

December 8, 2017

Village of Teslin  
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ISSUED FOR USE  
FILE: ENVSWM03652-01  
Via Email: shelly.hassard@teslin.ca

**Attention:** Shelley Hassard, Chief Administrative Officer

**Subject:** 2017 Groundwater Monitoring, Teslin Solid Waste Management Facility, Teslin, Yukon

## 1.0 INTRODUCTION

Tetra Tech Canada Inc. (Tetra Tech) was retained by the Village of Teslin (VOT) to conduct groundwater monitoring at the Solid Waste Management Facility (SWMF) in Teslin, Yukon. All work was conducted in general accordance with Section 8, Monitoring, of the VOT SWMF's Waste Management Permit (Permit No: 80-004) (the Permit).

The contracted scope of services for 2017 were as follows:

- Conduct two rounds of groundwater monitoring (gauging and sampling) at all accessible monitoring wells and submit the collected groundwater samples to an accredited laboratory for analysis;
- Provide progress update and results to VOT and Yukon Environment as required by the Permit; and
- Prepare a letter report following the October 2017 monitoring event for submission to VOT and Yukon Environment.

The following letter report includes a summary of field work completed, a summary of the analytical results, a comparison of the results against relevant groundwater quality standards, and recommendations.

## 2.0 WORK COMPLETED

Tetra Tech conducted groundwater monitoring events (gauging and sampling) on July 19, 2017 and October 24, 2017. During each event, field activities were completed as follows:

- Observations on the well condition, depth to groundwater, and total well depth were recorded at the six monitoring well locations (MW01, MW02, MW03, TE-MW12-02, MW15-01, and MW15-02).
- Three well volumes were purged from the monitoring wells while recording field parameters (temperature, specific conductance, oxidation-reduction potential, dissolved oxygen, and pH) prior to sampling.
- Groundwater samples were collected from all six accessible monitoring well locations. Sample collection was conducted in accordance with the Waste Management Permit and Environment Yukon's Protocol No.7: Groundwater Monitoring Well Installation, Sampling and Decommissioning.

- Collected groundwater samples were stored in laboratory supplied sampling containers in coolers containing ice packs and delivered to the Maxxam Analytics (Maxxam) of Burnaby, BC under Chain of Custody. Maxxam is an accredited conforming to ISO/IEC 17025.
- Collected samples were submitted for analyses of the following:
  - Major ions (calcium, magnesium, sodium, potassium, chloride, sulphate, nitrate nitrogen, nitrite nitrogen and phosphate)
  - Dissolved metals
  - Hardness
  - Alkalinity
  - Carbonate
  - Bicarbonate
  - pH
  - Specific Conductance
  - Total Dissolved Solids
  - Ammonia
  - Dissolved Organic Carbon
  - Volatile organic Compounds
  - Chemical Oxygen Demand
  - Total Kjeldahl Nitrogen
  - Light Extractable Hydrocarbons in water
  - Extractable Petroleum Hydrocarbons in water
  - Volatile Petroleum Hydrocarbons in water
  - Volatile Petroleum Hydrocarbons
  - Benzene, Toluene, Ethylbenzene, and Total Xylenes
  - Polycyclic Aromatic Hydrocarbons
- Quality assurance and quality control (QA/QC) samples collected during each monitoring event consisted of one field duplicate.

Groundwater monitoring (gauging and sampling) field sheets are provided in Appendix A.

During the sampling events, we observed that the hinge on the steel protective casing at TE-MW12-02 has been damaged and the lid of casing is held on by lock only.

## 3.0 RESULTS

Depth to groundwater measurements are presented in Table 1.

Groundwater analytical results are presented in Table 2. These results were compared against the Yukon Contaminated Sites Regulation (CSR) Schedule 3 Generic Numerical Water Standards for Drinking Water (CSR-DW) and Aquatic Life (CSR-AW). These water use standards are considered applicable based on the findings of the site's preliminary hydrogeological assessment (EBA, 2009). Analytical results with exceedances of Yukon CSR standards are highlighted in Table 2. An initial review of the analytical results indicates that the groundwater quality is similar to previous events. Concentrations of dissolved metals constituents (antimony, manganese) exceeded the DW standard at one or more location (Table 2).

QA/QC results are presented in Table 3. A comparison of the sample and the duplicate from the July 2017 event indicates the relative percent difference (RPD) value for Chemical Oxygen Demand exceeds 30%. As the concentration of the sample and the duplicate is within 5 times the detection limits, the water quality results are still considered reliable. Duplicate samples for the October 2017 indicate that the RPD values for Nitrate, and Nitrate and Nitrate between the sample and the duplicate are greater than 30%, however again the concentrations are within 5 times the detection limit and the water quality results are considered reliable.

A copy of the analytical laboratory reports are attached in Appendix B.

## 4.0 CONCLUSIONS AND RECOMMENDATIONS

Groundwater quality samples were collected from all six accessible monitoring wells at the VOT SWMF in July and October 2017. An initial review of the analytical results indicates that the groundwater quality is similar to previous events. Concentrations of dissolved metals constituents (i.e., antimony and manganese) exceeded the CSR-DW use standard at one or more location (Table 2).

The following recommendations are made in regards to the groundwater monitoring program at the VOT SWMF:

- Annually, a detailed assessment of the hydrogeological and water quality data should be completed. This review should include an assessment groundwater elevations, groundwater flow direction, seasonal changes in groundwater flow direction, a comprehensive review of the water quality data, water quality changes or trends over time, and water quality type. Annual review should include updated maps and graphs, as appropriate to present data in a comprehensive and understandable manner.
- Damage to the hinge on the steel protective casing at TE-MW12-02 was noted. The lid of casing is held on only by a lock. Tetra Tech recommends that the casing be repaired and properly secured to ensure the well remains secure and minimise the potential for tampering or further damage to the well.

## 5.0 LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of the Village of Teslin and their agents. Tetra Tech Canada Inc. (Tetra Tech) does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than the Village of Teslin or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this report is subject to the terms and conditions stated in Tetra Tech's Services Agreement. Tetra Tech's Limitations are provided in Appendix C of this report.

## 6.0 CLOSURE

We trust this report meets your present requirements. If you have any questions or comments, please contact the undersigned.

Respectfully submitted,  
Tetra Tech Canada Inc.



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TABLES

Table 1	Depth to Groundwater Measurements
Table 2	Groundwater Analytical Results
Table 3	QA/QC Results

**Table 1: Depth to Groundwater Measurements - 2015 to 2017**

Well ID	Depth to Groundwater (mbtoc)						
	19-Jun-15	10-Jul-15	18-Nov-15	13-Jun-16	1-Sep-16	19-Jul-17	24-Oct-17
TE-MW12-01	3.51	-	-	Well decommissioned in 2015			
TE-MW12-02	3.51	-	4.41	3.41	4.632	4.323	5.110
MW01	-	4.91	-	4.71	5.156	5.041	5.259
MW02	-	5.78	6.71	6.06	7.552	8.616	9.118
MW03	0.91	-	1.52	1.07	1.834	2.170	2.570
MW15-01	-	-	-	4.01	5.644	5.182	6.238
MW15-02	-	-	-	4.11	5.152	4.834	5.329

- mbtoc indicates meters below top of PVC casing

Table 2: Groundwater Analytical Results																								
Parameter	Unit	Yukon CSR <sup>1</sup>		MW01					MW02					MW03					MW03					
				MW01	MW01	MW01	MW01	MW01	MW02	MW02	MW02	MW02	MW02	MW02	MW03	MW03	DUPLICATE	MW03	DUPLICATE	MW03	MW03	DUPLICATE	MW03	DUPLICATE
		AW	DW	10-Jul-2015	13-Jun-2016	1-Sep-2016	19-Jul-2017	24-Oct-2017	10-Jul-2015	18-Nov-2015	13-Jun-2016	1-Sep-2016	19-Jul-2017	24-Oct-2017	19-Jun-2015	18-Nov-2015	13-Jun-2016	1-Sep-2016	19-Jul-2017	24-Oct-2017				
Physical Parameters																								
pH	pH Units	-	-	7.84	7.76	8.32	8.14	8.11	8.01	8.17	7.95	8.38	8.49	8.3	8.36	8.26	8.30	8.19	8.20	8.44	8.46	8.42	8.4	8.41
Electrical Conductivity (EC)	µS/cm	-	-	438	441	451	460	470	1090	1020	1020	998	1030	975	554	667	668	560	559	568	571	564	594	594
Total Dissolved Solids (TDS)	µg/L	-	-	231,000	292,000	258,000	252000	276000	610,000	608,000	573,000	610,000	634000	586000	300,000	481,000	518,000	313,000	316,000	310,000	318000	288000	310000	304000
Hardness as CaCO <sub>3</sub>	µg/L	-	-	301,000	248,000	243,000	234000	235000	517,000	526,000	550,000	506,000	508000	506000	274,000	298,000	297,000	310,000	310,000	293,000	275000	277000	296000	299000
Alkalinity (total as CaCO <sub>3</sub> )	µg/L	-	-	214,000	226,000	225,000	228000	229000	442,000	454,000	434,000	393,000	398000	362000	262,000	334,000	339,000	273,000	276,000	280,000	280000	281000	294	294000
Alkalinity (pp as CaCO <sub>3</sub> )	µg/L	-	-	<500	-	1190	<500	<1000	<500	-	-	5730	12400	<1000	2640	-	-	-	-	5550	6390	5350	4900	5100
Bicarbonate	µg/L	-	-	261,000	226,000	271,000	278000	280000	539,000	454,000	434,000	466,000	455000	442000	313,000	334,000	334,000	273,000	276,000	328,000	327000	329000	347000	346000
Carbonate	µg/L	-	-	<500	<1000	1430	<500	<1000	<500	<1000	<1000	6880	14800	<1000	3170	<1000	4600	<1000	<1000	6660	7670	6420	5900	6100
Hydroxide	µg/L	-	-	<500	<1000	<500	<500	<1000	<500	<1000	<1000	<500	<1000	<1000	<500	<1000	<1000	<1000	<1000	<500	<500	<500	<1000	<1000
Chloride (Cl)	µg/L	-	250,000	770	<500	1200	860	1300	1300	530	<1000	1400	1100	1300	860	<500	<500	<500	<500	1200	660	660	<1000	1100
Fluoride (F)	µg/L	3000 <sup>2</sup>	1500	-	183	-	-	-	-	329	297	-	-	-	340	396	333	351	347	-	-	-	-	-
Sulphate (SO <sub>4</sub> )	µg/L	1,000,000	500,000	15,300	15,700	22,000	19900	21200	170,000	187,000	185,000	200,000	195000	212000	48,300	47,800	49,100	47,100	47,100	47,000	48700	45300	40800	41300
Nutrients																								
Ammonia	µg/L	3700-18,500 <sup>3</sup>	-	31.0	9.3	8.9	0.018	0.13	720	376	455	480	390	1100	200	185	188	173	166	200	220	210	190	190
Total Kjeldahl Nitrogen (TKN)	µg/L	-	-	290	291	149	27	26.4	4300	699	1770	853	729	2910	-	495	475	295	290	242	369	340	278	264
Nitrate (as N)	µg/L	400,000	10,000	<100	96.8	36	45	<20	<100	14.2	21.0	25	69	<20	<20	10.4	11.7	<5	<5	<20	<20	<20	22	38
Nitrite (as N)	µg/L	200-2000 <sup>4</sup>	3200	<100	<1.0	<5.0	<5.0	<5.0	<100	3.0	9.8	12	6.5	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<5.0	<5.0
Nitrate and Nitrite (as N)	µg/L	400,000	10,000	<100	-	36	45	<20	<100	-	-	37	75	<20	<20	-	-	-	-	<20	<20	<20	22	38
Orthophosphate (as P)	µg/L	-	-	<100	3.9	-	-	-	<100	1.3	11.5	-	-	-	-	16.6	17.1	19.1	19.1	-	-	-	-	-
Dissolved Metals																								
Aluminum	µg/L	-	200	19,900	<10	4.5	4.9	8.2	101	<10	<10	5.7	12.5	4.6	3.2	<10	<10	<10	<10	<3.0	16.2	14.8	3.9	<3.0
Antimony	µg/L	200	6	<0.50	<0.50	<0.50	<0.50	<0.50	13.2	12.7	3.64	2.94	3.27	8.39	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Arsenic	µg/L	50	25	1.18	<1.0	0.14	0.15	0.15	21.9	14.3	10.4	5.32	4.76	6.03	6.08	5.4	5.5	6.4	6.2	5.86	5.24	5.41	4.68	4.7
Barium	µg/L	10,000	1000	447	51	39.5	60.8	59.6	33.1	24	26	23.7	24.8	24.1	80.4	91	88	88	88	87.2	89.4	91.9	95.7	93.4
Beryllium	µg/L	53	-	0.52	<5.0	<0.10	<0.10	<0.10	<0.10	<5.0	<5.0	<0.10	<0.10	<0.10	<0.10	<5.0	<5.0	<5.0	<5.0	<0.10	<0.10	<0.10	<0.10	<0.10
Bismuth	µg/L	-	-	<1.0	-	<1.0	<1.0	<1.0	<1.0	-	-	<1.0	<1.0	<1.0	<1.0	-	-	-	-	<1.0	<1.0	<1.0	<1.0	<1.0
Boron	µg/L	50,000	5000	<50	<100	<50	<50	<50	<50	<100	<50	<50	<50	<50	<50	<100	<100	<100	<100	<50	<50	<50	<50	<50
Cadmium	µg/L	0.6 <sup>2</sup>	5	0.212	<0.050	<0.010	0.014	0.013	0.010	<0.050	<0.050	0.010	0.019	0.023	<0.01	<0.050	<0.050	<0.050	<0.050	<0.010	0.011	<0.010	<0.010	<0.010
Calcium	µg/L	-	-	89,100	85,700	82,800	79.3	78.3	52,600	55,600	58,300	56,900	54,800	55,900	36,500	39,800	39,300	40,600	40,900	39,900	36.5	36.1	37.9	37.5
Chromium	µg/L	10 <sup>5</sup>	50	4.5	<0.50	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0
Cobalt	µg/L	9	-	14.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.52	0.61	0.41	0.43	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Copper	µg/L	90 <sup>2</sup>	1000	57.4	3.0	2.40	2.81	2.27	0.92	<1.0	1.5	0.35	0.34	0.44	<0.2	<1.0	<1.0	<1.0	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2
Iron	µg/L	-	300	18,600	<30	<5.0	<5.0	5.2	227	<30	<30	<5.0	44.6	<5	134	147	155	198	194	181	0.123	0.118	0.16	0.157
Lead	µg/L	110-160 <sup>2</sup>	10	4.08	<1.0	<0.20	<0.20	<0.20	<0.20	<1.0	<1.0	<0.20	2.2	<0.20	<0.20	<1.0	<1.0	<1.0	<1.0	<0.20	<0.20	<0.20	<0.20	<0.20
Lithium	µg/L	-	-	9	<50	<5.0	2.3	<0.20	9	<50	<50	<5.0	2.2	2.2	<5.0	<50	<50	<50	<50	<5.0	<5.0	<5.0	<5.0	<5.0
Magnesium	µg/L	-	100,000	19,000	8270	8740	8680	9480	93,600	94,100	98,300	88,300	90,100	89,100	44,400	48,200	48,200	50,700	50,400	46,900	44,500	45,300	48,800	49,900
Manganese	µg/L	-	50	483	<10	<1.0	2.81	7.3	73.7	70	75	71	82.4	85.8	38.1	43	42	42	42	39.2	37.9	37.8	38.1	38.4
Mercury	µg/L	1	1	-	<0.20	<0.010	<0.20	<0.20	-	<0.20	<0.20	<0.010	<0.010	<0.010	<0.010	<0.20	<0.20	<0.20	<0.20	<0.010	<0.20	<0.20	<0.20	<0.20
Molybdenum	µg/L	10,000	250	2.2	3.9	5.0	4.4	4.3	39.6	30.1	26.7	26.5	30.1	31.3	12.6	15.9	15.5	11.1	10.7	11.8	0.0187	0.0192	0.0123	0.0123
Nickel	µg/L	1500 <sup>2</sup>	-	3.6	<5.0	<1.0	<1.0	<1.0	22.6	28.3	18.7	14.0	10.7	16.2	<1.0	<5.0	<5.0	<5.0	<5.0	<1.0	<0.0010	<0.0010	<0.0010	<0.0010
Phosphorus	µg/L	-	-	-	-	768	443	7,780	-	-	-	2330	3											

Table 2: Groundwater Analytical Results																												
Parameter	Unit	Yukon CSR <sup>1</sup>		MW01					MW02					MW03					MW03					MW03				
				MW01	MW01	MW01	MW01	MW01	MW02	MW02	MW02	MW02	MW02	MW02	MW03	MW03	DUPLICATE	MW03	DUPLICATE	MW03	MW03	DUPLICATE	MW03	DUPLICATE				
		AW	DW	10-Jul-2015	13-Jun-2016	1-Sep-2016	19-Jul-2017	24-Oct-2017	10-Jul-2015	18-Nov-2015	13-Jun-2016	1-Sep-2016	19-Jul-2017	24-Oct-2017	19-Jun-2015	18-Nov-2015	13-Jun-2016	1-Sep-2016	19-Jul-2017	24-Oct-2017								
Demand Parameters																												
Chemical Oxygen Demand (COD)	µg/L	-	-	75,000	28,000	46,000	20,000	127,000	9,650,000	65,000	425,000	299,000	60,000	4,230,000	-	51,000	54,000	<20,000	<20,000	10,000	15000	26000	24,000	20,000				
Carbon																												
Dissolved Organic Carbon (DOC)	µg/L	-	-	9310	8950	6210	5400	5,190	4530	6070	4960	4300	4300	3,530	3310	4640	3150	2880	2860	3260	4100	3300	4,270	4,280				
BTEXS & MTBE																												
Benzene	µg/L	4000	5	<0.40	<0.50	<0.40	<0.40	<0.40	<0.40	<0.50	<0.50	<0.40	<0.40	<0.40	<0.40	<0.50	<0.50	<0.50	<0.50	<0.40	<0.40	<0.40	<0.40	<0.40				
Toluene	µg/L	390	24	<0.40	<0.50	<0.40	<0.40	<0.40	<0.40	<0.50	<0.50	<0.40	<0.40	3.4	3.4	<0.40	<0.50	<0.50	<0.50	<0.40	<0.40	<0.40	<0.40	<0.40				
Ethylbenzene	µg/L	2000	2.4	<0.40	<0.50	<0.40	<0.40	<0.40	<0.40	<0.50	<0.50	<0.40	<0.40	<0.40	<0.40	<0.50	<0.50	<0.50	<0.50	<0.40	<0.40	<0.40	<0.40	<0.40				
Xylenes (m & p)	µg/L	-	-	<0.40	<0.50	<0.40	<0.40	<0.40	<0.40	<0.50	<0.50	<0.40	<0.40	<0.40	<0.40	<0.50	<0.50	<0.50	<0.50	<0.40	<0.40	<0.40	<0.40	<0.40				
Xylene (o)	µg/L	-	-	<0.40	<0.50	<0.40	<0.40	<0.40	<0.40	<0.50	<0.50	<0.40	<0.40	<0.40	<0.40	<0.50	<0.50	<0.50	<0.50	<0.40	<0.40	<0.40	<0.40	<0.40				
Xylenes Total	µg/L	-	300	<0.40	<0.75	<0.40	<0.40	<0.40	<0.40	<0.75	<0.75	<0.40	<0.40	<0.40	<0.40	<0.75	<0.75	<0.75	<0.75	<0.40	<0.40	<0.40	<0.40	<0.40				
Styrene	µg/L	720	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50				
MTBE	µg/L	-	-	<4.0	<0.50	<4.0	<4.0	<4.0	<4.0	<0.50	<0.50	<4.0	<4.0	<4.0	<4.0	<0.50	<0.50	<0.50	<0.50	<4.0	<4.0	<4.0	<4.0	<4.0				
Hydrocarbons																												
EPH <sub>19-19</sub>	µg/L	5000	5000	<200	<250	<200	<200	<200	<200	<250	<250	<200	<200	<200	<200	<250	<250	<250	<250	<200	<200	<200	<200	<200				
EPH <sub>19-32</sub>	µg/L	-	-	<200	<250	<200	<200	<200	1100	2830	280	<200	<200	<200	<200	<250	<250	<250	<250	<200	<200	<200	<200	<200				
LEPH	µg/L	500	-	<200	<250	<200	<200	<200	<200	<250	<250	<200	<200	<200	<200	<250	<250	<250	<250	<200	<200	<200	<200	<200				
HEPH	µg/L	-	-	<200	<250	<200	<200	<200	1100	2830	280	<200	<200	<200	<200	<250	<250	<250	<250	<200	<200	<200	<200	<200				
VH <sub>10-10</sub>	µg/L	15,000	15,000	<300	<100	<300	<300	<300	<300	<100	<300	<300	<300	<300	<300	<100	<100	<100	<100	<300	<300	<300	<300	<300				
VPH <sub>10-10</sub>	µg/L	1500	-	<300	<100	<300	<300	<300	<300	<100	<300	<300	<300	<300	<300	<100	<100	<100	<100	<300	<300	<300	<300	<300				
Polycyclic Aromatic Hydrocarbons (PAHs)																												
2-methylnaphthalene	µg/L	-	-	<0.10	-	<0.10	<0.10	<0.10	<0.10	-	-	<0.10	<0.10	0.14	<0.10	-	-	-	-	<0.10	<0.10	<0.10	<0.10	<0.10				
Acenaphthene	µg/L	60	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050				
Acenaphthylene	µg/L	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050				
Acridine	µg/L	0.5	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050				
Anthracene	µg/L	1	-	<0.010	<0.050	<0.010	<0.010	<0.010	<0.010	<0.050	<0.050	<0.010	<0.010	<0.010	<0.010	<0.050	<0.050	<0.050	<0.050	<0.010	<0.010	<0.010	<0.010	<0.010				
Benz(a)anthracene	µg/L	1	-	<0.010	<0.050	<0.010	<0.010	<0.010	<0.010	<0.050	<0.050	<0.010	<0.010	<0.010	<0.010	<0.050	<0.050	<0.050	<0.050	<0.010	<0.010	<0.010	<0.010	<0.010				
Benzo(a)pyrene	µg/L	0.1	0.01	<0.0090	<0.010	<0.0090	<0.0090	<0.0090	<0.0090	<0.010	<0.010	<0.0090	<0.0090	<0.0090	<0.0090	<0.010	<0.010	<0.010	<0.010	<0.0090	<0.0090	<0.0090	<0.0090	<0.0090				
Benzo(k)fluoranthene	µg/L	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050				
Benzo(b+j)fluoranthene	µg/L	-	-	<0.050	-	<0.050	<0.050	<0.050	<0.050	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	-	-	-	<0.050	<0.050	<0.050	<0.050	<0.050				
Benzo(g,h,i)perylene	µg/L	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050				
Chrysene	µg/L	-	-	0.064	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050				
Dibenz(a,h)anthracene	µg/L	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050				
Fluoranthene	µg/L	2	-	<0.020	<0.050	<0.020	<0.020	<0.020	<0.020	<0.050	<0.050	<0.020	<0.020	<0.020	<0.020	<0.050	<0.050	<0.050	<0.050	<0.020	<0.020	<0.020	<0.020	<0.020				
Fluorene	µg/L	120	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050				
Indeno(1,2,3-c,d)pyrene	µg/L	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050				
Naphthalene	µg/L	10	-	<0.10	<0.050	<0.10	<0.10	<0.10	<0.10	0.058	<0.050	<0.10	<0.10	<0.10	<0.10	<0.050	<0.050	<0.050	<0.050	<0.10	<0.10	<0.10	<0.10	<0.10				
Phenanthrene	µg/L	3	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050				
Pyrene	µg/L	0.2	-	<0.020	<0.050	<0.020	<0.020	<0.020	<0.020	<0.050	<0.050	<0.020	<0.020	<0.020	0.031	<0.020	<0.050	<0.050	<0.050	<0.020	<0.020	<0.020	<0.020	<0.020				
Quinoline	µg/L	34	-	<0.24	<0.050	<0.24	<0.24	<0.24	<0.24	<0.050	<0.050	<0.24	<0.24	<0.24	<0.24	<0.050	<0.050	<0.050	<0.050	<0.24	<0.24	<0.24	<0.24	<0.24				
PAHs (Sum of total)	µg/L	-	-	<0.24	-	<0.24	<0.24	<0.24	<0.24	-	-	<0.24	<0.24	0.28	<0.24	-	-	-	-	<0.24	<0.24	<0.24	<0.24	<0.24				
Low Molecular Weight PAHs	µg/L	-	-	<0.24	-	<0.24	<0.24	<0.24	<0.24	-	-	<0.24	<0.24	0.2	<0.24	-	-	-	-	<0.24	<0.24	<0.24	<0.24	<0.24				
High Molecular Weight PAHs	µg/L	-	-	0.064	-	<0.050	<0.050	<0.050	<0.050	-	-	<0.050	<0.050	<0.050	<0.050	-	-	-	-	<0.050	<0.050	<0.050	<0.050	<0.050				
Laboratory Work Order Number				B559386	L1782668	B675969																						

Table 2: Groundwater Analytical Results																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
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Notes:  
<sup>1</sup> Environment Act, Contaminated Sites Regulation (CSR) (2002), Schedule 3, Generic Numerical Water Standards for Freshwater Aquatic Life (AW) and Drinking Water (DW)  
<sup>2</sup> Standard varies with hardness. Values shown based on hardness range of 207 mg/L to 1180 mg/L  
<sup>3</sup> Standard varies with pH. Values shown based on pH range of 7.38 to 8.44  
<sup>4</sup> Standard varies with chloride. Values shown based on chloride range of <0.50 mg/L to 190 mg/L  
<sup>5</sup> Standard is for Chromium VI  
\*- No applicable standard or not analyzed  
BOLD - Greater than CSR Standard

Table 2: Groundwater Analytical Results																			
Parameter	Unit	Yukon CSR <sup>1</sup>		MW15-01				MW15-02				TE-MW-12-01		TE-MW-12-02					
				MW15-01	MW15-01	MW15-01	MW15-01	MW15-02	MW15-02	MW15-02	MW15-02	TE-MW-12-01	TE-MW-12-01	TE-MW-12-02	TE-MW-12-02	TE-MW12-02	DUP1	TE-MW12-02	TE-MW12-02
		AW	DW	13-Jun-2016	1-Sep-2016	19-Jul-2017	24-Oct-2017	13-Jun-2016	1-Sep-2016	19-Jul-2017	24-Oct-2017	19-Jun-2015	19-Jun-2015	18-Nov-2015	13-Jun-2016	1-Sep-2016		19-Jul-2017	24-Oct-2017
Physical Parameters																			
pH	pH Units	-	-	7.38	7.95	7.67	7.85	8.16	8.39	8.42	8.32	8.05	7.84	7.69	7.38	7.93	8.04	7.57	7.75
Electrical Conductivity (EC)	µS/cm	-	-	802	852	847	977	498	478	604	573	2220	954	1010	994	1080	1070	884	1140
Total Dissolved Solids (TDS)	µg/L	-	-	484,000	498,000	586000	564000	308,000	270,000	324000	334000	1,900,000	578,000	615,000	585,000	670,000	654,000	530000	652000
Hardness as CaCO <sub>3</sub>	µg/L	-	-	424,000	399,000	407000	438000	235,000	207,000	221000	235000	1,180,000	452,000	460,000	497,000	549,000	540,000	427000	504000
Alkalinity (total as CaCO <sub>3</sub> )	µg/L	-	-	378,000	395,000	374000	430000	219,000	200,000	254000	230000	273,000	374,000	432,000	435,000	428,000	421,000	370000	462000
Alkalinity (pp as CaCO <sub>3</sub> )	µg/L	-	-	-	<500	<500	<1000	-	2660	4140	1800	<500	<500	-	-	<500	<500	<1000	
Bicarbonate	µg/L	-	-	378,000	482,000	456000	525000	219,000	237,000	299000	277000	333,000	457,000	432,000	435,000	522,000	513,000	451000	564000
Carbonate	µg/L	-	-	<1000	<500	<500	<1000	<1000	3190	4970	2200	<500	<500	<1000	<1000	<500	<500	<1000	
Hydroxide	µg/L	-	-	<1000	<500	<500	<1000	<1000	<500	<500	<1000	<500	<500	<1000	<1000	<500	<500	<1000	
Chloride (Cl)	µg/L	-	250,000	10,500	35,000	19000	38000	1200	1300	3600	2400	190,000	52,000	44,000	43,300	47,000	46,000	39000	57000
Fluoride (F)	µg/L	3000 <sup>2</sup>	1500	106	-	-	-	368	-	-	-	100	80	65	69	-	-	-	-
Sulphate (SO <sub>4</sub> )	µg/L	1,000,000	500,000	37,700	31,000	48300	43000	69,800	66,000	77200	84900	639,000	58,500	62,300	54,300	94,000	95,000	50200	66700
Nutrients																			
Ammonia	µg/L	3700-18,500 <sup>3</sup>	-	22.7	65	43	50	193	190	410	170	27.0	41.0	±5.0	±5.0	10	19	27	51
Total Kjeldahl Nitrogen (TKN)	µg/L	-	-	630	410	260	296	1420	405	1040	474	-	-	274	277	<100	120	218	440
Nitrate (as N)	µg/L	400,000	10,000	3150	1050	3130	1490	25.6	<20	118	43	5930	1530	1620	1740	3340	3320	1090	3150
Nitrite (as N)	µg/L	200-2000 <sup>4</sup>	3200	<1.0	<5.0	<5.0	7.5	2.6	5.2	15.3	8.8	134	27.7	237	3.0	<5.0	<5.0	<5.0	<5.0
Nitrate and Nitrite (as N)	µg/L	400,000	10,000	-	1050	313	1500	-	<20	133	52	6070	1550	-	-	3340	3320	1090	3150
Orthophosphate (as P)	µg/L	-	-	3.4	-	-	-	19.7	-	-	-	-	-	1.1	2.5	-	-	-	-
Dissolved Metals																			
Aluminum	µg/L	-	200	<10	3.5	3.5	14.0	<10	58.8	296	4.4	7.6	4.8	<10	<10	<3.0	<3.0	3.9	3.3
Antimony	µg/L	200	6	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.77	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Arsenic	µg/L	50	25	<1.0	1.14	1.47	2.2	2.8	3.02	2.57	2.84	0.62	0.11	<1.0	<1.0	0.14	0.12	<0.10	0.12
Barium	µg/L	10,000	1000	123	149	132	165	36	39.4	54.5	45.1	66.6	117	121	129	138	135	112	135
Beryllium	µg/L	53	-	<5.0	<0.10	<0.10	<0.10	<5.0	<0.10	<0.10	<0.10	<0.10	<0.10	<5.0	<5.0	<0.10	<0.10	<0.10	<0.10
Bismuth	µg/L	-	-	-	<1.0	<1.0	<1.0	-	<1.0	<1.0	<1.0	<1.0	<1.0	-	-	<1.0	<1.0	<1.0	<1.0
Boron	µg/L	50,000	5000	<100	254	101	217	<100	<50	<0.050	<0.050	622	134	170	160	189	184	0.149	0.158
Cadmium	µg/L	0.6 <sup>2</sup>	5	0.067	0.112	0.047	0.17	<0.050	0.023	0.038	0.018	0.117	0.023	<0.050	<0.050	0.036	0.034	0.042	0.042
Calcium	µg/L	-	-	132,000	122,000	124,000	130,000	41,800	34,000	36.5	36.3	355,000	137,000	141,000	152,000	170,000	166,000	129	155
Chromium	µg/L	10 <sup>5</sup>	50	<0.50	<1.0	<1.0	<1.0	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0
Cobalt	µg/L	9	-	<0.50	0.97	<0.50	<0.50	<0.50	<0.50	0.66	<0.50	1.73	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Copper	µg/L	90 <sup>2</sup>	1000	4.0	6.37	4.21	8.11	<1.0	0.41	8.04	0.83	22	3.74	3.6	4.8	3.61	3.69	3.52	3.53
Iron	µg/L	-	300	<30	5.8	<0.50	20.3	<30	90.9	0.394	<0.50	132	10.1	<30	<30	<5.0	<5.0	<0.50	<0.50
Lead	µg/L	110-160 <sup>2</sup>	10	<1.0	<0.20	<0.20	<0.20	<1.0	<0.20	0.35	<0.20	0.57	<0.20	<1.0	<1.0	<0.20	<0.20	<0.20	<0.20
Lithium	µg/L	-	-	<50	10.4	10.9	14.0	<50	<5.0	3.2	2.5	15.8	9.7	<50	<50	11.3	11.4	10.7	11.3
Magnesium	µg/L	-	100,000	23,000	22,900	23,400	27,200	31,700	29,800	31,600	35,000	72,200	26,600	26,500	28,800	30,600	30,300	25,500	28,500
Manganese	µg/L	-	50	12	184	19	13.7	129	107	0.128	89.3	567	10.5	<10	<10	4.0	4.0	6.5	1.1
Mercury	µg/L	1	1	<0.20	<0.010	<0.20	<0.20	<0.20	<0.010	<0.20	<0.20	<0.010	<0.010	<0.20	<0.20	<0.010	<0.010	<0.20	<0.20
Molybdenum	µg/L	10,000	250	2.1	3.8	2.9	6.9	13.9	10.7	25.3	20.8	14.2	2.2	2.2	2.0	2.8	2.5	2.1	2.1
Nickel	µg/L	1500 <sup>2</sup>	-	<5.0	4.6	2.5	5.9	<5.0	3.1	0.0042	2.5	11.2	2.5	<5.0	<5.0	2.1	2.2	2.2	2.1
Phosphorus	µg/L	-	-	-	3430	2030	4670	-	1040	7980	1740	-	-	-	-	59.1	55.5	169	52.5
Potassium	µg/L	-	-	18,900	26,000	23,300	28,500	4800	3390	4,540	4,500	22,100	15,400	17,900	18,100	19,000	19,000	1,600	17,400
Selenium	µg/L	10	10	2.5	0.22	1.79	0.95	1.0	0.29	0.37	0.24	19.8	0.40	<1.0	<1.0	0.27	0.27	0.24	0.15
Silicon	µg/L	-	-	-	8250	6600	6900	-	4380	5300	4110	6330	6820	-	-	8140	7450	6740	7100
Silver	µg/L	15 <sup>2</sup>	-	<0.050	<0.020	<0.020	<0.020	<0.050	<0.020	<0.020	<0.020	<0.020	<0.020	<0.050	<0.050	<0.020	<0.020	<0.020	<0.020
Sodium	µg/L	-	200,000	17,000	32,000	23,100	37,300	23,900	15,400	43.8	34.9	18,200	37,400	36,800	37,000	36,100	36,700	33.2	35.3
Strontium	µg/L	-	-	-	437	457	459	-	709	848	818	2610	483	-	-	657	629	472	549
Sulphur	µg/L	-	-	-	9700	15,200	14,900	-	20,200	24,100	26,800	234,000	19,500	-	-	31,300	30,900	117,300	19,500
Thallium	µg/L	3	-	<0.20	<0.050	<0.050	<0.050	<0.20	<0.050	<0.050	<0.050	<0.050	<0.050	<0.20	<0.20	<0.050	<0.050	<0.050	<0.050
Tin	µg/L	-	-	-	<5.0	<5.0	<5.0	-	<5.0	<5.0	<5.0	<5.0	<5.0	-	-	<5.0	<5.0	<5.0	<5.0
Titanium	µg/L	1000	-	<50	<5.0	<5.0	<5.0	<50	7.1	14.4	<5.0	<							

