TOWN OF MIDLAND

2023

WATER SERVICES ANNUAL SUMMARY REPORT

Town of Midland Water & Wastewater Services

Definitions

The following defines terms that appear throughout this report and that will often be used for the duration of the report:

“ANSI” American National Standards Institute.

“AWQI” Adverse Water Quality Incident.

“AWWA” American Water Works Association.

“DWQMS” Drinking Water Quality Management System.

“DWWP” Drinking Water Works Permit.

“GUDI” Ground Water Under Direct Influence of Surface Water.

“HAAs” Haloacetic Acid Sampling. “MECP” Ministry of Environment Conservation and Parks.

“m^3” Cubic Meters.

“MDWL” Municipal Drinking Water License.

“NSF” National Sanitation Foundation.

“NTU” Nephelometric Turbidity Unit.

“OIT” Operator In Training.

“OP” Operational Plan.

“POE” Point of Entry.

“PTTW” Permit To Take Water.

“QMS” Quality Management System.

“SCADA” Supervisory Control and Data Acquisition.

“SDWA” Safe Drinking Water Act.

“SMDHU” Simcoe Muskoka District Health Unit.

“UV” Ultra Violet.

“VFD” Variable Frequency Drive.

“WHPA” Wellhead Protection Act.

Executive Summary

The purpose of this report is to provide information to several stakeholders and to satisfy the regulatory requirements of the Safe Drinking Water Act (SDWA) including the Drinking Water Quality Management Standard (DWQMS), and regulatory reporting required under O.Reg. 170/03 (Section 11 and Schedule 22) described in Appendix E and F. The Summary Report must be presented and accepted by Council by March 31st of each year.

This Regulation also requires the owner to produce an Annual Report by February 28th of each year, as set out in Section 11. This report must include the following:

- Description of the system
- Summary of any adverse water quality reports and corrective actions
- Summary of all required testing results
- Description of any major expenses incurred to install, repair or replace required equipment.

Prior to amendments made to O.Reg. 170/03 in 2006, the Annual Report had to be submitted to the Ministry of the Environment, Conservation and Parks (MECP); this is no longer a requirement. As a result, the Summary and Annual Reports have been combined by Town staff into one document, which is submitted to Council for acceptance.

The report is a compilation of information that helps to demonstrate the ongoing provision of a safe, consistent supply of high-quality drinking water to customers located within the Town of Midland.

The Town of Midland Water Services is a municipally owned and operated water utility. The Midland Drinking Water System is a Class 3 Water Distribution and Supply Subsystem and a Class 1 Water Treatment System.

The Midland Drinking Water System is required to comply with the Safe Drinking Water Act (SDWA) and Regulations as well as requirements contained in Permits to Take Water (PTTW), Municipal Drinking Water Licenses (MDWL), and Drinking Water Works Permits (DWWP). Having met the quality management system requirements of the SDWA, Midland Water Operations is an accredited Operating Authority with an up-to-date Operational Plan (OP). The OP is available upon request from the Town of Midland Water and Wastewater Services office, located at 200 Bay St.

The source of Midland's drinking water is a series of 10 operational groundwater wells with some groundwater under the direct influence of surface water (GUDI) sources (i.e. Highway #12 Treatment System, Vindin Treatment System). The Town of Midland has approximately 5,900 fully metered water service connections, 120 kilometers of underground watermains, and a population of approximately 20,000.

As the Operating Authority, the Town of Midland Water Services is annually inspected by the Ontario Ministry of the Environment, Conservation and Parks (MECP) for compliance with regulatory requirements. The MECP conducted the annual inspection on December 20 2023, which resulted in no non-compliances or non-conformances.

Midland Water Services reported three Adverse Water Quality Incidents (AWQI); 161304 All water treatment facilities Elevated Sodium. AWQI; 164030 S5-SS-BW Total Coliform of 8. AWQI; 164203 S6-SS-AS Total Coliform of 3. All appropriate corrective actions and reporting were completed in conjunction with the Simcoe Muskoka District Health Unit and the MECP. Re-sampling procedures were performed, and the results were clear.

The system is operated to meet daily, seasonal, and other operational demands (fire demands) with various combinations of supplies in operation at any given time. From January 1 to December 31, 2023, a total of 1,975,879.75 cubic metres of water was treated and pumped to the distribution system. The average daily water demand was 5,410.74 cubic metres. All water was treated with sodium hypochlorite (for chlorine disinfection) and ultraviolet disinfection (UV). All water was tested and met all regulatory standards.

The Town of Midland Water System is in a fit state of repair and followed best industry practices during the repair and maintenance of the system. Infrastructure review occurs regularly between Engineering and Water Services to optimize priority projects and minimize common costs. The Town of Midland maintains a robust backflow prevention program overseeing 480 facilities with 1100 backflow prevention devices installed. There were no reported backflow incidents. The Town of Midland has completed this Annual & Summary Report to satisfy the regulatory requirements of the Safe Drinking Water Act, O.Reg. 170/03 (Section 11 and Schedule 22).

For more information please contact Town of Midland Water and Wastewater Services (705) 526-4268 extension 4209 or e-mail: wwtc@midland.ca.

Introduction

Purpose

The purpose of this Annual Water Summary Report is to provide information to our consumers and stakeholders as well as to satisfy the regulatory requirements of the *Safe Drinking Water Act, 2002* including the *Drinking Water Quality Management System (DWQMS)*, reports to Owner, and regulatory reporting required under *O. Reg. 170/03*. This report is a compilation of information that helps to illustrate the ongoing delivery of safe drinking water to our customers in the Town of Midland.

Scope

This Annual Water Summary Report includes information about the Town of Midland's Drinking Water System for the period of January 1, 2023, to December 31, 2023. We are bound by provincial law to report this information to the following.

- The Drinking Water System Owners (The Corporation of the Town of Midland –Mayor and Council)
- Top Management (Director – Engineering/Water and Wastewater Services)
- The public

Drinking Water System Overview

The Town of Midland distribution system consists of approximately 120 km of water mains including 5,900 customer connections serving a population of approximately 20,000. There are approximately 32 sampling stations, 584 fire hydrants, 1,099 valves, and other appurtenances within the distribution system. The distribution consists of four pressure zones (four main pressure zones, East, West, Lescaut, and Harbourview areas), four Booster Pumping Stations (Dominion, Everton, Montreal, and Penetanguishene) as well as five above-ground storage facilities (Hanly Tower, Dominion Tower, Montreal Tank, Everton Tank, and Wilson Tank) with a total finished water storage capacity of approximately 14,837 cubic metres. No storage exists within the Lescaut Pressure Zone which relies upon pumped storage supplied from the Hanly Tower.

Treated water is also supplied across the Wye River in two places to non-residential consumers in Tay Township - namely Martyrs' Shrine and Sainte-Marie among the Hurons, which in turn supplies the Wye Marsh Wildlife Centre.

Legislation

Since the issuance of the Walkerton Reports I and II in 2002, many legislative and regulatory changes have occurred for those supplying drinking water in Ontario. The following are the primary pieces of legislation that have directly affected the operation of the Town of Midland water distribution and treatment system.

Safe Drinking Water Act

As recommended by Commissioner O'Connor, the government passed the Safe Drinking Water Act in 2002, which expands on existing policy and practice and introduced new features to protect drinking water in Ontario. The Act's purpose is to protect human health through the control and regulation of drinking-water systems and drinking-water testing. The Act also provides legislative authority to implement the recommendations made in Commissioner O'Connor's Walkerton Part I and II Reports. As of August 2007, all 28 recommendations made in Part I, and all 93 in Part II have been implemented. The Act also has the benefit of gathering in one place all legislation and regulations relating to the treatment and distribution of drinking water.

Parts of the Act address:

- Accreditation of operating authorities
- Municipal drinking water systems
- Drinking water testing
- Inspections
- Compliance and Enforcement

Ontario Regulation 170/03: Drinking Water Systems Regulation

The Drinking Water Systems Regulation (O. Reg. 170/03) regulates municipal and private water systems that provide water to year-round residential developments. This regulation stipulates treatment equipment usage, operational checks and sampling, chemical and microbiological testing requirements, corrective actions, and reporting requirements.

Amendments to O. Reg. 170/03 came into effect on June 5, 2006. The amendments are risk-based and are designed to safeguard the quality of Ontario's drinking water, while making the regulation more workable and affordable for residential drinking water systems and systems serving designated facilities. They add clarity and flexibility to the testing and operational regimes set out in O. Reg. 170/03 and in some cases has reduced the cost of regulatory compliance.

On July 26, 2007, further amendments were made requiring additional lead sampling for water distribution systems. The purpose of the new lead testing requirements is to determine whether communities have a problem with lead in drinking water at the tap. Random testing throughout the Town would provide the basis on which to initiate actions to reduce lead levels through control of lead corrosion and would provide evidence of any changes in lead levels over time.

Ontario Watermain Disinfection Procedure

This procedure applies to watermains that form part of the distribution system, Drinking Water Works Permit (DWWP) Schedule B, Condition 2.3 ("DWWP Condition 2.3") requires that all parts in contact with drinking water which are:

- Added, modified, replaced, extended; or
- Taken out of service for inspection, repair or other activities that may lead to Contamination, shall be disinfected before being put into service in accordance with the provisions of AWWA C651 – Standard for Disinfecting Water Mains or an equivalent procedure.

For the purpose of DWWP Condition 2.3, this document is considered by the Ministry of the Environment, Conservation and Parks as the equivalent procedure which replaces ANSI/AWWA C651 – Standard for Disinfecting Water Mains with respect to cleaning, tapping, maintenance and repair of watermains, appurtenances and fittings.

