



CERTIFICATE OF ANALYSIS

REPORTED TO Glenmore Ellison Improvement District
445 Glenmore Road
KELOWNA, BC V1V 1Z6

ATTENTION Chris Tucker

PO NUMBER
PROJECT Drinking Water
PROJECT INFO

WORK ORDER 20K1267

RECEIVED / TEMP 2020-11-10 13:11 / 10°C
REPORTED 2020-11-18 16:26

COC NUMBER No Number

Introduction:

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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.

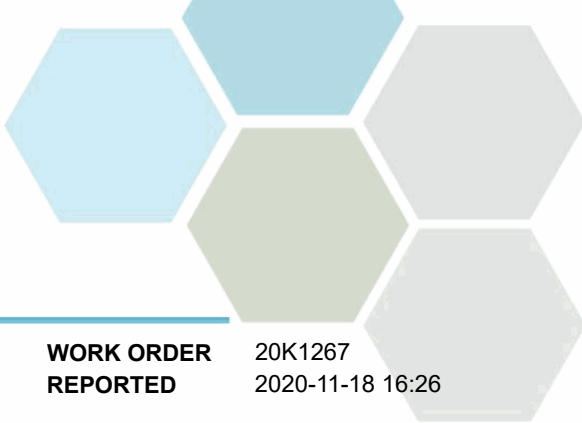
If you have any questions or concerns, please contact me at acrump@caro.ca

Authorized By:

Alana Crump
Team Lead, Client Service

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TEST RESULTS

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Drinking Water

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2020-11-18 16:26

Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
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WT# 3B634 - Okanagan Lake P/S (RAW) (20K1267-01) | Matrix: Water | Sampled: 2020-11-10 11:20

Anions

Chloride	4.97	AO ≤ 250	0.10 mg/L	2020-11-12	
Fluoride	0.13	MAC = 1.5	0.10 mg/L	2020-11-12	
Nitrate (as N)	0.079	MAC = 10	0.010 mg/L	2020-11-12	
Nitrite (as N)	< 0.010	MAC = 1	0.010 mg/L	2020-11-12	
Sulfate	29.3	AO ≤ 500	1.0 mg/L	2020-11-12	

Calculated Parameters

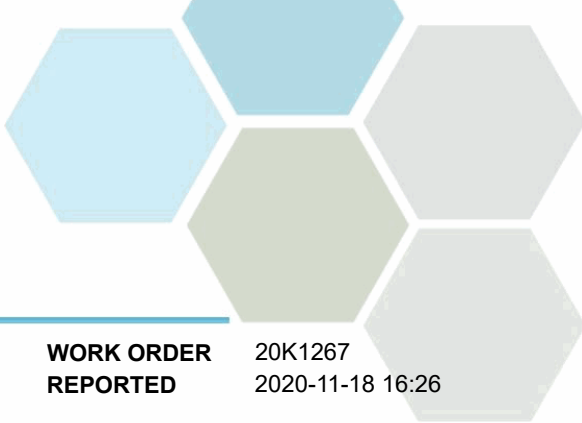
Hardness, Total (as CaCO3)	129	None Required	0.500 mg/L	N/A	
Langelier Index	0.08	N/A	-5.0	2020-11-18	
Solids, Total Dissolved	164	AO ≤ 500	1.00 mg/L	N/A	

General Parameters

Alkalinity, Total (as CaCO3)	114	N/A	1.0 mg/L	2020-11-16	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0 mg/L	2020-11-16	
Alkalinity, Bicarbonate (as CaCO3)	114	N/A	1.0 mg/L	2020-11-16	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0 mg/L	2020-11-16	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0 mg/L	2020-11-16	
Colour, True	< 5.0	AO ≤ 15	5.0 CU	2020-11-13	
Conductivity (EC)	279	N/A	2.0 µS/cm	2020-11-16	
Cyanide, Total	< 0.0020	MAC = 0.2	0.0020 mg/L	2020-11-17	
pH	7.92	7.0-10.5	0.10 pH units	2020-11-16	HT2
Temperature, at pH	22.1	N/A	°C	2020-11-16	HT2
Turbidity	0.32	OG < 1	0.10 NTU	2020-11-12	

