

**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:	Corporation of the Township of Essa
Drinking-Water System Category:	Large Municipal Residential
Period being reported:	January 1, 2005 – December 31, 2005

<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;"> Essa Municipal Office 5786 Simcoe Rd. 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>
--	--

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	

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 - Public Notice made on water bills

Describe your Drinking-Water System

Raw Water Supply

The Thornton 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 800L 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 at least 2.5 L/hr. The maximum treated flow rate for the Glen Avenue pumphouse is 17.82 L/sec.

Storage and Distribution

Treated water is pumped to two (2) fused glass lined bolted steel above ground storage tanks, each with a capacity of 393 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 25.85 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 Wasaga Beach office. 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 140 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

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. Emergency repairs to water storage standpipe controls and fence due to vandalism.
2. Emergency repair to watermain.
3. Convert disused production well (Previously Well #1) into a monitoring well.

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, 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 #)
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, 8 or 9 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	16	0.19 - 0.34 NTU
Well #2	16	0.19 - 0.37 NTU
Well #3	16	0.17 - 0.32 NTU
Well #4	16	0.13 - 0.34 NTU
Treated Turbidity	8760	0 - 5.00 NTU
Treated Free Chlorine	8760	0 - 5.30 mg/L *
Free Chlorine Residual Distribution System	467	0.59 - 2.32 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 failure.

*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	Refer to attached Appendix A
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.

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

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: 01/01/2005 to 12/31/2005

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 - 0		-		-
Raw - RW2	52	0 - 0	0 - 1		-		-
Raw - RW3	52	0 - 0	0 - 0		-	52	0 - 3
Raw - RW4	52	0 - 0	0 - 0		-		-
Treated - TW	52	0 - 0	0 - 0		-	52	0 - 0
Distribution - DW	104	0 - 0	0 - 0		-	57	0 - 2

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

Parameter	Sample Date	Result Value	Exceedance
Antimony: Sb (ug/L) - TW	2003/08/26	0.60	No
Arsenic: As (ug/L) - TW	2003/08/26	2.00	No
Barium: Ba (ug/L) - TW	2003/08/26	66.00	No
Boron: B (ug/L) - TW	2003/08/26	52.00	No
Cadmium: Cd (ug/L) - TW	2003/08/26	0.10	No
Chromium: Cr (ug/L) - TW	2003/08/26	3.00	No
Lead: Pb (ug/L)	2005/01/17	< 0.0022	No
Mercury: Hg (ug/L) - TW	2003/08/26	0.10	No
Selenium: Se (ug/L) - TW	2003/08/26	3.00	No
Sodium: Na (mg/L) - TW	2003/08/26	25.00	Yes
Uranium: U (ug/L) - TW	2003/08/26	0.050	No
Fluoride Residual: Mean (mg/L) - TW	2003/08/26	0.17	No
Nitrite (mg/L) - TW	2005/01/17	0.10	No
Nitrite (mg/L) - TW	2005/04/19	0.10	No
Nitrite (mg/L) - TW	2005/07/18	0.30	No
Nitrite (mg/L) - TW	2005/10/19	0.010	No
Nitrate (mg/L) - TW	2005/01/17	4.20	No
Nitrate (mg/L) - TW	2005/04/19	4.50	No
Nitrate (mg/L) - TW	2005/07/18	2.00	No
Nitrate (mg/L) - TW	2005/10/19	1.80	No

ANNUAL REPORT - Microbiological, Inorganic & Organic

Waterworks: 6066 - [220006945] Thornton/Glen Water & Well Distribution System
 Period being reported: 01/01/2005 to 12/31/2005

