

REPORTED TO Cherry Ridge Management
37 Hollingsworth Rd
Cherryville, BC V0E 2G2

TEL 1-250-547-9091
FAX -

ATTENTION Melanie Staker

WORK ORDER 3110871

PO NUMBER

RECEIVED / TEMP Nov-18-13 09:00 / 3°C

PROJECT Creek Monitoring

REPORTED Nov-25-13

PROJECT INFO

COC NUMBER 29585

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:

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

REPORTED TO PROJECT Cherry Ridge Management
Creek Monitoring

WORK ORDER REPORTED 3110871
Nov-25-13

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 in Water	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

REPORTED TO PROJECT Cherry Ridge Management
Creek Monitoring

WORK ORDER REPORTED 3110871
Nov-25-13

Analyte	Result / Recovery	Canadian DWQ Guideline	MRL / Limit	Units	Prepared	Analyzed	Notes
---------	-------------------	------------------------	-------------	-------	----------	----------	-------

Anions

Sample ID: North Fork Cherry Creek (3110871-01) [Water] Sampled: Nov-17-13 13:36

Chloride	0.14	AO ≤ 250	0.10	mg/L	N/A	Nov-19-13	
Nitrogen, Nitrate as N	0.040	MAC = 10	0.010	mg/L	N/A	Nov-19-13	
Nitrogen, Nitrite as N	< 0.010	MAC = 1	0.010	mg/L	N/A	Nov-19-13	
Sulfate	11.4	AO ≤ 500	1.0	mg/L	N/A	Nov-19-13	

Sample ID: South Fork Cherry Creek (3110871-02) [Water] Sampled: Nov-17-13 14:45

Chloride	1.31	AO ≤ 250	0.10	mg/L	N/A	Nov-19-13	
Nitrogen, Nitrate as N	0.067	MAC = 10	0.010	mg/L	N/A	Nov-19-13	
Nitrogen, Nitrite as N	< 0.010	MAC = 1	0.010	mg/L	N/A	Nov-19-13	
Sulfate	17.5	AO ≤ 500	1.0	mg/L	N/A	Nov-19-13	

Sample ID: Cherry Creek at Hall (3110871-03) [Water] Sampled: Nov-17-13 14:15

Chloride	2.09	AO ≤ 250	0.10	mg/L	N/A	Nov-19-13	
Nitrogen, Nitrate as N	0.034	MAC = 10	0.010	mg/L	N/A	Nov-19-13	
Nitrogen, Nitrite as N	< 0.010	MAC = 1	0.010	mg/L	N/A	Nov-19-13	
Sulfate	16.8	AO ≤ 500	1.0	mg/L	N/A	Nov-19-13	

Sample ID: Shuswap River (Picnic Site) (3110871-04) [Water] Sampled: Nov-17-13 10:30

Chloride	0.49	AO ≤ 250	0.10	mg/L	N/A	Nov-19-13	
Nitrogen, Nitrate as N	0.035	MAC = 10	0.010	mg/L	N/A	Nov-19-13	
Nitrogen, Nitrite as N	< 0.010	MAC = 1	0.010	mg/L	N/A	Nov-19-13	
Sulfate	6.8	AO ≤ 500	1.0	mg/L	N/A	Nov-19-13	

Sample ID: Ferry Creek (3110871-05) [Water] Sampled: Nov-17-13 10:50

Chloride	0.79	AO ≤ 250	0.10	mg/L	N/A	Nov-19-13	
Nitrogen, Nitrate as N	0.035	MAC = 10	0.010	mg/L	N/A	Nov-19-13	
Nitrogen, Nitrite as N	< 0.010	MAC = 1	0.010	mg/L	N/A	Nov-19-13	
Sulfate	22.7	AO ≤ 500	1.0	mg/L	N/A	Nov-19-13	

Sample ID: Travel Blank Ferry Creek (3110871-06) [Water] Sampled: Nov-17-13 10:50

