

From: SPOMO1701@outlook.com
To: [Environmental Compliance ENV:EX](#); marty@chholdings.ca
Subject: SPO MO1701-Status Update September 15, 2018
Date: Monday, September 17, 2018 10:22:14 PM
Attachments: [September 15, 2018 CHH Progress Report.pdf](#)
[COA_CHH AUG 2018.pdf](#)
[COA_CHH AUG 2018.xlsx](#)
[Aug 2018-CHH SUBMITTAL-Ground Water Quality DATA-CLOSURE PLAN.pdf](#)
[Aug 2018 CHH SUBMITTAL-Surface Water Quality DATA-CLOSURE PLAN.pdf](#)

- ***The sending date of this submittal complies with item 4b of the Oct 11, 2017 Ministry of Environment Letter entitled Re: Spill Prevention Order for Cobble Hill Holdings Landfill – Reporting Requirements File MO1701***
- ***Please find information regarding the Leachate reporting requirements for the September 15, 2018 reporting period as per SPILL PREVENTION ORDER : MO1701 Section 1d***

Total Leachate Collected= 4.47 m³

Total Leachate Stored= 64.02 m³

Total Leachate Transported= 0 m³ (Leachate removal is scheduled in the upcoming reporting period)

- ***Sampling was conducted on August 28, 2018 as per Section 6biii of File 311372 August 11, 2017 letter. Tabulated results and Certificates of Analysis 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 September 15, 2018 as per File 311372 August 11, 2017 letter.***

Thank you

FIELD REVIEW REPORT		DATE: September 15, 2018	ISLANDER PROJECT No.: 2087
REPORT No: 28	STAGE OF CONSTRUCTION: Landfill Closure	WEATHER: 15°C	SHOWERS, CLOUD COVER PAGE: 1 of 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, with no noticeable changes since the date of our last inspection
- **Leachate and Leak Detention facility**
 - Total leachate collected: = 4.47 m³
 - Total leachate stored = 64.02 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



ISLANDER ENGINEERING

FIELD REVIEW REPORT		DATE: September 15, 2018	ISLANDER PROJECT No.: 2087
REPORT No: 28	STAGE OF CONSTRUCTION: Landfill Closure	WEATHER: Showers, Cloud Cover 15°C	PAGE: 2 of 3



SMA - looking south



SMA – looking north



Contact water containment Pond



Leak and leachate detection works

FIELD REVIEW REPORT		DATE: September 15 2018	ISLANDER PROJECT No.: 2087
REPORT No: 28	STAGE OF CONSTRUCTION: Landfill Closure	WEATHER: Showers, Cloud Cover 15°C	PAGE: 3 of 3



PEA – liner near NE corner



PEA– NW corner



Cut-off ditch upland of PEA



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 8082741

RECEIVED / TEMP 2018-08-29 10:38 / 11°C

REPORTED 2018-09-06 17:00

COC NUMBER Aug 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 8082741
2018-09-06 17:00

Analyte	Result	RL	Units	Analyzed	Qualifier
MW6 (8082741-01) Matrix: Water Sampled: 2018-08-28 10:30					
Anions					
Chloride	38.4	0.10	mg/L	2018-08-30	
Fluoride	0.36	0.10	mg/L	2018-08-30	
Nitrate (as N)	0.081	0.010	mg/L	2018-08-30	
Nitrite (as N)	< 0.010	0.010	mg/L	2018-08-30	
Sulfate	72.4	1.0	mg/L	2018-08-30	
General Parameters					
Alkalinity, Total (as CaCO ₃)	625	1.0	mg/L	2018-09-05	
Alkalinity, Phenolphthalein (as CaCO ₃)	< 1.0	1.0	mg/L	2018-09-05	
Alkalinity, Bicarbonate (as CaCO ₃)	625	1.0	mg/L	2018-09-05	
Alkalinity, Carbonate (as CaCO ₃)	< 1.0	1.0	mg/L	2018-09-05	
Alkalinity, Hydroxide (as CaCO ₃)	< 1.0	1.0	mg/L	2018-09-05	
Colour, True	6.2	5.0	CU	2018-08-31	
Conductivity (EC)	1310	2.0	µS/cm	2018-09-04	
pH	7.12	0.10	pH units	2018-08-31	HT2
Solids, Total Suspended	8.5	2.0	mg/L	2018-09-03	
Turbidity	15.7	0.10	NTU	2018-08-29	
Calculated Parameters					
Hardness, Total (as CaCO ₃)	542	0.500	mg/L	N/A	
Dissolved Metals					
Aluminum, dissolved	< 0.0050	0.0050	mg/L	2018-08-31	
Antimony, dissolved	0.00026	0.00020	mg/L	2018-08-31	
Arsenic, dissolved	0.00395	0.00050	mg/L	2018-08-31	
Barium, dissolved	0.0761	0.0050	mg/L	2018-08-31	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2018-08-31	
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2018-08-31	
Boron, dissolved	0.0780	0.0050	mg/L	2018-08-31	
Cadmium, dissolved	< 0.000010	0.000010	mg/L	2018-08-31	
Calcium, dissolved	163	0.20	mg/L	2018-08-31	
Chromium, dissolved	< 0.00050	0.00050	mg/L	2018-08-31	
Cobalt, dissolved	0.00208	0.00010	mg/L	2018-08-31	
Copper, dissolved	< 0.00040	0.00040	mg/L	2018-08-31	
Iron, dissolved	2.20	0.010	mg/L	2018-08-31	
Lead, dissolved	< 0.00020	0.00020	mg/L	2018-08-31	
Lithium, dissolved	0.0117	0.00010	mg/L	2018-08-31	
Magnesium, dissolved	32.9	0.010	mg/L	2018-08-31	
Manganese, dissolved	1.98	0.00020	mg/L	2018-08-31	
Mercury, dissolved	< 0.000040	0.000040	mg/L	2018-08-31	
Molybdenum, dissolved	0.00060	0.00010	mg/L	2018-08-31	
Nickel, dissolved	0.00238	0.00040	mg/L	2018-08-31	
Phosphorus, dissolved	< 0.050	0.050	mg/L	2018-08-31	

TEST RESULTS

REPORTED TO PROJECT Allterra Construction
P17-932

WORK ORDER REPORTED 8082741
2018-09-06 17:00

Analyte	Result	RL	Units	Analyzed	Qualifier
MW6 (8082741-01) Matrix: Water Sampled: 2018-08-28 10:30, Continued					
<i>Dissolved Metals, Continued</i>					
Potassium, dissolved	3.47	0.10	mg/L	2018-08-31	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2018-08-31	
Silicon, dissolved	11.5	1.0	mg/L	2018-08-31	
Silver, dissolved	< 0.000050	0.000050	mg/L	2018-08-31	
Sodium, dissolved	59.1	0.10	mg/L	2018-08-31	
Strontium, dissolved	0.569	0.0010	mg/L	2018-08-31	
Sulfur, dissolved	21.9	3.0	mg/L	2018-08-31	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2018-08-31	
Thallium, dissolved	< 0.000020	0.000020	mg/L	2018-08-31	
Thorium, dissolved	< 0.00010	0.00010	mg/L	2018-08-31	
Tin, dissolved	< 0.00020	0.00020	mg/L	2018-08-31	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2018-08-31	
Tungsten, dissolved	< 0.0010	0.0010	mg/L	2018-08-31	
Uranium, dissolved	0.00672	0.000020	mg/L	2018-08-31	
Vanadium, dissolved	< 0.0010	0.0010	mg/L	2018-08-31	
Zinc, dissolved	< 0.0040	0.0040	mg/L	2018-08-31	
Zirconium, dissolved	0.00019	0.00010	mg/L	2018-08-31	
<i>Total Metals</i>					
Aluminum, total	0.132	0.0050	mg/L	2018-08-30	
Antimony, total	0.00071	0.00020	mg/L	2018-08-30	
Arsenic, total	0.00488	0.00050	mg/L	2018-08-30	
Barium, total	0.0873	0.0050	mg/L	2018-08-30	
Beryllium, total	< 0.00010	0.00010	mg/L	2018-08-30	
Bismuth, total	< 0.00010	0.00010	mg/L	2018-08-30	
Boron, total	0.0774	0.0050	mg/L	2018-08-30	
Cadmium, total	0.000074	0.000010	mg/L	2018-08-30	
Calcium, total	175	0.20	mg/L	2018-08-30	
Chromium, total	0.00058	0.00050	mg/L	2018-08-30	
Cobalt, total	0.00279	0.00010	mg/L	2018-08-30	
Copper, total	0.00195	0.00040	mg/L	2018-08-30	
Iron, total	2.68	0.010	mg/L	2018-08-30	
Lead, total	0.00067	0.00020	mg/L	2018-08-30	
Lithium, total	0.0132	0.00010	mg/L	2018-08-30	
Magnesium, total	36.3	0.010	mg/L	2018-08-30	
Manganese, total	2.15	0.00020	mg/L	2018-08-30	
Mercury, total	< 0.000010	0.000010	mg/L	2018-09-04	
Molybdenum, total	0.00119	0.00010	mg/L	2018-08-30	
Nickel, total	0.00565	0.00040	mg/L	2018-08-30	
Phosphorus, total	< 0.050	0.050	mg/L	2018-08-30	
Potassium, total	3.84	0.10	mg/L	2018-08-30	
Selenium, total	< 0.00050	0.00050	mg/L	2018-08-30	
Silicon, total	12.8	1.0	mg/L	2018-08-30	

TEST RESULTS

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P17-932

WORK ORDER REPORTED 8082741
2018-09-06 17:00

Analyte	Result	RL	Units	Analyzed	Qualifier
MW6 (8082741-01) Matrix: Water Sampled: 2018-08-28 10:30, Continued					
Total Metals, Continued					
Silver, total	< 0.000050	0.000050	mg/L	2018-08-30	
Sodium, total	64.9	0.10	mg/L	2018-08-30	
Strontium, total	0.640	0.0010	mg/L	2018-08-30	
Sulfur, total	24.0	3.0	mg/L	2018-08-30	
Tellurium, total	< 0.00050	0.00050	mg/L	2018-08-30	
Thallium, total	0.000042	0.000020	mg/L	2018-08-30	
Thorium, total	< 0.00010	0.00010	mg/L	2018-08-30	
Tin, total	0.00098	0.00020	mg/L	2018-08-30	
Titanium, total	0.0077	0.0050	mg/L	2018-08-30	
Tungsten, total	< 0.0010	0.0010	mg/L	2018-08-30	
Uranium, total	0.00751	0.000020	mg/L	2018-08-30	
Vanadium, total	< 0.0010	0.0010	mg/L	2018-08-30	
Zinc, total	0.0089	0.0040	mg/L	2018-08-30	
Zirconium, total	0.00022	0.00010	mg/L	2018-08-30	
BCMOE Aggregate Hydrocarbons					
EPHw10-19	< 250	250	µg/L	2018-09-01	
EPHw19-32	< 250	250	µg/L	2018-09-01	
LEPHw	< 250	250	µg/L	N/A	
HEPHw	< 250	250	µg/L	N/A	
Surrogate: 2-Methylnonane (EPH/F2-4)	82	60-140	%	2018-09-01	
Polycyclic Aromatic Hydrocarbons (PAH)					
Acenaphthene	< 0.050	0.050	µg/L	2018-09-02	
Acenaphthylene	< 0.200	0.200	µg/L	2018-09-02	
Acridine	< 0.050	0.050	µg/L	2018-09-02	
Anthracene	< 0.010	0.010	µg/L	2018-09-02	
Benz(a)anthracene	< 0.010	0.010	µg/L	2018-09-02	
Benzo(a)pyrene	< 0.010	0.010	µg/L	2018-09-02	
Benzo(b+j)fluoranthene	< 0.050	0.050	µg/L	2018-09-02	
Benzo(g,h,i)perylene	< 0.050	0.050	µg/L	2018-09-02	
Benzo(k)fluoranthene	< 0.050	0.050	µg/L	2018-09-02	
2-Chloronaphthalene	< 0.100	0.100	µg/L	2018-09-02	
Chrysene	< 0.050	0.050	µg/L	2018-09-02	
Dibenz(a,h)anthracene	< 0.010	0.010	µg/L	2018-09-02	
Fluoranthene	< 0.030	0.030	µg/L	2018-09-02	
Fluorene	< 0.050	0.050	µg/L	2018-09-02	
Indeno(1,2,3-cd)pyrene	< 0.050	0.050	µg/L	2018-09-02	
1-Methylnaphthalene	< 0.100	0.100	µg/L	2018-09-02	
2-Methylnaphthalene	< 0.100	0.100	µg/L	2018-09-02	
Naphthalene	< 0.200	0.200	µg/L	2018-09-02	
Phenanthrene	< 0.100	0.100	µg/L	2018-09-02	
Pyrene	< 0.020	0.020	µg/L	2018-09-02	

TEST RESULTS

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P17-932

WORK ORDER REPORTED 8082741
2018-09-06 17:00

Analyte	Result	RL	Units	Analyzed	Qualifier
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MW6 (8082741-01) | Matrix: Water | Sampled: 2018-08-28 10:30, Continued

Polycyclic Aromatic Hydrocarbons (PAH), Continued

Quinoline	< 0.050	0.050	µg/L	2018-09-02	
Surrogate: Acridine-d9	80	50-140	%	2018-09-02	
Surrogate: Naphthalene-d8	107	50-140	%	2018-09-02	
Surrogate: Perylene-d12	67	50-140	%	2018-09-02	

MW3S (8082741-02) | Matrix: Water | Sampled: 2018-08-28 12:00

Anions

Chloride	11.2	0.10	mg/L	2018-08-30	
Fluoride	< 0.10	0.10	mg/L	2018-08-30	
Nitrate (as N)	< 0.010	0.010	mg/L	2018-08-30	
Nitrite (as N)	< 0.010	0.010	mg/L	2018-08-30	
Sulfate	41.7	1.0	mg/L	2018-08-30	

General Parameters

Alkalinity, Total (as CaCO3)	132	1.0	mg/L	2018-09-05	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2018-09-05	
Alkalinity, Bicarbonate (as CaCO3)	132	1.0	mg/L	2018-09-05	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2018-09-05	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2018-09-05	
Colour, True	< 5.0	5.0	CU	2018-08-31	
Conductivity (EC)	359	2.0	µS/cm	2018-09-04	
pH	7.67	0.10	pH units	2018-08-31	HT2
Solids, Total Suspended	9.2	2.0	mg/L	2018-09-03	
Turbidity	4.25	0.10	NTU	2018-08-29	

Calculated Parameters

Hardness, Total (as CaCO3)	138	0.500	mg/L	N/A	
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Dissolved Metals

Aluminum, dissolved	< 0.0050	0.0050	mg/L	2018-08-31	
Antimony, dissolved	< 0.00020	0.00020	mg/L	2018-08-31	
Arsenic, dissolved	0.00113	0.00050	mg/L	2018-08-31	
Barium, dissolved	0.0285	0.0050	mg/L	2018-08-31	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2018-08-31	
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2018-08-31	
Boron, dissolved	0.0211	0.0050	mg/L	2018-08-31	
Cadmium, dissolved	0.000013	0.000010	mg/L	2018-08-31	
Calcium, dissolved	44.2	0.20	mg/L	2018-08-31	
Chromium, dissolved	< 0.00050	0.00050	mg/L	2018-08-31	
Cobalt, dissolved	0.00058	0.00010	mg/L	2018-08-31	
Copper, dissolved	< 0.00040	0.00040	mg/L	2018-08-31	
Iron, dissolved	0.077	0.010	mg/L	2018-08-31	

