



FIELD REVIEW REPORT		DATE: January 15, 2020	ISLANDER PROJECT No.: 2087
REPORT No: 60	STAGE OF CONSTRUCTION: Landfill Closure	WEATHER: Snow -2°C	PAGE: 1 OF 4
PROJECT: Cobble Hill Landfill Closure Construction			
TO: CHH	ATTENTION: Marty Block		
CC:			

Semi Monthly Reporting Requirements SPO MO1701

Per **SPO MO1701 Section 4:**

Commencing in the month that closure activities commence pursuant to the approved Updated Final Closure Plan,

the Named Parties must submit semi-monthly status reports, certified by a Qualified Professional. The reports must include the status of closure activities, inspection results, quality control and testing results, photographs which support/document the quality control and testing results, inspection reports and other supporting documents as needed to fully document all stages and components of the closure activities.

- Per the Site’s QMP, activities that occurred during this reporting cycle are termed “Pre-construction Activities”. Specifically, soil import proceeded from January 6, 2020 to January 8, 2020.
- Source material remains: 3100 Constellation Avenue, Langford BC.
- PEA
 - Liner appears to be in good condition, with no noticeable changes since the date of our last inspection
- 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
- Pictures documenting current Site status are shown below (per January 8, 2020):

Status reports must be submitted by the 15th and 30th of each month (or the next business day thereafter if the 15th or 30th of the month is not a business day) until closure activities have been completed. Submissions must be made electronically to the following email inbox: EnvironmentalCompliance@gov.bc.ca.

- Submitted January 15, 2020



Per Condition 10 of June 26, 2019 Letter Re: Second Amended Spill Prevention Order MO1701, dated June 29, 2017 – Final Closure Plan

The semi-monthly status reports submitted pursuant to section 4 of the SPO must also include:

- *Identification of any deviations from the quality management plan and the construction activities work plan and implementation schedule referenced in conditions 3 and 4 of this approval;*
- There have been no deviations this reporting period.
- *The results of inspections, repairs, quality controls and testing, in accordance with the quality management plan referenced in condition 5 of this approval;*
- Further activities related to closure did not occur this reporting period.
- *The planned activities (and associated timing) for the next reporting cycle; and*
- Soil importation is to continue into the subsequent reporting cycle weather permitting.
- *The environmental monitoring program laboratory reports and tabulated results (Quarterly Only-Submitted quarterly, reviewed annually by others)*
- Sampling did not occur in this reporting period. Laboratory results and tabulated data for Q4 2019 are attached.
- *Copies of all soil relocation documentation as required in condition 7 of this approval.*
- As previously noted, origin site land use was assessed via Technical Guidance 10 on Contaminated Sites. Soil quality was confirmed per a letter of assurance provided by CSAP to BC ENV.

Total Leachate Collected: 0.09 m³

Total Leachate Stored: 14.60 m³

Total Leachate Transferred: 0 m³

ISLANDER ENGINEERING LTD.

Mike Achtem, P.Eng



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Site – Looking Northeast to Leachate/Leak Detection Facility



Site – Looking West



Site – Looking Northwest



Soil Stockpiling – Looking southwest



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PEA – Northwest corner looking South



Soil Stockpiling – Looking West



PEA – Northeast corner looking North

Table 1: Analytical Results for Nutrients			SHA-SW-1
Laboratory ID			9121887-07
Sample ID	BC DRINKING WATER QUALITY GUIDELINES	BC FRESHWATER AQUATIC LIFE WATER QUALITY GUIDELINES	SW1
Date Sampled/Time			2019-12-19
Physical Tests			
Colour, True (Colour Units)	15 TCU	15 ⁽¹⁾ units absolute, or 5 units above background (30-day average)	<5.0
Total Dissolved Solids (mg/L)	-	-	205
pH	7-10.5	6.5-9	7.79
Conductivity (uS/cm)	-	-	338
Hardness (as CaCO ₃)	-	-	143
Turbidity (NTU)	Δ1 NTU	8 NTU above background (24-hr during clear flow)	2.83
Anions and Nutrients mg/L			
Alkalinity Bicarbonate (as CaCO ₃)	<10 high sensitivity to acid inputs 10-20 moderate sensitivity to acid inputs >20 low sensitivity to acid inputs		87.1
Alkalinity Carbonate (as CaCO ₃)			<1.0
Acid Sensitivity			Low
Chloride (Cl)	250 mg/L	600 mg/L (instant max), 150 mg/L (30-day average)	8.23
Fluoride (F)	1.5 mg/L (instant max) 1.0 mg/L (30-day average)	0.4 (Hardness <10mg/L)	<0.10
		Hardness-Dependent AW (Hardness is >10mg/L) ⁽³⁾	0.31
Nitrate (as N)	45 mg/L	32.8 mg/L (instant maximum) 3.0 mg/L (30-day average)	0.304
Nitrite (as N) ⁽²⁾	3 mg/L	Cl > 10 mg/L 0.6 mg/L (MAX), 0.2 mg/L (30-day average)	<0.010
Sulfate (SO ₄) H 0-30 mg/L	500 mg/L	128 mg/L 30-day average)	
H 31 - 75 mg/L		218 mg/L (30-day average)	
H 76 - 180 mg/L		309 mg/L (30-day average)	73.7
H 181 - 250 mg/L		429 mg/L (30-day average)	
H > 250 mg/L		TBD	

Notes: Refer to Table Endnotes (attached)

Table 2: Analytical Results for Total Metals			SHA-SW-1
Laboratory ID			9121887-07
Sample ID	BC DRINKING WATER QUALITY GUIDELINES	BC FRESHWATER AQUATIC LIFE WATER QUALITY GUIDELINES	SW1
Date Sampled/Time			2019-12-19
Physical Tests			
Hardness (as CaCO3) (mg/L)	-	-	143
pH	7-10.5	6.5-9	7.79
Total Metals (mg/L)			
Aluminum (Al)-Total	0.2	-	0.0627
Antimony (Sb)-Total	-	-	<0.00020
Arsenic (As)-Total	0.01	0.005	<0.00050
Barium (Ba)-Total	-	-	0.0086
Beryllium (Be)-Total	-	-	<0.00010
Bismuth, total	-	-	<0.00010
Boron (B)-Total	5	1.2	0.0145
Cadmium (Cd)-Total	-	-	<0.000010
Calcium (Ca)-Total	-	-	47.9
Chromium (Cr)-Total	-	-	<0.00050
Chromium (Cr(III))	-	-	-
Chromium (Cr(VI))	-	-	-
Cobalt (Co)-Total	-	0.110 (Short Term), 0.004 (Long Term Average)	<0.00010
Copper (Cu)-Total	0.5	Hardness-Dependent ⁽⁷⁾	0.00122
		Hardness-Dependent BCAWQG to protect AW ⁽³⁾ (instant max)	0.0154
		Hardness-Dependent BCAWQG to protect AW ⁽³⁾ (30-d average)	0.0057
Iron (Fe)-Total	-	1	0.079
Lead (Pb)-Total	0.01	Hardness-Dependent ⁽³⁾	<0.00020
		Hardness-Dependent BCAWQG to protect AW ⁽³⁾ (instant max)	0.1287
		Hardness-Dependent BCAWQG to protect AW ⁽³⁾ (30-d average)	0.0083
Lithium (Li)-Total	-	-	0.00028
Magnesium (Mg)-Total	-	-	7.26
Manganese (Mn)-Total	-	Hardness-Dependent ⁽³⁾	0.00473
		Hardness-Dependent BCAWQG to protect AW ⁽³⁾ (instant max)	2.1
		Hardness-Dependent BCAWQG to protect AW ⁽³⁾ (30-d average)	1.2
Mercury (Hg)-Total	0.001	0.00002	-
Molybdenum (Mo)-Total	0.25	≤1 (instant max) 2 (30-d average)	0.00065
Nickel (Ni)-Total	-	0.025 (Hardness-Dependent ⁽³⁾ BCAWQG to protect AW H<60mg/L)	0.00044
		Calculated Hardness-Dependent ⁽³⁾ BCAWQG to protect AW 60≤H≤180 mg/L CaCO3	0.125
Phosphorus(P)-Total	-	-	<0.050
Potassium (K)-Total	-	-	0.51
Selenium (Se)-Total	0.01	0.002	<0.00050
Silicon (Si)-Total	-	-	4.1
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
Sodium (Na)-Total	-	-	7.43
Strontium (Sr)-Total	-	-	0.134
Sulfur (S)-Total	-	-	25
Tellurium (Te)-Total	-	-	<0.00050
Thallium (Tl)-Total	-	-	<0.000020
Thorium (Th)-Total	-	-	<0.00010
Tin (Sn)-Total	-	-	<0.00020
Titanium (Ti)-Total	-	-	<0.0050
Tungsten (W)-Total	-	-	<0.0010
Uranium (U)-Total	-	-	0.000701
Vanadium (V)-Total	-	-	<0.0010
Zinc (Zn)-Total	5.0	Hardness >90 mg/L	<0.0040
		Hardness-Dependent BCAWQG to protect AW ⁽³⁾ (instant max)	0.073
		Hardness-Dependent BCAWQG to protect AW ⁽³⁾ (30-d average)	0.047
Zirconium (Zr)-Total	-	-	<0.00010

Table 3: Analytical Results for Dissolved Metals			SHA-SW-1
Laboratory ID			9121887-07
Sample ID	BC DRINKING WATER QUALITY GUIDELINES	BC FRESHWATER AQUATIC LIFE WATER QUALITY GUIDELINES	SW1
Date Sampled/Time			2019-12-19
Physical Tests			
Hardness (as CaCO3) (mg/L)	-	-	143
pH	7-10.5	6.5-9	7.79
Dissolved Metals (mg/L)			
Aluminum (Al)-Dissolved	-	0.05 (30-day average where median pH > 6.5) 0.1 (maximum where instantaneous pH > 6.5) "***" indicates pH-dependent maximum where instant pH ≤ 6.5	<0.0050
		pH/Hardness Dependent BCAWQG to protect AW ⁽⁴⁾ (instant max)	0.716
		pH/Hardness Dependent BCAWQG to protect AW ⁽⁴⁾ (30-d Mean)	1.081
Antimony (Sb)-Dissolved	-	-	<0.00020
Arsenic (As)-Dissolved	-	-	<0.00050
Barium (Ba)-Dissolved	-	-	0.0081
Beryllium (Be)-Dissolved	-	-	<0.00010
Bismuth (Bi)-Dissolved	-	-	<0.00010
Boron (B)-Dissolved	-	-	0.012
Cadmium (Cd)-Dissolved	-	Hardness-Dependent⁽³⁾	0.00039
		Calculated Hardness-Dependent ⁽³⁾ BCAWQG to protect AW (short-term max) $e[1.03 * \ln(Hss) - 5.274]$ ug/L H<455mg/L	0.00085
		Calculated Hardness-Dependent BCAWQG to protect AW ⁽³⁾ (long-term max) $e[0.736 * \ln(Hss) - 4.943]$ ug/L H<285mg/L	0.00028
Calcium (Ca)-Dissolved	-	up to 4, highly sensitive to acid inputs 4 to 8, moderately sensitive over 8 low sensitivity	46.2
			Low
Chromium (Cr)-Dissolved	-	-	<0.00050
Cobalt (Co)-Dissolved	-	-	<0.00010
Copper (Cu)-Dissolved	-	-	0.00092
Iron (Fe)-Dissolved	-	0.35	<0.010
Lead (Pb)-Dissolved	-	-	<0.00020
Lithium, dissolved	-	-	0.00012
Magnesium (Mg)-Dissolved	-	-	6.68
Manganese (Mn)-Dissolved	-	-	0.00083
Mercury (Hg)-Dissolved	-	-	-
Molybdenum (Mo)-Dissolved	-	-	0.00067
Nickel (Ni)-Dissolved	-	-	<0.00040
Phosphorus (P)-Dissolved	-	-	<0.050
Potassium (K)-Dissolved	-	-	0.53
Selenium (Se)-Dissolved	-	-	<0.00050
Silicon (Si)-Dissolved	-	-	4.4
Silver (Ag)-Dissolved	-	-	<0.000050
Sodium (Na)-Dissolved	-	-	7.05
Strontium (Sr)-dissolved	-	-	0.128
Sulfur (S)-Dissolved	-	-	25.4
Tellurium (Te)-Dissolved	-	-	<0.00050
Thallium (Tl)-Dissolved	-	-	<0.000020
Thorium (Th)-Dissolved	-	-	<0.00010
Tin (Sn)-Dissolved	-	-	<0.00020
Titanium (Ti)-Dissolved	-	-	<0.0050
Tungsten (W)-Dissolved	-	-	<0.0010
Uranium (U)-Dissolved	-	-	0.000658
Vanadium (V)-Dissolved	-	-	<0.0010
Zinc (Zn)-Dissolved	-	-	<0.0040
Zirconium (Zr)-Dissolved	-	-	<0.00010

Notes: Refer to Table Endnotes (attached)

Table 1: Analytical Results for Nutrients

Sample Location	CSR Standards ⁽¹⁾		MW19-01	MW19-01X	RPD	MW19-02	SB1	SB2	SB3
	As-built Well Depths to Bottom		7.05m	7.05m		8.90m	4.01m	3.28m	3.53m
Sample ID			9121887-01	9121887-02		9121887-03	9121887-04	9121887-05	9121887-06
Date Sampled	Aquatic Life	Drinking Water	MW19-01	MW19-01X		MW19-02	SB1	SB2	SB3
			2019-12-19	2019-12-19		2019-12-19	2019-12-19	2019-12-19	2019-12-19
Physical Tests									
Colour, True (TCU)	-	-	<5.0	<5.0	*	<5.0	<5.0	<5.0	<5.0
Conductivity (uS/cm)	-	-	241	248	3%	854	95.9	411	106
Hardness (as CaCO3) mg/L	-	-	54.7	55.2	1%	321	37.3	152	49.9
pH (pH Units)	-	-	7.63	7.68	1%	7.74	7.1	7.69	7.03
Total Dissolved Solids mg/L	-	-	162	155	4%	593	55	238	67
Turbidity (NTU)	-	-	393	407	4%	57.8	2	4.44	24.3
Anions and Nutrients mg/L									
Alkalinity, Bicarbonate (as CaCO3)			83.3	82.8	1%	161	25.8	140	21.5
Alkalinity, Carbonate (as CaCO3)			<1.0	<1.0	*	<1.0	<1.0	<1.0	<1.0
Chloride (Cl)	1500	250	4.57	4.57	0%	25.5	0.88	22.9	0.99
Fluoride (F)	2 (H < 50)	1.5							
	3 (H ≥ 50)		<0.10	<0.10	*	0.13	<0.10	<0.10	<0.10
Nitrate (as N)	400	10	0.196	0.188	4%	0.611	0.136	0.158	0.184
Nitrite (as N) ⁽²⁾ Cl <2 mg/L	0.2	3.2					<0.010		<0.010
Cl 2 - <4 mg/L	0.4								
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						<0.010	<0.010	
Sulfate (SO4)	1000	500	38.9	38.6	1%	263	22.3	44.1	30.8

Notes: Refer to Table Endnotes (attached)

