

REPORTED TO Aqua Diversities Inc.
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ATTENTION Nathan Ward

WORK ORDER 4070214

PO NUMBER

RECEIVED / TEMP Jul-03-14 15:30 / 19°C

PROJECT North Shore Water Utility

REPORTED Jul-10-14

PROJECT INFO Sutherland Creek

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.



Issued By:

Jennifer Shanko, ASCT
Administration Coordinator

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

Locations:

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Analysis Description	Method Reference (* = modified from)		Location
	Preparation	Analysis	
Alkalinity, total	N/A	APHA 2320 B	Kelowna
Carbon, Total Organic in Water	N/A	APHA 5310 B	Kelowna
Chloride in Water by IC	N/A	APHA 4110 B	Kelowna
Colour, True at 410 nm	N/A	APHA 2120 C *	Kelowna
Conductivity in Water	N/A	APHA 2510 B	Kelowna
Cyanide, Total in Liquids	APHA 4500-CN C	APHA 4500-CN- E	Kelowna
E. coli (Partition Method)	N/A	APHA 9222 G	Kelowna
Fluoride in Water by IC	N/A	APHA 4110 B	Kelowna
Haloacetic Acids	N/A	EPA 552.3 (2003)	Richmond
Hardness as CaCO3 (CALC)	N/A	APHA 2340 B	Richmond
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
Sulfate in Water by IC	N/A	APHA 4110 B	Kelowna
Total Coliforms (by Endo)	N/A	APHA 9222 B	Kelowna
Total Recoverable Metals	APHA 3030E *	APHA 3125 B	Richmond
Transmissivity at 254 nm	N/A	APHA 5910 B	Kelowna
Transmissivity at 254 nm - Unfiltered	N/A	APHA 5910 B *	Kelowna
Trihalomethanes	EPA 5030B / 5021A	APHA 6200 B	Richmond
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
 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)
 % Percent W/W
 % T No Description
 CFU/100mL Colony Forming Units per 100 mL
 CU No Description
 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 DWQ Guideline	MRL / Limit	Units	Prepared	Analyzed	Notes
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Anions

Sample ID: Sutherland Creek (4070214-01) [Water] Sampled: Jul-02-14 17:00

Alkalinity, Total as CaCO3	33	No Guideline	1	mg/L	N/A	Jul-04-14	
Chloride	< 0.10	AO ≤ 250	0.10	mg/L	N/A	Jul-04-14	
Fluoride	0.46	MAC = 1.5	0.10	mg/L	N/A	Jul-04-14	
Nitrogen, Nitrate as N	< 0.010	MAC = 10	0.010	mg/L	N/A	Jul-04-14	
Nitrogen, Nitrite as N	< 0.010	MAC = 1	0.010	mg/L	N/A	Jul-04-14	
Sulfate	1.1	AO ≤ 500	1.0	mg/L	N/A	Jul-04-14	

General Parameters

Sample ID: Sutherland Creek (4070214-01) [Water] Sampled: Jul-02-14 17:00

Carbon, Total Organic	1.4	No Guideline	0.5	mg/L	N/A	Jul-04-14	
Colour, True	< 5	AO ≤ 15	5	CU	N/A	Jul-04-14	
Conductivity (EC)	70	No Guideline	2	uS/cm	N/A	Jul-04-14	
Cyanide, total	< 0.010	MAC = 0.2	0.010	mg/L	Jul-08-14	Jul-08-14	
pH	7.06	AO = 6.5 - 8.5	0.01	pH units	N/A	Jul-04-14	
Turbidity	2.0	See Guidelines	0.1	NTU	Jul-04-14	Jul-04-14	
UV Transmittance @ 254nm - Unfiltered	94.4	No Guideline	0.1	%	N/A	Jul-04-14	
UV Transmittance @ 254nm	95.2	No Guideline	0.1	% T	N/A	Jul-04-14	

Calculated Parameters

Sample ID: Sutherland Creek (4070214-01) [Water] Sampled: Jul-02-14 17:00

Total Haloacetic Acids (HAA5)	< 0.002	0.08	0.002	mg/L	N/A	N/A	
Total Trihalomethanes	< 0.004	0.1	0.004	mg/L	N/A	N/A	
Total Trihalomethanes (as CHCl3)	< 0.003	No Guideline	0.003	mg/L	N/A	N/A	
Hardness, Total (Total as CaCO3)	29.0	No Guideline	5.0	mg/L	N/A	N/A	
Solids, Total Dissolved	35.1	No Guideline	2.0	mg/L	N/A	N/A	

