



CERTIFICATE OF ANALYSIS

REPORTED TO The Water Guy
600 Industrial Road 1, Unit #12 & #13
CRANBROOK, BC V1C 3R1

ATTENTION Al Schaeffer

PO NUMBER
PROJECT Analytical Testing

PROJECT INFO

WORK ORDER 20K2451

RECEIVED / TEMP 2020-11-23 15:30 / 17°C
REPORTED 2020-11-30 15:45

COC NUMBER B91233

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/IEC 17025:2017 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.

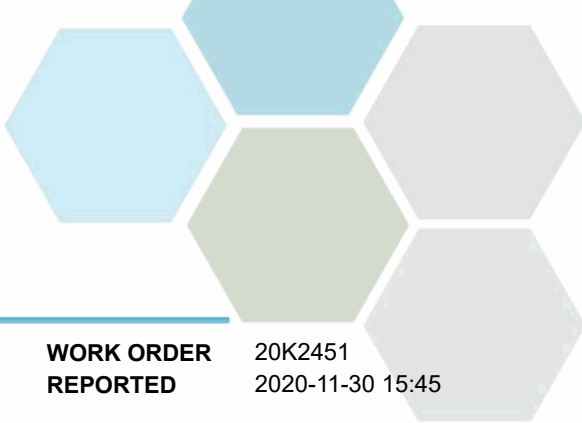
If you have any questions or concerns, please contact me at teamcaro@caro.ca

Authorized By:

Team CARO
Client Service Representative

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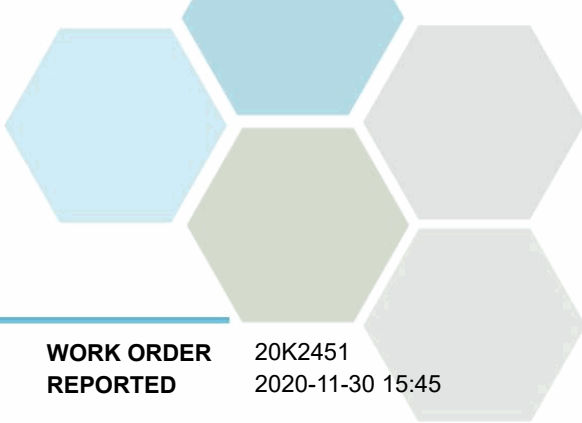


TEST RESULTS

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Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
CP18112020 (20K2451-01) Matrix: Water Sampled: 2020-11-22 12:00					
Anions					
Chloride	0.40	AO ≤ 250	0.10 mg/L	2020-11-24	
Fluoride	< 0.10	MAC = 1.5	0.10 mg/L	2020-11-24	
Nitrate (as N)	< 0.010	MAC = 10	0.010 mg/L	2020-11-24	
Nitrite (as N)	< 0.010	MAC = 1	0.010 mg/L	2020-11-24	
Sulfate	79.4	AO ≤ 500	1.0 mg/L	2020-11-24	
Calculated Parameters					
Hardness, Total (as CaCO3)	212	None Required	0.500 mg/L	N/A	
Solids, Total Dissolved	234	AO ≤ 500	1.00 mg/L	N/A	
General Parameters					
Alkalinity, Total (as CaCO3)	134	N/A	1.0 mg/L	2020-11-27	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0 mg/L	2020-11-27	
Alkalinity, Bicarbonate (as CaCO3)	134	N/A	1.0 mg/L	2020-11-27	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0 mg/L	2020-11-27	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0 mg/L	2020-11-27	
Conductivity (EC)	380	N/A	2.0 µS/cm	2020-11-27	
Cyanide, Total	< 0.0020	MAC = 0.2	0.0020 mg/L	2020-11-30	
pH	8.16	7.0-10.5	0.10 pH units	2020-11-27	HT2
Turbidity	1.23	OG < 1	0.10 NTU	2020-11-24	
Microbiological Parameters					
Coliforms, Total	8	MAC = 0	1 CFU/100 mL	2020-11-24	HT3
E. coli	< 1	MAC = 0	1 CFU/100 mL	2020-11-24	HT3
Miscellaneous Herbicides					
Glyphosate	< 0.050	MAC = 0.28	0.050 mg/L	2020-11-27	
Total Metals					
Aluminum, total	0.0113	OG < 0.1	0.0050 mg/L	2020-11-27	
Antimony, total	< 0.00020	MAC = 0.006	0.00020 mg/L	2020-11-27	
Arsenic, total	< 0.00050	MAC = 0.01	0.00050 mg/L	2020-11-27	
Barium, total	0.0384	MAC = 2	0.0050 mg/L	2020-11-27	
Boron, total	< 0.0500	MAC = 5	0.0500 mg/L	2020-11-27	
Cadmium, total	< 0.000010	MAC = 0.005	0.000010 mg/L	2020-11-27	
Calcium, total	42.5	None Required	0.20 mg/L	2020-11-27	
Chromium, total	< 0.00050	MAC = 0.05	0.00050 mg/L	2020-11-27	
Copper, total	< 0.00040	MAC = 2	0.00040 mg/L	2020-11-27	
Iron, total	0.120	AO ≤ 0.3	0.010 mg/L	2020-11-27	
Lead, total	0.00055	MAC = 0.005	0.00020 mg/L	2020-11-27	
Magnesium, total	25.6	None Required	0.010 mg/L	2020-11-27	
Manganese, total	0.00662	MAC = 0.12	0.00020 mg/L	2020-11-27	
Potassium, total	1.04	N/A	0.10 mg/L	2020-11-27	
Selenium, total	< 0.00050	MAC = 0.05	0.00050 mg/L	2020-11-27	
Sodium, total	3.27	AO ≤ 200	0.10 mg/L	2020-11-27	



