Nanticoke Drinking Water System

2024 Annual Water Quality Report

January 1, 2024 – December 31, 2024

Table of Contents

Quality Management System Policy

The Corporation of Haldimand County owns, maintains and operates various drinking water systems. Haldimand County is committed to:

- Ensuring our drinking water systems comply with all current legislation and regulatory requirements for the safe supply of drinking water;
- Ensuring financial support is provided to maintain infrastructure integrity to allow safe and consistent delivery of drinking water to our water customers;
- Reviewing, maintaining and continually improving our Quality Management System and to communicate the Plan with our water customers.

Haldimand County Quality Management System Summary

Haldimand County's Quality Management System (QMS) is legislated under the Drinking Water Quality Management Standard (DWQMS) through the Safe Drinking Water Act. To maintain operating authority accreditation, the Ministry of the Environment, Conservation and Parks (MECP) mandate tasks that must be completed annually. These activities include:

- Conducting an internal audit of the Quality Management System.
- Conducting a Management Review meeting.
- Participating in an external audit conducting by a third-party Accreditation Body
- Updating the Quality Management System Operational Plan.
- Updating Council of the status of the County's Quality Management System.

The QMS Operational Plan was reviewed and updated in 2024, with focus on Document and Records Control (Element 5), conforming to the DWQMS standards and Continual Improvement (Element 21) all while incorporating organizational changes within the County.

Internal audits were completed with support from Environmental Operations staff. Extra support from other County staff during internal audits would increase the coverage to ensure the system is conforming and efficient. The audit report did note three minor non-conformances and several opportunities for improvement.

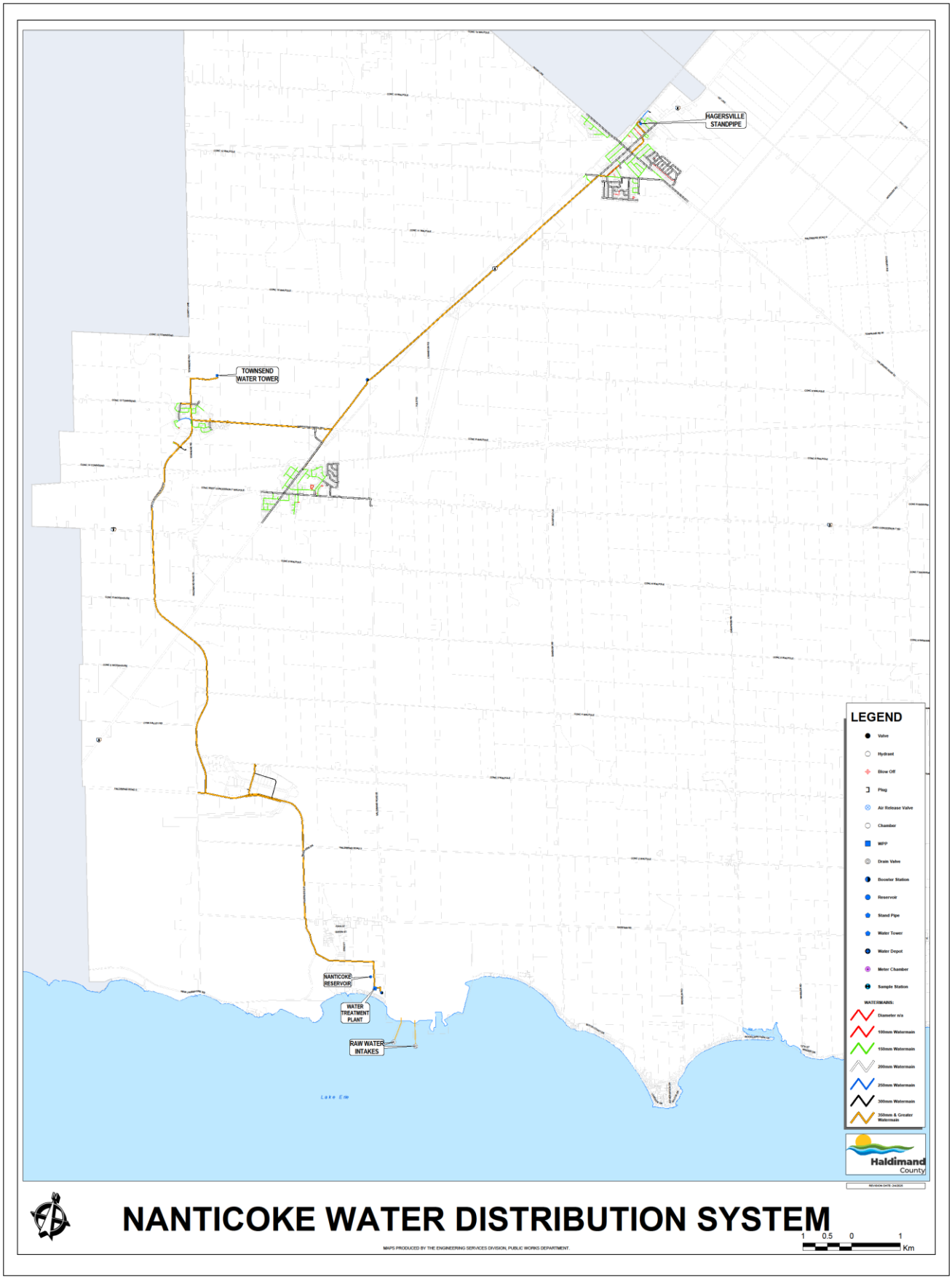
Haldimand County must receive accreditation annually to operate the water distribution systems. Through a qualified third-party auditor, the County must demonstrate that its QMS (Quality Management System) meets the requirements of the DWQMS (Drinking Water Quality Management Standard). Intertek conducted a re accreditation audit on February 28 and 29, 2024. The County received three minor non-conformances. These were deemed to be minor and administrative in nature with no immediate risk to the drinking water system. Root cause analysis was conducted and preventative actions were developed to ensure the non-conformances will not occur in the future. Haldimand County received re-accreditation May 31, 2024.

