



Ontario Clean Water Agency
Agence Ontarienne Des Eaux

**THORNTON (Glen Avenue)
WELL SUPPLY SYSTEM**

ONTARIO REGULATION 170/03

Section 11

ANNUAL REPORT

For the Period of

January 1, 2009 to December 31, 2009

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:	220006945
Drinking-Water System Name:	Thornton (Glen Avenue) Well Supply System
Drinking-Water System Owner:	The Corporation of the Township of Essa
Drinking-Water System Category:	Large Municipal Residential
Period being reported:	January 1, 2009 – December 31, 2009

<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;"> Township of Essa Municipal Office 5786 Simcoe County Road 21 Utopia, Essa Twp, ON. L0M 1T0 </div>	<p><u>Complete for all other Categories.</u></p> <p>Number of Designated Facilities served: <div style="border: 1px solid black; width: 100px; height: 20px; margin: 5px 0;"></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; width: 100px; height: 20px; margin: 5px 0;"></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
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

Raw Water Supply

The Thornton (Glen Avenue) Well Supply System pumphouse is located on Glen Avenue in the Village of Thornton, Township of Essa. Raw water is supplied to the pumphouse by means of Four (4) drilled wells each equipped with submersible well pumps. Wells 1 & 2 are comprised of a 150mm diameter casings, extending to depths of 50 and 52 meters respectively. Wells 1 & 2 are located adjacent to the pump house each with a maximum pumping rate of 6.06 L/sec at a TDH of 73 m. Wells 3 & 4 are located in the Thornton Creek Estate subdivision, North of the Glen Avenue pumphouse. Well #3 is comprised of a 300mm diameter casing extending to a depth of 32 meters, capable of pumping 5.7 L/sec at a TDH of 60m. Well #4 is comprised of a 160mm diameter casing extending to a depth of 31.4 meters, capable of pumping 3.8 L/sec at a TDH of 73m. Controls for wells #3 & 4 are located in an adjacent pre-fabricated vinyl building.

Disinfection

Water is pumped from the wells to the Glen Avenue pumphouse where it is disinfected with NSF certified 12% Sodium Hypochlorite Solution. The Sodium Hypochlorite Solution is stored in an 1000L bulk storage tank and a 100L day tank. The solution is injected into the main header by one of two (2) chemical feed pumps, each capable of pumping 2.5 L/hr.

Storage and Distribution

Treated water is pumped to two (2) fused glass lined bolted steel above ground storage tanks, each with a capacity of 556 cubic meters. Water is pumped from the storage tanks to the distribution system by three (3) variable frequency drive high lift pumps, each with a rated pumping capacity of 26.52 L/sec.

Monitoring and Recording

On-line analyzers monitor treated water for free chlorine residual and turbidity. Operational data, including pump run hrs, flow rates; free chlorine residual and turbidity are recorded on a data logger located on the MCC panel. The logged data is down loaded periodically and stored on the main server at the Ontario Clean Water Agency office in Wasaga Beach. The system is alarmed for a number of parameters and monitored continuously by Huronia Alarms, Midland Ontario.

Auxiliary Power

The Glen Avenue pumphouse is equipped with a 175 kw diesel generator with automatic switch over. This supplies power to the plant in the event of a power failure.

List all water treatment chemicals used over this reporting period

Sodium Hypochlorite 12% Solution NSF, Disinfection
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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

<p>Expenses incurred which were in addition to normal operating costs:</p> <ol style="list-style-type: none"> 1. Drinking Water Quality Management System Operational Plan 2. Community Lead Testing Program 3. Emergency Repairs of water service and curb stop 4. Swabbed selected watermains 5. Replaced Tower Level Probes 6. Replaced Hydrant Flags
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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 10 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					
RW3 - Raw Water Well #3					
RW4 - Raw Water Well #4					
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	12	0.13 – 0.91 NTU
Well #2	12	0.25 – 0.80 NTU
Well #3	12	0.17 – 0.74 NTU
Well #4	12	0.23 – 0.64 NTU
Treated Turbidity	8760	0.00 - 5.00 NTU *
Treated Free Chlorine	8760	0.00 - 5.00 mg/L *
Free Chlorine Residual Distribution System	386	0.40 – 2.26 mg/L
Fluoride (If the DWS provides fluoridation)	NA	NA

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

* Turbidity and Chlorine residuals of 0.00 and 5.00 due to system maintenance and / or power interruptions and does not indicate an adverse situation.

