: EWW
Analytical Date/Time: 07/03/19 12:06
Container ID: 1193351007-B

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Sulfide	0.100	U	0.100	0.0310	mg/L	1		07/01/19 10:10

Print Date: 07/30/2019 11:07:42AM

Results of **SMW-29**

Client Sample ID: **SMW-29**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351007
Lab Project ID: 1193351

Collection Date: 06/24/19 13:30
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Waters Department**

Batch Information

Analytical Batch: WAT11386
Analytical Method: SM23 4500S D
Analyst: EWW
Analytical Date/Time: 07/01/19 10:10
Container ID: 1193351007-C

Print Date: 07/30/2019 11:07:42AM

Results of **SMW-31**

Client Sample ID: **SMW-31**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351008
Lab Project ID: 1193351

Collection Date: 06/24/19 15:30
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Metals by ICP/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Iron	16100		250	78.0	ug/L	1		07/06/19 12:39
Manganese	1610		1.00	0.350	ug/L	1		07/06/19 12:39

Batch Information

Analytical Batch: MMS10554
Analytical Method: EP200.8
Analyst: ACF
Analytical Date/Time: 07/06/19 12:39
Container ID: 1193351008-D

Prep Batch: MXX32538
Prep Method: E200.2
Prep Date/Time: 07/05/19 11:15
Prep Initial Wt./Vol.: 20 mL
Prep Extract Vol: 50 mL

Print Date: 07/30/2019 11:07:42AM

Results of **SMW-31**

Client Sample ID: **SMW-31**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351008
Lab Project ID: 1193351

Collection Date: 06/24/19 15:30
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		06/28/19 18:20
1,1,1-Trichloroethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:20
1,1,2,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		06/28/19 18:20
1,1,2-Trichloroethane	0.400	U	0.400	0.120	ug/L	1		06/28/19 18:20
1,1-Dichloroethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:20
1,1-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:20
1,1-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:20
1,2,3-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:20
1,2,3-Trichloropropane	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:20
1,2,4-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:20
1,2,4-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:20
1,2-Dibromo-3-chloropropane	10.0	U	10.0	3.10	ug/L	1		06/28/19 18:20
1,2-Dibromoethane	0.0750	U	0.0750	0.0180	ug/L	1		06/28/19 18:20
1,2-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:20
1,2-Dichloroethane	0.500	U	0.500	0.150	ug/L	1		06/28/19 18:20
1,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:20
1,3,5-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:20
1,3-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:20
1,3-Dichloropropane	0.500	U	0.500	0.150	ug/L	1		06/28/19 18:20
1,4-Dichlorobenzene	0.500	U	0.500	0.150	ug/L	1		06/28/19 18:20
2,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:20
2-Butanone (MEK)	10.0	U	10.0	3.10	ug/L	1		06/28/19 18:20
2-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:20
2-Hexanone	10.0	U	10.0	3.10	ug/L	1		06/28/19 18:20
4-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:20
4-Isopropyltoluene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:20
4-Methyl-2-pentanone (MIBK)	10.0	U	10.0	3.10	ug/L	1		06/28/19 18:20
Benzene	3.52		0.400	0.120	ug/L	1		06/28/19 18:20
Bromobenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:20
Bromochloromethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:20
Bromodichloromethane	0.500	U	0.500	0.150	ug/L	1		06/28/19 18:20
Bromoform	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:20
Bromomethane	5.00	U	5.00	1.50	ug/L	1		06/28/19 18:20
Carbon disulfide	10.0	U	10.0	3.10	ug/L	1		06/28/19 18:20
Carbon tetrachloride	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:20
Chlorobenzene	0.500	U	0.500	0.150	ug/L	1		06/28/19 18:20
Chloroethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:20

Print Date: 07/30/2019 11:07:42AM

Results of **SMW-31**

Client Sample ID: **SMW-31**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351008
Lab Project ID: 1193351

Collection Date: 06/24/19 15:30
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:20
Chloromethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:20
cis-1,2-Dichloroethene	12.8		1.00	0.310	ug/L	1		06/28/19 18:20
cis-1,3-Dichloropropene	0.500	U	0.500	0.150	ug/L	1		06/28/19 18:20
Dibromochloromethane	0.500	U	0.500	0.150	ug/L	1		06/28/19 18:20
Dibromomethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:20
Dichlorodifluoromethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:20
Ethylbenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:20
Freon-113	10.0	U	10.0	3.10	ug/L	1		06/28/19 18:20
Hexachlorobutadiene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:20
Isopropylbenzene (Cumene)	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:20
Methylene chloride	5.00	U	5.00	1.00	ug/L	1		06/28/19 18:20
Methyl-t-butyl ether	10.0	U	10.0	3.10	ug/L	1		06/28/19 18:20
Naphthalene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:20
n-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:20
n-Propylbenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:20
o-Xylene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:20
P & M -Xylene	2.00	U	2.00	0.620	ug/L	1		06/28/19 18:20
sec-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:20
Styrene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:20
tert-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:20
Tetrachloroethene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:20
Toluene	1.00	U	1.00	0.310	ug/L	1		07/01/19 17:57
trans-1,2-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:20
trans-1,3-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:20
Trichloroethene	26.3		1.00	0.310	ug/L	1		06/28/19 18:20
Trichlorofluoromethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:20
Vinyl acetate	10.0	U	10.0	3.10	ug/L	1		06/28/19 18:20
Vinyl chloride	0.736		0.150	0.0500	ug/L	1		06/28/19 18:20
Xylenes (total)	3.00	U	3.00	1.00	ug/L	1		06/28/19 18:20
Surrogates								
1,2-Dichloroethane-D4 (surr)	107		81-118		%	1		06/28/19 18:20
4-Bromofluorobenzene (surr)	104		85-114		%	1		06/28/19 18:20
Toluene-d8 (surr)	100		89-112		%	1		06/28/19 18:20

Print Date: 07/30/2019 11:07:42AM

Results of **SMW-31**

Client Sample ID: **SMW-31**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351008
Lab Project ID: 1193351

Collection Date: 06/24/19 15:30
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19112
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 07/01/19 17:57
Container ID: 1193351008-G

Prep Batch: VXX34353
Prep Method: SW5030B
Prep Date/Time: 07/01/19 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Analytical Batch: VMS19105
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 06/28/19 18:20
Container ID: 1193351008-G

Prep Batch: VXX34337
Prep Method: SW5030B
Prep Date/Time: 06/28/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 07/30/2019 11:07:42AM

Results of **SMW-31**

Client Sample ID: **SMW-31**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351008
Lab Project ID: 1193351

Collection Date: 06/24/19 15:30
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Waters Department**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Sulfate	23.3		1.00	0.250	mg/L	5		07/09/19 09:21

Batch Information

Analytical Batch: WIC5932
Analytical Method: EPA 300.0
Analyst: DMM
Analytical Date/Time: 07/09/19 09:21
Container ID: 1193351008-A

Prep Batch: WXX12907
Prep Method: METHOD
Prep Date/Time: 07/08/19 16:20
Prep Initial Wt./Vol.: 10 mL
Prep Extract Vol: 10 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Total Organic Carbon	2.86		1.00	0.400	mg/L	1		07/02/19 12:39

Batch Information

Analytical Batch: WTC2931
Analytical Method: SM 5310B
Analyst: BMZ
Analytical Date/Time: 07/02/19 12:39
Container ID: 1193351008-E

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Total Nitrate/Nitrite-N	0.200	U	0.200	0.0500	mg/L	2		07/03/19 12:07

Batch Information

Analytical Batch: WFI2826
Analytical Method: SM21 4500NO3-F
Analyst: EWW
Analytical Date/Time: 07/03/19 12:07
Container ID: 1193351008-B

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Sulfide	0.410		0.100	0.0310	mg/L	1		07/01/19 10:10

Print Date: 07/30/2019 11:07:42AM

Results of **SMW-31**

Client Sample ID: **SMW-31**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351008
Lab Project ID: 1193351

Collection Date: 06/24/19 15:30
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Waters Department**

Batch Information

Analytical Batch: WAT11386
Analytical Method: SM23 4500S D
Analyst: EWW
Analytical Date/Time: 07/01/19 10:10
Container ID: 1193351008-C

Print Date: 07/30/2019 11:07:42AM

Results of **SMW-35**

Client Sample ID: **SMW-35**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351009
Lab Project ID: 1193351

Collection Date: 06/25/19 10:50
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Metals by ICP/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Iron	23400		250	78.0	ug/L	1		07/06/19 12:52
Manganese	2960		1.00	0.350	ug/L	1		07/06/19 12:52

Batch Information

Analytical Batch: MMS10554
Analytical Method: EP200.8
Analyst: ACF
Analytical Date/Time: 07/06/19 12:52
Container ID: 1193351009-D

Prep Batch: MXX32538
Prep Method: E200.2
Prep Date/Time: 07/05/19 11:15
Prep Initial Wt./Vol.: 20 mL
Prep Extract Vol: 50 mL

Print Date: 07/30/2019 11:07:42AM

Results of **SMW-35**

Client Sample ID: **SMW-35**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351009
Lab Project ID: 1193351

Collection Date: 06/25/19 10:50
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		06/28/19 18:35
1,1,1-Trichloroethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:35
1,1,2,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		06/28/19 18:35
1,1,2-Trichloroethane	0.400	U	0.400	0.120	ug/L	1		06/28/19 18:35
1,1-Dichloroethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:35
1,1-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:35
1,1-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:35
1,2,3-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:35
1,2,3-Trichloropropane	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:35
1,2,4-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:35
1,2,4-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:35
1,2-Dibromo-3-chloropropane	10.0	U	10.0	3.10	ug/L	1		06/28/19 18:35
1,2-Dibromoethane	0.0750	U	0.0750	0.0180	ug/L	1		06/28/19 18:35
1,2-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:35
1,2-Dichloroethane	0.500	U	0.500	0.150	ug/L	1		06/28/19 18:35
1,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:35
1,3,5-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:35
1,3-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:35
1,3-Dichloropropane	0.500	U	0.500	0.150	ug/L	1		06/28/19 18:35
1,4-Dichlorobenzene	0.500	U	0.500	0.150	ug/L	1		06/28/19 18:35
2,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:35
2-Butanone (MEK)	10.0	U	10.0	3.10	ug/L	1		06/28/19 18:35
2-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:35
2-Hexanone	10.0	U	10.0	3.10	ug/L	1		06/28/19 18:35
4-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:35
4-Isopropyltoluene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:35
4-Methyl-2-pentanone (MIBK)	10.0	U	10.0	3.10	ug/L	1		06/28/19 18:35
Benzene	3.77		0.400	0.120	ug/L	1		06/28/19 18:35
Bromobenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:35
Bromochloromethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:35
Bromodichloromethane	0.500	U	0.500	0.150	ug/L	1		06/28/19 18:35
Bromoform	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:35
Bromomethane	5.00	U	5.00	1.50	ug/L	1		06/28/19 18:35
Carbon disulfide	10.0	U	10.0	3.10	ug/L	1		06/28/19 18:35
Carbon tetrachloride	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:35
Chlorobenzene	0.500	U	0.500	0.150	ug/L	1		06/28/19 18:35
Chloroethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:35

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Results of **SMW-35**

Client Sample ID: **SMW-35**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351009
Lab Project ID: 1193351

Collection Date: 06/25/19 10:50
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:35
Chloromethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:35
cis-1,2-Dichloroethene	14.8		1.00	0.310	ug/L	1		06/28/19 18:35
cis-1,3-Dichloropropene	0.500	U	0.500	0.150	ug/L	1		06/28/19 18:35
Dibromochloromethane	0.500	U	0.500	0.150	ug/L	1		06/28/19 18:35
Dibromomethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:35
Dichlorodifluoromethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:35
Ethylbenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:35
Freon-113	10.0	U	10.0	3.10	ug/L	1		06/28/19 18:35
Hexachlorobutadiene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:35
Isopropylbenzene (Cumene)	1.23		1.00	0.310	ug/L	1		06/28/19 18:35
Methylene chloride	5.00	U	5.00	1.00	ug/L	1		06/28/19 18:35
Methyl-t-butyl ether	10.0	U	10.0	3.10	ug/L	1		06/28/19 18:35
Naphthalene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:35
n-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:35
n-Propylbenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:35
o-Xylene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:35
P & M -Xylene	2.00	U	2.00	0.620	ug/L	1		06/28/19 18:35
sec-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:35
Styrene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:35
tert-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:35
Tetrachloroethene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:35
Toluene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:35
trans-1,2-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:35
trans-1,3-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:35
Trichloroethene	32.6		1.00	0.310	ug/L	1		06/28/19 18:35
Trichlorofluoromethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:35
Vinyl acetate	10.0	U	10.0	3.10	ug/L	1		06/28/19 18:35
Vinyl chloride	2.68		0.150	0.0500	ug/L	1		06/28/19 18:35
Xylenes (total)	3.00	U	3.00	1.00	ug/L	1		06/28/19 18:35
Surrogates								
1,2-Dichloroethane-D4 (surr)	105		81-118		%	1		06/28/19 18:35
4-Bromofluorobenzene (surr)	104		85-114		%	1		06/28/19 18:35
Toluene-d8 (surr)	99.7		89-112		%	1		06/28/19 18:35

Print Date: 07/30/2019 11:07:42AM

Results of **SMW-35**

Client Sample ID: **SMW-35**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351009
Lab Project ID: 1193351

Collection Date: 06/25/19 10:50
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19105
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 06/28/19 18:35
Container ID: 1193351009-G

Prep Batch: VXX34337
Prep Method: SW5030B
Prep Date/Time: 06/28/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 07/30/2019 11:07:42AM

Results of **SMW-35**

Client Sample ID: **SMW-35**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351009
Lab Project ID: 1193351

Collection Date: 06/25/19 10:50
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Waters Department**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Sulfate	40.1		1.00	0.250	mg/L	5		07/09/19 03:27

Batch Information

Analytical Batch: WIC5932
Analytical Method: EPA 300.0
Analyst: DMM
Analytical Date/Time: 07/09/19 03:27
Container ID: 1193351009-A

Prep Batch: WXX12907
Prep Method: METHOD
Prep Date/Time: 07/08/19 16:20
Prep Initial Wt./Vol.: 10 mL
Prep Extract Vol: 10 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Total Organic Carbon	34.3		1.00	0.400	mg/L	1		07/02/19 12:55

Batch Information

Analytical Batch: WTC2931
Analytical Method: SM 5310B
Analyst: BMZ
Analytical Date/Time: 07/02/19 12:55
Container ID: 1193351009-E

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Total Nitrate/Nitrite-N	0.200	U	0.200	0.0500	mg/L	2		07/03/19 12:09

Batch Information

Analytical Batch: WFI2826
Analytical Method: SM21 4500NO3-F
Analyst: EWW
Analytical Date/Time: 07/03/19 12:09
Container ID: 1193351009-B

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Sulfide	1.70		0.500	0.155	mg/L	5		07/01/19 10:10

Print Date: 07/30/2019 11:07:42AM

Results of **SMW-35**

Client Sample ID: **SMW-35**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351009
Lab Project ID: 1193351

Collection Date: 06/25/19 10:50
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Waters Department**

Batch Information

Analytical Batch: WAT11386
Analytical Method: SM23 4500S D
Analyst: EWW
Analytical Date/Time: 07/01/19 10:10
Container ID: 1193351009-C

Print Date: 07/30/2019 11:07:42AM

Results of **SMW-I-1**

Client Sample ID: **SMW-I-1**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351010
Lab Project ID: 1193351

Collection Date: 06/25/19 11:50
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Metals by ICP/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Iron	25300		250	78.0	ug/L	1		07/06/19 12:55
Manganese	1530		1.00	0.350	ug/L	1		07/06/19 12:55

Batch Information

Analytical Batch: MMS10554
Analytical Method: EP200.8
Analyst: ACF
Analytical Date/Time: 07/06/19 12:55
Container ID: 1193351010-D

Prep Batch: MXX32538
Prep Method: E200.2
Prep Date/Time: 07/05/19 11:15
Prep Initial Wt./Vol.: 20 mL
Prep Extract Vol: 50 mL

Print Date: 07/30/2019 11:07:42AM

Results of **SMW-I-1**

Client Sample ID: **SMW-I-1**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351010
Lab Project ID: 1193351

Collection Date: 06/25/19 11:50
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		06/28/19 18:51
1,1,1-Trichloroethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:51
1,1,2,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		06/28/19 18:51
1,1,2-Trichloroethane	0.400	U	0.400	0.120	ug/L	1		06/28/19 18:51
1,1-Dichloroethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:51
1,1-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:51
1,1-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:51
1,2,3-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:51
1,2,3-Trichloropropane	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:51
1,2,4-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:51
1,2,4-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:51
1,2-Dibromo-3-chloropropane	10.0	U	10.0	3.10	ug/L	1		06/28/19 18:51
1,2-Dibromoethane	0.0750	U	0.0750	0.0180	ug/L	1		06/28/19 18:51
1,2-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:51
1,2-Dichloroethane	0.500	U	0.500	0.150	ug/L	1		06/28/19 18:51
1,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:51
1,3,5-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:51
1,3-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:51
1,3-Dichloropropane	0.500	U	0.500	0.150	ug/L	1		06/28/19 18:51
1,4-Dichlorobenzene	0.500	U	0.500	0.150	ug/L	1		06/28/19 18:51
2,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:51
2-Butanone (MEK)	10.0	U	10.0	3.10	ug/L	1		06/28/19 18:51
2-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:51
2-Hexanone	10.0	U	10.0	3.10	ug/L	1		06/28/19 18:51
4-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:51
4-Isopropyltoluene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:51
4-Methyl-2-pentanone (MIBK)	10.0	U	10.0	3.10	ug/L	1		06/28/19 18:51
Benzene	4.01		0.400	0.120	ug/L	1		06/28/19 18:51
Bromobenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:51
Bromochloromethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:51
Bromodichloromethane	0.500	U	0.500	0.150	ug/L	1		06/28/19 18:51
Bromoform	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:51
Bromomethane	5.00	U	5.00	1.50	ug/L	1		06/28/19 18:51
Carbon disulfide	10.0	U	10.0	3.10	ug/L	1		06/28/19 18:51
Carbon tetrachloride	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:51
Chlorobenzene	0.500	U	0.500	0.150	ug/L	1		06/28/19 18:51
Chloroethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:51

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Results of **SMW-I-1**

Client Sample ID: **SMW-I-1**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351010
Lab Project ID: 1193351

Collection Date: 06/25/19 11:50
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:51
Chloromethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:51
cis-1,2-Dichloroethene	7.79		1.00	0.310	ug/L	1		06/28/19 18:51
cis-1,3-Dichloropropene	0.500	U	0.500	0.150	ug/L	1		06/28/19 18:51
Dibromochloromethane	0.500	U	0.500	0.150	ug/L	1		06/28/19 18:51
Dibromomethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:51
Dichlorodifluoromethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:51
Ethylbenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:51
Freon-113	10.0	U	10.0	3.10	ug/L	1		06/28/19 18:51
Hexachlorobutadiene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:51
Isopropylbenzene (Cumene)	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:51
Methylene chloride	5.00	U	5.00	1.00	ug/L	1		06/28/19 18:51
Methyl-t-butyl ether	10.0	U	10.0	3.10	ug/L	1		06/28/19 18:51
Naphthalene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:51
n-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:51
n-Propylbenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:51
o-Xylene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:51
P & M -Xylene	2.00	U	2.00	0.620	ug/L	1		06/28/19 18:51
sec-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:51
Styrene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:51
tert-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:51
Tetrachloroethene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:51
Toluene	1.28		1.00	0.310	ug/L	1		06/28/19 18:51
trans-1,2-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:51
trans-1,3-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:51
Trichloroethene	34.1		1.00	0.310	ug/L	1		06/28/19 18:51
Trichlorofluoromethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 18:51
Vinyl acetate	10.0	U	10.0	3.10	ug/L	1		06/28/19 18:51
Vinyl chloride	0.150	U	0.150	0.0500	ug/L	1		06/28/19 18:51
Xylenes (total)	3.00	U	3.00	1.00	ug/L	1		06/28/19 18:51
Surrogates								
1,2-Dichloroethane-D4 (surr)	109		81-118		%	1		06/28/19 18:51
4-Bromofluorobenzene (surr)	104		85-114		%	1		06/28/19 18:51
Toluene-d8 (surr)	99.7		89-112		%	1		06/28/19 18:51

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Results of **SMW-I-1**

Client Sample ID: **SMW-I-1**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351010
Lab Project ID: 1193351

Collection Date: 06/25/19 11:50
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19105
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 06/28/19 18:51
Container ID: 1193351010-G

Prep Batch: VXX34337
Prep Method: SW5030B
Prep Date/Time: 06/28/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 07/30/2019 11:07:42AM

Results of **SMW-I-1**

Client Sample ID: **SMW-I-1**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351010
Lab Project ID: 1193351

Collection Date: 06/25/19 11:50
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Waters Department**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Sulfate	2.68		0.200	0.0500	mg/L	1		07/09/19 03:46

Batch Information

Analytical Batch: WIC5932
Analytical Method: EPA 300.0
Analyst: DMM
Analytical Date/Time: 07/09/19 03:46
Container ID: 1193351010-A

Prep Batch: WXX12907
Prep Method: METHOD
Prep Date/Time: 07/08/19 16:20
Prep Initial Wt./Vol.: 10 mL
Prep Extract Vol: 10 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Total Organic Carbon	1.92		1.00	0.400	mg/L	1		07/02/19 13:09

Batch Information

Analytical Batch: WTC2931
Analytical Method: SM 5310B
Analyst: BMZ
Analytical Date/Time: 07/02/19 13:09
Container ID: 1193351010-E

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Total Nitrate/Nitrite-N	0.200	U	0.200	0.0500	mg/L	2		07/03/19 12:16

Batch Information

Analytical Batch: WFI2826
Analytical Method: SM21 4500NO3-F
Analyst: EWW
Analytical Date/Time: 07/03/19 12:16
Container ID: 1193351010-B

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Sulfide	0.100	U	0.100	0.0310	mg/L	1		07/01/19 10:10

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Results of **SMW-I-1**

Client Sample ID: **SMW-I-1**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351010
Lab Project ID: 1193351

Collection Date: 06/25/19 11:50
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Waters Department**

Batch Information

Analytical Batch: WAT11386
Analytical Method: SM23 4500S D
Analyst: EWW
Analytical Date/Time: 07/01/19 10:10
Container ID: 1193351010-C

Print Date: 07/30/2019 11:07:42AM

Results of **SMW-06**

Client Sample ID: **SMW-06**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351011
Lab Project ID: 1193351

Collection Date: 06/25/19 12:50
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Metals by ICP/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Iron	250	U	250	78.0	ug/L	1		07/06/19 12:58
Manganese	207		1.00	0.350	ug/L	1		07/06/19 12:58

Batch Information

Analytical Batch: MMS10554
Analytical Method: EP200.8
Analyst: ACF
Analytical Date/Time: 07/06/19 12:58
Container ID: 1193351011-D

Prep Batch: MXX32538
Prep Method: E200.2
Prep Date/Time: 07/05/19 11:15
Prep Initial Wt./Vol.: 20 mL
Prep Extract Vol: 50 mL

Print Date: 07/30/2019 11:07:42AM

Results of **SMW-06**

Client Sample ID: **SMW-06**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351011
Lab Project ID: 1193351

Collection Date: 06/25/19 12:50
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		06/28/19 19:06
1,1,1-Trichloroethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 19:06
1,1,2,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		06/28/19 19:06
1,1,2-Trichloroethane	0.400	U	0.400	0.120	ug/L	1		06/28/19 19:06
1,1-Dichloroethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 19:06
1,1-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		06/28/19 19:06
1,1-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		06/28/19 19:06
1,2,3-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 19:06
1,2,3-Trichloropropane	1.00	U	1.00	0.310	ug/L	1		06/28/19 19:06
1,2,4-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 19:06
1,2,4-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 19:06
1,2-Dibromo-3-chloropropane	10.0	U	10.0	3.10	ug/L	1		06/28/19 19:06
1,2-Dibromoethane	0.0750	U	0.0750	0.0180	ug/L	1		06/28/19 19:06
1,2-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 19:06
1,2-Dichloroethane	0.500	U	0.500	0.150	ug/L	1		06/28/19 19:06
1,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		06/28/19 19:06
1,3,5-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 19:06
1,3-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 19:06
1,3-Dichloropropane	0.500	U	0.500	0.150	ug/L	1		06/28/19 19:06
1,4-Dichlorobenzene	0.500	U	0.500	0.150	ug/L	1		06/28/19 19:06
2,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		06/28/19 19:06
2-Butanone (MEK)	10.0	U	10.0	3.10	ug/L	1		06/28/19 19:06
2-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		06/28/19 19:06
2-Hexanone	10.0	U	10.0	3.10	ug/L	1		06/28/19 19:06
4-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		06/28/19 19:06
4-Isopropyltoluene	1.00	U	1.00	0.310	ug/L	1		06/28/19 19:06
4-Methyl-2-pentanone (MIBK)	10.0	U	10.0	3.10	ug/L	1		06/28/19 19:06
Benzene	0.400	U	0.400	0.120	ug/L	1		06/28/19 19:06
Bromobenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 19:06
Bromochloromethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 19:06
Bromodichloromethane	0.500	U	0.500	0.150	ug/L	1		06/28/19 19:06
Bromoform	1.00	U	1.00	0.310	ug/L	1		06/28/19 19:06
Bromomethane	5.00	U	5.00	1.50	ug/L	1		06/28/19 19:06
Carbon disulfide	10.0	U	10.0	3.10	ug/L	1		06/28/19 19:06
Carbon tetrachloride	1.00	U	1.00	0.310	ug/L	1		06/28/19 19:06
Chlorobenzene	0.500	U	0.500	0.150	ug/L	1		06/28/19 19:06
Chloroethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 19:06

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Results of **SMW-06**

Client Sample ID: **SMW-06**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351011
Lab Project ID: 1193351

Collection Date: 06/25/19 12:50
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	1.00	U	1.00	0.310	ug/L	1		06/28/19 19:06
Chloromethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 19:06
cis-1,2-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		06/28/19 19:06
cis-1,3-Dichloropropene	0.500	U	0.500	0.150	ug/L	1		06/28/19 19:06
Dibromochloromethane	0.500	U	0.500	0.150	ug/L	1		06/28/19 19:06
Dibromomethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 19:06
Dichlorodifluoromethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 19:06
Ethylbenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 19:06
Freon-113	10.0	U	10.0	3.10	ug/L	1		06/28/19 19:06
Hexachlorobutadiene	1.00	U	1.00	0.310	ug/L	1		06/28/19 19:06
Isopropylbenzene (Cumene)	1.00	U	1.00	0.310	ug/L	1		06/28/19 19:06
Methylene chloride	5.00	U	5.00	1.00	ug/L	1		06/28/19 19:06
Methyl-t-butyl ether	10.0	U	10.0	3.10	ug/L	1		06/28/19 19:06
Naphthalene	1.00	U	1.00	0.310	ug/L	1		06/28/19 19:06
n-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 19:06
n-Propylbenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 19:06
o-Xylene	1.00	U	1.00	0.310	ug/L	1		06/28/19 19:06
P & M -Xylene	2.00	U	2.00	0.620	ug/L	1		06/28/19 19:06
sec-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 19:06
Styrene	1.00	U	1.00	0.310	ug/L	1		06/28/19 19:06
tert-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 19:06
Tetrachloroethene	1.00	U	1.00	0.310	ug/L	1		06/28/19 19:06
Toluene	1.00	U	1.00	0.310	ug/L	1		06/28/19 19:06
trans-1,2-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		06/28/19 19:06
trans-1,3-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		06/28/19 19:06
Trichloroethene	1.03		1.00	0.310	ug/L	1		06/28/19 19:06
Trichlorofluoromethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 19:06
Vinyl acetate	10.0	U	10.0	3.10	ug/L	1		06/28/19 19:06
Vinyl chloride	0.150	U	0.150	0.0500	ug/L	1		06/28/19 19:06
Xylenes (total)	3.00	U	3.00	1.00	ug/L	1		06/28/19 19:06
Surrogates								
1,2-Dichloroethane-D4 (surr)	109		81-118		%	1		06/28/19 19:06
4-Bromofluorobenzene (surr)	105		85-114		%	1		06/28/19 19:06
Toluene-d8 (surr)	100		89-112		%	1		06/28/19 19:06