Table 2: Groundwater Analytical Results																		
Parameter	Unit	Yukon CSR <sup>1</sup>		MW15-01				MW15-02				TE-MW-12-01	TE-MW-12-02					
		AW	DW	MW15-01 13-Jun-2016	MW15-01 1-Sep-2016	MW15-01 19-Jul-2017	MW15-01 24-Oct-2017	MW15-02 13-Jun-2016	MW15-02 1-Sep-2016	MW15-02 19-Jul-2017	MW15-02 24-Oct-2017	TE-MW-12-01 19-Jun-2015	TE-MW-12-02 19-Jun-2015	TE-MW-12-02 18-Nov-2015	TE-MW12-02 13-Jun-2016	TE-MW12-02 1-Sep-2016	DUP1 19-Jul-2017	TE-MW12-02 24-Oct-2017
Demand Parameters																		
Chemical Oxygen Demand (COD)	µg/L	-	-	43,000	120,000	79,000	129,000	70,000	66,000	540,000	94,000	-	-	23,000	<20,000	22,000	18,000	35,000
Carbon																		
Dissolved Organic Carbon (DOC)	µg/L	-	-	4290	5350	4200	4080	6160	5530	4900	5440	12,500	5260	6700	4390	5650	5380	4500
BTEXS & MTBE																		
Benzene	µg/L	4000	5	<0.50	<0.40	<0.40	<0.40	<0.50	<0.40	<0.40	<0.40	<0.40	<0.40	<0.50	<0.50	<0.40	<0.40	<0.40
Toluene	µg/L	390	24	<0.50	<0.40	<0.40	<0.40	<0.50	<0.40	<0.40	<0.40	<0.40	<0.40	<0.50	<0.50	<0.40	<0.40	<0.40
Ethylbenzene	µg/L	2000	2.4	<0.50	<0.40	<0.40	<0.40	<0.50	<0.40	<0.40	<0.40	<0.40	<0.40	1.58	<0.50	<0.40	<0.40	<0.40
Xylenes (m & p)	µg/L	-	-	<0.50	<0.40	<0.40	<0.40	<0.50	<0.40	<0.40	<0.40	<0.40	<0.40	<0.50	<0.50	<0.40	<0.40	<0.40
Xylene (o)	µg/L	-	-	<0.50	<0.40	<0.40	<0.40	<0.50	<0.40	<0.40	<0.40	<0.40	<0.40	6.87	<0.50	<0.40	<0.40	<0.40
Xylenes Total	µg/L	-	300	<0.75	<0.40	<0.40	<0.40	<0.75	<0.40	<0.40	<0.40	<0.40	<0.40	6.87	<0.75	<0.40	<0.40	<0.40
Styrene	µg/L	720	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
MTBE	µg/L	-	-	<0.50	<4.0	<4.0	<4.0	<0.50	<4.0	<4.0	<4.0	<4.0	<4.0	<0.50	<0.50	<4.0	<4.0	<4.0
Hydrocarbons																		
EPH <sub>10-19</sub>	µg/L	5000	5000	<250	<200	<200	<200	<250	<200	<200	<200	<200	<200	<250	<250	<200	<200	<200
EPH <sub>18-32</sub>	µg/L	-	-	<250	<200	<200	<200	<250	<200	<200	<200	<200	<200	<250	<250	<200	<200	<200
LEPH	µg/L	500	-	<250	<200	<200	<200	<250	<200	<200	<200	<200	<200	<250	<250	<200	<200	<200
HEPH	µg/L	-	-	<250	<200	<200	<200	<250	<200	<200	<200	<200	<200	<250	<250	<200	<200	<200
VH <sub>10</sub>	µg/L	15,000	15,000	<100	<300	<300	<300	<100	<300	<300	<300	<300	<300	<100	<100	<300	<300	<300
VPH <sub>10</sub>	µg/L	1500	-	<100	<300	<300	<300	<100	<300	<300	<300	<300	<300	<100	<100	<300	<300	<300
Polycyclic Aromatic Hydrocarbons (PAHs)																		
2-methylnaphthalene	µg/L	-	-	-	<0.10	<0.10	<0.10	-	<0.10	<0.10	<0.10	<0.10	<0.10	-	-	<0.10	<0.10	<0.10
Acenaphthene	µg/L	60	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Acenaphthylene	µg/L	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Acridine	µg/L	0.5	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Anthracene	µg/L	1	-	<0.050	<0.010	<0.010	<0.010	<0.050	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.050	<0.010	<0.010	<0.010
Benz(a)anthracene	µg/L	1	-	<0.050	<0.010	<0.010	<0.010	<0.050	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.050	<0.010	<0.010	<0.010
Benzo(a)pyrene	µg/L	0.1	0.01	<0.010	<0.0090	<0.0090	<0.0090	<0.010	<0.0090	<0.0090	<0.0090	<0.0090	<0.0090	<0.010	<0.010	<0.0090	<0.0090	<0.0090
Benzo(k)fluoranthene	µg/L	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo(b+j)fluoranthene	µg/L	-	-	-	<0.050	<0.050	<0.050	-	<0.050	<0.050	<0.050	<0.050	<0.050	-	<0.050	<0.050	<0.050	<0.050
Benzo(g,h,i)perylene	µg/L	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chrysene	µg/L	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dibenz(a,h)anthracene	µg/L	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Fluoranthene	µg/L	2	-	<0.050	<0.020	<0.020	<0.020	<0.050	<0.020	<0.020	<0.020	<0.020	<0.020	<0.050	<0.050	<0.020	<0.020	<0.020
Fluorene	µg/L	120	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Indeno(1,2,3-c,d)pyrene	µg/L	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Naphthalene	µg/L	10	-	<0.050	<0.10	<0.10	<0.10	<0.050	<0.10	<0.10	<0.10	<0.10	<0.10	0.381	<0.050	<0.10	<0.10	<0.10
Phenanthrene	µg/L	3	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Pyrene	µg/L	0.2	-	<0.050	<0.020	<0.020	<0.020	<0.050	<0.020	<0.020	<0.020	<0.020	<0.020	<0.050	<0.050	<0.020	<0.020	<0.020
Quinoline	µg/L	34	-	<0.050	<0.24	<0.24	<0.24	<0.050	<0.24	<0.24	<0.24	<0.24	<0.24	<0.050	<0.050	<0.24	<0.24	<0.24
PAHs (Sum of total)	µg/L	-	-	-	<0.24	<0.24	<0.24	-	<0.24	<0.24	<0.24	<0.24	<0.24	-	-	<0.24	<0.24	<0.24
Low Molecular Weight PAHs	µg/L	-	-	-	<0.24	<0.24	<0.24	-	<0.24	<0.24	<0.24	<0.24	<0.24	-	-	<0.24	<0.24	<0.24
High Molecular Weight PAHs	µg/L	-	-	-	<0.050	<0.050	<0.050	-	<0.050	<0.050	<0.050	<0.050	<0.050	-	-	<0.050	<0.050	<0.050
Laboratory Work Order Number				L1782668	B675969	B760682	B794924	L1782668	B675969	B760682	B794924	B552909	B552909	L1704736	L1782668	B675969	B675969	B760682
Laboratory Identification Number				L1782668-5	PK9623	RO4087	SI0886	L1782668-6	PK9627	RO4088	SI0887	MM9349	MM9350	L1704736-3	L1782668-4	PK9628	PK9629	RO4089
Notes:																		
<sup>1</sup> Environment Act. Contaminated Sites Regulation (CSR) (2002), Schedule 3, Generic Numerical Water Standards for Freshwater Aquatic Life (AW) and Drinking Water (DW)																		
<sup>2</sup> Standard varies with hardness. Values shown based on hardness range of 207 mg/L to 1180 mg/L																		
<sup>3</sup> Standard varies with pH. Values shown based on pH range of 7.38 to 8.44																		
<sup>4</sup> Standard varies with chloride. Values shown based on chloride range of <0.50 mg/L to 190 mg/L																		
<sup>5</sup> Standard is for Chromium VI																		
** No applicable standard or not analyzed																		
<b>BOLD</b> - Greater than CSR Standard																		

Table 2: Groundwater Analytical Results																			
Parameter	Unit	Yukon CSR <sup>1</sup>		MW15-01				MW15-02				TE-MW-12-01	TE-MW-12-02						
				MW15-01	MW15-01	MW15-01	MW15-01	MW15-02	MW15-02	MW15-02	MW15-02	TE-MW-12-01	TE-MW-12-02	TE-MW-12-02	TE-MW12-02	TE-MW12-02	DUP1	TE-MW12-02	TE-MW12-02
		AW	DW	13-Jun-2016	1-Sep-2016	19-Jul-2017	24-Oct-2017	13-Jun-2016	1-Sep-2016	19-Jul-2017	24-Oct-2017	19-Jun-2015	19-Jun-2015	18-Nov-2015	13-Jun-2016	1-Sep-2016	19-Jul-2017	24-Oct-2017	
Volatile Organic Compounds (VOCs)																			
Bromodichloromethane	µg/L	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Bromoform	µg/L	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Bromomethane	µg/L	-	-	-	<1.0	<1.0	<1.0	-	<1.0	<1.0	<1.0	<1.0	<1.0	-	<1.0	<1.0	<1.0	<1.0	
Carbon tetrachloride	µg/L	130	5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
Chlorobenzene	µg/L	13	30	<1.0	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<1.0	<1.0	<0.50	<0.50	<0.50	
Chloroethane	µg/L	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Chloroform	µg/L	20	100	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Chloromethane	µg/L	-	-	<5.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<5.0	<1.0	<1.0	<1.0	
Dibromochloromethane	µg/L	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
1,2-Dibromoethane	µg/L	-	-	-	<0.20	<0.20	<0.20	-	<0.20	<0.20	<0.20	<0.20	<0.20	-	-	<0.20	<0.20	<0.20	
1,2-Dichlorobenzene	µg/L	-	3	<0.70	<0.50	<0.50	<0.50	<0.70	<0.50	<0.50	<0.50	<0.50	<0.50	<0.70	<0.70	<0.50	<0.50	<0.50	
1,3-Dichlorobenzene	µg/L	1500	-	<1.0	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<1.0	<1.0	<0.50	<0.50	<0.50	
1,4-Dichlorobenzene	µg/L	260	1	<1.0	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<1.0	<1.0	<0.50	<0.50	<0.50	
1,1-Dichloroethane	µg/L	-	-	<1.0	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<1.0	<1.0	<0.50	<0.50	<0.50	
1,2-Dichloroethane	µg/L	1000	5	<1.0	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<1.0	<1.0	<0.50	<0.50	<0.50	
1,1-Dichloroethene	µg/L	-	14	<1.0	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<1.0	<1.0	<0.50	<0.50	<0.50	
1,2-Dichloroethene (cis)	µg/L	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
1,2-Dichloroethene (trans)	µg/L	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Dichlorodifluoromethane	µg/L	-	-	-	<2.0	<2.0	<2.0	-	<2.0	<2.0	<2.0	<2.0	<2.0	-	-	<2.0	<2.0	<2.0	
1,2-Dichloropropane	µg/L	-	-	<1.0	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<1.0	<1.0	<0.50	<0.50	<0.50	
1,3-Dichloropropene	µg/L	-	-	<1.4	-	-	-	<1.4	-	-	-	-	-	<1.4	<1.4	-	-	-	
1,3-Dichloropropene [cis]	µg/L	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
1,3-Dichloropropene [trans]	µg/L	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Freon 113	µg/L	-	-	-	<2.0	<2.0	-	<2.0	<2.0	<2.0	-	<2.0	<2.0	-	-	<2.0	<2.0	<2.0	
Hexachlorobutadiene	µg/L	1	-	-	<0.50	<0.50	-	-	<0.50	<0.50	-	<0.50	<0.50	-	-	<0.50	<0.50	-	
Methylene Chloride	µg/L	980	50	<5.0	<2.0	<2.0	-	<5.0	<2.0	<2.0	-	<2.0	<2.0	<5.0	<5.0	<2.0	<2.0	-	
1,1,1,2-Tetrachloroethane	µg/L	-	-	<1.0	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<1.0	<1.0	<0.50	<0.50	<0.50	
1,1,2,2-Tetrachloroethane	µg/L	-	-	<1.0	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<1.0	<1.0	<0.50	<0.50	<0.50	
Tetrachloroethene	µg/L	1100	30	<1.0	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<1.0	<1.0	<0.50	<0.50	<0.50	
1,2,3-Trichlorobenzene	µg/L	80	-	-	<2.0	<2.0	<2.0	-	<2.0	<2.0	<2.0	<2.0	<2.0	-	-	<2.0	<2.0	<2.0	
1,2,4-Trichlorobenzene	µg/L	240	-	-	<2.0	<2.0	<2.0	-	<2.0	<2.0	<2.0	<2.0	<2.0	-	-	<2.0	<2.0	<2.0	
1,1,1-Trichloroethane	µg/L	-	-	<1.0	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<1.0	<1.0	<0.50	<0.50	<0.50	
1,1,2-Trichloroethane	µg/L	-	-	<1.0	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<1.0	<1.0	<0.50	<0.50	<0.50	
Trichloroethene	µg/L	200	50	<1.0	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<1.0	<1.0	<0.50	<0.50	<0.50	
Trichlorofluoromethane	µg/L	-	-	<1.0	<4.0	<4.0	<4.0	<1.0	<4.0	<4.0	<4.0	<4.0	<4.0	<1.0	<1.0	<4.0	<4.0	<4.0	
Vinyl chloride	µg/L	-	2	<1.0	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<1.0	<1.0	<0.50	<0.50	<0.50	
Laboratory Work Order Number				L1782668	B675969	B760682	B794924	L1782668	B675969	B760682	B794924	B552909	B552909	L1704736	L1782668	B675969	B675969	B760682	
Laboratory Identification Number				L1782668-5	PK9623	RO4087	SI0886	L1782668-6	PK9627	RO4088	SI0887	MM9349	MM9350	L1704736-3	L1782668-4	PK9628	PK9629	RO4089	

Notes:

<sup>1</sup> Environment Act. Contaminated Sites Regulation (CSR) (2002). Schedule 3, Generic Numerical Water Standards for Freshwater Aquatic Life (AW) and Drinking Water (DW)

<sup>2</sup> Standard varies with hardness. Values shown based on hardness range of 207 mg/L to 1180 mg/L

<sup>3</sup> Standard varies with pH. Values shown based on pH range of 7.38 to 8.44

<sup>4</sup> Standard varies with chloride. Values shown based on chloride range of <0.50 mg/L to 190 mg/L

<sup>5</sup> Standard is for Chromium VI

\*- No applicable standard or not analyzed

**BOLD** - Greater than CSR Standard

Table 3: QA/QC Results									
Parameter	Unit	RDL	BLANKS		DUPLICATES				
			TRIP BLANK	MW03	DUPLICATE	RPD (%)	MW03	DUPLICATE	RPD (%)
			1-Sep-2016	19-Jul-2017			24-Oct-2017		
pH	pH Units	0.1		8.46	8.42	0.5	8.4	8.41	0.1
Electrical Conductivity (EC)	µS/cm	1		571	564	1.2	594	594	0.0
Total Dissolved Solids (TDS)	µg/L	10000		318	288	9.9	310	304	2.0
Hardness as CaCO <sub>3</sub>	µg/L	500		275	277	0.7	296	299	1.0
Alkalinity (total as CaCO <sub>3</sub> )	µg/L	500		280	281	0.4	294	294	0.0
Alkalinity (pp as CaCO <sub>3</sub> )	µg/L	500		6.39	5.35	17.7	4.9	5.1	4.0
Bicarbonate	µg/L	500		327	329	0.6	347	346	0.3
Carbonate	µg/L	500		7.67	6.42	17.7	5.9	6.1	3.3
Hydroxide	µg/L	500		<0.50	<0.50	-	<1.0	<1.0	-
Chloride (Cl)	µg/L	500		0.66	0.66	0.0	<1.0	1.1	-
Fluoride (F)	µg/L	10		-	-	-	-	-	-
Sulphate (SO <sub>4</sub> )	µg/L	300		48700	45300	7.2	40.8	41.3	1.2
Nutrients									
Ammonia	µg/L	5		220	210	4.7	0.19	0.19	0.0
Total Kjeldahl Nitrogen (TKN)	µg/L	50		369	340	8.2	0.278	0.264	5.2
Nitrate (as N)	µg/L	5		<20	<20	-	0.022	0.038	53.3
Nitrite (as N)	µg/L	1		<5.0	<5.0	-	<0.0050	<0.0050	-
Nitrate and Nitrite (as N)	µg/L	20		<20	<20	-	0.022	0.038	53.3
Orthophosphate (as P)	µg/L	1		-	-	-	-	-	-
Dissolved Metals									
Aluminum	µg/L	3		16.2	14.8	9.0	3.9	<3.0	-
Antimony	µg/L	0.5		<0.50	<0.50	-	<0.50	<0.50	-
Arsenic	µg/L	0.1		5.24	5.41	3.2	4.68	4.7	0.4
Barium	µg/L	1		89.4	91.9	2.8	95.7	93.4	2.4
Beryllium	µg/L	0.1		<0.10	<0.10	-	<0.10	<0.10	-
Bismuth	µg/L	1		<1.0	<1.0	-	<1.0	<1.0	-
Boron	µg/L	50		<50	<50	-	<50	<50	-
Cadmium	µg/L	0.01		0.011	<0.010	-	<0.010	<0.010	-
Calcium	µg/L	50		36.5	36.1	1.1	37.9	37.5	1.1
Chromium	µg/L	0.5		<1.0	<1.0	-	<1.0	<1.0	-
Cobalt	µg/L	0.5		<0.50	<0.50	-	<0.50	<0.50	-
Copper	µg/L	0.2		<0.2	<0.2	-	<0.2	<0.2	-
Iron	µg/L	5		0.123	0.118	4.1	0.16	0.157	1.9
Lead	µg/L	0.2		<0.20	<0.20	-	<0.20	<0.20	-
Lithium	µg/L	5		<5.0	<5.0	-	<5.0	<5.0	-
Magnesium	µg/L	50		44,500	45,300	1.8	48,800	49,900	2.2
Manganese	µg/L	1		37.9	37.8	0.3	38.1	38.4	0.8
Mercury	µg/L	0.01		<0.20	<0.20	-	<0.20	<0.20	-
Molybdenum	µg/L	1		0.0187	0.0192	2.6	0.0123	0.0123	0.0
Nickel	µg/L	1		<0.0010	<0.0010	-	<0.0010	<0.0010	-
Phosphorus	µg/L			136	117	15.0	34.2	33.7	1.5
Potassium	µg/L	50		2430	2470	1.6	2,500	2,500	0.0
Selenium	µg/L	0.1		<0.10	<0.10	-	<0.10	<0.10	-
Silicon	µg/L	100		5840	5910	1.2	5850	6050	3.4
Silver	µg/L	0.02		<0.020	<0.020	-	<0.020	<0.020	-
Sodium	µg/L	50		15,800	15,300	3.2	12,400	12,200	1.6
Strontium	µg/L	1		483	515	6.4	517	514	0.6
Sulphur	µg/L	3000		14,800	15,000	1.3	14,400	13,900	3.5
Thallium	µg/L	0.05		<0.050	<0.050	-	<0.050	<0.050	-
Tin	µg/L	5		<5.0	<5.0	-	<5.0	<5.0	-
Titanium	µg/L	5		<5.0	<5.0	-	<5.0	<5.0	-
Uranium	µg/L	0.1		4.13	4.25	2.9	4.95	4.96	0.2
Vanadium	µg/L	5		<5.0	<5.0	-	<5.0	<5.0	-
Zinc	µg/L	5		<5.0	<5.0	-	<5.0	<5.0	-
Zirconium	µg/L	0.5		<0.50	<0.50	-	<0.50	<0.50	-
Demand Parameters									
Chemical Oxygen Demand (COD)	µg/L	10000		15000	26000	53.7	24,000	20,000	18.2
Carbon									
Dissolved Organic Carbon (DOC)	µg/L	500		4100	3300	21.6	4,270	4,280	0.2
BTEXS & MTBE									
Benzene	µg/L	0.4		<0.40	<0.40	-	<0.40	<0.40	-
Toluene	µg/L	0.4		<0.40	<0.40	-	<0.40	<0.40	-
Ethylbenzene	µg/L	0.4		<0.40	<0.40	-	<0.40	<0.40	-
Xylenes (m & p)	µg/L	0.4		<0.40	<0.40	-	<0.40	<0.40	-
Xylene (o)	µg/L	0.4		<0.40	<0.40	-	<0.40	<0.40	-
Xylenes Total	µg/L	0.4		<0.40	<0.40	-	<0.40	<0.40	-
Styrene	µg/L	0.5		<0.50	<0.50	-	<0.50	<0.50	-
MTBE	µg/L	0.5		<4.0	<4.0	-	<4.0	<4.0	-
Hydrocarbons									
EPH <sub>10-19</sub>	µg/L	200		<200	<200	-	<200	<200	-
EPH <sub>19-32</sub>	µg/L	200		<200	<200	-	<200	<200	-
LEPH	µg/L	200		<200	<200	-	<200	<200	-
HEPH	µg/L	200		<200	<200	-	<200	<200	-
VH <sub>6-10</sub>	µg/L	100		<300	<300	-	<300	<300	-
VPH <sub>6-10</sub>	µg/L	100		<300	<300	-	<300	<300	-
Polycyclic Aromatic Hydrocarbons (PAHs)									
2-methylnaphthalene	µg/L	0.1		<0.10	<0.10	-	<0.10	<0.10	-
Acenaphthene	µg/L	0.05		<0.050	<0.050	-	<0.050	<0.050	-
Acenaphthylene	µg/L	0.05		<0.050	<0.050	-	<0.050	<0.050	-
Acridine	µg/L	0.05		<0.050	<0.050	-	<0.050	<0.050	-
Anthracene	µg/L	0.01		<0.010	<0.010	-	<0.010	<0.010	-
Benzo(a)anthracene	µg/L	0.01		<0.010	<0.010	-	<0.010	<0.010	-
Benzo(a)pyrene	µg/L	0.009		<0.0090	<0.0090	-	<0.0090	<0.0090	-
Benzo(k)fluoranthene	µg/L	0.05		<0.050	<0.050	-	<0.050	<0.050	-
Benzo(b+j)fluoranthene	µg/L	0.05		<0.050	<0.050	-	<0.050	<0.050	-
Benzo(g,h,i)perylene	µg/L	0.05		<0.050	<0.050	-	<0.050	<0.050	-
Chrysene	µg/L	0.05		<0.050	<0.050	-	<0.050	<0.050	-
Dibenz(a,h)anthracene	µg/L	0.05		<0.050	<0.050	-	<0.050	<0.050	-
Fluoranthene	µg/L	0.02		<0.020	<0.020	-	<0.020	<0.020	-
Fluorene	µg/L	0.05		<0.050	<0.050	-	<0.050	<0.050	-
Indeno(1,2,3-c,d)pyrene	µg/L	0.05		<0.050	<0.050	-	<0.050	<0.050	-
Naphthalene	µg/L	0.05		<0.10	<0.10	-	<0.10	<0.10	-
Phenanthrene	µg/L	0.05		<0.050	<0.050	-	<0.050	<0.050	-
Pyrene	µg/L	0.02		<0.020	<0.020	-	<0.020	<0.020	-
Quinoline	µg/L	0.05		<0.24	<0.24	-	<0.24	<0.24	-
PAHs (Sum of total)	µg/L	0.24		<0.24	<0.24	-	<0.24	<0.24	-
Low Molecular Weight PAHs	µg/L	0.24		<0.24	<0.24	-	<0.24	<0.24	-
High Molecular Weight PAHs	µg/L	0.05		<0.050	<0.050	-	<0.050	<0.050	-
Benzo(b)fluoranthene	µg/L	0.05		<0.050	<0.050	-	<0.050	<0.050	-
Volatile Organic Compounds (VOCs)									
Bromodichloromethane	µg/L	1		<1.0	<1.0	-	<1.0	<1.0	-
Bromoform	µg/L	1		<1.0	<1.0	-	<1.0	<1.0	-
Bromomethane	µg/L	1		<1.0	<1.0	-	<1.0	<1.0	-
Carbon tetrachloride	µg/L	0.5		<0.50	<0.50	-	<0.50	<0.50	-
Chlorobenzene	µg/L	0.5		<0.50	<0.50	-	<0.50	<0.50	-
Chloroethane	µg/L	1		<1.0	<1.0	-	<1.0	<1.0	-
Chloroform	µg/L	1		<1.0	<1.0	-	<1.0	<1.0	-
Chloromethane	µg/L	1		<1.0	<1.0	-	<1.0	<1.0	-
Dibromochloromethane	µg/L	1		<1.0	<1.0	-	<1.0	<1.0	-
1,2-Dibromoethane	µg/L	0.2		<0.20	<0.20	-	<0.20	<0.20	-
1,2-Dichlorobenzene	µg/L	0.5		<0.50	<0.50	-	<0.50	<0.50	-
1,3-Dichlorobenzene	µg/L	0.5		<0.50	<0.50	-	<0.50	<0.50	-
1,4-Dichlorobenzene	µg/L	0.5		<0.50	<0.50	-	<0.50	<0.50	-
1,1-Dichloroethane	µg/L	0.5		<0.50	<0.50	-	<0.50	<0.50	-
1,2-Dichlor									

## APPENDIX A

### GROUNDWATER SAMPLING FIELD SHEETS

Other (comments, notes, observations, recovery if well dried up, headspace measurements):

# Groundwater Purge and Sample Form

WELL ID: NW02  
 SITE: Testin landfill  
 WEATHER: sunny  
 TEMPERATURE: 20°

PROJECT NO.: ENV SWMO30652  
 FIELD PERSONNEL: C. Blair  
 DATE & TIME SAMPLED: JUN 19/20 2017  
 GPS LOCATION: N: 628594 E: 667033 Zone: 8 (Map datum NAD83)

Is well ID visible? ☒ Yes ☐ No Is seal intact? ☒ Yes ☐ No Is lid/j-plug in place/working? ☒ Yes ☐ No  
 Is well locked? ☐ Yes ☒ No General well condition - list any damage, pooled water around well etc.: good  
 Well Casing Inner Diameter (mm) 51mm

Depth to Water Below Top of Casing (A): 8.616 (metres)  
 Depth to Bottom of Well Below Top of Casing (B): 13.365 (metres)  
 Depth to Ground Below Top of Casing (stand-up): 0.48 (metres)  
 Screen Interval (if known) \_\_\_\_\_ (m bTOC)  
 Depth to Product Below Top of Casing: \_\_\_\_\_ (metres)  
 Product Thickness: \_\_\_\_\_ (metres)  
☐ LNAPL ☐ DNAPL Colour/Odour: \_\_\_\_\_  
 Confirmed by: ☐ Bailer ☐ Interface Probe ☐ Paste

**FIELD EQUIPMENT**  
 Field Meters Calibrated: pH, ORP, sp. cond Calibration Reference Sheet ID: \_\_\_\_\_  
 Pump: ☐ none ☒ Waterra ☐ Submersible ☐ Peristaltic ☐ Bladder  
 Bailer: ☒ none ☐ Stainless Steel ☐ Teflon ☐ PVC  
 Filter: ☐ none ☒ In-line ☐ Syringe ☐ Other (i.e. vacuum)  
 Equipment left in well: ☐ none ☐ Bailer ☒ Waterra ☐ Other

**WELL PURGING**  
 Purge Volumes  
 Casing In. Diam. (mm) 38 51 78 100 150  
 Vol (L/m of casing)\* (C) 1.1 2.0 4.5 7.9 17.7 \*double for filter pack  
 One well volume ((B - A) \* C): 10 litres  
 Purge volume to aim for: 30 litres  
 or until parameters stabilize: \_\_\_\_\_  
 Pump inlet depth (m bTOC): \_\_\_\_\_ (m bTOC)

TIME	PURGE RATE (L/min)	VOLUME REMOVED (L)	TEMP (°C)	pH (UNITS)	COND. (uS/cm)	Redox (mV)	DIS.O <sub>2</sub> (mg/L) or %	Water Level (m bTOC)	REMARKS (colour, odour, sheen, brittle film, silt content, etc.)
Stabilisation Criteria			±0.5	±0.1	±3%	±10	0.2mg/L or ±10%	±0.1m if flow flow	Visual observations (colour, turbidity, odour etc should be stable)
1632		5	4.6	7.59	886	84.9	-	9.750	
1635		10	4.3	7.61	891	79.3	-	10.394	
1639		15	4.0	7.62	890	76.2	-	11.325	
1643		20	4.0	7.63	886	12.7	-	12.361	
1650		25	4.3	7.65	877	60.1	-	NTV	
JUL 20 845								9.735	sampled

**SAMPLING** Water Odour: ☐ No ☐ Yes (describe) \_\_\_\_\_ Sheen ☐ No ☐ Yes (describe) \_\_\_\_\_  
 Turbidity: \_\_\_\_\_ NTU or relative scale (circle as appropriate): Clear 1 2 3 4 5 6 7 8 9 10 Very Silty  
 Parameter Size & # of bottles: 40mL 100mL 250mL 500mL 1L Filter and Size (µm) Preservatives  
☐ Plastic ☐ Glass \_\_\_\_\_  
☐ Plastic ☐ Glass \_\_\_\_\_  
☐ Plastic ☐ Glass \_\_\_\_\_  
☐ Plastic ☐ Glass \_\_\_\_\_  
☐ Plastic ☐ Glass \_\_\_\_\_  
 Samples placed on ice for transport ☐ Yes ☐ No

QA/QC Sample/s - ☐ Yes ☒ No QA/QC Type and ID - \_\_\_\_\_  
 Other (comments, notes, observations, recovery if well dried up, headspace measurements): \_\_\_\_\_

# Groundwater Purge and Sample Form

WELL ID: MW03

PROJECT NO.: ENVSW/M03652

SITE: TESLIN LF

FIELD PERSONNEL: C Blair

WEATHER: SUNNY

DATE & TIME SAMPLED: JULY 19 / 2017

TEMPERATURE: 20°C

GPS LOCATION: N: 628489 E: 6670440 Zone: 8 (Map datum NAD83)

Is well ID visible? ☐ Yes ☒ No  
Is well locked? ☐ Yes ☒ No  
Is seal intact? ☒ Yes ☐ No  
Is lid/j-plug in place/working? ☒ Yes ☐ No  
General well condition - list any damage, pooled water around well etc.: good  
Well Casing Inner Diameter (mm): 51

Depth to Water Below Top of Casing (A): 2.170 (metres)  
Depth to Bottom of Well Below Top of Casing (B): 16.29 (metres)  
Depth to Ground Below Top of Casing (stand-up): 0.40 (metres)  
Screen Interval (if known): \_\_\_\_\_ (m bTOC)  
Depth to Product Below Top of Casing: \_\_\_\_\_ (metres)  
Product Thickness: \_\_\_\_\_ (metres)  
☐ LNAPL ☐ DNAPL Colour/Odour: \_\_\_\_\_  
Confirmed by: ☐ Bailer ☐ Interface Probe ☐ Paste

## FIELD EQUIPMENT

Field Meters Calibrated: \_\_\_\_\_ Calibration Reference Sheet ID: \_\_\_\_\_  
Pump: ☐ none ☒ Waterra ☐ Submersible ☐ Peristaltic ☐ Bladder  
Bailer: ☒ none ☐ Stainless Steel ☐ Teflon ☐ PVC  
Filter: ☐ none ☒ In-line ☐ Syringe ☐ Other (i.e. vacuum)  
Equipment left in well: ☐ none ☐ Bailer ☒ Waterra ☐ Other

## WELL PURGING

Purge Volumes  
Casing In. Diam. (mm) 38 51 78 100 150  
Vol (L/m of casing)\* (C) 1.1 2.0 4.5 7.9 17.7 \*double for filter pack  
One well volume ((B - A) \* C): 28 litres  
Purge volume to aim for: 84 litres  
or until parameters stabilize: \_\_\_\_\_  
Pump inlet depth (m bTOC): \_\_\_\_\_ (m bTOC)

TIME	PURGE RATE (L/min)	VOLUME REMOVED (L)	TEMP (°C)	pH (UNITS)	COND. (uS/cm)	Redox (mV)	DIS.O <sub>2</sub> (mg/L) or %	Water Level (m bTOC)	REMARKS (colour, odour, sheen, brittle film, silt content, etc.)
Stabilisation Criteria			+/- 0.5	+/- 0.1	+/- 3%	+/- 10	0.2mg/L or +/- 10%	+/- 0.1m if flow flow	Visual observations (colour, turbidity, odour etc should be stable)
1437		10	4.7	7.88	490.4	61.4	—	4.545	
1442		20	4.3	7.84	485.3	19.5		5.658	
1446		30	3.8	7.82	487.0	-7.7		6.28	
1450		35	3.9	7.80	488.1	-32.2		6.314	
1453		40	3.9	7.80	487.5	-48.7			
1456		45	3.7	7.79	489.2	-56.4			
1458		50	3.7	7.78	488.0	-62.6		6.961	

SAMPLING Water Odour: ☐ No ☐ Yes (describe) \_\_\_\_\_ Sheen ☐ No ☐ Yes (describe) \_\_\_\_\_

Turbidity: \_\_\_\_\_ NTU or relative scale (circle as appropriate): Clear 1 2 3 4 5 6 7 8 9 10 Very Silty

Parameter	Size & # of bottles:	40mL	100mL	250mL	500mL	1L	Filter and Size (µm)	Preservatives
<input type="checkbox"/> Plastic	<input type="checkbox"/> Glass						<input type="checkbox"/> Yes <input type="checkbox"/> No	
<input type="checkbox"/> Plastic	<input type="checkbox"/> Glass						<input type="checkbox"/> Yes <input type="checkbox"/> No	
<input type="checkbox"/> Plastic	<input type="checkbox"/> Glass						<input type="checkbox"/> Yes <input type="checkbox"/> No	
<input type="checkbox"/> Plastic	<input type="checkbox"/> Glass						<input type="checkbox"/> Yes <input type="checkbox"/> No	
<input type="checkbox"/> Plastic	<input type="checkbox"/> Glass						<input type="checkbox"/> Yes <input type="checkbox"/> No	

Samples placed on ice for transport ☐ Yes ☐ No

QA/QC Sample/s - ☒ Yes ☐ No QA/QC Type and ID - dup 1

Other (comments, notes, observations, recovery if well dried up, headspace measurements):

## Groundwater Purge and Sample Form

WELL ID.: MW15-01

SITE: TESLIN LF

WEATHER: RAIN

TEMPERATURE: 15°C

PROJECT NO.: ENVSWIM03652

FIELD PERSONNEL: C Blair

DATE & TIME SAMPLED: July 19 2017

GPS LOCATION: N: 678781 E: 6670580 Zone: 8 (Map datum NAD83)

Is well ID visible? ☐ Yes ☒ No Is seal intact? ☒ Yes ☐ No Is lid/j-plug in place/working? ☒ Yes ☐ No  
Is well locked? ☐ Yes ☒ No General well condition - list any damage, pooled water around well etc.: good  
Well Casing Inner Diameter (mm) 51

Depth to Water Below Top of Casing (A):	5.82	(metres)	Depth to Product Below Top of Casing:		(metres)
Depth to Bottom of Well Below Top of Casing (B):	6.55	(metres)	Product Thickness:		(metres)
Depth to Ground Below Top of Casing (stand-up):	1.02	(metres)	<input type="checkbox"/> LNAPL <input type="checkbox"/> DNAPL   Colour/Odour:		
Screen Interval (if known):		(m bTOC)	Confirmed by: <input type="checkbox"/> Bailer <input type="checkbox"/> Interface Probe <input type="checkbox"/> Paste		

## FIELD EQUIPMENT

Field Meters Calibrated: \_\_\_\_\_ Calibration Reference Sheet ID: \_\_\_\_\_

Pump:	<input type="checkbox"/> none	<input checked="" type="checkbox"/> Waterra	<input type="checkbox"/> Submersible	<input type="checkbox"/> Peristaltic	<input type="checkbox"/> Bladder
Bailer:	<input checked="" type="checkbox"/> none		<input type="checkbox"/> Stainless Steel	<input type="checkbox"/> Teflon	<input type="checkbox"/> PVC
Filter:	<input type="checkbox"/> none		<input checked="" type="checkbox"/> In-line	<input type="checkbox"/> Syringe	<input type="checkbox"/> Other (i.e. vacuum)
ment left in well:	<input type="checkbox"/> none		<input type="checkbox"/> Bailer	<input checked="" type="checkbox"/> Waterra	<input type="checkbox"/> Other

## WELL PURGING

### Purge Volumes

Casing In. Diam. (mm)	38	51	78	100	150
Vol (L/m of casing)* (C)	1.1	2.0	4.5	7.9	17.7

One well volume ((B - A) \* C): 3 litres

Purge volume to aim for: 9 litres

or until parameters stabilize:

Pump inlet depth (m bTOC): \_\_\_\_\_ (m bTOC)

[illegible]

## SAMPLING

Water Odour: ☐ No ☐ Yes (describe) \_\_\_\_\_ Sheen ☐ No ☐ Yes (describe) \_\_\_\_\_

Turbidity: \_\_\_\_\_ NTU or relative scale (circle as appropriate): Clear 1 2 3 4 5 6 7 8 9 10 Very Silty

Parameter		Size & # of bottles:	40mL	100mL	250mL	500mL	1L	Filter	Size (µm)	Preservatives
	<input type="checkbox"/> Plastic	<input type="checkbox"/> Glass						<input type="checkbox"/> Yes	<input type="checkbox"/> No	
	<input type="checkbox"/> Plastic	<input type="checkbox"/> Glass						<input type="checkbox"/> Yes	<input type="checkbox"/> No	
	<input type="checkbox"/> Plastic	<input type="checkbox"/> Glass						<input type="checkbox"/> Yes	<input type="checkbox"/> No	
	<input type="checkbox"/> Plastic	<input type="checkbox"/> Glass						<input type="checkbox"/> Yes	<input type="checkbox"/> No	
	<input type="checkbox"/> Plastic	<input type="checkbox"/> Glass						<input type="checkbox"/> Yes	<input type="checkbox"/> No	

Samples placed on ice for transport ☐ Yes ☐ No

QA/QC Sample/s -	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	QA/QC Type and ID -
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Other (comments, notes, observations, recovery if well dried up, headspace measurements):

00 probe seems incorrect

# Groundwater Purge and Sample Form

WELL ID.: MW15-02

PROJECT NO.: ENNSWM03652

SITE: TESINLF

FIELD PERSONNEL: C. Blair

WEATHER: rainy

DATE & TIME SAMPLED: July 19 1120

TEMPERATURE: 15°C

GPS LOCATION: N: 628560 E: 667455 Zone: 8 (Map datum NAD83)

Is well ID visible? ☐ Yes ☒ No Is seal intact? ☒ Yes ☐ No Is lid/j-plug in place/working? ☒ Yes ☐ No  
Is well locked? ☐ Yes ☒ No General well condition - list any damage, pooled water around well etc.: \_\_\_\_\_

Well Casing Inner Diameter (mm) \_\_\_\_\_

Depth to Water Below Top of Casing (A): 4.834 (metres) Depth to Product Below Top of Casing: \_\_\_\_\_ (metres)  
Depth to Bottom of Well Below Top of Casing (B): 14.10 (metres) Product Thickness: \_\_\_\_\_ (metres)  
Depth to Ground Below Top of Casing (stand-up): 0.9 (metres) ☐ LNAPL ☐ DNAPL Colour/Odour: \_\_\_\_\_  
Screen Interval (if known) \_\_\_\_\_ (m bTOC) Confirmed by: ☐ Bailer ☐ Interface Probe ☒ Paste

## FIELD EQUIPMENT

Field Meters Calibrated: \_\_\_\_\_ Calibration Reference Sheet ID: \_\_\_\_\_

Pump: ☐ none ☒ Waterra ☐ Submersible ☐ Peristaltic ☐ Bladder  
Bailer: ☒ none ☐ Stainless Steel ☐ Teflon ☐ PVC  
Filter: ☐ none ☒ In-line ☐ Syringe ☐ Other (i.e. vacuum)  
Equipment left in well: ☐ none ☐ Bailer ☒ Waterra ☐ Other

## WELL PURGING

Purge Volumes One well volume ((B - A) \* C): 18 litres  
Purge volume to aim for: 54 litres  
or until parameters stabilize: \_\_\_\_\_  
Casing In. Diam. (mm) 38 51 78 100 150  
Vol (L/m of casing)\* (C) 1.1 2.0 4.5 7.9 17.7 \*double for filter pack Pump inlet depth (m bTOC): \_\_\_\_\_

TIME	PURGE RATE (L/min)	VOLUME REMOVED (L)	TEMP (°C)	pH (UNITS)	COND. (uS/cm)	Redox (mV)	DISO <sub>2</sub> (mg/L) or %	Water Level (m bTOC)	REMARKS (colour, odour, sheen, brittle film, silt content, etc.)
Stabilisation Criteria			+/- 0.5	+/- 0.1	+/- 3%	+/- 10	0.2mg/L or +/- 10%	+/- 0.1m if low flow	Visual observations (colour, turbidity, odour etc should be stable)
1135		10	3.8	6.90	585	257.2	-	8.025	Silty
1142		20	3.6	7.24	502	228.5	-	8.784	
1147		30	3.5	7.35	494	230	-	9.882	
1155		40	3.6	7.47	493.2	226.6	-	10.736	
1201		50	3.9	7.59	500.2	221.3	-	11.838	
Jul 20 9:18			4.2	7.70	499	1215.3	-	dry	
								5.267	sampled

SAMPLING Water Odour: ☐ No ☐ Yes (describe) \_\_\_\_\_ Sheen ☐ No ☐ Yes (describe) \_\_\_\_\_

Turbidity: \_\_\_\_\_ NTU or relative scale (circle as appropriate): Clear 1 2 3 4 5 6 7 8 9 10 Very Silty

Parameter	Size & # of bottles:	40mL	100mL	250mL	500mL	1L	Filter and Size (µm)	Preservatives
<input type="checkbox"/> Plastic	<input type="checkbox"/> Glass						<input type="checkbox"/> Yes <input type="checkbox"/> No	
<input type="checkbox"/> Plastic	<input type="checkbox"/> Glass						<input type="checkbox"/> Yes <input type="checkbox"/> No	
<input type="checkbox"/> Plastic	<input type="checkbox"/> Glass						<input type="checkbox"/> Yes <input type="checkbox"/> No	
<input type="checkbox"/> Plastic	<input type="checkbox"/> Glass						<input type="checkbox"/> Yes <input type="checkbox"/> No	
<input type="checkbox"/> Plastic	<input type="checkbox"/> Glass						<input type="checkbox"/> Yes <input type="checkbox"/> No	

Samples placed on ice for transport ☐ Yes ☐ No

QA/QC Sample/s - ☐ Yes ☒ No QA/QC Type and ID - \_\_\_\_\_

Other (comments, notes, observations, recovery if well dried up, headspace measurements): \_\_\_\_\_

