

From: SPOMO1701@outlook.com
To: [Environmental Compliance ENV:EX](#); marty@chholdings.ca
Subject: SPO MO1701-Status Update August 15, 2018
Date: Wednesday, August 15, 2018 10:13:02 AM
Attachments: [Aug 15, 2018 CHH Progress Report.pdf](#)
[CHH JULY 2018 COC.pdf](#)
[CHH JULY 2018 COC.xlsx](#)
[CHH SUBMITTAL-JULY 2018- Ground Water Quality DATA-CLOSURE PLAN.pdf](#)
[CHH SUBMITTAL-JULY 2018- Surface Water Quality DATA-CLOSURE PLAN.pdf](#)

- ***Please find information regarding the Leachate reporting requirements for the August 15, 2018 reporting period as per SPILL PREVENTION ORDER : MO1701 Section 1d***

Total Leachate Collected= 5.04 m³

Total Leachate Stored= 55.89 m³

Total Leachate Transported= 0 m³

- ***Sampling was conducted on July 30, 2018 as per Section 6biii of File 311372 August 11, 2017 letter. Tabulated laboratory results and COA's are attached.***

Sampling Summary:

1. SHA-SW1
2. SHA-SW2 (No Flow)
3. MW6
4. MW3
5. MW2
6. SHA-LE-1
7. SHA-LD-1 (Dry)
8. SB-1 (Dry)
9. SB-2
10. SB-3 (Dry)

- ***Attached is the QP Progress Report for Aug 15, 2018 as per File 311372 August 11, 2017 letter.***

Thank you



ISLANDER ENGINEERING

FIELD REVIEW REPORT		DATE: Aug 15 2018	ISLANDER PROJECT No.: 2087
REPORT No: 26	STAGE OF CONSTRUCTION: Landfill Closure	WEATHER: Sunny, 22 deg	1 of 3 PAGE: 3
PROJECT: Cobble Hill Landfill 2017 Minor Construction Works			
TO: CHH	ATTENTION: Marty Block		
CC:			

The field review included the inspection of the following items included in the detailed summary of works section of the *Cobble Hill Landfill — 2017 Minor Construction Works, Detailed Construction Plan (Sperling Hansen Associates, September 13, 2017)*

- **PEA**
 - Liner appears to be in good condition, and no noticeable changes since the date of our last inspection
- **Leachate and Leak Detention facility**
 - Total leachate collected: = **5.04 m³**
 - Total leachate stored = **55.89 m³**
 - Total leachate transported = **0 m³**
- **Soil Management Area (SMA)**
 - All works are in good condition and no noticeable changes since the date of our last inspection
- **Contact Water Containment Pond**
 - All works are in good condition and no noticeable changes since the date of our last inspection
- **cut-off ditch upland of PEA**
 - All works are in good condition, ditch still performing well.

ISLANDER ENGINEERING LTD.

Mike Achtem, P.Eng, PMP



ISLANDER ENGINEERING

FIELD REVIEW REPORT		DATE: Aug 15, 2018	ISLANDER PROJECT No.: 2087
REPORT No: 26	STAGE OF CONSTRUCTION: Landfill Closure	WEATHER: Sunny, 22 deg C	PAGE: 2 of 3



SMA - looking south



SMA – looking north



Backfill over Containment Pond



Pipe trenching and Leachate and Leak Detention facility



ISLANDER ENGINEERING

FIELD REVIEW REPORT		DATE: Aug 15, 2018	ISLANDER PROJECT No.: 2087
REPORT No: 26	STAGE OF CONSTRUCTION: Landfill Closure	WEATHER: Sunny, 22 deg	PAGE: 3 of 3



PEA NE corner



PEA- NW corner



PEA ditch



PEA north face

CERTIFICATE OF ANALYSIS

REPORTED TO Allterra Construction
2158 Millstream Road
Victoria, BC V9B 6H4

ATTENTION Rahim Gaidhar

PO NUMBER P15-06 SIRM

PROJECT P17-932

PROJECT INFO

WORK ORDER 8080099

RECEIVED / TEMP 2018-07-31 16:00 / 6°C

REPORTED 2018-08-09 16:07

COC NUMBER July 2018

Introduction:

CARO Analytical Services is a testing laboratory full of smart, engaged scientists driven to make the world a safer and healthier place. Through our clients' projects we become an essential element for a better world. We employ methods conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts. CARO is accredited by the Canadian Association for Laboratories Accreditation (CALA) to ISO 17025:2005 for specific tests listed in the scope of accreditation approved by CALA.

Big Picture Sidekicks



You know that the sample you collected after snowshoeing to site, digging 5 meters, and racing to get it on a plane so you can submit it to the lab for time sensitive results needed to make important and expensive decisions (whew) is VERY important. We know that too.

We've Got Chemistry



It's simple. We figure the more you enjoy working with our fun and engaged team members; the more likely you are to give us continued opportunities to support you.

Ahead of the Curve



Through research, regulation knowledge, and instrumentation, we are your analytical centre for the technical knowledge you need, BEFORE you need it, so you can stay up to date and in the know.

If you have any questions or concerns, please contact me at bshaw@caro.ca

Authorized By:

Bryan Shaw, Ph.D., P.Chem.
Client Service Coordinator



1-888-311-8846 | www.caro.ca

#110 4011 Viking Way Richmond, BC V6V 2K9 | #102 3677 Highway 97N Kelowna, BC V1X 5C3 | 17225 109 Avenue Edmonton, AB T5S 1H7

TEST RESULTS

REPORTED TO PROJECT Allterra Construction
P17-932

WORK ORDER REPORTED 8080099
2018-08-09 16:07

Analyte	Result	RL	Units	Analyzed	Qualifier
MW6 (8080099-01) Matrix: Water Sampled: 2018-07-30 08:21					
Anions					
Chloride	39.6	0.10	mg/L	2018-08-02	
Fluoride	0.22	0.10	mg/L	2018-08-02	
Nitrate (as N)	< 0.010	0.010	mg/L	2018-08-02	
Nitrite (as N)	< 0.010	0.010	mg/L	2018-08-02	
Sulfate	72.5	1.0	mg/L	2018-08-02	
General Parameters					
Alkalinity, Total (as CaCO ₃)	621	1.0	mg/L	2018-08-02	
Alkalinity, Phenolphthalein (as CaCO ₃)	< 1.0	1.0	mg/L	2018-08-02	
Alkalinity, Bicarbonate (as CaCO ₃)	621	1.0	mg/L	2018-08-02	
Alkalinity, Carbonate (as CaCO ₃)	< 1.0	1.0	mg/L	2018-08-02	
Alkalinity, Hydroxide (as CaCO ₃)	< 1.0	1.0	mg/L	2018-08-02	
Colour, True	5.2	5.0	CU	2018-08-02	
Conductivity (EC)	1290	2.0	µS/cm	2018-08-02	
pH	7.26	0.10	pH units	2018-08-02	HT2
Solids, Total Suspended	9.8	2.0	mg/L	2018-08-03	
Turbidity	11.4	0.10	NTU	2018-08-02	
Calculated Parameters					
Hardness, Total (as CaCO ₃)	488	0.500	mg/L	N/A	
Dissolved Metals					
Aluminum, dissolved	0.0061	0.0050	mg/L	2018-08-04	
Antimony, dissolved	0.00021	0.00020	mg/L	2018-08-04	
Arsenic, dissolved	0.00379	0.00050	mg/L	2018-08-04	
Barium, dissolved	0.0732	0.0050	mg/L	2018-08-04	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2018-08-04	
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2018-08-04	
Boron, dissolved	0.0708	0.0050	mg/L	2018-08-04	
Cadmium, dissolved	< 0.000010	0.000010	mg/L	2018-08-04	
Calcium, dissolved	144	0.20	mg/L	2018-08-04	
Chromium, dissolved	< 0.00050	0.00050	mg/L	2018-08-04	
Cobalt, dissolved	0.00212	0.00010	mg/L	2018-08-04	
Copper, dissolved	< 0.00040	0.00040	mg/L	2018-08-04	
Iron, dissolved	2.01	0.010	mg/L	2018-08-04	
Lead, dissolved	< 0.00020	0.00020	mg/L	2018-08-04	
Lithium, dissolved	0.0101	0.00010	mg/L	2018-08-04	
Magnesium, dissolved	31.1	0.010	mg/L	2018-08-04	
Manganese, dissolved	1.93	0.00020	mg/L	2018-08-04	
Mercury, dissolved	< 0.000040	0.000040	mg/L	2018-08-04	CT5
Molybdenum, dissolved	0.00056	0.00010	mg/L	2018-08-04	
Nickel, dissolved	0.00317	0.00040	mg/L	2018-08-04	
Phosphorus, dissolved	< 0.050	0.050	mg/L	2018-08-04	

TEST RESULTS

REPORTED TO PROJECT Allterra Construction
P17-932

WORK ORDER REPORTED 8080099
2018-08-09 16:07

Analyte	Result	RL	Units	Analyzed	Qualifier
MW6 (8080099-01) Matrix: Water Sampled: 2018-07-30 08:21, Continued					
<i>Dissolved Metals, Continued</i>					
Potassium, dissolved	2.97	0.10	mg/L	2018-08-04	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2018-08-04	
Silicon, dissolved	11.8	1.0	mg/L	2018-08-04	
Silver, dissolved	< 0.000050	0.000050	mg/L	2018-08-04	
Sodium, dissolved	55.3	0.10	mg/L	2018-08-04	
Strontium, dissolved	0.536	0.0010	mg/L	2018-08-04	
Sulfur, dissolved	23.8	3.0	mg/L	2018-08-04	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2018-08-04	
Thallium, dissolved	< 0.000020	0.000020	mg/L	2018-08-04	
Thorium, dissolved	< 0.00010	0.00010	mg/L	2018-08-04	
Tin, dissolved	< 0.00020	0.00020	mg/L	2018-08-04	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2018-08-04	
Tungsten, dissolved	< 0.0010	0.0010	mg/L	2018-08-04	
Uranium, dissolved	0.00678	0.000020	mg/L	2018-08-04	
Vanadium, dissolved	< 0.0010	0.0010	mg/L	2018-08-04	
Zinc, dissolved	< 0.0040	0.0040	mg/L	2018-08-04	
Zirconium, dissolved	0.00019	0.00010	mg/L	2018-08-04	
<i>Total Metals</i>					
Aluminum, total	0.130	0.0050	mg/L	2018-08-04	
Antimony, total	0.00046	0.00020	mg/L	2018-08-04	
Arsenic, total	0.00406	0.00050	mg/L	2018-08-04	
Barium, total	0.0859	0.0050	mg/L	2018-08-04	
Beryllium, total	< 0.00010	0.00010	mg/L	2018-08-04	
Bismuth, total	< 0.00010	0.00010	mg/L	2018-08-04	
Boron, total	0.0753	0.0050	mg/L	2018-08-04	
Cadmium, total	0.000064	0.000010	mg/L	2018-08-04	
Calcium, total	167	0.20	mg/L	2018-08-04	
Chromium, total	0.00059	0.00050	mg/L	2018-08-04	
Cobalt, total	0.00232	0.00010	mg/L	2018-08-04	
Copper, total	0.00141	0.00040	mg/L	2018-08-04	
Iron, total	2.32	0.010	mg/L	2018-08-04	
Lead, total	0.00060	0.00020	mg/L	2018-08-04	
Lithium, total	0.0112	0.00010	mg/L	2018-08-04	
Magnesium, total	33.3	0.010	mg/L	2018-08-04	
Manganese, total	1.98	0.00020	mg/L	2018-08-04	
Mercury, total	< 0.000010	0.000010	mg/L	2018-08-03	
Molybdenum, total	0.00092	0.00010	mg/L	2018-08-04	
Nickel, total	0.00432	0.00040	mg/L	2018-08-04	
Phosphorus, total	< 0.050	0.050	mg/L	2018-08-04	
Potassium, total	3.14	0.10	mg/L	2018-08-04	
Selenium, total	< 0.00050	0.00050	mg/L	2018-08-04	
Silicon, total	12.0	1.0	mg/L	2018-08-04	

TEST RESULTS

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P17-932

WORK ORDER REPORTED 8080099
2018-08-09 16:07

Analyte	Result	RL	Units	Analyzed	Qualifier
MW6 (8080099-01) Matrix: Water Sampled: 2018-07-30 08:21, Continued					
Total Metals, Continued					
Silver, total	< 0.000050	0.000050	mg/L	2018-08-04	
Sodium, total	58.7	0.10	mg/L	2018-08-04	
Strontium, total	0.567	0.0010	mg/L	2018-08-04	
Sulfur, total	23.0	3.0	mg/L	2018-08-04	
Tellurium, total	< 0.00050	0.00050	mg/L	2018-08-04	
Thallium, total	0.000042	0.000020	mg/L	2018-08-04	
Thorium, total	< 0.00010	0.00010	mg/L	2018-08-04	
Tin, total	0.00066	0.00020	mg/L	2018-08-04	
Titanium, total	0.0065	0.0050	mg/L	2018-08-04	
Tungsten, total	< 0.0010	0.0010	mg/L	2018-08-04	
Uranium, total	0.00719	0.000020	mg/L	2018-08-04	
Vanadium, total	< 0.0010	0.0010	mg/L	2018-08-04	
Zinc, total	0.0079	0.0040	mg/L	2018-08-04	
Zirconium, total	0.00015	0.00010	mg/L	2018-08-04	
BCMOE Aggregate Hydrocarbons					
EPHw10-19	< 250	250	µg/L	2018-08-09	
EPHw19-32	< 250	250	µg/L	2018-08-09	
LEPHw	< 250	250	µg/L	N/A	
HEPHw	< 250	250	µg/L	N/A	
Surrogate: 2-Methylnonane (EPH/F2-4)	70	60-140	%	2018-08-09	
Polycyclic Aromatic Hydrocarbons (PAH)					
Acenaphthene	< 0.050	0.050	µg/L	2018-08-09	
Acenaphthylene	< 0.200	0.200	µg/L	2018-08-09	
Acridine	< 0.050	0.050	µg/L	2018-08-09	
Anthracene	< 0.010	0.010	µg/L	2018-08-09	
Benz(a)anthracene	< 0.010	0.010	µg/L	2018-08-09	
Benzo(a)pyrene	< 0.010	0.010	µg/L	2018-08-09	
Benzo(b+j)fluoranthene	< 0.050	0.050	µg/L	2018-08-09	
Benzo(g,h,i)perylene	< 0.050	0.050	µg/L	2018-08-09	
Benzo(k)fluoranthene	< 0.050	0.050	µg/L	2018-08-09	
2-Chloronaphthalene	< 0.100	0.100	µg/L	2018-08-09	
Chrysene	< 0.050	0.050	µg/L	2018-08-09	
Dibenz(a,h)anthracene	< 0.010	0.010	µg/L	2018-08-09	
Fluoranthene	< 0.030	0.030	µg/L	2018-08-09	
Fluorene	< 0.050	0.050	µg/L	2018-08-09	
Indeno(1,2,3-cd)pyrene	< 0.050	0.050	µg/L	2018-08-09	
1-Methylnaphthalene	< 0.100	0.100	µg/L	2018-08-09	
2-Methylnaphthalene	< 0.100	0.100	µg/L	2018-08-09	
Naphthalene	< 0.200	0.200	µg/L	2018-08-09	
Phenanthrene	< 0.100	0.100	µg/L	2018-08-09	
Pyrene	< 0.020	0.020	µg/L	2018-08-09	

TEST RESULTS

REPORTED TO PROJECT Allterra Construction
P17-932

WORK ORDER REPORTED 8080099
2018-08-09 16:07

Analyte	Result	RL	Units	Analyzed	Qualifier
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MW6 (8080099-01) | Matrix: Water | Sampled: 2018-07-30 08:21, Continued

Polycyclic Aromatic Hydrocarbons (PAH), Continued

Quinoline	< 0.050	0.050	µg/L	2018-08-09	
Surrogate: Acridine-d9	101	50-140	%	2018-08-09	
Surrogate: Naphthalene-d8	111	50-140	%	2018-08-09	
Surrogate: Perylene-d12	79	50-140	%	2018-08-09	

MW3S (8080099-02) | Matrix: Water | Sampled: 2018-07-30 11:20

Anions

Chloride	12.4	0.10	mg/L	2018-08-02	
Fluoride	0.22	0.10	mg/L	2018-08-02	RA5
Nitrate (as N)	< 0.010	0.010	mg/L	2018-08-02	
Nitrite (as N)	< 0.010	0.010	mg/L	2018-08-02	
Sulfate	37.2	1.0	mg/L	2018-08-02	

General Parameters

Alkalinity, Total (as CaCO3)	128	1.0	mg/L	2018-08-02	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2018-08-02	
Alkalinity, Bicarbonate (as CaCO3)	128	1.0	mg/L	2018-08-02	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2018-08-02	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2018-08-02	
Colour, True	< 5.0	5.0	CU	2018-08-02	
Conductivity (EC)	351	2.0	µS/cm	2018-08-02	
pH	7.27	0.10	pH units	2018-08-02	HT2
Solids, Total Suspended	10.8	2.0	mg/L	2018-08-03	
Turbidity	4.15	0.10	NTU	2018-08-02	

Calculated Parameters

Hardness, Total (as CaCO3)	123	0.500	mg/L	N/A	
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Dissolved Metals

Aluminum, dissolved	0.0151	0.0050	mg/L	2018-08-04	
Antimony, dissolved	< 0.00020	0.00020	mg/L	2018-08-04	
Arsenic, dissolved	0.00113	0.00050	mg/L	2018-08-04	
Barium, dissolved	0.0268	0.0050	mg/L	2018-08-04	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2018-08-04	
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2018-08-04	
Boron, dissolved	0.0247	0.0050	mg/L	2018-08-04	
Cadmium, dissolved	< 0.000010	0.000010	mg/L	2018-08-04	
Calcium, dissolved	38.9	0.20	mg/L	2018-08-04	
Chromium, dissolved	< 0.00050	0.00050	mg/L	2018-08-04	
Cobalt, dissolved	0.00057	0.00010	mg/L	2018-08-04	
Copper, dissolved	< 0.00040	0.00040	mg/L	2018-08-04	
Iron, dissolved	0.062	0.010	mg/L	2018-08-04	

TEST RESULTS

REPORTED TO PROJECT Allterra Construction
P17-932

WORK ORDER REPORTED 8080099
2018-08-09 16:07

Analyte	Result	RL	Units	Analyzed	Qualifier
MW3S (8080099-02) Matrix: Water Sampled: 2018-07-30 11:20, Continued					
<i>Dissolved Metals, Continued</i>					
Lead, dissolved	< 0.00020	0.00020	mg/L	2018-08-04	
Lithium, dissolved	< 0.00010	0.00010	mg/L	2018-08-04	
Magnesium, dissolved	6.37	0.010	mg/L	2018-08-04	
Manganese, dissolved	0.365	0.00020	mg/L	2018-08-04	
Mercury, dissolved	< 0.000040	0.000040	mg/L	2018-08-04	CT5
Molybdenum, dissolved	0.00765	0.00010	mg/L	2018-08-04	
Nickel, dissolved	0.00135	0.00040	mg/L	2018-08-04	
Phosphorus, dissolved	< 0.050	0.050	mg/L	2018-08-04	
Potassium, dissolved	0.75	0.10	mg/L	2018-08-04	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2018-08-04	
Silicon, dissolved	6.4	1.0	mg/L	2018-08-04	
Silver, dissolved	< 0.000050	0.000050	mg/L	2018-08-04	
Sodium, dissolved	12.0	0.10	mg/L	2018-08-04	
Strontium, dissolved	0.214	0.0010	mg/L	2018-08-04	
Sulfur, dissolved	13.3	3.0	mg/L	2018-08-04	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2018-08-04	
Thallium, dissolved	< 0.000020	0.000020	mg/L	2018-08-04	
Thorium, dissolved	< 0.00010	0.00010	mg/L	2018-08-04	
Tin, dissolved	< 0.00020	0.00020	mg/L	2018-08-04	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2018-08-04	
Tungsten, dissolved	< 0.0010	0.0010	mg/L	2018-08-04	
Uranium, dissolved	0.000979	0.000020	mg/L	2018-08-04	
Vanadium, dissolved	< 0.0010	0.0010	mg/L	2018-08-04	
Zinc, dissolved	< 0.0040	0.0040	mg/L	2018-08-04	
Zirconium, dissolved	< 0.00010	0.00010	mg/L	2018-08-04	
<i>Total Metals</i>					
Aluminum, total	0.0664	0.0050	mg/L	2018-08-04	
Antimony, total	< 0.00020	0.00020	mg/L	2018-08-04	
Arsenic, total	0.00124	0.00050	mg/L	2018-08-04	
Barium, total	0.0296	0.0050	mg/L	2018-08-04	
Beryllium, total	< 0.00010	0.00010	mg/L	2018-08-04	
Bismuth, total	< 0.00010	0.00010	mg/L	2018-08-04	
Boron, total	0.0284	0.0050	mg/L	2018-08-04	
Cadmium, total	0.000336	0.000010	mg/L	2018-08-04	
Calcium, total	47.2	0.20	mg/L	2018-08-04	
Chromium, total	< 0.00050	0.00050	mg/L	2018-08-04	
Cobalt, total	0.00067	0.00010	mg/L	2018-08-04	
Copper, total	0.00045	0.00040	mg/L	2018-08-04	
Iron, total	0.113	0.010	mg/L	2018-08-04	
Lead, total	< 0.00020	0.00020	mg/L	2018-08-04	
Lithium, total	0.00014	0.00010	mg/L	2018-08-04	
Magnesium, total	7.10	0.010	mg/L	2018-08-04	

TEST RESULTS

REPORTED TO PROJECT Allterra Construction
P17-932

WORK ORDER REPORTED 8080099
2018-08-09 16:07

Analyte	Result	RL	Units	Analyzed	Qualifier
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MW3S (8080099-02) | Matrix: Water | Sampled: 2018-07-30 11:20, Continued

