

ANALYTICAL REPORT

Client: Town of Cochrane
 101 Ranchehouse Rd
 Cochrane, AB, T4C 2K8

Attention: Richard Gaida

KaizenLAB JOB #:	336511
DATE RECEIVED:	27-Feb-2024
DATE REPORTED:	20-Mar-2024
PROJECT ID:	Winter Samples
LOCATION:	WTP

KaizenLAB Sample #: 336511_001 **Sample ID:** WTP
Date Sampled: 7:00 26-Feb-2024

Parameter Description	Units	Result	Guideline Limits*	Comment
Routine Water Potability Analysis (Potability pkg #2)				
Electrical Conductivity (EC) at 25°C	uS/cm	364		
pH		7.9	7.0-10.5 (AO)	Acceptable
Total Dissolved Solids (calculated)	mg/L	215	500 (AO)	Acceptable
True Colour	TCU	<4	15 (AO)	Acceptable
Turbidity	NTU	<0.10	0.1/0.3/1.0 <small>see notes</small>	See notes
Alkalinity Parameters of Water				
Alkalinity (phenolphthalein, as CaCO ₃) ¹	mg/L	<2.0		
Alkalinity (total, as CaCO ₃)	mg/L	129.9		
Bicarbonate (as HCO ₃) ¹	mg/L	158.4		
Carbonate (as CO ₃) ¹	mg/L	<1.5		
Hydroxide (as OH) ¹	mg/L	<0.5		
Anions in Water by IC				
Bromide	mg/L	<0.10		
Chloride	mg/L	8.07	250 (AO)	Acceptable
Fluoride	mg/L	0.12	1.5 (MAC)	Pass
Nitrate-N	mg/L	0.146	10 (MAC)	Pass
Nitrite-N	mg/L	<0.005	1 (MAC)	Pass
Nitrite-N + Nitrate-N	mg/L	0.146		
Phosphate	mg/L	<0.10		
Sulphate	mg/L	54.98	500 (AO)	Acceptable
Cations in Water by ICP-OES				
Dissolved Calcium	mg/L	53.1		
Dissolved Iron ¹	mg/L	<0.05	0.3 (AO)	Acceptable

*CDWQG = Canadian Drinking Water Quality Guidelines, Health Canada 2020: MAC = Maximum Acceptable Concentration (affects health), AO = Aesthetic Objective (does not affect health but affects color, taste, etc.), OG = Operational Guidance

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Parameter Description	Units	Result	Guideline Limits*	Comment
Dissolved Magnesium	mg/L	14.9		
Dissolved Manganese ¹	mg/L	<0.05		
Dissolved Potassium	mg/L	0.6		
Dissolved Sodium	mg/L	4.3	200 (AO)	Acceptable
Hardness (calculated, as CaCO ₃)	mg/L	194.1		
Sodium Adsorption Ratio		0.13		
Total Metals for Drinking Water				
Total Mercury	ug/L	<0.001	1 (MAC)	Pass
Total Metals in Water by ICP-MS				
Total Aluminum	mg/L	0.058	0.1/0.2 ^{see notes}	See notes
Total Antimony	mg/L	<0.0006	0.006 (MAC)	Pass
Total Arsenic	mg/L	<0.00008	0.010 (MAC)	Pass
Total Barium	mg/L	0.032	2.0 (MAC)	Pass
Total Boron	mg/L	<0.03	5 (MAC)	Pass
Total Cadmium	mg/L	<0.00004	0.007 (MAC)	Pass
Total Chromium	mg/L	<0.0008	0.05 (MAC)	Pass
Total Copper	mg/L	<0.0008	1.0 (AO)	Acceptable
Total Iron	mg/L	<0.02	2.0 (MAC)	Pass
Total Lead	mg/L	<0.0003	0.005 (MAC)	Pass
Total Manganese	mg/L	<0.005	0.12 (MAC)/ 0.02 (AO)	Pass
Total Selenium	mg/L	0.0007	0.05 (MAC)	Pass
Total Silver	mg/L	<0.00007		
Total Strontium	mg/L	0.201	7.000 (MAC)	Pass
Total Uranium	mg/L	0.00026	0.02 (MAC)	Pass
Total Zinc	mg/L	0.009	5.0 (AO)	Acceptable