# Groundwater Purge and Sample Form

WELL ID: TEMW12-02

PROJECT NO.: ENVSLWMO3052

SITE: Testin Landfill

FIELD PERSONNEL: C. Blair

WEATHER: sunny

DATE & TIME SAMPLED: July 19/2017

TEMPERATURE: 20

GPS LOCATION: N: 28728 E: 667067 Zone: 8 (Map datum NAD83)

Is well ID visible? ☐ Yes ☒ No Is seal intact? ☒ Yes ☐ No Is lid/j-plug in place/working? ☒ Yes ☐ No  
Is well locked? ☐ Yes ☒ No General well condition - list any damage, pooled water around well etc.:  
Well Casing Inner Diameter (mm) 51 stick up casing broken

Depth to Water Below Top of Casing (A): 4.323 (metres) Depth to Product Below Top of Casing: \_\_\_\_\_ (metres)  
Depth to Bottom of Well Below Top of Casing (B): 8.41 (metres) Product Thickness: \_\_\_\_\_ (metres)  
Depth to Ground Below Top of Casing (stand-up): 0.80 (metres) ☐ LNAPL ☐ DNAPL Colour/Odour: \_\_\_\_\_  
Screen Interval (if known) \_\_\_\_\_ (m bTOC) Confirmed by: ☐ Bailer ☐ Interface Probe ☐ Paste

## FIELD EQUIPMENT

Field Meters Calibrated: \_\_\_\_\_ Calibration Reference Sheet ID: \_\_\_\_\_  
Pump: ☐ none ☒ Waterra ☐ Submersible ☐ Peristaltic ☐ Bladder  
Bailer: ☒ none ☐ Stainless Steel ☐ Teflon ☐ PVC  
Filter: ☐ none ☒ In-line ☐ Syringe ☐ Other (i.e. vacuum)  
Equipment left in well: ☐ none ☐ Bailer ☒ Waterra ☐ Other

## WELL PURGING

Purge Volumes One well volume ((B - A) \* C): 8 litres  
Purge volume to aim for: 24 litres  
or until parameters stabilize:  
Casing In. Diam. (mm) 38 51 78 100 150 Pump inlet depth (m bTOC): \_\_\_\_\_ (m bTOC)  
Vol (L/m of casing)\* (C) 1.1 2.0 4.5 7.9 17.7 \*double for filter pack

TIME	PURGE RATE (L/min)	VOLUME REMOVED (L)	TEMP (°C)	pH (UNITS)	COND. (uS/cm)	Redox (mV)	DIS.O <sub>2</sub> (mg/L) or %	Water Level (m bTOC)	REMARKS (colour, odour, sheen, brittle film, silt content, etc.)
Stabilisation Criteria			+/- 0.5	+/- 0.1	+/- 3%	+/- 10	0.2mg/L or +/- 10%	+/- 0.1m if low flow	Visual observations (colour, turbidity, odour etc should be stable)
1334		5	4.2	7.20	868	2268	0.91	4.348	silty -> clearing
1337		10	4.0	7.01	836	2139	1.11	4.402	
1339		15	4.0	6.94	825.8	2054	1.21	4.445	clear
1341		20	4.0	6.90	816.0	2013	1.11	4.445	
1344		25	3.6	6.92	800.8	2088	1.65?	4.40	clear
1346		30	3.7	6.88	800.1	2081			
1348		35	3.8	6.86	801.5	2078			

SAMPLING Water Odour: ☐ No ☐ Yes (describe) \_\_\_\_\_ Sheen ☐ No ☐ Yes (describe) \_\_\_\_\_

Turbidity: \_\_\_\_\_ NTU or relative scale (circle as appropriate): Clear 1 2 3 4 5 6 7 8 9 10 Very Silty

Parameter	Size & # of bottles:	40mL	100mL	250mL	500mL	1L	Filter and Size (µm)	Preservatives
<input type="checkbox"/> Plastic	<input type="checkbox"/> Glass						<input type="checkbox"/> Yes <input type="checkbox"/> No	
<input type="checkbox"/> Plastic	<input type="checkbox"/> Glass						<input type="checkbox"/> Yes <input type="checkbox"/> No	
<input type="checkbox"/> Plastic	<input type="checkbox"/> Glass						<input type="checkbox"/> Yes <input type="checkbox"/> No	
<input type="checkbox"/> Plastic	<input type="checkbox"/> Glass						<input type="checkbox"/> Yes <input type="checkbox"/> No	
<input type="checkbox"/> Plastic	<input type="checkbox"/> Glass						<input type="checkbox"/> Yes <input type="checkbox"/> No	

Samples placed on ice for transport ☐ Yes ☐ No

QA/QC Sample/s - ☐ Yes ☒ No QA/QC Type and ID - \_\_\_\_\_

Other (comments, notes, observations, recovery if well dried up, headspace measurements):

# Groundwater Purge and Sample Form

WELL ID: MW01  
 SITE: Teslin  
 WEATHER: cloudy  
 TEMPERATURE: -3

PROJECT NO.: ENNSWM03652-01  
 FIELD PERSONNEL: CB  
 DATE & TIME SAMPLED: OCT 24  
 GPS LOCATION: N: \_\_\_\_\_ E: \_\_\_\_\_ Zone: \_\_\_\_\_ (Map datum NAD83)

Is well ID visible? ☒ Yes ☐ No Is seal intact? ☒ Yes ☐ No Is lid/j-plug in place/working? ☒ Yes ☐ No  
 Is well locked? ☐ Yes ☒ No General well condition - list any damage, pooled water around well etc.: \_\_\_\_\_  
 Well Casing Inner Diameter (mm) 51

Depth to Water Below Top of Casing (A): 5.259 (metres)  
 Depth to Bottom of Well Below Top of Casing (B): 10.58 (metres)  
 Depth to Ground Below Top of Casing (stand-up): \_\_\_\_\_ (metres)  
 Screen Interval (if known) \_\_\_\_\_ (m bTOC)  
 Depth to Product Below Top of Casing: \_\_\_\_\_ (metres)  
 Product Thickness: \_\_\_\_\_ (metres)  
☐ LNAPL ☐ DNAPL Colour/Odour: \_\_\_\_\_  
 Confirmed by: ☐ Bailer ☐ Interface Probe ☐ Paste

**FIELD EQUIPMENT**  
 Field Meters Calibrated: YSI Calibration Reference Sheet ID: Field notes  
 Pump: ☐ none ☒ Waterra ☐ Submersible ☐ Peristaltic ☐ Bladder  
 Bailer: ☒ none ☐ Stainless Steel ☐ Teflon ☐ PVC  
 Filter: ☐ none ☐ In-line ☒ Syringe ☐ Other (i.e. vacuum)  
 Equipment left in well: ☐ none ☐ Bailer ☒ Waterra ☐ Other

**WELL PURGING**  
 Purge Volumes  
 Casing In. Diam. (mm) 38 51 78 100 150  
 Vol (L/m of casing)\* (C) 1.1 2.0 4.5 7.9 17.7 \*double for filter pack  
 One well volume ((B - A) \* C): 10.6 litres  
 Purge volume to aim for: ~31.8 litres  
 or until parameters stabilize: \_\_\_\_\_  
 Pump inlet depth (m bTOC): \_\_\_\_\_ (m bTOC)

TIME	PURGE RATE (L/min)	VOLUME REMOVED (L)	TEMP (°C)	pH (UNITS)	COND. (uS/cm)	Redox (mV)	DIS.O <sub>2</sub> (mg/L or %)	Water Level (m bTOC)	REMARKS (colour, odour, sheen, brittle film, silt content, etc.)
Stabilisation Criteria			+/- 0.5	+/- 0.1	+/- 3%	+/- 10	0.2mg/L or +/- 10%	+/- 0.1m if low flow	Visual observations (colour, turbidity, odour etc should be stable)
1132		8	3.7	7.68	376.6	236.4	-		Very silty clearing sampled @ 1150
1137		16	4.1	7.31	371.2	213.4	-		
1142		24	4.1	7.19	370.6	193.2	-		
1148		32	4.2	7.16	370.3	183.0	-		

**SAMPLING** Water Odour: ☒ No ☐ Yes (describe) \_\_\_\_\_ Sheen ☒ No ☐ Yes (describe) \_\_\_\_\_  
 Turbidity: \_\_\_\_\_ NTU or relative scale (circle as appropriate): Clear 1 2 3 4 5 6 8 9 10 Very Silty  

Parameter	Size & # of bottles:	40mL	125mL	250mL	500mL	1L	Filter and Size (µm)	Preservatives
Nutrients	Plastic <input checked="" type="checkbox"/> Glass	—	<u>2x</u>	—	—	—	<input type="checkbox"/> Yes <input type="checkbox"/> No	HCl
Genchem	Plastic <input type="checkbox"/> Glass	—	—	—	<u>1x</u>	—	<input type="checkbox"/> Yes <input type="checkbox"/> No	—
VOCs	Plastic <input checked="" type="checkbox"/> Glass	<u>2x</u>	—	—	—	—	<input type="checkbox"/> Yes <input type="checkbox"/> No	in bottles
L/HCPH	Plastic <input checked="" type="checkbox"/> Glass	—	—	<u>2x</u>	—	—	<input type="checkbox"/> Yes <input type="checkbox"/> No	in bottles
metals	Plastic <input type="checkbox"/> Glass	—	<u>1x</u>	—	—	—	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	0.45 HNO <sub>3</sub>

 Samples placed on ice for transport ☒ Yes ☐ No

QA/QC Sample/s - ☐ Yes ☒ No QA/QC Type and ID - \_\_\_\_\_

Other (comments, notes, observations, recovery if well dried up, headspace measurements):  
needs new waterra tubing

# Groundwater Purge and Sample Form

WELL ID: MW02

PROJECT NO: ENVSWM03652-01

SITE: Testin

FIELD PERSONNEL: CB

WEATHER: cloudy

DATE & TIME SAMPLED: OCT 24

TEMPERATURE: -4

GPS LOCATION: N: \_\_\_\_\_ E: \_\_\_\_\_ Zone: \_\_\_\_\_ (Map datum NAD83)

Is well ID visible? ☐ Yes ☐ No Is seal intact? ☒ Yes ☐ No Is lid/j-plug in place/working? ☒ Yes ☐ No  
Is well locked? ☐ Yes ☒ No General well condition - list any damage, pooled water around well etc.: \_\_\_\_\_  
Well Casing Inner Diameter (mm) 51

Depth to Water Below Top of Casing (A): 9.118 (metres) Depth to Product Below Top of Casing: \_\_\_\_\_ (metres)  
Depth to Bottom of Well Below Top of Casing (B): 13.95 (metres) Product Thickness: \_\_\_\_\_ (metres)  
Depth to Ground Below Top of Casing (stand-up): \_\_\_\_\_ (metres) ☐ LNAPL ☐ DNAPL Colour/Odour: \_\_\_\_\_  
Screen Interval (if known) \_\_\_\_\_ (m bTOC) Confirmed by: ☐ Bailer ☐ Interface Probe ☐ Paste

**FIELD EQUIPMENT**  
Field Meters Calibrated: YSI Calibration Reference Sheet ID: field notes  
Pump: ☐ none ☒ Waterra ☐ Submersible ☐ Peristaltic ☐ Bladder  
Bailer: ☒ none ☐ Stainless Steel ☐ Teflon ☐ PVC  
Filter: ☐ none ☐ In-line ☒ Syringe ☐ Other (i.e. vacuum)  
Equipment left in well: ☐ none ☐ Bailer ☒ Waterra ☐ Other

**WELL PURGING**  
Purge Volumes  
Casing In. Diam. (mm) 38 51 78 100 150  
Vol (L/m of casing)\* (C) 1.1 2.0 4.5 7.9 17.7 \*double for filter pack  
One well volume ((B - A) \* C): ~10 litres  
Purge volume to aim for: ~30 litres  
or until parameters stabilize: \_\_\_\_\_  
Pump inlet depth (m bTOC): \_\_\_\_\_ (m bTOC)

TIME	PURGE RATE (L/min)	VOLUME REMOVED (L)	TEMP (°C)	pH (UNITS)	COND. (uS/cm)	Redox (mV)	DIS.O <sub>2</sub> (mg/L) or %	Water Level (m bTOC)	REMARKS (colour, odour, sheen, brittle film, silt content, etc.)
Stabilisation Criteria			+/- 0.5	+/- 0.1	+/- 3%	+/- 10	0.2mg/L or +/- 10%	+/- 0.1m if flow flow	Visual observations (colour, turbidity, odour etc should be stable)
1235		8	2.0	7.45	807.7	150.1	-		
1250		16	2.0	7.63	786.4	121.7	-	12	very silty
1300		20	2.3	7.67	787.5	122.5	-	12.44	" "
1305		24	2.5	7.69	785.1	115.5	-		
855 AM OCT 25									

**SAMPLING** Water Odour: ☒ No ☐ Yes (describe) \_\_\_\_\_ Sheen: ☒ No ☐ Yes (describe) \_\_\_\_\_  
Turbidity: \_\_\_\_\_ NTU or relative scale (circle as appropriate): Clear 1 2 3 4 5 6 7 8 9 10 Very Silty  
Parameter Size & # of bottles: 40mL 100mL 250mL 500mL 1L Filter and Size (µm) Preservatives  
☐ Plastic ☐ Glass ☐ Yes ☐ No  
☐ Plastic ☐ Glass ☐ Yes ☐ No  
☐ Plastic ☐ Glass ☐ Yes ☐ No  
☐ Plastic ☐ Glass ☐ Yes ☐ No  
☐ Plastic ☐ Glass ☐ Yes ☐ No  
Samples placed on ice for transport ☒ Yes ☐ No

QA/QC Sample/s - ☐ Yes ☒ No QA/QC Type and ID - \_\_\_\_\_

Other (comments, notes, observations, recovery if well dried up, headspace measurements):  
changed waterra, old tubing was cracked

# Groundwater Purge and Sample Form

WELL ID.: MW03

PROJECT NO.: ENVSWM03652-01

SITE: Teslin

FIELD PERSONNEL: CB

WEATHER: cloudy

DATE & TIME SAMPLED: Oct 24

TEMPERATURE: -5°C

GPS LOCATION: N: \_\_\_\_\_ E: \_\_\_\_\_ Zone: \_\_\_\_\_ (Map datum NAD83)

Is well ID visible? ☒ Yes ☐ No Is seal intact? ☒ Yes ☐ No Is lid/j-plug in place/working? ☒ Yes ☐ No  
Is well locked? ☐ Yes ☒ No General well condition - list any damage, pooled water around well etc.: \_\_\_\_\_  
Well Casing Inner Diameter (mm) 51

Depth to Water Below Top of Casing (A): 2.570 (metres) Depth to Product Below Top of Casing: \_\_\_\_\_ (metres)  
Depth to Bottom of Well Below Top of Casing (B): 16.280 (metres) Product Thickness: \_\_\_\_\_ (metres)  
Depth to Ground Below Top of Casing (stand-up): \_\_\_\_\_ (metres) ☐ LNAPL ☐ DNAPL Colour/Odour: \_\_\_\_\_  
Screen Interval (if known) \_\_\_\_\_ (m bTOC) Confirmed by: ☐ Bailor ☐ Interface Probe ☐ Paste

## FIELD EQUIPMENT

Field Meters Calibrated: \_\_\_\_\_ Calibration Reference Sheet ID: \_\_\_\_\_  
Pump: ☒ none ☐ Waterra ☐ Submersible ☐ Peristaltic ☐ Bladder  
Bailer: ☐ none ☐ Stainless Steel ☐ Teflon ☒ PVC  
Filter: ☐ none ☐ In-line ☒ Syringe ☐ Other (i.e. vacuum)  
Equipment left in well: ☐ none ☒ Bailor ☐ Waterra ☐ Other

## WELL PURGING

Purge Volumes One well volume ((B - A) \* C): 28 litres  
Purge volume to aim for: 84 litres  
or until parameters stabilize: 32  
Casing In. Diam. (mm) 38 51 78 100 150  
Vol (L/m of casing)\* (C) 1.1 2.0 4.5 7.9 17.7 \*double for filter pack Pump inlet depth (m bTOC): \_\_\_\_\_ (m bTOC)

TIME	PURGE RATE (L/min)	VOLUME REMOVED (L)	TEMP (°C)	pH (UNITS)	COND. (uS/cm)	Redox (mV)	DIS.O <sub>2</sub> (mg/L) or %	Water Level (m bTOC)	REMARKS (colour, odour, sheen, brittle film, silt content, etc.)
Stabilisation Criteria			+/- 0.5	+/- 0.1	+/- 3%	+/- 10	0.2mg/L or +/- 10%	+/- 0.1m if low flow	Visual observations (colour, turbidity, odour etc should be stable)
		4	3.6	7.87	439.2	114.5	-		clear, no odour
1432		8	3.2	7.97	439.4	114.0	-		"
1435		12	2.7	8.06	439.4	114.8	-		
1441		16	2.4	8.10	443.0	115.2	-		
1445		20	2.3	8.10	459.6	102.8	-		
1449		24	2.2	8.09	466.4	74.8	-		
1452		28	2.2	8.07	466.1	42.8	-		
1455		32	2.2	8.07	466.0	20.4	-		
									sampled @ 1500

**SAMPLING** Water Odour: ☒ No ☐ Yes (describe) \_\_\_\_\_ Sheen ☒ No ☐ Yes (describe) \_\_\_\_\_  
Turbidity: \_\_\_\_\_ NTU or relative scale (circle as appropriate): Clear 1 (2) 3 4 5 6 7 8 9 10 Very Silty  
Parameter Size & # of bottles: 40mL 100mL 250mL 500mL 1L Filter and Size (µm) Preservatives  
☐ Plastic ☐ Glass ☐ Yes ☐ No  
☐ Plastic ☐ Glass ☐ Yes ☐ No  
☐ Plastic ☐ Glass ☐ Yes ☐ No  
☐ Plastic ☐ Glass ☐ Yes ☐ No  
☐ Plastic ☐ Glass ☐ Yes ☐ No  
Samples placed on ice for transport ☐ Yes ☐ No

QA/QC Sample/s - ☒ Yes ☐ No QA/QC Type and ID - dup1

Other (comments, notes, observations, recovery if well dried up, headspace measurements): \_\_\_\_\_

## Groundwater Purge and Sample Form

WELL ID.: MW15-01

SITE: TESLIN SWME

WEATHER: cloudy

TEMPERATURE:  $-5^{\circ}\text{C}$

PROJECT NO.: ENVSWIM03652-01

FIELD PERSONNEL: CB

DATE & TIME SAMPLED: 09-24

GPS LOCATION: N: \_\_\_\_\_ E: 042 Zone: \_\_\_\_\_ (Map datum NAD83)

Is well ID visible? ☒ Yes ☐ No Is seal intact? ☒ Yes ☐ No Is lid/j-plug in place/working? ☒ Yes ☐ No

Is well locked? ☐ Yes ☒ No General well condition - list any damage, pooled water around well etc.: good

Well Casing Inner Diameter (mm) 51

Depth to Water Below Top of Casing (A): 6138 (metres)      Depth to Product Below Top of Casing: \_\_\_\_\_ (metres)

Depth to Bottom of Well Below Top of Casing (B): 6.545 (metres) Product Thickness: \_\_\_\_\_ (metres)

Depth to Ground Below Top of Casing (stand-up): \_\_\_\_\_ (metres) ☐ LNAPL ☐ DNAPL Colour/Odour: \_\_\_\_\_

Screen Interval (if known) \_\_\_\_\_ (m bTOC) Confirmed by: ☐ Bailer ☐ Interface Probe ☒ Paste

## FIELD EQUIPMENT

Field Meters Calibrated: JS Calibration Reference Sheet ID: field notes

Pump: ☒ none ☐ Waterra ☐ Submersible ☐ Peristaltic ☐ Bladder

**Bailer:** ☐ none ☐ Stainless Steel ☐ Teflon ☒ PVC

Filter: ☐ none ☐ In-line ☒ Syringe ☐ Other (i.e. vacuum)

Equipment left in well: ☒ none ☐ Bailer ☐ Waterra ☐ Other

## WELL PURGING

### Purge Volumes

Casing In. Diam. (mm)	38	51	78	100	150
Vol (L/m of casing)* (C)	1.1	2.0	4.5	7.9	17.7

One well volume ((B - A) \* C): 0.8 litres

Purge volume to aim for: ~ 2.4 litres

or until parameters stabilize: \_\_\_\_\_

Pump inlet depth (m bTOC): \_\_\_\_\_ (m bTOC)

[illegible]

## SAMPLING

Water Odour: ☒ No ☐ Yes (describe) \_\_\_\_\_ Sheen: ☒ No ☐ Yes (describe) \_\_\_\_\_

Sheen ☒ No ☐ Yes (describe) \_\_\_\_\_

Turbidity: \_\_\_\_\_ NTU or relative scale (circle as appropriate): Clear 1 2 3 4 5 6 7 8 9 10 Very Silty

Parameter	Size & # of bottles:	40mL	100mL	250mL	500mL	1L	Filter and Size (µm)	Preservatives
-----------	----------------------	------	-------	-------	-------	----	----------------------	---------------

☐ Plastic    ☐ Glass    \_\_\_\_\_    \_\_\_\_\_    \_\_\_\_\_    \_\_\_\_\_    ☐ Yes    ☐ No☐ Plastic ☐ Glass C.P. Metal ☐ Yes ☐ No☐ Plastic    ☐ Glass    SCF MW01    ☐ Yes    ☐ No    \_\_\_\_\_☐ Plastic    ☐ Glass    \_\_\_\_\_    \_\_\_\_\_    \_\_\_\_\_    \_\_\_\_\_    \_\_\_\_\_    ☐ Yes    ☐ No    \_\_\_\_\_    \_\_\_\_\_☐ Plastic    ☐ Glass    \_\_\_\_\_    \_\_\_\_\_    \_\_\_\_\_    \_\_\_\_\_    ☐ Yes    ☐ No    \_\_\_\_\_    \_\_\_\_\_

Samples placed on ice for transport ☒ Yes ☐ No

QA/QC Sample/s - <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	QA/QC Type and ID -
--	---------------------

Other (comments, notes, observations, recovery if well dried up, headspace measurements):

not enough for watera  
not enough water to fill CO<sub>2</sub>/O<sub>2</sub>C bottles. 1493



## Groundwater Purge and Sample Form

WELL ID.: TE-MW12-02

SITE: Testlin

WEATHER: cloudy

TEMPERATURE: -17

PROJECT NO.: ENVSWMO3652-01

FIELD PERSONNEL: CR

DATE & TIME SAMPLED: 00F 24

GPS LOCATION: N: \_\_\_\_\_ E: \_\_\_\_\_ Zone: \_\_\_\_\_ (Map datum NAD83)

Is well ID visible? ☐ Yes ☐ No Is seal intact? ☒ Yes ☐ No Is lid/j-plug in place/working? ☒ Yes ☐ No

Is well locked? ☐ Yes ☒ No General well condition - list any damage, pooled water around well etc.: \_\_\_\_\_

Well Casing Inner Diameter (mm) 51

Depth to Water Below Top of Casing (A):	<u>5,110</u> (metres)	Depth to Product Below Top of Casing:	(metres)
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Depth to Bottom of Well Below Top of Casing (B): 8.48 (metres) Product Thickness: \_\_\_\_\_ (metres)

Depth to Ground Below Top of Casing (stand-up): \_\_\_\_\_ (metres) ☐ LNAPL ☐ DNAPL Colour/Odour: \_\_\_\_\_

Screen Interval (if known) \_\_\_\_\_ (m bTOC) Confirmed by: ☐ Bailer ☐ Interface Probe ☐ Paste

## FIELD EQUIPMENT

Field Meters Calibrated: YSI Calibration Reference Sheet ID: field notes

Pump: ☐ none ☒ Waterra ☐ Submersible ☐ Peristaltic ☐ Bladder

Bailer: ☒ none ☐ Stainless Steel ☐ Teflon ☐ PVC

Filter: ☐ none ☐ In-line ☒ Syringe ☐ Other (i.e. vacuum)

Equipment left in well: ☐ none ☐ Bailer ☒ Waterra ☐ Other

## WELL PURGING

Purge Volumes

Casing In. Diam. (mm)	38	51	78	100	150
-----------------------	----	----	----	-----	-----

Vol (L/m of casing)* (C)	1.1	2.0	4.5	7.9	17.7	*double for filter pack	Pump inlet depth (m bTOC):	(m bTOC)
--------------------------	-----	-----	-----	-----	------	-------------------------	----------------------------	----------

TIME	PURGE RATE	VOLUME	TEMP	pH	COND.	Redox	DIS.O <sub>2</sub>	Water Level	REMARKS (colour, odour, sheen, brittle film, silt
------	------------	--------	------	----	-------	-------	--------------------	-------------	---

[illegible]

## SAMPLING

Water Odour: ☒ No ☐ Yes (describe) \_\_\_\_\_ Sheen: ☒ No ☐ Yes (describe) \_\_\_\_\_

Turbidity: \_\_\_\_\_ NTU or relative scale (circle as appropriate): Clear 1 2 3 4 5 6 7 8 9 10 Very Silty

Parameter	Size & # of bottles:	40mL	100mL	250mL	500mL	1L	Filter and Size (µm)	Preservatives
-----------	----------------------	------	-------	-------	-------	----	----------------------	---------------

☐ Plastic    ☐ Glass    \_\_\_\_\_    \_\_\_\_\_    \_\_\_\_\_    \_\_\_\_\_    \_\_\_\_\_    ☐ Yes    ☐ No

☐ Plastic    ☐ Glass    \_\_\_\_\_    ☐ Yes    ☐ No☐ Plastic    ☐ Glass    CERAMIC    ☐ Yes    ☐ No☐ Plastic    ☐ Glass    500    1000    1000    1000    1000    ☐ Yes    ☐ No    \_\_\_\_\_    \_\_\_\_\_☐ Plastic    ☐ Glass    ☐ Yes    ☐ No

Samples placed on ice for transport ☐ Yes ☐ No

QA/QC Sample/s - <input type="checkbox"/> Yes <input type="checkbox"/> No	QA/QC Type and ID -
---	---------------------

Other (comments, notes, observations, recovery if well dried up, headspace measurements):

## APPENDIX B

### LABORATORY ANALYTICAL REPORTS

Your Project #: ENVSWMO3652  
Your C.O.C. #: 529931-01-01

**Attention: Caitlin Blair**

TETRA TECH CANADA INC.  
61 Wasson Place  
Whitehorse, YT  
CANADA Y1A 0H7

**Report Date: 2017/08/21**  
Report #: R2431650  
Version: 2 - Revision

**CERTIFICATE OF ANALYSIS – REVISED REPORT**

**MAXXAM JOB #: B760682**

**Received: 2017/07/20, 13:05**

Sample Matrix: Water  
# Samples Received: 7

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity - Water	7	2017/07/25	2017/07/25	BBY6SOP-00026	SM 22 2320 B m
Chloride by Automated Colourimetry	6	N/A	2017/07/24	BBY6SOP-00011	SM 22 4500-Cl- E m
Chloride by Automated Colourimetry	1	N/A	2017/07/25	BBY6SOP-00011	SM 22 4500-Cl- E m
COD by Colorimeter	7	2017/07/25	2017/07/26	BBY6SOP-00024	SM 22 5220 D m
Carbon (DOC) (1, 2)	7	N/A	2017/07/27	CAL SOP-00077	MMCW 119 1996 m
Conductance - water	7	2017/07/25	2017/07/25	BBY6SOP-00026	SM 22 2510 B m
Hardness (calculated as CaCO <sub>3</sub> )	7	N/A	2017/07/25	BBY WI-00033	Auto Calc
Mercury (Dissolved) by CVAf	7	N/A	2017/07/26	BBY7SOP-00015	BCMOE BCLM Oct2013 m
EPH in Water when PAH required	7	2017/07/25	2017/07/26	BBY8SOP-00029	BCMOE EPH w 12/00 m
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	7	N/A	2017/07/25	BBY7SOP-00002	EPA 6020B R2 m
Elements by CRC ICPMS (dissolved)	7	N/A	2017/07/25	BBY7SOP-00002	EPA 6020B R2 m
Nitrogen (Total)	7	2017/07/26	2017/07/27	BBY6SOP-00016	SM 22 4500-N C m
Ammonia-N (Preserved)	7	N/A	2017/07/26	BBY6SOP-00009	EPA 350.1 m
Nitrate + Nitrite (N)	7	N/A	2017/07/22	BBY6SOP-00010	SM 22 4500-NO <sub>3</sub> - I m
Nitrite (N) by CFA	7	N/A	2017/07/22	BBY6SOP-00010	SM 22 4500-NO <sub>3</sub> - I m
Nitrogen - Nitrate (as N)	7	N/A	2017/07/25	BBY6SOP-00010	SM 22 4500-NO <sub>3</sub> I m
PAH in Water by GC/MS (SIM)	7	2017/07/25	2017/07/26	BBY8SOP-00021	EPA 8270d R5 m
Total LMW, HMW, Total PAH Calc	7	N/A	2017/07/26	BBY WI-00033	Auto Calc
Filter and HNO <sub>3</sub> Preserve for Metals	7	N/A	2017/07/25	BBY7 WI-00004	BCMOE Reqs 08/14
pH Water (3)	7	2017/07/25	2017/07/25	BBY6SOP-00026	SM 22 4500-H+ B m
Sulphate by Automated Colourimetry	6	N/A	2017/07/24	BBY6SOP-00017	SM 22 4500-SO <sub>4</sub> 2- E m
Sulphate by Automated Colourimetry	1	N/A	2017/07/25	BBY6SOP-00017	SM 22 4500-SO <sub>4</sub> 2- E m
Total Dissolved Solids (Filt. Residue)	1	2017/07/24	2017/07/25	BBY6SOP-00033	SM 22 2540 C m
Total Dissolved Solids (Filt. Residue)	6	2017/07/25	2017/07/26	BBY6SOP-00033	SM 22 2540 C m
EPH less PAH in Water by GC/FID	3	N/A	2017/07/26	BBY WI-00033	Auto Calc
EPH less PAH in Water by GC/FID	4	N/A	2017/07/27	BBY WI-00033	Auto Calc
TKN (Calc. TN, N/N) total	7	N/A	2017/07/28	BBY WI-00033	Calculation
Total Phosphorus	6	N/A	2017/07/24	BBY6SOP-00013	SM 22 4500-P E m
Total Phosphorus	1	N/A	2017/07/25	BBY6SOP-00013	SM 22 4500-P E m
VOCs, VH, F1, LH in Water by HS GC/MS	4	2017/07/23	2017/07/23	BBY8SOP-00009/11/12	BC Lab Manual 2007

Your Project #: ENVSWMO3652  
Your C.O.C. #: 529931-01-01

**Attention: Caitlin Blair**

TETRA TECH CANADA INC.  
61 Wasson Place  
Whitehorse, YT  
CANADA Y1A 0H7

**Report Date: 2017/08/21**

Report #: R2431650

Version: 2 - Revision

**CERTIFICATE OF ANALYSIS – REVISED REPORT**

**MAXXAM JOB #: B760682**

**Received: 2017/07/20, 13:05**

Sample Matrix: Water  
# Samples Received: 7

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
VOCs, VH, F1, LH in Water by HS GC/MS	3	2017/07/23	2017/07/24	BBY8SOP-00009/11/12	BC Lab Manual 2007
Volatile HC-BTEX	7	N/A	2017/07/25	BBY WI-00033	Auto Calc

**Remarks:**

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported: unless indicated otherwise, associated sample data are not blank corrected.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) This test was performed by Maxxam Calgary Environmental

(2) DOC present in the sample should be considered as non-purgeable DOC. Dissolved > Total Imbalance: Whenever applicable, Dissolved > Total for any parameter that falls within method uncertainty for duplicates is likely equivalent. If RPD is >20% samples were reanalyzed and confirmed.

(3) The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

Your Project #: ENVSWMO3652  
Your C.O.C. #: 529931-01-01

**Attention: Caitlin Blair**

TETRA TECH CANADA INC.  
61 Wasson Place  
Whitehorse, YT  
CANADA Y1A 0H7

**Report Date: 2017/08/21**  
Report #: R2431650  
Version: 2 - Revision

**CERTIFICATE OF ANALYSIS – REVISED REPORT**

**MAXXAM JOB #: B760682**

**Received: 2017/07/20, 13:05**

**Encryption Key**

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Letitia Prefontaine, B.Sc., Senior Project Manager

Email: LPrefontaine@maxxam.ca

Phone# (604)639-2616

=====

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B760682  
Report Date: 2017/08/21

TETRA TECH CANADA INC.  
Client Project #: ENVSWMO3652  
Sampler Initials: CB

### RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		RO4087			RO4088			RO4089		
Sampling Date		2017/07/19 12:50			2017/07/20 09:20			2017/07/19 13:50		
COC Number		529931-01-01			529931-01-01			529931-01-01		
	UNITS	MW15-01	RDL	QC Batch	MW15-02	RDL	QC Batch	TEMW12-02	RDL	QC Batch
<b>ANIONS</b>										
Nitrite (N)	mg/L	<0.0050	0.0050	8703817	0.0153	0.0050	8703817	<0.0050	0.0050	8703817
<b>Calculated Parameters</b>										
Filter and HNO <sub>3</sub> Preservation	N/A	FIELD		ONSITE	FIELD		ONSITE	FIELD		ONSITE
Nitrate (N)	mg/L	3.13	0.10	8702206	0.118	0.020	8702206	1.09	0.020	8702206
<b>Demand Parameters</b>										
Chemical Oxygen Demand	mg/L	79	10	8705941	540	10	8705941	35	10	8705941
<b>Misc. Inorganics</b>										
Dissolved Organic Carbon (C)	mg/L	4.2	0.50	8708182	4.9	0.50	8708182	4.5	0.50	8708182
Alkalinity (Total as CaCO <sub>3</sub> )	mg/L	374	0.50	8706043	254	0.50	8706043	370	0.50	8706043
Alkalinity (PP as CaCO <sub>3</sub> )	mg/L	<0.50	0.50	8706043	4.14	0.50	8706043	<0.50	0.50	8706043
Bicarbonate (HCO <sub>3</sub> )	mg/L	456	0.50	8706043	299	0.50	8706043	451	0.50	8706043
Carbonate (CO <sub>3</sub> )	mg/L	<0.50	0.50	8706043	4.97	0.50	8706043	<0.50	0.50	8706043
Hydroxide (OH)	mg/L	<0.50	0.50	8706043	<0.50	0.50	8706043	<0.50	0.50	8706043
<b>Anions</b>										
Dissolved Sulphate (SO <sub>4</sub> )	mg/L	48.3	0.50	8705310	77.2	0.50	8705310	50.2	0.50	8705310
Dissolved Chloride (Cl)	mg/L	19	0.50	8707009	3.6	0.50	8705307	39	0.50	8705307
<b>Nutrients</b>										
Total Total Kjeldahl Nitrogen (Calc)	mg/L	0.26	0.10	8702647	1.04	0.020	8702647	0.218	0.020	8702647
Total Ammonia (N)	mg/L	0.043	0.0050	8706915	0.41	0.0050	8706915	0.027	0.0050	8706915
Nitrate plus Nitrite (N)	mg/L	3.13 (1)	0.10	8703816	0.133	0.020	8703816	1.09	0.020	8703816
Total Nitrogen (N)	mg/L	3.39 (1)	0.10	8710131	1.18	0.020	8710131	1.30	0.020	8710131
Total Phosphorus (P)	mg/L	2.03 (1)	0.050	8703609	7.98 (1)	0.50	8705866	0.169	0.0050	8703609
<b>Physical Properties</b>										
Conductivity	uS/cm	847	1.0	8706049	604	1.0	8706049	884	1.0	8706049
pH	pH	7.67		8706046	8.42		8706046	7.57		8706046
<b>Physical Properties</b>										
Total Dissolved Solids	mg/L	586	10	8704841	324	10	8705760	530	10	8705760
RDL = Reportable Detection Limit										
(1) Detection limits raised due to dilution to bring analyte within the calibrated range.										