Total Metals, Continued

Manganese, total	0.389	0.00020	mg/L	2018-08-04	
Mercury, total	< 0.000010	0.000010	mg/L	2018-08-03	
Molybdenum, total	0.00633	0.00010	mg/L	2018-08-04	
Nickel, total	0.00157	0.00040	mg/L	2018-08-04	
Phosphorus, total	0.081	0.050	mg/L	2018-08-04	
Potassium, total	0.83	0.10	mg/L	2018-08-04	
Selenium, total	< 0.00050	0.00050	mg/L	2018-08-04	
Silicon, total	6.8	1.0	mg/L	2018-08-04	
Silver, total	< 0.000050	0.000050	mg/L	2018-08-04	
Sodium, total	13.1	0.10	mg/L	2018-08-04	
Strontium, total	0.232	0.0010	mg/L	2018-08-04	
Sulfur, total	13.7	3.0	mg/L	2018-08-04	
Tellurium, total	< 0.00050	0.00050	mg/L	2018-08-04	
Thallium, total	0.000031	0.000020	mg/L	2018-08-04	
Thorium, total	< 0.00010	0.00010	mg/L	2018-08-04	
Tin, total	0.00029	0.00020	mg/L	2018-08-04	
Titanium, total	< 0.0050	0.0050	mg/L	2018-08-04	
Tungsten, total	< 0.0010	0.0010	mg/L	2018-08-04	
Uranium, total	0.00111	0.000020	mg/L	2018-08-04	
Vanadium, total	< 0.0010	0.0010	mg/L	2018-08-04	
Zinc, total	0.0046	0.0040	mg/L	2018-08-04	
Zirconium, total	0.00016	0.00010	mg/L	2018-08-04	

BCMOE Aggregate Hydrocarbons

EPHw10-19	< 250	250	µg/L	2018-08-09	
EPHw19-32	< 250	250	µg/L	2018-08-09	
LEPHw	< 250	250	µg/L	N/A	
HEPHw	< 250	250	µg/L	N/A	
Surrogate: 2-Methylnonane (EPH/F2-4)	62	60-140	%	2018-08-09	

Polycyclic Aromatic Hydrocarbons (PAH)

Acenaphthene	< 0.050	0.050	µg/L	2018-08-09	
Acenaphthylene	< 0.200	0.200	µg/L	2018-08-09	
Acridine	< 0.050	0.050	µg/L	2018-08-09	
Anthracene	< 0.010	0.010	µg/L	2018-08-09	
Benz(a)anthracene	< 0.010	0.010	µg/L	2018-08-09	
Benzo(a)pyrene	< 0.010	0.010	µg/L	2018-08-09	
Benzo(b+j)fluoranthene	< 0.050	0.050	µg/L	2018-08-09	
Benzo(g,h,i)perylene	< 0.050	0.050	µg/L	2018-08-09	
Benzo(k)fluoranthene	< 0.050	0.050	µg/L	2018-08-09	
2-Chloronaphthalene	< 0.100	0.100	µg/L	2018-08-09	
Chrysene	< 0.050	0.050	µg/L	2018-08-09	
Dibenz(a,h)anthracene	< 0.010	0.010	µg/L	2018-08-09	

TEST RESULTS

REPORTED TO PROJECT Allterra Construction
P17-932

WORK ORDER REPORTED 8080099
2018-08-09 16:07

Analyte	Result	RL	Units	Analyzed	Qualifier
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MW3S (8080099-02) | Matrix: Water | Sampled: 2018-07-30 11:20, Continued

Polycyclic Aromatic Hydrocarbons (PAH), Continued

Fluoranthene	< 0.030	0.030	µg/L	2018-08-09	
Fluorene	< 0.050	0.050	µg/L	2018-08-09	
Indeno(1,2,3-cd)pyrene	< 0.050	0.050	µg/L	2018-08-09	
1-Methylnaphthalene	< 0.100	0.100	µg/L	2018-08-09	
2-Methylnaphthalene	< 0.100	0.100	µg/L	2018-08-09	
Naphthalene	< 0.200	0.200	µg/L	2018-08-09	
Phenanthrene	< 0.100	0.100	µg/L	2018-08-09	
Pyrene	< 0.020	0.020	µg/L	2018-08-09	
Quinoline	< 0.050	0.050	µg/L	2018-08-09	
Surrogate: Acridine-d9	119	50-140	%	2018-08-09	
Surrogate: Naphthalene-d8	125	50-140	%	2018-08-09	
Surrogate: Perylene-d12	95	50-140	%	2018-08-09	

MW3D (8080099-03) | Matrix: Water | Sampled: 2018-07-30 11:45

Anions

Chloride	4.19	0.10	mg/L	2018-08-02	
Fluoride	0.20	0.10	mg/L	2018-08-02	
Nitrate (as N)	< 0.010	0.010	mg/L	2018-08-02	
Nitrite (as N)	< 0.010	0.010	mg/L	2018-08-02	
Sulfate	19.8	1.0	mg/L	2018-08-02	

General Parameters

Alkalinity, Total (as CaCO3)	108	1.0	mg/L	2018-08-02	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2018-08-02	
Alkalinity, Bicarbonate (as CaCO3)	108	1.0	mg/L	2018-08-02	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2018-08-02	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2018-08-02	
Colour, True	< 5.0	5.0	CU	2018-08-02	
Conductivity (EC)	247	2.0	µS/cm	2018-08-02	
pH	7.12	0.10	pH units	2018-08-02	HT2
Solids, Total Suspended	8.2	2.0	mg/L	2018-08-03	
Turbidity	3.74	0.10	NTU	2018-08-02	

Calculated Parameters

Hardness, Total (as CaCO3)	87.9	0.500	mg/L	N/A	
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Dissolved Metals

Aluminum, dissolved	< 0.0050	0.0050	mg/L	2018-08-04	
Antimony, dissolved	< 0.00020	0.00020	mg/L	2018-08-04	
Arsenic, dissolved	0.00129	0.00050	mg/L	2018-08-04	
Barium, dissolved	0.0183	0.0050	mg/L	2018-08-04	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2018-08-04	

TEST RESULTS

REPORTED TO PROJECT Allterra Construction
P17-932

WORK ORDER REPORTED 8080099
2018-08-09 16:07

Analyte	Result	RL	Units	Analyzed	Qualifier
MW3D (8080099-03) Matrix: Water Sampled: 2018-07-30 11:45, Continued					
<i>Dissolved Metals, Continued</i>					
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2018-08-04	
Boron, dissolved	0.0254	0.0050	mg/L	2018-08-04	
Cadmium, dissolved	< 0.000010	0.000010	mg/L	2018-08-04	
Calcium, dissolved	27.1	0.20	mg/L	2018-08-04	
Chromium, dissolved	< 0.00050	0.00050	mg/L	2018-08-04	
Cobalt, dissolved	0.00035	0.00010	mg/L	2018-08-04	
Copper, dissolved	< 0.00040	0.00040	mg/L	2018-08-04	
Iron, dissolved	0.101	0.010	mg/L	2018-08-04	
Lead, dissolved	< 0.00020	0.00020	mg/L	2018-08-04	
Lithium, dissolved	< 0.00010	0.00010	mg/L	2018-08-04	
Magnesium, dissolved	4.86	0.010	mg/L	2018-08-04	
Manganese, dissolved	0.311	0.00020	mg/L	2018-08-04	
Mercury, dissolved	< 0.000040	0.000040	mg/L	2018-08-04	CT5
Molybdenum, dissolved	0.00601	0.00010	mg/L	2018-08-04	
Nickel, dissolved	0.00103	0.00040	mg/L	2018-08-04	
Phosphorus, dissolved	0.073	0.050	mg/L	2018-08-04	
Potassium, dissolved	0.51	0.10	mg/L	2018-08-04	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2018-08-04	
Silicon, dissolved	6.2	1.0	mg/L	2018-08-04	
Silver, dissolved	< 0.000050	0.000050	mg/L	2018-08-04	
Sodium, dissolved	9.39	0.10	mg/L	2018-08-04	
Strontium, dissolved	0.179	0.0010	mg/L	2018-08-04	
Sulfur, dissolved	7.0	3.0	mg/L	2018-08-04	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2018-08-04	
Thallium, dissolved	< 0.000020	0.000020	mg/L	2018-08-04	
Thorium, dissolved	< 0.00010	0.00010	mg/L	2018-08-04	
Tin, dissolved	< 0.00020	0.00020	mg/L	2018-08-04	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2018-08-04	
Tungsten, dissolved	< 0.0010	0.0010	mg/L	2018-08-04	
Uranium, dissolved	0.000594	0.000020	mg/L	2018-08-04	
Vanadium, dissolved	< 0.0010	0.0010	mg/L	2018-08-04	
Zinc, dissolved	< 0.0040	0.0040	mg/L	2018-08-04	
Zirconium, dissolved	< 0.00010	0.00010	mg/L	2018-08-04	
<i>Total Metals</i>					
Aluminum, total	0.0849	0.0050	mg/L	2018-08-04	
Antimony, total	< 0.00020	0.00020	mg/L	2018-08-04	
Arsenic, total	0.00133	0.00050	mg/L	2018-08-04	
Barium, total	0.0195	0.0050	mg/L	2018-08-04	
Beryllium, total	< 0.00010	0.00010	mg/L	2018-08-04	
Bismuth, total	< 0.00010	0.00010	mg/L	2018-08-04	
Boron, total	0.0273	0.0050	mg/L	2018-08-04	
Cadmium, total	0.000094	0.000010	mg/L	2018-08-04	

TEST RESULTS

REPORTED TO PROJECT Allterra Construction
P17-932

WORK ORDER REPORTED 8080099
2018-08-09 16:07

Analyte	Result	RL	Units	Analyzed	Qualifier
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MW3D (8080099-03) | Matrix: Water | Sampled: 2018-07-30 11:45, Continued

Total Metals, Continued

Calcium, total	30.8	0.20	mg/L	2018-08-04	
Chromium, total	< 0.00050	0.00050	mg/L	2018-08-04	
Cobalt, total	0.00041	0.00010	mg/L	2018-08-04	
Copper, total	< 0.00040	0.00040	mg/L	2018-08-04	
Iron, total	0.164	0.010	mg/L	2018-08-04	
Lead, total	< 0.00020	0.00020	mg/L	2018-08-04	
Lithium, total	0.00010	0.00010	mg/L	2018-08-04	
Magnesium, total	5.09	0.010	mg/L	2018-08-04	
Manganese, total	0.308	0.00020	mg/L	2018-08-04	
Mercury, total	< 0.000010	0.000010	mg/L	2018-08-03	
Molybdenum, total	0.00646	0.00010	mg/L	2018-08-04	
Nickel, total	0.00128	0.00040	mg/L	2018-08-04	
Phosphorus, total	0.091	0.050	mg/L	2018-08-04	
Potassium, total	0.52	0.10	mg/L	2018-08-04	
Selenium, total	< 0.00050	0.00050	mg/L	2018-08-04	
Silicon, total	6.3	1.0	mg/L	2018-08-04	
Silver, total	< 0.000050	0.000050	mg/L	2018-08-04	
Sodium, total	9.74	0.10	mg/L	2018-08-04	
Strontium, total	0.186	0.0010	mg/L	2018-08-04	
Sulfur, total	7.1	3.0	mg/L	2018-08-04	
Tellurium, total	< 0.00050	0.00050	mg/L	2018-08-04	
Thallium, total	< 0.000020	0.000020	mg/L	2018-08-04	
Thorium, total	0.00014	0.00010	mg/L	2018-08-04	
Tin, total	< 0.00020	0.00020	mg/L	2018-08-04	
Titanium, total	< 0.0050	0.0050	mg/L	2018-08-04	
Tungsten, total	< 0.0010	0.0010	mg/L	2018-08-04	
Uranium, total	0.000677	0.000020	mg/L	2018-08-04	
Vanadium, total	< 0.0010	0.0010	mg/L	2018-08-04	
Zinc, total	< 0.0040	0.0040	mg/L	2018-08-04	
Zirconium, total	0.00017	0.00010	mg/L	2018-08-04	

BCMOE Aggregate Hydrocarbons

EPHw10-19	< 250	250	µg/L	2018-08-09	
EPHw19-32	< 250	250	µg/L	2018-08-09	
LEPHw	< 250	250	µg/L	N/A	
HEPHw	< 250	250	µg/L	N/A	
Surrogate: 2-Methylnonane (EPH/F2-4)	67	60-140	%	2018-08-09	

Polycyclic Aromatic Hydrocarbons (PAH)

Acenaphthene	< 0.050	0.050	µg/L	2018-08-09	
Acenaphthylene	< 0.200	0.200	µg/L	2018-08-09	
Acridine	< 0.050	0.050	µg/L	2018-08-09	
Anthracene	< 0.010	0.010	µg/L	2018-08-09	

TEST RESULTS

REPORTED TO PROJECT Allterra Construction
P17-932

WORK ORDER REPORTED 8080099
2018-08-09 16:07

Analyte	Result	RL	Units	Analyzed	Qualifier
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MW3D (8080099-03) | Matrix: Water | Sampled: 2018-07-30 11:45, Continued

Polycyclic Aromatic Hydrocarbons (PAH), Continued

Benz(a)anthracene	< 0.010	0.010	µg/L	2018-08-09	
Benzo(a)pyrene	< 0.010	0.010	µg/L	2018-08-09	
Benzo(b+j)fluoranthene	< 0.050	0.050	µg/L	2018-08-09	
Benzo(g,h,i)perylene	< 0.050	0.050	µg/L	2018-08-09	
Benzo(k)fluoranthene	< 0.050	0.050	µg/L	2018-08-09	
2-Chloronaphthalene	< 0.100	0.100	µg/L	2018-08-09	
Chrysene	< 0.050	0.050	µg/L	2018-08-09	
Dibenz(a,h)anthracene	< 0.010	0.010	µg/L	2018-08-09	
Fluoranthene	< 0.030	0.030	µg/L	2018-08-09	
Fluorene	< 0.050	0.050	µg/L	2018-08-09	
Indeno(1,2,3-cd)pyrene	< 0.050	0.050	µg/L	2018-08-09	
1-Methylnaphthalene	< 0.100	0.100	µg/L	2018-08-09	
2-Methylnaphthalene	< 0.100	0.100	µg/L	2018-08-09	
Naphthalene	< 0.200	0.200	µg/L	2018-08-09	
Phenanthrene	< 0.100	0.100	µg/L	2018-08-09	
Pyrene	< 0.020	0.020	µg/L	2018-08-09	
Quinoline	< 0.050	0.050	µg/L	2018-08-09	
Surrogate: Acridine-d9	121	50-140	%	2018-08-09	
Surrogate: Naphthalene-d8	125	50-140	%	2018-08-09	
Surrogate: Perylene-d12	101	50-140	%	2018-08-09	

MW2 (8080099-04) | Matrix: Water | Sampled: 2018-07-30 12:30

Anions

Chloride	6.01	0.10	mg/L	2018-08-02	
Fluoride	0.16	0.10	mg/L	2018-08-02	
Nitrate (as N)	< 0.010	0.010	mg/L	2018-08-02	
Nitrite (as N)	< 0.010	0.010	mg/L	2018-08-02	
Sulfate	16.1	1.0	mg/L	2018-08-02	

General Parameters

Alkalinity, Total (as CaCO3)	128	1.0	mg/L	2018-08-02	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2018-08-02	
Alkalinity, Bicarbonate (as CaCO3)	128	1.0	mg/L	2018-08-02	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2018-08-02	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2018-08-02	
Colour, True	< 5.0	5.0	CU	2018-08-02	
Conductivity (EC)	283	2.0	µS/cm	2018-08-02	
pH	7.21	0.10	pH units	2018-08-02	HT2
Solids, Total Suspended	24.3	2.0	mg/L	2018-08-03	
Turbidity	11.6	0.10	NTU	2018-08-02	

Calculated Parameters

TEST RESULTS

REPORTED TO PROJECT Allterra Construction
P17-932

WORK ORDER REPORTED 8080099
2018-08-09 16:07

Analyte	Result	RL	Units	Analyzed	Qualifier
MW2 (8080099-04) Matrix: Water Sampled: 2018-07-30 12:30, Continued					
<i>Calculated Parameters, Continued</i>					
Hardness, Total (as CaCO ₃)	106	0.500	mg/L	N/A	
<i>Dissolved Metals</i>					
Aluminum, dissolved	0.0214	0.0050	mg/L	2018-08-04	
Antimony, dissolved	< 0.00020	0.00020	mg/L	2018-08-04	
Arsenic, dissolved	0.00195	0.00050	mg/L	2018-08-04	
Barium, dissolved	0.0271	0.0050	mg/L	2018-08-04	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2018-08-04	
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2018-08-04	
Boron, dissolved	0.0244	0.0050	mg/L	2018-08-04	
Cadmium, dissolved	< 0.000010	0.000010	mg/L	2018-08-04	
Calcium, dissolved	32.0	0.20	mg/L	2018-08-04	
Chromium, dissolved	< 0.00050	0.00050	mg/L	2018-08-04	
Cobalt, dissolved	0.00030	0.00010	mg/L	2018-08-04	
Copper, dissolved	0.00043	0.00040	mg/L	2018-08-04	
Iron, dissolved	0.208	0.010	mg/L	2018-08-04	
Lead, dissolved	< 0.00020	0.00020	mg/L	2018-08-04	
Lithium, dissolved	< 0.00010	0.00010	mg/L	2018-08-04	
Magnesium, dissolved	6.22	0.010	mg/L	2018-08-04	
Manganese, dissolved	0.449	0.00020	mg/L	2018-08-04	
Mercury, dissolved	< 0.000040	0.000040	mg/L	2018-08-04	CT5
Molybdenum, dissolved	0.00368	0.00010	mg/L	2018-08-04	
Nickel, dissolved	0.00076	0.00040	mg/L	2018-08-04	
Phosphorus, dissolved	0.132	0.050	mg/L	2018-08-04	
Potassium, dissolved	0.57	0.10	mg/L	2018-08-04	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2018-08-04	
Silicon, dissolved	6.6	1.0	mg/L	2018-08-04	
Silver, dissolved	< 0.000050	0.000050	mg/L	2018-08-04	
Sodium, dissolved	7.89	0.10	mg/L	2018-08-04	
Strontium, dissolved	0.155	0.0010	mg/L	2018-08-04	
Sulfur, dissolved	5.9	3.0	mg/L	2018-08-04	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2018-08-04	
Thallium, dissolved	< 0.000020	0.000020	mg/L	2018-08-04	
Thorium, dissolved	< 0.00010	0.00010	mg/L	2018-08-04	
Tin, dissolved	< 0.00020	0.00020	mg/L	2018-08-04	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2018-08-04	
Tungsten, dissolved	< 0.0010	0.0010	mg/L	2018-08-04	
Uranium, dissolved	0.000739	0.000020	mg/L	2018-08-04	
Vanadium, dissolved	< 0.0010	0.0010	mg/L	2018-08-04	
Zinc, dissolved	< 0.0040	0.0040	mg/L	2018-08-04	
Zirconium, dissolved	< 0.00010	0.00010	mg/L	2018-08-04	

Total Metals

TEST RESULTS

REPORTED TO PROJECT Allterra Construction
P17-932

WORK ORDER REPORTED 8080099
2018-08-09 16:07

Analyte	Result	RL	Units	Analyzed	Qualifier
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MW2 (8080099-04) | Matrix: Water | Sampled: 2018-07-30 12:30, Continued

Total Metals, Continued

Aluminum, total	0.294	0.0050	mg/L	2018-08-04	
Antimony, total	0.00024	0.00020	mg/L	2018-08-04	
Arsenic, total	0.00201	0.00050	mg/L	2018-08-04	
Barium, total	0.0325	0.0050	mg/L	2018-08-04	
Beryllium, total	< 0.00010	0.00010	mg/L	2018-08-04	
Bismuth, total	< 0.00010	0.00010	mg/L	2018-08-04	
Boron, total	0.0273	0.0050	mg/L	2018-08-04	
Cadmium, total	0.000038	0.000010	mg/L	2018-08-04	
Calcium, total	38.3	0.20	mg/L	2018-08-04	
Chromium, total	0.00065	0.00050	mg/L	2018-08-04	
Cobalt, total	0.00054	0.00010	mg/L	2018-08-04	
Copper, total	0.00043	0.00040	mg/L	2018-08-04	
Iron, total	0.612	0.010	mg/L	2018-08-04	
Lead, total	0.00041	0.00020	mg/L	2018-08-04	
Lithium, total	0.00012	0.00010	mg/L	2018-08-04	
Magnesium, total	6.90	0.010	mg/L	2018-08-04	
Manganese, total	0.465	0.00020	mg/L	2018-08-04	
Mercury, total	< 0.000010	0.000010	mg/L	2018-08-03	
Molybdenum, total	0.00405	0.00010	mg/L	2018-08-04	
Nickel, total	0.00133	0.00040	mg/L	2018-08-04	
Phosphorus, total	0.168	0.050	mg/L	2018-08-04	
Potassium, total	0.62	0.10	mg/L	2018-08-04	
Selenium, total	< 0.00050	0.00050	mg/L	2018-08-04	
Silicon, total	7.4	1.0	mg/L	2018-08-04	
Silver, total	< 0.000050	0.000050	mg/L	2018-08-04	
Sodium, total	8.44	0.10	mg/L	2018-08-04	
Strontium, total	0.166	0.0010	mg/L	2018-08-04	
Sulfur, total	6.3	3.0	mg/L	2018-08-04	
Tellurium, total	< 0.00050	0.00050	mg/L	2018-08-04	
Thallium, total	< 0.000020	0.000020	mg/L	2018-08-04	
Thorium, total	< 0.00010	0.00010	mg/L	2018-08-04	
Tin, total	< 0.00020	0.00020	mg/L	2018-08-04	
Titanium, total	0.0118	0.0050	mg/L	2018-08-04	
Tungsten, total	< 0.0010	0.0010	mg/L	2018-08-04	
Uranium, total	0.000819	0.000020	mg/L	2018-08-04	
Vanadium, total	0.0014	0.0010	mg/L	2018-08-04	
Zinc, total	0.0040	0.0040	mg/L	2018-08-04	
Zirconium, total	0.00011	0.00010	mg/L	2018-08-04	

BCMOE Aggregate Hydrocarbons

EPHw10-19	< 250	250	µg/L	2018-08-09	
EPHw19-32	< 250	250	µg/L	2018-08-09	
LEPHw	< 250	250	µg/L	N/A	

TEST RESULTS

REPORTED TO PROJECT Allterra Construction
P17-932

WORK ORDER REPORTED 8080099
2018-08-09 16:07

Analyte	Result	RL	Units	Analyzed	Qualifier
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MW2 (8080099-04) | Matrix: Water | Sampled: 2018-07-30 12:30, Continued