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Results of **SMW-06**

Client Sample ID: **SMW-06**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351011
Lab Project ID: 1193351

Collection Date: 06/25/19 12:50
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19105
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 06/28/19 19:06
Container ID: 1193351011-G

Prep Batch: VXX34337
Prep Method: SW5030B
Prep Date/Time: 06/28/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 07/30/2019 11:07:42AM

Results of **SMW-06**

Client Sample ID: **SMW-06**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351011
Lab Project ID: 1193351

Collection Date: 06/25/19 12:50
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Waters Department**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Sulfate	398		5.00	1.25	mg/L	25		07/09/19 09:40

Batch Information

Analytical Batch: WIC5932
Analytical Method: EPA 300.0
Analyst: DMM
Analytical Date/Time: 07/09/19 09:40
Container ID: 1193351011-A

Prep Batch: WXX12907
Prep Method: METHOD
Prep Date/Time: 07/08/19 16:20
Prep Initial Wt./Vol.: 10 mL
Prep Extract Vol: 10 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Total Organic Carbon	1.29		1.00	0.400	mg/L	1		07/02/19 13:59

Batch Information

Analytical Batch: WTC2931
Analytical Method: SM 5310B
Analyst: BMZ
Analytical Date/Time: 07/02/19 13:59
Container ID: 1193351011-E

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Total Nitrate/Nitrite-N	0.334		0.200	0.0500	mg/L	2		07/03/19 12:18

Batch Information

Analytical Batch: WFI2826
Analytical Method: SM21 4500NO3-F
Analyst: EWW
Analytical Date/Time: 07/03/19 12:18
Container ID: 1193351011-B

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Sulfide	0.100	U	0.100	0.0310	mg/L	1		07/01/19 10:10

Print Date: 07/30/2019 11:07:42AM

Results of **SMW-06**

Client Sample ID: **SMW-06**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351011
Lab Project ID: 1193351

Collection Date: 06/25/19 12:50
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Waters Department**

Batch Information

Analytical Batch: WAT11386
Analytical Method: SM23 4500S D
Analyst: EWW
Analytical Date/Time: 07/01/19 10:10
Container ID: 1193351011-C

Print Date: 07/30/2019 11:07:42AM

Results of **E-010**

Client Sample ID: **E-010**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351012
Lab Project ID: 1193351

Collection Date: 06/25/19 14:10
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	3310		20.0	6.00	ug/L	50		07/03/19 16:19
Ethylbenzene	114		1.00	0.310	ug/L	1		07/02/19 18:53
Naphthalene	162		1.00	0.310	ug/L	1		07/02/19 18:53
o-Xylene	73.9		50.0	15.5	ug/L	50		07/03/19 16:19
P & M -Xylene	1070		100	31.0	ug/L	50		07/03/19 16:19
Toluene	82.8		1.00	0.310	ug/L	1		07/02/19 18:53
Trichloroethene	1.00	U	1.00	0.310	ug/L	1		07/02/19 18:53
Vinyl chloride	0.150	U	0.150	0.0500	ug/L	1		07/02/19 18:53
Xylenes (total)	1140		150	50.0	ug/L	50		07/03/19 16:19
Surrogates								
1,2-Dichloroethane-D4 (surr)	97.4		81-118		%	1		07/02/19 18:53
4-Bromofluorobenzene (surr)	104		85-114		%	1		07/02/19 18:53
Toluene-d8 (surr)	102		89-112		%	1		07/02/19 18:53

Batch Information

Analytical Batch: VMS19120
Analytical Method: SW8260C
Analyst: NRB
Analytical Date/Time: 07/03/19 16:19
Container ID: 1193351012-B

Prep Batch: VXX34369
Prep Method: SW5030B
Prep Date/Time: 07/03/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Analytical Batch: VMS19114
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 07/02/19 18:53
Container ID: 1193351012-A

Prep Batch: VXX34357
Prep Method: SW5030B
Prep Date/Time: 07/02/19 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 07/30/2019 11:07:42AM

Results of **EB 6-25**

Client Sample ID: **EB 6-25**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351013
Lab Project ID: 1193351

Collection Date: 06/25/19 16:30
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.471		0.400	0.120	ug/L	1		07/03/19 15:34
Ethylbenzene	1.00	U	1.00	0.310	ug/L	1		07/02/19 19:08
Naphthalene	3.93		1.00	0.310	ug/L	1		07/02/19 19:08
o-Xylene	1.00	U	1.00	0.310	ug/L	1		07/03/19 15:34
P & M -Xylene	2.00	U	2.00	0.620	ug/L	1		07/03/19 15:34
Toluene	1.00	U	1.00	0.310	ug/L	1		07/03/19 15:34
Trichloroethene	1.00	U	1.00	0.310	ug/L	1		07/02/19 19:08
Vinyl chloride	0.150	U	0.150	0.0500	ug/L	1		07/02/19 19:08
Xylenes (total)	3.00	U	3.00	1.00	ug/L	1		07/03/19 15:34
Surrogates								
1,2-Dichloroethane-D4 (surr)	111		81-118		%	1		07/02/19 19:08
4-Bromofluorobenzene (surr)	106		85-114		%	1		07/02/19 19:08
Toluene-d8 (surr)	100		89-112		%	1		07/02/19 19:08

Batch Information

Analytical Batch: VMS19120
Analytical Method: SW8260C
Analyst: NRB
Analytical Date/Time: 07/03/19 15:34
Container ID: 1193351013-B

Prep Batch: VXX34369
Prep Method: SW5030B
Prep Date/Time: 07/03/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Analytical Batch: VMS19114
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 07/02/19 19:08
Container ID: 1193351013-A

Prep Batch: VXX34357
Prep Method: SW5030B
Prep Date/Time: 07/02/19 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 07/30/2019 11:07:42AM

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351014
Lab Project ID: 1193351

Collection Date: 06/24/19 08:00
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		06/28/19 16:32
1,1,1-Trichloroethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 16:32
1,1,2,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		06/28/19 16:32
1,1,2-Trichloroethane	0.400	U	0.400	0.120	ug/L	1		06/28/19 16:32
1,1-Dichloroethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 16:32
1,1-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		06/28/19 16:32
1,1-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		06/28/19 16:32
1,2,3-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 16:32
1,2,3-Trichloropropane	1.00	U	1.00	0.310	ug/L	1		06/28/19 16:32
1,2,4-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 16:32
1,2,4-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 16:32
1,2-Dibromo-3-chloropropane	10.0	U	10.0	3.10	ug/L	1		06/28/19 16:32
1,2-Dibromoethane	0.0750	U	0.0750	0.0180	ug/L	1		06/28/19 16:32
1,2-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 16:32
1,2-Dichloroethane	0.500	U	0.500	0.150	ug/L	1		06/28/19 16:32
1,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		06/28/19 16:32
1,3,5-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 16:32
1,3-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 16:32
1,3-Dichloropropane	0.500	U	0.500	0.150	ug/L	1		06/28/19 16:32
1,4-Dichlorobenzene	0.500	U	0.500	0.150	ug/L	1		06/28/19 16:32
2,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		06/28/19 16:32
2-Butanone (MEK)	10.0	U	10.0	3.10	ug/L	1		06/28/19 16:32
2-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		06/28/19 16:32
2-Hexanone	10.0	U	10.0	3.10	ug/L	1		06/28/19 16:32
4-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		06/28/19 16:32
4-Isopropyltoluene	1.00	U	1.00	0.310	ug/L	1		06/28/19 16:32
4-Methyl-2-pentanone (MIBK)	10.0	U	10.0	3.10	ug/L	1		06/28/19 16:32
Benzene	0.400	U	0.400	0.120	ug/L	1		06/28/19 16:32
Bromobenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 16:32
Bromochloromethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 16:32
Bromodichloromethane	0.500	U	0.500	0.150	ug/L	1		06/28/19 16:32
Bromoform	1.00	U	1.00	0.310	ug/L	1		06/28/19 16:32
Bromomethane	5.00	U	5.00	1.50	ug/L	1		06/28/19 16:32
Carbon disulfide	10.0	U	10.0	3.10	ug/L	1		06/28/19 16:32
Carbon tetrachloride	1.00	U	1.00	0.310	ug/L	1		06/28/19 16:32
Chlorobenzene	0.500	U	0.500	0.150	ug/L	1		06/28/19 16:32
Chloroethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 16:32

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Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351014
Lab Project ID: 1193351

Collection Date: 06/24/19 08:00
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	1.00	U	1.00	0.310	ug/L	1		06/28/19 16:32
Chloromethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 16:32
cis-1,2-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		06/28/19 16:32
cis-1,3-Dichloropropene	0.500	U	0.500	0.150	ug/L	1		06/28/19 16:32
Dibromochloromethane	0.500	U	0.500	0.150	ug/L	1		06/28/19 16:32
Dibromomethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 16:32
Dichlorodifluoromethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 16:32
Ethylbenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 16:32
Freon-113	10.0	U	10.0	3.10	ug/L	1		06/28/19 16:32
Hexachlorobutadiene	1.00	U	1.00	0.310	ug/L	1		06/28/19 16:32
Isopropylbenzene (Cumene)	1.00	U	1.00	0.310	ug/L	1		06/28/19 16:32
Methylene chloride	5.00	U	5.00	1.00	ug/L	1		06/28/19 16:32
Methyl-t-butyl ether	10.0	U	10.0	3.10	ug/L	1		06/28/19 16:32
Naphthalene	1.00	U	1.00	0.310	ug/L	1		06/28/19 16:32
n-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 16:32
n-Propylbenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 16:32
o-Xylene	1.00	U	1.00	0.310	ug/L	1		06/28/19 16:32
P & M -Xylene	2.00	U	2.00	0.620	ug/L	1		06/28/19 16:32
sec-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 16:32
Styrene	1.00	U	1.00	0.310	ug/L	1		06/28/19 16:32
tert-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		06/28/19 16:32
Tetrachloroethene	1.00	U	1.00	0.310	ug/L	1		06/28/19 16:32
Toluene	1.00	U	1.00	0.310	ug/L	1		06/28/19 16:32
trans-1,2-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		06/28/19 16:32
trans-1,3-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		06/28/19 16:32
Trichloroethene	1.00	U	1.00	0.310	ug/L	1		06/28/19 16:32
Trichlorofluoromethane	1.00	U	1.00	0.310	ug/L	1		06/28/19 16:32
Vinyl acetate	10.0	U	10.0	3.10	ug/L	1		06/28/19 16:32
Vinyl chloride	0.150	U	0.150	0.0500	ug/L	1		06/28/19 16:32
Xylenes (total)	3.00	U	3.00	1.00	ug/L	1		06/28/19 16:32
Surrogates								
1,2-Dichloroethane-D4 (surr)	109		81-118		%	1		06/28/19 16:32
4-Bromofluorobenzene (surr)	105		85-114		%	1		06/28/19 16:32
Toluene-d8 (surr)	101		89-112		%	1		06/28/19 16:32

Print Date: 07/30/2019 11:07:42AM

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351014
Lab Project ID: 1193351

Collection Date: 06/24/19 08:00
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19105
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 06/28/19 16:32
Container ID: 1193351014-A

Prep Batch: VXX34337
Prep Method: SW5030B
Prep Date/Time: 06/28/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 07/30/2019 11:07:42AM

Results of **DUP-1**

Client Sample ID: **DUP-1**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351015
Lab Project ID: 1193351

Collection Date: 06/25/19 08:00
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Dissolved Metals by ICP/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Iron	22300		250	78.0	ug/L	1		07/06/19 13:01
Manganese	2930		1.00	0.350	ug/L	1		07/06/19 13:01

Batch Information

Analytical Batch: MMS10554
Analytical Method: EP200.8
Analyst: ACF
Analytical Date/Time: 07/06/19 13:01
Container ID: 1193351015-A

Prep Batch: MXX32538
Prep Method: E200.2
Prep Date/Time: 07/05/19 11:15
Prep Initial Wt./Vol.: 20 mL
Prep Extract Vol: 50 mL

Print Date: 07/30/2019 11:07:42AM

Results of **IWS-06**

Client Sample ID: **IWS-06**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351016
Lab Project ID: 1193351

Collection Date: 06/25/19 09:45
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Dissolved Metals by ICP/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Iron	18800		250	78.0	ug/L	1		07/06/19 13:04
Manganese	1970		1.00	0.350	ug/L	1		07/06/19 13:04

Batch Information

Analytical Batch: MMS10554
Analytical Method: EP200.8
Analyst: ACF
Analytical Date/Time: 07/06/19 13:04
Container ID: 1193351016-A

Prep Batch: MXX32538
Prep Method: E200.2
Prep Date/Time: 07/05/19 11:15
Prep Initial Wt./Vol.: 20 mL
Prep Extract Vol: 50 mL

Print Date: 07/30/2019 11:07:42AM

Results of **SMW-06**

Client Sample ID: **SMW-06**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351017
Lab Project ID: 1193351

Collection Date: 06/25/19 12:50
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Dissolved Metals by ICP/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Iron	250	U	250	78.0	ug/L	1		07/06/19 13:07
Manganese	142		1.00	0.350	ug/L	1		07/06/19 13:07

Batch Information

Analytical Batch: MMS10554
Analytical Method: EP200.8
Analyst: ACF
Analytical Date/Time: 07/06/19 13:07
Container ID: 1193351017-A

Prep Batch: MXX32538
Prep Method: E200.2
Prep Date/Time: 07/05/19 11:15
Prep Initial Wt./Vol.: 20 mL
Prep Extract Vol: 50 mL

Print Date: 07/30/2019 11:07:42AM

Results of **SMW-09**

Client Sample ID: **SMW-09**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351018
Lab Project ID: 1193351

Collection Date: 06/24/19 11:45
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Dissolved Metals by ICP/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Iron	14600		250	78.0	ug/L	1		07/06/19 13:10
Manganese	1360		1.00	0.350	ug/L	1		07/06/19 13:10

Batch Information

Analytical Batch: MMS10554
Analytical Method: EP200.8
Analyst: ACF
Analytical Date/Time: 07/06/19 13:10
Container ID: 1193351018-A

Prep Batch: MXX32538
Prep Method: E200.2
Prep Date/Time: 07/05/19 11:15
Prep Initial Wt./Vol.: 20 mL
Prep Extract Vol: 50 mL

Print Date: 07/30/2019 11:07:42AM

Results of **SMW-21A**

Client Sample ID: **SMW-21A**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351019
Lab Project ID: 1193351

Collection Date: 06/24/19 14:40
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Dissolved Metals by ICP/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Iron	250	U	250	78.0	ug/L	1		07/06/19 13:13
Manganese	21.3		1.00	0.350	ug/L	1		07/06/19 13:13

Batch Information

Analytical Batch: MMS10554
Analytical Method: EP200.8
Analyst: ACF
Analytical Date/Time: 07/06/19 13:13
Container ID: 1193351019-A

Prep Batch: MXX32538
Prep Method: E200.2
Prep Date/Time: 07/05/19 11:15
Prep Initial Wt./Vol.: 20 mL
Prep Extract Vol: 50 mL

Print Date: 07/30/2019 11:07:42AM

Results of **SMW-29**

Client Sample ID: **SMW-29**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351020
Lab Project ID: 1193351

Collection Date: 06/24/19 13:30
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Dissolved Metals by ICP/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Iron	174000		2500	780	ug/L	10		07/06/19 13:49
Manganese	15800		10.0	3.50	ug/L	10		07/06/19 13:49

Batch Information

Analytical Batch: MMS10554
Analytical Method: EP200.8
Analyst: ACF
Analytical Date/Time: 07/06/19 13:49
Container ID: 1193351020-A

Prep Batch: MXX32538
Prep Method: E200.2
Prep Date/Time: 07/05/19 11:15
Prep Initial Wt./Vol.: 20 mL
Prep Extract Vol: 50 mL

Print Date: 07/30/2019 11:07:42AM

Results of **SMW-31**

Client Sample ID: **SMW-31**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351021
Lab Project ID: 1193351

Collection Date: 06/24/19 15:30
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Dissolved Metals by ICP/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Iron	15600		250	78.0	ug/L	1		07/06/19 13:19
Manganese	1610		1.00	0.350	ug/L	1		07/06/19 13:19

Batch Information

Analytical Batch: MMS10554
Analytical Method: EP200.8
Analyst: ACF
Analytical Date/Time: 07/06/19 13:19
Container ID: 1193351021-A

Prep Batch: MXX32538
Prep Method: E200.2
Prep Date/Time: 07/05/19 11:15
Prep Initial Wt./Vol.: 20 mL
Prep Extract Vol: 50 mL

Print Date: 07/30/2019 11:07:42AM

Results of **SMW-35**

Client Sample ID: **SMW-35**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351022
Lab Project ID: 1193351

Collection Date: 06/25/19 10:50
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Dissolved Metals by ICP/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Iron	22000		250	78.0	ug/L	1		07/06/19 13:28
Manganese	2900		1.00	0.350	ug/L	1		07/06/19 13:28

Batch Information

Analytical Batch: MMS10554
Analytical Method: EP200.8
Analyst: ACF
Analytical Date/Time: 07/06/19 13:28
Container ID: 1193351022-A

Prep Batch: MXX32538
Prep Method: E200.2
Prep Date/Time: 07/05/19 11:15
Prep Initial Wt./Vol.: 20 mL
Prep Extract Vol: 50 mL

Print Date: 07/30/2019 11:07:42AM

Results of **SMW-I-1**

Client Sample ID: **SMW-I-1**
Client Project ID: **19-3 39B-004-001**
Lab Sample ID: 1193351023
Lab Project ID: 1193351

Collection Date: 06/25/19 11:50
Received Date: 06/26/19 14:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Dissolved Metals by ICP/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Iron	26000		250	78.0	ug/L	1		07/06/19 13:31
Manganese	1540		1.00	0.350	ug/L	1		07/06/19 13:31

Batch Information

Analytical Batch: MMS10554
Analytical Method: EP200.8
Analyst: ACF
Analytical Date/Time: 07/06/19 13:31
Container ID: 1193351023-A

Prep Batch: MXX32538
Prep Method: E200.2
Prep Date/Time: 07/05/19 11:15
Prep Initial Wt./Vol.: 20 mL
Prep Extract Vol: 50 mL

Print Date: 07/30/2019 11:07:42AM

Method Blank

Blank ID: MB for HBN 1795885 [MXX/32538]
Blank Lab ID: 1516789

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1193351001, 1193351002, 1193351003, 1193351006, 1193351007, 1193351008, 1193351009, 1193351010, 1193351011, 1193351015, 1193351016, 1193351017, 1193351018, 1193351019, 1193351020, 1193351021, 1193351022, 1193351023

Results by **EP200.8**

Parameter	Results	LOQ/CL	DL	Units
Iron	125U	250	78.0	ug/L
Manganese	0.500U	1.00	0.350	ug/L

Batch Information

Analytical Batch: MMS10554
Analytical Method: EP200.8
Instrument: Perkin Elmer NexIon P5
Analyst: ACF
Analytical Date/Time: 7/6/2019 12:12:05PM

Prep Batch: MXX32538
Prep Method: E200.2
Prep Date/Time: 7/5/2019 11:15:07AM
Prep Initial Wt./Vol.: 20 mL
Prep Extract Vol: 50 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1193351 [MXX32538]
Blank Spike Lab ID: 1516790
Date Analyzed: 07/06/2019 12:15

Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1193351001, 1193351002, 1193351003, 1193351006, 1193351007, 1193351008, 1193351009, 1193351010, 1193351011, 1193351015, 1193351016, 1193351017, 1193351018, 1193351019, 1193351020, 1193351021, 1193351022, 1193351023

Results by **EP200.8**

	Blank Spike (ug/L)			
Parameter	Spike	Result	Rec (%)	CL
Iron	5000	4700	94	(85-115)
Manganese	500	474	95	(85-115)

Batch Information

Analytical Batch: **MMS10554**
Analytical Method: **EP200.8**
Instrument: **Perkin Elmer Nexlon P5**
Analyst: **ACF**

Prep Batch: **MXX32538**
Prep Method: **E200.2**
Prep Date/Time: **07/05/2019 11:15**
Spike Init Wt./Vol.: 5000 ug/L Extract Vol: 50 mL
Dupe Init Wt./Vol.: Extract Vol:

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Matrix Spike Summary

Original Sample ID: 1516792
MS Sample ID: 1516793 MS
MSD Sample ID: 1516794 MSD

Analysis Date: 07/06/2019 12:24
Analysis Date: 07/06/2019 12:27
Analysis Date: 07/06/2019 12:30
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1193351001, 1193351002, 1193351003, 1193351006, 1193351007, 1193351008, 1193351009, 1193351010, 1193351011, 1193351015, 1193351016, 1193351017, 1193351018, 1193351019, 1193351020, 1193351021, 1193351022, 1193351023

Results by **EP200.8**

		Matrix Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Iron	17600	5000	22800	104	5000	23200	113	70-130	2.00	(< 20)
Manganese	1340	500	1890	110	500	1840	100	70-130	2.60	(< 20)

Batch Information

Analytical Batch: MMS10554
Analytical Method: EP200.8
Instrument: Perkin Elmer NexIon P5
Analyst: ACF
Analytical Date/Time: 7/6/2019 12:27:21PM

Prep Batch: MXX32538
Prep Method: DW Digest for Metals on ICP-MS
Prep Date/Time: 7/5/2019 11:15:07AM
Prep Initial Wt./Vol.: 20.00mL
Prep Extract Vol: 50.00mL

Print Date: 07/30/2019 11:07:49AM

Matrix Spike Summary

Original Sample ID: 1516795
MS Sample ID: 1516796 MS
MSD Sample ID: 1516797 MSD

Analysis Date: 07/06/2019 13:10
Analysis Date: 07/06/2019 13:34
Analysis Date: 07/06/2019 13:37
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1193351006, 1193351007, 1193351008, 1193351009, 1193351010, 1193351011, 1193351015, 1193351016, 1193351017, 1193351018, 1193351019, 1193351020, 1193351021, 1193351022, 1193351023

Results by **EP200.8**

		Matrix Spike (ug/L)				Spike Duplicate (ug/L)					
Parameter	Sample	Spike	Result	Rec (%)		Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Iron	14600	5000	19700	102		5000	19700	102	70-130	0.00	(< 20)
Manganese	1360	500	1850	99		500	1820	92	70-130	1.90	(< 20)

Batch Information

Analytical Batch: MMS10554
Analytical Method: EP200.8
Instrument: Perkin Elmer NexIon P5
Analyst: ACF
Analytical Date/Time: 7/6/2019 1:34:24PM

Prep Batch: MXX32538
Prep Method: DW Digest for Metals on ICP-MS
Prep Date/Time: 7/5/2019 11:15:07AM
Prep Initial Wt./Vol.: 20.00mL
Prep Extract Vol: 50.00mL

Print Date: 07/30/2019 11:07:49AM

Billable Matrix Spike Summary

Original Sample ID: 1193351003
MS Sample ID: 1193351004 BMS
MSD Sample ID: 1193351005 BMSD

Analysis Date: 07/06/2019 12:24
Analysis Date: 07/06/2019 12:27
Analysis Date: 07/06/2019 12:30
Matrix: Water (Surface, Eff., Ground)

QC for Samples:

Results by **EP200.8**

		Matrix Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Iron	17600	5000	22800	104	5000	23200	113	70-130	2.00	(< 20)
Manganese	1340	500	1890	110	500	1840	100	70-130	2.60	(< 20)

Batch Information

Analytical Batch: MMS10554
Analytical Method: EP200.8
Instrument: Perkin Elmer NexIon P5
Analyst: ACF
Analytical Date/Time: 7/6/2019 12:27:21PM

Prep Batch: MXX32538
Prep Method: DW Digest for Metals on ICP-MS
Prep Date/Time: 7/5/2019 11:15:07AM
Prep Initial Wt./Vol.: 20.00mL
Prep Extract Vol: 50.00mL

Print Date: 07/30/2019 11:07:49AM

Billable Matrix Spike Summary

Original Sample ID: 1193351018
MS Sample ID: 1193351024 BMS
MSD Sample ID: 1193351025 BMSD

Analysis Date: 07/06/2019 13:10
Analysis Date: 07/06/2019 13:34
Analysis Date: 07/06/2019 13:37
Matrix: Water (Surface, Eff., Ground)

QC for Samples:

Results by **EP200.8**

		Matrix Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Iron	14600	5000	19700	102	5000	19700	102	70-130	0.00	(< 20)
Manganese	1360	500	1850	99	500	1820	92	70-130	1.90	(< 20)

Batch Information

Analytical Batch: MMS10554
Analytical Method: EP200.8
Instrument: Perkin Elmer NexIon P5
Analyst: ACF
Analytical Date/Time: 7/6/2019 1:34:24PM

Prep Batch: MXX32538
Prep Method: DW Digest for Metals on ICP-MS
Prep Date/Time: 7/5/2019 11:15:07AM
Prep Initial Wt./Vol.: 20.00mL
Prep Extract Vol: 50.00mL

Print Date: 07/30/2019 11:07:49AM

Method Blank

Blank ID: MB for HBN 1795644 [VXX/34337]
Blank Lab ID: 1515743

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1193351003, 1193351006, 1193351007, 1193351008, 1193351009, 1193351010, 1193351011, 1193351014

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
1,1,1,2-Tetrachloroethane	0.250U	0.500	0.150	ug/L
1,1,1-Trichloroethane	0.500U	1.00	0.310	ug/L
1,1,2,2-Tetrachloroethane	0.250U	0.500	0.150	ug/L
1,1,2-Trichloroethane	0.200U	0.400	0.120	ug/L
1,1-Dichloroethane	0.500U	1.00	0.310	ug/L
1,1-Dichloroethene	0.500U	1.00	0.310	ug/L
1,1-Dichloropropene	0.500U	1.00	0.310	ug/L
1,2,3-Trichlorobenzene	0.500U	1.00	0.310	ug/L
1,2,3-Trichloropropane	0.500U	1.00	0.310	ug/L
1,2,4-Trichlorobenzene	0.500U	1.00	0.310	ug/L
1,2,4-Trimethylbenzene	0.500U	1.00	0.310	ug/L
1,2-Dibromo-3-chloropropane	5.00U	10.0	3.10	ug/L
1,2-Dibromoethane	0.0375U	0.0750	0.0180	ug/L
1,2-Dichlorobenzene	0.500U	1.00	0.310	ug/L
1,2-Dichloroethane	0.250U	0.500	0.150	ug/L
1,2-Dichloropropane	0.500U	1.00	0.310	ug/L
1,3,5-Trimethylbenzene	0.500U	1.00	0.310	ug/L
1,3-Dichlorobenzene	0.500U	1.00	0.310	ug/L
1,3-Dichloropropane	0.250U	0.500	0.150	ug/L
1,4-Dichlorobenzene	0.250U	0.500	0.150	ug/L
2,2-Dichloropropane	0.500U	1.00	0.310	ug/L
2-Butanone (MEK)	5.00U	10.0	3.10	ug/L
2-Chlorotoluene	0.500U	1.00	0.310	ug/L
2-Hexanone	5.00U	10.0	3.10	ug/L
4-Chlorotoluene	0.500U	1.00	0.310	ug/L
4-Isopropyltoluene	0.500U	1.00	0.310	ug/L
4-Methyl-2-pentanone (MIBK)	5.00U	10.0	3.10	ug/L
Benzene	0.200U	0.400	0.120	ug/L
Bromobenzene	0.500U	1.00	0.310	ug/L
Bromochloromethane	0.500U	1.00	0.310	ug/L
Bromodichloromethane	0.250U	0.500	0.150	ug/L
Bromoform	0.500U	1.00	0.310	ug/L
Bromomethane	2.50U	5.00	1.50	ug/L
Carbon disulfide	5.00U	10.0	3.10	ug/L
Carbon tetrachloride	0.500U	1.00	0.310	ug/L
Chlorobenzene	0.250U	0.500	0.150	ug/L
Chloroethane	0.500U	1.00	0.310	ug/L
Chloroform	0.500U	1.00	0.310	ug/L

