

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

**TEL** (250) 377-8673  
**FAX** (250) 374-6489

**ATTENTION** Shawn Kratchmer

**WORK ORDER** 5030418

**PO NUMBER** 23929

**RECEIVED / TEMP** Mar-06-15 10:05 / 6°C

**PROJECT** Black Pines CWS

**REPORTED** Mar-13-15

**PROJECT INFO**


**COC NUMBER** B15933

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**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:

**Ed Hoppe, B.Sc., P.Chem.**  
Division Manager, Kelowna

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

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**Locations:**

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

#102 3677 Highway 97N  
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Edmonton, AB T5S 1H7  
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Analysis Description	Method Reference	Technique	Location
Alkalinity (Total)	APHA 2320 B	Titration with H <sub>2</sub> SO <sub>4</sub> to pH 4.5	Kelowna
Anions in Water by IC	APHA 4110 B	Ion Chromatography with Chemical Suppression of Eluent Conductivity	Kelowna
Colour, True	APHA 2120 C	Spectrophotometry (456 nm)	Kelowna
Conductivity in Water	APHA 2510 B	Conductivity Meter	Kelowna
Cyanide, Total in Liquids	APHA 4500-CN- C / APHA 4500-CN- E	Distillation / Colorimetry	Kelowna
E. coli (CCA)	APHA 9222*	Membrane Filtration / Chromocult Agar	Kelowna
Hardness (as CaCO <sub>3</sub> )	APHA 2340 B	Calculation	N/A
Mercury, total by CVAFS	EPA 245.7*	BrCl <sub>2</sub> Oxidation / Cold Vapor Atomic Fluorescence Spectrometry (CVAFS)	Richmond
pH in Water	APHA 4500-H+ B	Electrometry	Kelowna
Solids, Total Dissolved	APHA 1030 E	Calculation	N/A
Total Coliforms (CCA)	APHA 9222*	Membrane Filtration / Chromocult Agar	Kelowna
Total Recoverable Metals	APHA 3030E* / APHA 3125 B	HNO <sub>3</sub> +HCl Hot Block Digestion / Inductively Coupled Plasma Mass Spectrometry (ICP-MS)	Richmond
Transmissivity at 254 nm	APHA 5910 B	Ultraviolet Absorption	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)  
% T Percent Transmittance  
CFU/100 mL Colony Forming Units per 100 millilitres  
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

### Standards / Guidelines Referenced in this Report:

Guidelines for Canadian Drinking Water Quality (Oct 2014)

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](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*



## SAMPLE ANALYTICAL DATA

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Black Pines CWS

**WORK ORDER REPORTED** 5030418  
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Analyte	Result / Recovery	Standard / Guideline	MRL / Limits	Units	Prepared	Analyzed	Notes
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**Sample ID: Black Pines / Pumphouse (5030418-01) [Water] Sampled: Mar-05-15 14:00**

### Anions

Chloride	3.49	AO ≤ 250	0.10	mg/L	N/A	Mar-07-15	
Fluoride	< 0.10	MAC = 1.5	0.10	mg/L	N/A	Mar-07-15	
Nitrate as N	0.040	MAC = 10	0.010	mg/L	N/A	Mar-07-15	
Nitrite as N	< 0.010	MAC = 1	0.010	mg/L	N/A	Mar-07-15	
Sulfate	61.5	AO ≤ 500	1.0	mg/L	N/A	Mar-07-15	

### General Parameters

Alkalinity, Total as CaCO <sub>3</sub>	118	N/A	1	mg/L	Mar-06-15	Mar-06-15	
Colour, True	6	AO ≤ 15	5	CU	N/A	Mar-06-15	
Conductivity (EC)	361	N/A	2	µS/cm	Mar-06-15	Mar-06-15	
Cyanide, Total	< 0.010	MAC = 0.2	0.010	mg/L	Mar-12-15	Mar-13-15	
pH	8.01	6.5-8.5	0.01	pH units	Mar-06-15	Mar-06-15	HT2
Turbidity	1.2	OG < 0.1	0.1	NTU	N/A	Mar-06-15	
UV Transmittance @ 254nm	89.2	N/A	0.1	% T	N/A	Mar-06-15	

