

**From:** [SPOMO1701@outlook.com](mailto:SPOMO1701@outlook.com)  
**To:** [Environmental.Compliance ENV:EX; marty@chholdings.ca](mailto:Environmental.Compliance ENV:EX; marty@chholdings.ca)  
**Subject:** SPO MO1701-Status Update February 28, 2019  
**Date:** February 28, 2019 19:50:12  
**Attachments:** [Feb 28, 2019 CHH Progress Report.pdf](#)  
[COA CHH JAN 2019 \(2\).xlsx](#)  
[COA CHH JAN 2019.pdf](#)  
[COA CHH JAN 2019.xlsx](#)  
[CHH Jan 2019-Surface Water Quality DATA-CLOSURE PLAN.pdf](#)  
[CHH Jan 2019-Ground Water Quality DATA-CLOSURE PLAN.pdf](#)  
[Manifests Jan 2019 CHH.pdf](#)

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- ***Please find information regarding the Leachate reporting requirements for the February 28, 2019 reporting period as per SPILL PREVENTION ORDER : MO1701 Section 1d***

Total Leachate Collected= 4.48 m<sup>3</sup>

Total Leachate Stored= 11.79 m<sup>3</sup>

Total Leachate Transported= 0.00 m<sup>3</sup> (Leachate removal occurred on January 24, 2019.

Manifests are included as attachments)

- ***Sampling was conducted on February 25 , 2019 as per Section 6biii of File 311372 August 11, 2017 letter. Laboratory results are pending. Tabulated laboratory results for the January reporting period and COA's are attached.***

***Sampling Summary:***

1. *SHA-SW1*
2. *SHA-SW2 (no flow)*
3. *MW6*
4. *MW3*
5. *MW2*
6. *SHA-LE-1*
7. *SHA-LD-1 (Dry)*
8. *SB-1*
9. *SB-2*
10. *SB-3 (Insufficient volume)*

- ***Attached is the QP Progress Report for February 28, 2019 as per File 311372 August 11, 2017 letter.***

Thank you



<b>FIELD REVIEW REPORT</b>		DATE: <b>Feb 28, 2019</b>	ISLANDER PROJECT No.: <b>2087</b>
REPORT No: <b>39</b>	STAGE OF CONSTRUCTION: <b>Landfill Closure</b>	WEATHER: <b>Sun 0°C</b>	PAGE: <b>1 of 3</b>
PROJECT: <b>Cobble Hill Landfill 2017 Minor Construction Works</b>			
TO: <b>CHH</b>	ATTENTION: <b>Marty Block</b>		
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: = 4.48 m<sup>3</sup>
  - Total leachate stored = 11.79 m<sup>3</sup>
  - Total leachate transported = 0 m<sup>3</sup>
- **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



<b>FIELD REVIEW REPORT</b>		DATE: <b>Feb 28, 2019</b>	ISLANDER PROJECT No.: <b>2087</b>
REPORT No: <b>39</b>	STAGE OF CONSTRUCTION: <b>Landfill Closure</b>	WEATHER: <b>Sun 0°C</b>	PAGE: <b>2 of 3</b>



**SMA - looking south**



**SMA – looking north**



**Contact water containment Pond**



**Leak and leachate detection works**



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**PEA – liner near NE corner**



**PEA– NW corner**



**Cut-off ditch upland of PEA**



**PEA north face**

# WASTE ACCEPTANCE FORM

SFL Wastewater Recovery 2007 Inc.  
 995 Harry Eng Place Victoria, V8B 6B2, BC  
 Tel: (250) 515-1304 Fax: (250) 351-7893  
 G.S.T. #: 831842156RT0001

TICKET: 98779

DATE: Jan 24, 2019

PERMIT STICKER:

TIME IN: 12:43      TIME OUT: 13:03

LICENSE: 4350 1C

HAULER: Coast Environmental Ltd

VOLUME DISCHARGED: 8209.00

**SOURCES:**

ST #	STREET NAME	MUNICIPALITY	TYPE	APPROX GL	PRICE/PER	TOTAL
0	NONE	CVRD	Other	82099.00		

Allegory Const.  
Certificate

GST 5%

TOTAL

**DRIVER DECLARATION**

I CERTIFY THAT THE ABOVE DESCRIBED WASTES DO NOT CONTAIN ANY MATERIALS OR SUBSTANCES WHICH ARE NOT PERMITTED BY APPLICABLE LAW TO BE DISPOSED AT THIS FACILITY, THAT THEY DO NOT CONTAIN ANY HAZARDOUS MATERIALS, AND THAT ALL INFORMATION CONTAINED IN THIS FORM IS TRUE AND CORRECT

DRIVER NAME

DRIVER SIGNATURE

**OPERATOR DECLARATION**

I CERTIFY THAT THE ABOVE DESCRIBED TRUCK LOAD WAS DISCHARGED AT THE SFL SEPTAGE PROCESSING FACILITY I HAVE NO KNOWLEDGE OF THE CONTENT OF THE TRUCK LOAD OTHER THAN THE INFORMATION GIVEN ON THIS FORM BY THE HAULER. PAYMENT HAS BEEN MADE IN THE FOLLOWING MANNER:

PAYMENT RECEIVED

BILLED ON ACCOUNT

OPERATOR NAME

OPERATOR SIGNATURE

# WASTE ACCEPTANCE FORM

SPL Wastewater Recovery 2007 Inc.  
 998 Harry Eng Place Victoria, V8B 6B2, BC  
 Tel: (250) 915-1304 Fax: (250) 391-7898  
 G.S.T. #: 831842158RT0001

TICKET: 98779

DATE: Jan 24, 2019

PERMIT STICKER:

TIME IN: 12:43      TIME OUT: 15:08

LICENSE: 4350 1C

HAULER: Coast Environmental Ltd

VOLUME DISCHARGED: 8299.00

**SOURCES:**

ST #	STREET NAME	MUNICIPALITY	TYPE	APPROX GL	PRICE/PER	TOTAL
0	NONE	CVRD	Other	82099.00		

After Const.  
Cecehate.

GST 5%

TOTAL

**DRIVER DECLARATION**

I CERTIFY THAT THE ABOVE DESCRIBED WASTES DO NOT CONTAIN ANY MATERIALS OR SUBSTANCES WHICH ARE NOT PERMITTED BY APPLICABLE LAW TO BE DISPOSED AT THIS FACILITY, THAT THEY DO NOT CONTAIN ANY HAZARDOUS MATERIALS, AND THAT ALL INFORMATION CONTAINED IN THIS FORM IS TRUE AND CORRECT

DRIVER NAME

DRIVER SIGNATURE

**OPERATOR DECLARATION**

I CERTIFY THAT THE ABOVE DESCRIBED TRUCK LOAD WAS DISCHARGED AT THE SPL SEPTAGE PROCESSING FACILITY I HAVE NO KNOWLEDGE OF THE CONTENT OF THE TRUCK LOAD OTHER THAN THE INFORMATION GIVEN ON THIS FORM BY THE HAULER. PAYMENT HAS BEEN MADE IN THE FOLLOWING MANNER:

PAYMENT RECEIVED

BILLED ON ACCOUNT

OPERATOR NAME

OPERATOR SIGNATURE



# CERTIFICATE OF WASTE RECEIVED TREATMENT / DISPOSAL / RECYCLING

(To Accompany Transporter and Delivery to Facility)

Classification:

x	< 3%
	Leachate
	Other

Document No. \_\_\_\_\_  
 Client Name: Allterra Construction Ltd  
 Client PO/Job No. \_\_\_\_\_

GENERATOR: \_\_\_\_\_

### Section 1 : Generator

Generator Name: Allterra Construction Ltd Site Location: 460 Stebbings Rd  
Shawnigan Lake  
 Generator Address: 2158 Millstream Rd, Victoria Site Address: \_\_\_\_\_  
V9B 6H4  
 Generator Phone #: \_\_\_\_\_ Site Phone #: 250-658-3772

Description of Waste: Non-Regulated Wastewater

Bob Schorler  
 Generator's Representative  
 Name

[Signature]  
 Signature

1/24/19  
 Shipment Date

### Section 2 : Transporter

	DESCRIPTION	Estimated Quantity (kg/Litres)	Actual Quantity (kg/Litres)	Total Volume (Kg/Litres)
Transporter Load Size:	Leachate	21000		
BCG No.				
Emergency No.				

BCG No. N/A  
 Emergency No. 1-250-252-0586

Company Name: Coast Environmental Ltd  
 Address: 2673 Sooke Rd, Victoria

Driver Name/ Title: Coast Environmental Ltd  
 Phone #: 250-380-1166

Vehicle License #/Prov.: \_\_\_\_\_

Acknowledgement of Materials:  
[Signature]  
 Driver Signature

1/24/19  
 Shipment Date

### Section 3 : Destination (to be completed by Coast Environmental)

SPL - Wastewater Treatment Facility  
 995 Henry Eng Place, Victoria, BC V9B 6B2

Onsite Manger: Michael Beaumont  
 Phone: (250) 883-2829  
 Office: (250) 391-7892

Receiver Comments:  
 (location, type, special handling)

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accepted

Scott Stirling  
 Name of Authorized Agent

[Signature]  
 Signature

Jan 24/19  
 Receipt Date



# CERTIFICATE OF WASTE RECEIVED TREATMENT / DISPOSAL / RECYCLING

(To Accompany Transporter and Delivery to Facility)

Classification:

x	< 3%
	Leachate
	Other

Document No. \_\_\_\_\_

Client Name: Allterra Construction Ltd

Client PO/Job No. \_\_\_\_\_

GENERATOR :

### Section 1 : Generator

Generator Name: Allterra Construction Ltd Site Location: 460 Stebbings Rd  
Shawnigan Lake

Generator Address: 2158 Millstream Rd, Victoria Site Address: \_\_\_\_\_  
V9B 6H4

Generator Phone #: \_\_\_\_\_ Site Phone #: 250-658-3772

Description of Waste: Non-Regulated Wastewater

Generator's Representative Name: [Signature] Signature: [Signature] Shipment Date: 1/24/19

### Section 2 : Transporter

DESCRIPTION	Estimated Quantity (kg/Litres)	ACTUAL Quantity (kg/Litres)	Total Volume (Kg/Litres)
Leachate	31000		

Transporter Load Size: \_\_\_\_\_

BCG No. N/A

Emergency No. 1-250-252-0586

Company Name: Coast Environmental Ltd

Address: 2673 Sooke Rd, Victoria

Driver Name/ Title: Coast Environmental Ltd

Phone #: 250-380-1166

Vehicle License #/Prov.: \_\_\_\_\_

Acknowledgement of Materials:

Driver Signature: [Signature] Shipment Date: 1/24/19

### Section 3 : Destination (to be completed by Coast Environmental)

SPL - Wastewater Treatment Facility  
995 Henry Eng Place, Victoria, BC V9B 8B2

Onsite Manger: Michael Beaumont  
Phone: (250) 883-2829  
Office: (250) 391-7892

Receiver Comments:  
(location, type, special handling)

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accepted

Name of Authorized Agent: [Signature] Signature: [Signature] Receipt Date: Jan 24/19



Table 1: Analytical Results for Nutrients			SHA-LE-1	SHA-SW-1	SHA-SW-2
Laboratory ID			9012421-01	9011881-07	9011881-08
Sample ID	BC DRINKING WATER QUALITY GUIDELINES	BC FRESHWATER AQUATIC LIFE WATER QUALITY GUIDELINES	LE-1	SW1	SW2
Date Sampled/Time			2019-01-30	2019-01-23	2019-01-23
<b>Physical Tests</b>					
Colour, True (Colour Units)	15 TCU	15 <sup>(1)</sup> units absolute, or 5 units above background (30-day average)	<5.0	<5.0	7.3
Total Dissolved Solids (mg/L)	-	-	-	-	-
Total Suspended Solids (mg/L)	-	25 mg/L above background (24-hr during clear flow)	<2.0	2.2	3.2
pH	7-10.5	6.5-9	6.69	7.52	6.53
Conductivity (uS/cm)	-	-	10600	200	22.7
Hardness (as CaCO3)	-	-	2650	78.9	7.27
Turbidity (NTU)	Δ1 NTU	8 NTU above background (24-hr during clear flow)	1.12	9.34	3.63
<b>Anions and Nutrients mg/L</b>					
Alkalinity Total (as CaCO3)	<10 high sensitivity to acid inputs		4.8	54.7	3.7
Acid Sensitivity	10-20 moderate sensitivity to acid inputs		High	Low	Low
	>20 low sensitivity to acid inputs				
Chloride (Cl)	250 mg/L	600 mg/L (instant max), 150 mg/L (30-day average)	2820	6.07	2.33
Fluoride (F)	1.5 mg/L (instant max) 1.0 mg/L (30-day average)	0.4 (Hardness <10mg/L)	<1.00	<0.10	<0.10
		Hardness-Dependent AW (Hardness is >10mg/L) <sup>(3)</sup>	0.25	0.29	0.24
Nitrate (as N)	45 mg/L	32.8 mg/L (instant maximum) 3.0 mg/L (30-day average)	1.5	0.215	<0.010
Nitrite (as N) <sup>(2)</sup>	3 mg/L	Cl > 10 mg/L 0.6 mg/L (MAX), 0.2 mg/L (30-day average)	<0.100	<0.010	<0.010
Sulfate (SO4) H 0-30 mg/L	500 mg/L	128 mg/L 30-day average			2.2
		218 mg/L (30-day average)		33.6	
		309 mg/L (30-day average)			
		429 mg/L (30-day average)			
		TBD	1430		

Notes: Refer to Table Endnotes (attached)

