



Verner Drinking Water System

Section 11

# 2019 ANNUAL REPORT



## Section 11 - ANNUAL REPORT

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### 1.0 Introduction

**Drinking-Water System Name:** VERNER DRINKING WATER SYSTEM  
**Drinking-Water System No.:** 210000951  
**Drinking-Water System Owner:** The Corporation of the Municipality of West Nipissing  
**Drinking-Water System Category:** Large Municipal, Residential System  
**Period being reported:** January 1, 2019 to December 31, 2019

**Does your Drinking Water System serve more than 10,000 people?** No

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

**Location where 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

### ***Drinking Water Systems that receive drinking water from the Verner Drinking Water System***

The Verner Drinking Water System provides all drinking water to the community of Verner.

### ***The Annual Report was not provided to any other Drinking Water System Owners.***

The Ontario Clean Water Agency prepared the 2019 Annual/Summary Report for the Verner Drinking Water System and provided a copy to the system owner; the Municipality of West Nipissing. The Verner Drinking Water System is a stand-alone system that does not receive water from or send water to another system.

### ***Notification to system users that the Annual Report is available for viewing is accomplished through:***

- A notice is posted on the web at <http://www.westnipissingouest.ca/pop/dep-utilities.html>, and the annual report is available for viewing, at the above website.
- Discussions during public council meetings.



## 2.0 Description of the Drinking Water System (DWS No. 210000951)

The Verner Drinking Water System (DWS) is owned by the Corporation of the Municipality of West Nipissing and consists of a Class 3 water treatment subsystem and a Class 1 water distribution subsystem. The Ontario Clean Water Agency is designated as the Overall Responsible Operator (ORO) for the water treatment plant (WTP). The Municipality of West Nipissing provides the ORO for the Verner Water Distribution System.

The Verner DWS has an approved rated capacity of 1054 m<sup>3</sup>/day and provided a potable water supply to Verner.

### ***Raw Water Supply***

The Verner Municipal Water System is a surface water system that draws water from the Veuve River. The Veuve River is part of the Lake Nipissing watershed. The intake structure is located 12 kilometers (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 hectares (ha). This area is well developed and includes: Highway (Hwy) 17 corridor; Canadian Pacific Railway (CPR) railway tracks; housing and cottage development. The water treatment plant's intake facility consists of an intake structure located 5 meters (m) below the low river level, connected to a raw water wet well by a 42.7 m long, 250 millimeter (mm) ductile iron pipe. The intake structure is approximately 20 m from the riverbank. In accordance with the Permit To Take Water (PTTW), the allowable rate of water taking is 12.25 litres per second (L/s) with a maximum daily volume of 1059 cubic meters per day (m<sup>3</sup>/d).

### ***Water Treatment***

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 Ultra-Violet Irradiation (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 kilowatt (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 WTP is a conventional treatment facility, with a designed capacity of 1059 m<sup>3</sup>/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 UV (primary disinfection) and chlorine gas (secondary disinfection). 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 GAC filters. Chemical treatment includes the addition of polymer, aluminum sulphate (Alum), pre and post soda ash, chlorine gas for disinfection and chlorine dioxide for iron and manganese removal to control taste and odour. An occupancy alarm was installed at the WTP in 2017 and set to dial out after 64 hours.

### ***Water Storage and Pumping Capabilities***

There are four (4) below grade clear wells connected in series having a total area, total capacity and useable capacity of 134 square meters (m<sup>2</sup>), 269 cubic meters (m<sup>3</sup>) and 234 m<sup>3</sup> respectively.



The high lift pumping station has a firm capacity of 1,090 m<sup>3</sup>/d with three (3) identical vertical turbine high lift pumps each having a capacity of 545 m<sup>3</sup>/d at a total dynamic head (TDH) of 53.3 m.

### ***Waste Management***

A backwash handling system includes a 4.56 m by 3.05 m deep waste equalization tank which collects waste sludge, backwash water, all in-plant drainage and sanitary waste; one (1) submersible pump that pumps 272.2 m<sup>3</sup>/d at a TDH of 7.0 m discharging to the municipal sanitary sewage system.

### ***Emergency Power***

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.

### ***Distribution System***

The Verner Water Supply System is classified as a Large Municipal Residential Drinking Water System which serves a population of approximately 1100 consumers. The Verner Water Distribution System consists of approximately 8 km of water main. The system includes an offsite 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<sup>3</sup> and about 40 m above ground equipped with low level alarm and an overflow. The system has approximately 50 hydrants. The distribution system undergoes routine flushing twice a year, in the spring and in the fall.