TEST RESULTS

REPORTED TO PROJECT Allterra Construction
P17-932

WORK ORDER REPORTED 8082741
2018-09-06 17:00

Analyte	Result	RL	Units	Analyzed	Qualifier
MW3S (8082741-02) Matrix: Water Sampled: 2018-08-28 12:00, Continued					
<i>Dissolved Metals, Continued</i>					
Lead, dissolved	< 0.00020	0.00020	mg/L	2018-08-31	
Lithium, dissolved	< 0.00010	0.00010	mg/L	2018-08-31	
Magnesium, dissolved	6.78	0.010	mg/L	2018-08-31	
Manganese, dissolved	0.379	0.00020	mg/L	2018-08-31	
Mercury, dissolved	< 0.000040	0.000040	mg/L	2018-08-31	
Molybdenum, dissolved	0.00590	0.00010	mg/L	2018-08-31	
Nickel, dissolved	0.00114	0.00040	mg/L	2018-08-31	
Phosphorus, dissolved	0.058	0.050	mg/L	2018-08-31	
Potassium, dissolved	0.91	0.10	mg/L	2018-08-31	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2018-08-31	
Silicon, dissolved	6.1	1.0	mg/L	2018-08-31	
Silver, dissolved	< 0.000050	0.000050	mg/L	2018-08-31	
Sodium, dissolved	12.8	0.10	mg/L	2018-08-31	
Strontium, dissolved	0.214	0.0010	mg/L	2018-08-31	
Sulfur, dissolved	13.0	3.0	mg/L	2018-08-31	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2018-08-31	
Thallium, dissolved	0.000021	0.000020	mg/L	2018-08-31	
Thorium, dissolved	< 0.00010	0.00010	mg/L	2018-08-31	
Tin, dissolved	< 0.00020	0.00020	mg/L	2018-08-31	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2018-08-31	
Tungsten, dissolved	< 0.0010	0.0010	mg/L	2018-08-31	
Uranium, dissolved	0.00100	0.000020	mg/L	2018-08-31	
Vanadium, dissolved	< 0.0010	0.0010	mg/L	2018-08-31	
Zinc, dissolved	< 0.0040	0.0040	mg/L	2018-08-31	
Zirconium, dissolved	< 0.00010	0.00010	mg/L	2018-08-31	
<i>Total Metals</i>					
Aluminum, total	0.0817	0.0050	mg/L	2018-08-30	
Antimony, total	< 0.00020	0.00020	mg/L	2018-08-30	
Arsenic, total	0.00130	0.00050	mg/L	2018-08-30	
Barium, total	0.0309	0.0050	mg/L	2018-08-30	
Beryllium, total	< 0.00010	0.00010	mg/L	2018-08-30	
Bismuth, total	< 0.00010	0.00010	mg/L	2018-08-30	
Boron, total	0.0211	0.0050	mg/L	2018-08-30	
Cadmium, total	0.000233	0.000010	mg/L	2018-08-30	
Calcium, total	47.5	0.20	mg/L	2018-08-30	
Chromium, total	< 0.00050	0.00050	mg/L	2018-08-30	
Cobalt, total	0.00075	0.00010	mg/L	2018-08-30	
Copper, total	0.00051	0.00040	mg/L	2018-08-30	
Iron, total	0.152	0.010	mg/L	2018-08-30	
Lead, total	< 0.00020	0.00020	mg/L	2018-08-30	
Lithium, total	0.00022	0.00010	mg/L	2018-08-30	
Magnesium, total	7.44	0.010	mg/L	2018-08-30	

TEST RESULTS

REPORTED TO PROJECT Allterra Construction
P17-932

WORK ORDER REPORTED 8082741
2018-09-06 17:00

Analyte	Result	RL	Units	Analyzed	Qualifier
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MW3S (8082741-02) | Matrix: Water | Sampled: 2018-08-28 12:00, Continued

Total Metals, Continued

Manganese, total	0.413	0.00020	mg/L	2018-08-30	
Mercury, total	< 0.000010	0.000010	mg/L	2018-09-04	
Molybdenum, total	0.00651	0.00010	mg/L	2018-08-30	
Nickel, total	0.00157	0.00040	mg/L	2018-08-30	
Phosphorus, total	0.098	0.050	mg/L	2018-08-30	
Potassium, total	1.04	0.10	mg/L	2018-08-30	
Selenium, total	< 0.00050	0.00050	mg/L	2018-08-30	
Silicon, total	7.0	1.0	mg/L	2018-08-30	
Silver, total	< 0.000050	0.000050	mg/L	2018-08-30	
Sodium, total	14.1	0.10	mg/L	2018-08-30	
Strontium, total	0.246	0.0010	mg/L	2018-08-30	
Sulfur, total	14.0	3.0	mg/L	2018-08-30	
Tellurium, total	< 0.00050	0.00050	mg/L	2018-08-30	
Thallium, total	0.000037	0.000020	mg/L	2018-08-30	
Thorium, total	0.00011	0.00010	mg/L	2018-08-30	
Tin, total	0.00024	0.00020	mg/L	2018-08-30	
Titanium, total	< 0.0050	0.0050	mg/L	2018-08-30	
Tungsten, total	< 0.0010	0.0010	mg/L	2018-08-30	
Uranium, total	0.00114	0.000020	mg/L	2018-08-30	
Vanadium, total	< 0.0010	0.0010	mg/L	2018-08-30	
Zinc, total	< 0.0040	0.0040	mg/L	2018-08-30	
Zirconium, total	0.00016	0.00010	mg/L	2018-08-30	

BCMOE Aggregate Hydrocarbons

EPHw10-19	< 250	250	µg/L	2018-09-01	
EPHw19-32	< 250	250	µg/L	2018-09-01	
LEPHw	< 250	250	µg/L	N/A	
HEPHw	< 250	250	µg/L	N/A	
Surrogate: 2-Methylnonane (EPH/F2-4)	78	60-140	%	2018-09-01	

Polycyclic Aromatic Hydrocarbons (PAH)

Acenaphthene	< 0.050	0.050	µg/L	2018-09-02	
Acenaphthylene	< 0.200	0.200	µg/L	2018-09-02	
Acridine	< 0.050	0.050	µg/L	2018-09-02	
Anthracene	< 0.010	0.010	µg/L	2018-09-02	
Benz(a)anthracene	< 0.010	0.010	µg/L	2018-09-02	
Benzo(a)pyrene	< 0.010	0.010	µg/L	2018-09-02	
Benzo(b+j)fluoranthene	< 0.050	0.050	µg/L	2018-09-02	
Benzo(g,h,i)perylene	< 0.050	0.050	µg/L	2018-09-02	
Benzo(k)fluoranthene	< 0.050	0.050	µg/L	2018-09-02	
2-Chloronaphthalene	< 0.100	0.100	µg/L	2018-09-02	
Chrysene	< 0.050	0.050	µg/L	2018-09-02	
Dibenz(a,h)anthracene	< 0.010	0.010	µg/L	2018-09-02	

TEST RESULTS

REPORTED TO PROJECT Allterra Construction
P17-932

WORK ORDER REPORTED 8082741
2018-09-06 17:00

Analyte	Result	RL	Units	Analyzed	Qualifier
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MW3S (8082741-02) | Matrix: Water | Sampled: 2018-08-28 12:00, Continued

Polycyclic Aromatic Hydrocarbons (PAH), Continued

Fluoranthene	< 0.030	0.030	µg/L	2018-09-02	
Fluorene	< 0.050	0.050	µg/L	2018-09-02	
Indeno(1,2,3-cd)pyrene	< 0.050	0.050	µg/L	2018-09-02	
1-Methylnaphthalene	< 0.100	0.100	µg/L	2018-09-02	
2-Methylnaphthalene	< 0.100	0.100	µg/L	2018-09-02	
Naphthalene	< 0.200	0.200	µg/L	2018-09-02	
Phenanthrene	< 0.100	0.100	µg/L	2018-09-02	
Pyrene	< 0.020	0.020	µg/L	2018-09-02	
Quinoline	< 0.050	0.050	µg/L	2018-09-02	
Surrogate: Acridine-d9	74	50-140	%	2018-09-02	
Surrogate: Naphthalene-d8	99	50-140	%	2018-09-02	
Surrogate: Perylene-d12	87	50-140	%	2018-09-02	

MW3D (8082741-03) | Matrix: Water | Sampled: 2018-08-28 12:30

Anions

Chloride	2.59	0.10	mg/L	2018-08-30	
Fluoride	0.11	0.10	mg/L	2018-08-30	
Nitrate (as N)	< 0.010	0.010	mg/L	2018-08-30	
Nitrite (as N)	< 0.010	0.010	mg/L	2018-08-30	
Sulfate	21.7	1.0	mg/L	2018-08-30	

General Parameters

Alkalinity, Total (as CaCO3)	109	1.0	mg/L	2018-09-05	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2018-09-05	
Alkalinity, Bicarbonate (as CaCO3)	109	1.0	mg/L	2018-09-05	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2018-09-05	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2018-09-05	
Colour, True	8.8	5.0	CU	2018-08-31	
Conductivity (EC)	253	2.0	µS/cm	2018-09-04	
pH	7.63	0.10	pH units	2018-08-31	HT2
Solids, Total Suspended	6.0	2.0	mg/L	2018-09-03	
Turbidity	4.84	0.10	NTU	2018-08-29	

Calculated Parameters

Hardness, Total (as CaCO3)	97.5	0.500	mg/L	N/A	
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Dissolved Metals

Aluminum, dissolved	0.0050	0.0050	mg/L	2018-08-31	
Antimony, dissolved	< 0.00020	0.00020	mg/L	2018-08-31	
Arsenic, dissolved	0.00137	0.00050	mg/L	2018-08-31	
Barium, dissolved	0.0199	0.0050	mg/L	2018-08-31	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2018-08-31	

TEST RESULTS

REPORTED TO PROJECT Allterra Construction
P17-932

WORK ORDER REPORTED 8082741
2018-09-06 17:00

Analyte	Result	RL	Units	Analyzed	Qualifier
MW3D (8082741-03) Matrix: Water Sampled: 2018-08-28 12:30, Continued					
<i>Dissolved Metals, Continued</i>					
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2018-08-31	
Boron, dissolved	0.0220	0.0050	mg/L	2018-08-31	
Cadmium, dissolved	< 0.000010	0.000010	mg/L	2018-08-31	
Calcium, dissolved	30.4	0.20	mg/L	2018-08-31	
Chromium, dissolved	< 0.00050	0.00050	mg/L	2018-08-31	
Cobalt, dissolved	0.00037	0.00010	mg/L	2018-08-31	
Copper, dissolved	< 0.00040	0.00040	mg/L	2018-08-31	
Iron, dissolved	0.133	0.010	mg/L	2018-08-31	
Lead, dissolved	< 0.00020	0.00020	mg/L	2018-08-31	
Lithium, dissolved	< 0.00010	0.00010	mg/L	2018-08-31	
Magnesium, dissolved	5.22	0.010	mg/L	2018-08-31	
Manganese, dissolved	0.322	0.00020	mg/L	2018-08-31	
Mercury, dissolved	< 0.000040	0.000040	mg/L	2018-08-31	
Molybdenum, dissolved	0.00619	0.00010	mg/L	2018-08-31	
Nickel, dissolved	0.00089	0.00040	mg/L	2018-08-31	
Phosphorus, dissolved	0.118	0.050	mg/L	2018-08-31	
Potassium, dissolved	0.61	0.10	mg/L	2018-08-31	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2018-08-31	
Silicon, dissolved	6.1	1.0	mg/L	2018-08-31	
Silver, dissolved	< 0.000050	0.000050	mg/L	2018-08-31	
Sodium, dissolved	10.1	0.10	mg/L	2018-08-31	
Strontium, dissolved	0.185	0.0010	mg/L	2018-08-31	
Sulfur, dissolved	7.4	3.0	mg/L	2018-08-31	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2018-08-31	
Thallium, dissolved	< 0.000020	0.000020	mg/L	2018-08-31	
Thorium, dissolved	< 0.00010	0.00010	mg/L	2018-08-31	
Tin, dissolved	< 0.00020	0.00020	mg/L	2018-08-31	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2018-08-31	
Tungsten, dissolved	< 0.0010	0.0010	mg/L	2018-08-31	
Uranium, dissolved	0.000622	0.000020	mg/L	2018-08-31	
Vanadium, dissolved	< 0.0010	0.0010	mg/L	2018-08-31	
Zinc, dissolved	< 0.0040	0.0040	mg/L	2018-08-31	
Zirconium, dissolved	< 0.00010	0.00010	mg/L	2018-08-31	
<i>Total Metals</i>					
Aluminum, total	0.0874	0.0050	mg/L	2018-08-30	
Antimony, total	< 0.00020	0.00020	mg/L	2018-08-30	
Arsenic, total	0.00159	0.00050	mg/L	2018-08-30	
Barium, total	0.0194	0.0050	mg/L	2018-08-30	
Beryllium, total	< 0.00010	0.00010	mg/L	2018-08-30	
Bismuth, total	< 0.00010	0.00010	mg/L	2018-08-30	
Boron, total	0.0239	0.0050	mg/L	2018-08-30	
Cadmium, total	0.000104	0.000010	mg/L	2018-08-30	

TEST RESULTS

REPORTED TO PROJECT Allterra Construction
P17-932

WORK ORDER REPORTED 8082741
2018-09-06 17:00

Analyte	Result	RL	Units	Analyzed	Qualifier
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MW3D (8082741-03) | Matrix: Water | Sampled: 2018-08-28 12:30, Continued

Total Metals, Continued

Calcium, total	32.9	0.20	mg/L	2018-08-30	
Chromium, total	< 0.00050	0.00050	mg/L	2018-08-30	
Cobalt, total	0.00047	0.00010	mg/L	2018-08-30	
Copper, total	0.00063	0.00040	mg/L	2018-08-30	
Iron, total	0.212	0.010	mg/L	2018-08-30	
Lead, total	< 0.00020	0.00020	mg/L	2018-08-30	
Lithium, total	0.00018	0.00010	mg/L	2018-08-30	
Magnesium, total	5.78	0.010	mg/L	2018-08-30	
Manganese, total	0.353	0.00020	mg/L	2018-08-30	
Mercury, total	< 0.000010	0.000010	mg/L	2018-09-04	
Molybdenum, total	0.00696	0.00010	mg/L	2018-08-30	
Nickel, total	0.00139	0.00040	mg/L	2018-08-30	
Phosphorus, total	0.123	0.050	mg/L	2018-08-30	
Potassium, total	0.70	0.10	mg/L	2018-08-30	
Selenium, total	< 0.00050	0.00050	mg/L	2018-08-30	
Silicon, total	7.0	1.0	mg/L	2018-08-30	
Silver, total	< 0.000050	0.000050	mg/L	2018-08-30	
Sodium, total	11.0	0.10	mg/L	2018-08-30	
Strontium, total	0.212	0.0010	mg/L	2018-08-30	
Sulfur, total	7.5	3.0	mg/L	2018-08-30	
Tellurium, total	< 0.00050	0.00050	mg/L	2018-08-30	
Thallium, total	< 0.000020	0.000020	mg/L	2018-08-30	
Thorium, total	0.00016	0.00010	mg/L	2018-08-30	
Tin, total	< 0.00020	0.00020	mg/L	2018-08-30	
Titanium, total	< 0.0050	0.0050	mg/L	2018-08-30	
Tungsten, total	< 0.0010	0.0010	mg/L	2018-08-30	
Uranium, total	0.000725	0.000020	mg/L	2018-08-30	
Vanadium, total	< 0.0010	0.0010	mg/L	2018-08-30	
Zinc, total	< 0.0040	0.0040	mg/L	2018-08-30	
Zirconium, total	0.00022	0.00010	mg/L	2018-08-30	

BCMOE Aggregate Hydrocarbons

EPHw10-19	< 250	250	µg/L	2018-09-01	
EPHw19-32	< 250	250	µg/L	2018-09-01	
LEPHw	< 250	250	µg/L	N/A	
HEPHw	< 250	250	µg/L	N/A	
Surrogate: 2-Methylnonane (EPH/F2-4)	76	60-140	%	2018-09-01	

Polycyclic Aromatic Hydrocarbons (PAH)

