

**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, 2006 – December 31, 2006 |

| | |
|--|--|
| <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 | 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 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 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 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. Repairs to hydrants.
2. Increased storage capacity of both standpipes.
3. Disused production well changed 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 | 12 | 0.18 - 0.41 NTU |
| Well #2 | 12 | 0.16 - 0.47 NTU |
| Well #3 | 12 | 0.16 - 0.62 NTU |
| Well #4 | 12 | 0.14 - 0.59 NTU |
| Treated Turbidity | 8760 | 0 - 5.00 NTU * |
| Treated Free Chlorine | 8760 | 0 - 5.00 mg/L * |
| Free Chlorine Residual Distribution System | 536 | 0.31 - 2.80 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 0.0 and 5.0 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.

No Parameters exceeded half the standard prescribed in Schedule 2 for the Thornton 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

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: 01/01/2006 to 12/31/2006

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 | | - | 1 | 0 - 0 |
| Raw - RW2 | 52 | 0 - 0 | 0 - 1 | | - | 1 | 0 - 0 |
| Raw - RW3 | 52 | 0 - 0 | 0 - 1 | | - | 23 | 0 - 1 |
| Raw - RW4 | 52 | 0 - 0 | 0 - 1 | | - | 1 | 0 - 0 |
| Treated - TW | 52 | 0 - 0 | 0 - 0 | 29 | 0 - 2000 | 24 | 0 - 2 |
| Distribution - DW | 107 | 0 - 0 | 0 - 0 | 29 | 0 - 10 | 26 | 0 - 0 |

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 | 75.00 | No |
| Boron: B (ug/L) - TW | 2006/01/16 | 31.00 | 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) | 2006/01/16 | < 0.50 | 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 | 2006/01/16 | 27.00 | Yes |
| Uranium: U (ug/L) - TW | 2006/01/16 | 1.40 | No |
| Fluoride Residual: Mean (mg/L) - TW | 2003/08/26 | 0.17 | No |
| Nitrite (mg/L) - TW | 2006/01/16 | 0.010 | No |
| Nitrite (mg/L) - TW | 2006/04/04 | 0.0050 | No |
| Nitrite (mg/L) - TW | 2006/07/10 | 0.0050 | No |
| Nitrite (mg/L) - TW | 2006/10/10 | 0.0050 | No |
| Nitrate (mg/L) - TW | 2006/01/16 | 1.40 | No |
| Nitrate (mg/L) - TW | 2006/04/04 | 1.89 | No |
| Nitrate (mg/L) - TW | 2006/07/10 | 1.47 | No |
| Nitrate (mg/L) - TW | 2006/10/10 | 2.14 | No |

ANNUAL REPORT - Microbiological, Inorganic & Organic

Waterworks: 6066 - [220006945] Thornton/Glen Water & Well Distribution System
 Period being reported: 01/01/2006 to 12/31/2006

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 |
| 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 |

ANNUAL REPORT - Microbiological, Inorganic & Organic

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

Period being reported: 01/01/2006 to 12/31/2006

| | | | |
|--|------------|---------|----|
| Prometryne (ug/L) - TW | 2006/01/16 | < 0.25 | No |
| Simazine (ug/L) - TW | 2006/01/16 | < 1.00 | No |
| THM (ug/L) | 2006 | 22.98 | 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 |