Total Metals

Aluminum, total	< 0.0050	OG < 0.1	0.0050 mg/L	2020-11-17	
Antimony, total	< 0.00020	MAC = 0.006	0.00020 mg/L	2020-11-17	
Arsenic, total	0.00067	MAC = 0.01	0.00050 mg/L	2020-11-17	
Barium, total	0.0234	MAC = 2	0.0050 mg/L	2020-11-17	
Boron, total	0.503	MAC = 5	0.0500 mg/L	2020-11-17	
Cadmium, total	< 0.000010	MAC = 0.005	0.000010 mg/L	2020-11-17	
Calcium, total	34.5	None Required	0.20 mg/L	2020-11-17	
Chromium, total	< 0.00050	MAC = 0.05	0.00050 mg/L	2020-11-17	
Cobalt, total	< 0.00010	N/A	0.00010 mg/L	2020-11-17	
Copper, total	0.00302	MAC = 2	0.00040 mg/L	2020-11-17	
Iron, total	< 0.010	AO ≤ 0.3	0.010 mg/L	2020-11-17	
Lead, total	< 0.00020	MAC = 0.005	0.00020 mg/L	2020-11-17	
Magnesium, total	10.4	None Required	0.010 mg/L	2020-11-17	
Manganese, total	0.00110	MAC = 0.12	0.00020 mg/L	2020-11-17	
Mercury, total	< 0.000010	MAC = 0.001	0.000010 mg/L	2020-11-13	
Molybdenum, total	0.00392	N/A	0.00010 mg/L	2020-11-17	
Nickel, total	0.00054	N/A	0.00040 mg/L	2020-11-17	
Potassium, total	2.42	N/A	0.10 mg/L	2020-11-17	
Selenium, total	< 0.00050	MAC = 0.05	0.00050 mg/L	2020-11-17	



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Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
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WT# 3B634 - Okanagan Lake P/S (RAW) (20K1267-01) | Matrix: Water | Sampled: 2020-11-10 11:20, Continued

Total Metals, Continued

Sodium, total	12.4	AO ≤ 200	0.10	mg/L	2020-11-17	
Strontium, total	0.301	7	0.0010	mg/L	2020-11-17	
Uranium, total	0.00263	MAC = 0.02	0.000020	mg/L	2020-11-17	
Zinc, total	< 0.0040	AO ≤ 5	0.0040	mg/L	2020-11-17	

WT# 3B6F2 - Mill Creek RAW (20K1267-02) | Matrix: Water | Sampled: 2020-11-10 09:45

Anions

Chloride	1.17	AO ≤ 250	0.10	mg/L	2020-11-12	
Fluoride	< 0.10	MAC = 1.5	0.10	mg/L	2020-11-12	
Nitrate (as N)	0.052	MAC = 10	0.010	mg/L	2020-11-12	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2020-11-12	
Sulfate	2.0	AO ≤ 500	1.0	mg/L	2020-11-12	

Calculated Parameters

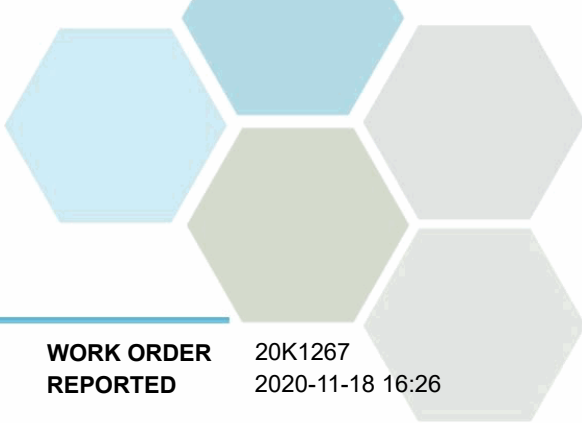
Hardness, Total (as CaCO3)	31.3	None Required	0.500	mg/L	N/A	
Langelier Index	-1.7	N/A	-5.0		2020-11-18	
Solids, Total Dissolved	36.2	AO ≤ 500	1.00	mg/L	N/A	

General Parameters

Alkalinity, Total (as CaCO3)	30.7	N/A	1.0	mg/L	2020-11-16	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	2020-11-16	
Alkalinity, Bicarbonate (as CaCO3)	30.7	N/A	1.0	mg/L	2020-11-16	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	2020-11-16	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2020-11-16	
Colour, True	65	AO ≤ 15	5.0	CU	2020-11-13	
Conductivity (EC)	67.0	N/A	2.0	µS/cm	2020-11-16	
Cyanide, Total	< 0.0020	MAC = 0.2	0.0020	mg/L	2020-11-17	
pH	7.32	7.0-10.5	0.10	pH units	2020-11-16	HT2
Temperature, at pH	22.5	N/A		°C	2020-11-16	HT2
Turbidity	3.06	OG < 1	0.10	NTU	2020-11-12	

Total Metals

Aluminum, total	0.0939	OG < 0.1	0.0050	mg/L	2020-11-18	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2020-11-18	
Arsenic, total	< 0.00050	MAC = 0.01	0.00050	mg/L	2020-11-18	
Barium, total	0.0051	MAC = 2	0.0050	mg/L	2020-11-18	
Boron, total	0.195	MAC = 5	0.0500	mg/L	2020-11-18	
Cadmium, total	< 0.000010	MAC = 0.005	0.000010	mg/L	2020-11-18	
Calcium, total	8.01	None Required	0.20	mg/L	2020-11-18	
Chromium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2020-11-18	
Cobalt, total	0.00010	N/A	0.00010	mg/L	2020-11-18	
Copper, total	0.00145	MAC = 2	0.00040	mg/L	2020-11-18	