Acenaphthene	< 0.050	0.050	µg/L	2018-09-02	
Acenaphthylene	< 0.200	0.200	µg/L	2018-09-02	
Acridine	< 0.084	0.050	µg/L	2018-09-02	RA1
Anthracene	< 0.010	0.010	µg/L	2018-09-02	

TEST RESULTS

REPORTED TO PROJECT Allterra Construction
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Analyte	Result	RL	Units	Analyzed	Qualifier
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MW3D (8082741-03) | Matrix: Water | Sampled: 2018-08-28 12:30, Continued

Polycyclic Aromatic Hydrocarbons (PAH), Continued

Benz(a)anthracene	< 0.010	0.010	µg/L	2018-09-02	
Benzo(a)pyrene	< 0.010	0.010	µg/L	2018-09-02	
Benzo(b+j)fluoranthene	< 0.050	0.050	µg/L	2018-09-02	
Benzo(g,h,i)perylene	< 0.050	0.050	µg/L	2018-09-02	
Benzo(k)fluoranthene	< 0.050	0.050	µg/L	2018-09-02	
2-Chloronaphthalene	< 0.100	0.100	µg/L	2018-09-02	
Chrysene	< 0.050	0.050	µg/L	2018-09-02	
Dibenz(a,h)anthracene	< 0.010	0.010	µg/L	2018-09-02	
Fluoranthene	< 0.030	0.030	µg/L	2018-09-02	
Fluorene	< 0.050	0.050	µg/L	2018-09-02	
Indeno(1,2,3-cd)pyrene	< 0.050	0.050	µg/L	2018-09-02	
1-Methylnaphthalene	< 0.100	0.100	µg/L	2018-09-02	
2-Methylnaphthalene	< 0.100	0.100	µg/L	2018-09-02	
Naphthalene	< 0.200	0.200	µg/L	2018-09-02	
Phenanthrene	< 0.100	0.100	µg/L	2018-09-02	
Pyrene	< 0.020	0.020	µg/L	2018-09-02	
Quinoline	< 0.050	0.050	µg/L	2018-09-02	
Surrogate: Acridine-d9	72	50-140	%	2018-09-02	
Surrogate: Naphthalene-d8	103	50-140	%	2018-09-02	
Surrogate: Perylene-d12	92	50-140	%	2018-09-02	

MW2 (8082741-04) | Matrix: Water | Sampled: 2018-08-28 13:30

Anions

Chloride	5.38	0.10	mg/L	2018-08-30	
Fluoride	< 0.10	0.10	mg/L	2018-08-30	
Nitrate (as N)	< 0.010	0.010	mg/L	2018-08-30	
Nitrite (as N)	< 0.010	0.010	mg/L	2018-08-30	
Sulfate	17.6	1.0	mg/L	2018-08-30	

General Parameters

Alkalinity, Total (as CaCO3)	130	1.0	mg/L	2018-09-05	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2018-09-05	
Alkalinity, Bicarbonate (as CaCO3)	130	1.0	mg/L	2018-09-05	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2018-09-05	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2018-09-05	
Colour, True	7.3	5.0	CU	2018-08-31	
Conductivity (EC)	290	2.0	µS/cm	2018-09-04	
pH	7.71	0.10	pH units	2018-08-31	HT2
Solids, Total Suspended	27.1	2.0	mg/L	2018-09-03	
Turbidity	29.8	0.10	NTU	2018-08-29	

Calculated Parameters

TEST RESULTS

REPORTED TO PROJECT Allterra Construction
P17-932

WORK ORDER REPORTED 8082741
2018-09-06 17:00

Analyte	Result	RL	Units	Analyzed	Qualifier
MW2 (8082741-04) Matrix: Water Sampled: 2018-08-28 13:30, Continued					
Calculated Parameters, Continued					
Hardness, Total (as CaCO ₃)	119	0.500	mg/L	N/A	
Dissolved Metals					
Aluminum, dissolved	0.0064	0.0050	mg/L	2018-08-31	
Antimony, dissolved	< 0.00020	0.00020	mg/L	2018-08-31	
Arsenic, dissolved	0.00187	0.00050	mg/L	2018-08-31	
Barium, dissolved	0.0281	0.0050	mg/L	2018-08-31	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2018-08-31	
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2018-08-31	
Boron, dissolved	0.0212	0.0050	mg/L	2018-08-31	
Cadmium, dissolved	< 0.000010	0.000010	mg/L	2018-08-31	
Calcium, dissolved	36.5	0.20	mg/L	2018-08-31	
Chromium, dissolved	< 0.00050	0.00050	mg/L	2018-08-31	
Cobalt, dissolved	0.00028	0.00010	mg/L	2018-08-31	
Copper, dissolved	< 0.00040	0.00040	mg/L	2018-08-31	
Iron, dissolved	0.223	0.010	mg/L	2018-08-31	
Lead, dissolved	< 0.00020	0.00020	mg/L	2018-08-31	
Lithium, dissolved	< 0.00010	0.00010	mg/L	2018-08-31	
Magnesium, dissolved	6.76	0.010	mg/L	2018-08-31	
Manganese, dissolved	0.453	0.00020	mg/L	2018-08-31	
Mercury, dissolved	< 0.000040	0.000040	mg/L	2018-08-31	
Molybdenum, dissolved	0.00374	0.00010	mg/L	2018-08-31	
Nickel, dissolved	0.00046	0.00040	mg/L	2018-08-31	
Phosphorus, dissolved	0.160	0.050	mg/L	2018-08-31	
Potassium, dissolved	0.67	0.10	mg/L	2018-08-31	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2018-08-31	
Silicon, dissolved	6.7	1.0	mg/L	2018-08-31	
Silver, dissolved	< 0.000050	0.000050	mg/L	2018-08-31	
Sodium, dissolved	8.56	0.10	mg/L	2018-08-31	
Strontium, dissolved	0.157	0.0010	mg/L	2018-08-31	
Sulfur, dissolved	5.3	3.0	mg/L	2018-08-31	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2018-08-31	
Thallium, dissolved	< 0.000020	0.000020	mg/L	2018-08-31	
Thorium, dissolved	< 0.00010	0.00010	mg/L	2018-08-31	
Tin, dissolved	< 0.00020	0.00020	mg/L	2018-08-31	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2018-08-31	
Tungsten, dissolved	< 0.0010	0.0010	mg/L	2018-08-31	
Uranium, dissolved	0.000722	0.000020	mg/L	2018-08-31	
Vanadium, dissolved	< 0.0010	0.0010	mg/L	2018-08-31	
Zinc, dissolved	< 0.0040	0.0040	mg/L	2018-08-31	
Zirconium, dissolved	< 0.00010	0.00010	mg/L	2018-08-31	

Total Metals

TEST RESULTS

REPORTED TO PROJECT Allterra Construction
P17-932

WORK ORDER REPORTED 8082741
2018-09-06 17:00

Analyte	Result	RL	Units	Analyzed	Qualifier
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MW2 (8082741-04) | Matrix: Water | Sampled: 2018-08-28 13:30, Continued

Total Metals, Continued

Aluminum, total	0.335	0.0050	mg/L	2018-08-30	
Antimony, total	0.00023	0.00020	mg/L	2018-08-30	
Arsenic, total	0.00223	0.00050	mg/L	2018-08-30	
Barium, total	0.0321	0.0050	mg/L	2018-08-30	
Beryllium, total	< 0.00010	0.00010	mg/L	2018-08-30	
Bismuth, total	< 0.00010	0.00010	mg/L	2018-08-30	
Boron, total	0.0232	0.0050	mg/L	2018-08-30	
Cadmium, total	0.000028	0.000010	mg/L	2018-08-30	
Calcium, total	38.4	0.20	mg/L	2018-08-30	
Chromium, total	0.00065	0.00050	mg/L	2018-08-30	
Cobalt, total	0.00062	0.00010	mg/L	2018-08-30	
Copper, total	0.00061	0.00040	mg/L	2018-08-30	
Iron, total	0.774	0.010	mg/L	2018-08-30	
Lead, total	0.00036	0.00020	mg/L	2018-08-30	
Lithium, total	0.00021	0.00010	mg/L	2018-08-30	
Magnesium, total	7.50	0.010	mg/L	2018-08-30	
Manganese, total	0.496	0.00020	mg/L	2018-08-30	
Mercury, total	< 0.000010	0.000010	mg/L	2018-09-04	
Molybdenum, total	0.00418	0.00010	mg/L	2018-08-30	
Nickel, total	0.00120	0.00040	mg/L	2018-08-30	
Phosphorus, total	0.201	0.050	mg/L	2018-08-30	
Potassium, total	0.77	0.10	mg/L	2018-08-30	
Selenium, total	< 0.00050	0.00050	mg/L	2018-08-30	
Silicon, total	7.9	1.0	mg/L	2018-08-30	
Silver, total	< 0.000050	0.000050	mg/L	2018-08-30	
Sodium, total	9.15	0.10	mg/L	2018-08-30	
Strontium, total	0.178	0.0010	mg/L	2018-08-30	
Sulfur, total	5.5	3.0	mg/L	2018-08-30	
Tellurium, total	< 0.00050	0.00050	mg/L	2018-08-30	
Thallium, total	< 0.000020	0.000020	mg/L	2018-08-30	
Thorium, total	< 0.00010	0.00010	mg/L	2018-08-30	
Tin, total	< 0.00020	0.00020	mg/L	2018-08-30	
Titanium, total	0.0184	0.0050	mg/L	2018-08-30	
Tungsten, total	< 0.0010	0.0010	mg/L	2018-08-30	
Uranium, total	0.000842	0.000020	mg/L	2018-08-30	
Vanadium, total	0.0019	0.0010	mg/L	2018-08-30	
Zinc, total	< 0.0040	0.0040	mg/L	2018-08-30	
Zirconium, total	0.00014	0.00010	mg/L	2018-08-30	

BCMOE Aggregate Hydrocarbons

EPHw10-19	< 250	250	µg/L	2018-09-01	
EPHw19-32	< 250	250	µg/L	2018-09-01	
LEPHw	< 250	250	µg/L	N/A	

TEST RESULTS

REPORTED TO PROJECT Allterra Construction
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WORK ORDER REPORTED 8082741
2018-09-06 17:00

Analyte	Result	RL	Units	Analyzed	Qualifier
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MW2 (8082741-04) | Matrix: Water | Sampled: 2018-08-28 13:30, Continued

BCMOE Aggregate Hydrocarbons, Continued

HEPHw	< 250	250	µg/L	N/A	
Surrogate: 2-Methylnonane (EPH/F2-4)	85	60-140	%	2018-09-01	

Polycyclic Aromatic Hydrocarbons (PAH)

Acenaphthene	< 0.050	0.050	µg/L	2018-09-02	
Acenaphthylene	< 0.200	0.200	µg/L	2018-09-02	
Acridine	0.193	0.050	µg/L	2018-09-02	
Anthracene	< 0.010	0.010	µg/L	2018-09-02	
Benz(a)anthracene	< 0.010	0.010	µg/L	2018-09-02	
Benzo(a)pyrene	< 0.010	0.010	µg/L	2018-09-02	
Benzo(b+j)fluoranthene	< 0.050	0.050	µg/L	2018-09-02	
Benzo(g,h,i)perylene	< 0.050	0.050	µg/L	2018-09-02	
Benzo(k)fluoranthene	< 0.050	0.050	µg/L	2018-09-02	
2-Chloronaphthalene	< 0.100	0.100	µg/L	2018-09-02	
Chrysene	< 0.050	0.050	µg/L	2018-09-02	
Dibenz(a,h)anthracene	< 0.010	0.010	µg/L	2018-09-02	
Fluoranthene	< 0.030	0.030	µg/L	2018-09-02	
Fluorene	< 0.050	0.050	µg/L	2018-09-02	
Indeno(1,2,3-cd)pyrene	< 0.050	0.050	µg/L	2018-09-02	
1-Methylnaphthalene	< 0.100	0.100	µg/L	2018-09-02	
2-Methylnaphthalene	< 0.100	0.100	µg/L	2018-09-02	
Naphthalene	< 0.200	0.200	µg/L	2018-09-02	
Phenanthrene	< 0.100	0.100	µg/L	2018-09-02	
Pyrene	< 0.020	0.020	µg/L	2018-09-02	
Quinoline	< 0.050	0.050	µg/L	2018-09-02	
Surrogate: Acridine-d9	81	50-140	%	2018-09-02	
Surrogate: Naphthalene-d8	108	50-140	%	2018-09-02	
Surrogate: Perylene-d12	96	50-140	%	2018-09-02	

SB2 (8082741-05) | Matrix: Water | Sampled: 2018-08-28 11:15

Anions

Chloride	64.6	0.10	mg/L	2018-08-31	
Fluoride	0.17	0.10	mg/L	2018-08-31	
Nitrate (as N)	0.034	0.010	mg/L	2018-08-31	
Nitrite (as N)	< 0.010	0.010	mg/L	2018-08-31	
Sulfate	103	1.0	mg/L	2018-08-31	

General Parameters

Alkalinity, Total (as CaCO3)	297	1.0	mg/L	2018-09-05	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2018-09-05	
Alkalinity, Bicarbonate (as CaCO3)	297	1.0	mg/L	2018-09-05	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2018-09-05	

TEST RESULTS

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Analyte	Result	RL	Units	Analyzed	Qualifier
SB2 (8082741-05) Matrix: Water Sampled: 2018-08-28 11:15, Continued					
General Parameters, Continued					
Alkalinity, Hydroxide (as CaCO ₃)	< 1.0	1.0	mg/L	2018-09-05	
Colour, True	< 5.0	5.0	CU	2018-08-31	
Conductivity (EC)	962	2.0	µS/cm	2018-09-04	
pH	7.17	0.10	pH units	2018-08-31	HT2
Solids, Total Suspended	229	2.0	mg/L	2018-09-03	
Turbidity	223	0.10	NTU	2018-08-29	
Calculated Parameters					
Hardness, Total (as CaCO ₃)	369	0.500	mg/L	N/A	
Dissolved Metals					
Aluminum, dissolved	< 0.0050	0.0050	mg/L	2018-08-31	
Antimony, dissolved	< 0.00020	0.00020	mg/L	2018-08-31	
Arsenic, dissolved	< 0.00050	0.00050	mg/L	2018-08-31	
Barium, dissolved	0.0175	0.0050	mg/L	2018-08-31	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2018-08-31	
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2018-08-31	
Boron, dissolved	0.0382	0.0050	mg/L	2018-08-31	
Cadmium, dissolved	0.000020	0.000010	mg/L	2018-08-31	
Calcium, dissolved	119	0.20	mg/L	2018-08-31	
Chromium, dissolved	< 0.00050	0.00050	mg/L	2018-08-31	
Cobalt, dissolved	0.00021	0.00010	mg/L	2018-08-31	
Copper, dissolved	0.00139	0.00040	mg/L	2018-08-31	
Iron, dissolved	< 0.010	0.010	mg/L	2018-08-31	
Lead, dissolved	< 0.00020	0.00020	mg/L	2018-08-31	
Lithium, dissolved	0.00019	0.00010	mg/L	2018-08-31	
Magnesium, dissolved	17.4	0.010	mg/L	2018-08-31	
Manganese, dissolved	0.0584	0.00020	mg/L	2018-08-31	
Mercury, dissolved	< 0.000040	0.000040	mg/L	2018-08-31	
Molybdenum, dissolved	0.00132	0.00010	mg/L	2018-08-31	
Nickel, dissolved	0.00067	0.00040	mg/L	2018-08-31	
Phosphorus, dissolved	< 0.050	0.050	mg/L	2018-08-31	
Potassium, dissolved	2.42	0.10	mg/L	2018-08-31	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2018-08-31	
Silicon, dissolved	7.3	1.0	mg/L	2018-08-31	
Silver, dissolved	< 0.000050	0.000050	mg/L	2018-08-31	
Sodium, dissolved	46.5	0.10	mg/L	2018-08-31	
Strontium, dissolved	0.401	0.0010	mg/L	2018-08-31	
Sulfur, dissolved	36.2	3.0	mg/L	2018-08-31	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2018-08-31	
Thallium, dissolved	< 0.000020	0.000020	mg/L	2018-08-31	
Thorium, dissolved	< 0.00010	0.00010	mg/L	2018-08-31	
Tin, dissolved	< 0.00020	0.00020	mg/L	2018-08-31	