## **3.0 List of Water Treatment Chemicals Used Over the Reporting Period**

The following chemicals were used in the treatment process at the Verner Water Treatment Plant.

- Aluminum Sulphate (Alum) - Coagulation/Flocculation
- Chlorine dioxide is produced on site by combining Chlorine solution and Sodium Chlorite – Iron and Manganese Control
- Chlorine Gas – Disinfection
- Magnafloc LT 20 Poly Acrylamide Polymer – Coagulant Aid
- Sodium Carbonate (Soda Ash) –Alkalinity and pH Adjustment
- Sodium Chlorite – Iron and Manganese Control

## **4.0 Significant Expenses Incurred in the Drinking Water System**

OCWA is committed to maintaining the assets of the drinking water system and maintains a program of scheduled inspection and maintenance activities using a computerized Work Management System (WMS). OCWA implemented a new Workplace Management System (Maximo) in 2015 which better maintains and optimizes facility assets. All routine maintenance activities conducted at the water treatment plant were accomplished in 2019.

Significant expenses incurred in the drinking water system include:



- Approval given to have clearwells cleaned robotically. Service scheduled dependent on availability of contracted company. Robot was not capable of cleaning clearwells. Clearwells to be cleaned in future.
- Floor resurfacing with new paint.
- Coagulant static mixer installed and alum injection point moved further upstream. This has significantly improved floc formation.
- Changed filter media from anthracite to granular activated carbon (GAC). This has been successful at reducing chlorites.
- Shifted pre-soda ash dosing point further upstream (in the raw water wet well).
- Potassium permanganate equipment was installed in preparation for trial.
- Low lift pump piping replaced and modified as required for better performance.
- Low lift pump # 3 replaced due to equipment reaching end of service life.

## 5.0 Drinking Water System Highlights

- The last Ministry of the Environment, Conservation and Parks (MECP) inspection took place on January 24, 2019. The inspection included a physical assessment of the Verner water treatment plant and a document review. The system received a risk rating of 0%, with a final inspection rating of 100%. There was one non-compliance issue relating to the chlorite exceedances. See info below.
- SAI Global conducted a 12 Month Surveillance audit of the Verner Drinking Water Systems' Quality and Environmental Management System (QEMS). The system and processes associated with the QEMS were evaluated on September 9, 2019 to ensure implementation of the Operational Plan and procedures and conformance to the Drinking Water Quality Management Standard. One (1) opportunity for improvement was identified during the audit and has been resolved. Re-accreditation was achieved on December 18, 2018.
- Extra chlorite and chlorate sampling conducted from pre filter, post filter and point of entry.
- Schedule C Amendment approved to allow for Potassium Permanganate trial. Six month trial to begin in the spring of 2020 to help solve the ongoing chlorite issue.
- International Plowing Match: Held in Verner this year. Additional on-call coverage was set up for the Verner WTP. The plant was able to keep up with the additional demand and no operational issues occurred during the event.

## 6.0 Details on Notices of Adverse Test Results and Other Problems Reported to & Submitted to the Spills Action Center

Based on information kept on record by OCWA, eight (8) adverse water quality incidents (AWQI) was reported to the Ministry of the Environment's Spills Action Centre (MOE SAC) in 2019.

### **AWQI 145255 – Chlorite Exceedance (Lab result greater than 1.0 mg/l)**

Chlorite sample result of 1.90 mg/L on April 23, 2019 caused AWQI #145255 MAC = 1.0 mg/L. Verbally notified MOE SAC, MOH and Owner on April 23, 2019 and faxed Section 1, 2A and 3. MOH directed to turn down chlorine dioxide, flush POE line and resample. Sodium chlorite feed



rate was lowered to 40%. Resample taken April 25, 2019 and results came in on May 7, 2019. Resample result = 0.85 mg/L and is below MAC, contacted MOH and informed them of resample result on May 8, 2019, no further action required from health unit, numerous process changes and upgrades under way to address chlorite issue. Section 2B faxed to MOE SAC, MOH and Owner on May 8, 2019 with resample results.

