



COCHRANE WELL
SUPPLY

2023 ANNUAL
REPORT

WATERWORKS # 22 000 3047

As per Section 11 and schedule 22 of O. Reg. 170/03

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2023 Annual Report

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ANNUAL REPORT



OPTIONAL ANNUAL REPORT TEMPLATE

Drinking-Water System Number:	22 000 3047
Drinking-Water System Name:	Cochrane Well Supply
Drinking-Water System Owner:	The Corporation of the Town of Cochrane
Drinking-Water System Category:	Large Municipal Residential System
Period being reported:	January 1, 2023 to December 31, 2023

<p><u>Complete if your Category is Large Municipal Residential or Small Municipal Residential</u></p> <p>Does your Drinking-Water System serve more than 10,000 people? Yes [] No [x]</p> <p>Is your annual report available to the public at no charge on a web site on the Internet? Yes [x] No []</p> <p>Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.</p> <div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>Infrastructure Services 92 Second Street Cochrane Ontario P0L 1C0</p> </div>	<p><u>Complete for all other Categories.</u></p> <p>Number of Designated Facilities served: <input style="width: 50px;" type="text" value="4"/></p> <p>Did you provide a copy of your annual report to all Designated Facilities you serve? Yes [x] No []</p> <p>Number of Interested Authorities you report to: <input style="width: 50px;" type="text" value="0"/></p> <p>Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility? Yes [x] No []</p>
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Note: For the following tables below, additional rows or columns may be added or an appendix may be attached to the report

List all Drinking-Water Systems (if any), which receive all of their drinking water from your system:

Drinking Water System Name	Drinking Water System Number

Did you provide a copy of your annual report to all Drinking-Water System owners that are connected to you and to whom you provide all of its drinking water?
Yes [] No []

Indicate how you notified system users that your annual report is available, and is free of charge.



- Public access/notice via the web
- Public access/notice via Government Office
- Public access/notice via a newspaper
- Public access/notice via Public Request
- Public access/notice via a Public Library
- Public access/notice via other method message on Water/Wastewater bill

Describe your Drinking-Water System

The water treatment works relies on groundwater from 3 wells, each with a capacity of 45.3 litres per second. The maximum flow for each well cannot exceed 50 liters per second. The wells are located at the east side of Water Plant Road, Lot 19, Concession 1, in the Town of Cochrane, next to the Plant. While the population of Cochrane is about 5,500, the Plant has the capacity of delivering 8,000 cubic meters per day.

The treatment process was designed to remove high iron content, manganese and hardness present in the raw water supplied that is produced by the three wells. "Lime Softening" is the process that is used. First, hydrated lime (calcium hydroxide) is added to the water. This increases the pH of the water causing the calcium carbonate, iron and manganese to precipitate out of the water. Most of the precipitated particles settle out in the two clarifiers. Then carbon dioxide is added in re-carbonation tanks to reduce the pH to normal levels with the dual media filters used to filter out any remaining particles. The finished water is now stored in an interconnected twin-celled in-ground clear well/reservoir that has a capacity of 2,300 cubic meters. Three high-lift pumps, each rated at 83.4 liters per second are used to pump the water into the Town's distribution system. On the other side of town, a 2,700 cubic meters elevated storage tank provides gravity flow to the town. This storage is used during peak demand times in the day, and is available to provide the very high flow rates that could be required by the fire department in case of a large fire. The plan and storage tank (tower) have complete automatic control and alarm systems that notify the operator of any problems. The plant also has an emergency diesel generator that allows water to be treated and pumped in the event of a power outage. Cochrane Water & Wastewater Services employs the services of Accuracy Environmental Laboratories Ltd. for all testing of water samples. Accuracy also sub-contracts some of these samples to other laboratories who provide the required testing as per Regulation 170/03. All laboratories employed for Town of Cochrane water testing are accredited:

Testmark Laboratories
1335 Riverside Drive
Timmins Ontario
P4R 1A6
(705) 531-1121

Testmark Laboratories
1470 Government Rd. W. Box 426
Kirkland Lake, ON P2N 3J1
(705) 642-3361

Caduceon Environmental Labs
40 Camelot Drive
Ottawa, ON K2G 5X1
(613) 228-1145



**Maxxam Analytics
6740 Campobello Rd.
Mississauga, ON L5N 2L8
(905) 817-5751**

List all water treatment chemicals used over this reporting period

**Chlorine Gas – Disinfection
Sodium Bicarbonate – Flocculation/ Coagulation
Hydrated Lime – Softening process
Sodium Silicate – Flocculation / Coagulation
Carbon Dioxide – pH Adjustment**

Were any significant expenses incurred to?

- Install required equipment
- Repair required equipment
- Replace required equipment

Please provide a brief description and a breakdown of monetary expenses incurred

**Change Hose inside Lime Pump # 1
Relined Well # 5, new pump and control**

Provide details on the notices submitted in accordance with subsection 18(1) of the Safe Drinking-Water Act or section 16-4 of Schedule 16 of O.Reg.170/03 and reported to Spills Action Centre

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date

Microbiological testing done under the Schedule 10, 11 or 12 of Regulation 170/03, during this reporting period.