TEST RESULTS

REPORTED TO PROJECT Allterra Construction
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WORK ORDER REPORTED 8082741
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Analyte	Result	RL	Units	Analyzed	Qualifier
SB2 (8082741-05) Matrix: Water Sampled: 2018-08-28 11:15, Continued					
<i>Dissolved Metals, Continued</i>					
Titanium, dissolved	< 0.0050	0.0050	mg/L	2018-08-31	
Tungsten, dissolved	< 0.0010	0.0010	mg/L	2018-08-31	
Uranium, dissolved	0.00277	0.000020	mg/L	2018-08-31	
Vanadium, dissolved	< 0.0010	0.0010	mg/L	2018-08-31	
Zinc, dissolved	< 0.0040	0.0040	mg/L	2018-08-31	
Zirconium, dissolved	< 0.00010	0.00010	mg/L	2018-08-31	
<i>Total Metals</i>					
Aluminum, total	6.44	0.0050	mg/L	2018-08-30	
Antimony, total	< 0.00020	0.00020	mg/L	2018-08-30	
Arsenic, total	0.00081	0.00050	mg/L	2018-08-30	
Barium, total	0.0473	0.0050	mg/L	2018-08-30	
Beryllium, total	0.00021	0.00010	mg/L	2018-08-30	
Bismuth, total	< 0.00010	0.00010	mg/L	2018-08-30	
Boron, total	0.0419	0.0050	mg/L	2018-08-30	
Cadmium, total	0.000033	0.000010	mg/L	2018-08-30	
Calcium, total	130	0.20	mg/L	2018-08-30	
Chromium, total	0.00670	0.00050	mg/L	2018-08-30	
Cobalt, total	0.00619	0.00010	mg/L	2018-08-30	
Copper, total	0.0240	0.00040	mg/L	2018-08-30	
Iron, total	7.84	0.010	mg/L	2018-08-30	
Lead, total	0.00198	0.00020	mg/L	2018-08-30	
Lithium, total	0.00251	0.00010	mg/L	2018-08-30	
Magnesium, total	20.4	0.010	mg/L	2018-08-30	
Manganese, total	0.354	0.00020	mg/L	2018-08-30	
Mercury, total	< 0.000010	0.000010	mg/L	2018-09-04	
Molybdenum, total	0.00143	0.00010	mg/L	2018-08-30	
Nickel, total	0.00658	0.00040	mg/L	2018-08-30	
Phosphorus, total	0.257	0.050	mg/L	2018-08-30	
Potassium, total	3.45	0.10	mg/L	2018-08-30	
Selenium, total	< 0.00050	0.00050	mg/L	2018-08-30	
Silicon, total	18.9	1.0	mg/L	2018-08-30	
Silver, total	< 0.000050	0.000050	mg/L	2018-08-30	
Sodium, total	48.8	0.10	mg/L	2018-08-30	
Strontium, total	0.468	0.0010	mg/L	2018-08-30	
Sulfur, total	39.4	3.0	mg/L	2018-08-30	
Tellurium, total	< 0.00050	0.00050	mg/L	2018-08-30	
Thallium, total	0.000022	0.000020	mg/L	2018-08-30	
Thorium, total	0.00024	0.00010	mg/L	2018-08-30	
Tin, total	< 0.00020	0.00020	mg/L	2018-08-30	
Titanium, total	0.431	0.0050	mg/L	2018-08-30	
Tungsten, total	< 0.0010	0.0010	mg/L	2018-08-30	
Uranium, total	0.00329	0.000020	mg/L	2018-08-30	

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Analyte	Result	RL	Units	Analyzed	Qualifier
SB2 (8082741-05) Matrix: Water Sampled: 2018-08-28 11:15, Continued					
<i>Total Metals, Continued</i>					
Vanadium, total	0.0180	0.0010	mg/L	2018-08-30	
Zinc, total	0.0242	0.0040	mg/L	2018-08-30	
Zirconium, total	0.00040	0.00010	mg/L	2018-08-30	
<i>BCMOE Aggregate Hydrocarbons</i>					
EPHw10-19	< 250	250	µg/L	2018-09-01	
EPHw19-32	< 250	250	µg/L	2018-09-01	
LEPHw	< 250	250	µg/L	N/A	
HEPHw	< 250	250	µg/L	N/A	
Surrogate: 2-Methylnonane (EPH/F2-4)	72	60-140	%	2018-09-01	
<i>Polycyclic Aromatic Hydrocarbons (PAH)</i>					
Acenaphthene	< 0.050	0.050	µg/L	2018-09-02	
Acenaphthylene	< 0.200	0.200	µg/L	2018-09-02	
Acridine	< 0.050	0.050	µg/L	2018-09-02	
Anthracene	< 0.010	0.010	µg/L	2018-09-02	
Benz(a)anthracene	< 0.010	0.010	µg/L	2018-09-02	
Benzo(a)pyrene	< 0.010	0.010	µg/L	2018-09-02	
Benzo(b+j)fluoranthene	< 0.050	0.050	µg/L	2018-09-02	
Benzo(g,h,i)perylene	< 0.050	0.050	µg/L	2018-09-02	
Benzo(k)fluoranthene	< 0.050	0.050	µg/L	2018-09-02	
2-Chloronaphthalene	< 0.100	0.100	µg/L	2018-09-02	
Chrysene	< 0.050	0.050	µg/L	2018-09-02	
Dibenz(a,h)anthracene	< 0.010	0.010	µg/L	2018-09-02	
Fluoranthene	< 0.030	0.030	µg/L	2018-09-02	
Fluorene	< 0.050	0.050	µg/L	2018-09-02	
Indeno(1,2,3-cd)pyrene	< 0.050	0.050	µg/L	2018-09-02	
1-Methylnaphthalene	< 0.100	0.100	µg/L	2018-09-02	
2-Methylnaphthalene	< 0.100	0.100	µg/L	2018-09-02	
Naphthalene	< 0.200	0.200	µg/L	2018-09-02	
Phenanthrene	< 0.100	0.100	µg/L	2018-09-02	
Pyrene	< 0.020	0.020	µg/L	2018-09-02	
Quinoline	< 0.050	0.050	µg/L	2018-09-02	
Surrogate: Acridine-d9	58	50-140	%	2018-09-02	
Surrogate: Naphthalene-d8	98	50-140	%	2018-09-02	
Surrogate: Perylene-d12	82	50-140	%	2018-09-02	

LE-1 (8082741-06) | Matrix: Water | Sampled: 2018-08-28 14:15

Anions

Chloride	2820	0.10	mg/L	2018-08-31	
Fluoride	0.32	0.10	mg/L	2018-08-31	RA5
Nitrate (as N)	1.72	0.010	mg/L	2018-08-31	

TEST RESULTS

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Analyte	Result	RL	Units	Analyzed	Qualifier
LE-1 (8082741-06) Matrix: Water Sampled: 2018-08-28 14:15, Continued					
Anions, Continued					
Nitrite (as N)	< 0.010	0.010	mg/L	2018-08-31	
Sulfate	1560	1.0	mg/L	2018-08-31	
General Parameters					
Alkalinity, Total (as CaCO ₃)	62.2	1.0	mg/L	2018-09-05	
Alkalinity, Phenolphthalein (as CaCO ₃)	< 1.0	1.0	mg/L	2018-09-05	
Alkalinity, Bicarbonate (as CaCO ₃)	62.2	1.0	mg/L	2018-09-05	
Alkalinity, Carbonate (as CaCO ₃)	< 1.0	1.0	mg/L	2018-09-05	
Alkalinity, Hydroxide (as CaCO ₃)	< 1.0	1.0	mg/L	2018-09-05	
Colour, True	5.0	5.0	CU	2018-08-31	
Conductivity (EC)	11500	2.0	µS/cm	2018-09-04	
pH	7.55	0.10	pH units	2018-08-31	HT2
Solids, Total Suspended	3.6	2.0	mg/L	2018-09-03	
Turbidity	2.37	0.10	NTU	2018-08-29	
Calculated Parameters					
Hardness, Total (as CaCO ₃)	3050	0.500	mg/L	N/A	
Dissolved Metals					
Aluminum, dissolved	0.0291	0.0050	mg/L	2018-08-31	
Antimony, dissolved	0.00037	0.00020	mg/L	2018-08-31	
Arsenic, dissolved	< 0.00050	0.00050	mg/L	2018-08-31	
Barium, dissolved	0.0565	0.0050	mg/L	2018-08-31	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2018-08-31	
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2018-08-31	
Boron, dissolved	0.259	0.0050	mg/L	2018-08-31	
Cadmium, dissolved	0.000655	0.000010	mg/L	2018-08-31	
Calcium, dissolved	848	0.20	mg/L	2018-08-31	
Chromium, dissolved	0.00063	0.00050	mg/L	2018-08-31	
Cobalt, dissolved	0.00663	0.00010	mg/L	2018-08-31	
Copper, dissolved	0.00409	0.00040	mg/L	2018-08-31	
Iron, dissolved	0.015	0.010	mg/L	2018-08-31	
Lead, dissolved	< 0.00020	0.00020	mg/L	2018-08-31	
Lithium, dissolved	0.00045	0.00010	mg/L	2018-08-31	
Magnesium, dissolved	226	0.010	mg/L	2018-08-31	
Manganese, dissolved	26.9	0.00020	mg/L	2018-08-31	
Mercury, dissolved	< 0.000040	0.000040	mg/L	2018-08-31	
Molybdenum, dissolved	0.00175	0.00010	mg/L	2018-08-31	
Nickel, dissolved	0.00912	0.00040	mg/L	2018-08-31	
Phosphorus, dissolved	< 0.050	0.050	mg/L	2018-08-31	
Potassium, dissolved	20.3	0.10	mg/L	2018-08-31	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2018-08-31	
Silicon, dissolved	6.5	1.0	mg/L	2018-08-31	

TEST RESULTS

REPORTED TO PROJECT Allterra Construction
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WORK ORDER REPORTED 8082741
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Analyte	Result	RL	Units	Analyzed	Qualifier
LE-1 (8082741-06) Matrix: Water Sampled: 2018-08-28 14:15, Continued					
<i>Dissolved Metals, Continued</i>					
Silver, dissolved	0.000055	0.000050	mg/L	2018-08-31	
Sodium, dissolved	1520	0.10	mg/L	2018-08-31	
Strontium, dissolved	4.09	0.0010	mg/L	2018-08-31	
Sulfur, dissolved	638	3.0	mg/L	2018-08-31	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2018-08-31	
Thallium, dissolved	0.000066	0.000020	mg/L	2018-08-31	
Thorium, dissolved	< 0.00010	0.00010	mg/L	2018-08-31	
Tin, dissolved	< 0.00020	0.00020	mg/L	2018-08-31	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2018-08-31	
Tungsten, dissolved	< 0.0010	0.0010	mg/L	2018-08-31	
Uranium, dissolved	0.000297	0.000020	mg/L	2018-08-31	
Vanadium, dissolved	< 0.0010	0.0010	mg/L	2018-08-31	
Zinc, dissolved	0.0367	0.0040	mg/L	2018-08-31	
Zirconium, dissolved	< 0.00010	0.00010	mg/L	2018-08-31	
<i>Total Metals</i>					
Aluminum, total	0.0871	0.0050	mg/L	2018-08-30	
Antimony, total	0.00040	0.00020	mg/L	2018-08-30	
Arsenic, total	0.00054	0.00050	mg/L	2018-08-30	
Barium, total	0.0640	0.0050	mg/L	2018-08-30	
Beryllium, total	< 0.00010	0.00010	mg/L	2018-08-30	
Bismuth, total	< 0.00010	0.00010	mg/L	2018-08-30	
Boron, total	0.293	0.0050	mg/L	2018-08-30	
Cadmium, total	0.000777	0.000010	mg/L	2018-08-30	
Calcium, total	882	0.20	mg/L	2018-08-30	
Chromium, total	0.00076	0.00050	mg/L	2018-08-30	
Cobalt, total	0.00751	0.00010	mg/L	2018-08-30	
Copper, total	0.00621	0.00040	mg/L	2018-08-30	
Iron, total	0.087	0.010	mg/L	2018-08-30	
Lead, total	< 0.00020	0.00020	mg/L	2018-08-30	
Lithium, total	0.00060	0.00010	mg/L	2018-08-30	
Magnesium, total	241	0.010	mg/L	2018-08-30	
Manganese, total	28.1	0.00020	mg/L	2018-08-30	
Mercury, total	< 0.000010	0.000010	mg/L	2018-09-04	
Molybdenum, total	0.00167	0.00010	mg/L	2018-08-30	
Nickel, total	0.0107	0.00040	mg/L	2018-08-30	
Phosphorus, total	< 0.050	0.050	mg/L	2018-08-30	
Potassium, total	21.4	0.10	mg/L	2018-08-30	
Selenium, total	< 0.00050	0.00050	mg/L	2018-08-30	
Silicon, total	7.2	1.0	mg/L	2018-08-30	
Silver, total	0.000097	0.000050	mg/L	2018-08-30	
Sodium, total	1590	0.10	mg/L	2018-08-30	
Strontium, total	4.55	0.0010	mg/L	2018-08-30	

TEST RESULTS

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Analyte	Result	RL	Units	Analyzed	Qualifier
LE-1 (8082741-06) Matrix: Water Sampled: 2018-08-28 14:15, Continued					
Total Metals, Continued					
Sulfur, total	698	3.0	mg/L	2018-08-30	
Tellurium, total	< 0.00050	0.00050	mg/L	2018-08-30	
Thallium, total	0.000069	0.000020	mg/L	2018-08-30	
Thorium, total	< 0.00010	0.00010	mg/L	2018-08-30	
Tin, total	0.00023	0.00020	mg/L	2018-08-30	
Titanium, total	< 0.0050	0.0050	mg/L	2018-08-30	
Tungsten, total	< 0.0010	0.0010	mg/L	2018-08-30	
Uranium, total	0.000324	0.000020	mg/L	2018-08-30	
Vanadium, total	< 0.0010	0.0010	mg/L	2018-08-30	
Zinc, total	0.0526	0.0040	mg/L	2018-08-30	
Zirconium, total	< 0.00010	0.00010	mg/L	2018-08-30	
BCMOE Aggregate Hydrocarbons					
EPHw10-19	< 250	250	µg/L	2018-09-01	
EPHw19-32	< 250	250	µg/L	2018-09-01	
LEPHw	< 250	250	µg/L	N/A	
HEPHw	< 250	250	µg/L	N/A	
Surrogate: 2-Methylnonane (EPH/F2-4)	75	60-140	%	2018-09-01	
Polycyclic Aromatic Hydrocarbons (PAH)					
Acenaphthene	< 0.050	0.050	µg/L	2018-09-02	
Acenaphthylene	< 0.200	0.200	µg/L	2018-09-02	
Acridine	< 0.050	0.050	µg/L	2018-09-02	
Anthracene	< 0.010	0.010	µg/L	2018-09-02	
Benz(a)anthracene	< 0.010	0.010	µg/L	2018-09-02	
Benzo(a)pyrene	< 0.010	0.010	µg/L	2018-09-02	
Benzo(b+j)fluoranthene	< 0.050	0.050	µg/L	2018-09-02	
Benzo(g,h,i)perylene	< 0.050	0.050	µg/L	2018-09-02	
Benzo(k)fluoranthene	< 0.050	0.050	µg/L	2018-09-02	
2-Chloronaphthalene	< 0.100	0.100	µg/L	2018-09-02	
Chrysene	< 0.050	0.050	µg/L	2018-09-02	
Dibenz(a,h)anthracene	< 0.010	0.010	µg/L	2018-09-02	
Fluoranthene	< 0.030	0.030	µg/L	2018-09-02	
Fluorene	< 0.050	0.050	µg/L	2018-09-02	
Indeno(1,2,3-cd)pyrene	< 0.050	0.050	µg/L	2018-09-02	
1-Methylnaphthalene	< 0.100	0.100	µg/L	2018-09-02	
2-Methylnaphthalene	< 0.100	0.100	µg/L	2018-09-02	
Naphthalene	< 0.200	0.200	µg/L	2018-09-02	
Phenanthrene	< 0.100	0.100	µg/L	2018-09-02	
Pyrene	< 0.020	0.020	µg/L	2018-09-02	
Quinoline	< 0.050	0.050	µg/L	2018-09-02	
Surrogate: Acridine-d9	61	50-140	%	2018-09-02	
Surrogate: Naphthalene-d8	92	50-140	%	2018-09-02	