#### **AWQI 147378 – Chlorite Exceedance (Lab result greater than 1.0 mg/l)**

Chlorite sample result of 1.03 mg/L on August 16, 2019 caused AWQI #147378 MAC = 1.0 mg/L. Sample collected August 4, 2019. Verbally notified MOE SAC, MOH and Owner on August 16, 2019 and faxed Section 1, 2A and 3. MOH directed to turn down chlorine dioxide, flush POE line and resample. Chlorine dioxide turned down on August 9 and August 16. Resample taken August 17, 2019 and results came in on August 26, 2019. Resample result = 3.10 mg/L, second resample required, results came in on September 3 with result of 2.80 and is above MAC. Third resample required, results came in on September 18 and result is 0.87 mg/L which is below MAC, contacted MOH and informed them of resample result on September 18, no further action required from health unit, numerous process changes and upgrades under way to address chlorite issue. Section 2B faxed to MOE SAC, MOH and Owner on September 18, with resample results.

#### **AWQI 147408– Chlorite Exceedance (Lab result greater than 1.0 mg/l)**

Chlorite sample result of 2.40 mg/L on August 19, 2019 caused AWQI #147408 MAC = 1.0 mg/L. Sample collected August 8, 2019. Verbally notified MOE SAC, MOH and Owner on August 19, 2019 and faxed Section 1, 2A and 3. MOH directed to turn down chlorine dioxide, flush POE line and resample. Chlorine dioxide turned down on August 9, August 16 and August 19. Resample taken August 20, 2019 and results came in on August 26, 2019. Resample result = 3.30 mg/L, final resample required, results came in on September 18 with result of 0.87 mg/L and is below MAC, contacted MOH and informed them of resample result on September 18, no further action required from health unit, numerous process changes and upgrades under way to address chlorite issue. Section 2B faxed to MOE SAC, MOH and Owner on September 18 with resample results.

#### **AWQI 147578– Chlorite Exceedance (Lab result greater than 1.0 mg/l)**

Chlorite sample result of 3.10 mg/L on August 26, 2019 caused AWQI #147578 MAC = 1.0 mg/L. Sample collected August 17, 2019. Verbally notified MOE SAC, MOH and Owner on August 26, 2019 and faxed Section 1, 2A and 3. MOH directed to turn down chlorine dioxide, flush POE line and resample. Chlorine dioxide turned down on August 9, August 16, August 19 and August 23. Resample taken August 27, 2019 and results came in on September 3. Resample result = 2.80 mg/L and is above MAC, resample taken September 10 with result of 0.87 mg/L and is below MAC, contacted MOH and informed them of resample result on September 18, no further action required from health unit, numerous process changes and upgrades under way to address chlorite issue. Section 2B faxed to MOE SAC, MOH and Owner on September 18 with resample results.

#### **AWQI 147579– Chlorite Exceedance (Lab result greater than 1.0 mg/l)**

Chlorite sample result of 3.30 mg/L on August 26, 2019 caused AWQI #147579 MAC = 1.0 mg/L. Sample collected August 20, 2019. Verbally notified MOE SAC, MOH and Owner on August 26, 2019 and faxed Section 1, 2A and 3. MOH directed to turn down chlorine dioxide, flush POE line





and resample. Chlorine dioxide turned down on August 9, August 16, August 19 and August 23. Resample taken August 27, 2019 and results came in on September 3. Resample result = 2.80 mg/L and is above MAC, resample taken September 10 with result of 0.87 mg/L and is below MAC, contacted MOH and informed them of resample result on September 18, no further action required from health unit, numerous process changes and upgrades under way to address chlorite issue. Section 2B faxed to MOE SAC, MOH and Owner on September 18 with resample results.

#### **AWQI 147580– Chlorate Exceedance (Lab result greater than 1.0 mg/l)**

Chlorate sample result of 1.20 mg/L on August 26, 2019 caused AWQI #147580 MAC = 1.0 mg/L. Sample collected August 20, 2019. Verbally notified MOE SAC, MOH and Owner on August 26, 2019 and faxed Section 1, 2A and 3. MOH directed to turn down chlorine dioxide, flush POE line and resample. Chlorine dioxide turned down on August 9, August 16, August 19 and August 23. Resample taken August 27, 2019 and results came in on September 3, 2019. Resample result = 0.73 mg/L and is below MAC, contacted MOH and informed them of resample result on September 3, 2019, no further action required from health unit, numerous process changes and upgrades under way to address chlorate issue. Section 2B faxed to MOE SAC, MOH and Owner on September 3, 2019 with resample results.