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Ammonia in water				
Ammonia-N	mg/L	<0.05		
Cyanide, Total	mg/L	<0.003	0.2 (MAC)	Pass
Glyphosate	mg/L	<0.020	0.28 (MAC)	Pass
Nitritotriacetic Acid (NTA)	mg/L	<0.4	0.4 (MAC)	Pass
Sulphide	mg/L	<0.010	0.05 (AO)	Acceptable
Total Microcystins	mg/L	<0.00015		
Total Residual Chlorine	mg/L	1.06	see notes	
Total Organic Carbon	mg/L	<0.50		
Oxyhalides in Water by IC				
Bromate	mg/L	<0.005	0.01 (MAC)	Pass
Chlorate	mg/L	<0.05	1 (MAC)	Pass
Chlorite	mg/L	<0.05	1 (MAC)	Pass
Herbicides in Water				
2,4-D	mg/L	<0.002	0.1 (MAC)	Pass
Bromoxynil	mg/L	<0.002	0.030 (MAC)	Pass
Dicamba	mg/L	<0.002	0.11 (MAC)	Pass
Picloram	mg/L	<0.002		
Volatile Organic Compounds in Water				
1,1-Dichloroethene	mg/L	<0.002	0.014 (MAC)	Pass
1,2-Dichlorobenzene	mg/L	<0.0005	0.2000 (MAC)	Pass
1,2-Dichloroethane	mg/L	<0.002	0.005 (MAC)	Pass
1,4-Dichlorobenzene	mg/L	<0.0005	0.005 (MAC)	Pass
Benzene	mg/L	<0.001	0.005 (MAC)	Pass
Carbon Tetrachloride	mg/L	<0.0005	0.002 (MAC)	Pass
Chlorobenzene	mg/L	<0.001	0.08 (MAC)	Pass
Dichloromethane	mg/L	<0.002	0.05 (MAC)	Pass
Ethylbenzene	mg/L	<0.001	0.14 (MAC)	Pass
m,p-Xylenes	mg/L	<0.002		
MTBE	mg/L	<0.004	0.015 (AO)	Acceptable
o-Xylenes	mg/L	<0.001		
Tetrachloroethene	mg/L	<0.001	0.01 (MAC)	Pass
Toluene	mg/L	<0.0005	0.06 (MAC)	Pass
Total Xylenes	mg/L	<0.003	0.090 (MAC)	Pass

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Trichloroethene	mg/L	<0.00030	0.005 (MAC)	Pass
Vinyl Chloride	mg/L	<0.001	0.002 (MAC)	Pass
----- Base/Neutral and Acid Extractable Organic Compounds in Water				
2,3,4,6-Tetrachlorophenol	mg/L	<0.002		
2,4,6-Trichlorophenol	mg/L	<0.002	0.005 (MAC)	Pass
2,4-Dichlorophenol	mg/L	<0.002		
Atrazine + Metabolites	mg/L	<0.001	0.005 (MAC)	Pass
Benzo(a)Pyrene	mg/L	<0.000005	0.00004 (MAC)	Pass
Chlorpyrifos	mg/L	<0.002	0.09 (MAC)	Pass
Cyanazine	mg/L	<0.002		
Diazinon	mg/L	<0.002		
Diclofop-methyl	mg/L	<0.002		
Dimethoate	mg/L	<0.002	0.02 (MAC)	Pass
Diuron	mg/L	<0.003		
Malathion	mg/L	<0.002	0.19 (MAC)	Pass
Methoxychlor	mg/L	<0.002		
Metolachlor	mg/L	<0.002		
Metribuzin	mg/L	<0.002	0.08 (MAC)	Pass
Pentachlorophenol	mg/L	<0.002	0.06 (MAC)	Pass
Simazine	mg/L	<0.002		
Terbufos	mg/L	<0.0005		
Triallate	mg/L	<0.002		
Trifluralin	mg/L	<0.002		

