

February 2023

Reeve James Gibson and Council
The Township of Chapple
P.O. Box 4
Barwick, Ontario P0W 1A0

Re: O. Regulation 170 - 2022 Section 11 Annual Report for the Barwick Well Supply

Ontario's Drinking-Water Systems Regulation (O.Reg. 170/03), made under the *Safe Drinking Water Act, 2002*, requires that the owner of a drinking water system prepare an annual report on the operation of the system and the quality of its water.

The annual report must cover the period of January 1st to December 31st in a year and *must be prepared not later than February 28th* of the following year. Pursuant to the legislative requirements, enclosed for your records is the 2022 Annual Report for the Barwick Well Supply.

Pursuant to the legislative requirements, Section 11 (6): the annual report must:

- (a) Contain a brief description of the drinking-water system, including a list of water treatment chemicals used by the system during the period covered by the report;
- (b) Summarize any reports made to the Ministry under subsection 18 (1) of the Act or section 16-4 of Schedule 16 during the period covered by the report;
- (c) Summarize the results of tests required under this Regulation, or an approval or order, including an OWRA order, during the period covered by the report and, if tests required under this Regulation in respect of a parameter were not required during that period, summarize the most recent results of tests of that parameter;
- (d) Describe any corrective actions taken under Schedule 17 or 18 during the period covered by the report;
- (e) Describe any major expenses incurred during the period covered by the report to install, repair or replace required equipment; and
- (f) In the case of a large municipal residential system or a small municipal residential system, include a statement of where a report prepared under Schedule 22 will be available for inspection under subsection 12 (4). O. Reg. 170/03, s. 11 (6)

In addition, Section 11 (7) gives the direction that a copy of an annual report for the system is given, without charge, to every person who requests a copy and be made available for inspection by any member of the public during normal business hours. The report should be made available at the office of the municipality, or at a location that is accessible to the users of the water system.

Yours truly,

A handwritten signature in black ink that reads "Ty Maurice". The signature is written in a cursive style with a large, prominent initial "T".

Ty Maurice
Senior Operations Manager
Northwestern Ontario Regional Hub
807-938-5067

Copy to: Tara Allaire - CAO, Clerk Treasurer
Operations Staff – Barwick Well Supply

2022 Section 11 Annual Report

Barwick Drinking Water System

February 2023

Prepared by the



Ontario Clean Water Agency
Agence Ontarienne Des Eaux

Section 11 ANNUAL REPORT

Drinking-Water System Number:	220008140
Drinking-Water System Name:	Barwick Well Supply
Drinking-Water System Owner:	The Corporation of the Township of Chapple
Drinking-Water System Category:	Small Municipal Residential System
Period being reported:	January 1 – December 31, 2022

<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; margin-top: 10px;"> <p>Chapple Municipal Office Chapple Water Treatment Plant</p> </div>	<p><u>Complete for all other Categories.</u></p> <p>Number of Designated Facilities served: <div style="border: 1px solid black; padding: 2px; width: 100px; text-align: center;">N/A</div> </p> <p>Did you provide a copy of your annual report to all Designated Facilities you serve? Yes [] No []</p> <p>Number of Interested Authorities you report to: <div style="border: 1px solid black; padding: 2px; width: 100px; text-align: center;">N/A</div> </p> <p>Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility? Yes [] 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
N/A	N/A

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 (Municipal)

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 _____ **Newsletter** _____

Describe your Drinking-Water System

- Ground water treatment plant with softening, coagulation, flocculation, sedimentation, filtration, chlorination and pH adjustment

The Barwick Drinking Water System is comprised of four (4) non-GUDI groundwater wells, one (1) drinking water treatment plant and approximately 3 kilometers of watermains.

Well 1 is located approximately 275m north of Highway 11, adjacent to the Chapple Township Administration building.

Well 2 is located approximately 315m north of Highway 11.

Well 4 is located approximately 167m north of Highway 11.

Well 5 is located approximately 190m north of Highway 11.

All wells are drilled groundwater wells with 150mm diameter casing.