#### **AWQI 147774– Chlorite Exceedance (Lab result greater than 1.0 mg/l)**

Chlorite sample result of 2.80 mg/L on September 3, 2019 caused AWQI #147774 MAC = 1.0 mg/L. Sample collected August 27, 2019. Verbally notified MOE SAC, MOH and Owner on September 3, 2019 and faxed Section 1, 2A and 3. MOH directed to turn down chlorine dioxide, flush POE line and resample. Chlorine dioxide turned down on August 9, August 16, August 19, August 23 and August 29. Resample taken September 10, 2019 and results came in on September 18. Resample result = 0.87 mg/L and is below MAC, contacted MOH and informed them of resample result on September 18, no further action required from health unit, numerous process changes and upgrades under way to address chlorite issue. Section 2B faxed to MOE SAC, MOH and Owner on September 18 with resample results.

#### **AWQI 147908– Chlorite Exceedance (Lab result greater than 1.0 mg/l)**

Chlorite sample result of 1.40 mg/L on September 9, 2019 caused AWQI #147908 MAC = 1.0 mg/L. Sample collected Sept. 4, 2019. Verbally notified MOE SAC, MOH and Owner on September 9, 2019 and faxed Section 1, 2A and 3. MOH directed to turn down chlorine dioxide, flush POE line and resample. Chlorine dioxide turned down on August 9, August 16, August 19, August 23, August 29 and September 9. Resample taken September 10, 2019 and results came in on September 18, 2019. Resample result = 0.87 mg/L and is below MAC, contacted MOH and informed them of resample result on September 18, 2019, no further action required from health unit, numerous process changes and upgrades under way to address chlorite issue. Section 2B faxed to MOE SAC, MOH and Owner on September 18, 2019 with resample results.



## 7.0 Microbiological Testing Performed During the Reporting Period

### Summary of Microbiological Data

| Sample Type  | No. of Samples | Range of <i>E. coli</i> Results<br>(min to max) | Range of Total Coliform Results<br>(min to max) | # of HPC Samples | Range of HPC Results<br>(min to max) |
|--------------|----------------|---|---|------------------|--------------------------------------|
| Raw (River)  | 53             | 2 to 420  | 15 to 9900                                      | 0                | N/A                                  |
| Treated      | 53             | 0 to 0  | 0 to 0  | 53               | 0 to 1                               |
| Distribution | 163            | 0 to 0  | 0 to 0  | 55               | 0 to 1                               |

Maximum Allowable Concentration (MAC) for *E. coli* = 0 Counts/100 mL

MAC for Total Coliforms = 0 Counts/100 mL

“<” denotes less than the laboratory’s method detection limit.

NDOGT = No Data, Overgrown with Target

NDOGHPC = No Data, Overgrown with HPC

**Notes:** One microbiological sample is collected and tested each week from the raw and treated water supply. A total of three microbiological samples are collected and tested each week from the Verner distribution system.

Refer to *Appendix A* for a monthly summary of microbiological test results.

## 8.0 Operational Testing Performed During the Reporting Period

### Continuous Monitoring in the Treatment Process

| Parameter                           | No. of Samples | Range of Results<br>(min to max) | Unit of Measure |
|-------------------------------------|----------------|----------------------------------|-----------------|
| Filter #1 and #2 Combined Turbidity | 8760           | 0.0 to 0.82                      | NTU             |
| Free Chlorine                       | 8760           | 0.55 to 3.87                     | mg/L            |

**Notes:** For continuous monitoring 8760 is used as the number of samples.

Effective backwash procedures, including filter to waste are in place to ensure that the effluent turbidity requirements are met all times. The plant is configured to shut down and creates a callout whenever turbidity reaches 1.0 NTU for 0 seconds. At 0.35 NTU after 800 seconds automatic backwashes are triggered.

### Summary of Chlorine Residual Data in the Distribution System

| Parameter     | No. of Samples | Range of Results<br>(min to max) | Unit of Measure | Standard |
|---------------|----------------|----------------------------------|-----------------|----------|
| Free Chlorine | 364            | 0.30 to 1.95                     | mg/L            | 0.05     |

**Note:** A total of seven operational checks for chlorine residual in the distribution system are collected each week. Four (4) samples are tested one day and three (3) on a second day. The sample sets are collected at least 48-hours apart and samples collected on the same day are from different locations.