TEST RESULTS

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Analyte	Result	RL	Units	Analyzed	Qualifier
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LE-1 (8082741-06) | Matrix: Water | Sampled: 2018-08-28 14:15, Continued

Polycyclic Aromatic Hydrocarbons (PAH), Continued

Surrogate: Perylene-d12	71	50-140	%	2018-09-02	
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SW-1 (8082741-07) | Matrix: Water | Sampled: 2018-08-28 14:15

Anions

Chloride	26.1	0.10	mg/L	2018-08-31	
Fluoride	< 0.10	0.10	mg/L	2018-08-31	
Nitrate (as N)	0.211	0.010	mg/L	2018-08-31	
Nitrite (as N)	< 0.010	0.010	mg/L	2018-08-31	
Sulfate	95.1	1.0	mg/L	2018-09-04	

General Parameters

Alkalinity, Total (as CaCO3)	242	1.0	mg/L	2018-09-05	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2018-09-05	
Alkalinity, Bicarbonate (as CaCO3)	242	1.0	mg/L	2018-09-05	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2018-09-05	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2018-09-05	
Chromium, Hexavalent	< 0.0010	0.0010	mg/L	2018-08-31	
Colour, True	< 5.0	5.0	CU	2018-08-31	
Conductivity (EC)	679	2.0	µS/cm	2018-09-04	
pH	7.46	0.10	pH units	2018-08-31	HT2
Solids, Total Suspended	< 2.0	2.0	mg/L	2018-09-03	
Turbidity	0.29	0.10	NTU	2018-08-29	

Calculated Parameters

Chromium, Trivalent	< 0.00100	0.00100	mg/L	N/A	
Hardness, Total (as CaCO3)	318	0.500	mg/L	N/A	

Dissolved Metals

Aluminum, dissolved	< 0.0050	0.0050	mg/L	2018-08-31	
Antimony, dissolved	< 0.00020	0.00020	mg/L	2018-08-31	
Arsenic, dissolved	< 0.00050	0.00050	mg/L	2018-08-31	
Barium, dissolved	0.0206	0.0050	mg/L	2018-08-31	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2018-08-31	
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2018-08-31	
Boron, dissolved	0.0224	0.0050	mg/L	2018-08-31	
Cadmium, dissolved	0.000023	0.000010	mg/L	2018-08-31	
Calcium, dissolved	103	0.20	mg/L	2018-08-31	
Chromium, dissolved	< 0.00050	0.00050	mg/L	2018-08-31	
Cobalt, dissolved	< 0.00010	0.00010	mg/L	2018-08-31	
Copper, dissolved	0.00114	0.00040	mg/L	2018-08-31	
Iron, dissolved	< 0.010	0.010	mg/L	2018-08-31	
Lead, dissolved	< 0.00020	0.00020	mg/L	2018-08-31	

TEST RESULTS

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Analyte	Result	RL	Units	Analyzed	Qualifier
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SW-1 (8082741-07) | Matrix: Water | Sampled: 2018-08-28 14:15, Continued

Dissolved Metals, Continued

Lithium, dissolved	0.00018	0.00010	mg/L	2018-08-31	
Magnesium, dissolved	14.5	0.010	mg/L	2018-08-31	
Manganese, dissolved	0.137	0.00020	mg/L	2018-08-31	
Mercury, dissolved	< 0.000040	0.000040	mg/L	2018-08-31	
Molybdenum, dissolved	0.00154	0.00010	mg/L	2018-08-31	
Nickel, dissolved	0.00105	0.00040	mg/L	2018-08-31	
Phosphorus, dissolved	< 0.050	0.050	mg/L	2018-08-31	
Potassium, dissolved	1.14	0.10	mg/L	2018-08-31	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2018-08-31	
Silicon, dissolved	7.8	1.0	mg/L	2018-08-31	
Silver, dissolved	< 0.000050	0.000050	mg/L	2018-08-31	
Sodium, dissolved	10.8	0.10	mg/L	2018-08-31	
Strontium, dissolved	0.291	0.0010	mg/L	2018-08-31	
Sulfur, dissolved	30.2	3.0	mg/L	2018-08-31	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2018-08-31	
Thallium, dissolved	< 0.000020	0.000020	mg/L	2018-08-31	
Thorium, dissolved	< 0.00010	0.00010	mg/L	2018-08-31	
Tin, dissolved	< 0.00020	0.00020	mg/L	2018-08-31	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2018-08-31	
Tungsten, dissolved	< 0.0010	0.0010	mg/L	2018-08-31	
Uranium, dissolved	0.00250	0.000020	mg/L	2018-08-31	
Vanadium, dissolved	< 0.0010	0.0010	mg/L	2018-08-31	
Zinc, dissolved	< 0.0040	0.0040	mg/L	2018-08-31	
Zirconium, dissolved	< 0.00010	0.00010	mg/L	2018-08-31	

Total Metals

Aluminum, total	0.0199	0.0050	mg/L	2018-08-30	
Antimony, total	0.00022	0.00020	mg/L	2018-08-30	
Arsenic, total	< 0.00050	0.00050	mg/L	2018-08-30	
Barium, total	0.0237	0.0050	mg/L	2018-08-30	
Beryllium, total	< 0.00010	0.00010	mg/L	2018-08-30	
Bismuth, total	< 0.00010	0.00010	mg/L	2018-08-30	
Boron, total	0.0237	0.0050	mg/L	2018-08-30	
Cadmium, total	0.000019	0.000010	mg/L	2018-08-30	
Calcium, total	111	0.20	mg/L	2018-08-30	
Chromium, total	< 0.00050	0.00050	mg/L	2018-08-30	
Cobalt, total	0.00010	0.00010	mg/L	2018-08-30	
Copper, total	0.00160	0.00040	mg/L	2018-08-30	
Iron, total	0.011	0.010	mg/L	2018-08-30	
Lead, total	< 0.00020	0.00020	mg/L	2018-08-30	
Lithium, total	0.00034	0.00010	mg/L	2018-08-30	
Magnesium, total	15.6	0.010	mg/L	2018-08-30	
Manganese, total	0.160	0.00020	mg/L	2018-08-30	

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SW-1 (8082741-07) | Matrix: Water | Sampled: 2018-08-28 14:15, Continued

Total Metals, Continued

Mercury, total	< 0.000010	0.000010	mg/L	2018-09-04	
Molybdenum, total	0.00184	0.00010	mg/L	2018-08-30	
Nickel, total	0.00143	0.00040	mg/L	2018-08-30	
Phosphorus, total	< 0.050	0.050	mg/L	2018-08-30	
Potassium, total	1.25	0.10	mg/L	2018-08-30	
Selenium, total	< 0.00050	0.00050	mg/L	2018-08-30	
Silicon, total	8.4	1.0	mg/L	2018-08-30	
Silver, total	< 0.000050	0.000050	mg/L	2018-08-30	
Sodium, total	11.6	0.10	mg/L	2018-08-30	
Strontium, total	0.337	0.0010	mg/L	2018-08-30	
Sulfur, total	34.3	3.0	mg/L	2018-08-30	
Tellurium, total	< 0.00050	0.00050	mg/L	2018-08-30	
Thallium, total	< 0.000020	0.000020	mg/L	2018-08-30	
Thorium, total	< 0.00010	0.00010	mg/L	2018-08-30	
Tin, total	< 0.00020	0.00020	mg/L	2018-08-30	
Titanium, total	< 0.0050	0.0050	mg/L	2018-08-30	
Tungsten, total	< 0.0010	0.0010	mg/L	2018-08-30	
Uranium, total	0.00272	0.000020	mg/L	2018-08-30	
Vanadium, total	0.0012	0.0010	mg/L	2018-08-30	
Zinc, total	0.0085	0.0040	mg/L	2018-08-30	
Zirconium, total	< 0.00010	0.00010	mg/L	2018-08-30	

BCMOE Aggregate Hydrocarbons

EPHw10-19	< 250	250	µg/L	2018-09-01	
EPHw19-32	< 250	250	µg/L	2018-09-01	
LEPHw	< 250	250	µg/L	N/A	
HEPHw	< 250	250	µg/L	N/A	
Surrogate: 2-Methylnonane (EPH/F2-4)	75	60-140	%	2018-09-01	

Polycyclic Aromatic Hydrocarbons (PAH)

Acenaphthene	< 0.050	0.050	µg/L	2018-09-02	
Acenaphthylene	< 0.200	0.200	µg/L	2018-09-02	
Acridine	< 0.050	0.050	µg/L	2018-09-02	
Anthracene	< 0.010	0.010	µg/L	2018-09-02	
Benz(a)anthracene	< 0.010	0.010	µg/L	2018-09-02	
Benzo(a)pyrene	< 0.010	0.010	µg/L	2018-09-02	
Benzo(b+j)fluoranthene	< 0.050	0.050	µg/L	2018-09-02	
Benzo(g,h,i)perylene	< 0.050	0.050	µg/L	2018-09-02	
Benzo(k)fluoranthene	< 0.050	0.050	µg/L	2018-09-02	
2-Chloronaphthalene	< 0.100	0.100	µg/L	2018-09-02	
Chrysene	< 0.050	0.050	µg/L	2018-09-02	
Dibenz(a,h)anthracene	< 0.010	0.010	µg/L	2018-09-02	
Fluoranthene	< 0.030	0.030	µg/L	2018-09-02	

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SW-1 (8082741-07) | Matrix: Water | Sampled: 2018-08-28 14:15, Continued

Polycyclic Aromatic Hydrocarbons (PAH), Continued

Fluorene	< 0.050	0.050	µg/L	2018-09-02	
Indeno(1,2,3-cd)pyrene	< 0.050	0.050	µg/L	2018-09-02	
1-Methylnaphthalene	< 0.100	0.100	µg/L	2018-09-02	
2-Methylnaphthalene	< 0.100	0.100	µg/L	2018-09-02	
Naphthalene	< 0.200	0.200	µg/L	2018-09-02	
Phenanthrene	< 0.100	0.100	µg/L	2018-09-02	
Pyrene	< 0.020	0.020	µg/L	2018-09-02	
Quinoline	< 0.050	0.050	µg/L	2018-09-02	
Surrogate: Acridine-d9	77	50-140	%	2018-09-02	
Surrogate: Naphthalene-d8	106	50-140	%	2018-09-02	
Surrogate: Perylene-d12	77	50-140	%	2018-09-02	

Sample Qualifiers:

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

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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	Richmond
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, 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	Richmond
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)	Richmond
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	Richmond

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

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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 B8H2460

Blank (B8H2460-BLK1)			Prepared: 2018-08-31, Analyzed: 2018-08-31						
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 (B8H2460-BS1)			Prepared: 2018-08-30, Analyzed: 2018-08-30						
Chloride	16.1	0.10 mg/L	16.0		100	90-110			
Fluoride	4.01	0.10 mg/L	4.00		100	88-108			
Nitrate (as N)	4.12	0.010 mg/L	4.00		103	93-108			
Nitrite (as N)	2.00	0.010 mg/L	2.00		100	85-114			
Sulfate	16.1	1.0 mg/L	16.0		100	91-109			

Duplicate (B8H2460-DUP1)			Source: 8082741-04		Prepared: 2018-08-30, Analyzed: 2018-08-30				
Chloride	5.39	0.10 mg/L		5.38			< 1	10	
Fluoride	0.10	0.10 mg/L		0.10				10	
Nitrate (as N)	< 0.010	0.010 mg/L		< 0.010				10	
Nitrite (as N)	< 0.010	0.010 mg/L		< 0.010				6	
Sulfate	17.5	1.0 mg/L		17.6			< 1	6	

Matrix Spike (B8H2460-MS1)			Source: 8082741-04		Prepared: 2018-08-30, Analyzed: 2018-08-30				
Chloride	20.6	0.10 mg/L	16.0	5.38	95	75-125			
Fluoride	3.92	0.10 mg/L	4.00	0.10	96	75-125			
Nitrate (as N)	4.06	0.010 mg/L	4.00	< 0.010	102	75-125			
Nitrite (as N)	2.02	0.010 mg/L	2.00	< 0.010	101	80-120			
Sulfate	33.6	1.0 mg/L	16.0	17.6	100	75-125			

BCMOE Aggregate Hydrocarbons, Batch B8H2515

Blank (B8H2515-BLK1)			Prepared: 2018-08-31, Analyzed: 2018-09-01						
EPHw10-19	< 250	250 µg/L							
EPHw19-32	< 250	250 µg/L							
Surrogate: 2-Methylnonane (EPH/F2-4)	328	µg/L	444		74	60-140			

APPENDIX 2: QUALITY CONTROL RESULTS

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Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
BCMOE Aggregate Hydrocarbons, Batch B8H2515, Continued									
LCS (B8H2515-BS2)				Prepared: 2018-08-31, Analyzed: 2018-09-01					
EPHw10-19	14900	250 µg/L	15400		97	70-130			
EPHw19-32	20800	250 µg/L	22200		94	70-130			
Surrogate: 2-Methylnonane (EPH/F2-4)	355	µg/L	444		80	60-140			

Dissolved Metals, Batch B8H2484

Blank (B8H2484-BLK1)			Prepared: 2018-08-31, Analyzed: 2018-08-31						
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							
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 (B8H2484-BS1)			Prepared: 2018-08-31, Analyzed: 2018-08-31						
Aluminum, dissolved	0.0218	0.0050 mg/L	0.0200		109	80-120			
Antimony, dissolved	0.0189	0.00020 mg/L	0.0200		95	80-120			
Arsenic, dissolved	0.0191	0.00050 mg/L	0.0200		96	80-120			
Barium, dissolved	0.0185	0.0050 mg/L	0.0200		93	80-120			
Beryllium, dissolved	0.0201	0.00010 mg/L	0.0200		100	80-120			
Bismuth, dissolved	0.0183	0.00010 mg/L	0.0200		91	80-120			
Boron, dissolved	0.0197	0.0050 mg/L	0.0200		98	80-120			
Cadmium, dissolved	0.0191	0.000010 mg/L	0.0200		95	80-120			

