

ANNUAL REPORT

ONTARIO REGULATION 170/03
SECTION 11

BAXTER DISTRIBUTION SYSTEM



**FOR THE PERIOD:
JANUARY 1, 2017 – DECEMBER 31, 2017**

*Prepared for the Corporation of the Township of Essa
by the Ontario Clean Water Agency*



**ONTARIO CLEAN WATER AGENCY
AGENCE ONTARIENNE DES EAUX**

Drinking-Water System Number:	260086866
Drinking-Water System Name:	Baxter Distribution System
Drinking-Water System Owner:	The Corporation of the Township of Essa
Drinking-Water System Category:	Small Municipal Residential
Period being reported:	January 1, 2017 to December 31, 2017

Does your Drinking-Water System serve more than 10,000 people?

No

Is your annual report available to the public at no charge on a web site on the Internet?

Yes

Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.

Summary Report is available for inspection at the Township of Essa Municipal Office at 5786 Simcoe County Road 21, Utopia, Essa Twp, ON, L0M 1T0 or on the following website: <http://www.essatownship.on.ca>

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
Not applicable	Not applicable

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?

Not Applicable

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**

Description of Drinking-Water System:

Source Water

On November 21, 2007 this water system was switched over to the Collingwood to Alliston treated water transmission main (pipeline). The Raymond A. Barker Ultrafiltration Plant (RAB) in Collingwood supplies safe drinking water through the pipeline to the Baxter Facility.

Re-chlorination System

Modifications to the chlorination system enable re-chlorination of the treated water in the pipeline prior to filling the storage tank. Treated water from Collingwood is monitored by an on-line free chlorine analyzer in the pumphouse.

Storage Reservoir and High Lift Pumping

An above ground water storage tank provides a storage capacity of 300 m³ and is equipped with a separate fill and discharge pipe. Two (2) high lift distribution pumps with VFD (one duty and one standby) are connected to the storage tank discharge pipe. An on-line free chlorine analyzer monitors the treated water from the storage tank.

Fire Truck Filling Station

A “dry hydrant” is provided for fire truck filling or for filling the storage tank (hailed water) if the pipeline was down for maintenance and unavailable.

Alarming of the System

The system is alarmed for a number of parameters and monitored by Huronia Alarms, Midland, Ontario.

Auxiliary Power

The Baxter Distribution System is equipped with a 35 kw generator and auto switch over to provide stand by power in the event of a power failure.

List of water treatment chemicals used during the reporting period:

- Sodium Hypochlorite 12% Solution NSF, Disinfection

Significant expenses incurred to:

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

Description of significant expenses incurred in 2017:

1. Drinking Water Quality Management Standard (DWQMS) audit of OCWA Quality & Environmental Management System (QEMS).
2. Annual calibrations of continuous analyzers, backflow preventers, flow meters, etc.
3. Laboratory sample bottles and analysis.
4. Repaired damaged equipment and installed surge protection.
5. Purchased and installed UPS.
6. Purchased data plan (SIM).
7. Purchased spare chlorine analyzer probe.
8. Purchased chemical pump spare parts kits.
9. Purchased parts to repair diesel generator and rental of a portable generator to supply standby power until repairs were completed.
10. Purchased potable water and delivered to site for distribution during Alliston pipeline outage (due to break/leak/damage).

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 (yyyy/mm/dd)	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date (yyyy/mm/dd)
Not Applicable					

Table 1: Microbiological testing done under the Schedule 11 of Regulation 170/03 during this reporting period.

Location	Number of Samples	Range of E. Coli or Fecal Results		Range of Total Coliform Results		Number of HPC Samples	Range of HPC Samples	
		Min	Max	Min	Max		Min	Max
Treated – TW*	52	0	0	0	0	50 [^]	0	37
Distribution - DW	52	0	0	0	0	51 [^]	0	42

* Treated Water from Storage Tank

[^] Treated (x 1) and Distribution Water (x 1) samples were taken on March 20, 2017 and were to be analyzed for EC, TC, and HPC, however the Laboratory sent a notification stating that the HPC results were “NDLA - No Data: Laboratory Accident/Error - incubator malfunction.” The Laboratory sent the following explanation: “on the evening of March 22, 2017 our incubator used for microbiological testing, set at 35°C, malfunctioned causing the temperature to fall outside of our acceptable range. This resulted in processed samples being rejected under methodology and SGS quality control guidelines. Client was notified.”

Table 2: Operational testing done under Schedule 7 of Regulation 170/03 during the period covered by this Annual Report.

Location & Test	Number of Samples	Range of Results	
		Minimum	Maximum
Turbidity, Treated (Continuous) [NTU]	8760	0.00	1.00
Turbidity, Treated (Grab) [NTU]	178	0.05	0.96
Free Chlorine Residual, Pipeline (Continuous) [mg/L]	8760	0.00 [^]	5.00 [^]
Free Chlorine Residual, Treated (Continuous) [mg/L]	8760	0.03+	4.89
Free Chlorine Residual, Treated (Grab) [mg/L]	191	0.85	2.04
Total Chlorine Residual, Treated (Grab) [mg/L]	191	1.02	2.20
Free Chlorine Residual, Distribution (Grab) [mg/L]	135	0.66	1.93

Note: the number of samples used for continuous monitoring units is 8760.