The Ontario Watermain Disinfection Procedure was updated by the Ministry of the Environment, Conservation and Parks, in August 2020. As such, the Town of Midland has changed the Town of Midland Watermain Commissioning Procedure to reflect the updates.

Authorization Documents

The Town of Midland owns and operates a "large municipal residential drinking water system" which has been provided the drinking water system number of 220001156 by the Ministry of the Environment, Conservation and Parks.

The Ministry has issued the following authorization documents for the Midland Drinking Water System.

- Drinking Water System License #122-101 Issue # 3
- Drinking Water System Permit #122-201 Issue # 3
- Drinking Water System Operational Plan #122-OA1

Ontario Regulation 128/04: Certification of Drinking-Water Operators and Water

The Water Operator Certification Program was initiated for drinking water operators in 1987 as a voluntary program. On May 14, 2004, O. Reg. 128/04 was issued, increasing the requirements for drinking water operator's certification. The regulation also establishes ongoing training requirements for these operators. Details note the different types of licenses, re-issuance, and transferability, overall and operator in charge responsibilities, record keeping, and operations/maintenance manuals.

Of special note, this regulation stipulates that all new water operators must complete an Entry-Level Course of Study within the first 16 months of obtaining their operator-in-training (OIT) certificate. As of August 1, 2005, these operators must complete a 40-hour at-home study manual and successfully pass a written test based on this manual. After this, they must attend a five-day in-class training seminar and examination facilitated by the Walkerton Clean Water Centre. Once these requirements have been met, the new operator's license is valid for three years, allowing them time to meet the requirements needed for a Level One License.

Drinking Water Quality Management Standard (DWQMS)

On November 28, 2005, The Ontario Ministry of the Environment, Conservation and Parks posted the Drinking Water Quality Management Standard (DWQMS) on the Environmental Registry for comment until January 27, 2006. On October 30, 2006, the finalized standard was issued on the Environmental Bill of Rights Registry. The purpose of this Standard is to assist owners and operating authorities in the effective management and operation of their municipal residential drinking water systems. This Standard outlines requirements for a Quality Management System (QMS) to ensure high quality drinking water. In the development of a QMS, the Operating Authority must create an Operational Plan; this document will define the QMS and will be subject to external audits for accreditation. As referenced in the Standard, the QMS must be embraced by all those with active rolls in the water system, from front line staff to the highest level of management. Town Staff have developed and implemented a QMS specific to the Town of Midland. The developed Operational Plan was submitted to the Ministry of the Environment by the imposed deadline with external auditing and final accreditation by NSF for full-scope DWQMS certification. Re-accreditation occurred on December 15, 2022.


NSF ISR Certificate of Registration

This certifies that the Quality Management System of

The Corporation Of The Town Of Midland
575 Dominion Avenue
Midland, Ontario, L4R 1R2, Canada

has been assessed by NSF-ISR and found to be in conformance to the following standard(s):

Ontario's Drinking Water Quality Management Standard Version 2

Scope of Certification:
Midland Drinking Water System, 122-OA1, Entire Full Scope Accreditation

Certificate Number: C0123161-DWQ10
Certificate Decision Date: 24-JAN-2023
Certificate Issue Date: 24-JAN-2023
Cycle Effective Date: 15-DEC-2022
Certificate Expiration Date*: 14-DEC-2025

Sameer Vachani
Senior Director, NSF-ISR

Issued by:
NSF International Strategic Registrations (NSF-ISR)
789 N. Dixboro Road, Ann Arbor, MI 48105 USA

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*Company is audited for conformance at regular intervals. To verify certification call (800) NSF-9000 or visit our web site at www.nsfisr.org

Ontario Regulation 435/07: Financial Plans

In 2007, the Ministry of the Environment, Conservation and Parks developed the Financial Plans Regulation (O. Reg. 453/07) under the Safe Drinking Water Act (SDWA) that prescribes the requirements for Financial Plans. The Financial Plans Regulation requires all owners of municipal residential drinking water systems to prepare Financial Plans that detail the system's financial information projected forward for at least six years. The Financial Plans must include income statements (which set out revenues and expenses), as well as balance sheets (which include financial assets, non-financial assets, total liabilities, cash flow, etc.).

The Financial Plans must then be formally approved by the Owner of the municipal system through a resolution of the Municipal Council. The Financial Plan requires regular updates before every license renewal application (every 5 years). This report formed the foundation for the Financial Plan that was then submitted to the Ministry of the Environment, Conservation, and Parks before the deadline. This is a legal requirement under O. Reg. 453/07 and is to be resubmitted to the Ministry as a part of the License Renewal Program under the DWQMS.

Wells 7A & 7B

Raw Water Source

Groundwater Supply

| GUDI | In-Situ Filtration |

Well 7A Raw Water

Well #7A is located at the southern boundary of the Town of Midland along Highway #12 (Heritage Drive). This well, constructed in 1972 (Well Record #5707896), is drilled to a depth of 64.9 meters, and has a 300 mm diameter steel casing. The well is screened from 56.7 to 64.9 meters and is located within the pump house equipped with a submersible pump. Groundwater is directed to treatment equipment at the Highway 12 Treatment System pump house.

According to the 2002 GUDI Hydrogeological Report, Wells 7A and 7B are located within the 50-day horizontal travel time from a pond and drainage ditches which collect runoff from Highway #12. The report further states that given the "absence of aquitards, the location of the well field in a major recharge area, and the gradual increase of sodium and chloride, suggests potential susceptibility of the aquifer to contamination and provides enough evidence to suggest that wells 7A and 7B are potentially GUDI wells as per the MECP Terms of Reference".

Well 7B Raw Water

Well #7B, located at the southern boundary of the Town of Midland along Highway #12 (Heritage Drive), was constructed in 1989 (Well Record #5709697), approximately 9 meters north of the pump house and 30 meters south of Highway #12. The well is drilled to a depth of 64.9 meters, has a 300 mm diameter steel casing and is screened from 56.7 to 64.9 meters. The well is equipped with a deep well submersible pump having an approximate capacity of 49 L/s at 105.5 metres TDH and has a pitless adaptor directing groundwater to the Highway 12 Treatment System pump house.

According to the 2002 GUDI Hydrogeological Report, Wells 7A and 7B are located within the 50-day horizontal travel time from a pond and drainage ditches which collect run off from Highway #12. The report further states that given the "absence of aquitards, the location of the well field in a major recharge area, and the gradual increase of sodium and chloride, suggests potential susceptibility of the aquifer to contamination and provides enough evidence to suggest that wells 7A and 7B are potentially GUDI wells as per the MECP Terms of Reference."

Hwy 12 Treatment

Water Treatment Facility

Groundwater Supply

| Sodium Hypochlorite | Ultraviolet Disinfection | GUDI | In-situ Filtration | Backup Generator |

Hwy 12 Treatment System

The Highway 12 Treatment System pump house, situated at the corner of Highway 12 and Beamish Road, is a direct pumping type system consisting of two (2) GUDI supply wells, 7A and 7B, and treatment works. Both pumps operate independently of each other in response to the water level in the Hanly Street elevated water tower. Water is discharged following treatment into the distribution system at system pressure.

Inlet piping from each well pump consists of isolation valves, air relief valves, flow measuring devices (installed on each header) and pressure sustaining valves and discharge to waste piping. Prior to treatment, the raw water Ultraviolet Light Transmittance (UVT) is measured by a continuous on-line meter; with measurements used in determining Ultralight (UV) dosage and trended on Midland's SCADA system.

The chlorine contact time necessary to complete the process of secondary disinfection is provided by two (2) 17.5 m long - 1500 mm diameter watermains, in series with valving to isolate each tank for maintenance purposes. Each tank includes inlet/outlet diffusers, intra-basin baffles and perforated outlet baffles, along with access ports at each end to facilitate inspection and/or cleaning. To ensure proper disinfection, continuous monitoring equipment is installed for the purposes of measuring free available chlorine residual for primary disinfection. The online analyzers are supplied with a continuous sample supply. One free chlorine residual analyser (Pre) is plumbed to analyze a continuous sample of water before it enters the contact chamber, and one free chlorine residual is provided with continuous samples taken off the chlorine contact pipe (Post) and measures free available chlorine residual concentration in mg/L.

Treatment is also comprised of:

- two (2) UV irradiation units for primary disinfection purposes
- a chemical disinfection system utilizing sodium hypochlorite solution for Secondary Disinfection
- one continuous, on-line turbidimeter measuring in NTU
- one standby diesel generator with a nameplate indicating a rating of 330 kW is installed within a separate room in the pump house and designed to power key components of the facility during power interruptions.

Well 9/Penetanguishene Treatment

Raw Water Source and Water Treatment Facility

Groundwater Supply

| Sodium Hypochlorite | Ultraviolet Disinfection | In-situ Filtration |

Well 9 Raw

Well #9, located in the west end of Town approximately 20 meters south-east of the Dominion treatment pump house, was constructed in 1975 (Well Record #5710939). The well is equipped with a deep well submersible pump having an approximate capacity of 23 L/s vs 38 m TDH and pitless adaptor. The well is drilled to a depth of 93.9 metres and is 178 mm in diameter. The well casing is steel and is screened from 87.5 to 93.9 meters. Raw water is directed to the Dominion treatment system pump house.

According to the 2002 GUDI Hydrogeological Report, the aquifer supplying Well #9 is susceptible to contamination, due to its partially unconfined, sandy conditions and the presence of a thick unsaturated zone. Well 9 is not considered to be GUDI.