Table 2: Analytical Results for Total Metals

Sample Location	CSR Standards ⁽¹⁾		MW19-01	MW19-01X	RPD	MW19-02
As-built Well Depths			7.05m	7.05m		8.90m
Sample ID			9121887-01	9121887-02		9121887-03
			MW19-01	MW19-01X		MW19-02
Date Sampled	Aquatic Life	Drinking Water	2019-12-19	2019-12-19		2019-12-19
Physical Tests mg/L						
Hardness (as CaCO ₃)	-	-	54.7	55.2	1%	321
Total Metals mg/L						
Aluminum (Al)-Total	-	-	9.16	9.45	3%	1.7
Antimony (Sb)-Total	-	-	<0.00020	<0.00020	*	<0.00020
Arsenic (As)-Total	-	-	0.00222	0.00227	2%	0.00059
Barium (Ba)-Total	-	-	0.0609	0.0628	3%	0.046
Beryllium (Be)-Total	-	-	0.00082	0.00093	13%	<0.00010
Bismuth (Bi)- Total	-	-	0.00026	0.00027	4%	<0.00010
Boron (B)-Total	-	-	0.0274	0.028	2%	0.0279
Cadmium (Cd)-Total	-	-	0.000051	0.000039	27%	0.000052
Calcium (Ca)-Total	-	-	29.6	29.5	0%	112
Chromium (Cr)-Total	-	-	0.0116	0.0124	7%	0.00716
Cobalt (Co)-Total	-	-	0.00471	0.00464	1%	0.00172
Copper (Cu)-Total	-	-	0.0155	0.0157	1%	0.00269
Iron (Fe)-Total	-	-	8.19	8.33	2%	1.45
Lead (Pb)-Total	-	-	0.00759	0.00763	1%	0.00075
Lithium (Li)-Total	-	-	0.00744	0.00757	2%	0.00237
Magnesium (Mg)-Total	-	-	6.54	6.43	2%	14.6
Manganese (Mn)-Total	-	-	0.232	0.229	1%	0.309
Mercury (Hg)-Total	-	-	0.00521	0.00545	5%	0.00408
Molybdenum (Mo)-Total	-	-	0.00843	0.00841	0%	0.00332
Nickel (Ni)-Total	-	-	0.325	0.263	21%	0.074
Phosphorus(P)-Total	-	-	1.92	1.94	1%	1.68
Potassium (K)-Total	-	-	<0.00050	<0.00050	*	0.00088
Selenium (Se)-Total	-	-	18.2	19.7	8%	8.6
Silicon (Si)-Total	-	-	<0.000050	<0.000050	*	<0.000050
Silver (Ag)-Total	-	-	31.3	31.1	1%	55.9
Sodium (Na)-Total	-	-	0.162	0.165	2%	0.436
Strontium (Sr)-Total	-	-	11.8	11.4	*	97.2
Sulfur (S)-Total	-	-	<0.00050	<0.00050	*	<0.00050
Tellurium (Te)-Total	-	-	0.000058	0.000058	0%	0.00004
Thallium (Tl)-Total	-	-	0.00471	0.00526	11%	0.00093
Thorium (Th)-Total	-	-	0.00045	0.00055	20%	0.00067
Tin (Sn)-Total	-	-	0.155	0.161	4%	0.0787
Titanium (Ti)-Total	-	-	0.025	0.0247	1%	0.0271
Uranium (U)-Total	-	-	0.00278	0.00281	1%	0.00856
Vanadium (V)-Total	-	-	0.0198	0.0202	2%	0.0057
Zinc (Zn)-Total	-	-	0.0237	0.0218	8%	0.0055
Zirconium (Zr)-Total	-	-	0.00021	0.00027	25%	0.00102

Notes: Refer to Table Endnotes (attached)

Table 3: Analytical Results for Dissolved Metals

Sample Location	CSR Standards ⁽¹⁾		MW19-01	MW19-01X	RPD	MW19-02	SB1	SB2	SB3	
	As-built Well Depths		7.05m	7.05m		8.90m	4.01m	3.28m	3.53m	
Sample ID			9121887-01	9121887-02		9121887-03	9121887-04	9121887-05	9121887-06	
			MW19-01	MW19-01X		MW19-02	SB1	SB2	SB3	
Date Sampled	Aquatic Life	Drinking Water	2019-12-19	2019-12-19		2019-12-19	2019-12-19	2019-12-19	2019-12-19	
Physical Tests mg/L										
Hardness (as CaCO3)	-	-	54.7	55.2	1%	321	37.3	152	49.9	
Dissolved Metals mg/L										
Aluminum (Al)-Dissolved	-	9.5	0.0129	0.0078	*	0.0061	0.0093	<0.0050	<0.0050	
Antimony (Sb)-Dissolved	0.2	0.006	<0.00020	<0.00020	*	<0.00020	<0.00020	<0.00020	<0.00020	
Arsenic (As)-Dissolved	0.05	0.01	0.00078	0.00077	*	<0.00050	<0.00050	<0.00050	<0.00050	
Barium (Ba)-Dissolved	10	1	0.0078	0.0086	*	0.0375	<0.0050	0.0052	<0.0050	
Beryllium (Be)-Dissolved	0.053	-	<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	
Boron (B)-Dissolved	50	5	0.0184	0.0189	*	0.0255	<0.0050	0.0123	0.0051	
Cadmium (Cd)-Dissolved	0.0001 (H<30)	0.005	<0.000010	<0.000010	*		<0.000010		<0.000010	
	0.0003 (H=30-<90)									
	0.0005 (H=90-<150)									
	0.0006 (H=150-<210)					0.000026		<0.000010		
Calcium (Ca)-Dissolved	-	-	18.2	18.4	1%	108	13.1	49.7	16	
Chromium (Cr)-Dissolved	0.01	0.05	<0.00050	<0.00050	*	<0.00050	0.00096	0.0015	<0.00050	
Cobalt (Co)-Dissolved	0.04	-	<0.00010	<0.00010	*	0.00088	0.0001	<0.00010	<0.00010	
Copper (Cu)-Dissolved	0.02 (H<50)	1	<0.00040	<0.00040	*		0.0315		0.00066	
	0.03 (H=50-<75)									
	0.04 (H=75-<100)									
	0.05 (H=100-<125)									
	0.06 (H=125-<150)									
	0.07 (H=150-<175)								0.00053	
	0.08 (H=175-<200)									
0.09 (H>200)					0.00067					
Iron (Fe)-Dissolved	-	6.5	<0.010	<0.010	*	0.011	<0.010	0.013	<0.010	
Lead (Pb)-Dissolved	0.04 (H<50)	0.01	<0.00020	<0.00020	*		0.00127		<0.00020	
	0.05 (H=50-<100)									
	0.06 (H=100-<200)							<0.00020		
	0.11 (H=200-<300)									
0.16 (H>300)					<0.00020					
Lithium (Li)-Dissolved	-	-	0.00296	0.00297	*	0.0017	<0.00010	0.00012	<0.00010	
Magnesium (Mg)-Dissolved	-	100	2.26	2.27	0%	12.8	1.12	6.8	2.42	
Manganese (Mn)-Dissolved	-	0.55	0.0337	0.038	12%	0.274	0.00044	0.00068	0.00036	
Mercury (Hg)-Dissolved	0.001	0.001	-	-	-	-	-	-	-	
Molybdenum (Mo)-Dissolved	10	0.25	0.00534	0.00575	7%	0.00395	0.00023	0.00041	0.0003	
Nickel (Ni)-Dissolved	0.25 (H<60)	-	0.00046	0.00048	*		0.00102		<0.00040	
	0.65 (H=60-<120)									
	1.1 (H=120-<180)							0.00071		
	1.5 (H>=180)					0.0012				
Phosphorus (P)-Dissolved	-	-	<0.050	<0.050	*	<0.050	<0.050	<0.050	<0.050	
Potassium (K)-Dissolved	-	-	0.82	0.86	5%	1.52	0.12	0.8	0.19	
Selenium (Se)-Dissolved	0.01	0.01	<0.00050	<0.00050	*	0.00063	<0.00050	<0.00050	<0.00050	
Silicon (Si)-Dissolved	-	-	3.3	3.3	*	4.9	1.4	4.7	1.7	
Silver (Ag)-Dissolved	0.0005 (H<=100)	-	<0.000050	<0.000050	*		<0.000050		<0.000050	
	0.015 (H>100)					<0.000050		<0.000050		
Sodium (Na)-Dissolved	-	200	31.8	32.7	3%	54.9	1.16	15.8	1.83	
Strontium (Sr)-Dissolved	-	-	0.0998	0.102	2%	0.42	0.0313	0.157	0.0391	
Sulfur (S)-Dissolved	-	-	14.8	13		92.2	7.1	13.8	11.1	
Tellurium (Te)-Dissolved	-	-	<0.00050	<0.00050	*	<0.00050	<0.00050	<0.00050	<0.00050	
Thallium (Tl)-Dissolved	0.003	-	<0.000020	<0.000020	*	0.000028	<0.000020	<0.000020	<0.000020	
Thorium (Th)-Dissolved	-	-	<0.00010	<0.00010	*	<0.00010	<0.00010	<0.00010	<0.00010	
Tin (Sn)-Dissolved	-	-	<0.00020	<0.00020	*	0.00029	<0.00020	<0.00020	<0.00020	
Titanium (Ti)-Dissolved	1	-	<0.0050	<0.0050	*	<0.0050	<0.0050	<0.0050	<0.0050	
Tungsten (W)-Dissolved	-	-	0.0348	0.0362	4%	0.0274	<0.0010	<0.0010	<0.0010	
Uranium (U)-Dissolved	3	0.02	0.00127	0.00128	1%	0.00798	0.000038	0.000579	0.000085	
Vanadium (V)-Dissolved	-	-	<0.0010	<0.0010	*	0.0015	<0.0010	<0.0010	<0.0010	
	0.075 (H<90)	5	<0.0040	<0.0040	*		0.0199		<0.0040	
	0.150 (H=90-<100)									
	0.900 (H=100-<200)									
1.650 (H=200-<300)										
2.4 (H=300-<400)					<0.0040					
Zinc (Zn)-Dissolved	-	-	<0.00010	<0.00010	*	<0.00010	<0.00010	<0.00010	<0.00010	
Zirconium (Zr)-Dissolved	-	-	<0.00010	<0.00010	*	<0.00010	<0.00010	<0.00010	<0.00010	

Notes: Refer to Table Endnotes (attached)

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

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

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

BOLD, UNDERLINE	Laboratory Detection Limit exceeds one or more applicable Standard
BLUE SHADING	Concentration greater than CSR Aquatic Life (AW) Standard
BOLD, BEIGE TEXT	Concentration greater than CSR Drinking Water (DW) Standard

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

LAB ID			9121887-01	9121887-02	9121887-03	9121887-04	9121887-05	9121887-06	9121887-07	
CLIENT ID			MW19-01	MW19-01X	MW19-02	SB1	SB2	SB3	SW1	
DATE SAMPLED			2019-12-19	2019-12-19	2019-12-19	2019-12-19	2019-12-19	2019-12-19	2019-12-19	
DATE RECEIVED			2019-12-20	2019-12-20	2019-12-20	2019-12-20	2019-12-20	2019-12-20	2019-12-20	
MATRIX			Water	Water	Water	Water	Water	Water	Water	
General Method	Analyte	Units	RL							
Anions	Chloride	mg/L	0.1	4.57	4.57	25.5	0.88	22.9	0.99	8.23
Anions	Fluoride	mg/L	0.1	<0.10	<0.10	0.13	<0.10	<0.10	<0.10	<0.10
Anions	Nitrate (as N)	mg/L	0.01	0.196	0.188	0.611	0.136	0.158	0.184	0.304
Anions	Nitrite (as N)	mg/L	0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Anions	Sulfate	mg/L	1	38.9	38.6	263	22.3	44.1	30.8	73.7
General Parameters	Colour, True	CU	5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
General Parameters	Alkalinity, Total (as CaCO3)	mg/L	1	83.3	82.8	161	25.8	140	21.5	87.1
General Parameters	Alkalinity, Phenolphthalein (as CaCO3)	mg/L	1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
General Parameters	Alkalinity, Bicarbonate (as CaCO3)	mg/L	1	83.3	82.8	161	25.8	140	21.5	87.1
General Parameters	Alkalinity, Carbonate (as CaCO3)	mg/L	1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
General Parameters	Alkalinity, Hydroxide (as CaCO3)	mg/L	1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
General Parameters	Solids, Total Dissolved	mg/L	15	162	155	593	55	238	67	205
General Parameters	Turbidity	NTU	0.1	393	407	57.8	2	4.44	24.3	2.83
General Parameters	pH	pH units	0.1	7.63	7.68	7.74	7.1	7.69	7.03	7.79
General Parameters	Conductivity (EC)	uS/cm	2	241	248	854	95.9	411	106	338
Calculated Parameters	Hardness, Total (as CaCO3)	mg/L	0.5	54.7	55.2	321	37.3	152	49.9	143
Dissolved Metals	Lithium, dissolved	mg/L	0.0001	0.00296	0.00297	0.0017	<0.00010	0.00012	<0.00010	0.00012
Dissolved Metals	Aluminum, dissolved	mg/L	0.005	0.0129	0.0078	0.0061	0.0093	<0.0050	<0.0050	<0.0050
Dissolved Metals	Antimony, dissolved	mg/L	0.0002	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Dissolved Metals	Arsenic, dissolved	mg/L	0.0005	0.00078	0.00077	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Dissolved Metals	Barium, dissolved	mg/L	0.005	0.0078	0.0086	0.0375	<0.0050	0.0052	<0.0050	0.0081
Dissolved Metals	Beryllium, dissolved	mg/L	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Dissolved Metals	Bismuth, dissolved	mg/L	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Dissolved Metals	Boron, dissolved	mg/L	0.005	0.0184	0.0189	0.0255	<0.0050	0.0123	0.0051	0.012
Dissolved Metals	Cadmium, dissolved	mg/L	1E-05	<0.000010	<0.000010	0.000026	<0.000010	<0.000010	<0.000010	0.000039
Dissolved Metals	Calcium, dissolved	mg/L	0.2	18.2	18.4	108	13.1	49.7	16	46.2
Dissolved Metals	Chromium, dissolved	mg/L	0.0005	<0.00050	<0.00050	<0.00050	0.00096	0.0015	<0.00050	<0.00050
Dissolved Metals	Cobalt, dissolved	mg/L	0.0001	<0.00010	<0.00010	0.00088	0.0001	<0.00010	<0.00010	<0.00010
Dissolved Metals	Copper, dissolved	mg/L	0.0004	<0.00040	<0.00040	0.00067	0.0315	0.00053	0.00066	0.00092
Dissolved Metals	Iron, dissolved	mg/L	0.01	<0.010	<0.010	0.011	<0.010	0.013	<0.010	<0.010
Dissolved Metals	Lead, dissolved	mg/L	0.0002	<0.00020	<0.00020	<0.00020	0.00127	<0.00020	<0.00020	<0.00020
Dissolved Metals	Magnesium, dissolved	mg/L	0.01	2.26	2.27	12.8	1.12	6.8	2.42	6.68
Dissolved Metals	Manganese, dissolved	mg/L	0.0002	0.0337	0.038	0.274	0.00044	0.00068	0.00036	0.00083
Dissolved Metals	Molybdenum, dissolved	mg/L	0.0001	0.00534	0.00575	0.00395	0.00023	0.00041	0.0003	0.00067
Dissolved Metals	Nickel, dissolved	mg/L	0.0004	0.00046	0.00048	0.0012	0.00102	0.00071	<0.00040	<0.00040
Dissolved Metals	Phosphorus, dissolved	mg/L	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dissolved Metals	Potassium, dissolved	mg/L	0.1	0.82	0.86	1.52	0.12	0.8	0.19	0.53
Dissolved Metals	Selenium, dissolved	mg/L	0.0005	<0.00050	<0.00050	0.00063	<0.00050	<0.00050	<0.00050	<0.00050
Dissolved Metals	Silicon, dissolved	mg/L	1	3.3	3.3	4.9	1.4	4.7	1.7	4.4
Dissolved Metals	Silver, dissolved	mg/L	5E-05	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Dissolved Metals	Sodium, dissolved	mg/L	0.1	31.8	32.7	54.9	1.16	15.8	1.83	7.05
Dissolved Metals	Strontium, dissolved	mg/L	0.001	0.0998	0.102	0.42	0.0313	0.157	0.0391	0.128
Dissolved Metals	Sulfur, dissolved	mg/L	3	14.8	13	92.2	7.1	13.8	11.1	25.4
Dissolved Metals	Tellurium, dissolved	mg/L	0.0005	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Dissolved Metals	Thallium, dissolved	mg/L	2E-05	<0.000020	<0.000020	0.000028	<0.000020	<0.000020	<0.000020	<0.000020
Dissolved Metals	Thorium, dissolved	mg/L	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Dissolved Metals	Tin, dissolved	mg/L	0.0002	<0.00020	<0.00020	0.00029	<0.00020	<0.00020	<0.00020	<0.00020
Dissolved Metals	Titanium, dissolved	mg/L	0.005	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Dissolved Metals	Tungsten, dissolved	mg/L	0.001	0.0348	0.0362	0.0274	<0.0010	<0.0010	<0.0010	<0.0010
Dissolved Metals	Uranium, dissolved	mg/L	2E-05	0.00127	0.00128	0.00798	0.000038	0.000579	0.000085	0.000658
Dissolved Metals	Vanadium, dissolved	mg/L	0.001	<0.0010	<0.0010	0.0015	<0.0010	<0.0010	<0.0010	<0.0010
Dissolved Metals	Zinc, dissolved	mg/L	0.004	<0.0040	<0.0040	<0.0040	0.0199	<0.0040	<0.0040	<0.0040
Dissolved Metals	Zirconium, dissolved	mg/L	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Total Metals	Aluminum, total	mg/L	0.005	9.16	9.45	1.7				0.0627
Total Metals	Antimony, total	mg/L	0.0002	<0.00020	<0.00020	<0.00020				<0.00020
Total Metals	Arsenic, total	mg/L	0.0005	0.00222	0.00227	0.00059				<0.00050
Total Metals	Barium, total	mg/L	0.005	0.0609	0.0628	0.046				0.0086
Total Metals	Beryllium, total	mg/L	0.0001	0.00082	0.00093	<0.00010				<0.00010
Total Metals	Bismuth, total	mg/L	0.0001	0.00026	0.00027	<0.00010				<0.00010
Total Metals	Boron, total	mg/L	0.005	0.0274	0.028	0.0279				0.0145
Total Metals	Cadmium, total	mg/L	1E-05	0.000051	0.000039	0.000052				<0.000010
Total Metals	Calcium, total	mg/L	0.2	29.6	29.5	112				47.9
Total Metals	Chromium, total	mg/L	0.0005	0.0116	0.0124	0.00716				<0.00050
Total Metals	Cobalt, total	mg/L	0.0001	0.00471	0.00464	0.00172				<0.00010
Total Metals	Copper, total	mg/L	0.0004	0.0155	0.0157	0.00269				0.00122
Total Metals	Iron, total	mg/L	0.01	8.19	8.33	1.45				0.079
Total Metals	Lead, total	mg/L	0.0002	0.00759	0.00763	0.00075				<0.00020
Total Metals	Lithium, total	mg/L	0.0001	0.00744	0.00757	0.00237				0.00028
Total Metals	Magnesium, total	mg/L	0.01	6.54	6.43	14.6				7.26
Total Metals	Manganese, total	mg/L	0.0002	0.232	0.229	0.309				0.00473
Total Metals	Molybdenum, total	mg/L	0.0001	0.00521	0.00545	0.00408				0.00065
Total Metals	Nickel, total	mg/L	0.0004	0.00843	0.00841	0.00332				0.00044