[^] The Minimum and Maximum Pipeline Free Chlorine Residuals due to calibration on June 28, 2017. Not actual low and high.

+ The Minimum Treated Free Chlorine Residual due to flow restriction to chlorine analyzer, which was remedied by on-call Operator. This did not result in an Adverse Observation because no water was leaving the facility to the distribution system during event.

Table 3: 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
Not Applicable				

Table 4: Summary of Inorganic parameters tested during this reporting period or the most recent sample results

Parameter	Sample Date (yyyy/mm/dd)	Sample Result	Maximum Allowable Concentration (MAC)	Number of Exceedances	
				MAC	½ MAC
Antimony: Sb (µg/L)					
Arsenic: As (µg/L)					
Barium: Ba (µg/L)					
Boron: B (µg/L)					
Cadmium: Cd (µg/L)					
Chromium: Cr (µg/L)					
Mercury: Hg (µg/L)					
Selenium: Se (µg/L)					
Uranium: U (µg/L)					
Fluoride: F (mg/L)					
Nitrite (mg/L)					
Nitrate (mg/L)					
Sodium: Na (mg/L)*					

Please refer to the Collingwood Drinking Water System Annual Compliance Report for 2017. It is located at the following website: www.collingwood.ca/water/docs

*There is no "MAC" for Sodium. The aesthetic objective for sodium in drinking water is 200 mg/L. The local Medical Officer of Health should be notified when the sodium concentration exceeds 20 mg/L so that this information may be communicated to local physicians for their use with patients on sodium restricted diets.

Table 5: Summary of lead testing under Schedule 15.1 during this reporting period

Location Type	Number of Samples	Range of Lead Results		Number of Exceedances
		Minimum	Maximum	
Plumbing	Not Applicable - Relief from all Plumbing Requirements*			
Distribution	Not Applicable for 2017**			

Note: *the Alkalinity results for 2017 were 73 and 77 (mg/L as CaCO₃).*

* This system qualifies for the plumbing exemption as per O. Regulation 170/03 Schedule 15.1-5 (9) (10).

** Distribution lead samples are taken every 36 months. The last set of distribution lead samples was taken in 2015. The next set of distribution lead samples is scheduled for 2018.

Table 6: Summary of Organic parameters sampled during this reporting period or the most recent sample results

Parameter	Sample Date (yyyy/mm/dd)	Sample Result	Maximum Allowable Concentration (MAC)	Number of Exceedances	
				MAC	½ MAC
Alachlor (µg/L)					
Atrazine + N-dealkylated metabolites (µg/L)					
Azinphos-methyl (µg/L)					
Benzene (µg/L)					
Benzo(a)pyrene (µg/L)					
Bromoxynil (µg/L)					
Carbaryl (µg/L)					
Carbofuran (µg/L)					

Please refer to the Collingwood Drinking Water System Annual Compliance Report for 2017. It is located at the following website: www.collingwood.ca/water/docs

Parameter	Sample Date (yyyy/mm/dd)	Sample Result	Maximum Allowable Concentration (MAC)	Number of Exceedances	
				MAC	½ MAC
Carbon Tetrachloride (µg/L)					
Chlorpyrifos (µg/L)					
Diazinon (µg/L)					
Dicamba (µg/L)					
1,2-Dichlorobenzene (µg/L)					
1,4-Dichlorobenzene (µg/L)					
1,2-Dichloroethane (µg/L)					
1,1-Dichloroethylene (µg/L)					
Dichloromethane (Methylene Chloride) (µg/L)					
2,4-Dichlorophenol (µg/L)					
2,4-Dichlorophenoxy acetic acid (2,4- D) (µg/L)					
Diclofop-methyl (µg/L)					
Dimethoate (µg/L)					
Diquat (µg/L)					
Diuron (µg/L)					
Glyphosate (µg/L)					
Malathion (µg/L)					
Metolachlor (µg/L)					
Metribuzin (µg/L)					
Monochlorobenzene (Chlorobenzene) (µg/L)					
Paraquat (µg/L)					
PCB (µg/L)					
Pentachlorophenol (µg/L)					
Phorate (µg/L)					
Picloram (µg/L)					
Prometryne (µg/L)					
Simazine (µg/L)					
Terbufos (µg/L)					
Tetrachloroethylene (µg/L)					
2,3,4,6-Tetrachlorophenol (µg/L)					
Triallate (µg/L)					
Trichloroethylene (µg/L)					
2,4,6-Trichlorophenol (µg/L)					
Trifluralin (µg/L)					
Vinyl Chloride (µg/L)					
Trihalomethane: Total Annual Average (µg/L) - DW	4 Quarters of 2017	51.25	100.00	No	Yes
Haloacetic Acid: Total Annual Average (µg/L) - DW	4 Quarters of 2017	28.45	80.00 (in 2020)	N/A	N/A

Table 7: List of 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
Trihalomethane: Total Annual Average - DW	51.25	µg/L	4 Quarters of 2017

Note: this table highlights parameters with a “Yes” in the ½ MAC columns of Table 4 and Table 6.