Penetanguishene Treatment System

The Penetanguishene pump house is a single level building, located at the south-east corner of Dominion Street and Penetanguishene Road and houses the treatment and control facilities, inlet piping, valves, flow meter with bypass, discharge piping and discharge to waste, electrical panel with motor starter, electrical heater, ventilation, and associated appurtenances from the pump house to the 150 mm watermain. The 150 mm diameter water main has no service connections from pump house to Penetanguishene Road. Well 9 conveys water to and through the treatment works into the distribution system operated based on pressures and water levels in the West Pressure Zone, Montreal Tank, Dominion Street Reservoir and the Mountainview Reservoir. Treatment and monitoring consist of:

- an Ultraviolet (UV) disinfection system
- a Chemical System utilizing sodium hypochlorite addition for secondary disinfection purposes
- one continuous on-line chlorine residual analyzer measuring free available chlorine residual concentration in mg/L. The analyzer is equipped with signal outputs connected to the SCADA system for continuous monitoring/control and reporting purposes.
- one continuous, on-line turbidimeter measuring in NTU's

Well 15/Hanly Treatment

Raw Water Source and Water Treatment Facility

Groundwater Supply

| Sodium Hypochlorite | Ultraviolet Disinfection | In-situ Filtration |

Well 15 Raw Water

Well #15 is located within a removable structure directly adjacent and attached to the Hanly treatment system pump house approximately 160 meters east of Lakeview Cemetery. The well was constructed in 1985 (Well Record #5717683) to a depth of 46.6 meters with a 200 mm diameter steel casing.

The municipal groundwater source is located in a primarily residential area. A cemetery is located approximately 100 metres southwest of the well. According to the Hydrogeological reports, approximately half of the cemetery is located within the 2-year Well Head Protection Area (WHPA), with the remainder located within the 25-year WHPA. The 2002 MacViro GUDI Hydrogeological report stated that the cemetery is likely "the most significant risk to the well field" and further states that contaminants released from the cemetery could be drawn to the well field due to the continuous and long-term pumping of the well. Well 15 is not considered to be Groundwater Under the Direct Influence (GUDI) of surface water.

Hanly Treatment System

The Hanly pump house is located at the southwest corner of Hanly Street and Russell Street. It houses treatment and control facilities, inlet piping and flow meter, electrical panel with motor starter, electrical heater, ventilation and associated appurtenances.

Well 15 conveys water to and through the treatment works into the distribution system via a 150 mm water main based on pressures and water levels in Sector 5 and the Hanly Tower. Pressures in Sector 5 are maintained by VFD driven booster pumps. The 150 mm diameter water main reportedly has no service connections from the pump house to Hanly Street and provides some chlorine contact time prior to the first user. Treatment and monitoring consist of:

- an Ultraviolet (UV) disinfection system,
- a chemical system utilizing sodium hypochlorite addition for secondary disinfection purposes,
- one continuous on-line chlorine residual analyzer measuring free available chlorine residual
- one continuous, on-line turbidimeter measuring in NTU's,

Vindin Wellfield

Raw Water Source

Groundwater Supply

| GUDI | In-Situ Filtration |

Well #6

Well #6 is located within the Vindin well field approximately 430 meters south-west of the Vindin pump house and approximately 15 meters east of the nearest surface water body. Well #6 was constructed in 1971.

Well #11

Well #11 is located within the Vindin well field approximately 710 meters west of the Vindin pumphouse and approximately 20 meters south-east of the nearest surface water body. Well #11 was constructed in 1971.

Well #12

Well #12 is located within the Vindin well field approximately 635 meters south-west of the Vindin pumphouse and approximately 70 meters south of the nearest surface water body. Well #12 was constructed in 1979. Well 12 is to be decommissioned in 2024. The decommissioning comes through recommendations as set in the Master Water Servicing Plan, as per evidence of inspection carried out by a Licensed Well Technicians Report.

Well #14

Well #14 is located within the Vindin well field approximately 540 meters south-west of the Vindin pumphouse and approximately 70 meters south-west of the nearest surface water body. Well #14 was constructed in 1979.

Well #16

Well #16 is located within the Vindin well field approximately 310 meters west of the Vindin pumphouse and approximately 10 meters west of the nearest surface water body. Well #16 was constructed in 1987.

Well #17

Well #17 is located within the Vindin well field approximately 200 meters south-west of the Vindin pump house and approximately 10 meters south of the nearest surface water body. Well #17 was constructed in 1987.

Vindin Treatment

Water Treatment Facility

Groundwater Supply

| Sodium Hypochlorite | Ultraviolet Disinfection |GUDI | In-situ Filtration |

Vindin Treatment System

The Vindin pumphouse, also referred to as the Vindin Flume, is situated near the north-west corner of Vindin Street and Harborview Drive. The Vindin treatment facility receives water via a 200-metre combined raw water header from six ground water sources, Wells #6, #11, #12, #14, #16 and #17 which have been determined to be groundwater under the influence of surface water (GUDI) with effective insitu filtration.

Three high lift pumps draw raw water from the wet well at a discharge pressure of approximately 107 psi and convey that water through the treatment units and into the distribution system. The Flume supplies water to the East Pressure Zone with excess water used to fill the reservoirs in this zone of the distribution system.

Treatment is comprised of:

- two UV irradiation units for primary disinfection purposes,
- a chemical disinfection system utilizing sodium hypochlorite solution for secondary disinfection purposes,
- two continuous on-line chlorine residual analyzers have been installed and measure free available chlorine residual concentration in mg/L. Each of the analyzers is equipped with signal outputs connected to the SCADA system for continuous monitoring/control and reporting purposes.
- one standby diesel generator with a rating of 330 kW is installed within an adjacent room in the Vindin pumphouse and another natural gas generator rated at 45 KW is located in a stand-alone building adjacent to Well #6.
- one continuous, on-line turbidimeter, measuring turbidity in NTU's,
- one flow measuring device, equipped with 4-20 outputs,
- a residue management system, consisting of one sump and two sump pumps, collects process wastewater and discharges to a drainage ditch adjacent to the pumphouse: and
- one standby diesel generator

Water Storage

Treated Water Storage

Hanly Tower

The Hanly tower, located at 365 Hanly Street, was constructed in 1947 and is described as a multi-column elevated steel tank with a capacity of 950 cubic meters of storage supplying the East Pressure Zone.

Wilson Above Ground Storage

The Wilson storage tank, located at 55 Wilson Road, was constructed in 2010 and is a cylindrical glass-fused-to-steel standpipe with 4,430 cubic meters storage capacity supplying the West Pressure Zone. The tank is equipped with a mixing system, overflow piping, level measuring devices and a flow meter.

Dominion Tower

The Dominion tower, located at 755 Dominion Avenue, was constructed in 1901 and is a steel standpipe with 713 cubic meters of storage capacity supplying the West Pressure Zone.

Montreal Above Ground Storage Tank

The Montreal storage tank, located at 837 Montreal Street, was constructed in 1989 and is a large diameter cylindrical glass-fused steel standpipe with 2,881 cubic meters of storage capacity supplying the West Pressure Zone.

Everton Above Ground Storage Tank

The Everton storage tank, located at 1374 Everton Road (formerly 300 Frontenac Street), was constructed in 2009 and is a cylindrical glass-fused-to-steel standpipe with a geodesic dome with 5,863 cubic meters storage capacity supplying the Harborview Pressure Zone. Installed equipment includes a mixing system comprised of a header within the standpipe with tide flex nozzles mounted on 45-degree elbows and water check valves on the outlet.

Distribution System

Treated Water Distribution

| Class 3 Distribution System | 4 Pressure Zones |

Distribution

The Town of Midland distribution system consists of approximately 120 km of water mains including 5,900 customer connections serving a population of approximately 20,000 persons. There are approximately 32 sampling stations, 584 fire hydrants and 1,099 valves and other appurtenances within the distribution system. The distribution consists of four pressure zones (four main pressure zones, East, West, Lescaut, and Harbourview areas), four Booster Pumping Stations (Dominion, Everton, Montreal, and Penetanguishene) as well as five above ground storage facilities (Hanly Tower, Dominion Tower, Montreal Tank, Everton Tank and Wilson Tank) with a totally finished water storage capacity of approximately 14,837 cubic metres. No storage exists within the Lescaut Pressure Zone, which relies upon pumped storage supplied from the Hanly Tower.

Treated water is also supplied across the Wye River in two places to non-residential consumers in Tay Township - namely Martyrs' Shrine and Sainte-Marie among the Hurons, which in turn supplies the Wye Marsh Wildlife Centre.

Incidents of non-compliance

The latest Ministry inspection notes no incidents of non-compliance.

Adverse Water Quality Incidents

The following table lists the requirements of the Act, Regulations, System Approval(s), Adverse Water Quality Incidents and any Order that the system failed to meet at any time during this reporting period and the measures taken to correct each failure.