Refer to *Appendix B* for a monthly summary of the above operational data.





**Summary of Nitrate & Nitrite Data** (sampled at the water treatment plant)

| Date of Sample | Nitrate Result Value | Nitrite Result Value | Unit of Measure | Exceedance |
|----------------|----------------------|----------------------|-----------------|------------|
| January 17     | 0.137                | < 0.003              | mg/L            | No         |
| April 15       | 0.235                | < 0.003              | mg/L            | No         |
| July 15        | 0.011                | < 0.003              | mg/L            | No         |
| October 15     | 0.065                | < 0.003              | mg/L            | No         |

Maximum Allowable Concentration (MAC) for Nitrate = 10 mg/L

MAC for Nitrite = 1 mg/L

**Summary of Chlorate and Chlorite Data** (sampled at the water treatment plant)

| Date of Sample      | Chlorite Result Value | Chlorate Result Value | Unit of Measure | Exceedance |
|---------------------|-----------------------|-----------------------|-----------------|------------|
| January 17**        | 0.18                  | 0.10                  | mg/L            | Yes*       |
| April 15**          | 1.90*                 | 0.31                  |                 |            |
| April 25 (resample) | 0.85                  | 0.19                  |                 |            |
| June 13             | < 0.01                | 0.09                  |                 |            |
| June 24             | < 0.01                | 0.01                  |                 |            |
| June 26             | < 0.01                | 0.01                  |                 |            |
| July 2              | < 0.01                | 0.12                  |                 |            |
| July 8              | 0.01                  | 0.19                  |                 |            |
| July 15**           | 0.05                  | 0.18                  |                 |            |
| July 17             | 0.07                  | 0.19                  |                 |            |
| July 31             | 0.36                  | 0.32                  |                 |            |
| August 2            | 0.84                  | 0.47                  |                 |            |
| August 3            | 0.75                  | 0.56                  |                 |            |
| August 4            | 1.03*                 | 0.67                  |                 |            |
| August 8            | 2.40*                 | 0.97                  |                 |            |
| August 17           | 3.10*                 | 1.00                  |                 |            |
| August 20           | 3.30*                 | 1.20*                 |                 |            |
| August 27           | 2.80*                 | 0.73                  |                 |            |
| September 4         | 1.40*                 | -                     |                 |            |
| September 10        | 0.87                  | -                     |                 |            |
| October 15**        | 0.53                  | 0.19                  |                 |            |

Maximum Allowable Concentration (MAC) for Chlorate = 1 mg/L

MAC for Chlorite = 1 mg/L

\* See Section 6.0 – Details on Notices of Adverse Test Results and Other Problems Reported to & Submitted to the Spills Actions Center on page 6 of this report for details.

\*\*Quarterly Samples

**Summary of Total Trihalomethane Data** (sampled in the distribution system)

| Date of Sample | Result Value | Unit of Measure | Running Average | Exceedance |
|----------------|--------------|-----------------|-----------------|------------|
| January 17     | 52           | ug/L            | 67.8            | No         |
| April 15       | 41           |                 |                 |            |
| July 15        | 81           |                 |                 |            |
| October 15     | 97           |                 |                 |            |

Maximum Allowable Concentration (MAC) for Total Trihalomethanes (THMs) = 100 ug/L (Four Quarter Running Average)

In an effort to reduce THMs in first quarter of 2019, the distribution main to THMs sampling location will be flushed a week prior to sampling.



**Summary of Total Haloacetic Acids Data** (sampled in the distribution system)

| Date of Sample                  | Result Value | Unit of Measure | Running Average | Exceedance     |
|---------------------------------|--------------|-----------------|-----------------|----------------|
| January 17 (4 Principal St. W.) | 54.9         | ug/L            | 56.3            | N/A Until 2020 |
| April 15 (4 Principal St. W)    | 41.2         |                 |                 |                |
| April 29 (10401 Hwy. 17)        | 49.1         |                 |                 |                |
| July 15 (10401 Hwy. 17)         | 75.4         |                 |                 |                |
| October 15 (10401 Hwy. 17)      | 60.9         |                 |                 |                |

**Summary of Most Recent Lead Data**

(Applicable to the following drinking water systems; large municipal residential systems, small, municipal residential systems, and non-municipal year-round residential systems)