CARO Analytical Services
 FINAL Analytical Testing Report
 Work Order: 9121887
 Report Date: 2020-01-02 07:35:43

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				9121887-01	9121887-02	9121887-03	9121887-04	9121887-05	9121887-06	9121887-07
CLIENT ID				MW19-01	MW19-01X	MW19-02	SB1	SB2	SB3	SW1
DATE SAMPLED				2019-12-19	2019-12-19	2019-12-19	2019-12-19	2019-12-19	2019-12-19	2019-12-19
DATE RECEIVED				2019-12-20	2019-12-20	2019-12-20	2019-12-20	2019-12-20	2019-12-20	2019-12-20
MATRIX				Water	Water	Water	Water	Water	Water	Water
General Method	Analyte	Units	RL							
Total Metals	Phosphorus, total	mg/L	0.05	0.325	0.263	0.074				<0.050
Total Metals	Potassium, total	mg/L	0.1	1.92	1.94	1.68				0.51
Total Metals	Selenium, total	mg/L	0.0005	<0.00050	<0.00050	0.00088				<0.00050
Total Metals	Silicon, total	mg/L	1	18.2	19.7	8.6				4.1
Total Metals	Silver, total	mg/L	5E-05	<0.000050	<0.000050	<0.000050				<0.000050
Total Metals	Sodium, total	mg/L	0.1	31.3	31.1	55.9				7.43
Total Metals	Strontium, total	mg/L	0.001	0.162	0.165	0.436				0.134
Total Metals	Sulfur, total	mg/L	3	11.8	11.4	97.2				25
Total Metals	Tellurium, total	mg/L	0.0005	<0.00050	<0.00050	<0.00050				<0.00050
Total Metals	Thallium, total	mg/L	2E-05	0.000058	0.000058	0.00004				<0.000020
Total Metals	Thorium, total	mg/L	0.0001	0.00471	0.00526	0.00093				<0.00010
Total Metals	Tin, total	mg/L	0.0002	0.00045	0.00055	0.00067				<0.00020
Total Metals	Titanium, total	mg/L	0.005	0.155	0.161	0.0787				<0.0050
Total Metals	Tungsten, total	mg/L	0.001	0.025	0.0247	0.0271				<0.0010
Total Metals	Uranium, total	mg/L	2E-05	0.00278	0.00281	0.00856				0.000701
Total Metals	Vanadium, total	mg/L	0.001	0.0198	0.0202	0.0057				<0.0010
Total Metals	Zinc, total	mg/L	0.004	0.0237	0.0218	0.0055				<0.0040
Total Metals	Zirconium, total	mg/L	0.0001	0.00021	0.00027	0.00102				<0.00010



CERTIFICATE OF ANALYSIS

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

ATTENTION Rahim Gaidhar

PO NUMBER 17-932
PROJECT P17-932

PROJECT INFO

WORK ORDER 9121887

RECEIVED / TEMP 2019-12-20 11:45 / 8°C
REPORTED 2020-01-02 07:35

COC NUMBER December 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.

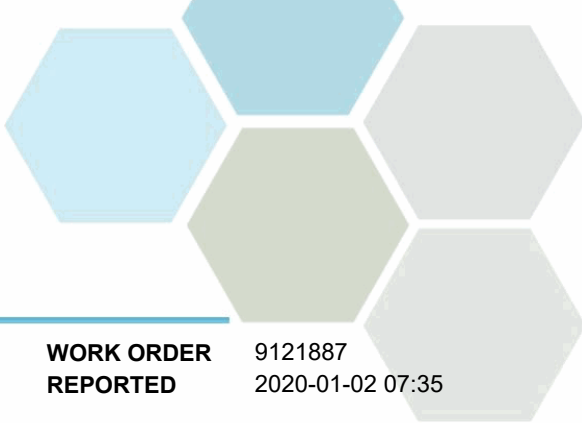
If you have any questions or concerns, please contact me at bshaw@caro.ca

Authorized By:

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

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

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



TEST RESULTS

REPORTED TO PROJECT Allterra Construction
P17-932

WORK ORDER REPORTED 9121887
2020-01-02 07:35

Analyte	Result	RL	Units	Analyzed	Qualifier
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MW19-01 (9121887-01) | Matrix: Water | Sampled: 2019-12-19 10:00

F1

Anions

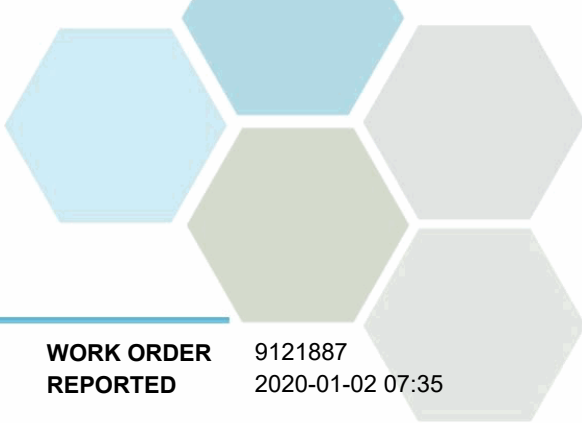
Chloride	4.57	0.10	mg/L	2019-12-21	
Fluoride	< 0.10	0.10	mg/L	2019-12-21	
Nitrate (as N)	0.196	0.010	mg/L	2019-12-21	
Nitrite (as N)	< 0.010	0.010	mg/L	2019-12-21	
Sulfate	38.9	1.0	mg/L	2019-12-21	

Calculated Parameters

Hardness, Total (as CaCO3)	54.7	0.500	mg/L	N/A	
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Dissolved Metals

Lithium, dissolved	0.00296	0.00010	mg/L	2019-12-31	
Aluminum, dissolved	0.0129	0.0050	mg/L	2019-12-31	
Antimony, dissolved	< 0.00020	0.00020	mg/L	2019-12-31	
Arsenic, dissolved	0.00078	0.00050	mg/L	2019-12-31	
Barium, dissolved	0.0078	0.0050	mg/L	2019-12-31	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2019-12-31	
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2019-12-31	
Boron, dissolved	0.0184	0.0050	mg/L	2019-12-31	
Cadmium, dissolved	< 0.000010	0.000010	mg/L	2019-12-31	
Calcium, dissolved	18.2	0.20	mg/L	2019-12-31	
Chromium, dissolved	< 0.00050	0.00050	mg/L	2019-12-31	
Cobalt, dissolved	< 0.00010	0.00010	mg/L	2019-12-31	
Copper, dissolved	< 0.00040	0.00040	mg/L	2019-12-31	
Iron, dissolved	< 0.010	0.010	mg/L	2019-12-31	
Lead, dissolved	< 0.00020	0.00020	mg/L	2019-12-31	
Magnesium, dissolved	2.26	0.010	mg/L	2019-12-31	
Manganese, dissolved	0.0337	0.00020	mg/L	2019-12-31	
Molybdenum, dissolved	0.00534	0.00010	mg/L	2019-12-31	
Nickel, dissolved	0.00046	0.00040	mg/L	2019-12-31	
Phosphorus, dissolved	< 0.050	0.050	mg/L	2019-12-31	
Potassium, dissolved	0.82	0.10	mg/L	2019-12-31	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2019-12-31	
Silicon, dissolved	3.3	1.0	mg/L	2019-12-31	
Silver, dissolved	< 0.000050	0.000050	mg/L	2019-12-31	
Sodium, dissolved	31.8	0.10	mg/L	2019-12-31	
Strontium, dissolved	0.0998	0.0010	mg/L	2019-12-31	
Sulfur, dissolved	14.8	3.0	mg/L	2019-12-31	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2019-12-31	
Thallium, dissolved	< 0.000020	0.000020	mg/L	2019-12-31	
Thorium, dissolved	< 0.00010	0.00010	mg/L	2019-12-31	
Tin, dissolved	< 0.00020	0.00020	mg/L	2019-12-31	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2019-12-31	
Tungsten, dissolved	0.0348	0.0010	mg/L	2019-12-31	



TEST RESULTS

REPORTED TO PROJECT Allterra Construction
P17-932

WORK ORDER REPORTED 9121887
2020-01-02 07:35

Analyte	Result	RL	Units	Analyzed	Qualifier
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MW19-01 (9121887-01) | Matrix: Water | Sampled: 2019-12-19 10:00, Continued

F1

Dissolved Metals, Continued

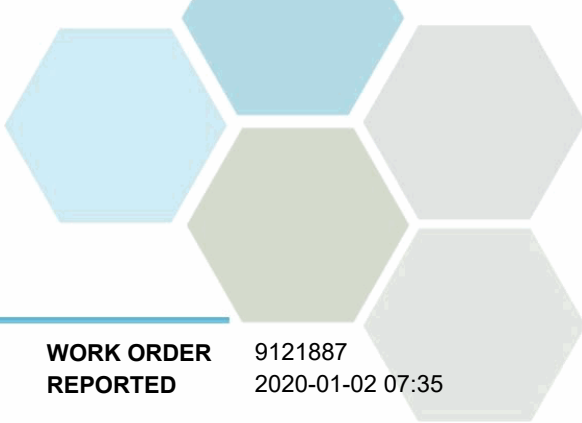
Uranium, dissolved	0.00127	0.000020	mg/L	2019-12-31	
Vanadium, dissolved	< 0.0010	0.0010	mg/L	2019-12-31	
Zinc, dissolved	< 0.0040	0.0040	mg/L	2019-12-31	
Zirconium, dissolved	< 0.00010	0.00010	mg/L	2019-12-31	

General Parameters

Alkalinity, Total (as CaCO3)	83.3	1.0	mg/L	2019-12-30	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2019-12-30	
Alkalinity, Bicarbonate (as CaCO3)	83.3	1.0	mg/L	2019-12-30	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2019-12-30	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2019-12-30	
Colour, True	< 5.0	5.0	CU	2019-12-21	
Conductivity (EC)	241	2.0	µS/cm	2019-12-30	
pH	7.63	0.10	pH units	2019-12-30	HT2
Solids, Total Dissolved	162	15	mg/L	2019-12-28	HT1
Turbidity	393	0.10	NTU	2019-12-21	

Total Metals

Aluminum, total	9.16	0.0050	mg/L	2019-12-31	
Antimony, total	< 0.00020	0.00020	mg/L	2019-12-31	
Arsenic, total	0.00222	0.00050	mg/L	2019-12-31	
Barium, total	0.0609	0.0050	mg/L	2019-12-31	
Beryllium, total	0.00082	0.00010	mg/L	2019-12-31	
Bismuth, total	0.00026	0.00010	mg/L	2019-12-31	
Boron, total	0.0274	0.0050	mg/L	2019-12-31	
Cadmium, total	0.000051	0.000010	mg/L	2019-12-31	
Calcium, total	29.6	0.20	mg/L	2019-12-31	
Chromium, total	0.0116	0.00050	mg/L	2019-12-31	
Cobalt, total	0.00471	0.00010	mg/L	2019-12-31	
Copper, total	0.0155	0.00040	mg/L	2019-12-31	
Iron, total	8.19	0.010	mg/L	2019-12-31	
Lead, total	0.00759	0.00020	mg/L	2019-12-31	
Lithium, total	0.00744	0.00010	mg/L	2019-12-31	
Magnesium, total	6.54	0.010	mg/L	2019-12-31	
Manganese, total	0.232	0.00020	mg/L	2019-12-31	
Molybdenum, total	0.00521	0.00010	mg/L	2019-12-31	
Nickel, total	0.00843	0.00040	mg/L	2019-12-31	
Phosphorus, total	0.325	0.050	mg/L	2019-12-31	
Potassium, total	1.92	0.10	mg/L	2019-12-31	
Selenium, total	< 0.00050	0.00050	mg/L	2019-12-31	
Silicon, total	18.2	1.0	mg/L	2019-12-31	
Silver, total	< 0.000050	0.000050	mg/L	2019-12-31	
Sodium, total	31.3	0.10	mg/L	2019-12-31	



TEST RESULTS

REPORTED TO PROJECT Allterra Construction
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WORK ORDER REPORTED 9121887
2020-01-02 07:35

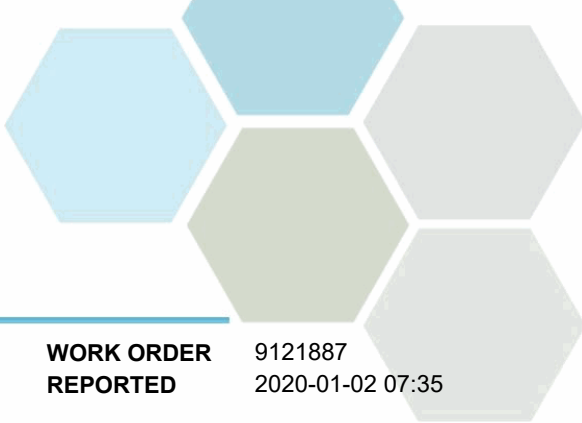
Analyte	Result	RL	Units	Analyzed	Qualifier
MW19-01 (9121887-01) Matrix: Water Sampled: 2019-12-19 10:00, Continued					F1
<i>Total Metals, Continued</i>					
Strontium, total	0.162	0.0010	mg/L	2019-12-31	
Sulfur, total	11.8	3.0	mg/L	2019-12-31	
Tellurium, total	< 0.00050	0.00050	mg/L	2019-12-31	
Thallium, total	0.000058	0.000020	mg/L	2019-12-31	
Thorium, total	0.00471	0.00010	mg/L	2019-12-31	
Tin, total	0.00045	0.00020	mg/L	2019-12-31	
Titanium, total	0.155	0.0050	mg/L	2019-12-31	
Tungsten, total	0.0250	0.0010	mg/L	2019-12-31	
Uranium, total	0.00278	0.000020	mg/L	2019-12-31	
Vanadium, total	0.0198	0.0010	mg/L	2019-12-31	
Zinc, total	0.0237	0.0040	mg/L	2019-12-31	
Zirconium, total	0.00021	0.00010	mg/L	2019-12-31	