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Method Blank

Blank ID: MB for HBN 1795644 [VXX/34337]
Blank Lab ID: 1515743

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1193351003, 1193351006, 1193351007, 1193351008, 1193351009, 1193351010, 1193351011, 1193351014

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
Chloromethane	0.500U	1.00	0.310	ug/L
cis-1,2-Dichloroethene	0.500U	1.00	0.310	ug/L
cis-1,3-Dichloropropene	0.250U	0.500	0.150	ug/L
Dibromochloromethane	0.250U	0.500	0.150	ug/L
Dibromomethane	0.500U	1.00	0.310	ug/L
Dichlorodifluoromethane	0.500U	1.00	0.310	ug/L
Ethylbenzene	0.500U	1.00	0.310	ug/L
Freon-113	5.00U	10.0	3.10	ug/L
Hexachlorobutadiene	0.500U	1.00	0.310	ug/L
Isopropylbenzene (Cumene)	0.500U	1.00	0.310	ug/L
Methylene chloride	2.50U	5.00	1.00	ug/L
Methyl-t-butyl ether	5.00U	10.0	3.10	ug/L
Naphthalene	0.500U	1.00	0.310	ug/L
n-Butylbenzene	0.500U	1.00	0.310	ug/L
n-Propylbenzene	0.500U	1.00	0.310	ug/L
o-Xylene	0.500U	1.00	0.310	ug/L
P & M -Xylene	1.00U	2.00	0.620	ug/L
sec-Butylbenzene	0.500U	1.00	0.310	ug/L
Styrene	0.500U	1.00	0.310	ug/L
tert-Butylbenzene	0.500U	1.00	0.310	ug/L
Tetrachloroethene	0.500U	1.00	0.310	ug/L
Toluene	0.500U	1.00	0.310	ug/L
trans-1,2-Dichloroethene	0.500U	1.00	0.310	ug/L
trans-1,3-Dichloropropene	0.500U	1.00	0.310	ug/L
Trichloroethene	0.500U	1.00	0.310	ug/L
Trichlorofluoromethane	0.500U	1.00	0.310	ug/L
Vinyl acetate	5.00U	10.0	3.10	ug/L
Vinyl chloride	0.0750U	0.150	0.0500	ug/L
Xylenes (total)	1.50U	3.00	1.00	ug/L
Surrogates				
1,2-Dichloroethane-D4 (surr)	112	81-118		%
4-Bromofluorobenzene (surr)	103	85-114		%
Toluene-d8 (surr)	101	89-112		%

Print Date: 07/30/2019 11:07:50AM

Method Blank

Blank ID: MB for HBN 1795644 [VXX/34337]
Blank Lab ID: 1515743

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1193351003, 1193351006, 1193351007, 1193351008, 1193351009, 1193351010, 1193351011, 1193351014

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS19105
Analytical Method: SW8260C
Instrument: Agilent 7890-75MS
Analyst: FDR
Analytical Date/Time: 6/28/2019 10:39:00AM

Prep Batch: VXX34337
Prep Method: SW5030B
Prep Date/Time: 6/28/2019 12:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 07/30/2019 11:07:50AM

Leaching Blank

Blank ID: LB for HBN 1795670 [TCLP/10103
Blank Lab ID: 1515832

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1193351003, 1193351006, 1193351007, 1193351008, 1193351009, 1193351010, 1193351011, 1193351014

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
1,1-Dichloroethene	25.0U	50.0	15.5	ug/L
1,2-Dichloroethane	12.5U	25.0	7.50	ug/L
1,4-Dichlorobenzene	12.5U	25.0	7.50	ug/L
2-Butanone (MEK)	250U	500	155	ug/L
Benzene	10.0U	20.0	6.00	ug/L
Carbon tetrachloride	25.0U	50.0	15.5	ug/L
Chlorobenzene	12.5U	25.0	7.50	ug/L
Chloroform	25.0U	50.0	15.5	ug/L
Hexachlorobutadiene	25.0U	50.0	15.5	ug/L
Tetrachloroethene	25.0U	50.0	15.5	ug/L
Trichloroethene	25.0U	50.0	15.5	ug/L
Vinyl chloride	3.75U	7.50	2.50	ug/L
Surrogates				
1,2-Dichloroethane-D4 (surr)	109	81-118		%
4-Bromofluorobenzene (surr)	105	85-114		%
Toluene-d8 (surr)	100	89-112		%

Batch Information

Analytical Batch: VMS19105
Analytical Method: SW8260C
Instrument: Agilent 7890-75MS
Analyst: FDR
Analytical Date/Time: 6/28/2019 5:03:00PM

Prep Batch: VXX34337
Prep Method: SW5030B
Prep Date/Time: 6/28/2019 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1193351 [VXX34337]
Blank Spike Lab ID: 1515744
Date Analyzed: 06/28/2019 10:54

Spike Duplicate ID: LCSD for HBN 1193351 [VXX34337]
Spike Duplicate Lab ID: 1515745
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1193351003, 1193351006, 1193351007, 1193351008, 1193351009, 1193351010, 1193351011, 1193351014

Results by **SW8260C**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,1,1,2-Tetrachloroethane	30	30.3	101	30	30.2	101	(78-124)	0.43	(< 20)
1,1,1-Trichloroethane	30	30.3	101	30	31.3	104	(74-131)	3.00	(< 20)
1,1,2,2-Tetrachloroethane	30	29.9	100	30	30.3	101	(71-121)	1.40	(< 20)
1,1,2-Trichloroethane	30	29.4	98	30	30.2	101	(80-119)	2.70	(< 20)
1,1-Dichloroethane	30	29.5	98	30	30.3	101	(77-125)	2.60	(< 20)
1,1-Dichloroethene	30	24.8	83	30	25.3	84	(71-131)	1.80	(< 20)
1,1-Dichloropropene	30	30.5	102	30	31.1	104	(79-125)	1.90	(< 20)
1,2,3-Trichlorobenzene	30	25.4	85	30	26.6	89	(69-129)	4.80	(< 20)
1,2,3-Trichloropropane	30	29.8	99	30	30.2	101	(73-122)	1.40	(< 20)
1,2,4-Trichlorobenzene	30	28.1	94	30	29.1	97	(69-130)	3.30	(< 20)
1,2,4-Trimethylbenzene	30	31.8	106	30	32.1	107	(79-124)	1.10	(< 20)
1,2-Dibromo-3-chloropropane	30	31.4	105	30	32.8	109	(62-128)	4.10	(< 20)
1,2-Dibromoethane	30	29.8	99	30	30.7	102	(77-121)	3.10	(< 20)
1,2-Dichlorobenzene	30	29.4	98	30	30.0	100	(80-119)	2.10	(< 20)
1,2-Dichloroethane	30	30.6	102	30	31.4	105	(73-128)	2.60	(< 20)
1,2-Dichloropropane	30	30.4	101	30	31.2	104	(78-122)	2.30	(< 20)
1,3,5-Trimethylbenzene	30	31.7	106	30	32.1	107	(75-124)	1.40	(< 20)
1,3-Dichlorobenzene	30	30.2	101	30	31.4	105	(80-119)	4.00	(< 20)
1,3-Dichloropropane	30	29.5	98	30	30.3	101	(80-119)	2.80	(< 20)
1,4-Dichlorobenzene	30	30.3	101	30	31.4	105	(79-118)	3.80	(< 20)
2,2-Dichloropropane	30	34.8	116	30	35.8	119	(60-139)	2.80	(< 20)
2-Butanone (MEK)	90	100	111	90	103	114	(56-143)	2.60	(< 20)
2-Chlorotoluene	30	32.3	108	30	30.6	102	(79-122)	5.60	(< 20)
2-Hexanone	90	98.9	110	90	102	113	(57-139)	2.60	(< 20)
4-Chlorotoluene	30	31.7	106	30	31.9	106	(78-122)	0.57	(< 20)
4-Isopropyltoluene	30	31.8	106	30	31.9	106	(77-127)	0.41	(< 20)
4-Methyl-2-pentanone (MIBK)	90	93.1	103	90	93.0	103	(67-130)	0.09	(< 20)
Benzene	30	29.3	98	30	29.5	99	(79-120)	0.68	(< 20)
Bromobenzene	30	29.8	99	30	30.6	102	(80-120)	2.70	(< 20)
Bromochloromethane	30	29.1	97	30	29.7	99	(78-123)	1.70	(< 20)
Bromodichloromethane	30	30.4	101	30	30.9	103	(79-125)	1.90	(< 20)
Bromoform	30	30.5	102	30	31.0	103	(66-130)	1.80	(< 20)
Bromomethane	30	25.3	84	30	26.1	87	(53-141)	3.30	(< 20)
Carbon disulfide	45	36.9	82	45	37.6	83	(64-133)	1.60	(< 20)

Print Date: 07/30/2019 11:07:51AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1193351 [VXX34337]
Blank Spike Lab ID: 1515744
Date Analyzed: 06/28/2019 10:54

Spike Duplicate ID: LCSD for HBN 1193351 [VXX34337]
Spike Duplicate Lab ID: 1515745
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1193351003, 1193351006, 1193351007, 1193351008, 1193351009, 1193351010, 1193351011, 1193351014

Results by **SW8260C**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Carbon tetrachloride	30	30.4	101	30	31.2	104	(72-136)	2.60	(< 20)
Chlorobenzene	30	28.0	93	30	28.3	94	(82-118)	1.20	(< 20)
Chloroethane	30	24.8	83	30	25.4	85	(60-138)	2.20	(< 20)
Chloroform	30	28.7	96	30	29.4	98	(79-124)	2.50	(< 20)
Chloromethane	30	29.7	99	30	30.8	103	(50-139)	3.60	(< 20)
cis-1,2-Dichloroethene	30	29.2	97	30	29.5	98	(78-123)	1.20	(< 20)
cis-1,3-Dichloropropene	30	31.8	106	30	32.6	109	(75-124)	2.20	(< 20)
Dibromochloromethane	30	30.5	102	30	31.5	105	(74-126)	3.20	(< 20)
Dibromomethane	30	29.5	98	30	30.2	101	(79-123)	2.40	(< 20)
Dichlorodifluoromethane	30	29.6	99	30	30.1	100	(32-152)	1.70	(< 20)
Ethylbenzene	30	30.2	101	30	29.9	100	(79-121)	0.73	(< 20)
Freon-113	45	37.3	83	45	37.9	84	(70-136)	1.50	(< 20)
Hexachlorobutadiene	30	28.6	95	30	29.8	99	(66-134)	3.80	(< 20)
Isopropylbenzene (Cumene)	30	31.1	104	30	31.3	104	(72-131)	0.83	(< 20)
Methylene chloride	30	29.5	98	30	30.1	100	(74-124)	1.90	(< 20)
Methyl-t-butyl ether	45	44.0	98	45	45.5	101	(71-124)	3.30	(< 20)
Naphthalene	30	27.1	91	30	29.1	97	(61-128)	6.80	(< 20)
n-Butylbenzene	30	32.1	107	30	32.6	109	(75-128)	1.70	(< 20)
n-Propylbenzene	30	31.9	106	30	32.7	109	(76-126)	2.20	(< 20)
o-Xylene	30	29.9	100	30	30.3	101	(78-122)	1.50	(< 20)
P & M -Xylene	60	59.6	99	60	61.0	102	(80-121)	2.50	(< 20)
sec-Butylbenzene	30	32.2	107	30	32.3	108	(77-126)	0.43	(< 20)
Styrene	30	29.7	99	30	30.3	101	(78-123)	2.20	(< 20)
tert-Butylbenzene	30	31.8	106	30	32.1	107	(78-124)	0.69	(< 20)
Tetrachloroethene	30	29.4	98	30	29.3	98	(74-129)	0.55	(< 20)
Toluene	30	27.5	92	30	27.7	92	(80-121)	0.87	(< 20)
trans-1,2-Dichloroethene	30	29.4	98	30	29.9	100	(75-124)	1.50	(< 20)
trans-1,3-Dichloropropene	30	30.8	103	30	31.2	104	(73-127)	1.10	(< 20)
Trichloroethene	30	29.7	99	30	30.3	101	(79-123)	1.90	(< 20)
Trichlorofluoromethane	30	25.3	85	30	26.0	87	(65-141)	2.70	(< 20)
Vinyl acetate	30	36.6	122	30	37.4	125	(54-146)	2.10	(< 20)
Vinyl chloride	30	25.9	86	30	26.1	87	(58-137)	0.58	(< 20)
Xylenes (total)	90	89.4	99	90	91.4	102	(79-121)	2.10	(< 20)

Print Date: 07/30/2019 11:07:51AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1193351 [VXX34337]
Blank Spike Lab ID: 1515744
Date Analyzed: 06/28/2019 10:54

Spike Duplicate ID: LCSD for HBN 1193351 [VXX34337]
Spike Duplicate Lab ID: 1515745
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1193351003, 1193351006, 1193351007, 1193351008, 1193351009, 1193351010, 1193351011, 1193351014

Results by **SW8260C**

	Blank Spike (%)			Spike Duplicate (%)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Surrogates									
1,2-Dichloroethane-D4 (surr)	30	101	101	30	102	102	(81-118)	0.85	
4-Bromofluorobenzene (surr)	30	104	104	30	105	105	(85-114)	0.73	
Toluene-d8 (surr)	30	99.7	100	30	98.7	99	(89-112)	1.00	

Batch Information

Analytical Batch: **VMS19105**
Analytical Method: **SW8260C**
Instrument: **Agilent 7890-75MS**
Analyst: **FDR**

Prep Batch: **VXX34337**
Prep Method: **SW5030B**
Prep Date/Time: **06/28/2019 00:00**
Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

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Billable Matrix Spike Summary

Original Sample ID: 1193351003
MS Sample ID: 1193351004 BMS
MSD Sample ID: 1193351005 BMSD

Analysis Date: 06/28/2019 17:18
Analysis Date: 06/28/2019 19:37
Analysis Date: 06/28/2019 19:52
Matrix: Water (Surface, Eff., Ground)

QC for Samples:

Results by **SW8260C**

		Matrix Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,1,1,2-Tetrachloroethane	0.500U	30.0	31.1	104	30.0	32.1	107	78-124	3.10	(< 20)
1,1,1-Trichloroethane	1.00U	30.0	32.6	109	30.0	33.0	110	74-131	1.20	(< 20)
1,1,2,2-Tetrachloroethane	0.500U	30.0	31.9	106	30.0	32.0	107	71-121	0.19	(< 20)
1,1,2-Trichloroethane	0.400U	30.0	31.4	105	30.0	31.8	106	80-119	1.30	(< 20)
1,1-Dichloroethane	1.00U	30.0	32.2	107	30.0	32.3	108	77-125	0.39	(< 20)
1,1-Dichloroethene	1.00U	30.0	26.8	90	30.0	26.7	89	71-131	0.51	(< 20)
1,1-Dichloropropene	1.00U	30.0	32.8	109	30.0	33.0	110	79-125	0.54	(< 20)
1,2,3-Trichlorobenzene	1.00U	30.0	28.9	97	30.0	29.7	99	69-129	2.40	(< 20)
1,2,3-Trichloropropane	1.00U	30.0	32.4	108	30.0	32.0	107	73-122	1.20	(< 20)
1,2,4-Trichlorobenzene	1.00U	30.0	30.6	102	30.0	31.2	104	69-130	1.90	(< 20)
1,2,4-Trimethylbenzene	1.00U	30.0	34.6	115	30.0	34.0	113	79-124	1.70	(< 20)
1,2-Dibromo-3-chloropropane	10.0U	30.0	34.3	114	30.0	34.9	116	62-128	1.60	(< 20)
1,2-Dibromoethane	0.0750U	30.0	31.3	104	30.0	32.1	107	77-121	2.70	(< 20)
1,2-Dichlorobenzene	1.00U	30.0	31.7	106	30.0	32.0	107	80-119	1.00	(< 20)
1,2-Dichloroethane	0.500U	30.0	33.4	111	30.0	33.7	112	73-128	0.81	(< 20)
1,2-Dichloropropane	1.00U	30.0	32.9	110	30.0	33.3	111	78-122	1.30	(< 20)
1,3,5-Trimethylbenzene	1.00U	30.0	34.4	115	30.0	34.2	114	75-124	0.77	(< 20)
1,3-Dichlorobenzene	1.00U	30.0	33.3	111	30.0	32.7	109	80-119	1.90	(< 20)
1,3-Dichloropropane	0.500U	30.0	31.5	105	30.0	32.1	107	80-119	1.70	(< 20)
1,4-Dichlorobenzene	0.500U	30.0	32.5	108	30.0	33.0	110	79-118	1.50	(< 20)
2,2-Dichloropropane	1.00U	30.0	32.7	109	30.0	33.1	110	60-139	1.20	(< 20)
2-Butanone (MEK)	10.0U	90.0	113	126	90.0	114	126	56-143	0.27	(< 20)
2-Chlorotoluene	1.00U	30.0	35.4	118	30.0	32.6	109	79-122	8.30	(< 20)
2-Hexanone	10.0U	90.0	110	123	90.0	111	123	57-139	0.64	(< 20)
4-Chlorotoluene	1.00U	30.0	33.8	113	30.0	34.1	114	78-122	0.79	(< 20)
4-Isopropyltoluene	1.00U	30.0	34	113	30.0	34.0	113	77-127	0.10	(< 20)
4-Methyl-2-pentanone (MIBK)	10.0U	90.0	104	115	90.0	102	114	67-130	1.20	(< 20)
Benzene	0.519	30.0	32.3	106	30.0	32.1	105	79-120	0.64	(< 20)
Bromobenzene	1.00U	30.0	32	107	30.0	32.3	108	80-120	1.00	(< 20)
Bromochloromethane	1.00U	30.0	31.5	105	30.0	31.6	105	78-123	0.27	(< 20)
Bromodichloromethane	0.500U	30.0	32.9	110	30.0	33.1	110	79-125	0.63	(< 20)
Bromoform	1.00U	30.0	31.2	104	30.0	31.9	106	66-130	2.30	(< 20)
Bromomethane	5.00U	30.0	18.9	63	30.0	21.4	71	53-141	12.20	(< 20)
Carbon disulfide	10.0U	45.0	39.9	89	45.0	39.5	88	64-133	1.00	(< 20)
Carbon tetrachloride	1.00U	30.0	32.5	108	30.0	33.0	110	72-136	1.60	(< 20)
Chlorobenzene	0.500U	30.0	29.9	100	30.0	30.5	102	82-118	1.80	(< 20)
Chloroethane	1.00U	30.0	26.1	87	30.0	26.0	87	60-138	0.26	(< 20)

Print Date: 07/30/2019 11:07:52AM

Billable Matrix Spike Summary

Original Sample ID: 1193351003
MS Sample ID: 1193351004 BMS
MSD Sample ID: 1193351005 BMSD

Analysis Date: 06/28/2019 17:18
Analysis Date: 06/28/2019 19:37
Analysis Date: 06/28/2019 19:52
Matrix: Water (Surface, Eff., Ground)

QC for Samples:

Results by **SW8260C**

		Matrix Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Chloroform	1.00U	30.0	31.2	104	30.0	31.2	104	79-124	0.11	(< 20)
Chloromethane	1.00U	30.0	31.4	105	30.0	31.7	106	50-139	1.20	(< 20)
cis-1,2-Dichloroethene	1.00U	30.0	32.4	108	30.0	32.4	108	78-123	0.18	(< 20)
cis-1,3-Dichloropropene	0.500U	30.0	33.5	112	30.0	34.1	114	75-124	1.70	(< 20)
Dibromochloromethane	0.500U	30.0	32.1	107	30.0	32.9	110	74-126	2.50	(< 20)
Dibromomethane	1.00U	30.0	32	107	30.0	32.1	107	79-123	0.22	(< 20)
Dichlorodifluoromethane	1.00U	30.0	31.2	104	30.0	31.2	104	32-152	0.14	(< 20)
Ethylbenzene	1.00U	30.0	32.4	108	30.0	33.2	111	79-121	2.30	(< 20)
Freon-113	10.0U	45.0	40.3	90	45.0	39.8	89	70-136	1.20	(< 20)
Hexachlorobutadiene	1.00U	30.0	29	97	30.0	29.4	98	66-134	1.30	(< 20)
Isopropylbenzene (Cumene)	1.00U	30.0	32.6	109	30.0	34.0	113	72-131	4.10	(< 20)
Methylene chloride	5.00U	30.0	32.2	107	30.0	32.0	107	74-124	0.66	(< 20)
Methyl-t-butyl ether	10.0U	45.0	48.5	108	45.0	48.9	109	71-124	0.83	(< 20)
Naphthalene	1.00U	30.0	31.9	106	30.0	32.6	109	61-128	2.10	(< 20)
n-Butylbenzene	1.00U	30.0	33.7	112	30.0	32.5	108	75-128	3.60	(< 20)
n-Propylbenzene	1.00U	30.0	35.3	118	30.0	34.8	116	76-126	1.50	(< 20)
o-Xylene	1.00U	30.0	32.7	109	30.0	32.5	108	78-122	0.69	(< 20)
P & M -Xylene	2.00U	60.0	65	108	60.0	64.7	108	80-121	0.52	(< 20)
sec-Butylbenzene	1.00U	30.0	35	117	30.0	35.0	117	77-126	0.08	(< 20)
Styrene	1.00U	30.0	32.6	109	30.0	31.9	106	78-123	2.10	(< 20)
tert-Butylbenzene	1.00U	30.0	34.9	116	30.0	34.2	114	78-124	2.10	(< 20)
Tetrachloroethene	1.00U	30.0	30.8	103	30.0	30.9	103	74-129	0.49	(< 20)
Toluene	1.00U	30.0	29.9	100	30.0	29.6	99	80-121	0.84	(< 20)
trans-1,2-Dichloroethene	1.00U	30.0	31.6	105	30.0	31.6	105	75-124	0.13	(< 20)
trans-1,3-Dichloropropene	1.00U	30.0	31	103	30.0	32.0	107	73-127	3.30	(< 20)
Trichloroethene	1.00U	30.0	32.4	108	30.0	32.4	108	79-123	0.13	(< 20)
Trichlorofluoromethane	1.00U	30.0	27.5	92	30.0	27.5	92	65-141	0.02	(< 20)
Vinyl acetate	10.0U	30.0	35.3	118	30.0	35.8	119	54-146	1.50	(< 20)
Vinyl chloride	0.389	30.0	28.4	93	30.0	28.1	93	58-137	0.81	(< 20)
Xylenes (total)	3.00U	90.0	97.7	109	90.0	97.2	108	79-121	0.57	(< 20)
Surrogates										
1,2-Dichloroethane-D4 (surr)		30.0	30.9	103	30.0	30.5	102	81-118	1.30	
4-Bromofluorobenzene (surr)		30.0	31.3	104	30.0	31.4	105	85-114	0.41	
Toluene-d8 (surr)		30.0	29.9	100	30.0	29.8	99	89-112	0.42	

Print Date: 07/30/2019 11:07:52AM

Billable Matrix Spike Summary

Original Sample ID: 1193351003
MS Sample ID: 1193351004 BMS
MSD Sample ID: 1193351005 BMSD

QC for Samples:

Analysis Date:
Analysis Date: 06/28/2019 19:37
Analysis Date: 06/28/2019 19:52
Matrix: Water (Surface, Eff., Ground)

Results by **SW8260C**

		Matrix Spike (%)			Spike Duplicate (%)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL

Batch Information

Analytical Batch: VMS19105
Analytical Method: SW8260C
Instrument: Agilent 7890-75MS
Analyst: FDR
Analytical Date/Time: 6/28/2019 7:37:00PM

Prep Batch: VXX34337
Prep Method: Volatiles Extraction 8240/8260 FULL
Prep Date/Time: 6/28/2019 6:00:00AM
Prep Initial Wt./Vol.: 5.00mL
Prep Extract Vol: 5.00mL

Print Date: 07/30/2019 11:07:52AM

Method Blank

Blank ID: MB for HBN 1795701 [VXX/34349]
Blank Lab ID: 1515972

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1193351002

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
1,1,1,2-Tetrachloroethane	0.250U	0.500	0.150	ug/L
1,1,1-Trichloroethane	0.500U	1.00	0.310	ug/L
1,1,2,2-Tetrachloroethane	0.250U	0.500	0.150	ug/L
1,1,2-Trichloroethane	0.200U	0.400	0.120	ug/L
1,1-Dichloroethane	0.500U	1.00	0.310	ug/L
1,1-Dichloroethene	0.500U	1.00	0.310	ug/L
1,1-Dichloropropene	0.500U	1.00	0.310	ug/L
1,2,3-Trichlorobenzene	0.500U	1.00	0.310	ug/L
1,2,3-Trichloropropane	0.500U	1.00	0.310	ug/L
1,2,4-Trichlorobenzene	0.500U	1.00	0.310	ug/L
1,2,4-Trimethylbenzene	0.500U	1.00	0.310	ug/L
1,2-Dibromo-3-chloropropane	5.00U	10.0	3.10	ug/L
1,2-Dibromoethane	0.0375U	0.0750	0.0180	ug/L
1,2-Dichlorobenzene	0.500U	1.00	0.310	ug/L
1,2-Dichloroethane	0.250U	0.500	0.150	ug/L
1,2-Dichloropropane	0.500U	1.00	0.310	ug/L
1,3,5-Trimethylbenzene	0.500U	1.00	0.310	ug/L
1,3-Dichlorobenzene	0.500U	1.00	0.310	ug/L
1,3-Dichloropropane	0.250U	0.500	0.150	ug/L
1,4-Dichlorobenzene	0.250U	0.500	0.150	ug/L
2,2-Dichloropropane	0.500U	1.00	0.310	ug/L
2-Butanone (MEK)	5.00U	10.0	3.10	ug/L
2-Chlorotoluene	0.500U	1.00	0.310	ug/L
2-Hexanone	5.00U	10.0	3.10	ug/L
4-Chlorotoluene	0.500U	1.00	0.310	ug/L
4-Isopropyltoluene	0.500U	1.00	0.310	ug/L
4-Methyl-2-pentanone (MIBK)	5.00U	10.0	3.10	ug/L
Benzene	0.200U	0.400	0.120	ug/L
Bromobenzene	0.500U	1.00	0.310	ug/L
Bromochloromethane	0.500U	1.00	0.310	ug/L
Bromodichloromethane	0.250U	0.500	0.150	ug/L
Bromoform	0.500U	1.00	0.310	ug/L
Bromomethane	2.50U	5.00	1.50	ug/L
Carbon disulfide	5.00U	10.0	3.10	ug/L
Carbon tetrachloride	0.500U	1.00	0.310	ug/L
Chlorobenzene	0.250U	0.500	0.150	ug/L
Chloroethane	0.500U	1.00	0.310	ug/L
Chloroform	0.500U	1.00	0.310	ug/L