Drinking Water Legislation	Requirement(s) the System Failed to Meet	Resolution	Corrective Action(s)	Status
AWQI # 161304 February 08, 2023	Elevated Sodium levels at all 4 Treatment Facilities.	February 21, 2023	Form for Notice of Adverse Test Results and Other Problems and Notice of Issue Resolution at Drinking Water Systems completed and resamples collected.	Closed
AWQI # 164030 November 15, 2023	Total Coliform of 8	November 20, 2023	Form for Notice of Adverse Test Results and Other Problems and Notice of Issue Resolution at Drinking Water Systems completed and resamples collected.	Closed
AWQI # 164203 December 13, 2023	Total Coliform of 3	December 19, 2023	Form for Notice of Adverse Test Results and Other Problems and Notice of Issue Resolution at Drinking Water Systems completed and resamples collected.	Closed

Description	Volume (m3)
Total water produced by the Town of Midland	1,975,897.75
Total water billed to consumers of the Town of Midland	1,488,764.00
m^3 Unbilled	487,133.7
Tracked Operational Water Loss (Flushing, Fires, Watermain breaks, etc.)	28,000.00
Loss %*	24.64%
Tracked Operational Water Loss Vs. m^3 Unbilled	23.23%

Water Consumption

The table above is a summary of 2023 municipal water billing. For more detailed information, please contact the Town of Midland Water Services at 705-526-4268,

* % loss includes water used for flushing to maintain water quality, firefighting, sampling, new watermain commissioning/testing, routine maintenance activities, watermain breaks, meter reading inaccuracies and system leakage.

Infrastructure Repairs

In 2023, the number of emergency repairs of water infrastructure Increased from the years before. There were 7 main break repairs from January 1, 2023 to December 31, 2023.

Excavation Date	Location	Type of Repair	Pipe Material	Pipe Size (mm)	Break Type	Apparent Cause
February 11, 2023	436 Bay St.	Water Main Break	Ductile Iron	150	Circumferential	Poor Bedding
February 15, 2023	315 William St.	Water Main	PVC (Blue)	200	Leak at Main Stop	Ground Movement
March 04, 2023	610 Bayview Dr.	Water Main Break	Ductile Iron	150	Circumferential	Ground Movement
April 20, 2023	347 Third St.	Water Main Break	Ductile Iron	150	Hole	Poor Bedding

Replacement/Reconstruction

Replacement and reconstruction are an integral part of annual infrastructure maintenance and effective asset management. An infrastructure review is conducted annually by the appointed QMS Representatives, the Water and Wastewater Services Manager, and the Director of Engineering/Water and Wastewater Services.

Methods of determining infrastructure condition include:

- Previous infrastructure review reports
- Staff input
- MECP compliance inspection reports
- Water quality
- Maintenance records
- Break frequency
- Infrastructure age
- Customer Complaints

Replacement of aging or deteriorating infrastructure is coordinated with road reconstruction projects.
In 2023, the most significant replacement/reconstruction included: Queen Street Reconstruction

In addition to the infrastructure review, the Water Services staff provided Management with a list, comprised of items needing repair or replacement. This deficiency list was specific to the Water Services operations. A number of those items have been completed or moved to the capital budget plan.

Well and Storage Tanks

In 2023, two robust schedules were closely followed to outline inspections, maintenance and rehabilitation of production wells and water storage tanks. These schedules serve as a tool to ensure water quality and longer asset lives. The inspection schedule is built into the Operating Budget and funding has been set aside in the Capital Budget for asset rehabilitation.

Water and Energy Conservation Initiatives

Water is a resource we have become accustomed too. Quality water is plentiful in our area of the province. The idea of running out of water is an unimaginable idea, to most. Yet, as growing trends in climate change research suggest, this abundant resource may not always be readily available. Greenhouse gases emitted because of energy consumption used in the treatment of water is also a concern. Energy use, water conservation and greenhouse gas emissions are all directly correlated. It is with this idea in mind; Water Services carries out water conservation methods and or best practices. Below is a list of best practice methods and programs Water Services is currently using to conserve water and reduce greenhouse gas emissions.

- **Courtesy Leak Status Reporting**

Modern water meters can detect leaks within a consumer's home. Often a small consistent leak goes unnoticed. The water meter provides the meter reader with this information. The meter reader then informs the consumer. This ultimately helps reduce the amount of water used, but also reduces the consumers billing total.

- **Operational Best Practices**

Water Operators are constantly looking for methods to reduce the amount of energy used to treat water. Below are three simple operational examples.

- Avoid peak periods – this is expensive and generates more greenhouse gas; that is when gas plants are on for electricity generation.

- Peak demand periods coincide with the hottest days of the year. Operators are always trying to forecast filling water storage ahead of schedule.

- The inactivation process (Ultraviolet) can consume significant amounts of electricity. Monitoring proper dosage levels are integral to this method of energy conservation.

Regulatory Lead Sampling Program

Our Lead sampling program continued in June to October 2023 and our results show our compliance with Schedule 15.1 of Reg. 170/03 of the Safe Drinking Water Act. 37 samples were taken and submitted to Caduceon Laboratories for analysis.

- Average concentration of the 30 samples collected from residential plumbing is 0.0005167 mg/L (1st Bottle) and 0.0002317 mg/L (2nd Bottle).

- Average concentration of the 3 samples collected from non-residential plumbing is 0.00053 mg/L (1st Bottle) and 0.00029 mg/L (2nd Bottle)

- Average concentration of the 4 samples collected from distribution system sampling points is 0.00038 mg/L

Currently maximum concentration of lead expressed in milligrams per liter is 0.01mg/L, as listed in O. Reg. 169/03, Schedule 2. This limit is set to soon change to meet the new regulatory limits being set forth by Health Canada. The new maximum concentration is likely to be 0.005 mg/L.

Results of these samples serves as sufficient evidence to indicate lead is not leaching from the existing infrastructure.

HAAs-Haloacetic Acid Sampling

On January 1, 2023, Schedule 2 of O. Reg. 169/03 included Haloacetic Acids (HAAs).

Haloacetic Acids are a group of chlorinated disinfection by-products that are formed when the chlorine used to disinfect drinking water reacts with naturally occurring organic matter (NOM) in water. Some people who drink water containing haloacetic acids in excess of the maximum concentration over many years may have an increased risk of cancer.

- Monochloroacetic acid
- Dichloroacetic acid
- Trichloroacetic acid
- Monobromoacetic acid
- Dibromoacetic acid

The maximum concentration of HAAs is 0.08 in milligrams per litre, expressed as a running annual average of quarterly results. Sample results for 2023 show we are far below the maximum concentration of 0.08mg/l. In fact, tested results continue to be less than 5.3 micrograms per liter or 0.0053mg/l.

Future Additional Sampling

More sampling for Manganese is likely going to be required. This health-based standard for manganese would be a major development. The proposed federal change is due to studies, which indicate that manganese may have negative effects on cognitive abilities in children. When the Federal Guidelines for Canadian Drinking Water Quality are changed or when new guidelines are developed, the changes are normally adopted at the provincial level. In Ontario, manganese has already been established as an aesthetic objective because of taste and colour. This additional sampling will likely add cost to the already robust sampling plan.

Major Costs - 2023

Project	**Major Cost**
Hanly Treatment System UV Replacement	$43,560.40
Penetanguishene Treatment System UV Replacement	$49,049.34
Well Testing and Rehabilitation	$44,487.54
Queen Street Reconstruction	$262,393.00
Tower Rehab/Maintenance	$33,448.55
Radio Water Meter Upgrades	$817,980.61

Attached Appendix Summaries

Appendix A - Annual amount of Sodium Hypochlorite used
The monthly amount of sodium hypochlorite used to treat raw water at each treatment facility.

Appendix B – Water Production and Flow vs Actual Allowable
1.0 - Total monthly, min, max and average amount of water produced at each treatment facility.
2.0 – Flow rate and actual amount of water producer vs the total allowable water to be produced.

Appendix C – Water Takings and Flow vs Actual Allowable
1.0 – The monthly amounts of water taken from all 10 production well.
2.0 – Flow rate and actual amount of raw water taken vs the total allowable.

Appendix D - Microbiological Sampling
1.0 – Total amount of all treated and raw Bacti samples taken.
2.0 – Total amount of all distribution Bacti samples taken.
3.0 – Monthly distribution Bacti sample summary results.

Appendix E - Schedule 23 Sampling
Schedule 23 and 24 yearly chemical sample results.

Appendix E - Schedule 24 Sampling
1.0 - 90-day chemical sample results.
2.0 - Schedule 23 and 24 Yearly Chemical Sample Results

Appendix F - Section 11 Annual Reports - is an excerpt from Ontario Regulation 170. It lists the requirements for successfully completing the Annual Report.

Appendix G - Schedule 22 – Summary Reports - is an excerpt from Ontario Regulation 170. It outlines additional requirements for successfully completing the Summary Report.

