

REPORTED TO Regional District of Thompson Nicola
300 - 465 Victoria Street
Kamloops, BC V2C 2A9

TEL (250) 377-6284
FAX (250) 374-6489

ATTENTION Shawn Kratchmer

WORK ORDER 7082381

PO NUMBER

RECEIVED / TEMP 2017-08-25 09:10 / 17°C

PROJECT Blue River C.W.S.

REPORTED 2017-09-01

PROJECT INFO

COC NUMBER B51129

General Comments:

CARO Analytical Services employs methods which are conducted according to procedures accepted by appropriate regulatory agencies, and/or are conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts, except where otherwise agreed to by the client.

The results in this report apply to the samples analyzed in accordance with the Chain of Custody or Sample Requisition 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 unless otherwise agreed to in writing.



Authorized By:

Jennifer Shanko, A.Sc.T.
Account Manager

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

Locations:

#110 4011 Viking Way
Richmond, BC V6V 2K9
Tel: 604-279-1499

#102 3677 Highway 97N
Kelowna, BC V1X 5C3
Tel: 250-765-9646

17225 109 Avenue
Edmonton, AB T5S 1H7
Tel: 780-489-9100

www.caro.ca

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Analysis Description	Method Reference	Technique	Location
Alkalinity in Water	APHA 2320 B*	Titration with H2SO4	Kelowna
Ammonia, Total in Water	APHA 4500-NH3 G*	Automated Colorimetry (Phenate)	Kelowna
Anions by IC in Water	APHA 4110 B	Ion Chromatography with Chemical Suppression of Eluent Conductivity	Kelowna
Colour, True in Water	APHA 2120 C	Spectrophotometry (456 nm)	Kelowna
Conductivity in Water	APHA 2510 B	Conductivity Meter	Kelowna
Dissolved Metals by ICPMS in Water	APHA 3030 B / EPA 6020B	0.45 µm Filtration / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	Richmond
Hardness (as CaCO3) in Water	APHA 2340 B	Calculation: 2.497 [diss Ca] + 4.118 [diss Mg]	N/A
Mercury, dissolved by CVAFS in Water	EPA 245.7*	BrCl2 Oxidation / Cold Vapor Atomic Fluorescence Spectrometry (CVAFS)	Richmond
Mercury, total by CVAFS in Water	EPA 245.7*	BrCl2 Oxidation / Cold Vapor Atomic Fluorescence Spectrometry (CVAFS)	Richmond
Solids, Total Dissolved in Water	APHA 2540 C*	Gravimetry (Dried at 103-105C)	Kelowna
Total Metals by ICPMS in Water	APHA 3030 E* / EPA 6020B	HNO3+HCl Hot Block Digestion / Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS)	Richmond
Transmissivity at 254 nm in Water	APHA 5910 B*	Ultraviolet Absorption	Kelowna

Note: An asterisk in the Method Reference indicates that the CARO method has been modified from the reference method

Method Reference Descriptions:

APHA Standard Methods for the Examination of Water and Wastewater, 22nd Edition, American Public Health Association/American Water Works Association/Water Environment Federation
EPA United States Environmental Protection Agency Test Methods

Glossary of Terms:

MRL Method Reporting Limit
< Less than the Reported Detection Limit (RDL) - the RDL may be higher than the MRL due to various factors such as dilutions, limited sample volume, high moisture, or interferences
AO Aesthetic objective
MAC Maximum acceptable concentration (health based)
OG Operational guideline (treated water)
% T Percent Transmittance
CU Colour Units (referenced against a platinum cobalt standard)
mg/L Milligrams per litre
µS/cm Microsiemens per centimetre

Standards / Guidelines Referenced in this Report:

Guidelines for Canadian Drinking Water Quality (Feb 2017)

Website: http://www.hc-sc.gc.ca/ewh-semt/alt_formats/pdf/pubs/water-eau/sum_guide-res_recom/sum_guide-res_recom-eng.pdf

Note: In some cases, the values displayed on the report represent the lowest guideline and are to be verified by the end user

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Analyte	Result / Recovery	Standard / Guideline	MRL / Limits	Units	Prepared	Analyzed	Notes
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Sample ID: 817 Pine Street - Blue River, BC (7082381-01) [Water] Sampled: 2017-08-23 10:15

Anions

Chloride	0.12	AO ≤ 250	0.10	mg/L	N/A	2017-08-27	
Fluoride	0.11	MAC = 1.5	0.10	mg/L	N/A	2017-08-27	
Nitrate (as N)	0.037	MAC = 10	0.010	mg/L	N/A	2017-08-27	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	N/A	2017-08-27	
Sulfate	6.3	AO ≤ 500	1.0	mg/L	N/A	2017-08-27	