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Method Blank

Blank ID: MB for HBN 1795701 [VXX/34349]
Blank Lab ID: 1515972

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1193351002

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
Chloromethane	0.500U	1.00	0.310	ug/L
cis-1,2-Dichloroethene	0.500U	1.00	0.310	ug/L
cis-1,3-Dichloropropene	0.250U	0.500	0.150	ug/L
Dibromochloromethane	0.250U	0.500	0.150	ug/L
Dibromomethane	0.500U	1.00	0.310	ug/L
Dichlorodifluoromethane	0.500U	1.00	0.310	ug/L
Ethylbenzene	0.500U	1.00	0.310	ug/L
Freon-113	5.00U	10.0	3.10	ug/L
Hexachlorobutadiene	0.500U	1.00	0.310	ug/L
Isopropylbenzene (Cumene)	0.500U	1.00	0.310	ug/L
Methylene chloride	2.50U	5.00	1.00	ug/L
Methyl-t-butyl ether	5.00U	10.0	3.10	ug/L
Naphthalene	0.500U	1.00	0.310	ug/L
n-Butylbenzene	0.500U	1.00	0.310	ug/L
n-Propylbenzene	0.500U	1.00	0.310	ug/L
o-Xylene	0.500U	1.00	0.310	ug/L
P & M -Xylene	1.00U	2.00	0.620	ug/L
sec-Butylbenzene	0.500U	1.00	0.310	ug/L
Styrene	0.500U	1.00	0.310	ug/L
tert-Butylbenzene	0.500U	1.00	0.310	ug/L
Tetrachloroethene	0.500U	1.00	0.310	ug/L
Toluene	0.500U	1.00	0.310	ug/L
trans-1,2-Dichloroethene	0.500U	1.00	0.310	ug/L
trans-1,3-Dichloropropene	0.500U	1.00	0.310	ug/L
Trichloroethene	0.500U	1.00	0.310	ug/L
Trichlorofluoromethane	0.500U	1.00	0.310	ug/L
Vinyl acetate	5.00U	10.0	3.10	ug/L
Vinyl chloride	0.0750U	0.150	0.0500	ug/L
Xylenes (total)	1.50U	3.00	1.00	ug/L
Surrogates				
1,2-Dichloroethane-D4 (surr)	102	81-118		%
4-Bromofluorobenzene (surr)	102	85-114		%
Toluene-d8 (surr)	98.5	89-112		%

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Method Blank

Blank ID: MB for HBN 1795701 [VXX/34349]
Blank Lab ID: 1515972

QC for Samples:
1193351002

Matrix: Water (Surface, Eff., Ground)

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS19110
Analytical Method: SW8260C
Instrument: VPA 780/5975 GC/MS
Analyst: NRB
Analytical Date/Time: 6/28/2019 10:07:00AM

Prep Batch: VXX34349
Prep Method: SW5030B
Prep Date/Time: 6/28/2019 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 07/30/2019 11:07:53AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1193351 [VXX34349]
Blank Spike Lab ID: 1515973
Date Analyzed: 06/28/2019 10:22

Spike Duplicate ID: LCSD for HBN 1193351 [VXX34349]
Spike Duplicate Lab ID: 1515974
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1193351002

Results by **SW8260C**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,1,1,2-Tetrachloroethane	30	30.4	101	30	30.3	101	(78-124)	0.19	(< 20)
1,1,1-Trichloroethane	30	30.6	102	30	30.3	101	(74-131)	0.90	(< 20)
1,1,2,2-Tetrachloroethane	30	30.2	101	30	30.8	103	(71-121)	2.20	(< 20)
1,1,2-Trichloroethane	30	29.6	99	30	29.5	98	(80-119)	0.45	(< 20)
1,1-Dichloroethane	30	30.2	101	30	29.9	100	(77-125)	1.00	(< 20)
1,1-Dichloroethene	30	30.9	103	30	30.2	101	(71-131)	2.00	(< 20)
1,1-Dichloropropene	30	30.6	102	30	30.2	101	(79-125)	1.10	(< 20)
1,2,3-Trichlorobenzene	30	29.6	99	30	31.0	103	(69-129)	4.80	(< 20)
1,2,3-Trichloropropane	30	29.4	98	30	29.6	99	(73-122)	0.69	(< 20)
1,2,4-Trichlorobenzene	30	30.0	100	30	31.0	103	(69-130)	3.20	(< 20)
1,2,4-Trimethylbenzene	30	30.0	100	30	30.6	102	(79-124)	2.00	(< 20)
1,2-Dibromo-3-chloropropane	30	29.8	99	30	29.7	99	(62-128)	0.27	(< 20)
1,2-Dibromoethane	30	30.0	100	30	29.8	99	(77-121)	0.77	(< 20)
1,2-Dichlorobenzene	30	29.0	97	30	29.9	100	(80-119)	3.20	(< 20)
1,2-Dichloroethane	30	30.3	101	30	30.3	101	(73-128)	0.15	(< 20)
1,2-Dichloropropane	30	30.6	102	30	29.9	100	(78-122)	2.30	(< 20)
1,3,5-Trimethylbenzene	30	29.8	100	30	30.5	102	(75-124)	2.00	(< 20)
1,3-Dichlorobenzene	30	29.7	99	30	30.5	102	(80-119)	2.70	(< 20)
1,3-Dichloropropane	30	29.8	99	30	29.7	99	(80-119)	0.29	(< 20)
1,4-Dichlorobenzene	30	29.1	97	30	29.7	99	(79-118)	2.00	(< 20)
2,2-Dichloropropane	30	31.0	103	30	31.2	104	(60-139)	0.36	(< 20)
2-Butanone (MEK)	90	89.0	99	90	88.1	98	(56-143)	0.97	(< 20)
2-Chlorotoluene	30	28.8	96	30	30.3	101	(79-122)	5.00	(< 20)
2-Hexanone	90	94.0	104	90	91.6	102	(57-139)	2.50	(< 20)
4-Chlorotoluene	30	29.1	97	30	29.8	99	(78-122)	2.40	(< 20)
4-Isopropyltoluene	30	30.8	103	30	31.1	104	(77-127)	1.00	(< 20)
4-Methyl-2-pentanone (MIBK)	90	94.2	105	90	92.7	103	(67-130)	1.60	(< 20)
Benzene	30	30.1	100	30	29.9	100	(79-120)	0.70	(< 20)
Bromobenzene	30	29.1	97	30	30.4	101	(80-120)	4.10	(< 20)
Bromochloromethane	30	30.3	101	30	30.5	102	(78-123)	0.57	(< 20)
Bromodichloromethane	30	30.3	101	30	30.2	101	(79-125)	0.06	(< 20)
Bromoform	30	30.6	102	30	30.3	101	(66-130)	1.10	(< 20)
Bromomethane	30	32.6	109	30	34.3	114	(53-141)	5.10	(< 20)
Carbon disulfide	45	45.9	102	45	44.8	100	(64-133)	2.30	(< 20)

Print Date: 07/30/2019 11:07:54AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1193351 [VXX34349]
Blank Spike Lab ID: 1515973
Date Analyzed: 06/28/2019 10:22

Spike Duplicate ID: LCSD for HBN 1193351 [VXX34349]
Spike Duplicate Lab ID: 1515974
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1193351002

Results by **SW8260C**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Carbon tetrachloride	30	30.2	101	30	30.0	100	(72-136)	0.63	(< 20)
Chlorobenzene	30	29.1	97	30	28.8	96	(82-118)	0.79	(< 20)
Chloroethane	30	33.1	110	30	30.7	102	(60-138)	7.40	(< 20)
Chloroform	30	30.1	100	30	29.9	100	(79-124)	0.66	(< 20)
Chloromethane	30	29.9	100	30	30.4	101	(50-139)	1.80	(< 20)
cis-1,2-Dichloroethene	30	30.3	101	30	30.5	102	(78-123)	0.47	(< 20)
cis-1,3-Dichloropropene	30	30.5	102	30	30.4	101	(75-124)	0.25	(< 20)
Dibromochloromethane	30	30.4	101	30	30.4	101	(74-126)	0.18	(< 20)
Dibromomethane	30	29.2	97	30	29.5	98	(79-123)	1.20	(< 20)
Dichlorodifluoromethane	30	32.0	107	30	31.1	104	(32-152)	2.90	(< 20)
Ethylbenzene	30	29.5	98	30	29.0	97	(79-121)	1.40	(< 20)
Freon-113	45	46.1	103	45	45.2	101	(70-136)	2.00	(< 20)
Hexachlorobutadiene	30	30.6	102	30	31.8	106	(66-134)	3.70	(< 20)
Isopropylbenzene (Cumene)	30	30.2	101	30	29.8	99	(72-131)	1.30	(< 20)
Methylene chloride	30	29.4	98	30	29.1	97	(74-124)	1.20	(< 20)
Methyl-t-butyl ether	45	44.6	99	45	44.6	99	(71-124)	0.13	(< 20)
Naphthalene	30	29.5	98	30	31.0	103	(61-128)	4.80	(< 20)
n-Butylbenzene	30	30.5	102	30	31.4	105	(75-128)	2.70	(< 20)
n-Propylbenzene	30	30.3	101	30	30.8	103	(76-126)	1.90	(< 20)
o-Xylene	30	28.8	96	30	28.7	96	(78-122)	0.37	(< 20)
P & M -Xylene	60	59.5	99	60	58.3	97	(80-121)	2.00	(< 20)
sec-Butylbenzene	30	30.4	101	30	31.3	104	(77-126)	2.90	(< 20)
Styrene	30	30.2	101	30	29.8	99	(78-123)	1.40	(< 20)
tert-Butylbenzene	30	30.2	101	30	30.8	103	(78-124)	2.00	(< 20)
Tetrachloroethene	30	30.7	102	30	30.4	101	(74-129)	1.10	(< 20)
Toluene	30	28.7	96	30	28.3	94	(80-121)	1.20	(< 20)
trans-1,2-Dichloroethene	30	30.5	102	30	30.2	101	(75-124)	1.20	(< 20)
trans-1,3-Dichloropropene	30	31.4	105	30	30.9	103	(73-127)	1.60	(< 20)
Trichloroethene	30	30.4	101	30	30.3	101	(79-123)	0.13	(< 20)
Trichlorofluoromethane	30	31.6	105	30	30.6	102	(65-141)	3.30	(< 20)
Vinyl acetate	30	30.7	102	30	30.4	101	(54-146)	0.75	(< 20)
Vinyl chloride	30	30.8	103	30	30.0	100	(58-137)	2.60	(< 20)
Xylenes (total)	90	88.3	98	90	87.0	97	(79-121)	1.50	(< 20)

Print Date: 07/30/2019 11:07:54AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1193351 [VXX34349]
Blank Spike Lab ID: 1515973
Date Analyzed: 06/28/2019 10:22

Spike Duplicate ID: LCSD for HBN 1193351 [VXX34349]
Spike Duplicate Lab ID: 1515974
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1193351002

Results by **SW8260C**

	Blank Spike (%)			Spike Duplicate (%)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Surrogates									
1,2-Dichloroethane-D4 (surr)	30	97.4	97	30	97.6	98	(81-118)	0.29	
4-Bromofluorobenzene (surr)	30	100	100	30	102	102	(85-114)	1.70	
Toluene-d8 (surr)	30	100	100	30	99.9	100	(89-112)	0.19	

Batch Information

Analytical Batch: **VMS19110**
Analytical Method: **SW8260C**
Instrument: **VPA 780/5975 GC/MS**
Analyst: **NRB**

Prep Batch: **VXX34349**
Prep Method: **SW5030B**
Prep Date/Time: **06/28/2019 06:00**
Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1795744 [VXX/34353]
Blank Lab ID: 1516147

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1193351006, 1193351007, 1193351008

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
1,2,4-Trimethylbenzene	0.500U	1.00	0.310	ug/L
Benzene	0.200U	0.400	0.120	ug/L
cis-1,2-Dichloroethene	0.500U	1.00	0.310	ug/L
Naphthalene	0.500U	1.00	0.310	ug/L
o-Xylene	0.500U	1.00	0.310	ug/L
P & M -Xylene	1.00U	2.00	0.620	ug/L
Toluene	0.500U	1.00	0.310	ug/L
Trichloroethene	0.500U	1.00	0.310	ug/L
Vinyl chloride	0.0750U	0.150	0.0500	ug/L
Xylenes (total)	1.50U	3.00	1.00	ug/L
Surrogates				
1,2-Dichloroethane-D4 (surr)	101	81-118		%
4-Bromofluorobenzene (surr)	103	85-114		%
Toluene-d8 (surr)	98.2	89-112		%

Batch Information

Analytical Batch: VMS19112
Analytical Method: SW8260C
Instrument: VPA 780/5975 GC/MS
Analyst: FDR
Analytical Date/Time: 7/1/2019 4:08:00PM

Prep Batch: VXX34353
Prep Method: SW5030B
Prep Date/Time: 7/1/2019 12:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 07/30/2019 11:07:55AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1193351 [VXX34353]
Blank Spike Lab ID: 1516148
Date Analyzed: 07/01/2019 16:23

Spike Duplicate ID: LCSD for HBN 1193351 [VXX34353]
Spike Duplicate Lab ID: 1516149
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1193351006, 1193351007, 1193351008

Results by **SW8260C**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,2,4-Trimethylbenzene	30	29.3	98	30	28.6	96	(79-124)	2.30	(< 20)
Benzene	30	27.4	91	30	26.7	89	(79-120)	2.60	(< 20)
cis-1,2-Dichloroethene	30	27.5	92	30	26.8	89	(78-123)	2.50	(< 20)
Naphthalene	30	29.8	99	30	30.5	102	(61-128)	2.40	(< 20)
o-Xylene	30	26.8	89	30	26.6	89	(78-122)	0.73	(< 20)
P & M -Xylene	60	54.5	91	60	54.0	90	(80-121)	0.91	(< 20)
Toluene	30	26.0	87	30	25.7	86	(80-121)	1.30	(< 20)
Trichloroethene	30	27.6	92	30	26.8	89	(79-123)	2.80	(< 20)
Vinyl chloride	30	27.4	91	30	26.2	87	(58-137)	4.40	(< 20)
Xylenes (total)	90	81.2	90	90	80.6	90	(79-121)	0.85	(< 20)
Surrogates									
1,2-Dichloroethane-D4 (surr)	30	97.8	98	30	96.8	97	(81-118)	1.00	
4-Bromofluorobenzene (surr)	30	102	102	30	102	102	(85-114)	0.34	
Toluene-d8 (surr)	30	99.1	99	30	99.1	99	(89-112)	0.03	

Batch Information

Analytical Batch: **VMS19112**
Analytical Method: **SW8260C**
Instrument: **VPA 780/5975 GC/MS**
Analyst: **FDR**

Prep Batch: **VXX34353**
Prep Method: **SW5030B**
Prep Date/Time: **07/01/2019 00:00**
Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

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Matrix Spike Summary

Original Sample ID: 1516150
MS Sample ID: 1516151 MS
MSD Sample ID: 1516152 MSD

Analysis Date: 07/01/2019 19:27
Analysis Date: 07/01/2019 23:25
Analysis Date: 07/01/2019 23:40
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1193351006, 1193351007, 1193351008

Results by **SW8260C**

		Matrix Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,2,4-Trimethylbenzene	94.8	30.0	130	116	30.0	128	110	79-124	1.40	(< 20)
Benzene	0.120J	30.0	30.1	100	30.0	29.6	98	79-120	1.60	(< 20)
cis-1,2-Dichloroethene	0.500U	30.0	30.2	101	30.0	29.3	98	78-123	2.80	(< 20)
Naphthalene	67.4	30.0	105	124	30.0	110	142 *	61-128	5.10	(< 20)
o-Xylene	50.7	30.0	85.2	115	30.0	83.5	109	78-122	2.10	(< 20)
P & M -Xylene	165	60.0	233	113	60.0	230	107	80-121	1.50	(< 20)
Toluene	0.500U	30.0	28.2	94	30.0	28.0	93	80-121	0.78	(< 20)
Trichloroethene	0.500U	30.0	30.2	101	30.0	29.7	99	79-123	1.80	(< 20)
Vinyl chloride	0.0750U	30.0	29.8	99	30.0	29.4	98	58-137	1.40	(< 20)
Xylenes (total)	216	90.0	318	114	90.0	313	108	79-121	1.70	(< 20)
Surrogates										
1,2-Dichloroethane-D4 (surr)		30.0	29.6	99	30.0	29.5	98	81-118	0.44	
4-Bromofluorobenzene (surr)		30.0	29.9	100	30.0	30.5	102	85-114	1.80	
Toluene-d8 (surr)		30.0	29.5	98	30.0	29.8	99	89-112	1.00	

Batch Information

Analytical Batch: VMS19112
Analytical Method: SW8260C
Instrument: VPA 780/5975 GC/MS
Analyst: FDR
Analytical Date/Time: 7/1/2019 11:25:00PM

Prep Batch: VXX34353
Prep Method: Volatiles Extraction 8240/8260 FULL
Prep Date/Time: 7/1/2019 12:00:00AM
Prep Initial Wt./Vol.: 5.00mL
Prep Extract Vol: 5.00mL

Print Date: 07/30/2019 11:07:58AM

Method Blank

Blank ID: MB for HBN 1795805 [VXX/34357]
Blank Lab ID: 1516394

QC for Samples:
1193351012, 1193351013

Matrix: Water (Surface, Eff., Ground)

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
Ethylbenzene	0.500U	1.00	0.310	ug/L
Naphthalene	0.500U	1.00	0.310	ug/L
Toluene	0.500U	1.00	0.310	ug/L
Trichloroethene	0.500U	1.00	0.310	ug/L
Vinyl chloride	0.0750U	0.150	0.0500	ug/L
Surrogates				
1,2-Dichloroethane-D4 (surr)	109	81-118		%
4-Bromofluorobenzene (surr)	105	85-114		%
Toluene-d8 (surr)	100	89-112		%

Batch Information

Analytical Batch: VMS19114
Analytical Method: SW8260C
Instrument: Agilent 7890-75MS
Analyst: FDR
Analytical Date/Time: 7/2/2019 1:58:00PM

Prep Batch: VXX34357
Prep Method: SW5030B
Prep Date/Time: 7/2/2019 12:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1193351 [VXX34357]
Blank Spike Lab ID: 1516395
Date Analyzed: 07/02/2019 14:14

Spike Duplicate ID: LCSD for HBN 1193351 [VXX34357]
Spike Duplicate Lab ID: 1516396
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1193351012, 1193351013

Results by **SW8260C**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Ethylbenzene	30	30.1	100	30	29.6	99	(79-121)	1.60	(< 20)
Naphthalene	30	27.9	93	30	28.1	94	(61-128)	0.82	(< 20)
Toluene	30	27.3	91	30	27.0	90	(80-121)	1.20	(< 20)
Trichloroethene	30	29.7	99	30	28.9	96	(79-123)	2.60	(< 20)
Vinyl chloride	30	25.1	84	30	23.9	80	(58-137)	4.70	(< 20)
Surrogates									
1,2-Dichloroethane-D4 (surr)	30	102	102	30	101	101	(81-118)	0.82	
4-Bromofluorobenzene (surr)	30	107	107	30	107	107	(85-114)	0.28	
Toluene-d8 (surr)	30	98.4	98	30	98.4	98	(89-112)	0.00	

Batch Information

Analytical Batch: **VMS19114**
Analytical Method: **SW8260C**
Instrument: **Agilent 7890-75MS**
Analyst: **FDR**

Prep Batch: **VXX34357**
Prep Method: **SW5030B**
Prep Date/Time: **07/02/2019 00:00**
Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

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Matrix Spike Summary

Original Sample ID: 1516397
MS Sample ID: 1516398 MS
MSD Sample ID: 1516399 MSD

QC for Samples: 1193351012, 1193351013

Analysis Date: 07/02/2019 19:24
Analysis Date: 07/02/2019 19:39
Analysis Date: 07/02/2019 19:54
Matrix: Water (Surface, Eff., Ground)

Results by **SW8260C**

		Matrix Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Ethylbenzene	204	600	855	109	600	853	108	79-121	0.26	(< 20)
Naphthalene	312	600	981	112	600	986	112	61-128	0.49	(< 20)
Toluene	17.4J	600	607	98	600	593	96	80-121	2.30	(< 20)
Trichloroethene	10.0U	600	616	103	600	614	102	79-123	0.36	(< 20)
Vinyl chloride	1.50U	600	506	84	600	509	85	58-137	0.59	(< 20)
Surrogates										
1,2-Dichloroethane-D4 (surr)		600	604	101	600	611	102	81-118	1.20	
4-Bromofluorobenzene (surr)		600	622	104	600	640	107	85-114	2.80	
Toluene-d8 (surr)		600	606	101	600	598	100	89-112	1.20	

Batch Information

Analytical Batch: VMS19114
Analytical Method: SW8260C
Instrument: Agilent 7890-75MS
Analyst: FDR
Analytical Date/Time: 7/2/2019 7:39:00PM

Prep Batch: VXX34357
Prep Method: Volatiles Extraction 8240/8260 FULL
Prep Date/Time: 7/2/2019 12:00:00AM
Prep Initial Wt./Vol.: 5.00mL
Prep Extract Vol: 5.00mL

Print Date: 07/30/2019 11:08:01AM

Method Blank

Blank ID: MB for HBN 1795811 [VXX/34359]
Blank Lab ID: 1516431

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1193351001

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
1,1,1,2-Tetrachloroethane	0.250U	0.500	0.150	ug/L
1,1,1-Trichloroethane	0.500U	1.00	0.310	ug/L
1,1,2,2-Tetrachloroethane	0.250U	0.500	0.150	ug/L
1,1,2-Trichloroethane	0.200U	0.400	0.120	ug/L
1,1-Dichloroethane	0.500U	1.00	0.310	ug/L
1,1-Dichloroethene	0.500U	1.00	0.310	ug/L
1,1-Dichloropropene	0.500U	1.00	0.310	ug/L
1,2,3-Trichlorobenzene	0.500U	1.00	0.310	ug/L
1,2,3-Trichloropropane	0.500U	1.00	0.310	ug/L
1,2,4-Trichlorobenzene	0.500U	1.00	0.310	ug/L
1,2,4-Trimethylbenzene	0.500U	1.00	0.310	ug/L
1,2-Dibromo-3-chloropropane	5.00U	10.0	3.10	ug/L
1,2-Dibromoethane	0.0375U	0.0750	0.0180	ug/L
1,2-Dichlorobenzene	0.500U	1.00	0.310	ug/L
1,2-Dichloroethane	0.250U	0.500	0.150	ug/L
1,2-Dichloropropane	0.500U	1.00	0.310	ug/L
1,3,5-Trimethylbenzene	0.500U	1.00	0.310	ug/L
1,3-Dichlorobenzene	0.500U	1.00	0.310	ug/L
1,3-Dichloropropane	0.250U	0.500	0.150	ug/L
1,4-Dichlorobenzene	0.250U	0.500	0.150	ug/L
2,2-Dichloropropane	0.500U	1.00	0.310	ug/L
2-Butanone (MEK)	5.00U	10.0	3.10	ug/L
2-Chlorotoluene	0.500U	1.00	0.310	ug/L
2-Hexanone	5.00U	10.0	3.10	ug/L
4-Chlorotoluene	0.500U	1.00	0.310	ug/L
4-Isopropyltoluene	0.500U	1.00	0.310	ug/L
4-Methyl-2-pentanone (MIBK)	5.00U	10.0	3.10	ug/L
Benzene	0.200U	0.400	0.120	ug/L
Bromobenzene	0.500U	1.00	0.310	ug/L
Bromochloromethane	0.500U	1.00	0.310	ug/L
Bromodichloromethane	0.250U	0.500	0.150	ug/L
Bromoform	0.500U	1.00	0.310	ug/L
Bromomethane	2.50U	5.00	1.50	ug/L
Carbon disulfide	5.00U	10.0	3.10	ug/L
Carbon tetrachloride	0.500U	1.00	0.310	ug/L
Chlorobenzene	0.250U	0.500	0.150	ug/L
Chloroethane	0.500U	1.00	0.310	ug/L
Chloroform	0.500U	1.00	0.310	ug/L

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Method Blank

Blank ID: MB for HBN 1795811 [VXX/34359]
Blank Lab ID: 1516431

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1193351001

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
Chloromethane	0.500U	1.00	0.310	ug/L
cis-1,2-Dichloroethene	0.500U	1.00	0.310	ug/L
cis-1,3-Dichloropropene	0.250U	0.500	0.150	ug/L
Dibromochloromethane	0.250U	0.500	0.150	ug/L
Dibromomethane	0.500U	1.00	0.310	ug/L
Dichlorodifluoromethane	0.500U	1.00	0.310	ug/L
Ethylbenzene	0.500U	1.00	0.310	ug/L
Freon-113	5.00U	10.0	3.10	ug/L
Hexachlorobutadiene	0.500U	1.00	0.310	ug/L
Isopropylbenzene (Cumene)	0.500U	1.00	0.310	ug/L
Methylene chloride	2.50U	5.00	1.00	ug/L
Methyl-t-butyl ether	5.00U	10.0	3.10	ug/L
Naphthalene	0.500U	1.00	0.310	ug/L
n-Butylbenzene	0.500U	1.00	0.310	ug/L
n-Propylbenzene	0.500U	1.00	0.310	ug/L
o-Xylene	0.500U	1.00	0.310	ug/L
P & M -Xylene	1.00U	2.00	0.620	ug/L
sec-Butylbenzene	0.500U	1.00	0.310	ug/L
Styrene	0.500U	1.00	0.310	ug/L
tert-Butylbenzene	0.500U	1.00	0.310	ug/L
Tetrachloroethene	0.500U	1.00	0.310	ug/L
Toluene	0.500U	1.00	0.310	ug/L
trans-1,2-Dichloroethene	0.500U	1.00	0.310	ug/L
trans-1,3-Dichloropropene	0.500U	1.00	0.310	ug/L
Trichloroethene	0.500U	1.00	0.310	ug/L
Trichlorofluoromethane	0.500U	1.00	0.310	ug/L
Vinyl acetate	5.00U	10.0	3.10	ug/L
Vinyl chloride	0.0750U	0.150	0.0500	ug/L
Xylenes (total)	1.50U	3.00	1.00	ug/L
Surrogates				
1,2-Dichloroethane-D4 (surr)	102	81-118		%
4-Bromofluorobenzene (surr)	103	85-114		%
Toluene-d8 (surr)	97.8	89-112		%

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Method Blank

Blank ID: MB for HBN 1795811 [VXX/34359]
Blank Lab ID: 1516431

QC for Samples:
1193351001

Matrix: Water (Surface, Eff., Ground)

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS19116
Analytical Method: SW8260C
Instrument: VPA 780/5975 GC/MS
Analyst: FDR
Analytical Date/Time: 7/2/2019 1:57:00PM

Prep Batch: VXX34359
Prep Method: SW5030B
Prep Date/Time: 7/2/2019 12:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 07/30/2019 11:08:02AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1193351 [VXX34359]
Blank Spike Lab ID: 1516432
Date Analyzed: 07/02/2019 14:12

Spike Duplicate ID: LCSD for HBN 1193351 [VXX34359]
Spike Duplicate Lab ID: 1516433
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1193351001