Intertek performed the annual systems audit September 12, 2024 which resulted in four opportunities for improvement. Any non-conformance or opportunity for improvement is added to the corrective action process.

Staff are required to conduct an annual Management Review meeting to evaluate the effectiveness of the QMS. Deficiencies and opportunities for improvement are identified and action items are developed to ensure follow-up. The County held their Management Review meeting on October 31, 2024 with the second meeting on December 20, 2024.

As part of the agreement with the County and through the regulations, Ontario Clean Water Agency (OCWA) must obtain accreditation to operate the water treatment facilities on behalf of the County. In 2024 OCWA continued full scope accreditation under the requirements of DWQMS.

Nanticoke Drinking Water System



Nanticoke Drinking Water System Overview

Lake Erie raw water flows from the Ontario Power Generation forebay into the Nanticoke Industrial Pumping Station forebay. Raw water can be pre-chlorinated for zebra mussel control and then drawn into two raw water wet wells. Seven vertical turbine pumps are capable of supplying Imperial Oil and US Steel plants with raw water. Two submersible pumps supply the municipal treatment works with raw water.

A coagulant is injected into the raw water supply. Water flows into a high-rate clarification process (Actiflo), which uses microsand and polymer to improve floc formation and significantly reduce settling times. Settled water then flows to three filter units containing sand and anthracite. Filtered water is chlorinated with sodium hypochlorite for primary disinfection prior to flowing to two reservoirs. These reservoirs feed into a high lift pumping station, where chlorine is injected for secondary disinfection, before being pumped into the distribution system.

A settling lagoon collects waste water from various water treatment plant processes and continuously discharges to Lake Erie.

Figure 1 is a simplified schematic of the Nanticoke Water Treatment Plant.

The distribution system is comprised of three residential communities (Townsend, Jarvis and Hagersville) and the Lake Erie Industrial Park. Townsend utilizes a water tower for storage and to maintain pressure in the distribution system. A booster station is utilized to maintain pressure and flow to Hagersville. As required, this facility has the capability to add sodium hypochlorite to the potable water to boost chlorine residuals. Hagersville utilizes a standpipe for storage and to maintain pressure in the distribution system. Bulk water stations are located in Hagersville and Jarvis. In addition, the Nanticoke Drinking Water System provides potable water to the Mississaugas of the Credit First Nation.