Table 2: Analytical Results for Total Metals			SHA-LE-1	SHA-SW-1	SHA-SW-2
Laboratory ID	BC DRINKING WATER QUALITY GUIDELINES	BC FRESHWATER AQUATIC LIFE WATER QUALITY GUIDELINES	9012421-01	9011881-07	9011881-08
Sample ID			LE-1	SW1	SW2
Date Sampled/Time			2019-01-30	2019-01-23	2019-01-23
<b>Physical Tests</b>					
Hardness (as CaCO <sub>3</sub> ) (mg/L)	-	-	2650	78.9	7.27
pH	7-10.5	6.5-9	6.69	7.52	6.53
<b>Total Metals (mg/L)</b>					
Aluminum (Al)-Total	0.2	-	0.0248	0.214	0.145
Antimony (Sb)-Total	-	-	0.0002	<0.0020	<0.00020
Arsenic (As)-Total	0.01	0.005	<0.00050	<0.00050	<0.00050
Barium (Ba)-Total	-	-	0.0095	0.0055	<0.0050
Beryllium (Be)-Total	-	-	<0.00010	<0.00010	<0.00010
Bismuth, total	-	-	<0.00010	<0.00010	<0.00010
Boron (B)-Total	5	1.2	0.227	0.0088	<0.0050
Cadmium (Cd)-Total	-	-	0.000024	<0.000010	<0.000010
Calcium (Ca)-Total	-	-	767	24.9	2.21
Chromium (Cr)-Total	-	-	0.00096	0.00057	<0.00050
Chromium (Cr(III))	-	-	-	<0.00100	<0.00100
Chromium (Cr(VI))	-	-	-	<0.0010	<0.0010
Cobalt (Co)-Total	-	0.110 (Short Term), 0.004 (Long Term Average)	0.00032	0.00017	<0.00010
Copper (Cu)-Total	0.5	Hardness-Dependent <sup>(7)</sup>	0.00076	0.00175	0.00095
		Hardness-Dependent BCAWQG to protect AW <sup>(8)</sup> (instant)	0.2511	0.0094	0.0027
		Hardness-Dependent BCAWQG to protect AW <sup>(8)</sup> (30-d average)	0.1060	0.0032	0.0020
Iron (Fe)-Total	-	1	<0.010	0.259	0.092
Lead (Pb)-Total	0.01	Hardness-Dependent <sup>(8)</sup>	<0.00020	0.00022	<0.00020
		Hardness-Dependent BCAWQG to protect AW <sup>(8)</sup> (instant max)	5.2932	0.0604	0.0030
		Hardness-Dependent BCAWQG to protect AW <sup>(8)</sup> (30-d average)	0.2098	0.0057	Hardness is less than 8 mg/L
Lithium (Li)-Total	-	-	0.00027	0.00026	0.0001
Magnesium (Mg)-Total	-	-	205	3.82	0.469
Manganese (Mn)-Total	-	Hardness-Dependent <sup>(8)</sup>	0.139	0.00509	0.00296
		Hardness-Dependent BCAWQG to protect AW <sup>(8)</sup> (instant max)	29.7	1.4	0.6
		Hardness-Dependent BCAWQG to protect AW <sup>(8)</sup> (30-d average)	12.3	1.0	0.6
Mercury (Hg)-Total	0.001	0.00002	<0.000010	<0.000010	<0.000010
Molybdenum (Mo)-Total	0.25	≤1 (instant max) 2 (30-d average)	<0.00010	0.00046	<0.00010
Nickel (Ni)-Total	-	0.025 (Hardness-Dependent <sup>(8)</sup> BCAWQG to protect AW H=60mg/L)	0.00227	0.00085	0.00047
		Calculated Hardness-Dependent <sup>(8)</sup> BCAWQG to protect AW 60SHS180 mg/L CaCO <sub>3</sub>	1.153	0.080	0.025
Phosphorus(P)-Total	-	-	<0.050	<0.050	<0.050
Potassium (K)-Total	-	-	31.4	0.44	0.16
Selenium (Se)-Total	0.01	0.002	<0.00050	<0.00050	<0.00050
Silicon (Si)-Total	-	-	5.9	3.6	2.1
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)	<0.000050	<0.000050	<0.000050
Sodium (Na)-Total	-	-	1470	4.46	1.29
Strontium (Sr)-Total	-	-	3.72	0.0706	0.009
Sulfur (S)-Total	-	-	604	11.4	<3.0
Tellurium (Te)-Total	-	-	<0.00050	<0.00050	<0.00050
Thallium (Tl)-Total	-	-	<0.000020	<0.000020	<0.000020
Thorium (Th)-Total	-	-	<0.00010	<0.00010	<0.00010
Tin (Sn)-Total	-	-	<0.00020	<0.00020	<0.00020
Titanium (Ti)-Total	-	-	<0.0050	0.0089	0.0058
Uranium (U)-Total	-	-	0.000033	0.000218	<0.000020
Vanadium (V)-Total	-	-	<0.0010	0.0011	<0.0010
Zinc (Zn)-Total	5.0	Hardness >90 mg/L	0.0059	<0.0040	<0.0040
		Hardness-Dependent BCAWQG to protect AW <sup>(8)</sup> (instant max)	1.953	0.033	0.033
		Hardness-Dependent BCAWQG to protect AW <sup>(8)</sup> (30-d average)	1.928	0.008	0.008
Zirconium (Zr)-Total	-	-	<0.00010	<0.00010	<0.00010

Table 3: Analytical Results for Dissolved Metals			SHA-LE-1	SHA-SW-1	SHA-SW-2
Laboratory ID			9012421-01	9011881-07	9011881-08
Sample ID	BC DRINKING WATER QUALITY GUIDELINES	BC FRESHWATER AQUATIC LIFE WATER QUALITY GUIDELINES	LE-1	SW1	SW2
Date Sampled/Time			2019-01-30	2019-01-23	2019-01-23
<b>Physical Tests</b>					
Hardness (as CaCO <sub>3</sub> ) (mg/L)	-	-	2650	78.9	7.27
pH	7-10.5	6.5-9	6.69	7.52	6.53
<b>Dissolved Metals (mg/L)</b>					
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	0.0203	0.0081	0.0668
		pH/Hardness Dependent BCAWQG to protect AW <sup>(4)</sup> (instant max)	0.109	0.423	0.087
		pH/Hardness Dependent BCAWQG to protect AW <sup>(4)</sup> (30-d Mean)	0.070	0.504	0.051
Antimony (Sb)-Dissolved	-	-	<0.00020	<0.00020	<0.00020
Arsenic (As)-Dissolved	-	-	<0.00050	<0.00050	<0.00050
Barium (Ba)-Dissolved	-	-	0.009	<0.0050	<0.0050
Beryllium (Be)-Dissolved	-	-	<0.00010	<0.00010	<0.00010
Bismuth (Bi)-Dissolved	-	-	<0.00010	<0.00010	<0.00010
Boron (B)-Dissolved	-	-	0.227	0.0083	<0.0050
Cadmium (Cd)-Dissolved	-	<b>Hardness-Dependent<sup>(3)</sup></b>	0.000025	<0.000010	<0.000010
		Calculated Hardness-Dependent <sup>(a)</sup> BCAWQG to protect AW (short-term max) $e[1.03 * \ln(Hss) - 5.274]$ ug/L H<455mg/L	Hardness exceeds 455mg/L	0.00046	0.00004
		Calculated Hardness-Dependent BCAWQG to protect AW <sup>(3)</sup> (long-term max) $e[0.736 * \ln(Hss) - 4.943]$ ug/L H<285mg/L	Hardness exceeds 285mg/L	0.00018	0.00003
Calcium (Ca)-Dissolved	-	up to 4, highly sensitive to acid inputs 4 to 8, moderately sensitive over 8 low sensitivity	732 Low	25.3 Low	2.18 High
Chromium (Cr)-Dissolved	-	-	0.00093	0.00094	<0.00050
Cobalt (Co)-Dissolved	-	-	0.00029	<0.00010	<0.00010
Copper (Cu)-Dissolved	-	-	0.00076	0.00094	0.00065
Iron (Fe)-Dissolved	-	0.35	0.013	<0.010	0.013
Lead (Pb)-Dissolved	-	-	<0.00020	<0.00020	<0.00020
Lithium, dissolved	-	-	0.0003	<0.00010	<0.00010
Magnesium (Mg)-Dissolved	-	-	198	3.82	0.444
Manganese (Mn)-Dissolved	-	-	0.0972	0.00096	0.00128
Mercury (Hg)-Dissolved	-	-	<0.000040	<0.000040	<0.000040
Molybdenum (Mo)-Dissolved	-	-	<0.00010	0.00059	<0.00010
Nickel (Ni)-Dissolved	-	-	0.00242	0.00048	<0.00040
Phosphorus (P)-Dissolved	-	-	<0.050	<0.050	<0.050
Potassium (K)-Dissolved	-	-	30.3	0.43	0.15
Selenium (Se)-Dissolved	-	-	<0.00050	<0.00050	<0.00050
Silicon (Si)-Dissolved	-	-	5.5	3.3	1.9
Silver (Ag)-Dissolved	-	-	<0.000050	<0.000050	<0.000050
Sodium (Na)-Dissolved	-	-	1430	4.5	1.24
Strontium (Sr)-dissolved	-	-	3.69	0.0728	0.0093
Sulfur (S)-Dissolved	-	-	597	11.5	<3.0
Tellurium (Te)-Dissolved	-	-	<0.00050	<0.00050	<0.00050
Thallium (Tl)-Dissolved	-	-	<0.000020	<0.000020	<0.000020
Thorium (Th)-Dissolved	-	-	<0.00010	<0.00010	<0.00010
Tin (Sn)-Dissolved	-	-	<0.00020	<0.00020	<0.00020
Titanium (Ti)-Dissolved	-	-	<0.0050	<0.0050	<0.0050
Uranium (U)-Dissolved	-	-	0.000033	0.000216	<0.000020
Vanadium (V)-Dissolved	-	-	<0.0010	<0.0010	<0.0010
Zinc (Zn)-Dissolved	-	-	0.0051	<0.0040	<0.0040
Zirconium (Zr)-Dissolved	-	-	<0.00010	<0.00010	<0.00010

Notes: Refer to Table Endnotes (attached)

Table 4: Analytical Results for Hydrocarbons and PAHs			SHA-LE-1	SHA-SW-1	SHA-SW-2
Laboratory ID	BC DRINKING WATER QUALITY GUIDELINES	BC FRESHWATER AQUATIC LIFE WATER QUALITY GUIDELINES	9012421-01	9011881-07	9011881-08
Sample ID			LE-1	SW1	SW2
Date Sampled/ Time			2019-01-30	2019-01-23	2019-01-23
<b>Hydrocarbons ug/L</b>					
LEPH	-	-	1490	<250	<250
HEPH	-	-	1630	<250	<250
<b>Polycyclic Aromatic</b>					
Acenaphthene	-	6 (LONG TERM)	<0.050	<0.050	<0.050
Acenaphthylene	-	-	<0.200	<0.200	<0.200
Acridine	-	3 (LONG TERM), 0.05 (PHOTOTOXIC)	0.097	<0.050	<0.050
Anthracene	-	4 (LONG TERM), 0.1 (PHOTOTOXIC)	<0.010	<0.010	<0.010
Benz(a)anthracene	0.01	0.1 (LONG TERM), 0.1 (PHOTOTOXIC)	0.022	<0.010	<0.010
Benzo(a)pyrene	-	0.01 (LONG TERM)	0.053	<0.010	<0.010
Benzo(b)fluoranthene	-	-	-	-	-
Benzo(b+j)fluoranthene	-	-	0.055	<0.050	<0.050
Benzo(g,h,i)perylene	-	-	<0.050	<0.050	<0.050
Benzo(k)fluoranthene	-	-	0.051	<0.050	<0.050
2-Chloronaphthalene	-	-	<0.100	<0.100	<0.100
Chrysene	-	-	<0.050	<0.050	<0.050
Dibenz(a,h)anthracene	-	-	0.032	<0.010	<0.010
Fluoranthene	-	4 (LONG TERM), 0.2 (PHOTOTOXIC)	<0.030	<0.030	<0.030
Fluorene	-	12 (LONG TERM)	<0.050	<0.050	<0.050
Indeno(1,2,3-c,d)pyrene	-	-	<0.050	<0.050	<0.050
1-Methylnaphthalene	-	-	0.396	<0.100	<0.100
2-Methylnaphthalene	-	-	0.768	<0.100	<0.100
Naphthalene	-	1 (LONG TERM)	0.846	<0.200	<0.200
Phenanthrene	-	0.3 (LONG TERM)	<0.100	<0.100	<0.100
Pyrene	-	0.02 (PHOTOTOXIC)	<0.020	<0.020	<0.020
Quinoline	-	-	0.111	<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)

Table 1: Analytical Results for Nutrients

Sample Location	CSR Standards <sup>(1)</sup>		MW-6	MW-3S	MW-3D	MW-2	SB1	SB2	SB3
	As-built Well Depths		47m	23m	46m	43m	4.01m	3.28m	3.53m
Sample ID			9011881-01	9011881-02	9011881-03	9011881-09	9011881-04	9011881-05	9011881-06
			MW6	MW3S	MW3D	MW2	SB1	SB2	SB3
Date Sampled	Aquatic Life	Drinking Water	2019-01-23	2019-01-23	2019-01-23	2019-01-23	2019-01-23	2019-01-23	2019-01-23
<b>Physical Tests</b>									
Colour, True (TCU)	-	-	6	<5.0	5.3	6.2	<5.0	<5.0	<5.0
Conductivity (uS/cm)	-	-	1280	370	251	290	168	377	219
Hardness (as CaCO3) mg/L	-	-	597	150	103	62.2	66.5	159	91.9
pH (pH Units)	-	-	7.36	7.85	7.8	7.81	7.22	7.15	7.24
Total Suspended Solids mg/L	-	-	10	11.2	9.6	23.6	84	90	676
Total Dissolved Solids mg/L	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	-	-	30.2	8.41	11.3	23.3	49.2	106	587
<b>Anions and Nutrients mg/L</b>									
Alkalinity, Total (as CaCO3)	-	-	633	131	107	130	46	141	56.8
Chloride (Cl)	1500	250	38.6	14	2.63	5.72	4.6	11.5	3.74
Fluoride (F)	2 (H < 50)	1.5							
	3 (H ≥ 50)		0.14	<0.10	0.11	<0.10	<0.10	<0.10	<0.10
Nitrate (as N)	400	10	0.012	<0.010	<0.010	<0.010	0.142	0.214	0.249
Nitrite (as N) <sup>(2)</sup> 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	<0.010		
Cl 6 - <8 mg/L	0.8								
Cl 8 - <10 mg/L	1								
Cl ≥ 10 mg/L	2								
Sulfate (SO4)	1000	500	<0.010	<0.010				<0.010	<0.010
			73.2	40.2	19.7	16.1	27.2	40.5	43.7

Notes: Refer to Table Endnotes (attached)

Table 2: Analytical Results for Total Metals

Sample Location	CSR Standards <sup>(1)</sup>		MW-6	MW-3S	MW-3D	MW-2	SB1	SB2	SB3
As-built Well Depths			47m	23m	46m	43m	4.01m	3.28m	3.53m
Sample ID			9011881-01	9011881-02	9011881-03	9011881-09	9011881-04	9011881-05	9011881-06
			MW6	MW3S	MW3D	MW2	SB1	SB2	SB3
Date Sampled	Aquatic Life	Drinking Water	2019-01-23	2019-01-23	2019-01-23	2019-01-23	2019-01-23	2019-01-23	2019-01-23
<b>Physical Tests mg/L</b>									
Hardness (as CaCO3)	-	-	597	150	103	62.2	66.5	159	91.9
<b>Total Metals mg/L</b>									
Aluminum (Al)-Total	-	-	0.135	0.0511	0.0571	0.326	1.51	3.08	10.1
Antimony (Sb)-Total	-	-	0.001	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00023
Arsenic (As)-Total	-	-	0.00622	0.00126	0.0015	0.00208	<0.00050	0.00051	0.00179
Barium (Ba)-Total	-	-	0.0991	0.031	0.0207	0.033	0.0124	0.0193	0.0502
Beryllium (Be)-Total	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00023
Bismuth (Bi)- Total	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Boron (B)-Total	-	-	0.0658	0.0181	0.0222	0.0208	0.0052	0.0131	0.0109
Cadmium (Cd)-Total	-	-	0.000068	0.000077	0.000138	0.000044	0.000015	0.000014	0.000055
Calcium (Ca)-Total	-	-	174	45.6	31.2	37.4	23.4	53.4	33.5
Chromium (Cr)-Total	-	-	0.00069	<0.00050	<0.00050	0.00065	0.00191	0.00426	0.0204
Cobalt (Co)-Total	-	-	0.00429	0.00055	0.00044	0.00064	0.00192	0.00269	0.0165
Copper (Cu)-Total	-	-	0.00223	0.00043	0.00052	0.00118	0.00561	0.0113	0.0404
Iron (Fe)-Total	-	-	5.01	0.162	0.202	0.8	1.86	3.77	13.4
Lead (Pb)-Total	-	-	0.00063	<0.00020	<0.00020	0.00057	0.002	0.00115	0.00715
Lithium (Li)-Total	-	-	0.0107	0.00017	0.00014	0.00015	0.00072	0.00141	0.0061
Magnesium (Mg)-Total	-	-	36	7.37	5.49	7.44	2.87	7.98	9.05
Manganese (Mn)-Total	-	-	1.98	0.35	0.332	0.496	0.0508	0.117	0.277
Mercury (Hg)-Total	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Molybdenum (Mo)-Total	-	-	0.00168	0.00588	0.0066	0.0045	0.00032	0.00067	0.00051
Nickel (Ni)-Total	-	-	0.00904	0.00129	0.00153	0.0013	0.00447	0.00429	0.0224
Phosphorus(P)-Total	-	-	<0.050	0.107	0.127	0.206	0.071	0.119	0.504
Potassium (K)-Total	-	-	3.21	0.84	0.64	0.72	0.37	1.22	1.11
Selenium (Se)-Total	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Silicon (Si)-Total	-	-	13.3	6.7	6.8	7.7	5	10.5	19.7
Silver (Ag)-Total	-	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Sodium (Na)-Total	-	-	50.4	12.2	10.2	9.16	3.1	10.7	4.41
Strontium (Sr)-Total	-	-	0.628	0.244	0.198	0.171	0.0612	0.169	0.101
Sulfur (S)-Total	-	-	19.8	13.5	7.5	6.3	8.6	14.2	15.1
Tellurium (Te)-Total	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Thallium (Tl)-Total	-	-	0.000024	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Thorium (Th)-Total	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00013	0.00035
Tin (Sn)-Total	-	-	0.00135	<0.00020	0.0002	<0.00020	0.00027	0.00026	0.00054
Titanium (Ti)-Total	-	-	0.006	<0.0050	<0.0050	0.0194	0.0886	0.199	0.485
Uranium (U)-Total	-	-	0.00577	0.000919	0.000658	0.00087	0.000182	0.000911	0.000693
Vanadium (V)-Total	-	-	<0.0010	<0.0010	<0.0010	0.0016	0.0048	0.0087	0.0312
Zinc (Zn)-Total	-	-	0.009	<0.0040	<0.0040	<0.0040	0.0094	0.0125	0.0401
Zirconium (Zr)-Total	-	-	0.00016	0.0001	0.00017	0.00013	<0.00010	0.00016	0.00038

