



COCHRANE WELL  
SUPPLY

2021 ANNUAL  
REPORT

WATERWORKS # 22 000 3047

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

## **Reference Index**

### **2021 Annual Report**

- A- Annual Report**
- B- Compliance**
- C- Summary of Flows**
- D- Comparison of Flows**

# **ANNUAL REPORT**



OPTIONAL ANNUAL REPORT TEMPLATE

<b>Drinking-Water System Number:</b>	22 000 3047
<b>Drinking-Water System Name:</b>	Cochrane Well Supply
<b>Drinking-Water System Owner:</b>	The Corporation of the Town of Cochrane
<b>Drinking-Water System Category:</b>	Large Municipal Residential System
<b>Period being reported:</b>	January 1, 2021 to December 31, 2021

<p><b><u>Complete if your Category is Large Municipal Residential or Small Municipal Residential</u></b></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><b><u>Complete for all other Categories.</u></b></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>
---	---

**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**  
100 Wilson Avenue  
Timmins Ontario  
P4N 2S9  
(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**



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

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

Repaired Bin Activator  
Change Hose inside Lime Pump # 1  
Replaced 3 rotork Valve

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	156	0-0	0-0	0	
Treated	52	0-0	0-0	52	0-10
Distribution	260	0-0.059	0-0	260	0-70

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	0-1.43	NTU

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



<b>Chlorine</b>	<b>8760</b>	<b>0-4.99</b>	<b>Mg/L</b>
<b>Fluoride (If the DWS provides fluoridation)</b>			

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

<b>Date of legal instrument issued</b>	<b>Parameter</b>	<b>Date Sampled</b>	<b>Result</b>	<b>Unit of Measure</b>

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

<b>Parameter</b>	<b>Sample Date</b>	<b>Result Value</b>	<b>Unit of Measure</b>	<b>Exceedance</b>
<b>Antimony</b>	September 28, 2021	< 0.5	ug/L	No
<b>Arsenic</b>	September 28, 2021	< 1	ug/L	No
<b>Barium</b>	September 28, 2021	7	ug/L	No
<b>Boron</b>	September 28, 2021	24	ug/L	No
<b>Cadmium</b>	September 28, 2021	< 0.1	ug/L	No
<b>Chromium</b>	September 28, 2021	< 2	ug/L	No
<b>*Lead</b>	2021	0.7	ug/L	No
<b>Mercury</b>	September 28, 2021	< 0.1	ug/L	No
<b>Selenium</b>	September 28, 2021	< 0.2	ug/L	No
<b>Sodium</b>	July 25, 2019	23,700	ug/L	Yes
<b>Uranium</b>	September 28, 2021	<1	ug/L	No
<b>Fluoride</b>	July 16, 2019	0.064	mg/L	No
<b>Nitrite</b>	Nov 16, 2021	< 0.05	mg/L	No
<b>Nitrate</b>	Nov 16, 2021	< 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**

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

<b>Location Type</b>	<b>Number of</b>	<b>Range of Lead Results</b>	<b>Unit of</b>	<b>Number of</b>
----------------------	------------------	------------------------------	----------------	------------------



	Samples	(min#) – (max #)	Measure	Exceedances
<b>Plumbing</b>	<b>Exempt</b>			
<b>Distribution</b>	<b>Exempt</b>	<b>0.10-2.9</b>	<b>Ug/L</b>	<b>None</b>

