Verner Drinking Water System

Section 11

2025 Annual Report

Section 11 - ANNUAL REPORT

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, 2025 to December 31, 2025

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 2025 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:

- The annual report is available on the West Nipissing 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^3/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^3/d).

Water Treatment

The Verner Water Treatment Plant (WTP), originally commissioned in 1975, underwent major regulatory upgrades in 2005. These upgrades included the replacement of all chemical feed system equipment and tanks, new plant instrumentation and controls, installation of an ultraviolet (UV) system for primary disinfection, and the addition of piping and valves to enable treatment-to-waste functionality. New magnetic flow meters were installed on both the raw and treated water lines, and a 125-kilowatt (kW) standby diesel generator was added. Radio telemetry equipment was also installed at the elevated storage tank to support communication and control between the tank and the treatment plant.

The Verner WTP is a conventional treatment facility with a design capacity of 1,059 m^3/day. Its treatment process includes coagulation, flocculation, sedimentation, dual-media rapid sand filtration, and both primary and secondary disinfection. Primary disinfection is achieved using UV, while chlorine gas provides primary (adenovirus) and secondary disinfection. Chemically assisted filtration is provided through an Ecodyne Graver Monoplant package treatment system, which incorporates a mixing zone, flocculation zone, settling compartment with floc barriers, a blowdown valve, and rapid gravity sand and granular activated carbon (GAC) filters.

Chemical treatment includes polymer, polyaluminum chloride (PACl), pre- and post-soda ash, chlorine gas for disinfection, and potassium permanganate for iron and manganese removal to control taste and odour. An occupancy alarm was installed in 2017 and is configured to dial out after 64 hours.

Recent process optimization trials have been successful. The PACl trial confirmed its effectiveness, and PACl is now used as the primary coagulant. The potassium permanganate trial also proved successful and is now used full-time to eliminate chlorine dioxide and its associated disinfection by-products, including chlorite and chlorate. In addition, a trial using ENV PYRO 50—approved by the Ministry of the Environment, Conservation and Parks (MECP)—began in June 2025. This product is intended for manganese sequestration and may also help reduce haloacetic acids (HAAs), according to the supplier.

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^2), 269 cubic meters (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 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^3/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^3 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 are used in the treatment process at the Verner Water Treatment Plant.

- Polyaluminum Chloride (PACl) – Coagulation/Flocculation
- Potassium Permanganate ($KMnO_4$) – Iron and Manganese Control
- Tetrapotassium Pyrophosphate solution (ENV PYRO 50) – Iron and Manganese Control
- Chlorine Gas – Primary (1-log removal of viruses (Adenovirus)) and Secondary Disinfection
- Magnafloc LT 20 Poly Acrylamide Polymer – Coagulant Aid

- Sodium Carbonate (Soda Ash) –Alkalinity and pH Adjustment

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 2025.

Significant expenses incurred in the drinking water system include:

- Main Breaker handle replaced at Plant
- Composite Elevated Tank (CET) rehabilitation project with Landmark
- Mixer motor failed and was replaced with a new mixer motor
- New security features added to the front door. It is now self locking upon entry and exit.
- High Lift Pump #2 Gate and Check Valves Replaced.
- Fixed the supply valve in the chlorination room.

5.0 Drinking Water System Highlights

- Ministry of the Environment, Conservation and Parks (MECP) last inspection took place on June 3, 2025. 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 zero non-compliance issue and zero best management practice issues identified.

- SAI Global conducted a 12-Month Surveillance audit of the Verner Water Treatment Plant's Water Systems' Quality and Environmental Management System (QEMS). The system and processes associated with the QEMS evaluated on January 21, 2025 to ensure implementation of the Operational Plan and procedures and conformance to the Drinking Water Quality Management Standard version 2.0. There were no findings identified. Re-accreditation achieved on January 28, 2025.

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, one (1) adverse water quality incidents (AWQI) were reported to the Ministry of the Environment's Spills Action Centre (MOE SAC) in 2025.

AWQI 169219: On July 27, 2025, the municipal water system in the Town of Verner experienced a pressure-loss event following an automatic shutdown of the treatment plant designed to maintain treatment integrity. During the shutdown, the autodialer failed to connect, preventing operators from receiving immediate notification. As a result, the elevated water tower continued supplying the distribution system until its storage was depleted.

