# Drinking-Water Systems Regulation O. Reg. 170/03

**Part III Form 2**
**Section 11. ANNUAL REPORT. (Amended 22 Feb 06 –** amendment made was to remove reference to public notification via Cable TV)

| | |
|---|---|
| **Drinking-Water System Number:** | **210000951** |
| **Drinking-Water System Name:** | **Verner WTP** |
| **Drinking-Water System Owner:** | **The Corporation of the Municipality of West Nipissing** |
| **Drinking-Water System Category:** | **Large Municipal Residential** |
| **Period being reported:** | **Jan 1, 2005 to Dec 31, 2005** |

***Complete if your Category is Large Municipal Residential or Small Municipal Residential***

**Does your Drinking-Water System serve more than 10,000 people? Yes [ ] No [X]**

**Is your annual report available to the public at no charge on a web site on the Internet? Yes [X] No [ ]**

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

**Municipality of West Nipissing**
**Sturgeon Falls Water Treatment Plant**
**11 Nipissing Street**
**Sturgeon Falls, Ontario**

***Complete for all other Categories.***

**Number of Designated Facilities served:**

**Did you provide a copy of your annual report to all Designated Facilities you serve?**
**Yes [ ] No [ ]**

**Number of Interested Authorities you report to:**

**Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility?**
**Yes [ ] No [ ]**

**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 |
|---|---|
| NA | |

**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.**

**[X] Public access/notice via the web** http:www.westnipissingouest.ca/pop/dep-utilities.html
**[ ] Public access/notice via Government Office**
**[X] Public access/notice via a newspaper** notice given via Sturgeon Falls Tribune newspaper
**[ ] Public access/notice via Public Request**
**[X] Public access/notice via a Public Library** copies placed at West Nipissing Library
**[ ] Public access/notice via other method**

**Describe your Drinking-Water System**

The Verner WTP, commissioned in 1975, consists of a full surface water treatment facility, designed capacity of 1059 $m^3$/d , drawing water from the Veuve River that is part of the Nipissing watershed. The intake structure is located 12 km upstream of Lake Nipissing and 48 km downstream of the source. The water treatment plant's intake facility consists of an intake structure located 5 m below the low river level, connected to a raw water wet well by a 42.7 m long, 250 mm ductile iron pipe. The intake structure is approximately 20 m from the riverbank.

The Verner Water Treatment Plant (WTP) is a conventional treatment facility consisting of chemically assisted filtration (through the use of an "Ecodyne Graver Monoplant" package treatment plant), primary disinfection & secondary disinfection. Conventional treatment is comprised of coagulation, flocculation, sedimentation & dual media rapid sand filtration. Furthermore, disinfection is achieved through the use of chlorine dioxide, UV and chlorine gas.

The Ecodyne Graver Monoplant package plant, consisting of a Mixing Zone; Flocculation Zone; Settling Compartment and flock barriers; Blowdown valve and rapid flow by gravity sand and anthracite filters.

Chemical treatment includes the addition of polymer, aluminum sulfate, pre and post soda ash, chlorine for disinfection and chlorine dioxide for iron and manganese removal to control taste and odour.

There are four (4) below grade clear wells connected in series having a total area, total capacity and useable capacity of 134 m2, 269 $m^3$ and 234 $m^3$ respectively. The high lift pumping station has a firm capacity of 1,090 $m^3$/d with three (3) identical vertical turbine high lift pumps each having a capacity of 545 $m^3$/d at a TDH of 53.3 m. An elevated storage tank of composite steel/concrete construction, having a total storage capacity of 568 $m^3$ and about 40 m above ground equipped with low level alarm and an overflow is located approximately 23 meters.

Standby power supplied at this plant by a 125 kW standby diesel generator installed in 2005.

**List all water treatment chemicals used over this reporting period**

**Chlorine Gas**
**Sodium Chlorite**
**Sodium Carbonate**
**Aluminum Sulfate (ALUM)**
**Magnafloc LT20 Poly Acrylamide Polymer**