Notes:

- Aluminum: This Operational Guideline applies only to drinking water treatment plants using aluminum-based coagulants: conventional systems - 0.1 mg/L, other systems - 0.2 mg/L
- Total residual chlorine analysis is performed in lieu of chloramines analysis.
- Turbidity: Based on slow sand or diatomaceous earth filtration (1.0 NTU) / membrane filtration (0.1 NTU) / conventional treatment (0.3 NTU). No limits apply for well water not under the influence of surface water. For further details and additional guidance restriction, see Guidelines for Canadian Drinking Water Quality (GCDWQ 2019).

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Comments:

Result for pH in Water revised on 15-Mar-2024.

Test Methodologies

Alkalinity in Water: Modified from SM 2320 B
Ammonia in Water: Modified from SM 4500-NH3 F
Anions in Water: Modified from SM 4110 B
Base/Neutral and Acid Extractable Organic Compounds in Water: Modified from EPA 3510C, EPA 8151A, and EPA 8270E
Cations in Water by ICP-OES: Modified from SM 3030 B and SM 3120 B
Cyanide, Total, in Water: Modified from ISO 14403:2012(E) and Skalar Analytical B.V., Catnr I295-004w/r issue 010421/99368551
Electrical Conductivity in Water: Modified from SM 2510 B and CCME Guidance Manual Volume 4, 2016
Glyphosate in Water: Modified from Journal of Chromatography A, 886 (2000) 207-216
Herbicides in Water: Modified from EPA 1653, EPA 8151A, EPA 8270E, and Supelco Application Note 100
Microcystin in Water: Modified from Microcystin-ADDA ELISA (Microtiter Plate) Instructional Booklet, Abraxis Inc.
Nitrilotriacetic Acid in Water: Modified from Journal of Chromatography A, 690 (1995) 109-118
Oxyhalides in Water: Modified from SM 4110 D and EPA 317.0
pH of Water: Modified from SM 4500-H+ B
Sulphide in Water: Modified from SM 4500-S2- D and C, and HACH Method 8131
Total Dissolved Solids (calculated): Modified from SM 1030 E
Total Mercury in Water: Modified from EPA 1631 Revision E
Total Metals in Water by ICP-MS: Modified from EPA 200.2 and SM 3125 B
Total Residual Chlorine in Water (Non-Accredited): Modified from SM 4500-Cl I
Total/Dissolved Organic Carbon in Water: Modified from SM 5310 B
True Colour in Water: Modified from SM 2120 C
Turbidity in Water: Modified from SM 2130 B
Volatile Organic Compounds in Water: Modified from EPA 8260D and EPA 5030C

Final Review by:



Irene De Leon
Client Services Representative

Note: The results in this report relate only to the items tested and as received. Information is available for any items in 7.8.2.1 of ISO/IEC 17025:2017 that cannot be put on a test report. The report shall not be reproduced except in full without written approval of KaizenLAB. The validity of results may be affected if the information is provided by the customer.

Test methodologies are accredited in accordance with ISO/IEC 17025 via CALA, unless otherwise specified in the description of the methods.

*This analyte is not accredited, even though analyzed by an accredited methodology.

Pass/Acceptable: The measurement result conforms with the specification limit when the measurement uncertainty is taken into account.

Pass/Acceptable:** It is not possible to state conformance using a 95 % coverage probability for the expanded uncertainty although the measurement result is below the limit.

Fail/Unacceptable: The measurement result does not conform with the specification limit when the measurement uncertainty is taken into account.

The statement of conformity is based on a 95% coverage probability for the expanded uncertainty. The test results and the statement of conformance with specification in this report relate only to the test sample as analysed/tested and not to the sample/item from which the test sample was drawn.