



Ontario Clean Water Agency
Agence Ontarienne Des Eaux

BAXTER
WELL SUPPLY SYSTEM

ONTARIO REGULATION 170/03

Section 11

ANNUAL REPORT

For the Period of

January 1, 2007 to December 31, 2007

Prepared for The Corporation of the Township of Essa

By the Ontario Clean Water Agency

**Part III Form 2
Section 11. ANNUAL REPORT.**

Drinking-Water System Number:	260001013
Drinking-Water System Name:	Baxter Well Supply System
Drinking-Water System Owner:	The Corporation of the Township of Essa
Drinking-Water System Category:	Small Municipal Residential
Period being reported:	January 1, 2007 – December 31, 2007

<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;"> Township of Essa Municipal Office 5786 Simcoe County Road 21 Utopia, Essa Twp, ON. L0M 1T0 Website: www.essatownship.on.ca </div>	<p><u>Complete for all other Categories.</u></p> <p>Number of Designated Facilities served: <input style="width: 100px; height: 20px;" type="text"/></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: <input style="width: 100px; height: 20px;" type="text"/></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
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?
 Yes [] No [NA]

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

Describe your Drinking-Water System

Description of the Baxter Well Supply System until November 21, 2007

Raw Water Supply

The Baxter well supply system pumphouse is located on Marshall Crescent in the Hamlet of Baxter, Essa Township. Raw water is supplied from two 150mm diameter steel cased drilled wells. Well # 1 is situated 40 m east of the pump house extending to a depth of 64.0m with a rated capacity of 4L/sec at a Total Dynamic Head (TDH) of 86.56m. Well #2 is located 55m east of the pumphouse extending to a depth of 61.0m with a rated capacity of 3.9 L/sec at a TDH of 89m. Both well casings extend 0.7m above the ground surface. Both well heads are enclosed in a concrete crock.

Disinfection

Raw water is pumped to the pumphouse via two (2) 75mm lines, where it is injected with NSF 60 certified 12% Sodium Hypochlorite Solution at the main discharge header. The Sodium Hypochlorite solution is stored in a 100 L day tank and delivered to the system by one (1) of two (2) chemical feed pumps, each having the capability of pumping 3.78 L/hr. Contact time is achieved in a 400mm diameter by 50m long chlorine contact chamber prior to entering the distribution system. The Baxter Well Supply System has a rated capacity of 3.9 l/sec or 255 cubic meters per day.

Distribution and Storage

The pumphouse is equipped with Five (5) 454L hydro-pneumatic pressure tanks, which provide storage and help to maintain pressure in the distribution system.

Monitoring

The Baxter Well Supply System is equipped with on-line Turbidity, Free and Total Chlorine analyzers. Flow and process data is recorded on an SM1000 data logger. The recorded data is down loaded periodically and stored on the main server at the Wasaga Beach office. The system is alarmed for a number of parameters and monitored by Huronia Alarms, Midland, Ontario.

Auxiliary Power

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

Description of the Baxter Well Supply System after November 21, 2007

Proposed Works were completed in November 2007 as per the Certificate of Approval for this 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.

The on-site wells known as Well #1 and Well #2 were disconnected and decommissioned.

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 (hauled 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 Well Supply System is equipped with a 35 kw generator and auto switch over to provide stand by power in the event of a power failure.

Important Note: On January 25, 2008 in accordance with the Ministry of the Environment Drinking Water Programs Branch the Drinking Water System Name for this water system was changed to "**Baxter Distribution System**" and the Drinking Water System Number changed to "**260086866**". The name and number reflected on this report has been discontinued (date ended).

List all water treatment chemicals used over this reporting period

Sodium Hypochlorite 12% Solution NSF, Disinfection

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

Expenses incurred which were in addition to normal operating costs.

1. Completion of Upgrades (Proposed Works) to the facility (connection to the existing Collingwood to Alliston treated water transmission main, disconnect and decommissioning of the existing wells #1 and #2, re-chlorination system, above grade water storage tank, high lift pumps, flow meter, dry hydrant and all electrical / mechanical work needed for these upgrades).
2. Replace CL17 Chlorine Analyzer.
3. Hauled in water during pipeline shutdown (scheduled maintenance).
4. Purchase new hydrant flags.

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
No Incidents					

Microbiological testing done under the Schedule 11 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 #)
RW1 - Raw Water Well #1	Refer to attached Appendix A				
RW2 - Raw Water Well #2					
TW - Treated Water					
DW - Distribution Water					

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

	Number of Grab Samples	Range of Results (min #)-(max #)
Raw Turbidity		
Well #1	11 +	0.58 – 0.93 NTU
Well #2	11 +	0.30 – 0.85 NTU
Treated Turbidity	8760	0 - 1.02 NTU
Treated Chlorine	8760	0 – 5.3 mg/L *
FreeChlorine Residual Distribution System	258	0.14 – 2.50 mg/L
Fluoride (If the DWS provides fluoridation)	NA	NA

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

- * Chlorine residuals of 0.0 and > 4.0 due to system maintenance and / or power interruption.
- + Wells disconnected and decommissioned in November – no samples in December.

