

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 IHA New Sources

PROJECT INFO

WORK ORDER 20K2450

RECEIVED / TEMP 2020-11-23 13:30 / 17°C

REPORTED 2020-11-30 15:48

COC NUMBER No Number

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
WL18112020 (20K2450-01) Matrix: Water Sampled: 2020-11-22 12:00						
Anions						
Chloride	8.09	AO ≤ 250	0.10	mg/L	2020-11-24	
Fluoride	0.22	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	49.9	AO ≤ 500	1.0	mg/L	2020-11-24	
Calculated Parameters						
Hardness, Total (as CaCO ₃)	237	None Required	0.500	mg/L	N/A	
Langelier Index	0.6	N/A	-5.0		2020-11-30	
Nitrogen, Organic	0.450	N/A	0.0500	mg/L	N/A	
Solids, Total Dissolved	273	AO ≤ 500	1.00	mg/L	N/A	
General Parameters						
Alkalinity, Total (as CaCO ₃)	216	N/A	1.0	mg/L	2020-11-27	
Alkalinity, Phenolphthalein (as CaCO ₃)	3.8	N/A	1.0	mg/L	2020-11-27	
Alkalinity, Bicarbonate (as CaCO ₃)	209	N/A	1.0	mg/L	2020-11-27	
Alkalinity, Carbonate (as CaCO ₃)	7.6	N/A	1.0	mg/L	2020-11-27	
Alkalinity, Hydroxide (as CaCO ₃)	< 1.0	N/A	1.0	mg/L	2020-11-27	
Ammonia, Total (as N)	< 0.050	None Required	0.050	mg/L	2020-11-25	
Carbon, Total Organic	3.34	N/A	0.50	mg/L	2020-11-25	
Colour, True	< 5.0	AO ≤ 15	5.0	CU	2020-11-26	HT1
Conductivity (EC)	473	N/A	2.0	µS/cm	2020-11-27	
Cyanide, Total	< 0.0020	MAC = 0.2	0.0020	mg/L	2020-11-30	
Nitrogen, Total Kjeldahl	0.450	N/A	0.050	mg/L	2020-11-26	
pH	8.37	7.0-10.5	0.10	pH units	2020-11-27	HT2
Phosphorus, Total (as P)	0.0223	N/A	0.0050	mg/L	2020-11-25	
Sulfide, Total	< 0.020	AO ≤ 0.05	0.020	mg/L	2020-11-25	
Temperature, at pH	19.5	N/A		°C	2020-11-27	HT2
Turbidity	1.61	OG < 1	0.10	NTU	2020-11-24	
UV Transmittance @ 254 nm - Unfiltered	89.5	N/A	0.10	% T	2020-11-24	
Microbiological Parameters						
Coliforms, Total	39	MAC = 0	1	CFU/100 mL	2020-11-24	HT3
Background Colonies	23	N/A	1	CFU/100 mL	2020-11-24	HT1
E. coli	< 1	MAC = 0	1	CFU/100 mL	2020-11-24	HT3
Total Metals						
Aluminum, total	0.0085	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	0.00117	MAC = 0.01	0.00050	mg/L	2020-11-27	
Barium, total	0.0305	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	23.2	None Required	0.20	mg/L	2020-11-27	

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Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
WL18112020 (20K2450-01) Matrix: Water Sampled: 2020-11-22 12:00, Continued						
<i>Total Metals, Continued</i>						
Chromium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2020-11-27	
Cobalt, total	< 0.00010	N/A	0.00010	mg/L	2020-11-27	
Copper, total	< 0.00040	MAC = 2	0.00040	mg/L	2020-11-27	
Iron, total	0.021	AO ≤ 0.3	0.010	mg/L	2020-11-27	
Lead, total	< 0.00020	MAC = 0.005	0.00020	mg/L	2020-11-27	
Magnesium, total	43.5	None Required	0.010	mg/L	2020-11-27	
Manganese, total	0.00404	MAC = 0.12	0.00020	mg/L	2020-11-27	
Mercury, total	< 0.000010	MAC = 0.001	0.000010	mg/L	2020-11-27	
Molybdenum, total	0.00065	N/A	0.00010	mg/L	2020-11-27	
Nickel, total	< 0.00040	N/A	0.00040	mg/L	2020-11-27	
Potassium, total	2.05	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	13.8	AO ≤ 200	0.10	mg/L	2020-11-27	
Strontium, total	0.118	7	0.0010	mg/L	2020-11-27	
Uranium, total	0.00169	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:

- 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.
- HT3 Microbiological analysis was initiated beyond the maximum holding time of 30 hours. Results may not be valid.