Appendix A – 2023 Annual amount of Sodium Hypochlorite used (as expressed in litres)

2023 Total Sodium Hypochlorite Used (in Litres)					
MONTH	**FLUME**	**WELL # 9**	**WELL # 15**	**WELL # 7**	**TOTAL**
JAN	644	133	108	625	**1510**
FEB	423	110	97	763	**1393**
MAR	397	159	102	1,073	**1731**
APR	385	131	90	947	**1553**
MAY	555	193	125	1,098	**1971**
JUN	645	182	137	963	**1927**
JUL	635	208	155	1,033	**2031**
AUG	559	192	151	1,033	**1935**
SEP	516	166	150	979	**1811**
OCT	477	166	150	989	**1782**
NOV	525	129	85	887	**1626**
DEC	529	125	115	754	**1523**
TOTALS	**6290**	**1894**	**1465**	**11144**	**20793**

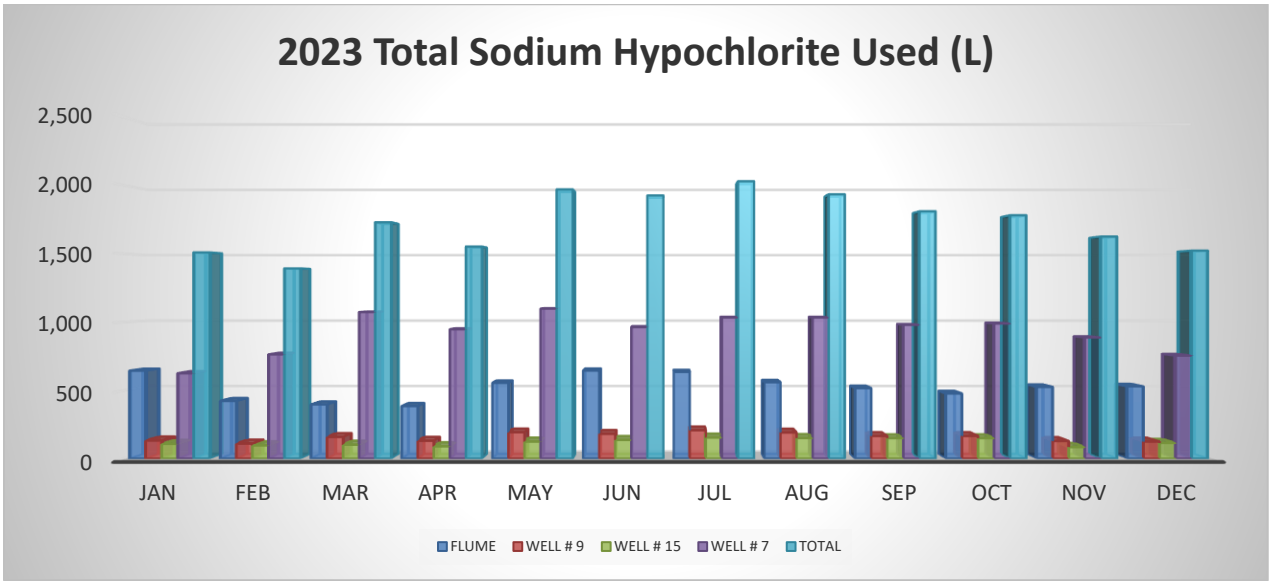

Figure 1: Amount of sodium hypochlorite used at each treatment facility.

Appendix B 1.0 – 2023 Drinking Water Production

2023 Total Yearly Production									
MONTH	FLUME	WELL # 9	WELL # 15	WELL # 7A	WELL # 7B	TOTAL	AVERAGE	MINIMUM	MAXIMUM
JAN	72,525.36	14,806.80	11,727.19	37,740.10	11,200.98	148,000.43	4,774.21	4,324.83	5,458.91
FEB	50,433.77	12,780.41	10,560.96	51,185.77	10,592.27	135,553.18	4,841.19	4,298.64	5,643.27
MAR	51,292.55	18,492.80	11,658.33	32,999.43	38,686.94	153,130.05	4,939.68	4,402.86	5,239.94
APR	54,213.26	16,794.26	11,454.34	0.00	65,022.28	147,484.14	4,916.14	4,564.74	5,399.37
MAY	72,322.30	21,497.63	13,012.43	6,410.17	62,663.19	175,905.72	5,674.38	4,539.72	7,417.22
JUN	82,157.32	22,290.14	17,103.07	62,439.63	13,226.35	197,216.51	6,573.88	5,575.47	7,828.46
JUL	74,168.55	24,720.97	17,448.68	54,745.27	24,755.78	195,839.25	6,317.40	5,661.25	7,557.92
AUG	66,992.94	22,672.73	17,409.19	48,224.79	24,803.77	180,103.42	5,809.79	4,736.37	6,850.87
SEP	64,545.03	20,037.55	17,135.18	56,976.89	19,641.67	178,336.32	5,944.54	5,286.10	6,790.86
OCT	54,861.59	17,960.57	16,830.43	58,365.61	14,971.27	162,989.47	5,257.72	4,552.68	6,386.28
NOV	59,666.62	14,132.84	9,196.77	50,030.65	15,663.19	148,690.07	4,956.34	2,156.25	7,699.34
DEC	61,433.02	15,272.57	13,412.34	48,079.75	14,433.51	152,631.19	4,923.59	3,936.20	6,712.32
TOTALS	764,612.31	221,459.27	166,948.91	507,198.06	315,661.20	1,975,879.75	5,410.74	2,156.25	7,828.46

All numerical figures are in cubic meter m^3

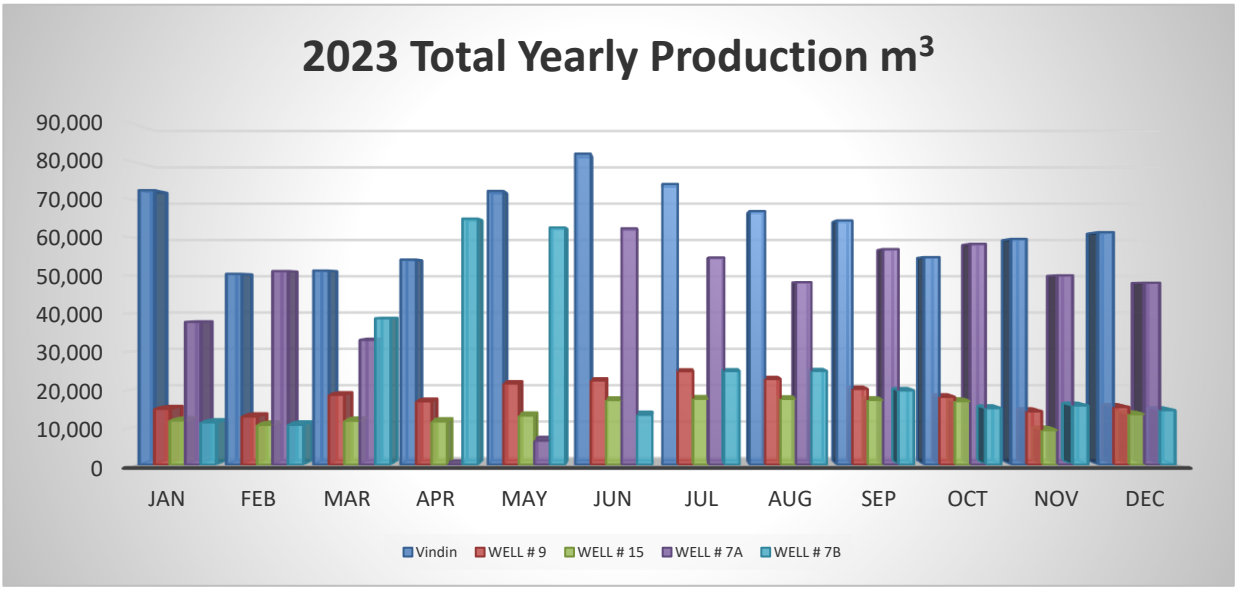

Figure 2: 2023 Amount of water produced at each treatment facility.

Appendix B 2.0 – 2023 Drinking Water Production

Treated water allowable limits vs Treated water Actual limits				
Source	**l/s**	**Actual Max m^3/d**	**Allowable m^3/year**	**Actual m^3/year**
Vindin Treatment	90.1	4339.17	2,841,393.60	764,612.31
Penetanguishene Treatment Facility	23	1308.58	725,328.00	221,459.27
Hanly Treatment Facility	15.2	1130.16	479,347.20	166,948.91
Hwy 12 Treatment Facility	106	6211.4	3,342,816.00	822,859.26
Total	**234.30**	**12,989.31**	**7,388,884.80**	**1,975,879.75**

All numerical figures are in cubic meter m^3

Appendix C 1.0 - 2023 Water Taking from each Production Well

2023 Permit to take Water Summary													
2023	**JAN**	**FEB**	**MAR**	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**	**OCT**	**NOV**	**DEC**	**Total**
Well # 11	19,416	14,074	13,981	14,472	19,331	21,347	18,472	32,781	10,503	7	6,608	10,155	**181,145**
Well # 12	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Well # 14	9,505	7,036	6,992	7,213	9,551	10,332	8,970	3,538	9,251	8,419	8,993	8,739	**98,538**
Well # 06	16,771	11,660	12,312	11,830	16,706	19,098	16,262	18,867	16,836	16,466	16,511	15,897	**189,215**
Well # 16	15,092	11,129	11,845	11,967	14,839	16,390	14,920	40,522	21,578	17,235	16,181	15,658	**207,354**
Well # 17	10,689	8,066	8,576	8,751	10,684	11,597	10,709	8,713	10,207	10,181	10,115	10,098	**118,387**
Well # 09	14,807	12,780	18,493	16,794	21,498	22,290	24,040	21,856	19,301	17,961	14,133	15,273	**219,225**
Well # 15	11,727	10,561	11,658	11,454	13,012	17,103	17,449	17,409	17,135	16,830	9,197	13,412	**166,949**
Well # 7A	37,740	51,186	32,999	0	6,410	62,440	54,745	48,225	56,977	58,366	50,031	48,080	**507,198**
Well # 7B	11,201	10,592	38,687	65,022	62,663	13,226	24,756	24,804	19,642	14,971	15,663	14,434	**315,661**
Total	146,947	137,084	155,543	147,503	174,695	193,822	190,323	216,714	181,429	160,436	147,431	151,745	**2,003,673**