Maxxam Job #: B760682  
Report Date: 2017/08/21

TETRA TECH CANADA INC.  
Client Project #: ENVSWMO3652  
Sampler Initials: CB

### RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		RO4090		RO4091		RO4092		
Sampling Date		2017/07/19 16:05		2017/07/20 08:45		2017/07/19 13:00		
COC Number		529931-01-01		529931-01-01		529931-01-01		
	UNITS	MW01	QC Batch	MW02	QC Batch	MW03	RDL	QC Batch
<b>ANIONS</b>								
Nitrite (N)	mg/L	<0.0050	8703819	0.0065	8703817	<0.0050	0.0050	8703819
<b>Calculated Parameters</b>								
Filter and HNO <sub>3</sub> Preservation	N/A	FIELD	ONSITE	FIELD	ONSITE	FIELD		ONSITE
Nitrate (N)	mg/L	0.045	8702206	0.069	8702206	<0.020	0.020	8702206
<b>Demand Parameters</b>								
Chemical Oxygen Demand	mg/L	20	8705941	60	8705941	15	10	8705941
<b>Misc. Inorganics</b>								
Dissolved Organic Carbon (C)	mg/L	5.4	8708182	4.3	8708182	4.1	0.50	8708182
Alkalinity (Total as CaCO <sub>3</sub> )	mg/L	228	8706043	398	8706043	280	0.50	8706050
Alkalinity (PP as CaCO <sub>3</sub> )	mg/L	<0.50	8706043	12.4	8706043	6.39	0.50	8706050
Bicarbonate (HCO <sub>3</sub> )	mg/L	278	8706043	455	8706043	327	0.50	8706050
Carbonate (CO <sub>3</sub> )	mg/L	<0.50	8706043	14.8	8706043	7.67	0.50	8706050
Hydroxide (OH)	mg/L	<0.50	8706043	<0.50	8706043	<0.50	0.50	8706050
<b>Anions</b>								
Dissolved Sulphate (SO <sub>4</sub> )	mg/L	19.9	8705310	195	8705310	48.7	0.50	8707013
Dissolved Chloride (Cl)	mg/L	0.86	8705307	1.1	8705307	0.66	0.50	8705307
<b>Nutrients</b>								
Total Total Kjeldahl Nitrogen (Calc)	mg/L	0.270	8702647	0.729	8702647	0.369	0.020	8702647
Total Ammonia (N)	mg/L	0.018	8706915	0.39	8706915	0.22	0.0050	8706915
Nitrate plus Nitrite (N)	mg/L	0.045	8703818	0.075	8703816	<0.020	0.020	8703818
Total Nitrogen (N)	mg/L	0.315	8710131	0.804	8710131	0.369	0.020	8710131
Total Phosphorus (P)	mg/L	0.443	8703609	0.300	8703609	0.136	0.0050	8703609
<b>Physical Properties</b>								
Conductivity	uS/cm	460	8706049	1030	8706049	571	1.0	8706055
pH	pH	8.14	8706046	8.49	8706046	8.46		8706052
<b>Physical Properties</b>								
Total Dissolved Solids	mg/L	252	8705760	634	8705760	318	10	8705760
RDL = Reportable Detection Limit								

Maxxam Job #: B760682  
Report Date: 2017/08/21

TETRA TECH CANADA INC.  
Client Project #: ENVSWMO3652  
Sampler Initials: CB

### RESULTS OF CHEMICAL ANALYSES OF WATER

<b>Maxxam ID</b>		RO4093		
<b>Sampling Date</b>		2017/07/19		
<b>COC Number</b>		529931-01-01		
	<b>UNITS</b>	<b>DUP1</b>	<b>RDL</b>	<b>QC Batch</b>
<b>ANIONS</b>				
Nitrite (N)	mg/L	<0.0050	0.0050	8703819
<b>Calculated Parameters</b>				
Filter and HNO3 Preservation	N/A	FIELD		ONSITE
Nitrate (N)	mg/L	<0.020	0.020	8702206
<b>Demand Parameters</b>				
Chemical Oxygen Demand	mg/L	26	10	8705941
<b>Misc. Inorganics</b>				
Dissolved Organic Carbon (C)	mg/L	3.3	0.50	8708182
Alkalinity (Total as CaCO3)	mg/L	281	0.50	8706050
Alkalinity (PP as CaCO3)	mg/L	5.35	0.50	8706050
Bicarbonate (HCO3)	mg/L	329	0.50	8706050
Carbonate (CO3)	mg/L	6.42	0.50	8706050
Hydroxide (OH)	mg/L	<0.50	0.50	8706050
<b>Anions</b>				
Dissolved Sulphate (SO4)	mg/L	45.3	0.50	8705310
Dissolved Chloride (Cl)	mg/L	0.66	0.50	8705307
<b>Nutrients</b>				
Total Total Kjeldahl Nitrogen (Calc)	mg/L	0.340	0.020	8702647
Total Ammonia (N)	mg/L	0.21	0.0050	8706915
Nitrate plus Nitrite (N)	mg/L	<0.020	0.020	8703818
Total Nitrogen (N)	mg/L	0.340	0.020	8710131
Total Phosphorus (P)	mg/L	0.117	0.0050	8703609
<b>Physical Properties</b>				
Conductivity	uS/cm	564	1.0	8706055
pH	pH	8.42		8706052
<b>Physical Properties</b>				
Total Dissolved Solids	mg/L	288	10	8705760
RDL = Reportable Detection Limit				

Maxxam Job #: B760682  
Report Date: 2017/08/21

TETRA TECH CANADA INC.  
Client Project #: ENVSWMO3652  
Sampler Initials: CB

### LEPH & HEPH WITH CSR/CCME PAH IN WATER (WATER)

Maxxam ID		RO4087	RO4088	RO4089	RO4090	RO4091	RO4092		
Sampling Date		2017/07/19 12:50	2017/07/20 09:20	2017/07/19 13:50	2017/07/19 16:05	2017/07/20 08:45	2017/07/19 13:00		
COC Number		529931-01-01	529931-01-01	529931-01-01	529931-01-01	529931-01-01	529931-01-01		
	UNITS	MW15-01	MW15-02	TEMW12-02	MW01	MW02	MW03	RDL	QC Batch
<b>Polycyclic Aromatics</b>									
Low Molecular Weight PAH's	ug/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	8702319
High Molecular Weight PAH's	ug/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	8702319
Total PAH	ug/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	8702319
Quinoline	ug/L	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	8705955
Naphthalene	ug/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	8705955
2-Methylnaphthalene	ug/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	8705955
Acenaphthylene	ug/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	8705955
Acenaphthene	ug/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	8705955
Fluorene	ug/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	8705955
Phenanthrene	ug/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	8705955
Anthracene	ug/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	8705955
Acridine	ug/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	8705955
Fluoranthene	ug/L	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	8705955
Pyrene	ug/L	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	8705955
Benzo(a)anthracene	ug/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	8705955
Chrysene	ug/L	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	8705955
Benzo(b&j)fluoranthene	ug/L	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	0.030	8705955
Benzo(k)fluoranthene	ug/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	8705955
Benzo(a)pyrene	ug/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	8705955
Indeno(1,2,3-cd)pyrene	ug/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	8705955
Dibenz(a,h)anthracene	ug/L	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	0.0030	8705955
Benzo(g,h,i)perylene	ug/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	8705955
<b>Calculated Parameters</b>									
LEPH (C10-C19 less PAH)	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	8702323
HEPH (C19-C32 less PAH)	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	8702323
<b>Ext. Pet. Hydrocarbon</b>									
EPH (C10-C19)	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	8705980
EPH (C19-C32)	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	8705980
<b>Surrogate Recovery (%)</b>									
O-TERPHENYL (sur.)	%	107	100	112	106	88	106		8705980
D10-ANTHRACENE (sur.)	%	88	88	90	91	85	91		8705955
D8-ACENAPHTHYLENE (sur.)	%	94	92	92	93	93	93		8705955
RDL = Reportable Detection Limit									

Maxxam Job #: B760682  
Report Date: 2017/08/21

TETRA TECH CANADA INC.  
Client Project #: ENVSWMO3652  
Sampler Initials: CB

**LEPH & HEPH WITH CSR/CCME PAH IN WATER (WATER)**

Maxxam ID		RO4087	RO4088	RO4089	RO4090	RO4091	RO4092		
Sampling Date		2017/07/19 12:50	2017/07/20 09:20	2017/07/19 13:50	2017/07/19 16:05	2017/07/20 08:45	2017/07/19 13:00		
COC Number		529931-01-01	529931-01-01	529931-01-01	529931-01-01	529931-01-01	529931-01-01		
	UNITS	MW15-01	MW15-02	TEMW12-02	MW01	MW02	MW03	RDL	QC Batch
D8-NAPHTHALENE (sur.)	%	95	94	93	94	94	94		8705955
TERPHENYL-D14 (sur.)	%	85	83	86	86	72	87		8705955
RDL = Reportable Detection Limit									

Maxxam Job #: B760682  
Report Date: 2017/08/21

TETRA TECH CANADA INC.  
Client Project #: ENVSWMO3652  
Sampler Initials: CB

### LEPH & HEPH WITH CSR/CCME PAH IN WATER (WATER)

<b>Maxxam ID</b>		RO4093		
<b>Sampling Date</b>		2017/07/19		
<b>COC Number</b>		529931-01-01		
	<b>UNITS</b>	<b>DUP1</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Polycyclic Aromatics</b>				
Low Molecular Weight PAH's	ug/L	<0.10	0.10	8702319
High Molecular Weight PAH's	ug/L	<0.050	0.050	8702319
Total PAH	ug/L	<0.10	0.10	8702319
Quinoline	ug/L	<0.020	0.020	8705955
Naphthalene	ug/L	<0.10	0.10	8705955
2-Methylnaphthalene	ug/L	<0.10	0.10	8705955
Acenaphthylene	ug/L	<0.050	0.050	8705955
Acenaphthene	ug/L	<0.050	0.050	8705955
Fluorene	ug/L	<0.050	0.050	8705955
Phenanthrene	ug/L	<0.050	0.050	8705955
Anthracene	ug/L	<0.010	0.010	8705955
Acridine	ug/L	<0.050	0.050	8705955
Fluoranthene	ug/L	<0.020	0.020	8705955
Pyrene	ug/L	<0.020	0.020	8705955
Benzo(a)anthracene	ug/L	<0.010	0.010	8705955
Chrysene	ug/L	<0.020	0.020	8705955
Benzo(b&j)fluoranthene	ug/L	<0.030	0.030	8705955
Benzo(k)fluoranthene	ug/L	<0.050	0.050	8705955
Benzo(a)pyrene	ug/L	<0.0050	0.0050	8705955
Indeno(1,2,3-cd)pyrene	ug/L	<0.050	0.050	8705955
Dibenz(a,h)anthracene	ug/L	<0.0030	0.0030	8705955
Benzo(g,h,i)perylene	ug/L	<0.050	0.050	8705955
<b>Calculated Parameters</b>				
LEPH (C10-C19 less PAH)	mg/L	<0.20	0.20	8702323
HEPH (C19-C32 less PAH)	mg/L	<0.20	0.20	8702323
<b>Ext. Pet. Hydrocarbon</b>				
EPH (C10-C19)	mg/L	<0.20	0.20	8705980
EPH (C19-C32)	mg/L	<0.20	0.20	8705980
<b>Surrogate Recovery (%)</b>				
O-TERPHENYL (sur.)	%	108		8705980
D10-ANTHRACENE (sur.)	%	90		8705955
D8-ACENAPHTHYLENE (sur.)	%	96		8705955
RDL = Reportable Detection Limit				

Maxxam Job #: B760682  
Report Date: 2017/08/21

TETRA TECH CANADA INC.  
Client Project #: ENVSWMO3652  
Sampler Initials: CB

**LEPH & HEPH WITH CSR/CCME PAH IN WATER (WATER)**

<b>Maxxam ID</b>		RO4093		
<b>Sampling Date</b>		2017/07/19		
<b>COC Number</b>		529931-01-01		
	<b>UNITS</b>	<b>DUP1</b>	<b>RDL</b>	<b>QC Batch</b>
D8-NAPHTHALENE (sur.)	%	96		8705955
TERPHENYL-D14 (sur.)	%	87		8705955
RDL = Reportable Detection Limit				

Maxxam Job #: B760682  
Report Date: 2017/08/21

TETRA TECH CANADA INC.  
Client Project #: ENVSWMO3652  
Sampler Initials: CB

### CSR DISSOLVED METALS IN WATER WITH CV HG (WATER)

Maxxam ID		RO4087	RO4088	RO4089	RO4090	RO4091		
Sampling Date		2017/07/19 12:50	2017/07/20 09:20	2017/07/19 13:50	2017/07/19 16:05	2017/07/20 08:45		
COC Number		529931-01-01	529931-01-01	529931-01-01	529931-01-01	529931-01-01		
	UNITS	MW15-01	MW15-02	TEMW12-02	MW01	MW02	RDL	QC Batch
<b>Misc. Inorganics</b>								
Dissolved Hardness (CaCO <sub>3</sub> )	mg/L	407	221	427	234	508	0.50	8702317
<b>Elements</b>								
Dissolved Mercury (Hg)	ug/L	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	8706911
<b>Dissolved Metals by ICPMS</b>								
Dissolved Aluminum (Al)	mg/L	0.0035	0.296	0.0039	0.0049	0.0125	0.0030	8704522
Dissolved Antimony (Sb)	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.00327	0.00050	8704522
Dissolved Arsenic (As)	mg/L	0.00147	0.00257	<0.00010	0.00015	0.00476	0.00010	8704522
Dissolved Barium (Ba)	mg/L	0.132	0.0545	0.112	0.0608	0.0248	0.0010	8704522
Dissolved Beryllium (Be)	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00010	8704522
Dissolved Bismuth (Bi)	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	8704522
Dissolved Boron (B)	mg/L	0.101	<0.050	0.149	<0.050	<0.050	0.050	8704522
Dissolved Cadmium (Cd)	mg/L	0.000047	0.000038	0.000042	0.000014	0.000019	0.000010	8704522
Dissolved Chromium (Cr)	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	8704522
Dissolved Cobalt (Co)	mg/L	<0.00020	0.00066	<0.00020	<0.00020	0.00041	0.00020	8704522
Dissolved Copper (Cu)	mg/L	0.00421	0.00804	0.00352	0.00281	0.00034	0.00020	8704522
Dissolved Iron (Fe)	mg/L	<0.0050	0.394	<0.0050	<0.0050	0.0446	0.0050	8704522
Dissolved Lead (Pb)	mg/L	<0.00020	0.00035	<0.00020	<0.00020	<0.00020	0.00020	8704522
Dissolved Lithium (Li)	mg/L	0.0109	0.0032	0.0107	0.0023	0.0022	0.0020	8704522
Dissolved Manganese (Mn)	mg/L	0.0019	0.128	0.0065	0.0281	0.0824	0.0010	8704522
Dissolved Molybdenum (Mo)	mg/L	0.0029	0.0253	0.0021	0.0044	0.0275	0.0010	8704522
Dissolved Nickel (Ni)	mg/L	0.0025	0.0042	0.0022	<0.0010	0.0107	0.0010	8704522
Dissolved Selenium (Se)	mg/L	0.00179	0.00037	0.00024	0.00012	0.00023	0.00010	8704522
Dissolved Silicon (Si)	mg/L	6.60	5.30	6.74	6.52	6.21	0.10	8704522
Dissolved Silver (Ag)	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000020	8704522
Dissolved Strontium (Sr)	mg/L	0.457	0.848	0.472	0.199	0.439	0.0010	8704522
Dissolved Thallium (Tl)	mg/L	0.000018	0.000012	<0.000010	<0.000010	<0.000010	0.000010	8704522
Dissolved Tin (Sn)	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	8704522
Dissolved Titanium (Ti)	mg/L	<0.0050	0.0144	<0.0050	<0.0050	<0.0050	0.0050	8704522
Dissolved Uranium (U)	mg/L	0.00160	0.00504	0.00157	0.00041	0.00291	0.00010	8704522
Dissolved Vanadium (V)	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	8704522
Dissolved Zinc (Zn)	mg/L	<0.0050	0.0051	<0.0050	<0.0050	<0.0050	0.0050	8704522
Dissolved Zirconium (Zr)	mg/L	<0.00010	0.00078	<0.00010	<0.00010	0.00018	0.00010	8704522
RDL = Reportable Detection Limit								

Maxxam Job #: B760682  
Report Date: 2017/08/21

TETRA TECH CANADA INC.  
Client Project #: ENVSWMO3652  
Sampler Initials: CB

### CSR DISSOLVED METALS IN WATER WITH CV HG (WATER)

Maxxam ID		RO4087	RO4088	RO4089	RO4090	RO4091		
Sampling Date		2017/07/19 12:50	2017/07/20 09:20	2017/07/19 13:50	2017/07/19 16:05	2017/07/20 08:45		
COC Number		529931-01-01	529931-01-01	529931-01-01	529931-01-01	529931-01-01		
	UNITS	MW15-01	MW15-02	TEMW12-02	MW01	MW02	RDL	QC Batch
Dissolved Calcium (Ca)	mg/L	124	36.5	129	79.3	54.8	0.050	8702318
Dissolved Magnesium (Mg)	mg/L	23.4	31.6	25.5	8.68	90.1	0.050	8702318
Dissolved Potassium (K)	mg/L	23.3	4.54	16.0	5.51	3.55	0.050	8702318
Dissolved Sodium (Na)	mg/L	23.1	43.8	33.2	4.57	39.1	0.050	8702318
Dissolved Sulphur (S)	mg/L	15.2	24.1	17.3	6.4	70.4	3.0	8702318
RDL = Reportable Detection Limit								

Maxxam Job #: B760682  
Report Date: 2017/08/21

TETRA TECH CANADA INC.  
Client Project #: ENVSWMO3652  
Sampler Initials: CB

### CSR DISSOLVED METALS IN WATER WITH CV HG (WATER)

<b>Maxxam ID</b>		RO4092	RO4093		
<b>Sampling Date</b>		2017/07/19 13:00	2017/07/19		
<b>COC Number</b>		529931-01-01	529931-01-01		
	<b>UNITS</b>	<b>MW03</b>	<b>DUP1</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Misc. Inorganics</b>					
Dissolved Hardness (CaCO3)	mg/L	275	277	0.50	8702317
<b>Elements</b>					
Dissolved Mercury (Hg)	ug/L	<0.010	<0.010	0.010	8706911
<b>Dissolved Metals by ICPMS</b>					
Dissolved Aluminum (Al)	mg/L	0.0162	0.0148	0.0030	8704522
Dissolved Antimony (Sb)	mg/L	<0.00050	<0.00050	0.00050	8704522
Dissolved Arsenic (As)	mg/L	0.00524	0.00541	0.00010	8704522
Dissolved Barium (Ba)	mg/L	0.0894	0.0919	0.0010	8704522
Dissolved Beryllium (Be)	mg/L	<0.00010	<0.00010	0.00010	8704522
Dissolved Bismuth (Bi)	mg/L	<0.0010	<0.0010	0.0010	8704522
Dissolved Boron (B)	mg/L	<0.050	<0.050	0.050	8704522
Dissolved Cadmium (Cd)	mg/L	0.000011	0.000010	0.000010	8704522
Dissolved Chromium (Cr)	mg/L	<0.0010	<0.0010	0.0010	8704522
Dissolved Cobalt (Co)	mg/L	<0.00020	<0.00020	0.00020	8704522
Dissolved Copper (Cu)	mg/L	<0.00020	<0.00020	0.00020	8704522
Dissolved Iron (Fe)	mg/L	0.123	0.118	0.0050	8704522
Dissolved Lead (Pb)	mg/L	<0.00020	<0.00020	0.00020	8704522
Dissolved Lithium (Li)	mg/L	<0.0020	<0.0020	0.0020	8704522
Dissolved Manganese (Mn)	mg/L	0.0379	0.0378	0.0010	8704522
Dissolved Molybdenum (Mo)	mg/L	0.0187	0.0192	0.0010	8704522
Dissolved Nickel (Ni)	mg/L	<0.0010	<0.0010	0.0010	8704522
Dissolved Selenium (Se)	mg/L	<0.00010	<0.00010	0.00010	8704522
Dissolved Silicon (Si)	mg/L	5.84	5.91	0.10	8704522
Dissolved Silver (Ag)	mg/L	<0.000020	<0.000020	0.000020	8704522
Dissolved Strontium (Sr)	mg/L	0.483	0.515	0.0010	8704522
Dissolved Thallium (Tl)	mg/L	<0.000010	<0.000010	0.000010	8704522
Dissolved Tin (Sn)	mg/L	<0.0050	<0.0050	0.0050	8704522
Dissolved Titanium (Ti)	mg/L	<0.0050	<0.0050	0.0050	8704522
Dissolved Uranium (U)	mg/L	0.00413	0.00425	0.00010	8704522
Dissolved Vanadium (V)	mg/L	<0.0050	<0.0050	0.0050	8704522
Dissolved Zinc (Zn)	mg/L	<0.0050	<0.0050	0.0050	8704522
Dissolved Zirconium (Zr)	mg/L	<0.00010	<0.00010	0.00010	8704522
RDL = Reportable Detection Limit					

Maxxam Job #: B760682  
Report Date: 2017/08/21

TETRA TECH CANADA INC.  
Client Project #: ENVSWMO3652  
Sampler Initials: CB

**CSR DISSOLVED METALS IN WATER WITH CV HG (WATER)**

<b>Maxxam ID</b>		RO4092	RO4093		
<b>Sampling Date</b>		2017/07/19 13:00	2017/07/19		
<b>COC Number</b>		529931-01-01	529931-01-01		
	<b>UNITS</b>	<b>MW03</b>	<b>DUP1</b>	<b>RDL</b>	<b>QC Batch</b>
Dissolved Calcium (Ca)	mg/L	36.5	36.1	0.050	8702318
Dissolved Magnesium (Mg)	mg/L	44.5	45.3	0.050	8702318
Dissolved Potassium (K)	mg/L	2.43	2.47	0.050	8702318
Dissolved Sodium (Na)	mg/L	15.8	15.3	0.050	8702318
Dissolved Sulphur (S)	mg/L	14.8	15.0	3.0	8702318
RDL = Reportable Detection Limit					

Maxxam Job #: B760682  
Report Date: 2017/08/21

TETRA TECH CANADA INC.  
Client Project #: ENVSWMO3652  
Sampler Initials: CB

### CSR VOC + VPH IN WATER (WATER)

Maxxam ID		RO4087	RO4088		RO4089	RO4090		
Sampling Date		2017/07/19 12:50	2017/07/20 09:20		2017/07/19 13:50	2017/07/19 16:05		
COC Number		529931-01-01	529931-01-01		529931-01-01	529931-01-01		
	UNITS	MW15-01	MW15-02	QC Batch	TEMW12-02	MW01	RDL	QC Batch
<b>Volatiles</b>								
VPH (VH6 to 10 - BTEX)	ug/L	<300	<300	8702324	<300	<300	300	8702324
Chloromethane	ug/L	<1.0	<1.0	8704011	<1.0	<1.0	1.0	8704011
Vinyl chloride	ug/L	<0.50	<0.50	8704011	<0.50	<0.50	0.50	8704011
Chloroethane	ug/L	<1.0	<1.0	8704011	<1.0	<1.0	1.0	8704011
Trichlorofluoromethane	ug/L	<4.0	<4.0	8704011	<4.0	<4.0	4.0	8704011
1,1,2Trichloro-1,2,2Trifluoroethane	ug/L	<2.0	<2.0	8704011	<2.0	<2.0	2.0	8704011
Dichlorodifluoromethane	ug/L	<2.0	<2.0	8704011	<2.0	<2.0	2.0	8704011
1,1-dichloroethene	ug/L	<0.50	<0.50	8704011	<0.50	<0.50	0.50	8704011
Dichloromethane	ug/L	<2.0	<2.0	8714707	<2.0	<2.0	2.0	8704011
trans-1,2-dichloroethene	ug/L	<1.0	<1.0	8704011	<1.0	<1.0	1.0	8704011
1,1-dichloroethane	ug/L	<0.50	<0.50	8704011	<0.50	<0.50	0.50	8704011
cis-1,2-dichloroethene	ug/L	<1.0	<1.0	8704011	<1.0	<1.0	1.0	8704011
Chloroform	ug/L	<1.0	<1.0	8704011	<1.0	<1.0	1.0	8704011
1,1,1-trichloroethane	ug/L	<0.50	<0.50	8704011	<0.50	<0.50	0.50	8704011
1,2-dichloroethane	ug/L	<0.50	<0.50	8704011	<0.50	<0.50	0.50	8704011
Carbon tetrachloride	ug/L	<0.50	<0.50	8704011	<0.50	<0.50	0.50	8704011
Benzene	ug/L	<0.40	<0.40	8704011	<0.40	<0.40	0.40	8704011
Methyl-tert-butylether (MTBE)	ug/L	<4.0	<4.0	8704011	<4.0	<4.0	4.0	8704011
1,2-dichloropropane	ug/L	<0.50	<0.50	8704011	<0.50	<0.50	0.50	8704011
cis-1,3-dichloropropene	ug/L	<1.0	<1.0	8704011	<1.0	<1.0	1.0	8704011
trans-1,3-dichloropropene	ug/L	<1.0	<1.0	8704011	<1.0	<1.0	1.0	8704011
Bromomethane	ug/L	<1.0	<1.0	8704011	<1.0	<1.0	1.0	8704011
1,1,2-trichloroethane	ug/L	<0.50	<0.50	8704011	<0.50	<0.50	0.50	8704011
Trichloroethene	ug/L	<0.50	<0.50	8704011	<0.50	<0.50	0.50	8704011
Chlorodibromomethane	ug/L	<1.0	<1.0	8704011	<1.0	<1.0	1.0	8704011
1,2-dibromoethane	ug/L	<0.20	<0.20	8704011	<0.20	<0.20	0.20	8704011
Tetrachloroethene	ug/L	<0.50	<0.50	8704011	<0.50	<0.50	0.50	8704011
Bromodichloromethane	ug/L	<1.0	<1.0	8704011	<1.0	<1.0	1.0	8704011
Toluene	ug/L	<0.40	<0.40	8704011	<0.40	<0.40	0.40	8704011
Ethylbenzene	ug/L	<0.40	<0.40	8704011	<0.40	<0.40	0.40	8704011
m & p-Xylene	ug/L	<0.40	<0.40	8704011	<0.40	<0.40	0.40	8704011
Bromoform	ug/L	<1.0	<1.0	8704011	<1.0	<1.0	1.0	8704011
RDL = Reportable Detection Limit								

Maxxam Job #: B760682  
Report Date: 2017/08/21

TETRA TECH CANADA INC.  
Client Project #: ENVSWMO3652  
Sampler Initials: CB

### CSR VOC + VPH IN WATER (WATER)

Maxxam ID		RO4087	RO4088		RO4089	RO4090		
Sampling Date		2017/07/19 12:50	2017/07/20 09:20		2017/07/19 13:50	2017/07/19 16:05		
COC Number		529931-01-01	529931-01-01		529931-01-01	529931-01-01		
	UNITS	MW15-01	MW15-02	QC Batch	TEMW12-02	MW01	RDL	QC Batch
Styrene	ug/L	<0.50	<0.50	8704011	<0.50	<0.50	0.50	8704011
o-Xylene	ug/L	<0.40	<0.40	8704011	<0.40	<0.40	0.40	8704011
Xylenes (Total)	ug/L	<0.40	<0.40	8704011	<0.40	<0.40	0.40	8704011
1,1,1,2-tetrachloroethane	ug/L	<0.50	<0.50	8704011	<0.50	<0.50	0.50	8704011
1,1,2,2-tetrachloroethane	ug/L	<0.50	<0.50	8704011	<0.50	<0.50	0.50	8704011
1,2-dichlorobenzene	ug/L	<0.50	<0.50	8704011	<0.50	<0.50	0.50	8704011
1,3-dichlorobenzene	ug/L	<0.50	<0.50	8704011	<0.50	<0.50	0.50	8704011
1,4-dichlorobenzene	ug/L	<0.50	<0.50	8704011	<0.50	<0.50	0.50	8704011
Chlorobenzene	ug/L	<0.50	<0.50	8704011	<0.50	<0.50	0.50	8704011
1,2,3-trichlorobenzene	ug/L	<2.0	<2.0	8704011	<2.0	<2.0	2.0	8704011
1,2,4-trichlorobenzene	ug/L	<2.0	<2.0	8704011	<2.0	<2.0	2.0	8704011
Hexachlorobutadiene	ug/L	<0.50	<0.50	8704011	<0.50	<0.50	0.50	8704011
VH C6-C10	ug/L	<300	<300	8704011	<300	<300	300	8704011
<b>Surrogate Recovery (%)</b>								
1,4-Difluorobenzene (sur.)	%	102	101	8704011	87	85		8704011
4-Bromofluorobenzene (sur.)	%	101	101	8704011	85	82		8704011
D4-1,2-Dichloroethane (sur.)	%	109	110	8704011	93	91		8704011
RDL = Reportable Detection Limit								

Maxxam Job #: B760682  
Report Date: 2017/08/21

TETRA TECH CANADA INC.  
Client Project #: ENVSWMO3652  
Sampler Initials: CB

### CSR VOC + VPH IN WATER (WATER)

Maxxam ID		RO4091	RO4092	RO4093		
Sampling Date		2017/07/20 08:45	2017/07/19 13:00	2017/07/19		
COC Number		529931-01-01	529931-01-01	529931-01-01		
	UNITS	MW02	MW03	DUP1	RDL	QC Batch
<b>Volatiles</b>						
VPH (VH6 to 10 - BTEX)	ug/L	<300	<300	<300	300	8702324
Chloromethane	ug/L	<1.0	<1.0	<1.0	1.0	8704074
Vinyl chloride	ug/L	<0.50	<0.50	<0.50	0.50	8704074
Chloroethane	ug/L	<1.0	<1.0	<1.0	1.0	8704074
Trichlorofluoromethane	ug/L	<4.0	<4.0	<4.0	4.0	8704074
1,1,2Trichloro-1,2,2Trifluoroethane	ug/L	<2.0	<2.0	<2.0	2.0	8704074
Dichlorodifluoromethane	ug/L	<2.0	<2.0	<2.0	2.0	8704074
1,1-dichloroethene	ug/L	<0.50	<0.50	<0.50	0.50	8704074
Dichloromethane	ug/L	<2.0	<2.0	<2.0	2.0	8704074
trans-1,2-dichloroethene	ug/L	<1.0	<1.0	<1.0	1.0	8704074
1,1-dichloroethane	ug/L	<0.50	<0.50	<0.50	0.50	8704074
cis-1,2-dichloroethene	ug/L	<1.0	<1.0	<1.0	1.0	8704074
Chloroform	ug/L	<1.0	<1.0	<1.0	1.0	8704074
1,1,1-trichloroethane	ug/L	<0.50	<0.50	<0.50	0.50	8704074
1,2-dichloroethane	ug/L	<0.50	<0.50	<0.50	0.50	8704074
Carbon tetrachloride	ug/L	<0.50	<0.50	<0.50	0.50	8704074
Benzene	ug/L	<0.40	<0.40	<0.40	0.40	8704074
Methyl-tert-butylether (MTBE)	ug/L	<4.0	<4.0	<4.0	4.0	8704074
1,2-dichloropropane	ug/L	<0.50	<0.50	<0.50	0.50	8704074
cis-1,3-dichloropropene	ug/L	<1.0	<1.0	<1.0	1.0	8704074
trans-1,3-dichloropropene	ug/L	<1.0	<1.0	<1.0	1.0	8704074
Bromomethane	ug/L	<1.0	<1.0	<1.0	1.0	8704074
1,1,2-trichloroethane	ug/L	<0.50	<0.50	<0.50	0.50	8704074
Trichloroethene	ug/L	<0.50	<0.50	<0.50	0.50	8704074
Chlorodibromomethane	ug/L	<1.0	<1.0	<1.0	1.0	8704074
1,2-dibromoethane	ug/L	<0.20	<0.20	<0.20	0.20	8704074
Tetrachloroethene	ug/L	<0.50	<0.50	<0.50	0.50	8704074
Bromodichloromethane	ug/L	<1.0	<1.0	<1.0	1.0	8704074
Toluene	ug/L	3.4	<0.40	<0.40	0.40	8704074
Ethylbenzene	ug/L	<0.40	<0.40	<0.40	0.40	8704074
m & p-Xylene	ug/L	<0.40	<0.40	<0.40	0.40	8704074
Bromoform	ug/L	<1.0	<1.0	<1.0	1.0	8704074
RDL = Reportable Detection Limit						

Maxxam Job #: B760682  
Report Date: 2017/08/21

TETRA TECH CANADA INC.  
Client Project #: ENVSWMO3652  
Sampler Initials: CB

### CSR VOC + VPH IN WATER (WATER)

Maxxam ID		RO4091	RO4092	RO4093		
Sampling Date		2017/07/20 08:45	2017/07/19 13:00	2017/07/19		
COC Number		529931-01-01	529931-01-01	529931-01-01		
	UNITS	MW02	MW03	DUP1	RDL	QC Batch
Styrene	ug/L	<0.50	<0.50	<0.50	0.50	8704074
o-Xylene	ug/L	<0.40	<0.40	<0.40	0.40	8704074
Xylenes (Total)	ug/L	<0.40	<0.40	<0.40	0.40	8704074
1,1,1,2-tetrachloroethane	ug/L	<0.50	<0.50	<0.50	0.50	8704074
1,1,2,2-tetrachloroethane	ug/L	<0.50	<0.50	<0.50	0.50	8704074
1,2-dichlorobenzene	ug/L	<0.50	<0.50	<0.50	0.50	8704074
1,3-dichlorobenzene	ug/L	<0.50	<0.50	<0.50	0.50	8704074
1,4-dichlorobenzene	ug/L	<0.50	<0.50	<0.50	0.50	8704074
Chlorobenzene	ug/L	<0.50	<0.50	<0.50	0.50	8704074
1,2,3-trichlorobenzene	ug/L	<2.0	<2.0	<2.0	2.0	8704074
1,2,4-trichlorobenzene	ug/L	<2.0	<2.0	<2.0	2.0	8704074
Hexachlorobutadiene	ug/L	<0.50	<0.50	<0.50	0.50	8704074
VH C6-C10	ug/L	<300	<300	<300	300	8704074
<b>Surrogate Recovery (%)</b>						
1,4-Difluorobenzene (sur.)	%	83	87	102		8704074
4-Bromofluorobenzene (sur.)	%	80	87	102		8704074
D4-1,2-Dichloroethane (sur.)	%	92	97	116		8704074
RDL = Reportable Detection Limit						

Maxxam Job #: B760682  
Report Date: 2017/08/21

TETRA TECH CANADA INC.  
Client Project #: ENVSWMO3652  
Sampler Initials: CB

### GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	9.0°C
Package 2	9.0°C

Version 2: Report reissued to include corrected results for Dichloromethane on samples RO4087 and RO4088.

Sample RO4087, VOCs, VH, F1, LH in Water by HS GC/MS: Test repeated.

Sample RO4088, VOCs, VH, F1, LH in Water by HS GC/MS: Test repeated.

**Results relate only to the items tested.**

Maxxam Job #: B760682  
Report Date: 2017/08/21

## QUALITY ASSURANCE REPORT

TETRA TECH CANADA INC.  
Client Project #: ENVSWMO3652  
Sampler Initials: CB

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8704011	1,4-Difluorobenzene (sur.)	2017/07/23	87	70 - 130	101	70 - 130	102	%		
8704011	4-Bromofluorobenzene (sur.)	2017/07/23	94	70 - 130	106	70 - 130	99	%		
8704011	D4-1,2-Dichloroethane (sur.)	2017/07/23	96	70 - 130	104	70 - 130	103	%		
8704074	1,4-Difluorobenzene (sur.)	2017/07/24	88	70 - 130	100	70 - 130	101	%		
8704074	4-Bromofluorobenzene (sur.)	2017/07/24	94	70 - 130	105	70 - 130	96	%		
8704074	D4-1,2-Dichloroethane (sur.)	2017/07/24	97	70 - 130	109	70 - 130	105	%		
8705955	D10-ANTHRACENE (sur.)	2017/07/25	90	60 - 130	92	60 - 130	94	%		
8705955	D8-ACENAPHTHYLENE (sur.)	2017/07/25	92	50 - 130	92	50 - 130	93	%		
8705955	D8-NAPHTHALENE (sur.)	2017/07/25	90	50 - 130	89	50 - 130	92	%		
8705955	TERPHENYL-D14 (sur.)	2017/07/25	88	60 - 130	89	60 - 130	95	%		
8705980	O-TERPHENYL (sur.)	2017/07/26	105	60 - 140	106	60 - 140	108	%		
8703609	Total Phosphorus (P)	2017/07/24	NC	80 - 120	99	80 - 120	<0.0050	mg/L	0.86	20
8703816	Nitrate plus Nitrite (N)	2017/07/22	NC	80 - 120	104	80 - 120	<0.020	mg/L	0.23	25
8703817	Nitrite (N)	2017/07/22	NC	80 - 120	100	80 - 120	<0.0050	mg/L	1.4	20
8703818	Nitrate plus Nitrite (N)	2017/07/22			105	80 - 120	<0.020	mg/L		
8703819	Nitrite (N)	2017/07/22			101	80 - 120	<0.0050	mg/L		
8704011	1,1,1,2-tetrachloroethane	2017/07/23	NC	70 - 130	103	70 - 130	<0.50	ug/L	5.3	30
8704011	1,1,1-trichloroethane	2017/07/23	97	70 - 130	108	70 - 130	<0.50	ug/L	4.9	30
8704011	1,1,2,2-tetrachloroethane	2017/07/23	NC	70 - 130	95	70 - 130	<0.50	ug/L	0.67	30
8704011	1,1,2Trichloro-1,2,2Trifluoroethane	2017/07/23					<2.0	ug/L	NC	30
8704011	1,1,2-trichloroethane	2017/07/23	NC	70 - 130	101	70 - 130	<0.50	ug/L	6.5	30
8704011	1,1-dichloroethane	2017/07/23	NC	70 - 130	103	70 - 130	<0.50	ug/L	6.4	30
8704011	1,1-dichloroethene	2017/07/23	NC	70 - 130	111	70 - 130	<0.50	ug/L	7.1	30
8704011	1,2,3-trichlorobenzene	2017/07/23	112	70 - 130	98	70 - 130	<2.0	ug/L		
8704011	1,2,4-trichlorobenzene	2017/07/23	NC	70 - 130	96	70 - 130	<2.0	ug/L		
8704011	1,2-dibromoethane	2017/07/23	94	70 - 130	100	70 - 130	<0.20	ug/L		
8704011	1,2-dichlorobenzene	2017/07/23	NC	70 - 130	103	70 - 130	<0.50	ug/L	0.71	30
8704011	1,2-dichloroethane	2017/07/23	90	70 - 130	102	70 - 130	<0.50	ug/L	3.3	30
8704011	1,2-dichloropropane	2017/07/23	NC	70 - 130	101	70 - 130	<0.50	ug/L	5.3	30
8704011	1,3-dichlorobenzene	2017/07/23	109	70 - 130	104	70 - 130	<0.50	ug/L	NC	30
8704011	1,4-dichlorobenzene	2017/07/23	106	70 - 130	103	70 - 130	<0.50	ug/L	NC	30

Maxxam Job #: B760682  
Report Date: 2017/08/21

# QUALITY ASSURANCE REPORT(CONT'D)

TETRA TECH CANADA INC.  
Client Project #: ENVSWMO3652  
Sampler Initials: CB

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8704011	Benzene	2017/07/23	NC	70 - 130	100	70 - 130	<0.40	ug/L	4.5	30
8704011	Bromodichloromethane	2017/07/23	94	70 - 130	102	70 - 130	<1.0	ug/L	NC	30
8704011	Bromoform	2017/07/23	NC	70 - 130	98	70 - 130	<1.0	ug/L	0.44	30
8704011	Bromomethane	2017/07/23	112	60 - 140	120	60 - 140	<1.0	ug/L	NC	30
8704011	Carbon tetrachloride	2017/07/23	NC	70 - 130	103	70 - 130	<0.50	ug/L	11	30
8704011	Chlorobenzene	2017/07/23	91	70 - 130	101	70 - 130	<0.50	ug/L	7.4	30
8704011	Chlorodibromomethane	2017/07/23	100	70 - 130	106	70 - 130	<1.0	ug/L	NC	30
8704011	Chloroethane	2017/07/23	108	60 - 140	123	60 - 140	<1.0	ug/L	7.3	30
8704011	Chloroform	2017/07/23	NC	70 - 130	104	70 - 130	<1.0	ug/L	6.3	30
8704011	Chloromethane	2017/07/23	96	60 - 140	109	60 - 140	<1.0	ug/L	9.0	30
8704011	cis-1,2-dichloroethene	2017/07/23	NC	70 - 130	108	70 - 130	<1.0	ug/L	6.2	30
8704011	cis-1,3-dichloropropene	2017/07/23	114	70 - 130	116	70 - 130	<1.0	ug/L	NC	30
8704011	Dichlorodifluoromethane	2017/07/23	122	60 - 140	138	60 - 140	<2.0	ug/L	NC	30
8704011	Dichloromethane	2017/07/23	NC	70 - 130	107	70 - 130	<2.0	ug/L	7.5	30
8704011	Ethylbenzene	2017/07/23	NC	70 - 130	102	70 - 130	<0.40	ug/L	5.1	30
8704011	Hexachlorobutadiene	2017/07/23	NC	70 - 130	105	70 - 130	<0.50	ug/L		
8704011	m & p-Xylene	2017/07/23	101	70 - 130	107	70 - 130	<0.40	ug/L	NC	30
8704011	Methyl-tert-butylether (MTBE)	2017/07/23	NC	70 - 130	112	70 - 130	<4.0	ug/L	7.1	30
8704011	o-Xylene	2017/07/23	NC	70 - 130	102	70 - 130	<0.40	ug/L	5.6	30
8704011	Styrene	2017/07/23	NC	70 - 130	107	70 - 130	<0.50	ug/L	4.8	30
8704011	Tetrachloroethene	2017/07/23	NC	70 - 130	107	70 - 130	<0.50	ug/L	5.3	30
8704011	Toluene	2017/07/23	NC	70 - 130	103	70 - 130	<0.40	ug/L	5.3	30
8704011	trans-1,2-dichloroethene	2017/07/23	NC	70 - 130	105	70 - 130	<1.0	ug/L	6.5	30
8704011	trans-1,3-dichloropropene	2017/07/23	101	70 - 130	99	70 - 130	<1.0	ug/L	NC	30
8704011	Trichloroethene	2017/07/23	NC	70 - 130	104	70 - 130	<0.50	ug/L	5.1	30
8704011	Trichlorofluoromethane	2017/07/23	123	60 - 140	138	60 - 140	<4.0	ug/L	6.0	30
8704011	VH C6-C10	2017/07/23			112	70 - 130	<300	ug/L	5.5	30
8704011	Vinyl chloride	2017/07/23	107	60 - 140	120	60 - 140	<0.50	ug/L	NC	30
8704011	Xylenes (Total)	2017/07/23					<0.40	ug/L	5.6	30
8704074	1,1,1,2-tetrachloroethane	2017/07/24	100	70 - 130	105	70 - 130	<0.50	ug/L	NC	30
8704074	1,1,1-trichloroethane	2017/07/24	103	70 - 130	108	70 - 130	<0.50	ug/L	NC	30