Chloride	< 0.10	AO ≤ 250	0.10	mg/L	N/A	Nov-19-13	
Nitrogen, Nitrate as N	< 0.010	MAC = 10	0.010	mg/L	N/A	Nov-19-13	
Nitrogen, Nitrite as N	< 0.010	MAC = 1	0.010	mg/L	N/A	Nov-19-13	
Sulfate	< 1.0	AO ≤ 500	1.0	mg/L	N/A	Nov-19-13	

Sample ID: Travel Blank North Fork Cherry Creek (3110871-07) [Water] Sampled: Nov-17-13 13:36

Chloride	< 0.10	AO ≤ 250	0.10	mg/L	N/A	Nov-19-13	
Nitrogen, Nitrate as N	< 0.010	MAC = 10	0.010	mg/L	N/A	Nov-19-13	
Nitrogen, Nitrite as N	< 0.010	MAC = 1	0.010	mg/L	N/A	Nov-19-13	
Sulfate	< 1.0	AO ≤ 500	1.0	mg/L	N/A	Nov-19-13	

General Parameters

Sample ID: North Fork Cherry Creek (3110871-01) [Water] Sampled: Nov-17-13 13:36

Conductivity (EC)	180	No Guideline	2	uS/cm	N/A	Nov-18-13	
Nitrogen, Total Kjeldahl	0.06	No Guideline	0.05	mg/L	Nov-18-13	Nov-21-13	

REPORTED TO PROJECT Cherry Ridge Management
Creek Monitoring

WORK ORDER REPORTED 3110871
Nov-25-13

Analyte	Result / Recovery	Canadian DWQ Guideline	MRL / Limit	Units	Prepared	Analyzed	Notes
---------	-------------------	------------------------	-------------	-------	----------	----------	-------

General Parameters, Continued

Sample ID: North Fork Cherry Creek (3110871-01) [Water] Sampled: Nov-17-13 13:36, Continued

pH	7.87	AO = 6.5 - 8.5	0.01	pH units	N/A	Nov-18-13	
Phosphorus, Total Kjeldahl	0.02	No Guideline	0.01	mg/L	Nov-18-13	Nov-21-13	
Phosphorus, Total Kjeldahl Dissolved	0.01	No Guideline	0.01	mg/L	Nov-18-13	Nov-21-13	
Turbidity	0.2	See Guidelines	0.1	NTU	N/A	Nov-18-13	

Sample ID: South Fork Cherry Creek (3110871-02) [Water] Sampled: Nov-17-13 14:45

Conductivity (EC)	250	No Guideline	2	uS/cm	N/A	Nov-18-13	
Nitrogen, Total Kjeldahl	0.05	No Guideline	0.05	mg/L	Nov-18-13	Nov-21-13	
pH	8.03	AO = 6.5 - 8.5	0.01	pH units	N/A	Nov-18-13	
Phosphorus, Total Kjeldahl	0.01	No Guideline	0.01	mg/L	Nov-18-13	Nov-21-13	
Phosphorus, Total Kjeldahl Dissolved	0.01	No Guideline	0.01	mg/L	Nov-18-13	Nov-21-13	
Turbidity	0.4	See Guidelines	0.1	NTU	N/A	Nov-18-13	

Sample ID: Cherry Creek at Hall (3110871-03) [Water] Sampled: Nov-17-13 14:15

Conductivity (EC)	255	No Guideline	2	uS/cm	N/A	Nov-18-13	
Nitrogen, Total Kjeldahl	0.07	No Guideline	0.05	mg/L	Nov-18-13	Nov-22-13	
pH	8.14	AO = 6.5 - 8.5	0.01	pH units	N/A	Nov-18-13	
Phosphorus, Total Kjeldahl	0.01	No Guideline	0.01	mg/L	Nov-18-13	Nov-21-13	
Phosphorus, Total Kjeldahl Dissolved	0.01	No Guideline	0.01	mg/L	Nov-18-13	Nov-21-13	
Turbidity	0.4	See Guidelines	0.1	NTU	N/A	Nov-18-13	