General Parameters

Alkalinity, Total (as CaCO3)	56.9	N/A	1.0	mg/L	N/A	2017-08-31	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	1.0	mg/L	N/A	2017-08-31	
Alkalinity, Bicarbonate (as CaCO3)	56.9	N/A	1.0	mg/L	N/A	2017-08-31	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	1.0	mg/L	N/A	2017-08-31	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	1.0	mg/L	N/A	2017-08-31	
Ammonia, Total (as N)	0.024	N/A	0.020	mg/L	N/A	2017-08-31	
Colour, True	< 5.0	AO ≤ 15	5.0	CU	N/A	2017-08-29	
Conductivity (EC)	121	N/A	2.0	µS/cm	N/A	2017-08-31	
Solids, Total Dissolved	73	AO ≤ 500	10	mg/L	N/A	2017-08-28	
UV Transmittance @ 254nm	97.7	N/A	0.10	% T	N/A	2017-08-28	

Calculated Parameters

Hardness, Total (as CaCO3)	53.1	N/A	0.500	mg/L	N/A	N/A	
Nitrate+Nitrite (as N)	0.0370	N/A	0.0200	mg/L	N/A	N/A	

Dissolved Metals

Aluminum, dissolved	0.0056	N/A	0.0050	mg/L	N/A	2017-08-31	
Antimony, dissolved	< 0.00020	N/A	0.00020	mg/L	N/A	2017-08-31	
Arsenic, dissolved	< 0.00050	N/A	0.00050	mg/L	N/A	2017-08-31	
Barium, dissolved	0.0054	N/A	0.0050	mg/L	N/A	2017-08-31	
Beryllium, dissolved	< 0.00010	N/A	0.00010	mg/L	N/A	2017-08-31	
Bismuth, dissolved	< 0.00010	N/A	0.00010	mg/L	N/A	2017-08-31	
Boron, dissolved	0.0102	N/A	0.0050	mg/L	N/A	2017-08-31	
Cadmium, dissolved	< 0.000010	N/A	0.000010	mg/L	N/A	2017-08-31	
Calcium, dissolved	16.6	N/A	0.20	mg/L	N/A	2017-08-31	
Chromium, dissolved	< 0.00050	N/A	0.00050	mg/L	N/A	2017-08-31	
Cobalt, dissolved	< 0.00010	N/A	0.00010	mg/L	N/A	2017-08-31	
Copper, dissolved	0.0248	N/A	0.00040	mg/L	N/A	2017-08-31	
Iron, dissolved	< 0.010	N/A	0.010	mg/L	N/A	2017-08-31	
Lead, dissolved	< 0.00020	N/A	0.00020	mg/L	N/A	2017-08-31	
Lithium, dissolved	0.00345	N/A	0.00010	mg/L	N/A	2017-08-31	
Magnesium, dissolved	2.80	N/A	0.010	mg/L	N/A	2017-08-31	
Manganese, dissolved	0.00035	N/A	0.00020	mg/L	N/A	2017-08-31	
Mercury, dissolved	< 0.000010	N/A	0.000010	mg/L	2017-08-30	2017-08-30	
Molybdenum, dissolved	0.00044	N/A	0.00010	mg/L	N/A	2017-08-31	
Nickel, dissolved	< 0.00040	N/A	0.00040	mg/L	N/A	2017-08-31	
Phosphorus, dissolved	< 0.050	N/A	0.050	mg/L	N/A	2017-08-31	
Potassium, dissolved	1.07	N/A	0.10	mg/L	N/A	2017-08-31	
Selenium, dissolved	< 0.00050	N/A	0.00050	mg/L	N/A	2017-08-31	
Silicon, dissolved	6.0	N/A	1.0	mg/L	N/A	2017-08-31	

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Sample ID: 817 Pine Street - Blue River, BC (7082381-01) [Water] Sampled: 2017-08-23 10:15, Continued

Dissolved Metals, Continued

Silver, dissolved	< 0.000050	N/A	0.000050	mg/L	N/A	2017-08-31	
Sodium, dissolved	2.48	N/A	0.10	mg/L	N/A	2017-08-31	
Strontium, dissolved	0.0681	N/A	0.0010	mg/L	N/A	2017-08-31	
Sulfur, dissolved	< 3.0	N/A	3.0	mg/L	N/A	2017-08-31	
Tellurium, dissolved	< 0.00050	N/A	0.00050	mg/L	N/A	2017-08-31	
Thallium, dissolved	< 0.000020	N/A	0.000020	mg/L	N/A	2017-08-31	
Thorium, dissolved	< 0.00010	N/A	0.00010	mg/L	N/A	2017-08-31	
Tin, dissolved	< 0.00020	N/A	0.00020	mg/L	N/A	2017-08-31	
Titanium, dissolved	< 0.0050	N/A	0.0050	mg/L	N/A	2017-08-31	
Uranium, dissolved	0.000791	N/A	0.000020	mg/L	N/A	2017-08-31	
Vanadium, dissolved	< 0.0010	N/A	0.0010	mg/L	N/A	2017-08-31	
Zinc, dissolved	0.0073	N/A	0.0040	mg/L	N/A	2017-08-31	
Zirconium, dissolved	< 0.00010	N/A	0.00010	mg/L	N/A	2017-08-31	