Total Recoverable Metals

Sample ID: Sutherland Creek (4070214-01) [Water] Sampled: Jul-02-14 17:00

Aluminum, total	0.15	AO ≤ 0.1	0.05	mg/L	Jul-07-14	Jul-08-14	
Antimony, total	< 0.001	MAC = 0.006	0.001	mg/L	Jul-07-14	Jul-08-14	
Arsenic, total	< 0.005	MAC = 0.01	0.005	mg/L	Jul-07-14	Jul-08-14	
Barium, total	0.06	MAC = 1	0.05	mg/L	Jul-07-14	Jul-08-14	
Beryllium, total	< 0.001	No Guideline	0.001	mg/L	Jul-07-14	Jul-08-14	
Boron, total	< 0.04	MAC = 5	0.04	mg/L	Jul-07-14	Jul-08-14	
Cadmium, total	< 0.0001	MAC = 0.005	0.0001	mg/L	Jul-07-14	Jul-08-14	
Calcium, total	10.2	No Guideline	2.0	mg/L	Jul-07-14	Jul-08-14	
Chromium, total	< 0.005	MAC = 0.05	0.005	mg/L	Jul-07-14	Jul-08-14	
Cobalt, total	< 0.0005	No Guideline	0.0005	mg/L	Jul-07-14	Jul-08-14	
Copper, total	< 0.002	AO ≤ 1	0.002	mg/L	Jul-07-14	Jul-08-14	
Iron, total	0.11	AO ≤ 0.3	0.10	mg/L	Jul-07-14	Jul-08-14	

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Total Recoverable Metals, Continued

Sample ID: Sutherland Creek (4070214-01) [Water] Sampled: Jul-02-14 17:00, Continued

Lead, total	< 0.001	MAC = 0.01	0.001	mg/L	Jul-07-14	Jul-08-14	
Magnesium, total	0.8	No Guideline	0.1	mg/L	Jul-07-14	Jul-08-14	
Manganese, total	0.003	AO ≤ 0.05	0.002	mg/L	Jul-07-14	Jul-08-14	
Molybdenum, total	< 0.001	No Guideline	0.001	mg/L	Jul-07-14	Jul-08-14	
Nickel, total	< 0.002	No Guideline	0.002	mg/L	Jul-07-14	Jul-08-14	
Phosphorus, total	< 0.2	No Guideline	0.2	mg/L	Jul-07-14	Jul-08-14	
Potassium, total	0.8	No Guideline	0.2	mg/L	Jul-07-14	Jul-08-14	
Selenium, total	< 0.005	MAC = 0.01	0.005	mg/L	Jul-07-14	Jul-08-14	
Silicon, total	7	No Guideline	5	mg/L	Jul-07-14	Jul-08-14	
Silver, total	< 0.0005	No Guideline	0.0005	mg/L	Jul-07-14	Jul-08-14	
Sodium, total	2.2	AO ≤ 200	0.2	mg/L	Jul-07-14	Jul-08-14	
Uranium, total	0.0049	MAC = 0.02	0.0002	mg/L	Jul-07-14	Jul-08-14	
Vanadium, total	< 0.01	No Guideline	0.01	mg/L	Jul-07-14	Jul-08-14	
Zinc, total	< 0.04	AO ≤ 5	0.04	mg/L	Jul-07-14	Jul-08-14	

Microbiological Parameters

Sample ID: Sutherland Creek (4070214-01) [Water] Sampled: Jul-02-14 17:00

Coliforms, Total	20	MAC < 1	1	CFU/100mL	Jul-03-14	Jul-04-14	
Background Colonies	> 200	No Guideline	200	CFU/100mL	Jul-03-14	Jul-04-14	
E. coli	< 1	MAC < 1	1	CFU/100mL	Jul-03-14	Jul-04-14	

Haloacetic Acids

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Monochloroacetic Acid	< 0.002	No Guideline	0.002	mg/L	Jul-08-14	Jul-08-14	
Monobromoacetic Acid	< 0.002	No Guideline	0.002	mg/L	Jul-08-14	Jul-08-14	
Dichloroacetic Acid	< 0.002	No Guideline	0.002	mg/L	Jul-08-14	Jul-08-14	
Trichloroacetic Acid	< 0.002	No Guideline	0.002	mg/L	Jul-08-14	Jul-08-14	
Dibromoacetic Acid	< 0.002	No Guideline	0.002	mg/L	Jul-08-14	Jul-08-14	
Surrogate: 2-Bromopropionic Acid	126 %		85-160		Jul-08-14	Jul-08-14	

Volatile Organic Compounds (VOC)

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Bromodichloromethane	< 0.001	No Guideline	0.001	mg/L	N/A	Jul-09-14	
Bromoform	< 0.001	No Guideline	0.001	mg/L	N/A	Jul-09-14	
Chloroform	< 0.001	No Guideline	0.001	mg/L	N/A	Jul-09-14	
Dibromochloromethane	< 0.001	No Guideline	0.001	mg/L	N/A	Jul-09-14	
Surrogate: Toluene-d8	103 %		70-130		N/A	Jul-09-14	
Surrogate: 4-Bromofluorobenzene	108 %		70-130		N/A	Jul-09-14	