APPENDIX 2: QUALITY CONTROL RESULTS

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Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Dissolved Metals, Batch B8H2484, Continued									
LCS (B8H2484-BS1), Continued					Prepared: 2018-08-31, Analyzed: 2018-08-31				
Calcium, dissolved	1.90	0.20 mg/L	2.00		95	80-120			
Chromium, dissolved	0.0191	0.00050 mg/L	0.0200		95	80-120			
Cobalt, dissolved	0.0193	0.00010 mg/L	0.0200		96	80-120			
Copper, dissolved	0.0202	0.00040 mg/L	0.0200		101	80-120			
Iron, dissolved	1.83	0.010 mg/L	2.00		91	80-120			
Lead, dissolved	0.0199	0.00020 mg/L	0.0200		99	80-120			
Lithium, dissolved	0.0204	0.00010 mg/L	0.0200		102	80-120			
Magnesium, dissolved	1.90	0.010 mg/L	2.00		95	80-120			
Manganese, dissolved	0.0196	0.00020 mg/L	0.0200		98	80-120			
Mercury, dissolved	0.000947	0.000040 mg/L	0.00100		95	80-120			
Molybdenum, dissolved	0.0190	0.00010 mg/L	0.0200		95	80-120			
Nickel, dissolved	0.0194	0.00040 mg/L	0.0200		97	80-120			
Phosphorus, dissolved	1.90	0.050 mg/L	2.00		95	80-120			
Potassium, dissolved	1.88	0.10 mg/L	2.00		94	80-120			
Selenium, dissolved	0.0198	0.00050 mg/L	0.0200		99	80-120			
Silicon, dissolved	2.0	1.0 mg/L	2.00		99	80-120			
Silver, dissolved	0.0185	0.000050 mg/L	0.0200		93	80-120			
Sodium, dissolved	1.89	0.10 mg/L	2.00		94	80-120			
Strontium, dissolved	0.0187	0.0010 mg/L	0.0200		94	80-120			
Sulfur, dissolved	4.0	3.0 mg/L	5.00		80	80-120			
Tellurium, dissolved	0.0197	0.00050 mg/L	0.0200		98	80-120			
Thallium, dissolved	0.0198	0.000020 mg/L	0.0200		99	80-120			
Thorium, dissolved	0.0186	0.00010 mg/L	0.0200		93	80-120			
Tin, dissolved	0.0197	0.00020 mg/L	0.0200		98	80-120			
Titanium, dissolved	0.0205	0.0050 mg/L	0.0200		102	80-120			
Tungsten, dissolved	0.0189	0.0010 mg/L	0.0200		94	80-120			
Uranium, dissolved	0.0190	0.000020 mg/L	0.0200		95	80-120			
Vanadium, dissolved	0.0187	0.0010 mg/L	0.0200		93	80-120			
Zinc, dissolved	0.0226	0.0040 mg/L	0.0200		113	80-120			
Zirconium, dissolved	0.0204	0.00010 mg/L	0.0200		102	80-120			
Reference (B8H2484-SRM1)					Prepared: 2018-08-31, Analyzed: 2018-08-31				
Aluminum, dissolved	0.217	0.0050 mg/L	0.233		93	79-114			
Antimony, dissolved	0.0444	0.00020 mg/L	0.0430		103	89-123			
Arsenic, dissolved	0.442	0.00050 mg/L	0.438		101	87-113			
Barium, dissolved	3.19	0.0050 mg/L	3.35		95	85-114			
Beryllium, dissolved	0.218	0.00010 mg/L	0.213		102	79-122			
Boron, dissolved	1.50	0.0050 mg/L	1.74		86	79-117			
Cadmium, dissolved	0.218	0.000010 mg/L	0.224		97	89-112			
Calcium, dissolved	7.53	0.20 mg/L	7.69		98	85-120			
Chromium, dissolved	0.437	0.00050 mg/L	0.437		100	87-113			
Cobalt, dissolved	0.129	0.00010 mg/L	0.128		101	90-117			
Copper, dissolved	0.862	0.00040 mg/L	0.844		102	90-115			
Iron, dissolved	1.20	0.010 mg/L	1.29		93	86-112			
Lead, dissolved	0.112	0.00020 mg/L	0.112		100	90-113			
Lithium, dissolved	0.106	0.00010 mg/L	0.104		102	77-127			
Magnesium, dissolved	6.56	0.010 mg/L	6.92		95	84-116			
Manganese, dissolved	0.337	0.00020 mg/L	0.345		98	85-113			
Molybdenum, dissolved	0.422	0.00010 mg/L	0.426		99	87-112			
Nickel, dissolved	0.846	0.00040 mg/L	0.840		101	90-114			
Phosphorus, dissolved	0.510	0.050 mg/L	0.495		103	74-119			
Potassium, dissolved	2.96	0.10 mg/L	3.19		93	78-119			
Selenium, dissolved	0.0335	0.00050 mg/L	0.0331		101	89-123			
Sodium, dissolved	17.5	0.10 mg/L	19.1		92	81-117			
Strontium, dissolved	0.873	0.0010 mg/L	0.916		95	82-111			
Thallium, dissolved	0.0385	0.000020 mg/L	0.0393		98	90-113			

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Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
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Dissolved Metals, Batch B8H2484, Continued

Reference (B8H2484-SRM1), Continued			Prepared: 2018-08-31, Analyzed: 2018-08-31						
Uranium, dissolved	0.252	0.000020 mg/L	0.266		95	87-113			
Vanadium, dissolved	0.844	0.0010 mg/L	0.869		97	85-110			
Zinc, dissolved	0.888	0.0040 mg/L	0.881		101	88-114			

General Parameters, Batch B8H2357

Blank (B8H2357-BLK1)			Prepared: 2018-08-29, Analyzed: 2018-08-29						
Turbidity	< 0.10	0.10 NTU							
Duplicate (B8H2357-DUP1)			Source: 8082741-02		Prepared: 2018-08-29, Analyzed: 2018-08-29				
Turbidity	4.48	0.10 NTU		4.25			5	18	

General Parameters, Batch B8H2461

Blank (B8H2461-BLK1)			Prepared: 2018-08-31, Analyzed: 2018-08-31						
Colour, True	< 5.0	5.0 CU							
LCS (B8H2461-BS1)			Prepared: 2018-08-31, Analyzed: 2018-08-31						
Colour, True	9.7	5.0 CU	10.0		97	85-115			

General Parameters, Batch B8H2499

Blank (B8H2499-BLK1)			Prepared: 2018-09-05, Analyzed: 2018-09-05						
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							
Blank (B8H2499-BLK2)			Prepared: 2018-09-05, Analyzed: 2018-09-05						
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							
LCS (B8H2499-BS1)			Prepared: 2018-09-05, Analyzed: 2018-09-05						
Alkalinity, Total (as CaCO ₃)	103	1.0 mg/L	100		103	92-106			
LCS (B8H2499-BS2)			Prepared: 2018-09-05, Analyzed: 2018-09-05						
Alkalinity, Total (as CaCO ₃)	104	1.0 mg/L	100		104	92-106			

General Parameters, Batch B8H2520

Blank (B8H2520-BLK1)			Prepared: 2018-08-31, Analyzed: 2018-08-31						
Chromium, Hexavalent	< 0.0010	0.0010 mg/L							
LCS (B8H2520-BS1)			Prepared: 2018-08-31, Analyzed: 2018-08-31						
Chromium, Hexavalent	0.0981	0.0010 mg/L	0.100		98	90-111			
Duplicate (B8H2520-DUP1)			Source: 8082741-07		Prepared: 2018-08-31, Analyzed: 2018-08-31				
Chromium, Hexavalent	< 0.0010	0.0010 mg/L		< 0.0010				7	
Matrix Spike (B8H2520-MS1)			Source: 8082741-07		Prepared: 2018-08-31, Analyzed: 2018-08-31				
Chromium, Hexavalent	0.0859	0.0010 mg/L	0.100	< 0.0010	86	70-116			

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Analyte	Result	RL	Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
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General Parameters, Batch B8H2520, Continued

General Parameters, Batch B8H2556

General Parameters, Batch B8I0020

Blank (B8I0020-BLK1)					Prepared: 2018-09-03, Analyzed: 2018-09-03					
Solids, Total Suspended	< 2.0	2.0	mg/L							
LCS (B8I0020-BS1)					Prepared: 2018-09-03, Analyzed: 2018-09-03					
Solids, Total Suspended	94.0	10.0	mg/L	100		94	83-107			
Duplicate (B8I0020-DUP1)					Source: 8082741-05		Prepared: 2018-09-03, Analyzed: 2018-09-03			
Solids, Total Suspended	229	2.0	mg/L		229			< 1	20	

General Parameters, Batch B8I0088

Blank (B8I0088-BLK1)					Prepared: 2018-09-04, Analyzed: 2018-09-04					
Conductivity (EC)	< 2.0	2.0	µS/cm							
LCS (B8I0088-BS1)					Prepared: 2018-09-04, Analyzed: 2018-09-04					
Conductivity (EC)	146	2.0	µS/cm	147		100	90-110			
Duplicate (B8I0088-DUP1)					Source: 8082741-01		Prepared: 2018-09-04, Analyzed: 2018-09-04			
Conductivity (EC)	1300	2.0	µS/cm		1310			< 1	4	
Reference (B8I0088-SRM1)					Prepared: 2018-09-04, Analyzed: 2018-09-04					
Conductivity (EC)	1010	2.0	µS/cm	1000		101	95-105			

Polycyclic Aromatic Hydrocarbons (PAH), Batch B8H2515

Blank (B8H2515-BLK1)					Prepared: 2018-08-31, Analyzed: 2018-09-02					
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	2.57		µg/L	4.44		58	50-140			
Surrogate: Naphthalene-d8	4.76		µg/L	4.47		107	50-140			
Surrogate: Perylene-d12	4.34		µg/L	4.47		97	50-140			

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Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Polycyclic Aromatic Hydrocarbons (PAH), Batch B8H2515, Continued									
LCS (B8H2515-BS1)					Prepared: 2018-08-31, Analyzed: 2018-08-31				
Acenaphthene	5.43	0.050 µg/L	4.40		123	58-125			
Acenaphthylene	5.63	0.200 µg/L	4.40		128	54-128			
Acridine	4.35	0.050 µg/L	4.44		98	50-112			
Anthracene	5.51	0.010 µg/L	4.44		124	66-125			
Benz(a)anthracene	5.28	0.010 µg/L	4.44		119	59-123			
Benzo(a)pyrene	5.03	0.010 µg/L	4.40		114	62-116			
Benzo(b+j)fluoranthene	9.55	0.050 µg/L	8.89		107	69-121			
Benzo(g,h,i)perylene	5.16	0.050 µg/L	4.40		117	58-129			
Benzo(k)fluoranthene	5.32	0.050 µg/L	4.44		120	67-128			
2-Chloronaphthalene	5.19	0.100 µg/L	4.44		117	50-140			
Chrysene	5.37	0.050 µg/L	4.42		122	58-125			
Dibenz(a,h)anthracene	4.94	0.010 µg/L	4.42		112	58-126			
Fluoranthene	5.36	0.030 µg/L	4.36		123	67-133			
Fluorene	5.16	0.050 µg/L	4.40		117	55-122			
Indeno(1,2,3-cd)pyrene	5.11	0.050 µg/L	4.44		115	62-126			
1-Methylnaphthalene	5.48	0.100 µg/L	4.38		125	53-125			
2-Methylnaphthalene	5.28	0.100 µg/L	4.36		121	52-122			
Naphthalene	5.56	0.200 µg/L	4.44		125	50-130			
Phenanthrene	5.59	0.100 µg/L	4.40		127	67-127			
Pyrene	5.33	0.020 µg/L	4.44		120	68-133			
Quinoline	5.93	0.050 µg/L	4.44		133	51-140			
Surrogate: Acridine-d9	3.22	µg/L	4.44		72	50-140			
Surrogate: Naphthalene-d8	4.87	µg/L	4.47		109	50-140			
Surrogate: Perylene-d12	4.35	µg/L	4.47		97	50-140			

LCS Dup (B8H2515-BS1)					Prepared: 2018-08-31, Analyzed: 2018-08-31				
Acenaphthene	5.33	0.050 µg/L	4.40		121	58-125	2	16	
Acenaphthylene	5.45	0.200 µg/L	4.40		124	54-128	3	16	
Acridine	4.58	0.050 µg/L	4.44		103	50-112	5	26	
Anthracene	5.34	0.010 µg/L	4.44		120	66-125	3	14	
Benz(a)anthracene	5.46	0.010 µg/L	4.44		123	59-123	3	23	
Benzo(a)pyrene	5.12	0.010 µg/L	4.40		116	62-116	2	16	
Benzo(b+j)fluoranthene	9.88	0.050 µg/L	8.89		111	69-121	3	14	
Benzo(g,h,i)perylene	5.40	0.050 µg/L	4.40		123	58-129	5	25	
Benzo(k)fluoranthene	5.43	0.050 µg/L	4.44		122	67-128	2	18	
2-Chloronaphthalene	5.33	0.100 µg/L	4.44		120	50-140	3	30	
Chrysene	5.43	0.050 µg/L	4.42		123	58-125	< 1	24	
Dibenz(a,h)anthracene	5.19	0.010 µg/L	4.42		117	58-126	5	23	
Fluoranthene	5.53	0.030 µg/L	4.36		127	67-133	3	18	
Fluorene	5.29	0.050 µg/L	4.40		120	55-122	2	16	
Indeno(1,2,3-cd)pyrene	5.25	0.050 µg/L	4.44		118	62-126	3	22	
1-Methylnaphthalene	5.44	0.100 µg/L	4.38		124	53-125	< 1	16	
2-Methylnaphthalene	5.16	0.100 µg/L	4.36		119	52-122	2	17	
Naphthalene	5.60	0.200 µg/L	4.44		126	50-130	< 1	18	
Phenanthrene	5.49	0.100 µg/L	4.40		125	67-127	2	14	
Pyrene	5.54	0.020 µg/L	4.44		125	68-133	4	18	
Quinoline	6.01	0.050 µg/L	4.44		135	51-140	1	12	
Surrogate: Acridine-d9	3.34	µg/L	4.44		75	50-140			
Surrogate: Naphthalene-d8	4.91	µg/L	4.47		110	50-140			
Surrogate: Perylene-d12	4.56	µg/L	4.47		102	50-140			

Total Metals, Batch B8H2334

Blank (B8H2334-BLK1)					Prepared: 2018-08-29, Analyzed: 2018-08-30				
Aluminum, total	< 0.0050	0.0050 mg/L							

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Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
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Total Metals, Batch B8H2334, Continued

Blank (B8H2334-BLK1), Continued

Prepared: 2018-08-29, Analyzed: 2018-08-30

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							

LCS (B8H2334-BS1)

Prepared: 2018-08-29, Analyzed: 2018-08-30

Aluminum, total	0.0224	0.0050 mg/L	0.0200	112	80-120
Antimony, total	0.0210	0.00020 mg/L	0.0200	105	80-120
Arsenic, total	0.0213	0.00050 mg/L	0.0200	107	80-120
Barium, total	0.0201	0.0050 mg/L	0.0200	100	80-120
Beryllium, total	0.0224	0.00010 mg/L	0.0200	112	80-120
Bismuth, total	0.0213	0.00010 mg/L	0.0200	106	80-120
Boron, total	0.0222	0.0050 mg/L	0.0200	111	80-120
Cadmium, total	0.0207	0.000010 mg/L	0.0200	104	80-120
Calcium, total	1.97	0.20 mg/L	2.00	98	80-120
Chromium, total	0.0208	0.00050 mg/L	0.0200	104	80-120
Cobalt, total	0.0214	0.00010 mg/L	0.0200	107	80-120
Copper, total	0.0219	0.00040 mg/L	0.0200	110	80-120
Iron, total	1.96	0.010 mg/L	2.00	98	80-120
Lead, total	0.0211	0.00020 mg/L	0.0200	105	80-120
Lithium, total	0.0228	0.00010 mg/L	0.0200	114	80-120
Magnesium, total	2.11	0.010 mg/L	2.00	105	80-120
Manganese, total	0.0205	0.00020 mg/L	0.0200	103	80-120
Molybdenum, total	0.0206	0.00010 mg/L	0.0200	103	80-120