	Number of Samples	Range of E.Coli Or Fecal Results (min #)-(max #)	Range of Total Coliform Results (min #)-(max #)	Number of HPC Samples	Range of HPC Results (min #)-(max #)
Raw	152	0-0	0-56	0	
Treated	52	0-0	0-0	52	0-10
Distribution	260	0-0	0-0	260	0-120

Operational testing done under Schedule 7, 8 or 9 of Regulation 170/03 during the period covered by this Annual Report.

	Number of Grab Samples	Range of Results (min #)-(max #)	Unit of Measure
Turbidity	8760	0.0-5.75	NTU

NOTE: For continuous monitors use 8760 as the number of samples.



Chlorine	8760	0.43-2.39	Mg/L
Fluoride (If the DWS provides fluoridation)			

Summary of additional testing and sampling carried out in accordance with the requirement of an approval, order or other legal instrument.

Date of legal instrument issued	Parameter	Date Sampled	Result	Unit of Measure

Summary of Inorganic parameters tested during this reporting period or the most recent sample results

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Antimony	September 28, 2021	< 0.5	ug/L	No
Arsenic	September 28, 2021	< 1	ug/L	No
Barium	September 28, 2021	7	ug/L	No
Boron	September 28, 2021	24	ug/L	No
Cadmium	September 28, 2021	< 0.1	ug/L	No
Chromium	September 28, 2021	< 2	ug/L	No
*Lead	2023	0.63	ug/L	No
Mercury	September 28, 2021	< 0.1	ug/L	No
Selenium	September 28, 2021	< 0.2	ug/L	No
Sodium	July 25, 2019	23,700	ug/L	Yes
Uranium	September 28, 2021	<1	ug/L	No
Fluoride	July 16, 2019	0.064	mg/L	No
Nitrite	Nov 21, 2023	< 0.05	mg/L	No
Nitrate	Nov 21, 2023	< 0.05	mg/L	No

*only for drinking water systems testing under Schedule 15.2; this includes large municipal non-residential systems, small municipal non-residential systems, non-municipal seasonal residential systems, large non-municipal non-residential systems, and small non-municipal non-residential systems

Summary of lead testing under Schedule 15.1 during this reporting period



Ontario Drinking-Water Systems Regulation O. Reg. 170/03

(applicable to the following drinking water systems; large municipal residential systems, small municipal residential systems, and non-municipal year-round residential systems)

Location Type	Number of Samples	Range of Lead Results (min#) – (max #)	Unit of Measure	Number of Exceedances
Plumbing	Exempt			
Distribution	Exempt	0.1-1.4	Ug/L	One

Summary of Organic parameters sampled during this reporting period or the most recent sample results

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Alachlor	September 28, 2021	<0.248	Ug/L	No
Atrazine + N-dealkylated metabolites	September 28, 2021	<0.248	Ug/L	No
Azinphos-methyl	September 28, 2021	<0.186	Ug/L	No
Benzene	September 28, 2021	<0.2	Ug/L	No
Benzo(a)pyrene	September 28, 2021	<0.01	Ug/L	No
Bromoxynil	September 28, 2021	<0.12	Ug/L	No
Carbaryl	September 28, 2021	<2	Ug/L	No
Carbofuran	September 28, 2021	<4	Ug/L	No
Carbon Tetrachloride	September 28, 2021	<0.2	Ug/L	No
Chlorpyrifos	September 28, 2021	<0.186	Ug/L	No
Diazinon	September 28, 2021	<0.186	Ug/L	No
Dicamba	September 28, 2021	<0.105	Ug/L	No



1,2-Dichlorobenzene	September 28, 2021	<0.5	Ug/L	No
1,4-Dichlorobenzene	September 28, 2021	<0.5	Ug/L	No
1,2-Dichloroethane	September 28, 2021	<0.5	Ug/L	No
1,1-Dichloroethylene (vinylidene chloride)	September 28, 2021	<0.5	Ug/L	No
Dichloromethane	September 28, 2021	<5	Ug/L	No
2,4-Dichlorophenol	September 28, 2021	<0.2	Ug/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	September 28, 2021	<0.452	Ug/L	No
Diclofop-methyl	September 28, 2021	<0.151	Ug/L	No
Dimethoate	September 28, 2021	<0.186	Ug/L	No
Diquat	September 28, 2021	<0.7	Ug/L	No
Diuron	September 28, 2021	<10	Ug/L	No
Glyphosate	September 28, 2021	<20	Ug/L	No
Malathion	September 28, 2021	<0.186	Ug/L	No
Metolachlor	September 28, 2021	<0.124	Ug/L	No
Metribuzin	September 28, 2021	<0.124	Ug/L	No
Paraquat	September 28, 2021	<0.3	Ug/L	No