Maxxam Job #: B760682  
Report Date: 2017/08/21

## QUALITY ASSURANCE REPORT(CONT'D)

TETRA TECH CANADA INC.  
Client Project #: ENVSWMO3652  
Sampler Initials: CB

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8704074	1,1,2,2-tetrachloroethane	2017/07/24	96	70 - 130	99	70 - 130	<0.50	ug/L	NC	30
8704074	1,1,2Trichloro-1,2,2Trifluoroethane	2017/07/24					<2.0	ug/L	NC	30
8704074	1,1,2-trichloroethane	2017/07/24	98	70 - 130	103	70 - 130	<0.50	ug/L	NC	30
8704074	1,1-dichloroethane	2017/07/24	100	70 - 130	103	70 - 130	<0.50	ug/L	NC	30
8704074	1,1-dichloroethene	2017/07/24	106	70 - 130	111	70 - 130	<0.50	ug/L	NC	30
8704074	1,2,3-trichlorobenzene	2017/07/24	100	70 - 130	101	70 - 130	<2.0	ug/L	NC	30
8704074	1,2,4-trichlorobenzene	2017/07/24	97	70 - 130	96	70 - 130	<2.0	ug/L	NC	30
8704074	1,2-dibromoethane	2017/07/24	95	70 - 130	101	70 - 130	<0.20	ug/L	NC	30
8704074	1,2-dichlorobenzene	2017/07/24	102	70 - 130	104	70 - 130	<0.50	ug/L	NC	30
8704074	1,2-dichloroethane	2017/07/24	99	70 - 130	103	70 - 130	<0.50	ug/L	NC	30
8704074	1,2-dichloropropane	2017/07/24	96	70 - 130	101	70 - 130	<0.50	ug/L	NC	30
8704074	1,3-dichlorobenzene	2017/07/24	101	70 - 130	102	70 - 130	<0.50	ug/L	NC	30
8704074	1,4-dichlorobenzene	2017/07/24	99	70 - 130	99	70 - 130	<0.50	ug/L	NC	30
8704074	Benzene	2017/07/24	96	70 - 130	100	70 - 130	<0.40	ug/L	NC	30
8704074	Bromodichloromethane	2017/07/24	99	70 - 130	103	70 - 130	<1.0	ug/L	NC	30
8704074	Bromoform	2017/07/24	97	70 - 130	101	70 - 130	<1.0	ug/L	NC	30
8704074	Bromomethane	2017/07/24	110	60 - 140	111	60 - 140	<1.0	ug/L	NC	30
8704074	Carbon tetrachloride	2017/07/24	100	70 - 130	103	70 - 130	<0.50	ug/L	NC	30
8704074	Chlorobenzene	2017/07/24	95	70 - 130	100	70 - 130	<0.50	ug/L	NC	30
8704074	Chlorodibromomethane	2017/07/24	102	70 - 130	109	70 - 130	<1.0	ug/L	NC	30
8704074	Chloroethane	2017/07/24	133	60 - 140	131	60 - 140	<1.0	ug/L	NC	30
8704074	Chloroform	2017/07/24	99	70 - 130	104	70 - 130	<1.0	ug/L	NC	30
8704074	Chloromethane	2017/07/24	103	60 - 140	108	60 - 140	<1.0	ug/L	NC	30
8704074	cis-1,2-dichloroethene	2017/07/24	101	70 - 130	105	70 - 130	<1.0	ug/L	NC	30
8704074	cis-1,3-dichloropropene	2017/07/24	95	70 - 130	97	70 - 130	<1.0	ug/L	NC	30
8704074	Dichlorodifluoromethane	2017/07/24	132	60 - 140	139	60 - 140	<2.0	ug/L	NC	30
8704074	Dichloromethane	2017/07/24	104	70 - 130	109	70 - 130	<2.0	ug/L	NC	30
8704074	Ethylbenzene	2017/07/24	95	70 - 130	100	70 - 130	<0.40	ug/L	NC	30
8704074	Hexachlorobutadiene	2017/07/24	104	70 - 130	103	70 - 130	<0.50	ug/L	NC	30
8704074	m & p-Xylene	2017/07/24	100	70 - 130	104	70 - 130	<0.40	ug/L	NC	30
8704074	Methyl-tert-butylether (MTBE)	2017/07/24	105	70 - 130	112	70 - 130	<4.0	ug/L	NC	30

Maxxam Job #: B760682  
Report Date: 2017/08/21

# QUALITY ASSURANCE REPORT(CONT'D)

TETRA TECH CANADA INC.  
Client Project #: ENVSWMO3652  
Sampler Initials: CB

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8704074	o-Xylene	2017/07/24	96	70 - 130	101	70 - 130	<0.40	ug/L	NC	30
8704074	Styrene	2017/07/24	101	70 - 130	105	70 - 130	<0.50	ug/L	NC	30
8704074	Tetrachloroethene	2017/07/24	100	70 - 130	105	70 - 130	<0.50	ug/L	NC	30
8704074	Toluene	2017/07/24	97	70 - 130	102	70 - 130	<0.40	ug/L	NC	30
8704074	trans-1,2-dichloroethene	2017/07/24	98	70 - 130	102	70 - 130	<1.0	ug/L	NC	30
8704074	trans-1,3-dichloropropene	2017/07/24	76	70 - 130	79	70 - 130	<1.0	ug/L	NC	30
8704074	Trichloroethene	2017/07/24	98	70 - 130	103	70 - 130	<0.50	ug/L	NC	30
8704074	Trichlorofluoromethane	2017/07/24	133	60 - 140	139	60 - 140	<4.0	ug/L	NC	30
8704074	VH C6-C10	2017/07/24			113	70 - 130	<300	ug/L	NC	30
8704074	Vinyl chloride	2017/07/24	113	60 - 140	119	60 - 140	<0.50	ug/L	NC	30
8704074	Xylenes (Total)	2017/07/24					<0.40	ug/L	NC	30
8704522	Dissolved Aluminum (Al)	2017/07/25	109	80 - 120	103	80 - 120	<0.0030	mg/L	NC	20
8704522	Dissolved Antimony (Sb)	2017/07/25	99	80 - 120	98	80 - 120	<0.00050	mg/L	NC	20
8704522	Dissolved Arsenic (As)	2017/07/25	105	80 - 120	97	80 - 120	<0.00010	mg/L	3.6	20
8704522	Dissolved Barium (Ba)	2017/07/25	NC	80 - 120	101	80 - 120	<0.0010	mg/L	1.0	20
8704522	Dissolved Beryllium (Be)	2017/07/25	106	80 - 120	103	80 - 120	<0.00010	mg/L	NC	20
8704522	Dissolved Bismuth (Bi)	2017/07/25	91	80 - 120	96	80 - 120	<0.0010	mg/L	NC	20
8704522	Dissolved Boron (B)	2017/07/25	99	80 - 120	95	80 - 120	<0.050	mg/L	NC	20
8704522	Dissolved Cadmium (Cd)	2017/07/25	96	80 - 120	97	80 - 120	<0.000010	mg/L	NC	20
8704522	Dissolved Chromium (Cr)	2017/07/25	96	80 - 120	97	80 - 120	<0.0010	mg/L	NC	20
8704522	Dissolved Cobalt (Co)	2017/07/25	95	80 - 120	99	80 - 120	<0.00020	mg/L	NC	20
8704522	Dissolved Copper (Cu)	2017/07/25	91	80 - 120	100	80 - 120	<0.00020	mg/L	3.4	20
8704522	Dissolved Iron (Fe)	2017/07/25	101	80 - 120	105	80 - 120	<0.0050	mg/L	NC	20
8704522	Dissolved Lead (Pb)	2017/07/25	95	80 - 120	99	80 - 120	<0.00020	mg/L	NC	20
8704522	Dissolved Lithium (Li)	2017/07/25	101	80 - 120	106	80 - 120	<0.0020	mg/L	3.7	20
8704522	Dissolved Manganese (Mn)	2017/07/25	94	80 - 120	98	80 - 120	<0.0010	mg/L	0.99	20
8704522	Dissolved Molybdenum (Mo)	2017/07/25	NC	80 - 120	100	80 - 120	<0.0010	mg/L	1.8	20
8704522	Dissolved Nickel (Ni)	2017/07/25	95	80 - 120	102	80 - 120	<0.0010	mg/L	NC	20
8704522	Dissolved Selenium (Se)	2017/07/25	101	80 - 120	96	80 - 120	<0.00010	mg/L	1.1	20
8704522	Dissolved Silicon (Si)	2017/07/25					<0.10	mg/L	3.2	20
8704522	Dissolved Silver (Ag)	2017/07/25	99	80 - 120	104	80 - 120	<0.000020	mg/L	NC	20

Maxxam Job #: B760682  
Report Date: 2017/08/21

## QUALITY ASSURANCE REPORT(CONT'D)

TETRA TECH CANADA INC.  
Client Project #: ENVSWMO3652  
Sampler Initials: CB

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8704522	Dissolved Strontium (Sr)	2017/07/25	NC	80 - 120	93	80 - 120	<0.0010	mg/L	4.7	20
8704522	Dissolved Thallium (Tl)	2017/07/25	93	80 - 120	95	80 - 120	<0.000010	mg/L	NC	20
8704522	Dissolved Tin (Sn)	2017/07/25	99	80 - 120	101	80 - 120	<0.0050	mg/L	NC	20
8704522	Dissolved Titanium (Ti)	2017/07/25	99	80 - 120	97	80 - 120	<0.0050	mg/L	NC	20
8704522	Dissolved Uranium (U)	2017/07/25	101	80 - 120	96	80 - 120	<0.00010	mg/L	0.50	20
8704522	Dissolved Vanadium (V)	2017/07/25	99	80 - 120	98	80 - 120	<0.0050	mg/L	NC	20
8704522	Dissolved Zinc (Zn)	2017/07/25	96	80 - 120	100	80 - 120	<0.0050	mg/L	NC	20
8704522	Dissolved Zirconium (Zr)	2017/07/25					<0.00010	mg/L	NC	20
8704841	Total Dissolved Solids	2017/07/25	103	80 - 120	101	80 - 120	<10	mg/L	1.4	20
8705307	Dissolved Chloride (Cl)	2017/07/24	NC	80 - 120	97	80 - 120	0.72, RDL=0.50	mg/L	1.6	20
8705310	Dissolved Sulphate (SO4)	2017/07/24			99	80 - 120	0.71, RDL=0.50	mg/L		
8705760	Total Dissolved Solids	2017/07/26			84	80 - 120	<10	mg/L	0.97	20
8705866	Total Phosphorus (P)	2017/07/25	95	80 - 120	98	80 - 120	<0.0050	mg/L	3.5	20
8705941	Chemical Oxygen Demand	2017/07/26	107	80 - 120	96	80 - 120	<10	mg/L	1.7	20
8705955	2-Methylnaphthalene	2017/07/25	77	50 - 130	84	50 - 130	<0.10	ug/L	NC	40
8705955	Acenaphthene	2017/07/25	80	50 - 130	85	50 - 130	<0.050	ug/L	NC	40
8705955	Acenaphthylene	2017/07/25	78	50 - 130	84	50 - 130	<0.050	ug/L	NC	40
8705955	Acridine	2017/07/25	92	50 - 130	95	50 - 130	<0.050	ug/L	NC	40
8705955	Anthracene	2017/07/25	82	60 - 130	87	60 - 130	<0.010	ug/L	NC	40
8705955	Benzo(a)anthracene	2017/07/25	83	60 - 130	88	60 - 130	<0.010	ug/L	NC	40
8705955	Benzo(a)pyrene	2017/07/25	83	60 - 130	88	60 - 130	<0.0050	ug/L	NC	40
8705955	Benzo(b&j)fluoranthene	2017/07/25	87	60 - 130	93	60 - 130	<0.030	ug/L	NC	40
8705955	Benzo(g,h,i)perylene	2017/07/25	74	60 - 130	82	60 - 130	<0.050	ug/L	NC	40
8705955	Benzo(k)fluoranthene	2017/07/25	83	60 - 130	90	60 - 130	<0.050	ug/L	NC	40
8705955	Chrysene	2017/07/25	85	60 - 130	91	60 - 130	<0.020	ug/L	NC	40
8705955	Dibenz(a,h)anthracene	2017/07/25	81	60 - 130	88	60 - 130	<0.0030	ug/L	NC	40
8705955	Fluoranthene	2017/07/25	81	60 - 130	85	60 - 130	<0.020	ug/L	NC	40
8705955	Fluorene	2017/07/25	79	50 - 130	83	50 - 130	<0.050	ug/L	NC	40
8705955	Indeno(1,2,3-cd)pyrene	2017/07/25	78	60 - 130	86	60 - 130	<0.050	ug/L	NC	40
8705955	Naphthalene	2017/07/25	80	50 - 130	87	50 - 130	<0.10	ug/L	NC	40
8705955	Phenanthrene	2017/07/25	80	60 - 130	84	60 - 130	<0.050	ug/L	NC	40

Maxxam Job #: B760682  
Report Date: 2017/08/21

## QUALITY ASSURANCE REPORT(CONT'D)

TETRA TECH CANADA INC.  
Client Project #: ENVSWMO3652  
Sampler Initials: CB

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8705955	Pyrene	2017/07/25	84	60 - 130	89	60 - 130	<0.020	ug/L	NC	40
8705955	Quinoline	2017/07/25	103	50 - 130	108	50 - 130	<0.020	ug/L	NC	40
8705980	EPH (C10-C19)	2017/07/26	112	60 - 140	116	70 - 130	<0.20	mg/L	NC	30
8705980	EPH (C19-C32)	2017/07/26	99	60 - 140	102	70 - 130	<0.20	mg/L	NC	30
8706043	Alkalinity (PP as CaCO3)	2017/07/25					<0.50	mg/L	NC	20
8706043	Alkalinity (Total as CaCO3)	2017/07/25	NC	80 - 120	99	80 - 120	<0.50	mg/L	1.4	20
8706043	Bicarbonate (HCO3)	2017/07/25					<0.50	mg/L	1.4	20
8706043	Carbonate (CO3)	2017/07/25					<0.50	mg/L	NC	20
8706043	Hydroxide (OH)	2017/07/25					<0.50	mg/L	NC	20
8706046	pH	2017/07/25			102	97 - 103			0	20
8706049	Conductivity	2017/07/25			101	80 - 120	<1.0	uS/cm	1.6	20
8706050	Alkalinity (PP as CaCO3)	2017/07/25					<0.50	mg/L	NC	20
8706050	Alkalinity (Total as CaCO3)	2017/07/25	97	80 - 120	97	80 - 120	<0.50	mg/L	1.2	20
8706050	Bicarbonate (HCO3)	2017/07/25					<0.50	mg/L	1.2	20
8706050	Carbonate (CO3)	2017/07/25					<0.50	mg/L	NC	20
8706050	Hydroxide (OH)	2017/07/25					<0.50	mg/L	NC	20
8706052	pH	2017/07/25			102	97 - 103			0.38	20
8706055	Conductivity	2017/07/25			100	80 - 120	<1.0	uS/cm	0.56	20
8706911	Dissolved Mercury (Hg)	2017/07/26	95	80 - 120	94	80 - 120	<0.010	ug/L	NC	20
8706915	Total Ammonia (N)	2017/07/26	NC	80 - 120	102	80 - 120	<0.0050	mg/L	1.5	20
8707009	Dissolved Chloride (Cl)	2017/07/25			103	80 - 120	<0.50	mg/L		
8707013	Dissolved Sulphate (SO4)	2017/07/25	NC	80 - 120	102	80 - 120	<0.50	mg/L	4.9	20
8708182	Dissolved Organic Carbon (C)	2017/07/27	105	80 - 120	106	80 - 120	<0.50	mg/L	5.4	20
8710131	Total Nitrogen (N)	2017/07/27	4590	80 - 120	95	80 - 120	<0.020	mg/L	1.5	20

Maxxam Job #: B760682  
Report Date: 2017/08/21

## QUALITY ASSURANCE REPORT(CONT'D)

TETRA TECH CANADA INC.  
Client Project #: ENVSWMO3652  
Sampler Initials: CB

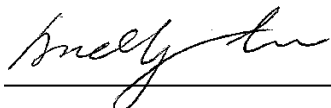
QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8714707	Dichloromethane	2017/08/02	101	70 - 130	109	70 - 130	<2.0	ug/L		
<p>Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.</p> <p>Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.</p> <p>Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.</p> <p>Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.</p> <p>Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.</p> <p>NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)</p> <p>NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference &lt;= 2x RDL).</p>										

Maxxam Job #: B760682  
Report Date: 2017/08/21

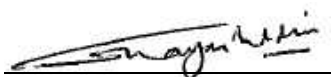
TETRA TECH CANADA INC.  
Client Project #: ENVSWMO3652  
Sampler Initials: CB

### VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Andy Lu, Ph.D., P.Chem., Scientific Specialist



Ghayasuddin Khan, M.Sc., P.Chem., QP, Scientific Specialist, Inorganics



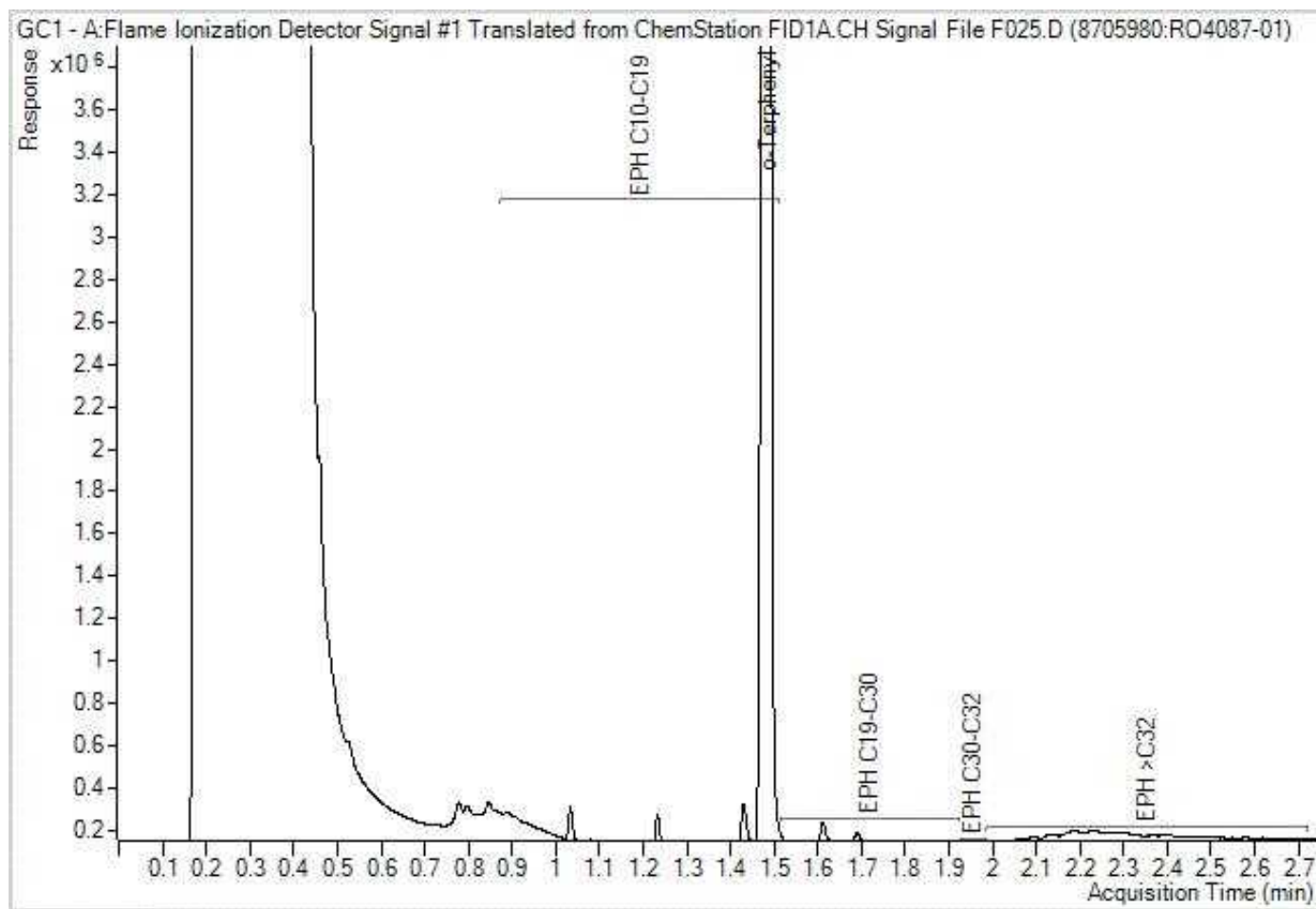
Rob Reinert, B.Sc., Scientific Spécialist

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

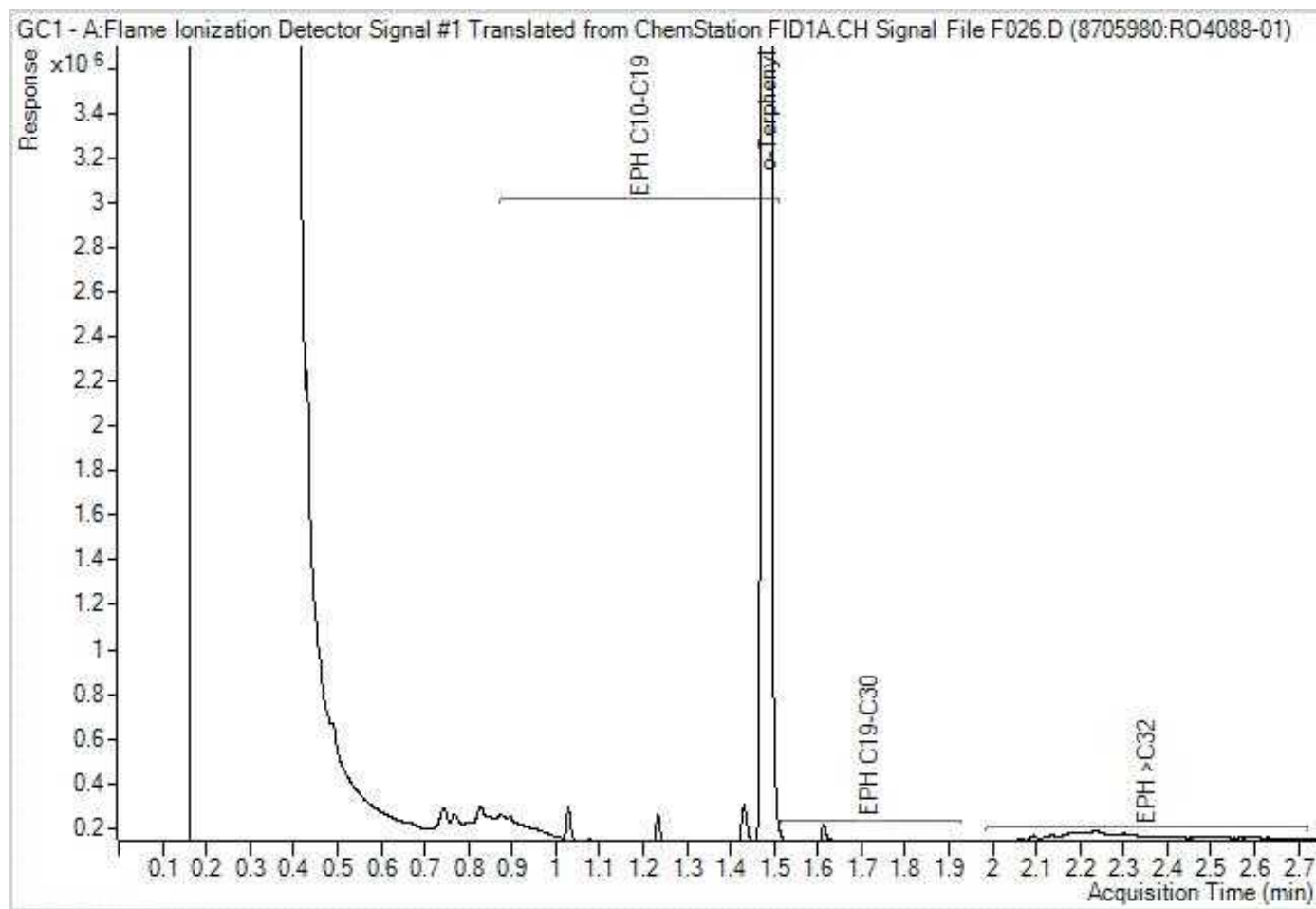


EPH in Water when PAH required Chromatogram



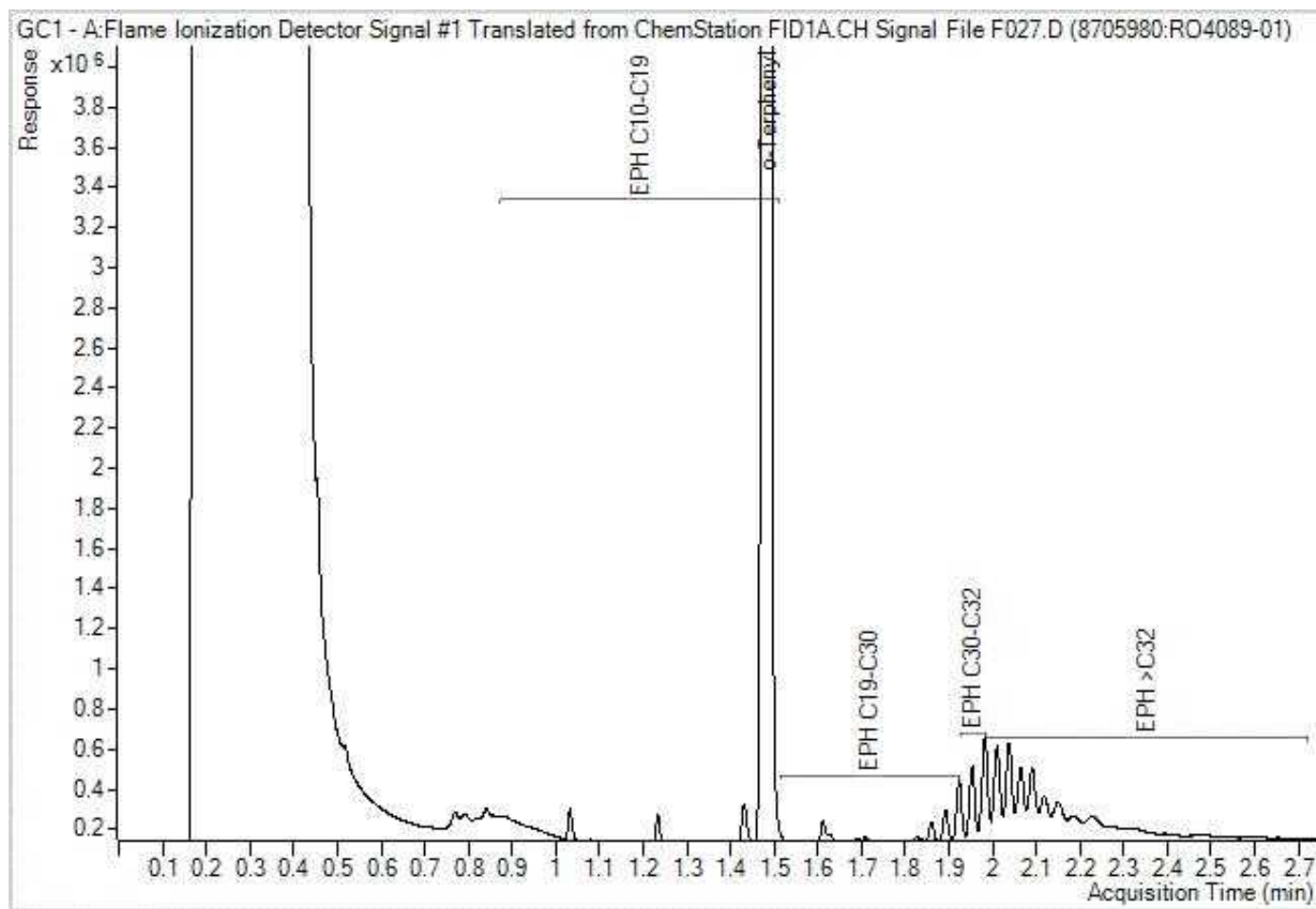
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

EPH in Water when PAH required Chromatogram



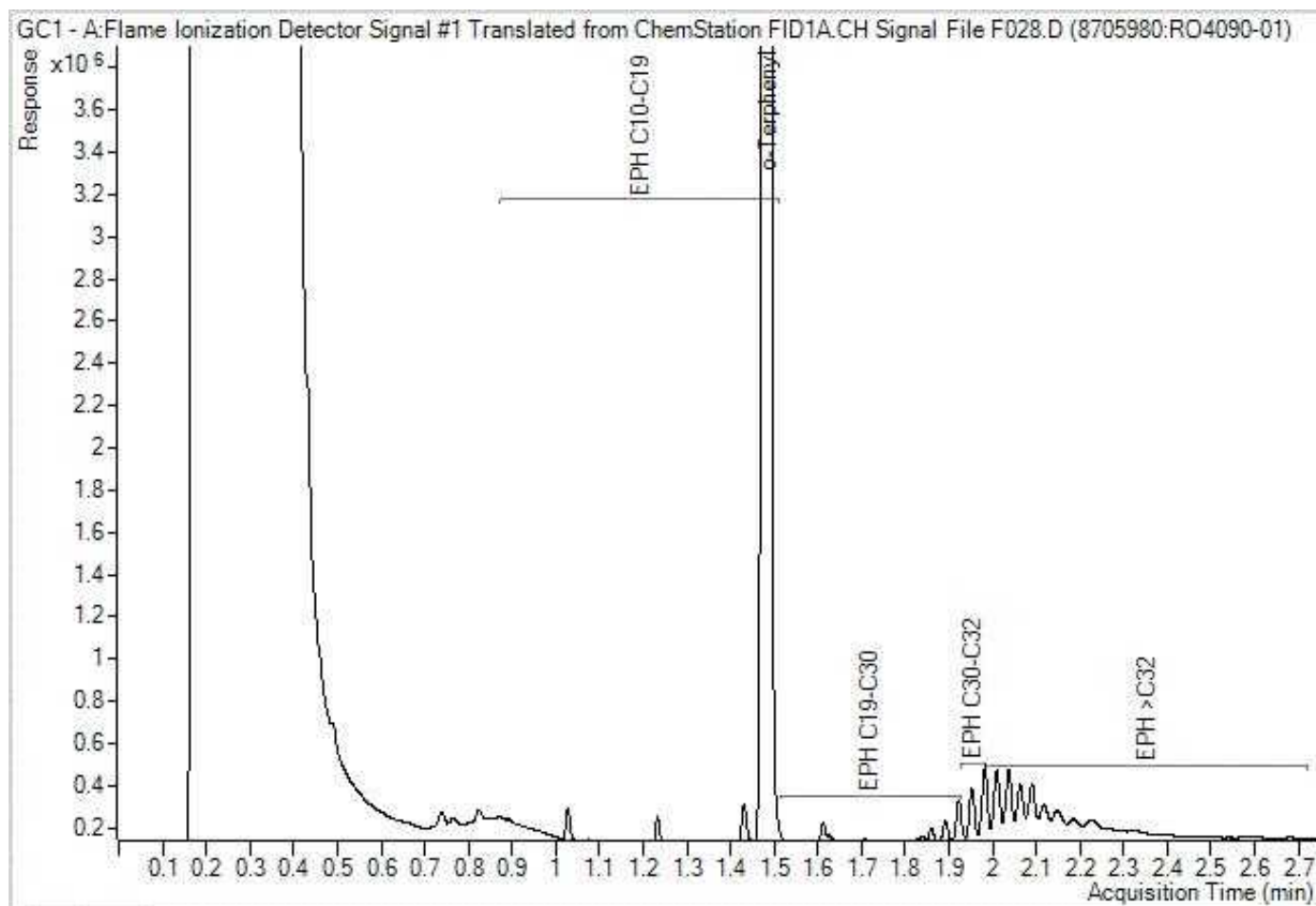
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

EPH in Water when PAH required Chromatogram



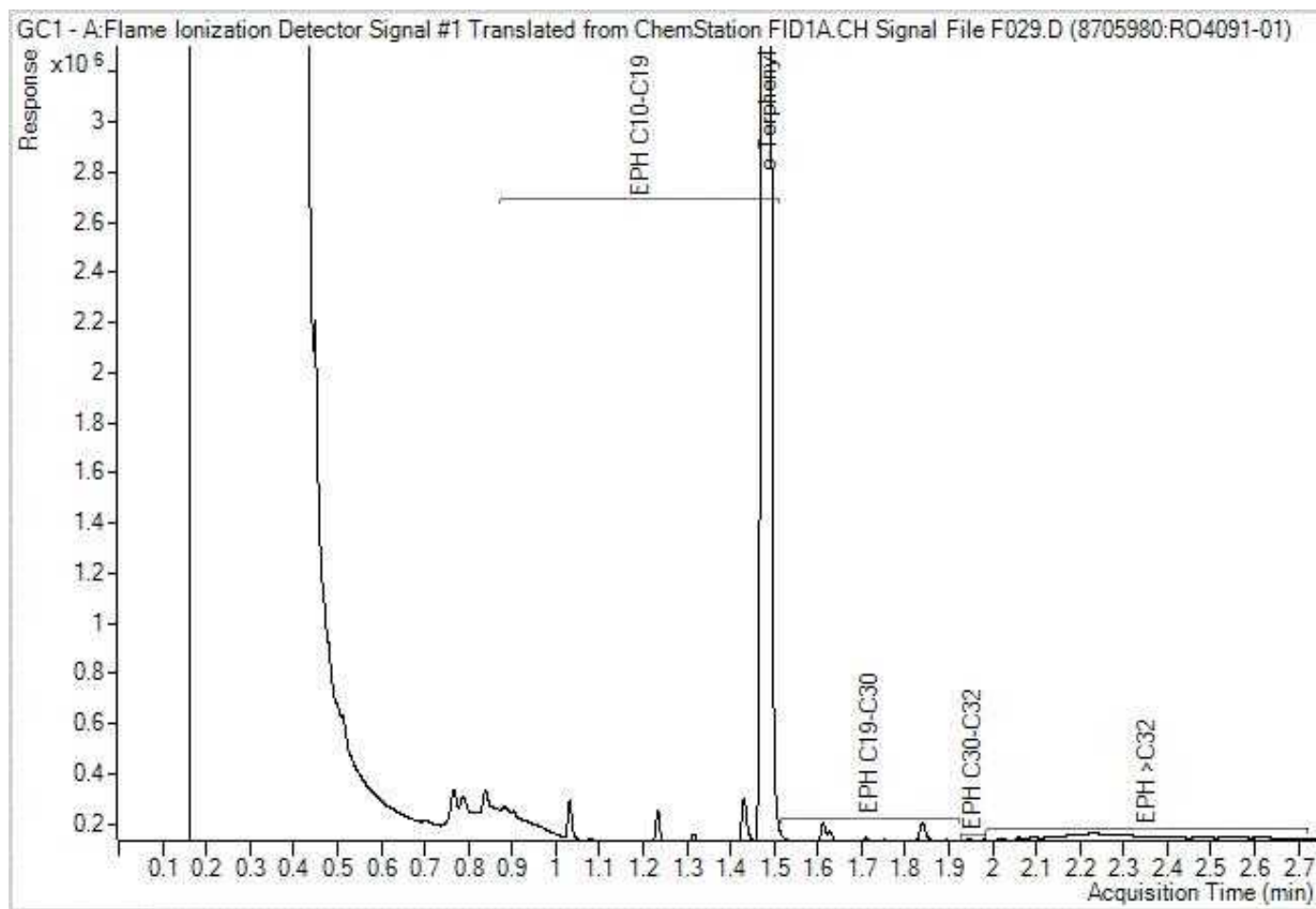
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

EPH in Water when PAH required Chromatogram



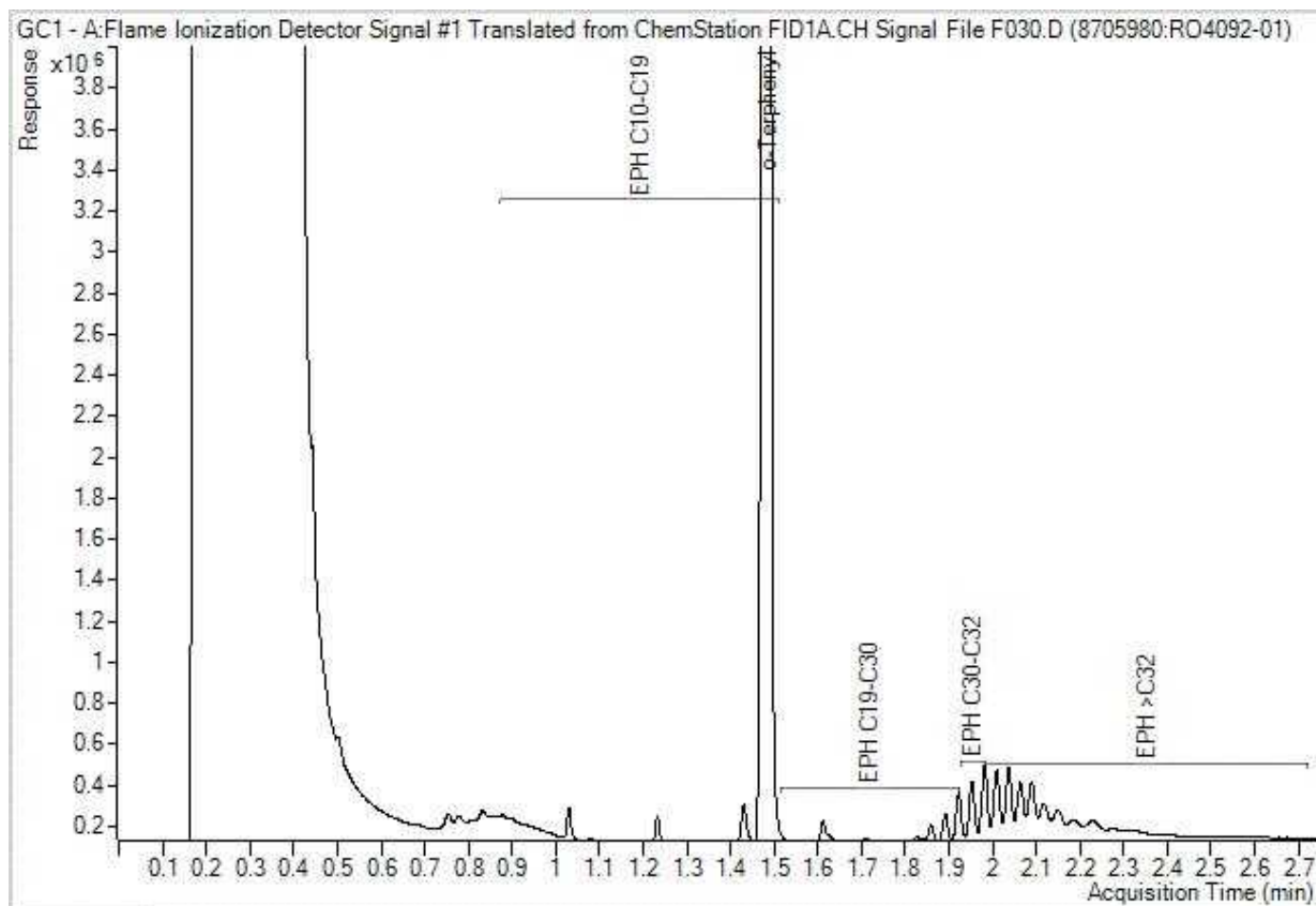
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