**Were any significant expenses incurred to?**

**[X]** Install required equipment
**[ ]** Repair required equipment
**[X]** Replace required equipment

**Please provide a brief description and a breakdown of monetary expenses incurred**

**The treatment plant under went a major upgrade in 2005 which included replacement of all chemical feed system equipment and tanks, replacement of the plant instrumentation and controls, installation of a UV system for primary disinfection, installation of piping and valves to provide treatment-to-waste functionality, new raw water and treated water magnetic flow meters, and the installation of a 125 kW standby diesel generator. Also radio telemetry equipment was installed at the elevated storage tank to permit treatment plant-elevated tank communication and control. Cost $ 1,3000,000**
**Also**
**A new lab pH meter was purchased to replace the old one. Approx. $1600.00**
**The check valves on the low lift discharge header and high lift discharge header were replaced. Approx. $2500.00**

**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 |
|---|---|---|---|---|---|
| 08/Feb/2005 | Turbidity | > 2.0 | NTU | After filter, turbidity back down to below 1.0 NTU. After backwash, measured treated turbidity at 0.40 NTU. | 08/Feb/2005 |
| 08/Mar/2005 | Turbidity | 2.25 | NTU | 02:50 post filter turbidity @ 2.25 NTU for > 15 min. Backwashed both filters to avoid high turbid water from entering clear wells. 04:50 Post filter turbidity @ < 1.0 NTU | 08/Mar/2005 |
| 12/Mar/2005 | Turbidity | 5.4 | NTU | 15:15 post filter turbidity @ 5.4 NTU for > 15 min. 3 backwashes/filter occurred therefore I estimate that between backwashes, high turbid water entered the clear well. 6 backwashes x 5 min = 30 min. 17:30 post filter turbidity < 1.0 NTU. Closed filter to waste valve. Treated chlorine residual maintained 1.80 mg/L free. | 12/Mar/2005 |
| 04/Apr/2005 | Turbidity | 5.20 | NTU | Post filter turbidity at 5.2 NTU > 15 minutes. Opened filter to waste valve until turbidity under 1.0 NTU at 14:44. Treated Cl2 residual maintained at 1.96 mg/L. | 04/Apr/2005 |

| | | | | | |
|---|---|---|---|---|---|
| | | | | POE water 0.83 NTU. | |
| 12/Apr/2005 | Turbidity | 2.45 | NTU | Post filter turbidity > 1.0 NTU for more than 15 min. Lost sludge blanket in graver plant. Opened after filter valve to waste. Measured POE at 0.93 NTU. Cl2 at 1.20 mg/L. Water plant is being upgraded, has new after filter turbidity meter only used for data collection. 2nd older meter used to alarm had airlock, no water through analyzer. Additional information filed in binder. | 12/Apr/2005 |
| 25/Apr/2005 | Turbidity | 3.07 | NTU | Post filter turbidity 05:08-05:35 max 2.82 NTU at 05:32 NTU<br>Post filter turbidity 05:40-06:17 max 3.07 NTU at 06:15<br>Opened 2" desludge valve for total of 28 minutes to release extra sludge from plant. CL2 residual at 1.78 mg/L. Measure POE at 0.552 NTU. After filter turbidity 0.23 NTU | 25/Apr/2005 |
| 29/Jul/2005 | Turbidity | > 1.0 | NTU | Post filter turbidity > 1.0 NTU for approximately 45 minutes. 06:50 restored post filter turbidity at 0.07 NTU. Free cl2 residual maintained approximately 2.10 mg/L. NOTE UV DISINFECTION ONLINE SINCE 12-JUL-2005. 07:00 POE turbidity at approx 0.90 NTU. Shut off high lifts will continue to dilute clear well. | 29/Jul/2005 |
| 05/Aug/2005 | Turbidity | > 1.0 | NTU | Post filter turbidity > 1.0 NTU for approximately 55 minutes. 04:00 restored post filter turbidity < 1.0 NTU. Opened filter to waste 20 minutes. Free cl2 residual maintained approximately 1.75 mg/L. NOTE: UV DISINFECTION ONLINE SINCE 12-JUL-05. 05:00 POE turbidity at approximately 0.53 NTU. | 05/Aug/2005 |

**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 Results (min #)-(max #) | Range of Total Coli form Results (min #)-(max #) | Number of HPC Samples | Range of HPC Results (min #)-(max #) |
|---|---|---|---|---|---|
| **Raw** | **53** | **7 - 910** | **10 - >2000** | **53** | **200 - >2000** |
| **Treated** | **53** | **0 - 0** | **0 - 0** | **53** | **0 - 1** |
| **Distribution** | **164** | **0 – 0** | **0- 0** | **163** | **0 - 5** |

**Operational testing done under Schedule 7, 8 or 9 of Regulation 170/03 during the period covered by this Annual Report.**