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Total Metals, Batch B8H2334, Continued									
LCS (B8H2334-BS1), Continued					Prepared: 2018-08-29, Analyzed: 2018-08-30				
Nickel, total	0.0216	0.00040 mg/L	0.0200		108	80-120			
Phosphorus, total	2.18	0.050 mg/L	2.00		109	80-120			
Potassium, total	2.03	0.10 mg/L	2.00		102	80-120			
Selenium, total	0.0210	0.00050 mg/L	0.0200		105	80-120			
Silicon, total	2.3	1.0 mg/L	2.00		113	80-120			
Silver, total	0.0193	0.000050 mg/L	0.0200		96	80-120			
Sodium, total	2.12	0.10 mg/L	2.00		106	80-120			
Strontium, total	0.0206	0.0010 mg/L	0.0200		103	80-120			
Sulfur, total	4.5	3.0 mg/L	5.00		90	80-120			
Tellurium, total	0.0210	0.00050 mg/L	0.0200		105	80-120			
Thallium, total	0.0211	0.000020 mg/L	0.0200		105	80-120			
Thorium, total	0.0203	0.00010 mg/L	0.0200		102	80-120			
Tin, total	0.0214	0.00020 mg/L	0.0200		107	80-120			
Titanium, total	0.0221	0.0050 mg/L	0.0200		110	80-120			
Tungsten, total	0.0205	0.0010 mg/L	0.0200		102	80-120			
Uranium, total	0.0204	0.000020 mg/L	0.0200		102	80-120			
Vanadium, total	0.0209	0.0010 mg/L	0.0200		105	80-120			
Zinc, total	0.0224	0.0040 mg/L	0.0200		112	80-120			
Zirconium, total	0.0225	0.00010 mg/L	0.0200		113	80-120			

Reference (B8H2334-SRM1)					Prepared: 2018-08-29, Analyzed: 2018-08-30				
Aluminum, total	0.310	0.0050 mg/L	0.303		102	82-114			
Antimony, total	0.0530	0.00020 mg/L	0.0511		104	88-115			
Arsenic, total	0.128	0.00050 mg/L	0.118		109	88-111			
Barium, total	0.803	0.0050 mg/L	0.823		98	83-110			
Beryllium, total	0.0561	0.00010 mg/L	0.0496		113	80-119			
Boron, total	3.74	0.0050 mg/L	3.45		109	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	0.265	0.00050 mg/L	0.250		106	88-111			
Cobalt, total	0.0415	0.00010 mg/L	0.0377		110	90-114			
Copper, total	0.545	0.00040 mg/L	0.486		112	90-117			
Iron, total	0.491	0.010 mg/L	0.488		101	90-116			
Lead, total	0.213	0.00020 mg/L	0.204		104	90-110			
Lithium, total	0.449	0.00010 mg/L	0.403		111	79-118			
Magnesium, total	4.08	0.010 mg/L	3.79		108	88-116			
Manganese, total	0.111	0.00020 mg/L	0.109		102	88-108			
Molybdenum, total	0.205	0.00010 mg/L	0.198		103	88-110			
Nickel, total	0.271	0.00040 mg/L	0.249		109	90-112			
Phosphorus, total	0.257	0.050 mg/L	0.227		113	72-118			
Potassium, total	7.41	0.10 mg/L	7.21		103	87-116			
Selenium, total	0.129	0.00050 mg/L	0.121		106	90-122			
Sodium, total	7.84	0.10 mg/L	7.54		104	86-118			
Strontium, total	0.390	0.0010 mg/L	0.375		104	86-110			
Thallium, total	0.0847	0.000020 mg/L	0.0805		105	90-113			
Uranium, total	0.0312	0.000020 mg/L	0.0306		102	88-112			
Vanadium, total	0.415	0.0010 mg/L	0.386		107	87-110			
Zinc, total	2.61	0.0040 mg/L	2.49		105	90-113			

Total Metals, Batch B8H2537

Blank (B8H2537-BLK1)					Prepared: 2018-08-31, Analyzed: 2018-09-04				
Mercury, total	< 0.000010	0.000010 mg/L							

APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Allterra Construction
P17-932

WORK ORDER REPORTED 8082741
2018-09-06 17:00

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Total Metals, Batch B8H2537, Continued									
Blank (B8H2537-BLK2)				Prepared: 2018-08-31, Analyzed: 2018-09-04					
Mercury, total	< 0.000010	0.000010 mg/L							
Reference (B8H2537-SRM1)				Prepared: 2018-08-31, Analyzed: 2018-09-04					
Mercury, total	0.00582	0.000010 mg/L	0.00489		119	80-120			
Reference (B8H2537-SRM2)				Prepared: 2018-08-31, Analyzed: 2018-09-04					
Mercury, total	0.00450	0.000010 mg/L	0.00489		92	80-120			

Submission Key F241-FAT-994Z

SUBMITTED :8/29/2018 5:22:54 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: Aug 2018 Shipped via: Harbour Air Tracking #: SDG:

#		Analyses	Containers
# 1	MW6 08/28/2018 10:30 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 08/28/2018 12:00 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 08/28/2018 12:30 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 F241-FAT-994Z		SUBMITTED :8/29/2018 5:22:54 AM		Page 2 of 3
# 4	MW2	Analyses	Containers	
	08/28/2018 13:30			
	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	
	08/28/2018 11:15			
	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		
# 6	LE-1	Analyses	Containers	
	08/28/2018 14:15			
	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	SW-1	Analyses	Containers	
	08/28/2018 14:15			
	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	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 F241-FAT-994Z	SUBMITTED :8/29/2018 5:22:54 AM		Page 3 of 3
Relinquished by	Date/Time	Accepted by	Date/Time

CARO Analytical Services
FINAL Analytical Testing Report
Work Order: 8082741
Report Date: 2018-09-06 17:00:01

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	8082741-01 8082741-02 8082741-03 8082741-04 8082741-05 8082741-06 8082741-07									
CLIENT ID	MW6 MW3S MW3D MW2 SB2 LE-1 SW-1									
DATE SAMPLED	2018-08-28 2018-08-28 2018-08-28 2018-08-28 2018-08-28 2018-08-28 2018-08-28									
DATE RECEIVED	2018-08-29 2018-08-29 2018-08-29 2018-08-29 2018-08-29 2018-08-29 2018-08-29									
MATRIX	Water Water Water Water Water Water Water									
General Method	Analyte	Units	MRL							
Anions	Chloride	mg/L	0.1	38.4	11.2	2.59	5.38	64.6	2820	26.1
Anions	Fluoride	mg/L	0.1	0.36	<0.10	0.11	<0.10	0.17	0.32	<0.10
Anions	Nitrate (as N)	mg/L	0.01	0.081	<0.010	<0.010	<0.010	0.034	1.72	0.211
Anions	Nitrite (as N)	mg/L	0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Anions	Sulfate	mg/L	1	72.4	41.7	21.7	17.6	103	1560	95.1
General Parameters	Colour, True	CU	5	6.2	<5.0	8.8	7.3	<5.0	5	<5.0
General Parameters	Alkalinity, Total (as CaCO3)	mg/L	1	625	132	109	130	297	62.2	242
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	625	132	109	130	297	62.2	242
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	8.5	9.2	6	27.1	229	3.6	<2.0
General Parameters	Turbidity	NTU	0.1	15.7	4.25	4.84	29.8	223	2.37	0.29
General Parameters	pH	pH units	0.1	7.12	7.67	7.63	7.71	7.17	7.55	7.46
General Parameters	Conductivity (EC)	uS/cm	2	1310	359	253	290	962	11500	679
Calculated Parameters	Chromium, Trivalent	mg/L	0.001							<0.00100
Calculated Parameters	Hardness, Total (as CaCO3)	mg/L	0.5	542	138	97.5	119	369	3050	318
Dissolved Metals	Aluminum, dissolved	mg/L	0.005	<0.0050	<0.0050	0.005	0.0064	<0.0050	0.0291	<0.0050
Dissolved Metals	Antimony, dissolved	mg/L	0.0002	0.00026	<0.00020	<0.00020	<0.00020	<0.00020	0.00037	<0.00020
Dissolved Metals	Arsenic, dissolved	mg/L	0.0005	0.00395	0.00113	0.00137	0.00187	<0.00050	<0.00050	<0.00050

Dissolved Metals	Barium, dissolved	mg/L	0.005	0.0761	0.0285	0.0199	0.0281	0.0175	0.0565	0.0206
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	0.078	0.0211	0.022	0.0212	0.0382	0.259	0.0224
Dissolved Metals	Cadmium, dissolved	mg/L	1E-05	<0.000010	0.000013	<0.000010	<0.000010	0.00002	0.000655	0.000023
Dissolved Metals	Calcium, dissolved	mg/L	0.2	163	44.2	30.4	36.5	119	848	103
Dissolved Metals	Chromium, dissolved	mg/L	0.0005	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00063	<0.00050
Dissolved Metals	Cobalt, dissolved	mg/L	0.0001	0.00208	0.00058	0.00037	0.00028	0.00021	0.00663	<0.00010
Dissolved Metals	Copper, dissolved	mg/L	0.0004	<0.00040	<0.00040	<0.00040	<0.00040	0.00139	0.00409	0.00114
Dissolved Metals	Iron, dissolved	mg/L	0.01	2.2	0.077	0.133	0.223	<0.010	0.015	<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	0.0117	<0.00010	<0.00010	<0.00010	0.00019	0.00045	0.00018
Dissolved Metals	Magnesium, dissolved	mg/L	0.01	32.9	6.78	5.22	6.76	17.4	226	14.5
Dissolved Metals	Manganese, dissolved	mg/L	0.0002	1.98	0.379	0.322	0.453	0.0584	26.9	0.137
Dissolved Metals	Mercury, dissolved	mg/L	4E-05	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040
Dissolved Metals	Molybdenum, dissolved	mg/L	0.0001	0.0006	0.0059	0.00619	0.00374	0.00132	0.00175	0.00154
Dissolved Metals	Nickel, dissolved	mg/L	0.0004	0.00238	0.00114	0.00089	0.00046	0.00067	0.00912	0.00105
Dissolved Metals	Phosphorus, dissolved	mg/L	0.05	<0.050	0.058	0.118	0.16	<0.050	<0.050	<0.050
Dissolved Metals	Potassium, dissolved	mg/L	0.1	3.47	0.91	0.61	0.67	2.42	20.3	1.14
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	11.5	6.1	6.1	6.7	7.3	6.5	7.8
Dissolved Metals	Silver, dissolved	mg/L	5E-05	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000055	<0.000050
Dissolved Metals	Sodium, dissolved	mg/L	0.1	59.1	12.8	10.1	8.56	46.5	1520	10.8
Dissolved Metals	Strontium, dissolved	mg/L	0.001	0.569	0.214	0.185	0.157	0.401	4.09	0.291
Dissolved Metals	Sulfur, dissolved	mg/L	3	21.9	13	7.4	5.3	36.2	638	30.2
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	0.000021	<0.000020	<0.000020	<0.000020	0.000066	<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	0.00672	0.001	0.000622	0.000722	0.00277	0.000297	0.0025
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	0.0367	<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	0.132	0.0817	0.0874	0.335	6.44	0.0871	0.0199
Total Metals	Antimony, total	mg/L	0.0002	0.00071	<0.00020	<0.00020	0.00023	<0.00020	0.0004	0.00022
Total Metals	Arsenic, total	mg/L	0.0005	0.00488	0.0013	0.00159	0.00223	0.00081	0.00054	<0.00050
Total Metals	Barium, total	mg/L	0.005	0.0873	0.0309	0.0194	0.0321	0.0473	0.064	0.0237
Total Metals	Beryllium, total	mg/L	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	0.00021	<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	0.0774	0.0211	0.0239	0.0232	0.0419	0.293	0.0237
Total Metals	Cadmium, total	mg/L	1E-05	0.000074	0.000233	0.000104	0.000028	0.000033	0.000777	0.000019
Total Metals	Calcium, total	mg/L	0.2	175	47.5	32.9	38.4	130	882	111
Total Metals	Chromium, total	mg/L	0.0005	0.00058	<0.00050	<0.00050	0.00065	0.0067	0.00076	<0.00050
Total Metals	Cobalt, total	mg/L	0.0001	0.00279	0.00075	0.00047	0.00062	0.00619	0.00751	0.0001
Total Metals	Copper, total	mg/L	0.0004	0.00195	0.00051	0.00063	0.00061	0.024	0.00621	0.0016
Total Metals	Iron, total	mg/L	0.01	2.68	0.152	0.212	0.774	7.84	0.087	0.011
Total Metals	Lead, total	mg/L	0.0002	0.00067	<0.00020	<0.00020	0.00036	0.00198	<0.00020	<0.00020
Total Metals	Lithium, total	mg/L	0.0001	0.0132	0.00022	0.00018	0.00021	0.00251	0.0006	0.00034
Total Metals	Magnesium, total	mg/L	0.01	36.3	7.44	5.78	7.5	20.4	241	15.6
Total Metals	Manganese, total	mg/L	0.0002	2.15	0.413	0.353	0.496	0.354	28.1	0.16
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	0.00119	0.00651	0.00696	0.00418	0.00143	0.00167	0.00184
Total Metals	Nickel, total	mg/L	0.0004	0.00565	0.00157	0.00139	0.0012	0.00658	0.0107	0.00143
Total Metals	Phosphorus, total	mg/L	0.05	<0.050	0.098	0.123	0.201	0.257	<0.050	<0.050
Total Metals	Potassium, total	mg/L	0.1	3.84	1.04	0.7	0.77	3.45	21.4	1.25
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	12.8	7	7	7.9	18.9	7.2	8.4
Total Metals	Silver, total	mg/L	5E-05	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000097	<0.000050
Total Metals	Sodium, total	mg/L	0.1	64.9	14.1	11	9.15	48.8	1590	11.6
Total Metals	Strontium, total	mg/L	0.001	0.64	0.246	0.212	0.178	0.468	4.55	0.337
Total Metals	Sulfur, total	mg/L	3	24	14	7.5	5.5	39.4	698	34.3
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	0.000037	<0.000020	<0.000020	0.000022	0.000069	<0.000020
Total Metals	Thorium, total	mg/L	0.0001	<0.00010	0.00011	0.00016	<0.00010	0.00024	<0.00010	<0.00010
Total Metals	Tin, total	mg/L	0.0002	0.00098	0.00024	<0.00020	<0.00020	<0.00020	0.00023	<0.00020
Total Metals	Titanium, total	mg/L	0.005	0.0077	<0.0050	<0.0050	0.0184	0.431	<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			8082741-01	8082741-02	8082741-03	8082741-04	8082741-05
			MW6	MW3S	MW3D	MW2	SB2
Date Sampled	Aquatic Life	Drinking Water	2018-08-28	2018-08-28	2018-08-28	2018-08-28	2018-08-28
Physical Tests							
Colour, True (TCU)	-	-	6.2	<5.0	8.8	7.3	<5.0
Conductivity (uS/cm)	-	-	1310	359	253	290	962
Hardness (as CaCO3) mg/L	-	-	542	138	97.5	119	369
pH (pH Units)	-	-	7.12	7.67	7.63	7.71	7.17
Total Suspended Solids mg/L			8.5	9.2	6	27.1	229
Total Dissolved Solids mg/L	-	-	-	-	-	-	-
Turbidity (NTU)	-	-	15.7	4.25	4.84	29.8	223
Anions and Nutrients mg/L							
Alkalinity, Total (as CaCO3)	-	-	625	132	109	130	297
Chloride (Cl)	1500	250	38.4	11.2	2.59	5.38	64.6
Fluoride (F)	2 (H < 50)	1.5					
	3 (H ≥ 50)		0.36	<0.10	0.11	<0.10	0.17
Nitrate (as N)	400	10	0.081	<0.010	<0.010	<0.010	0.034
Nitrite (as N) ⁽⁶⁾ Cl <2 mg/L	0.2	3.2					
Cl 2 - <4 mg/L	0.4				<0.010		
Cl 4 - <6 mg/L	0.6					<0.010	
Cl 6 - <8 mg/L	0.8						
Cl 8 - <10 mg/L	1						
Cl ≥ 10 mg/L	2		<0.010	<0.010			<0.010
Sulfate (SO4)	1000	500	72.4	41.7	21.7	17.6	103

