

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

**TEL** (250) 547-2554  
**FAX** -

**ATTENTION** Russ Collins

**WORK ORDER** 4090995

**PO NUMBER**

**RECEIVED / TEMP** Sep-15-14 09:00 / 3°C

**PROJECT** Analytical Testing

**REPORTED** Sep-23-14

**PROJECT INFO**

**COC NUMBER** 40837.558

**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:

**Karin Miyazaki 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](http://www.caro.ca)

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Analysis Description	Method Reference	Technique	Location
Anions in Water by IC	APHA 4110 B	Ion Chromatography with Chemical Suppression of Eluent Conductivity	Kelowna
Conductivity in Water	APHA 2510 B	Conductivity Meter	Kelowna
E. coli (Partition)	APHA 9222 G	Membrane Filtration	Kelowna
pH in Water	APHA 4500-H+ B	Electrometry	Kelowna
Total Kjeldahl Nitrogen in Water	EPA 351.2 *	Sulfuric Acid Digestion, Automated Colorimetry	Kelowna
Total Phosphorus in Water (Kjeldahl)	EPA 365.4 *	Sulfuric Acid Digestion, Automated Colorimetry	Kelowna
Total Phosphorus, dissolved (Kjeldahl)	EPA 365.4 *	Sulfuric Acid Digestion, Automated Colorimetry	Kelowna
Turbidity	APHA 2130 B	Nephelometry	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)  
CFU/100mL Colony Forming Units per 100 millilitres  
mg/L Milligrams per litre  
NTU Nephelometric Turbidity Units  
pH units pH < 7 = acidic, pH > 7 = basic  
µS/cm Microsiemens per centimetre

**Standards / Guidelines Referenced in this Report:**

Guidelines for Canadian Drinking Water Quality (2012)  
Website: [http://www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/2012-sum\\_guide-res\\_recom/index-eng.php](http://www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/2012-sum_guide-res_recom/index-eng.php)

**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: Harris Creek (Hwy 6) (4090995-01) [Water] Sampled: Sep-14-14 11:38**

<b>Anions</b>							
Chloride	1.64	AO ≤ 250	0.10	mg/L	N/A	Sep-15-14	
Nitrogen, Nitrate as N	0.015	MAC = 10	0.010	mg/L	N/A	Sep-15-14	
Nitrogen, Nitrite as N	< 0.010	MAC = 1	0.010	mg/L	N/A	Sep-15-14	
Sulfate	21.6	AO ≤ 500	1.0	mg/L	N/A	Sep-15-14	
<b>General Parameters</b>							
Conductivity (EC)	225	N/A	2	µS/cm	N/A	Sep-15-14	
Nitrogen, Total Kjeldahl	0.27	N/A	0.05	mg/L	Sep-15-14	Sep-19-14	
pH	7.71	6.5-8.5	0.01	pH units	N/A	Sep-15-14	
Phosphorus, Total Kjeldahl	0.04	N/A	0.01	mg/L	Sep-15-14	Sep-19-14	
Phosphorus, Total Kjeldahl Dissolved	0.02	N/A	0.01	mg/L	Sep-17-14	Sep-19-14	
Turbidity	0.8	OG < 0.1	0.1	NTU	N/A	Sep-16-14	
<b>Calculated Parameters</b>							
Nitrogen, Nitrate+Nitrite as N	0.015	N/A	0.010	mg/L	N/A	N/A	
Nitrogen, Total	0.289	N/A	0.050	mg/L	N/A	N/A	
<b>Microbiological Parameters</b>							
E. coli	26	MAC = None Detected	1	CFU/100mL	Sep-15-14	Sep-16-14	