MW19-01X (9121887-02) | Matrix: Water | Sampled: 2019-12-19 10:00 F1

<i>Anions</i>					
Chloride	4.57	0.10	mg/L	2019-12-21	
Fluoride	< 0.10	0.10	mg/L	2019-12-21	
Nitrate (as N)	0.188	0.010	mg/L	2019-12-21	
Nitrite (as N)	< 0.010	0.010	mg/L	2019-12-21	
Sulfate	38.6	1.0	mg/L	2019-12-21	

<i>Calculated Parameters</i>					
Hardness, Total (as CaCO3)	55.2	0.500	mg/L	N/A	

<i>Dissolved Metals</i>					
Lithium, dissolved	0.00297	0.00010	mg/L	2019-12-31	
Aluminum, dissolved	0.0078	0.0050	mg/L	2019-12-31	
Antimony, dissolved	< 0.00020	0.00020	mg/L	2019-12-31	
Arsenic, dissolved	0.00077	0.00050	mg/L	2019-12-31	
Barium, dissolved	0.0086	0.0050	mg/L	2019-12-31	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2019-12-31	
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2019-12-31	
Boron, dissolved	0.0189	0.0050	mg/L	2019-12-31	
Cadmium, dissolved	< 0.000010	0.000010	mg/L	2019-12-31	
Calcium, dissolved	18.4	0.20	mg/L	2019-12-31	
Chromium, dissolved	< 0.00050	0.00050	mg/L	2019-12-31	
Cobalt, dissolved	< 0.00010	0.00010	mg/L	2019-12-31	
Copper, dissolved	< 0.00040	0.00040	mg/L	2019-12-31	
Iron, dissolved	< 0.010	0.010	mg/L	2019-12-31	
Lead, dissolved	< 0.00020	0.00020	mg/L	2019-12-31	
Magnesium, dissolved	2.27	0.010	mg/L	2019-12-31	
Manganese, dissolved	0.0380	0.00020	mg/L	2019-12-31	



TEST RESULTS

REPORTED TO PROJECT Allterra Construction
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Analyte	Result	RL	Units	Analyzed	Qualifier
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MW19-01X (9121887-02) | Matrix: Water | Sampled: 2019-12-19 10:00, Continued

F1

Dissolved Metals, Continued

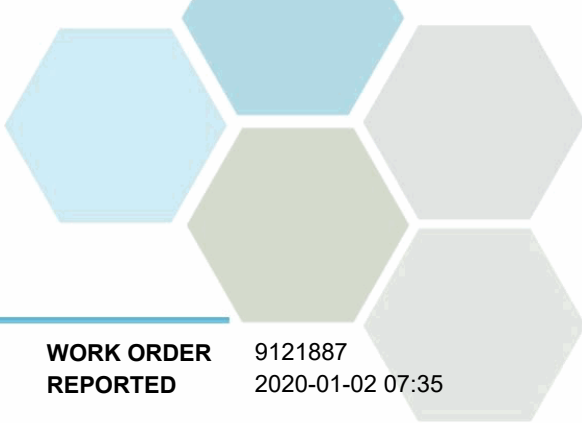
Molybdenum, dissolved	0.00575	0.00010	mg/L	2019-12-31	
Nickel, dissolved	0.00048	0.00040	mg/L	2019-12-31	
Phosphorus, dissolved	< 0.050	0.050	mg/L	2019-12-31	
Potassium, dissolved	0.86	0.10	mg/L	2019-12-31	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2019-12-31	
Silicon, dissolved	3.3	1.0	mg/L	2019-12-31	
Silver, dissolved	< 0.000050	0.000050	mg/L	2019-12-31	
Sodium, dissolved	32.7	0.10	mg/L	2019-12-31	
Strontium, dissolved	0.102	0.0010	mg/L	2019-12-31	
Sulfur, dissolved	13.0	3.0	mg/L	2019-12-31	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2019-12-31	
Thallium, dissolved	< 0.000020	0.000020	mg/L	2019-12-31	
Thorium, dissolved	< 0.00010	0.00010	mg/L	2019-12-31	
Tin, dissolved	< 0.00020	0.00020	mg/L	2019-12-31	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2019-12-31	
Tungsten, dissolved	0.0362	0.0010	mg/L	2019-12-31	
Uranium, dissolved	0.00128	0.000020	mg/L	2019-12-31	
Vanadium, dissolved	< 0.0010	0.0010	mg/L	2019-12-31	
Zinc, dissolved	< 0.0040	0.0040	mg/L	2019-12-31	
Zirconium, dissolved	< 0.00010	0.00010	mg/L	2019-12-31	

General Parameters

Alkalinity, Total (as CaCO3)	82.8	1.0	mg/L	2019-12-30	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2019-12-30	
Alkalinity, Bicarbonate (as CaCO3)	82.8	1.0	mg/L	2019-12-30	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2019-12-30	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2019-12-30	
Colour, True	< 5.0	5.0	CU	2019-12-21	
Conductivity (EC)	248	2.0	µS/cm	2019-12-30	
pH	7.68	0.10	pH units	2019-12-30	HT2
Solids, Total Dissolved	155	15	mg/L	2019-12-28	HT1
Turbidity	407	0.10	NTU	2019-12-21	

Total Metals

Aluminum, total	9.45	0.0050	mg/L	2019-12-31	
Antimony, total	< 0.00020	0.00020	mg/L	2019-12-31	
Arsenic, total	0.00227	0.00050	mg/L	2019-12-31	
Barium, total	0.0628	0.0050	mg/L	2019-12-31	
Beryllium, total	0.00093	0.00010	mg/L	2019-12-31	
Bismuth, total	0.00027	0.00010	mg/L	2019-12-31	
Boron, total	0.0280	0.0050	mg/L	2019-12-31	
Cadmium, total	0.000039	0.000010	mg/L	2019-12-31	
Calcium, total	29.5	0.20	mg/L	2019-12-31	



TEST RESULTS

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Analyte	Result	RL	Units	Analyzed	Qualifier
MW19-01X (9121887-02) Matrix: Water Sampled: 2019-12-19 10:00, Continued					F1
Total Metals, Continued					
Chromium, total	0.0124	0.00050	mg/L	2019-12-31	
Cobalt, total	0.00464	0.00010	mg/L	2019-12-31	
Copper, total	0.0157	0.00040	mg/L	2019-12-31	
Iron, total	8.33	0.010	mg/L	2019-12-31	
Lead, total	0.00763	0.00020	mg/L	2019-12-31	
Lithium, total	0.00757	0.00010	mg/L	2019-12-31	
Magnesium, total	6.43	0.010	mg/L	2019-12-31	
Manganese, total	0.229	0.00020	mg/L	2019-12-31	
Molybdenum, total	0.00545	0.00010	mg/L	2019-12-31	
Nickel, total	0.00841	0.00040	mg/L	2019-12-31	
Phosphorus, total	0.263	0.050	mg/L	2019-12-31	
Potassium, total	1.94	0.10	mg/L	2019-12-31	
Selenium, total	< 0.00050	0.00050	mg/L	2019-12-31	
Silicon, total	19.7	1.0	mg/L	2019-12-31	
Silver, total	< 0.000050	0.000050	mg/L	2019-12-31	
Sodium, total	31.1	0.10	mg/L	2019-12-31	
Strontium, total	0.165	0.0010	mg/L	2019-12-31	
Sulfur, total	11.4	3.0	mg/L	2019-12-31	
Tellurium, total	< 0.00050	0.00050	mg/L	2019-12-31	
Thallium, total	0.000058	0.000020	mg/L	2019-12-31	
Thorium, total	0.00526	0.00010	mg/L	2019-12-31	
Tin, total	0.00055	0.00020	mg/L	2019-12-31	
Titanium, total	0.161	0.0050	mg/L	2019-12-31	
Tungsten, total	0.0247	0.0010	mg/L	2019-12-31	
Uranium, total	0.00281	0.000020	mg/L	2019-12-31	
Vanadium, total	0.0202	0.0010	mg/L	2019-12-31	
Zinc, total	0.0218	0.0040	mg/L	2019-12-31	
Zirconium, total	0.00027	0.00010	mg/L	2019-12-31	

MW19-02 (9121887-03) | Matrix: Water | Sampled: 2019-12-19 11:00

F1

Anions

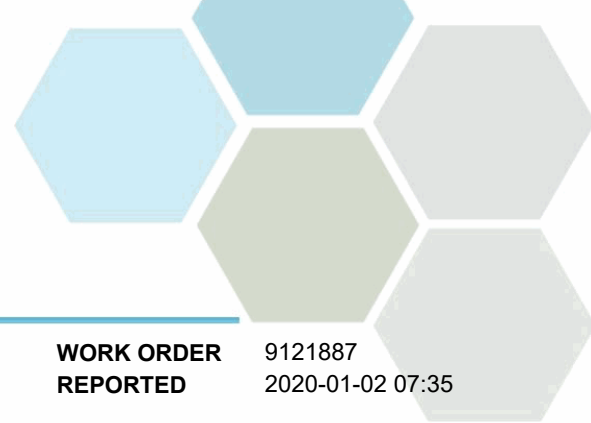
Chloride	25.5	0.10	mg/L	2019-12-21	
Fluoride	0.13	0.10	mg/L	2019-12-21	
Nitrate (as N)	0.611	0.010	mg/L	2019-12-21	
Nitrite (as N)	< 0.010	0.010	mg/L	2019-12-21	
Sulfate	263	1.0	mg/L	2019-12-21	

Calculated Parameters

Hardness, Total (as CaCO3)	321	0.500	mg/L	N/A	
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Dissolved Metals

Lithium, dissolved	0.00170	0.00010	mg/L	2019-12-31	
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TEST RESULTS

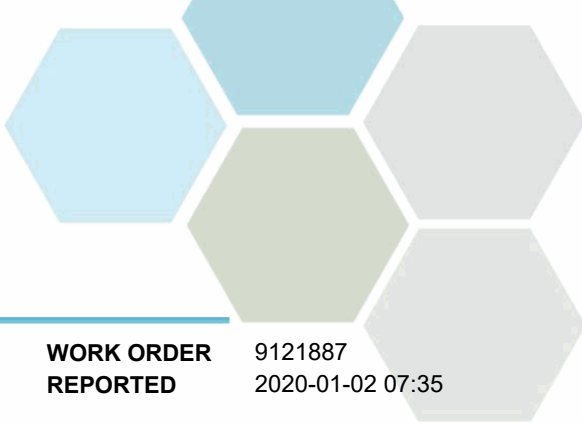
REPORTED TO PROJECT Allterra Construction
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Analyte	Result	RL	Units	Analyzed	Qualifier
MW19-02 (9121887-03) Matrix: Water Sampled: 2019-12-19 11:00, Continued					F1
<i>Dissolved Metals, Continued</i>					
Aluminum, dissolved	0.0061	0.0050	mg/L	2019-12-31	
Antimony, dissolved	< 0.00020	0.00020	mg/L	2019-12-31	
Arsenic, dissolved	< 0.00050	0.00050	mg/L	2019-12-31	
Barium, dissolved	0.0375	0.0050	mg/L	2019-12-31	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2019-12-31	
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2019-12-31	
Boron, dissolved	0.0255	0.0050	mg/L	2019-12-31	
Cadmium, dissolved	0.000026	0.000010	mg/L	2019-12-31	
Calcium, dissolved	108	0.20	mg/L	2019-12-31	
Chromium, dissolved	< 0.00050	0.00050	mg/L	2019-12-31	
Cobalt, dissolved	0.00088	0.00010	mg/L	2019-12-31	
Copper, dissolved	0.00067	0.00040	mg/L	2019-12-31	
Iron, dissolved	0.011	0.010	mg/L	2019-12-31	
Lead, dissolved	< 0.00020	0.00020	mg/L	2019-12-31	
Magnesium, dissolved	12.8	0.010	mg/L	2019-12-31	
Manganese, dissolved	0.274	0.00020	mg/L	2019-12-31	
Molybdenum, dissolved	0.00395	0.00010	mg/L	2019-12-31	
Nickel, dissolved	0.00120	0.00040	mg/L	2019-12-31	
Phosphorus, dissolved	< 0.050	0.050	mg/L	2019-12-31	
Potassium, dissolved	1.52	0.10	mg/L	2019-12-31	
Selenium, dissolved	0.00063	0.00050	mg/L	2019-12-31	
Silicon, dissolved	4.9	1.0	mg/L	2019-12-31	
Silver, dissolved	< 0.000050	0.000050	mg/L	2019-12-31	
Sodium, dissolved	54.9	0.10	mg/L	2019-12-31	
Strontium, dissolved	0.420	0.0010	mg/L	2019-12-31	
Sulfur, dissolved	92.2	3.0	mg/L	2019-12-31	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2019-12-31	
Thallium, dissolved	0.000028	0.000020	mg/L	2019-12-31	
Thorium, dissolved	< 0.00010	0.00010	mg/L	2019-12-31	
Tin, dissolved	0.00029	0.00020	mg/L	2019-12-31	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2019-12-31	
Tungsten, dissolved	0.0274	0.0010	mg/L	2019-12-31	
Uranium, dissolved	0.00798	0.000020	mg/L	2019-12-31	
Vanadium, dissolved	0.0015	0.0010	mg/L	2019-12-31	
Zinc, dissolved	< 0.0040	0.0040	mg/L	2019-12-31	
Zirconium, dissolved	< 0.00010	0.00010	mg/L	2019-12-31	

General Parameters

Alkalinity, Total (as CaCO3)	161	1.0	mg/L	2019-12-30	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2019-12-30	
Alkalinity, Bicarbonate (as CaCO3)	161	1.0	mg/L	2019-12-30	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2019-12-30	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2019-12-30	



TEST RESULTS

REPORTED TO PROJECT Allterra Construction
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WORK ORDER REPORTED 9121887
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Analyte	Result	RL	Units	Analyzed	Qualifier
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MW19-02 (9121887-03) | Matrix: Water | Sampled: 2019-12-19 11:00, Continued

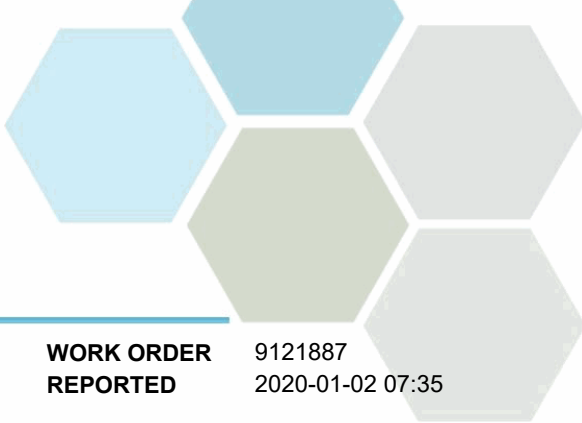
F1

General Parameters, Continued

Colour, True	< 5.0	5.0	CU	2019-12-21	
Conductivity (EC)	854	2.0	µS/cm	2019-12-30	
pH	7.74	0.10	pH units	2019-12-30	HT2
Solids, Total Dissolved	593	15	mg/L	2019-12-28	HT1
Turbidity	57.8	0.10	NTU	2019-12-21	