Sample ID: Shuswap River (Picnic Site) (3110871-04) [Water] Sampled: Nov-17-13 10:30

Conductivity (EC)	115	No Guideline	2	uS/cm	N/A	Nov-18-13	
Nitrogen, Total Kjeldahl	0.12	No Guideline	0.05	mg/L	Nov-18-13	Nov-22-13	
pH	7.83	AO = 6.5 - 8.5	0.01	pH units	N/A	Nov-18-13	
Phosphorus, Total Kjeldahl	0.01	No Guideline	0.01	mg/L	Nov-18-13	Nov-22-13	
Phosphorus, Total Kjeldahl Dissolved	0.01	No Guideline	0.01	mg/L	Nov-18-13	Nov-22-13	
Turbidity	0.3	See Guidelines	0.1	NTU	N/A	Nov-18-13	

Sample ID: Ferry Creek (3110871-05) [Water] Sampled: Nov-17-13 10:50

Conductivity (EC)	289	No Guideline	2	uS/cm	N/A	Nov-18-13	
Nitrogen, Total Kjeldahl	0.14	No Guideline	0.05	mg/L	Nov-18-13	Nov-22-13	
pH	8.19	AO = 6.5 - 8.5	0.01	pH units	N/A	Nov-18-13	
Phosphorus, Total Kjeldahl	0.02	No Guideline	0.01	mg/L	Nov-18-13	Nov-22-13	
Phosphorus, Total Kjeldahl Dissolved	0.02	No Guideline	0.01	mg/L	Nov-18-13	Nov-22-13	
Turbidity	0.2	See Guidelines	0.1	NTU	N/A	Nov-18-13	

Sample ID: Travel Blank Ferry Creek (3110871-06) [Water] Sampled: Nov-17-13 10:50

Conductivity (EC)	< 2	No Guideline	2	uS/cm	N/A	Nov-18-13	
Nitrogen, Total Kjeldahl	< 0.05	No Guideline	0.05	mg/L	Nov-18-13	Nov-22-13	
pH	6.32	AO = 6.5 - 8.5	0.01	pH units	N/A	Nov-18-13	
Phosphorus, Total Kjeldahl	< 0.01	No Guideline	0.01	mg/L	Nov-18-13	Nov-22-13	
Phosphorus, Total Kjeldahl Dissolved	< 0.01	No Guideline	0.01	mg/L	Nov-18-13	Nov-22-13	
Turbidity	< 0.1	See Guidelines	0.1	NTU	N/A	Nov-18-13	

REPORTED TO PROJECT Cherry Ridge Management
Creek Monitoring

WORK ORDER REPORTED 3110871
Nov-25-13

Analyte	Result / Recovery	Canadian DWQ Guideline	MRL / Limit	Units	Prepared	Analyzed	Notes
---------	-------------------	------------------------	-------------	-------	----------	----------	-------

General Parameters, Continued

Sample ID: Travel Blank North Fork Cherry Creek (3110871-07) [Water] Sampled: Nov-17-13 13:36

Conductivity (EC)	< 2	No Guideline	2	uS/cm	N/A	Nov-18-13	
Nitrogen, Total Kjeldahl	< 0.05	No Guideline	0.05	mg/L	Nov-18-13	Nov-22-13	
pH	5.92	AO = 6.5 - 8.5	0.01	pH units	N/A	Nov-18-13	
Phosphorus, Total Kjeldahl	< 0.01	No Guideline	0.01	mg/L	Nov-18-13	Nov-22-13	
Phosphorus, Total Kjeldahl Dissolved	< 0.01	No Guideline	0.01	mg/L	Nov-18-13	Nov-22-13	
Turbidity	< 0.1	See Guidelines	0.1	NTU	N/A	Nov-18-13	

Calculated Parameters

Sample ID: North Fork Cherry Creek (3110871-01) [Water] Sampled: Nov-17-13 13:36

Nitrogen, Nitrate+Nitrite as N	0.040	No Guideline	0.010	mg/L	N/A	N/A	
Nitrogen, Total	0.105	No Guideline	0.050	mg/L	N/A	N/A	