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				8082741-01	8082741-02	8082741-03	8082741-04	8082741-05
				MW6	MW3S	MW3D	MW2	SB2
Date Sampled	Aquatic Life	Drinking Water	2018-08-28	2018-08-28	2018-08-28	2018-08-28	2018-08-28	2018-08-28
Physical Tests mg/L								
Hardness (as CaCO3)	-	-	542	138	97.5	119	369	
Total Metals mg/L								
Aluminum (Al)-Total	-	-	0.132	0.0817	0.0874	0.335	6.44	
Antimony (Sb)-Total	-	-	0.00071	<0.00020	<0.00020	0.00023	<0.00020	
Arsenic (As)-Total	-	-	0.00488	0.0013	0.00159	0.00223	0.00081	
Barium (Ba)-Total	-	-	0.0873	0.0309	0.0194	0.0321	0.0473	
Beryllium (Be)-Total	-	-	<0.00010	<0.00010	<0.00010	<0.00010	0.00021	
Bismuth (Bi)- Total	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Boron (B)-Total	-	-	0.0774	0.0211	0.0239	0.0232	0.0419	
Cadmium (Cd)-Total	-	-	0.000074	0.000233	0.000104	0.000028	0.000033	
Calcium (Ca)-Total	-	-	175	47.5	32.9	38.4	130	
Chromium (Cr)-Total	-	-	0.00058	<0.00050	<0.00050	0.00065	0.0067	
Cobalt (Co)-Total	-	-	0.00279	0.00075	0.00047	0.00062	0.00619	
Copper (Cu)-Total	-	-	0.00195	0.00051	0.00063	0.00061	0.024	
Iron (Fe)-Total	-	-	2.68	0.152	0.212	0.774	7.84	
Lead (Pb)-Total	-	-	0.00067	<0.00020	<0.00020	0.00036	0.00198	
Lithium (Li)-Total	-	-	0.0132	0.00022	0.00018	0.00021	0.00251	
Magnesium (Mg)-Total	-	-	36.3	7.44	5.78	7.5	20.4	
Manganese (Mn)-Total	-	-	2.15	0.413	0.353	0.496	0.354	
Mercury (Hg)-Total	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	
Molybdenum (Mo)-Total	-	-	0.00119	0.00651	0.00696	0.00418	0.00143	
Nickel (Ni)-Total	-	-	0.00565	0.00157	0.00139	0.0012	0.00658	
Phosphorus(P)-Total	-	-	<0.050	0.098	0.123	0.201	0.257	
Potassium (K)-Total	-	-	3.84	1.04	0.7	0.77	3.45	
Selenium (Se)-Total	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
Silicon (Si)-Total	-	-	12.8	7	7	7.9	18.9	
Silver (Ag)-Total	-	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
Sodium (Na)-Total	-	-	64.9	14.1	11	9.15	48.8	
Strontium (Sr)-Total	-	-	0.64	0.246	0.212	0.178	0.468	
Sulfur (S)-Total	-	-	24	14	7.5	5.5	39.4	
Tellurium (Te)-Total	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
Thallium (Tl)-Total	-	-	0.000042	0.000037	<0.000020	<0.000020	0.000022	
Thorium (Th)-Total	-	-	<0.00010	0.00011	0.00016	<0.00010	0.00024	
Tin (Sn)-Total	-	-	0.00098	0.00024	<0.00020	<0.00020	<0.00020	
Titanium (Ti)-Total	-	-	0.0077	<0.0050	<0.0050	0.0184	0.431	
Uranium (U)-Total	-	-	0.00751	0.00114	0.000725	0.000842	0.00329	
Vanadium (V)-Total	-	-	<0.0010	<0.0010	<0.0010	0.0019	0.018	
Zinc (Zn)-Total	-	-	0.0089	<0.0040	<0.0040	<0.0040	0.0242	
Zirconium (Zr)-Total	-	-	0.00022	0.00016	0.00022	0.00014	0.0004	

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			8082741-01	8082741-02	8082741-03	8082741-04	8082741-05
			MW6	MW3S	MW3D	MW2	SB2
Date Sampled	Aquatic Life	Drinking Water	2018-08-28	2018-08-28	2018-08-28	2018-08-28	2018-08-28
Physical Tests mg/L							
Hardness (as CaCO3)	-	-	542	138	97.5	119	369
Dissolved Metals mg/L							
Aluminum (Al)-Dissolved	-	9.5	<0.0050	<0.0050	0.005	0.0064	<0.0050
Antimony (Sb)-Dissolved	0.2	0.006	0.00026	<0.00020	<0.00020	<0.00020	<0.00020
Arsenic (As)-Dissolved	0.05	0.01	0.00395	0.00113	0.00137	0.00187	<0.00050
Barium (Ba)-Dissolved	10	1	0.0761	0.0285	0.0199	0.0281	0.0175
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	0.078	0.0211	0.022	0.0212	0.0382
Cadmium (Cd)-Dissolved	0.0001 (H< 30)	0.005					
	0.0003 (H=30 -<90						
	0.0005 (H=90-<150		0.000013	<0.000010	<0.000010		
	0.0006 (H=150-<210)		<0.000010				0.00002
Calcium (Ca)-Dissolved	-	-	163	44.2	30.4	36.5	119
Chromium (Cr)-Dissolved	0.01	0.05	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Colbalt (Co)-Dissolved	0.04	-	0.00208	0.00058	0.00037	0.00028	0.00021
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	
	0.06 (H=125-<150)			<0.00040			
	0.07 (H=150-<175)						
	0.08 (H=175-<200)						
	0.09 (H>200)		<0.00040				0.00139
Iron (Fe)-Dissolved	-	6.5	2.2	0.077	0.133	0.223	<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	-	-	0.0117	<0.00010	<0.00010	<0.00010	0.00019
Magnesium (Mg)-Dissolved	-	100	32.9	6.78	5.22	6.76	17.4
Manganese (Mn)-Dissolved	-	0.55	1.98	0.379	0.322	0.453	0.0584
Mercury (Hg)-Dissolved	0.001	0.001	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040
Molybdenum (Mo)-Dissolved	10	0.25	0.0006	0.0059	0.00619	0.00374	0.00132
Nickel (Ni)-Dissolved	0.25 (H<60)	-					
	0.65 (H=60-<120)				0.00089	0.00046	
	1.1 (H=120-<180)			0.00114			
	1.5 (H>=180)		0.00238				0.00067
Phosphorus(P)-Dissolved	-	-	<0.050	0.058	0.118	0.16	<0.050
Potassium (K)-Dissolved	-	-	3.47	0.91	0.61	0.67	2.42
Selenium (Se)-Dissolved	0.01	0.01	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Silicon (Si)-Dissolved	-	-	11.5	6.1	6.1	6.7	7.3
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	59.1	12.8	10.1	8.56	46.5
Strontium (Sr)-Dissolved	-	-	0.569	0.214	0.185	0.157	0.401
Sulfur (S)-Dissolved	-	-	21.9	13	7.4	5.3	36.2
Tellurium (Te)-Dissolved	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Thallium (Tl)-Dissolved	0.003	-	<0.000020	0.000021	<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	0.00672	0.001	0.000622	0.000722	0.00277
Vanadium (V)-Dissolved	-	-	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)-Dissolved	0.075 (H<90)	5					
	0.150 (H=90-<100)				<0.0040		
	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			8082741-01	8082741-02	8082741-03	8082741-04	8082741-05
			MW6	MW3S	MW3D	MW2	SB2
Date Sampled	Aquatic Life	Drinking Water	2018-08-28	2018-08-28	2018-08-28	2018-08-28	2018-08-28
Turbidity (NTU)	-	-	15.7	4.25	4.84	29.8	223
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	<0.084	0.193	<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	8082741-06	8082741-07
Sample ID			LE-1	SW1
Date Sampled/Time			2018-08-28	2018-08-28
Physical Tests				
Colour, True (Colour Units)	15 TCU	15 ⁽¹⁾ units absolute, or 5 units above background (30-day average)	5	<5.0
Total Dissolved Solids (mg/L)	-	-	-	-
Total Suspended Solids (mg/L)	-	25 mg/L above background (24-hr during clear flow)	3.6	<2.0
pH	7-10.5	6.5-9	7.55	7.46
Conductivity (uS/cm)	-	-	11500	679
Hardness (as CaCO3)	-	-	3050	318
Turbidity (NTU)	Δ1 NTU	8 NTU above background (24-hr during clear flow)	2.37	0.29
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		<1.0	<1.0
Acid Sensitivity			Low	Low
Chloride (Cl)	250 mg/L	600 mg/L (instant max), 150 mg/L (30-day average)	2820	26.1
Fluoride (F)	1.5 mg/L (instant max) 1.0 mg/L (30-day average)	0.4 (Hardness <10mg/L)	0.32	<0.10
		Hardness-Dependent AW (Hardness is >10mg/L) ⁽³⁾	0.30	0.29
Nitrate (as N)	45 mg/L	32.8 mg/L (instant maximum) 3.0 mg/L (30-day average)	1.72	0.211
Nitrite (as N) ⁽²⁾	3 mg/L	Cl > 10 mg/L 0.6 mg/L (MAX), 0.2 mg/L (30-day average)	<0.010	<0.010
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	1560	95.1

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	318
pH	7-10.5	6.5-9	7.55	7.46
Total Metals (mg/L)				
Aluminum (Al)-Total	0.2	-	0.0871	0.0199
Antimony (Sb)-Total	-	-	0.0004	0.00022
Arsenic (As)-Total	0.01	0.005	0.00054	<0.00050
Barium (Ba)-Total	-	-	0.064	0.0237
Beryllium (Be)-Total	-	-	<0.00010	<0.00010
Bismuth, total	-	-	<0.00010	<0.00010
Boron (B)-Total	5	1.2	0.293	0.0237
Cadmium (Cd)-Total	-	-	0.000777	0.000019
Calcium (Ca)-Total	-	-	882	111
Chromium (Cr)-Total Chromium	-	-	0.00076	<0.00050
Chromium (Cr(III))	-	-	-	<0.00100
Chromium (Cr(VI))	-	-	-	<0.0010
Cobalt (Co)-Total	-	0.110 (Short Term), 0.004 (Long Term Average)	0.00751	0.0001
Copper (Cu)-Total	0.5	Hardness-Dependent ⁽⁷⁾	0.00621	0.0016
		Hardness-Dependent BCAWQG to protect AW ⁽³⁾ (instant	0.2887	0.0319
		Hardness-Dependent BCAWQG to protect AW ⁽³⁾ (30-d	0.1220	0.0127
		average)		
Iron (Fe)-Total	-	1	0.087	0.011
Lead (Pb)-Total	0.01	Hardness-Dependent ⁽³⁾	<0.00020	<0.00020
		Hardness-Dependent BCAWQG to protect AW ⁽³⁾ (instant	6.3306	0.3561
		max)		
		Hardness-Dependent BCAWQG to protect AW ⁽³⁾ (30-d	0.2503	0.0172
		average)		
Lithium (Li)-Total	-	-	0.0006	0.00034
Magnesium (Mg)-Total	-	-	241	15.6
Manganese (Mn)-Total	-	Hardness Dependent ⁽³⁾	28.1	0.16
		Hardness-Dependent BCAWQG to protect AW ⁽³⁾ (instant	34.2	4.0
		max)		
		Hardness-Dependent BCAWQG to protect AW ⁽³⁾ (30-d	14.0	2.0
		average)		
Mercury (Hg)-Total	0.001	0.00002	<0.000010	<0.000010
Molybdenum (Mo)-Total	0.25	≤1 (instant max) 2 (30-d average)	0.00167	0.00184
Nickel (Ni)-Total	-	0.025 (Hardness-Dependent ⁽³⁾ BCAWWQG to protect AW H<60mg/L)	0.0107	0.00143
		Calculated Hardness-Dependent ⁽³⁾ BCAWWQG to protect AW 60≤H≤180 mg/L CaCO3	1.283	0.230
Phosphorus(P)-Total	-	-	<0.050	<0.050
Potassium (K)-Total	-	-	21.4	1.25
Selenium (Se)-Total	0.01	0.002	<0.00050	<0.00050
Silicon (Si)-Total	-	-	7.2	8.4
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)	0.000097	<0.000050
Sodium (Na)-Total	-	-	1590	11.6
Strontium (Sr)-Total	-	-	4.55	0.337
Sulfur (S)-Total	-	-	698	34.3
Tellurium (Te)-Total	-	-	<0.00050	<0.00050
Thallium (Tl)-Total	-	-	0.000069	<0.000020
Thorium (Th)-Total	-	-	<0.00010	<0.00010
Tin (Sn)-Total	-	-	0.00023	<0.00020
Titanium (Ti)-Total	-	-	<0.0050	<0.0050
Uranium (U)-Total	-	-	0.000324	0.00272
Vanadium (V)-Total	-	-	<0.0010	0.0012
Zinc (Zn)-Total	5.0	Hardness >90 mg/L	0.0526	0.0085
		Hardness-Dependent BCAWQG to protect AW ⁽³⁾ (instant	2.253	0.204
		max)		
		Hardness-Dependent BCAWQG to protect AW ⁽³⁾ (30-d	2.228	0.179
		average)		
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	318
pH	7-10.5	6.5-9	7.55	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	0.0291	<0.0050
		pH/Hardness Dependent BCAWQG to protect AW ⁽⁴⁾ (instant max)	0.447	0.378
		pH/Hardness Dependent BCAWQG to protect AW ⁽⁴⁾ (30-d Mean)	0.547	0.428
Antimony (Sb)-Dissolved	-	-	0.00037	<0.00020
Arsenic (As)-Dissolved	-	-	<0.00050	<0.00050
Barium (Ba)-Dissolved	-	-	0.0565	0.0206
Beryllium (Be)-Dissolved	-	-	<0.00010	<0.00010
Bismuth (Bi)-Dissolved	-	-	<0.00010	<0.00010
Boron (B)-Dissolved	-	-	0.259	0.0224
Cadmium (Cd)-Dissolved	-	Hardness-Dependent ⁽³⁾	0.000655	0.000023
	-	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	0.00194
	-	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	Hardness exceeds 285mg/L
Calcium (Ca)-Dissolved	-	up to 4, highly sensitive to acid inputs 4 to 8, moderately sensitive over 8 low sensitivity	848	103
Chromium (Cr)-Dissolved	-	-	Low	Low
Cobalt (Co)-Dissolved	-	-	0.00063	<0.00050
Copper (Cu)-Dissolved	-	-	0.00663	<0.00010
Iron (Fe)-Dissolved	-	0.35	0.00409	0.00114
Lead (Pb)-Dissolved	-	-	0.015	<0.010
Lithium, dissolved	-	-	<0.00020	<0.00020
Magnesium (Mg)-Dissolved	-	-	0.00045	0.00018
Manganese (Mn)-Dissolved	-	-	226	14.5
Mercury (Hg)-Dissolved	-	-	26.9	0.137
Molybdenum (Mo)-Dissolved	-	-	<0.000040	<0.000040
Nickel (Ni)-Dissolved	-	-	0.00175	0.00154
Phosphorus (P)-Dissolved	-	-	0.00912	0.00105
Potassium (K)-Dissolved	-	-	<0.050	<0.050
Selenium (Se)-Dissolved	-	-	20.3	1.14
Silicon (Si)-Dissolved	-	-	<0.00050	<0.00050
Silver (Ag)-Dissolved	-	-	6.5	7.8
Sodium (Na)-Dissolved	-	-	0.000055	<0.000050
Strontium (Sr)-dissolved	-	-	1520	10.8
Sulfur (S)-Dissolved	-	-	4.09	0.291
Tellurium (Te)-Dissolved	-	-	638	30.2
Thallium (Tl)-Dissolved	-	-	<0.00050	<0.00050
Thorium (Th)-Dissolved	-	-	0.000066	<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	-	-	0.000297	0.0025
Zinc (Zn)-Dissolved	-	-	<0.0010	<0.0010
Zirconium (Zr)-Dissolved	-	-	0.0367	<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	-	-	<250	<250
HEPH	-	-	<250	<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			<0.100	<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)