Total Metals

Aluminum, total	1.70	0.0050	mg/L	2019-12-31	
Antimony, total	< 0.00020	0.00020	mg/L	2019-12-31	
Arsenic, total	0.00059	0.00050	mg/L	2019-12-31	
Barium, total	0.0460	0.0050	mg/L	2019-12-31	
Beryllium, total	< 0.00010	0.00010	mg/L	2019-12-31	
Bismuth, total	< 0.00010	0.00010	mg/L	2019-12-31	
Boron, total	0.0279	0.0050	mg/L	2019-12-31	
Cadmium, total	0.000052	0.000010	mg/L	2019-12-31	
Calcium, total	112	0.20	mg/L	2019-12-31	
Chromium, total	0.00716	0.00050	mg/L	2019-12-31	
Cobalt, total	0.00172	0.00010	mg/L	2019-12-31	
Copper, total	0.00269	0.00040	mg/L	2019-12-31	
Iron, total	1.45	0.010	mg/L	2019-12-31	
Lead, total	0.00075	0.00020	mg/L	2019-12-31	
Lithium, total	0.00237	0.00010	mg/L	2019-12-31	
Magnesium, total	14.6	0.010	mg/L	2019-12-31	
Manganese, total	0.309	0.00020	mg/L	2019-12-31	
Molybdenum, total	0.00408	0.00010	mg/L	2019-12-31	
Nickel, total	0.00332	0.00040	mg/L	2019-12-31	
Phosphorus, total	0.074	0.050	mg/L	2019-12-31	
Potassium, total	1.68	0.10	mg/L	2019-12-31	
Selenium, total	0.00088	0.00050	mg/L	2019-12-31	
Silicon, total	8.6	1.0	mg/L	2019-12-31	
Silver, total	< 0.000050	0.000050	mg/L	2019-12-31	
Sodium, total	55.9	0.10	mg/L	2019-12-31	
Strontium, total	0.436	0.0010	mg/L	2019-12-31	
Sulfur, total	97.2	3.0	mg/L	2019-12-31	
Tellurium, total	< 0.00050	0.00050	mg/L	2019-12-31	
Thallium, total	0.000040	0.000020	mg/L	2019-12-31	
Thorium, total	0.00093	0.00010	mg/L	2019-12-31	
Tin, total	0.00067	0.00020	mg/L	2019-12-31	
Titanium, total	0.0787	0.0050	mg/L	2019-12-31	
Tungsten, total	0.0271	0.0010	mg/L	2019-12-31	
Uranium, total	0.00856	0.000020	mg/L	2019-12-31	
Vanadium, total	0.0057	0.0010	mg/L	2019-12-31	
Zinc, total	0.0055	0.0040	mg/L	2019-12-31	

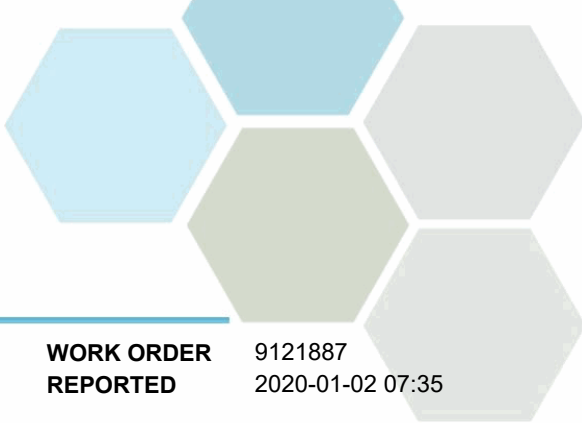


TEST RESULTS

REPORTED TO PROJECT Allterra Construction
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WORK ORDER REPORTED 9121887
2020-01-02 07:35

Analyte	Result	RL	Units	Analyzed	Qualifier
MW19-02 (9121887-03) Matrix: Water Sampled: 2019-12-19 11:00, Continued					F1
Total Metals, Continued					
Zirconium, total	0.00102	0.00010	mg/L	2019-12-31	
SB1 (9121887-04) Matrix: Water Sampled: 2019-12-19 12:30					F1
Anions					
Chloride	0.88	0.10	mg/L	2019-12-21	
Fluoride	< 0.10	0.10	mg/L	2019-12-21	
Nitrate (as N)	0.136	0.010	mg/L	2019-12-21	
Nitrite (as N)	< 0.010	0.010	mg/L	2019-12-21	
Sulfate	22.3	1.0	mg/L	2019-12-21	
Calculated Parameters					
Hardness, Total (as CaCO3)	37.3	0.500	mg/L	N/A	
Dissolved Metals					
Lithium, dissolved	< 0.00010	0.00010	mg/L	2019-12-31	
Aluminum, dissolved	0.0093	0.0050	mg/L	2019-12-31	
Antimony, dissolved	< 0.00020	0.00020	mg/L	2019-12-31	
Arsenic, dissolved	< 0.00050	0.00050	mg/L	2019-12-31	
Barium, dissolved	< 0.0050	0.0050	mg/L	2019-12-31	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2019-12-31	
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2019-12-31	
Boron, dissolved	< 0.0050	0.0050	mg/L	2019-12-31	
Cadmium, dissolved	< 0.000010	0.000010	mg/L	2019-12-31	
Calcium, dissolved	13.1	0.20	mg/L	2019-12-31	
Chromium, dissolved	0.00096	0.00050	mg/L	2019-12-31	
Cobalt, dissolved	0.00010	0.00010	mg/L	2019-12-31	
Copper, dissolved	0.0315	0.00040	mg/L	2019-12-31	
Iron, dissolved	< 0.010	0.010	mg/L	2019-12-31	
Lead, dissolved	0.00127	0.00020	mg/L	2019-12-31	
Magnesium, dissolved	1.12	0.010	mg/L	2019-12-31	
Manganese, dissolved	0.00044	0.00020	mg/L	2019-12-31	
Molybdenum, dissolved	0.00023	0.00010	mg/L	2019-12-31	
Nickel, dissolved	0.00102	0.00040	mg/L	2019-12-31	
Phosphorus, dissolved	< 0.050	0.050	mg/L	2019-12-31	
Potassium, dissolved	0.12	0.10	mg/L	2019-12-31	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2019-12-31	
Silicon, dissolved	1.4	1.0	mg/L	2019-12-31	
Silver, dissolved	< 0.000050	0.000050	mg/L	2019-12-31	
Sodium, dissolved	1.16	0.10	mg/L	2019-12-31	
Strontium, dissolved	0.0313	0.0010	mg/L	2019-12-31	
Sulfur, dissolved	7.1	3.0	mg/L	2019-12-31	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2019-12-31	



TEST RESULTS

REPORTED TO PROJECT Allterra Construction
P17-932

WORK ORDER REPORTED 9121887
2020-01-02 07:35

Analyte	Result	RL	Units	Analyzed	Qualifier
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SB1 (9121887-04) | Matrix: Water | Sampled: 2019-12-19 12:30, Continued

F1

Dissolved Metals, Continued

Thallium, dissolved	< 0.000020	0.000020	mg/L	2019-12-31	
Thorium, dissolved	< 0.00010	0.00010	mg/L	2019-12-31	
Tin, dissolved	< 0.00020	0.00020	mg/L	2019-12-31	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2019-12-31	
Tungsten, dissolved	< 0.0010	0.0010	mg/L	2019-12-31	
Uranium, dissolved	0.000038	0.000020	mg/L	2019-12-31	
Vanadium, dissolved	< 0.0010	0.0010	mg/L	2019-12-31	
Zinc, dissolved	0.0199	0.0040	mg/L	2019-12-31	
Zirconium, dissolved	< 0.00010	0.00010	mg/L	2019-12-31	

General Parameters

Alkalinity, Total (as CaCO3)	25.8	1.0	mg/L	2019-12-24	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2019-12-24	
Alkalinity, Bicarbonate (as CaCO3)	25.8	1.0	mg/L	2019-12-24	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2019-12-24	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2019-12-24	
Colour, True	< 5.0	5.0	CU	2019-12-21	
Conductivity (EC)	95.9	2.0	µS/cm	2019-12-24	
pH	7.10	0.10	pH units	2019-12-24	HT2
Solids, Total Dissolved	55	15	mg/L	2019-12-28	HT1
Turbidity	2.00	0.10	NTU	2019-12-21	

SB2 (9121887-05) | Matrix: Water | Sampled: 2019-12-19 12:45

F1

Anions

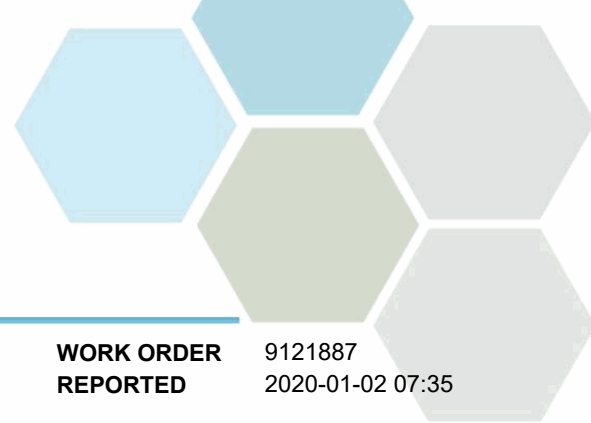
Chloride	22.9	0.10	mg/L	2019-12-21	
Fluoride	< 0.10	0.10	mg/L	2019-12-21	
Nitrate (as N)	0.158	0.010	mg/L	2019-12-21	
Nitrite (as N)	< 0.010	0.010	mg/L	2019-12-21	
Sulfate	44.1	1.0	mg/L	2019-12-21	

Calculated Parameters

Hardness, Total (as CaCO3)	152	0.500	mg/L	N/A	
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Dissolved Metals

Lithium, dissolved	0.00012	0.00010	mg/L	2019-12-31	
Aluminum, dissolved	< 0.0050	0.0050	mg/L	2019-12-31	
Antimony, dissolved	< 0.00020	0.00020	mg/L	2019-12-31	
Arsenic, dissolved	< 0.00050	0.00050	mg/L	2019-12-31	
Barium, dissolved	0.0052	0.0050	mg/L	2019-12-31	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2019-12-31	
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2019-12-31	
Boron, dissolved	0.0123	0.0050	mg/L	2019-12-31	



TEST RESULTS

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Analyte	Result	RL	Units	Analyzed	Qualifier
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SB2 (9121887-05) | Matrix: Water | Sampled: 2019-12-19 12:45, Continued

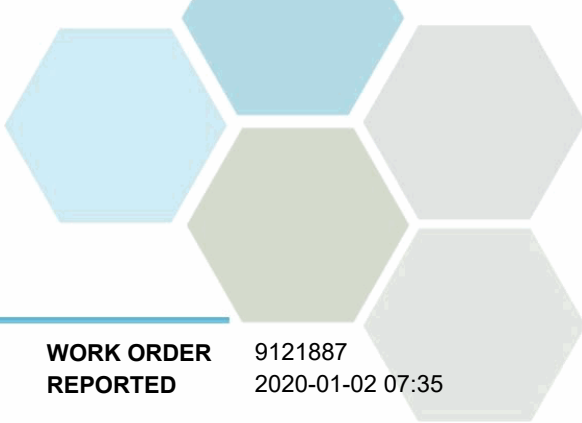
F1

Dissolved Metals, Continued

Cadmium, dissolved	< 0.000010	0.000010	mg/L	2019-12-31	
Calcium, dissolved	49.7	0.20	mg/L	2019-12-31	
Chromium, dissolved	0.00150	0.00050	mg/L	2019-12-31	
Cobalt, dissolved	< 0.00010	0.00010	mg/L	2019-12-31	
Copper, dissolved	0.00053	0.00040	mg/L	2019-12-31	
Iron, dissolved	0.013	0.010	mg/L	2019-12-31	
Lead, dissolved	< 0.00020	0.00020	mg/L	2019-12-31	
Magnesium, dissolved	6.80	0.010	mg/L	2019-12-31	
Manganese, dissolved	0.00068	0.00020	mg/L	2019-12-31	
Molybdenum, dissolved	0.00041	0.00010	mg/L	2019-12-31	
Nickel, dissolved	0.00071	0.00040	mg/L	2019-12-31	
Phosphorus, dissolved	< 0.050	0.050	mg/L	2019-12-31	
Potassium, dissolved	0.80	0.10	mg/L	2019-12-31	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2019-12-31	
Silicon, dissolved	4.7	1.0	mg/L	2019-12-31	
Silver, dissolved	< 0.000050	0.000050	mg/L	2019-12-31	
Sodium, dissolved	15.8	0.10	mg/L	2019-12-31	
Strontium, dissolved	0.157	0.0010	mg/L	2019-12-31	
Sulfur, dissolved	13.8	3.0	mg/L	2019-12-31	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2019-12-31	
Thallium, dissolved	< 0.000020	0.000020	mg/L	2019-12-31	
Thorium, dissolved	< 0.00010	0.00010	mg/L	2019-12-31	
Tin, dissolved	< 0.00020	0.00020	mg/L	2019-12-31	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2019-12-31	
Tungsten, dissolved	< 0.0010	0.0010	mg/L	2019-12-31	
Uranium, dissolved	0.000579	0.000020	mg/L	2019-12-31	
Vanadium, dissolved	< 0.0010	0.0010	mg/L	2019-12-31	
Zinc, dissolved	< 0.0040	0.0040	mg/L	2019-12-31	
Zirconium, dissolved	< 0.00010	0.00010	mg/L	2019-12-31	

General Parameters

Alkalinity, Total (as CaCO3)	140	1.0	mg/L	2019-12-30	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2019-12-30	
Alkalinity, Bicarbonate (as CaCO3)	140	1.0	mg/L	2019-12-30	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2019-12-30	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2019-12-30	
Colour, True	< 5.0	5.0	CU	2019-12-21	
Conductivity (EC)	411	2.0	µS/cm	2019-12-30	
pH	7.69	0.10	pH units	2019-12-30	HT2
Solids, Total Dissolved	238	15	mg/L	2019-12-28	HT1
Turbidity	4.44	0.10	NTU	2019-12-21	

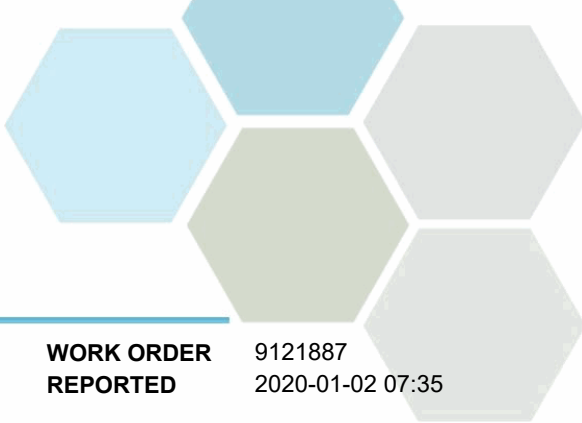


TEST RESULTS

REPORTED TO PROJECT Allterra Construction
P17-932

WORK ORDER REPORTED 9121887
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Analyte	Result	RL	Units	Analyzed	Qualifier
SB3 (9121887-06) Matrix: Water Sampled: 2019-12-19 13:00					F1
Anions					
Chloride	0.99	0.10	mg/L	2019-12-21	
Fluoride	< 0.10	0.10	mg/L	2019-12-21	
Nitrate (as N)	0.184	0.010	mg/L	2019-12-21	
Nitrite (as N)	< 0.010	0.010	mg/L	2019-12-21	
Sulfate	30.8	1.0	mg/L	2019-12-21	
Calculated Parameters					
Hardness, Total (as CaCO3)	49.9	0.500	mg/L	N/A	
Dissolved Metals					
Lithium, dissolved	< 0.00010	0.00010	mg/L	2019-12-31	
Aluminum, dissolved	< 0.0050	0.0050	mg/L	2019-12-31	
Antimony, dissolved	< 0.00020	0.00020	mg/L	2019-12-31	
Arsenic, dissolved	< 0.00050	0.00050	mg/L	2019-12-31	
Barium, dissolved	< 0.0050	0.0050	mg/L	2019-12-31	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2019-12-31	
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2019-12-31	
Boron, dissolved	0.0051	0.0050	mg/L	2019-12-31	
Cadmium, dissolved	< 0.000010	0.000010	mg/L	2019-12-31	
Calcium, dissolved	16.0	0.20	mg/L	2019-12-31	
Chromium, dissolved	< 0.00050	0.00050	mg/L	2019-12-31	
Cobalt, dissolved	< 0.00010	0.00010	mg/L	2019-12-31	
Copper, dissolved	0.00066	0.00040	mg/L	2019-12-31	
Iron, dissolved	< 0.010	0.010	mg/L	2019-12-31	
Lead, dissolved	< 0.00020	0.00020	mg/L	2019-12-31	
Magnesium, dissolved	2.42	0.010	mg/L	2019-12-31	
Manganese, dissolved	0.00036	0.00020	mg/L	2019-12-31	
Molybdenum, dissolved	0.00030	0.00010	mg/L	2019-12-31	
Nickel, dissolved	< 0.00040	0.00040	mg/L	2019-12-31	
Phosphorus, dissolved	< 0.050	0.050	mg/L	2019-12-31	
Potassium, dissolved	0.19	0.10	mg/L	2019-12-31	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2019-12-31	
Silicon, dissolved	1.7	1.0	mg/L	2019-12-31	
Silver, dissolved	< 0.000050	0.000050	mg/L	2019-12-31	
Sodium, dissolved	1.83	0.10	mg/L	2019-12-31	
Strontium, dissolved	0.0391	0.0010	mg/L	2019-12-31	
Sulfur, dissolved	11.1	3.0	mg/L	2019-12-31	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2019-12-31	
Thallium, dissolved	< 0.000020	0.000020	mg/L	2019-12-31	
Thorium, dissolved	< 0.00010	0.00010	mg/L	2019-12-31	
Tin, dissolved	< 0.00020	0.00020	mg/L	2019-12-31	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2019-12-31	
Tungsten, dissolved	< 0.0010	0.0010	mg/L	2019-12-31	