BCMOE Aggregate Hydrocarbons, Continued

HEPHw	< 250	250	µg/L	N/A	
Surrogate: 2-Methylnonane (EPH/F2-4)	62	60-140	%	2018-08-09	

Polycyclic Aromatic Hydrocarbons (PAH)

Acenaphthene	< 0.050	0.050	µg/L	2018-08-09	
Acenaphthylene	< 0.200	0.200	µg/L	2018-08-09	
Acridine	< 0.050	0.050	µg/L	2018-08-09	
Anthracene	< 0.010	0.010	µg/L	2018-08-09	
Benz(a)anthracene	< 0.010	0.010	µg/L	2018-08-09	
Benzo(a)pyrene	< 0.010	0.010	µg/L	2018-08-09	
Benzo(b+j)fluoranthene	< 0.050	0.050	µg/L	2018-08-09	
Benzo(g,h,i)perylene	< 0.050	0.050	µg/L	2018-08-09	
Benzo(k)fluoranthene	< 0.050	0.050	µg/L	2018-08-09	
2-Chloronaphthalene	< 0.100	0.100	µg/L	2018-08-09	
Chrysene	< 0.050	0.050	µg/L	2018-08-09	
Dibenz(a,h)anthracene	< 0.010	0.010	µg/L	2018-08-09	
Fluoranthene	< 0.030	0.030	µg/L	2018-08-09	
Fluorene	< 0.050	0.050	µg/L	2018-08-09	
Indeno(1,2,3-cd)pyrene	< 0.050	0.050	µg/L	2018-08-09	
1-Methylnaphthalene	< 0.100	0.100	µg/L	2018-08-09	
2-Methylnaphthalene	< 0.100	0.100	µg/L	2018-08-09	
Naphthalene	< 0.200	0.200	µg/L	2018-08-09	
Phenanthrene	< 0.100	0.100	µg/L	2018-08-09	
Pyrene	< 0.020	0.020	µg/L	2018-08-09	
Quinoline	< 0.050	0.050	µg/L	2018-08-09	
Surrogate: Acridine-d9	107	50-140	%	2018-08-09	
Surrogate: Naphthalene-d8	112	50-140	%	2018-08-09	
Surrogate: Perylene-d12	85	50-140	%	2018-08-09	

SB2 (8080099-05) | Matrix: Water | Sampled: 2018-07-30 10:30

Anions

Chloride	52.8	0.10	mg/L	2018-08-02	
Fluoride	0.12	0.10	mg/L	2018-08-02	RA5
Nitrate (as N)	0.151	0.010	mg/L	2018-08-02	
Nitrite (as N)	< 0.010	0.010	mg/L	2018-08-02	
Sulfate	86.1	1.0	mg/L	2018-08-02	

General Parameters

Alkalinity, Total (as CaCO3)	292	1.0	mg/L	2018-08-02	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2018-08-02	
Alkalinity, Bicarbonate (as CaCO3)	292	1.0	mg/L	2018-08-02	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2018-08-02	

TEST RESULTS

REPORTED TO PROJECT Allterra Construction
P17-932

WORK ORDER REPORTED 8080099
2018-08-09 16:07

Analyte	Result	RL	Units	Analyzed	Qualifier
SB2 (8080099-05) Matrix: Water Sampled: 2018-07-30 10:30, Continued					
General Parameters, Continued					
Alkalinity, Hydroxide (as CaCO ₃)	< 1.0	1.0	mg/L	2018-08-02	
Colour, True	< 5.0	5.0	CU	2018-08-02	
Conductivity (EC)	874	2.0	µS/cm	2018-08-02	
pH	7.21	0.10	pH units	2018-08-02	HT2
Solids, Total Suspended	116	2.0	mg/L	2018-08-03	
Turbidity	83.1	0.10	NTU	2018-08-02	
Calculated Parameters					
Hardness, Total (as CaCO ₃)	320	0.500	mg/L	N/A	
Dissolved Metals					
Aluminum, dissolved	0.0120	0.0050	mg/L	2018-08-04	
Antimony, dissolved	< 0.00020	0.00020	mg/L	2018-08-04	
Arsenic, dissolved	< 0.00050	0.00050	mg/L	2018-08-04	
Barium, dissolved	0.0147	0.0050	mg/L	2018-08-04	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2018-08-04	
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2018-08-04	
Boron, dissolved	0.0342	0.0050	mg/L	2018-08-04	
Cadmium, dissolved	< 0.000010	0.000010	mg/L	2018-08-04	
Calcium, dissolved	104	0.20	mg/L	2018-08-04	
Chromium, dissolved	< 0.00050	0.00050	mg/L	2018-08-04	
Cobalt, dissolved	< 0.00010	0.00010	mg/L	2018-08-04	
Copper, dissolved	0.00151	0.00040	mg/L	2018-08-04	
Iron, dissolved	< 0.010	0.010	mg/L	2018-08-04	
Lead, dissolved	< 0.00020	0.00020	mg/L	2018-08-04	
Lithium, dissolved	0.00016	0.00010	mg/L	2018-08-04	
Magnesium, dissolved	14.9	0.010	mg/L	2018-08-04	
Manganese, dissolved	0.00617	0.00020	mg/L	2018-08-04	
Mercury, dissolved	< 0.000040	0.000040	mg/L	2018-08-04	CT5
Molybdenum, dissolved	0.00124	0.00010	mg/L	2018-08-04	
Nickel, dissolved	0.00055	0.00040	mg/L	2018-08-04	
Phosphorus, dissolved	< 0.050	0.050	mg/L	2018-08-04	
Potassium, dissolved	1.79	0.10	mg/L	2018-08-04	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2018-08-04	
Silicon, dissolved	6.9	1.0	mg/L	2018-08-04	
Silver, dissolved	< 0.000050	0.000050	mg/L	2018-08-04	
Sodium, dissolved	32.7	0.10	mg/L	2018-08-04	
Strontium, dissolved	0.373	0.0010	mg/L	2018-08-04	
Sulfur, dissolved	31.8	3.0	mg/L	2018-08-04	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2018-08-04	
Thallium, dissolved	< 0.000020	0.000020	mg/L	2018-08-04	
Thorium, dissolved	< 0.00010	0.00010	mg/L	2018-08-04	
Tin, dissolved	< 0.00020	0.00020	mg/L	2018-08-04	

TEST RESULTS

REPORTED TO PROJECT Allterra Construction
P17-932

WORK ORDER REPORTED 8080099
2018-08-09 16:07

Analyte	Result	RL	Units	Analyzed	Qualifier
SB2 (8080099-05) Matrix: Water Sampled: 2018-07-30 10:30, Continued					
<i>Dissolved Metals, Continued</i>					
Titanium, dissolved	< 0.0050	0.0050	mg/L	2018-08-04	
Tungsten, dissolved	< 0.0010	0.0010	mg/L	2018-08-04	
Uranium, dissolved	0.00275	0.000020	mg/L	2018-08-04	
Vanadium, dissolved	< 0.0010	0.0010	mg/L	2018-08-04	
Zinc, dissolved	< 0.0040	0.0040	mg/L	2018-08-04	
Zirconium, dissolved	< 0.00010	0.00010	mg/L	2018-08-04	
<i>Total Metals</i>					
Aluminum, total	3.48	0.0050	mg/L	2018-08-04	
Antimony, total	< 0.00020	0.00020	mg/L	2018-08-04	
Arsenic, total	< 0.00050	0.00050	mg/L	2018-08-04	
Barium, total	0.0333	0.0050	mg/L	2018-08-04	
Beryllium, total	0.00010	0.00010	mg/L	2018-08-04	
Bismuth, total	< 0.00010	0.00010	mg/L	2018-08-04	
Boron, total	0.0392	0.0050	mg/L	2018-08-04	
Cadmium, total	0.000015	0.000010	mg/L	2018-08-04	
Calcium, total	126	0.20	mg/L	2018-08-04	
Chromium, total	0.00341	0.00050	mg/L	2018-08-04	
Cobalt, total	0.00319	0.00010	mg/L	2018-08-04	
Copper, total	0.0132	0.00040	mg/L	2018-08-04	
Iron, total	3.73	0.010	mg/L	2018-08-04	
Lead, total	0.00125	0.00020	mg/L	2018-08-04	
Lithium, total	0.00119	0.00010	mg/L	2018-08-04	
Magnesium, total	17.4	0.010	mg/L	2018-08-04	
Manganese, total	0.181	0.00020	mg/L	2018-08-04	
Mercury, total	< 0.000010	0.000010	mg/L	2018-08-03	
Molybdenum, total	0.00128	0.00010	mg/L	2018-08-04	
Nickel, total	0.00345	0.00040	mg/L	2018-08-04	
Phosphorus, total	0.127	0.050	mg/L	2018-08-04	
Potassium, total	2.39	0.10	mg/L	2018-08-04	
Selenium, total	< 0.00050	0.00050	mg/L	2018-08-04	
Silicon, total	12.7	1.0	mg/L	2018-08-04	
Silver, total	< 0.000050	0.000050	mg/L	2018-08-04	
Sodium, total	36.3	0.10	mg/L	2018-08-04	
Strontium, total	0.413	0.0010	mg/L	2018-08-04	
Sulfur, total	34.2	3.0	mg/L	2018-08-04	
Tellurium, total	< 0.00050	0.00050	mg/L	2018-08-04	
Thallium, total	< 0.000020	0.000020	mg/L	2018-08-04	
Thorium, total	0.00012	0.00010	mg/L	2018-08-04	
Tin, total	< 0.00020	0.00020	mg/L	2018-08-04	
Titanium, total	0.188	0.0050	mg/L	2018-08-04	
Tungsten, total	< 0.0010	0.0010	mg/L	2018-08-04	
Uranium, total	0.00325	0.000020	mg/L	2018-08-04	

TEST RESULTS

REPORTED TO PROJECT Allterra Construction
P17-932

WORK ORDER REPORTED 8080099
2018-08-09 16:07

Analyte	Result	RL	Units	Analyzed	Qualifier
SB2 (8080099-05) Matrix: Water Sampled: 2018-07-30 10:30, Continued					
Total Metals, Continued					
Vanadium, total	0.0084	0.0010	mg/L	2018-08-04	
Zinc, total	0.0120	0.0040	mg/L	2018-08-04	
Zirconium, total	0.00011	0.00010	mg/L	2018-08-04	
BCMOE Aggregate Hydrocarbons					
EPHw10-19	< 250	250	µg/L	2018-08-09	
EPHw19-32	< 250	250	µg/L	2018-08-09	
LEPHw	< 250	250	µg/L	N/A	
HEPHw	< 250	250	µg/L	N/A	
Surrogate: 2-Methylnonane (EPH/F2-4)	60	60-140	%	2018-08-09	
Polycyclic Aromatic Hydrocarbons (PAH)					
Acenaphthene	< 0.050	0.050	µg/L	2018-08-09	
Acenaphthylene	< 0.200	0.200	µg/L	2018-08-09	
Acridine	< 0.050	0.050	µg/L	2018-08-09	
Anthracene	< 0.010	0.010	µg/L	2018-08-09	
Benz(a)anthracene	< 0.010	0.010	µg/L	2018-08-09	
Benzo(a)pyrene	< 0.010	0.010	µg/L	2018-08-09	
Benzo(b+j)fluoranthene	< 0.050	0.050	µg/L	2018-08-09	
Benzo(g,h,i)perylene	< 0.050	0.050	µg/L	2018-08-09	
Benzo(k)fluoranthene	< 0.050	0.050	µg/L	2018-08-09	
2-Chloronaphthalene	< 0.100	0.100	µg/L	2018-08-09	
Chrysene	< 0.050	0.050	µg/L	2018-08-09	
Dibenz(a,h)anthracene	< 0.010	0.010	µg/L	2018-08-09	
Fluoranthene	< 0.030	0.030	µg/L	2018-08-09	
Fluorene	< 0.050	0.050	µg/L	2018-08-09	
Indeno(1,2,3-cd)pyrene	< 0.050	0.050	µg/L	2018-08-09	
1-Methylnaphthalene	< 0.100	0.100	µg/L	2018-08-09	
2-Methylnaphthalene	< 0.100	0.100	µg/L	2018-08-09	
Naphthalene	< 0.200	0.200	µg/L	2018-08-09	
Phenanthrene	< 0.100	0.100	µg/L	2018-08-09	
Pyrene	< 0.020	0.020	µg/L	2018-08-09	
Quinoline	< 0.050	0.050	µg/L	2018-08-09	
Surrogate: Acridine-d9	114	50-140	%	2018-08-09	
Surrogate: Naphthalene-d8	123	50-140	%	2018-08-09	
Surrogate: Perylene-d12	91	50-140	%	2018-08-09	

LE-1 (8080099-06) | Matrix: Water | Sampled: 2018-07-30 13:15

Anions

Chloride	3390	0.10	mg/L	2018-08-02	
Fluoride	< 1.00	0.10	mg/L	2018-08-02	RA1
Nitrate (as N)	1.58	0.010	mg/L	2018-08-02	

TEST RESULTS

REPORTED TO PROJECT Allterra Construction
P17-932

WORK ORDER REPORTED 8080099
2018-08-09 16:07

Analyte	Result	RL	Units	Analyzed	Qualifier
LE-1 (8080099-06) Matrix: Water Sampled: 2018-07-30 13:15, Continued					
Anions, Continued					
Nitrite (as N)	< 0.100	0.010	mg/L	2018-08-02	RA1
Sulfate	1820	1.0	mg/L	2018-08-02	
General Parameters					
Alkalinity, Total (as CaCO ₃)	55.4	1.0	mg/L	2018-08-02	
Alkalinity, Phenolphthalein (as CaCO ₃)	< 1.0	1.0	mg/L	2018-08-02	
Alkalinity, Bicarbonate (as CaCO ₃)	55.4	1.0	mg/L	2018-08-02	
Alkalinity, Carbonate (as CaCO ₃)	< 1.0	1.0	mg/L	2018-08-02	
Alkalinity, Hydroxide (as CaCO ₃)	< 1.0	1.0	mg/L	2018-08-02	
Colour, True	< 5.0	5.0	CU	2018-08-02	
Conductivity (EC)	12500	2.0	µS/cm	2018-08-02	
pH	6.64	0.10	pH units	2018-08-02	HT2
Solids, Total Suspended	9.0	2.0	mg/L	2018-08-03	
Turbidity	0.74	0.10	NTU	2018-08-02	
Calculated Parameters					
Hardness, Total (as CaCO ₃)	3050	0.500	mg/L	N/A	
Dissolved Metals					
Aluminum, dissolved	0.0310	0.0050	mg/L	2018-08-04	
Antimony, dissolved	< 0.00020	0.00020	mg/L	2018-08-04	
Arsenic, dissolved	< 0.00050	0.00050	mg/L	2018-08-04	
Barium, dissolved	0.0598	0.0050	mg/L	2018-08-04	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2018-08-04	
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2018-08-04	
Boron, dissolved	0.358	0.0050	mg/L	2018-08-04	
Cadmium, dissolved	0.000907	0.000010	mg/L	2018-08-04	
Calcium, dissolved	830	0.20	mg/L	2018-08-04	
Chromium, dissolved	< 0.00050	0.00050	mg/L	2018-08-04	
Cobalt, dissolved	0.00919	0.00010	mg/L	2018-08-04	
Copper, dissolved	0.00543	0.00040	mg/L	2018-08-04	
Iron, dissolved	< 0.010	0.010	mg/L	2018-08-04	
Lead, dissolved	< 0.00020	0.00020	mg/L	2018-08-04	
Lithium, dissolved	0.00062	0.00010	mg/L	2018-08-04	
Magnesium, dissolved	236	0.010	mg/L	2018-08-04	
Manganese, dissolved	35.3	0.00020	mg/L	2018-08-07	
Mercury, dissolved	< 0.000040	0.000040	mg/L	2018-08-04	CT5
Molybdenum, dissolved	0.00210	0.00010	mg/L	2018-08-04	
Nickel, dissolved	0.0137	0.00040	mg/L	2018-08-04	
Phosphorus, dissolved	< 0.050	0.050	mg/L	2018-08-04	
Potassium, dissolved	21.9	0.10	mg/L	2018-08-04	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2018-08-04	
Silicon, dissolved	8.6	1.0	mg/L	2018-08-04	

TEST RESULTS

REPORTED TO PROJECT Allterra Construction
P17-932

WORK ORDER REPORTED 8080099
2018-08-09 16:07

Analyte	Result	RL	Units	Analyzed	Qualifier
LE-1 (8080099-06) Matrix: Water Sampled: 2018-07-30 13:15, Continued					
<i>Dissolved Metals, Continued</i>					
Silver, dissolved	< 0.000050	0.000050	mg/L	2018-08-04	
Sodium, dissolved	1660	0.10	mg/L	2018-08-04	
Strontium, dissolved	4.47	0.0010	mg/L	2018-08-04	
Sulfur, dissolved	743	3.0	mg/L	2018-08-04	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2018-08-04	
Thallium, dissolved	0.000095	0.000020	mg/L	2018-08-04	
Thorium, dissolved	< 0.00010	0.00010	mg/L	2018-08-04	
Tin, dissolved	< 0.00020	0.00020	mg/L	2018-08-04	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2018-08-04	
Tungsten, dissolved	< 0.0010	0.0010	mg/L	2018-08-04	
Uranium, dissolved	0.000282	0.000020	mg/L	2018-08-04	
Vanadium, dissolved	< 0.0010	0.0010	mg/L	2018-08-04	
Zinc, dissolved	0.0594	0.0040	mg/L	2018-08-04	
Zirconium, dissolved	< 0.00010	0.00010	mg/L	2018-08-04	
<i>Total Metals</i>					
Aluminum, total	0.111	0.0050	mg/L	2018-08-04	
Antimony, total	0.00025	0.00020	mg/L	2018-08-04	
Arsenic, total	< 0.00050	0.00050	mg/L	2018-08-04	
Barium, total	0.0662	0.0050	mg/L	2018-08-04	
Beryllium, total	< 0.00010	0.00010	mg/L	2018-08-04	
Bismuth, total	< 0.00010	0.00010	mg/L	2018-08-04	
Boron, total	0.361	0.0050	mg/L	2018-08-04	
Cadmium, total	0.000939	0.000010	mg/L	2018-08-04	
Calcium, total	915	0.20	mg/L	2018-08-04	
Chromium, total	< 0.00050	0.00050	mg/L	2018-08-04	
Cobalt, total	0.00923	0.00010	mg/L	2018-08-04	
Copper, total	0.00555	0.00040	mg/L	2018-08-04	
Iron, total	0.020	0.010	mg/L	2018-08-04	
Lead, total	< 0.00020	0.00020	mg/L	2018-08-04	
Lithium, total	0.00065	0.00010	mg/L	2018-08-04	
Magnesium, total	250	0.010	mg/L	2018-08-04	
Manganese, total	40.2	0.00020	mg/L	2018-08-07	
Mercury, total	< 0.000010	0.000010	mg/L	2018-08-03	
Molybdenum, total	0.00208	0.00010	mg/L	2018-08-04	
Nickel, total	0.0136	0.00040	mg/L	2018-08-04	
Phosphorus, total	< 0.050	0.050	mg/L	2018-08-04	
Potassium, total	23.3	0.10	mg/L	2018-08-04	
Selenium, total	< 0.00050	0.00050	mg/L	2018-08-04	
Silicon, total	8.6	1.0	mg/L	2018-08-04	
Silver, total	0.000073	0.000050	mg/L	2018-08-04	
Sodium, total	1740	0.10	mg/L	2018-08-04	
Strontium, total	4.53	0.0010	mg/L	2018-08-04	

TEST RESULTS

REPORTED TO PROJECT Allterra Construction
P17-932

WORK ORDER REPORTED 8080099
2018-08-09 16:07

Analyte	Result	RL	Units	Analyzed	Qualifier
LE-1 (8080099-06) Matrix: Water Sampled: 2018-07-30 13:15, Continued					
Total Metals, Continued					
Sulfur, total	746	3.0	mg/L	2018-08-04	
Tellurium, total	< 0.00050	0.00050	mg/L	2018-08-04	
Thallium, total	0.000093	0.000020	mg/L	2018-08-04	
Thorium, total	< 0.00010	0.00010	mg/L	2018-08-04	
Tin, total	< 0.00020	0.00020	mg/L	2018-08-04	
Titanium, total	< 0.0050	0.0050	mg/L	2018-08-04	
Tungsten, total	< 0.0010	0.0010	mg/L	2018-08-04	
Uranium, total	0.000275	0.000020	mg/L	2018-08-04	
Vanadium, total	< 0.0010	0.0010	mg/L	2018-08-04	
Zinc, total	0.0608	0.0040	mg/L	2018-08-04	
Zirconium, total	< 0.00010	0.00010	mg/L	2018-08-04	
BCMOE Aggregate Hydrocarbons					
EPHw10-19	462	250	µg/L	2018-08-07	
EPHw19-32	439	250	µg/L	2018-08-07	
LEPHw	462	250	µg/L	N/A	
HEPHw	439	250	µg/L	N/A	
Surrogate: 2-Methylnonane (EPH/F2-4)	63	60-140	%	2018-08-07	
Polycyclic Aromatic Hydrocarbons (PAH)					
Acenaphthene	< 0.050	0.050	µg/L	2018-08-08	
Acenaphthylene	< 0.200	0.200	µg/L	2018-08-08	
Acridine	< 0.050	0.050	µg/L	2018-08-08	
Anthracene	< 0.010	0.010	µg/L	2018-08-08	
Benz(a)anthracene	< 0.010	0.010	µg/L	2018-08-08	
Benzo(a)pyrene	< 0.010	0.010	µg/L	2018-08-08	
Benzo(b+j)fluoranthene	< 0.050	0.050	µg/L	2018-08-08	
Benzo(g,h,i)perylene	< 0.050	0.050	µg/L	2018-08-08	
Benzo(k)fluoranthene	< 0.050	0.050	µg/L	2018-08-08	
2-Chloronaphthalene	< 0.100	0.100	µg/L	2018-08-08	
Chrysene	< 0.050	0.050	µg/L	2018-08-08	
Dibenz(a,h)anthracene	< 0.010	0.010	µg/L	2018-08-08	
Fluoranthene	< 0.030	0.030	µg/L	2018-08-08	
Fluorene	< 0.050	0.050	µg/L	2018-08-08	
Indeno(1,2,3-cd)pyrene	< 0.050	0.050	µg/L	2018-08-08	
1-Methylnaphthalene	< 0.100	0.100	µg/L	2018-08-08	
2-Methylnaphthalene	0.197	0.100	µg/L	2018-08-08	
Naphthalene	< 0.200	0.200	µg/L	2018-08-08	
Phenanthrene	< 0.100	0.100	µg/L	2018-08-08	
Pyrene	< 0.020	0.020	µg/L	2018-08-08	
Quinoline	< 0.050	0.050	µg/L	2018-08-08	
Surrogate: Acridine-d9	116	50-140	%	2018-08-08	
Surrogate: Naphthalene-d8	125	50-140	%	2018-08-08	