TEST RESULTS

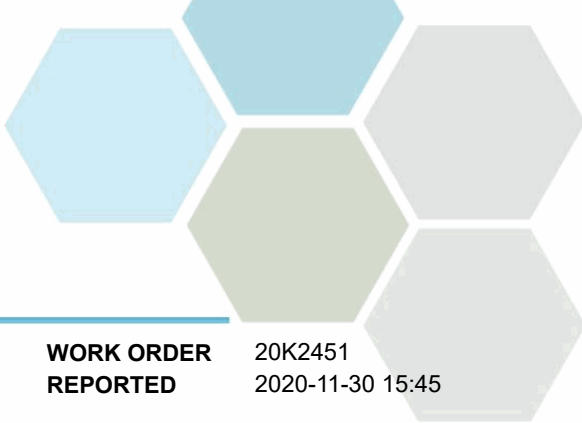
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Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
CP18112020 (20K2451-01) Matrix: Water Sampled: 2020-11-22 12:00, Continued						
<i>Total Metals, Continued</i>						
Strontium, total	0.379	7	0.0010	mg/L	2020-11-27	
Uranium, total	0.00223	MAC = 0.02	0.000020	mg/L	2020-11-27	
Zinc, total	< 0.0040	AO ≤ 5	0.0040	mg/L	2020-11-27	

Sample Qualifiers:

- HT2 The 15 minute recommended holding time (from sampling to analysis) has been exceeded - field analysis is recommended.
- HT3 Microbiological analysis was initiated beyond the maximum holding time of 30 hours. Results may not be valid.



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO PROJECT The Water Guy
Analytical Testing

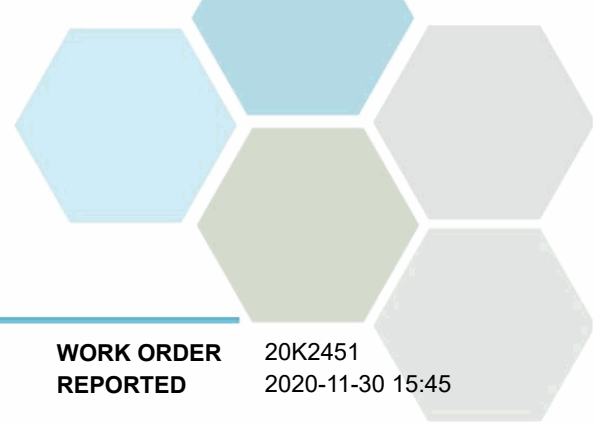
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Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2017)	Titration with H2SO4	✓	Kelowna
Anions in Water	SM 4110 B (2017)	Ion Chromatography	✓	Kelowna
Coliforms, Total in Water	SM 9222* (2017)	Membrane Filtration / Chromocult Agar	✓	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
E. coli in Water	SM 9222* (2017)	Membrane Filtration / Chromocult Agar	✓	Kelowna
Glyphosate in Water	EPA 547*	Direct Aqueous Injection HPLC with Post-Column Derivatization and Fluorescence Detection	✓	Richmond
Hardness in Water	SM 2340 B* (2017)	Calculation: 2.497 [total Ca] + 4.118 [total Mg] (Est)	✓	N/A
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
AO	Aesthetic Objective
CFU/100 mL	Colony Forming Units per 100 millilitres
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:

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 or once samples expire, whichever comes first. Longer hold is possible if agreed to in writing. The quality control (QC) data is available upon request

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: teamcaro@caro.ca

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