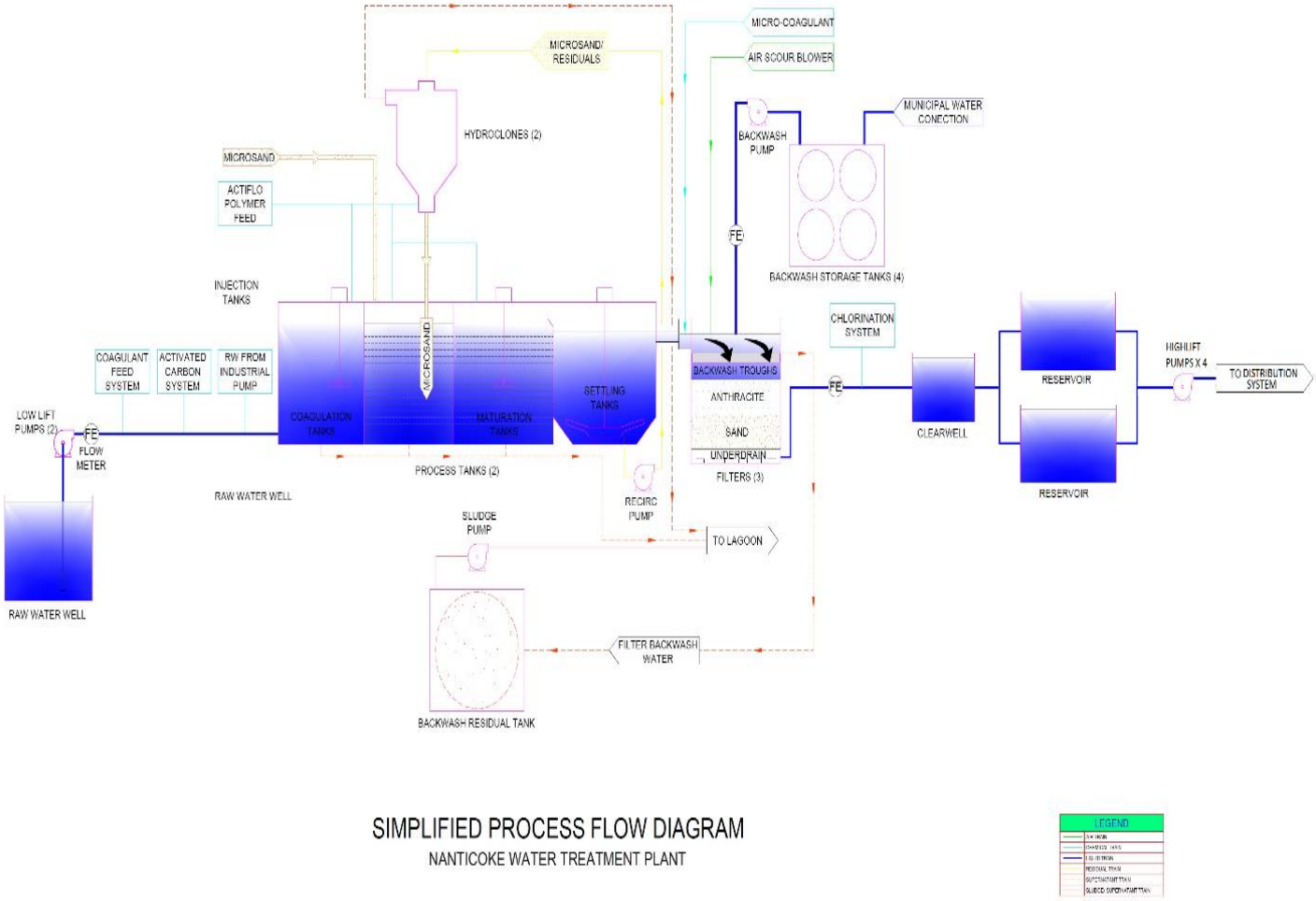


Figure 1: Nanticoke Water Treatment Plant Schematic

The distribution system infrastructure services approximately 5,200 people (2021 Census).

Ontario Clean Water Agency is contracted to operate and maintain the raw water transmission mains, low lift pumping station, water treatment plant, and the standpipe. Haldimand County operates and maintains the distribution system, including the bulk water depots.

Expenditure Information

Haldimand County and its contract operators are diligent in prioritizing projects on an annual basis to eliminate unnecessary expenditure. Using the best available information at the time of this report, expenses incurred in the Nanticoke Drinking Water System for 2024 are identified in Table 1. Not all drinking water expenditure information is included in this report.