Notes: Refer to Table Endnotes (attached)

Table 3: Analytical Results for Dissolved Metals

Sample Location	CSR Standards <sup>(1)</sup>		MW-6	MW-3S	MW-3D	MW-2	SB1	SB2	SB3
As-built Well Depths			47m	23m	46m	43m	4.01m	3.28m	3.53m
Sample ID			9011881-01	9011881-02	9011881-03	9011881-09	9011881-04	9011881-05	9011881-06
Date Sampled	Aquatic Life	Drinking Water	MW6	MW3S	MW3D	MW2	SB1	SB2	SB3
Physical Tests mg/L			2019-01-23	2019-01-23	2019-01-23	2019-01-23	2019-01-23	2019-01-23	2019-01-23
Hardness (as CaCO3)	-	-	597	150	103	62.2	66.5	159	91.9
<b>Dissolved Metals mg/L</b>									
Aluminum (Al)-Dissolved	-	9.5	<0.0050	0.0058	0.0079	0.009	0.0062	<0.0050	0.017
Antimony (Sb)-Dissolved	0.2	0.006	0.00052	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Arsenic (As)-Dissolved	0.05	0.01	0.00491	0.00127	0.00153	0.00107	<0.00050	<0.00050	<0.00050
Barium (Ba)-Dissolved	10	1	0.0825	0.0326	0.0233	0.0162	<0.0050	0.0052	<0.0050
Beryllium (Be)-Dissolved	0.053	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)-Dissolved	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Boron (B)-Dissolved	50	5	0.066	0.0187	0.0216	0.0104	<0.0050	0.012	0.0084
Cadmium (Cd)-Dissolved	0.0001 (H<30)	0.005				<0.000010	0.00001		
	0.0003 (H=30 -<90)								
	0.0005 (H=90-<150)			0.00001					<0.000010
	0.0006 (H=150-<210)							<0.000010	
Calcium (Ca)-Dissolved	-	-	179	47.6	32.3	18.8	22.8	52.3	29.1
Chromium (Cr)-Dissolved	0.01	0.05	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Colbalt (Co)-Dissolved	0.04	-	0.00159	0.00051	0.00037	0.00018	0.00013	<0.00010	<0.00010
Copper (Cu)-Dissolved	0.02 (H<50)	1							
	0.03 (H=50-<75)					<0.00040	0.0006		
	0.04 (H=75-<100)								0.00095
	0.05 (H=100-<125)				<0.00040				
	0.06 (H=125-<150)								
	0.07 (H=150-<175)								0.00072
	0.08 (H=175-<200)								
0.09 (H=200)									
Iron (Fe)-Dissolved	-	6.5	3.73	0.126	0.158	0.156	<0.010	<0.010	0.027
Lead (Pb)-Dissolved	0.04 (H<50)	0.01							
	0.05 (H=50-<100)					<0.00020	<0.00020		<0.00020
	0.06 (H=100-<200)			<0.00020	<0.00020			<0.00020	
	0.11 (H=200-<300)								
0.16 (H=300)									
Lithium (Li)-Dissolved	-	-	0.011	0.00013	<0.00010	<0.00010	<0.00010	0.00013	0.0001
Magnesium (Mg)-Dissolved	-	100	36.3	7.44	5.51	3.67	2.28	6.96	4.65
Manganese (Mn)-Dissolved	-	0.55	1.98	0.351	0.333	0.239	0.00058	0.00073	0.00075
Mercury (Hg)-Dissolved	0.001	0.001	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040
Molybdenum (Mo)-Dissolved	10	0.25	0.00039	0.00623	0.0065	0.00215	0.00036	0.0006	0.00059
Nickel (Ni)-Dissolved	0.25 (H<60)	-							
	0.65 (H=60-<120)				0.00121	0.00045	0.00263		0.00082
	1.1 (H=120-<180)			0.00121				0.00065	
	1.5 (H=180)								
Phosphorus (P)-Dissolved	-	-	0.00161	0.083	0.122	0.071	<0.050	<0.050	<0.050
Potassium (K)-Dissolved	-	-	<0.050	3.25	0.85	0.64	0.35	0.25	0.79
Selenium (Se)-Dissolved	0.01	0.01	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Silicon (Si)-Dissolved	-	-	13.4	6.9	6.9	3.5	2.8	5.2	3.7
Silver (Ag)-Dissolved	0.0005 (H<100)	-				<0.000050	<0.000050		<0.000050
0.015 (H=100)		<0.000050	<0.000050	<0.000050			<0.000050		
Sodium (Na)-Dissolved	-	200	50.7	12.6	10.3	4.54	3.01	10.5	3.92
Strontium (Sr)-Dissolved	-	-	0.658	0.252	0.205	0.0864	0.0597	0.162	0.0735
Sulfur (S)-Dissolved	-	-	19.7	14.1	6.8	<3.0	9	14.1	16.2
Tellurium (Te)-Dissolved	-	-	0.00061	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Thallium (Tl)-Dissolved	0.003	-	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Thorium (Th)-Dissolved	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin (Sn)-Dissolved	-	-	0.00022	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Titanium (Ti)-Dissolved	1	-	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Uranium (U)-Dissolved	3	0.02	0.00612	0.000925	0.000614	0.000413	0.000105	0.000779	0.000174
Vanadium (V)-Dissolved	-	-	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)-Dissolved	0.075 (H<90)	5				<0.0040	<0.0040		0.0042
	0.150 (H=90-<100)								
	0.900 (H=100-<200)			<0.0040	<0.0040			<0.0040	
	1.650 (H=200-<300)								
2.4 (H=300-<400)		<0.0040							
Zirconium (Zr)-Dissolved	-	-	0.00026	<0.00010	<0.00010	<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 <sup>(1)</sup>		MRL	5X MRL	MW-6	MW-3S	MW-3D	MW-2	SB1	SB2	SB3
	As-built Well Depths										
Sample ID					9011881-01	9011881-02	9011881-03	9011881-09	9011881-04	9011881-05	9011881-06
Date Sampled	Aquatic Life	Drinking Water			MW6	MW3S	MW3D	MW2	SB1	SB2	SB3
					2019-01-23	2019-01-23	2019-01-23	2019-01-23	2019-01-23	2019-01-23	2019-01-23
Turbidity (NTU)	-	-	0.1	0.5	30.2	8.41	11.3	23.3	49.2	106	587
<b>Hydrocarbons ug/L</b>											
EPH10-19	5000	5000	250	1250	<250	<250	<250	<250	<250	<250	<250
EPH10-19 (SG)	5000	5000									
EPH19-32	-	-	250	1250	<250	<250	<250	<250	<250	<250	<250
EPH19-32 (SG)	-	-									
LEPH	500	-	250	1250	<250	<250	<250	<250	<250	<250	<250
HEPH	-	-	250	1250	<250	<250	<250	<250	<250	<250	<250
<b>Polycyclic Aromatic Hydrocarbons ug/L</b>											
Acenaphthene	60	-	0.05	0.25	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Acenaphthylene	-	-	0.2	1	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200
Acridine	0.5	-	0.1	0.5	<0.050	0.103	0.622	0.172	<0.050	<0.050	<0.050
Anthracene	1	-	0.01	0.05	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Benz(a)anthracene	1	-	0.01	0.05	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(a)pyrene	0.1	0.01	0.01	0.05	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(b)fluoranthene	-	-	0.05	0.25	-	-	-	-	-	-	-
Benzo(b+j)fluoranthene	-	-			<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo(g,h,i)perylene	-	-	0.05	0.25	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo(k)fluoranthene	-	-	0.05	0.25	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
2-Chloronaphthalene					<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
Chrysene	1	-	0.05	0.25	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dibenz(a,h)anthracene	-	-	0.05	0.25	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Fluoranthene	2	-	0.03	0.15	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Fluorene	120	-	0.05	0.25	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Indeno(1,2,3-c,d)pyrene	-	-	0.05	0.25	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1-Methylnaphthalene					<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
2-Methylnaphthalene					<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
Naphthalene	10	-	0.2	1	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200
Phenanthrene	3	-	0.1	0.5	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
Pyrene	0.2	-	0.02	0.1	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Quinoline	34	-	0.1	0.5	<0.050	<0.050	<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.

**RED TEXT**

The formula  $0.5 * MDL$  is utilized for statistical purposes

**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



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

LAB ID	CLIENT ID	DATE SAMPLED	DATE RECEIVED	MATRIX	General Method	Analyte	Units	MRL	9011881-01	9011881-02	9011881-03	9011881-04	9011881-05	9011881-06	9011881-07	9011881-08	9011881-09
									MW6	MW35	MW3D	SB1	SB2	SB3	SW1	SW2	MW2
									2019-01-23	2019-01-23	2019-01-23	2019-01-23	2019-01-23	2019-01-23	2019-01-23	2019-01-23	2019-01-23
									2019-01-25	2019-01-25	2019-01-25	2019-01-25	2019-01-25	2019-01-25	2019-01-25	2019-01-25	2019-01-25
									Water	Water	Water	Water	Water	Water	Water	Water	Water
Total Metals						Arsenic, total	mg/L	0.0005	0.00622	0.00126	0.0015	<0.00050	0.00051	0.00179	<0.00050	<0.00050	0.00208
Total Metals						Barium, total	mg/L	0.005	0.0991	0.031	0.0207	0.0124	0.0193	0.0502	0.0055	<0.0050	0.033
Total Metals						Beryllium, total	mg/L	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00023	<0.00010	<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	<0.00010	<0.00010
Total Metals						Boron, total	mg/L	0.005	0.0658	0.0181	0.0222	0.0052	0.0131	0.0109	0.0088	<0.0050	0.0208
Total Metals						Cadmium, total	mg/L	1E-05	0.000068	0.000077	0.000138	0.000015	0.000014	0.000055	<0.000010	<0.000010	0.000044
Total Metals						Calcium, total	mg/L	0.2	174	45.6	31.2	23.4	53.4	33.5	24.9	2.21	37.4
Total Metals						Chromium, total	mg/L	0.0005	0.00069	<0.00050	<0.00050	0.00191	0.00426	0.0204	0.00057	<0.00050	0.00065
Total Metals						Cobalt, total	mg/L	0.0001	0.00429	0.00055	0.00044	0.00192	0.00269	0.0165	0.00017	<0.00010	0.00064
Total Metals						Copper, total	mg/L	0.0004	0.00223	0.00043	0.00052	0.00561	0.0113	0.0404	0.00175	0.00095	0.00118
Total Metals						Iron, total	mg/L	0.01	5.01	0.162	0.202	1.86	3.77	13.4	0.259	0.092	0.8
Total Metals						Lead, total	mg/L	0.0002	0.00063	<0.00020	<0.00020	0.002	0.00115	0.00715	0.00022	<0.00020	0.00057
Total Metals						Lithium, total	mg/L	0.0001	0.0107	0.00017	0.00014	0.00072	0.00141	0.0061	0.00026	0.0001	0.00015
Total Metals						Magnesium, total	mg/L	0.01	36	7.37	5.49	2.87	7.98	9.05	3.82	0.469	7.44
Total Metals						Manganese, total	mg/L	0.0002	1.98	0.35	0.332	0.0508	0.117	0.277	0.00509	0.00296	0.496
Total Metals						Mercury, total	mg/L	1E-05	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Total Metals						Molybdenum, total	mg/L	0.0001	0.00168	0.00588	0.0066	0.00032	0.00067	0.00051	0.00046	<0.00010	0.00045
Total Metals						Nickel, total	mg/L	0.0004	0.00904	0.00129	0.00153	0.00447	0.00429	0.0224	0.00085	0.00047	0.0013
Total Metals						Phosphorus, total	mg/L	0.05	<0.050	0.107	0.127	0.071	0.119	0.504	<0.050	<0.050	0.206
Total Metals						Potassium, total	mg/L	0.1	3.21	0.84	0.64	0.37	1.22	1.11	0.44	0.16	0.72
Total Metals						Selenium, total	mg/L	0.0005	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Total Metals						Silicon, total	mg/L	1	13.3	6.7	6.8	5	10.5	19.7	3.6	2.1	7.7
Total Metals						Silver, total	mg/L	5E-05	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Total Metals						Sodium, total	mg/L	0.1	50.4	12.2	10.2	3.1	10.7	4.41	4.46	1.29	9.16
Total Metals						Strontium, total	mg/L	0.001	0.628	0.244	0.198	0.0612	0.169	0.101	0.0706	0.009	0.171
Total Metals						Sulfur, total	mg/L	3	19.8	13.5	7.5	8.6	14.2	15.1	11.4	<3.0	6.3
Total Metals						Tellurium, total	mg/L	0.0005	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Total Metals						Thallium, total	mg/L	2E-05	0.000024	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Total Metals						Thorium, total	mg/L	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	0.00013	0.00035	<0.00010	<0.00010	<0.00010
Total Metals						Tin, total	mg/L	0.0002	0.00135	<0.00020	0.0002	0.00027	0.00026	0.00054	<0.00020	<0.00020	<0.00020
Total Metals						Titanium, total	mg/L	0.005	0.006	<0.0050	<0.0050	0.0886	0.199	0.485	0.0089	0.0058	0.0194
Total Metals						Tungsten, total	mg/L	0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Metals						Uranium, total	mg/L	2E-05	0.00577	0.000919	0.000658	0.000182	0.000911	0.000693	0.000218	<0.000020	0.00087
Total Metals						Vanadium, total	mg/L	0.001	<0.0010	<0.0010	<0.0010	0.0048	0.0087	0.0312	0.0011	<0.0010	0.0016
Total Metals						Zinc, total	mg/L	0.004	0.009	<0.0040	<0.0040	0.0094	0.0125	0.0401	<0.0040	<0.0040	<0.0040
Total Metals						Zirconium, total	mg/L	0.0001	0.00016	0.0001	0.00017	<0.00010	0.00016	0.00038	<0.00010	<0.00010	0.00013

**CARO Analytical Services**  
**FINAL Analytical Testing Report**  
**Work Order: 9012421**  
**Report Date: 2019-02-15 19:33:40**