TEST RESULTS

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Analyte	Result	RL	Units	Analyzed	Qualifier
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SB3 (9121887-06) | Matrix: Water | Sampled: 2019-12-19 13:00, Continued

F1

Dissolved Metals, Continued

Uranium, dissolved	0.000085	0.000020	mg/L	2019-12-31	
Vanadium, dissolved	< 0.0010	0.0010	mg/L	2019-12-31	
Zinc, dissolved	< 0.0040	0.0040	mg/L	2019-12-31	
Zirconium, dissolved	< 0.00010	0.00010	mg/L	2019-12-31	

General Parameters

Alkalinity, Total (as CaCO3)	21.5	1.0	mg/L	2019-12-24	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2019-12-24	
Alkalinity, Bicarbonate (as CaCO3)	21.5	1.0	mg/L	2019-12-24	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2019-12-24	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2019-12-24	
Colour, True	< 5.0	5.0	CU	2019-12-21	
Conductivity (EC)	106	2.0	µS/cm	2019-12-24	
pH	7.03	0.10	pH units	2019-12-24	HT2
Solids, Total Dissolved	67	15	mg/L	2019-12-28	HT1
Turbidity	24.3	0.10	NTU	2019-12-21	

SW1 (9121887-07) | Matrix: Water | Sampled: 2019-12-19 13:30

F1

Anions

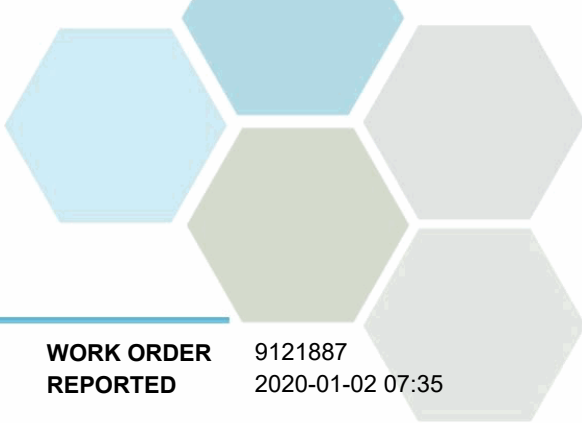
Chloride	8.23	0.10	mg/L	2019-12-21	
Fluoride	< 0.10	0.10	mg/L	2019-12-21	
Nitrate (as N)	0.304	0.010	mg/L	2019-12-21	
Nitrite (as N)	< 0.010	0.010	mg/L	2019-12-21	
Sulfate	73.7	1.0	mg/L	2019-12-21	

Calculated Parameters

Hardness, Total (as CaCO3)	143	0.500	mg/L	N/A	
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Dissolved Metals

Lithium, dissolved	0.00012	0.00010	mg/L	2019-12-31	
Aluminum, dissolved	< 0.0050	0.0050	mg/L	2019-12-31	
Antimony, dissolved	< 0.00020	0.00020	mg/L	2019-12-31	
Arsenic, dissolved	< 0.00050	0.00050	mg/L	2019-12-31	
Barium, dissolved	0.0081	0.0050	mg/L	2019-12-31	
Beryllium, dissolved	< 0.00010	0.00010	mg/L	2019-12-31	
Bismuth, dissolved	< 0.00010	0.00010	mg/L	2019-12-31	
Boron, dissolved	0.0120	0.0050	mg/L	2019-12-31	
Cadmium, dissolved	0.000039	0.000010	mg/L	2019-12-31	
Calcium, dissolved	46.2	0.20	mg/L	2019-12-31	
Chromium, dissolved	< 0.00050	0.00050	mg/L	2019-12-31	
Cobalt, dissolved	< 0.00010	0.00010	mg/L	2019-12-31	
Copper, dissolved	0.00092	0.00040	mg/L	2019-12-31	



TEST RESULTS

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Analyte	Result	RL	Units	Analyzed	Qualifier
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SW1 (9121887-07) | Matrix: Water | Sampled: 2019-12-19 13:30, Continued

F1

Dissolved Metals, Continued

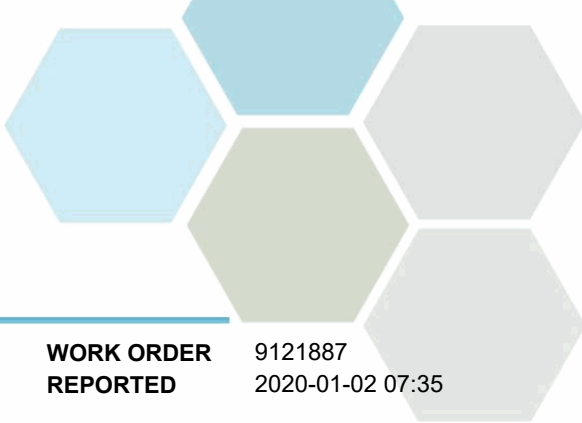
Iron, dissolved	< 0.010	0.010	mg/L	2019-12-31	
Lead, dissolved	< 0.00020	0.00020	mg/L	2019-12-31	
Magnesium, dissolved	6.68	0.010	mg/L	2019-12-31	
Manganese, dissolved	0.00083	0.00020	mg/L	2019-12-31	
Molybdenum, dissolved	0.00067	0.00010	mg/L	2019-12-31	
Nickel, dissolved	< 0.00040	0.00040	mg/L	2019-12-31	
Phosphorus, dissolved	< 0.050	0.050	mg/L	2019-12-31	
Potassium, dissolved	0.53	0.10	mg/L	2019-12-31	
Selenium, dissolved	< 0.00050	0.00050	mg/L	2019-12-31	
Silicon, dissolved	4.4	1.0	mg/L	2019-12-31	
Silver, dissolved	< 0.000050	0.000050	mg/L	2019-12-31	
Sodium, dissolved	7.05	0.10	mg/L	2019-12-31	
Strontium, dissolved	0.128	0.0010	mg/L	2019-12-31	
Sulfur, dissolved	25.4	3.0	mg/L	2019-12-31	
Tellurium, dissolved	< 0.00050	0.00050	mg/L	2019-12-31	
Thallium, dissolved	< 0.000020	0.000020	mg/L	2019-12-31	
Thorium, dissolved	< 0.00010	0.00010	mg/L	2019-12-31	
Tin, dissolved	< 0.00020	0.00020	mg/L	2019-12-31	
Titanium, dissolved	< 0.0050	0.0050	mg/L	2019-12-31	
Tungsten, dissolved	< 0.0010	0.0010	mg/L	2019-12-31	
Uranium, dissolved	0.000658	0.000020	mg/L	2019-12-31	
Vanadium, dissolved	< 0.0010	0.0010	mg/L	2019-12-31	
Zinc, dissolved	< 0.0040	0.0040	mg/L	2019-12-31	
Zirconium, dissolved	< 0.00010	0.00010	mg/L	2019-12-31	

General Parameters

Alkalinity, Total (as CaCO3)	87.1	1.0	mg/L	2019-12-24	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2019-12-24	
Alkalinity, Bicarbonate (as CaCO3)	87.1	1.0	mg/L	2019-12-24	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2019-12-24	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2019-12-24	
Colour, True	< 5.0	5.0	CU	2019-12-21	
Conductivity (EC)	338	2.0	µS/cm	2019-12-24	
pH	7.79	0.10	pH units	2019-12-24	HT2
Solids, Total Dissolved	205	15	mg/L	2019-12-28	HT1
Turbidity	2.83	0.10	NTU	2019-12-21	

Total Metals

Aluminum, total	0.0627	0.0050	mg/L	2019-12-31	
Antimony, total	< 0.00020	0.00020	mg/L	2019-12-31	
Arsenic, total	< 0.00050	0.00050	mg/L	2019-12-31	
Barium, total	0.0086	0.0050	mg/L	2019-12-31	
Beryllium, total	< 0.00010	0.00010	mg/L	2019-12-31	



TEST RESULTS

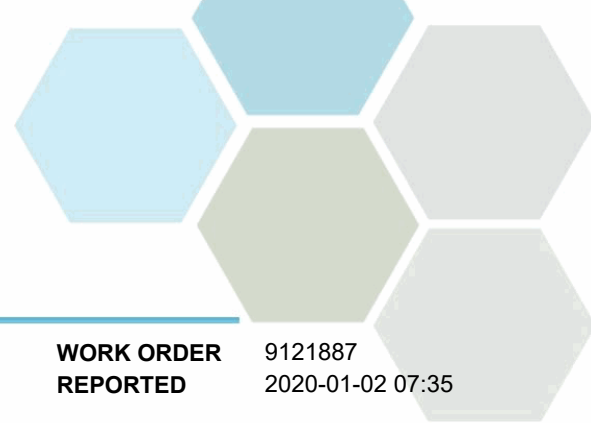
REPORTED TO PROJECT Allterra Construction
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Analyte	Result	RL	Units	Analyzed	Qualifier
SW1 (9121887-07) Matrix: Water Sampled: 2019-12-19 13:30, Continued					F1
<i>Total Metals, Continued</i>					
Bismuth, total	< 0.00010	0.00010	mg/L	2019-12-31	
Boron, total	0.0145	0.0050	mg/L	2019-12-31	
Cadmium, total	< 0.000010	0.000010	mg/L	2019-12-31	
Calcium, total	47.9	0.20	mg/L	2019-12-31	
Chromium, total	< 0.00050	0.00050	mg/L	2019-12-31	
Cobalt, total	< 0.00010	0.00010	mg/L	2019-12-31	
Copper, total	0.00122	0.00040	mg/L	2019-12-31	
Iron, total	0.079	0.010	mg/L	2019-12-31	
Lead, total	< 0.00020	0.00020	mg/L	2019-12-31	
Lithium, total	0.00028	0.00010	mg/L	2019-12-31	
Magnesium, total	7.26	0.010	mg/L	2019-12-31	
Manganese, total	0.00473	0.00020	mg/L	2019-12-31	
Molybdenum, total	0.00065	0.00010	mg/L	2019-12-31	
Nickel, total	0.00044	0.00040	mg/L	2019-12-31	
Phosphorus, total	< 0.050	0.050	mg/L	2019-12-31	
Potassium, total	0.51	0.10	mg/L	2019-12-31	
Selenium, total	< 0.00050	0.00050	mg/L	2019-12-31	
Silicon, total	4.1	1.0	mg/L	2019-12-31	
Silver, total	< 0.000050	0.000050	mg/L	2019-12-31	
Sodium, total	7.43	0.10	mg/L	2019-12-31	
Strontium, total	0.134	0.0010	mg/L	2019-12-31	
Sulfur, total	25.0	3.0	mg/L	2019-12-31	
Tellurium, total	< 0.00050	0.00050	mg/L	2019-12-31	
Thallium, total	< 0.000020	0.000020	mg/L	2019-12-31	
Thorium, total	< 0.00010	0.00010	mg/L	2019-12-31	
Tin, total	< 0.00020	0.00020	mg/L	2019-12-31	
Titanium, total	< 0.0050	0.0050	mg/L	2019-12-31	
Tungsten, total	< 0.0010	0.0010	mg/L	2019-12-31	
Uranium, total	0.000701	0.000020	mg/L	2019-12-31	
Vanadium, total	< 0.0010	0.0010	mg/L	2019-12-31	
Zinc, total	< 0.0040	0.0040	mg/L	2019-12-31	
Zirconium, total	< 0.00010	0.00010	mg/L	2019-12-31	

Sample Qualifiers:

- F1 The sample was not field-filtered and was therefore filtered through a 0.45 µm membrane in the laboratory and preserved with HNO3 prior to analysis for dissolved metals.
- 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.



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO PROJECT Allterra Construction
P17-932

WORK ORDER REPORTED 9121887
2020-01-02 07:35

Analysis Description	Method Ref.	Technique	Location
Alkalinity in Water	SM 2320 B* (2017)	Titration with H2SO4	Kelowna
Anions in Water	SM 4110 B (2017)	Ion Chromatography	Kelowna
Colour, True in Water	SM 2120 C (2017)	Spectrophotometry (456 nm)	Kelowna
Conductivity in Water	SM 2510 B (2017)	Conductivity Meter	Kelowna
Dissolved Metals in Water	EPA 200.8 / EPA 6020B	0.45 µm Filtration / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	Richmond
Hardness in Water	SM 2340 B (2017)	Calculation: 2.497 [diss Ca] + 4.118 [diss Mg]	N/A
pH in Water	SM 4500-H+ B (2017)	Electrometry	Kelowna
Solids, Total Dissolved in Water	SM 2540 C* (2017)	Gravimetry (Dried at 103-105C)	Kelowna
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 (2017)	Nephelometry	Kelowna

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

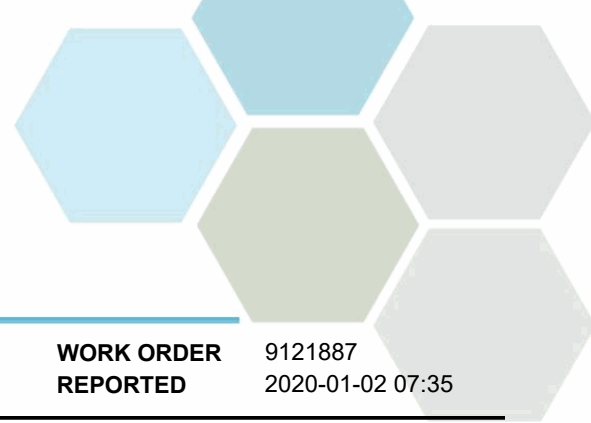
Glossary of Terms:

RL	Reporting Limit (default)
<	Less than the specified Reporting Limit (RL) - the actual RL may be higher than the default RL due to various factors
CU	Colour Units (referenced against a platinum cobalt standard)
mg/L	Milligrams per litre
NTU	Nephelometric Turbidity Units
pH units	pH < 7 = acidic, pH > 7 = basic
µS/cm	Microsiemens per centimetre
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.

