

REPORTED TO Mid Shuswap Lumby Water Stewards
1631 Mable Lake Rd
Lumby, BC V0E 2G6

TEL (250) 547-2554
FAX -

ATTENTION Jim Critchley

WORK ORDER 3081008

PO NUMBER

RECEIVED / TEMP Aug-19-13 08:55 / 12.0 °C

PROJECT Analytical Testing

REPORTED Aug-26-13

PROJECT INFO

COC NUMBER B03657

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.



Issued By:

Sarah Speier, BSc For Jennifer Shanko, ASCT
Administration Coordinator

Please contact CARO if more information is needed or to provide feedback on our services.

Locations:

#110 4011 Viking Way
Richmond, BC V6V 2K9
Tel: 604-279-1499 Fax: 604-279-1599

#102 3677 Highway 97N
Kelowna, BC V1X 5C3
Tel: 250-765-9646 Fax: 250-765-3893

17225 109 Avenue
Edmonton, AB T5S 1H7
Tel: 780-489-9100 Fax: 780-489-9700

www.caro.ca

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Analytical Testing

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Analysis Description	Method Reference (* = modified from)		Location
	Preparation	Analysis	
Chloride in Water by IC	N/A	APHA 4110 B	Kelowna
Conductivity in Water	N/A	APHA 2510 B	Kelowna
E. coli (Partition Method)	N/A	APHA 9222 G	Kelowna
Nitrate-N in Water by IC	N/A	APHA 4110 B	Kelowna
Nitrite-N in Water by IC	N/A	APHA 4110 B	Kelowna
pH in Water	N/A	APHA 4500-H+ B	Kelowna
Phosphorus, Total Dissolved Kjeldahl	N/A	EPA 365.4 (1974) *	Kelowna
Phosphorus, Total Kjeldahl	N/A	EPA 365.4 (1974) *	Kelowna
Sulfate in Water by IC	N/A	APHA 4110 B	Kelowna
Total Kjeldahl Nitrogen	N/A	EPA 351.2 (1993) *	Kelowna
Turbidity	N/A	APHA 2130 B	Kelowna

Note: The numbers in brackets represent the year that the method was published/approved

Method Reference Descriptions:

APHA Standard Methods for the Examination of Water and Wastewater, American Public Health Association
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-related guideline)
CFU/100mL Colony Forming Units per 100 mL
mg/L Milligrams per litre
NTU Nephelometric Turbidity Units
pH units pH < 7 = acidic, pH > 7 = basic
uS/cm Microsiemens per centimeter

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Analyte	Result / Recovery	Canadian DW Guideline	MRL / Limit	Units	Prepared	Analyzed	Notes
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Sample ID: Harris Creek (Hwy 6) (3081008-01) [Water] Sampled: Aug-18-13 13:50

<i>Anions</i>							
Chloride	2.17	AO ≤ 250	0.10	mg/L	N/A	Aug-21-13	
Nitrogen, Nitrate as N	< 0.010	MAC = 10	0.010	mg/L	N/A	Aug-21-13	
Nitrogen, Nitrite as N	< 0.010	MAC = 1	0.010	mg/L	N/A	Aug-21-13	
Sulfate	19.8	AO ≤ 500	1.0	mg/L	N/A	Aug-21-13	
<i>General Parameters</i>							
Conductivity (EC)	250		2	uS/cm	N/A	Aug-19-13	
Nitrogen, Total Kjeldahl	0.35		0.05	mg/L	Aug-20-13	Aug-23-13	
pH	8.12	AO = 6.5 - 8.5	0.01	pH units	N/A	Aug-19-13	
Phosphorus, Total Kjeldahl	0.04		0.01	mg/L	Aug-20-13	Aug-23-13	
Phosphorus, Total Kjeldahl Dissolved	0.03		0.01	mg/L	Aug-20-13	Aug-23-13	
Turbidity	0.8	See Guidelines	0.1	NTU	N/A	Aug-19-13	
<i>Calculated Parameters</i>							
Nitrogen, Nitrate+Nitrite as N	< 0.010		0.010	mg/L	N/A	N/A	
Nitrogen, Total	0.348		0.050	mg/L	N/A	N/A	
<i>Microbiological Parameters</i>							
E. coli	2100	MAC < 1	1	CFU/100mL	Aug-19-13	Aug-20-13	MIC15