**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				9012421-01	9012421-02
CLIENT ID				LE-1	LE-1 reanalysis
DATE SAMPLED				2019-01-30	2019-01-30
DATE RECEIVED				2019-01-31	2019-01-31
MATRIX				Water	Water
General Method	Analyte	Units	RL		
Anions	Chloride	mg/L	10	2820	
Anions	Fluoride	mg/L	1	<1.00	
Anions	Nitrate (as N)	mg/L	0.1	1.5	
Anions	Nitrite (as N)	mg/L	0.1	<0.100	
Anions	Sulfate	mg/L	100	1430	
BCMOE Aggregate Hydrocarbons	EPHW10-19	ug/L	250	2450	1490
BCMOE Aggregate Hydrocarbons	EPHW19-32	ug/L	250	2920	1630
BCMOE Aggregate Hydrocarbons	LEPHW	ug/L	250	2440	1490
BCMOE Aggregate Hydrocarbons	HEPHW	ug/L	250	2920	1630
Calculated Parameters	Hardness, Total (as CaCO3)	mg/L	0.5	2650	
Dissolved Metals	Aluminum, dissolved	mg/L	0.005	0.0203	
Dissolved Metals	Antimony, dissolved	mg/L	0.0002	<0.00020	
Dissolved Metals	Arsenic, dissolved	mg/L	0.0005	<0.00050	
Dissolved Metals	Barium, dissolved	mg/L	0.005	0.009	
Dissolved Metals	Beryllium, dissolved	mg/L	0.0001	<0.00010	
Dissolved Metals	Bismuth, dissolved	mg/L	0.0001	<0.00010	
Dissolved Metals	Boron, dissolved	mg/L	0.005	0.227	
Dissolved Metals	Cadmium, dissolved	mg/L	0.00001	0.000025	
Dissolved Metals	Calcium, dissolved	mg/L	0.2	732	
Dissolved Metals	Chromium, dissolved	mg/L	0.0005	0.00093	
Dissolved Metals	Cobalt, dissolved	mg/L	0.0001	0.00029	
Dissolved Metals	Copper, dissolved	mg/L	0.0004	0.00076	
Dissolved Metals	Iron, dissolved	mg/L	0.01	0.013	
Dissolved Metals	Lead, dissolved	mg/L	0.0002	<0.00020	
Dissolved Metals	Lithium, dissolved	mg/L	0.0001	0.0003	
Dissolved Metals	Magnesium, dissolved	mg/L	0.01	198	
Dissolved Metals	Manganese, dissolved	mg/L	0.0002	0.0972	
Dissolved Metals	Mercury, dissolved	mg/L	0.00004	<0.000040	
Dissolved Metals	Molybdenum, dissolved	mg/L	0.0001	<0.00010	
Dissolved Metals	Nickel, dissolved	mg/L	0.0004	0.00242	
Dissolved Metals	Phosphorus, dissolved	mg/L	0.05	<0.050	
Dissolved Metals	Potassium, dissolved	mg/L	0.1	30.3	
Dissolved Metals	Selenium, dissolved	mg/L	0.0005	<0.00050	
Dissolved Metals	Silicon, dissolved	mg/L	1	5.5	
Dissolved Metals	Silver, dissolved	mg/L	0.00005	<0.000050	
Dissolved Metals	Sodium, dissolved	mg/L	0.1	1430	
Dissolved Metals	Strontium, dissolved	mg/L	0.001	3.69	
Dissolved Metals	Sulfur, dissolved	mg/L	3	597	
Dissolved Metals	Tellurium, dissolved	mg/L	0.0005	<0.00050	
Dissolved Metals	Thallium, dissolved	mg/L	0.00002	<0.000020	
Dissolved Metals	Thorium, dissolved	mg/L	0.0001	<0.00010	
Dissolved Metals	Tin, dissolved	mg/L	0.0002	<0.00020	
Dissolved Metals	Titanium, dissolved	mg/L	0.005	<0.0050	
Dissolved Metals	Tungsten, dissolved	mg/L	0.001	<0.0010	
Dissolved Metals	Uranium, dissolved	mg/L	0.00002	0.000033	
Dissolved Metals	Vanadium, dissolved	mg/L	0.001	<0.0010	

**CARO Analytical Services**  
**FINAL Analytical Testing Report**  
**Work Order: 9012421**  
**Report Date: 2019-02-15 19:33:40**

**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	9012421-01	9012421-02			
CLIENT ID	LE-1	LE-1 reanalysis			
DATE SAMPLED	2019-01-30	2019-01-30			
DATE RECEIVED	2019-01-31	2019-01-31			
MATRIX	Water	Water			
General Method	Analyte	Units	RL		
Dissolved Metals	Zinc, dissolved	mg/L	0.004	0.0051	
Dissolved Metals	Zirconium, dissolved	mg/L	0.0001	<0.00010	
General Parameters	Colour, True	CU	5	<5.0	
General Parameters	Alkalinity, Total (as CaCO3)	mg/L	1	4.8	
General Parameters	Alkalinity, Phenolphthalein (as Ca mg/L		1	<1.0	
General Parameters	Alkalinity, Bicarbonate (as CaCO3 mg/L		1	4.8	
General Parameters	Alkalinity, Carbonate (as CaCO3) mg/L		1	<1.0	
General Parameters	Alkalinity, Hydroxide (as CaCO3) mg/L		1	<1.0	
General Parameters	Solids, Total Suspended	mg/L	2	<2.0	
General Parameters	Turbidity	NTU	0.1	1.12	
General Parameters	pH	pH units	0.1	6.69	
General Parameters	Conductivity (EC)	uS/cm	2	10600	
Polycyclic Aromatic Hydrocarbons (PAH)	Acenaphthene	ug/L	0.05	<0.050	<0.050
Polycyclic Aromatic Hydrocarbons (PAH)	Acenaphthylene	ug/L	0.2	<0.200	<0.200
Polycyclic Aromatic Hydrocarbons (PAH)	Acridine	ug/L	0.05	0.097	<0.050
Polycyclic Aromatic Hydrocarbons (PAH)	Anthracene	ug/L	0.01	<0.010	<0.010
Polycyclic Aromatic Hydrocarbons (PAH)	Benzo(a)anthracene	ug/L	0.01	0.022	<0.010
Polycyclic Aromatic Hydrocarbons (PAH)	Benzo(a)pyrene	ug/L	0.01	0.053	<0.010
Polycyclic Aromatic Hydrocarbons (PAH)	Benzo(b+j)fluoranthene	ug/L	0.05	0.055	<0.050
Polycyclic Aromatic Hydrocarbons (PAH)	Benzo(g,h,i)perylene	ug/L	0.05	<0.050	<0.050
Polycyclic Aromatic Hydrocarbons (PAH)	Benzo(k)fluoranthene	ug/L	0.05	0.051	<0.050
Polycyclic Aromatic Hydrocarbons (PAH)	2-Chloronaphthalene	ug/L	0.1	<0.100	<0.100
Polycyclic Aromatic Hydrocarbons (PAH)	Chrysene	ug/L	0.05	<0.050	<0.050
Polycyclic Aromatic Hydrocarbons (PAH)	Dibenz(a,h)anthracene	ug/L	0.01	0.032	<0.010
Polycyclic Aromatic Hydrocarbons (PAH)	Fluoranthene	ug/L	0.03	<0.030	<0.030
Polycyclic Aromatic Hydrocarbons (PAH)	Fluorene	ug/L	0.05	<0.050	<0.050
Polycyclic Aromatic Hydrocarbons (PAH)	Indeno(1,2,3-cd)pyrene	ug/L	0.05	<0.050	<0.050
Polycyclic Aromatic Hydrocarbons (PAH)	1-Methylnaphthalene	ug/L	0.1	0.396	0.261
Polycyclic Aromatic Hydrocarbons (PAH)	2-Methylnaphthalene	ug/L	0.1	0.768	0.506
Polycyclic Aromatic Hydrocarbons (PAH)	Naphthalene	ug/L	0.2	0.846	0.649
Polycyclic Aromatic Hydrocarbons (PAH)	Phenanthrene	ug/L	0.1	<0.100	<0.100
Polycyclic Aromatic Hydrocarbons (PAH)	Pyrene	ug/L	0.02	<0.020	<0.020
Polycyclic Aromatic Hydrocarbons (PAH)	Quinoline	ug/L	0.05	0.111	<0.050
Total Metals	Aluminum, total	mg/L	0.005	0.0248	
Total Metals	Antimony, total	mg/L	0.0002	0.0002	
Total Metals	Arsenic, total	mg/L	0.0005	<0.00050	
Total Metals	Barium, total	mg/L	0.005	0.0095	
Total Metals	Beryllium, total	mg/L	0.0001	<0.00010	
Total Metals	Bismuth, total	mg/L	0.0001	<0.00010	
Total Metals	Boron, total	mg/L	0.005	0.227	
Total Metals	Cadmium, total	mg/L	0.00001	0.000024	
Total Metals	Calcium, total	mg/L	0.2	767	
Total Metals	Chromium, total	mg/L	0.0005	0.00096	
Total Metals	Cobalt, total	mg/L	0.0001	0.00032	
Total Metals	Copper, total	mg/L	0.0004	0.00076	
Total Metals	Iron, total	mg/L	0.01	<0.010	

**CARO Analytical Services**  
**FINAL Analytical Testing Report**  
**Work Order: 9012421**  
**Report Date: 2019-02-15 19:33:40**

**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				9012421-01	9012421-02
CLIENT ID				LE-1	LE-1 reanalysis
DATE SAMPLED				2019-01-30	2019-01-30
DATE RECEIVED				2019-01-31	2019-01-31
MATRIX				Water	Water
General Method	Analyte	Units	RL		
Total Metals	Lead, total	mg/L	0.0002	<0.00020	
Total Metals	Lithium, total	mg/L	0.0001	0.00027	
Total Metals	Magnesium, total	mg/L	0.01	205	
Total Metals	Manganese, total	mg/L	0.0002	0.139	
Total Metals	Mercury, total	mg/L	0.00001	<0.000010	
Total Metals	Molybdenum, total	mg/L	0.0001	<0.00010	
Total Metals	Nickel, total	mg/L	0.0004	0.00227	
Total Metals	Phosphorus, total	mg/L	0.05	<0.050	
Total Metals	Potassium, total	mg/L	0.1	31.4	
Total Metals	Selenium, total	mg/L	0.0005	<0.00050	
Total Metals	Silicon, total	mg/L	1	5.9	
Total Metals	Silver, total	mg/L	0.00005	<0.000050	
Total Metals	Sodium, total	mg/L	0.1	1470	
Total Metals	Strontium, total	mg/L	0.001	3.72	
Total Metals	Sulfur, total	mg/L	3	604	
Total Metals	Tellurium, total	mg/L	0.0005	<0.00050	
Total Metals	Thallium, total	mg/L	0.00002	<0.000020	
Total Metals	Thorium, total	mg/L	0.0001	<0.00010	
Total Metals	Tin, total	mg/L	0.0002	<0.00020	
Total Metals	Titanium, total	mg/L	0.005	<0.0050	
Total Metals	Tungsten, total	mg/L	0.001	<0.0010	
Total Metals	Uranium, total	mg/L	0.00002	0.000033	
Total Metals	Vanadium, total	mg/L	0.001	<0.0010	
Total Metals	Zinc, total	mg/L	0.004	0.0059	
Total Metals	Zirconium, total	mg/L	0.0001	<0.00010	

## 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** 9012421

**RECEIVED / TEMP** 2019-01-31 14:00 / 10°C

**REPORTED** 2019-02-15 19:33

**COC NUMBER** Jan 2019

### 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](mailto:bshaw@caro.ca)

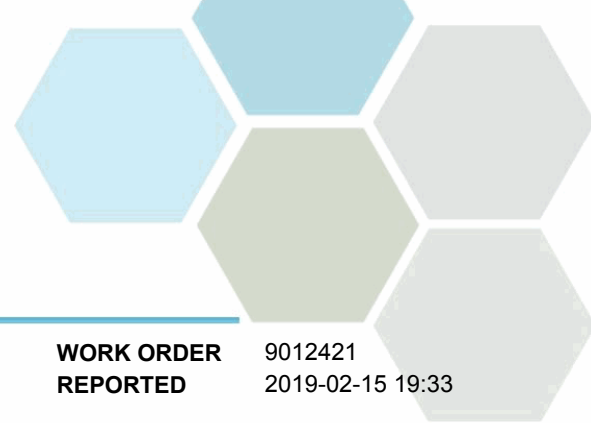
#### Authorized By:

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

1-888-311-8846 | [www.caro.ca](http://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



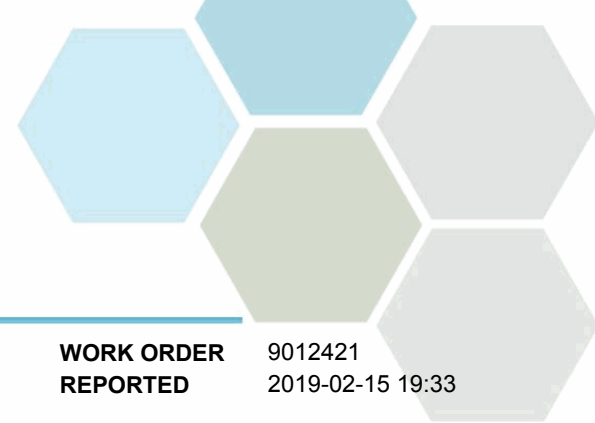


# TEST RESULTS

**REPORTED TO PROJECT** Allterra Construction  
P17-932

**WORK ORDER REPORTED** 9012421  
2019-02-15 19:33

Analyte	Result	RL	Units	Analyzed	Qualifier
<b>LE-1 (9012421-01)   Matrix: Water   Sampled: 2019-01-30 12:30</b>					
<b>Anions</b>					
Chloride	2820	0.10	mg/L	2019-02-03	
Fluoride	< 1.00	0.10	mg/L	2019-02-03	RA1
Nitrate (as N)	1.50	0.010	mg/L	2019-02-03	HT1
Nitrite (as N)	< 0.100	0.010	mg/L	2019-02-03	HT1, RA1
Sulfate	1430	1.0	mg/L	2019-02-03	
<b>BCMOE Aggregate Hydrocarbons</b>					
EPHw10-19	2450	250	µg/L	2019-02-06	S09
EPHw19-32	2920	250	µg/L	2019-02-06	S09
LEPHw	2440	250	µg/L	N/A	
HEPHw	2920	250	µg/L	N/A	
Surrogate: 2-Methylnonane (EPH/F2-4)	54	60-140	%	2019-02-06	S09
<b>Calculated Parameters</b>					
Hardness, Total (as CaCO3)	2650	0.500	mg/L	N/A	
<b>Dissolved Metals</b>					
Aluminum, dissolved	0.0203	0.0050	mg/L	2019-02-02	
Antimony, dissolved	< 0.00020	0.00020	mg/L	2019-02-02	
Arsenic, dissolved	< 0.00050	0.00050	mg/L	2019-02-02	
Barium, dissolved	0.0090	0.0050	mg/L	2019-02-02	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2019-02-02	
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2019-02-02	
Boron, dissolved	0.227	0.0050	mg/L	2019-02-02	
Cadmium, dissolved	0.000025	0.000010	mg/L	2019-02-02	
Calcium, dissolved	732	0.20	mg/L	2019-02-02	
Chromium, dissolved	0.00093	0.00050	mg/L	2019-02-02	
Cobalt, dissolved	0.00029	0.00010	mg/L	2019-02-02	
Copper, dissolved	0.00076	0.00040	mg/L	2019-02-02	
Iron, dissolved	0.013	0.010	mg/L	2019-02-02	
Lead, dissolved	< 0.00020	0.00020	mg/L	2019-02-02	
Lithium, dissolved	0.00030	0.00010	mg/L	2019-02-02	
Magnesium, dissolved	198	0.010	mg/L	2019-02-02	
Manganese, dissolved	0.0972	0.00020	mg/L	2019-02-02	
Mercury, dissolved	< 0.000040	0.000040	mg/L	2019-02-02	
Molybdenum, dissolved	< 0.00010	0.00010	mg/L	2019-02-02	
Nickel, dissolved	0.00242	0.00040	mg/L	2019-02-02	
Phosphorus, dissolved	< 0.050	0.050	mg/L	2019-02-02	
Potassium, dissolved	30.3	0.10	mg/L	2019-02-02	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2019-02-02	
Silicon, dissolved	5.5	1.0	mg/L	2019-02-02	
Silver, dissolved	< 0.000050	0.000050	mg/L	2019-02-02	
Sodium, dissolved	1430	0.10	mg/L	2019-02-02	