The Verner Drinking Water System was eligible to follow the “Exemption from Plumbing Sampling” as described in section 15.1-5(9) and 15.1-5(10) of Schedule 15.1 of Ontario Regulation 170/03. The exemption applies to a drinking water system if, in two consecutive periods at reduced sampling, not more than 10% of all samples from plumbing exceed the maximum allowable concentration (MAC) of 10 ug/L for lead. As such, the system was required to test for total alkalinity, lead and pH in two distribution sample collected during the periods of December 15 to April 15 (winter period) and June 15 to October 15 (summer period). This testing is required in every 12-month period with lead testing in every third 12-month period. Two rounds of lead, alkalinity and pH testing were carried out on April 9<sup>th</sup> and October 7<sup>th</sup> of 2019. Results are summarized in the table below.

**Summary of Lead, pH & Alkalinity Data**

| Date of Sample | No. of Samples | Sample Location/ID | Field pH | Lead (mg/L) | Alkalinity (mg/L) |
|----------------|----------------|--------------------|----------|-------------|-------------------|
| April 9        | 1              | B/O Telesphore     | 7.04     | <0.001      | 47.2              |
| April 9        | 1              | B/O Veuve River    | 7.01     | <0.001      | 45.4              |
| October 7      | 1              | B/O Telesphore     | 7.21     | <0.001      | 80.0              |
| October 7      | 1              | B/O Hwy 64         | 7.28     | <0.001      | 73.0              |



**Most Recent Schedule 23 Inorganic Data Tested at the Water Treatment Plant**

| Parameter | Result Value | Unit of Measure | Standard | Exceedance |
|-----------|--------------|-----------------|----------|------------|
| Antimony  | 0.04         | ug/L            | 6        | No         |
| Arsenic   | <MDL 0.2     | ug/L            | 10       | No         |
| Barium    | 11.6         | ug/L            | 1000     | No         |
| Boron     | 8.0          | ug/L            | 5000     | No         |
| Cadmium   | 0.01         | ug/L            | 5        | No         |
| Chromium  | 0.24         | ug/L            | 50       | No         |
| Mercury   | <MDL 0.01    | ug/L            | 1        | No         |
| Selenium  | <MDL 0.04    | ug/L            | 50       | No         |
| Uranium   | 0.007        | ug/L            | 20       | No         |