TEST RESULTS

REPORTED TO PROJECT Allterra Construction
P17-932

WORK ORDER REPORTED 8080099
2018-08-09 16:07

Analyte	Result	RL	Units	Analyzed	Qualifier
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LE-1 (8080099-06) | Matrix: Water | Sampled: 2018-07-30 13:15, Continued

Polycyclic Aromatic Hydrocarbons (PAH), Continued

Surrogate: Perylene-d12	78	50-140	%	2018-08-08	
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SW1 (8080099-07) | Matrix: Water | Sampled: 2018-07-30 12:00

F1

Anions

Chloride	25.3	0.10	mg/L	2018-08-02	
Fluoride	< 1.00	0.10	mg/L	2018-08-02	RA1
Nitrate (as N)	0.188	0.010	mg/L	2018-08-02	
Nitrite (as N)	< 0.100	0.010	mg/L	2018-08-02	RA1
Sulfate	87.7	1.0	mg/L	2018-08-02	

General Parameters

Alkalinity, Total (as CaCO3)	243	1.0	mg/L	2018-08-02	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2018-08-02	
Alkalinity, Bicarbonate (as CaCO3)	243	1.0	mg/L	2018-08-02	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2018-08-02	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2018-08-02	
Chromium, Hexavalent	< 0.0010	0.0010	mg/L	2018-08-02	
Colour, True	< 5.0	5.0	CU	2018-08-02	
Conductivity (EC)	670	2.0	µS/cm	2018-08-02	
pH	7.46	0.10	pH units	2018-08-02	HT2
Solids, Total Suspended	< 2.0	2.0	mg/L	2018-08-03	
Turbidity	0.20	0.10	NTU	2018-08-02	

Calculated Parameters

Chromium, Trivalent	< 0.00100	0.00100	mg/L	N/A	
Hardness, Total (as CaCO3)	282	0.500	mg/L	N/A	

Dissolved Metals

Aluminum, dissolved	< 0.0050	0.0050	mg/L	2018-08-04	
Antimony, dissolved	< 0.00020	0.00020	mg/L	2018-08-04	
Arsenic, dissolved	< 0.00050	0.00050	mg/L	2018-08-04	
Barium, dissolved	0.0197	0.0050	mg/L	2018-08-04	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2018-08-04	
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2018-08-04	
Boron, dissolved	0.0403	0.0050	mg/L	2018-08-04	
Cadmium, dissolved	0.000019	0.000010	mg/L	2018-08-04	
Calcium, dissolved	91.2	0.20	mg/L	2018-08-04	
Chromium, dissolved	< 0.00050	0.00050	mg/L	2018-08-04	
Cobalt, dissolved	< 0.00010	0.00010	mg/L	2018-08-04	
Copper, dissolved	0.00125	0.00040	mg/L	2018-08-04	
Iron, dissolved	< 0.010	0.010	mg/L	2018-08-04	
Lead, dissolved	< 0.00020	0.00020	mg/L	2018-08-04	

TEST RESULTS

REPORTED TO PROJECT Allterra Construction
P17-932

WORK ORDER REPORTED 8080099
2018-08-09 16:07

Analyte	Result	RL	Units	Analyzed	Qualifier
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SW1 (8080099-07) | Matrix: Water | Sampled: 2018-07-30 12:00, Continued

F1

Dissolved Metals, Continued

Lithium, dissolved	0.00017	0.00010	mg/L	2018-08-04	
Magnesium, dissolved	13.1	0.010	mg/L	2018-08-04	
Manganese, dissolved	0.137	0.00020	mg/L	2018-08-04	
Mercury, dissolved	< 0.000010	0.000010	mg/L	2018-08-07	
Molybdenum, dissolved	0.00134	0.00010	mg/L	2018-08-04	
Nickel, dissolved	0.00119	0.00040	mg/L	2018-08-04	
Phosphorus, dissolved	< 0.050	0.050	mg/L	2018-08-04	
Potassium, dissolved	0.97	0.10	mg/L	2018-08-04	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2018-08-04	
Silicon, dissolved	7.2	1.0	mg/L	2018-08-04	
Silver, dissolved	< 0.000050	0.000050	mg/L	2018-08-04	
Sodium, dissolved	11.5	0.10	mg/L	2018-08-04	
Strontium, dissolved	0.279	0.0010	mg/L	2018-08-04	
Sulfur, dissolved	30.7	3.0	mg/L	2018-08-04	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2018-08-04	
Thallium, dissolved	< 0.000020	0.000020	mg/L	2018-08-04	
Thorium, dissolved	< 0.00010	0.00010	mg/L	2018-08-04	
Tin, dissolved	< 0.00020	0.00020	mg/L	2018-08-04	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2018-08-04	
Tungsten, dissolved	< 0.0010	0.0010	mg/L	2018-08-04	
Uranium, dissolved	0.00222	0.000020	mg/L	2018-08-04	
Vanadium, dissolved	< 0.0010	0.0010	mg/L	2018-08-04	
Zinc, dissolved	< 0.0040	0.0040	mg/L	2018-08-04	
Zirconium, dissolved	< 0.00010	0.00010	mg/L	2018-08-04	

Total Metals

Aluminum, total	0.0220	0.0050	mg/L	2018-08-04	
Antimony, total	< 0.00020	0.00020	mg/L	2018-08-04	
Arsenic, total	< 0.00050	0.00050	mg/L	2018-08-04	
Barium, total	0.0222	0.0050	mg/L	2018-08-04	
Beryllium, total	< 0.00010	0.00010	mg/L	2018-08-04	
Bismuth, total	< 0.00010	0.00010	mg/L	2018-08-04	
Boron, total	0.0420	0.0050	mg/L	2018-08-04	
Cadmium, total	0.000024	0.000010	mg/L	2018-08-04	
Calcium, total	105	0.20	mg/L	2018-08-04	
Chromium, total	< 0.00050	0.00050	mg/L	2018-08-04	
Cobalt, total	< 0.00010	0.00010	mg/L	2018-08-04	
Copper, total	0.00138	0.00040	mg/L	2018-08-04	
Iron, total	< 0.010	0.010	mg/L	2018-08-04	
Lead, total	< 0.00020	0.00020	mg/L	2018-08-04	
Lithium, total	0.00019	0.00010	mg/L	2018-08-04	
Magnesium, total	14.4	0.010	mg/L	2018-08-04	
Manganese, total	0.164	0.00020	mg/L	2018-08-04	

TEST RESULTS

REPORTED TO PROJECT Allterra Construction
P17-932

WORK ORDER REPORTED 8080099
2018-08-09 16:07

Analyte	Result	RL	Units	Analyzed	Qualifier
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SW1 (8080099-07) | Matrix: Water | Sampled: 2018-07-30 12:00, Continued

F1

Total Metals, Continued

Mercury, total	< 0.000010	0.000010	mg/L	2018-08-03	
Molybdenum, total	0.00138	0.00010	mg/L	2018-08-04	
Nickel, total	0.00133	0.00040	mg/L	2018-08-04	
Phosphorus, total	< 0.050	0.050	mg/L	2018-08-04	
Potassium, total	1.07	0.10	mg/L	2018-08-04	
Selenium, total	< 0.00050	0.00050	mg/L	2018-08-04	
Silicon, total	7.8	1.0	mg/L	2018-08-04	
Silver, total	< 0.000050	0.000050	mg/L	2018-08-04	
Sodium, total	12.8	0.10	mg/L	2018-08-04	
Strontium, total	0.293	0.0010	mg/L	2018-08-04	
Sulfur, total	33.6	3.0	mg/L	2018-08-04	
Tellurium, total	< 0.00050	0.00050	mg/L	2018-08-04	
Thallium, total	< 0.000020	0.000020	mg/L	2018-08-04	
Thorium, total	< 0.00010	0.00010	mg/L	2018-08-04	
Tin, total	< 0.00020	0.00020	mg/L	2018-08-04	
Titanium, total	< 0.0050	0.0050	mg/L	2018-08-04	
Tungsten, total	< 0.0010	0.0010	mg/L	2018-08-04	
Uranium, total	0.00237	0.000020	mg/L	2018-08-04	
Vanadium, total	< 0.0010	0.0010	mg/L	2018-08-04	
Zinc, total	0.0043	0.0040	mg/L	2018-08-04	
Zirconium, total	< 0.00010	0.00010	mg/L	2018-08-04	

BCMOE Aggregate Hydrocarbons

EPHw10-19	< 250	250	µg/L	2018-08-07	
EPHw19-32	< 250	250	µg/L	2018-08-07	
LEPHw	< 250	250	µg/L	N/A	
HEPHw	< 250	250	µg/L	N/A	
Surrogate: 2-Methylnonane (EPH/F2-4)	72	60-140	%	2018-08-07	

Polycyclic Aromatic Hydrocarbons (PAH)

Acenaphthene	< 0.050	0.050	µg/L	2018-08-07	
Acenaphthylene	< 0.200	0.200	µg/L	2018-08-07	
Acridine	< 0.050	0.050	µg/L	2018-08-07	
Anthracene	< 0.010	0.010	µg/L	2018-08-07	
Benz(a)anthracene	< 0.010	0.010	µg/L	2018-08-07	
Benzo(a)pyrene	< 0.010	0.010	µg/L	2018-08-07	
Benzo(b+j)fluoranthene	< 0.050	0.050	µg/L	2018-08-07	
Benzo(g,h,i)perylene	< 0.050	0.050	µg/L	2018-08-07	
Benzo(k)fluoranthene	< 0.050	0.050	µg/L	2018-08-07	
2-Chloronaphthalene	< 0.100	0.100	µg/L	2018-08-07	
Chrysene	< 0.050	0.050	µg/L	2018-08-07	
Dibenz(a,h)anthracene	< 0.010	0.010	µg/L	2018-08-07	
Fluoranthene	< 0.030	0.030	µg/L	2018-08-07	

TEST RESULTS

REPORTED TO PROJECT Allterra Construction
P17-932

WORK ORDER REPORTED 8080099
2018-08-09 16:07

Analyte	Result	RL	Units	Analyzed	Qualifier
SW1 (8080099-07) Matrix: Water Sampled: 2018-07-30 12:00, Continued					F1

Polycyclic Aromatic Hydrocarbons (PAH), Continued

Fluorene	< 0.050	0.050	µg/L	2018-08-07	
Indeno(1,2,3-cd)pyrene	< 0.050	0.050	µg/L	2018-08-07	
1-Methylnaphthalene	< 0.100	0.100	µg/L	2018-08-07	
2-Methylnaphthalene	< 0.100	0.100	µg/L	2018-08-07	
Naphthalene	< 0.200	0.200	µg/L	2018-08-07	
Phenanthrene	< 0.100	0.100	µg/L	2018-08-07	
Pyrene	< 0.020	0.020	µg/L	2018-08-07	
Quinoline	< 0.050	0.050	µg/L	2018-08-07	
Surrogate: Acridine-d9	112	50-140	%	2018-08-07	
Surrogate: Naphthalene-d8	118	50-140	%	2018-08-07	
Surrogate: Perylene-d12	60	50-140	%	2018-08-07	

Sample Qualifiers:

CT5	This sample has been incorrectly preserved for Mercury analysis
F1	The sample was not field-filtered and was therefore filtered through a 0.45 µm membrane in the laboratory and preserved with HNO3 prior to analysis for dissolved metals.
HT2	The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.
RA1	The Reporting Limit has been raised due to matrix interference.
RA5	Due to matrix interference, the sample cannot be accurately quantified. Result is Semi-Quantitative.

APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO PROJECT Allterra Construction
P17-932

WORK ORDER REPORTED 8080099
2018-08-09 16:07

Analysis Description	Method Ref.	Technique	Location
Alkalinity in Water	SM 2320 B* (2011)	Titration with H ₂ SO ₄	Kelowna
Anions in Water	SM 4110 B (2011)	Ion Chromatography	Kelowna
Chromium, Hexavalent in Water	SM 3500-Cr B (2011)	Spectrophotometry	Richmond
Colour, True in Water	SM 2120 C (2011)	Spectrophotometry (456 nm)	Kelowna
Conductivity in Water	SM 2510 B (2011)	Conductivity Meter	Kelowna
Dissolved Metals in Water	EPA 200.8 / EPA 6020B	0.45 µm Filtration / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	Richmond
EPH in Water	EPA 3511* / BCMOE EPHw	Hexane MicroExtraction (Base/Neutral) / Gas Chromatography (GC-FID)	Richmond
Hardness in Water	SM 2340 B* (2011)	Calculation: 2.497 [total Ca] + 4.118 [total Mg] (Est)	N/A
HEPHw in Water	BCMOE LEPH/HEPH	Calculation	N/A
LEPHw in Water	BCMOE LEPH/HEPH	Calculation	N/A
Mercury, dissolved in Water	EPA 245.7*	BrCl ₂ Oxidation / Cold Vapor Atomic Fluorescence Spectrometry (CVAFS)	Richmond
Mercury, total in Water	EPA 245.7*	BrCl ₂ Oxidation / Cold Vapor Atomic Fluorescence Spectrometry (CVAFS)	Richmond
pH in Water	SM 4500-H+ B (2011)	Electrometry	Kelowna
Polycyclic Aromatic Hydrocarbons in Water	EPA 3511* / EPA 8270D	Hexane MicroExtraction (Base/Neutral) / GC-MSD (SIM)	Richmond
Solids, Total Suspended in Water	SM 2540 D* (2011)	Gravimetry (Dried at 103-105C)	Kelowna
Total Metals in Water	EPA 200.2* / EPA 6020B	HNO ₃ +HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	Richmond
Turbidity in Water	SM 2130 B (2011)	Nephelometry	Kelowna

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Glossary of Terms:

RL	Reporting Limit (default)
<	Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors
CU	Colour Units (referenced against a platinum cobalt standard)
mg/L	Milligrams per litre
NTU	Nephelometric Turbidity Units
pH units	pH < 7 = acidic, pH > 7 = basic
µg/L	Micrograms per litre
µS/cm	Microsiemens per centimetre
BCMOE	British Columbia Environmental Laboratory Manual, British Columbia Ministry of Environment
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association

General Comments:

The results in this report apply to the samples analyzed in accordance with the Chain of Custody document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Samples will be disposed of 30 days after the test report has been issued unless otherwise agreed to in writing.

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Allterra Construction
P17-932

WORK ORDER REPORTED 8080099
2018-08-09 16:07

The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- **Method Blank (Blk):** A blank sample that undergoes sample processing identical to that carried out for the test samples. Method blank results are used to assess contamination from the laboratory environment and reagents.
- **Duplicate (Dup):** An additional or second portion of a randomly selected sample in the analytical run carried through the entire analytical process. Duplicates provide a measure of the analytical method's precision (reproducibility).
- **Blank Spike (BS):** A sample of known concentration which undergoes processing identical to that carried out for test samples, also referred to as a laboratory control sample (LCS). Blank spikes provide a measure of the analytical method's accuracy.
- **Matrix Spike (MS):** A second aliquot of sample is fortified with with a known concentration of target analytes and carried through the entire analytical process. Matrix spikes evaluate potential matrix effects that may affect the analyte recovery.
- **Reference Material (SRM):** A homogenous material of similar matrix to the samples, certified for the parameter(s) listed. Reference Materials ensure that the analytical process is adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10-20 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
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Anions, Batch B8H0126

Blank (B8H0126-BLK1)			Prepared: 2018-08-02, Analyzed: 2018-08-02						
Chloride	< 0.10	0.10 mg/L							
Fluoride	< 0.10	0.10 mg/L							
Nitrate (as N)	< 0.010	0.010 mg/L							
Nitrite (as N)	< 0.010	0.010 mg/L							
Sulfate	< 1.0	1.0 mg/L							
Blank (B8H0126-BLK2)			Prepared: 2018-08-02, Analyzed: 2018-08-02						
Chloride	< 0.10	0.10 mg/L							
Fluoride	< 0.10	0.10 mg/L							
Nitrate (as N)	< 0.010	0.010 mg/L							
Nitrite (as N)	< 0.010	0.010 mg/L							
Sulfate	< 1.0	1.0 mg/L							
LCS (B8H0126-BS1)			Prepared: 2018-08-02, Analyzed: 2018-08-02						
Chloride	16.2	0.10 mg/L	16.0		101	90-110			
Fluoride	4.03	0.10 mg/L	4.00		101	88-108			
Nitrate (as N)	4.03	0.010 mg/L	4.00		101	93-108			
Nitrite (as N)	2.15	0.010 mg/L	2.00		108	85-114			
Sulfate	15.6	1.0 mg/L	16.0		98	91-109			
LCS (B8H0126-BS2)			Prepared: 2018-08-02, Analyzed: 2018-08-02						
Chloride	15.7	0.10 mg/L	16.0		98	90-110			
Fluoride	3.93	0.10 mg/L	4.00		98	88-108			
Nitrate (as N)	3.79	0.010 mg/L	4.00		95	93-108			
Nitrite (as N)	2.12	0.010 mg/L	2.00		106	85-114			
Sulfate	15.7	1.0 mg/L	16.0		98	91-109			

BCMOE Aggregate Hydrocarbons, Batch B8H0412

Blank (B8H0412-BLK1)			Prepared: 2018-08-07, Analyzed: 2018-08-07						
EPHw10-19	< 250	250 µg/L							
EPHw19-32	< 250	250 µg/L							
Surrogate: 2-Methylnonane (EPH/F2-4)	329	µg/L	444		74	60-140			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Allterra Construction
P17-932

WORK ORDER REPORTED 8080099
2018-08-09 16:07

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
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BCMOE Aggregate Hydrocarbons, Batch B8H0412, Continued

LCS (B8H0412-BS2)			Prepared: 2018-08-07, Analyzed: 2018-08-07						
EPHw10-19	12900	250 µg/L	15400		84	70-130			
EPHw19-32	18600	250 µg/L	22200		84	70-130			
Surrogate: 2-Methylnonane (EPH/F2-4)	357	µg/L	444		80	60-140			

BCMOE Aggregate Hydrocarbons, Batch B8H0522

Blank (B8H0522-BLK1)			Prepared: 2018-08-08, Analyzed: 2018-08-09						
EPHw10-19	< 250	250 µg/L							
EPHw19-32	< 250	250 µg/L							
Surrogate: 2-Methylnonane (EPH/F2-4)	321	µg/L	444		72	60-140			

LCS (B8H0522-BS2)			Prepared: 2018-08-08, Analyzed: 2018-08-09						
EPHw10-19	12200	250 µg/L	15500		79	70-130			
EPHw19-32	17500	250 µg/L	22100		79	70-130			
Surrogate: 2-Methylnonane (EPH/F2-4)	366	µg/L	444		82	60-140			

BCMOE Aggregate Hydrocarbons, Batch B8H0524

Blank (B8H0524-BLK1)			Prepared: 2018-08-08, Analyzed: 2018-08-09						
EPHw10-19	< 250	250 µg/L							
EPHw19-32	< 250	250 µg/L							
Surrogate: 2-Methylnonane (EPH/F2-4)	282	µg/L	444		63	60-140			

LCS (B8H0524-BS2)			Prepared: 2018-08-08, Analyzed: 2018-08-09						
EPHw10-19	10300	250 µg/L	15400		67	70-130			SPK
EPHw19-32	16600	250 µg/L	22200		75	70-130			
Surrogate: 2-Methylnonane (EPH/F2-4)	280	µg/L	444		63	60-140			

Dissolved Metals, Batch B8H0185

Blank (B8H0185-BLK1)			Prepared: 2018-08-04, Analyzed: 2018-08-04						
Aluminum, dissolved	< 0.0050	0.0050 mg/L							
Antimony, dissolved	< 0.00020	0.00020 mg/L							
Arsenic, dissolved	< 0.00050	0.00050 mg/L							
Barium, dissolved	< 0.0050	0.0050 mg/L							
Beryllium, dissolved	< 0.00010	0.00010 mg/L							
Bismuth, dissolved	< 0.00010	0.00010 mg/L							
Boron, dissolved	< 0.0050	0.0050 mg/L							
Cadmium, dissolved	< 0.000010	0.000010 mg/L							
Calcium, dissolved	< 0.20	0.20 mg/L							
Chromium, dissolved	< 0.00050	0.00050 mg/L							
Cobalt, dissolved	< 0.00010	0.00010 mg/L							
Copper, dissolved	< 0.00040	0.00040 mg/L							
Iron, dissolved	< 0.010	0.010 mg/L							
Lead, dissolved	< 0.00020	0.00020 mg/L							
Lithium, dissolved	< 0.00010	0.00010 mg/L							
Magnesium, dissolved	< 0.010	0.010 mg/L							
Manganese, dissolved	< 0.00020	0.00020 mg/L							
Mercury, dissolved	< 0.000040	0.000040 mg/L							
Molybdenum, dissolved	< 0.00010	0.00010 mg/L							
Nickel, dissolved	< 0.00040	0.00040 mg/L							
Phosphorus, dissolved	< 0.050	0.050 mg/L							
Potassium, dissolved	< 0.10	0.10 mg/L							
Selenium, dissolved	< 0.00050	0.00050 mg/L							

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Allterra Construction
P17-932

