Ontario
Ministry of the Environment | Ministère de l'Environnement

# O. Reg. 170 SECTION 11 ANNUAL REPORT

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

| | |
|---|---|
| **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 01, 2011 to Dec 31, 2011** |

***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 P2B 1J4**

***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 [ ]**

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**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**
**[ ] Public access/notice via a 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 was originally commissioned in 1975 and underwent major regulatory upgrades 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.

The Verner Municipal Water System is a surface water system that draws water from the Veuve River which is part of the Lake Nipissing watershed. The intake structure is located 12 km upstream of Lake Nipissing and 48 km downstream of the source. The Veuve River, upstream from the intake, has a catchment area of approximately 92,000 ha. This area is well developed and includes: Hwy 17 corridor; CPR railway tracks; housing and cottage development.

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, with a designed capacity of 1059 $m^3$/d. Conventional treatment is comprised of coagulation, flocculation, sedimentation & dual media rapid sand filtration, primary disinfection & secondary disinfection. Furthermore, disinfection is achieved through the use of chlorine dioxide, UV and chlorine gas. Chemically assisted filtration is through the use of an "Ecodyne Graver Monoplant" package treatment plant

The Ecodyne Graver Monoplant package treatment plant, consists 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.

Standby emergency power is supplied at this plant by a 125 kW standby diesel generator with automatic switchover controls installed as part of the 2005 plant upgrades

The Verner Water Distribution System consists of approximately eight kilometers of watermain. The system includes an off site water storage facility located on the west side of

Dubeau Street (192 m north of the intersection of Dubeau Street and Vercheres Avenue). The facility is a steel and concrete elevated storage tank, having a total storage capacity of 568 $m^3$ and about 40 m above ground equipped with low level alarm and an overflow. The system has approximately 50 hydrants, and serves approximately 1,100 consumers. The Distribution system is classified as a Class I system.

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

Chlorine Gas
Sodium Chlorite
Sodium Carbonate
Aluminum Sulfate (ALUM)
Magnafloc LT20 Poly Acrylamide Polymer
Chlorine dioxide is produced on site by combining Chlorine solution with sodium chlorite.

**Were any significant expenses incurred to?**

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

**Description of major repairs, equipment replacement or capital improvements**

- Membrane caps & elect; for Cl2 analyzers $358
- UV annuals $8557

**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 |
|---|---|---|---|---|---|
| 10-Aug-11 | UV Disinfection /intensity | <12.7 | $W/m^2$ | UV failed for 2hr13min. No UV alarm sounded, plant lockout malfunctioned. Secondary disinfection maintained at 1.90mg/L. Distribution was flushed and $Cl_2$ does at POE increased. Results of re-sample collected on Aug 11 came back good. MOE and MOH notified as required. AWQI# 102661 | 12-Aug-11 |

**Microbiological testing done under section 8-2during this reporting period.**

| | Number of EC & TC Samples | Range of E.Coli Results (min #)-(max #) | Range of Total Coli form Results (min #)-(max #) | Number of GBP Background Samples | Range of GBP Background Results (min #)-(max #) | Number of HPC Samples | Range of HPC Results (min #)-(max #) |
|---|---|---|---|---|---|---|---|

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Raw | 49 | 5-50 | 60 - >2000 | 45 | >2000 - >4000 | NA | NA |
| Treated | 52 | 0 - 0 | 0 - 0 | 48 | 0 - 2 | 51 | 0 - 186 |
| Distribution | 159 | 0 – 0 | 0- 0 | 135 | 0 – 0 | 52 | 0 - 9 |

**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 | 355 | 0.08– 0.3 NTU |

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

**POE Grabs**

| | Number of Grab Samples | Range of Results (min #)-(max #) |
|---|---|---|
| Turbidity | 345 | 0.15– 1.03 NTU |
| Free Chlorine | 315 | 0.98 – 2.0 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 | 435 | 0.34 – 1.91 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 | 0.04– 0.9 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 | 1.05 – 2.33 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 or order.**