*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
No Additional Testing and or Sampling Required				

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				

*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	16	0.09 – 9.40 ug/L	0
Distribution	8	0.07 – 1.82 ug/L	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				
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				

Refer to attached Appendix A

THM (NOTE: show latest annual average)	Refer to attached Appendix A
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	

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
No Parameters exceeded half the standard prescribed in Schedule 2 for the Thornton (Glen Avenue) Well Supply System.			

(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

RW3 – Raw Water Well #3

RW4 – Raw Water Well #4

TW1 – Treated Water

DW – Distribution Water

ANNUAL REPORT - Microbiological, Inorganic & Organic

Waterworks: 6066 - [220006945] Thornton/Glen Water & Well Distribution System
 Period being reported: 01/01/2009 to 12/31/2009

Microbiological testing done under Schedule 10, 11 or 12 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	52	0 - 0	0 - 2		-		-
Raw - RW2	52	0 - 0	0 - 0		-		-
Raw - RW3	52	0 - 0	0 - 5		-		-
Raw - RW4	52	0 - 0	0 - 9		-		-
Treated - TW	52	0 - 0	0 - 0	52	0 - 32		-
Distribution - DW	123	0 - 0	0 - 0	51	0 - 4		-

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

Parameter	Sample Date	Result Value	Exceedance
Antimony: Sb (ug/L) - TW	2009/01/07	< 0.020	No
Arsenic: As (ug/L) - TW	2009/01/07	0.20	No
Barium: Ba (ug/L) - TW	2009/01/07	74.00	No
Boron: B (ug/L) - TW	2009/01/07	32.40	No
Cadmium: Cd (ug/L) - TW	2009/01/07	< 0.0030	No
Chromium: Cr (ug/L) - TW	2009/01/07	1.10	No
Lead: Pb (ug/L)	2007/06/07	0.42	No
Mercury: Hg (ug/L) - TW	2009/01/07	< 0.020	No
Selenium: Se (ug/L) - TW	2009/01/07	< 1.00	No
Sodium: Na (mg/L) - TW	2008/07/22	32.60	Yes
Uranium: U (ug/L) - TW	2009/01/07	0.81	No
Fluoride Residual: Mean (mg/L) - TW	2008/07/08	0.10	No
Nitrite (mg/L) - TW	2009/01/07	0.0050	No
Nitrite (mg/L) - TW	2009/03/31	0.035	No
Nitrite (mg/L) - TW	2009/07/14	0.0050	No
Nitrite (mg/L) - TW	2009/10/26	0.0050	No
Nitrate (mg/L) - TW	2009/01/07	1.85	No
Nitrate (mg/L) - TW	2009/03/31	2.06	No
Nitrate (mg/L) - TW	2009/07/14	1.49	No
Nitrate (mg/L) - TW	2009/10/26	1.89	No

ANNUAL REPORT - Microbiological, Inorganic & Organic

Waterworks: 6066 - [220006945] Thornton/Glen Water & Well Distribution System
 Period being reported: 01/01/2009 to 12/31/2009

