CERTIFICATE OF ANALYSIS

REPORTED TO	Black Mountain Irrigation District 285 Gray Avenue KELOWNA, BC V1X 1W8		
ATTENTION	Robert Hrasko	**WORK ORDER**	21B0730
PO NUMBER		**RECEIVED / TEMP**	2021-02-04 13:59 / 12°C
PROJECT	Screen Works/ Chemistry	**REPORTED**	2021-02-11 16:05
PROJECT INFO		**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 acrump@caro.ca

Authorized By:

Alana Crump
Team Lead, Client Service

CARO ANALYTICAL SERVICES

TEST RESULTS

REPORTED TO	Black Mountain Irrigation District	**WORK ORDER**	21B0730
PROJECT	Screen Works/ Chemistry	**REPORTED**	2021-02-11 16:05

Analyte	Result	RL	Units	Analyzed	Qualifier
Well #4 (21B0730-01) | Matrix: Water | Sampled: 2021-02-04 09:18					
Anions					
Chloride	**12.4**	0.10	mg/L	2021-02-06	
Fluoride	< 0.10	0.10	mg/L	2021-02-06	
Nitrate (as N)	**1.81**	0.010	mg/L	2021-02-06	
Nitrite (as N)	**0.021**	0.010	mg/L	2021-02-06	
Sulfate	**18.5**	1.0	mg/L	2021-02-06	
Calculated Parameters					
Hardness, Total (as CaCO3)	**161**	0.500	mg/L	N/A	
Langelier Index	**0.4**	-5.0		2021-02-11	
Solids, Total Dissolved	**209**	1.00	mg/L	N/A	
General Parameters					
Alkalinity, Total (as CaCO3)	**165**	1.0	mg/L	2021-02-08	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2021-02-08	
Alkalinity, Bicarbonate (as CaCO3)	**165**	1.0	mg/L	2021-02-08	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2021-02-08	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2021-02-08	
Colour, True	< 5.0	5.0	CU	2021-02-06	
Conductivity (EC)	**360**	2.0	µS/cm	2021-02-08	
Cyanide, Total	< 0.0020	0.0020	mg/L	2021-02-09	
pH	**7.98**	0.10	pH units	2021-02-08	HT2
Temperature, at pH	**19.3**		°C	2021-02-08	HT2
Turbidity	**0.32**	0.10	NTU	2021-02-06	
Total Metals					
Aluminum, total	**0.0149**	0.0050	mg/L	2021-02-10	
Antimony, total	< 0.00020	0.00020	mg/L	2021-02-10	
Arsenic, total	< 0.00050	0.00050	mg/L	2021-02-10	
Barium, total	**0.0131**	0.0050	mg/L	2021-02-10	
Boron, total	< 0.0500	0.0500	mg/L	2021-02-10	
Cadmium, total	< 0.000010	0.000010	mg/L	2021-02-10	
Calcium, total	**46.7**	0.20	mg/L	2021-02-10	
Chromium, total	< 0.00050	0.00050	mg/L	2021-02-10	
Cobalt, total	< 0.00010	0.00010	mg/L	2021-02-10	
Copper, total	**0.00317**	0.00040	mg/L	2021-02-10	
Iron, total	**0.038**	0.010	mg/L	2021-02-10	
Lead, total	**0.00023**	0.00020	mg/L	2021-02-10	
Magnesium, total	**10.9**	0.010	mg/L	2021-02-10	
Manganese, total	**0.00368**	0.00020	mg/L	2021-02-10	
Mercury, total	< 0.000010	0.000010	mg/L	2021-02-09	
Molybdenum, total	**0.00108**	0.00010	mg/L	2021-02-10	
Nickel, total	< 0.00040	0.00040	mg/L	2021-02-10	
Potassium, total	**1.54**	0.10	mg/L	2021-02-10	
Selenium, total	< 0.00050	0.00050	mg/L	2021-02-10	