Sample ID: Duteau Creek (Hwy 6) (3081008-02) [Water] Sampled: Aug-18-13 13:40

<i>Anions</i>							
Chloride	5.16	AO ≤ 250	0.10	mg/L	N/A	Aug-21-13	
Nitrogen, Nitrate as N	0.089	MAC = 10	0.010	mg/L	N/A	Aug-21-13	
Nitrogen, Nitrite as N	< 0.010	MAC = 1	0.010	mg/L	N/A	Aug-21-13	
Sulfate	10.6	AO ≤ 500	1.0	mg/L	N/A	Aug-21-13	
<i>General Parameters</i>							
Conductivity (EC)	177		2	uS/cm	N/A	Aug-19-13	
Nitrogen, Total Kjeldahl	0.49		0.05	mg/L	Aug-20-13	Aug-23-13	
pH	7.93	AO = 6.5 - 8.5	0.01	pH units	N/A	Aug-19-13	
Phosphorus, Total Kjeldahl	0.03		0.01	mg/L	Aug-20-13	Aug-23-13	
Phosphorus, Total Kjeldahl Dissolved	0.02		0.01	mg/L	Aug-20-13	Aug-23-13	
Turbidity	1.4	See Guidelines	0.1	NTU	N/A	Aug-19-13	
<i>Calculated Parameters</i>							
Nitrogen, Nitrate+Nitrite as N	0.089		0.010	mg/L	N/A	N/A	
Nitrogen, Total	0.583		0.050	mg/L	N/A	N/A	
<i>Microbiological Parameters</i>							
E. coli	380	MAC < 1	1	CFU/100mL	Aug-19-13	Aug-20-13	

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Sample ID: Mid Bessette Creek (3081008-03) [Water] Sampled: Aug-18-13 13:20

Anions

Chloride	6.14	AO ≤ 250	0.10	mg/L	N/A	Aug-21-13	
Nitrogen, Nitrate as N	0.052	MAC = 10	0.010	mg/L	N/A	Aug-21-13	
Nitrogen, Nitrite as N	< 0.010	MAC = 1	0.010	mg/L	N/A	Aug-21-13	
Sulfate	23.6	AO ≤ 500	1.0	mg/L	N/A	Aug-21-13	

General Parameters

Conductivity (EC)	298		2	uS/cm	N/A	Aug-19-13	
Nitrogen, Total Kjeldahl	0.45		0.05	mg/L	Aug-20-13	Aug-23-13	
pH	8.12	AO = 6.5 - 8.5	0.01	pH units	N/A	Aug-19-13	
Phosphorus, Total Kjeldahl	0.04		0.01	mg/L	Aug-20-13	Aug-23-13	
Phosphorus, Total Kjeldahl Dissolved	0.01		0.01	mg/L	Aug-20-13	Aug-23-13	
Turbidity	1.6	See Guidelines	0.1	NTU	N/A	Aug-19-13	

Calculated Parameters

Nitrogen, Nitrate+Nitrite as N	0.052		0.010	mg/L	N/A	N/A	
Nitrogen, Total	0.506		0.050	mg/L	N/A	N/A	

Microbiological Parameters

E. coli	290	MAC < 1	1	CFU/100mL	Aug-19-13	Aug-20-13	
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Sample ID: Lower Bessette Creek (3081008-04) [Water] Sampled: Aug-18-13 10:15

Anions

Chloride	6.65	AO ≤ 250	0.10	mg/L	N/A	Aug-21-13	
Nitrogen, Nitrate as N	0.011	MAC = 10	0.010	mg/L	N/A	Aug-21-13	
Nitrogen, Nitrite as N	< 0.010	MAC = 1	0.010	mg/L	N/A	Aug-21-13	
Sulfate	27.1	AO ≤ 500	1.0	mg/L	N/A	Aug-21-13	