TEST RESULTS

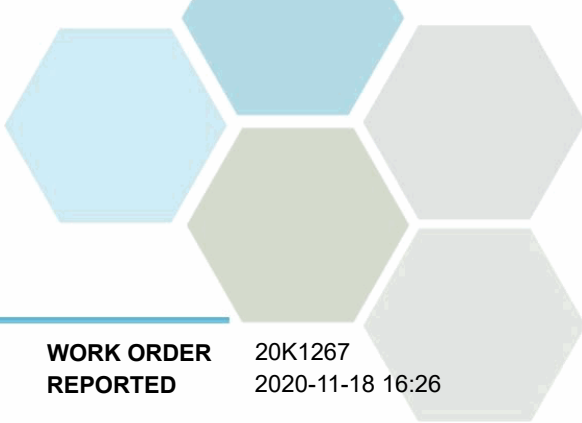
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Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
WT# 3B6F2 - Mill Creek RAW (20K1267-02) Matrix: Water Sampled: 2020-11-10 09:45, Continued					
<i>Total Metals, Continued</i>					
Iron, total	0.392	AO ≤ 0.3	0.010 mg/L	2020-11-18	
Lead, total	< 0.00020	MAC = 0.005	0.00020 mg/L	2020-11-18	
Magnesium, total	2.74	None Required	0.010 mg/L	2020-11-18	
Manganese, total	0.0130	MAC = 0.12	0.00020 mg/L	2020-11-18	
Mercury, total	< 0.000010	MAC = 0.001	0.000010 mg/L	2020-11-13	
Molybdenum, total	0.00032	N/A	0.00010 mg/L	2020-11-18	
Nickel, total	0.00093	N/A	0.00040 mg/L	2020-11-18	
Potassium, total	0.73	N/A	0.10 mg/L	2020-11-18	
Selenium, total	< 0.00050	MAC = 0.05	0.00050 mg/L	2020-11-18	
Sodium, total	2.60	AO ≤ 200	0.10 mg/L	2020-11-18	
Strontium, total	0.0495	7	0.0010 mg/L	2020-11-18	
Uranium, total	0.000115	MAC = 0.02	0.000020 mg/L	2020-11-18	
Zinc, total	< 0.0040	AO ≤ 5	0.0040 mg/L	2020-11-18	

Sample Qualifiers:

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



APPENDIX 1: SUPPORTING INFORMATION

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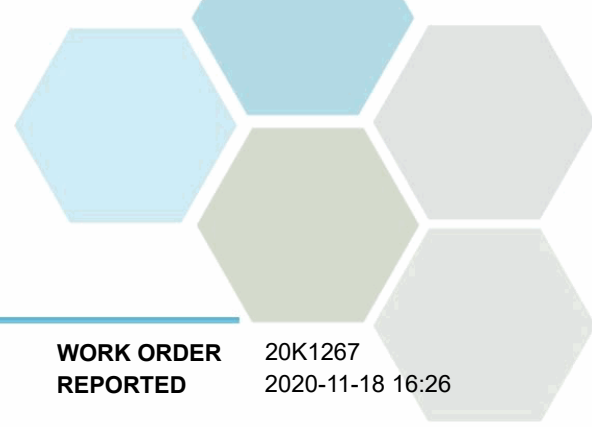
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Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2017)	Titration with H2SO4	✓	Kelowna
Anions in Water	SM 4110 B (2017)	Ion Chromatography	✓	Kelowna
Colour, True in Water	SM 2120 C (2017)	Spectrophotometry (456 nm)	✓	Kelowna
Conductivity in Water	SM 2510 B (2017)	Conductivity Meter	✓	Kelowna
Cyanide, SAD in Water	ASTM D7511-12	Flow Injection with In-Line UV Digestion and Amperometry	✓	Kelowna
Hardness in Water	SM 2340 B* (2017)	Calculation: 2.497 [total Ca] + 4.118 [total Mg] (Est)	✓	N/A
Langelier Index in Water	SM 2330 B (2017)	Calculation		N/A
Mercury, total in Water	EPA 245.7*	BrCl2 Oxidation / Cold Vapor Atomic Fluorescence Spectrometry (CVAFS)	✓	Richmond
pH in Water	SM 4500-H+ B (2017)	Electrometry	✓	Kelowna
Solids, Total Dissolved in Water	SM 1030 E (2017)	SM 1030 E (2011)		N/A
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
°C	Degrees Celcius
AO	Aesthetic Objective
CU	Colour Units (referenced against a platinum cobalt standard)
MAC	Maximum Acceptable Concentration (health based)
mg/L	Milligrams per litre
NTU	Nephelometric Turbidity Units
OG	Operational Guideline (treated water)
pH units	pH < 7 = acidic, pH > 7 = basic
µS/cm	Microsiemens per centimetre
ASTM	ASTM International Test Methods
EPA	United States Environmental Protection Agency Test Methods
SM	Standard Methods for the Examination of Water and Wastewater, American Public Health Association



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General Comments:

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