WORK ORDER REPORTED 8080099
2018-08-09 16:07

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Dissolved Metals, Batch B8H0185, Continued									
Blank (B8H0185-BLK1), Continued					Prepared: 2018-08-04, Analyzed: 2018-08-04				
Silicon, dissolved	< 1.0	1.0 mg/L							
Silver, dissolved	< 0.000050	0.000050 mg/L							
Sodium, dissolved	< 0.10	0.10 mg/L							
Strontium, dissolved	< 0.0010	0.0010 mg/L							
Sulfur, dissolved	< 3.0	3.0 mg/L							
Tellurium, dissolved	< 0.00050	0.00050 mg/L							
Thallium, dissolved	< 0.000020	0.000020 mg/L							
Thorium, dissolved	< 0.00010	0.00010 mg/L							
Tin, dissolved	< 0.00020	0.00020 mg/L							
Titanium, dissolved	< 0.0050	0.0050 mg/L							
Tungsten, dissolved	< 0.0010	0.0010 mg/L							
Uranium, dissolved	< 0.000020	0.000020 mg/L							
Vanadium, dissolved	< 0.0010	0.0010 mg/L							
Zinc, dissolved	< 0.0040	0.0040 mg/L							
Zirconium, dissolved	< 0.00010	0.00010 mg/L							
LCS (B8H0185-BS1)					Prepared: 2018-08-04, Analyzed: 2018-08-04				
Aluminum, dissolved	0.0210	0.0050 mg/L	0.0200		105	80-120			
Antimony, dissolved	0.0212	0.00020 mg/L	0.0200		106	80-120			
Arsenic, dissolved	0.0197	0.00050 mg/L	0.0200		98	80-120			
Barium, dissolved	0.0193	0.0050 mg/L	0.0200		96	80-120			
Beryllium, dissolved	0.0207	0.00010 mg/L	0.0200		104	80-120			
Bismuth, dissolved	0.0207	0.00010 mg/L	0.0200		103	80-120			
Boron, dissolved	0.0214	0.0050 mg/L	0.0200		107	80-120			
Cadmium, dissolved	0.0202	0.000010 mg/L	0.0200		101	80-120			
Calcium, dissolved	1.99	0.20 mg/L	2.00		100	80-120			
Chromium, dissolved	0.0195	0.00050 mg/L	0.0200		98	80-120			
Cobalt, dissolved	0.0198	0.00010 mg/L	0.0200		99	80-120			
Copper, dissolved	0.0208	0.00040 mg/L	0.0200		104	80-120			
Iron, dissolved	1.82	0.010 mg/L	2.00		91	80-120			
Lead, dissolved	0.0203	0.00020 mg/L	0.0200		102	80-120			
Lithium, dissolved	0.0198	0.00010 mg/L	0.0200		99	80-120			
Magnesium, dissolved	1.92	0.010 mg/L	2.00		96	80-120			
Manganese, dissolved	0.0196	0.00020 mg/L	0.0200		98	80-120			
Mercury, dissolved	0.000862	0.000040 mg/L	0.00100		86	80-120			
Molybdenum, dissolved	0.0205	0.00010 mg/L	0.0200		103	80-120			
Nickel, dissolved	0.0203	0.00040 mg/L	0.0200		102	80-120			
Phosphorus, dissolved	2.00	0.050 mg/L	2.00		100	80-120			
Potassium, dissolved	1.73	0.10 mg/L	2.00		86	80-120			
Selenium, dissolved	0.0210	0.00050 mg/L	0.0200		105	80-120			
Silicon, dissolved	2.1	1.0 mg/L	2.00		106	80-120			
Silver, dissolved	0.0207	0.000050 mg/L	0.0200		104	80-120			
Sodium, dissolved	1.97	0.10 mg/L	2.00		99	80-120			
Strontium, dissolved	0.0191	0.0010 mg/L	0.0200		96	80-120			
Sulfur, dissolved	5.2	3.0 mg/L	5.00		104	80-120			
Tellurium, dissolved	0.0215	0.00050 mg/L	0.0200		108	80-120			
Thallium, dissolved	0.0203	0.000020 mg/L	0.0200		102	80-120			
Thorium, dissolved	0.0201	0.00010 mg/L	0.0200		101	80-120			
Tin, dissolved	0.0217	0.00020 mg/L	0.0200		108	80-120			
Titanium, dissolved	0.0211	0.0050 mg/L	0.0200		106	80-120			
Tungsten, dissolved	0.0170	0.0010 mg/L	0.0200		85	80-120			
Uranium, dissolved	0.0199	0.000020 mg/L	0.0200		100	80-120			
Vanadium, dissolved	0.0190	0.0010 mg/L	0.0200		95	80-120			
Zinc, dissolved	0.0208	0.0040 mg/L	0.0200		104	80-120			
Zirconium, dissolved	0.0201	0.00010 mg/L	0.0200		100	80-120			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Allterra Construction
P17-932

WORK ORDER REPORTED 8080099
2018-08-09 16:07

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
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Dissolved Metals, Batch B8H0185, Continued

Reference (B8H0185-SRM1)			Prepared: 2018-08-04, Analyzed: 2018-08-04						
Aluminum, dissolved	0.244	0.0050 mg/L	0.233		105	79-114			
Antimony, dissolved	0.0452	0.00020 mg/L	0.0430		105	89-123			
Arsenic, dissolved	0.449	0.00050 mg/L	0.438		102	87-113			
Barium, dissolved	3.20	0.0050 mg/L	3.35		96	85-114			
Beryllium, dissolved	0.229	0.00010 mg/L	0.213		107	79-122			
Boron, dissolved	1.63	0.0050 mg/L	1.74		94	79-117			
Cadmium, dissolved	0.227	0.000010 mg/L	0.224		101	89-112			
Calcium, dissolved	6.79	0.20 mg/L	7.69		88	85-120			
Chromium, dissolved	0.425	0.00050 mg/L	0.437		97	87-113			
Cobalt, dissolved	0.128	0.00010 mg/L	0.128		100	90-117			
Copper, dissolved	0.855	0.00040 mg/L	0.844		101	90-115			
Iron, dissolved	1.14	0.010 mg/L	1.29		88	86-112			
Lead, dissolved	0.113	0.00020 mg/L	0.112		100	90-113			
Lithium, dissolved	0.101	0.00010 mg/L	0.104		97	77-127			
Magnesium, dissolved	6.39	0.010 mg/L	6.92		92	84-116			
Manganese, dissolved	0.335	0.00020 mg/L	0.345		97	85-113			
Molybdenum, dissolved	0.429	0.00010 mg/L	0.426		101	87-112			
Nickel, dissolved	0.835	0.00040 mg/L	0.840		99	90-114			
Phosphorus, dissolved	0.485	0.050 mg/L	0.495		98	74-119			
Potassium, dissolved	2.64	0.10 mg/L	3.19		83	78-119			
Selenium, dissolved	0.0368	0.00050 mg/L	0.0331		111	89-123			
Sodium, dissolved	17.0	0.10 mg/L	19.1		89	81-117			
Strontium, dissolved	0.874	0.0010 mg/L	0.916		95	82-111			
Thallium, dissolved	0.0394	0.000020 mg/L	0.0393		100	90-113			
Uranium, dissolved	0.261	0.000020 mg/L	0.266		98	87-113			
Vanadium, dissolved	0.827	0.0010 mg/L	0.869		95	85-110			
Zinc, dissolved	0.895	0.0040 mg/L	0.881		102	88-114			

Dissolved Metals, Batch B8H0378

Blank (B8H0378-BLK1)			Prepared: 2018-08-05, Analyzed: 2018-08-07						
Mercury, dissolved	< 0.000010	0.000010 mg/L							
Reference (B8H0378-SRM1)			Prepared: 2018-08-05, Analyzed: 2018-08-07						
Mercury, dissolved	0.00439	0.000010 mg/L	0.00489		90	80-120			

General Parameters, Batch B8H0152

Blank (B8H0152-BLK1)			Prepared: 2018-08-02, Analyzed: 2018-08-02						
Colour, True	< 5.0	5.0 CU							
LCS (B8H0152-BS1)			Prepared: 2018-08-02, Analyzed: 2018-08-02						
Colour, True	9.5	5.0 CU	10.0		95	85-115			

General Parameters, Batch B8H0171

Blank (B8H0171-BLK1)			Prepared: 2018-08-02, Analyzed: 2018-08-02						
Chromium, Hexavalent	< 0.0010	0.0010 mg/L							
LCS (B8H0171-BS1)			Prepared: 2018-08-02, Analyzed: 2018-08-02						
Chromium, Hexavalent	0.0923	0.0010 mg/L	0.100		92	90-111			
Duplicate (B8H0171-DUP1)			Source: 8080099-07 Prepared: 2018-08-02, Analyzed: 2018-08-02						
Chromium, Hexavalent	< 0.0010	0.0010 mg/L	< 0.0010				7		

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Allterra Construction
P17-932

WORK ORDER REPORTED 8080099
2018-08-09 16:07

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B8H0177									
Blank (B8H0177-BLK1)				Prepared: 2018-08-02, Analyzed: 2018-08-02					
Turbidity	< 0.10	0.10 NTU							
LCS (B8H0177-BS1)				Prepared: 2018-08-02, Analyzed: 2018-08-02					
Turbidity	41.8	0.10 NTU	40.0		104	90-110			
Duplicate (B8H0177-DUP1)				Prepared: 2018-08-02, Analyzed: 2018-08-02					
Turbidity	12.3	0.10 NTU		11.4			8	15	

General Parameters, Batch B8H0182

Blank (B8H0182-BLK1)				Prepared: 2018-08-02, Analyzed: 2018-08-02					
Alkalinity, Total (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Phenolphthalein (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Bicarbonate (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Carbonate (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Hydroxide (as CaCO ₃)	< 1.0	1.0 mg/L							
Conductivity (EC)	< 1.0	1.0 µS/cm							
Blank (B8H0182-BLK2)				Prepared: 2018-08-02, Analyzed: 2018-08-02					
Alkalinity, Total (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Phenolphthalein (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Bicarbonate (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Carbonate (as CaCO ₃)	< 1.0	1.0 mg/L							
Alkalinity, Hydroxide (as CaCO ₃)	< 1.0	1.0 mg/L							
Conductivity (EC)	< 1.0	1.0 µS/cm							
LCS (B8H0182-BS1)				Prepared: 2018-08-02, Analyzed: 2018-08-02					
Alkalinity, Total (as CaCO ₃)	97.8	1.0 mg/L	100		98	92-106			
LCS (B8H0182-BS2)				Prepared: 2018-08-02, Analyzed: 2018-08-02					
Alkalinity, Total (as CaCO ₃)	98.7	1.0 mg/L	100		99	92-106			
LCS (B8H0182-BS3)				Prepared: 2018-08-02, Analyzed: 2018-08-02					
Conductivity (EC)	1410	1.0 µS/cm	1410		100	95-104			
LCS (B8H0182-BS4)				Prepared: 2018-08-02, Analyzed: 2018-08-02					
Conductivity (EC)	1410	1.0 µS/cm	1410		100	95-104			
Reference (B8H0182-SRM1)				Prepared: 2018-08-02, Analyzed: 2018-08-02					
pH	7.01	0.10 pH units	7.01		100	98-102			HT2
Reference (B8H0182-SRM2)				Prepared: 2018-08-02, Analyzed: 2018-08-02					
pH	6.99	0.10 pH units	7.01		100	98-102			HT2

General Parameters, Batch B8H0244

Blank (B8H0244-BLK1)				Prepared: 2018-08-03, Analyzed: 2018-08-03					
Solids, Total Suspended	< 2.0	2.0 mg/L							
LCS (B8H0244-BS1)				Prepared: 2018-08-03, Analyzed: 2018-08-03					
Solids, Total Suspended	97.0	10.0 mg/L	100		97	91-106			
Reference (B8H0244-SRM1)				Prepared: 2018-08-03, Analyzed: 2018-08-03					
Solids, Total Suspended	288	20.0 mg/L	328		88	80-120			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Allterra Construction
P17-932

WORK ORDER REPORTED 8080099
2018-08-09 16:07

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Polycyclic Aromatic Hydrocarbons (PAH), Batch B8H0412									
Blank (B8H0412-BLK1)					Prepared: 2018-08-07, Analyzed: 2018-08-07				
Acenaphthene	< 0.050	0.050 µg/L							
Acenaphthylene	< 0.200	0.200 µg/L							
Acridine	< 0.050	0.050 µg/L							
Anthracene	< 0.010	0.010 µg/L							
Benz(a)anthracene	< 0.010	0.010 µg/L							
Benzo(a)pyrene	< 0.010	0.010 µg/L							
Benzo(b+j)fluoranthene	< 0.050	0.050 µg/L							
Benzo(g,h,i)perylene	< 0.050	0.050 µg/L							
Benzo(k)fluoranthene	< 0.050	0.050 µg/L							
2-Chloronaphthalene	< 0.100	0.100 µg/L							
Chrysene	< 0.050	0.050 µg/L							
Dibenz(a,h)anthracene	< 0.010	0.010 µg/L							
Fluoranthene	< 0.030	0.030 µg/L							
Fluorene	< 0.050	0.050 µg/L							
Indeno(1,2,3-cd)pyrene	< 0.050	0.050 µg/L							
1-Methylnaphthalene	< 0.100	0.100 µg/L							
2-Methylnaphthalene	< 0.100	0.100 µg/L							
Naphthalene	< 0.200	0.200 µg/L							
Phenanthrene	< 0.100	0.100 µg/L							
Pyrene	< 0.020	0.020 µg/L							
Quinoline	< 0.050	0.050 µg/L							
Surrogate: Acridine-d9	5.08	µg/L	4.44		114	50-140			
Surrogate: Naphthalene-d8	5.49	µg/L	4.47		123	50-140			
Surrogate: Perylene-d12	4.57	µg/L	4.47		102	50-140			
LCS (B8H0412-BS1)					Prepared: 2018-08-07, Analyzed: 2018-08-07				
Acenaphthene	4.63	0.050 µg/L	4.40		105	58-125			
Acenaphthylene	4.96	0.200 µg/L	4.40		113	54-128			
Acridine	4.23	0.050 µg/L	4.44		95	50-112			
Anthracene	4.66	0.010 µg/L	4.44		105	66-125			
Benz(a)anthracene	4.73	0.010 µg/L	4.44		106	59-123			
Benzo(a)pyrene	4.50	0.010 µg/L	4.40		102	62-116			
Benzo(b+j)fluoranthene	9.04	0.050 µg/L	8.89		102	69-121			
Benzo(g,h,i)perylene	4.26	0.050 µg/L	4.40		97	58-129			
Benzo(k)fluoranthene	4.87	0.050 µg/L	4.44		109	67-128			
2-Chloronaphthalene	4.67	0.100 µg/L	4.44		105	50-140			
Chrysene	4.53	0.050 µg/L	4.42		102	58-125			
Dibenz(a,h)anthracene	4.31	0.010 µg/L	4.42		97	58-126			
Fluoranthene	4.41	0.030 µg/L	4.36		101	67-133			
Fluorene	4.73	0.050 µg/L	4.40		107	55-122			
Indeno(1,2,3-cd)pyrene	4.01	0.050 µg/L	4.44		90	62-126			
1-Methylnaphthalene	4.68	0.100 µg/L	4.38		107	53-125			
2-Methylnaphthalene	4.71	0.100 µg/L	4.36		108	52-122			
Naphthalene	4.87	0.200 µg/L	4.44		110	50-130			
Phenanthrene	4.23	0.100 µg/L	4.40		96	67-127			
Pyrene	4.33	0.020 µg/L	4.44		97	68-133			
Quinoline	4.98	0.050 µg/L	4.44		112	51-140			
Surrogate: Acridine-d9	5.09	µg/L	4.44		115	50-140			
Surrogate: Naphthalene-d8	5.21	µg/L	4.47		117	50-140			
Surrogate: Perylene-d12	4.40	µg/L	4.47		99	50-140			
LCS Dup (B8H0412-BS1)					Prepared: 2018-08-07, Analyzed: 2018-08-07				
Acenaphthene	4.95	0.050 µg/L	4.40		113	58-125	7	16	
Acenaphthylene	5.32	0.200 µg/L	4.40		121	54-128	7	16	
Acridine	4.23	0.050 µg/L	4.44		95	50-112	< 1	26	
Anthracene	4.84	0.010 µg/L	4.44		109	66-125	4	14	

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Allterra Construction
P17-932

WORK ORDER REPORTED 8080099
2018-08-09 16:07

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Polycyclic Aromatic Hydrocarbons (PAH), Batch B8H0412, Continued									
LCS Dup (B8H0412-BSD1), Continued					Prepared: 2018-08-07, Analyzed: 2018-08-07				
Benz(a)anthracene	5.01	0.010 µg/L	4.44		113	59-123	6	23	
Benzo(a)pyrene	4.73	0.010 µg/L	4.40		108	62-116	5	16	
Benzo(b+j)fluoranthene	9.22	0.050 µg/L	8.89		104	69-121	2	14	
Benzo(g,h,i)perylene	4.60	0.050 µg/L	4.40		105	58-129	8	25	
Benzo(k)fluoranthene	4.31	0.050 µg/L	4.44		97	67-128	12	18	
2-Chloronaphthalene	4.92	0.100 µg/L	4.44		111	50-140	5	30	
Chrysene	4.81	0.050 µg/L	4.42		109	58-125	6	24	
Dibenz(a,h)anthracene	4.58	0.010 µg/L	4.42		104	58-126	6	23	
Fluoranthene	4.87	0.030 µg/L	4.36		112	67-133	10	18	
Fluorene	5.12	0.050 µg/L	4.40		116	55-122	8	16	
Indeno(1,2,3-cd)pyrene	4.30	0.050 µg/L	4.44		97	62-126	7	22	
1-Methylnaphthalene	5.03	0.100 µg/L	4.38		115	53-125	7	16	
2-Methylnaphthalene	5.05	0.100 µg/L	4.36		116	52-122	7	17	
Naphthalene	5.22	0.200 µg/L	4.44		117	50-130	7	18	
Phenanthrene	4.74	0.100 µg/L	4.40		108	67-127	11	14	
Pyrene	4.77	0.020 µg/L	4.44		107	68-133	10	18	
Quinoline	5.08	0.050 µg/L	4.44		114	51-140	2	12	
Surrogate: Acridine-d9	4.91	µg/L	4.44		110	50-140			
Surrogate: Naphthalene-d8	5.51	µg/L	4.47		123	50-140			
Surrogate: Perylene-d12	4.65	µg/L	4.47		104	50-140			

Polycyclic Aromatic Hydrocarbons (PAH), Batch B8H0522

Blank (B8H0522-BLK1)					Prepared: 2018-08-08, Analyzed: 2018-08-09				
Acenaphthene	< 0.050	0.050 µg/L							
Acenaphthylene	< 0.200	0.200 µg/L							
Acridine	< 0.050	0.050 µg/L							
Anthracene	< 0.010	0.010 µg/L							
Benzo(a)anthracene	< 0.010	0.010 µg/L							
Benzo(a)pyrene	< 0.010	0.010 µg/L							
Benzo(b+j)fluoranthene	< 0.050	0.050 µg/L							
Benzo(g,h,i)perylene	< 0.050	0.050 µg/L							
Benzo(k)fluoranthene	< 0.050	0.050 µg/L							
2-Chloronaphthalene	< 0.100	0.100 µg/L							
Chrysene	< 0.050	0.050 µg/L							
Dibenz(a,h)anthracene	< 0.010	0.010 µg/L							
Fluoranthene	< 0.030	0.030 µg/L							
Fluorene	< 0.050	0.050 µg/L							
Indeno(1,2,3-cd)pyrene	< 0.050	0.050 µg/L							
1-Methylnaphthalene	< 0.100	0.100 µg/L							
2-Methylnaphthalene	< 0.100	0.100 µg/L							
Naphthalene	< 0.200	0.200 µg/L							
Phenanthrene	< 0.100	0.100 µg/L							
Pyrene	< 0.020	0.020 µg/L							
Quinoline	< 0.050	0.050 µg/L							
Surrogate: Acridine-d9	3.85	µg/L	4.44		87	50-140			
Surrogate: Naphthalene-d8	5.31	µg/L	4.47		119	50-140			
Surrogate: Perylene-d12	4.62	µg/L	4.47		103	50-140			

LCS (B8H0522-BS1)					Prepared: 2018-08-08, Analyzed: 2018-08-09				
Acenaphthene	4.84	0.050 µg/L	4.40		110	58-125			
Acenaphthylene	5.20	0.200 µg/L	4.40		118	54-128			
Acridine	4.16	0.050 µg/L	4.44		94	50-112			
Anthracene	4.68	0.010 µg/L	4.44		105	66-125			
Benzo(a)anthracene	4.90	0.010 µg/L	4.44		110	59-123			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Allterra Construction
P17-932

WORK ORDER REPORTED 8080099
2018-08-09 16:07

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Polycyclic Aromatic Hydrocarbons (PAH), Batch B8H0522, Continued									
LCS (B8H0522-BS1), Continued					Prepared: 2018-08-08, Analyzed: 2018-08-09				
Benzo(a)pyrene	4.58	0.010 µg/L	4.40		104	62-116			
Benzo(b+j)fluoranthene	8.57	0.050 µg/L	8.89		96	69-121			
Benzo(g,h,i)perylene	4.48	0.050 µg/L	4.40		102	58-129			
Benzo(k)fluoranthene	3.81	0.050 µg/L	4.44		86	67-128			
2-Chloronaphthalene	4.88	0.100 µg/L	4.44		110	50-140			
Chrysene	4.77	0.050 µg/L	4.42		108	58-125			
Dibenz(a,h)anthracene	4.21	0.010 µg/L	4.42		95	58-126			
Fluoranthene	4.66	0.030 µg/L	4.36		107	67-133			
Fluorene	4.94	0.050 µg/L	4.40		112	55-122			
Indeno(1,2,3-cd)pyrene	4.10	0.050 µg/L	4.44		92	62-126			
1-Methylnaphthalene	4.92	0.100 µg/L	4.38		112	53-125			
2-Methylnaphthalene	4.95	0.100 µg/L	4.36		114	52-122			
Naphthalene	5.04	0.200 µg/L	4.44		113	50-130			
Phenanthrene	4.49	0.100 µg/L	4.40		102	67-127			
Pyrene	4.58	0.020 µg/L	4.44		103	68-133			
Quinoline	4.95	0.050 µg/L	4.44		111	51-140			
Surrogate: Acridine-d9	4.82	µg/L	4.44		108	50-140			
Surrogate: Naphthalene-d8	5.40	µg/L	4.47		121	50-140			
Surrogate: Perylene-d12	4.70	µg/L	4.47		105	50-140			