*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
COA November 9, 2006 # 9596-6UGWW	Ammonia	Weekly until November 21, 2007	Raw Well #1 Min: 0.40 Max: 1.06 Raw Well #2 Min: 0.40 Max: 1.52	mg/L

Note: On November 21, 2007 this water system was switched over to the Collingwood to Alliston treated water transmission main (pipeline). Last weekly sample was taken on November 20, 2007.

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	Refer to attached Appendix A			
Arsenic				
Barium				
Boron				
Cadmium				
Chromium				
Lead				
Mercury				
Selenium				
Sodium				
Uranium				
Fluoride				
Nitrite				
Nitrate				

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	Refer to attached Appendix A			
Aldicarb				
Aldrin + Dieldrin				
Atrazine + N-dealkylated metabolites				
Azinphos-methyl				
Bendiocarb				
Benzene				
Benzo(a)pyrene				
Bromoxynil				
Carbaryl				
Carbofuran				
Carbon Tetrachloride				
Chlordane (Total)				
Chlorpyrifos				
Cyanazine				
Diazinon				
Dicamba				
1,2-Dichlorobenzene				
1,4-Dichlorobenzene				
Dichlorodiphenyltrichloroethane (DDT) + metabolites				
1,2-Dichloroethane				
1,1-Dichloroethylene (vinylidene chloride)				
Dichloromethane				
2,4-Dichlorophenol				
2,4-Dichlorophenoxy acetic acid (2,4-D)				
Diclofop-methyl				
Dimethoate				

Dinoseb
Diquat
Diuron
Glyphosate
Heptachlor + Heptachlor Epoxide
Lindane (Total)
Malathion
Methoxychlor
Metolachlor
Metribuzin
Monochlorobenzene
Paraquat
Parathion
Pentachlorophenol
Phorate
Picloram
Polychlorinated Biphenyls(PCB)
Prometryne
Simazine
THM (NOTE: show latest annual average)
Temephos
Terbufos
Tetrachloroethylene
2,3,4,6-Tetrachlorophenol
Triallate
Trichloroethylene
2,4,6-Trichlorophenol
2,4,5-Trichlorophenoxy acetic acid (2,4,5-T)
Trifluralin
Vinyl Chloride

Refer to attached Appendix A

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

No Parameters exceeded half the standard prescribed in Schedule 2 for the Baxter Well Supply System.

Parameter	Result Value	Unit of Measure	Date of Sample

(Only if DWS category is large municipal residential, small municipal residential, large municipal non residential, non municipal year round residential, large non municipal non residential)

APPENDIX A
ANNUAL SUMMARY (Microbiological, Inorganic & Organic)

Location:

RW1 – Raw Water Well #1
RW2 – Raw Water Well #2

TW – Treated Water

DW – Distribution Water

ANNUAL REPORT - Microbiological, Inorganic & Organic

Waterworks: 5662 - [260001013] Baxter Well Supply System

Period being reported: 01/01/2007 to 12/31/2007

Microbiological testing done under Schedule 11 of Regulation 170/03 during this reporting Period

Location	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 #)	Number of Background Samples	Range of Background Results (min #) - (max #)
Raw - RW1	47	0 - 0	0 - 0		-		-
Raw - RW2	47	0 - 0	0 - 1		-		-
Treated - TW	52	0 - 0	0 - 0	52	0 - 85		-
Distribution - DW	52	0 - 0	0 - 0	52	0 - 36		-

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

Parameter	Sample Date	Result Value	Exceedance
Antimony: Sb (ug/L) - TW	2006/01/16	< 1.00	No
Arsenic: As (ug/L) - TW	2006/01/16	< 1.00	No
Barium: Ba (ug/L) - TW	2006/01/16	69.00	No
Boron: B (ug/L) - TW	2006/01/16	44.00	No
Cadmium: Cd (ug/L) - TW	2006/01/16	< 0.10	No
Chromium: Cr (ug/L) - TW	2006/01/16	< 5.00	No
Lead: Pb (ug/L)	2007/01/09	1.17	No
Mercury: Hg (ug/L) - TW	2006/01/16	< 0.0001	No
Selenium: Se (ug/L) - TW	2006/01/16	< 2.00	No
Sodium: Na (mg/L) - TW	2003/08/26	17.90	No
Uranium: U (ug/L) - TW	2006/01/16	< 0.10	No
Fluoride Residual: Mean (mg/L) - TW	2003/08/26	0.12	No
Nitrite (mg/L) - TW	2007/01/09	0.0050	No
Nitrite (mg/L) - TW	2007/04/03	0.0050	No
Nitrite (mg/L) - TW	2007/07/03	0.0050	No
Nitrite (mg/L) - TW	2007/10/02	0.0090	No
Nitrate (mg/L) - TW	2007/01/09	0.013	No
Nitrate (mg/L) - TW	2007/04/03	0.013	No
Nitrate (mg/L) - TW	2007/07/03	0.013	No
Nitrate (mg/L) - TW	2007/10/02	0.013	No