EPH in Water when PAH required Chromatogram



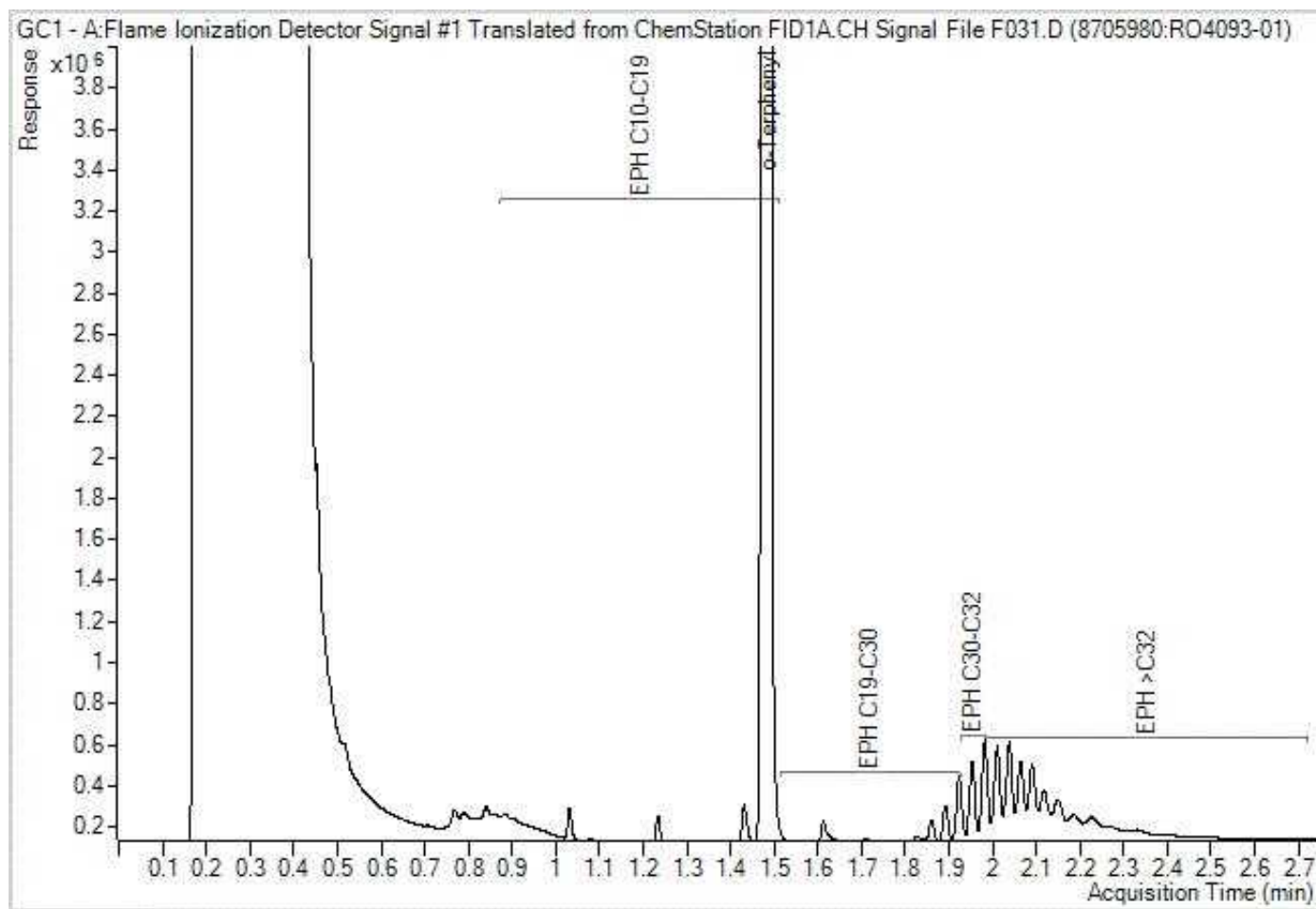
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

EPH in Water when PAH required Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

EPH in Water when PAH required Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Your Project #: Teslin SWMF  
Your C.O.C. #: 539391-01-01

**Attention: Caitlin Blair**

TETRA TECH CANADA INC.  
61 Wasson Place  
Whitehorse, YT  
CANADA Y1A 0H7

**Report Date: 2017/11/02**

Report #: R2471101

Version: 1 - Final

## CERTIFICATE OF ANALYSIS

**MAXXAM JOB #: B794924**

**Received: 2017/10/25, 13:10**

Sample Matrix: Water  
# Samples Received: 7

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity - Water	7	2017/10/26	2017/10/27	BBY6SOP-00026	SM 22 2320 B m
Chloride by Automated Colourimetry	7	N/A	2017/10/30	BBY6SOP-00011	SM 22 4500-Cl- E m
COD by Colorimeter	7	2017/10/26	2017/10/27	BBY6SOP-00024	SM 22 5220 D m
Carbon (DOC) - field filtered/preserved (1)	6	N/A	2017/10/27	BBY6SOP-00003	SM 22 5310 C m
Carbon (DOC) - unfiltered/unpreserved (1)	1	2017/10/27	2017/10/27	BBY6SOP-00003	SM 22 5310 C m
Conductance - water	7	2017/10/26	2017/10/27	BBY6SOP-00026	SM 22 2510 B m
Hardness (calculated as CaCO <sub>3</sub> )	7	N/A	2017/10/31	BBY WI-00033	Auto Calc
Mercury (Dissolved) by CVAf	7	N/A	2017/11/01	BBY7SOP-00015	BCMOE BCLM Oct2013 m
EPH in Water when PAH required	7	2017/10/30	2017/10/30	BBY8SOP-00029	BCMOE EPH w 12/00 m
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	7	N/A	2017/10/31	BBY7SOP-00002	EPA 6020B R2 m
Elements by CRC ICPMS (dissolved)	7	N/A	2017/10/31	BBY7SOP-00002	EPA 6020B R2 m
Nitrogen (Total)	6	2017/10/30	2017/10/30	BBY6SOP-00016	SM 22 4500-N C m
Nitrogen (Total)	1	2017/11/02	2017/11/02	BBY6SOP-00016	SM 22 4500-N C m
Ammonia-N (Unpreserved)	1	2017/10/26	2017/10/27	BBY6SOP-00009	EPA 350.1 m
Ammonia-N (Preserved)	6	N/A	2017/10/27	BBY6SOP-00009	EPA 350.1 m
Nitrate + Nitrite (N)	7	N/A	2017/10/26	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrite (N) by CFA	7	N/A	2017/10/26	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrogen - Nitrate (as N)	7	N/A	2017/10/27	BBY WI-00033	Auto Calc
PAH in Water by GC/MS (SIM)	2	2017/10/30	2017/10/30	BBY8SOP-00021	EPA 8270d R5 m
PAH in Water by GC/MS (SIM)	5	2017/10/30	2017/11/01	BBY8SOP-00021	EPA 8270d R5 m
Total LMW, HMW, Total PAH Calc	2	N/A	2017/11/01	BBY WI-00033	Auto Calc
Total LMW, HMW, Total PAH Calc	5	N/A	2017/11/02	BBY WI-00033	Auto Calc
Filter and HNO <sub>3</sub> Preserve for Metals	7	N/A	2017/10/31	BBY7 WI-00004	BCMOE Reqs 08/14
pH Water (2)	7	2017/10/26	2017/10/27	BBY6SOP-00026	SM 22 4500-H+ B m
Sulphate by Automated Colourimetry	6	N/A	2017/10/30	BBY6SOP-00017	SM 22 4500-SO42- E m
Sulphate by Automated Colourimetry	1	N/A	2017/10/31	BBY6SOP-00017	SM 22 4500-SO42- E m
Total Dissolved Solids (Filt. Residue)	7	2017/10/27	2017/10/28	BBY6SOP-00033	SM 22 2540 C m
EPH less PAH in Water by GC/FID	2	N/A	2017/11/01	BBY WI-00033	Auto Calc
EPH less PAH in Water by GC/FID	5	N/A	2017/11/02	BBY WI-00033	Auto Calc
TKN (Calc. TN, N/N) total	6	N/A	2017/10/31	BBY WI-00033	Calculation

Your Project #: Teslin SWMF  
Your C.O.C. #: 539391-01-01

**Attention: Caitlin Blair**

TETRA TECH CANADA INC.  
61 Wasson Place  
Whitehorse, YT  
CANADA Y1A 0H7

**Report Date: 2017/11/02**

Report #: R2471101

Version: 1 - Final

## **CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B794924**

**Received: 2017/10/25, 13:10**

Sample Matrix: Water  
# Samples Received: 7

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
TKN (Calc. TN, N/N) total	1	N/A	2017/11/02	BBY WI-00033	Calculation
Total Phosphorus	7	N/A	2017/10/27	BBY6SOP-00013	SM 22 4500-P E m
VOCs, VH, F1, LH in Water by HS GC/MS	6	N/A	2017/10/27	BBY8SOP-00009/11/12	BC Lab Manual 2017 m
VOCs, VH, F1, LH in Water by HS GC/MS	1	N/A	2017/10/28	BBY8SOP-00009/11/12	BC Lab Manual 2017 m
Volatile HC-BTEX	1	N/A	2017/10/27	BBY WI-00033	Auto Calc
Volatile HC-BTEX	4	N/A	2017/10/28	BBY WI-00033	Auto Calc
Volatile HC-BTEX	2	N/A	2017/10/30	BBY WI-00033	Auto Calc

**Remarks:**

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported: unless indicated otherwise, associated sample data are not blank corrected.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested.

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Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) DOC present in the sample should be considered as non-purgeable DOC.

(2) The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

Your Project #: Teslin SWMF  
Your C.O.C. #: 539391-01-01

**Attention: Caitlin Blair**

TETRA TECH CANADA INC.  
61 Wasson Place  
Whitehorse, YT  
CANADA Y1A 0H7

**Report Date: 2017/11/02**

Report #: R2471101

Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B794924**

**Received: 2017/10/25, 13:10**

**Encryption Key**

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Letitia Prefontaine, B.Sc., Senior Project Manager

Email: LPrefontaine@maxxam.ca

Phone# (604)639-2616

=====

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B794924  
Report Date: 2017/11/02

TETRA TECH CANADA INC.  
Client Project #: Teslin SWMF

### RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		SI0883		SI0884			SI0885		
Sampling Date		2017/10/24 11:50		2017/10/25 08:55			2017/10/24 15:00		
COC Number		539391-01-01		539391-01-01			539391-01-01		
	UNITS	MW01	RDL	MW02	RDL	QC Batch	MW03	RDL	QC Batch
<b>ANIONS</b>									
Nitrite (N)	mg/L	<0.0050	0.0050	<0.0050	0.0050	8809793	<0.0050	0.0050	8809793
<b>Calculated Parameters</b>									
Nitrate (N)	mg/L	<0.020	0.020	<0.020	0.020	8807934	0.022	0.020	8807934
<b>Demand Parameters</b>									
Chemical Oxygen Demand	mg/L	127	10	4230 (1)	40	8808357	24	10	8808357
<b>Misc. Inorganics</b>									
Dissolved Organic Carbon (C)	mg/L	5.19	0.50	3.53	0.50	8810695	4.27	0.50	8810692
Alkalinity (Total as CaCO <sub>3</sub> )	mg/L	229	1.0	362	1.0	8809207	294	1.0	8809207
Alkalinity (PP as CaCO <sub>3</sub> )	mg/L	<1.0	1.0	<1.0	1.0	8809207	4.9	1.0	8809207
Bicarbonate (HCO <sub>3</sub> )	mg/L	280	1.0	442	1.0	8809207	347	1.0	8809207
Carbonate (CO <sub>3</sub> )	mg/L	<1.0	1.0	<1.0	1.0	8809207	5.9	1.0	8809207
Hydroxide (OH)	mg/L	<1.0	1.0	<1.0	1.0	8809207	<1.0	1.0	8809207
<b>Anions</b>									
Dissolved Sulphate (SO <sub>4</sub> )	mg/L	21.2	1.0	212 (1)	10	8812994	40.8	1.0	8812994
Dissolved Chloride (Cl)	mg/L	1.3	1.0	1.3	1.0	8812992	<1.0	1.0	8812992
<b>Nutrients</b>									
Total Total Kjeldahl Nitrogen (Calc)	mg/L	2.64	0.10	2.91	0.20	8808518	0.278	0.020	8808518
Total Ammonia (N)	mg/L	0.13	0.020	1.1	0.020	8809202	0.19	0.020	8809202
Nitrate plus Nitrite (N)	mg/L	<0.020	0.020	<0.020	0.020	8809786	0.022	0.020	8809786
Total Nitrogen (N)	mg/L	2.64 (1)	0.10	2.91 (2)	0.20	8812571	0.300	0.020	8812571
Total Phosphorus (P)	mg/L	7.88 (1)	0.50	8.48 (1)	0.50	8810236	0.0342	0.0050	8810236
<b>Physical Properties</b>									
Conductivity	uS/cm	470	2.0	975	2.0	8809206	594	2.0	8809206
pH	pH	8.11		8.30		8809199	8.40		8809199
<b>Physical Properties</b>									
Total Dissolved Solids	mg/L	276	10	586	10	8809645	310	10	8809645
RDL = Reportable Detection Limit									
(1) Detection limits raised due to dilution to bring analyte within the calibrated range.									
(2) RDL raised due to sample matrix interference.									

Maxxam Job #: B794924  
Report Date: 2017/11/02

TETRA TECH CANADA INC.  
Client Project #: Teslin SWMF

### RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		SI0886		SI0887			SI0888		
Sampling Date		2017/10/25 09:15		2017/10/24 16:25			2017/10/24 14:00		
COC Number		539391-01-01		539391-01-01			539391-01-01		
	UNITS	MW15-01	QC Batch	MW15-02	RDL	QC Batch	TE-MW12-02	RDL	QC Batch
<b>ANIONS</b>									
Nitrite (N)	mg/L	0.0075	8809793	0.0088	0.0050	8809793	<0.0050	0.0050	8809793
<b>Calculated Parameters</b>									
Nitrate (N)	mg/L	1.49	8807934	0.043	0.020	8807934	3.15	0.10	8807934
<b>Demand Parameters</b>									
Chemical Oxygen Demand	mg/L	129	8808357	94	10	8808357	27	10	8808357
<b>Misc. Inorganics</b>									
Dissolved Organic Carbon (C)	mg/L	4.08	8810704	5.44	0.50	8810692	4.21	0.50	8810695
Alkalinity (Total as CaCO <sub>3</sub> )	mg/L	430	8809207	230	1.0	8809207	462	1.0	8809207
Alkalinity (PP as CaCO <sub>3</sub> )	mg/L	<1.0	8809207	1.8	1.0	8809207	<1.0	1.0	8809207
Bicarbonate (HCO <sub>3</sub> )	mg/L	525	8809207	277	1.0	8809207	564	1.0	8809207
Carbonate (CO <sub>3</sub> )	mg/L	<1.0	8809207	2.2	1.0	8809207	<1.0	1.0	8809207
Hydroxide (OH)	mg/L	<1.0	8809207	<1.0	1.0	8809207	<1.0	1.0	8809207
<b>Anions</b>									
Dissolved Sulphate (SO <sub>4</sub> )	mg/L	43.0	8812994	84.9	1.0	8815196	66.7	1.0	8812994
Dissolved Chloride (Cl)	mg/L	38	8812992	2.4	1.0	8812992	57	1.0	8812992
<b>Nutrients</b>									
Total Total Kjeldahl Nitrogen (Calc)	mg/L	0.496	8808518	0.474	0.020	8808518	0.44	0.10	8808518
Total Ammonia (N)	mg/L	0.050	8809196	0.17	0.020	8809202	0.051	0.020	8809202
Nitrate plus Nitrite (N)	mg/L	1.50	8809786	0.052	0.020	8809786	3.15 (1)	0.10	8809786
Total Nitrogen (N)	mg/L	1.99	8816128	0.526	0.020	8812571	3.59 (1)	0.10	8812571
Total Phosphorus (P)	mg/L	4.67 (1)	8810236	1.74 (1)	0.050	8810236	0.0525	0.0050	8810236
<b>Physical Properties</b>									
Conductivity	uS/cm	977	8809206	573	2.0	8809206	1140	2.0	8809206
pH	pH	7.85	8809199	8.32		8809199	7.75		8809199
<b>Physical Properties</b>									
Total Dissolved Solids	mg/L	564	8809645	334	10	8809645	652	10	8809645
RDL = Reportable Detection Limit									
(1) Detection limits raised due to dilution to bring analyte within the calibrated range.									

Maxxam Job #: B794924  
Report Date: 2017/11/02

TETRA TECH CANADA INC.  
Client Project #: Teslin SWMF

## RESULTS OF CHEMICAL ANALYSES OF WATER

<b>Maxxam ID</b>		SI0889		
<b>Sampling Date</b>		2017/10/24		
<b>COC Number</b>		539391-01-01		
	<b>UNITS</b>	<b>DUP1</b>	<b>RDL</b>	<b>QC Batch</b>
<b>ANIONS</b>				
Nitrite (N)	mg/L	<0.0050	0.0050	8809793
<b>Calculated Parameters</b>				
Nitrate (N)	mg/L	0.038	0.020	8807934
<b>Demand Parameters</b>				
Chemical Oxygen Demand	mg/L	20	10	8808357
<b>Misc. Inorganics</b>				
Dissolved Organic Carbon (C)	mg/L	4.28	0.50	8810692
Alkalinity (Total as CaCO <sub>3</sub> )	mg/L	294	1.0	8809207
Alkalinity (PP as CaCO <sub>3</sub> )	mg/L	5.1	1.0	8809207
Bicarbonate (HCO <sub>3</sub> )	mg/L	346	1.0	8809207
Carbonate (CO <sub>3</sub> )	mg/L	6.1	1.0	8809207
Hydroxide (OH)	mg/L	<1.0	1.0	8809207
<b>Anions</b>				
Dissolved Sulphate (SO <sub>4</sub> )	mg/L	41.3	1.0	8812994
Dissolved Chloride (Cl)	mg/L	1.1	1.0	8812992
<b>Nutrients</b>				
Total Total Kjeldahl Nitrogen (Calc)	mg/L	0.264	0.020	8808518
Total Ammonia (N)	mg/L	0.19	0.020	8809202
Nitrate plus Nitrite (N)	mg/L	0.038	0.020	8809786
Total Nitrogen (N)	mg/L	0.302	0.020	8812571
Total Phosphorus (P)	mg/L	0.0337	0.0050	8810236
<b>Physical Properties</b>				
Conductivity	uS/cm	594	2.0	8809206
pH	pH	8.41		8809199
<b>Physical Properties</b>				
Total Dissolved Solids	mg/L	304	10	8809645
RDL = Reportable Detection Limit				

Maxxam Job #: B794924  
Report Date: 2017/11/02

TETRA TECH CANADA INC.  
Client Project #: Teslin SWMF

### LEPH & HEPH WITH CSR/CCME PAH IN WATER (WATER)

Maxxam ID		SI0883		SI0884	SI0885		SI0886		
Sampling Date		2017/10/24 11:50		2017/10/25 08:55	2017/10/24 15:00		2017/10/25 09:15		
COC Number		539391-01-01		539391-01-01	539391-01-01		539391-01-01		
	UNITS	MW01	QC Batch	MW02	MW03	QC Batch	MW15-01	RDL	QC Batch
<b>Polycyclic Aromatics</b>									
Low Molecular Weight PAH's	ug/L	<0.10	8807887	0.25	<0.10	8807887	<0.10	0.10	8807887
High Molecular Weight PAH's	ug/L	<0.050	8807887	<0.050	<0.050	8807887	<0.050	0.050	8807887
Total PAH	ug/L	<0.10	8807887	0.28	<0.10	8807887	<0.10	0.10	8807887
Quinoline	ug/L	<0.020	8812371	<0.020	<0.020	8812559	<0.020	0.020	8812371
Naphthalene	ug/L	<0.10	8812371	0.11	<0.10	8812559	<0.10	0.10	8812371
2-Methylnaphthalene	ug/L	<0.10	8812371	0.14	<0.10	8812559	<0.10	0.10	8812371
Acenaphthylene	ug/L	<0.050	8812371	<0.050	<0.050	8812559	<0.050	0.050	8812371
Acenaphthene	ug/L	<0.050	8812371	<0.050	<0.050	8812559	<0.050	0.050	8812371
Fluorene	ug/L	<0.050	8812371	<0.050	<0.050	8812559	<0.050	0.050	8812371
Phenanthrene	ug/L	<0.050	8812371	<0.050	<0.050	8812559	<0.050	0.050	8812371
Anthracene	ug/L	<0.010	8812371	<0.010	<0.010	8812559	<0.010	0.010	8812371
Acridine	ug/L	<0.050	8812371	<0.050	<0.050	8812559	<0.050	0.050	8812371
Fluoranthene	ug/L	<0.020	8812371	<0.020	<0.020	8812559	<0.020	0.020	8812371
Pyrene	ug/L	<0.020	8812371	0.031	<0.020	8812559	<0.020	0.020	8812371
Benzo(a)anthracene	ug/L	<0.010	8812371	<0.010	<0.010	8812559	<0.010	0.010	8812371
Chrysene	ug/L	<0.020	8812371	<0.020	<0.020	8812559	<0.020	0.020	8812371
Benzo(b&j)fluoranthene	ug/L	<0.030	8812371	<0.030	<0.030	8812559	<0.030	0.030	8812371
Benzo(k)fluoranthene	ug/L	<0.050	8812371	<0.050	<0.050	8812559	<0.050	0.050	8812371
Benzo(a)pyrene	ug/L	<0.0050	8812371	<0.0050	<0.0050	8812559	<0.0050	0.0050	8812371
Indeno(1,2,3-cd)pyrene	ug/L	<0.050	8812371	<0.050	<0.050	8812559	<0.050	0.050	8812371
Dibenz(a,h)anthracene	ug/L	<0.0030	8812371	<0.0030	<0.0030	8812559	<0.0030	0.0030	8812371
Benzo(g,h,i)perylene	ug/L	<0.050	8812371	<0.050	<0.050	8812559	<0.050	0.050	8812371
<b>Calculated Parameters</b>									
LEPH (C10-C19 less PAH)	mg/L	<0.20	8807889	<0.20	<0.20	8807889	<0.20	0.20	8807889
HEPH (C19-C32 less PAH)	mg/L	<0.20	8807889	2.7	<0.20	8807889	<0.20	0.20	8807889
<b>Ext. Pet. Hydrocarbon</b>									
EPH (C10-C19)	mg/L	<0.20	8812339	<0.20	<0.20	8812574	<0.20	0.20	8812339
EPH (C19-C32)	mg/L	<0.20	8812339	2.7	<0.20	8812574	<0.20	0.20	8812339
<b>Surrogate Recovery (%)</b>									
O-TERPHENYL (sur.)	%	97	8812339	98	108	8812574	99		8812339
D10-ANTHRACENE (sur.)	%	111	8812371	63	111	8812559	110		8812371
D8-ACENAPHTHYLENE (sur.)	%	107	8812371	91	115	8812559	108		8812371
D8-NAPHTHALENE (sur.)	%	101	8812371	98	109	8812559	103		8812371
RDL = Reportable Detection Limit									

Maxxam Job #: B794924  
Report Date: 2017/11/02

TETRA TECH CANADA INC.  
Client Project #: Teslin SWMF

**LEPH & HEPH WITH CSR/CCME PAH IN WATER (WATER)**

Maxxam ID		SI0883		SI0884	SI0885		SI0886		
Sampling Date		2017/10/24 11:50		2017/10/25 08:55	2017/10/24 15:00		2017/10/25 09:15		
COC Number		539391-01-01		539391-01-01	539391-01-01		539391-01-01		
	UNITS	MW01	QC Batch	MW02	MW03	QC Batch	MW15-01	RDL	QC Batch
TERPHENYL-D14 (sur.)	%	92	8812371	59	81	8812559	90		8812371
RDL = Reportable Detection Limit									

Maxxam Job #: B794924  
Report Date: 2017/11/02

TETRA TECH CANADA INC.  
Client Project #: Teslin SWMF

### LEPH & HEPH WITH CSR/CCME PAH IN WATER (WATER)

Maxxam ID		SI0887	SI0888	SI0889		
Sampling Date		2017/10/24 16:25	2017/10/24 14:00	2017/10/24		
COC Number		539391-01-01	539391-01-01	539391-01-01		
	UNITS	MW15-02	TE-MW12-02	DUP1	RDL	QC Batch
<b>Polycyclic Aromatics</b>						
Low Molecular Weight PAH's	ug/L	<0.10	<0.10	<0.10	0.10	8807887
High Molecular Weight PAH's	ug/L	<0.050	<0.050	<0.050	0.050	8807887
Total PAH	ug/L	<0.10	<0.10	<0.10	0.10	8807887
Quinoline	ug/L	<0.020	<0.020	<0.020	0.020	8812371
Naphthalene	ug/L	<0.10	<0.10	<0.10	0.10	8812371
2-Methylnaphthalene	ug/L	<0.10	<0.10	<0.10	0.10	8812371
Acenaphthylene	ug/L	<0.050	<0.050	<0.050	0.050	8812371
Acenaphthene	ug/L	<0.050	<0.050	<0.050	0.050	8812371
Fluorene	ug/L	<0.050	<0.050	<0.050	0.050	8812371
Phenanthrene	ug/L	<0.050	<0.050	<0.050	0.050	8812371
Anthracene	ug/L	<0.010	<0.010	<0.010	0.010	8812371
Acridine	ug/L	<0.050	<0.050	<0.050	0.050	8812371
Fluoranthene	ug/L	<0.020	<0.020	<0.020	0.020	8812371
Pyrene	ug/L	<0.020	<0.020	<0.020	0.020	8812371
Benzo(a)anthracene	ug/L	<0.010	<0.010	<0.010	0.010	8812371
Chrysene	ug/L	<0.020	<0.020	<0.020	0.020	8812371
Benzo(b&j)fluoranthene	ug/L	<0.030	<0.030	<0.030	0.030	8812371
Benzo(k)fluoranthene	ug/L	<0.050	<0.050	<0.050	0.050	8812371
Benzo(a)pyrene	ug/L	<0.0050	<0.0050	<0.0050	0.0050	8812371
Indeno(1,2,3-cd)pyrene	ug/L	<0.050	<0.050	<0.050	0.050	8812371
Dibenz(a,h)anthracene	ug/L	<0.0030	<0.0030	<0.0030	0.0030	8812371
Benzo(g,h,i)perylene	ug/L	<0.050	<0.050	<0.050	0.050	8812371
<b>Calculated Parameters</b>						
LEPH (C10-C19 less PAH)	mg/L	<0.20	<0.20	<0.20	0.20	8807889
HEPH (C19-C32 less PAH)	mg/L	<0.20	<0.20	<0.20	0.20	8807889
<b>Ext. Pet. Hydrocarbon</b>						
EPH (C10-C19)	mg/L	<0.20	<0.20	<0.20	0.20	8812339
EPH (C19-C32)	mg/L	<0.20	<0.20	<0.20	0.20	8812339
<b>Surrogate Recovery (%)</b>						
O-TERPHENYL (sur.)	%	96	98	95		8812339
D10-ANTHRACENE (sur.)	%	109	109	109		8812371
D8-ACENAPHTHYLENE (sur.)	%	106	108	108		8812371
D8-NAPHTHALENE (sur.)	%	99	101	109		8812371
RDL = Reportable Detection Limit						

Maxxam Job #: B794924  
Report Date: 2017/11/02

TETRA TECH CANADA INC.  
Client Project #: Teslin SWMF

**LEPH & HEPH WITH CSR/CCME PAH IN WATER (WATER)**

Maxxam ID		SI0887	SI0888	SI0889		
Sampling Date		2017/10/24 16:25	2017/10/24 14:00	2017/10/24		
COC Number		539391-01-01	539391-01-01	539391-01-01		
	UNITS	MW15-02	TE-MW12-02	DUP1	RDL	QC Batch
TERPHENYL-D14 (sur.)	%	88	89	85		8812371
RDL = Reportable Detection Limit						

Maxxam Job #: B794924  
Report Date: 2017/11/02

TETRA TECH CANADA INC.  
Client Project #: Teslin SWMF

### CSR DISSOLVED METALS IN WATER WITH CV HG (WATER)

Maxxam ID		SI0883	SI0884	SI0885	SI0886	SI0887		
Sampling Date		2017/10/24 11:50	2017/10/25 08:55	2017/10/24 15:00	2017/10/25 09:15	2017/10/24 16:25		
COC Number		539391-01-01	539391-01-01	539391-01-01	539391-01-01	539391-01-01		
	UNITS	MW01	MW02	MW03	MW15-01	MW15-02	RDL	QC Batch
<b>Calculated Parameters</b>								
Filter and HNO3 Preservation	N/A	FIELD	FIELD	FIELD	FIELD	FIELD		ONSITE
<b>Misc. Inorganics</b>								
Dissolved Hardness (CaCO3)	mg/L	235	506	296	438	235	0.50	8807885
<b>Elements</b>								
Dissolved Mercury (Hg)	ug/L	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	8815230
<b>Dissolved Metals by ICPMS</b>								
Dissolved Aluminum (Al)	mg/L	0.0082	0.0046	0.0039	0.0140	0.0044	0.0030	8809764
Dissolved Antimony (Sb)	mg/L	<0.00050	0.00839	<0.00050	<0.00050	<0.00050	0.00050	8809764
Dissolved Arsenic (As)	mg/L	0.00015	0.00603	0.00468	0.00220	0.00284	0.00010	8809764
Dissolved Barium (Ba)	mg/L	0.0596	0.0241	0.0957	0.165	0.0451	0.0010	8809764
Dissolved Beryllium (Be)	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00010	8809764
Dissolved Bismuth (Bi)	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	8809764
Dissolved Boron (B)	mg/L	<0.050	<0.050	<0.050	0.217	<0.050	0.050	8809764
Dissolved Cadmium (Cd)	mg/L	0.000013	0.000023	<0.000010	0.000170	0.000018	0.000010	8809764
Dissolved Chromium (Cr)	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	8809764
Dissolved Cobalt (Co)	mg/L	<0.00020	0.00043	<0.00020	0.00036	0.00029	0.00020	8809764
Dissolved Copper (Cu)	mg/L	0.00227	0.00044	<0.00020	0.00811	0.00083	0.00020	8809764
Dissolved Iron (Fe)	mg/L	0.0052	<0.0050	0.160	0.0203	<0.0050	0.0050	8809764
Dissolved Lead (Pb)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	8809764
Dissolved Lithium (Li)	mg/L	<0.0020	0.0022	<0.0020	0.0140	0.0025	0.0020	8809764
Dissolved Manganese (Mn)	mg/L	0.0073	0.0858	0.0381	0.137	0.0893	0.0010	8809764
Dissolved Molybdenum (Mo)	mg/L	0.0043	0.0313	0.0123	0.0069	0.0208	0.0010	8809764
Dissolved Nickel (Ni)	mg/L	<0.0010	0.0162	<0.0010	0.0059	0.0025	0.0010	8809764
Dissolved Selenium (Se)	mg/L	<0.00010	0.00056	<0.00010	0.00095	0.00024	0.00010	8809764
Dissolved Silicon (Si)	mg/L	6.05	6.31	5.85	6.90	4.11	0.10	8809764
Dissolved Silver (Ag)	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000020	8809764
Dissolved Strontium (Sr)	mg/L	0.198	0.447	0.517	0.459	0.818	0.0010	8809764
Dissolved Thallium (Tl)	mg/L	<0.000010	<0.000010	<0.000010	0.000016	<0.000010	0.000010	8809764
Dissolved Tin (Sn)	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	8809764
Dissolved Titanium (Ti)	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	8809764
Dissolved Uranium (U)	mg/L	0.00047	0.00398	0.00495	0.00236	0.00440	0.00010	8809764
Dissolved Vanadium (V)	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	8809764
Dissolved Zinc (Zn)	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	8809764
RDL = Reportable Detection Limit								

Maxxam Job #: B794924  
Report Date: 2017/11/02

TETRA TECH CANADA INC.  
Client Project #: Teslin SWMF

### CSR DISSOLVED METALS IN WATER WITH CV HG (WATER)

Maxxam ID		SI0883	SI0884	SI0885	SI0886	SI0887		
Sampling Date		2017/10/24 11:50	2017/10/25 08:55	2017/10/24 15:00	2017/10/25 09:15	2017/10/24 16:25		
COC Number		539391-01-01	539391-01-01	539391-01-01	539391-01-01	539391-01-01		
	UNITS	MW01	MW02	MW03	MW15-01	MW15-02	RDL	QC Batch
Dissolved Zirconium (Zr)	mg/L	<0.00010	0.00027	<0.00010	<0.00010	<0.00010	0.00010	8809764
Dissolved Calcium (Ca)	mg/L	78.3	55.9	37.9	130	36.3	0.050	8807933
Dissolved Magnesium (Mg)	mg/L	9.48	89.1	48.8	27.2	35.1	0.050	8807933
Dissolved Potassium (K)	mg/L	4.51	3.65	2.50	28.5	4.50	0.050	8807933
Dissolved Sodium (Na)	mg/L	4.61	36.9	12.4	37.3	34.9	0.050	8807933
Dissolved Sulphur (S)	mg/L	6.5	68.7	14.4	14.9	26.8	3.0	8807933
RDL = Reportable Detection Limit								

Maxxam Job #: B794924  
Report Date: 2017/11/02

TETRA TECH CANADA INC.  
Client Project #: Teslin SWMF

### CSR DISSOLVED METALS IN WATER WITH CV HG (WATER)

<b>Maxxam ID</b>		SI0888	SI0889		
<b>Sampling Date</b>		2017/10/24 14:00	2017/10/24		
<b>COC Number</b>		539391-01-01	539391-01-01		
	<b>UNITS</b>	<b>TE-MW12-02</b>	<b>DUP1</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Calculated Parameters</b>					
Filter and HNO3 Preservation	N/A	FIELD	FIELD		ONSITE
<b>Misc. Inorganics</b>					
Dissolved Hardness (CaCO3)	mg/L	504	299	0.50	8807885
<b>Elements</b>					
Dissolved Mercury (Hg)	ug/L	<0.010	<0.010	0.010	8815230
<b>Dissolved Metals by ICPMS</b>					
Dissolved Aluminum (Al)	mg/L	0.0033	<0.0030	0.0030	8809764
Dissolved Antimony (Sb)	mg/L	<0.00050	<0.00050	0.00050	8809764
Dissolved Arsenic (As)	mg/L	0.00012	0.00470	0.00010	8809764
Dissolved Barium (Ba)	mg/L	0.135	0.0934	0.0010	8809764
Dissolved Beryllium (Be)	mg/L	<0.00010	<0.00010	0.00010	8809764
Dissolved Bismuth (Bi)	mg/L	<0.0010	<0.0010	0.0010	8809764
Dissolved Boron (B)	mg/L	0.158	<0.050	0.050	8809764
Dissolved Cadmium (Cd)	mg/L	0.000042	<0.000010	0.000010	8809764
Dissolved Chromium (Cr)	mg/L	<0.0010	<0.0010	0.0010	8809764
Dissolved Cobalt (Co)	mg/L	0.00020	<0.00020	0.00020	8809764
Dissolved Copper (Cu)	mg/L	0.00353	<0.00020	0.00020	8809764
Dissolved Iron (Fe)	mg/L	<0.0050	0.157	0.0050	8809764
Dissolved Lead (Pb)	mg/L	<0.00020	<0.00020	0.00020	8809764
Dissolved Lithium (Li)	mg/L	0.0113	<0.0020	0.0020	8809764
Dissolved Manganese (Mn)	mg/L	0.0011	0.0384	0.0010	8809764
Dissolved Molybdenum (Mo)	mg/L	0.0021	0.0123	0.0010	8809764
Dissolved Nickel (Ni)	mg/L	0.0021	<0.0010	0.0010	8809764
Dissolved Selenium (Se)	mg/L	0.00015	<0.00010	0.00010	8809764
Dissolved Silicon (Si)	mg/L	7.10	6.05	0.10	8809764
Dissolved Silver (Ag)	mg/L	<0.000020	<0.000020	0.000020	8809764
Dissolved Strontium (Sr)	mg/L	0.549	0.514	0.0010	8809764
Dissolved Thallium (Tl)	mg/L	<0.000010	<0.000010	0.000010	8809764
Dissolved Tin (Sn)	mg/L	<0.0050	<0.0050	0.0050	8809764
Dissolved Titanium (Ti)	mg/L	<0.0050	<0.0050	0.0050	8809764
Dissolved Uranium (U)	mg/L	0.00192	0.00496	0.00010	8809764
Dissolved Vanadium (V)	mg/L	<0.0050	<0.0050	0.0050	8809764
Dissolved Zinc (Zn)	mg/L	<0.0050	<0.0050	0.0050	8809764
RDL = Reportable Detection Limit					

Maxxam Job #: B794924  
Report Date: 2017/11/02

TETRA TECH CANADA INC.  
Client Project #: Teslin SWMF

**CSR DISSOLVED METALS IN WATER WITH CV HG (WATER)**

<b>Maxxam ID</b>		SI0888	SI0889		
<b>Sampling Date</b>		2017/10/24 14:00	2017/10/24		
<b>COC Number</b>		539391-01-01	539391-01-01		
	<b>UNITS</b>	<b>TE-MW12-02</b>	<b>DUP1</b>	<b>RDL</b>	<b>QC Batch</b>
Dissolved Zirconium (Zr)	mg/L	<0.00010	<0.00010	0.00010	8809764
Dissolved Calcium (Ca)	mg/L	155	37.5	0.050	8807933
Dissolved Magnesium (Mg)	mg/L	28.5	49.9	0.050	8807933
Dissolved Potassium (K)	mg/L	17.4	2.50	0.050	8807933
Dissolved Sodium (Na)	mg/L	35.3	12.2	0.050	8807933
Dissolved Sulphur (S)	mg/L	19.5	13.9	3.0	8807933
RDL = Reportable Detection Limit					