Public Health Response

- A Do Not Drink Advisory was issued by the Health Unit on July 27, 2025.
- Before pressure was restored, door-to-door notices were delivered to affected residents to ensure timely communication.
- Once pressure was restored, the entire system was flushed the same day.

Water Quality Testing

- Bacteriological samples were collected on July 27 and July 29.
- All sample results were satisfactory, indicating no contamination.

Advisory Lifted

- On July 30, 2025, the Health Unit rescinded the Do Not Drink Advisory.
- The Municipality of West Nipissing issued a public notice informing residents that the advisory had been lifted.
- The notice also advised residents to flush household water-use appliances, following Health Unit recommendations.

7.0 Microbiological Testing Performed During the Reporting Period

Summary of Microbiological Data

Sample Type	No. of Samples	Range of *E. coli* Results *(min to max)*	Range of Total Coliform Results *(min to max)*	# of HPC Samples	Range of HPC Results *(min to max)*
Raw (River)	52	0 to 200	1 to 3800	0	N/A
Treated	53	0 to 0	0 to 0	52	0 to 2
Distribution	168	0 to 0	0 to 0	54	0 to 39

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.

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 *(min to max)*	Unit of Measure
Filter #1 and #2 Combined Turbidity	8760	0.02 to 0.93	NTU
Free Chlorine	8760	0.25 to 5.00	mg/L

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

CT is the concentration of chlorine in the water times the time of contact that the chlorine has with the water. It is used to demonstrate the level of disinfection treatment in the water. CT calculations are performed for the Verner water plant if the free chlorine residual level drops below 0.25 mg/L to ensure primary disinfection for one log removal of viruses (Adenovirus) is achieved. The Water Treatment Plant is equipped with an automatic plant shutdown (LLP and HLP) at 0.25 mg/L, with no delay. At 0.80 mg/L after 300 seconds, alarm and HLP shutdown.

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 *(min to max)*	Unit of Measure	Standard
Free Chlorine	368	0.11 to 2.68	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 14	0.176	< 0.003	mg/L	No
April 14	0.233	< 0.003	mg/L	No
July 15	0.134	< 0.003	mg/L	No
October 21	0.046	< 0.003	mg/L	No

Maximum Allowable Concentration (MAC) for Nitrate = 10 mg/L
MAC for Nitrite = 1 mg/L

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

Date of Sample	Result Value	Unit of Measure	Running Average	Exceedance
January 14	62	ug/L	Q1 = 80.75	No
April 14	43		Q2 = 77	
July 15	100		Q3 = 73.50	
October 21	90		Q4 = 73.75	

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

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

Date of Sample	Result Value	Unit of Measure	Running Average	Exceedance
January 14	51.3	ug/L	Q1 = 60.83	No
April 14	49.5		Q2 = 60.43	
July 15	48.2		Q3 = 48.55	
October 21	48.1		Q4 = 49.28	

Maximum Allowable Concentration (MAC) for Total Haloacetic Acids (HAAs) = 80 ug/L (Four Quarter Running Average)

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 carried out on April 8 and July 23, 2025. Results 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)
Apr. 8	1	B/O Telesphore	7.3	0.00004	41.5
Apr. 8	1	B/O Hwy 64	7.3	0.00007	41.9
Jul. 23	1	B/O Telesphore	7.0	0.00006	58.8
Jul. 23	1	B/O Hwy 64	7.0	0.00107	53.7

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

Parameter	Result Value	Unit of Measure	Standard	Exceedance
Antimony	<MDL 0.6	ug/L	6	No
Arsenic	0.2	ug/L	10	No
Barium	5.86	ug/L	1000	No
Boron	6	ug/L	5000	No
Cadmium	0.003	ug/L	5	No
Chromium	0.28	ug/L	50	No
Mercury	<MDL 0.01	ug/L	1	No
Selenium	0.08	ug/L	50	No
Uranium	0.004	ug/L	20	No

Note: Sample required every 12 months (sample date = *January 14, 2025)*

Most Recent Schedule 24 Organic Data Tested at Water Treatment Plant

Sample Date / Treated Water	Sample (yyyy/mm/dd)	Number of Exceedances			
		Result	MAC	MAC	1/2 MAC
1,1-Dichloroethylene (ug/L)-TW	2025/01/14	< MDL 0.33	14	No	No
1,2-Dichlorobenzene (ug/L)-TW	2025/01/14	< MDL 0.41	200	No	No
1,2-Dichloroethane (ug/L)-TW	2025/01/14	< MDL 0.35	5	No	No