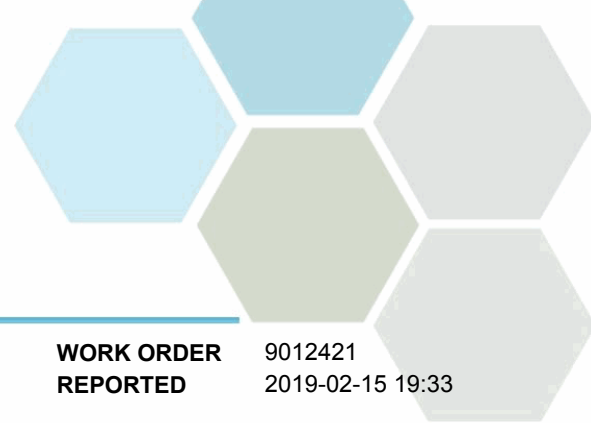


# TEST RESULTS

**REPORTED TO PROJECT** Allterra Construction  
P17-932

**WORK ORDER REPORTED** 9012421  
2019-02-15 19:33

Analyte	Result	RL	Units	Analyzed	Qualifier
<b>LE-1 (9012421-01)   Matrix: Water   Sampled: 2019-01-30 12:30, Continued</b>					
<i>Dissolved Metals, Continued</i>					
Strontium, dissolved	3.69	0.0010	mg/L	2019-02-02	
Sulfur, dissolved	597	3.0	mg/L	2019-02-02	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2019-02-02	
Thallium, dissolved	< 0.000020	0.000020	mg/L	2019-02-02	
Thorium, dissolved	< 0.00010	0.00010	mg/L	2019-02-02	
Tin, dissolved	< 0.00020	0.00020	mg/L	2019-02-02	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2019-02-02	
Tungsten, dissolved	< 0.0010	0.0010	mg/L	2019-02-02	
Uranium, dissolved	0.000033	0.000020	mg/L	2019-02-02	
Vanadium, dissolved	< 0.0010	0.0010	mg/L	2019-02-02	
Zinc, dissolved	0.0051	0.0040	mg/L	2019-02-02	
Zirconium, dissolved	< 0.00010	0.00010	mg/L	2019-02-02	
<i>General Parameters</i>					
Alkalinity, Total (as CaCO3)	4.8	1.0	mg/L	2019-02-04	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2019-02-04	
Alkalinity, Bicarbonate (as CaCO3)	4.8	1.0	mg/L	2019-02-04	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2019-02-04	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2019-02-04	
Colour, True	< 5.0	5.0	CU	2019-02-02	HT1
Conductivity (EC)	10600	2.0	µS/cm	2019-02-07	
pH	6.69	0.10	pH units	2019-02-07	HT2
Solids, Total Suspended	< 2.0	2.0	mg/L	2019-02-06	
Turbidity	1.12	0.10	NTU	2019-02-01	
<i>Polycyclic Aromatic Hydrocarbons (PAH)</i>					
Acenaphthene	< 0.050	0.050	µg/L	2019-02-06	
Acenaphthylene	< 0.200	0.200	µg/L	2019-02-06	
Acridine	0.097	0.050	µg/L	2019-02-06	
Anthracene	< 0.010	0.010	µg/L	2019-02-06	
Benz(a)anthracene	0.022	0.010	µg/L	2019-02-06	
Benzo(a)pyrene	0.053	0.010	µg/L	2019-02-06	
Benzo(b+j)fluoranthene	0.055	0.050	µg/L	2019-02-06	
Benzo(g,h,i)perylene	< 0.050	0.050	µg/L	2019-02-06	
Benzo(k)fluoranthene	0.051	0.050	µg/L	2019-02-06	
2-Chloronaphthalene	< 0.100	0.100	µg/L	2019-02-06	
Chrysene	< 0.050	0.050	µg/L	2019-02-06	
Dibenz(a,h)anthracene	0.032	0.010	µg/L	2019-02-06	
Fluoranthene	< 0.030	0.030	µg/L	2019-02-06	
Fluorene	< 0.050	0.050	µg/L	2019-02-06	
Indeno(1,2,3-cd)pyrene	< 0.050	0.050	µg/L	2019-02-06	
1-Methylnaphthalene	0.396	0.100	µg/L	2019-02-06	
2-Methylnaphthalene	0.768	0.100	µg/L	2019-02-06	



# TEST RESULTS

**REPORTED TO PROJECT** Allterra Construction  
P17-932

**WORK ORDER REPORTED** 9012421  
2019-02-15 19:33

Analyte	Result	RL	Units	Analyzed	Qualifier
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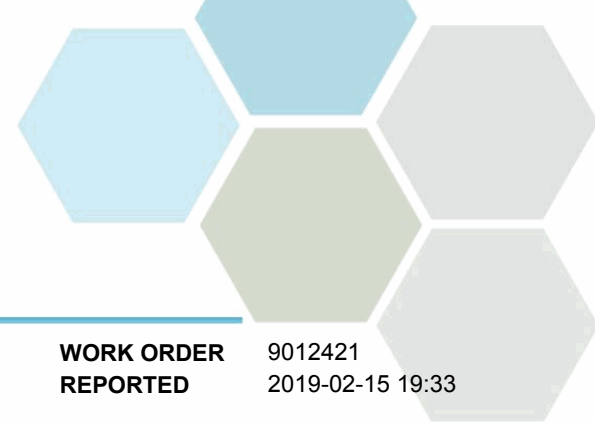
**LE-1 (9012421-01) | Matrix: Water | Sampled: 2019-01-30 12:30, Continued**

*Polycyclic Aromatic Hydrocarbons (PAH), Continued*

Naphthalene	0.846	0.200	µg/L	2019-02-06	
Phenanthrene	< 0.100	0.100	µg/L	2019-02-06	
Pyrene	< 0.020	0.020	µg/L	2019-02-06	
Quinoline	0.111	0.050	µg/L	2019-02-06	
Surrogate: Acridine-d9	62	50-140	%	2019-02-06	
Surrogate: Naphthalene-d8	55	50-140	%	2019-02-06	
Surrogate: Perylene-d12	54	50-140	%	2019-02-06	

**Total Metals**

Aluminum, total	0.0248	0.0050	mg/L	2019-02-02	
Antimony, total	0.00020	0.00020	mg/L	2019-02-02	
Arsenic, total	< 0.00050	0.00050	mg/L	2019-02-02	
Barium, total	0.0095	0.0050	mg/L	2019-02-02	
Beryllium, total	< 0.00010	0.00010	mg/L	2019-02-02	
Bismuth, total	< 0.00010	0.00010	mg/L	2019-02-02	
Boron, total	0.227	0.0050	mg/L	2019-02-04	
Cadmium, total	0.000024	0.000010	mg/L	2019-02-02	
Calcium, total	767	0.20	mg/L	2019-02-02	
Chromium, total	0.00096	0.00050	mg/L	2019-02-02	
Cobalt, total	0.00032	0.00010	mg/L	2019-02-02	
Copper, total	0.00076	0.00040	mg/L	2019-02-02	
Iron, total	< 0.010	0.010	mg/L	2019-02-02	
Lead, total	< 0.00020	0.00020	mg/L	2019-02-02	
Lithium, total	0.00027	0.00010	mg/L	2019-02-04	
Magnesium, total	205	0.010	mg/L	2019-02-02	
Manganese, total	0.139	0.00020	mg/L	2019-02-02	
Mercury, total	< 0.000010	0.000010	mg/L	2019-02-05	
Molybdenum, total	< 0.00010	0.00010	mg/L	2019-02-02	
Nickel, total	0.00227	0.00040	mg/L	2019-02-02	
Phosphorus, total	< 0.050	0.050	mg/L	2019-02-02	
Potassium, total	31.4	0.10	mg/L	2019-02-02	
Selenium, total	< 0.00050	0.00050	mg/L	2019-02-02	
Silicon, total	5.9	1.0	mg/L	2019-02-02	
Silver, total	< 0.000050	0.000050	mg/L	2019-02-02	
Sodium, total	1470	0.10	mg/L	2019-02-02	
Strontium, total	3.72	0.0010	mg/L	2019-02-02	
Sulfur, total	604	3.0	mg/L	2019-02-02	
Tellurium, total	< 0.00050	0.00050	mg/L	2019-02-02	
Thallium, total	< 0.000020	0.000020	mg/L	2019-02-02	
Thorium, total	< 0.00010	0.00010	mg/L	2019-02-02	
Tin, total	< 0.00020	0.00020	mg/L	2019-02-02	
Titanium, total	< 0.0050	0.0050	mg/L	2019-02-02	
Tungsten, total	< 0.0010	0.0010	mg/L	2019-02-02	



# TEST RESULTS

**REPORTED TO PROJECT** Allterra Construction  
P17-932

**WORK ORDER REPORTED** 9012421  
2019-02-15 19:33

Analyte	Result	RL	Units	Analyzed	Qualifier
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**LE-1 (9012421-01) | Matrix: Water | Sampled: 2019-01-30 12:30, Continued**

**Total Metals, Continued**

Uranium, total	0.000033	0.000020	mg/L	2019-02-02	
Vanadium, total	< 0.0010	0.0010	mg/L	2019-02-02	
Zinc, total	0.0059	0.0040	mg/L	2019-02-02	
Zirconium, total	< 0.00010	0.00010	mg/L	2019-02-02	

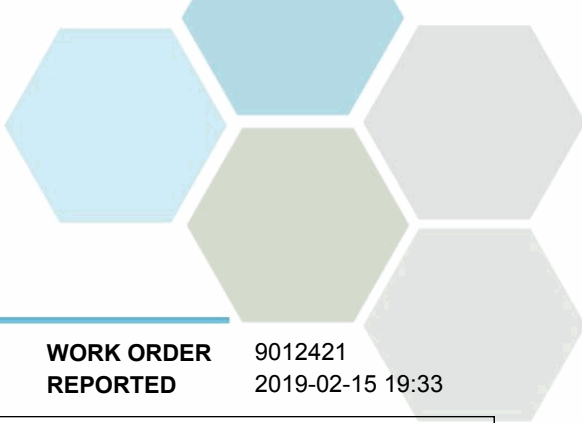
**LE-1 reanalysis (9012421-02) | Matrix: Water | Sampled: 2019-01-30 12:30**

**BCMOE Aggregate Hydrocarbons**

EPHw10-19	1490	250	µg/L	2019-02-15	
EPHw19-32	1630	250	µg/L	2019-02-15	
LEPHw	1490	250	µg/L	N/A	
HEPHw	1630	250	µg/L	N/A	
Surrogate: 2-Methylnonane (EPH/F2-4)	94	60-140	%	2019-02-15	

**Polycyclic Aromatic Hydrocarbons (PAH)**

Acenaphthene	< 0.050	0.050	µg/L	2019-02-14	
Acenaphthylene	< 0.200	0.200	µg/L	2019-02-14	
Acridine	< 0.050	0.050	µg/L	2019-02-14	
Anthracene	< 0.010	0.010	µg/L	2019-02-14	
Benz(a)anthracene	< 0.010	0.010	µg/L	2019-02-14	
Benzo(a)pyrene	< 0.010	0.010	µg/L	2019-02-14	
Benzo(b+j)fluoranthene	< 0.050	0.050	µg/L	2019-02-14	
Benzo(g,h,i)perylene	< 0.050	0.050	µg/L	2019-02-14	
Benzo(k)fluoranthene	< 0.050	0.050	µg/L	2019-02-14	
2-Chloronaphthalene	< 0.100	0.100	µg/L	2019-02-14	
Chrysene	< 0.050	0.050	µg/L	2019-02-14	
Dibenz(a,h)anthracene	< 0.010	0.010	µg/L	2019-02-14	
Fluoranthene	< 0.030	0.030	µg/L	2019-02-14	
Fluorene	< 0.050	0.050	µg/L	2019-02-14	
Indeno(1,2,3-cd)pyrene	< 0.050	0.050	µg/L	2019-02-14	
1-Methylnaphthalene	0.261	0.100	µg/L	2019-02-14	
2-Methylnaphthalene	0.506	0.100	µg/L	2019-02-14	
Naphthalene	0.649	0.200	µg/L	2019-02-14	
Phenanthrene	< 0.100	0.100	µg/L	2019-02-14	
Pyrene	< 0.020	0.020	µg/L	2019-02-14	
Quinoline	< 0.050	0.050	µg/L	2019-02-14	
Surrogate: Acridine-d9	131	50-140	%	2019-02-14	
Surrogate: Naphthalene-d8	106	50-140	%	2019-02-14	
Surrogate: Perylene-d12	100	50-140	%	2019-02-14	



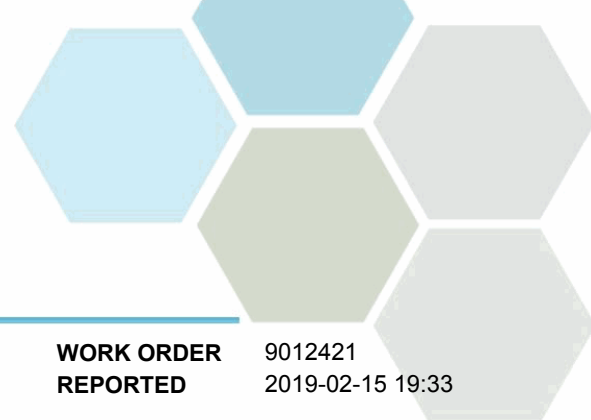
## TEST RESULTS

**REPORTED TO** Allterra Construction  
**PROJECT** P17-932

**WORK ORDER** 9012421  
**REPORTED** 2019-02-15 19:33

**Sample Qualifiers:**

- HT1 The sample was prepared and/or analyzed past the recommended holding time.
- 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.
- S09 The surrogate recovery for this sample is outside of established control limits .



## APPENDIX 1: SUPPORTING INFORMATION

**REPORTED TO PROJECT** Allterra Construction  
P17-932

**WORK ORDER REPORTED** 9012421  
2019-02-15 19:33

Analysis Description	Method Ref.	Technique	Location
Alkalinity in Water	SM 2320 B* (2011)	Titration with H2SO4	Kelowna
Anions in Water	SM 4110 B (2011)	Ion Chromatography	Kelowna
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 [diss Ca] + 4.118 [diss Mg]	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*	BrCl2 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	HNO3+HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	Richmond
Turbidity in Water	SM 2130 B (2011)	Nephelometry	Richmond

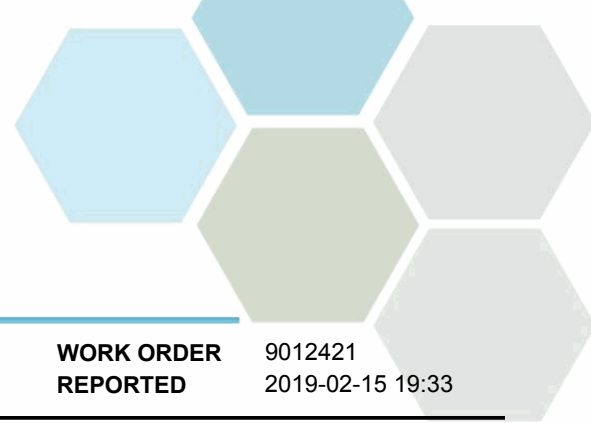
*Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method*

### 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

**REPORTED TO PROJECT** Allterra Construction  
P17-932

**WORK ORDER REPORTED** 9012421  
2019-02-15 19:33

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 B9B0074

Blank (B9B0074-BLK1)			Prepared: 2019-02-03, Analyzed: 2019-02-03						
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 (B9B0074-BS1)			Prepared: 2019-02-03, Analyzed: 2019-02-03						
Chloride	16.1	0.10 mg/L	16.0		100	90-110			
Fluoride	4.09	0.10 mg/L	4.00		102	88-108			
Nitrate (as N)	4.02	0.010 mg/L	4.00		101	93-108			
Nitrite (as N)	2.02	0.010 mg/L	2.00		101	85-114			
Sulfate	16.0	1.0 mg/L	16.0		100	91-109			