Results in **Bold** indicate values that are above CARO's method reporting limits. Any results that are above regulatory limits are highlighted **red**. Please note that results will only be highlighted red if the regulatory limits are included on the CARO report. Any Bold and/or highlighted results do not take into account method uncertainty. If you would like method uncertainty or regulatory limits to be included on your report, please contact your Account Manager: bshaw@caro.ca



APPENDIX 2: QUALITY CONTROL RESULTS

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

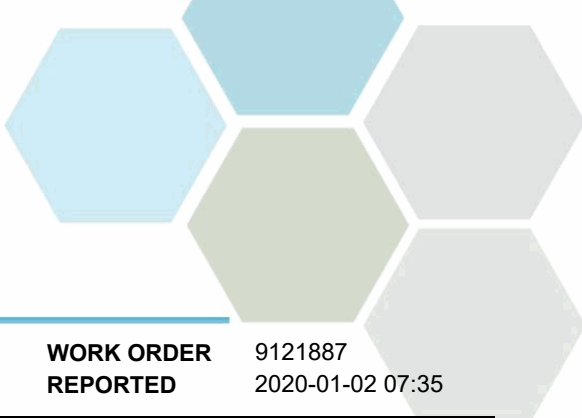
- **Method Blank (Blk):** A blank sample that undergoes sample processing identical to that carried out for the test samples. Method blank results are used to assess contamination from the laboratory environment and reagents.
- **Duplicate (Dup):** An additional or second portion of a randomly selected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

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

Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Anions, Batch B9L1818									
Blank (B9L1818-BLK1)			Prepared: 2019-12-21, Analyzed: 2019-12-21						
Chloride	< 0.10	0.10 mg/L							
Fluoride	< 0.10	0.10 mg/L							
Nitrate (as N)	< 0.010	0.010 mg/L							
Nitrite (as N)	< 0.010	0.010 mg/L							
Sulfate	< 1.0	1.0 mg/L							
Blank (B9L1818-BLK2)			Prepared: 2019-12-21, Analyzed: 2019-12-21						
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 (B9L1818-BS1)			Prepared: 2019-12-21, Analyzed: 2019-12-21						
Chloride	16.1	0.10 mg/L	16.0		101	90-110			
Fluoride	3.95	0.10 mg/L	4.00		99	88-108			
Nitrate (as N)	3.98	0.010 mg/L	4.00		99	90-110			
Nitrite (as N)	1.93	0.010 mg/L	2.00		97	85-115			
Sulfate	16.0	1.0 mg/L	16.0		100	90-110			
LCS (B9L1818-BS2)			Prepared: 2019-12-21, Analyzed: 2019-12-21						
Chloride	15.8	0.10 mg/L	16.0		99	90-110			
Fluoride	4.02	0.10 mg/L	4.00		101	88-108			
Nitrate (as N)	4.10	0.010 mg/L	4.00		103	90-110			
Nitrite (as N)	1.94	0.010 mg/L	2.00		97	85-115			
Sulfate	15.9	1.0 mg/L	16.0		100	90-110			

Dissolved Metals, Batch B9L2117

Blank (B9L2117-BLK1)			Prepared: 2019-12-30, Analyzed: 2019-12-30						
Lithium, dissolved	< 0.00010	0.00010 mg/L							
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							



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Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
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Dissolved Metals, Batch B9L2117, Continued

Blank (B9L2117-BLK1), Continued

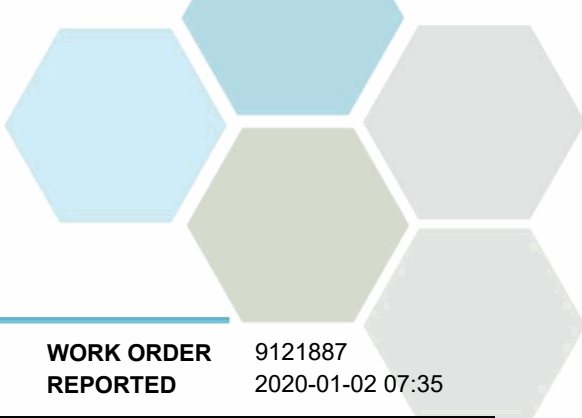
Prepared: 2019-12-30, Analyzed: 2019-12-30

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							
Magnesium, dissolved	< 0.010	0.010 mg/L							
Manganese, dissolved	< 0.00020	0.00020 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 (B9L2117-BS1)

Prepared: 2019-12-30, Analyzed: 2019-12-30

Lithium, dissolved	0.0209	0.00010 mg/L	0.0200		105	80-120			
Aluminum, dissolved	0.0218	0.0050 mg/L	0.0199		110	80-120			
Antimony, dissolved	0.0190	0.00020 mg/L	0.0200		95	80-120			
Arsenic, dissolved	0.0184	0.00050 mg/L	0.0200		92	80-120			
Barium, dissolved	0.0203	0.0050 mg/L	0.0198		102	80-120			
Beryllium, dissolved	0.0215	0.00010 mg/L	0.0198		109	80-120			
Bismuth, dissolved	0.0207	0.00010 mg/L	0.0200		104	80-120			
Boron, dissolved	0.0195	0.0050 mg/L	0.0200		98	80-120			
Cadmium, dissolved	0.0195	0.000010 mg/L	0.0199		98	80-120			
Calcium, dissolved	1.91	0.20 mg/L	2.02		94	80-120			
Chromium, dissolved	0.0187	0.00050 mg/L	0.0198		94	80-120			
Cobalt, dissolved	0.0191	0.00010 mg/L	0.0199		96	80-120			
Copper, dissolved	0.0205	0.00040 mg/L	0.0200		103	80-120			
Iron, dissolved	1.82	0.010 mg/L	2.02		90	80-120			
Lead, dissolved	0.0209	0.00020 mg/L	0.0199		105	80-120			
Magnesium, dissolved	1.95	0.010 mg/L	2.02		97	80-120			
Manganese, dissolved	0.0199	0.00020 mg/L	0.0199		100	80-120			
Molybdenum, dissolved	0.0189	0.00010 mg/L	0.0200		94	80-120			
Nickel, dissolved	0.0191	0.00040 mg/L	0.0200		95	80-120			
Phosphorus, dissolved	2.05	0.050 mg/L	2.00		103	80-120			
Potassium, dissolved	1.88	0.10 mg/L	2.02		93	80-120			
Selenium, dissolved	0.0197	0.00050 mg/L	0.0200		98	80-120			



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Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
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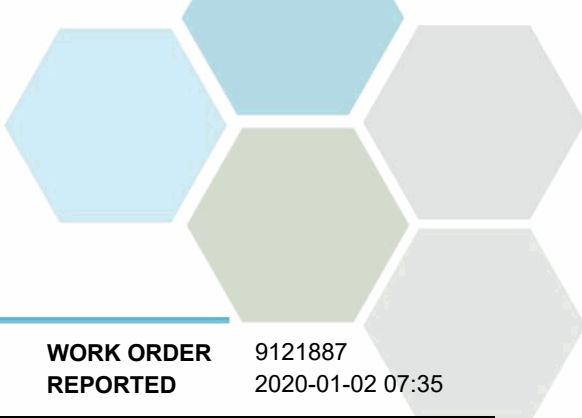
Dissolved Metals, Batch B9L2117, Continued

LCS (B9L2117-BS1), Continued				Prepared: 2019-12-30, Analyzed: 2019-12-30					
Silicon, dissolved	1.9	1.0 mg/L	2.00	94	80-120				
Silver, dissolved	0.0228	0.000050 mg/L	0.0200	114	80-120				
Sodium, dissolved	1.88	0.10 mg/L	2.02	93	80-120				
Strontium, dissolved	0.0189	0.0010 mg/L	0.0200	94	80-120				
Sulfur, dissolved	4.5	3.0 mg/L	5.00	91	80-120				
Tellurium, dissolved	0.0194	0.00050 mg/L	0.0200	97	80-120				
Thallium, dissolved	0.0204	0.000020 mg/L	0.0199	102	80-120				
Thorium, dissolved	0.0196	0.00010 mg/L	0.0200	98	80-120				
Tin, dissolved	0.0197	0.00020 mg/L	0.0200	98	80-120				
Titanium, dissolved	0.0187	0.0050 mg/L	0.0200	94	80-120				
Tungsten, dissolved	0.0209	0.0010 mg/L	0.0200	105	80-120				
Uranium, dissolved	0.0198	0.000020 mg/L	0.0200	99	80-120				
Vanadium, dissolved	0.0190	0.0010 mg/L	0.0200	95	80-120				
Zinc, dissolved	0.0210	0.0040 mg/L	0.0200	105	80-120				
Zirconium, dissolved	0.0187	0.00010 mg/L	0.0200	94	80-120				

Reference (B9L2117-SRM1)				Prepared: 2019-12-30, Analyzed: 2019-12-30					
Lithium, dissolved	0.110	0.00010 mg/L	0.100	110	77-127				
Aluminum, dissolved	0.234	0.0050 mg/L	0.235	99	79-114				
Antimony, dissolved	0.0446	0.00020 mg/L	0.0431	103	89-123				
Arsenic, dissolved	0.410	0.00050 mg/L	0.423	97	87-113				
Barium, dissolved	3.08	0.0050 mg/L	3.30	93	85-114				
Beryllium, dissolved	0.231	0.00010 mg/L	0.209	110	79-122				
Boron, dissolved	1.73	0.0050 mg/L	1.65	105	79-117				
Cadmium, dissolved	0.218	0.000010 mg/L	0.221	99	89-112				
Calcium, dissolved	7.31	0.20 mg/L	7.72	95	85-120				
Chromium, dissolved	0.417	0.00050 mg/L	0.434	96	87-113				
Cobalt, dissolved	0.122	0.00010 mg/L	0.124	99	90-117				
Copper, dissolved	0.843	0.00040 mg/L	0.815	103	90-115				
Iron, dissolved	1.18	0.010 mg/L	1.27	93	86-112				
Lead, dissolved	0.116	0.00020 mg/L	0.110	106	90-113				
Magnesium, dissolved	6.71	0.010 mg/L	6.59	102	84-116				
Manganese, dissolved	0.342	0.00020 mg/L	0.342	100	85-113				
Molybdenum, dissolved	0.406	0.00010 mg/L	0.404	100	87-112				
Nickel, dissolved	0.814	0.00040 mg/L	0.835	97	90-114				
Phosphorus, dissolved	0.500	0.050 mg/L	0.499	100	74-119				
Potassium, dissolved	2.91	0.10 mg/L	2.88	101	78-119				
Selenium, dissolved	0.0341	0.00050 mg/L	0.0324	105	89-123				
Sodium, dissolved	18.5	0.10 mg/L	18.0	103	81-117				
Strontium, dissolved	0.881	0.0010 mg/L	0.935	94	82-111				
Thallium, dissolved	0.0402	0.000020 mg/L	0.0385	104	90-113				
Uranium, dissolved	0.259	0.000020 mg/L	0.258	100	87-113				
Vanadium, dissolved	0.799	0.0010 mg/L	0.873	92	85-110				
Zinc, dissolved	0.851	0.0040 mg/L	0.848	100	88-114				

General Parameters, Batch B9L1803

Blank (B9L1803-BLK1)				Prepared: 2019-12-21, Analyzed: 2019-12-21					
Turbidity	< 0.10	0.10 NTU							
Blank (B9L1803-BLK2)				Prepared: 2019-12-21, Analyzed: 2019-12-21					
Turbidity	< 0.10	0.10 NTU							
LCS (B9L1803-BS1)				Prepared: 2019-12-21, Analyzed: 2019-12-21					
Turbidity	38.3	0.10 NTU	40.0	96	90-110				

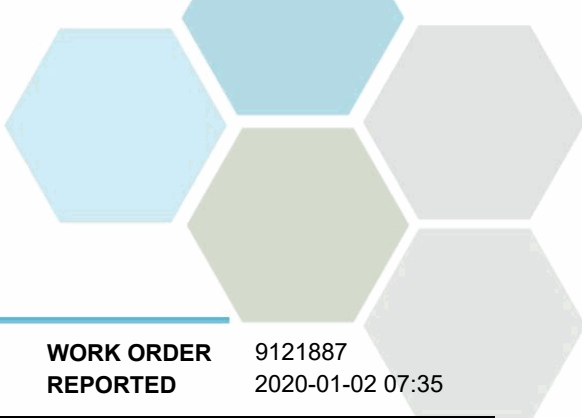


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Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier	
General Parameters, Batch B9L1803, Continued										
LCS (B9L1803-BS2)			Prepared: 2019-12-21, Analyzed: 2019-12-21							
Turbidity	38.4	0.10 NTU	40.0		96	90-110				
General Parameters, Batch B9L1826										
Blank (B9L1826-BLK1)			Prepared: 2019-12-21, Analyzed: 2019-12-21							
Colour, True	< 5.0	5.0 CU								
LCS (B9L1826-BS1)			Prepared: 2019-12-21, Analyzed: 2019-12-21							
Colour, True	20	5.0 CU	20.0		101	85-115				
General Parameters, Batch B9L1955										
Blank (B9L1955-BLK1)			Prepared: 2019-12-24, Analyzed: 2019-12-24							
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								
Conductivity (EC)	< 2.0	2.0 µS/cm								
Blank (B9L1955-BLK2)			Prepared: 2019-12-24, Analyzed: 2019-12-24							
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								
Conductivity (EC)	< 2.0	2.0 µS/cm								
Blank (B9L1955-BLK3)			Prepared: 2019-12-24, Analyzed: 2019-12-24							
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								
Conductivity (EC)	< 2.0	2.0 µS/cm								
LCS (B9L1955-BS1)			Prepared: 2019-12-24, Analyzed: 2019-12-24							
Alkalinity, Total (as CaCO3)	99.2	1.0 mg/L	100		99	80-120				
LCS (B9L1955-BS2)			Prepared: 2019-12-24, Analyzed: 2019-12-24							
Alkalinity, Total (as CaCO3)	102	1.0 mg/L	100		102	80-120				
LCS (B9L1955-BS3)			Prepared: 2019-12-24, Analyzed: 2019-12-24							
Alkalinity, Total (as CaCO3)	99.8	1.0 mg/L	100		100	80-120				
LCS (B9L1955-BS4)			Prepared: 2019-12-24, Analyzed: 2019-12-24							
Conductivity (EC)	1400	2.0 µS/cm	1410		100	95-104				
LCS (B9L1955-BS5)			Prepared: 2019-12-24, Analyzed: 2019-12-24							
Conductivity (EC)	1420	2.0 µS/cm	1410		100	95-104				
LCS (B9L1955-BS6)			Prepared: 2019-12-24, Analyzed: 2019-12-24							
Conductivity (EC)	1420	2.0 µS/cm	1410		100	95-104				
Duplicate (B9L1955-DUP1)			Source: 9121887-06				Prepared: 2019-12-24, Analyzed: 2019-12-24			
Alkalinity, Total (as CaCO3)	21.7	1.0 mg/L		21.5			< 1	10		

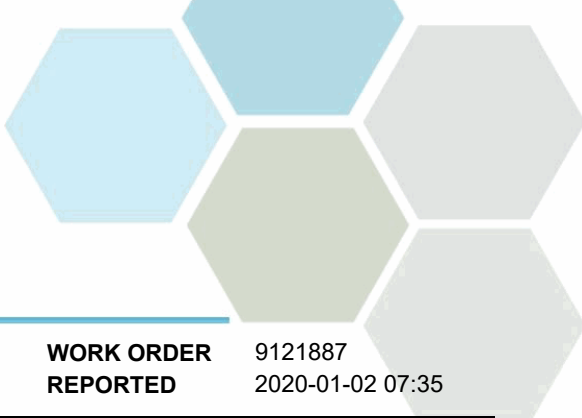


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Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B9L1955, Continued									
Duplicate (B9L1955-DUP1), Continued			Source: 9121887-06		Prepared: 2019-12-24, Analyzed: 2019-12-24				
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0 mg/L		< 1.0				10	
Alkalinity, Bicarbonate (as CaCO3)	21.7	1.0 mg/L		21.5			< 1	10	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0 mg/L		< 1.0				10	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0 mg/L		< 1.0				10	
Conductivity (EC)	110	2.0 µS/cm		106			4	5	
pH	7.06	0.10 pH units		7.03			< 1	4	
Duplicate (B9L1955-DUP2)			Source: 9121887-04		Prepared: 2019-12-24, Analyzed: 2019-12-24				
Alkalinity, Total (as CaCO3)	25.5	1.0 mg/L		25.8			1	10	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0 mg/L		< 1.0				10	
Alkalinity, Bicarbonate (as CaCO3)	25.5	1.0 mg/L		25.8			1	10	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0 mg/L		< 1.0				10	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0 mg/L		< 1.0				10	
Conductivity (EC)	99.8	2.0 µS/cm		95.9			4	5	
pH	7.15	0.10 pH units		7.10			< 1	4	
Duplicate (B9L1955-DUP3)			Source: 9121887-07		Prepared: 2019-12-24, Analyzed: 2019-12-24				
Alkalinity, Total (as CaCO3)	87.6	1.0 mg/L		87.1			< 1	10	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0 mg/L		< 1.0				10	
Alkalinity, Bicarbonate (as CaCO3)	87.6	1.0 mg/L		87.1			< 1	10	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0 mg/L		< 1.0				10	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0 mg/L		< 1.0				10	
Conductivity (EC)	332	2.0 µS/cm		338			2	5	
pH	7.78	0.10 pH units		7.79			< 1	4	
Reference (B9L1955-SRM1)					Prepared: 2019-12-24, Analyzed: 2019-12-24				
pH	6.91	0.10 pH units	7.01		99		98-102		
Reference (B9L1955-SRM2)					Prepared: 2019-12-24, Analyzed: 2019-12-24				
pH	6.91	0.10 pH units	7.01		99		98-102		
Reference (B9L1955-SRM3)					Prepared: 2019-12-24, Analyzed: 2019-12-24				
pH	6.93	0.10 pH units	7.01		99		98-102		
General Parameters, Batch B9L1977									
Blank (B9L1977-BLK1)					Prepared: 2019-12-30, Analyzed: 2019-12-30				
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							
Conductivity (EC)	< 2.0	2.0 µS/cm							
Blank (B9L1977-BLK2)					Prepared: 2019-12-30, Analyzed: 2019-12-30				
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							
Conductivity (EC)	< 2.0	2.0 µS/cm							
Blank (B9L1977-BLK3)					Prepared: 2019-12-30, Analyzed: 2019-12-30				
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							