Maxxam Job #: B794924  
Report Date: 2017/11/02

TETRA TECH CANADA INC.  
Client Project #: Teslin SWMF

### CSR VOC + VPH IN WATER (WATER)

Maxxam ID		SI0883	SI0884		SI0885	SI0886	SI0887		
Sampling Date		2017/10/24 11:50	2017/10/25 08:55		2017/10/24 15:00	2017/10/25 09:15	2017/10/24 16:25		
COC Number		539391-01-01	539391-01-01		539391-01-01	539391-01-01	539391-01-01		
	UNITS	MW01	MW02	QC Batch	MW03	MW15-01	MW15-02	RDL	QC Batch
<b>Volatiles</b>									
VPH (VH6 to 10 - BTEX)	ug/L	<300	<300	8807890	<300	<300	<300	300	8807890
Chloromethane	ug/L	<1.0	<1.0	8808803	<1.0	<1.0	<1.0	1.0	8809795
Vinyl chloride	ug/L	<0.50	<0.50	8808803	<0.50	<0.50	<0.50	0.50	8809795
Chloroethane	ug/L	<1.0	<1.0	8808803	<1.0	<1.0	<1.0	1.0	8809795
Trichlorofluoromethane	ug/L	<4.0	<4.0	8808803	<4.0	<4.0	<4.0	4.0	8809795
1,1,2Trichloro-1,2,2Trifluoroethane	ug/L	<2.0	<2.0	8808803	<2.0	<2.0	<2.0	2.0	8809795
Dichlorodifluoromethane	ug/L	<2.0	<2.0	8808803	<2.0	<2.0	<2.0	2.0	8809795
1,1-dichloroethene	ug/L	<0.50	<0.50	8808803	<0.50	<0.50	<0.50	0.50	8809795
Dichloromethane	ug/L	<2.0	<2.0	8808803	<2.0	<2.0	<2.0	2.0	8809795
trans-1,2-dichloroethene	ug/L	<1.0	<1.0	8808803	<1.0	<1.0	<1.0	1.0	8809795
1,1-dichloroethane	ug/L	<0.50	<0.50	8808803	<0.50	<0.50	<0.50	0.50	8809795
cis-1,2-dichloroethene	ug/L	<1.0	<1.0	8808803	<1.0	<1.0	<1.0	1.0	8809795
Chloroform	ug/L	<1.0	<1.0	8808803	<1.0	<1.0	<1.0	1.0	8809795
1,1,1-trichloroethane	ug/L	<0.50	<0.50	8808803	<0.50	<0.50	<0.50	0.50	8809795
1,2-dichloroethane	ug/L	<0.50	<0.50	8808803	<0.50	<0.50	<0.50	0.50	8809795
Carbon tetrachloride	ug/L	<0.50	<0.50	8808803	<0.50	<0.50	<0.50	0.50	8809795
Benzene	ug/L	<0.40	<0.40	8808803	<0.40	<0.40	<0.40	0.40	8809795
Methyl-tert-butylether (MTBE)	ug/L	<4.0	<4.0	8808803	<4.0	<4.0	<4.0	4.0	8809795
1,2-dichloropropane	ug/L	<0.50	<0.50	8808803	<0.50	<0.50	<0.50	0.50	8809795
cis-1,3-dichloropropene	ug/L	<1.0	<1.0	8808803	<1.0	<1.0	<1.0	1.0	8809795
trans-1,3-dichloropropene	ug/L	<1.0	<1.0	8808803	<1.0	<1.0	<1.0	1.0	8809795
Bromomethane	ug/L	<1.0	<1.0	8808803	<1.0	<1.0	<1.0	1.0	8809795
1,1,2-trichloroethane	ug/L	<0.50	<0.50	8808803	<0.50	<0.50	<0.50	0.50	8809795
Trichloroethene	ug/L	<0.50	<0.50	8808803	<0.50	<0.50	<0.50	0.50	8809795
Chlorodibromomethane	ug/L	<1.0	<1.0	8808803	<1.0	<1.0	<1.0	1.0	8809795
1,2-dibromoethane	ug/L	<0.20	<0.20	8808803	<0.20	<0.20	<0.20	0.20	8809795
Tetrachloroethene	ug/L	<0.50	<0.50	8808803	<0.50	<0.50	<0.50	0.50	8809795
Bromodichloromethane	ug/L	<1.0	<1.0	8808803	<1.0	<1.0	<1.0	1.0	8809795
Toluene	ug/L	<0.40	<0.40	8808803	<0.40	<0.40	<0.40	0.40	8809795
Ethylbenzene	ug/L	<0.40	<0.40	8808803	<0.40	<0.40	<0.40	0.40	8809795
m & p-Xylene	ug/L	<0.40	<0.40	8808803	<0.40	<0.40	<0.40	0.40	8809795
Bromoform	ug/L	<1.0	<1.0	8808803	<1.0	<1.0	<1.0	1.0	8809795
Styrene	ug/L	<0.50	<0.50	8808803	<0.50	<0.50	<0.50	0.50	8809795
RDL = Reportable Detection Limit									

Maxxam Job #: B794924  
Report Date: 2017/11/02

TETRA TECH CANADA INC.  
Client Project #: Teslin SWMF

### CSR VOC + VPH IN WATER (WATER)

Maxxam ID		SI0883	SI0884		SI0885	SI0886	SI0887		
Sampling Date		2017/10/24 11:50	2017/10/25 08:55		2017/10/24 15:00	2017/10/25 09:15	2017/10/24 16:25		
COC Number		539391-01-01	539391-01-01		539391-01-01	539391-01-01	539391-01-01		
	UNITS	MW01	MW02	QC Batch	MW03	MW15-01	MW15-02	RDL	QC Batch
o-Xylene	ug/L	<0.40	<0.40	8808803	<0.40	<0.40	<0.40	0.40	8809795
Xylenes (Total)	ug/L	<0.40	<0.40	8808803	<0.40	<0.40	<0.40	0.40	8809795
1,1,1,2-tetrachloroethane	ug/L	<0.50	<0.50	8808803	<0.50	<0.50	<0.50	0.50	8809795
1,1,2,2-tetrachloroethane	ug/L	<0.50	<0.50	8808803	<0.50	<0.50	<0.50	0.50	8809795
1,2-dichlorobenzene	ug/L	<0.50	<0.50	8808803	<0.50	<0.50	<0.50	0.50	8809795
1,3-dichlorobenzene	ug/L	<0.50	<0.50	8808803	<0.50	<0.50	<0.50	0.50	8809795
1,4-dichlorobenzene	ug/L	<0.50	<0.50	8808803	<0.50	<0.50	<0.50	0.50	8809795
Chlorobenzene	ug/L	<0.50	<0.50	8808803	<0.50	<0.50	<0.50	0.50	8809795
1,2,3-trichlorobenzene	ug/L	<2.0	<2.0	8808803	<2.0	<2.0	<2.0	2.0	8809795
1,2,4-trichlorobenzene	ug/L	<2.0	<2.0	8808803	<2.0	<2.0	<2.0	2.0	8809795
Hexachlorobutadiene	ug/L	<0.50	<0.50	8808803	<0.50	<0.50	<0.50	0.50	8809795
VH C6-C10	ug/L	<300	<300	8808803	<300	<300	<300	300	8809795
<b>Surrogate Recovery (%)</b>									
1,4-Difluorobenzene (sur.)	%	100	101	8808803	100	100	100		8809795
4-Bromofluorobenzene (sur.)	%	89	89	8808803	86	86	86		8809795
D4-1,2-Dichloroethane (sur.)	%	114	114	8808803	95	96	97		8809795
RDL = Reportable Detection Limit									

Maxxam Job #: B794924  
Report Date: 2017/11/02

TETRA TECH CANADA INC.  
Client Project #: Teslin SWMF

### CSR VOC + VPH IN WATER (WATER)

Maxxam ID		SI0888	SI0889		
Sampling Date		2017/10/24 14:00	2017/10/24		
COC Number		539391-01-01	539391-01-01		
	UNITS	TE-MW12-02	DUP1	RDL	QC Batch
<b>Volatiles</b>					
VPH (VH6 to 10 - BTEX)	ug/L	<300	<300	300	8807890
Chloromethane	ug/L	<1.0	<1.0	1.0	8809795
Vinyl chloride	ug/L	<0.50	<0.50	0.50	8809795
Chloroethane	ug/L	<1.0	<1.0	1.0	8809795
Trichlorofluoromethane	ug/L	<4.0	<4.0	4.0	8809795
1,1,2Trichloro-1,2,2Trifluoroethane	ug/L	<2.0	<2.0	2.0	8809795
Dichlorodifluoromethane	ug/L	<2.0	<2.0	2.0	8809795
1,1-dichloroethene	ug/L	<0.50	<0.50	0.50	8809795
Dichloromethane	ug/L	<2.0	<2.0	2.0	8809795
trans-1,2-dichloroethene	ug/L	<1.0	<1.0	1.0	8809795
1,1-dichloroethane	ug/L	<0.50	<0.50	0.50	8809795
cis-1,2-dichloroethene	ug/L	<1.0	<1.0	1.0	8809795
Chloroform	ug/L	<1.0	<1.0	1.0	8809795
1,1,1-trichloroethane	ug/L	<0.50	<0.50	0.50	8809795
1,2-dichloroethane	ug/L	<0.50	<0.50	0.50	8809795
Carbon tetrachloride	ug/L	<0.50	<0.50	0.50	8809795
Benzene	ug/L	<0.40	<0.40	0.40	8809795
Methyl-tert-butylether (MTBE)	ug/L	<4.0	<4.0	4.0	8809795
1,2-dichloropropane	ug/L	<0.50	<0.50	0.50	8809795
cis-1,3-dichloropropene	ug/L	<1.0	<1.0	1.0	8809795
trans-1,3-dichloropropene	ug/L	<1.0	<1.0	1.0	8809795
Bromomethane	ug/L	<1.0	<1.0	1.0	8809795
1,1,2-trichloroethane	ug/L	<0.50	<0.50	0.50	8809795
Trichloroethene	ug/L	<0.50	<0.50	0.50	8809795
Chlorodibromomethane	ug/L	<1.0	<1.0	1.0	8809795
1,2-dibromoethane	ug/L	<0.20	<0.20	0.20	8809795
Tetrachloroethene	ug/L	<0.50	<0.50	0.50	8809795
Bromodichloromethane	ug/L	<1.0	<1.0	1.0	8809795
Toluene	ug/L	<0.40	<0.40	0.40	8809795
Ethylbenzene	ug/L	<0.40	<0.40	0.40	8809795
m & p-Xylene	ug/L	<0.40	<0.40	0.40	8809795
Bromoform	ug/L	<1.0	<1.0	1.0	8809795
Styrene	ug/L	<0.50	<0.50	0.50	8809795
RDL = Reportable Detection Limit					

Maxxam Job #: B794924  
Report Date: 2017/11/02

TETRA TECH CANADA INC.  
Client Project #: Teslin SWMF

### CSR VOC + VPH IN WATER (WATER)

Maxxam ID		SI0888	SI0889		
Sampling Date		2017/10/24 14:00	2017/10/24		
COC Number		539391-01-01	539391-01-01		
	UNITS	TE-MW12-02	DUP1	RDL	QC Batch
o-Xylene	ug/L	<0.40	<0.40	0.40	8809795
Xylenes (Total)	ug/L	<0.40	<0.40	0.40	8809795
1,1,1,2-tetrachloroethane	ug/L	<0.50	<0.50	0.50	8809795
1,1,2,2-tetrachloroethane	ug/L	<0.50	<0.50	0.50	8809795
1,2-dichlorobenzene	ug/L	<0.50	<0.50	0.50	8809795
1,3-dichlorobenzene	ug/L	<0.50	<0.50	0.50	8809795
1,4-dichlorobenzene	ug/L	<0.50	<0.50	0.50	8809795
Chlorobenzene	ug/L	<0.50	<0.50	0.50	8809795
1,2,3-trichlorobenzene	ug/L	<2.0	<2.0	2.0	8809795
1,2,4-trichlorobenzene	ug/L	<2.0	<2.0	2.0	8809795
Hexachlorobutadiene	ug/L	<0.50	<0.50	0.50	8809795
VH C6-C10	ug/L	<300	<300	300	8809795
<b>Surrogate Recovery (%)</b>					
1,4-Difluorobenzene (sur.)	%	100	101		8809795
4-Bromofluorobenzene (sur.)	%	86	84		8809795
D4-1,2-Dichloroethane (sur.)	%	96	98		8809795
RDL = Reportable Detection Limit					

Maxxam Job #: B794924  
Report Date: 2017/11/02

TETRA TECH CANADA INC.  
Client Project #: Teslin SWMF

### GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	4.0°C
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Sample Dup 1: Missing sampling time.

**Results relate only to the items tested.**

Maxxam Job #: B794924  
Report Date: 2017/11/02

## QUALITY ASSURANCE REPORT

TETRA TECH CANADA INC.  
Client Project #: Teslin SWMF

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8808803	1,4-Difluorobenzene (sur.)	2017/10/26	101	70 - 130	100	70 - 130	100	%		
8808803	4-Bromofluorobenzene (sur.)	2017/10/26	102	70 - 130	105	70 - 130	97	%		
8808803	D4-1,2-Dichloroethane (sur.)	2017/10/26	104	70 - 130	100	70 - 130	107	%		
8809795	1,4-Difluorobenzene (sur.)	2017/10/27	103	70 - 130	103	70 - 130	99	%		
8809795	4-Bromofluorobenzene (sur.)	2017/10/27	98	70 - 130	99	70 - 130	87	%		
8809795	D4-1,2-Dichloroethane (sur.)	2017/10/27	91	70 - 130	89	70 - 130	96	%		
8812339	O-TERPHENYL (sur.)	2017/10/30	100	60 - 140	103	60 - 140	99	%		
8812371	D10-ANTHRACENE (sur.)	2017/10/31	64	50 - 140	105	50 - 140	109	%		
8812371	D8-ACENAPHTHYLENE (sur.)	2017/10/31	96	50 - 140	107	50 - 140	106	%		
8812371	D8-NAPHTHALENE (sur.)	2017/10/31	87	50 - 140	97	50 - 140	94	%		
8812371	TERPHENYL-D14 (sur.)	2017/10/31	91	50 - 140	89	50 - 140	87	%		
8812559	D10-ANTHRACENE (sur.)	2017/10/30	91	50 - 140	110	50 - 140	113	%		
8812559	D8-ACENAPHTHYLENE (sur.)	2017/10/30	99	50 - 140	110	50 - 140	113	%		
8812559	D8-NAPHTHALENE (sur.)	2017/10/30	96	50 - 140	105	50 - 140	112	%		
8812559	TERPHENYL-D14 (sur.)	2017/10/30	69	50 - 140	84	50 - 140	85	%		
8812574	O-TERPHENYL (sur.)	2017/10/30	105	60 - 140	109	60 - 140	107	%		
8808357	Chemical Oxygen Demand	2017/10/27	98	80 - 120	101	80 - 120	<10	mg/L	0.34	20
8808803	1,1,1,2-tetrachloroethane	2017/10/27	104	70 - 130	109	70 - 130	<0.50	ug/L	NC	30
8808803	1,1,1-trichloroethane	2017/10/27	109	70 - 130	114	70 - 130	<0.50	ug/L	NC	30
8808803	1,1,2,2-tetrachloroethane	2017/10/27	110	70 - 130	106	70 - 130	<0.50	ug/L	NC	30
8808803	1,1,2Trichloro-1,2,2Trifluoroethane	2017/10/27					<2.0	ug/L	NC	30
8808803	1,1,2-trichloroethane	2017/10/27	106	70 - 130	108	70 - 130	<0.50	ug/L	NC	30
8808803	1,1-dichloroethane	2017/10/27	99	70 - 130	107	70 - 130	<0.50	ug/L	NC	30
8808803	1,1-dichloroethene	2017/10/27	104	70 - 130	115	70 - 130	<0.50	ug/L	NC	30
8808803	1,2,3-trichlorobenzene	2017/10/27	103	70 - 130	115	70 - 130	<2.0	ug/L	NC	30
8808803	1,2,4-trichlorobenzene	2017/10/27	102	70 - 130	116	70 - 130	<2.0	ug/L	NC	30
8808803	1,2-dibromoethane	2017/10/27	105	70 - 130	104	70 - 130	<0.20	ug/L	NC	30
8808803	1,2-dichlorobenzene	2017/10/27	113	70 - 130	123	70 - 130	<0.50	ug/L	NC	30
8808803	1,2-dichloroethane	2017/10/27	105	70 - 130	110	70 - 130	<0.50	ug/L	NC	30
8808803	1,2-dichloropropane	2017/10/27	103	70 - 130	113	70 - 130	<0.50	ug/L	NC	30
8808803	1,3-dichlorobenzene	2017/10/27	116	70 - 130	126	70 - 130	<0.50	ug/L	NC	30
8808803	1,4-dichlorobenzene	2017/10/27	110	70 - 130	120	70 - 130	<0.50	ug/L	NC	30

Maxxam Job #: B794924  
Report Date: 2017/11/02

# QUALITY ASSURANCE REPORT(CONT'D)

TETRA TECH CANADA INC.  
Client Project #: Teslin SWMF

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8808803	Benzene	2017/10/27	104	70 - 130	118	70 - 130	<0.40	ug/L	NC	30
8808803	Bromodichloromethane	2017/10/27	106	70 - 130	109	70 - 130	<1.0	ug/L	NC	30
8808803	Bromoform	2017/10/27	98	70 - 130	97	70 - 130	<1.0	ug/L	NC	30
8808803	Bromomethane	2017/10/27	105	60 - 140	119	60 - 140	<1.0	ug/L	NC	30
8808803	Carbon tetrachloride	2017/10/27	107	70 - 130	114	70 - 130	<0.50	ug/L	NC	30
8808803	Chlorobenzene	2017/10/27	99	70 - 130	108	70 - 130	<0.50	ug/L	NC	30
8808803	Chlorodibromomethane	2017/10/27	102	70 - 130	104	70 - 130	<1.0	ug/L	NC	30
8808803	Chloroethane	2017/10/27	96	60 - 140	93	60 - 140	<1.0	ug/L	NC	30
8808803	Chloroform	2017/10/27	107	70 - 130	111	70 - 130	<1.0	ug/L	NC	30
8808803	Chloromethane	2017/10/27	116	60 - 140	124	60 - 140	<1.0	ug/L	NC	30
8808803	cis-1,2-dichloroethene	2017/10/27	106	70 - 130	117	70 - 130	<1.0	ug/L	NC	30
8808803	cis-1,3-dichloropropene	2017/10/27	83	70 - 130	91	70 - 130	<1.0	ug/L	NC	30
8808803	Dichlorodifluoromethane	2017/10/27	123	60 - 140	132	60 - 140	<2.0	ug/L	NC	30
8808803	Dichloromethane	2017/10/27	108	70 - 130	125	70 - 130	<2.0	ug/L	NC	30
8808803	Ethylbenzene	2017/10/27	103	70 - 130	121	70 - 130	<0.40	ug/L	NC	30
8808803	Hexachlorobutadiene	2017/10/27	107	70 - 130	116	70 - 130	<0.50	ug/L	NC	30
8808803	m & p-Xylene	2017/10/27	115	70 - 130	134 (1)	70 - 130	<0.40	ug/L	NC	30
8808803	Methyl-tert-butylether (MTBE)	2017/10/27	98	70 - 130	117	70 - 130	<4.0	ug/L	NC	30
8808803	o-Xylene	2017/10/27	88	70 - 130	106	70 - 130	<0.40	ug/L	NC	30
8808803	Styrene	2017/10/27	86	70 - 130	98	70 - 130	<0.50	ug/L	NC	30
8808803	Tetrachloroethene	2017/10/27	102	70 - 130	118	70 - 130	<0.50	ug/L	NC	30
8808803	Toluene	2017/10/27	96	70 - 130	116	70 - 130	<0.40	ug/L	NC	30
8808803	trans-1,2-dichloroethene	2017/10/27	105	70 - 130	115	70 - 130	<1.0	ug/L	NC	30
8808803	trans-1,3-dichloropropene	2017/10/27	83	70 - 130	88	70 - 130	<1.0	ug/L	NC	30
8808803	Trichloroethene	2017/10/27	103	70 - 130	116	70 - 130	<0.50	ug/L	NC	30
8808803	Trichlorofluoromethane	2017/10/27	126	60 - 140	133	60 - 140	<4.0	ug/L	NC	30
8808803	VH C6-C10	2017/10/27			94	70 - 130	<300	ug/L	NC	30
8808803	Vinyl chloride	2017/10/27	119	60 - 140	64	60 - 140	<0.50	ug/L	NC	30
8808803	Xylenes (Total)	2017/10/27					<0.40	ug/L	NC	30
8809196	Total Ammonia (N)	2017/10/27	99	80 - 120	100	80 - 120	<0.020	mg/L	2.4	20
8809199	pH	2017/10/27			101	97 - 103				
8809202	Total Ammonia (N)	2017/10/27	NC	80 - 120	104	80 - 120	<0.020	mg/L		

Maxxam Job #: B794924  
Report Date: 2017/11/02

## QUALITY ASSURANCE REPORT(CONT'D)

TETRA TECH CANADA INC.  
Client Project #: Teslin SWMF

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8809206	Conductivity	2017/10/27			102	80 - 120	<2.0	uS/cm		
8809207	Alkalinity (PP as CaCO <sub>3</sub> )	2017/10/27					<1.0	mg/L	NC	20
8809207	Alkalinity (Total as CaCO <sub>3</sub> )	2017/10/27	NC	80 - 120	101	80 - 120	<1.0	mg/L	0.44	20
8809207	Bicarbonate (HCO <sub>3</sub> )	2017/10/27					<1.0	mg/L	0.44	20
8809207	Carbonate (CO <sub>3</sub> )	2017/10/27					<1.0	mg/L	NC	20
8809207	Hydroxide (OH)	2017/10/27					<1.0	mg/L	NC	20
8809645	Total Dissolved Solids	2017/10/28	98	80 - 120	97	80 - 120	<10	mg/L	6.7	20
8809764	Dissolved Aluminum (Al)	2017/10/31	109	80 - 120	101	80 - 120	<0.0030	mg/L	6.6	20
8809764	Dissolved Antimony (Sb)	2017/10/31	107	80 - 120	102	80 - 120	<0.00050	mg/L	NC	20
8809764	Dissolved Arsenic (As)	2017/10/31	103	80 - 120	104	80 - 120	<0.00010	mg/L	3.8	20
8809764	Dissolved Barium (Ba)	2017/10/31	113	80 - 120	103	80 - 120	<0.0010	mg/L	9.0	20
8809764	Dissolved Beryllium (Be)	2017/10/31	100	80 - 120	93	80 - 120	<0.00010	mg/L	NC	20
8809764	Dissolved Bismuth (Bi)	2017/10/31	104	80 - 120	101	80 - 120	<0.0010	mg/L	NC	20
8809764	Dissolved Boron (B)	2017/10/31	99	80 - 120	92	80 - 120	<0.050	mg/L	NC	20
8809764	Dissolved Cadmium (Cd)	2017/10/31	105	80 - 120	100	80 - 120	<0.000010	mg/L	4.4	20
8809764	Dissolved Chromium (Cr)	2017/10/31	103	80 - 120	104	80 - 120	<0.0010	mg/L	NC	20
8809764	Dissolved Cobalt (Co)	2017/10/31	99	80 - 120	102	80 - 120	<0.00020	mg/L	NC	20
8809764	Dissolved Copper (Cu)	2017/10/31	99	80 - 120	104	80 - 120	<0.00020	mg/L	5.8	20
8809764	Dissolved Iron (Fe)	2017/10/31	99	80 - 120	109	80 - 120	<0.0050	mg/L	NC	20
8809764	Dissolved Lead (Pb)	2017/10/31	104	80 - 120	101	80 - 120	<0.00020	mg/L	NC	20
8809764	Dissolved Lithium (Li)	2017/10/31	98	80 - 120	92	80 - 120	<0.0020	mg/L	NC	20
8809764	Dissolved Manganese (Mn)	2017/10/31	101	80 - 120	102	80 - 120	<0.0010	mg/L	5.8	20
8809764	Dissolved Molybdenum (Mo)	2017/10/31	107	80 - 120	99	80 - 120	<0.0010	mg/L	NC	20
8809764	Dissolved Nickel (Ni)	2017/10/31	100	80 - 120	104	80 - 120	<0.0010	mg/L	6.6	20
8809764	Dissolved Selenium (Se)	2017/10/31	99	80 - 120	108	80 - 120	<0.00010	mg/L	NC	20
8809764	Dissolved Silicon (Si)	2017/10/31					<0.10	mg/L	0.070	20
8809764	Dissolved Silver (Ag)	2017/10/31	111	80 - 120	107	80 - 120	<0.000020	mg/L	NC	20
8809764	Dissolved Strontium (Sr)	2017/10/31	NC	80 - 120	98	80 - 120	<0.0010	mg/L	0.82	20
8809764	Dissolved Thallium (Tl)	2017/10/31	103	80 - 120	99	80 - 120	<0.000010	mg/L	NC	20
8809764	Dissolved Tin (Sn)	2017/10/31	106	80 - 120	101	80 - 120	<0.0050	mg/L	NC	20
8809764	Dissolved Titanium (Ti)	2017/10/31	100	80 - 120	105	80 - 120	<0.0050	mg/L	NC	20
8809764	Dissolved Uranium (U)	2017/10/31	108	80 - 120	106	80 - 120	<0.00010	mg/L	NC	20

Maxxam Job #: B794924  
Report Date: 2017/11/02

# QUALITY ASSURANCE REPORT(CONT'D)

TETRA TECH CANADA INC.  
Client Project #: Teslin SWMF

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8809764	Dissolved Vanadium (V)	2017/10/31	101	80 - 120	104	80 - 120	<0.0050	mg/L	NC	20
8809764	Dissolved Zinc (Zn)	2017/10/31	103	80 - 120	102	80 - 120	<0.0050	mg/L	NC	20
8809764	Dissolved Zirconium (Zr)	2017/10/31	101	80 - 120	101	80 - 120	<0.00010	mg/L	NC	20
8809786	Nitrate plus Nitrite (N)	2017/10/26	NC	80 - 120	100	80 - 120	<0.020	mg/L	1.2	25
8809793	Nitrite (N)	2017/10/26	101	80 - 120	96	80 - 120	<0.0050	mg/L	1.4	20
8809795	1,1,1,2-tetrachloroethane	2017/10/27	85	70 - 130	86	70 - 130	<0.50	ug/L	NC	30
8809795	1,1,1-trichloroethane	2017/10/27	84	70 - 130	84	70 - 130	<0.50	ug/L	NC	30
8809795	1,1,2,2-tetrachloroethane	2017/10/27	88	70 - 130	89	70 - 130	<0.50	ug/L	NC	30
8809795	1,1,2Trichloro-1,2,2Trifluoroethane	2017/10/27					<2.0	ug/L	NC	30
8809795	1,1,2-trichloroethane	2017/10/27	83	70 - 130	84	70 - 130	<0.50	ug/L	NC	30
8809795	1,1-dichloroethane	2017/10/27	82	70 - 130	83	70 - 130	<0.50	ug/L	NC	30
8809795	1,1-dichloroethene	2017/10/27	86	70 - 130	87	70 - 130	<0.50	ug/L	NC	30
8809795	1,2,3-trichlorobenzene	2017/10/27	93	70 - 130	93	70 - 130	<2.0	ug/L	NC	30
8809795	1,2,4-trichlorobenzene	2017/10/27	93	70 - 130	94	70 - 130	<2.0	ug/L	NC	30
8809795	1,2-dibromoethane	2017/10/27	82	70 - 130	84	70 - 130	<0.20	ug/L	NC	30
8809795	1,2-dichlorobenzene	2017/10/27	100	70 - 130	102	70 - 130	<0.50	ug/L	NC	30
8809795	1,2-dichloroethane	2017/10/27	84	70 - 130	86	70 - 130	<0.50	ug/L	NC	30
8809795	1,2-dichloropropane	2017/10/27	88	70 - 130	89	70 - 130	<0.50	ug/L	NC	30
8809795	1,3-dichlorobenzene	2017/10/27	101	70 - 130	103	70 - 130	<0.50	ug/L	NC	30
8809795	1,4-dichlorobenzene	2017/10/27	97	70 - 130	99	70 - 130	<0.50	ug/L	NC	30
8809795	Benzene	2017/10/27	90	70 - 130	92	70 - 130	<0.40	ug/L	NC	30
8809795	Bromodichloromethane	2017/10/27	83	70 - 130	84	70 - 130	<1.0	ug/L	NC	30
8809795	Bromoform	2017/10/27	76	70 - 130	78	70 - 130	<1.0	ug/L	NC	30
8809795	Bromomethane	2017/10/27	87	60 - 140	87	60 - 140	<1.0	ug/L	NC	30
8809795	Carbon tetrachloride	2017/10/27	84	70 - 130	85	70 - 130	<0.50	ug/L	NC	30
8809795	Chlorobenzene	2017/10/27	85	70 - 130	87	70 - 130	<0.50	ug/L	NC	30
8809795	Chlorodibromomethane	2017/10/27	82	70 - 130	83	70 - 130	<1.0	ug/L	NC	30
8809795	Chloroethane	2017/10/27	88	60 - 140	71	60 - 140	<1.0	ug/L	NC	30
8809795	Chloroform	2017/10/27	84	70 - 130	85	70 - 130	<1.0	ug/L	NC	30
8809795	Chloromethane	2017/10/27	92	60 - 140	95	60 - 140	<1.0	ug/L	NC	30
8809795	cis-1,2-dichloroethene	2017/10/27	87	70 - 130	89	70 - 130	<1.0	ug/L	NC	30
8809795	cis-1,3-dichloropropene	2017/10/27	76	70 - 130	76	70 - 130	<1.0	ug/L	NC	30

Maxxam Job #: B794924  
Report Date: 2017/11/02

# QUALITY ASSURANCE REPORT(CONT'D)

TETRA TECH CANADA INC.  
Client Project #: Teslin SWMF

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8809795	Dichlorodifluoromethane	2017/10/27	95	60 - 140	94	60 - 140	<2.0	ug/L	NC	30
8809795	Dichloromethane	2017/10/27	85	70 - 130	86	70 - 130	<2.0	ug/L	NC	30
8809795	Ethylbenzene	2017/10/27	92	70 - 130	96	70 - 130	<0.40	ug/L	NC	30
8809795	Hexachlorobutadiene	2017/10/27	89	70 - 130	88	70 - 130	<0.50	ug/L	NC	30
8809795	m & p-Xylene	2017/10/27	100	70 - 130	104	70 - 130	<0.40	ug/L	NC	30
8809795	Methyl-tert-butylether (MTBE)	2017/10/27	90	70 - 130	92	70 - 130	<4.0	ug/L	NC	30
8809795	o-Xylene	2017/10/27	80	70 - 130	84	70 - 130	<0.40	ug/L	NC	30
8809795	Styrene	2017/10/27	75	70 - 130	79	70 - 130	<0.50	ug/L	NC	30
8809795	Tetrachloroethene	2017/10/27	89	70 - 130	90	70 - 130	<0.50	ug/L	NC	30
8809795	Toluene	2017/10/27	86	70 - 130	89	70 - 130	<0.40	ug/L	NC	30
8809795	trans-1,2-dichloroethene	2017/10/27	85	70 - 130	86	70 - 130	<1.0	ug/L	NC	30
8809795	trans-1,3-dichloropropene	2017/10/27	75	70 - 130	75	70 - 130	<1.0	ug/L	NC	30
8809795	Trichloroethene	2017/10/27	90	70 - 130	91	70 - 130	<0.50	ug/L	NC	30
8809795	Trichlorofluoromethane	2017/10/27	101	60 - 140	100	60 - 140	<4.0	ug/L	NC	30
8809795	VH C6-C10	2017/10/27			113	70 - 130	<300	ug/L	NC	30
8809795	Vinyl chloride	2017/10/27	90	60 - 140	91	60 - 140	<0.50	ug/L	NC	30
8809795	Xylenes (Total)	2017/10/27					<0.40	ug/L	NC	30
8810236	Total Phosphorus (P)	2017/10/27			104	80 - 120	<0.0050	mg/L		
8810692	Dissolved Organic Carbon (C)	2017/10/27	102	80 - 120	104	80 - 120	<0.50	mg/L	0.23	20
8810695	Dissolved Organic Carbon (C)	2017/10/27	105	80 - 120	107	80 - 120	<0.50	mg/L	4.8	20
8810704	Dissolved Organic Carbon (C)	2017/10/27			111	80 - 120	<0.50	mg/L		
8812339	EPH (C10-C19)	2017/10/30	78	60 - 140	106	70 - 130	<0.20	mg/L	NC	30
8812339	EPH (C19-C32)	2017/10/30	78	60 - 140	106	70 - 130	<0.20	mg/L	NC	30
8812371	2-Methylnaphthalene	2017/11/01	90	50 - 140	100	50 - 140	<0.10	ug/L	12	40
8812371	Acenaphthene	2017/11/01	103	50 - 140	96	50 - 140	<0.050	ug/L	NC	40
8812371	Acenaphthylene	2017/11/01	102	50 - 140	99	50 - 140	<0.050	ug/L	NC	40
8812371	Acridine	2017/11/01	98	50 - 140	96	50 - 140	<0.050	ug/L	NC	40
8812371	Anthracene	2017/11/01	106	50 - 140	101	50 - 140	<0.010	ug/L	3.9	40
8812371	Benzo(a)anthracene	2017/11/01	101	50 - 140	97	50 - 140	<0.010	ug/L	NC	40
8812371	Benzo(a)pyrene	2017/11/01	96	50 - 140	95	50 - 140	<0.0050	ug/L	NC	40
8812371	Benzo(b&j)fluoranthene	2017/11/01	102	50 - 140	97	50 - 140	<0.030	ug/L	NC	40
8812371	Benzo(g,h,i)perylene	2017/11/01	88	50 - 140	90	50 - 140	<0.050	ug/L	NC	40

Maxxam Job #: B794924  
Report Date: 2017/11/02

# QUALITY ASSURANCE REPORT(CONT'D)

TETRA TECH CANADA INC.  
Client Project #: Teslin SWMF

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8812371	Benzo(k)fluoranthene	2017/11/01	99	50 - 140	103	50 - 140	<0.050	ug/L	NC	40
8812371	Chrysene	2017/11/01	101	50 - 140	97	50 - 140	<0.020	ug/L	NC	40
8812371	Dibenz(a,h)anthracene	2017/11/01	89	50 - 140	91	50 - 140	<0.0030	ug/L	NC	40
8812371	Fluoranthene	2017/11/01	98	50 - 140	94	50 - 140	<0.020	ug/L	NC	40
8812371	Fluorene	2017/11/01	94	50 - 140	93	50 - 140	<0.050	ug/L	18	40
8812371	Indeno(1,2,3-cd)pyrene	2017/11/01	89	50 - 140	91	50 - 140	<0.050	ug/L	NC	40
8812371	Naphthalene	2017/11/01	92	50 - 140	101	50 - 140	<0.10	ug/L	NC	40
8812371	Phenanthrene	2017/11/01	95	50 - 140	95	50 - 140	<0.050	ug/L	25	40
8812371	Pyrene	2017/11/01	100	50 - 140	97	50 - 140	<0.020	ug/L	NC	40
8812371	Quinoline	2017/11/01	114	50 - 140	110	50 - 140	<0.020	ug/L	NC	40
8812559	2-Methylnaphthalene	2017/10/30	85	50 - 140	93	50 - 140	<0.10	ug/L	NC	40
8812559	Acenaphthene	2017/10/30	85	50 - 140	91	50 - 140	<0.050	ug/L	NC	40
8812559	Acenaphthylene	2017/10/30	84	50 - 140	89	50 - 140	<0.050	ug/L	NC	40
8812559	Acridine	2017/10/30	89	50 - 140	86	50 - 140	<0.050	ug/L	NC	40
8812559	Anthracene	2017/10/30	93	50 - 140	98	50 - 140	<0.010	ug/L	NC	40
8812559	Benzo(a)anthracene	2017/10/30	72	50 - 140	82	50 - 140	<0.010	ug/L	NC	40
8812559	Benzo(a)pyrene	2017/10/30	76	50 - 140	87	50 - 140	<0.0050	ug/L	NC	40
8812559	Benzo(b&j)fluoranthene	2017/10/30	79	50 - 140	86	50 - 140	<0.030	ug/L	NC	40
8812559	Benzo(g,h,i)perylene	2017/10/30	68	50 - 140	82	50 - 140	<0.050	ug/L	NC	40
8812559	Benzo(k)fluoranthene	2017/10/30	72	50 - 140	87	50 - 140	<0.050	ug/L	NC	40
8812559	Chrysene	2017/10/30	74	50 - 140	83	50 - 140	<0.020	ug/L	NC	40
8812559	Dibenz(a,h)anthracene	2017/10/30	71	50 - 140	85	50 - 140	<0.0030	ug/L	NC	40
8812559	Fluoranthene	2017/10/30	76	50 - 140	84	50 - 140	<0.020	ug/L	NC	40
8812559	Fluorene	2017/10/30	77	50 - 140	84	50 - 140	<0.050	ug/L	NC	40
8812559	Indeno(1,2,3-cd)pyrene	2017/10/30	69	50 - 140	83	50 - 140	<0.050	ug/L	NC	40
8812559	Naphthalene	2017/10/30	79	50 - 140	86	50 - 140	<0.10	ug/L	NC	40
8812559	Phenanthrene	2017/10/30	76	50 - 140	86	50 - 140	<0.050	ug/L	NC	40
8812559	Pyrene	2017/10/30	80	50 - 140	88	50 - 140	<0.020	ug/L	NC	40
8812559	Quinoline	2017/10/30	101	50 - 140	100	50 - 140	<0.020	ug/L	NC	40
8812571	Total Nitrogen (N)	2017/10/30	NC	80 - 120	96	80 - 120	<0.020	mg/L	9.9	20
8812574	EPH (C10-C19)	2017/10/30	104	60 - 140	106	70 - 130	<0.20	mg/L	NC	30
8812574	EPH (C19-C32)	2017/10/30	108	60 - 140	114	70 - 130	<0.20	mg/L	NC	30

Maxxam Job #: B794924  
Report Date: 2017/11/02

## QUALITY ASSURANCE REPORT(CONT'D)

TETRA TECH CANADA INC.  
Client Project #: Teslin SWMF

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8812992	Dissolved Chloride (Cl)	2017/10/30	98	80 - 120	102	80 - 120	<1.0	mg/L	0.24	20
8812994	Dissolved Sulphate (SO <sub>4</sub> )	2017/10/30	NC	80 - 120	99	80 - 120	<1.0	mg/L	0.88	20
8815196	Dissolved Sulphate (SO <sub>4</sub> )	2017/10/31	106	80 - 120	94	80 - 120	<1.0	mg/L	NC	20
8815230	Dissolved Mercury (Hg)	2017/11/01	104	80 - 120	95	80 - 120	<0.010	ug/L	NC	20
8816128	Total Nitrogen (N)	2017/11/02	NC	80 - 120	91	80 - 120	<0.020	mg/L	3.6	20