### BCMOE Aggregate Hydrocarbons, Batch B9B0304

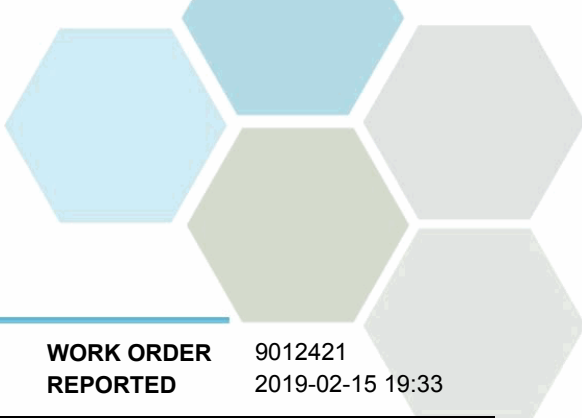
Blank (B9B0304-BLK1)			Prepared: 2019-02-05, Analyzed: 2019-02-06						
EPHw10-19	< 250	250 µg/L							
EPHw19-32	< 250	250 µg/L							
Surrogate: 2-Methylnonane (EPH/F2-4)	377	µg/L	444		85	60-140			

LCS (B9B0304-BS2)			Prepared: 2019-02-05, Analyzed: 2019-02-06						
EPHw10-19	16900	250 µg/L	15400		109	70-130			
EPHw19-32	22100	250 µg/L	22100		100	70-130			
Surrogate: 2-Methylnonane (EPH/F2-4)	459	µg/L	444		103	60-140			

### BCMOE Aggregate Hydrocarbons, Batch B9B0879

Blank (B9B0879-BLK1)			Prepared: 2019-02-13, Analyzed: 2019-02-13						
EPHw10-19	< 250	250 µg/L							
EPHw19-32	< 250	250 µg/L							
Surrogate: 2-Methylnonane (EPH/F2-4)	341	µg/L	444		77	60-140			

LCS (B9B0879-BS2)			Prepared: 2019-02-13, Analyzed: 2019-02-13						
EPHw10-19	15400	250 µg/L	15400		100	70-130			
EPHw19-32	21000	250 µg/L	22100		95	70-130			



## APPENDIX 2: QUALITY CONTROL RESULTS

**REPORTED TO PROJECT** Allterra Construction  
P17-932

**WORK ORDER REPORTED** 9012421  
2019-02-15 19:33

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
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**BCMOE Aggregate Hydrocarbons, Batch B9B0879, Continued**

**LCS (B9B0879-BS2), Continued**

Prepared: 2019-02-13, Analyzed: 2019-02-13

Surrogate: 2-Methylnonane (EPH/F2-4)	454	µg/L	444		102	60-140			
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**Dissolved Metals, Batch B9A2102**

**Blank (B9A2102-BLK1)**

Prepared: 2019-02-02, Analyzed: 2019-02-02

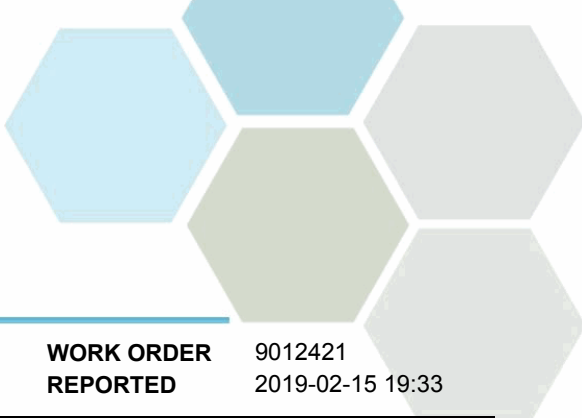
Aluminum, dissolved	< 0.0050	0.0050 mg/L							
Antimony, dissolved	< 0.00020	0.00020 mg/L							
Arsenic, dissolved	< 0.00050	0.00050 mg/L							
Barium, dissolved	< 0.0050	0.0050 mg/L							
Beryllium, dissolved	< 0.00010	0.00010 mg/L							
Bismuth, dissolved	< 0.00010	0.00010 mg/L							
Boron, dissolved	< 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							

**Blank (B9A2102-BLK2)**

Prepared: 2019-02-02, Analyzed: 2019-02-02

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							





## APPENDIX 2: QUALITY CONTROL RESULTS

**REPORTED TO PROJECT** Allterra Construction  
P17-932

**WORK ORDER REPORTED** 9012421  
2019-02-15 19:33

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
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**Dissolved Metals, Batch B9A2102, Continued**

**Blank (B9A2102-BLK2), Continued**

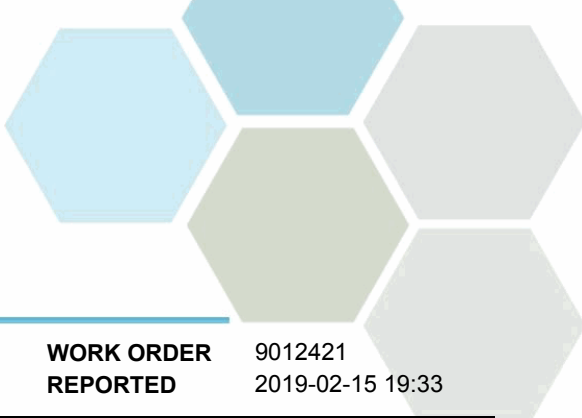
Prepared: 2019-02-02, Analyzed: 2019-02-02

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 (B9A2102-BS1)**

Prepared: 2019-02-02, Analyzed: 2019-02-02

Aluminum, dissolved	0.0222	0.0050 mg/L	0.0200		111	80-120			
Antimony, dissolved	0.0194	0.00020 mg/L	0.0200		97	80-120			
Arsenic, dissolved	0.0198	0.00050 mg/L	0.0200		99	80-120			
Barium, dissolved	0.0193	0.0050 mg/L	0.0200		96	80-120			
Beryllium, dissolved	0.0213	0.00010 mg/L	0.0200		107	80-120			
Bismuth, dissolved	0.0205	0.00010 mg/L	0.0200		103	80-120			
Boron, dissolved	0.0191	0.0050 mg/L	0.0200		95	80-120			
Cadmium, dissolved	0.0195	0.000010 mg/L	0.0200		98	80-120			
Calcium, dissolved	2.02	0.20 mg/L	2.00		101	80-120			
Chromium, dissolved	0.0197	0.00050 mg/L	0.0200		99	80-120			
Cobalt, dissolved	0.0202	0.00010 mg/L	0.0200		101	80-120			
Copper, dissolved	0.0210	0.00040 mg/L	0.0200		105	80-120			
Iron, dissolved	1.85	0.010 mg/L	2.00		92	80-120			
Lead, dissolved	0.0204	0.00020 mg/L	0.0200		102	80-120			
Lithium, dissolved	0.0223	0.00010 mg/L	0.0200		112	80-120			
Magnesium, dissolved	1.91	0.010 mg/L	2.00		96	80-120			
Manganese, dissolved	0.0192	0.00020 mg/L	0.0200		96	80-120			
Mercury, dissolved	0.00103	0.000040 mg/L	0.00100		103	80-120			
Molybdenum, dissolved	0.0192	0.00010 mg/L	0.0200		96	80-120			
Nickel, dissolved	0.0202	0.00040 mg/L	0.0200		101	80-120			
Phosphorus, dissolved	2.01	0.050 mg/L	2.00		101	80-120			
Potassium, dissolved	1.89	0.10 mg/L	2.00		94	80-120			
Selenium, dissolved	0.0201	0.00050 mg/L	0.0200		101	80-120			
Silicon, dissolved	2.1	1.0 mg/L	2.00		105	80-120			
Silver, dissolved	0.0176	0.000050 mg/L	0.0200		88	80-120			
Sodium, dissolved	1.91	0.10 mg/L	2.00		96	80-120			



## APPENDIX 2: QUALITY CONTROL RESULTS

**REPORTED TO PROJECT** Allterra Construction  
P17-932

**WORK ORDER REPORTED** 9012421  
2019-02-15 19:33

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
<b>Dissolved Metals, Batch B9A2102, Continued</b>									
<b>LCS (B9A2102-BS1), Continued</b>					Prepared: 2019-02-02, Analyzed: 2019-02-02				
Strontium, dissolved	0.0193	0.0010 mg/L	0.0200		96	80-120			
Sulfur, dissolved	4.7	3.0 mg/L	5.00		95	80-120			
Tellurium, dissolved	0.0189	0.00050 mg/L	0.0200		95	80-120			
Thallium, dissolved	0.0204	0.000020 mg/L	0.0200		102	80-120			
Thorium, dissolved	0.0185	0.00010 mg/L	0.0200		92	80-120			
Tin, dissolved	0.0200	0.00020 mg/L	0.0200		100	80-120			
Titanium, dissolved	0.0205	0.0050 mg/L	0.0200		103	80-120			
Tungsten, dissolved	0.0203	0.0010 mg/L	0.0200		101	80-120			
Uranium, dissolved	0.0188	0.000020 mg/L	0.0200		94	80-120			
Vanadium, dissolved	0.0195	0.0010 mg/L	0.0200		97	80-120			
Zinc, dissolved	0.0225	0.0040 mg/L	0.0200		113	80-120			
Zirconium, dissolved	0.0225	0.00010 mg/L	0.0200		112	80-120			

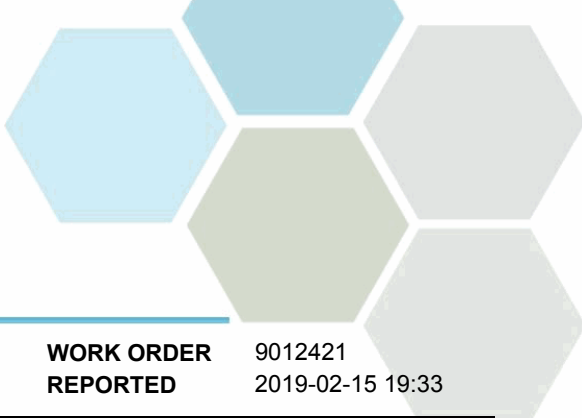
<b>Reference (B9A2102-SRM1)</b>					Prepared: 2019-02-02, Analyzed: 2019-02-02				
Aluminum, dissolved	0.208	0.0050 mg/L	0.233		89	79-114			
Antimony, dissolved	0.0453	0.00020 mg/L	0.0430		105	89-123			
Arsenic, dissolved	0.436	0.00050 mg/L	0.438		100	87-113			
Barium, dissolved	2.97	0.0050 mg/L	3.35		89	85-114			
Beryllium, dissolved	0.221	0.00010 mg/L	0.213		104	79-122			
Boron, dissolved	1.63	0.0050 mg/L	1.74		94	79-117			
Cadmium, dissolved	0.214	0.000010 mg/L	0.224		95	89-112			
Calcium, dissolved	7.18	0.20 mg/L	7.69		93	85-120			
Chromium, dissolved	0.426	0.00050 mg/L	0.437		98	87-113			
Cobalt, dissolved	0.124	0.00010 mg/L	0.128		97	90-117			
Copper, dissolved	0.827	0.00040 mg/L	0.844		98	90-115			
Iron, dissolved	1.20	0.010 mg/L	1.29		93	86-112			
Lead, dissolved	0.109	0.00020 mg/L	0.112		97	90-113			
Lithium, dissolved	0.107	0.00010 mg/L	0.104		102	77-127			
Magnesium, dissolved	6.43	0.010 mg/L	6.92		93	84-116			
Manganese, dissolved	0.309	0.00020 mg/L	0.345		90	85-113			
Molybdenum, dissolved	0.412	0.00010 mg/L	0.426		97	87-112			
Nickel, dissolved	0.835	0.00040 mg/L	0.840		99	90-114			
Phosphorus, dissolved	0.512	0.050 mg/L	0.495		103	74-119			
Potassium, dissolved	2.80	0.10 mg/L	3.19		88	78-119			
Selenium, dissolved	0.0345	0.00050 mg/L	0.0331		104	89-123			
Sodium, dissolved	16.9	0.10 mg/L	19.1		88	81-117			
Strontium, dissolved	0.884	0.0010 mg/L	0.916		97	82-111			
Thallium, dissolved	0.0383	0.000020 mg/L	0.0393		98	90-113			
Uranium, dissolved	0.237	0.000020 mg/L	0.266		89	87-113			
Vanadium, dissolved	0.829	0.0010 mg/L	0.869		95	85-110			
Zinc, dissolved	0.900	0.0040 mg/L	0.881		102	88-114			

**General Parameters, Batch B9B0104**

<b>Blank (B9B0104-BLK1)</b>					Prepared: 2019-02-01, Analyzed: 2019-02-01				
Turbidity	< 0.10	0.10 NTU							

**General Parameters, Batch B9B0119**

<b>Blank (B9B0119-BLK1)</b>					Prepared: 2019-02-02, Analyzed: 2019-02-02				
Colour, True	< 5.0	5.0 CU							
<b>LCS (B9B0119-BS1)</b>					Prepared: 2019-02-02, Analyzed: 2019-02-02				
Colour, True	19	5.0 CU	20.0		97	85-115			

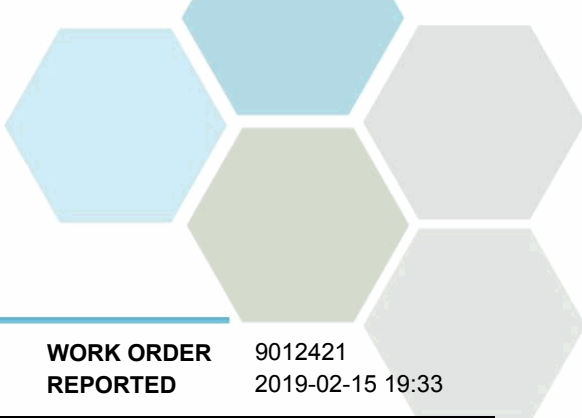


## APPENDIX 2: QUALITY CONTROL RESULTS

**REPORTED TO PROJECT** Allterra Construction  
P17-932

**WORK ORDER REPORTED** 9012421  
2019-02-15 19:33

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
<b>General Parameters, Batch B9B0151</b>									
<b>Blank (B9B0151-BLK1)</b>			Prepared: 2019-02-04, Analyzed: 2019-02-04						
Alkalinity, Total (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0 mg/L							
<b>Blank (B9B0151-BLK2)</b>			Prepared: 2019-02-04, Analyzed: 2019-02-04						
Alkalinity, Total (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Bicarbonate (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0 mg/L							
<b>LCS (B9B0151-BS1)</b>			Prepared: 2019-02-04, Analyzed: 2019-02-04						
Alkalinity, Total (as CaCO3)	105	1.0 mg/L	100		105	92-106			
<b>LCS (B9B0151-BS2)</b>			Prepared: 2019-02-04, Analyzed: 2019-02-04						
Alkalinity, Total (as CaCO3)	103	1.0 mg/L	100		103	92-106			
<b>General Parameters, Batch B9B0288</b>									
<b>Blank (B9B0288-BLK1)</b>			Prepared: 2019-02-06, Analyzed: 2019-02-06						
Solids, Total Suspended	< 2.0	2.0 mg/L							
<b>LCS (B9B0288-BS1)</b>			Prepared: 2019-02-06, Analyzed: 2019-02-06						
Solids, Total Suspended	99.0	10.0 mg/L	100		99	83-107			
<b>General Parameters, Batch B9B0418</b>									
<b>General Parameters, Batch B9B0462</b>									
<b>Blank (B9B0462-BLK1)</b>			Prepared: 2019-02-07, Analyzed: 2019-02-07						
Conductivity (EC)	< 2.0	2.0 µS/cm							
<b>LCS (B9B0462-BS1)</b>			Prepared: 2019-02-07, Analyzed: 2019-02-07						
Conductivity (EC)	150	2.0 µS/cm	147		102	90-110			
<b>Reference (B9B0462-SRM1)</b>			Prepared: 2019-02-07, Analyzed: 2019-02-07						
Conductivity (EC)	1030	2.0 µS/cm	1000		103	95-105			
<b>Polycyclic Aromatic Hydrocarbons (PAH), Batch B9B0304</b>									
<b>Blank (B9B0304-BLK1)</b>			Prepared: 2019-02-05, Analyzed: 2019-02-06						
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							

