



COCHRANE WELL
SUPPLY

2019 ANNUAL
REPORT

WATERWORKS # 22 000 3047

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

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2019 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, 2019 to December 31, 2019

<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
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



**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

**Repairs to Well # 6 Pumping equipment
Replaced Pump to Well # 5
Replaced Flow Meter to Well # 6
Drained and Cleaned Water Tower
Replaced Lime Hose Pumps
Replaced Rotork Valves KV 412 and KV 422
Replaced copper pipes on lime line to pump # 1
Replaced copper pipes on silicate line pump # 2**

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	159	0-0	0-0	0	
Treated	53	0-0	0-0	53	0-0
Distribution	265	0-0	0-0	265	0-470



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	0-1.11	NTU
Chlorine	8760	0-4.99	Mg/L
Fluoride (If the DWS provides fluoridation)			

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

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	May 15, 2018	< 0.5	ug/L	No
Arsenic	May 15, 2018	< 1	ug/L	No
Barium	May 15, 2018	10.4	ug/L	No
Boron	May 15, 2018	20	ug/L	No
Cadmium	May 15, 2018	< 0.1	ug/L	No
Chromium	May 15, 2018	< 1	ug/L	No
*Lead	2019	0.30	ug/L	No
Mercury	May 15, 2018	< 0.1	ug/L	No
Selenium	May 15, 2018	< 1	ug/L	No
Sodium	July 25, 2019	23,700	ug/L	Yes
Uranium	June 2, 2015	<1	ug/L	No
Fluoride	July 16, 2019	0.064	mg/L	No
Nitrite	Nov 5, 2019	< 0.05	mg/L	No
Nitrate	Nov 5, 2019	< 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)

Location Type	Number of Samples	Range of Lead Results (min#) – (max #)	Unit of Measure	Number of Exceedances
Plumbing	Exempt			
Distribution	Exempt	0.10-1.20	Ug/L	None

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	May 15, 2018	<0.2	Ug/L	No
Atrazine + N-dealkylated metabolites	May 15, 2018	<0.5	Ug/L	No
Azinphos-methyl	May 15, 2018	<0.3	Ug/L	No
Benzene	May 15, 2018	<0.1	Ug/L	No
Benzo(a)pyrene	May 15, 2018	<0.005	Ug/L	No
Bromoxynil	May 15, 2018	<0.1	Ug/L	No
Carbaryl	May 15, 2018	<1	Ug/L	No
Carbofuran	May 15, 2018	<1	Ug/L	No
Carbon Tetrachloride	May 15, 2018	<0.2	Ug/L	No
Chlorpyrifos	May 15, 2018	<0.2	Ug/L	No
Diazinon	May 15, 2018	<0.2	Ug/L	No
Dicamba	May 15, 2018	<0.8	Ug/L	No
1,2-Dichlorobenzene	May 15, 2018	<0.2	Ug/L	No
1,4-Dichlorobenzene	May 15, 2018	<0.3	Ug/L	No
1,2-Dichloroethane	May 15, 2018	<0.2	Ug/L	No
1,1-Dichloroethylene (vinylidene chloride)	May 15, 2018	<0.3	Ug/L	No
Dichloromethane	May 15, 2018	<1	Ug/L	No
2-4 Dichlorophenol	May 15, 2018	<0.2	Ug/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	May 15, 2018	<0.01	Ug/L	No
Diclofop-methyl	May 15, 2018	<0.08	Ug/L	No



Dimethoate	May 15, 2018	<0.2	Ug/L	No
Diquat	May 15, 2018	<0.7	Ug/L	No
Diuron	May 15, 2018	<6	Ug/L	No
Glyphosate	May 15, 2018	<20	Ug/L	No
Malathion	May 15, 2018	<0.2	Ug/L	No
Metolachlor	May 15, 2018	<0.1	Ug/L	No
Metribuzin	May 15, 2018	<0.1	Ug/L	No
Paraquat	May 15, 2018	<0.3	Ug/L	No
Pentachlorophenol	May 15, 2018	<0.3	Ug/L	No
Phorate	May 15, 2018	<0.1	Ug/L	No
Picloram	May 15, 2018	<0.08	Ug/L	No
Prometryne	May 15, 2018	<0.06	Ug/L	No
Simazine	May 15, 2018	<0.2	Ug/L	No
THM (NOTE: show latest annual average)	2019	32.55	Ug/L	No
Terbufos	May 15, 2018	<0.1	Ug/L	No
Tetrachloroethylene	May 15, 2018	<0.3	Ug/L	No
2,3,4,6-Tetrachlorophenol	May 15, 2018	<0.3	Ug/L	No
Triallate	May 15, 2018	<0.1	Ug/L	No
Trichloroethylene	May 15, 2018	<0.2	Ug/L	No
2,4,6-Trichlorophenol	May 15, 2018	<0.2	Ug/L	No
Trifluralin	May 15, 2018	<0.1	Ug/L	No
Vinyl Chloride	May 15, 2018	<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
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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 2019, the Cochrane Water Treatment Plant underwent one Ministry of Environment, Conservation and Parks annual inspections.

Inspection 1-L0291 on July 10, 2019

There were no non-compliance and no best practice issued during this inspection. We received a final inspection rating of 100%.

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	1,434	81.0
February	1,538	77.7
March	1,502	79.8
April	1,632	94.6
May	1,448	76.6
June	1,388	82.6
July	1,442	81.2
August	1,341	82.6
September	1,330	94.6
October	1,296	80.7
November	1,287	80.1
December	1,333	77.5
Total Average	1, 414	82.42

RAW WATER

Month	Daily Average In m ³
January	1,574
February	1,708
March	1,623
April	1,811
May	1,457
June	1,524
July	1,560
August	1,457
September	1,490
October	1,417
November	1,419
December	1,515
Total Average	1, 546

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.

2019 Total Flow

Month	Raw Water Total Monthly Flow In m ³	Treated Water Total Monthly Flow In m ³
January	48,802	44,447
February	47,822	43,074
March	50,301	46,559
April	54,316	48,974
May	45,173	44,887
June	45,727	41,631
July	48,364	44,711
August	45,182	41,565
September	44,708	39,909
October	43,928	40,190
November	42,571	38,623
December	46,970	41,331
Total	563,864	515,901

Item	2019	2018	2017	2016
Avg. Raw Water Day Flow m ³ /day	1,792	1,559	1,718	1,920
Design Capacity m ³ /day	7,856.60	7,856.60	7,856.60	7,856.60
% (Avg. day/design capacity)	22.81%	19.84%	21.87%	24.44%

Comparison of the Summary of Flows continued

The Total Flow (raw water) in 2019 was 563,864 m³, which represents 19.7 % of the total capacity for the year. The average daily flow in 2019 was 1,792 m³ which is only 22.81% 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 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.

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 17 to 19 meters and Well # 7 2 to 3 meters.