## Filter Grabs

| | Number of Grab Samples | Range of Results (min #)-(max #) |
|---|---|---|
| **Post Filter Turbidity** | **348** | **0.06 – 0.70 NTU** |

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

## POE Grabs

| | Number of Grab Samples | Range of Results (min #)-(max #) |
|---|---|---|
| Turbidity | 350 | 0.08– 9.67 NTU |
| Free Chlorine | 272 | 0.98 – 4.59 mg/L |

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

## Distribution Grabs

| | Number of Grab Samples | Range of Results (min #)-(max #) |
|---|---|---|
| Free Chlorine | 478 | 0.27 – 2.18 mg/L |

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

## Filter On-line Continuous Analyzers

| | Number of Samples | Range of Results (min #)-(max #) |
|---|---|---|
| Post Filter Turbidity | 8760 | 0.05– 10.0 NTU |

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

## POE On-line Continuous Analyzers

| | Number of Samples | Range of Results (min #)-(max #) |
|---|---|---|
| POE Free Chlorine | 8760 | 0 – 2.0 mg/L |

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

**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 |
|---|---|---|---|---|
| C of A 8668-6APPTC issued 14 Jun 2005 | UV intensity | | | |
| | Flow Rate | | | |
| | UV Transmittance | | | |
| | UV Lamp Status | | | |

**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 | Jan 18/05 | <0.001 | mg/L | |
| Arsenic | Jan 18/05 | <0.001 | mg/L | |
| Barium | Jan 18/05 | 0.0011 | mg/L | |
| Boron | Jan 18/05 | <0.006 | mg/L | |
| Cadmium | Jan 18/05 | <0.001 | mg/L | |
| Chromium | Jan 18/05 | 0.003 | mg/L | |
| Lead | Jan 18/05 | 0.003 | mg/L | |
| Mercury | Jan 18/05 | <0.0001 | mg/L | |

| | | | | |
|---|---|---|---|---|
| **Selenium** | Jan 18/05 | <0.002 | mg/L | |
| **Sodium** | Jan 18/05 | 32 | mg/L | yes |
| **Uranium** | Jan 18/05 | <0.002 | mg/L | |
| **Fluoride** | Jan 18/05 | <0.1 | mg/L | |
| **Nitrite** | Jan 18/05<br>May 05/05<br>Aug 25/05<br>Nov 29/05 | <0.1<br><0.1<br><0.3<br><0.01 | mg/L<br>mg/L<br>mg/L<br>mg/L | |
| **Nitrate** | Jan 18/05<br>May 05/05<br>Aug 25/05<br>Nov 29/05 | 0.4<br><0.1<br>1.8<br><0.1 | mg/L<br>mg/L<br>mg/L<br>mg/L | |

**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 | Jan 18/05 | <0.5 | ug/L | |
| Aldicarb | Jan 18/05 | <5 | ug/L | |
| Aldrin + Dieldrin | Jan 18/05 | <0.012 | ug/L | |
| Atrazine + N-dealkylated metobolites | Jan 18/05 | <0.5 | ug/L | |
| Azinphos-methyl (Guthion) | Jan 18/05 | <2 | ug/L | |
| Bendiocarb | Jan 18/05 | <2 | ug/L | |
| Benzene | Jan 18/05 | <0.5 | ug/L | |
| Benzo(a)pyrene | Jan 18/05 | <0.01 | ug/L | |
| Bromoxynil | Jan 18/05 | <0.5 | ug/L | |
| Carbaryl | Jan 18/05 | <5 | ug/L | |
| Carbofuran | Jan 18/05 | <5 | ug/L | |
| Carbon Tetrachloride | Jan 18/05 | <0.5 | ug/L | |
| Chlordane (Total) | Jan 18/05 | <0.012 | ug/L | |
| Chlorpyrifos | Jan 18/05 | <1 | ug/L | |
| Cyanazine | Jan 18/05 | <1 | ug/L | |
| Diazinon | Jan 18/05 | <1 | ug/L | |
| Dicamba | Jan 18/05 | <1 | ug/L | |
| 1,2-Dichlorobenzene | Jan 18/05 | <0.5 | ug/L | |
| 1,4-Dichlorobenzene | Jan 18/05 | <0.5 | ug/L | |
| Dichlorodiphenyltrichloroethane (DDT) + metabolites | Jan 18/05 | <0.024 | ug/L | |
| 1,2-Dichloroethane | Jan 18/05 | <0.5 | ug/L | |
| 1,1-Dichloroethylene (vinylidene chloride) | Jan 18/05 | <0.5 | ug/L | |
| Dichloromethane | Jan 18/05 | <1 | ug/L | |
| 2-4 Dichlorophenol | Jan 18/05 | <0.5 | ug/L | |
| 2,4-Dichlorophenoxy acetic acid (2,4-D) | Jan 18/05 | <1 | ug/L | |
| Diclofop-methyl | Jan 18/05 | <0.9 | ug/L | |
| Dimethoate | Jan 18/05 | <2.5 | ug/L | |

