Unit# 288, 2880 45 Ave S.E.
Calgary, AB, T2B 3M1
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KaizenLAB

ANALYTICAL REPORT

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

Attention: Richard Gaida

KaizenLAB JOB #:	**320797**
DATE RECEIVED:	01-Feb-2022
DATE REPORTED:	15-Feb-2022
PROJECT ID:	Winter Samples
LOCATION:	WTP

KaizenLAB Sample #: 320797_001 **Sample ID:** WTP
Date Sampled: 7:30 1-Feb-2022

Parameter Description	Units	Result	Guideline Limits*	Comment
Routine Water Potability Analysis (Potability pkg #2)				
Electrical Conductivity (EC)	uS/cm	360		
pH		7.5	7.0-10.5 (AO)	Acceptable
Total Dissolved Solids (calculated)	mg/L	208	500 (AO)	Acceptable
True Colour	TCU	<4	15 (AO)	Acceptable
Turbidity	NTU	0.11	0.1/0.3/1.0 see notes	See notes
Alkalinity Parameters of Water				
Alkalinity (phenolphthalein, as CaCO3)	mg/L	<2.0		
Alkalinity (total, as CaCO3)	mg/L	132.2		
Bicarbonate (as HCO3)	mg/L	161.2		
Carbonate (as CO3)	mg/L	<1.5		
Hydroxide (as OH)	mg/L	<0.5		
Anions in Water by IC				
Bromide	mg/L	<0.10		
Chloride	mg/L	9.01	250 (AO)	Acceptable
Fluoride	mg/L	0.14	1.5 (MAC)	Pass
Nitrate-N	mg/L	0.133	10 (MAC)	Pass
Nitrite-N	mg/L	<0.005	1 (MAC)	Pass
Nitrite-N + Nitrate-N	mg/L	0.133		
Phosphate	mg/L	<0.10		
Sulphate	mg/L	51.47	500 (AO)	Acceptable
Cations in Water by ICP-OES				
Dissolved Calcium	mg/L	46.6		
Dissolved Iron	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	15.2		
Dissolved Manganese	mg/L	4.18		
Dissolved Potassium	mg/L	0.6		
Dissolved Sodium	mg/L	4.1	200 (AO)	Acceptable
Hardness (calculated, as CaCO3)	mg/L	179.0		
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	0.047	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	0.0004	0.005 (MAC)	Pass
Total Manganese	mg/L	0.001	0.12 (MAC)/ 0.02 (AO)	Pass
Total Selenium	mg/L	<0.0006	0.05 (MAC)	Pass
Total Silver	mg/L	<0.00007		
Total Strontium	mg/L	0.203	7.000 (MAC)	Pass
Total Uranium	mg/L	0.00021	0.02 (MAC)	Pass
Total Zinc	mg/L	<0.007	5.0 (AO)	Acceptable

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Parameter Description	Units	Result	Guideline Limits*	Comment
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
Microcystins (as LR)	mg/L	<0.00015	0.0015 (MAC)	Pass**
Nitrilotriacetic Acid (NTA)	mg/L	<0.4	0.4 (MAC)	Pass
Sulphide	mg/L	<0.010	0.05 (AO)	Acceptable
Total Residual Chlorine	mg/L	1.03	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	0.10	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	0.005 (MAC)	Pass
Dicamba	mg/L	<0.002	0.12 (MAC)	Pass
MCPA	mg/L	<0.002	0.1 (MAC)	Pass
Picloram	mg/L	<0.002	0.19 (MAC)	Pass
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	<0.002	0.06 (MAC)	Pass

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Parameter Description	Units	Result	Guideline Limits*	Comment
Total Xylenes	mg/L	<0.003	0.090 (MAC)	Pass
Trichloroethene	mg/L	<0.002	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	0.1 (MAC)	Pass
2,4,6-Trichlorophenol	mg/L	<0.002	0.005 (MAC)	Pass
2,4-Dichlorophenol	mg/L	<0.002	0.9 (MAC)	Pass
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	0.02 (MAC)	Pass
Diclofop-methyl	mg/L	<0.002	0.009 (MAC)	Pass
Dimethoate	mg/L	<0.002	0.02 (MAC)	Pass
Diuron	mg/L	<0.003	0.15 (MAC)	Pass
Malathion	mg/L	<0.002	0.19 (MAC)	Pass
Methoxychlor	mg/L	<0.002		
Metolachlor	mg/L	<0.002	0.05 (MAC)	Pass
Metribuzin	mg/L	<0.002	0.08 (MAC)	Pass
Pentachlorophenol	mg/L	<0.002	0.06 (MAC)	Pass
Simazine	mg/L	<0.002	0.01 (MAC)	Pass
Terbufos	mg/L	<0.0005	0.001 (MAC)	Pass
Triallate	mg/L	<0.002		
Trifluralin	mg/L	<0.002	0.045 (MAC)	Pass

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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Test Methodologies

Alkalinity in Water: Modified from SM 2320B
Ammonia in Water: Modified from SM 4500-NH3 F
Anions in Water: Modified from SM 4110B
Base/Neutral and Acid Extractable Organic Compounds in Water: Modified from EPA 8270D and EPA 3510C
Cations in Water: Modified from SM 3030B and SM 3120B
Cyanide, Total, in Water: Modified from ISO 14403:2012 (E)
Electrical Conductivity in Water: Modified from SM 2510B
Glyphosate in Water: Modified from New methods for determination of glyphosate and (aminomethyl)phosphonic acid in water and soil. Journal of Chror
Haloacetic Acids in Water: Modified from EPA 552.3
Herbicides in Water: Modified from EPA 8151A and EPA 3510C
Microcystin in Water: Modified from Microcystin Tube Kit Instructional Booklet (ELISA), Abraxis Inc.
Nitrilotriacetic Acid in Water: Modified from Journal of Chromatography A., 690 (1995) 109-118
Oxyhalides in Water: Modified from SM 4110D
pH of Water: Modified from SM 4500-H+ B
Sulphide in Water: Modified from SM 4500-S2- D and HACH Method 8131
Total Dissolved Solids (calculated): Modified from SM 1030E
Total Mercury in Water: Modified from EPA 1631 Revision E
Total Metals in Water: Modified from EPA 200.2 and SM 3125B
Total Residual Chlorine in Water: Modified from SM 4500-Cl I
Total/Dissolved Organic Carbon in Water: Modified from SM 5310B
Trihalomethanes in Water: Modified from EPA 8260B, EPA 5030B/EPA 5021A
True Colour in Water: Modified from SM 2120 C
Turbidity in Water: Modified from SM 2130B
Volatile Organic Compounds in Water: Modified from EPA 8260B and EPA 5030B/EPA 5021A

Final Review by:

Zakia Biswas
Client Services Supervisor

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.