LCS Dup (B8H0522-BSD1)					Prepared: 2018-08-08, Analyzed: 2018-08-09				
Acenaphthene	4.65	0.050 µg/L	4.40		106	58-125	4	16	
Acenaphthylene	4.99	0.200 µg/L	4.40		113	54-128	4	16	
Acridine	3.25	0.050 µg/L	4.44		73	50-112	25	26	
Anthracene	4.79	0.010 µg/L	4.44		108	66-125	2	14	
Benz(a)anthracene	4.94	0.010 µg/L	4.44		111	59-123	< 1	23	
Benzo(a)pyrene	4.65	0.010 µg/L	4.40		106	62-116	2	16	
Benzo(b+j)fluoranthene	8.68	0.050 µg/L	8.89		98	69-121	1	14	
Benzo(g,h,i)perylene	4.38	0.050 µg/L	4.40		99	58-129	2	25	
Benzo(k)fluoranthene	3.89	0.050 µg/L	4.44		88	67-128	2	18	
2-Chloronaphthalene	4.73	0.100 µg/L	4.44		106	50-140	3	30	
Chrysene	4.81	0.050 µg/L	4.42		109	58-125	< 1	24	
Dibenz(a,h)anthracene	4.22	0.010 µg/L	4.42		95	58-126	< 1	23	
Fluoranthene	4.57	0.030 µg/L	4.36		105	67-133	2	18	
Fluorene	4.78	0.050 µg/L	4.40		109	55-122	3	16	
Indeno(1,2,3-cd)pyrene	4.01	0.050 µg/L	4.44		90	62-126	2	22	
1-Methylnaphthalene	4.74	0.100 µg/L	4.38		108	53-125	4	16	
2-Methylnaphthalene	4.78	0.100 µg/L	4.36		110	52-122	3	17	
Naphthalene	4.93	0.200 µg/L	4.44		111	50-130	2	18	
Phenanthrene	4.12	0.100 µg/L	4.40		94	67-127	9	14	
Pyrene	4.48	0.020 µg/L	4.44		101	68-133	2	18	
Quinoline	4.98	0.050 µg/L	4.44		112	51-140	< 1	12	
Surrogate: Acridine-d9	3.77	µg/L	4.44		85	50-140			
Surrogate: Naphthalene-d8	5.32	µg/L	4.47		119	50-140			
Surrogate: Perylene-d12	4.61	µg/L	4.47		103	50-140			

Polycyclic Aromatic Hydrocarbons (PAH), Batch B8H0524

Blank (B8H0524-BLK1)					Prepared: 2018-08-08, Analyzed: 2018-08-09				
Acenaphthene	< 0.050	0.050 µg/L							
Acenaphthylene	< 0.200	0.200 µg/L							
Acridine	< 0.050	0.050 µg/L							
Anthracene	< 0.010	0.010 µg/L							
Benz(a)anthracene	< 0.010	0.010 µg/L							
Benzo(a)pyrene	< 0.010	0.010 µg/L							

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Allterra Construction
P17-932

WORK ORDER REPORTED 8080099
2018-08-09 16:07

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Polycyclic Aromatic Hydrocarbons (PAH), Batch B8H0524, Continued									
Blank (B8H0524-BLK1), Continued					Prepared: 2018-08-08, Analyzed: 2018-08-09				
Benzo(b+j)fluoranthene	< 0.050	0.050 µg/L							
Benzo(g,h,i)perylene	< 0.050	0.050 µg/L							
Benzo(k)fluoranthene	< 0.050	0.050 µg/L							
2-Chloronaphthalene	< 0.100	0.100 µg/L							
Chrysene	< 0.050	0.050 µg/L							
Dibenz(a,h)anthracene	< 0.010	0.010 µg/L							
Fluoranthene	< 0.030	0.030 µg/L							
Fluorene	< 0.050	0.050 µg/L							
Indeno(1,2,3-cd)pyrene	< 0.050	0.050 µg/L							
1-Methylnaphthalene	< 0.100	0.100 µg/L							
2-Methylnaphthalene	< 0.100	0.100 µg/L							
Naphthalene	< 0.200	0.200 µg/L							
Phenanthrene	< 0.100	0.100 µg/L							
Pyrene	< 0.020	0.020 µg/L							
Quinoline	< 0.050	0.050 µg/L							
Surrogate: Acridine-d9	4.55	µg/L	4.44		102	50-140			
Surrogate: Naphthalene-d8	5.37	µg/L	4.47		120	50-140			
Surrogate: Perylene-d12	4.82	µg/L	4.47		108	50-140			
LCS (B8H0524-BS1)					Prepared: 2018-08-08, Analyzed: 2018-08-09				
Acenaphthene	4.71	0.050 µg/L	4.40		107	58-125			
Acenaphthylene	5.04	0.200 µg/L	4.40		115	54-128			
Acridine	4.25	0.050 µg/L	4.44		96	50-112			
Anthracene	4.48	0.010 µg/L	4.44		101	66-125			
Benz(a)anthracene	4.93	0.010 µg/L	4.44		111	59-123			
Benzo(a)pyrene	4.76	0.010 µg/L	4.40		108	62-116			
Benzo(b+j)fluoranthene	8.31	0.050 µg/L	8.89		94	69-121			
Benzo(g,h,i)perylene	4.46	0.050 µg/L	4.40		101	58-129			
Benzo(k)fluoranthene	5.15	0.050 µg/L	4.44		116	67-128			
2-Chloronaphthalene	4.77	0.100 µg/L	4.44		107	50-140			
Chrysene	4.70	0.050 µg/L	4.42		106	58-125			
Dibenz(a,h)anthracene	4.47	0.010 µg/L	4.42		101	58-126			
Fluoranthene	4.44	0.030 µg/L	4.36		102	67-133			
Fluorene	4.82	0.050 µg/L	4.40		110	55-122			
Indeno(1,2,3-cd)pyrene	4.13	0.050 µg/L	4.44		93	62-126			
1-Methylnaphthalene	4.84	0.100 µg/L	4.38		111	53-125			
2-Methylnaphthalene	4.83	0.100 µg/L	4.36		111	52-122			
Naphthalene	5.08	0.200 µg/L	4.44		114	50-130			
Phenanthrene	4.19	0.100 µg/L	4.40		95	67-127			
Pyrene	4.37	0.020 µg/L	4.44		98	68-133			
Quinoline	4.88	0.050 µg/L	4.44		110	51-140			
Surrogate: Acridine-d9	5.28	µg/L	4.44		119	50-140			
Surrogate: Naphthalene-d8	5.59	µg/L	4.47		125	50-140			
Surrogate: Perylene-d12	4.73	µg/L	4.47		106	50-140			
LCS Dup (B8H0524-BSD1)					Prepared: 2018-08-08, Analyzed: 2018-08-09				
Acenaphthene	4.07	0.050 µg/L	4.40		93	58-125	15	16	
Acenaphthylene	4.30	0.200 µg/L	4.40		98	54-128	16	16	
Acridine	3.63	0.050 µg/L	4.44		82	50-112	16	26	
Anthracene	4.03	0.010 µg/L	4.44		91	66-125	10	14	
Benz(a)anthracene	4.44	0.010 µg/L	4.44		100	59-123	10	23	
Benzo(a)pyrene	4.33	0.010 µg/L	4.40		98	62-116	9	16	
Benzo(b+j)fluoranthene	7.80	0.050 µg/L	8.89		88	69-121	6	14	
Benzo(g,h,i)perylene	4.15	0.050 µg/L	4.40		94	58-129	7	25	
Benzo(k)fluoranthene	4.88	0.050 µg/L	4.44		110	67-128	5	18	
2-Chloronaphthalene	4.02	0.100 µg/L	4.44		90	50-140	17	30	

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Allterra Construction
P17-932

WORK ORDER REPORTED 8080099
2018-08-09 16:07

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Polycyclic Aromatic Hydrocarbons (PAH), Batch B8H0524, Continued									
LCS Dup (B8H0524-BSD1), Continued					Prepared: 2018-08-08, Analyzed: 2018-08-09				
Chrysene	4.29	0.050 µg/L	4.42		97	58-125	9	24	
Dibenz(a,h)anthracene	4.15	0.010 µg/L	4.42		94	58-126	7	23	
Fluoranthene	3.81	0.030 µg/L	4.36		87	67-133	15	18	
Fluorene	4.17	0.050 µg/L	4.40		95	55-122	14	16	
Indeno(1,2,3-cd)pyrene	3.71	0.050 µg/L	4.44		83	62-126	11	22	
1-Methylnaphthalene	4.10	0.100 µg/L	4.38		94	53-125	16	16	
2-Methylnaphthalene	4.06	0.100 µg/L	4.36		93	52-122	17	17	
Naphthalene	4.37	0.200 µg/L	4.44		98	50-130	15	18	
Phenanthrene	3.68	0.100 µg/L	4.40		84	67-127	13	14	
Pyrene	3.79	0.020 µg/L	4.44		85	68-133	14	18	
Quinoline	4.92	0.050 µg/L	4.44		111	51-140	< 1	12	
Surrogate: Acridine-d9	4.48	µg/L	4.44		101	50-140			
Surrogate: Naphthalene-d8	4.86	µg/L	4.47		109	50-140			
Surrogate: Perylene-d12	4.30	µg/L	4.47		96	50-140			

Total Metals, Batch B8H0115

Blank (B8H0115-BLK1)			Prepared: 2018-08-02, Analyzed: 2018-08-04						
Aluminum, total	< 0.0050	0.0050 mg/L							
Antimony, total	< 0.00020	0.00020 mg/L							
Arsenic, total	< 0.00050	0.00050 mg/L							
Barium, total	< 0.0050	0.0050 mg/L							
Beryllium, total	< 0.00010	0.00010 mg/L							
Bismuth, total	< 0.00010	0.00010 mg/L							
Boron, total	< 0.0050	0.0050 mg/L							
Cadmium, total	< 0.000010	0.000010 mg/L							
Calcium, total	< 0.20	0.20 mg/L							
Chromium, total	< 0.00050	0.00050 mg/L							
Cobalt, total	< 0.00010	0.00010 mg/L							
Copper, total	< 0.00040	0.00040 mg/L							
Iron, total	< 0.010	0.010 mg/L							
Lead, total	< 0.00020	0.00020 mg/L							
Lithium, total	< 0.00010	0.00010 mg/L							
Magnesium, total	< 0.010	0.010 mg/L							
Manganese, total	< 0.00020	0.00020 mg/L							
Molybdenum, total	< 0.00010	0.00010 mg/L							
Nickel, total	< 0.00040	0.00040 mg/L							
Phosphorus, total	< 0.050	0.050 mg/L							
Potassium, total	< 0.10	0.10 mg/L							
Selenium, total	< 0.00050	0.00050 mg/L							
Silicon, total	< 1.0	1.0 mg/L							
Silver, total	< 0.000050	0.000050 mg/L							
Sodium, total	< 0.10	0.10 mg/L							
Strontium, total	< 0.0010	0.0010 mg/L							
Sulfur, total	< 3.0	3.0 mg/L							
Tellurium, total	< 0.00050	0.00050 mg/L							
Thallium, total	< 0.000020	0.000020 mg/L							
Thorium, total	< 0.00010	0.00010 mg/L							
Tin, total	< 0.00020	0.00020 mg/L							
Titanium, total	< 0.0050	0.0050 mg/L							
Tungsten, total	< 0.0010	0.0010 mg/L							
Uranium, total	< 0.000020	0.000020 mg/L							
Vanadium, total	< 0.0010	0.0010 mg/L							
Zinc, total	< 0.0040	0.0040 mg/L							
Zirconium, total	< 0.00010	0.00010 mg/L							

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Allterra Construction
P17-932

WORK ORDER REPORTED 8080099
2018-08-09 16:07

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Total Metals, Batch B8H0115, Continued									
LCS (B8H0115-BS1)					Prepared: 2018-08-02, Analyzed: 2018-08-04				
Aluminum, total	0.0200	0.0050 mg/L	0.0200		100	80-120			
Antimony, total	0.0225	0.00020 mg/L	0.0200		113	80-120			
Arsenic, total	0.0199	0.00050 mg/L	0.0200		100	80-120			
Barium, total	0.0207	0.0050 mg/L	0.0200		104	80-120			
Beryllium, total	0.0205	0.00010 mg/L	0.0200		102	80-120			
Bismuth, total	0.0210	0.00010 mg/L	0.0200		105	80-120			
Boron, total	0.0233	0.0050 mg/L	0.0200		116	80-120			
Cadmium, total	0.0207	0.000010 mg/L	0.0200		104	80-120			
Calcium, total	2.28	0.20 mg/L	2.00		114	80-120			
Chromium, total	0.0194	0.00050 mg/L	0.0200		97	80-120			
Cobalt, total	0.0197	0.00010 mg/L	0.0200		98	80-120			
Copper, total	0.0204	0.00040 mg/L	0.0200		102	80-120			
Iron, total	1.89	0.010 mg/L	2.00		95	80-120			
Lead, total	0.0206	0.00020 mg/L	0.0200		103	80-120			
Lithium, total	0.0205	0.00010 mg/L	0.0200		103	80-120			
Magnesium, total	1.97	0.010 mg/L	2.00		98	80-120			
Manganese, total	0.0197	0.00020 mg/L	0.0200		98	80-120			
Molybdenum, total	0.0208	0.00010 mg/L	0.0200		104	80-120			
Nickel, total	0.0198	0.00040 mg/L	0.0200		99	80-120			
Phosphorus, total	2.08	0.050 mg/L	2.00		104	80-120			
Potassium, total	1.80	0.10 mg/L	2.00		90	80-120			
Selenium, total	0.0224	0.00050 mg/L	0.0200		112	80-120			
Silicon, total	2.2	1.0 mg/L	2.00		112	80-120			
Silver, total	0.0210	0.000050 mg/L	0.0200		105	80-120			
Sodium, total	1.95	0.10 mg/L	2.00		98	80-120			
Strontium, total	0.0194	0.0010 mg/L	0.0200		97	80-120			
Sulfur, total	5.0	3.0 mg/L	5.00		100	80-120			
Tellurium, total	0.0215	0.00050 mg/L	0.0200		108	80-120			
Thallium, total	0.0206	0.000020 mg/L	0.0200		103	80-120			
Thorium, total	0.0201	0.00010 mg/L	0.0200		101	80-120			
Tin, total	0.0222	0.00020 mg/L	0.0200		111	80-120			
Titanium, total	0.0204	0.0050 mg/L	0.0200		102	80-120			
Tungsten, total	0.0209	0.0010 mg/L	0.0200		104	80-120			
Uranium, total	0.0201	0.000020 mg/L	0.0200		101	80-120			
Vanadium, total	0.0190	0.0010 mg/L	0.0200		95	80-120			
Zinc, total	0.0205	0.0040 mg/L	0.0200		102	80-120			
Zirconium, total	0.0200	0.00010 mg/L	0.0200		100	80-120			

Reference (B8H0115-SRM1)					Prepared: 2018-08-02, Analyzed: 2018-08-04				
Aluminum, total	0.322	0.0050 mg/L	0.303		106	82-114			
Antimony, total	0.0532	0.00020 mg/L	0.0511		104	88-115			
Arsenic, total	0.121	0.00050 mg/L	0.118		102	88-111			
Barium, total	0.836	0.0050 mg/L	0.823		102	83-110			
Beryllium, total	0.0516	0.00010 mg/L	0.0496		104	80-119			
Boron, total	3.38	0.0050 mg/L	3.45		98	80-118			
Cadmium, total	0.0511	0.000010 mg/L	0.0495		103	90-110			
Calcium, total	11.1	0.20 mg/L	11.6		96	85-113			
Chromium, total	0.245	0.00050 mg/L	0.250		98	88-111			
Cobalt, total	0.0389	0.00010 mg/L	0.0377		103	90-114			
Copper, total	0.507	0.00040 mg/L	0.486		104	90-117			
Iron, total	0.479	0.010 mg/L	0.488		98	90-116			
Lead, total	0.207	0.00020 mg/L	0.204		101	90-110			
Lithium, total	0.397	0.00010 mg/L	0.403		99	79-118			
Magnesium, total	3.72	0.010 mg/L	3.79		98	88-116			
Manganese, total	0.108	0.00020 mg/L	0.109		99	88-108			
Molybdenum, total	0.204	0.00010 mg/L	0.198		103	88-110			

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Allterra Construction
P17-932

WORK ORDER REPORTED 8080099
2018-08-09 16:07

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Total Metals, Batch B8H0115, Continued									
Reference (B8H0115-SRM1), Continued				Prepared: 2018-08-02, Analyzed: 2018-08-04					
Nickel, total	0.249	0.00040 mg/L	0.249		100	90-112			
Phosphorus, total	0.226	0.050 mg/L	0.227		99	72-118			
Potassium, total	6.58	0.10 mg/L	7.21		91	87-116			
Selenium, total	0.131	0.00050 mg/L	0.121		108	90-122			
Sodium, total	7.13	0.10 mg/L	7.54		95	86-118			
Strontium, total	0.374	0.0010 mg/L	0.375		100	86-110			
Thallium, total	0.0836	0.000020 mg/L	0.0805		104	90-113			
Uranium, total	0.0306	0.000020 mg/L	0.0306		100	88-112			
Vanadium, total	0.374	0.0010 mg/L	0.386		97	87-110			
Zinc, total	2.50	0.0040 mg/L	2.49		100	90-113			

Total Metals, Batch B8H0260

Blank (B8H0260-BLK1)				Prepared: 2018-08-03, Analyzed: 2018-08-03					
Mercury, total	< 0.000010	0.000010 mg/L							
Reference (B8H0260-SRM1)				Prepared: 2018-08-03, Analyzed: 2018-08-03					
Mercury, total	0.00564	0.000010 mg/L	0.00489		115	80-120			

QC Qualifiers:

HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.

SPK The recovery of this analyte was outside of established control limits.

Submission Key F212-HCB-690Z

SUBMITTED :7/31/2018 7:56:53 AM

Page 1 of 3

Client information	Project information	Laboratory information	COC information
Allterra Construction 2158 Millstream Road Victoria, BC V9B 6H4 Phone: (250) 508-0726 Fax:	Number: [none] Sample count: 7 TAT: 5	CARO Analytical Services #110 - 4011 Viking Way Richmond, BC V6V 2K9 Phone: (604) 279-1499 Fax: (604) 279-1599	Number: July 2018 Shipped via: ACE Tracking #: SDG:

#		Analyses	Containers
# 1	MW6 07/30/2018 8:21 Grab / Water	Alkalinity, all (KEL) TAT: 5 Anions in Water by IC, 5 Analytes (KEL) TAT: 5 Colour, True - 456 nm (KEL) TAT: 5 Conductivity in Water (RMD) TAT: 5 L/HEPH in Water (RMD) TAT: 5 Mercury, diss ICPMS, Low (RMD) TAT: 5 Mercury, total CVAFS Reg & Low (RMD) TAT: 5 Metals, dissolved, All, Low (RMD) TAT: 5 Metals, total, All, Low (RMD) TAT: 5 pH in Water (RMD) TAT: 5 Solids, Total Suspended (RMD) TAT: 5 Turbidity (RMD) TAT: 5	C03_250 mL Glass (EPH/PAH) (1) C05_125 mL Plastic (Metals) (1) C06_40 mL Vial (Mercury) (1) C10_125 mL Plastic (H2SO4) (1) C11_1 L Plastic (General) (1) S05_125 mL Plastic (Metals-F) (1) S06_40 mL Vial (Mercury-F) (1)
# 2	MW3S 07/30/2018 11:20 Grab / Water	Alkalinity, all (KEL) TAT: 5 Anions in Water by IC, 5 Analytes (KEL) TAT: 5 Colour, True - 456 nm (KEL) TAT: 5 Conductivity in Water (RMD) TAT: 5 L/HEPH in Water (RMD) TAT: 5 Mercury, diss ICPMS, Low (RMD) TAT: 5 Mercury, total CVAFS Reg & Low (RMD) TAT: 5 Metals, dissolved, All, Low (RMD) TAT: 5 Metals, total, All, Low (RMD) TAT: 5 pH in Water (RMD) TAT: 5 Solids, Total Suspended (RMD) TAT: 5 Turbidity (RMD) TAT: 5	C03_250 mL Glass (EPH/PAH) (1) C05_125 mL Plastic (Metals) (1) C06_40 mL Vial (Mercury) (1) C10_125 mL Plastic (H2SO4) (1) C11_1 L Plastic (General) (1) S05_125 mL Plastic (Metals-F) (1) S06_40 mL Vial (Mercury-F) (1)
# 3	MW3D 07/30/2018 11:45 Grab / Water	Alkalinity, all (KEL) TAT: 5 Anions in Water by IC, 5 Analytes (KEL) TAT: 5 Colour, True - 456 nm (KEL) TAT: 5 Conductivity in Water (RMD) TAT: 5 L/HEPH in Water (RMD) TAT: 5 Mercury, diss ICPMS, Low (RMD) TAT: 5 Mercury, total CVAFS Reg & Low (RMD) TAT: 5 Metals, dissolved, All, Low (RMD) TAT: 5 Metals, total, All, Low (RMD) TAT: 5 pH in Water (RMD) TAT: 5 Solids, Total Suspended (RMD) TAT: 5 Turbidity (RMD) TAT: 5	C03_250 mL Glass (EPH/PAH) (1) C05_125 mL Plastic (Metals) (1) C06_40 mL Vial (Mercury) (1) C10_125 mL Plastic (H2SO4) (1) C11_1 L Plastic (General) (1) S05_125 mL Plastic (Metals-F) (1) S06_40 mL Vial (Mercury-F) (1)