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| Date of legal instrument issued | Parameter | Sampling Frequency | Range of Result | Unit of Measure |
|---|---|---|---|---|
| **C of A 2349-86YQ7 issued 17 Sep 2010**<br><br>**(Valid until May 25, 2011)** | **UV Intensity Design dose 46mj/cm$^2$ =** Min 12.7 W/m$^2$& UVT of 65.3 % at < 12.2 L/s; **or** At a flow max of 12.8 L/s, 18.2 W/m$^2$& UVT of 72.2 % | **continuous when units operating** | **plant shut down interlock activates if dosage <13 W/m$^2$** | **W/m$^2$** |
| | **Flow Rate** | **continuous** | **min 425.1 – max 775.0 (4.92 L/s – 8.97 L/s)** | **m$^3$/d** |
| | **UV Transmittance** | **monthly** | **min 86- max 88** | **% UVT** |
| | **UV Sensor >/ = 0.8& </ = 1.2** | **annually** | **Calibration Ratio Range VN 004 0.96 – 1.01 VN 0028 0.95 – 1.01** | **calibration ratio** |
| | **UV Lamp Status** | **continuous** | **plant shut down interlock on lamp failure** | **on or off** |

| Date of legal instrument issued | Parameter | Sampling Frequency | Range of Result | Unit of Measure |
|---|---|---|---|---|
| **Municipal Drinking Water Licence 202-101 issued May 25, 2011** | **UV Intensity Design dose 40mj/cm2** = Min 12.7 W/m2 & Min UVT 65.3% & Max flow of 12.2 L/ OR Min 18.2 W/m2 & Min UVT of 72.2% & Max flow of 12. | **continuous when units operating** | **plant shut down interlock activates if dosage <13 W/m$^2$** | **W/m$^2$** |
| | **Flow Rate** | **continuous** | **min 459.6 – max 874.4 (5.32 L/s – 10.12 L/s)** | **m$^3$/d** |
| | **UV Transmittance** | **monthly** | **min 81- max 88** | **% UVT** |
| | **UV Sensor >/ = 0.8& </ = 1.2** | **annually** | **Calibration Ratio Range VN 004 0.96 – 1.01 VN 0028 0.95 – 1.01** | **calibration ratio** |
| | **UV Lamp Status** | **continuous** | **plant shut down interlock on lamp failure** | **on or off** |

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

| Parameter | Sample Date | Result Value | Unit of Measure | Exceedance |
|---|---|---|---|---|
| Antimony | 28 Feb 11 | <0.5 | ug/L | No |
| Arsenic | 23 Feb 10 | <1 | ug/L | No |
| Barium | 23 Feb 10 | 14 | ug/L | No |
| Boron | 23 Feb 10 | <10 | ug/L | No |
| Cadmium | 23 Feb 10 | <0. 1 | ug/L | No |
| Chromium | 23 Feb 10 | <5 | ug/L | No |
| Mercury | 23 Feb 10 | <0.0001 | mg/L | No |
| Selenium | 23 Feb 10 | <2 | ug/L | No |
| Sodium | 23 Feb 10 | 51000 | ug/L | >20,000 notification to MOH - re-sample result |
| Uranium | 28 Feb 11 | <0.1 | ug/L | No |
| Fluoride | 22 Mar 11 | <0.1 | mg/L | |
| Nitrite | 28 Feb 11<br>30 May 11<br>30 Aug 11<br>29 Nov 11 | <0.01<br><0.01<br><0.01<br><0.01 | mg/L<br>mg/L<br>mg/L<br>mg/L | No<br>No<br>No<br>No |
| Nitrate | 28 Feb 11<br>30 May 11<br>30 Aug 11<br>29 Nov 11 | 0.3<br><0.1<br><0.1<br>0.3 | mg/L<br>mg/L<br>mg/L<br>mg/L | No<br>No<br>No<br>No |

**Summary of lead testing under O. Reg. 170/03 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)

| Round 1<br><br>Dec15, 2009 – April 15, 2010 | Number of Lead Samples | Number of Adverse Results | Range of Lead Samples (ug/L) | | Range of PH Sample Results | | Range of Alkalinity Sample Results (mg/L as $CaCO_3$) | |
|---|---|---|---|---|---|---|---|---|
| | | | MIN # | MAX # | MIN # | MAX # | MIN # | MAX # |
| Distribution | 2 | 0 | < 1 | < 1 | 6.96 | 7.14 | 38.8 | 57.2 |
| Non-Residential | 1 | 0 | < 1 | < 1 | 7.08 | 7.08 | NA | NA |
| Residential | 10 | 0 | < 1 | 8 | 6.85 | 7.19 | NA | NA |