All numerical figures are in cubic meter m^3

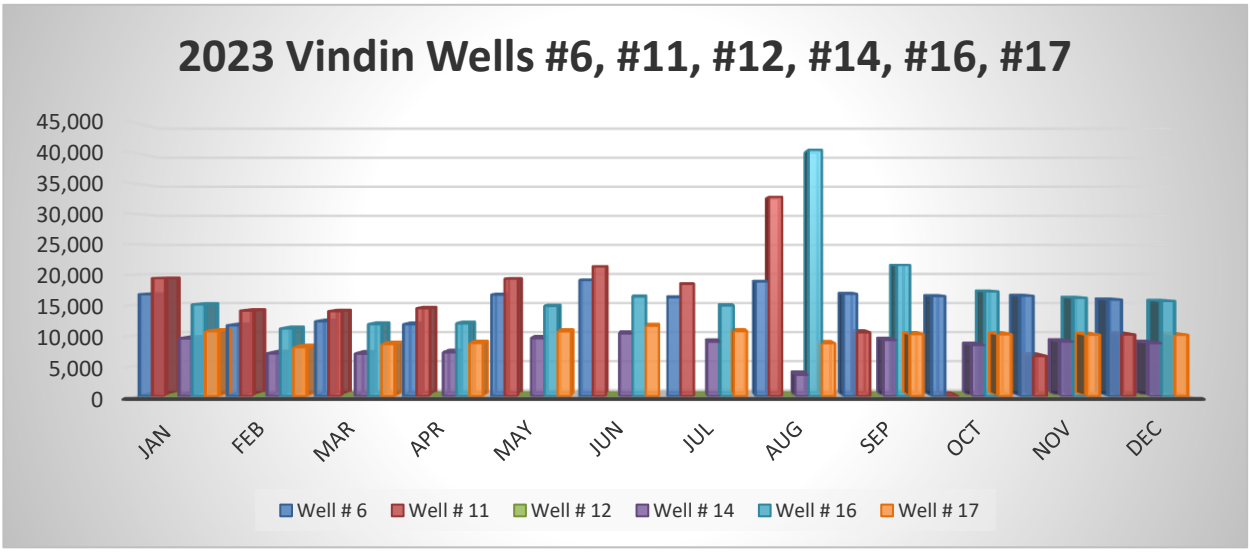

Figure 3: Vindin Wells Water Taking Totals

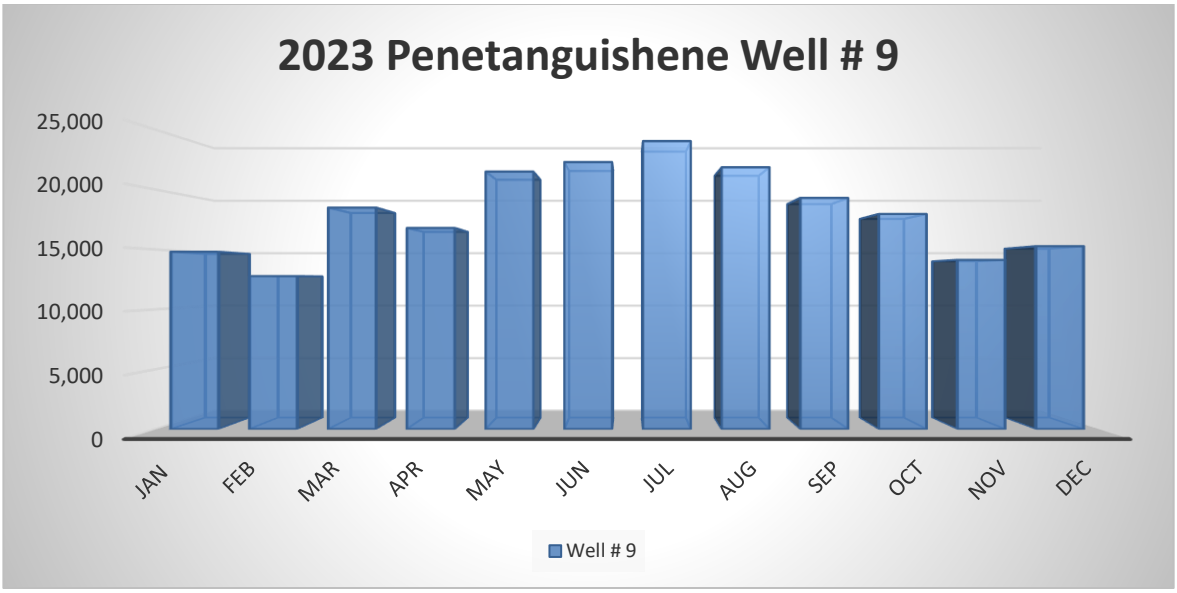

Figure 4: Well # 9 Water Taking Totals

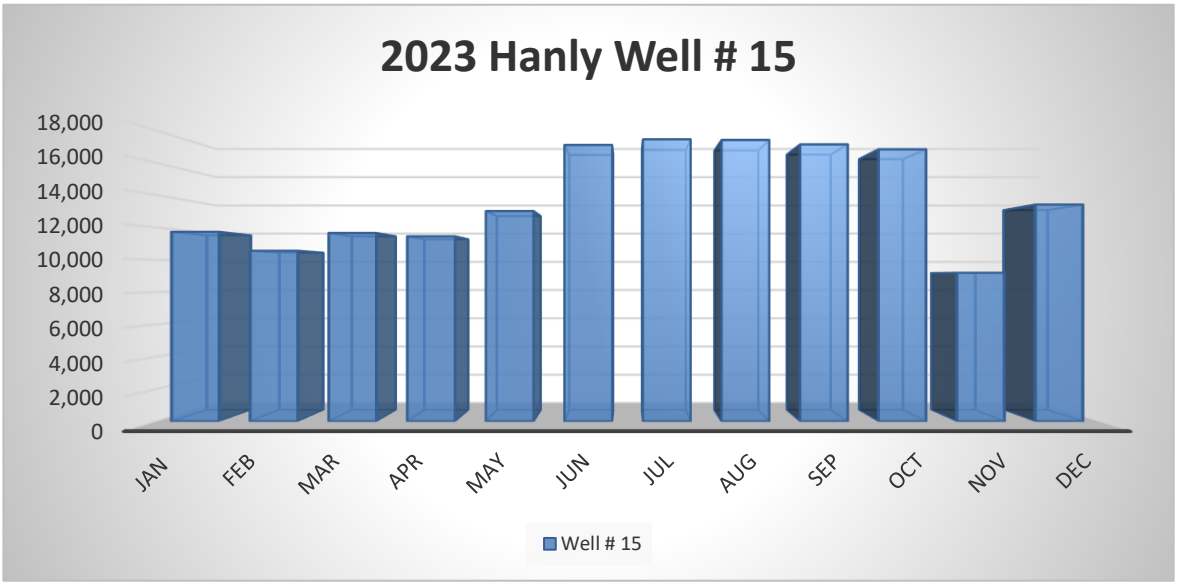

Figure 5: Well # 15 Water Taking Totals

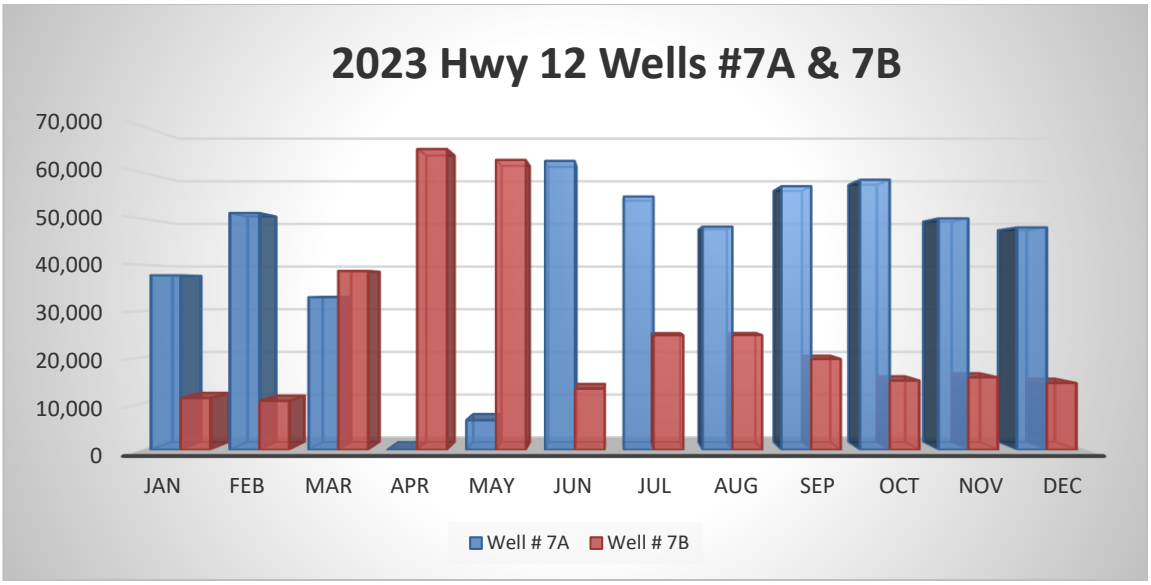

Figure 6: Hwy 12, Wells #7A and 7B Water Taking Total

Appendix C 2.0 – 2023 Assessment of System Flows and Rates of Water Taking

Raw water allowable limits vs. Raw water Actual limits				
Source	**l/s**	**Max. m^3/day**	**Allowable m^3/year**	**Actual m^3/year**
Well # 11	22.7	1046.30	715,867.20	181,144.88
Well # 12	7.6	0.0	239,673.60	0.00
Well # 14	11.4	516.10	359,510.40	98,538.20
Well # 06	19	921.90	599,184.00	189,215.45
Well # 16	15.2	785.70	479,347.20	207,354.34
Well # 17	14.2	702.60	447,811.20	118,386.68
Well # 09	23	1369.20	725,328.00	219,225.22
Well # 15	15.2	1090.50	479,347.20	166,948.91
Well # 7A	57	4018.30	1,797,552.00	507,198.06
Well # 7B	49	3367.60	1,545,264.00	315,661.15
Total		**13,818.20**	**7,388,884.80**	**2,003,672.90**