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

Maxxam Job #: B794924  
Report Date: 2017/11/02

TETRA TECH CANADA INC.  
Client Project #: Teslin SWMF

### VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Rob Reinert, B.Sc., Scientific Specialist

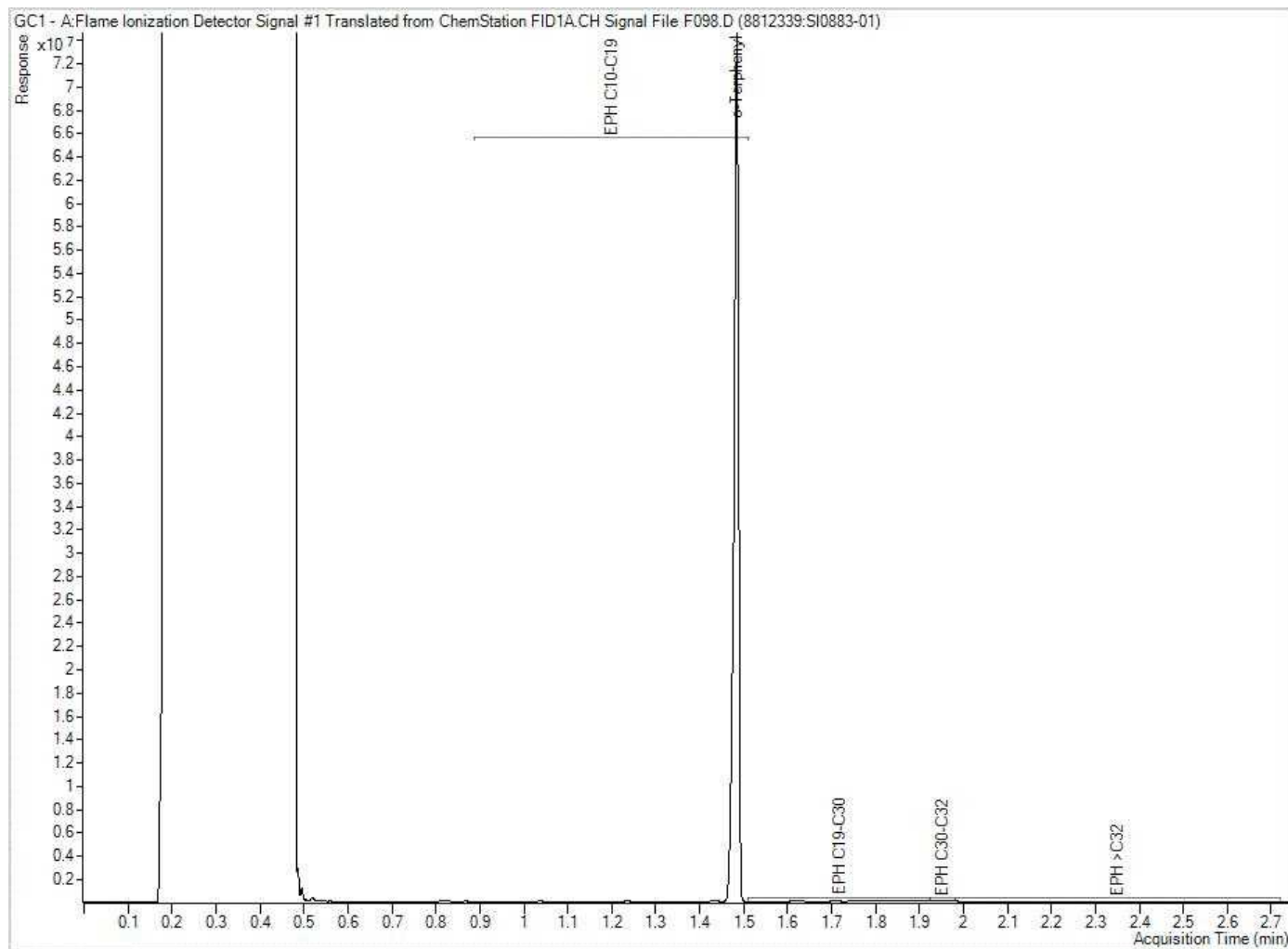
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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

<b>Maxxam</b> A Bureau Veritas Group Company Maxxam Analytics International Corporation or Maxxam Analytics 4606 Canada Way, Burnaby, British Columbia Canada V5G 1K5 Tel:(604) 734 7276 Toll-free:800-563-6266 Fax:(604) 731 2386 www.maxxam.ca							Page of _____		
<b>INVOICE TO:</b>				<b>Report Information</b>			<b>Project Information</b>		
Company Name #8218 TETRA TECH CANADA INC.				Company Name Caitlin Blair			Quotation # B51116		
Contact Name Caitlin Blair				Contact Name Caitlin Blair			P.O.#		
Address 61 Wason Place Whitehorse YT Y1A 0H7				Address			Project # Teslin SWMF		
Phone (867) 668-2071 x Fax (867) 668-4349 x				Phone			Project Name		
Email Caitlin.Blair@tetratech.com; EBA.Labdata@tetratech.co				Email Caitlin.Blair@tetratech.com; EBA.Labdata@tetratech.co			Site #		
							Sampled By		
<b>Regulatory Criteria:</b>				<b>Special Instructions</b>			<b>ANALYSIS REQUESTED (PLEASE BE SPECIFIC)</b>		
<input type="checkbox"/> CSR <input type="checkbox"/> CCME <input type="checkbox"/> BC Water Quality <input type="checkbox"/> Other _____							Turnaround Time (TAT) Required: <div>Please provide advance notice for rush projects</div> Regular (Standard) TAT: <div>(will be applied if Rush TAT is not specified): Standard TAT = 5-7 Working days for most tests. Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are &gt; 5 days - contact your Project Manager for details.</div> Job Specific Rush TAT (if applies to entire submission) 1 DAY <input type="checkbox"/> 2 Day <input type="checkbox"/> 3 Day <input type="checkbox"/> Date Required: _____ Rush Confirmation Number: _____ (call lab for #)		

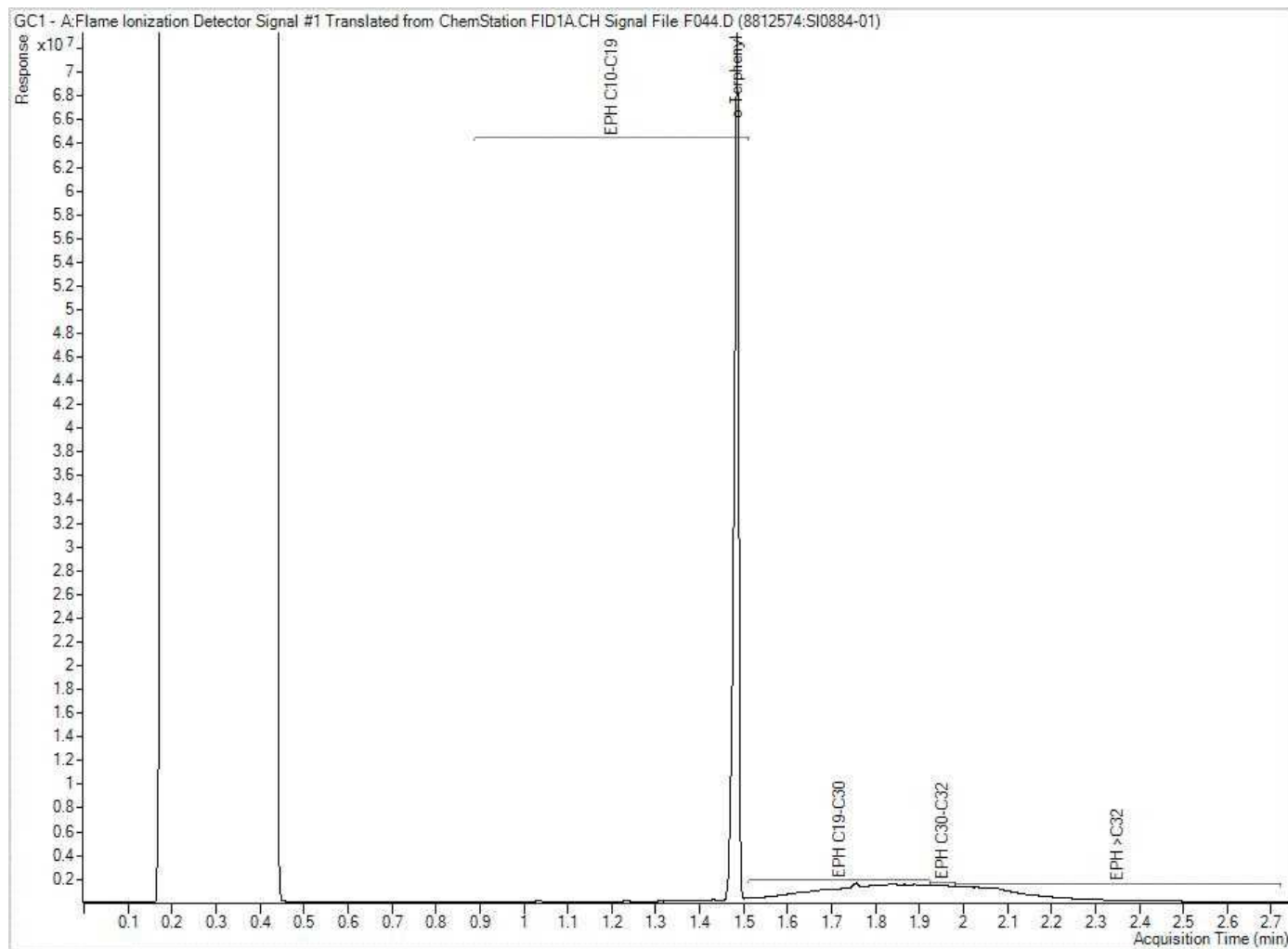
SAMPLES MUST BE KEPT COOL (< 10°C ) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM														
Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metas Field Filtered ? (Y/N)	Chloride, Sulphate, Alkalinity, pH, EC, TDS	Nitrate, Nitrite (N)	Total Phosphorus, Ammonia, COD, TKN	CSR Dissolved Metals in Water with CV Hg	DOC - field filtered/preserved	LEPH & HEHP with CSR/CCME PAH In Water	CSR VOC, BTEx, VPB in Water	# of Bottles	Comments
1	MW01	OCT 24	1150	W	Y	X	X	X	X	X	X	X	10	
2	MW02	OCT 25	855		Y	X	X	X	X	X	X	X	10	
3	MW03	OCT 24	1500		Y	X	X	X	X	X	X	X	10	
4	MW15-01	OCT 25	915		Y	X	X	X	X	X	X	X	9	not enough water to fill cool/pool bottles run if extra water / if possible
5	MW15-02	OCT 24	1625	V	Y	X	X	X	X	X	X	X	10	RECEIVED IN WHITEHORSE
6	TE-MW2-02	OCT 24	1400		Y	X	X	X	X	X	X	X	10	BY: glynmo@1310
7	dupl	OCT 24		V	Y	X	X	X	X	X	X	X	10	2017-10-25
8														EMP: 6 : 3 3
9														
10														
\* RELINQUISHED BY: (Signature/Print)		Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)		Date: (YY/MM/DD)	Time	# Jars used and not submitted		Lab Use Only				
Caitlin Blair		OCT 25/17	1310	EVA SYLMO		20/7/10/26	09:55			Temperature (°C) on Receipt 5.2/3		Custody Seal Intact on Cooler? ☒ Yes ☐ No		
\* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO MAXXAM'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.MAXXAM.CA/TERMS.   \* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.														
										White: Maxxam		Yellow: Client		

EPH in Water when PAH required Chromatogram



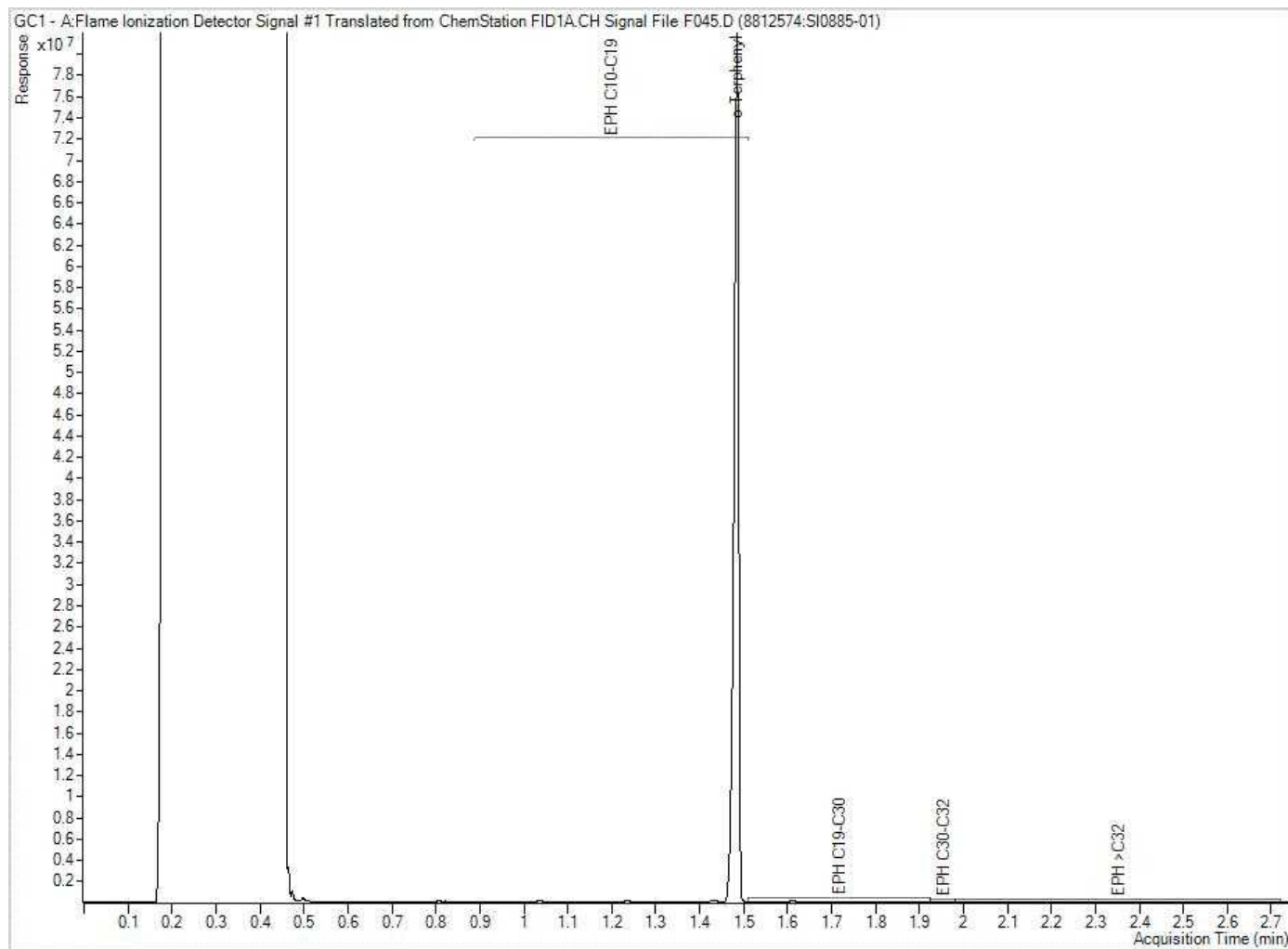
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

EPH in Water when PAH required Chromatogram



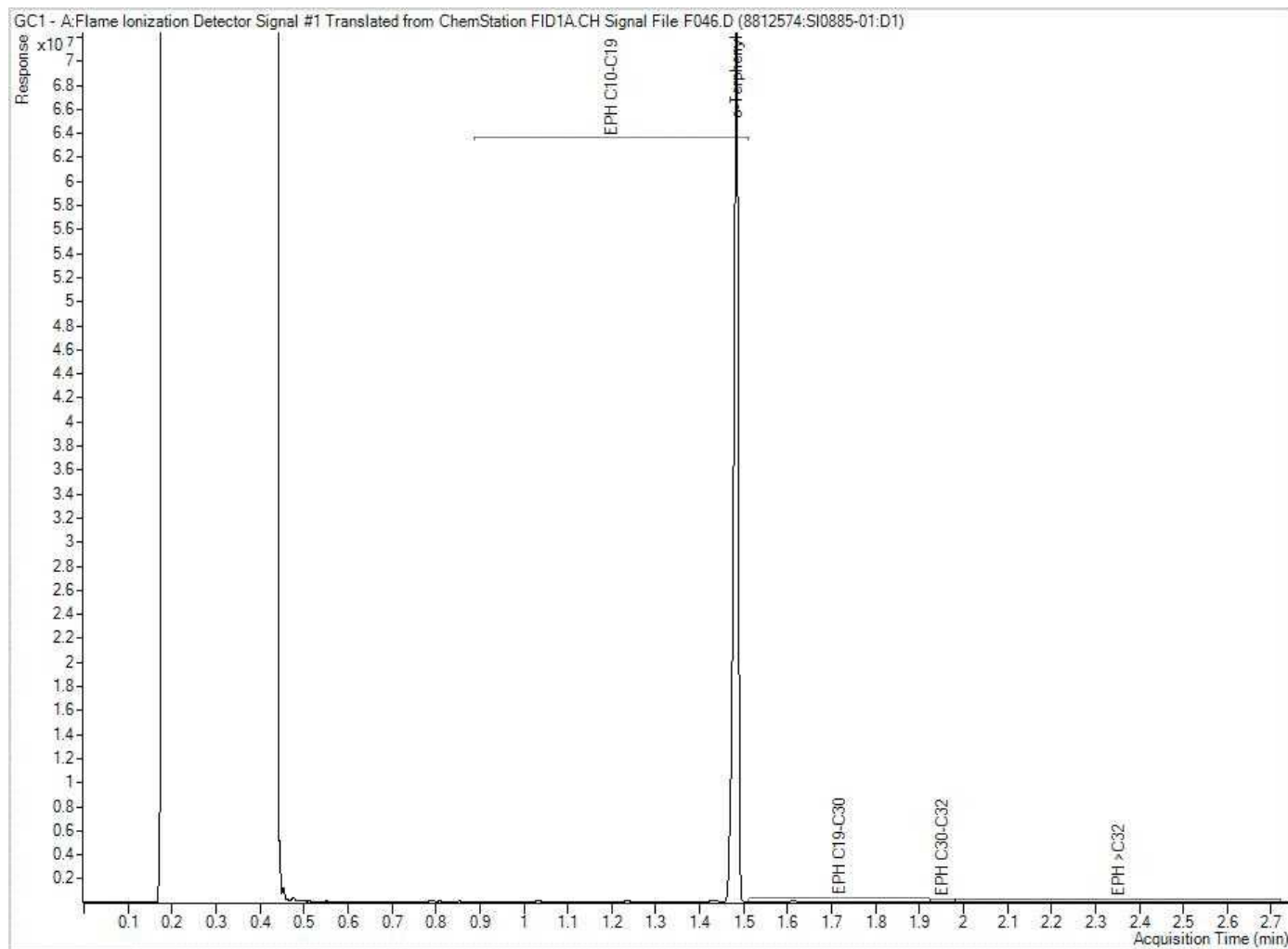
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

EPH in Water when PAH required Chromatogram



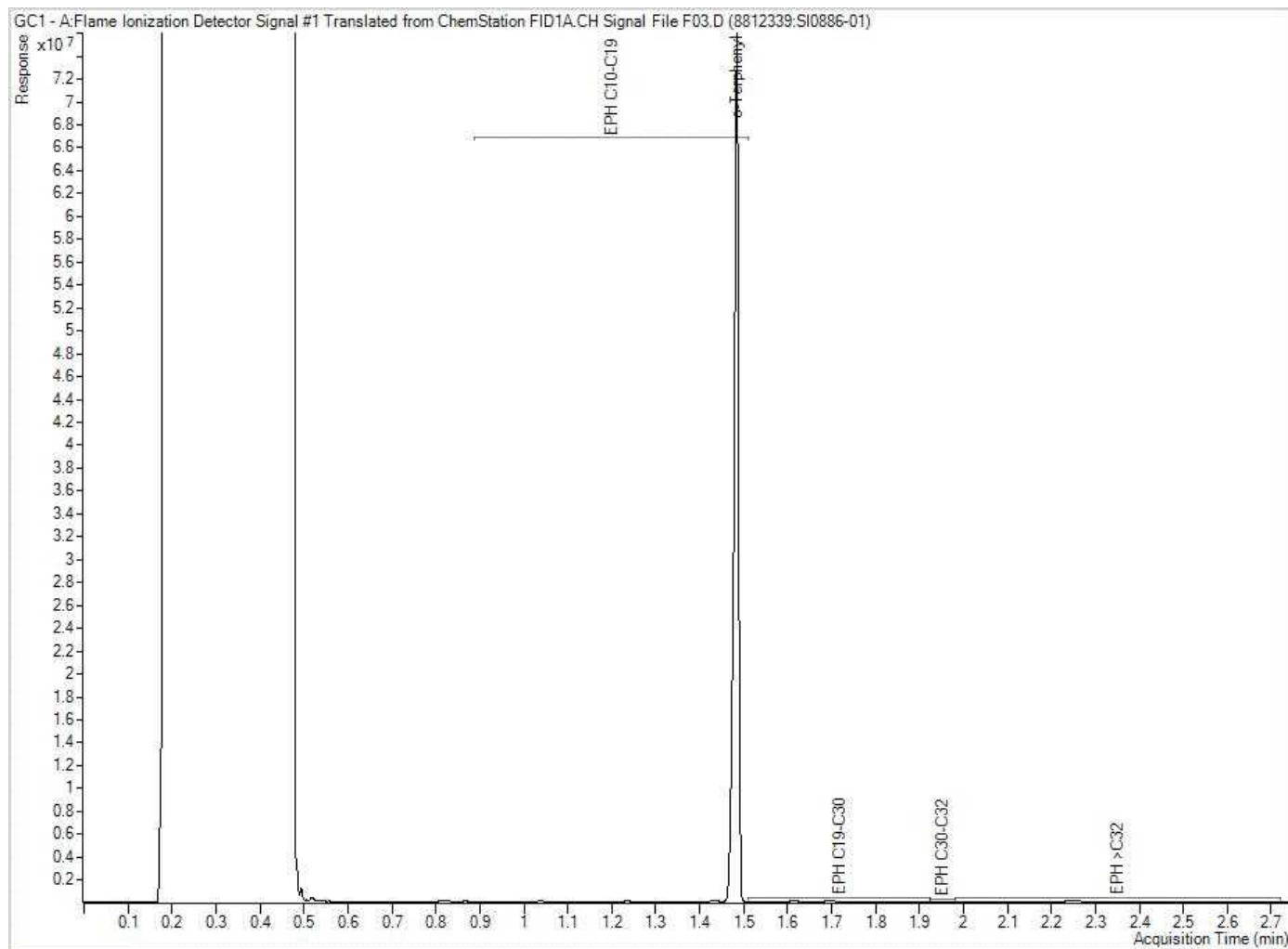
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

EPH in Water when PAH required Chromatogram



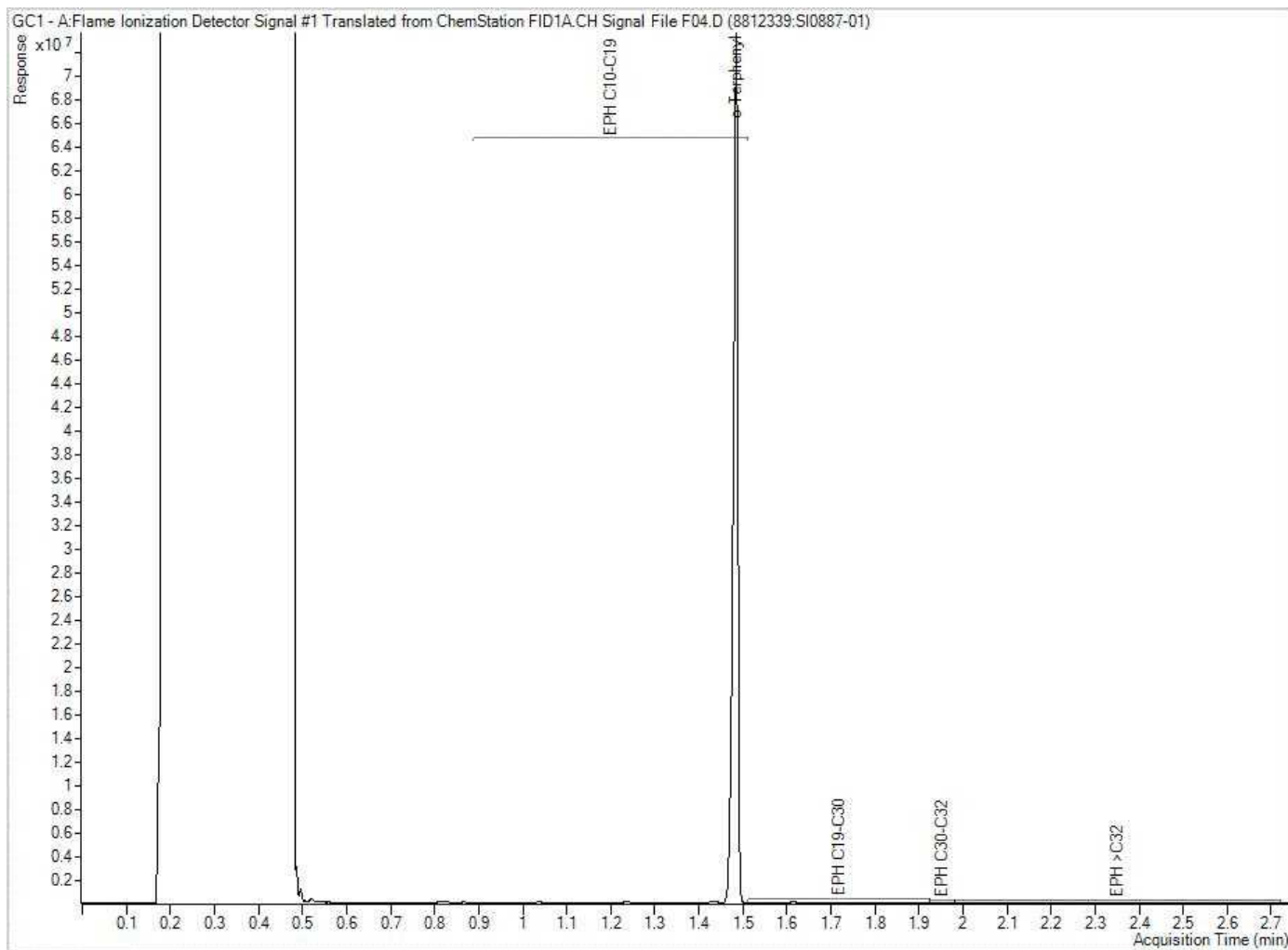
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

EPH in Water when PAH required Chromatogram



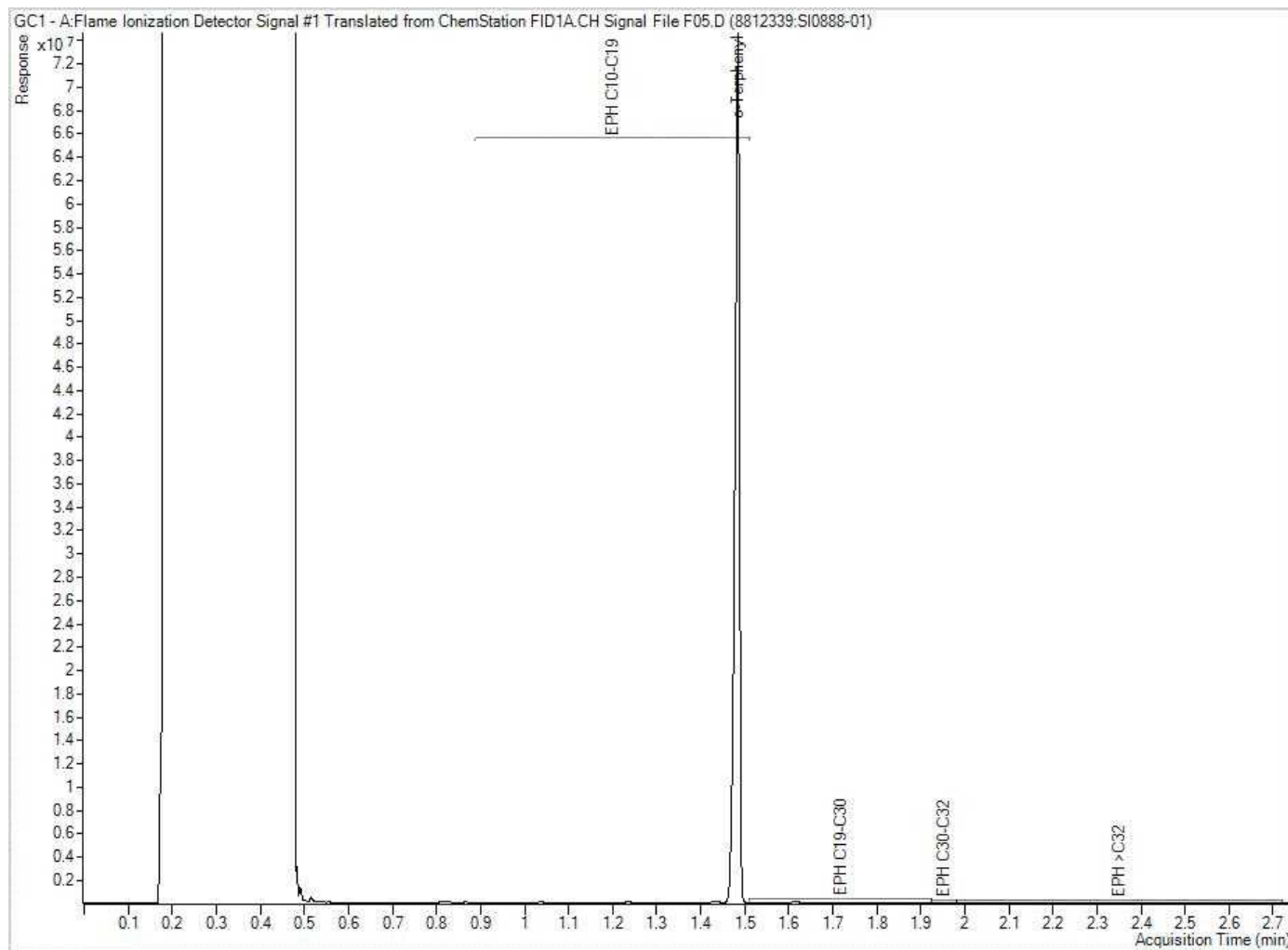
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EPH in Water when PAH required Chromatogram



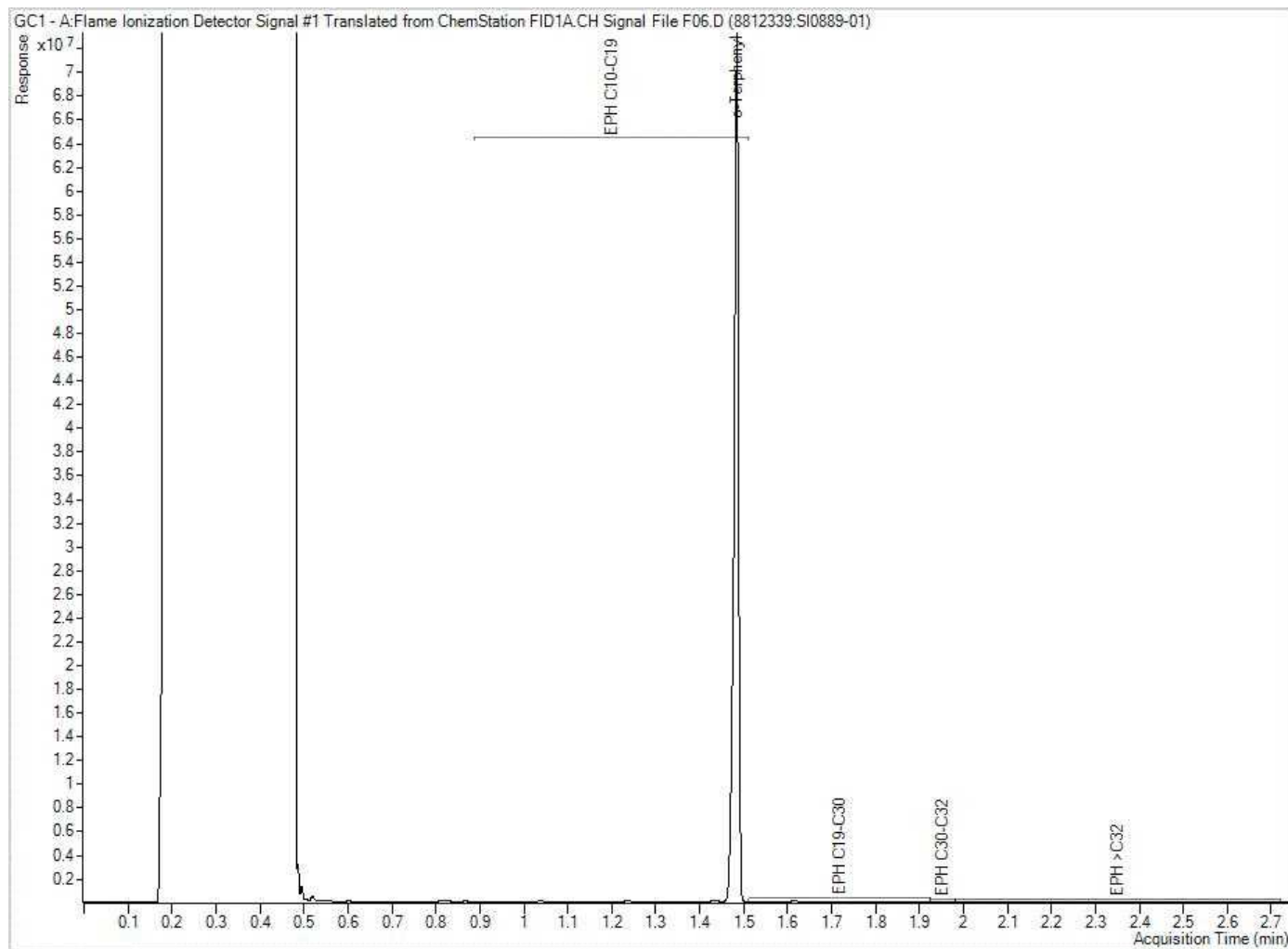
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EPH in Water when PAH required Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

EPH in Water when PAH required Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

## APPENDIX C

### TETRA TECH'S LIMITATIONS ON THE USE OF THIS DOCUMENT

# LIMITATIONS ON USE OF THIS DOCUMENT

## GEOENVIRONMENTAL

### 1.1 USE OF DOCUMENT AND OWNERSHIP

This document pertains to a specific site, a specific development, and a specific scope of work. The document may include plans, drawings, profiles and other supporting documents that collectively constitute the document (the "Professional Document").

The Professional Document is intended for the sole use of TETRA TECH's Client (the "Client") as specifically identified in the TETRA TECH Services Agreement or other Contractual Agreement entered into with the Client (either of which is termed the "Contract" herein). TETRA TECH does not accept any responsibility for the accuracy of any of the data, analyses, recommendations or other contents of the Professional Document when it is used or relied upon by any party other than the Client, unless authorized in writing by TETRA TECH.

Any unauthorized use of the Professional Document is at the sole risk of the user. TETRA TECH accepts no responsibility whatsoever for any loss or damage where such loss or damage is alleged to be or, is in fact, caused by the unauthorized use of the Professional Document.

Where TETRA TECH has expressly authorized the use of the Professional Document by a third party (an "Authorized Party"), consideration for such authorization is the Authorized Party's acceptance of these Limitations on Use of this Document as well as any limitations on liability contained in the Contract with the Client (all of which is collectively termed the "Limitations on Liability"). The Authorized Party should carefully review both these Limitations on Use of this Document and the Contract prior to making any use of the Professional Document. Any use made of the Professional Document by an Authorized Party constitutes the Authorized Party's express acceptance of, and agreement to, the Limitations on Liability.

The Professional Document and any other form or type of data or documents generated by TETRA TECH during the performance of the work are TETRA TECH's professional work product and shall remain the copyright property of TETRA TECH.

The Professional Document is subject to copyright and shall not be reproduced either wholly or in part without the prior, written permission of TETRA TECH. Additional copies of the Document, if required, may be obtained upon request.

### 1.2 ALTERNATIVE DOCUMENT FORMAT

Where TETRA TECH submits electronic file and/or hard copy versions of the Professional Document or any drawings or other project-related documents and deliverables (collectively termed TETRA TECH's "Instruments of Professional Service"), only the signed and/or sealed versions shall be considered final. The original signed and/or sealed electronic file and/or hard copy version archived by TETRA TECH shall be deemed to be the original. TETRA TECH will archive a protected digital copy of the original signed and/or sealed version for a period of 10 years.

Both electronic file and/or hard copy versions of TETRA TECH's Instruments of Professional Service shall not, under any circumstances, be altered by any party except TETRA TECH. TETRA TECH's Instruments of Professional Service will be used only and exactly as submitted by TETRA TECH.

Electronic files submitted by TETRA TECH have been prepared and submitted using specific software and hardware systems. TETRA TECH makes no representation about the compatibility of these files with the Client's current or future software and hardware systems.

### 1.3 STANDARD OF CARE

Services performed by TETRA TECH for the Professional Document have been conducted in accordance with the Contract, in a manner

consistent with the level of skill ordinarily exercised by members of the profession currently practicing under similar conditions in the jurisdiction in which the services are provided. Professional judgment has been applied in developing the conclusions and/or recommendations provided in this Professional Document. No warranty or guarantee, express or implied, is made concerning the test results, comments, recommendations, or any other portion of the Professional Document.

If any error or omission is detected by the Client or an Authorized Party, the error or omission must be immediately brought to the attention of TETRA TECH.

### 1.4 DISCLOSURE OF INFORMATION BY CLIENT

The Client acknowledges that it has fully cooperated with TETRA TECH with respect to the provision of all available information on the past, present, and proposed conditions on the site, including historical information respecting the use of the site. The Client further acknowledges that in order for TETRA TECH to properly provide the services contracted for in the Contract, TETRA TECH has relied upon the Client with respect to both the full disclosure and accuracy of any such information.

### 1.5 INFORMATION PROVIDED TO TETRA TECH BY OTHERS

During the performance of the work and the preparation of this Professional Document, TETRA TECH may have relied on information provided by third parties other than the Client.

While TETRA TECH endeavours to verify the accuracy of such information, TETRA TECH accepts no responsibility for the accuracy or the reliability of such information even where inaccurate or unreliable information impacts any recommendations, design or other deliverables and causes the Client or an Authorized Party loss or damage.

### 1.6 GENERAL LIMITATIONS OF DOCUMENT

This Professional Document is based solely on the conditions presented and the data available to TETRA TECH at the time the data were collected in the field or gathered from available databases.

The Client, and any Authorized Party, acknowledges that the Professional Document is based on limited data and that the conclusions, opinions, and recommendations contained in the Professional Document are the result of the application of professional judgment to such limited data.

The Professional Document is not applicable to any other sites, nor should it be relied upon for types of development other than those to which it refers. Any variation from the site conditions present, or variation in assumed conditions which might form the basis of design or recommendations as outlined in this report, at or on the development proposed as of the date of the Professional Document requires a supplementary exploration, investigation, and assessment.

TETRA TECH is neither qualified to, nor is it making, any recommendations with respect to the purchase, sale, investment or development of the property, the decisions on which are the sole responsibility of the Client.

### 1.7 NOTIFICATION OF AUTHORITIES

In certain instances, the discovery of hazardous substances or conditions and materials may require that regulatory agencies and other persons be informed and the client agrees that notification to such bodies or persons as required may be done by TETRA TECH in its reasonably exercised discretion.