**Note:** Sample required every 12 months (sample date = *January 17, 2019*)



**Most Recent Schedule 24 Organic Data Tested at Water Treatment Plant**

| TREATED WATER  | Sample Date<br>(yyyy/mm/dd) | Sample Result | MAC    | Number of Exceedances |         |
|--|-----------------------------|---------------|--------|-----------------------|---------|
|  |                             |               |        | MAC                   | 1/2 MAC |
| Alachlor (ug/L) - TW                                   | 2019/01/17                  | <MDL 0.02     | 5.00   | No                    | No      |
| Atrazine + N-dealkylated metabolites (ug/L) - TW       | 2019/01/17                  | <MDL 0.01     | 5.00   | No                    | No      |
| Azinphos-methyl (ug/L) - TW                            | 2019/01/17                  | <MDL 0.05     | 20.00  | No                    | No      |
| Benzene (ug/L) - TW                                    | 2019/01/17                  | <MDL 0.32     | 1.00   | No                    | No      |
| Benzo(a)pyrene (ug/L) - TW                             | 2019/01/17                  | <MDL 0.004    | 0.01   | No                    | No      |
| Bromoxynil (ug/L) - TW                                 | 2019/01/17                  | <MDL 0.33     | 5.00   | No                    | No      |
| Carbaryl (ug/L) - TW                                   | 2019/01/17                  | <MDL 0.05     | 90.00  | No                    | No      |
| Carbofuran (ug/L) - TW                                 | 2019/01/17                  | <MDL 0.01     | 90.00  | No                    | No      |
| Carbon Tetrachloride (ug/L) - TW                       | 2019/01/17                  | <MDL 0.16     | 2.00   | No                    | No      |
| Chlorpyrifos (ug/L) - TW                               | 2019/01/17                  | <MDL 0.02     | 90.00  | No                    | No      |
| Diazinon (ug/L) - TW                                   | 2019/01/17                  | <MDL 0.02     | 20.00  | No                    | No      |
| Dicamba (ug/L) - TW                                    | 2019/01/17                  | <MDL 0.2      | 120.00 | No                    | No      |
| 1,2-Dichlorobenzene (ug/L) - TW                        | 2019/01/17                  | <MDL 0.41     | 200.00 | No                    | No      |
| 1,4-Dichlorobenzene (ug/L) - TW                        | 2019/01/17                  | <MDL 0.36     | 5.00   | No                    | No      |
| 1,2-Dichloroethane (ug/L) - TW                         | 2019/01/17                  | <MDL 0.35     | 5.00   | No                    | No      |
| 1,1-Dichloroethylene (ug/L) - TW                       | 2019/01/17                  | <MDL 0.33     | 14.00  | No                    | No      |
| Dichloromethane (Methylene Chloride) (ug/L) - TW       | 2019/01/17                  | <MDL 0.35     | 50.00  | No                    | No      |
| 2,4-Dichlorophenol (ug/L) - TW                         | 2019/01/17                  | <MDL 0.15     | 900.00 | No                    | No      |
| 2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW    | 2019/01/17                  | <MDL 0.19     | 100.00 | No                    | No      |
| Diclofop-methyl (ug/L) - TW                            | 2019/01/17                  | <MDL 0.4      | 9.00   | No                    | No      |
| Dimethoate (ug/L) - TW                                 | 2019/01/17                  | <MDL 0.06     | 20.00  | No                    | No      |
| Diquat (ug/L) - TW                                     | 2019/01/17                  | <MDL 1.0      | 70.00  | No                    | No      |
| Diuron (ug/L) - TW                                     | 2019/01/17                  | <MDL 0.03     | 150.00 | No                    | No      |
| Glyphosate (ug/L) - TW                                 | 2019/01/17                  | <MDL 1.0      | 280.00 | No                    | No      |
| Malathion (ug/L) - TW                                  | 2019/01/17                  | <MDL 0.02     | 190.00 | No                    | No      |
| Metolachlor (ug/L) - TW                                | 2019/01/17                  | <MDL 0.01     | 50.00  | No                    | No      |
| Metribuzin (ug/L) - TW                                 | 2019/01/17                  | <MDL 0.02     | 80.00  | No                    | No      |
| Monochlorobenzene (Chlorobenzene) (ug/L) - TW          | 2019/01/17                  | <MDL 0.3      | 80.00  | No                    | No      |
| Paraquat (ug/L) - TW                                   | 2019/01/17                  | <MDL 1.0      | 10.00  | No                    | No      |
| PCB (ug/L) - TW  | 2019/01/17                  | <MDL 0.04     | 3.00   | No                    | No      |
| Pentachlorophenol (ug/L) - TW                          | 2019/01/17                  | <MDL 0.15     | 60.00  | No                    | No      |
| Phorate (ug/L) - TW                                    | 2019/01/17                  | <MDL 0.01     | 2.00   | No                    | No      |
| Picloram (ug/L) - TW                                   | 2019/01/17                  | <MDL 1.0      | 190.00 | No                    | No      |
| Prometryne (ug/L) - TW                                 | 2019/01/17                  | <MDL 0.03     | 1.00   | No                    | No      |
| Simazine (ug/L) - TW                                   | 2019/01/17                  | <MDL 0.01     | 10.00  | No                    | No      |
| Terbufos (ug/L) - TW                                   | 2019/01/17                  | <MDL 0.01     | 1.00   | No                    | No      |
| Tetrachloroethylene (ug/L) - TW                        | 2019/01/17                  | <MDL 0.35     | 10.00  | No                    | No      |
| 2,3,4,6-Tetrachlorophenol (ug/L) - TW                  | 2019/01/17                  | <MDL 0.2      | 100.00 | No                    | No      |
| Triallate (ug/L) - TW                                  | 2019/01/17                  | <MDL 0.01     | 230.00 | No                    | No      |
| Trichloroethylene (ug/L) - TW                          | 2019/01/17                  | <MDL 0.44     | 5.00   | No                    | No      |
| 2,4,6-Trichlorophenol (ug/L) - TW                      | 2019/01/17                  | <MDL 0.25     | 5.00   | No                    | No      |
| 2-methyl-4-chlorophenoxyacetic acid (MCPA) (ug/L) - TW | 2019/01/17                  | <MDL 0.12     | 100.00 | No                    | No      |
| Trifluralin (ug/L) - TW                                | 2019/01/17                  | <MDL 0.02     | 45.00  | No                    | No      |
| Vinyl Chloride (ug/L) - TW                             | 2019/01/17                  | <MDL 0.17     | 1.00   | No                    | No      |

**Note:** Sample required every 12 months (sample date = January 17, 2019)

***Inorganic or Organic Test Results that Exceeded Half the Standard Prescribed in Schedule 2 of the Ontario Drinking Water Quality Standards.***

No inorganic or organic parameter(s) listed in Schedule 23 and 24 of Ontario Regulation 170/03 exceeded half the standard found in Schedule 2 of the Ontario Drinking Water Standard (O. Reg. 169/03) during the reporting period.