| | | | | |
|---|---|---|---|---|
| **Dinoseb** | **Jan 18/05** | **<1** | **ug/L** | |
| **Diquat** | **Jan 18/05** | **<7** | **ug/L** | |
| **Diuron** | **Jan 18/05** | **<10** | **ug/L** | |
| **Glyphosate** | **Jan 18/05** | **<10** | **ug/L** | |
| **Heptachlor + Heptachlor Epoxide** | **Jan 18/05** | **<0.012** | **ug/L** | |
| **Lindane (Total)** | **Jan 18/05** | **<0.006** | **ug/L** | |
| **Malathion** | **Jan 18/05** | **<5** | **ug/L** | |
| **Methoxychlor** | **Jan 18/05** | **<0.024** | **ug/L** | |
| **Metolachlor** | **Jan 18/05** | **<0.5** | **ug/L** | |
| **Metribuzin** | **Jan 18/05** | **<5** | **ug/L** | |
| **Monochlorobenzene** | **Jan 18/05** | **<0.5** | **ug/L** | |
| **Paraquat** | **Jan 18/05** | **<1** | **ug/L** | |
| **Parathion** | **Jan 18/05** | **<1** | **ug/L** | |
| **Pentachlorophenol** | **Jan 18/05** | **<0.5** | **ug/L** | |
| **Phorate** | **Jan 18/05** | **<0.5** | **ug/L** | |
| **Picloram** | **Jan 18/05** | **<5** | **ug/L** | |
| **Polychlorinated Biphenyls(PCB)** | **Jan 18/05** | **<0.05** | **ug/L** | |
| **Prometryne** | **Jan 18/05** | **<0.25** | **ug/L** | |
| **Simazine** | **Jan 18/05** | **<1** | **ug/L** | |
| **THM**<br>**(**NOTE**:** show latest annual average**)** | **Average**<br>**Jan 18/05**<br>**May 05/05**<br>**Aug 25/05**<br>**Nov 29/05** | **66.0**<br>**29**<br>**106**<br>**72.4**<br>**56.4** | **ug/L**<br>**ug/L**<br>**ug/L**<br>**ug/L**<br>**ug/L** | |
| **Temephos** | **Jan 18/05** | **<10** | **ug/L** | |
| **Terbufos** | **Jan 18/05** | **<0.7** | **ug/L** | |
| **Tetrachloroethylene** | **Jan 18/05** | **<0.5** | **ug/L** | |
| **2,3,4,6-Tetrachlorophenol** | **Jan 18/05** | **<0.5** | **ug/L** | |
| **Triallate** | **Jan 18/05** | **<1** | **ug/L** | |
| **Trichloroethylene** | **Jan 18/05** | **<0.5** | **ug/L** | |
| **2,4,6-Trichlorophenol** | **Jan 18/05** | **<0.5** | **ug/L** | |
| **2,4,5-Trichlorophenoxy acetic acid (2,4,5-T)** | **Jan 18/05** | **<1** | **ug/L** | |
| **Trifluralin** | **Jan 18/05** | **<1** | **ug/L** | |
| **Vinyl Chloride** | **Jan 18/05** | **<0.2** | **ug/L** | |

**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 | ½ MAC VALUE | Date of Sample |
|---|---|---|---|---|
| **Aldicarb** | **<5 ( lab detection level)** | **ug/L** | **4.5 ug/L** | **Jan 18/05** |
| **Benzo(a)pyrene** | **<0.01 (lab detection level)** | **ug/L** | **0.005 ug/L** | **Jan 18/05** |
| **Tebufos** | **<0.7 (lab detection level)** | **ug/L** | **0.50 ug/L** | **Jan 18/05** |

**Note! In all three cases above the analysis result value was less that the lab detection limit. However the lab detection limit is above the ½ MAC value.**