



CERTIFICATE OF ANALYSIS

REPORTED TO	Dan Gare Drilling Box 722 Armstrong, BC V0E 1B0	WORK ORDER	2113335
ATTENTION	Logan Flett	RECEIVED / TEMP REPORTED	2021-09-24 12:36 / 8.8°C 2021-10-01 16:29
PO NUMBER		COC NUMBER	No Number
PROJECT	General Potability		
PROJECT INFO			

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.

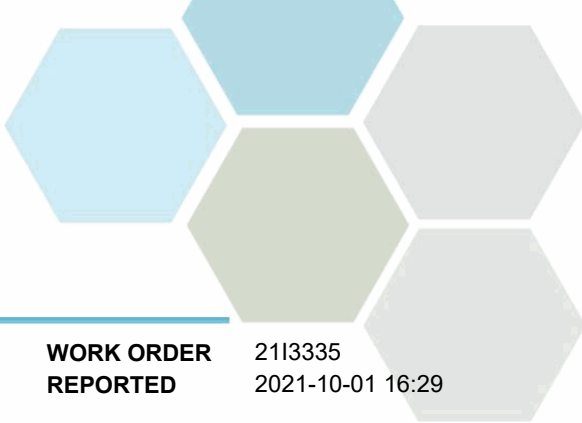
If you have any questions or concerns, please contact me at teamcaro@caro.ca

Authorized By:

Team CARO
Client Service Representative

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 | #108 4475 Wayburne Drive Burnaby, BC V5G 4X4



TEST RESULTS

REPORTED TO PROJECT Dan Gare Drilling
General Potability

WORK ORDER REPORTED 2113335
2021-10-01 16:29

Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
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62186 (2113335-01) | Matrix: Water | Sampled: 2021-09-24 11:55

Anions

Chloride	121	AO ≤ 250	0.10 mg/L	2021-09-25	
Fluoride	1.91	MAC = 1.5	0.10 mg/L	2021-09-25	
Nitrate (as N)	0.014	MAC = 10	0.010 mg/L	2021-09-25	
Nitrite (as N)	< 0.010	MAC = 1	0.010 mg/L	2021-09-25	
Sulfate	11.0	AO ≤ 500	1.0 mg/L	2021-09-25	

Calculated Parameters

Hardness, Total (as CaCO3)	130	None Required	0.500 mg/L	N/A	
Langelier Index	1.2	N/A	-5.0	2021-10-01	
Solids, Total Dissolved	558	AO ≤ 500	1.00 mg/L	N/A	

General Parameters

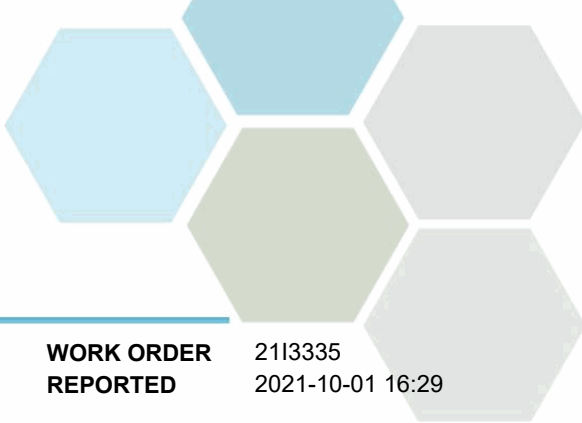
Alkalinity, Total (as CaCO3)	362	N/A	1.0 mg/L	2021-09-29	
Alkalinity, Phenolphthalein (as CaCO3)	12.9	N/A	1.0 mg/L	2021-09-29	
Alkalinity, Bicarbonate (as CaCO3)	336	N/A	1.0 mg/L	2021-09-29	
Alkalinity, Carbonate (as CaCO3)	25.7	N/A	1.0 mg/L	2021-09-29	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0 mg/L	2021-09-29	
Colour, True	< 5.0	AO ≤ 15	5.0 CU	2021-09-27	
Conductivity (EC)	972	N/A	2.0 µS/cm	2021-09-29	
Cyanide, Total	< 0.0020	MAC = 0.2	0.0020 mg/L	2021-09-30	
pH	8.52	7.0-10.5	0.10 pH units	2021-09-29	HT2
Temperature, at pH	22.6	N/A	°C	2021-09-29	HT2
Turbidity	7.87	OG < 1	0.10 NTU	2021-09-26	

Microbiological Parameters

Coliforms, Total	< 1	MAC = 0	1 CFU/100 mL	2021-09-24	
E. coli	< 1	MAC = 0	1 CFU/100 mL	2021-09-24	