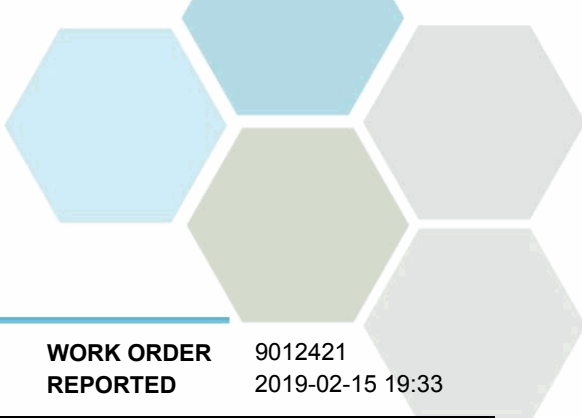


## APPENDIX 2: QUALITY CONTROL RESULTS

**REPORTED TO PROJECT** Allterra Construction  
P17-932

**WORK ORDER REPORTED** 9012421  
2019-02-15 19:33

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
<b>Polycyclic Aromatic Hydrocarbons (PAH), Batch B9B0304, Continued</b>									
<b>Blank (B9B0304-BLK1), Continued</b>					Prepared: 2019-02-05, Analyzed: 2019-02-06				
Dibenz(a,h)anthracene	< 0.010	0.010 µg/L							
Fluoranthene	< 0.030	0.030 µg/L							
Fluorene	< 0.050	0.050 µg/L							
Indeno(1,2,3-cd)pyrene	< 0.050	0.050 µg/L							
1-Methylnaphthalene	< 0.100	0.100 µg/L							
2-Methylnaphthalene	< 0.100	0.100 µg/L							
Naphthalene	< 0.200	0.200 µg/L							
Phenanthrene	< 0.100	0.100 µg/L							
Pyrene	< 0.020	0.020 µg/L							
Quinoline	< 0.050	0.050 µg/L							
Surrogate: Acridine-d9	3.58	µg/L	4.44		81	50-140			
Surrogate: Naphthalene-d8	3.44	µg/L	4.47		77	50-140			
Surrogate: Perylene-d12	4.14	µg/L	4.47		93	50-140			
<b>LCS (B9B0304-BS1)</b>					Prepared: 2019-02-05, Analyzed: 2019-02-06				
Acenaphthene	4.29	0.050 µg/L	4.40		98	58-125			
Acenaphthylene	4.11	0.200 µg/L	4.40		94	54-128			
Acridine	2.95	0.050 µg/L	4.44		66	50-112			
Anthracene	4.24	0.010 µg/L	4.44		95	66-125			
Benzo(a)anthracene	4.18	0.010 µg/L	4.44		94	59-123			
Benzo(a)pyrene	4.56	0.010 µg/L	4.40		104	62-116			
Benzo(b+j)fluoranthene	8.79	0.050 µg/L	8.89		99	69-121			
Benzo(g,h,i)perylene	5.17	0.050 µg/L	4.40		118	58-129			
Benzo(k)fluoranthene	4.16	0.050 µg/L	4.44		94	67-128			
2-Chloronaphthalene	3.43	0.100 µg/L	4.44		77	50-140			
Chrysene	4.11	0.050 µg/L	4.42		93	58-125			
Dibenz(a,h)anthracene	4.90	0.010 µg/L	4.42		111	58-126			
Fluoranthene	4.08	0.030 µg/L	4.36		94	67-133			
Fluorene	3.89	0.050 µg/L	4.40		88	55-122			
Indeno(1,2,3-cd)pyrene	5.17	0.050 µg/L	4.44		116	62-126			
1-Methylnaphthalene	3.78	0.100 µg/L	4.38		86	53-125			
2-Methylnaphthalene	4.11	0.100 µg/L	4.36		94	52-122			
Naphthalene	6.28	0.200 µg/L	4.44		141	50-130			SPK
Phenanthrene	4.20	0.100 µg/L	4.40		95	67-127			
Pyrene	4.56	0.020 µg/L	4.44		103	68-133			
Quinoline	4.58	0.050 µg/L	4.44		103	51-140			
Surrogate: Acridine-d9	3.83	µg/L	4.44		86	50-140			
Surrogate: Naphthalene-d8	6.57	µg/L	4.47		147	50-140			S02
Surrogate: Perylene-d12	5.01	µg/L	4.47		112	50-140			
<b>LCS Dup (B9B0304-BSD1)</b>					Prepared: 2019-02-05, Analyzed: 2019-02-06				
Acenaphthene	4.94	0.050 µg/L	4.40		112	58-125	14	16	
Acenaphthylene	4.73	0.200 µg/L	4.40		107	54-128	14	16	
Acridine	3.25	0.050 µg/L	4.44		73	50-112	10	26	
Anthracene	4.21	0.010 µg/L	4.44		95	66-125	< 1	14	
Benzo(a)anthracene	3.71	0.010 µg/L	4.44		84	59-123	12	23	
Benzo(a)pyrene	4.05	0.010 µg/L	4.40		92	62-116	12	16	
Benzo(b+j)fluoranthene	8.01	0.050 µg/L	8.89		90	69-121	9	14	
Benzo(g,h,i)perylene	4.90	0.050 µg/L	4.40		111	58-129	5	25	
Benzo(k)fluoranthene	4.31	0.050 µg/L	4.44		97	67-128	3	18	
2-Chloronaphthalene	4.98	0.100 µg/L	4.44		112	50-140	37	30	RPD
Chrysene	3.93	0.050 µg/L	4.42		89	58-125	4	24	
Dibenz(a,h)anthracene	4.19	0.010 µg/L	4.42		95	58-126	16	23	
Fluoranthene	4.02	0.030 µg/L	4.36		92	67-133	1	18	
Fluorene	4.07	0.050 µg/L	4.40		92	55-122	4	16	
Indeno(1,2,3-cd)pyrene	4.26	0.050 µg/L	4.44		96	62-126	19	22	



## APPENDIX 2: QUALITY CONTROL RESULTS

**REPORTED TO PROJECT** Allterra Construction  
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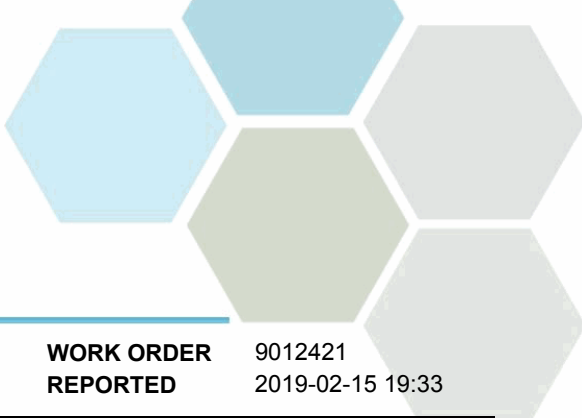
**WORK ORDER REPORTED** 9012421  
2019-02-15 19:33

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
<b>Polycyclic Aromatic Hydrocarbons (PAH), Batch B9B0304, Continued</b>									
<b>LCS Dup (B9B0304-BSD1), Continued</b>					Prepared: 2019-02-05, Analyzed: 2019-02-06				
1-Methylnaphthalene	1.78	0.100 µg/L	4.38		41	53-125	72	16	RPD, SPK1
2-Methylnaphthalene	1.74	0.100 µg/L	4.36		40	52-122	81	17	RPD, SPK1
Naphthalene	1.84	0.200 µg/L	4.44		41	50-130	109	18	RPD, SPK
Phenanthrene	4.18	0.100 µg/L	4.40		95	67-127	< 1	14	
Pyrene	3.87	0.020 µg/L	4.44		87	68-133	16	18	
Quinoline	4.24	0.050 µg/L	4.44		95	51-140	8	12	
Surrogate: Acridine-d9	3.80	µg/L	4.44		85	50-140			
Surrogate: Naphthalene-d8	1.91	µg/L	4.47		43	50-140			S02
Surrogate: Perylene-d12	4.75	µg/L	4.47		106	50-140			

### Polycyclic Aromatic Hydrocarbons (PAH), Batch B9B0879

<b>Blank (B9B0879-BLK1)</b>			Prepared: 2019-02-13, Analyzed: 2019-02-14						
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	3.10	µg/L	4.38		71	50-140			
Surrogate: Naphthalene-d8	3.64	µg/L	4.47		81	50-140			
Surrogate: Perylene-d12	4.87	µg/L	4.47		109	50-140			

<b>LCS (B9B0879-BS1)</b>			Prepared: 2019-02-13, Analyzed: 2019-02-14						
Acenaphthene	3.90	0.050 µg/L	4.40		89	58-125			
Acenaphthylene	3.84	0.200 µg/L	4.40		87	54-128			
Acridine	2.88	0.050 µg/L	4.44		65	50-112			
Anthracene	4.11	0.010 µg/L	4.44		93	66-125			
Benz(a)anthracene	3.64	0.010 µg/L	4.44		82	59-123			
Benzo(a)pyrene	4.18	0.010 µg/L	4.40		95	62-116			
Benzo(b+j)fluoranthene	8.96	0.050 µg/L	8.89		101	69-121			
Benzo(g,h,i)perylene	4.45	0.050 µg/L	4.40		101	58-129			
Benzo(k)fluoranthene	4.08	0.050 µg/L	4.44		92	67-128			
2-Chloronaphthalene	3.52	0.100 µg/L	4.44		79	50-140			
Chrysene	3.77	0.050 µg/L	4.42		85	58-125			
Dibenz(a,h)anthracene	4.12	0.010 µg/L	4.42		93	58-126			
Fluoranthene	3.62	0.030 µg/L	4.36		83	67-133			
Fluorene	3.77	0.050 µg/L	4.40		86	55-122			



## APPENDIX 2: QUALITY CONTROL RESULTS

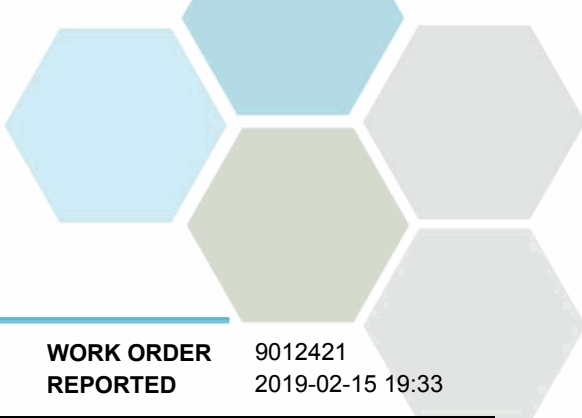
**REPORTED TO PROJECT** Allterra Construction  
P17-932

**WORK ORDER REPORTED** 9012421  
2019-02-15 19:33

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
<b>Polycyclic Aromatic Hydrocarbons (PAH), Batch B9B0879, Continued</b>									
<b>LCS (B9B0879-BS1), Continued</b>					Prepared: 2019-02-13, Analyzed: 2019-02-14				
Indeno(1,2,3-cd)pyrene	4.03	0.050 µg/L	4.44		91	62-126			
1-Methylnaphthalene	3.08	0.100 µg/L	4.38		70	53-125			
2-Methylnaphthalene	3.06	0.100 µg/L	4.36		70	52-122			
Naphthalene	3.17	0.200 µg/L	4.44		71	50-130			
Phenanthrene	4.08	0.100 µg/L	4.40		93	67-127			
Pyrene	3.73	0.020 µg/L	4.44		84	68-133			
Quinoline	4.39	0.050 µg/L	4.44		99	51-140			
Surrogate: Acridine-d9	2.90	µg/L	4.38		66	50-140			
Surrogate: Naphthalene-d8	2.98	µg/L	4.47		67	50-140			
Surrogate: Perylene-d12	4.56	µg/L	4.47		102	50-140			
<b>LCS Dup (B9B0879-BSD1)</b>					Prepared: 2019-02-13, Analyzed: 2019-02-14				
Acenaphthene	4.35	0.050 µg/L	4.40		99	58-125	11	16	
Acenaphthylene	4.32	0.200 µg/L	4.40		98	54-128	12	16	
Acridine	3.44	0.050 µg/L	4.44		77	50-112	18	26	
Anthracene	4.31	0.010 µg/L	4.44		97	66-125	5	14	
Benz(a)anthracene	3.78	0.010 µg/L	4.44		85	59-123	4	23	
Benzo(a)pyrene	4.21	0.010 µg/L	4.40		96	62-116	< 1	16	
Benzo(b+j)fluoranthene	6.88	0.050 µg/L	8.89		77	69-121	26	14	RPD
Benzo(g,h,i)perylene	4.40	0.050 µg/L	4.40		100	58-129	1	25	
Benzo(k)fluoranthene	3.65	0.050 µg/L	4.44		82	67-128	11	18	
2-Chloronaphthalene	4.05	0.100 µg/L	4.44		91	50-140	14	30	
Chrysene	3.86	0.050 µg/L	4.42		87	58-125	2	24	
Dibenz(a,h)anthracene	4.12	0.010 µg/L	4.42		93	58-126	< 1	23	
Fluoranthene	3.89	0.030 µg/L	4.36		89	67-133	7	18	
Fluorene	3.90	0.050 µg/L	4.40		89	55-122	3	16	
Indeno(1,2,3-cd)pyrene	3.70	0.050 µg/L	4.44		83	62-126	9	22	
1-Methylnaphthalene	3.58	0.100 µg/L	4.38		82	53-125	15	16	
2-Methylnaphthalene	3.59	0.100 µg/L	4.36		82	52-122	16	17	
Naphthalene	3.48	0.200 µg/L	4.44		78	50-130	9	18	
Phenanthrene	4.18	0.100 µg/L	4.40		95	67-127	2	14	
Pyrene	3.97	0.020 µg/L	4.44		89	68-133	6	18	
Quinoline	4.35	0.050 µg/L	4.44		98	51-140	< 1	12	
Surrogate: Acridine-d9	3.23	µg/L	4.38		74	50-140			
Surrogate: Naphthalene-d8	3.37	µg/L	4.47		75	50-140			
Surrogate: Perylene-d12	4.44	µg/L	4.47		99	50-140			

**Total Metals, Batch B9B0028**

<b>Blank (B9B0028-BLK1)</b>			Prepared: 2019-02-01, Analyzed: 2019-02-02						
Aluminum, total	< 0.0050	0.0050 mg/L							
Antimony, total	< 0.00020	0.00020 mg/L							
Arsenic, total	< 0.00050	0.00050 mg/L							
Barium, total	< 0.0050	0.0050 mg/L							
Beryllium, total	< 0.00010	0.00010 mg/L							
Bismuth, total	< 0.00010	0.00010 mg/L							
Boron, total	< 0.0050	0.0050 mg/L							
Cadmium, total	< 0.000010	0.000010 mg/L							
Calcium, total	< 0.20	0.20 mg/L							
Chromium, total	< 0.00050	0.00050 mg/L							
Cobalt, total	< 0.00010	0.00010 mg/L							
Copper, total	< 0.00040	0.00040 mg/L							
Iron, total	< 0.010	0.010 mg/L							
Lead, total	< 0.00020	0.00020 mg/L							
Lithium, total	< 0.00010	0.00010 mg/L							



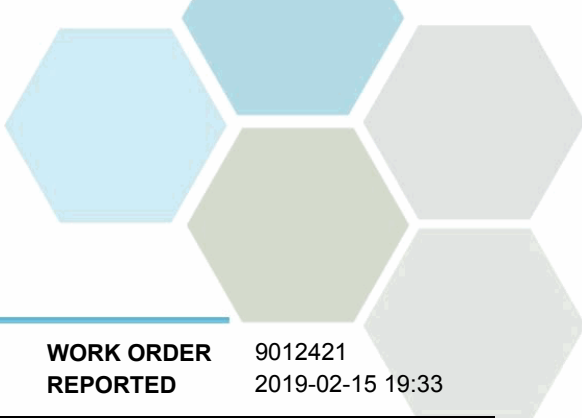
## APPENDIX 2: QUALITY CONTROL RESULTS

**REPORTED TO PROJECT** Allterra Construction  
P17-932

**WORK ORDER REPORTED** 9012421  
2019-02-15 19:33

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
<b>Total Metals, Batch B9B0028, Continued</b>									
<b>Blank (B9B0028-BLK1), Continued</b>					Prepared: 2019-02-01, Analyzed: 2019-02-02				
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							