Table 1: Nanticoke Drinking Water System 2024 Major Expenditures

Imperial Oil Raw Water Supply Line Replacement	$1,833,371
Nanticoke Water Treatment Plant Capacity Expansion	$ 1,105,707
Hwy #6 Transmission Main Twinning	$ 245,386
Nanticoke Water Intake Options & Feasibility Study	$ 27,337
Total	**$3,211,801**

Multi-Barrier Approach

Through the Walkerton Inquiry, Justice O'Connor recommended that drinking water is best protected by taking an approach that uses multiple barriers to prevent contamination from affecting our drinking water. The multi-barrier approach addresses potential threats by ensuring barriers are in place to either eliminate or minimize their impact. This holistic approach recognizes that each barrier may not be able to completely remove a contaminant, but by working together the barriers provide a high-level of protection. Typical barriers include:

- **Source Protection**
  - ***Source Protection Plans***
- **Treatment**
  - ***Treatment and Disinfection Goals***
- **Distribution System**
  - ***Chlorine Residual Maintenance***
- **Monitoring**
  - ***Sampling Programs***
- **Emergency Preparedness**
  - ***Emergency Plans***

Haldimand County has adopted the multi-barrier approach in ensuring safe, reliable drinking water. Figure 2 shows how administration, design, maintenance, and operations work together to establish and maintain multi-barrier protection (US EPA, 1998).

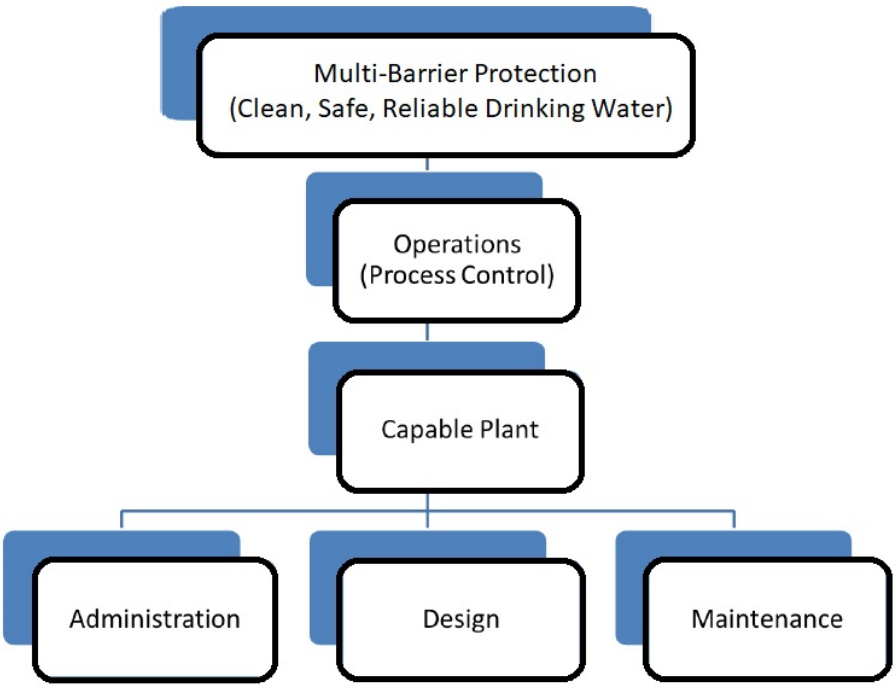


Figure 2: Responsibilities for Clean, Safe and Reliable Drinking Water

A description of the responsibilities in each area is summarized as follows:

- **Administration**: The administrators or managers of a water treatment system are responsible for providing the resources (budget and staff) and policies (hours of staffing, reporting requirements, training and certification requirements, etc.). Funding may also need to be justified and obtained if the design of a system is inadequate or major upgrades are required. Managers establish and maintain emergency response plans and communication procedures to ensure prompt response to unsafe drinking water.
- **Design**: The designer's responsibility is to provide the physical infrastructure (pipes, valves, tanks, meters, etc.) capable of reliably producing and distributing the quality and quantity of water required. The design must provide adequate flexibility and controllability to enable the operator to make appropriate adjustments.
- **Maintenance**: The system must be maintained in good working order with the key equipment functional at all times. Should a key piece of equipment break down then it should be repaired in a timely manner.
- **Operations**: Once a capable system is in place, then it is the operator's responsibility to deliver safe drinking water through monitoring, testing and process control (for example by changing the setting on the dosing pumps). Operators are also responsible for maintaining records (log books, data forms, etc.), which aid in troubleshooting and design of upgrades. A further, and commonly unrecognized responsibility of the operator is to communicate the needs of the facility to administrators for possible action.