Sample ID: South Fork Cherry Creek (3110871-02) [Water] Sampled: Nov-17-13 14:45

Nitrogen, Nitrate+Nitrite as N	0.067	No Guideline	0.010	mg/L	N/A	N/A	
Nitrogen, Total	0.120	No Guideline	0.050	mg/L	N/A	N/A	

Sample ID: Cherry Creek at Hall (3110871-03) [Water] Sampled: Nov-17-13 14:15

Nitrogen, Nitrate+Nitrite as N	0.034	No Guideline	0.010	mg/L	N/A	N/A	
Nitrogen, Total	0.100	No Guideline	0.050	mg/L	N/A	N/A	

Sample ID: Shuswap River (Picnic Site) (3110871-04) [Water] Sampled: Nov-17-13 10:30

Nitrogen, Nitrate+Nitrite as N	0.035	No Guideline	0.010	mg/L	N/A	N/A	
Nitrogen, Total	0.158	No Guideline	0.050	mg/L	N/A	N/A	

Sample ID: Ferry Creek (3110871-05) [Water] Sampled: Nov-17-13 10:50

Nitrogen, Nitrate+Nitrite as N	0.035	No Guideline	0.010	mg/L	N/A	N/A	
Nitrogen, Total	0.177	No Guideline	0.050	mg/L	N/A	N/A	

Sample ID: Travel Blank Ferry Creek (3110871-06) [Water] Sampled: Nov-17-13 10:50

Nitrogen, Nitrate+Nitrite as N	< 0.010	No Guideline	0.010	mg/L	N/A	N/A	
Nitrogen, Total	< 0.050	No Guideline	0.050	mg/L	N/A	N/A	

Sample ID: Travel Blank North Fork Cherry Creek (3110871-07) [Water] Sampled: Nov-17-13 13:36

Nitrogen, Nitrate+Nitrite as N	< 0.010	No Guideline	0.010	mg/L	N/A	N/A	
Nitrogen, Total	< 0.050	No Guideline	0.050	mg/L	N/A	N/A	

Microbiological Parameters

Sample ID: North Fork Cherry Creek (3110871-01) [Water] Sampled: Nov-17-13 13:36

E. coli	< 1	MAC < 1	1	CFU/100mL	Nov-18-13	Nov-19-13	
---------	-----	---------	---	-----------	-----------	-----------	--

Sample ID: South Fork Cherry Creek (3110871-02) [Water] Sampled: Nov-17-13 14:45

E. coli	1	MAC < 1	1	CFU/100mL	Nov-18-13	Nov-19-13	
---------	----------	---------	---	-----------	-----------	-----------	--

REPORTED TO PROJECT Cherry Ridge Management
Creek Monitoring

WORK ORDER REPORTED 3110871
Nov-25-13

Analyte	Result / Recovery	Canadian DWQ Guideline	MRL / Limit	Units	Prepared	Analyzed	Notes
---------	-------------------	------------------------	-------------	-------	----------	----------	-------

Microbiological Parameters, Continued

Sample ID: Cherry Creek at Hall (3110871-03) [Water] Sampled: Nov-17-13 14:15

E. coli	1	MAC < 1	1	CFU/100mL	Nov-18-13	Nov-19-13	
---------	---	---------	---	-----------	-----------	-----------	--

Sample ID: Shuswap River (Picnic Site) (3110871-04) [Water] Sampled: Nov-17-13 10:30

E. coli	< 1	MAC < 1	1	CFU/100mL	Nov-18-13	Nov-19-13	
---------	-----	---------	---	-----------	-----------	-----------	--

Sample ID: Ferry Creek (3110871-05) [Water] Sampled: Nov-17-13 10:50

E. coli	3	MAC < 1	1	CFU/100mL	Nov-18-13	Nov-19-13	
---------	---	---------	---	-----------	-----------	-----------	--