Total Metals

Aluminum, total	0.134	OG < 0.1	0.0050 mg/L	2021-10-01	
Antimony, total	< 0.00020	MAC = 0.006	0.00020 mg/L	2021-10-01	
Arsenic, total	< 0.00050	MAC = 0.01	0.00050 mg/L	2021-10-01	
Barium, total	0.157	MAC = 2	0.0050 mg/L	2021-10-01	
Boron, total	< 0.0500	MAC = 5	0.0500 mg/L	2021-10-01	
Cadmium, total	0.000017	MAC = 0.005	0.000010 mg/L	2021-10-01	
Calcium, total	38.4	None Required	0.20 mg/L	2021-10-01	
Chromium, total	0.00106	MAC = 0.05	0.00050 mg/L	2021-10-01	
Cobalt, total	< 0.00010	N/A	0.00010 mg/L	2021-10-01	
Copper, total	0.00097	MAC = 2	0.00040 mg/L	2021-10-01	
Iron, total	0.534	AO ≤ 0.3	0.010 mg/L	2021-10-01	
Lead, total	0.00032	MAC = 0.005	0.00020 mg/L	2021-10-01	
Magnesium, total	8.35	None Required	0.010 mg/L	2021-10-01	
Manganese, total	0.0418	MAC = 0.12	0.00020 mg/L	2021-10-01	
Mercury, total	< 0.000010	MAC = 0.001	0.000010 mg/L	2021-09-30	



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Analyte	Result	Guideline	RL	Units	Analyzed	Qualifier
62186 (2113335-01) Matrix: Water Sampled: 2021-09-24 11:55, Continued						
<i>Total Metals, Continued</i>						
Molybdenum, total	0.0187	N/A	0.00010	mg/L	2021-10-01	
Nickel, total	0.00079	N/A	0.00040	mg/L	2021-10-01	
Potassium, total	1.66	N/A	0.10	mg/L	2021-10-01	
Selenium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2021-10-01	
Sodium, total	157	AO ≤ 200	0.10	mg/L	2021-10-01	
Strontium, total	7.51	7	0.0010	mg/L	2021-10-01	
Uranium, total	0.107	MAC = 0.02	0.000020	mg/L	2021-10-01	
Zinc, total	0.0339	AO ≤ 5	0.0040	mg/L	2021-10-01	

62139 (2113335-02) | Matrix: Water | Sampled: 2021-09-23 16:10

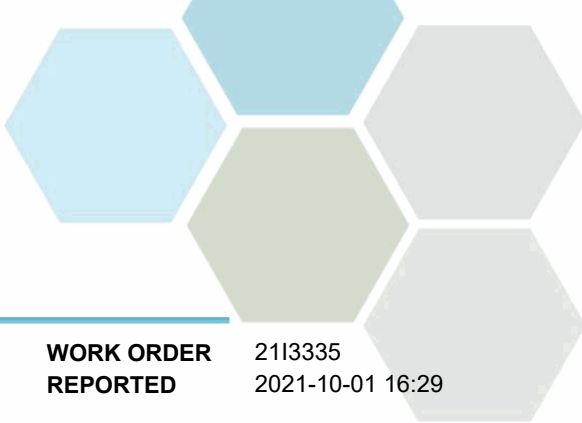
<i>Anions</i>						
Chloride	31.2	AO ≤ 250	0.10	mg/L	2021-09-25	
Fluoride	4.55	MAC = 1.5	0.10	mg/L	2021-09-25	
Nitrate (as N)	< 0.010	MAC = 10	0.010	mg/L	2021-09-25	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	2021-09-25	
Sulfate	15.4	AO ≤ 500	1.0	mg/L	2021-09-25	

<i>Calculated Parameters</i>						
Hardness, Total (as CaCO3)	54.2	None Required	0.500	mg/L	N/A	
Langelier Index	0.7	N/A	-5.0		2021-10-01	
Solids, Total Dissolved	305	AO ≤ 500	1.00	mg/L	N/A	

<i>General Parameters</i>						
Alkalinity, Total (as CaCO3)	221	N/A	1.0	mg/L	2021-09-29	
Alkalinity, Phenolphthalein (as CaCO3)	9.0	N/A	1.0	mg/L	2021-09-29	
Alkalinity, Bicarbonate (as CaCO3)	204	N/A	1.0	mg/L	2021-09-29	
Alkalinity, Carbonate (as CaCO3)	17.9	N/A	1.0	mg/L	2021-09-29	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	2021-09-29	
Colour, True	< 5.0	AO ≤ 15	5.0	CU	2021-09-27	HT1
Conductivity (EC)	505	N/A	2.0	µS/cm	2021-09-29	
Cyanide, Total	< 0.0020	MAC = 0.2	0.0020	mg/L	2021-09-30	
pH	8.61	7.0-10.5	0.10	pH units	2021-09-29	HT2
Temperature, at pH	22.8	N/A		°C	2021-09-29	HT2
Turbidity	8.05	OG < 1	0.10	NTU	2021-09-26	