Submission Key F212-HCB-690Z		SUBMITTED :7/31/2018 7:56:53 AM		Page 2 of 3
# 4	MW2	Analyses	Containers	
	07/30/2018 12:30			
	Grab / Water	Alkalinity, all (KEL) TAT: 5	C03_250 mL Glass (EPH/PAH) (1)	
		Anions in Water by IC, 5 Analytes (KEL) TAT: 5	C05_125 mL Plastic (Metals) (1)	
		Colour, True - 456 nm (KEL) TAT: 5	C06_40 mL Vial (Mercury) (1)	
		Conductivity in Water (RMD) TAT: 5	C10_125 mL Plastic (H2SO4) (1)	
		L/HEPH in Water (RMD) TAT: 5	C11_1 L Plastic (General) (1)	
		Mercury, diss ICPMS, Low (RMD) TAT: 5	S05_125 mL Plastic (Metals-F) (1)	
		Mercury, total CVAFS Reg & Low (RMD) TAT: 5	S06_40 mL Vial (Mercury-F) (1)	
		Metals, dissolved, All, Low (RMD) TAT: 5		
		Metals, total, All, Low (RMD) TAT: 5		
		pH in Water (RMD) TAT: 5		
		Solids, Total Suspended (RMD) TAT: 5		
		Turbidity (RMD) TAT: 5		
# 5	SB2	Analyses	Containers	
	07/30/2018 10:30			
	Grab / Water	Alkalinity, all (KEL) TAT: 5	C03_250 mL Glass (EPH/PAH) (1)	
		Anions in Water by IC, 5 Analytes (KEL) TAT: 5	C05_125 mL Plastic (Metals) (1)	
		Colour, True - 456 nm (KEL) TAT: 5	C06_40 mL Vial (Mercury) (1)	
		Conductivity in Water (RMD) TAT: 5	C10_125 mL Plastic (H2SO4) (1)	
		L/HEPH in Water (RMD) TAT: 5	C11_1 L Plastic (General) (1)	
		Mercury, diss ICPMS, Low (RMD) TAT: 5	S05_125 mL Plastic (Metals-F) (1)	
		Mercury, total CVAFS Reg & Low (RMD) TAT: 5	S06_40 mL Vial (Mercury-F) (1)	
		Metals, dissolved, All, Low (RMD) TAT: 5		
		Metals, total, All, Low (RMD) TAT: 5		
		pH in Water (RMD) TAT: 5		
		Solids, Total Suspended (RMD) TAT: 5		
		Turbidity (RMD) TAT: 5		
# 6	LE-1	Analyses	Containers	
	07/30/2018 13:15			
	Grab / Water	Alkalinity, all (KEL) TAT: 5	C03_250 mL Glass (EPH/PAH) (1)	
		Anions in Water by IC, 5 Analytes (KEL) TAT: 5	C05_125 mL Plastic (Metals) (1)	
		Colour, True - 456 nm (KEL) TAT: 5	C06_40 mL Vial (Mercury) (1)	
		Conductivity in Water (RMD) TAT: 5	C10_125 mL Plastic (H2SO4) (1)	
		L/HEPH in Water (RMD) TAT: 5	C11_1 L Plastic (General) (1)	
		Mercury, diss ICPMS, Low (RMD) TAT: 5	S05_125 mL Plastic (Metals-F) (1)	
		Mercury, total CVAFS Reg & Low (RMD) TAT: 5	S06_40 mL Vial (Mercury-F) (1)	
		Metals, dissolved, All, Low (RMD) TAT: 5		
		Metals, total, All, Low (RMD) TAT: 5		
		pH in Water (RMD) TAT: 5		
		Solids, Total Suspended (RMD) TAT: 5		
		Turbidity (RMD) TAT: 5		
# 7	SW1	Analyses	Containers	
	07/30/2018 12:00			
	Grab / Water	Alkalinity, all (KEL) TAT: 5	C03_250 mL Glass (EPH/PAH) (1)	
		Anions in Water by IC, 5 Analytes (KEL) TAT: 5	C05_125 mL Plastic (Metals) (1)	
		Colour, True - 456 nm (KEL) TAT: 5	C06_40 mL Vial (Mercury) (1)	
		Conductivity in Water (RMD) TAT: 5	C09_125 mL Plastic (CN/Cr6) (1)	
		L/HEPH in Water (RMD) TAT: 5	C10_125 mL Plastic (H2SO4) (1)	
		Mercury, diss ICPMS, Low (RMD) TAT: 5	C11_1 L Plastic (General) (1)	
		Mercury, total CVAFS Reg & Low (RMD) TAT: 5	S05_125 mL Plastic (Metals-F) (1)	
		Metals, dissolved, All, Low (RMD) TAT: 5	S06_40 mL Vial (Mercury-F) (1)	
		Metals, total, All, Low +Cr6 (RMD) TAT: 5		
		pH in Water (RMD) TAT: 5		
		Solids, Total Suspended (RMD) TAT: 5		
		Turbidity (RMD) TAT: 5		

Submission Key F212-HCB-690Z	SUBMITTED :7/31/2018 7:56:53 AM		Page 3 of 3
Relinquished by	Date/Time	Accepted by	Date/Time

CARO Analytical Services
FINAL Analytical Testing Report
Work Order: 8080099
Report Date: 2018-08-09 16:07:03

Client Allterra Construction
Attention Rahim Gaidhar
Project P17-932
Project Info [none]

Note: This is not the original data. Please refer to PDF / Hardcopy report.

LAB ID				8080099-01	8080099-02	8080099-03	8080099-04	8080099-05	8080099-06	8080099-07
CLIENT ID				MW6	MW3S	MW3D	MW2	SB2	LE-1	SW1
DATE SAMPLED				2018-07-30	2018-07-30	2018-07-30	2018-07-30	2018-07-30	2018-07-30	2018-07-30
DATE RECEIVED				2018-07-31	2018-07-31	2018-07-31	2018-07-31	2018-07-31	2018-07-31	2018-07-31
MATRIX				Water	Water	Water	Water	Water	Water	Water
General Method	Analyte	Units	MRL							
Anions	Chloride	mg/L	0.1	39.6	12.4	4.19	6.01	52.8	3390	25.3
Anions	Fluoride	mg/L	0.1	0.22	0.22	0.2	0.16	0.12	<1.00	<1.00
Anions	Nitrate (as N)	mg/L	0.01	<0.010	<0.010	<0.010	<0.010	0.151	1.58	0.188
Anions	Nitrite (as N)	mg/L	0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.100	<0.100
Anions	Sulfate	mg/L	1	72.5	37.2	19.8	16.1	86.1	1820	87.7
General Parameters	Colour, True	CU	5	5.2	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
General Parameters	Alkalinity, Total (as CaCO3)	mg/L	1	621	128	108	128	292	55.4	243
General Parameters	Alkalinity, Phenolphthalein (as Ca	mg/L	1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
General Parameters	Alkalinity, Bicarbonate (as CaCO3)	mg/L	1	621	128	108	128	292	55.4	243
General Parameters	Alkalinity, Carbonate (as CaCO3)	mg/L	1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
General Parameters	Alkalinity, Hydroxide (as CaCO3)	mg/L	1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
General Parameters	Chromium, Hexavalent	mg/L	0.001							<0.0010
General Parameters	Solids, Total Suspended	mg/L	2	9.8	10.8	8.2	24.3	116	9	<2.0
General Parameters	Turbidity	NTU	0.1	11.4	4.15	3.74	11.6	83.1	0.74	0.2
General Parameters	pH	pH units	0.1	7.26	7.27	7.12	7.21	7.21	6.64	7.46
General Parameters	Conductivity (EC)	uS/cm	2	1290	351	247	283	874	12500	670
Calculated Parameters	Chromium, Trivalent	mg/L	0.001							<0.00100
Calculated Parameters	Hardness, Total (as CaCO3)	mg/L	0.5	488	123	87.9	106	320	3050	282
Dissolved Metals	Aluminum, dissolved	mg/L	0.005	0.0061	0.0151	<0.0050	0.0214	0.012	0.031	<0.0050
Dissolved Metals	Antimony, dissolved	mg/L	0.0002	0.00021	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Dissolved Metals	Arsenic, dissolved	mg/L	0.0005	0.00379	0.00113	0.00129	0.00195	<0.00050	<0.00050	<0.00050

Dissolved Metals	Barium, dissolved	mg/L	0.005	0.0732	0.0268	0.0183	0.0271	0.0147	0.0598	0.0197
Dissolved Metals	Beryllium, dissolved	mg/L	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Dissolved Metals	Bismuth, dissolved	mg/L	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Dissolved Metals	Boron, dissolved	mg/L	0.005	0.0708	0.0247	0.0254	0.0244	0.0342	0.358	0.0403
Dissolved Metals	Cadmium, dissolved	mg/L	1E-05	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000907	0.000019
Dissolved Metals	Calcium, dissolved	mg/L	0.2	144	38.9	27.1	32	104	830	91.2
Dissolved Metals	Chromium, dissolved	mg/L	0.0005	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Dissolved Metals	Cobalt, dissolved	mg/L	0.0001	0.00212	0.00057	0.00035	0.0003	<0.00010	0.00919	<0.00010
Dissolved Metals	Copper, dissolved	mg/L	0.0004	<0.00040	<0.00040	<0.00040	0.00043	0.00151	0.00543	0.00125
Dissolved Metals	Iron, dissolved	mg/L	0.01	2.01	0.062	0.101	0.208	<0.010	<0.010	<0.010
Dissolved Metals	Lead, dissolved	mg/L	0.0002	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Dissolved Metals	Lithium, dissolved	mg/L	0.0001	0.0101	<0.00010	<0.00010	<0.00010	0.00016	0.00062	0.00017
Dissolved Metals	Magnesium, dissolved	mg/L	0.01	31.1	6.37	4.86	6.22	14.9	236	13.1
Dissolved Metals	Manganese, dissolved	mg/L	0.0002	1.93	0.365	0.311	0.449	0.00617	35.3	0.137
Dissolved Metals	Mercury, dissolved	mg/L	1E-05	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	<0.000010
Dissolved Metals	Molybdenum, dissolved	mg/L	0.0001	0.00056	0.00765	0.00601	0.00368	0.00124	0.0021	0.00134
Dissolved Metals	Nickel, dissolved	mg/L	0.0004	0.00317	0.00135	0.00103	0.00076	0.00055	0.0137	0.00119
Dissolved Metals	Phosphorus, dissolved	mg/L	0.05	<0.050	<0.050	0.073	0.132	<0.050	<0.050	<0.050
Dissolved Metals	Potassium, dissolved	mg/L	0.1	2.97	0.75	0.51	0.57	1.79	21.9	0.97
Dissolved Metals	Selenium, dissolved	mg/L	0.0005	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Dissolved Metals	Silicon, dissolved	mg/L	1	11.8	6.4	6.2	6.6	6.9	8.6	7.2
Dissolved Metals	Silver, dissolved	mg/L	5E-05	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Dissolved Metals	Sodium, dissolved	mg/L	0.1	55.3	12	9.39	7.89	32.7	1660	11.5
Dissolved Metals	Strontium, dissolved	mg/L	0.001	0.536	0.214	0.179	0.155	0.373	4.47	0.279
Dissolved Metals	Sulfur, dissolved	mg/L	3	23.8	13.3	7	5.9	31.8	743	30.7
Dissolved Metals	Tellurium, dissolved	mg/L	0.0005	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Dissolved Metals	Thallium, dissolved	mg/L	2E-05	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000095	<0.000020
Dissolved Metals	Thorium, dissolved	mg/L	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Dissolved Metals	Tin, dissolved	mg/L	0.0002	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Dissolved Metals	Titanium, dissolved	mg/L	0.005	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Dissolved Metals	Tungsten, dissolved	mg/L	0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Dissolved Metals	Uranium, dissolved	mg/L	2E-05	0.00678	0.000979	0.000594	0.000739	0.00275	0.000282	0.00222
Dissolved Metals	Vanadium, dissolved	mg/L	0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Dissolved Metals	Zinc, dissolved	mg/L	0.004	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	0.0594	<0.0040

Dissolved Metals	Zirconium, dissolved	mg/L	0.0001	0.00019	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Total Metals	Aluminum, total	mg/L	0.005	0.13	0.0664	0.0849	0.294	3.48	0.111	0.022
Total Metals	Antimony, total	mg/L	0.0002	0.00046	<0.00020	<0.00020	0.00024	<0.00020	0.00025	<0.00020
Total Metals	Arsenic, total	mg/L	0.0005	0.00406	0.00124	0.00133	0.00201	<0.00050	<0.00050	<0.00050
Total Metals	Barium, total	mg/L	0.005	0.0859	0.0296	0.0195	0.0325	0.0333	0.0662	0.0222
Total Metals	Beryllium, total	mg/L	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	0.0001	<0.00010	<0.00010
Total Metals	Bismuth, total	mg/L	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Total Metals	Boron, total	mg/L	0.005	0.0753	0.0284	0.0273	0.0273	0.0392	0.361	0.042
Total Metals	Cadmium, total	mg/L	1E-05	0.000064	0.000336	0.000094	0.000038	0.000015	0.000939	0.000024
Total Metals	Calcium, total	mg/L	0.2	167	47.2	30.8	38.3	126	915	105
Total Metals	Chromium, total	mg/L	0.0005	0.00059	<0.00050	<0.00050	0.00065	0.00341	<0.00050	<0.00050
Total Metals	Cobalt, total	mg/L	0.0001	0.00232	0.00067	0.00041	0.00054	0.00319	0.00923	<0.00010
Total Metals	Copper, total	mg/L	0.0004	0.00141	0.00045	<0.00040	0.00043	0.0132	0.00555	0.00138
Total Metals	Iron, total	mg/L	0.01	2.32	0.113	0.164	0.612	3.73	0.02	<0.010
Total Metals	Lead, total	mg/L	0.0002	0.0006	<0.00020	<0.00020	0.00041	0.00125	<0.00020	<0.00020
Total Metals	Lithium, total	mg/L	0.0001	0.0112	0.00014	0.0001	0.00012	0.00119	0.00065	0.00019
Total Metals	Magnesium, total	mg/L	0.01	33.3	7.1	5.09	6.9	17.4	250	14.4
Total Metals	Manganese, total	mg/L	0.0002	1.98	0.389	0.308	0.465	0.181	40.2	0.164
Total Metals	Mercury, total	mg/L	1E-05	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Total Metals	Molybdenum, total	mg/L	0.0001	0.00092	0.00633	0.00646	0.00405	0.00128	0.00208	0.00138
Total Metals	Nickel, total	mg/L	0.0004	0.00432	0.00157	0.00128	0.00133	0.00345	0.0136	0.00133
Total Metals	Phosphorus, total	mg/L	0.05	<0.050	0.081	0.091	0.168	0.127	<0.050	<0.050
Total Metals	Potassium, total	mg/L	0.1	3.14	0.83	0.52	0.62	2.39	23.3	1.07
Total Metals	Selenium, total	mg/L	0.0005	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Total Metals	Silicon, total	mg/L	1	12	6.8	6.3	7.4	12.7	8.6	7.8
Total Metals	Silver, total	mg/L	5E-05	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000073	<0.000050
Total Metals	Sodium, total	mg/L	0.1	58.7	13.1	9.74	8.44	36.3	1740	12.8
Total Metals	Strontium, total	mg/L	0.001	0.567	0.232	0.186	0.166	0.413	4.53	0.293
Total Metals	Sulfur, total	mg/L	3	23	13.7	7.1	6.3	34.2	746	33.6
Total Metals	Tellurium, total	mg/L	0.0005	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Total Metals	Thallium, total	mg/L	2E-05	0.000042	0.000031	<0.000020	<0.000020	<0.000020	0.000093	<0.000020
Total Metals	Thorium, total	mg/L	0.0001	<0.00010	<0.00010	0.00014	<0.00010	0.00012	<0.00010	<0.00010
Total Metals	Tin, total	mg/L	0.0002	0.00066	0.00029	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Total Metals	Titanium, total	mg/L	0.005	0.0065	<0.0050	<0.0050	0.0118	0.188	<0.0050	<0.0050

[illegible]

Table 1: Analytical Results for Nutrients

Sample Location	CSR Standards ⁽¹⁾		MW-6	MW-3S	MW-3D	MW-2	SB2
As-built Well Depths			47m	23m	46m	43m	3.28m
Sample ID			8080099-01	8080099-02	8080099-03	8080099-04	8080099-05
			MW6	MW3S	MW3D	MW2	SB2
Date Sampled	Aquatic Life	Drinking Water	2018-07-30	2018-07-30	2018-07-30	2018-07-30	2018-07-30
Physical Tests							
Colour, True (TCU)	-	-	5.2	<5.0	<5.0	<5.0	<5.0
Conductivity (uS/cm)	-	-	1290	351	247	283	874
Hardness (as CaCO3) mg/L	-	-	488	123	87.9	106	320
pH (pH Units)	-	-	7.26	7.27	7.12	7.21	7.21
Total Suspended Solids mg/L			9.8	10.8	8.2	24.3	116
Total Dissolved Solids mg/L	-	-	-	-	-	-	-
Turbidity (NTU)	-	-	11.4	4.15	3.74	11.6	83.1
Anions and Nutrients mg/L							
Alkalinity, Total (as CaCO3)	-	-	621	128	108	128	292
Chloride (Cl)	1500	250	39.6	12.4	4.19	6.01	52.8
Fluoride (F)	2 (H < 50)	1.5					
	3 (H ≥ 50)		0.22	0.22	0.2	0.16	0.12
Nitrate (as N)	400	10	<0.010	<0.010	<0.010	<0.010	0.151
Nitrite (as N) ⁽⁶⁾ Cl <2 mg/L	0.2	3.2					
Cl 2 - <4 mg/L	0.4						
Cl 4 - <6 mg/L	0.6				<0.010		
Cl 6 - <8 mg/L	0.8					<0.010	
Cl 8 - <10 mg/L	1						
Cl ≥ 10 mg/L	2		<0.010	<0.010			<0.010
Sulfate (SO4)	1000	500	72.5	37.2	19.8	16.1	86.1

Notes: Refer to Table Endnotes (attached)

Table 2: Analytical Results for Total Metals

Sample Location		CSR Standards ⁽¹⁾		MW-6	MW-3S	MW-3D	MW-2	SB2
As-built Well Depths				47m	23m	46m	43m	3.28m
Sample ID				8080099-01	8080099-02	8080099-03	8080099-04	8080099-05
				MW6	MW3S	MW3D	MW2	SB2
Date Sampled	Aquatic Life	Drinking Water		2018-07-30	2018-07-30	2018-07-30	2018-07-30	2018-07-30
Physical Tests mg/L								
Hardness (as CaCO3)	-	-		488	123	87.9	106	320
Total Metals mg/L								
Aluminum (Al)-Total	-	-		0.13	0.0664	0.0849	0.294	3.48
Antimony (Sb)-Total	-	-		0.00046	<0.00020	<0.00020	0.00024	<0.00020
Arsenic (As)-Total	-	-		0.00406	0.00124	0.00133	0.00201	<0.00050
Barium (Ba)-Total	-	-		0.0859	0.0296	0.0195	0.0325	0.0333
Beryllium (Be)-Total	-	-		<0.00010	<0.00010	<0.00010	<0.00010	0.0001
Bismuth (Bi)- Total	-	-		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Boron (B)-Total	-	-		0.0753	0.0284	0.0273	0.0273	0.0392
Cadmium (Cd)-Total	-	-		0.000064	0.000336	0.000094	0.000038	0.000015
Calcium (Ca)-Total	-	-		167	47.2	30.8	38.3	126
Chromium (Cr)-Total	-	-		0.00059	<0.00050	<0.00050	0.00065	0.00341
Cobalt (Co)-Total	-	-		0.00232	0.00067	0.00041	0.00054	0.00319
Copper (Cu)-Total	-	-		0.00141	0.00045	<0.00040	0.00043	0.0132
Iron (Fe)-Total	-	-		2.32	0.113	0.164	0.612	3.73
Lead (Pb)-Total	-	-		0.0006	<0.00020	<0.00020	0.00041	0.00125
Lithium (Li)-Total	-	-		0.0112	0.00014	0.0001	0.00012	0.00119
Magnesium (Mg)-Total	-	-		33.3	7.1	5.09	6.9	17.4
Manganese (Mn)-Total	-	-		1.98	0.389	0.308	0.465	0.181
Mercury (Hg)-Total	-	-		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Molybdenum (Mo)-Total	-	-		0.00092	0.00633	0.00646	0.00405	0.00128
Nickel (Ni)-Total	-	-		0.00432	0.00157	0.00128	0.00133	0.00345
Phosphorus(P)-Total	-	-		<0.050	0.081	0.091	0.168	0.127
Potassium (K)-Total	-	-		3.14	0.83	0.52	0.62	2.39
Selenium (Se)-Total	-	-		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Silicon (Si)-Total	-	-		12	6.8	6.3	7.4	12.7
Silver (Ag)-Total	-	-		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Sodium (Na)-Total	-	-		58.7	13.1	9.74	8.44	36.3
Strontium (Sr)-Total	-	-		0.567	0.232	0.186	0.166	0.413
Sulfur (S)-Total	-	-		23	13.7	7.1	6.3	34.2
Tellurium (Te)-Total	-	-		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Thallium (Tl)-Total	-	-		0.000042	0.000031	<0.000020	<0.000020	<0.000020
Thorium (Th)-Total	-	-		<0.00010	<0.00010	0.00014	<0.00010	0.00012
Tin (Sn)-Total	-	-		0.00066	0.00029	<0.00020	<0.00020	<0.00020
Titanium (Ti)-Total	-	-		0.0065	<0.0050	<0.0050	0.0118	0.188
Uranium (U)-Total	-	-		0.00719	0.00111	0.000677	0.000819	0.00325
Vanadium (V)-Total	-	-		<0.0010	<0.0010	<0.0010	0.0014	0.0084
Zinc (Zn)-Total	-	-		0.0079	0.0046	<0.0040	0.004	0.012
Zirconium (Zr)-Total	-	-		0.00015	0.00016	0.00017	0.00011	0.00011

Notes: Refer to Table Endnotes (attached)