1,4-Dichlorobenzene (ug/L)-TW	2025/01/14	< MDL 0.36	5	No	No
2,3,4,6-Tetrachlorophenol (ug/L)-TW	2025/01/14	< MDL 0.2	100	No	No
2,4,6-Trichlorophenol (ug/L)-TW	2025/01/14	< MDL 0.25	5	No	No
2,4-Dichlorophenol (ug/L)-TW	2025/01/14	< MDL 0.15	900	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L)-TW	2025/01/14	< MDL 0.19	100	No	No
2-methyl-4-chlorophenoxyacetic acid (MCPA) (ug/L)-TW	2025/01/14	< MDL 0.12	100	No	No
Alachlor (ug/L) -TW	2025/01/14	< MDL 0.02	5	No	No
Atrazine + N-dealkylated metabolites (ug/L)-TW	2025/01/14	< MDL 0.01	5	No	No
Azinphos-methyl (ug/L)-TW	2025/01/14	< MDL 0.05	20	No	No
Benzene (ug/L)-TW	2025/01/14	< MDL 0.32	1	No	No
Benzo(a)pyrene (ug/L)-TW	2025/01/14	< MDL 0.004	0.01	No	No
Bromoxynil (ug/L)-TW	2025/01/14	< MDL 0.33	5	No	No
Carbaryl (ug/L)-TW	2025/01/14	< MDL 0.05	90	No	No
Carbofuran (ug/L) -TW	2025/01/14	< MDL 0.01	90	No	No
Carbon Tetrachloride (ug/L) -TW	2025/01/14	< MDL 0.17	2	No	No
Chlorpyrifos (ug/L) -TW	2025/01/14	< MDL 0.02	90	No	No
Diazinon (ug/L)-TW	2025/01/14	< MDL 0.02	20	No	No
Dicamba (ug/L)-TW	2025/01/14	< MDL 0.2	120	No	No
Dichloromethane (Methylene Chloride) (ug/L)-TW	2025/01/14	< MDL 0.35	50	No	No
Diclofop-methyl (ug/L)-TW	2025/01/14	< MDL 0.4	9	No	No
Dimethoate (ug/L)-TW	2025/01/14	< MDL 0.06	20	No	No
Diquat (ug/L)-TW	2025/01/14	< MDL 1	70	No	No
Diuron (ug/L)-TW	2025/01/14	< MDL 0.03	150	No	No
Glyphosate (ug/L)-TW	2025/01/14	< MDL 1	280	No	No
Malathion (ug/L)-TW	2025/01/14	< MDL 0.02	190	No	No
Metolachlor (ug/L)-TW	2025/01/14	< MDL 0.01	50	No	No
Metribuzin (ug/L)-TW	2025/01/14	< MDL 0.02	80	No	No
Monochlorobenzene (Chlorobenzene) (ug/L)-TW	2025/01/14	< MDL 0.3	80	No	No
Paraquat (ug/L)-TW	2025/01/14	< MDL 1	10	No	No
PCB (ug/L)-TW	2025/01/14	< MDL 0.04	3	No	No
Pentachlorophenol (ug/L)-TW	2025/01/14	< MDL 0.15	60	No	No

Note: Sample required every 12 months (sample date = *January 14, 2025)*

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
January 23, 2023	1	25.0	mg/L	20	Yes
January 18, 2022	1	26.4			
January 18, 2021	1	24.1			
January 25, 2021 (resample)	1	22.6			

Note: Sample required every 60 months. Next sampling scheduled for January 2026. AWQI reported in 2021.

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 reported to MOE SAC and the North Bay Parry Sound District Health Unit on January 22, 2021 as required under Schedule 16 of O. Reg. 170/03 (AWQI# 153445).

Most Recent Fluoride Data Sampled at the Water Treatment Plant

Date of Sample	No. of Samples	Result Value	Unit of Measure	Standard	Exceedance
January 23, 2023	1	<MDL 0.06	mg/L	1.5	No

Note: Sample required every 60 months. Next sampling scheduled for January 2028.

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

1. 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^2) which is equal to 12.7 watts per square meter (W/m^2) 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^3/d at 85% Ultra-Violet Light Transmittance (UVT) with design dose of 40 mJ/cm^2 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 though 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.