Water Sampling

To comply with drinking water legislation, drinking water systems are required to monitor their water quality. Haldimand County has committed to providing safe, reliable drinking water and is diligent in ensuring that sampling and monitoring programs effectively characterize water quality. All samples are taken by certified operators and tests performed by accredited, licensed laboratories.

Microbiological Sampling

Microbial quality is one of the primary indicators for the safety of a drinking water supply. Of all contaminants in drinking water, human and/or animal feces present the greatest danger to public health. Pathogenic or disease-causing microorganisms (including certain protozoa, bacteria or viruses) may be found in untreated water supplies. Bacteriological monitoring and testing are a way to detect and control pathogenic bacteria in treated drinking water supplies. Heterotrophic Plate Count (HPC) and background bacteria samples are monitored to identify potential changes in water quality and are not used as an indicator of adverse human health effects. Table 2 provides a summary of microbiological sampling completed in the Nanticoke Drinking Water System during 2024.

Table 2: 2024 Nanticoke Drinking Water System Microbiological Sampling

Sample	Number of Samples	Range of E.coli Results (cfu/100ml)	Range of Total Coliform Results (cfu/100ml)	Number of HPC Samples	Range of HPC Results (cfu/ml)	Number of Background Samples	Range of Background Results (cfu/ml)
Raw	158	0 – 32	0– 6,200	N/A	N/A	N/A	N/A
Treated	165	0	0	55	0 – 3	N/A	N/A
Industrial Park Distribution System	53	0	0	53	0 - 2	53	0 - 17
Townsend Distribution System	53	0	0	53	0 - 8	53	0 - 1
Jarvis Distribution System	53	0	0	53	0 - 200	53	0 -22
Hagersville Distribution System	53	0	0	53	0 - 22	53	0 -34
Townsend Elevated Tower	55	0	0	55	0 - 20	N/A	N/A
Hagersville Standpipe	55	0	0	55	0 – 30	N/A	N/A
Hagersville Booster Station	55	0	0	55	0 - 5	N/A	N/A

*****Note: At a minimum, 25% of all drinking water samples must be analyzed for HPC.

Operational Sampling

Operational sampling and monitoring are important in maintaining the integrity of each barrier in the multi-barrier approach. Schedules 7 and 8 of Ontario Regulation 170/03, specify requirements for operational checks that municipalities must follow. Table 3 provides a summary of operational samples taken for the drinking water system. Regulatory requirements were achieved for filtered water turbidity and efforts continue to consistently achieve settled and filter targets. Disinfection regulatory requirements and operational targets were consistently achieved in 2024.

Table 3: 2024 Nanticoke Drinking Water System Operational Sampling

Operational Sample	Number of Grab Samples	Range of Results	Regulatory Requirement	Recommended Target
Raw Turbidity	8784*	0.31-74.48	N/A	N/A
Settled Turbidity	8784*	0.06 – 0.82	N/A	1.00 NTU
Filtered Turbidity	8784*	0.0 – 0.095	≤ 0.30 in 95% of all monthly readings	0.10 NTU
Treated Turbidity	8784*	0.0 – 1.53	N/A	≤ 5.00
Free Chlorine High Lift	8784*	0.76-3.6**	≥ 0.05 mg/L	≥ 0.20 mg/L
Free Chlorine Industrial Park	106	0.76 – 1.60 mg/L	≥ 0.05 mg/L	≥ 0.20 mg/L
Free Chlorine Townsend	106	0.82 – 1.58 mg/L	≥ 0.05 mg/L	≥ 0.20 mg/L
Free Chlorine Hagersville	106	0.45 – 1.60 mg/L	≥ 0.05 mg/L	≥ 0.20 mg/L
Free Chlorine Jarvis	106	0.45 – 1.41 mg/L	≥ 0.05 mg/L	≥ 0.20 mg/L
Free Chlorine Townsend Elevated Tank	366	0.75– 2.02 mg/L	≥ 0.05 mg/L	≥ 0.20 mg/L
Free Chlorine Hagersville Stand Pipe	366	0.37-1.8 mg/L	≥ 0.05 mg/L	≥ 0.20 mg/L
Free Chlorine Hagersville Booster Station	366	0.95 – 1.8 mg/L	≥ 0.05 mg/L	≥ 0.20 mg/L

*****Note: 8784 is used for continuous monitoring (24 samples per day * 366 days/year (2024 being a leap year)).

** The high residual reading (3.6 mg/L) was recorded at the high lift on October 4, 2024 . This was due to chlorine pumps being reprogrammed at the water treatment facility.