Ontario Drinking-Water Systems Regulation O. Reg. 170/03

Pentachlorophenol	September 28, 2021	<0.3	Ug/L	No
Phorate	September 28, 2021	<0.124	Ug/L	No
Picloram	September 28, 2021	<0.105	Ug/L	No
Prometryne	September 28, 2021	<0.0619	Ug/L	No
Simazine	September 28, 2021	<0.186	Ug/L	No
THM (NOTE: show latest annual average)	2023	32.3	Ug/L	No
Terbufos	September 28, 2021	<0.124	Ug/L	No
Tetrachloroethylene	September 28, 2021	<0.5	Ug/L	No
2,3,4,6-Tetrachlorophenol	September 28, 2021	<0.3	Ug/L	No
Triallate	September 28, 2021	<0.124	Ug/L	No
Trichloroethylene	September 28, 2021	<0.5	Ug/L	No
2,4,6-Trichlorophenol	September 28, 2021	<0.2	Ug/L	No
Trifluralin	September 28, 2021	<0.124	Ug/L	No
Vinyl Chloride	September 28, 2021	<0.1	Ug/L	No

List any Inorganic or Organic parameter(s) that exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards.

Parameter	Result Value	Unit of Measure	Date of Sample

COMPLIANCE

COMPLIANCE

To the best of our knowledge, the Cochrane Water Treatment Plant is in compliance with all regulatory requirements as outlined in the Drinking Water Works Permit, Municipal Drinking Water License, Permit to Take Water and Ontario Regulation 170/03.

In 2023, the Cochrane Water Treatment Plant underwent two Ministry of Environment, Conservation and Parks annual inspections.

Inspection # 1-107844872 on January 12th, 2023

There were 1 non-compliance and no best practice issued during this inspection.

Inspection on December 13th, 2023

Inspection still in process.

SUMMARY OF FLOWS

Summary of Flows

This report is prepared to comply with Schedule 22 section 3(1) of Reg 170/03 of the SDWA

- (3) 1. A Summary of the quantities and flow rates of the water supplied during the period covered by the report, including monthly average and maximum daily flows.

TREATED WATER

Month	Daily Average In m ³	Maximum Daily Flow in L/s
January	1,202	74.3
February	1,346	73.8
March	1,365	76.6
April	1,366	75.5
May	1,422	94.6
June	1,600	80.1
July	1,392	79.8
August	1,399	74.5
September	1,428	76.6
October	1,433	75.5
November	1,356	73.9
December	1,293	77.1
Total Average	1,384	77.8

RAW WATER

Month	Daily Average In m ³	Maximum Daily Flow in L/s
January	1,293	97.0
February	1,475	126.6
March	1,466	95.2
April	1,446	98.2
May	1,542	97.9
June	1,682	97.9
July	1,513	97.2
August	1,546	96.9
September	1,569	91.2
October	1,597	96.8
November	1,528	91.3
December	1,464	96.9
Total Average	1,510	98.6

COMPARISON OF FLOWS

Comparison of the Summary of Flows

- (3) 2. A comparison of the summary referred to in paragraph 1 to the rated capacity and flow rates approved in the system's approval, drinking water works permit or municipal drinking water license.

2023 Total Flow

Month	Raw Water Total Monthly Flow In m ³	Treated Water Total Monthly Flow In m ³
January	40,089.2	37,277.4
February	41,309.0	37,680.0
March	45,448.1	42,324.9
April	43,389.5	40,965.3
May	47,819.9	44,089.7
June	50,466.6	47,998.4
July	46,919.0	43,167.4
August	47,944.4	43,362.2
September	47,072.3	42,842.7
October	49,525.9	44,410.5
November	45,864.8	40,692.6
December	45,403.5	40,078.50
Total	551,249.2	504,889.6

Item	2023	2022	2021	2020
Avg. Raw Water Day Flow m ³ /day	1,510	1,395	1,575	1,542
Design Capacity m ³ /day	7,856.60	7,856.60	7,856.60	7,856.60
% (Avg. day/design capacity)	19.22%	17.75%	20%	19.62%

Comparison of the Summary of Flows continued

The Total Flow (raw water) in 2023 was 551,249.2 m³ which represents 19.71 % of the total capacity for the year. The average daily flow in 2023 was 1,510 m³ which is only 19.22 % of design. The approved plant treatment capacity of 7,856m³/day was not exceeded during this period. The daily peak flow of 6,000L/s was not exceeded. The operating level of the plant is set at approximately 40 L/s with one of our 3 wells operating at a time.

The aquifer continues to perform within expectations and there is no concern at this time on the continued performance. Each of the wells #5,6 and 7 are drilled to a depth of 45 to 50 meters and equipped with a submersible well water pump with a rated capacity of 45.3 L/s at a TDH of 32.3 meters, pitless adapter, sanitary well seal, air line and supply line to the water treatment plant. The wells were last inspected by International Water Supply in 2022, recommendations to reline Well # 5 was completed in 2023. The Elevated Tank was drained and cleaned for inspection on September 10, 2019.

Based on available records the draw downs of each well are measured monthly and documented. Draw downs were reported as being for Well # 5 - 8 to 14 meters, Well # 6 - 12 to 16 meters and Well # 7 - 2 to 3 meters.