Results by **SW8260C**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,1,1,2-Tetrachloroethane	30	30.0	100	30	29.8	100	(78-124)	0.63	(< 20)
1,1,1-Trichloroethane	30	29.6	99	30	29.5	98	(74-131)	0.41	(< 20)
1,1,2,2-Tetrachloroethane	30	29.3	98	30	29.5	99	(71-121)	0.78	(< 20)
1,1,2-Trichloroethane	30	29.3	98	30	29.0	97	(80-119)	1.10	(< 20)
1,1-Dichloroethane	30	29.4	98	30	29.0	97	(77-125)	1.40	(< 20)
1,1-Dichloroethene	30	29.8	99	30	29.4	98	(71-131)	1.30	(< 20)
1,1-Dichloropropene	30	29.6	99	30	29.5	98	(79-125)	0.27	(< 20)
1,2,3-Trichlorobenzene	30	29.4	98	30	30.6	102	(69-129)	4.20	(< 20)
1,2,3-Trichloropropane	30	28.7	96	30	29.3	98	(73-122)	2.20	(< 20)
1,2,4-Trichlorobenzene	30	29.9	100	30	30.3	101	(69-130)	1.20	(< 20)
1,2,4-Trimethylbenzene	30	30.2	101	30	30.2	101	(79-124)	0.03	(< 20)
1,2-Dibromo-3-chloropropane	30	27.6	92	30	28.4	95	(62-128)	2.70	(< 20)
1,2-Dibromoethane	30	29.2	97	30	29.2	97	(77-121)	0.14	(< 20)
1,2-Dichlorobenzene	30	29.4	98	30	29.4	98	(80-119)	0.10	(< 20)
1,2-Dichloroethane	30	30.3	101	30	30.0	100	(73-128)	1.10	(< 20)
1,2-Dichloropropane	30	29.1	97	30	29.6	99	(78-122)	1.70	(< 20)
1,3,5-Trimethylbenzene	30	29.9	100	30	30.0	100	(75-124)	0.57	(< 20)
1,3-Dichlorobenzene	30	29.8	99	30	29.9	100	(80-119)	0.47	(< 20)
1,3-Dichloropropane	30	29.5	98	30	29.3	98	(80-119)	0.61	(< 20)
1,4-Dichlorobenzene	30	29.5	98	30	29.5	98	(79-118)	0.17	(< 20)
2,2-Dichloropropane	30	29.3	98	30	29.2	97	(60-139)	0.44	(< 20)
2-Butanone (MEK)	90	84.1	93	90	85.1	95	(56-143)	1.20	(< 20)
2-Chlorotoluene	30	30.0	100	30	30.1	100	(79-122)	0.13	(< 20)
2-Hexanone	90	88.8	99	90	88.9	99	(57-139)	0.12	(< 20)
4-Chlorotoluene	30	29.9	100	30	29.7	99	(78-122)	0.50	(< 20)
4-Isopropyltoluene	30	30.3	101	30	30.4	101	(77-127)	0.40	(< 20)
4-Methyl-2-pentanone (MIBK)	90	90.0	100	90	90.8	101	(67-130)	0.84	(< 20)
Benzene	30	29.4	98	30	29.3	98	(79-120)	0.34	(< 20)
Bromobenzene	30	29.8	99	30	29.7	99	(80-120)	0.30	(< 20)
Bromochloromethane	30	30.4	101	30	30.2	101	(78-123)	0.59	(< 20)
Bromodichloromethane	30	29.7	99	30	29.7	99	(79-125)	0.13	(< 20)
Bromoform	30	28.9	97	30	29.1	97	(66-130)	0.65	(< 20)
Bromomethane	30	33.2	111	30	34.2	114	(53-141)	3.10	(< 20)
Carbon disulfide	45	43.6	97	45	43.0	96	(64-133)	1.30	(< 20)

Print Date: 07/30/2019 11:08:03AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1193351 [VXX34359]
Blank Spike Lab ID: 1516432
Date Analyzed: 07/02/2019 14:12

Spike Duplicate ID: LCSD for HBN 1193351 [VXX34359]
Spike Duplicate Lab ID: 1516433
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1193351001

Results by **SW8260C**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Carbon tetrachloride	30	29.1	97	30	29.1	97	(72-136)	0.03	(< 20)
Chlorobenzene	30	28.7	96	30	28.3	94	(82-118)	1.50	(< 20)
Chloroethane	30	31.8	106	30	30.1	100	(60-138)	5.60	(< 20)
Chloroform	30	29.5	98	30	29.4	98	(79-124)	0.24	(< 20)
Chloromethane	30	25.8	86	30	27.9	93	(50-139)	8.10	(< 20)
cis-1,2-Dichloroethene	30	29.3	98	30	28.8	96	(78-123)	1.70	(< 20)
cis-1,3-Dichloropropene	30	29.5	98	30	29.6	99	(75-124)	0.27	(< 20)
Dibromochloromethane	30	29.5	99	30	29.5	98	(74-126)	0.24	(< 20)
Dibromomethane	30	29.1	97	30	28.8	96	(79-123)	1.00	(< 20)
Dichlorodifluoromethane	30	30.6	102	30	30.1	100	(32-152)	1.70	(< 20)
Ethylbenzene	30	28.8	96	30	28.4	95	(79-121)	1.50	(< 20)
Freon-113	45	44.9	100	45	44.5	99	(70-136)	0.83	(< 20)
Hexachlorobutadiene	30	29.2	97	30	30.2	101	(66-134)	3.40	(< 20)
Isopropylbenzene (Cumene)	30	29.4	98	30	29.6	99	(72-131)	0.85	(< 20)
Methylene chloride	30	28.8	96	30	28.6	95	(74-124)	0.91	(< 20)
Methyl-t-butyl ether	45	44.3	98	45	43.9	98	(71-124)	0.86	(< 20)
Naphthalene	30	28.8	96	30	30.5	102	(61-128)	5.60	(< 20)
n-Butylbenzene	30	30.2	101	30	30.4	101	(75-128)	0.53	(< 20)
n-Propylbenzene	30	30.2	101	30	29.9	100	(76-126)	1.20	(< 20)
o-Xylene	30	28.5	95	30	28.5	95	(78-122)	0.04	(< 20)
P & M -Xylene	60	58.3	97	60	57.9	97	(80-121)	0.65	(< 20)
sec-Butylbenzene	30	30.4	101	30	30.3	101	(77-126)	0.56	(< 20)
Styrene	30	30.0	100	30	29.7	99	(78-123)	1.00	(< 20)
tert-Butylbenzene	30	29.9	100	30	29.8	100	(78-124)	0.13	(< 20)
Tetrachloroethene	30	29.4	98	30	29.5	99	(74-129)	0.34	(< 20)
Toluene	30	27.7	93	30	27.7	92	(80-121)	0.07	(< 20)
trans-1,2-Dichloroethene	30	29.5	98	30	29.2	97	(75-124)	0.96	(< 20)
trans-1,3-Dichloropropene	30	30.3	101	30	30.1	100	(73-127)	0.79	(< 20)
Trichloroethene	30	29.5	98	30	29.5	98	(79-123)	0.27	(< 20)
Trichlorofluoromethane	30	30.9	103	30	30.3	101	(65-141)	2.00	(< 20)
Vinyl acetate	30	29.6	99	30	29.7	99	(54-146)	0.13	(< 20)
Vinyl chloride	30	29.6	99	30	29.1	97	(58-137)	1.50	(< 20)
Xylenes (total)	90	86.8	96	90	86.4	96	(79-121)	0.43	(< 20)

Print Date: 07/30/2019 11:08:03AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1193351 [VXX34359]
Blank Spike Lab ID: 1516432
Date Analyzed: 07/02/2019 14:12

Spike Duplicate ID: LCSD for HBN 1193351 [VXX34359]
Spike Duplicate Lab ID: 1516433
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1193351001

Results by **SW8260C**

	Blank Spike (%)			Spike Duplicate (%)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Surrogates									
1,2-Dichloroethane-D4 (surr)	30	98.1	98	30	97.7	98	(81-118)	0.48	
4-Bromofluorobenzene (surr)	30	101	101	30	100	100	(85-114)	0.07	
Toluene-d8 (surr)	30	99	99	30	99.9	100	(89-112)	0.90	

Batch Information

Analytical Batch: **VMS19116**
Analytical Method: **SW8260C**
Instrument: **VPA 780/5975 GC/MS**
Analyst: **FDR**

Prep Batch: **VXX34359**
Prep Method: **SW5030B**
Prep Date/Time: **07/02/2019 00:00**
Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

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Matrix Spike Summary

Original Sample ID: 1516434
MS Sample ID: 1516435 MS
MSD Sample ID: 1516436 MSD

QC for Samples: 1193351001

Analysis Date: 07/02/2019 17:19
Analysis Date: 07/02/2019 21:18
Analysis Date: 07/02/2019 21:33
Matrix: Water (Surface, Eff., Ground)

Results by **SW8260C**

		Matrix Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,1,1,2-Tetrachloroethane	0.250U	30.0	30.7	102	30.0	31.1	104	78-124	1.30	(< 20)
1,1,1-Trichloroethane	0.500U	30.0	30.6	102	30.0	30.6	102	74-131	0.10	(< 20)
1,1,2,2-Tetrachloroethane	0.250U	30.0	31	103	30.0	31.9	106	71-121	2.90	(< 20)
1,1,2-Trichloroethane	0.200U	30.0	30.2	101	30.0	30.3	101	80-119	0.30	(< 20)
1,1-Dichloroethane	0.500U	30.0	31	103	30.0	30.6	102	77-125	1.30	(< 20)
1,1-Dichloroethene	0.500U	30.0	30.8	103	30.0	30.5	102	71-131	1.10	(< 20)
1,1-Dichloropropene	0.500U	30.0	30.7	102	30.0	30.7	102	79-125	0.00	(< 20)
1,2,3-Trichlorobenzene	0.500U	30.0	30	100	30.0	32.6	109	69-129	8.40	(< 20)
1,2,3-Trichloropropane	0.500U	30.0	30.3	101	30.0	31.2	104	73-122	3.20	(< 20)
1,2,4-Trichlorobenzene	0.500U	30.0	30.2	101	30.0	32.1	107	69-130	5.90	(< 20)
1,2,4-Trimethylbenzene	0.500U	30.0	31.7	106	30.0	32.2	107	79-124	1.80	(< 20)
1,2-Dibromo-3-chloropropane	5.00U	30.0	28.8	96	30.0	30.7	102	62-128	6.50	(< 20)
1,2-Dibromoethane	0.0375U	30.0	30.1	100	30.0	30.5	102	77-121	1.20	(< 20)
1,2-Dichlorobenzene	0.500U	30.0	30.4	101	30.0	31.4	105	80-119	3.20	(< 20)
1,2-Dichloroethane	0.250U	30.0	31.4	105	30.0	31.1	104	73-128	0.86	(< 20)
1,2-Dichloropropane	0.500U	30.0	30	100	30.0	30.2	101	78-122	0.46	(< 20)
1,3,5-Trimethylbenzene	0.500U	30.0	31.2	104	30.0	32.2	107	75-124	3.00	(< 20)
1,3-Dichlorobenzene	0.500U	30.0	31	103	30.0	32.4	108	80-119	4.60	(< 20)
1,3-Dichloropropane	0.250U	30.0	30.6	102	30.0	30.7	102	80-119	0.29	(< 20)
1,4-Dichlorobenzene	0.250U	30.0	31.1	104	30.0	31.3	104	79-118	0.67	(< 20)
2,2-Dichloropropane	0.500U	30.0	27.8	93	30.0	27.5	92	60-139	1.30	(< 20)
2-Butanone (MEK)	5.00U	90.0	89.8	100	90.0	90.5	101	56-143	0.80	(< 20)
2-Chlorotoluene	0.500U	30.0	31.6	105	30.0	32.2	107	79-122	1.90	(< 20)
2-Hexanone	5.00U	90.0	94.8	105	90.0	97.1	108	57-139	2.40	(< 20)
4-Chlorotoluene	0.500U	30.0	31	103	30.0	31.2	104	78-122	0.48	(< 20)
4-Isopropyltoluene	0.500U	30.0	31.2	104	30.0	31.8	106	77-127	2.10	(< 20)
4-Methyl-2-pentanone (MIBK)	5.00U	90.0	94.8	105	90.0	97.1	108	67-130	2.30	(< 20)
Benzene	0.200U	30.0	30.7	102	30.0	30.7	102	79-120	0.07	(< 20)
Bromobenzene	0.500U	30.0	31.3	104	30.0	31.9	106	80-120	1.80	(< 20)
Bromochloromethane	0.500U	30.0	31.3	104	30.0	31.2	104	78-123	0.10	(< 20)
Bromodichloromethane	0.250U	30.0	30.8	103	30.0	30.9	103	79-125	0.32	(< 20)
Bromoform	0.500U	30.0	29.8	99	30.0	30.2	101	66-130	1.20	(< 20)
Bromomethane	2.50U	30.0	23.5	78	30.0	28.4	95	53-141	18.80	(< 20)
Carbon disulfide	5.00U	45.0	45.1	100	45.0	45.0	100	64-133	0.18	(< 20)
Carbon tetrachloride	0.500U	30.0	30.4	101	30.0	30.6	102	72-136	0.62	(< 20)
Chlorobenzene	0.250U	30.0	29.8	99	30.0	29.8	99	82-118	0.00	(< 20)
Chloroethane	0.500U	30.0	33.2	111	30.0	32.5	108	60-138	2.30	(< 20)

Print Date: 07/30/2019 11:08:04AM

Matrix Spike Summary

Original Sample ID: 1516434
MS Sample ID: 1516435 MS
MSD Sample ID: 1516436 MSD

QC for Samples: 1193351001

Analysis Date: 07/02/2019 17:19
Analysis Date: 07/02/2019 21:18
Analysis Date: 07/02/2019 21:33
Matrix: Water (Surface, Eff., Ground)

Results by **SW8260C**

		Matrix Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Chloroform	0.500U	30.0	30.8	103	30.0	30.7	102	79-124	0.39	(< 20)
Chloromethane	0.500U	30.0	21.6	72	30.0	25.7	86	50-139	17.20	(< 20)
cis-1,2-Dichloroethene	0.500U	30.0	30.7	102	30.0	30.5	102	78-123	0.75	(< 20)
cis-1,3-Dichloropropene	0.250U	30.0	29.6	99	30.0	29.8	99	75-124	0.40	(< 20)
Dibromochloromethane	0.250U	30.0	30.4	101	30.0	30.4	101	74-126	0.10	(< 20)
Dibromomethane	0.500U	30.0	30.3	101	30.0	30.2	101	79-123	0.40	(< 20)
Dichlorodifluoromethane	0.500U	30.0	31.3	104	30.0	31.0	103	32-152	1.20	(< 20)
Ethylbenzene	0.500U	30.0	30	100	30.0	30.0	100	79-121	0.03	(< 20)
Freon-113	5.00U	45.0	45.9	102	45.0	45.7	102	70-136	0.39	(< 20)
Hexachlorobutadiene	0.500U	30.0	28.4	95	30.0	30.6	102	66-134	7.40	(< 20)
Isopropylbenzene (Cumene)	0.500U	30.0	30.7	102	30.0	31.0	103	72-131	0.81	(< 20)
Methylene chloride	2.50U	30.0	30	100	30.0	29.8	99	74-124	0.70	(< 20)
Methyl-t-butyl ether	5.00U	45.0	45.1	100	45.0	44.8	99	71-124	0.71	(< 20)
Naphthalene	0.500U	30.0	30.8	103	30.0	33.3	111	61-128	7.90	(< 20)
n-Butylbenzene	0.500U	30.0	30.8	103	30.0	31.7	106	75-128	2.80	(< 20)
n-Propylbenzene	0.500U	30.0	31	103	30.0	31.6	105	76-126	1.80	(< 20)
o-Xylene	0.500U	30.0	29.7	99	30.0	29.6	99	78-122	0.24	(< 20)
P & M -Xylene	1.00U	60.0	60.4	101	60.0	60.6	101	80-121	0.35	(< 20)
sec-Butylbenzene	0.500U	30.0	30.8	103	30.0	31.7	106	77-126	2.70	(< 20)
Styrene	0.500U	30.0	31.4	105	30.0	31.1	104	78-123	0.90	(< 20)
tert-Butylbenzene	0.500U	30.0	31.2	104	30.0	31.7	106	78-124	1.70	(< 20)
Tetrachloroethene	0.500U	30.0	30.4	101	30.0	30.5	102	74-129	0.20	(< 20)
Toluene	0.500U	30.0	29	97	30.0	29.1	97	80-121	0.55	(< 20)
trans-1,2-Dichloroethene	0.500U	30.0	30.7	102	30.0	30.6	102	75-124	0.20	(< 20)
trans-1,3-Dichloropropene	0.500U	30.0	29.9	100	30.0	30.2	101	73-127	0.83	(< 20)
Trichloroethene	0.500U	30.0	30.8	103	30.0	30.8	103	79-123	0.13	(< 20)
Trichlorofluoromethane	0.500U	30.0	31.7	106	30.0	31.2	104	65-141	1.80	(< 20)
Vinyl acetate	5.00U	30.0	28.6	95	30.0	28.7	96	54-146	0.45	(< 20)
Vinyl chloride	0.0750U	30.0	30.5	102	30.0	30.3	101	58-137	0.59	(< 20)
Xylenes (total)	1.50U	90.0	90.1	100	90.0	90.2	100	79-121	0.16	(< 20)
Surrogates										
1,2-Dichloroethane-D4 (surr)		30.0	29.8	99	30.0	29.3	98	81-118	1.70	
4-Bromofluorobenzene (surr)		30.0	29.8	100	30.0	30.4	101	85-114	1.70	
Toluene-d8 (surr)		30.0	29.7	99	30.0	29.9	100	89-112	0.54	

Print Date: 07/30/2019 11:08:04AM

Matrix Spike Summary

Original Sample ID: 1516434
MS Sample ID: 1516435 MS
MSD Sample ID: 1516436 MSD

QC for Samples: 1193351001

Analysis Date:
Analysis Date: 07/02/2019 21:18
Analysis Date: 07/02/2019 21:33
Matrix: Water (Surface, Eff., Ground)

Results by **SW8260C**

		Matrix Spike (%)			Spike Duplicate (%)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL

Batch Information

Analytical Batch: VMS19116
Analytical Method: SW8260C
Instrument: VPA 780/5975 GC/MS
Analyst: FDR
Analytical Date/Time: 7/2/2019 9:18:00PM

Prep Batch: VXX34359
Prep Method: Volatiles Extraction 8240/8260 FULL
Prep Date/Time: 7/2/2019 12:00:00AM
Prep Initial Wt./Vol.: 5.00mL
Prep Extract Vol: 5.00mL

Print Date: 07/30/2019 11:08:04AM

Method Blank

Blank ID: MB for HBN 1795865 [VXX/34369]
Blank Lab ID: 1516658

QC for Samples:
1193351012, 1193351013

Matrix: Water (Surface, Eff., Ground)

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
Benzene	0.200U	0.400	0.120	ug/L
o-Xylene	0.500U	1.00	0.310	ug/L
P & M -Xylene	1.00U	2.00	0.620	ug/L
Toluene	0.500U	1.00	0.310	ug/L
Xylenes (total)	1.50U	3.00	1.00	ug/L
Surrogates				
1,2-Dichloroethane-D4 (surr)	101	81-118		%
4-Bromofluorobenzene (surr)	102	85-114		%
Toluene-d8 (surr)	97.4	89-112		%

Batch Information

Analytical Batch: VMS19120
Analytical Method: SW8260C
Instrument: VPA 780/5975 GC/MS
Analyst: NRB
Analytical Date/Time: 7/3/2019 12:25:00PM

Prep Batch: VXX34369
Prep Method: SW5030B
Prep Date/Time: 7/3/2019 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1193351 [VXX34369]
Blank Spike Lab ID: 1516659
Date Analyzed: 07/03/2019 12:40

Spike Duplicate ID: LCSD for HBN 1193351 [VXX34369]
Spike Duplicate Lab ID: 1516660
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1193351012, 1193351013

Results by **SW8260C**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Benzene	30	28.4	95	30	28.5	95	(79-120)	0.39	(< 20)
o-Xylene	30	27.4	91	30	28.1	94	(78-122)	2.50	(< 20)
P & M -Xylene	60	55.5	93	60	57.0	95	(80-121)	2.60	(< 20)
Toluene	30	26.7	89	30	27.1	90	(80-121)	1.70	(< 20)
Xylenes (total)	90	82.8	92	90	85.0	94	(79-121)	2.60	(< 20)
Surrogates									
1,2-Dichloroethane-D4 (surr)	30	96.4	96	30	95.9	96	(81-118)	0.59	
4-Bromofluorobenzene (surr)	30	100	100	30	101	101	(85-114)	0.20	
Toluene-d8 (surr)	30	98.9	99	30	99.9	100	(89-112)	1.00	

Batch Information

Analytical Batch: **VMS19120**
Analytical Method: **SW8260C**
Instrument: **VPA 780/5975 GC/MS**
Analyst: **NRB**

Prep Batch: **VXX34369**
Prep Method: **SW5030B**
Prep Date/Time: **07/03/2019 06:00**
Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

SGS North America Inc.
200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

Method Blank

Blank ID: MB for HBN 1795718 [WAT/11386]
Blank Lab ID: 1516023

Matrix: Drinking Water

QC for Samples:
1193351001, 1193351002, 1193351003, 1193351006, 1193351007, 1193351008, 1193351009, 1193351010, 1193351011

Results by **SM23 4500S D**

Parameter	Results	LOQ/CL	DL	Units
Sulfide	0.0500U	0.100	0.0310	mg/L

Batch Information

Analytical Batch: WAT11386
Analytical Method: SM23 4500S D
Instrument:
Analyst: EWW
Analytical Date/Time: 7/1/2019 10:10:00AM

Print Date: 07/30/2019 11:08:07AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1193351 [WAT11386]
Blank Spike Lab ID: 1516024
Date Analyzed: 07/01/2019 10:10

Matrix: Drinking Water

QC for Samples: 1193351001, 1193351002, 1193351003, 1193351006, 1193351007, 1193351008, 1193351009, 1193351010, 1193351011

Results by **SM23 4500S D**

	Blank Spike (mg/L)			
Parameter	Spike	Result	Rec (%)	CL
Sulfide	0.499	0.480	96	(75-125)

Batch Information

Analytical Batch: **WAT11386**
Analytical Method: **SM23 4500S D**
Instrument:
Analyst: **EWW**

Print Date: 07/30/2019 11:08:08AM

Billable Matrix Spike Summary

Original Sample ID: 1193351003
MS Sample ID: 1193351004 BMS
MSD Sample ID: 1193351005 BMSD

Analysis Date: 07/01/2019 10:10
Analysis Date: 07/01/2019 10:10
Analysis Date: 07/01/2019 10:10
Matrix: Water (Surface, Eff., Ground)

QC for Samples:

Results by **SM23 4500S D**

		Matrix Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Sulfide	0.100U	0.499	.45	90	0.499	0.450	90	75-125	0.00	(< 25)

Batch Information

Analytical Batch: WAT11386
Analytical Method: SM23 4500S D
Instrument:
Analyst: EWW
Analytical Date/Time: 7/1/2019 10:10:00AM

Print Date: 07/30/2019 11:08:09AM

Method Blank

Blank ID: MB for HBN 1795882 (WFI/2826)
Blank Lab ID: 1516830

Matrix: Water (Surface, Eff., Ground)

QC for Samples:

Results by **SM21 4500NO3-F**

Parameter	Results	LOQ/CL	DL	Units
Nitrate-N	0.0500U	0.100	0.0250	mg/L
Nitrite-N	0.0500U	0.100	0.0250	mg/L
Total Nitrate/Nitrite-N	0.0500U	0.100	0.0250	mg/L

Batch Information

Analytical Batch: WFI2826
Analytical Method: SM21 4500NO3-F
Instrument: Astoria segmented flow
Analyst: EWW
Analytical Date/Time: 7/3/2019 11:04:44AM

Print Date: 07/30/2019 11:08:09AM

Method Blank

Blank ID: MB for HBN 1795882 (WFI/2826)
Blank Lab ID: 1516843

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1193351001, 1193351002, 1193351003, 1193351006, 1193351007, 1193351008, 1193351009, 1193351010, 1193351011

Results by **SM21 4500NO3-F**

Parameter	Results	LOQ/CL	DL	Units
Nitrate-N	0.100U	0.200	0.0500	mg/L
Nitrite-N	0.100U	0.200	0.0500	mg/L
Total Nitrate/Nitrite-N	0.100U	0.200	0.0500	mg/L

Batch Information

Analytical Batch: WFI2826
Analytical Method: SM21 4500NO3-F
Instrument: Astoria segmented flow
Analyst: EWW
Analytical Date/Time: 7/3/2019 11:50:15AM

Print Date: 07/30/2019 11:08:09AM

Method Blank

Blank ID: MB for HBN 1795882 (WFI/2826)
Blank Lab ID: 1516847

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1193351001, 1193351002, 1193351003, 1193351006, 1193351007, 1193351008, 1193351009, 1193351010, 1193351011

Results by **SM21 4500NO3-F**

Parameter	Results	LOQ/CL	DL	Units
Nitrate-N	0.100U	0.200	0.0500	mg/L
Nitrite-N	0.100U	0.200	0.0500	mg/L
Total Nitrate/Nitrite-N	0.100U	0.200	0.0500	mg/L

Batch Information

Analytical Batch: WFI2826
Analytical Method: SM21 4500NO3-F
Instrument: Astoria segmented flow
Analyst: EWW
Analytical Date/Time: 7/3/2019 12:35:45PM

Print Date: 07/30/2019 11:08:09AM

Method Blank

Blank ID: MB for HBN 1795882 (WFI/2826)
Blank Lab ID: 1516877

Matrix: Water (Surface, Eff., Ground)

QC for Samples:

Results by **SM21 4500NO3-F**

Parameter	Results	LOQ/CL	DL	Units
Nitrate-N	0.100U	0.200	0.0500	mg/L
Nitrite-N	0.100U	0.200	0.0500	mg/L
Total Nitrate/Nitrite-N	0.100U	0.200	0.0500	mg/L

Batch Information

Analytical Batch: WFI2826
Analytical Method: SM21 4500NO3-F
Instrument: Astoria segmented flow
Analyst: EWW
Analytical Date/Time: 7/3/2019 1:35:15PM

Print Date: 07/30/2019 11:08:09AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1193351 [WFI2826]
Blank Spike Lab ID: 1516829
Date Analyzed: 07/03/2019 11:03

Matrix: Water (Surface, Eff., Ground)

QC for Samples:

Results by **SM21 4500NO3-F**

	Blank Spike (mg/L)			
Parameter	Spike	Result	Rec (%)	CL
Nitrate-N	1.25	1.30	104	(70-130)
Nitrite-N	1.25	1.28	102	(90-110)
Total Nitrate/Nitrite-N	2.5	2.57	103	(90-110)

Batch Information

Analytical Batch: **WFI2826**
Analytical Method: **SM21 4500NO3-F**
Instrument: **Astoria segmented flow**
Analyst: **EWW**

Print Date: 07/30/2019 11:08:11AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1193351 [WFI2826]
Blank Spike Lab ID: 1516842
Date Analyzed: 07/03/2019 11:48

Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1193351001, 1193351002, 1193351003, 1193351006, 1193351007, 1193351008, 1193351009, 1193351010, 1193351011

Results by **SM21 4500NO3-F**

	Blank Spike (mg/L)			
Parameter	Spike	Result	Rec (%)	CL
Nitrate-N	2.5	2.49	100	(70-130)
Nitrite-N	2.5	2.52	101	(90-110)
Total Nitrate/Nitrite-N	5	5.00	100	(90-110)

Batch Information

Analytical Batch: **WFI2826**
Analytical Method: **SM21 4500NO3-F**
Instrument: **Astoria segmented flow**
Analyst: **EWW**

Print Date: 07/30/2019 11:08:11AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1193351 [WFI2826]
Blank Spike Lab ID: 1516844
Date Analyzed: 07/03/2019 12:34

Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1193351001, 1193351002, 1193351003, 1193351006, 1193351007, 1193351008, 1193351009, 1193351010, 1193351011

Results by **SM21 4500NO3-F**

	Blank Spike (mg/L)			
Parameter	Spike	Result	Rec (%)	CL
Nitrate-N	2.5	2.71	108	(70-130)
Nitrite-N	2.5	2.62	105	(90-110)
Total Nitrate/Nitrite-N	5	5.32	106	(90-110)

Batch Information

Analytical Batch: **WFI2826**
Analytical Method: **SM21 4500NO3-F**
Instrument: **Astoria segmented flow**
Analyst: **EWW**

Print Date: 07/30/2019 11:08:11AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1193351 [WFI2826]
Blank Spike Lab ID: 1516874
Date Analyzed: 07/03/2019 13:33