### Calculated Parameters

Hardness, Total (Total as CaCO <sub>3</sub> )	171	N/A	5.0	mg/L	N/A	N/A	
Solids, Total Dissolved	210	AO ≤ 500	2.0	mg/L	N/A	N/A	

### Total Recoverable Metals

Aluminum, total	< 0.05	OG < 0.1	0.05	mg/L	Mar-11-15	Mar-11-15	
Antimony, total	< 0.001	MAC = 0.006	0.001	mg/L	Mar-11-15	Mar-11-15	
Arsenic, total	< 0.005	MAC = 0.01	0.005	mg/L	Mar-11-15	Mar-11-15	
Barium, total	< 0.05	MAC = 1	0.05	mg/L	Mar-11-15	Mar-11-15	
Beryllium, total	< 0.001	N/A	0.001	mg/L	Mar-11-15	Mar-11-15	
Boron, total	< 0.04	MAC = 5	0.04	mg/L	Mar-11-15	Mar-11-15	
Cadmium, total	0.0001	MAC = 0.005	0.0001	mg/L	Mar-11-15	Mar-11-15	
Calcium, total	45.5	N/A	2.0	mg/L	Mar-11-15	Mar-11-15	
Chromium, total	< 0.005	MAC = 0.05	0.005	mg/L	Mar-11-15	Mar-11-15	
Cobalt, total	< 0.0005	N/A	0.0005	mg/L	Mar-11-15	Mar-11-15	
Copper, total	0.003	AO ≤ 1	0.002	mg/L	Mar-11-15	Mar-11-15	
Iron, total	< 0.10	AO ≤ 0.3	0.10	mg/L	Mar-11-15	Mar-11-15	
Lead, total	< 0.001	MAC = 0.01	0.001	mg/L	Mar-11-15	Mar-11-15	
Magnesium, total	13.9	N/A	0.1	mg/L	Mar-11-15	Mar-11-15	
Manganese, total	0.524	AO ≤ 0.05	0.002	mg/L	Mar-11-15	Mar-11-15	
Mercury, total	< 0.00002	MAC = 0.001	0.00002	mg/L	Mar-12-15	Mar-13-15	
Molybdenum, total	0.003	N/A	0.001	mg/L	Mar-11-15	Mar-11-15	
Nickel, total	< 0.002	N/A	0.002	mg/L	Mar-11-15	Mar-11-15	
Phosphorus, total	< 0.2	N/A	0.2	mg/L	Mar-11-15	Mar-11-15	
Potassium, total	2.0	N/A	0.2	mg/L	Mar-11-15	Mar-11-15	
Selenium, total	< 0.005	MAC = 0.05	0.005	mg/L	Mar-11-15	Mar-11-15	
Silicon, total	6	N/A	5	mg/L	Mar-11-15	Mar-11-15	
Silver, total	< 0.0005	N/A	0.0005	mg/L	Mar-11-15	Mar-11-15	
Sodium, total	11.5	AO ≤ 200	0.2	mg/L	Mar-11-15	Mar-11-15	
Uranium, total	0.0026	MAC = 0.02	0.0002	mg/L	Mar-11-15	Mar-11-15	
Vanadium, total	< 0.01	N/A	0.01	mg/L	Mar-11-15	Mar-11-15	
Zinc, total	< 0.04	AO ≤ 5	0.04	mg/L	Mar-11-15	Mar-11-15	

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**Sample ID: Black Pines / Pumphouse (5030418-01) [Water] Sampled: Mar-05-15 14:00, Continued**

**Microbiological Parameters**

Coliforms, Total	93	MAC = None Detected	1	CFU/100 mL	Mar-06-15	Mar-07-15	
E. coli	< 1	MAC = None Detected	1	CFU/100 mL	Mar-06-15	Mar-07-15	

**Sample / Analysis Qualifiers:**

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