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| June 15, 2010 – October 15, 2010 | Number of Lead Samples | Number of Adverse Results | Range of Lead Samples (ug/L) | | Range of PH Sample Results | | Range of Alkalinity Sample Results (mg/L as $CaCO_3$) | |
|---|---|---|---|---|---|---|---|---|
| | | | MIN # | MAX # | MIN # | MAX # | MIN # | MAX # |
| Distribution | 2 | 0 | < 1 | <1 | 7.30 | 7.57 | 50.3 | 96.8 |
| Non-Residential | 1 | 0 | < 1 | 1 | 7.42 | 7.42 | NA | NA |
| Residential | 10 | 0 | < 1 | 3 | 6.84 | 7.51 | NA | NA |

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

| Parameter | Sample Date | Result Value | Unit of Measure | Exceedance |
|---|---|---|---|---|
| Alachlor | 28 Feb 11 | <0.5 | ug/L | No |
| Aldicarb | 28 Feb 11 | <5 | ug/L | DL > ½ MAC |
| Aldrin | 28 Feb 11 | <0.006 | ug/L | no |
| Aldrin + Dieldrin | 28 Feb 11 | <0.01 | ug/L | no |
| Atrazine | 28 Feb 11 | <0.5 | ug/L | No |
| Atrazine + N-dealkylated metobolites | 28 Feb 11 | <1 | ug/L | No |
| Azinphos-methyl (Guthion) | 28 Feb 11 | <2 | ug/L | no |
| Bendiocarb | 28 Feb 11 | <2 | ug/L | No |
| Benzene | 28 Feb 11 | <0.1 | ug/L | no |
| Benzo(a)pyrene | 28 Feb 11 | <0.009 | ug/L | DL > ½ MAC |
| Bromoxynil | 28 Feb 11 | <0.5 | ug/L | No |
| Carbaryl | 28 Feb 11 | <5 | ug/L | No |
| Carbofuran | 28 Feb 11 | <5 | ug/L | No |
| Carbon Tetrachloride | 28 Feb 11 | <0.1 | ug/L | No |
| g-Clorodane | 28 Feb 11 | <0.006 | ug/L | No |
| a-Chlorodane | 28 Feb 11 | <0.006 | ug/L | No |
| Chlordane (Total) | 28 Feb 11 | <0.01 | ug/L | no |
| Chlorpyrifos | 28 Feb 11 | <1 | ug/L | No |
| Cyanazine | 28 Feb 11 | <1 | ug/L | No |
| DDT + Metabolites (Dichlorodiphenyltrichloroethane) | 28 Feb 11 | <0.02 | ug/L | no |
| Des-ethyl atrazine | 28 Feb 11 | <0.5 | ug/L | no |
| Diazinon | 28 Feb 11 | <1 | ug/L | No |
| Dicamba | 28 Feb 11 | <1 | ug/L | No |
| Dieldin | 28 Feb 11 | <0.006 | ug/L | No |
| 1,2-Dichlorobenzene | 28 Feb 11 | <0.2 | ug/L | No |
| 1,4-Dichlorobenzene | 28 Feb 11<br>29 Nov 11 | <0.2<br>0.5 | ug/L | no |
| 1,2-Dichloroethane | 28 Feb 11 | <0.2 | ug/L | No |