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Well #4 (21B0730-01) | Matrix: Water | Sampled: 2021-02-04 09:18, Continued					
Total Metals, Continued					
Sodium, total	**10.4**	0.10	mg/L	2021-02-10	
Strontium, total	**0.211**	0.0010	mg/L	2021-02-10	
Uranium, total	**0.000861**	0.000020	mg/L	2021-02-10	
Zinc, total	**0.0041**	0.0040	mg/L	2021-02-10	
Pearson School (21B0730-02) | Matrix: Water | Sampled: 2021-02-04 11:31					
Anions					
Chloride	**8.21**	0.10	mg/L	2021-02-06	
Fluoride	< 0.10	0.10	mg/L	2021-02-06	
Nitrate (as N)	**0.052**	0.010	mg/L	2021-02-06	
Nitrite (as N)	< 0.010	0.010	mg/L	2021-02-06	
Sulfate	**10.9**	1.0	mg/L	2021-02-06	
Calculated Parameters					
Hardness, Total (as CaCO3)	**89.7**	0.500	mg/L	N/A	
Langelier Index	**-0.3**	-5.0		2021-02-11	
Solids, Total Dissolved	**112**	1.00	mg/L	N/A	
General Parameters					
Alkalinity, Total (as CaCO3)	**86.8**	1.0	mg/L	2021-02-08	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	1.0	mg/L	2021-02-08	
Alkalinity, Bicarbonate (as CaCO3)	**86.8**	1.0	mg/L	2021-02-08	
Alkalinity, Carbonate (as CaCO3)	< 1.0	1.0	mg/L	2021-02-08	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	1.0	mg/L	2021-02-08	
Colour, True	< 5.0	5.0	CU	2021-02-06	
Conductivity (EC)	**201**	2.0	µS/cm	2021-02-08	
Cyanide, Total	< 0.0020	0.0020	mg/L	2021-02-09	
pH	**7.87**	0.10	pH units	2021-02-08	HT2
Temperature, at pH	**19.5**		°C	2021-02-08	HT2
Turbidity	**0.46**	0.10	NTU	2021-02-06	
Total Metals					
Aluminum, total	**0.0343**	0.0050	mg/L	2021-02-10	
Antimony, total	< 0.00020	0.00020	mg/L	2021-02-10	
Arsenic, total	< 0.00050	0.00050	mg/L	2021-02-10	
Barium, total	**0.0142**	0.0050	mg/L	2021-02-10	
Boron, total	< 0.0500	0.0500	mg/L	2021-02-10	
Cadmium, total	< 0.000010	0.000010	mg/L	2021-02-10	
Calcium, total	**24.7**	0.20	mg/L	2021-02-10	
Chromium, total	< 0.00050	0.00050	mg/L	2021-02-10	
Cobalt, total	< 0.00010	0.00010	mg/L	2021-02-10	
Copper, total	**0.00161**	0.00040	mg/L	2021-02-10	
Iron, total	**0.071**	0.010	mg/L	2021-02-10	

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Analyte	Result	RL	Units	Analyzed	Qualifier
Pearson School (21B0730-02) | Matrix: Water | Sampled: 2021-02-04 11:31, Continued					
Total Metals, Continued					
Lead, total	< 0.00020	0.00020	mg/L	2021-02-10	
Magnesium, total	**6.79**	0.010	mg/L	2021-02-10	
Manganese, total	**0.00804**	0.00020	mg/L	2021-02-10	
Mercury, total	< 0.000010	0.000010	mg/L	2021-02-09	
Molybdenum, total	**0.00110**	0.00010	mg/L	2021-02-10	
Nickel, total	**0.00041**	0.00040	mg/L	2021-02-10	
Potassium, total	**1.11**	0.10	mg/L	2021-02-10	
Selenium, total	< 0.00050	0.00050	mg/L	2021-02-10	
Sodium, total	**6.87**	0.10	mg/L	2021-02-10	
Strontium, total	**0.129**	0.0010	mg/L	2021-02-10	
Uranium, total	**0.000682**	0.000020	mg/L	2021-02-10	
Zinc, total	< 0.0040	0.0040	mg/L	2021-02-10	

Sample Qualifiers:

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

APPENDIX 1: SUPPORTING INFORMATION

REPORTED TO	Black Mountain Irrigation District	**WORK ORDER**	21B0730
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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
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
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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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.