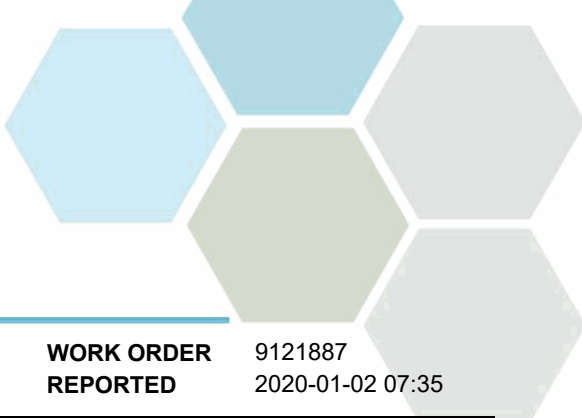


APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Allterra Construction
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WORK ORDER REPORTED 9121887
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Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
General Parameters, Batch B9L1977, Continued									
Blank (B9L1977-BLK3), Continued			Prepared: 2019-12-30, Analyzed: 2019-12-30						
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0 mg/L							
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0 mg/L							
Conductivity (EC)	< 2.0	2.0 µS/cm							
LCS (B9L1977-BS1)			Prepared: 2019-12-30, Analyzed: 2019-12-30						
Alkalinity, Total (as CaCO3)	99.6	1.0 mg/L	100		100	80-120			
LCS (B9L1977-BS2)			Prepared: 2019-12-30, Analyzed: 2019-12-30						
Alkalinity, Total (as CaCO3)	101	1.0 mg/L	100		101	80-120			
LCS (B9L1977-BS3)			Prepared: 2019-12-30, Analyzed: 2019-12-30						
Alkalinity, Total (as CaCO3)	101	1.0 mg/L	100		101	80-120			
LCS (B9L1977-BS4)			Prepared: 2019-12-30, Analyzed: 2019-12-30						
Conductivity (EC)	1380	2.0 µS/cm	1410		98	95-104			
LCS (B9L1977-BS5)			Prepared: 2019-12-30, Analyzed: 2019-12-30						
Conductivity (EC)	1380	2.0 µS/cm	1410		98	95-104			
LCS (B9L1977-BS6)			Prepared: 2019-12-30, Analyzed: 2019-12-30						
Conductivity (EC)	1400	2.0 µS/cm	1410		99	95-104			
Duplicate (B9L1977-DUP2)			Source: 9121887-03		Prepared: 2019-12-30, Analyzed: 2019-12-30				
Alkalinity, Total (as CaCO3)	161	1.0 mg/L		161			< 1	10	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0 mg/L		< 1.0				10	
Alkalinity, Bicarbonate (as CaCO3)	161	1.0 mg/L		161			< 1	10	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0 mg/L		< 1.0				10	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0 mg/L		< 1.0				10	
Conductivity (EC)	853	2.0 µS/cm		854			< 1	5	
pH	7.74	0.10 pH units		7.74			< 1	4	
Duplicate (B9L1977-DUP3)			Source: 9121887-05		Prepared: 2019-12-30, Analyzed: 2019-12-30				
Alkalinity, Total (as CaCO3)	154	1.0 mg/L		140			10	10	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0 mg/L		< 1.0				10	
Alkalinity, Bicarbonate (as CaCO3)	154	1.0 mg/L		140			10	10	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0 mg/L		< 1.0				10	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0 mg/L		< 1.0				10	
Conductivity (EC)	401	2.0 µS/cm		411			2	5	
pH	7.71	0.10 pH units		7.69			< 1	4	
Reference (B9L1977-SRM1)			Prepared: 2019-12-30, Analyzed: 2019-12-30						
pH	7.00	0.10 pH units	7.01		100	98-102			
Reference (B9L1977-SRM2)			Prepared: 2019-12-30, Analyzed: 2019-12-30						
pH	6.99	0.10 pH units	7.01		100	98-102			
Reference (B9L1977-SRM3)			Prepared: 2019-12-30, Analyzed: 2019-12-30						
pH	6.99	0.10 pH units	7.01		100	98-102			
General Parameters, Batch B9L1997									
Blank (B9L1997-BLK1)			Prepared: 2019-12-28, Analyzed: 2019-12-28						
Solids, Total Dissolved	< 15	15 mg/L							
LCS (B9L1997-BS1)			Prepared: 2019-12-28, Analyzed: 2019-12-28						
Solids, Total Dissolved	234	15 mg/L	240		98	85-115			



APPENDIX 2: QUALITY CONTROL RESULTS

REPORTED TO PROJECT Allterra Construction
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WORK ORDER REPORTED 9121887
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Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
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General Parameters, Batch B9L1997, Continued

Duplicate (B9L1997-DUP1)

Source: 9121887-03

Prepared: 2019-12-28, Analyzed: 2019-12-28

Solids, Total Dissolved	595	15 mg/L		593			< 1	15	
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Total Metals, Batch B9L2108

Blank (B9L2108-BLK1)

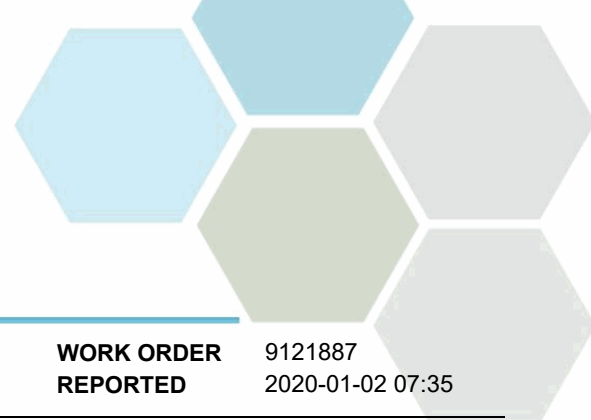
Prepared: 2019-12-29, Analyzed: 2019-12-31

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

LCS (B9L2108-BS1)

Prepared: 2019-12-29, Analyzed: 2019-12-31

Aluminum, total	0.0220	0.0050 mg/L	0.0199	111	80-120
Antimony, total	0.0196	0.00020 mg/L	0.0200	98	80-120
Arsenic, total	0.0187	0.00050 mg/L	0.0200	94	80-120
Barium, total	0.0194	0.0050 mg/L	0.0198	98	80-120
Beryllium, total	0.0220	0.00010 mg/L	0.0198	111	80-120
Bismuth, total	0.0210	0.00010 mg/L	0.0200	105	80-120
Boron, total	0.0211	0.0050 mg/L	0.0200	105	80-120
Cadmium, total	0.0199	0.000010 mg/L	0.0199	100	80-120
Calcium, total	1.86	0.20 mg/L	2.02	92	80-120
Chromium, total	0.0190	0.00050 mg/L	0.0198	96	80-120
Cobalt, total	0.0196	0.00010 mg/L	0.0199	99	80-120



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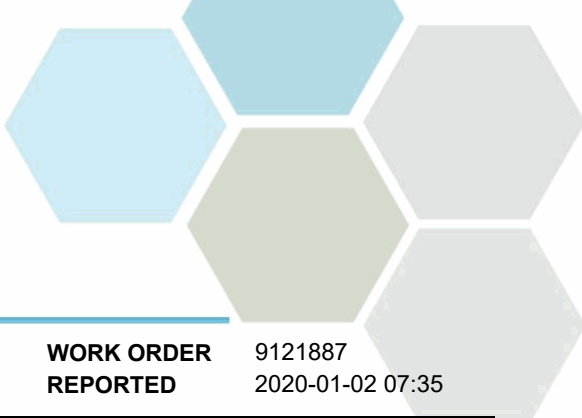
WORK ORDER REPORTED 9121887
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Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
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Total Metals, Batch B9L2108, Continued

LCS (B9L2108-BS1), Continued				Prepared: 2019-12-29, Analyzed: 2019-12-31					
Copper, total	0.0205	0.00040 mg/L	0.0200		103	80-120			
Iron, total	1.84	0.010 mg/L	2.02		91	80-120			
Lead, total	0.0210	0.00020 mg/L	0.0199		106	80-120			
Lithium, total	0.0216	0.00010 mg/L	0.0200		108	80-120			
Magnesium, total	2.09	0.010 mg/L	2.02		103	80-120			
Manganese, total	0.0212	0.00020 mg/L	0.0199		106	80-120			
Molybdenum, total	0.0201	0.00010 mg/L	0.0200		100	80-120			
Nickel, total	0.0195	0.00040 mg/L	0.0200		97	80-120			
Phosphorus, total	1.97	0.050 mg/L	2.00		98	80-120			
Potassium, total	1.92	0.10 mg/L	2.02		95	80-120			
Selenium, total	0.0207	0.00050 mg/L	0.0200		103	80-120			
Silicon, total	1.6	1.0 mg/L	2.00		80	80-120			
Silver, total	0.0229	0.000050 mg/L	0.0200		114	80-120			
Sodium, total	2.07	0.10 mg/L	2.02		103	80-120			
Strontium, total	0.0198	0.0010 mg/L	0.0200		99	80-120			
Sulfur, total	5.0	3.0 mg/L	5.00		100	80-120			
Tellurium, total	0.0200	0.00050 mg/L	0.0200		100	80-120			
Thallium, total	0.0207	0.000020 mg/L	0.0199		104	80-120			
Thorium, total	0.0199	0.00010 mg/L	0.0200		99	80-120			
Tin, total	0.0201	0.00020 mg/L	0.0200		101	80-120			
Titanium, total	0.0187	0.0050 mg/L	0.0200		93	80-120			
Tungsten, total	0.0214	0.0010 mg/L	0.0200		107	80-120			
Uranium, total	0.0208	0.000020 mg/L	0.0200		104	80-120			
Vanadium, total	0.0186	0.0010 mg/L	0.0200		93	80-120			
Zinc, total	0.0203	0.0040 mg/L	0.0200		101	80-120			
Zirconium, total	0.0190	0.00010 mg/L	0.0200		95	80-120			

Duplicate (B9L2108-DUP1)		Source: 9121887-03		Prepared: 2019-12-29, Analyzed: 2019-12-31					
Aluminum, total	1.61	0.0050 mg/L	1.70				5	20	
Antimony, total	< 0.00020	0.00020 mg/L	< 0.00020					20	
Arsenic, total	0.00059	0.00050 mg/L	0.00059					15	
Barium, total	0.0454	0.0050 mg/L	0.0460				1	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	0.0288	0.0050 mg/L	0.0279				3	20	
Cadmium, total	0.000055	0.000010 mg/L	0.000052				5	20	
Calcium, total	113	0.20 mg/L	112				1	12	
Chromium, total	0.00671	0.00050 mg/L	0.00716				6	12	
Cobalt, total	0.00176	0.00010 mg/L	0.00172				2	13	
Copper, total	0.00262	0.00040 mg/L	0.00269				3	20	
Iron, total	1.42	0.010 mg/L	1.45				2	18	
Lead, total	0.00077	0.00020 mg/L	0.00075					20	
Lithium, total	0.00233	0.00010 mg/L	0.00237				2	19	
Magnesium, total	14.8	0.010 mg/L	14.6				1	10	
Manganese, total	0.315	0.00020 mg/L	0.309				2	13	
Molybdenum, total	0.00419	0.00010 mg/L	0.00408				3	20	
Nickel, total	0.00329	0.00040 mg/L	0.00332				< 1	20	
Phosphorus, total	0.073	0.050 mg/L	0.074					20	
Potassium, total	1.69	0.10 mg/L	1.68				< 1	13	
Selenium, total	< 0.00050	0.00050 mg/L	0.00088					20	
Silicon, total	8.2	1.0 mg/L	8.6				4	11	
Silver, total	< 0.000050	0.000050 mg/L	< 0.000050					18	
Sodium, total	56.4	0.10 mg/L	55.9				< 1	10	
Strontium, total	0.439	0.0010 mg/L	0.436				< 1	9	
Sulfur, total	97.2	3.0 mg/L	97.2				< 1	20	
Tellurium, total	< 0.00050	0.00050 mg/L	< 0.00050					20	



APPENDIX 2: QUALITY CONTROL RESULTS

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Analyte	Result	RL Units	Spike Level	Source Result	% REC	REC Limit	% RPD	RPD Limit	Qualifier
Total Metals, Batch B9L2108, Continued									
Duplicate (B9L2108-DUP1), Continued			Source: 9121887-03		Prepared: 2019-12-29, Analyzed: 2019-12-31				
Thallium, total	0.000043	0.000020 mg/L		0.000040				20	
Thorium, total	0.00079	0.00010 mg/L		0.00093			17	18	
Tin, total	0.00071	0.00020 mg/L		0.00067				20	
Titanium, total	0.0781	0.0050 mg/L		0.0787			< 1	20	
Tungsten, total	0.0271	0.0010 mg/L		0.0271			< 1	20	
Uranium, total	0.00864	0.000020 mg/L		0.00856			1	14	
Vanadium, total	0.0057	0.0010 mg/L		0.0057			1	17	
Zinc, total	0.0055	0.0040 mg/L		0.0055				8	
Zirconium, total	0.00096	0.00010 mg/L		0.00102			6	20	
Reference (B9L2108-SRM1)									
Prepared: 2019-12-29, Analyzed: 2019-12-31									
Aluminum, total	0.270	0.0050 mg/L	0.303		89	82-114			
Antimony, total	0.0514	0.00020 mg/L	0.0511		101	88-115			
Arsenic, total	0.113	0.00050 mg/L	0.118		96	88-111			
Barium, total	0.792	0.0050 mg/L	0.823		96	83-110			
Beryllium, total	0.0562	0.00010 mg/L	0.0496		113	80-119			
Boron, total	3.60	0.0050 mg/L	3.45		104	80-118			
Cadmium, total	0.0497	0.000010 mg/L	0.0495		100	90-110			
Calcium, total	10.5	0.20 mg/L	11.6		91	85-113			
Chromium, total	0.239	0.00050 mg/L	0.250		95	88-111			
Cobalt, total	0.0383	0.00010 mg/L	0.0377		101	90-114			
Copper, total	0.510	0.00040 mg/L	0.486		105	90-117			
Iron, total	0.464	0.010 mg/L	0.488		95	90-116			
Lead, total	0.216	0.00020 mg/L	0.204		106	90-110			
Lithium, total	0.437	0.00010 mg/L	0.403		108	79-118			
Magnesium, total	3.94	0.010 mg/L	3.79		104	88-116			
Manganese, total	0.110	0.00020 mg/L	0.109		101	88-108			
Molybdenum, total	0.203	0.00010 mg/L	0.198		103	88-110			
Nickel, total	0.243	0.00040 mg/L	0.249		97	90-112			
Phosphorus, total	0.258	0.050 mg/L	0.227		114	72-118			
Potassium, total	6.97	0.10 mg/L	7.21		97	87-116			
Selenium, total	0.127	0.00050 mg/L	0.121		105	90-122			
Sodium, total	7.75	0.10 mg/L	7.54		103	86-118			
Strontium, total	0.380	0.0010 mg/L	0.375		101	86-110			
Thallium, total	0.0864	0.000020 mg/L	0.0805		107	90-113			
Uranium, total	0.0316	0.000020 mg/L	0.0306		103	88-112			
Vanadium, total	0.357	0.0010 mg/L	0.386		92	87-110			
Zinc, total	2.54	0.0040 mg/L	2.49		102	90-113			