| | | | | |
|---|---|---|---|---|
| 1,1-Dichloroethylene (vinylidene chloride) | 28 Feb 11 | <0.1 | ug/L | no |
| Dichloromethane | 28 Feb 11 | <0.2 | ug/L | No |
| 2-4 Dichlorophenol | 28 Feb 11 | <0.5 | ug/L | No |
| 2,4-Dichlorophenoxy acetic acid (2,4-D) | 28 Feb 11 | <1 | ug/L | no |
| Diclofop-methyl | 28 Feb 11 | <0.9 | ug/L | No |
| Dimethoate | 28 Feb 11 | <3 | ug/L | No |
| Dinoseb | 28 Feb 11 | <1 | ug/L | No |
| Diquat | 28 Feb 11 | <7 | ug/L | No |
| Diuron | 28 Feb 11 | <10 | ug/L | No |
| Glyphosate | 28 Feb 11 | <10 | ug/L | No |
| Heptachlor | 28 Feb 11 | <0.006 | ug/L | No |
| Heptachlor Epoxide | 28 Feb 11 | <0.006 | ug/L | No |
| Heptachlor + Heptachlor Epoxide | 28 Feb 11 | <0.01 | ug/L | No |
| Lindane (Total) | 28 Feb 11 | <0.006 | ug/L | No |
| Malathion | 28 Feb 11 | <5 | ug/L | no |
| Methoxychlor | 28 Feb 11 | <0.02 | ug/L | no |
| Metolachlor | 28 Feb 11 | <0.5 | ug/L | No |
| Metribuzin | 28 Feb 11 | <5 | ug/L | No |
| Monochlorobenzene | 28 Feb 11 | <0.1 | ug/L | no |
| Oxychlorodane | 28 Feb 11 | <0.006 | ug/L | No |
| p,p-DDE | 28 Feb 11 | <0.006 | ug/L | No |
| p,p-DDD | 28 Feb 11 | <0.006 | ug/L | No |
| o,p-DDT | 28 Feb 11 | <0.006 | ug/L | No |
| p,p-DDT | 28 Feb 11 | <0.006 | ug/L | No |
| Paraquat | 28 Feb 11 | <1 | ug/L | no |
| Parathion | 28 Feb 11 | <1 | ug/L | No |
| Pentachlorophenol | 28 Feb 11 | <0.5 | ug/L | No |
| Phorate | 28 Feb 11 | <0.5 | ug/L | No |
| Picloram | 28 Feb 11 | <5 | ug/L | No |
| Polychlorinated Biphenyls (PCB) | 28 Feb 11 | <0.05 | ug/L | no |
| Prometryn | 28 Feb 11 | <0.3 | ug/L | No |
| Simazine | 28 Feb 11 | <1 | ug/L | No |
| Temephos | 28 Feb 11 | <10 | ug/L | No |
| Terbufos | 28 Feb 11 | <0.5 | ug/L | No |
| Tetrachloroethylene | 28 Feb 11 | <0.1 | ug/L | No |
| 2,3,4,6-Tetrachlorophenol | 28 Feb 11 | <0.5 | ug/L | No |
| Tolulene | 28 Feb 11 | <0.2 | ug/L | No |
| Triallate | 28 Feb 11 | <1 | ug/L | No |
| Trichloroethylene | 28 Feb 11 | <0.1 | ug/L | no |
| 2,4,6-Trichlorophenol | 28 Feb 11 | <0.5 | ug/L | No |
| 2,4,5-Trichlorophenoxy acetic acid (2,4,5-T) | 28 Feb 11 | <1 | ug/L | no |
| Trifluralin | 28 Feb 11 | <1 | ug/L | no |
| Vinyl Chloride | 28 Feb 11 | <0.2 | ug/L | no |

| THM<br>Dist Sample Location 80 Principal St. E (arena)<br>Result marked with * not used in calculating the annual average. The regulation requires that the highest result from each quarter be used to calculate the average | 1 st Quarter Result Value | 2 nd Quarter Result Value | 3 rd Quarter Result Value | 4th Quarter Result Value | Unit of Measure | Exceedance |
|---|---|---|---|---|---|---|
| **Date Sampled** | 28 Feb 11 | 30 May 11 | 30 Aug 11 | 29 Nov 11 | | |
| **Bromodichloromethane** | 1.4 | 2.8 | 4.2 | 1.2 | ug/L | No |
| **Bromoform** | < 0.2 | < 1 | < 0.2 | < 0.2 | ug/L | No |
| **Chloriform** | 33.9 | 78.5 | 64.7 | 38.6 | ug/L | No |
| **Dibromochloromethane** | < 0.2 | < 1 | <0.2 | < 0.2 | ug/L | No |
| **Total Trihalomethanes** | 35.3 | 81 | 68.9 | 39.8 | ug/L | No |
| **Total Trihalomethanes 4 Quarter Average** | | | | 56.3 | ug/L | No |

**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 | MAC Value | Date of Sample |
|---|---|---|---|---|---|
| Aldicarb | <5 lab detection level | ug/L | 4.5 | 9 | 28 Feb 11 |
| Benzo(a)pyrene | <0.009 lab detection level | ug/L | 0.005 | 0.01 | 28 Feb 11 |
| Lead | 6.0 (Residential Plumbing) | Ug/L | 5.0 | 10.0 | Spring 2008 |

**Note!** **With the exception of Lead, in all of the cases above the analysis result value was less that the lab detection limit; however, the lab detection limit is above the ½ MAC value.**