All numerical figures are in cubic meter

Appendix D 1.0 – 2023 Treated and Raw Microbiological Sample Totals

Well and Plant Bacti Sample Summary					
2023	**Parameter**	**Total Coliform**	**E. Coli**	**Background**	**HPC's**
Well #11	Raw	49	49	49	
Well #12	Raw	0	0	0	
Well #14	Raw	52	52	52	
Well #6	Raw	52	52	52	
Well #16	Raw	52	52	52	
Well #17	Raw	52	52	52	
Vindin TS	Treated	52	52	52	52
Well #9	Raw	52	52	52	
Penetanguishene TS	Treated	52	52	52	52
Well #15	Raw	52	52	52	
Hanly TS	Treated	52	52	52	52
Well 7A	Raw	52	52	52	
Well 7B	Raw	52	52	52	
Highway 12 TS	Treated	52	52	52	52
	Totals	**673**	**673**	**673**	**208**

Appendix D 2.0 – 2023 Distribution Microbiological Sample Totals

Distribution Location Microbiological Sample Totals				
2023	**Total Coliform**	**E.Coli**	**Background**	**HPC's**
S1-SS-LE	31	31	31	30
S1-SS-GG	14	14	14	14
S2-SS-BS	30	30	30	0
S2-SSHV	8	8	8	0
S3-DS03	51	51	51	46
S3-33-FH	1	1	1	0
S3-SS-FB	21	21	21	0
S3-SS-BS	4	4	4	0
S3-SS-HC	16	16	16	8
S4-DS01	5	5	5	5
S4-DS02	4	4	4	0
S4-DS03	5	5	5	5
S4-SS-CD	16	16	16	8
S4-SS-CKD	21	21	21	11
S4-SS-MB	2	2	2	1
S4-SS-MD	20	20	20	11
S4-SS-WD	7	7	7	2
S5-SS-LR	30	30	30	13
S5-SS-BW	16	16	16	5
S6-DS03	4	4	4	3
S6-SS-WY	4	4	4	2
S6-SS-AS	19	19	19	8
S6-SS-TR	1	1	1	0
S6-SS-GM	13	13	13	7
S6-SS-SF	18	18	18	2
S6-SS-LR	1	1	1	0
S6-SS-QH	28	28	28	13
Totals	**390**	**390**	**390**	**194**

Appendix D 3.0 – 2023 Monthly Distribution Microbiological Sample Results

Monthly Distribution Bacti Sample Results									
	Free Chlorine					Total Chlorine			
2023	Count Total	Min	Max	Average		Count Total	Min	Max	Average
January	34	0.35	1.32	0.71		34	0.37	1.33	0.75
February	32	0.39	0.76	0.60		32	0.47	0.93	0.67
March	32	0.39	0.92	0.67		32	0.42	0.92	0.70
April	32	0.25	0.90	0.63		32	0.27	1.00	0.71
May	34	0.43	0.85	0.63		34	0.45	0.99	0.73
June	32	0.43	0.98	0.64		32	0.47	1.03	0.69
July	34	0.43	0.81	0.62		34	0.49	0.96	0.70
August	24	0.37	0.81	0.57		24	0.39	0.83	0.63
September	32	0.46	0.96	0.64		32	0.51	1.10	0.68
October	40	0.37	1.06	0.58		40	0.43	1.13	0.64
November	32	0.39	1.28	0.60		32	0.42	1.30	0.67
December	32	0.43	1.41	0.67		32	0.46	1.46	0.72
Total	390					390			

Appendix E 1.0 – 2023 Inorganic 90 Day Chemical, THM and Lead Sample Results

SCHEDULE 13					Hwy 12 T/S POE	Penetang T/S POE	Hanly T/S POE	Vindin T/S POE	S1-SS-LE
CHEMICAL SAMPLING	Units	Limit	R.L.	Date					
Nitrite	mg/L	1.0	0.1	Jan 09/23	0.1	0.1	0.1	0.1	
Nitrate	mg/L	10.0	0.1	Jan 09/23	0.5	1.8	1.3	1.1	
Nitrite + Nitrate	mg/L	10.0	0.1	Jan 09/23	0.6	1.9	1.4	1.2	
Total Trihalomethanes	ug/L	1000	6	Jan 09/23					6
Lead	mg/L	0.01	0.00002	Jan 09/23					0.00035
SCHEDULE 13					Hwy 12 T/S POE	Hanly T/S POE	Penetang T/S POE	Vindin T/S POE	S1-SS-LE
CHEMICAL SAMPLING	Units	Limit	R.L.	Date					
Nitrite	mg/L	1.0	0.1	Apr 03/23	0.05	0.05	0.05	0.05	
Nitrate	mg/L	10.0	0.1	Apr 03/23	0.6	1.44	1.77	1.07	
Nitrite + Nitrate	mg/L	10.0	0.1	Apr 03/23	0.65	1.49	1.82	1.12	
Total Trihalomethanes	ug/L	1000	6	Apr 03/23					6
Lead	mg/L	0.01	0.00002						
SCHEDULE 13					Hwy 12 T/S POE	Hanly T/S POE	Penetang T/S POE	Vindin T/S POE	S1-SS-GG
CHEMICAL SAMPLING	Units	Limit	R.L.	Date					
Nitrite	mg/L	1.0	0.1	July 10/23	0.05	0.05	0.05	0.05	
Nitrate	mg/L	10.0	0.1	July 10/23	0.49	1.56	1.8	1.12	
Nitrite + Nitrate	mg/L	10.0	0.1	July 10/23	0.54	1.61	1.85	1.17	
Total Trihalomethanes	ug/L	1000	6	July 10/23					6
Lead	mg/L	0.01	0.00002						
SCHEDULE 13					Hwy 12 T/S POE	Hanly T/S POE	Penetang T/S POE	Vindin T/S POE	S1-SS-LE
CHEMICAL SAMPLING	Units	Limit	R.L.	Date					
Nitrite	mg/L	1.0	0.1	Oct 02/23	0.05	0.05	0.07	0.05	
Nitrate	mg/L	10.0	0.1	Oct 02/23	0.05	1.5	1.69	0.05	
Nitrite + Nitrate	mg/L	10.0	0.1	Oct 02/23	0.1	1.55	1.76	0.1	0
Total Trihalomethanes	ug/L	1000	6	Oct 02/23					7
Lead	mg/L	0.01	0.00002						

Appendix E 2.0 – 2023 GUDI Treatment Facilities Schedule 23 and 24 Yearly Chemical Sample Results

SCHEDULE 23 INORGANIC PARAMETERS	Units	Limit	R.L.	Date	Hwy 12 T/S POE	Penetang	Hanly	Vindin T/S POE
Sodium	mg/L	20	0.2	**Jan 9/23**	33.5	71.8	32.9	39.2
Antimony	mg/L	0.006	0.0001	**Jan 9/23**	0.00010	0.00010	0.00010	0.00010
Arsenic	mg/L	0.025	0.0001	**Jan 9/23**	0.00010	0.00010	0.00010	0.00020
Barium	mg/L	5	0.001	**Jan 9/23**	0.110	0.213	0.174	0.121
Boron	mg/L	5	0.005	**Jan 9/23**	0.005	0.008	0.010	0.006
Cadmium	mg/L	0.005	0.000015	**Jan 9/23**	0.000010	0.000010	0.000010	0.000010
Chromium	mg/L	0.05	0.002	**Jan 9/23**	0.00200	0.00200	0.00200	0.00200
Mercury	mg/L	0.001	0.00002	**Jan 9/23**	0.00002	0.00002	0.00002	0.00002
Selenium	mg/L	0.05	0.001	**Jan 9/23**	0.001	0.001	0.001	0.001
Uranium	mg/L	0.02	0.00005	**Jan 9/23**	0.00110	0.00162	0.00163	0.00134
SCHEDULE 24 ORGANIC PARAMETERS								
Benzene	ug/L	1	0.5	**Jan 9/23**	0.5	0.5	0.5	0.5
Carbon Tetrachloride	ug/L	2	0.2	**Jan 9/23**	0.2	0.2	0.2	0.2
1,2-Dichlorobenzene	ug/L	3	0.5	**Jan 9/23**	0.5	0.5	0.5	0.5
1,4-Dichlorobenzene	ug/L	1	0.5	**Jan 9/23**	0.5	0.5	0.5	0.5
1,2-Dichloroethane	ug/L	5	0.5	**Jan 9/23**	0.5	0.5	0.5	0.5
1,1-Dichloroethylene (vinylidene chloride)	ug/L	14	0.5	**Jan 9/23**	0.5	0.5	0.5	0.5
Dichloromethane	ug/L	50	5	**Jan 9/23**	5	5	5	5
Monochlorobenzene	ug/L		0.5	**Jan 9/23**	0.5	0.5	0.5	0.5
Tetrachloroethylene (perchloroethylene)	ug/L	10	0.5	**Jan 9/23**	0.5	0.5	0.5	0.5
Trichloroethylene	ug/L	5	0.5	**Jan 9/23**	0.5	0.5	0.5	0.5
Vinyl Chloride	ug/L	1	0.2	**Jan 9/23**	0.2	0.2	0.2	0.2
Alachlor	ug/L	5	0.3	**Jan 9/23**	0.3	0.3	0.3	0.3
Atrazine + N-dealkylated metabolites	ug/L	5	0.5	**Jan 9/23**	0.5	0.5	0.5	0.5
Azinphos-methyl	ug/L	20	1	**Jan 9/23**	1	1	1	1
Benzo(a)pyrene	ug/L	5	0.006	**Jan 9/23**	0.006	0.006	0.006	0.006
Bromoxynil	ug/L	5	0.5	**Jan 9/23**	0.5	0.5	0.5	0.5
Carbaryl	ug/L	90	3	**Jan 9/23**	3	3	3	3
Carbofuran	ug/L	90	1	**Jan 9/23**	1	1	1	1