Water treatment plant filters are backwashed to maintain or improve performance of the filters. The backwash water is discharged to a lagoon, which continuously discharges to Lake Erie. Municipal Drinking Water License number 066-102 specifies sampling requirements, summarized in Table 4, to monitor the discharge and ensure minimal impact to the natural environment.

Table 4: 2024 Nanticoke Water Treatment Plant Lagoon Sampling

Date of Legal Instrument Issued	Parameter	# of Samples	Annual Average (mg/L)	Regulatory Requirement
License 066-202 Dec 10, 2021	Backwash Lagoon Total Suspended Solids	55	3.27	Annual Average Concentration 25 mg/L

Hardness

As result of public inquiries, a treated water hardness sampling program was initiated .

The term hardness was originally applied to waters that were hard to wash in, referring to the soap wasting properties of hard water. Hardness prevents soap from lathering by causing the development of an insoluble curdy precipitate in the water; hardness typically causes the buildup of hardness scale (such as seen in cooking pans). Dissolved calcium and magnesium salts are primarily responsible for most scaling in pipes and water heaters and can cause numerous problems in laundry, kitchen, and bath. Hardness is usually expressed in grains per gallon (or ppm) as calcium carbonate equivalent.

The degree of hardness standard as established by the American Society of Agricultural Engineers (S-339) and the Water Quality Association (WQA) is shown in the following table:

Table 5: Standard Degree of Hardness

Degree of Hardness	Grains per Gallon (gpg)	Ppm (mg/L)
Soft	< 1.0	< 17.0
Slightly Hard	1.0 – 3.5	17 – 60
Moderately Hard	3.5 – 7.0	60 – 120
Hard	7.0 – 10.5	120 – 180
Very Hard	> 10.5	> 180

The sample results in Table 6 indicate that the average values for Nanticoke is considered moderately hard to hard water as taken from the Degree of Hardness Table above.

Table 6: 2024 Nanticoke Drinking Water System Hardness Sampling

Parameter: Total Hardness (mg/L as $CaCO_3$)

Sample Date	Industrial Park	Townsend	Jarvis	Hagersville
February 20, 2024	128	130	130	129
May 7, 2024	112	114	113	114
July 16, 2024	119	119	120	119
November 5, 2024	131	131	128	129
Average	123	124	123	123

Lead Sampling

The community lead testing program is a requirement of O. Reg. 170/03 under the Safe Drinking Water Act, 2002. Haldimand County is exempt from sampling private residences due to having less than 10% of plumbing sample locations exceed the standard for two consecutive periods of reduced sampling. Bi-annual pH and alkalinity samples are taken, as well as distribution system lead samples every three years. There are no regulatory limits for alkalinity and pH, however Haldimand County sample results are within the operational guidelines provided by the MECP. A summary of 2024 sampling has been provided in Table 7.

Table 7: 2024 Nanticoke Drinking Water System Lead Sampling

Industrial Park Sample Type	Number of Samples	Range of Results	Number of Exceedances
Distribution – Lead	2	0.04-0.05 ug/L	N/A
Distribution – Alkalinity	2	95-100 mg/L	N/A
Distribution – pH	2	7.86-7.89	N/A

Townsend Sample Type	Number of Samples	Range of Results	Number of Exceedances
Distribution – Lead	2	0.08-0.81 ug/L	N/A
Distribution – Alkalinity	2	96-102 mg/L	N/A
Distribution – pH	2	8.11-8.14	N/A

Jarvis Sample Type	Number of Samples	Range of Results	Number of Exceedances
Distribution – Lead	2	0.06 ug/L	N/A
Distribution – Alkalinity	2	97-98 mg/L	N/A
Distribution – pH	2	7.94-8.07	N/A

Hagersville Sample Type	Number of Samples	Range of Results	Number of Exceedances
Distribution – Lead	2	0.12 ug/L	N/A
Distribution – Alkalinity	2	97-98 mg/L	N/A
Distribution – pH	2	7.85-8.16	N/A

Organic Sampling

To protect drinking water from pathogens, a disinfectant (usually chlorine) is added to the drinking water. Disinfectants can react with naturally-occurring materials in the water to form disinfection byproducts (DBP), which may pose health risks.

A challenge for water systems is balancing pathogen control and disinfection byproduct formation. It is important to provide protection from pathogens while minimizing health risks from disinfection byproducts. More information on each by-product is summarized in Table 8.