**Most Recent Sodium Data Sampled at the Water Treatment Plant**

| Date of Sample               | No. of Samples | Result Value | Unit of Measure | Standard | Exceedance |
|------------------------------|----------------|--------------|-----------------|----------|------------|
| February 22, 2016            | 1              | 39.8         | mg/L            | 20       | Yes        |
| February 29, 2016 (resample) | 1              | 27.3         |                 |          |            |
| January 17, 2019             | 1              | 44.2         |                 |          |            |

**Note:** Sample required every 60 months. Next sampling scheduled for January 2021. AWQI reported in 2016.

It is required that the local Medical Officer of Health be notified when the concentration exceeds 20 mg/L so that persons on sodium restricted diets can be notified by their physicians. The adverse sodium result was reported to MOE SAC and the North Bay Parry Sound District Health Unit on Feb. 25, 2016 as required under Schedule 16 of O. Reg. 170/03 (AWQI# 128400).

**Most Recent Fluoride Data Sampled at the Water Treatment Plant**

| Date of Sample   | No. of Samples | Result Value | Unit of Measure | Standard | Exceedance |
|------------------|----------------|--------------|-----------------|----------|------------|
| January 17, 2019 | 1              | <MDL 0.06    | mg/L            | 1.5      | No         |

**Note:** Sample required every 60 months. Next sampling scheduled for January 2024.

**Summary of Additional Testing Performed in Accordance with a Legal Instrument.**

- Schedule C, Section 1.6 of Municipal Drinking Water Licence #202-101 requires the UV disinfection system to maintain a continuous pass-through UV dose of at least 40 millijoules per square centimeter (mJ/cm<sup>2</sup>) which is equal to 12.7 watts per square meter (W/m<sup>2</sup>) throughout the life span of the UV lamps. Refer to Appendix B.

A primary disinfection system consisting of two (2) Trojan UV swift SC model B08 low pressure UV irradiation units, each rated at 1,320 m<sup>3</sup>/d at 85% Ultra-Violet Light Transmittance (UVT) with design dose of 40 mJ/cm<sup>2</sup> complete with electrically actuated control valves to allow switchover between units, automatic on-line cleaning systems, and treatment-to-waste functionality. The standby reactor will be brought into service in the event that the duty reactor faults or fails to provide the required UV dosage of 40 mJ/square cm. If the duty reactor fails the following would occur:

- the low lift and high lift pumps would shut off
- the (failed) duty UV reactor’s water inlet valve would close
- an alarm would be generated and sent through the emergency call-out system to alert operators of the failure of the duty reactor
- an operator would respond and manually get standby reactor online

Table 4 of the licence also requires the following parameters related to the UV disinfection system to be continuously monitored and recorded every four (4) hours:

**UV Intensity** Measured continuously by the UV system. UV intensity is monitored by each individual unit’s control module and should the light



intensity of the unit fall outside the specified range, the unit will automatically shut down and a standby unit will be activated by the on call operator. Such an event will be recorded by the UV control system.

***Flow Rate***

The maximum flow rate through each of the units is 12.2 to 12.8 L/s (see table 4 in Section 1.6 of Schedule C in the municipal drinking water licence #202-101) which is continuously measured by the raw water flow meter. Each UV unit is equipped with a flow control valve and an electronically activated water shut-off valve which will automatically close in the event of a UV equipment malfunction, loss of power or ceases to provide an appropriate level of disinfection.

***UV Transmittance***

Under Section 7.0 of Schedule B in the Drinking Water Works Permit #202-201, it states that UVT shall be monitored monthly.

***Lamp Status***

Monitored by each unit's control module. Should the lamp status fail, the unit will automatically shut down and a standby unit will be activated by an on call operator. Such an event will be recorded by the UV control system.