Matrix: Water (Surface, Eff., Ground)

QC for Samples:

Results by **SM21 4500NO3-F**

	Blank Spike (mg/L)			
Parameter	Spike	Result	Rec (%)	CL
Nitrate-N	2.5	2.76	110	(70-130)
Nitrite-N	2.5	2.55	102	(90-110)
Total Nitrate/Nitrite-N	5	5.31	106	(90-110)

Batch Information

Analytical Batch: **WFI2826**
Analytical Method: **SM21 4500NO3-F**
Instrument: **Astoria segmented flow**
Analyst: **EWW**

Print Date: 07/30/2019 11:08:11AM

Matrix Spike Summary

Original Sample ID: 1193515001
MS Sample ID: 1516768 MS
MSD Sample ID: 1516769 MSD

Analysis Date: 07/03/2019 11:10
Analysis Date: 07/03/2019 11:11
Analysis Date: 07/03/2019 11:13
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1193351001, 1193351002, 1193351003

Results by **SM21 4500NO3-F**

		Matrix Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Nitrate-N	0.100U	2.50	2.59	104	2.50	2.61	104	70-130	0.70	(< 25)
Nitrite-N	0.100U	2.50	2.58	103	2.50	2.61	104	90-110	1.40	(< 25)

Batch Information

Analytical Batch: WFI2826
Analytical Method: SM21 4500NO3-F
Instrument: Astoria segmented flow
Analyst: EWW
Analytical Date/Time: 7/3/2019 11:11:45AM

Print Date: 07/30/2019 11:08:12AM

Matrix Spike Summary

Original Sample ID: 1199462002
MS Sample ID: 1516772 MS
MSD Sample ID: 1516773 MSD

Analysis Date: 07/03/2019 13:24
Analysis Date: 07/03/2019 13:26
Analysis Date: 07/03/2019 13:28
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1193351006, 1193351007, 1193351008, 1193351009, 1193351010, 1193351011

Results by **SM21 4500NO3-F**

		Matrix Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Total Nitrate/Nitrite-N	8.68	20.0	29.4	104	20.0	29.3	103	90-110	0.46	(< 25)

Batch Information

Analytical Batch: WFI2826
Analytical Method: SM21 4500NO3-F
Instrument: Astoria segmented flow
Analyst: EWW
Analytical Date/Time: 7/3/2019 1:26:30PM

Print Date: 07/30/2019 11:08:12AM

Billable Matrix Spike Summary

Original Sample ID: 1193351003
MS Sample ID: 1193351004 BMS
MSD Sample ID: 1193351005 BMSD

Analysis Date: 07/03/2019 11:58
Analysis Date: 07/03/2019 12:00
Analysis Date: 07/03/2019 12:02
Matrix: Water (Surface, Eff., Ground)

QC for Samples:

Results by **SM21 4500NO3-F**

		Matrix Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Total Nitrate/Nitrite-N	0.624	5.00	6.11	110	5.00	6.00	107	90-110	1.80	(< 25)

Batch Information

Analytical Batch: WFI2826
Analytical Method: SM21 4500NO3-F
Instrument: Astoria segmented flow
Analyst: EWW
Analytical Date/Time: 7/3/2019 12:00:45PM

Print Date: 07/30/2019 11:08:12AM

Method Blank

Blank ID: MB for HBN 1795757 [WTC/2931]
Blank Lab ID: 1516214

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1193351001, 1193351002, 1193351003, 1193351006, 1193351007, 1193351008, 1193351009, 1193351010, 1193351011

Results by **SM 5310B**

Parameter	Results	LOQ/CL	DL	Units
Total Organic Carbon	0.500U	1.00	0.400	mg/L

Batch Information

Analytical Batch: WTC2931
Analytical Method: SM 5310B
Instrument: TOC Analyzer
Analyst: BMZ
Analytical Date/Time: 7/2/2019 10:18:22AM

Print Date: 07/30/2019 11:08:13AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1193351 [WTC2931]
Blank Spike Lab ID: 1516212
Date Analyzed: 07/02/2019 10:03

Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1193351001, 1193351002, 1193351003, 1193351006, 1193351007, 1193351008, 1193351009, 1193351010, 1193351011

Results by **SM 5310B**

	Blank Spike (mg/L)			
Parameter	Spike	Result	Rec (%)	CL
Total Organic Carbon	75	67.1	90	(80-120)

Batch Information

Analytical Batch: **WTC2931**
Analytical Method: **SM 5310B**
Instrument: **TOC Analyzer**
Analyst: **BMZ**

Print Date: 07/30/2019 11:08:15AM

Billable Matrix Spike Summary

Original Sample ID: 1193351003
MS Sample ID: 1193351004 BMS
MSD Sample ID: 1193351005 BMSD

Analysis Date: 07/02/2019 11:06
Analysis Date: 07/02/2019 11:24
Analysis Date: 07/02/2019 11:39
Matrix: Water (Surface, Eff., Ground)

QC for Samples:

Results by **SM 5310B**

		Matrix Spike (mg/L)				Spike Duplicate (mg/L)					
Parameter	Sample	Spike	Result	Rec (%)		Spike	Result	Rec (%)		CL	RPD (%)	RPD CL
Total Organic Carbon	3.04	10.0	8.98	59	*	10.0	8.82	58	*	75-125	1.80	(< 25)

Batch Information

Analytical Batch: WTC2931
Analytical Method: SM 5310B
Instrument: TOC Analyzer
Analyst: BMZ
Analytical Date/Time: 7/2/2019 11:24:53AM

Print Date: 07/30/2019 11:08:15AM

Method Blank

Blank ID: MB for HBN 1796019 [WXX/12907]
Blank Lab ID: 1517450

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1193351001, 1193351002, 1193351003, 1193351006, 1193351007, 1193351008, 1193351009, 1193351010, 1193351011

Results by **EPA 300.0**

Parameter	Results	LOQ/CL	DL	Units
Sulfate	0.100U	0.200	0.0500	mg/L

Batch Information

Analytical Batch: WIC5932
Analytical Method: EPA 300.0
Instrument: 930 Metrohm compact IC flex
Analyst: DMM
Analytical Date/Time: 7/8/2019 10:41:54PM

Prep Batch: WXX12907
Prep Method: METHOD
Prep Date/Time: 7/8/2019 4:20:00PM
Prep Initial Wt./Vol.: 10 mL
Prep Extract Vol: 10 mL

Print Date: 07/30/2019 11:08:17AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1193351 [WXX12907]
Blank Spike Lab ID: 1517451
Date Analyzed: 07/08/2019 23:01

Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1193351001, 1193351002, 1193351003, 1193351006, 1193351007, 1193351008, 1193351009, 1193351010, 1193351011

Results by **EPA 300.0**

	Blank Spike (mg/L)			
Parameter	Spike	Result	Rec (%)	CL
Sulfate	5	4.88	98	(90-110)

Batch Information

Analytical Batch: **WIC5932**
Analytical Method: **EPA 300.0**
Instrument: **930 Metrohm compact IC flex**
Analyst: **DMM**

Prep Batch: **WXX12907**
Prep Method: **METHOD**
Prep Date/Time: **07/08/2019 16:20**
Spike Init Wt./Vol.: 5 mg/L Extract Vol: 10 mL
Dupe Init Wt./Vol.: Extract Vol:

SGS North America Inc.
200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

Matrix Spike Summary

Original Sample ID: 1517449
MS Sample ID: 1517452 MS
MSD Sample ID: 1517453 MSD

Analysis Date: 07/09/2019 1:33
Analysis Date: 07/09/2019 1:52
Analysis Date: 07/09/2019 2:11
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1193351001, 1193351002, 1193351003, 1193351006, 1193351007, 1193351008, 1193351009, 1193351010, 1193351011

Results by **EPA 300.0**

		Matrix Spike (mg/L)				Spike Duplicate (mg/L)					
Parameter	Sample	Spike	Result	Rec (%)		Spike	Result	Rec (%)		CL	RPD (%)	RPD CL
Sulfate	16.9	5.00	21	82	*	5.00	21.3	87	*	90-110	1.20	(< 15)

Batch Information

Analytical Batch: WIC5932
Analytical Method: EPA 300.0
Instrument: 930 Metrohm compact IC flex
Analyst: DMM
Analytical Date/Time: 7/9/2019 1:52:08AM

Prep Batch: WXX12907
Prep Method: EPA 300.0 Extraction Waters/Liquids
Prep Date/Time: 7/8/2019 4:20:00PM
Prep Initial Wt./Vol.: 10.00mL
Prep Extract Vol: 10.00mL

Print Date: 07/30/2019 11:08:19AM

Billable Matrix Spike Summary

Original Sample ID: 1193351003
MS Sample ID: 1193351004 BMS
MSD Sample ID: 1193351005 BMSD

Analysis Date: 07/09/2019 1:33
Analysis Date: 07/09/2019 1:52
Analysis Date: 07/09/2019 2:11
Matrix: Water (Surface, Eff., Ground)

QC for Samples:

Results by **EPA 300.0**

		Matrix Spike (mg/L)				Spike Duplicate (mg/L)					
Parameter	Sample	Spike	Result	Rec (%)		Spike	Result	Rec (%)		CL	RPD (%)	RPD CL
Sulfate	16.9	5.00	21	82	*	5.00	21.3	87	*	90-110	1.20	(< 15)

Batch Information

Analytical Batch: WIC5932
Analytical Method: EPA 300.0
Instrument: 930 Metrohm compact IC flex
Analyst: DMM
Analytical Date/Time: 7/9/2019 1:52:08AM

Prep Batch: WXX12907
Prep Method: EPA 300.0 Extraction Waters/Liquids
Prep Date/Time: 7/8/2019 4:20:00PM
Prep Initial Wt./Vol.: 10.00mL
Prep Extract Vol: 10.00mL

Print Date: 07/30/2019 11:08:19AM

CHAIN OF CUSTODY

Trihydro Corporation
312 Tyee Street
Soldotna, Alaska 99669
(907) 262-2315 - (907) 262-2320 (fax)

Laboratory: SGS

Address:

Lab Accession No. 1193351

Reporting Instructions
Send Report To: Stephanie Plate
(Trihydro Corporation)

Billing Information
Bill: Trihydro - (Our Client)
Our Client's P.O. No: 4500073969

Project Name: 19-3

Our Client: Tesoro

Our Project No: 39B-004-001

Sampler(s): JY, BT

Turnaround:
24-HR 48-HR 5-Day (2-WKS) Other
Data Deliverables:
(Standard) Level 3 Other
EDD Required? (Y) - N

No. of Jars per analysis

Lab No.	Sample No.	Matrix	Date	Time	BTEX	Dissolved Fe + Mn	Methane, ethane, ethene	Sulfate + Nitrate	Sulfide	Total Fe + Mn	Total Organic Carbon	VOC	Volatile fatty acids		Comments & Special Instructions
(1) AFL	Dup-1	GW	6/25/19	08:00		1	3	1	1	1	1	3	1		(15) A
(12) AC	E-010	GW	6/25/19	14:10	3										
(2) AL	IWS-06	GW	6/25/19	09:45		1	3	1	1	1	1	3	1		(16) A
(11) AL	SMW-06	GW	6/25/19	12:50		1	3	1	1	1	1	3	1		(17) A
(3-5) AR	SMW-09	GW	6/24/19	11:45		2	9	2	2	2	2	9	2		(18, 24, 25) Use for MS/MSD ~~A~~ B
(6) AL	SMW-21A	GW	6/24/19	14:40		1	3	1	1	1	1	3	1		(19) A
(7) AL	SMW-29	GW	6/24/19	13:30		1	3	1	1	1	1	3	1		(20) A
(8) AL	SMW-31	GW	6/24/19	15:30		1	3	1	1	1	1	3	1		(21) A
(9) AL	SMW-35	GW	6/25/19	10:50		1	3	1	1	1	1	3	1		(22) A
(10) AL	SMW-I-1	GW	6/25/19	11:50		1	3	1	1	1	1	3	1		(23) A

Relinquished By (Name and Company):	Date	Time	Received By (Name and Company):	Date	Time
Trihydro	6/26/2019	7:06 AM			
				6/26/19	1405

2.4 1931 3.9 1045 IF 1.R

CHAIN OF CUSTODY

Trihydro Corporation
312 Tyee Street
Soldotna, Alaska 99669
(907) 262-2315 - (907) 262-2320 (fax)

Laboratory: SGS

Address:

Lab Accession No. **1193351**

Reporting Instructions
Send Report To: Stephanie Plate
(Trihydro Corporation)

Billing Information
Bill: Trihydro - Our Client
Our Client's P.O. No: 4500073969

Project Name: 19-3

Our Client: Tesoro

Our Project No: 39B-004-001

Sampler(s): JY, BT

Turnaround:
24-HR 48-HR 5-Day 2-WKS Other
Data Deliverables:
Standard Level 3 Other
EDD Required? Y - N

Lab No.	Sample No.	Matrix	Date	Time	No. of Jars per Analysis: BTEX										Comments & Special Instructions
13 AC	EB 6-25	GW	6/25/2019	16:30	3										
14 AC	Trip Blank		6/24/2019	08:00	3										

Relinquished By (Name and Company):	Date	Time	Received By (Name and Company):	Date	Time
Trihydro	6/13/2019	7:07 AM			
				6/26/19	1405

LF IB

808 - 1049 7572 **Ravn Rush** **808 ENA 1049 7572**

Shipper's Name and Address TRIHYDRO 50027
312 TYEE TREET
SOLDOTNA, ALASKA 99669
907, 252-3866

Consignee: SGS ENVIRONMENTAL 50012
200 W POTTER DR
ANCHORAGE, AK 99518
562, 2343

Ravn ALASKA

RAVN AIR
4700 OLD INTERNATIONAL ROAD
ANCHORAGE, AK. 99502

It is agreed that the goods described herein are accepted in good order and undamaged condition (except as noted) for carriage SUBJECT TO THE "TERMS OF CONTRACT". The Shippers attention is drawn to the "TERMS OF CONTRACT LIMIT OF LIABILITY". The maximum liability by declaring a value of the goods and paying a supplemental charge of $0.75 per $100.00 up to a maximum of $5,000.00 declared value.

Accounting Information
GEN - GENERAL FREIGHT

Origin	ENA	Currency	USD
Destination	ANC	Charge Code	PP
Handling Information DEPTS 827 ARVS 9:57AM ESTIMATED		Declared Value for Carriage	0

Pieces	Gross Weight	Nature of Goods	Chargeable Weight	Rate/Charge	Total	Length	Width	Height	Dim Weight
1	35	WATER SAMPLE	35		54.59				35
1	43	WATER SAMPLE	43		54.59				43
2	78		78		109.18				78

1193351

Fee	Prepaid	Collect
Weight Charge	109.18	
Valuation Charge	0.00	
Tax	6.82	
Total Other Charges Due Agent	0.00	
Total Other Charges Due Carrier	0.00	
Total	116.00	
Signature of Issuing Carrier or its Agent	WB Date	WB Time
JOSEPH CHAVEZ-JACKSON	26-JUN-19	0831

Other Charges			
FSC Fee	0.00	SSC Fee	0.00
DOC Fees	0.00	DG Fee	0.00
OTH Fees	0.00	P/U Fee	0.00
DEL Fees	0.00	TSC Fees	0.00

The shipper certifies that the particulars on the face hereof are correct, and that the shipment does not contain dangerous goods, and that all ITEMS ARE ACCEPTED AT SHIPPER'S RISK.

jeremy yancey
(Shipper's printed name and signature)

The consignee certifies that the shipment is received in good order except where noted below.

(Consignee's printed name and signature)

CARRIAGE SUBJECT TO "TERMS OF CONTRACT" found at https://www.flyravn.com/cargo-services/cargo-contract-carriage

Alert Expeditors Inc.

#394752

Citywide Delivery • 440-3351
8421 Flamingo Drive • Anchorage, Alaska 99502

Date 6/26/19

From Tikhyd 10

To 565

Collect ☐	Prepay ☐ Account ☐	Advance Charges ☐
Job # ENA	PO# 7H 1049 7572	

Wave Sample

1193351

Shipped Signature

Total Charge

Received By:

e-Sample Receipt Form

SGS Workorder #: **1193351**

Review Criteria	Condition (Yes, No, N/A)	Exceptions Noted below
Chain of Custody / Temperature Requirements	N/A	Exemption permitted if sampler hand carries/delivers.
Were Custody Seals intact? Note # & location	Yes	1F 1B
COC accompanied samples?	Yes	
DOD: Were samples received in COC corresponding coolers?		
		**Exemption permitted if chilled & collected <8 hours ago, or for samples where chilling is not required
Temperature blank compliant* (i.e., 0-6 °C after CF)?	Yes	Cooler ID: 1 @ 3.9 °C Therm. ID: D45
	Yes	Cooler ID: 2 @ 2.6 °C Therm. ID: D31
If samples received without a temperature blank, the "cooler temperature" will be documented instead & "COOLER TEMP" will be noted to the right. "ambient" or "chilled" will be noted if neither is available.		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
**If >6°C, were samples collected <8 hours ago?*	N/A	
If <0°C, were sample containers ice free?	N/A	
Note: Identify containers received at non-compliant temperature . Use form FS-0029 if more space is needed.		
Holding Time / Documentation / Sample Condition Requirements		Note: Refer to form F-083 "Sample Guide" for specific holding times.
Were samples received within holding time?	Yes	
Do samples **match COC**** (i.e.,sample IDs,dates/times collected)? **Note: If times differ <1hr, record details & login per COC. ***Note: If sample information on containers differs from COC, SGS will default to COC informatic	Yes	
Were analytical requests clear? (i.e., method is specified for analyses with multiple option for analysis (Ex: BTEX, Metals)	Yes	
		***Exemption permitted for metals (e.g,200.8/6020A).
Were proper containers (type/mass/volume/preservative***)used?	Yes	
Volatile / LL-Hg Requirements		
Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with samples?	Yes	
Were all water VOA vials free of headspace (i.e., bubbles ≤ 6mm)?	Yes	
Were all soil VOAs field extracted with MeOH+BFB?	N/A	

Note to Client: Any "No", answer above indicates non-compliance with standard procedures and may impact data quality.

Additional notes (if applicable):

TB logged in for VOC in order to cover all the VOA of Work order

Sample Containers and Preservatives

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition
1193351001-A	No Preservative Required	OK			
1193351001-B	H2SO4 to pH < 2	PA			
1193351001-C	Zn Acetate,NaOH to pH > 9	OK			
1193351001-D	HNO3 to pH < 2	OK			
1193351001-E	HCL to pH < 2	OK			
1193351001-F	No Preservative Required	OK			
1193351001-G	HCL to pH < 2	OK			
1193351001-H	HCL to pH < 2	OK			
1193351001-I	HCL to pH < 2	OK			
1193351001-J	HCL to pH < 2	OK			
1193351001-K	HCL to pH < 2	OK			
1193351001-L	HCL to pH < 2	OK			
1193351002-A	No Preservative Required	OK			
1193351002-B	H2SO4 to pH < 2	PA			
1193351002-C	Zn Acetate,NaOH to pH > 9	OK			
1193351002-D	HNO3 to pH < 2	OK			
1193351002-E	HCL to pH < 2	OK			
1193351002-F	No Preservative Required	OK			
1193351002-G	HCL to pH < 2	OK			
1193351002-H	HCL to pH < 2	OK			
1193351002-I	HCL to pH < 2	OK			
1193351002-J	HCL to pH < 2	OK			
1193351002-K	HCL to pH < 2	OK			
1193351002-L	HCL to pH < 2	OK			
1193351003-A	No Preservative Required	OK			
1193351003-B	No Preservative Required	PA			
1193351003-C	H2SO4 to pH < 2	OK			
1193351003-D	H2SO4 to pH < 2	OK			
1193351003-E	Zn Acetate,NaOH to pH > 9	OK			
1193351003-F	Zn Acetate,NaOH to pH > 9	OK			
1193351003-G	HNO3 to pH < 2	OK			
1193351003-H	HNO3 to pH < 2	OK			
1193351003-I	HCL to pH < 2	OK			
1193351003-J	HCL to pH < 2	OK			
1193351003-K	No Preservative Required	OK			
1193351003-L	No Preservative Required	OK			
1193351003-M	HCL to pH < 2	OK			
1193351003-N	HCL to pH < 2	OK			
1193351003-O	HCL to pH < 2	OK			
1193351003-P	HCL to pH < 2	OK			
1193351003-Q	HCL to pH < 2	OK			
1193351003-R	HCL to pH < 2	OK			
1193351004-A	No Preservative Required	OK			
1193351004-B	No Preservative Required	PA			
1193351004-C	H2SO4 to pH < 2	OK			
1193351004-D	H2SO4 to pH < 2	OK			
1193351004-E	Zn Acetate,NaOH to pH > 9	OK			
1193351004-F	Zn Acetate,NaOH to pH > 9	OK			

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition
1193351004-G	HNO3 to pH < 2	OK			
1193351004-H	HNO3 to pH < 2	OK			
1193351004-I	HCL to pH < 2	OK			
1193351004-J	HCL to pH < 2	OK			
1193351004-K	No Preservative Required	OK			
1193351004-L	No Preservative Required	OK			
1193351004-M	HCL to pH < 2	OK			
1193351004-N	HCL to pH < 2	OK			
1193351004-O	HCL to pH < 2	OK			
1193351004-P	HCL to pH < 2	OK			
1193351004-Q	HCL to pH < 2	OK			
1193351004-R	HCL to pH < 2	OK			
1193351005-A	No Preservative Required	OK			
1193351005-B	No Preservative Required	PA			
1193351005-C	H2SO4 to pH < 2	OK			
1193351005-D	H2SO4 to pH < 2	OK			
1193351005-E	Zn Acetate,NaOH to pH > 9	OK			
1193351005-F	Zn Acetate,NaOH to pH > 9	OK			
1193351005-G	HNO3 to pH < 2	OK			
1193351005-H	HNO3 to pH < 2	OK			
1193351005-I	HCL to pH < 2	OK			
1193351005-J	HCL to pH < 2	OK			
1193351005-K	No Preservative Required	OK			
1193351005-L	No Preservative Required	OK			
1193351005-M	HCL to pH < 2	OK			
1193351005-N	HCL to pH < 2	OK			
1193351005-O	HCL to pH < 2	OK			
1193351005-P	HCL to pH < 2	OK			
1193351005-Q	HCL to pH < 2	OK			
1193351005-R	HCL to pH < 2	OK			
1193351006-A	No Preservative Required	OK			
1193351006-B	H2SO4 to pH < 2	PA			
1193351006-C	Zn Acetate,NaOH to pH > 9	OK			
1193351006-D	HNO3 to pH < 2	OK			
1193351006-E	HCL to pH < 2	OK			
1193351006-F	No Preservative Required	OK			
1193351006-G	HCL to pH < 2	OK			
1193351006-H	HCL to pH < 2	OK			
1193351006-I	HCL to pH < 2	OK			
1193351006-J	HCL to pH < 2	OK			
1193351006-K	HCL to pH < 2	OK			
1193351006-L	HCL to pH < 2	OK			
1193351007-A	No Preservative Required	OK			
1193351007-B	H2SO4 to pH < 2	PA			
1193351007-C	Zn Acetate,NaOH to pH > 9	OK			
1193351007-D	HNO3 to pH < 2	OK			
1193351007-E	HCL to pH < 2	OK			
1193351007-F	No Preservative Required	OK			
1193351007-G	HCL to pH < 2	OK			
1193351007-H	HCL to pH < 2	OK			
1193351007-I	HCL to pH < 2	OK			
1193351007-J	HCL to pH < 2	OK			
1193351007-K	HCL to pH < 2	OK			
1193351007-L	HCL to pH < 2	OK			
1193351008-A	No Preservative Required	OK			

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition
1193351008-B	H2SO4 to pH < 2	PA			
1193351008-C	Zn Acetate,NaOH to pH > 9	OK			
1193351008-D	HNO3 to pH < 2	OK			
1193351008-E	HCL to pH < 2	OK			
1193351008-F	No Preservative Required	OK			
1193351008-G	HCL to pH < 2	OK			
1193351008-H	HCL to pH < 2	OK			
1193351008-I	HCL to pH < 2	OK			
1193351008-J	HCL to pH < 2	OK			
1193351008-K	HCL to pH < 2	OK			
1193351008-L	HCL to pH < 2	OK			
1193351009-A	No Preservative Required	OK			
1193351009-B	H2SO4 to pH < 2	PA			
1193351009-C	Zn Acetate,NaOH to pH > 9	OK			
1193351009-D	HNO3 to pH < 2	OK			
1193351009-E	HCL to pH < 2	OK			
1193351009-F	No Preservative Required	OK			
1193351009-G	HCL to pH < 2	OK			
1193351009-H	HCL to pH < 2	OK			
1193351009-I	HCL to pH < 2	OK			
1193351009-J	HCL to pH < 2	OK			
1193351009-K	HCL to pH < 2	OK			
1193351009-L	HCL to pH < 2	OK			
1193351010-A	No Preservative Required	OK			
1193351010-B	H2SO4 to pH < 2	PA			
1193351010-C	Zn Acetate,NaOH to pH > 9	OK			
1193351010-D	HNO3 to pH < 2	OK			
1193351010-E	HCL to pH < 2	OK			
1193351010-F	No Preservative Required	OK			
1193351010-G	HCL to pH < 2	OK			
1193351010-H	HCL to pH < 2	OK			
1193351010-I	HCL to pH < 2	OK			
1193351010-J	HCL to pH < 2	OK			
1193351010-K	HCL to pH < 2	OK			
1193351010-L	HCL to pH < 2	OK			
1193351011-A	No Preservative Required	OK			
1193351011-B	H2SO4 to pH < 2	PA			
1193351011-C	Zn Acetate,NaOH to pH > 9	OK			
1193351011-D	HNO3 to pH < 2	OK			
1193351011-E	HCL to pH < 2	OK			
1193351011-F	No Preservative Required	OK			
1193351011-G	HCL to pH < 2	OK			
1193351011-H	HCL to pH < 2	OK			
1193351011-I	HCL to pH < 2	OK			
1193351011-J	HCL to pH < 2	OK			
1193351011-K	HCL to pH < 2	OK			
1193351011-L	HCL to pH < 2	OK			
1193351012-A	HCL to pH < 2	OK			
1193351012-B	HCL to pH < 2	OK			
1193351012-C	HCL to pH < 2	OK			
1193351013-A	HCL to pH < 2	OK			
1193351013-B	HCL to pH < 2	OK			
1193351013-C	HCL to pH < 2	OK			
1193351014-A	HCL to pH < 2	OK			
1193351014-B	HCL to pH < 2	OK			

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition
1193351014-C	HCL to pH < 2	OK			
1193351015-A	HNO3 to pH < 2	OK			
1193351016-A	HNO3 to pH < 2	OK			
1193351017-A	HNO3 to pH < 2	OK			
1193351018-A	HNO3 to pH < 2	OK			
1193351018-B	HNO3 to pH < 2	OK			
1193351019-A	HNO3 to pH < 2	OK			
1193351020-A	HNO3 to pH < 2	OK			
1193351021-A	HNO3 to pH < 2	OK			
1193351022-A	HNO3 to pH < 2	OK			
1193351023-A	HNO3 to pH < 2	OK			
1193351024-A	HNO3 to pH < 2	OK			
1193351024-B	HNO3 to pH < 2	OK			
1193351025-A	HNO3 to pH < 2	OK			
1193351025-B	HNO3 to pH < 2	OK			

Container Condition Glossary

Containers for bacteriological, low level mercury and VOA vials are not opened prior to analysis and will be assigned condition code OK unless evidence indicates than an inappropriate container was submitted.