Table 3: Analytical Results for Dissolved Metals

Sample Location	CSR Standards ⁽¹⁾		MW-6	MW-3S	MW-3D	MW-2	SB2
As-built Well Depths			47m	23m	46m	43m	3.28m
Sample ID			8080099-01	8080099-02	8080099-03	8080099-04	8080099-05
			MW6	MW3S	MW3D	MW2	SB2
Date Sampled	Aquatic Life	Drinking Water	2018-07-30	2018-07-30	2018-07-30	2018-07-30	2018-07-30
Physical Tests mg/L							
Hardness (as CaCO3)	-	-	488	123	87.9	106	320
Dissolved Metals mg/L							
Aluminum (Al)-Dissolved	-	9.5	0.0061	0.0151	<0.0050	0.0214	0.012
Antimony (Sb)-Dissolved	0.2	0.006	0.00021	<0.00020	<0.00020	<0.00020	<0.00020
Arsenic (As)-Dissolved	0.05	0.01	0.00379	0.00113	0.00129	0.00195	<0.00050
Barium (Ba)-Dissolved	10	1	0.0732	0.0268	0.0183	0.0271	0.0147
Beryllium (Be)-Dissolved	0.053	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)- Dissolved	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Boron (B)-Dissolved	50	5	0.0708	0.0247	0.0254	0.0244	0.0342
Cadmium (Cd)-Dissolved	0.0001 (H< 30)	0.005					
	0.0003 (H=30 -<90				<0.000010		
	0.0005 (H=90-<150			<0.000010		<0.000010	
	0.0006 (H=150-<210)		<0.000010				<0.000010
Calcium (Ca)-Dissolved	-	-	144	38.9	27.1	32	104
Chromium (Cr)-Dissolved	0.01	0.05	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Colbalt (Co)-Dissolved	0.04	-	0.00212	0.00057	0.00035	0.0003	<0.00010
Copper (Cu)-Dissolved	0.02 (H<50)	1					
	0.03 (H=50-<75)						
	0.04 (H=75-<100)				<0.00040		
	0.05 (H=100-<125)			<0.00040		0.00043	
	0.06 (H=125-<150)						
	0.07 (H=150-<175)						
	0.08 (H=175-<200)						
	0.09 (H>200)		<0.00040				0.00151
Iron (Fe)-Dissolved	-	6.5	2.01	0.062	0.101	0.208	<0.010
Lead (Pb)-Dissolved	0.04 (H<50)	0.01					
	0.05 (H=50-<100)				<0.00020		
	0.06 (H=100-<200)			<0.00020		<0.00020	
	0.11 (H=200-<300)						
	0.16 (H>300)		<0.00020				<0.00020
Lithium (Li)-Dissolved	-	-	0.0101	<0.00010	<0.00010	<0.00010	0.00016
Magnesium (Mg)-Dissolved	-	100	31.1	6.37	4.86	6.22	14.9
Manganese (Mn)-Dissolved	-	0.55	1.93	0.365	0.311	0.449	0.00617
Mercury (Hg)-Dissolved	0.001	0.001	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040
Molybdenum (Mo)-Dissolved	10	0.25	0.00056	0.00765	0.00601	0.00368	0.00124
Nickel (Ni)-Dissolved	0.25 (H<60)	-					
	0.65 (H=60-<120)				0.00103	0.00076	
	1.1 (H=120-<180)			0.00135			
	1.5 (H>=180)		0.00317				0.00055
Phosphorus(P)-Dissolved	-	-	<0.050	<0.050	0.073	0.132	<0.050
Potassium (K)-Dissolved	-	-	2.97	0.75	0.51	0.57	1.79
Selenium (Se)-Dissolved	0.01	0.01	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Silicon (Si)-Dissolved	-	-	11.8	6.4	6.2	6.6	6.9
Silver (Ag)-Dissolved	0.0005 (H<=100)	-			<0.000050		
	0.015 (H>100)		<0.000050	<0.000050		<0.000050	<0.000050
Sodium (Na)-Dissolved	-	200	55.3	12	9.39	7.89	32.7
Strontium (Sr)-Dissolved	-	-	0.536	0.214	0.179	0.155	0.373
Sulfur (S)-Dissolved	-	-	23.8	13.3	7	5.9	31.8
Tellurium (Te)-Dissolved	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Thallium (Tl)-Dissolved	0.003	-	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Thorium (Th)-Dissolved	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin (Sn)-Dissolved	-	-	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Titanium (Ti)-Dissolved	1	-	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Uranium (U)-Dissolved	3	0.02	0.00678	0.000979	0.000594	0.000739	0.00275
Vanadium (V)-Dissolved	-	-	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)-Dissolved	0.075 (H<90)	5			<0.0040		
	0.150 (H=90-<100)						
	0.900 (H=100-<200)			<0.0040		<0.0040	
	1.650 (H=200-<300)						
	2.4 (H=300-<400)		<0.0040				<0.0040
Zirconium (Zr)-Dissolved	-	-	0.00019	<0.00010	<0.00010	<0.00010	<0.00010

Notes: Refer to Table Endnotes (attached)

Table 4: Analytical Results for Hydrocarbons and PAHs

Sample Location	CSR Standards ⁽¹⁾		MW-6	MW-3S	MW-3D	MW-2	SB2
As-built Well Depths			47m	23m	46m	43m	3.28m
Sample ID			8080099-01	8080099-02	8080099-03	8080099-04	8080099-05
			MW6	MW3S	MW3D	MW2	SB2
Date Sampled	Aquatic Life	Drinking Water	2018-07-30	2018-07-30	2018-07-30	2018-07-30	2018-07-30
Turbidity (NTU)	-	-	11.4	4.15	3.74	11.6	83.1
Hydrocarbons ug/L							
EPH10-19	5000	5000	<250	<250	<250	<250	<250
EPH10-19 (SG)	5000	5000					
EPH19-32	-	-	<250	<250	<250	<250	<250
EPH19-32 (SG)	-	-					
LEPH	500	-	<250	<250	<250	<250	<250
HEPH	-	-	<250	<250	<250	<250	<250
Polycyclic Aromatic Hydrocarbons ug/L							
Acenaphthene	60	-	<0.050	<0.050	<0.050	<0.050	<0.050
Acenaphthylene	-	-	<0.200	<0.200	<0.200	<0.200	<0.200
Acridine	0.5	-	<0.050	<0.050	<0.050	<0.050	<0.050
Anthracene	1	-	<0.010	<0.010	<0.010	<0.010	<0.010
Benz(a)anthracene	1	-	<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(a)pyrene	0.1	0.01	<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(b)fluoranthene	-	-	-	-	-	-	-
Benzo(b+j)fluoranthene	-	-	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo(g,h,i)perylene	-	-	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo(k)fluoranthene	-	-	<0.050	<0.050	<0.050	<0.050	<0.050
2-Chloronaphthalene			<0.100	<0.100	<0.100	<0.100	<0.100
Chrysene	1	-	<0.050	<0.050	<0.050	<0.050	<0.050
Dibenz(a,h)anthracene	-	-	<0.010	<0.010	<0.010	<0.010	<0.010
Fluoranthene	2	-	<0.030	<0.030	<0.030	<0.030	<0.030
Fluorene	120	-	<0.050	<0.050	<0.050	<0.050	<0.050
Indeno(1,2,3-c,d)pyrene	-	-	<0.050	<0.050	<0.050	<0.050	<0.050
1-Methylnaphthalene			<0.100	<0.100	<0.100	<0.100	<0.100
2-Methylnaphthalene			<0.100	<0.100	<0.100	<0.100	<0.100
Naphthalene	10	-	<0.200	<0.200	<0.200	<0.200	<0.200
Phenanthrene	3	-	<0.100	<0.100	<0.100	<0.100	<0.100
Pyrene	0.2	-	<0.020	<0.020	<0.020	<0.020	<0.020
Quinoline	34	-	<0.050	<0.050	<0.050	<0.050	<0.050

Notes: Refer to Table Endnotes (attached)

Analytical Table Footnotes: Analytical Results for Groundwater and Seepage Blanket Water

All concentrations in mg/L, except pH or as indicated.

- "<" less than the laboratory detection limit indicated.
- "-" means not analyzed or no standard or guideline applies.
- *
- RPDs are not normally calculated where one or more concentrations are less than five times MDL.
- (1) A compendium of CSR Schedules 6 and 10 guidelines with respect to Drinking Water (DW) and Freshwater Aquatic Life (AW).
- (2) Standard is dissolved Chloride-dependent.

BOLD, UNDERLINE

Laboratory Detection Limit exceeds one or more applicable Standard

BLUE SHADING

Concentration greater than CSR Aquatic Life (AW) Standard

BOLD, BEIGE TEXT

Concentration greater than CSR Drinking Water (DW) Standard

Table 1: Analytical Results for Nutrients			SHA-LE-1	SHA-SW-1
Laboratory ID	BC DRINKING WATER QUALITY GUIDELINES	BC FRESHWATER AQUATIC LIFE WATER QUALITY GUIDELINES	8080099-06	8080099-07
Sample ID			LE-1	SW1
Date Sampled/Time			2018-07-30	2018-07-30
Physical Tests				
Colour, True (Colour Units)	15 TCU	15 ⁽¹⁾ units absolute, or 5 units above background (30-day average)	<5.0	<5.0
Total Dissolved Solids (mg/L)	-	-	-	-
Total Suspended Solids (mg/L)	-	25 mg/L above background (24-hr during clear flow)	9	<2.0
pH	7-10.5	6.5-9	6.64	7.46
Conductivity (uS/cm)	-	-	12500	670
Hardness (as CaCO3)	-	-	3050	282
Turbidity (NTU)	Δ1 NTU	8 NTU above background (24-hr during clear flow)	0.74	0.2
Anions and Nutrients mg/L				
Alkalinity Total (as CaCO3)	<10 high sensitivity to acid inputs 10-20 moderate sensitivity to acid inputs >20 low sensitivity to acid inputs		55.4	243
Acid Sensitivity			Low	Low
Chloride (Cl)	250 mg/L	600 mg/L (instant max), 150 mg/L (30-day average)	3390	25.3
Fluoride (F)	1.5 mg/L (instant max) 1.0 mg/L (30-day average)	0.4 (Hardness <10mg/L)	<1.00	<1.00
		Hardness-Dependent AW (Hardness is >10mg/L) ⁽³⁾	0.24	0.29
Nitrate (as N)	45 mg/L	32.8 mg/L (instant maximum) 3.0 mg/L (30-day average)	1.58	0.188
Nitrite (as N) ⁽²⁾	3 mg/L	Cl > 10 mg/L 0.6 mg/L (MAX), 0.2 mg/L (30-day average)	<0.100	<0.100
Sulfate (SO4) H 0-30 mg/L	500 mg/L	128 mg/L 30-day average)		
H 31 - 75 mg/L		218 mg/L (30-day average)		
H 76 - 180 mg/L		309 mg/L (30-day average)		
H 181 - 250 mg/L		429 mg/L (30-day average)		
H > 250 mg/L		TBD	1820	87.7

Notes: Refer to Table Endnotes (attached)

Table 2: Analytical Results for Total Metals			SHA-LE-1	SHA-SW-1
Laboratory ID	BC DRINKING WATER QUALITY GUIDELINES	BC FRESHWATER AQUATIC LIFE WATER QUALITY GUIDELINES	8080099-06	8080099-07
Sample ID			LE-1	SW1
Date Sampled/Time			2018-07-30	2018-07-30
Physical Tests				
Hardness (as CaCO3) (mg/L)	-	-	3050	282
pH	7-10.5	6.5-9	6.64	7.46
Total Metals (mg/L)				
Aluminum (Al)-Total	0.2	-	0.111	0.022
Antimony (Sb)-Total	-	-	0.00025	<0.00020
Arsenic (As)-Total	0.01	0.005	<0.00050	<0.00050
Barium (Ba)-Total	-	-	0.0662	0.0222
Beryllium (Be)-Total	-	-	<0.00010	<0.00010
Bismuth, total	-	-	<0.00010	<0.00010
Boron (B)-Total	5	1.2	0.361	0.042
Cadmium (Cd)-Total	-	-	0.000939	0.000024
Calcium (Ca)-Total	-	-	915	105
Chromium (Cr)-Total Chromium	-	-	<0.00050	<0.00050
Chromium (Cr(III))	-	-	-	<0.00100
Chromium (Cr(VI))	-	-	-	<0.0010
Cobalt (Co)-Total	-	0.110 (Short Term), 0.004 (Long Term Average)	0.00923	<0.00010
Copper (Cu)-Total	0.5	Hardness-Dependent ⁽⁷⁾	0.00555	0.00138
		Hardness-Dependent BCAWQG to protect AW ⁽³⁾ (instant	0.2887	0.0285
		Hardness-Dependent BCAWQG to protect AW ⁽³⁾ (30-d average)	0.1220	0.0113
Iron (Fe)-Total	-	1	0.02	<0.010
Lead (Pb)-Total	0.01	Hardness-Dependent ⁽³⁾	<0.00020	<0.00020
		Hardness-Dependent BCAWQG to protect AW ⁽³⁾ (instant max)	6.3306	0.3056
		Hardness-Dependent BCAWQG to protect AW ⁽³⁾ (30-d average)	0.2503	0.0152
Lithium (Li)-Total	-	-	0.00065	0.00019
Magnesium (Mg)-Total	-	-	250	14.4
Manganese (Mn)-Total	-	Hardness Dependent ⁽³⁾	40.2	0.164
		Hardness-Dependent BCAWQG to protect AW ⁽³⁾ (instant max)	34.2	3.6
		Hardness-Dependent BCAWQG to protect AW ⁽³⁾ (30-d average)	14.0	1.8
Mercury (Hg)-Total	0.001	0.00002	<0.000010	<0.000010
Molybdenum (Mo)-Total	0.25	≤1 (instant max) 2 (30-d average)	0.00208	0.00138
Nickel (Ni)-Total	-	0.025 (Hardness-Dependent ⁽³⁾ BCAWWQG to protect AW H<60mg/L)	0.0136	0.00133
		Calculated Hardness-Dependent ⁽³⁾ BCAWWQG to protect AW 60≤H≤180 mg/L CaCO3	1.283	0.210
Phosphorus(P)-Total	-	-	<0.050	<0.050
Potassium (K)-Total	-	-	23.3	1.07
Selenium (Se)-Total	0.01	0.002	<0.00050	<0.00050
Silicon (Si)-Total	-	-	8.6	7.8
Silver (Ag)-Total	-	HARDNESS <100mg/L 0.0001 (SHORT TERM), 0.00005 (LONG TERM), HARDNESS >100mg/L 0.003 (SHORT TERM), 0.0015 (LONG TERM)	0.000073	<0.000050
Sodium (Na)-Total	-	-	1740	12.8
Strontium (Sr)-Total	-	-	4.53	0.293
Sulfur (S)-Total	-	-	746	33.6
Tellurium (Te)-Total	-	-	<0.00050	<0.00050
Thallium (Tl)-Total	-	-	0.000093	<0.000020
Thorium (Th)-Total	-	-	<0.00010	<0.00010
Tin (Sn)-Total	-	-	<0.00020	<0.00020
Titanium (Ti)-Total	-	-	<0.0050	<0.0050
Uranium (U)-Total	-	-	0.000275	0.00237
Vanadium (V)-Total	-	-	<0.0010	<0.0010
Zinc (Zn)-Total	5.0	Hardness >90 mg/L	0.0608	0.0043
		Hardness-Dependent BCAWQG to protect AW ⁽³⁾ (instant max)	2.253	0.177
		Hardness-Dependent BCAWQG to protect AW ⁽³⁾ (30-d average)	2.228	0.152
Zirconium (Zr)-Total	-	-	<0.00010	<0.00010

Table 3: Analytical Results for Dissolved Metals			SHA-LE-1	SHA-SW-1
Laboratory ID	BC DRINKING WATER QUALITY GUIDELINES	BC FRESHWATER AQUATIC LIFE WATER QUALITY GUIDELINES	8080099-06	8080099-07
Sample ID			LE-1	SW1
Date Sampled/Time			2018-07-30	2018-07-30
Physical Tests				
Hardness (as CaCO3) (mg/L)	-	-	3050	282
pH	7-10.5	6.5-9	6.64	7.46
Dissolved Metals (mg/L)				
Aluminum (Al)-Dissolved	-	0.05 (30-day average where median pH > 6.5) 0.1 (maximum where instantaneous pH > 6.5) *** indicates pH-dependent maximum where instant pH ≤ 6.5	0.031	<0.0050
		pH/Hardness Dependent BCAWQG to protect AW ⁽⁴⁾ (instant max)	0.101	0.378
		pH/Hardness Dependent BCAWQG to protect AW ⁽⁴⁾ (30-d Mean)	0.063	0.428
Antimony (Sb)-Dissolved	-	-	<0.00020	<0.00020
Arsenic (As)-Dissolved	-	-	<0.00050	<0.00050
Barium (Ba)-Dissolved	-	-	0.0598	0.0197
Beryllium (Be)-Dissolved	-	-	<0.00010	<0.00010
Bismuth (Bi)-Dissolved	-	-	<0.00010	<0.00010
Boron (B)-Dissolved	-	-	0.358	0.0403
Cadmium (Cd)-Dissolved	-	Hardness-Dependent ⁽³⁾	0.000907	0.000019
	-	Calculated Hardness-Dependent ⁽³⁾ BCAWWQG to protect AW (short-term max) e[1.03 * ln(Hss) - 5.274] ug/L H<455mg/L	Hardness exceeds 455mg/L	0.00171
	-	Calculated Hardness-Dependent BCAWQG to protect AW ⁽³⁾ (long-term max) e[0.736 * ln(Hss) - 4.943] ug/L H<285mg/L	Hardness exceeds 285mg/L	0.00045
Calcium (Ca)-Dissolved	-	up to 4, highly sensitive to acid inputs 4 to 8, moderately sensitive over 8 low sensitivity	830	91.2
Chromium (Cr)-Dissolved	-	-	Low	Low
Cobalt (Co)-Dissolved	-	-	<0.00050	<0.00050
Copper (Cu)-Dissolved	-	-	0.00919	<0.00010
Iron (Fe)-Dissolved	-	0.35	0.00543	0.00125
Lead (Pb)-Dissolved	-	-	<0.010	<0.010
Lithium, dissolved	-	-	<0.00020	<0.00020
Magnesium (Mg)-Dissolved	-	-	0.00062	0.00017
Manganese (Mn)-Dissolved	-	-	236	13.1
Mercury (Hg)-Dissolved	-	-	35.3	0.137
Molybdenum (Mo)-Dissolved	-	-	<0.000040	<0.000010
Nickel (Ni)-Dissolved	-	-	0.0021	0.00134
Phosphorus (P)-Dissolved	-	-	0.0137	0.00119
Potassium (K)-Dissolved	-	-	<0.050	<0.050
Selenium (Se)-Dissolved	-	-	21.9	0.97
Silicon (Si)-Dissolved	-	-	<0.00050	<0.00050
Silver (Ag)-Dissolved	-	-	8.6	7.2
Sodium (Na)-Dissolved	-	-	<0.000050	<0.000050
Strontium (Sr)-dissolved	-	-	1660	11.5
Sulfur (S)-Dissolved	-	-	4.47	0.279
Tellurium (Te)-Dissolved	-	-	743	30.7
Thallium (Tl)-Dissolved	-	-	<0.00050	<0.00050
Thorium (Th)-Dissolved	-	-	0.000095	<0.000020
Tin (Sn)-Dissolved	-	-	<0.00010	<0.00010
Titanium (Ti)-Dissolved	-	-	<0.00020	<0.00020
Uranium (U)-Dissolved	-	-	<0.0050	<0.0050
Vanadium (V)-Dissolved	-	-	0.000282	0.00222
Zinc (Zn)-Dissolved	-	-	<0.0010	<0.0010
Zirconium (Zr)-Dissolved	-	-	0.0594	<0.0040
			<0.00010	<0.00010

Notes: Refer to Table Endnotes (attached)

Table 4: Analytical Results for Hydrocarbons and PAHs			SHA-LE-1	SHA-SW-1
Laboratory ID	BC DRINKING WATER QUALITY GUIDELINES	BC FRESHWATER AQUATIC LIFE WATER QUALITY GUIDELINES	8080099-06	8080099-07
Sample ID			LE-1	SW1
Date Sampled/ Time			2018-07-30	2018-07-30
Hydrocarbons ug/L				
LEPH	-	-	462	<250
HEPH	-	-	439	<250
Polycyclic Aromatic				
Acenaphthene	-	6 (LONG TERM)	<0.050	<0.050
Acenaphthylene	-	-	<0.200	<0.200
Acridine	-	3 (LONG TERM), 0.05 (PHOTOTOXIC)	<0.050	<0.050
Anthracene	-	4 (LONG TERM), 0.1 (PHOTOTOXIC)	<0.010	<0.010
Benz(a)anthracene	0.01	0.1 (LONG TERM), 0.1 (PHOTOTOXIC)	<0.010	<0.010
Benzo(a)pyrene	-	0.01 (LONG TERM)	<0.010	<0.010
Benzo(b)fluoranthene	-	-	-	-
Benzo(b+j)fluoranthene	-	-	<0.050	<0.050
Benzo(g,h,i)perylene	-	-	<0.050	<0.050
Benzo(k)fluoranthene	-	-	<0.050	<0.050
2-Chloronaphthalene			<0.100	<0.100
Chrysene	-	-	<0.050	<0.050
Dibenz(a,h)anthracene	-	-	<0.010	<0.010
Fluoranthene	-	4 (LONG TERM), 0.2 (PHOTOTOXIC)	<0.030	<0.030
Fluorene	-	12 (LONG TERM)	<0.050	<0.050
Indeno(1,2,3-c,d)pyrene	-	-	<0.050	<0.050
1-Methylnaphthalene			<0.100	<0.100
2-Methylnaphthalene			0.197	<0.100
Naphthalene	-	1 (LONG TERM)	<0.200	<0.200
Phenanthrene	-	0.3 (LONG TERM)	<0.100	<0.100
Pyrene	-	0.02 (PHOTOTOXIC)	<0.020	<0.020
Quinoline	-	-	<0.050	<0.050

Notes: Refer to Table Endnotes (attached)

Analytical Table Footnotes: Leachate and Surface Water

- All concentrations in mg/L, except pH or as indicated.
- "<" less than the laboratory detection limit indicated.
- "-" means not analyzed or no standard or guideline applies.
- * RPDs are not normally calculated where one or more concentrations are less than five times RDL.
- (1) Guideline of 15 mg/L Pt for Drinking Water. Once background levels are established, colour should also not exceed 5 mg/L above background, to protect for Aquatic Life. This is considered a clearwater system (background less than 20 mg/L Pt.)
- (2) Nitrite BCAWWQG Guideline is Chloride dependent
- (3) Standard is calculated based on the hardness dependent BCAWWQG formula, and has been calculated and shown for each individual result
- (4) pH-dependent maximum where instant pH < 6.5

BOLD, UNDERLINE

Laboratory Detection Limit exceeds one or more applicable Standard

BOLD, BLUE SHADING

Concentration greater than BCAWWQG Guideline

BOLD, BEIGE SHADING

Concentration greater than BCAWWQG Chronic Guideline

BOLD, GREEN SHADING

Concentration greater than BC Ministry of Environment Drinking Water Sources

RED FONT

Concentration less than laboratory detection limit (Formula 0.5MRL utilized for statistical analysis)