Chlorpyrifos	ug/L	90	0.5	**Jan 9/23**	0.5	0.5	0.5	0.5
Diazinon	ug/L	20	1	**Jan 9/23**	1	1	1	1
Dicamba	ug/L	120	10	**Jan 9/23**	1	1	1	1
2,4-Dichlorophenol	ug/L	900	0.2	**Jan 9/23**	0.2	0.2	0.2	0.2
2,4-Dichlorophenoxy acetic acid (2,4-D)	ug/L	100	10	**Jan 9/23**	1	1	1	1
Diclofop-methyl	ug/L	9	0.9	**Jan 9/23**	0.9	0.9	0.9	0.9
Dimethoate	ug/L	20	1	**Jan 9/23**	1	1	1	1
Diquat	ug/L	70	5	**Jan 9/23**	5	5	5	5
Diuron	ug/L	150	5	**Jan 9/23**	5	5	5	5
Glyphosate	ug/L	280	25	**Jan 9/23**	25	25	25	25
Malathion	ug/L	190	5	**Jan 9/23**	5	5	5	5
Metolachlor	ug/L	50	3	**Jan 9/23**	3	3	3	3
Metribuzin	ug/L	80	3	**Jan 9/23**	3	3	3	3
Paraquat	ug/L	10	1	**Jan 9/23**	1	1	1	1
Pentachlorophenol	ug/L	60	0.2	**Jan 9/23**	0.2	0.2	0.2	0.2
Phorate	ug/L	2	0.3	**Jan 9/23**	0.3	0.3	0.3	0.3
Picloram	ug/L	190	15	**Jan 9/23**	5	5	5	5
Prometryne	ug/L	1	0.1	**Jan 9/23**	0.1	0.1	0.1	0.1
Simazine	ug/L	10	0.5	**Jan 9/23**	0.5	0.5	0.5	0.5
Terbufos	ug/L	1	0.5	**Jan 9/23**	0.5	0.5	0.5	0.5
2,3,4,6-Tetrachlorophenol	ug/L	100	0.2	**Jan 9/23**	0.2	0.2	0.2	0.2
Triallate	ug/L	230	10	**Jan 9/23**	10	10	10	10
2,4,6-Trichlorophenol	ug/L	5	0.2	**Jan 9/23**	0.2	0.2	0.2	0.2
Trifluralin	ug/L	45	0.5	**Jan 9/23**	0.5	0.5	0.5	0.5
MCPA	ug/L	10	10	**Jan 9/23**	10	10	10	10
Polychlorinated Biphenyls (PCB)	ug/L	3	0.05	**Jan 9/23**	0.05	0.05	0.05	0.05

Section 11
Annual reports

11. (1) The owner of a drinking water system shall ensure that an annual report is prepared in accordance with this section. O. Reg. 170/03, s. 11 (1); O. Reg. 247/06, s. 10 (1).

(2) The owner of a drinking water system, other than a large municipal residential system or a small municipal residential system, shall ensure that, when the annual report is prepared, a copy of the report is given to,

(a) each designated facility served by the system; and

(b) the interested authority for each designated facility served by the system. O. Reg. 170/03, s. 11 (2); O. Reg. 247/06, s. 10 (2).

(2.1) If a drinking water system is connected to and receives all of its drinking water from another drinking water system, the owner of the system from which the water is obtained shall ensure that, when the annual report for the system is prepared, a copy of the report is given to the owner of the system that obtains the water. O. Reg. 269/03, s. 6 (1); O. Reg. 247/06, s. 10 (3).

(3) In the case of the following drinking water systems, the annual report must cover the period from January 1 to December 31 in a year and must be prepared not later than February 28 of the following year:

1. Large municipal residential systems.
2. Small municipal residential systems.
3. Large municipal non-residential systems.
4. Small municipal non-residential systems.
5. Non-municipal year-round residential systems. O. Reg. 170/03, s. 11 (3); O. Reg. 247/06, s. 10 (4).

(4) In the case of non-municipal seasonal residential systems and large non-municipal non-residential systems, the annual report must cover the period from November 1 in a year to October 31 of the following year and must be prepared not later than December 31 of the latter year. O. Reg. 170/03, s. 11 (4); O. Reg. 247/06, s. 10 (5).

(5) In the case of small non-municipal non-residential systems, the annual report must cover the period from April 1 in a year to March 31 of the following year and must be prepared not later than May 31 of the latter year. O. Reg. 170/03, s. 11 (5); O. Reg. 247/06, s. 10 (6).

(6) The annual report must,

(a) contain a brief description of the drinking water system, including a list of water treatment chemicals used by the system during the period covered by the report;

(b) summarize any reports made to the Ministry under subsection 18 (1) of the Act or section 16-4 of Schedule 16 during the period covered by the report;

(c) summarize the results of tests required under this Regulation, or under an approval, municipal drinking water licence or order, including an OWRA order, during the period covered by the report and, if tests required under this Regulation in respect of a parameter were not required during that period, summarize the most recent results of tests of that parameter;

(d) describe any corrective actions taken under Schedule 17 or 18 during the period covered by the report;

(e) describe any major expenses incurred during the period covered by the report to install, repair or replace required equipment; and

(f) in the case of a large municipal residential system or a small municipal residential system, include a statement of where a report prepared under Schedule 22 will be available for inspection under subsection 12 (4). O. Reg. 170/03, s. 11 (6); O. Reg. 418/09, s. 8.

(7) The owner of a drinking water system shall ensure that a copy of an annual report for the system is given, without charge, to every person who requests a copy. O. Reg. 269/03, s. 6 (2).

(8) If a drinking water system is connected to and receives all of its drinking water from another drinking water system, the owner of the system that obtains the water shall ensure that a copy of an annual report for the system from which the water is obtained is given, without charge, to every person who requests a copy. O. Reg. 269/03, s. 6 (2).

(9) Subsections (7) and (8) do not apply to an annual report that is more than two years old. O. Reg. 269/03, s. 6 (2).

(9.1) Every time that an annual report is prepared for a drinking water system, the owner of the system shall ensure that effective steps are taken to advise users of water from the system that copies of the report are available, without charge, and of how a copy may be obtained. O. Reg. 269/03, s. 6 (2).

(10) If a large municipal residential system serves more than 10,000 people, the owner of the system shall ensure that a copy of every report prepared under this section is available to the public at no charge on a website on the Internet. O. Reg. 170/03, s. 11 (10).

(11) The obligation to ensure that a report be given to the interested authority for a designated facility under subsection (2) does not apply to the following designated facilities:

1. A private school.
2. A children's camp.
3. A residence for seniors or retired persons, or any other similar residence, where attainment of a mature age is a factor in being accepted for occupancy. O. Reg. 170/03, s. 11 (11).

(12)-(17) Revoked: O. Reg. 253/05, s. 8 (1).

(12)-(17) Revoked: O. Reg. 253/05, s. 8 (1).

(18) If section 12 of Ontario Regulation 459/00 and section 15 of Ontario Regulation 505/01 did not apply to the owner of a system to which subsection (5) applies, no report is required to be prepared under subsection (5) until May 31, 2006 and, despite that subsection, the report required to be prepared not later than May 31, 2006 shall cover the period from June 1, 2005 to March 31, 2006. O. Reg. 247/06, s. 10 (7).

(19) Revoked: O. Reg. 253/05, s. 8 (2).

SCHEDULE 22
SUMMARY REPORTS FOR MUNICIPALITIES
Municipal: Large Residential
Small Residential

Application

22-1. This Schedule applies to the following drinking water systems:

1. Large municipal residential systems.

2. Small municipal residential systems.

Report

22-2. (1) The owner of a drinking water system shall ensure that, not later than March 31 of each year after 2003, a report is prepared in accordance with subsections (2) and (3) for the preceding calendar year and is given to,

(a) in the case of a drinking water system owned by a municipality, the members of the municipal council;

(b) in the case of a drinking water system owned by a municipal service board established under section 195 of the *Municipal Act, 2001*, the members of the municipal service board; or

(c) in the case of a drinking water system owned by a corporation, the board of directors of the corporation.

(2) The report must,

(a) list the requirements of the Act, the regulations, the system's approval, drinking water works permit, municipal drinking water licence, and any orders applicable to the system that were not met at any time during the period covered by the report; and

(b) for each requirement referred to in clause (a) that was not met, specify the duration of the failure and the measures that were taken to correct the failure.

(3) The report must also include the following information for the purpose of enabling the owner of the system to assess the capability of the system to meet existing and planned uses of the system:

1. A summary of the quantities and flow rates of the water supplied during the period covered by the report, including monthly average and maximum daily flows.

2. A comparison of the summary referred to in paragraph 1 to the rated capacity and flow rates approved in the system's approval, drinking water works permit or municipal drinking water licence, or if the system is receiving all of its water from another system under an agreement pursuant to subsection 5 (4), to the flow rates specified in the written agreement.

(4) If a report is prepared under subsection (1) for a system that supplies water to a municipality under the terms of a contract, the owner of the system shall give a copy of the report to the municipality by March 31.

(5) Revoked: O. Reg. 253/05, s. 18.