OK - The container was received at an acceptable pH for the analysis requested.
BU - The container was received with headspace greater than 6mm.
DM - The container was received damaged.
FR - The container was received frozen and not usable for Bacteria or BOD analyses.
IC - The container provided for microbiology analysis was not a laboratory-supplied, pre-sterilized container and therefore was not suitable for analysis.
NC- The container provided was not preserved or was under-preserved. The method does not allow for additional preservative added after collection.
PA - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt and the container is now at the correct pH. See the Sample Receipt Form for details on the amount and lot # of the preservative added.
PH - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt, but was insufficient to bring the container to the correct pH for the analysis requested. See the Sample Receipt Form for details on the amount and lot # of the preservative added.

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report

Technical Report for

SGS North America, Inc

1193351

SGS Job Number: FA65807

Sampling Dates: 06/24/19 - 06/25/19

Report to:

SGS North America, Inc
200 W Potter Dr
Anchorage, AK 99518
julie.shumway@sgs.com

ATTN: Julie Shumway

Total number of pages in report: **28**

Caitlin Brice, M.S.
General Manager

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Client Service contact: Andrea Colby 407-425-6700

Certifications: FL(E83510), LA(03051), KS(E-10327), IL(200063), NC(573), NJ(FL002), NY(12022), SC(96038001) DoD ELAP(ANAB L2229), AZ(AZ0806), CA(2937), TX(T104704404), PA(68-03573), VA(460177), AK, AR, IA, KY, MA, MS, ND, NH, NV, OK, OR, UT, WA, WV

Test results relate only to samples analyzed.

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SGS North America Inc.

Sample Summary

SGS North America, Inc

1193351

Job No: FA65807

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
FA65807-1	06/25/19	08:00		07/09/19	AQ	Water	DUP-1
FA65807-2	06/25/19	09:45		07/09/19	AQ	Water	IWS-06
FA65807-3	06/24/19	11:45		07/09/19	AQ	Water	SMW-09
FA65807-3D	06/24/19	11:45		07/09/19	AQ	Water Dup/MSD	SMW-09
FA65807-3S	06/24/19	11:45		07/09/19	AQ	Water Matrix Spike	SMW-09
FA65807-4	06/24/19	14:40		07/09/19	AQ	Water	SMW-21A
FA65807-5	06/24/19	13:30		07/09/19	AQ	Water	SMW-29
FA65807-6	06/24/19	15:30		07/09/19	AQ	Water	SMW-31
FA65807-7	06/25/19	10:50		07/09/19	AQ	Water	SMW-35
FA65807-8	06/25/19	11:50		07/09/19	AQ	Water	SMW-I-1
FA65807-9	06/25/19	12:50		07/09/19	AQ	Water	SMW-06

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: SGS North America, Inc **Job No:** FA65807

Site: 1193351 **Report Date:** 7/11/2019 4:26:39 PM

9 Samples were collected on between 06/24/2019 and 06/25/2019 and were received at SGS North America Inc - Orlando on 07/09/2019 properly preserved, at 1.4 Deg. C and intact. These Samples received an SGS Orlando job number of FA65807. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section. Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

GC Volatiles By Method RSKSOP-147/175

Matrix: AQ **Batch ID:** GFF1813

All samples were analyzed within the recommended method holding time.

Sample(s) FA65648-1MS, FA65649-4DUP were used as the QC samples indicated.

All method blanks for this batch meet method specific criteria.

Matrix: AQ **Batch ID:** GFF1814

Sample(s) FA65807-3DUP, FA65807-3MS were used as the QC samples indicated.

All method blanks for this batch meet method specific criteria.

The following samples were run outside of holding time for method RSKSOP-147/175: FA65807-3, FA65807-4, FA65807-5, FA65807-6 Sample received outside the holding time.

Matrix Spike Recovery(s) for Methane are outside control limits. Outside control limits due to high level in sample relative to spike amount.

Matrix Spike Recovery(s) for Methane are outside control limits. Outside control limits due to high level in sample relative to spike amount.

SGS Orlando certifies that this report meets the project requirements for analytical data produced for the samples as received at SGS Orlando and as stated on the COC. SGS Orlando certifies that the data meets the Data Quality Objectives for precision, accuracy and completeness as specified in the SGS Orlando Quality Manual except as noted above. This report is to be used in its entirety. SGS Orlando is not responsible for any assumptions of data quality if partial data packages are used.

Narrative prepared by:

_____

Jenna Kravitz, Client Services *(Signature on File)*

Summary of Hits

Job Number: FA65807
Account: SGS North America, Inc
Project: 1193351
Collected: 06/24/19 thru 06/25/19

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
FA65807-1	**DUP-1**					
Methane		5440	5.0		ug/l	RSKSOP-147/175
FA65807-2	**IWS-06**					
Methane		12200	10		ug/l	RSKSOP-147/175
FA65807-3	**SMW-09**					
Methane [a]		499	0.50		ug/l	RSKSOP-147/175
FA65807-4	**SMW-21A**					
No hits reported in this sample.						
FA65807-5	**SMW-29**					
Methane [a]		42.8	0.50		ug/l	RSKSOP-147/175
FA65807-6	**SMW-31**					
Methane [a]		1480	5.0		ug/l	RSKSOP-147/175
FA65807-7	**SMW-35**					
Methane		5750	5.0		ug/l	RSKSOP-147/175
FA65807-8	**SMW-I-1**					
Methane		206	0.50		ug/l	RSKSOP-147/175
FA65807-9	**SMW-06**					
Methane		1.3	0.50		ug/l	RSKSOP-147/175

(a) Sample received outside the holding time.

Sample Results

Report of Analysis

SGS North America Inc.

Report of Analysis

Client Sample ID:	DUP-1		
Lab Sample ID:	FA65807-1	**Date Sampled:**	06/25/19
Matrix:	AQ - Water	**Date Received:**	07/09/19
Method:	RSKSOP-147/175	**Percent Solids:**	n/a
Project:	1193351		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FF47131.D	1	07/09/19 15:46	EG	n/a	n/a	GFF1813
Run #2	FF47136.D	10	07/09/19 16:47	EG	n/a	n/a	GFF1813

	Initial Volume	Headspace Volume	Volume Injected	Temperature
Run #1	38.0 ml	5.0 ml	500 ul	22 Deg. C
Run #2	38.0 ml	5.0 ml	500 ul	22 Deg. C

CAS No.	Compound	Result	RL	Units	Q
74-82-8	Methane	5440 [a]	5.0	ug/l	
74-84-0	Ethane	ND	1.0	ug/l	
74-85-1	Ethene	ND	1.0	ug/l	

(a) Result is from Run# 2

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	IWS-06		
Lab Sample ID:	FA65807-2	**Date Sampled:**	06/25/19
Matrix:	AQ - Water	**Date Received:**	07/09/19
Method:	RSKSOP-147/175	**Percent Solids:**	n/a
Project:	1193351		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FF47132.D	1	07/09/19 15:58	EG	n/a	n/a	GFF1813
Run #2	FF47138.D	20	07/09/19 17:11	EG	n/a	n/a	GFF1813

	Initial Volume	Headspace Volume	Volume Injected	Temperature
Run #1	38.0 ml	5.0 ml	500 ul	22 Deg. C
Run #2	38.0 ml	5.0 ml	500 ul	22 Deg. C

CAS No.	Compound	Result	RL	Units	Q
74-82-8	Methane	12200 [a]	10	ug/l	
74-84-0	Ethane	ND	1.0	ug/l	
74-85-1	Ethene	ND	1.0	ug/l	

(a) Result is from Run# 2

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SMW-09		
Lab Sample ID:	FA65807-3	**Date Sampled:**	06/24/19
Matrix:	AQ - Water	**Date Received:**	07/09/19
Method:	RSKSOP-147/175	**Percent Solids:**	n/a
Project:	1193351		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	FF47145.D	1	07/10/19 13:17	EG	n/a	n/a	GFF1814
Run #2							

	Initial Volume	Headspace Volume	Volume Injected	Temperature
Run #1	38.0 ml	5.0 ml	500 ul	22 Deg. C
Run #2				

CAS No.	Compound	Result	RL	Units	Q
74-82-8	Methane	499	0.50	ug/l	
74-84-0	Ethane	ND	1.0	ug/l	
74-85-1	Ethene	ND	1.0	ug/l	

(a) Sample received outside the holding time.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SMW-21A		
Lab Sample ID:	FA65807-4	**Date Sampled:**	06/24/19
Matrix:	AQ - Water	**Date Received:**	07/09/19
Method:	RSKSOP-147/175	**Percent Solids:**	n/a
Project:	1193351		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	FF47146.D	1	07/10/19 13:29	EG	n/a	n/a	GFF1814
Run #2							

	Initial Volume	Headspace Volume	Volume Injected	Temperature
Run #1	38.0 ml	5.0 ml	500 ul	22 Deg. C
Run #2				

CAS No.	Compound	Result	RL	Units	Q
74-82-8	Methane	ND	0.50	ug/l	
74-84-0	Ethane	ND	1.0	ug/l	
74-85-1	Ethene	ND	1.0	ug/l	

(a) Sample received outside the holding time.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	SMW-29		
Lab Sample ID:	FA65807-5	**Date Sampled:**	06/24/19
Matrix:	AQ - Water	**Date Received:**	07/09/19
Method:	RSKSOP-147/175	**Percent Solids:**	n/a
Project:	1193351		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	FF47147.D	1	07/10/19 13:48	EG	n/a	n/a	GFF1814
Run #2							

	Initial Volume	Headspace Volume	Volume Injected	Temperature
Run #1	38.0 ml	5.0 ml	500 ul	22 Deg. C
Run #2				

CAS No.	Compound	Result	RL	Units	Q
74-82-8	Methane	42.8	0.50	ug/l	
74-84-0	Ethane	ND	1.0	ug/l	
74-85-1	Ethene	ND	1.0	ug/l	

(a) Sample received outside the holding time.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	SMW-31		
Lab Sample ID:	FA65807-6	**Date Sampled:**	06/24/19
Matrix:	AQ - Water	**Date Received:**	07/09/19
Method:	RSKSOP-147/175	**Percent Solids:**	n/a
Project:	1193351		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	FF47148.D	1	07/10/19 14:02	EG	n/a	n/a	GFF1814
Run #2 [a]	FF47157.D	10	07/10/19 16:59	EG	n/a	n/a	GFF1814

	Initial Volume	Headspace Volume	Volume Injected	Temperature
Run #1	38.0 ml	5.0 ml	500 ul	22 Deg. C
Run #2	38.0 ml	5.0 ml	500 ul	22 Deg. C

CAS No.	Compound	Result	RL	Units	Q
74-82-8	Methane	1480 [b]	5.0	ug/l	
74-84-0	Ethane	ND	1.0	ug/l	
74-85-1	Ethene	ND	1.0	ug/l	

(a) Sample received outside the holding time.
(b) Result is from Run# 2

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	SMW-35		
Lab Sample ID:	FA65807-7	**Date Sampled:**	06/25/19
Matrix:	AQ - Water	**Date Received:**	07/09/19
Method:	RSKSOP-147/175	**Percent Solids:**	n/a
Project:	1193351		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FF47133.D	1	07/09/19 16:09	EG	n/a	n/a	GFF1813
Run #2	FF47137.D	10	07/09/19 16:59	EG	n/a	n/a	GFF1813

	Initial Volume	Headspace Volume	Volume Injected	Temperature
Run #1	38.0 ml	5.0 ml	500 ul	22 Deg. C
Run #2	38.0 ml	5.0 ml	500 ul	22 Deg. C

CAS No.	Compound	Result	RL	Units	Q
74-82-8	Methane	5750 [a]	5.0	ug/l	
74-84-0	Ethane	ND	1.0	ug/l	
74-85-1	Ethene	ND	1.0	ug/l	

(a) Result is from Run# 2

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	SMW-I-1		
Lab Sample ID:	FA65807-8	**Date Sampled:**	06/25/19
Matrix:	AQ - Water	**Date Received:**	07/09/19
Method:	RSKSOP-147/175	**Percent Solids:**	n/a
Project:	1193351		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FF47134.D	1	07/09/19 16:23	EG	n/a	n/a	GFF1813
Run #2							

	Initial Volume	Headspace Volume	Volume Injected	Temperature
Run #1	38.0 ml	5.0 ml	500 ul	22 Deg. C
Run #2				

CAS No.	Compound	Result	RL	Units	Q
74-82-8	Methane	206	0.50	ug/l	
74-84-0	Ethane	ND	1.0	ug/l	
74-85-1	Ethene	ND	1.0	ug/l	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	SMW-06		
Lab Sample ID:	FA65807-9	**Date Sampled:**	06/25/19
Matrix:	AQ - Water	**Date Received:**	07/09/19
Method:	RSKSOP-147/175	**Percent Solids:**	n/a
Project:	1193351		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FF47135.D	1	07/09/19 16:35	EG	n/a	n/a	GFF1813
Run #2							

	Initial Volume	Headspace Volume	Volume Injected	Temperature
Run #1	38.0 ml	5.0 ml	500 ul	22 Deg. C
Run #2				

CAS No.	Compound	Result	RL	Units	Q
74-82-8	Methane	1.3	0.50	ug/l	
74-84-0	Ethane	ND	1.0	ug/l	
74-85-1	Ethene	ND	1.0	ug/l	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

SGS North America Inc.
CHAIN OF CUSTODY RECORD

FA65807

Locations Nationwide
Alaska, Florida, New Jersey, Colorado, Texas, North Carolina, Virginia, Louisiana
www.us.sgs.com

CLIENT:	SGS North America Inc. - Alaska Division	SGS Reference:	SGS Florida
CONTACT:	Julie Shumway — PHONE NO: (907) 562-2343	Additional Comments:	All soils report out in dry weight unless
PROJECT NAME:	1193351 — PWSID#: / NPDL#:		
REPORTS TO:	Julie Shumway — E-MAIL: Julie.Shumway@sgs.com, Env.Alaska.RefLabTeam@sgs.com		
INVOICE TO:	SGS - Alaska — QUOTE #: / P.O. #: 1193351		

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RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HHMM	MATRIX/ MATRIX CODE	# CONTAINERS	Preservative Used: HCl / TYPE C = COMP G = GRAB MI = Multi Incremental Soils	RSK 175 Light Gases				MS	MSD	SGS lab #	Location ID
1	DUP-1	06/25/2019	08:00:00	Water	3		X						1193351001	
2	IWS-06	06/25/2019	09:45:00	Water	3		X						1193351002	
3	SMW-09	06/24/2019	11:45:00	Water	3		X						1193351003	
3	SMW-09 MS	06/24/2019	11:45:00	Water	3		X						1193351004	
3	SMW-09 MSD	06/24/2019	11:45:00	Water	3		X						1193351005	
4	SMW-21A	06/24/2019	14:40:00	Water	3		X						1193351006	
5	SMW-29	06/24/2019	13:30:00	Water	3		X						1193351007	
6	SMW-31	06/24/2019	15:30:00	Water	3		X						1193351008	
7	SMW-35	06/25/2019	10:50:00	Water	3		X						1193351009	
8	SMW-I-1	06/25/2019	11:50:00	Water	3		X						1193351010	

	Date	Time	Received By:
Relinquished By: (1)			
Relinquished By: (2)			
Relinquished By: (3)			
Relinquished By: (4)	7/9/19	1049	Received For Laboratory By: 7/9/19 900

DOD Project? NO
Report to DL (J Flags)? NO
If J- Report as DL/LOD/LOQ.
Data Deliverable Requirements: LVL 2 EXL DV
Cooler ID:
Requested Turnaround Time and-or Special Instructions: SHORT HOLD
Temp Blank °C: 1.9 or Ambient [ ]
Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT

[X] 200 W. Potter Drive Anchorage, AK 99518 Tel: (907) 562-2343 Fax: (907) 561-5301
[ ] 5500 Business Drive Wilmington, NC 28405 Tel: (910) 350-1903 Fax: (910) 350-1557

http://www.sgs.com/terms_and_conditions.htm

F088_COC_REF_LAB_20190411

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FA65807: Chain of Custody
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SGS North America Inc.
CHAIN OF CUSTODY RECORD

FA65807

Locations Nationwide
Alaska, Florida, New Jersey, Colorado, Texas, North Carolina, Virginia, Louisiana
www.us.sgs.com

CLIENT:	SGS North America Inc. - Alaska Division	SGS Reference:	SGS Florida
CONTACT:	Julie Shumway	PHONE NO: (907) 562-2343	Additional Comments: All soils report out in dry weight unless
PROJECT NAME:	1193351	PWSID#: / NPDL#:	
REPORTS TO: Julie Shumway		E-MAIL: Julie.Shumway@sgs.com / Env.Alaska.RefLabTeam@sgs.com	
INVOICE TO:	SGS - Alaska	QUOTE #: / P.O. #: 1193351	

Page 2 of 2

RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HHMM	MATRIX/ MATRIX CODE	# CONTAINERS	Preservative Used: HCl / TYPE C = COMP G = GRAB MI = Multi Incremental Soils	RSK 175 Light Gases				MS	MSD	SGS lab #	Location ID
9	SMW-06	06/25/2019	12:50:00	Water	3		X						1193351011	

Relinquished By: (1)	Date	Time	Received By:	DOD Project? NO	Data Deliverable Requirements:
				Report to DL (J Flags)? NO If J- Report as DL/LOD/LOQ.	LVL 2 EXL DV
Relinquished By: (2)	Date	Time	Received By:	Cooler ID:	
Relinquished By: (3)	Date	Time	Received By:	Requested Turnaround Time and-or Special Instructions: SHORT HOLD	
Relinquished By: (4)	Date	Time	Received For Laboratory By:	Temp Blank °C: or Ambient [ ]	Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT
L Shumway	7/9/19	1249	PCHH 7/9/19		

[X] 200 W. Potter Drive Anchorage, AK 99518 Tel: (907) 562-2343 Fax: (907) 561-5301
[ ] 5500 Business Drive Wilmington, NC 28405 Tel: (910) 350-1903 Fax: (910) 350-1557

http://www.sgs.com/terms_and_conditions.htm

F088_COC_REF_LAB_20190411

SGS Sample Receipt Summary

Job Number: FA65807 **Client:** SGS ALASKA **Project:** 1193351

Date / Time Received: 7/9/2019 9:00:00 AM **Delivery Method:** FX **Airbill #'s:** 4940 1601 2177

Therm ID: IR 1; **Therm CF:** 0.4; **# of Coolers:** 1

Cooler Temps (Raw Measured) °C: Cooler 1: (1.0);

Cooler Temps (Corrected) °C: Cooler 1: (1.4);

Cooler Information	Y	or	N
1. Custody Seals Present	☑		☐
2. Custody Seals Intact	☑		☐
3. Temp criteria achieved	☑		☐
4. Cooler temp verification	IR Gun		
5. Cooler media	Ice (Bag)		

Trip Blank Information	Y	or	N	N/A
1. Trip Blank present / cooler	☐		☑	☐
2. Trip Blank listed on COC	☐		☑	☐
	W	**or**	**S**	**N/A**
3. Type Of TB Received	☐		☐	☑

Sample Information	Y	or	N	N/A
1. Sample labels present on bottles	☑		☐	
2. Samples preserved properly	☑		☐	
3. Sufficient volume/containers recvd for analysis:	☑		☐	
4. Condition of sample	Intact			
5. Sample recvd within HT	☑		☐	
6. Dates/Times/IDs on COC match Sample Label	☑		☐	
7. VOCs have headspace	☐		☑	☐
8. Bottles received for unspecified tests	☐		☑	
9. Compositing instructions clear	☐		☐	☑
10. Voa Soil Kits/Jars received past 48hrs?	☐		☐	☑
11. % Solids Jar received?	☐		☐	☑
12. Residual Chlorine Present?	☐		☐	☑

Misc. Information

Number of Encores: 25-Gram _____ 5-Gram _____ Number of 5035 Field Kits: _____ Number of Lab Filtered Metals: _____

Test Strip Lot #s: pH 0-3 230315 pH 10-12 219813A Other: (Specify) _____ _____

Residual Chlorine Test Strip Lot #: _____

Comments

SM001
Rev. Date 05/24/17

Technician: PETERH Date: 7/9/2019 9:00:00 AM Reviewer: _____ Date: _____

FA65807: Chain of Custody
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GC Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: FA65807
Account: SGSAKA SGS North America, Inc
Project: 1193351

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GFF1813-MB	FF47109.D	1	07/09/19	EG	n/a	n/a	GFF1813

The QC reported here applies to the following samples: **Method:** RSKSOP-147/175

FA65807-1, FA65807-2, FA65807-7, FA65807-8, FA65807-9

CAS No.	Compound	Result	RL	Units	Q
74-82-8	Methane	ND	0.50	ug/l	
74-84-0	Ethane	ND	1.0	ug/l	
74-85-1	Ethene	ND	1.0	ug/l	

Method Blank Summary

Job Number: FA65807
Account: SGSAKA SGS North America, Inc
Project: 1193351

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GFF1814-MB	FF47142.D	1	07/10/19	EG	n/a	n/a	GFF1814

The QC reported here applies to the following samples: **Method:** RSKSOP-147/175

FA65807-3, FA65807-4, FA65807-5, FA65807-6

CAS No.	Compound	Result	RL	Units	Q
74-82-8	Methane	ND	0.50	ug/l	
74-84-0	Ethane	ND	1.0	ug/l	
74-85-1	Ethene	ND	1.0	ug/l	

Blank Spike/Blank Spike Duplicate Summary

Job Number: FA65807
Account: SGSAKA SGS North America, Inc
Project: 1193351

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GFF1813-BS	FF47110.D	1	07/09/19	EG	n/a	n/a	GFF1813
GFF1813-BSD	FF47111.D	1	07/09/19	EG	n/a	n/a	GFF1813

The QC reported here applies to the following samples: **Method:** RSKSOP-147/175

FA65807-1, FA65807-2, FA65807-7, FA65807-8, FA65807-9

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
74-82-8	Methane	108	120	111	114	106	5	62-139/30
74-84-0	Ethane	219	237	108	226	103	5	67-141/30
74-85-1	Ethene	290	322	111	308	106	4	68-141/30

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: FA65807
Account: SGSAKA SGS North America, Inc
Project: 1193351

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GFF1814-BS	FF47143.D	1	07/10/19	EG	n/a	n/a	GFF1814
GFF1814-BSD	FF47144.D	1	07/10/19	EG	n/a	n/a	GFF1814

The QC reported here applies to the following samples: **Method:** RSKSOP-147/175

FA65807-3, FA65807-4, FA65807-5, FA65807-6

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
74-82-8	Methane	108	115	106	119	110	3	62-139/30
74-84-0	Ethane	219	231	105	235	107	2	67-141/30
74-85-1	Ethene	290	312	108	321	111	3	68-141/30

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FA65807
Account: SGSAKA SGS North America, Inc
Project: 1193351

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
FA65648-1MS	FF47117.D	1	07/09/19	EG	n/a	n/a	GFF1813
FA65648-1	FF47112.D	1	07/09/19	EG	n/a	n/a	GFF1813

The QC reported here applies to the following samples: **Method:** RSKSOP-147/175

FA65807-1, FA65807-2, FA65807-7, FA65807-8, FA65807-9

CAS No.	Compound	FA65648-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	Limits
74-82-8	Methane	ND		108	123	114	62-139
74-84-0	Ethane	ND		219	245	112	67-141
74-85-1	Ethene	ND		290	329	113	68-141

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FA65807
Account: SGSAKA SGS North America, Inc
Project: 1193351

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
FA65807-3MS	FF47150.D	1	07/10/19	EG	n/a	n/a	GFF1814
FA65807-3 [a]	FF47145.D	1	07/10/19	EG	n/a	n/a	GFF1814

The QC reported here applies to the following samples: **Method:** RSKSOP-147/175

FA65807-3, FA65807-4, FA65807-5, FA65807-6

CAS No.	Compound	FA65807-3 ug/l	Q	Spike ug/l	MS ug/l	MS %	Limits
74-82-8	Methane	499		108	522	21* [b]	62-139
74-84-0	Ethane	ND		219	233	106	67-141
74-85-1	Ethene	ND		290	313	108	68-141

(a) Sample received outside the holding time.
(b) Outside control limits due to high level in sample relative to spike amount.

* = Outside of Control Limits.

Duplicate Summary

Job Number: FA65807
Account: SGSAKA SGS North America, Inc
Project: 1193351

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
FA65649-4DUP	FF47128.D	1	07/09/19	EG	n/a	n/a	GFF1813
FA65649-4	FF47126.D	1	07/09/19	EG	n/a	n/a	GFF1813

The QC reported here applies to the following samples: **Method:** RSKSOP-147/175

FA65807-1, FA65807-2, FA65807-7, FA65807-8, FA65807-9

CAS No.	Compound	FA65649-4 ug/l	Q	DUP ug/l	Q	RPD	Limits
74-82-8	Methane	453		459		1	30
74-84-0	Ethane	2.2		2.0		10	30
74-85-1	Ethene	2.1		2.1		0	30

* = Outside of Control Limits.

Duplicate Summary

Job Number: FA65807
Account: SGSAKA SGS North America, Inc
Project: 1193351

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
FA65807-3DUP	FF47149.D	1	07/10/19	EG	n/a	n/a	GFF1814
FA65807-3 [a]	FF47145.D	1	07/10/19	EG	n/a	n/a	GFF1814

The QC reported here applies to the following samples: **Method:** RSKSOP-147/175

FA65807-3, FA65807-4, FA65807-5, FA65807-6

CAS No.	Compound	FA65807-3 ug/l	Q	DUP ug/l	Q	RPD	Limits
74-82-8	Methane	499		419		17	30
74-84-0	Ethane	ND		ND		nc	30
74-85-1	Ethene	ND		ND		nc	30

(a) Sample received outside the holding time.

* = Outside of Control Limits.

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report

Technical Report for

SGS North America, Inc.

1193351

1193351

SGS Job Number: JC90986

Sampling Dates: 06/24/19 - 06/25/19

Report to:

SGS North America, Inc.
200 West Potter Drive
Anchorage, AK 99518
julie.shumway@sgs.com

ATTN: Julie Shumway

Total number of pages in report: 23

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Mike Earp
General Manager

Client Service contact: Tammy McCloskey 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, FL, IL, IN, KS, KY, LA, MA, MD, ME, MN, NC, OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA, RI, SC, TX, UT, VA, WV, DoD ELAP (ANAB L2248)

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SGS North America Inc.

Sample Summary

SGS North America, Inc.

Job No: JC90986

1193351
Project No: 1193351

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JC90986-1	06/25/19	08:00		07/02/19	AQ	Ground Water	DUP-1
JC90986-2	06/25/19	09:45		07/02/19	AQ	Ground Water	IWS-06
JC90986-3	06/24/19	11:45		07/02/19	AQ	Ground Water	SMW-09
JC90986-3D	06/24/19	11:45		07/02/19	AQ	Water Dup/MSD	SMW-09
JC90986-3S	06/24/19	11:45		07/02/19	AQ	Water Matrix Spike	SMW-09
JC90986-4	06/24/19	14:40		07/02/19	AQ	Ground Water	SMW-21A
JC90986-5	06/24/19	13:30		07/02/19	AQ	Ground Water	SMW-29
JC90986-6	06/24/19	15:30		07/02/19	AQ	Ground Water	SMW-31
JC90986-7	06/25/19	10:50		07/02/19	AQ	Ground Water	SMW-35
JC90986-8	06/25/19	11:50		07/02/19	AQ	Ground Water	SMW-I-1
JC90986-9	06/25/19	12:50		07/02/19	AQ	Ground Water	SMW-06

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	SGS North America, Inc.	**Job No**	JC90986
Site:	1193351	**Report Date**	7/10/2019 3:43:15 PM

On 07/02/2019, 9 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were received at SGS North America Inc. at a maximum corrected temperature of 4 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. Job Number of JC90986 was assigned to the project. Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Compounds qualified as out of range in the continuing calibration summary report are acceptable as per method requirements when there is a high bias but the sample result is non-detect.

