

REPORTED TO Kaleden Irrigation District
Box 107, 119 Ponderosa Avenue
Kaleden, BC V0H 1K0

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ATTENTION Mike Snair

WORK ORDER 7052083

PO NUMBER

RECEIVED / TEMP 2017-05-25 08:15 / 9°C

PROJECT Comprehensive

REPORTED 2017-06-01

PROJECT INFO

COC NUMBER no number

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:

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Account Manager

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Analysis Description	Method Reference	Technique	Location
Alkalinity in Water	APHA 2320 B*	Titration with H2SO4	Kelowna
Anions by IC in Water	APHA 4110 B	Ion Chromatography with Chemical Suppression of Eluent Conductivity	Kelowna
Coliforms, Total (MF-CCA) in Water	APHA 9222*	Membrane Filtration / Incubation on Chromocult Agar	Kelowna
Colour, True in Water	APHA 2120 C	Spectrophotometry (456 nm)	Kelowna
Conductivity in Water	APHA 2510 B	Conductivity Meter	Kelowna
Cyanide, SAD in Water	ASTM D7511-12	Flow Injection Analysis with In-Line Ultraviolet Digestion and Amperometric Detection	Kelowna
E. coli (MF-CCA) in Water	APHA 9222*	Membrane Filtration / Incubation on Chromocult Agar	Kelowna
Hardness (as CaCO3) in Water	APHA 2340 B*	Calculation: 2.497 [total Ca] + 4.118 [total Mg] (Estimated)	N/A
Langelier Index in Water	APHA 2330 B	Calculation	N/A
pH in Water	APHA 4500-H+ B	Electrometry	Kelowna
Solids, Total Dissolved (calc) in Water	APHA 1030 E	Calculation: 100 x ([Cations]-[Anions]) / ([Cations]+[Anions])	N/A
Temperature (lab) in Water	APHA 2550 B	Thermometer	Kelowna
Total Metals by ICPMS in Water	APHA 3030 E* / APHA 3125 B	HNO3+HCl Hot Block Digestion / Inductively Coupled Plasma Mass Spectrometry (ICP-MS)	Richmond
Turbidity in Water	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
 ASTM ASTM International 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)
 °C Degrees Celcius
 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 (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: Kaleden Pumphouse (7052083-01) [Water] Sampled: 2017-05-24 11:15

Anions

Chloride	6.22	AO ≤ 250	0.10	mg/L	N/A	2017-05-26	
Fluoride	0.16	MAC = 1.5	0.10	mg/L	N/A	2017-05-26	
Nitrate (as N)	< 0.010	MAC = 10	0.010	mg/L	N/A	2017-05-26	
Nitrite (as N)	< 0.010	MAC = 1	0.010	mg/L	N/A	2017-05-26	
Sulfate	27.0	AO ≤ 500	1.0	mg/L	N/A	2017-05-26	

General Parameters

Alkalinity, Total (as CaCO3)	102	N/A	2.0	mg/L	N/A	2017-05-28	
Alkalinity, Phenolphthalein (as CaCO3)	< 1.0	N/A	2.0	mg/L	N/A	2017-05-28	
Alkalinity, Bicarbonate (as CaCO3)	102	N/A	2.0	mg/L	N/A	2017-05-28	
Alkalinity, Carbonate (as CaCO3)	< 1.0	N/A	2.0	mg/L	N/A	2017-05-28	
Alkalinity, Hydroxide (as CaCO3)	< 1.0	N/A	2.0	mg/L	N/A	2017-05-28	
Colour, True	< 5.0	AO ≤ 15	5.0	CU	N/A	2017-05-26	
Conductivity (EC)	277	N/A	2.0	µS/cm	N/A	2017-05-28	
Cyanide, Total	< 0.0020	MAC = 0.2	0.0020	mg/L	N/A	2017-05-29	
pH	7.99	7-10.5	0.01	pH units	N/A	2017-05-28	HT2
Temperature, at pH	22	N/A		°C	N/A	2017-05-28	HT2
Turbidity	0.61	OG < 0.1	0.10	NTU	N/A	2017-05-25	

Calculated Parameters

Hardness, Total (as CaCO3)	124	N/A	0.500	mg/L	N/A	N/A	
Langelier Index	0.09	N/A	-5.0	-	N/A	2017-06-01	
Solids, Total Dissolved (calc)	154	N/A	1.00	mg/L	N/A	N/A	

Total Metals

Aluminum, total	0.0346	OG < 0.1	0.0050	mg/L	2017-05-29	2017-05-30	
Antimony, total	< 0.00010	MAC = 0.006	0.00010	mg/L	2017-05-29	2017-05-30	
Arsenic, total	< 0.00050	MAC = 0.01	0.00050	mg/L	2017-05-29	2017-05-30	
Barium, total	0.0229	MAC = 1	0.0050	mg/L	2017-05-29	2017-05-30	
Boron, total	0.012	MAC = 5	0.004	mg/L	2017-05-29	2017-05-30	
Cadmium, total	0.000011	MAC = 0.005	0.000010	mg/L	2017-05-29	2017-05-30	
Calcium, total	34.6	N/A	0.20	mg/L	2017-05-29	2017-05-30	
Chromium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2017-05-29	2017-05-30	
Cobalt, total	< 0.00010	N/A	0.00010	mg/L	2017-05-29	2017-05-30	
Copper, total	0.00546	AO ≤ 1	0.00020	mg/L	2017-05-29	2017-05-30	
Iron, total	0.043	AO ≤ 0.3	0.010	mg/L	2017-05-29	2017-05-30	
Lead, total	< 0.00010	MAC = 0.01	0.00010	mg/L	2017-05-29	2017-05-30	
Magnesium, total	9.12	N/A	0.010	mg/L	2017-05-29	2017-05-30	
Manganese, total	0.00482	AO ≤ 0.05	0.00020	mg/L	2017-05-29	2017-05-30	
Mercury, total	< 0.00002	MAC = 0.001	0.00002	mg/L	2017-05-29	2017-05-30	
Molybdenum, total	0.00345	N/A	0.00010	mg/L	2017-05-29	2017-05-30	
Nickel, total	0.00048	N/A	0.00020	mg/L	2017-05-29	2017-05-30	
Potassium, total	2.43	N/A	0.02	mg/L	2017-05-29	2017-05-30	
Selenium, total	< 0.00050	MAC = 0.05	0.00050	mg/L	2017-05-29	2017-05-30	
Sodium, total	11.8	AO ≤ 200	0.02	mg/L	2017-05-29	2017-05-30	
Uranium, total	0.00251	MAC = 0.02	0.000020	mg/L	2017-05-29	2017-05-30	
Zinc, total	< 0.0040	AO ≤ 5	0.0040	mg/L	2017-05-29	2017-05-30	

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Sample ID: Kaleden Pumphouse (7052083-01) [Water] Sampled: 2017-05-24 11:15, Continued

Microbiological Parameters

Coliforms, Total	< 1	MAC = None Detected	1	CFU/100 mL	N/A	2017-05-25	
E. coli	< 1	MAC = None Detected	1	CFU/100 mL	N/A	2017-05-25	

Sample / Analysis Qualifiers:

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