**Sample ID: Duteau Creek (Hwy 6) (4090995-02) [Water] Sampled: Sep-14-14 11:35**

<b>Anions</b>							
Chloride	4.62	AO ≤ 250	0.10	mg/L	N/A	Sep-15-14	
Nitrogen, Nitrate as N	0.202	MAC = 10	0.010	mg/L	N/A	Sep-15-14	
Nitrogen, Nitrite as N	< 0.010	MAC = 1	0.010	mg/L	N/A	Sep-15-14	
Sulfate	12.2	AO ≤ 500	1.0	mg/L	N/A	Sep-15-14	
<b>General Parameters</b>							
Conductivity (EC)	170	N/A	2	µS/cm	N/A	Sep-15-14	
Nitrogen, Total Kjeldahl	0.64	N/A	0.05	mg/L	Sep-15-14	Sep-19-14	
pH	7.68	6.5-8.5	0.01	pH units	N/A	Sep-15-14	
Phosphorus, Total Kjeldahl	0.09	N/A	0.01	mg/L	Sep-15-14	Sep-19-14	
Phosphorus, Total Kjeldahl Dissolved	0.02	N/A	0.01	mg/L	Sep-17-14	Sep-19-14	
Turbidity	1.3	OG < 0.1	0.1	NTU	N/A	Sep-16-14	
<b>Calculated Parameters</b>							
Nitrogen, Nitrate+Nitrite as N	0.202	N/A	0.010	mg/L	N/A	N/A	
Nitrogen, Total	0.841	N/A	0.050	mg/L	N/A	N/A	
<b>Microbiological Parameters</b>							
E. coli	170	MAC = None Detected	1	CFU/100mL	Sep-15-14	Sep-16-14	

**Sample ID: Mid Besette Creek (4090995-03) [Water] Sampled: Sep-14-14 10:30**

<b>Anions</b>							
Chloride	4.83	AO ≤ 250	0.10	mg/L	N/A	Sep-15-14	

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**Sample ID: Mid Bessette Creek (4090995-03) [Water] Sampled: Sep-14-14 10:30, Continued**

**Anions, Continued**

Nitrogen, Nitrate as N	0.088	MAC = 10	0.010	mg/L	N/A	Sep-15-14	
Nitrogen, Nitrite as N	< 0.010	MAC = 1	0.010	mg/L	N/A	Sep-15-14	
Sulfate	23.5	AO ≤ 500	1.0	mg/L	N/A	Sep-15-14	

**General Parameters**

Conductivity (EC)	256	N/A	2	µS/cm	N/A	Sep-15-14	
Nitrogen, Total Kjeldahl	0.30	N/A	0.05	mg/L	Sep-15-14	Sep-19-14	
pH	7.95	6.5-8.5	0.01	pH units	N/A	Sep-15-14	
Phosphorus, Total Kjeldahl	0.04	N/A	0.01	mg/L	Sep-15-14	Sep-19-14	
Phosphorus, Total Kjeldahl Dissolved	0.03	N/A	0.01	mg/L	Sep-17-14	Sep-19-14	
Turbidity	1.2	OG < 0.1	0.1	NTU	N/A	Sep-16-14	

**Calculated Parameters**

Nitrogen, Nitrate+Nitrite as N	0.088	N/A	0.010	mg/L	N/A	N/A	
Nitrogen, Total	0.393	N/A	0.050	mg/L	N/A	N/A	

**Microbiological Parameters**

E. coli	120	MAC = None Detected	1	CFU/100mL	Sep-15-14	Sep-16-14	
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**Sample ID: Lower Bessette Creek (4090995-04) [Water] Sampled: Sep-14-14 10:15**

**Anions**

Chloride	5.57	AO ≤ 250	0.10	mg/L	N/A	Sep-15-14	
Nitrogen, Nitrate as N	0.014	MAC = 10	0.010	mg/L	N/A	Sep-15-14	
Nitrogen, Nitrite as N	< 0.010	MAC = 1	0.010	mg/L	N/A	Sep-15-14	
Sulfate	25.7	AO ≤ 500	1.0	mg/L	N/A	Sep-15-14	

**General Parameters**

Conductivity (EC)	273	N/A	2	µS/cm	N/A	Sep-15-14	
Nitrogen, Total Kjeldahl	0.33	N/A	0.05	mg/L	Sep-15-14	Sep-19-14	
pH	8.06	6.5-8.5	0.01	pH units	N/A	Sep-15-14	
Phosphorus, Total Kjeldahl	0.02	N/A	0.01	mg/L	Sep-15-14	Sep-19-14	
Phosphorus, Total Kjeldahl Dissolved	0.02	N/A	0.01	mg/L	Sep-17-14	Sep-19-14	
Turbidity	1.1	OG < 0.1	0.1	NTU	N/A	Sep-16-14	