General Parameters

Conductivity (EC)	320		2	uS/cm	N/A	Aug-19-13	
Nitrogen, Total Kjeldahl	0.34		0.05	mg/L	Aug-20-13	Aug-23-13	
pH	8.18	AO = 6.5 - 8.5	0.01	pH units	N/A	Aug-19-13	
Phosphorus, Total Kjeldahl	0.02		0.01	mg/L	Aug-20-13	Aug-23-13	
Phosphorus, Total Kjeldahl Dissolved	0.02		0.01	mg/L	Aug-20-13	Aug-23-13	
Turbidity	1.6	See Guidelines	0.1	NTU	N/A	Aug-19-13	

Calculated Parameters

Nitrogen, Nitrate+Nitrite as N	0.011		0.010	mg/L	N/A	N/A	
Nitrogen, Total	0.349		0.050	mg/L	N/A	N/A	

Microbiological Parameters

E. coli	250	MAC < 1	1	CFU/100mL	Aug-19-13	Aug-20-13	
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Analyte	Result / Recovery	Canadian DW Guideline	MRL / Limit	Units	Prepared	Analyzed	Notes
Sample ID: Shuswap (Wilsey Dam) (3081008-05) [Water] Sampled: Aug-18-13 10:20							
Anions							
Chloride	0.38	AO ≤ 250	0.10	mg/L	N/A	Aug-21-13	
Nitrogen, Nitrate as N	< 0.010	MAC = 10	0.010	mg/L	N/A	Aug-21-13	
Nitrogen, Nitrite as N	< 0.010	MAC = 1	0.010	mg/L	N/A	Aug-21-13	
Sulfate	5.6	AO ≤ 500	1.0	mg/L	N/A	Aug-21-13	
General Parameters							
Conductivity (EC)	110		2	uS/cm	N/A	Aug-19-13	
Nitrogen, Total Kjeldahl	0.14		0.05	mg/L	Aug-20-13	Aug-23-13	
pH	7.96	AO = 6.5 - 8.5	0.01	pH units	N/A	Aug-19-13	
Phosphorus, Total Kjeldahl	0.04		0.01	mg/L	Aug-20-13	Aug-23-13	
Phosphorus, Total Kjeldahl Dissolved	0.02		0.01	mg/L	Aug-20-13	Aug-23-13	
Turbidity	0.5	See Guidelines	0.1	NTU	N/A	Aug-19-13	
Calculated Parameters							
Nitrogen, Nitrate+Nitrite as N	< 0.010		0.010	mg/L	N/A	N/A	
Nitrogen, Total	0.141		0.050	mg/L	N/A	N/A	
Microbiological Parameters							
E. coli	11	MAC < 1	1	CFU/100mL	Aug-19-13	Aug-20-13	

Sample ID: Shuswap (Odd Fellows) (3081008-06) [Water] Sampled: Aug-18-13 09:36

Anions							
Chloride	0.62	AO ≤ 250	0.10	mg/L	N/A	Aug-21-13	
Nitrogen, Nitrate as N	< 0.010	MAC = 10	0.010	mg/L	N/A	Aug-21-13	
Nitrogen, Nitrite as N	< 0.010	MAC = 1	0.010	mg/L	N/A	Aug-21-13	
Sulfate	6.8	AO ≤ 500	1.0	mg/L	N/A	Aug-21-13	
General Parameters							
Conductivity (EC)	125		2	uS/cm	N/A	Aug-19-13	
Nitrogen, Total Kjeldahl	0.17		0.05	mg/L	Aug-20-13	Aug-23-13	
pH	7.91	AO = 6.5 - 8.5	0.01	pH units	N/A	Aug-19-13	
Phosphorus, Total Kjeldahl	0.02		0.01	mg/L	Aug-20-13	Aug-23-13	
Phosphorus, Total Kjeldahl Dissolved	0.02		0.01	mg/L	Aug-20-13	Aug-23-13	
Turbidity	0.7	See Guidelines	0.1	NTU	N/A	Aug-19-13	
Calculated Parameters							
Nitrogen, Nitrate+Nitrite as N	< 0.010		0.010	mg/L	N/A	N/A	
Nitrogen, Total	0.169		0.050	mg/L	N/A	N/A	
Microbiological Parameters							
E. coli	24	MAC < 1	1	CFU/100mL	Aug-19-13	Aug-20-13	

Sample / Analysis Qualifiers:

MIC15 Due to a high bacterial count, the final result is estimated.