**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

<b>1,2-Dichlorobenzene</b>	September 28, 2021	<0.5	Ug/L	No
<b>1,4-Dichlorobenzene</b>	September 28, 2021	<0.5	Ug/L	No
<b>1,2-Dichloroethane</b>	September 28, 2021	<0.5	Ug/L	No
<b>1,1-Dichloroethylene (vinylidene chloride)</b>	September 28, 2021	<0.5	Ug/L	No
<b>Dichloromethane</b>	September 28, 2021	<5	Ug/L	No
<b>2,4-Dichlorophenol</b>	September 28, 2021	<0.2	Ug/L	No
<b>2,4-Dichlorophenoxy acetic acid (2,4-D)</b>	September 28, 2021	<0.452	Ug/L	No
<b>Diclofop-methyl</b>	September 28, 2021	<0.151	Ug/L	No
<b>Dimethoate</b>	September 28, 2021	<0.186	Ug/L	No
<b>Diquat</b>	September 28, 2021	<0.7	Ug/L	No
<b>Diuron</b>	September 28, 2021	<10	Ug/L	No
<b>Glyphosate</b>	September 28, 2021	<20	Ug/L	No
<b>Malathion</b>	September 28, 2021	<0.186	Ug/L	No
<b>Metolachlor</b>	September 28, 2021	<0.124	Ug/L	No
<b>Metribuzin</b>	September 28, 2021	<0.124	Ug/L	No
<b>Paraquat</b>	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)	2021	46.275	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 2021, the Cochrane Water Treatment Plant did not receive a Ministry of Environment, Conservation and Parks annual inspections.

## **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 <sup>3</sup>	Maximum Daily Flow in L/s
January	1,320	80.2
February	1,474	79.8
March	1,401	76.9
April	1,377	77.6
May	1,386	80.3
June	1,467	79.1
July	1,394	89.3
August	1,494	84.0
September	1,442	79.0
October	1,494	81.1
November	1,468	79.2
December	1,430	77.4
<b>Total Average</b>	<b>1,429</b>	<b>80.33</b>

### RAW WATER

Month	Daily Average In m <sup>3</sup>
January	1,451
February	1,619
March	1,548
April	1,526
May	1,530
June	1,582
July	1,522
August	1,613
September	1,639
October	1,695
November	1,620
December	1,559
<b>Total Average</b>	<b>1,575</b>

## **COMPARISON OF FLOWS**

## Comparison of the Summary of Flows

This report is prepared to comply with Schedule 22 section 3(2) of Reg 170/03 of the SDWA

- (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.

### 2021 Total Flow

Month	Raw Water Total Monthly Flow In m <sup>3</sup>	Treated Water Total Monthly Flow In m <sup>3</sup>
January	44,981.2	40,914.3
February	45,329.9	41,284.9
March	47,981.0	43,432.3
April	45,794.5	41,297.6
May	47,432.1	42,952.7
June	47,470.1	44,008.9
July	47,175.4	43,211.3
August	50,002.1	46,301.9
September	49,158.8	43,274.5
October	52,536.3	46,323.3
November	48,604.5	44,031.7
December	48,335.9	44,314.7
<b>Total</b>	<b>574,801.80</b>	<b>521,348.10</b>

Item	2021	2020	2019	2018
Avg. Raw Water Day Flow m <sup>3</sup> /day	1,575	1,542	1,792	1,559
Design Capacity m <sup>3</sup> /day	7,856.60	7,856.60	7,856.60	7,856.60
% (Avg. day/design capacity)	20%	19.62%	22.81%	19.84%

## Comparison of the Summary of Flows continued

The Total Flow (raw water) in 2021 was 574,801.8 m<sup>3</sup> which represents 20.55 % of the total capacity for the year. The average daily flow in 2021 was 1,575 m<sup>3</sup> which is only 20 % of design. The approved plant treatment capacity of 7,856m<sup>3</sup>/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 Lotowater Technical Services Inc. on December 5, 2014 and the recommendations were completed in October 2015. We also conducted a Raw Water Assessment in June 2015. Well # 5 pump was replaced in 2019 by International Water Supply. The Elevated Tank was drained and cleaned for inspection on September 10, 2019. International Water Supply has started the inspection of the wells in 2021 but due to COVID they were not completed, they will be returning in 2022 to complete inspections.

Based on available records the draw downs of each well is measured monthly and documented. Draw downs were reported as being for Well # 5 - 8 to 10 meters, Well # 6 - 13 to 18 meters and Well # 7 - 2 to 3 meters.