**Calculated Parameters**

Nitrogen, Nitrate+Nitrite as N	0.014	N/A	0.010	mg/L	N/A	N/A	
Nitrogen, Total	0.343	N/A	0.050	mg/L	N/A	N/A	

**Microbiological Parameters**

E. coli	53	MAC = None Detected	1	CFU/100mL	Sep-15-14	Sep-16-14	
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**Sample ID: Shuswap River (Wisey Dam) (4090995-05) [Water] Sampled: Sep-12-14**

**Anions**

Chloride	0.32	AO ≤ 250	0.10	mg/L	N/A	Sep-15-14	
Nitrogen, Nitrate as N	< 0.010	MAC = 10	0.010	mg/L	N/A	Sep-15-14	

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**Sample ID: Shuswap River (Wisey Dam) (4090995-05) [Water] Sampled: Sep-12-14, Continued**

**Anions, Continued**

Nitrogen, Nitrite as N	< 0.010	MAC = 1	0.010	mg/L	N/A	Sep-15-14	
Sulfate	<b>5.8</b>	AO ≤ 500	1.0	mg/L	N/A	Sep-15-14	

**General Parameters**

Conductivity (EC)	<b>100</b>	N/A	2	µS/cm	N/A	Sep-15-14	
Nitrogen, Total Kjeldahl	<b>0.19</b>	N/A	0.05	mg/L	Sep-15-14	Sep-19-14	
pH	<b>7.77</b>	6.5-8.5	0.01	pH units	N/A	Sep-15-14	
Phosphorus, Total Kjeldahl	<b>0.02</b>	N/A	0.01	mg/L	Sep-15-14	Sep-19-14	
Phosphorus, Total Kjeldahl Dissolved	< 0.01	N/A	0.01	mg/L	Sep-17-14	Sep-19-14	
Turbidity	<b>0.4</b>	OG < 0.1	0.1	NTU	N/A	Sep-15-14	

**Calculated Parameters**

Nitrogen, Nitrate+Nitrite as N	< 0.010	N/A	0.010	mg/L	N/A	N/A	
Nitrogen, Total	<b>0.188</b>	N/A	0.050	mg/L	N/A	N/A	

**Microbiological Parameters**

E. coli	<b>5</b>	MAC = None Detected	1	CFU/100mL	Sep-15-14	Sep-16-14	
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**Sample ID: Shuswap River (Odd Fellows) (4090995-06) [Water] Sampled: Sep-14-14 09:15**

**Anions**

Chloride	<b>0.54</b>	AO ≤ 250	0.10	mg/L	N/A	Sep-15-14	
Nitrogen, Nitrate as N	< 0.010	MAC = 10	0.010	mg/L	N/A	Sep-15-14	
Nitrogen, Nitrite as N	< 0.010	MAC = 1	0.010	mg/L	N/A	Sep-15-14	
Sulfate	<b>7.1</b>	AO ≤ 500	1.0	mg/L	N/A	Sep-15-14	

**General Parameters**

Conductivity (EC)	<b>114</b>	N/A	2	µS/cm	N/A	Sep-15-14	
Nitrogen, Total Kjeldahl	<b>0.14</b>	N/A	0.05	mg/L	Sep-15-14	Sep-19-14	
pH	<b>7.76</b>	6.5-8.5	0.01	pH units	N/A	Sep-15-14	
Phosphorus, Total Kjeldahl	<b>0.01</b>	N/A	0.01	mg/L	Sep-15-14	Sep-19-14	
Phosphorus, Total Kjeldahl Dissolved	< 0.01	N/A	0.01	mg/L	Sep-17-14	Sep-19-14	
Turbidity	<b>0.7</b>	OG < 0.1	0.1	NTU	N/A	Sep-16-14	

**Calculated Parameters**

Nitrogen, Nitrate+Nitrite as N	< 0.010	N/A	0.010	mg/L	N/A	N/A	
Nitrogen, Total	<b>0.141</b>	N/A	0.050	mg/L	N/A	N/A	

**Microbiological Parameters**

E. coli	<b>5</b>	MAC = None Detected	1	CFU/100mL	Sep-15-14	Sep-16-14	
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