APPENDIX 1: SUPPORTING INFORMATION

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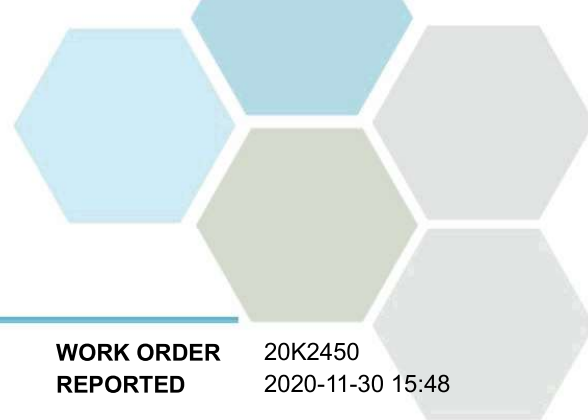
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Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2017)	Titration with H2SO4	✓	Kelowna
Ammonia, Total in Water	SM 4500-NH3 G* (2017)	Automated Colorimetry (Phenate)	✓	Kelowna
Anions in Water	SM 4110 B (2017)	Ion Chromatography	✓	Kelowna
Carbon, Total Organic in Water	SM 5310 B (2017)	Combustion, Infrared CO2 Detection	✓	Kelowna
Coliforms, Total in Water	SM 9222* (2017)	Membrane Filtration / Chromocult Agar	✓	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
E. coli in Water	SM 9222* (2017)	Membrane Filtration / Chromocult Agar	✓	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
Nitrogen, Total Kjeldahl in Water	SM 4500-Norg D* (2017)	Block Digestion and Flow Injection Analysis	✓	Kelowna
pH in Water	SM 4500-H+ B (2017)	Electrometry	✓	Kelowna
Phosphorus, Total in Water	SM 4500-P B.5* (2011) / SM 4500-P F (2017)	Persulfate Digestion / Automated Colorimetry (Ascorbic Acid)	✓	Kelowna
Solids, Total Dissolved in Water	SM 1030 E (2017)	SM 1030 E (2011)		N/A
Sulfide, Total in Water	SM 4500-S2 D* (2017)	Colorimetry (Methylene Blue)	✓	Edmonton
Total Metals in Water	EPA 200.2 / EPA 6020B	HNO3+HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	✓	Richmond
Transmittance at 254 nm - Unfiltered in Water	SM 5910 B* (2017)	Ultraviolet Absorption	✓	Kelowna
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)
% T	Percent Transmittance
<	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
CFU/100 mL	Colony Forming Units per 100 millilitres
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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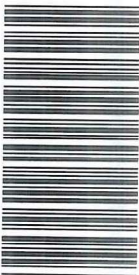
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General Comments:

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

Please note any regulatory guidelines applied to this report are added as a convenience to the client, at their request, to help provide some initial context to analytical results obtained. Although CARO makes every effort to ensure accuracy of the associated regulatory guideline(s) applied, the guidelines applied cannot be assumed to be correct due to a variety of factors and as such CARO Analytical Services assumes no liability or responsibility for the use of those guidelines to make any decisions. The original source of the regulation should be verified and a review of the guideline(s) should be validated as correct in order to make any decisions arising from the comparison of the analytical data obtained to the relevant regulatory guideline for one's particular circumstances. Further, CARO Analytical Services assumes no liability or responsibility for any loss attributed from the use of these guidelines in any way.



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Caring About Results, Obviously.

REPORT TO:
COMPANY: THE WATER GUY
ADDRESS: 12-600 INDUSTRIAL ROAD 1
CRANBROOK BC
CONTACT: AL SCHAEFFER
TEL/FAX: 250-489-4000
DELIVERY METHOD: EMAIL ☒ MAIL ☐ OTHER* ☐
DATA FORMAT: EXCEL ☐ WATERTRAX ☐ ESdat ☐
EMAIL 1: SERVICE@THEWATERGUY.CA
EMAIL 2:
EMAIL 3:
PO #:

** If you would like to sign up for ClientConnect and/or EnviroChain, CARO's online service offerings, please check here: ☐

SAMPLED BY:
CLIENT SAMPLE ID:
WL18112020

MATRIX:	CONTAINER QTY	DATE YYYY-MM-DD	TIME HH:MM	COMMENTS:		
				CHLORINATED	FILTERED	PRESERVED (e.g. flow/volume media ID/notes)
DRINKING WATER						
OTHER WATER						
SOIL						

SHIPPING INSTRUCTIONS: Return Cooler(s) ☐
Supplies Needed:
SAMPLE RETENTION: 30 Days (default) ☐
60 Days ☐ 90 Days ☐
Other (surcharges will apply):
* OTHER INSTRUCTIONS:
One Complete - BC Interior Health - Comprehensive -ensive Set for New water Samples.
If you would like to talk to a real live Scientist about your project requirements, please check here: ☐

CHAIN OF CUSTODY RECORD

RELINQUISHED BY: DATE: RECEIVED BY: DATE: 11/23
TIME: TIME: 13:30
REGULATORY APPLICATION: BC WQG ☐ BC HWR ☐
Canadian Drinking Water Quality ☐ BC WQO ☐
BC CSR Soli: WL ☐ AL ☐ PL ☐ RL-LD ☐ RL-HD ☐ CL ☐ IL ☐
BC CSR Water: AW ☐ IW ☐ LW ☐ DW ☐
CCME: Other:
* Contact Lab To Confirm. Surcharge May Apply

PROJECT NUMBER / INFO:
A: Biohazard D: Asbestos G: Strong Odour
B: Cyanide E: Heavy Metals H: High Contamination
C: PCBs F: Flammable I: Other (please specify*)

ANALYSES REQUESTED:										POSSIBLE SAMPLE HAZARD CODE(S)									
BTEX	VPH	PHC F1																	
VOC	VPH																		
EPH	PHC F2-F4																		
PAH	L/HEPH																		
PHENOLS	Chlorinated	Non-Chlor.																	
PCB	GLYCOLS	HAA																	
PESTICIDES	ACID HERBICIDES																		
METALS - WATER TOTAL	Hg																		
METALS - WATER DISSOLVED	Hg																		
METALS - SOIL (SALM)	inc. pH																		
pH	EC	ALK																	
TSS	VSS	TDS																	
BOD	COD																		
TOG	MOG																		
FECAL COLIFORMS	HPC																		
TOTAL COLIFORMS	E. coli																		
ASBESTOS																			
BC Interior Health - Comprehensive Set for New water Samples										Near water Sources									
HOLD																			

SAMPLE RECEIPT CONDITION:
COOLER 1 (°C): 17.0 ICE: Y ☐ N ☐
COOLER 2 (°C): ICE: Y ☐ N ☐
COOLER 3 (°C): ICE: Y ☐ N ☐
CUSTODY SEALS INTACT: NA ☐ Y ☐