The Barwick pumphouse consists of the following:

- One (1) lime chemical feed system for water softening, one (1) lime slurry chemical feed pump with feed point at the clarifier tank, one (1) lime chemical solution tank and one (1) mixer
- One (1) solids contact unit 2.45m diameter x 2.6m high clarifier tank, which discharges sludge to domestic sewer
- re-carbonation via carbon dioxide gas for pH control with a 100mm inlet/outlet piping re-carbonation tank 1.22m diameter x 2.2m high and a 19mm diameter gas inlet piping with diffuser
- two (2) cell gravity sand filters (each 1.22m x 1.22m x 2.9m) Dual Media – Sand and Anthracite
- a filter backwash pump to backwash wastewater to domestic sewer
- one (1) sodium hypochlorite chemical feed pump with the feed line discharging to finished water line prior to discharge into the reservoir
- Two cell storage reservoir which provides chlorine contact time with a combined storage capacity of 259.1m³. Each cell is approximately 7.5m x 5.5m by 3.5m and equipped with a level sensor and alarm

- Two (2) pump wells with a storage capacity of 27.6m³ (Reservoir Pump Well East) and 25.2m³ (Reservoir Pump West Well) providing chlorine contact time.
- Two (2) vertical high lift turbine pumps, each rated at 193L/min at 42.2m TDH, one (1) fire high flow pump rated at 2085L/min at 40.2m TDH and one (1) high lift discharge line equipped with a sample tap and magnetic flow meter
- One (1) 4045L hydropneumatic tank
- One (1) 80kW emergency standby diesel generator
- One (1) turbidity meter to measure turbidity in the treated water flowing to the reservoir, complete with alarm system

List all water treatment chemicals used over this reporting period

- Lime
- Carbon dioxide gas
- Sodium hypochlorite

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

Install	Repair	Replace	Description	Expense
X			Hydrogeological Study – 2 monitoring wells in search of a viable source water, and engineered report	112,500.30
		X	Digital scales for CO ₂ system	4,466.36
	X		Clearwell Cleaning - THMs	23,116.64
X			Lime Upgrades – ICIP Covid	50,000.00

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
2022/03/22	Running Annual Average THM Exceedance Q1	114	Ug/L	See below	2022/11/03
2022/05/12	Running Annual Average THM Exceedance Q2	109	Ug/L	See below	2022/11/03
2022/09/20	Running Annual Average THM Exceedance Q3	112.6	Ug/L	Well # 1 & Well #2 were run prior to sampling to bring down the bromine concentration in the distribution system as well as controlling the free chlorine.	2022/11/03
2022/10/26	Low Chlorine & Chlorine pump failure	0.12	Free chlorine	Increased pump dosage	2022/10/31

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					
Well 1	12	0-2	0-2	N/A	N/A
Well 2	12	Absent	0-1		
Well 4	12	Absent	Absent		
Well 5	12	0-5	0-5		
Treated	N/A	N/A	N/A	N/A	N/A
Distribution	26	Absent	Absent	26	10-10

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 #)
Turbidity* Treated	8760	0 – 0.78 NTU
Chlorine* Distribution	8760	0 – 1.56
Fluoride (If the DWS provides fluoridation)	N/A	N/A

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

* Turbidity & chlorine Min/Max (lows/highs) are due to planned maintenance and not plant upset.

NOTE: Record the unit of measure if it is **not** milligrams per litre.

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
N/A	N/A	N/A	N/A	N/A

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	2021/01/11	< 0.6	µg/L	No
Arsenic	2021/01/11	< 1.0	µg/L	No
Barium	2021/01/11	10.0	µg/L	No
Boron	2021/01/11	266.0	µg/L	No
Cadmium	2021/01/11	< 0.1	µg/L	No
Chromium	2021/01/11	< 1.0	µg/L	No
*Lead	Refer to Summary Table Below			
Mercury	2021/01/11	< 0.1	µg/L	No
Selenium	2021/01/11	< 1.0	µg/L	No
Sodium	2022/01/12	93.9	mg/L	Yes
Uranium	2021/01/11	< 2.0	µg/L	No
Fluoride	2020/12/10	0.056	mg/L	No
Nitrite	2022/02/02	<0.01	mg/L	No
	2022/04/20	<0.01	mg/L	No
	2022/08/03	<0.01	mg/L	No
	2022/10/24	0.38	mg/L	No
Nitrate	2022/02/02	0.21	mg/L	No
	2022/04/20	0.66	mg/L	No