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

Parameter	Sample Date	Result Value	Exceedance
Alachlor (ug/L) - TW	2009/01/07	< 0.11	No
Aldicarb (ug/L) - TW	2009/01/07	< 0.30	No
Aldrin + Dieldrin (ug/L) - TW	2009/01/07	< 0.067	No
Atrazine + N-dealkylated metabolites (ug/L) - TW	2009/01/07	< 0.12	No
Azinphos-methyl (ug/L) - TW	2009/01/07	< 0.21	No
Bendiocarb (ug/L) - TW	2009/01/07	< 0.13	No
Benzene (ug/L) - TW	2009/01/07	< 0.37	No
Benzo(a)pyrene (ug/L) - TW	2009/01/07	< 0.0040	No
Bromoxynil (ug/L) - TW	2009/01/07	< 0.33	No
Carbaryl (ug/L) - TW	2009/01/07	< 0.16	No
Carbofuran (ug/L) - TW	2009/01/07	< 0.37	No
Carbon Tetrachloride (ug/L) - TW	2009/01/07	< 0.41	No
Chlordane:Total (ug/L) - TW	2009/01/07	< 0.11	No
Chlorpyrifos (ug/L) - TW	2009/01/07	< 0.18	No
Cyanazine (ug/L) - TW	2009/01/07	< 0.18	No
Diazinon (ug/L) - TW	2009/01/07	< 0.081	No
Dicamba (ug/L) - TW	2009/01/07	< 0.20	No
1,2-Dichlorobenzene (ug/L) - TW	2009/01/07	< 0.50	No
1,4-Dichlorobenzene (ug/L) - TW	2009/01/07	< 0.21	No
Dichlorodiphenyltrichloroethane(DDT) + metabolites (ug/L) - TW	2009/01/07	< 0.14	No
1,2-Dichloroethane (ug/L) - TW	2009/01/07	< 0.43	No
1,1-Dichloroethylene (ug/L) - TW	2009/01/07	< 0.41	No
Dichloromethane (ug/L) - TW	2009/01/07	< 0.34	No
2,4-Dichlorophenol (ug/L) - TW	2009/01/07	< 0.15	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW	2009/01/07	< 0.19	No
Diclofop-methyl (ug/L) - TW	2009/01/07	< 0.40	No
Dimethoate (ug/L) - TW	2009/01/07	< 0.12	No
Dinoseb (ug/L) - TW	2009/01/07	< 0.36	No
Diquat (ug/L) - TW	2009/01/07	< 1.00	No
Diuron (ug/L) - TW	2009/01/07	< 0.087	No
Glyphosate (ug/L) - TW	2009/01/07	< 6.00	No
Heptachlor+Hepachlor Epoxide (ug/L) - TW	2009/01/07	< 0.11	No
Lindane: (ug/L) - TW	2009/01/07	< 0.056	No
Malathion (ug/L) - TW	2009/01/07	< 0.091	No
Methoxychlor (ug/L) - TW	2009/01/07	< 0.14	No
Metolachlor (ug/L) - TW	2009/01/07	< 0.092	No
Metribuzin (ug/L) - TW	2009/01/07	< 0.12	No
Monochlorobenzene (ug/L) - TW	2009/01/07	< 0.58	No
Paraquat (ug/L) - TW	2009/01/07	< 1.00	No
Parathion (ug/L) - TW	2009/01/07	< 0.18	No
Pentachlorophenol (ug/L) - TW	2009/01/07	< 0.15	No
Phorate (ug/L) - TW	2009/01/07	< 0.11	No
Picloram (ug/L) - TW	2009/01/07	< 0.25	No
Polychlorinated Bichenyls(PCB) (ug/L) - TW	2009/01/07	< 0.040	No

ANNUAL REPORT - Microbiological, Inorganic & Organic

Waterworks: 6066 - [220006945] Thornton/Glen Water & Well Distribution System

Period being reported: 01/01/2009 to 12/31/2009

Prometryne (ug/L) - TW	2009/01/07	< 0.23	No
Simazine (ug/L) - TW	2009/01/07	< 0.15	No
THM (ug/L)	2009	20.25	No
Temephos (ug/L) - TW	2009/01/07	< 0.31	No
Terbufos (ug/L) - TW	2009/01/07	< 0.12	No
Tetrachloroethylene (ug/L) - TW	2009/01/07	< 0.45	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW	2009/01/07	< 0.14	No
Triallate (ug/L) - TW	2009/01/07	< 0.10	No
Trichloroethylene (ug/L) - TW	2009/01/07	< 0.38	No
2,4,6-Trichlorophenol (ug/L) - TW	2009/01/07	< 0.25	No
2,4,5-Trichlorophenoxy acetic acid (ug/L) - TW	2009/01/07	< 0.22	No
Trifluralin (ug/L) - TW	2009/01/07	< 0.12	No
Vinyl Chloride (ug/L) - TW	2009/01/07	< 0.17	No