Haldimand County samples for haloacetic acids (HAA) and trihalomethanes (THM) at the water treatment plant and in the distribution system where there is an elevated potential for the formation of these byproducts. Although a treatment sample and individual distribution system samples are not required by regulation, these samples are used to monitor byproduct formation within the drinking water system.

Table 8: Disinfection Byproduct Information

Disinfection Byproduct	How it is formed?	Health Effects
Trihalomethanes	Trihalomethanes occur when naturally-occurring organic and inorganic materials in the water react with the disinfectants, chlorine and chloramine.	Some people who drink water containing total trihalomethanes in excess of the MCL over many years could experience liver, kidney, or central nervous system problems and an increased risk of cancer.
Haloacetic Acids	Haloacetic acids occur when naturally-occurring organic and inorganic materials in the water react with the disinfectants, chlorine and chloramine.	Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer.

Regulatory reporting is based on a running annual average of quarterly sample results using the worst-case scenario. The calculated THM and HAA averages were below the maximum allowable concentrations (MAC) permitted by the MECP. Table 9 provides a summary of 2024 disinfection byproduct sampling.

Table 9: 2024 Nanticoke Drinking Water System DBP Sampling

Parameter: Haloacetic Acids

Sample Location	Sample Date	Sample Results (ug/L)	Annual Average (ug/L)	Regulatory MAC (ug/L)	Exceedance
Nanticoke WTP	February 12, 2024 May 6, 2024 August 5, 2024 November 4, 2024	5.3 14.4 24.2 5.8	12.4	80	No
Industrial Park Distribution	May 13, 2024 July 31, 2024 October 31, 2024	16.3 22.6 8.9	15.9	80	No
Townsend Distribution	May 13, 2024 July 31, 2024 October 31, 2024	21.5 25.2 18.6	21.7	80	No
Jarvis Distribution	May 13, 2024 July 31, 2024 October 31, 2024	20.2 24.2 20.9	21.7	80	No
Hagersville Distribution	May 13, 2024 July 31, 2024 October 31, 2024	23.2 32.3 12.7	22.7	80	No

Parameter: Trihalomethanes

Sample Location	Sample Date	Sample Results (ug/L)	Annual Average (ug/L)	Regulatory MAC (ug/L)	Exceedance
Nanticoke WTP	February 12, 2024 May 6, 2024 August 5, 2024 November 4, 2024	20 33 57 26	34	100	No
Industrial Park Distribution	May 13, 2024 July 31, 2024 October 31, 2024	35 60 43	46	100	No
Townsend Distribution	May 13, 2024 July 31, 2024 October 31, 2024	45 68 57	56.7[1]	100	No
Jarvis Distribution	May 13, 2024 July 31, 2024 October 31, 2024	44 67 62	57.7[1]	100	No
Hagersville Distribution	May 13, 2024 July 31, 2024 October 31, 2024	54 85 75	71.3[1]	100	No

[1] Result exceeded half the standard prescribed in Schedule 2 on the Ontario Drinking Water Quality Standards.

Note: The first quarter samples for the Haldimand County Distribution system were not taken in 2024. The MECP issued a non-compliance for Haldimand County. Haldimand County created a corrective and preventative action plan that was accepted by the MECP and is currently in place.

Additional sample results are located in the appendices.

Water Use

Raw Water

The Nanticoke Drinking Water System's raw water source is Lake Erie. A Permit to Take Water (PTTW) specifies the maximum volume of raw water that can be taken from the water source and conveys MECP site-specific regulatory requirements. Haldimand County has a large volume of available raw water capacity, however an interim limit of 437 MLD is in place until a number of conditions have been satisfied. When comparing the 2024 maximum raw water flow and the permit limits (Figure 3), 76% of Haldimand County's raw water allotment was available for use.