	2022/08/03	0.50	mg/L	No
	2022/10/24	0.22	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 #)	Number of Exceedances
Plumbing	N/A	N/A	N/A
Distribution	2	0.1 – 0.3	0

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	2021/01/11	< 0.1	µg/L	No
Atrazine + N-dealkylated metabolites	2021/01/11	< 0.2	µg/L	No
Azinphos-methyl	2021/01/11	< 0.1	µg/L	No
Benzene	2021/01/11	< 0.5	µg/L	No
Benzo(a)pyrene	2021/01/11	< 0.005	µg/L	No
Bromoxynil	2021/01/11	< 0.2	µg/L	No
Carbaryl	2021/01/11	< 0.2	µg/L	No
Carbofuran	2021/01/11	< 0.2	µg/L	No
Carbon Tetrachloride	2021/01/11	< 0.2	µg/L	No
Chlorpyrifos	2021/01/11	< 0.1	µg/L	No
Diazinon	2021/01/11	< 0.1	µg/L	No
Dicamba	2021/01/11	< 0.2	µg/L	No
1,2-Dichlorobenzene	2021/01/11	< 0.5	µg/L	No
1,4-Dichlorobenzene	2021/01/11	< 0.5	µg/L	No
1,2-Dichloroethane	2021/01/11	< 0.5	µg/L	No
1,1-Dichloroethylene (vinylidene chloride)	2021/01/11	< 0.5	µg/L	No
Dichloromethane (Methylene Chloride)	2021/01/11	< 5.0	µg/L	No

2-4 Dichlorophenol	2021/01/11	< 0.3	µg/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	2021/01/11	< 0.2	µg/L	No
Diclofop-methyl	2021/01/11	< 0.2	µg/L	No
Dimethoate	2021/01/11	< 0.1	µg/L	No
Diquat	2021/01/11	< 1.0	µg/L	No
Diuron	2021/01/11	< 1.0	µg/L	No
Glyphosate	2021/01/11	< 5.0	µg/L	No
Haloacetic acids (HAA)* (NOTE: show latest annual average)	2022/10/24 2022 Average	9.0 12.5	ug/L ug/L	No
Malathion	2021/01/11	< 0.1	µg/L	No
Metolachlor	2021/01/11	< 0.1	µg/L	No
Metribuzin	2021/01/11	< 0.1	µg/L	No
Monochlorobenzene (Chlorobenzene)	2021/01/11	< 0.5	µg/L	No
Paraquat	2021/01/11	< 1.0	µg/L	No
Pentachlorophenol	2021/01/11	< 0.5	µg/L	No
Phorate	2021/01/11	< 0.1	µg/L	No
Picloram	2021/01/11	< 0.2	µg/L	No
Polychlorinated Biphenyls(PCB)	2021/01/11	< 0.035	µg/L	No
Prometryne	2021/01/11	< 0.1	µg/L	No
Simazine	2021/01/11	< 0.1	µg/L	No
THM (NOTE: show latest annual average)	2021/10/24 2022 Average	43.5 98.4	µg/L µg/L	No No
Terbufos	2021/01/11	< 0.2	µg/L	No
Tetrachloroethylene	2021/01/11	< 0.5	µg/L	No
2,3,4,6-Tetrachlorophenol	2021/01/11	< 0.5	µg/L	No
Triallate	2021/01/11	< 0.1	µg/L	No
Trichloroethylene	2021/01/11	< 0.5	µg/L	No
2,4,6-Trichlorophenol	2021/01/11	< 0.5	µg/L	No
Trifluralin	2021/01/11	< 0.1	µg/L	No
Vinyl Chloride	2021/01/11	< 0.2	µg/L	No
MCPA	2021/01/11	< 0.2	µg/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
Sodium	93.9	mg/L	2022/01/12