<b>Blank (B9B0028-BLK2)</b>					Prepared: 2019-02-01, Analyzed: 2019-02-02				
Aluminum, total	< 0.0050	0.0050 mg/L							
Antimony, total	< 0.00020	0.00020 mg/L							
Arsenic, total	< 0.00050	0.00050 mg/L							
Barium, total	< 0.0050	0.0050 mg/L							
Beryllium, total	< 0.00010	0.00010 mg/L							
Bismuth, total	< 0.00010	0.00010 mg/L							
Boron, total	< 0.0050	0.0050 mg/L							
Cadmium, total	< 0.000010	0.000010 mg/L							
Calcium, total	< 0.20	0.20 mg/L							
Chromium, total	< 0.00050	0.00050 mg/L							
Cobalt, total	< 0.00010	0.00010 mg/L							
Copper, total	< 0.00040	0.00040 mg/L							
Iron, total	< 0.010	0.010 mg/L							
Lead, total	< 0.00020	0.00020 mg/L							
Lithium, total	< 0.00010	0.00010 mg/L							
Magnesium, total	< 0.010	0.010 mg/L							
Manganese, total	< 0.00020	0.00020 mg/L							
Molybdenum, total	< 0.00010	0.00010 mg/L							
Nickel, total	< 0.00040	0.00040 mg/L							
Phosphorus, total	< 0.050	0.050 mg/L							
Potassium, total	< 0.10	0.10 mg/L							
Selenium, total	< 0.00050	0.00050 mg/L							
Silicon, total	< 1.0	1.0 mg/L							
Silver, total	< 0.000050	0.000050 mg/L							
Sodium, total	< 0.10	0.10 mg/L							
Strontium, total	< 0.0010	0.0010 mg/L							
Sulfur, total	< 3.0	3.0 mg/L							
Tellurium, total	< 0.00050	0.00050 mg/L							
Thallium, total	< 0.000020	0.000020 mg/L							
Thorium, total	< 0.00010	0.00010 mg/L							
Tin, total	< 0.00020	0.00020 mg/L							
Titanium, total	< 0.0050	0.0050 mg/L							



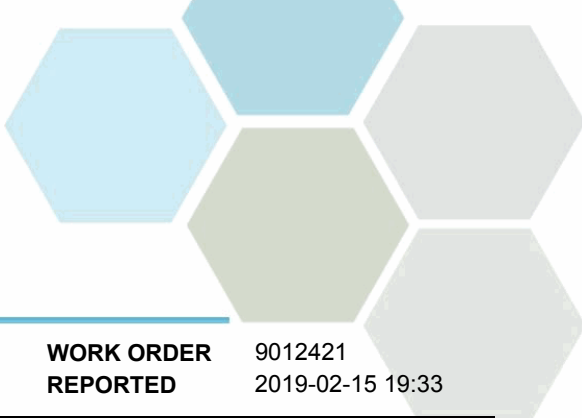
## APPENDIX 2: QUALITY CONTROL RESULTS

**REPORTED TO PROJECT** Allterra Construction  
P17-932

**WORK ORDER REPORTED** 9012421  
2019-02-15 19:33

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
<b>Total Metals, Batch B9B0028, Continued</b>									
<b>Blank (B9B0028-BLK2), Continued</b>					Prepared: 2019-02-01, Analyzed: 2019-02-02				
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							
<b>LCS (B9B0028-BS1)</b>					Prepared: 2019-02-01, Analyzed: 2019-02-02				
Aluminum, total	0.0224	0.0050 mg/L	0.0200		112	80-120			
Antimony, total	0.0207	0.00020 mg/L	0.0200		103	80-120			
Arsenic, total	0.0202	0.00050 mg/L	0.0200		101	80-120			
Barium, total	0.0198	0.0050 mg/L	0.0200		99	80-120			
Beryllium, total	0.0222	0.00010 mg/L	0.0200		111	80-120			
Bismuth, total	0.0211	0.00010 mg/L	0.0200		106	80-120			
Boron, total	0.0206	0.0050 mg/L	0.0200		103	80-120			
Cadmium, total	0.0201	0.000010 mg/L	0.0200		101	80-120			
Calcium, total	2.11	0.20 mg/L	2.00		105	80-120			
Chromium, total	0.0201	0.00050 mg/L	0.0200		100	80-120			
Cobalt, total	0.0206	0.00010 mg/L	0.0200		103	80-120			
Copper, total	0.0216	0.00040 mg/L	0.0200		108	80-120			
Iron, total	1.89	0.010 mg/L	2.00		95	80-120			
Lead, total	0.0211	0.00020 mg/L	0.0200		106	80-120			
Lithium, total	0.0230	0.00010 mg/L	0.0200		115	80-120			
Magnesium, total	1.98	0.010 mg/L	2.00		99	80-120			
Manganese, total	0.0197	0.00020 mg/L	0.0200		99	80-120			
Molybdenum, total	0.0195	0.00010 mg/L	0.0200		98	80-120			
Nickel, total	0.0208	0.00040 mg/L	0.0200		104	80-120			
Phosphorus, total	2.06	0.050 mg/L	2.00		103	80-120			
Potassium, total	1.93	0.10 mg/L	2.00		97	80-120			
Selenium, total	0.0210	0.00050 mg/L	0.0200		105	80-120			
Silicon, total	2.1	1.0 mg/L	2.00		103	80-120			
Silver, total	0.0182	0.000050 mg/L	0.0200		91	80-120			
Sodium, total	2.02	0.10 mg/L	2.00		101	80-120			
Strontium, total	0.0198	0.0010 mg/L	0.0200		99	80-120			
Sulfur, total	4.9	3.0 mg/L	5.00		98	80-120			
Tellurium, total	0.0192	0.00050 mg/L	0.0200		96	80-120			
Thallium, total	0.0211	0.000020 mg/L	0.0200		105	80-120			
Thorium, total	0.0192	0.00010 mg/L	0.0200		96	80-120			
Tin, total	0.0206	0.00020 mg/L	0.0200		103	80-120			
Titanium, total	0.0216	0.0050 mg/L	0.0200		108	80-120			
Tungsten, total	0.0209	0.0010 mg/L	0.0200		104	80-120			
Uranium, total	0.0196	0.000020 mg/L	0.0200		98	80-120			
Vanadium, total	0.0198	0.0010 mg/L	0.0200		99	80-120			
Zinc, total	0.0225	0.0040 mg/L	0.0200		113	80-120			
Zirconium, total	0.0204	0.00010 mg/L	0.0200		102	80-120			
<b>Duplicate (B9B0028-DUP1)</b>					Prepared: 2019-02-01, Analyzed: 2019-02-02				
Aluminum, total	0.0242	0.0050 mg/L		0.0248				20	
Antimony, total	< 0.00020	0.00020 mg/L		0.00020				20	
Arsenic, total	< 0.00050	0.00050 mg/L		< 0.00050				15	
Barium, total	0.0090	0.0050 mg/L		0.0095				9	
Beryllium, total	< 0.00010	0.00010 mg/L		< 0.00010				16	
Bismuth, total	< 0.00010	0.00010 mg/L		< 0.00010				20	
Boron, total	0.251	0.0050 mg/L		0.227			10	20	
Cadmium, total	0.000026	0.000010 mg/L		0.000024				20	
Calcium, total	732	0.20 mg/L		767			5	12	
Chromium, total	0.00093	0.00050 mg/L		0.00096				12	



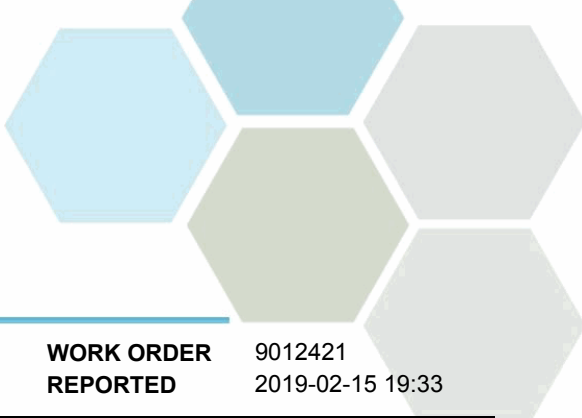


## APPENDIX 2: QUALITY CONTROL RESULTS

**REPORTED TO PROJECT** Allterra Construction  
P17-932

**WORK ORDER REPORTED** 9012421  
2019-02-15 19:33

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
<b>Total Metals, Batch B9B0028, Continued</b>									
<b>Duplicate (B9B0028-DUP1), Continued</b>		<b>Source: 9012421-01</b>		<b>Prepared: 2019-02-01, Analyzed: 2019-02-02</b>					
Cobalt, total	0.00029	0.00010 mg/L		0.00032					13
Copper, total	0.00072	0.00040 mg/L		0.00076					20
Iron, total	< 0.010	0.010 mg/L		< 0.010					18
Lead, total	< 0.00020	0.00020 mg/L		< 0.00020					20
Lithium, total	0.00041	0.00010 mg/L		0.00027					19
Magnesium, total	200	0.010 mg/L		205			2		10
Manganese, total	0.136	0.00020 mg/L		0.139			2		13
Molybdenum, total	< 0.00010	0.00010 mg/L		< 0.00010					20
Nickel, total	0.00235	0.00040 mg/L		0.00227			3		20
Phosphorus, total	< 0.050	0.050 mg/L		< 0.050					20
Potassium, total	30.3	0.10 mg/L		31.4			3		13
Selenium, total	< 0.00050	0.00050 mg/L		< 0.00050					20
Silicon, total	5.4	1.0 mg/L		5.9			9		11
Silver, total	0.000051	0.000050 mg/L		< 0.000050					18
Sodium, total	1420	0.10 mg/L		1470			3		10
Strontium, total	3.68	0.0010 mg/L		3.72			1		9
Sulfur, total	594	3.0 mg/L		604			2		20
Tellurium, total	< 0.00050	0.00050 mg/L		< 0.00050					20
Thallium, total	< 0.000020	0.000020 mg/L		< 0.000020					20
Thorium, total	< 0.00010	0.00010 mg/L		< 0.00010					18
Tin, total	< 0.00020	0.00020 mg/L		< 0.00020					20
Titanium, total	< 0.0050	0.0050 mg/L		< 0.0050					20
Tungsten, total	< 0.0010	0.0010 mg/L		< 0.0010					20
Uranium, total	0.000032	0.000020 mg/L		0.000033					14
Vanadium, total	< 0.0010	0.0010 mg/L		< 0.0010					17
Zinc, total	0.0056	0.0040 mg/L		0.0059					8
Zirconium, total	< 0.00010	0.00010 mg/L		< 0.00010					20
<b>Reference (B9B0028-SRM1)</b>		<b>Prepared: 2019-02-01, Analyzed: 2019-02-02</b>							
Aluminum, total	0.303	0.0050 mg/L		0.303	100		82-114		
Antimony, total	0.0517	0.00020 mg/L		0.0511	101		88-115		
Arsenic, total	0.119	0.00050 mg/L		0.118	101		88-111		
Barium, total	0.773	0.0050 mg/L		0.823	94		83-110		
Beryllium, total	0.0529	0.00010 mg/L		0.0496	107		80-119		
Boron, total	3.46	0.0050 mg/L		3.45	100		80-118		
Cadmium, total	0.0481	0.000010 mg/L		0.0495	97		90-110		
Calcium, total	10.6	0.20 mg/L		11.6	91		85-113		
Chromium, total	0.247	0.00050 mg/L		0.250	99		88-111		
Cobalt, total	0.0389	0.00010 mg/L		0.0377	103		90-114		
Copper, total	0.512	0.00040 mg/L		0.486	105		90-117		
Iron, total	0.486	0.010 mg/L		0.488	100		90-116		
Lead, total	0.203	0.00020 mg/L		0.204	100		90-110		
Lithium, total	0.430	0.00010 mg/L		0.403	107		79-118		
Magnesium, total	3.83	0.010 mg/L		3.79	101		88-116		
Manganese, total	0.102	0.00020 mg/L		0.109	94		88-108		
Molybdenum, total	0.200	0.00010 mg/L		0.198	101		88-110		
Nickel, total	0.251	0.00040 mg/L		0.249	101		90-112		
Phosphorus, total	0.243	0.050 mg/L		0.227	107		72-118		
Potassium, total	7.18	0.10 mg/L		7.21	100		87-116		
Selenium, total	0.124	0.00050 mg/L		0.121	103		90-122		
Sodium, total	7.32	0.10 mg/L		7.54	97		86-118		
Strontium, total	0.367	0.0010 mg/L		0.375	98		86-110		
Thallium, total	0.0812	0.000020 mg/L		0.0805	101		90-113		
Uranium, total	0.0288	0.000020 mg/L		0.0306	94		88-112		
Vanadium, total	0.388	0.0010 mg/L		0.386	101		87-110		
Zinc, total	2.57	0.0040 mg/L		2.49	103		90-113		



## APPENDIX 2: QUALITY CONTROL RESULTS

**REPORTED TO PROJECT** Allterra Construction  
P17-932

**WORK ORDER REPORTED** 9012421  
2019-02-15 19:33

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
<b>Total Metals, Batch B9B0185</b>									
<b>Blank (B9B0185-BLK1)</b>					Prepared: 2019-02-04, Analyzed: 2019-02-05				
Mercury, total	< 0.000010	0.000010 mg/L							
<b>Blank (B9B0185-BLK2)</b>					Prepared: 2019-02-04, Analyzed: 2019-02-05				
Mercury, total	< 0.000010	0.000010 mg/L							
<b>Reference (B9B0185-SRM1)</b>					Prepared: 2019-02-04, Analyzed: 2019-02-05				
Mercury, total	0.00450	0.000010 mg/L	0.00489		92	80-120			
<b>Reference (B9B0185-SRM2)</b>					Prepared: 2019-02-04, Analyzed: 2019-02-05				
Mercury, total	0.00390	0.000010 mg/L	0.00489		80	80-120			

**QC Qualifiers:**

- RPD Relative percent difference (RPD) of duplicate analysis are outside of control limits for unknown reason(s).
- S02 Surrogate recovery outside of control limits. Data accepted based on acceptable recovery of other surrogates.
- SPK The recovery of this analyte was outside of established control limits.
- SPK1 The recovery of this analyte was outside of established control limits. The data was accepted based on performance of other batch QC.

Submission Key G030-NBK-170C	SUBMITTED :1/30/2019 1:36:43 PM	Page 1 of 1
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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: 1 TAT: 5	CARO Analytical Services #110 - 4011 Viking Way Richmond, BC V6V 2K9 Phone: (604) 279-1499 Fax: (604) 279-1599	Number: Jan 2019 Shipped via: Maximum Express Tracking #: SDG:

#	LE-1	Analyses	Containers
# 1	01/30/2019 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) (2) 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)

Relinquished by	Date/Time	Accepted by	Date/Time

# CARCO

## ANALYTICAL SERVICES

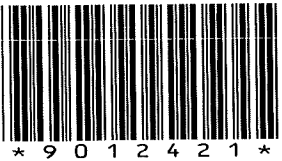
Submission Key G030-NBK-170C

SUBMITTED : 1/30/2019 1:36:43 PM

Page 1 of 1

<b>Client information</b> Allterra Construction 2158 Millstream Road Victoria, BC V9B 6H4 Phone: (250) 508-0726 Fax:	<b>Project information</b> Number: [none] Sample count: 1 TAT: 5	<b>Laboratory information</b> CARO Analytical Services #110 - 4011 Viking Way Richmond, BC V6V 2K9 Phone: (604) 279-1499 Fax: (604) 279-1599	<b>COC information</b> Number: Jan 2019 Shipped via: Maximum Express Tracking #: SDG:
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#	Date/Time	Accepted by	Date/Time
# 1 LE-1 01/30/2019 12:30 Grab / Water	<b>Analyses</b> 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 (CPMS, 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	<b>Containers</b> C03_250 mL Glass (EPH/PAH) (2) 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)	Relinquished by  Date/Time  Accepted by AQB Maximum 9.6°C Yes Ice 31/01/19 2:00



\* 9 0 1 2 4 2 1 1 \*