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

Parameter	Sample Date	Result Value	Exceedance
Alachlor (ug/L) - TW	2006/01/16	< 0.50	No
Aldicarb (ug/L) - TW	2006/01/16	< 5.00	No
Aldrin + Dieldrin (ug/L) - TW	2006/01/16	< 0.012	No
Atrazine + N-dealkylated metabolites (ug/L) - TW	2006/01/16	< 1.00	No
Azinphos-methyl (ug/L) - TW	2006/01/16	< 2.00	No
Bendiocarb (ug/L) - TW	2006/01/16	< 2.00	No
Benzene (ug/L) - TW	2006/01/16	< 0.10	No
Benzo(a)pyrene (ug/L) - TW	2006/01/16	< 0.0090	No
Bromoxynil (ug/L) - TW	2006/01/16	< 0.50	No
Carbaryl (ug/L) - TW	2006/01/16	< 5.00	No
Carbofuran (ug/L) - TW	2006/01/16	< 5.00	No
Carbon Tetrachloride (ug/L) - TW	2006/01/16	< 0.10	No
Chlordane:Total (ug/L) - TW	2006/01/16	< 0.012	No
Chlorpyrifos (ug/L) - TW	2006/01/16	< 1.00	No
Cyanazine (ug/L) - TW	2006/01/16	< 1.00	No
Diazinon (ug/L) - TW	2006/01/16	< 1.00	No
Dicamba (ug/L) - TW	2006/01/16	< 1.00	No
1,2-Dichlorobenzene (ug/L) - TW	2006/01/16	< 0.20	No
1,4-Dichlorobenzene (ug/L) - TW	2006/01/16	< 0.20	No
Dichlorodiphenyltrichloroethane (DDT) + metabolites (ug/L) - TW	2006/01/16	< 0.024	No
1,2-Dichloroethane (ug/L) - TW	2006/01/16	< 0.10	No
1,1-Dichloroethylene (ug/L) - TW	2006/01/16	< 0.10	No
Dichloromethane (ug/L) - TW	2006/01/16	< 0.50	No
2,4-Dichlorophenol (ug/L) - TW	2006/01/16	< 0.50	No

ANNUAL REPORT - Microbiological, Inorganic & Organic

Waterworks: 5662 - [260001013] Baxter Well Supply System

Period being reported: 01/01/2007 to 12/31/2007

Parameter	Sample Date	Result Value	Exceedance
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW	2006/01/16	< 1.00	No
Diclofop-methyl (ug/L) - TW	2006/01/16	< 0.90	No
Dimethoate (ug/L) - TW	2006/01/16	< 2.50	No
Dinoseb (ug/L) - TW	2006/01/16	< 1.00	No
Diquat (ug/L) - TW	2006/01/16	< 7.00	No
Diuron (ug/L) - TW	2006/01/16	< 10.00	No
Glyphosate (ug/L) - TW	2006/01/16	< 10.00	No
Heptachlor+Hepachlor Epoxide (ug/L) - TW	2006/01/16	< 0.012	No
Lindane: (ug/L) - TW	2006/01/16	< 0.0060	No
Malathion (ug/L) - TW	2006/01/16	< 5.00	No
Methoxychlor (ug/L) - TW	2006/01/16	< 0.024	No
Metolachlor (ug/L) - TW	2006/01/16	< 0.50	No
Metribuzin (ug/L) - TW	2006/01/16	< 5.00	No
Monochlorobenzene (ug/L) - TW	2006/01/16	< 0.10	No
Paraquat (ug/L) - TW	2006/01/16	< 1.00	No
Parathion (ug/L) - TW	2006/01/16	< 1.00	No
Pentachlorophenol (ug/L) - TW	2006/01/16	< 0.50	No
Phorate (ug/L) - TW	2006/01/16	< 0.50	No
Picloram (ug/L) - TW	2006/01/16	< 5.00	No
Polychlorinated Bichenysl(PCB) (ug/L) - TW	2006/01/16	< 0.50	No
Prometryne (ug/L) - TW	2006/01/16	< 0.25	No
Simazine (ug/L) - TW	2006/01/16	< 1.00	No
THM (ug/L)	2007	1.80	No
Temephos (ug/L) - TW	2006/01/16	< 10.00	No
Terbufos (ug/L) - TW	2006/01/16	< 0.70	No
Tetrachloroethylene (ug/L) - TW	2006/01/16	< 0.10	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW	2006/01/16	< 0.50	No
Triallate (ug/L) - TW	2006/01/16	< 1.00	No
Trichloroethylene (ug/L) - TW	2006/01/16	< 0.10	No
2,4,6-Trichlorophenol (ug/L) - TW	2006/01/16	< 0.50	No
2,4,5-Trichlorophenoxy acetic acid (ug/L) - TW	2006/01/16	< 1.00	No
Trifluralin (ug/L) - TW	2006/01/16	< 1.00	No
Vinyl Chloride (ug/L) - TW	2006/01/16	< 0.20	No