Total Metals

Aluminum, total	0.0094	OG < 0.1	0.0050	mg/L	2017-08-30	2017-08-30	
Antimony, total	< 0.00020	MAC = 0.006	0.00020	mg/L	2017-08-30	2017-08-30	
Arsenic, total	< 0.00050	MAC = 0.01	0.00050	mg/L	2017-08-30	2017-08-30	
Barium, total	0.0052	MAC = 1	0.0050	mg/L	2017-08-30	2017-08-30	
Beryllium, total	< 0.00010	N/A	0.00010	mg/L	2017-08-30	2017-08-30	
Bismuth, total	< 0.00010	N/A	0.00010	mg/L	2017-08-30	2017-08-30	
Boron, total	0.0080	MAC = 5	0.0050	mg/L	2017-08-30	2017-08-30	
Cadmium, total	< 0.000010	MAC = 0.005	0.000010	mg/L	2017-08-30	2017-08-30	
Calcium, total	16.4	N/A	0.20	mg/L	2017-08-30	2017-08-30	
Chromium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2017-08-30	2017-08-30	
Cobalt, total	< 0.00010	N/A	0.00010	mg/L	2017-08-30	2017-08-30	
Copper, total	0.0255	AO ≤ 1	0.00040	mg/L	2017-08-30	2017-08-30	
Iron, total	< 0.010	AO ≤ 0.3	0.010	mg/L	2017-08-30	2017-08-30	
Lead, total	< 0.00020	MAC = 0.01	0.00020	mg/L	2017-08-30	2017-08-30	
Lithium, total	0.00364	N/A	0.00010	mg/L	2017-08-30	2017-08-30	
Magnesium, total	2.76	N/A	0.010	mg/L	2017-08-30	2017-08-30	
Manganese, total	0.00049	AO ≤ 0.05	0.00020	mg/L	2017-08-30	2017-08-30	
Mercury, total	< 0.000010	MAC = 0.001	0.000010	mg/L	2017-08-30	2017-08-30	
Molybdenum, total	0.00044	N/A	0.00010	mg/L	2017-08-30	2017-08-30	
Nickel, total	< 0.00040	N/A	0.00040	mg/L	2017-08-30	2017-08-30	
Phosphorus, total	< 0.050	N/A	0.050	mg/L	2017-08-30	2017-08-30	
Potassium, total	1.10	N/A	0.10	mg/L	2017-08-30	2017-08-30	
Selenium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2017-08-30	2017-08-30	
Silicon, total	6.0	N/A	1.0	mg/L	2017-08-30	2017-08-30	
Silver, total	< 0.000050	N/A	0.000050	mg/L	2017-08-30	2017-08-30	
Sodium, total	2.47	AO ≤ 200	0.10	mg/L	2017-08-30	2017-08-30	
Strontium, total	0.0672	N/A	0.0010	mg/L	2017-08-30	2017-08-30	
Sulfur, total	< 3.0	N/A	3.0	mg/L	2017-08-30	2017-08-30	
Tellurium, total	< 0.00050	N/A	0.00050	mg/L	2017-08-30	2017-08-30	
Thallium, total	< 0.000020	N/A	0.000020	mg/L	2017-08-30	2017-08-30	

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Sample ID: 817 Pine Street - Blue River, BC (7082381-01) [Water] Sampled: 2017-08-23 10:15, Continued

Total Metals, Continued

Thorium, total	< 0.00010	N/A	0.00010	mg/L	2017-08-30	2017-08-30	
Tin, total	< 0.00020	N/A	0.00020	mg/L	2017-08-30	2017-08-30	
Titanium, total	< 0.0050	N/A	0.0050	mg/L	2017-08-30	2017-08-30	
Uranium, total	0.000796	MAC = 0.02	0.000020	mg/L	2017-08-30	2017-08-30	
Vanadium, total	< 0.0010	N/A	0.0010	mg/L	2017-08-30	2017-08-30	
Zinc, total	0.0080	AO ≤ 5	0.0040	mg/L	2017-08-30	2017-08-30	
Zirconium, total	< 0.00010	N/A	0.00010	mg/L	2017-08-30	2017-08-30	