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

Parameter	Sample Date	Result Value	Exceedance
Alachlor (ug/L) - TW	2003/04/28	0.090	No
Aldicarb (ug/L) - TW	2003/04/28	0.76	No
Aldrin + Dieldrin (ug/L) - TW	2003/04/28	0.050	No
Atrazine + N-dealkylated metabolites (ug/L) - TW	2003/04/28	0.11	No
Azinphos-methyl (ug/L) - TW	2003/01/27	0.59	No
Bendiocarb (ug/L) - TW	2003/04/28	0.27	No
Benzene (ug/L) - TW	2003/04/28	0.36	No
Benzo(a)pyrene (ug/L) - TW	2003/08/26	0.0040	No
Bromoxynil (ug/L) - TW	2003/04/28	0.060	No
Carbaryl (ug/L) - TW	2003/04/28	0.14	No
Carbofuran (ug/L) - TW	2003/04/28	0.14	No
Carbon Tetrachloride (ug/L) - TW	2003/04/28	0.34	No
Chlordane:Total (ug/L) - TW	2003/04/28	0.20	No
Chlorpyrifos (ug/L) - TW	2003/04/28	1.20	No
Cyanazine (ug/L) - TW	2003/04/28	0.079	No
Diazinon (ug/L) - TW	2003/04/28	0.41	No
Dicamba (ug/L) - TW	2003/04/28	0.90	No
1,2-Dichlorobenzene (ug/L) - TW	2003/04/28	0.56	No
1,4-Dichlorobenzene (ug/L) - TW	2003/04/28	0.25	No
Dichlorodiphenyltrichloroethane(DDT) + metabolites (ug/L) - TW	2003/04/28	0.46	No
1,2-Dichloroethane (ug/L) - TW	2003/04/28	0.32	No
1,1-Dichloroethylene (ug/L) - TW	2003/04/28	0.52	No
Dichloromethane (ug/L) - TW	2003/04/28	1.17	No
2,4-Dichlorophenol (ug/L) - TW	2003/04/28	0.15	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW	2003/04/28	0.33	No
Diclofop-methyl (ug/L) - TW	2003/04/28	0.84	No
Dimethoate (ug/L) - TW	2003/04/28	0.10	No
Dinoseb (ug/L) - TW	2003/04/28	0.42	No
Diquat (ug/L) - TW	2003/04/28	1.00	No
Diuron (ug/L) - TW	2003/04/28	0.66	No
Glyphosate (ug/L) - TW	2003/04/28	6.00	No
Heptachlor+Hepachlor Epoxide (ug/L) - TW	2003/04/28	0.20	No
Lindane: (ug/L) - TW	2003/04/28	0.13	No
Malathion (ug/L) - TW	2003/04/28	0.37	No
Methoxychlor (ug/L) - TW	2003/04/28	0.64	No
Metolachlor (ug/L) - TW	2003/04/28	0.58	No
Metribuzin (ug/L) - TW	2003/04/28	0.50	No
Monochlorobenzene (ug/L) - TW	2003/04/28	0.46	No
Paraquat (ug/L) - TW	2003/01/27	1.00	No
Parathion (ug/L) - TW	2003/04/28	1.20	No
Pentachlorophenol (ug/L) - TW	2003/04/28	0.15	No
Phorate (ug/L) - TW	2003/04/28	0.73	No
Picloram (ug/L) - TW	2003/04/28	0.19	No
Polychlorinated Bichenysl(PCB) (ug/L) - TW	2003/01/27	0.040	No

ANNUAL REPORT - Microbiological, Inorganic & Organic

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

Period being reported: 01/01/2005 to 12/31/2005

Prometryne (ug/L) - TW	2003/04/28	0.16	No
Simazine (ug/L) - TW	2003/04/28	0.18	No
THM (ug/L)	2005	41.17	No
Temephos (ug/L) - TW	2003/04/28	0.25	No
Terbufos (ug/L) - TW	2003/09/30	< 0.70	No
Tetrachloroethylene (ug/L) - TW	2003/04/28	0.48	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW	2003/04/28	0.14	No
Triallate (ug/L) - TW	2003/04/28	0.14	No
Trichloroethylene (ug/L) - TW	2003/04/28	0.54	No
2,4,6-Trichlorophenol (ug/L) - TW	2003/04/28	0.25	No
2,4,5-Trichlorophenoxy acetic acid (ug/L) - TW	2003/04/28	0.47	No
Trifluralin (ug/L) - TW	2003/04/28	0.35	No
Vinyl Chloride (ug/L) - TW	2003/04/28	0.080	No