<i>Microbiological Parameters</i>						
Coliforms, Total	< 1	MAC = 0	1	CFU/100 mL	2021-09-24	
E. coli	< 1	MAC = 0	1	CFU/100 mL	2021-09-24	

<i>Total Metals</i>						
Aluminum, total	0.318	OG < 0.1	0.0050	mg/L	2021-10-01	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2021-10-01	
Arsenic, total	< 0.00050	MAC = 0.01	0.00050	mg/L	2021-10-01	



TEST RESULTS

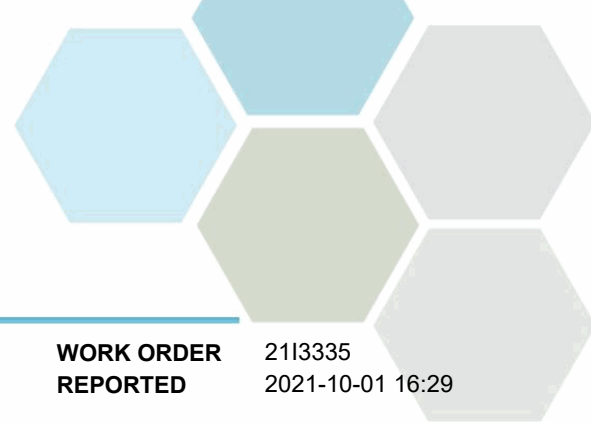
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Analyte	Result	Guideline	RL Units	Analyzed	Qualifier
62139 (2113335-02) Matrix: Water Sampled: 2021-09-23 16:10, Continued					
<i>Total Metals, Continued</i>					
Barium, total	0.0845	MAC = 2	0.0050 mg/L	2021-10-01	
Boron, total	< 0.0500	MAC = 5	0.0500 mg/L	2021-10-01	
Cadmium, total	< 0.000010	MAC = 0.005	0.000010 mg/L	2021-10-01	
Calcium, total	16.2	None Required	0.20 mg/L	2021-10-01	
Chromium, total	0.00076	MAC = 0.05	0.00050 mg/L	2021-10-01	
Cobalt, total	< 0.00010	N/A	0.00010 mg/L	2021-10-01	
Copper, total	0.00081	MAC = 2	0.00040 mg/L	2021-10-01	
Iron, total	0.661	AO ≤ 0.3	0.010 mg/L	2021-10-01	
Lead, total	0.00113	MAC = 0.005	0.00020 mg/L	2021-10-01	
Magnesium, total	3.34	None Required	0.010 mg/L	2021-10-01	
Manganese, total	0.0299	MAC = 0.12	0.00020 mg/L	2021-10-01	
Mercury, total	< 0.000010	MAC = 0.001	0.000010 mg/L	2021-09-30	
Molybdenum, total	0.0313	N/A	0.00010 mg/L	2021-10-01	
Nickel, total	0.00050	N/A	0.00040 mg/L	2021-10-01	
Potassium, total	0.95	N/A	0.10 mg/L	2021-10-01	
Selenium, total	< 0.00050	MAC = 0.05	0.00050 mg/L	2021-10-01	
Sodium, total	103	AO ≤ 200	0.10 mg/L	2021-10-01	
Strontium, total	2.31	7	0.0010 mg/L	2021-10-01	
Uranium, total	0.0454	MAC = 0.02	0.000020 mg/L	2021-10-01	
Zinc, total	0.0108	AO ≤ 5	0.0040 mg/L	2021-10-01	

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.



APPENDIX 1: SUPPORTING INFORMATION

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General Potability

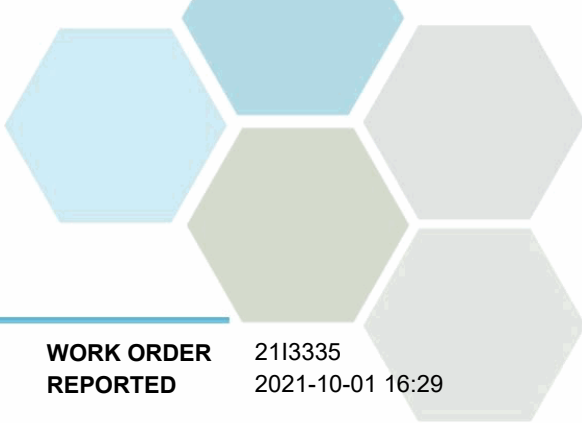
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Analysis Description	Method Ref.	Technique	Accredited	Location
Alkalinity in Water	SM 2320 B* (2017)	Titration with H2SO4	✓	Kelowna
Anions in Water	SM 4110 B (2017)	Ion Chromatography	✓	Kelowna
Coliforms, Total in Water	SM 9222* (2017)	Membrane Filtration / Chromocult Agar	✓	Kelowna
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
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
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



APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO Dan Gare Drilling
PROJECT General Potability

WORK ORDER 2113335
REPORTED 2021-10-01 16:29

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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