General Chemistry By Method DIONEX APP NOTE 291

Matrix: AQ **Batch ID:** GP22249

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC90986-3DUP, JC90986-3MS were used as the QC samples for Acetic Acid, Butyric Acid, Formic Acid, Propionic Acid, Acetic Acid.
- Matrix Spike Recovery(s) for Butyric Acid are outside control limits. Spike recovery indicates possible matrix interference.

SGS North America Inc. certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting the Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

SGS North America Inc. is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. Data release is authorized by SGS North America Inc indicated via signature on the report cover

Summary of Hits

Job Number: JC90986
Account: SGS North America, Inc.
Project: 1193351
Collected: 06/24/19 thru 06/25/19

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	LOQ	LOD	Units	Method
JC90986-1	**DUP-1**					
Acetic Acid		67.2	10	5.0	mg/l	DIONEX APP NOTE 291
Pyruvic Acid		29.3 J	50	25	mg/l	DIONEX APP NOTE 291
JC90986-2	**IWS-06**					
Acetic Acid		13.5	1.0	0.50	mg/l	DIONEX APP NOTE 291
Formic Acid		0.42 J	1.0	0.50	mg/l	DIONEX APP NOTE 291
JC90986-3	**SMW-09**					
No hits reported in this sample.						
JC90986-4	**SMW-21A**					
No hits reported in this sample.						
JC90986-5	**SMW-29**					
No hits reported in this sample.						
JC90986-6	**SMW-31**					
No hits reported in this sample.						
JC90986-7	**SMW-35**					
Acetic Acid		64.4	10	5.0	mg/l	DIONEX APP NOTE 291
Pyruvic Acid		34.3 J	50	25	mg/l	DIONEX APP NOTE 291
JC90986-8	**SMW-I-1**					
No hits reported in this sample.						
JC90986-9	**SMW-06**					
No hits reported in this sample.						

Sample Results

Report of Analysis

SGS North America Inc.

Report of Analysis

Client Sample ID:	DUP-1		
Lab Sample ID:	JC90986-1	**Date Sampled:**	06/25/19
Matrix:	AQ - Ground Water	**Date Received:**	07/02/19
		Percent Solids:	n/a
Project:	1193351		

General Chemistry

Analyte	Result	LOQ	LOD	DL	Units	DF	Analyzed	By	Method
Metabolic Fatty Acids									
Acetic Acid	67.2	10	5.0	1.5	mg/l	10	07/10/19 08:46	HP	DIONEX APP NOTE 291
Butyric Acid	1.0 U	2.5	1.0	0.69	mg/l	1	07/09/19 17:15	HP	DIONEX APP NOTE 291
Caproic Acid	4.0 U	10	4.0	1.3	mg/l	1	07/09/19 17:15	HP	DIONEX APP NOTE 291
Isobutyric Acid	2.0 U	2.5	2.0	0.74	mg/l	1	07/09/19 17:15	HP	DIONEX APP NOTE 291
Isovaleric Acid	2.0 U	2.5	2.0	0.42	mg/l	1	07/09/19 17:15	HP	DIONEX APP NOTE 291
Lactic Acid	0.50 U	1.0	0.50	0.15	mg/l	1	07/09/19 17:15	HP	DIONEX APP NOTE 291
Propionic Acid	2.0 U	2.5	2.0	0.25	mg/l	1	07/09/19 17:15	HP	DIONEX APP NOTE 291
Pyruvic Acid	29.3 J	50	25	3.0	mg/l	1	07/09/19 17:15	HP	DIONEX APP NOTE 291
Valeric Acid	2.0 U	2.5	2.0	1.2	mg/l	1	07/09/19 17:15	HP	DIONEX APP NOTE 291
Formic Acid	0.50 U	1.0	0.50	0.37	mg/l	1	07/09/19 17:15	HP	DIONEX APP NOTE 291

LOQ = Limit of Quantitation DL = Detection Limit U = Indicates a result < LOD
LOD = Limit of Detection B = Analyte found in associated blank J = Indicates a result > = DL (MDL) but < LOQ

SGS North America Inc.

Report of Analysis

Client Sample ID:	IWS-06		
Lab Sample ID:	JC90986-2	**Date Sampled:**	06/25/19
Matrix:	AQ - Ground Water	**Date Received:**	07/02/19
		Percent Solids:	n/a
Project:	1193351		

General Chemistry

Analyte	Result	LOQ	LOD	DL	Units	DF	Analyzed	By	Method
Metabolic Fatty Acids									
Acetic Acid	13.5	1.0	0.50	0.15	mg/l	1	07/09/19 18:17	HP	DIONEX APP NOTE 291
Butyric Acid	1.0 U	2.5	1.0	0.69	mg/l	1	07/09/19 18:17	HP	DIONEX APP NOTE 291
Caproic Acid	4.0 U	10	4.0	1.3	mg/l	1	07/09/19 18:17	HP	DIONEX APP NOTE 291
Isobutyric Acid	2.0 U	2.5	2.0	0.74	mg/l	1	07/09/19 18:17	HP	DIONEX APP NOTE 291
Isovaleric Acid	2.0 U	2.5	2.0	0.42	mg/l	1	07/09/19 18:17	HP	DIONEX APP NOTE 291
Lactic Acid	0.50 U	1.0	0.50	0.15	mg/l	1	07/09/19 18:17	HP	DIONEX APP NOTE 291
Propionic Acid	2.0 U	2.5	2.0	0.25	mg/l	1	07/09/19 18:17	HP	DIONEX APP NOTE 291
Pyruvic Acid	25 U	50	25	3.0	mg/l	1	07/09/19 18:17	HP	DIONEX APP NOTE 291
Valeric Acid	2.0 U	2.5	2.0	1.2	mg/l	1	07/09/19 18:17	HP	DIONEX APP NOTE 291
Formic Acid	0.42 J	1.0	0.50	0.37	mg/l	1	07/09/19 18:17	HP	DIONEX APP NOTE 291

LOQ = Limit of Quantitation DL = Detection Limit U = Indicates a result < LOD
LOD = Limit of Detection B = Analyte found in associated blank J = Indicates a result > = DL (MDL) but < LOQ

SGS North America Inc.

Report of Analysis

Client Sample ID:	SMW-09		
Lab Sample ID:	JC90986-3	**Date Sampled:**	06/24/19
Matrix:	AQ - Ground Water	**Date Received:**	07/02/19
		Percent Solids:	n/a
Project:	1193351		

General Chemistry

Analyte	Result	LOQ	LOD	DL	Units	DF	Analyzed	By	Method
Metabolic Fatty Acids									
Acetic Acid	0.50 U	1.0	0.50	0.15	mg/l	1	07/10/19 03:35	HP	DIONEX APP NOTE 291
Butyric Acid	1.0 U	2.5	1.0	0.69	mg/l	1	07/10/19 03:35	HP	DIONEX APP NOTE 291
Caproic Acid	4.0 U	10	4.0	1.3	mg/l	1	07/10/19 03:35	HP	DIONEX APP NOTE 291
Isobutyric Acid	2.0 U	2.5	2.0	0.74	mg/l	1	07/10/19 03:35	HP	DIONEX APP NOTE 291
Isovaleric Acid	2.0 U	2.5	2.0	0.42	mg/l	1	07/10/19 03:35	HP	DIONEX APP NOTE 291
Lactic Acid	0.50 U	1.0	0.50	0.15	mg/l	1	07/10/19 03:35	HP	DIONEX APP NOTE 291
Propionic Acid	2.0 U	2.5	2.0	0.25	mg/l	1	07/10/19 03:35	HP	DIONEX APP NOTE 291
Pyruvic Acid	25 U	50	25	3.0	mg/l	1	07/10/19 03:35	HP	DIONEX APP NOTE 291
Valeric Acid	2.0 U	2.5	2.0	1.2	mg/l	1	07/10/19 03:35	HP	DIONEX APP NOTE 291
Formic Acid	0.50 U	1.0	0.50	0.37	mg/l	1	07/10/19 03:35	HP	DIONEX APP NOTE 291

LOQ = Limit of Quantitation DL = Detection Limit U = Indicates a result < LOD
LOD = Limit of Detection B = Analyte found in associated blank J = Indicates a result > = DL (MDL) but < LOQ

SGS North America Inc.

Report of Analysis

Client Sample ID:	SMW-21A		
Lab Sample ID:	JC90986-4	**Date Sampled:**	06/24/19
Matrix:	AQ - Ground Water	**Date Received:**	07/02/19
		Percent Solids:	n/a
Project:	1193351		

General Chemistry

Analyte	Result	LOQ	LOD	DL	Units	DF	Analyzed	By	Method
Metabolic Fatty Acids									
Acetic Acid	0.50 U	1.0	0.50	0.15	mg/l	1	07/09/19 19:19	HP	DIONEX APP NOTE 291
Butyric Acid	1.0 U	2.5	1.0	0.69	mg/l	1	07/09/19 19:19	HP	DIONEX APP NOTE 291
Caproic Acid	4.0 U	10	4.0	1.3	mg/l	1	07/09/19 19:19	HP	DIONEX APP NOTE 291
Isobutyric Acid	2.0 U	2.5	2.0	0.74	mg/l	1	07/09/19 19:19	HP	DIONEX APP NOTE 291
Isovaleric Acid	2.0 U	2.5	2.0	0.42	mg/l	1	07/09/19 19:19	HP	DIONEX APP NOTE 291
Lactic Acid	0.50 U	1.0	0.50	0.15	mg/l	1	07/09/19 19:19	HP	DIONEX APP NOTE 291
Propionic Acid	2.0 U	2.5	2.0	0.25	mg/l	1	07/09/19 19:19	HP	DIONEX APP NOTE 291
Pyruvic Acid	25 U	50	25	3.0	mg/l	1	07/09/19 19:19	HP	DIONEX APP NOTE 291
Valeric Acid	2.0 U	2.5	2.0	1.2	mg/l	1	07/09/19 19:19	HP	DIONEX APP NOTE 291
Formic Acid	0.50 U	1.0	0.50	0.37	mg/l	1	07/09/19 19:19	HP	DIONEX APP NOTE 291

LOQ = Limit of Quantitation DL = Detection Limit U = Indicates a result < LOD
LOD = Limit of Detection B = Analyte found in associated blank J = Indicates a result > = DL (MDL) but < LOQ

SGS North America Inc.

Report of Analysis

Client Sample ID:	SMW-29		
Lab Sample ID:	JC90986-5	**Date Sampled:**	06/24/19
Matrix:	AQ - Ground Water	**Date Received:**	07/02/19
		Percent Solids:	n/a
Project:	1193351		

General Chemistry

Analyte	Result	LOQ	LOD	DL	Units	DF	Analyzed	By	Method
Metabolic Fatty Acids									
Acetic Acid	0.50 U	1.0	0.50	0.15	mg/l	1	07/09/19 20:21	HP	DIONEX APP NOTE 291
Butyric Acid	1.0 U	2.5	1.0	0.69	mg/l	1	07/09/19 20:21	HP	DIONEX APP NOTE 291
Caproic Acid	4.0 U	10	4.0	1.3	mg/l	1	07/09/19 20:21	HP	DIONEX APP NOTE 291
Isobutyric Acid	2.0 U	2.5	2.0	0.74	mg/l	1	07/09/19 20:21	HP	DIONEX APP NOTE 291
Isovaleric Acid	2.0 U	2.5	2.0	0.42	mg/l	1	07/09/19 20:21	HP	DIONEX APP NOTE 291
Lactic Acid	0.50 U	1.0	0.50	0.15	mg/l	1	07/09/19 20:21	HP	DIONEX APP NOTE 291
Propionic Acid	2.0 U	2.5	2.0	0.25	mg/l	1	07/09/19 20:21	HP	DIONEX APP NOTE 291
Pyruvic Acid	25 U	50	25	3.0	mg/l	1	07/09/19 20:21	HP	DIONEX APP NOTE 291
Valeric Acid	2.0 U	2.5	2.0	1.2	mg/l	1	07/09/19 20:21	HP	DIONEX APP NOTE 291
Formic Acid	0.50 U	1.0	0.50	0.37	mg/l	1	07/09/19 20:21	HP	DIONEX APP NOTE 291

LOQ = Limit of Quantitation DL = Detection Limit U = Indicates a result < LOD
LOD = Limit of Detection B = Analyte found in associated blank J = Indicates a result > = DL (MDL) but < LOQ

SGS North America Inc.

Report of Analysis

Client Sample ID:	SMW-31		
Lab Sample ID:	JC90986-6	**Date Sampled:**	06/24/19
Matrix:	AQ - Ground Water	**Date Received:**	07/02/19
		Percent Solids:	n/a
Project:	1193351		

General Chemistry

Analyte	Result	LOQ	LOD	DL	Units	DF	Analyzed	By	Method
Metabolic Fatty Acids									
Acetic Acid	0.50 U	1.0	0.50	0.15	mg/l	1	07/09/19 21:23	HP	DIONEX APP NOTE 291
Butyric Acid	1.0 U	2.5	1.0	0.69	mg/l	1	07/09/19 21:23	HP	DIONEX APP NOTE 291
Caproic Acid	4.0 U	10	4.0	1.3	mg/l	1	07/09/19 21:23	HP	DIONEX APP NOTE 291
Isobutyric Acid	2.0 U	2.5	2.0	0.74	mg/l	1	07/09/19 21:23	HP	DIONEX APP NOTE 291
Isovaleric Acid	2.0 U	2.5	2.0	0.42	mg/l	1	07/09/19 21:23	HP	DIONEX APP NOTE 291
Lactic Acid	0.50 U	1.0	0.50	0.15	mg/l	1	07/09/19 21:23	HP	DIONEX APP NOTE 291
Propionic Acid	2.0 U	2.5	2.0	0.25	mg/l	1	07/09/19 21:23	HP	DIONEX APP NOTE 291
Pyruvic Acid	25 U	50	25	3.0	mg/l	1	07/09/19 21:23	HP	DIONEX APP NOTE 291
Valeric Acid	2.0 U	2.5	2.0	1.2	mg/l	1	07/09/19 21:23	HP	DIONEX APP NOTE 291
Formic Acid	0.50 U	1.0	0.50	0.37	mg/l	1	07/09/19 21:23	HP	DIONEX APP NOTE 291

LOQ = Limit of Quantitation DL = Detection Limit U = Indicates a result < LOD
LOD = Limit of Detection B = Analyte found in associated blank J = Indicates a result > = DL (MDL) but < LOQ

SGS North America Inc.

Report of Analysis

Client Sample ID:	SMW-35		
Lab Sample ID:	JC90986-7	**Date Sampled:**	06/25/19
Matrix:	AQ - Ground Water	**Date Received:**	07/02/19
		Percent Solids:	n/a
Project:	1193351		

General Chemistry

Analyte	Result	LOQ	LOD	DL	Units	DF	Analyzed	By	Method
Metabolic Fatty Acids									
Acetic Acid	64.4	10	5.0	1.5	mg/l	10	07/10/19 09:48	HP	DIONEX APP NOTE 291
Butyric Acid	1.0 U	2.5	1.0	0.69	mg/l	1	07/09/19 22:25	HP	DIONEX APP NOTE 291
Caproic Acid	4.0 U	10	4.0	1.3	mg/l	1	07/09/19 22:25	HP	DIONEX APP NOTE 291
Isobutyric Acid	2.0 U	2.5	2.0	0.74	mg/l	1	07/09/19 22:25	HP	DIONEX APP NOTE 291
Isovaleric Acid	2.0 U	2.5	2.0	0.42	mg/l	1	07/09/19 22:25	HP	DIONEX APP NOTE 291
Lactic Acid	0.50 U	1.0	0.50	0.15	mg/l	1	07/09/19 22:25	HP	DIONEX APP NOTE 291
Propionic Acid	2.0 U	2.5	2.0	0.25	mg/l	1	07/09/19 22:25	HP	DIONEX APP NOTE 291
Pyruvic Acid	34.3 J	50	25	3.0	mg/l	1	07/09/19 22:25	HP	DIONEX APP NOTE 291
Valeric Acid	2.0 U	2.5	2.0	1.2	mg/l	1	07/09/19 22:25	HP	DIONEX APP NOTE 291
Formic Acid	0.50 U	1.0	0.50	0.37	mg/l	1	07/09/19 22:25	HP	DIONEX APP NOTE 291

LOQ = Limit of Quantitation DL = Detection Limit U = Indicates a result < LOD
LOD = Limit of Detection B = Analyte found in associated blank J = Indicates a result > = DL (MDL) but < LOQ

SGS North America Inc.

Report of Analysis

Client Sample ID:	SMW-I-1		
Lab Sample ID:	JC90986-8	**Date Sampled:**	06/25/19
Matrix:	AQ - Ground Water	**Date Received:**	07/02/19
		Percent Solids:	n/a
Project:	1193351		

General Chemistry

Analyte	Result	LOQ	LOD	DL	Units	DF	Analyzed	By	Method
Metabolic Fatty Acids									
Acetic Acid	0.50 U	1.0	0.50	0.15	mg/l	1	07/09/19 23:27	HP	DIONEX APP NOTE 291
Butyric Acid	1.0 U	2.5	1.0	0.69	mg/l	1	07/09/19 23:27	HP	DIONEX APP NOTE 291
Caproic Acid	4.0 U	10	4.0	1.3	mg/l	1	07/09/19 23:27	HP	DIONEX APP NOTE 291
Isobutyric Acid	2.0 U	2.5	2.0	0.74	mg/l	1	07/09/19 23:27	HP	DIONEX APP NOTE 291
Isovaleric Acid	2.0 U	2.5	2.0	0.42	mg/l	1	07/09/19 23:27	HP	DIONEX APP NOTE 291
Lactic Acid	0.50 U	1.0	0.50	0.15	mg/l	1	07/09/19 23:27	HP	DIONEX APP NOTE 291
Propionic Acid	2.0 U	2.5	2.0	0.25	mg/l	1	07/09/19 23:27	HP	DIONEX APP NOTE 291
Pyruvic Acid	25 U	50	25	3.0	mg/l	1	07/09/19 23:27	HP	DIONEX APP NOTE 291
Valeric Acid	2.0 U	2.5	2.0	1.2	mg/l	1	07/09/19 23:27	HP	DIONEX APP NOTE 291
Formic Acid	0.50 U	1.0	0.50	0.37	mg/l	1	07/09/19 23:27	HP	DIONEX APP NOTE 291

LOQ = Limit of Quantitation DL = Detection Limit U = Indicates a result < LOD
LOD = Limit of Detection B = Analyte found in associated blank J = Indicates a result > = DL (MDL) but < LOQ

SGS North America Inc.

Report of Analysis

Client Sample ID:	SMW-06		
Lab Sample ID:	JC90986-9	**Date Sampled:**	06/25/19
Matrix:	AQ - Ground Water	**Date Received:**	07/02/19
		Percent Solids:	n/a
Project:	1193351		

General Chemistry

Analyte	Result	LOQ	LOD	DL	Units	DF	Analyzed	By	Method
Metabolic Fatty Acids									
Acetic Acid	0.50 U	1.0	0.50	0.15	mg/l	1	07/10/19 00:29	HP	DIONEX APP NOTE 291
Butyric Acid	1.0 U	2.5	1.0	0.69	mg/l	1	07/10/19 00:29	HP	DIONEX APP NOTE 291
Caproic Acid	4.0 U	10	4.0	1.3	mg/l	1	07/10/19 00:29	HP	DIONEX APP NOTE 291
Isobutyric Acid	2.0 U	2.5	2.0	0.74	mg/l	1	07/10/19 00:29	HP	DIONEX APP NOTE 291
Isovaleric Acid	2.0 U	2.5	2.0	0.42	mg/l	1	07/10/19 00:29	HP	DIONEX APP NOTE 291
Lactic Acid	0.50 U	1.0	0.50	0.15	mg/l	1	07/10/19 00:29	HP	DIONEX APP NOTE 291
Propionic Acid	2.0 U	2.5	2.0	0.25	mg/l	1	07/10/19 00:29	HP	DIONEX APP NOTE 291
Pyruvic Acid	25 U	50	25	3.0	mg/l	1	07/10/19 00:29	HP	DIONEX APP NOTE 291
Valeric Acid	2.0 U	2.5	2.0	1.2	mg/l	1	07/10/19 00:29	HP	DIONEX APP NOTE 291
Formic Acid	0.50 U	1.0	0.50	0.37	mg/l	1	07/10/19 00:29	HP	DIONEX APP NOTE 291

LOQ = Limit of Quantitation DL = Detection Limit U = Indicates a result < LOD
LOD = Limit of Detection B = Analyte found in associated blank J = Indicates a result > = DL (MDL) but < LOQ

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

WW

SGS North America Inc.
CHAIN OF CUSTODY RECORD

1ZA86 19W 016685 1928

Locations Nationwide

Alaska	Florida
New Jersey	Colorado
Texas	North Carolina
Virginia	Louisiana

www.us.sgs.com

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JC90986

CLIENT:	SGS North America Inc. - Alaska Division	SGS Reference:	SGS Dayton
CONTACT:	Julie Shumway — PHONE NO: (907) 562-2343	Additional Comments:	All soils report out in dry weight unless
PROJECT NAME:	1193351	PWSID#: / NPDL#:	
REPORTS TO:	Julie Shumway	E-MAIL:	Julie.Shumway@sgs.com; Env.Alaska.RefLabTeam@sgs.com
INVOICE TO:	SGS - Alaska	QUOTE #: / P.O. #:	1193351

Page 1 of 1

RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HHMM	MATRIX/ MATRIX CODE	# CONTAINERS	Preservative Used: NONE / TYPE C = COMP G = GRAB MI = Multi Incremental Soils	Volatile Fatty Acids				MS	MSD	SGS lab #	Location ID
1	Dup-1	6/25/2019	8:00	GW	1		X						1193351001	
2	IWS-06	6/25/2019	9:45	GW	1		X						1193351002	
3	SMW-09	6/24/2019	11:45	GW	1		X						1193351003	
	SMW-09	6/24/2019	11:45	GW	1		X				X	X	1193351004	
4	SMW-21A	6/24/2019	14:40	GW	1		X						1193351006	
5	SMW-29	6/24/2019	13:30	GW	1		X						1193351007	
6	SMW-31	6/24/2019	15:30	GW	1		X						1193351008	
7	SMW-35	6/25/2019	10:50	GW	1		X						1193351009	
8	SMW-I-1	6/25/2019	11:50	GW	1		X						1193351010	
9	SMW-06	6/25/2019	12:50	GW	1		X						1193351011	

M18

Relinquished By: (1)	Date	Time	Received By:
Relinquished By: (2)	Date	Time	Received By:
Relinquished By: (3)	Date	Time	Received By:
Relinquished By: (4)	7/1/19	0939	Received For Laboratory By: UPS

DOD Project? NO
Report to DL (J Flags)? YES
If J- Report as DL/LOD/LOQ.

Data Deliverable Requirements: Level 2 with Excel EDD

Cooler ID:

Requested Turnaround Time and-or Special Instructions:

Temp Blank °C: 4.4°C -ip
IR278 or Ambient [ ]

Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT

[X] 200 W Potter Drive Anchorage, AK 99518 Tel: (907) 562-2343 Fax: (907) 561-5301
[ ] 5500 Business Drive Wilmington, NC 28405 Tel: (910) 350-1903 Fax: (910) 350-1557

http://www.sgs.com/terms_and_conditions.htm

Rel: UPS 7/2/19 9:20 Rec:

F088_COC_REF_LAB_20190411

5.1 5

JC90986: Chain of Custody
Page 1 of 3

SGS Sample Receipt Summary

Job Number: JC90986 **Client:** SGS **Project:** 1193351

Date / Time Received: 7/2/2019 9:20:00 AM **Delivery Method:** UPS **Airbill #'s:** 1ZA8619W0166851928

Cooler Temps (Raw Measured) °C: Cooler 1: (4.4);

Cooler Temps (Corrected) °C: Cooler 1: (4.0);

Cooler Security	Y	N		Y	N
1. Custody Seals Present:	☑	☐	3. COC Present:	☑	☐
2. Custody Seals Intact:	☑	☐	4. Smpl Dates/Time OK	☑	☐

Cooler Temperature	Y	N
1. Temp criteria achieved:	☑	☐
2. Cooler temp verification:	IR Gun	
3. Cooler media:	Ice (Bag)	
4. No. Coolers:	1	

Quality Control Preservation	Y	N	N/A
1. Trip Blank present / cooler:	☐	☑	☐
2. Trip Blank listed on COC:	☐	☑	☐
3. Samples preserved properly:	☑	☐	
4. VOCs headspace free:	☐	☐	☑

Sample Integrity - Documentation	Y	N
1. Sample labels present on bottles:	☑	☐
2. Container labeling complete:	☑	☐
3. Sample container label / COC agree:	☑	☐

Sample Integrity - Condition	Y	N
1. Sample recvd within HT:	☑	☐
2. All containers accounted for:	☑	☐
3. Condition of sample:	Intact	

Sample Integrity - Instructions	Y	N	N/A
1. Analysis requested is clear:	☑	☐	
2. Bottles received for unspecified tests	☐	☑	
3. Sufficient volume recvd for analysis:	☑	☐	
4. Compositing instructions clear:	☐	☐	☑
5. Filtering instructions clear:	☐	☐	☑

Test Strip Lot #s: pH 1-12: 229517 pH 12+: 208717 Other: (Specify) _____ _____

Comments Samples received in non-SGS bottleware.

SM089-03
Rev. Date 12/7/17

5.1

5

JC90986: Chain of Custody
Page 2 of 3

Responded to by: CSR: N/A

Response Date: Response Date: 7/2/2019

Response:

Response: Proceed with analysis

JC90986: Chain of Custody
Page 3 of 3

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: JC90986
Account: SGSAKA - SGS North America, Inc.
Project: 1193351

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Acetic Acid	GP22249/GN97293	1.0	0.0	mg/l	4	3.72	93.0	70-130%
Butyric Acid	GP22249/GN97293	2.5	0.0	mg/l	10	9.45	94.5	70-130%
Formic Acid	GP22249/GN97293	1.0	0.0	mg/l	4	3.98	99.5	70-130%
Propionic Acid	GP22249/GN97293	2.5	0.0	mg/l	10	9.86	98.6	70-130%

Associated Samples:
Batch GP22249: JC90986-1, JC90986-2, JC90986-3, JC90986-4, JC90986-5, JC90986-6, JC90986-7, JC90986-8, JC90986-9
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: JC90986
Account: SGSAKA - SGS North America, Inc.
Project: 1193351

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Acetic Acid	GP22249/GN97293	JC90986-3	mg/l	0.15 U	0.0	0.0	0-20%
Butyric Acid	GP22249/GN97293	JC90986-3	mg/l	0.69 U	0.0	0.0	0-20%
Formic Acid	GP22249/GN97293	JC90986-3	mg/l	0.37 U	0.0	0.0	0-20%
Propionic Acid	GP22249/GN97293	JC90986-3	mg/l	0.25 U	0.0	0.0	0-20%

Associated Samples:
Batch GP22249: JC90986-1, JC90986-2, JC90986-3, JC90986-4, JC90986-5, JC90986-6, JC90986-7, JC90986-8, JC90986-9
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: JC90986
Account: SGSAKA - SGS North America, Inc.
Project: 1193351

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Acetic Acid	GP22249/GN97293	JC90986-3	mg/l	0.15 U	4	4.0	100.0	70-130%
Butyric Acid	GP22249/GN97293	JC90986-3	mg/l	0.69 U	10	40.5	405.0N(a)	70-130%
Formic Acid	GP22249/GN97293	JC90986-3	mg/l	0.37 U	4	4.2	105.0	70-130%
Propionic Acid	GP22249/GN97293	JC90986-3	mg/l	0.25 U	10	10.8	108.0	70-130%

Associated Samples:
Batch GP22249: JC90986-1, JC90986-2, JC90986-3, JC90986-4, JC90986-5, JC90986-6, JC90986-7, JC90986-8, JC90986-9
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(a) Spike recovery indicates possible matrix interference.