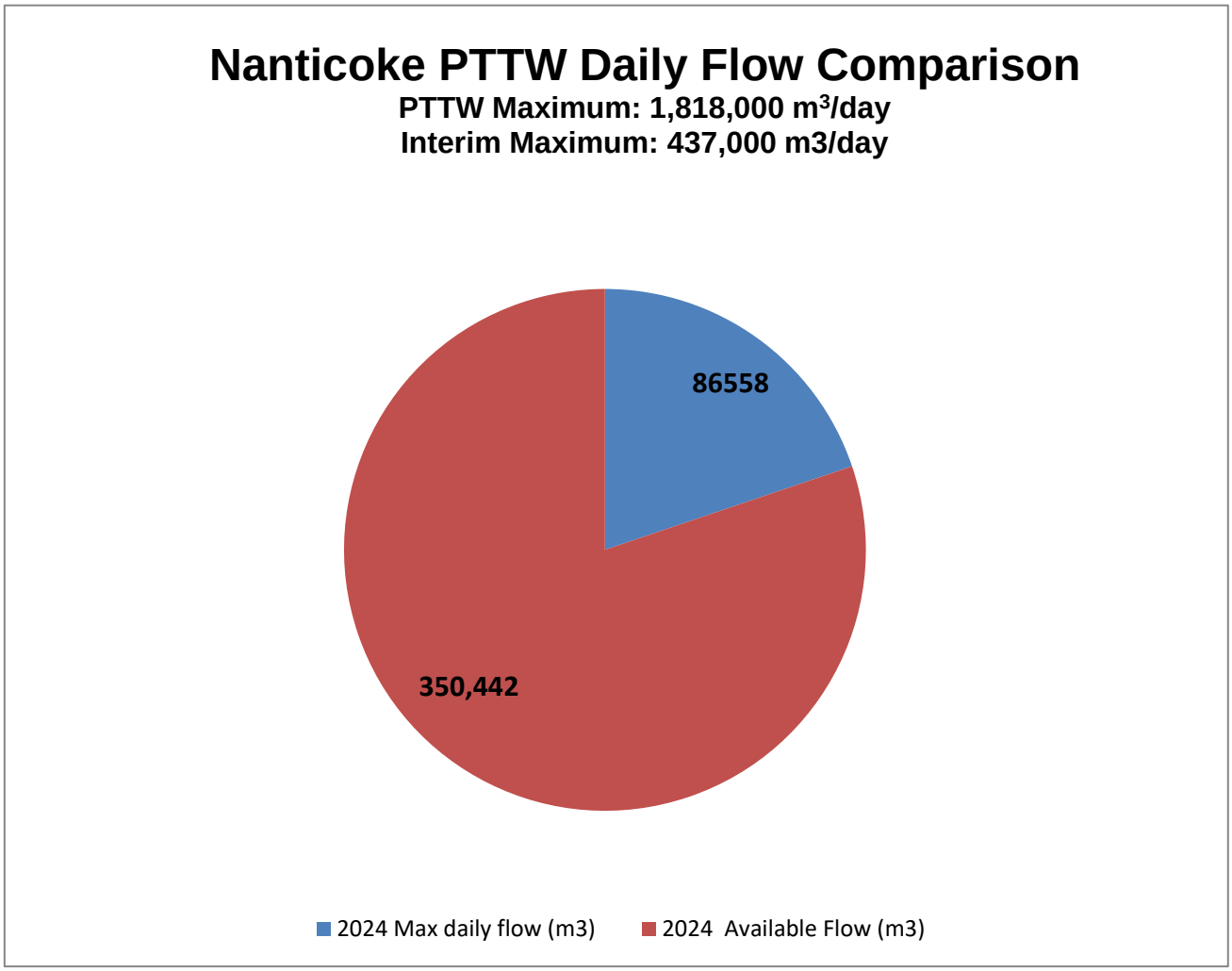


Figure 3: Nanticoke Permit To Take Water Flow Comparison - Potable Water

Potable Water

As required by Schedule 22 of Ontario Regulation 170/03, Table 10, Table 11 and Figure 4 are intended to provide a summary of potable water supplied by the Nanticoke Drinking Water System in 2024.

Table 10: 2024 Nanticoke Drinking Water System Monthly Potable Water Flow Data

Month	Monthly Total m^3	Daily Average m^3/d	Maximum Daily Flow m^3/d	Maximum Daily Peak Flow L/s
January	209,071	6,744	8,122	94
February	196,618	6,780	7,832	91
March	191,896	6,190	8,270	96
April	182,723	6,091	7,718	89
May	227,953	7,353	9,116	106
June	232,626	7,754	10,039	116
July	242,461	7,,821	10,701	124
August	224,732	7,249	8,629	100
September	223,656	7,455	8,740	101
October	224,385	7,238	8,412	97
November	208,825	6,961	8,703	101
December	200,457	6,671	8,101	94

Figure 4 compares the monthly flows over the last five years at the Nanticoke Water Treatment Plant. When comparing the average monthly flows for 2023 and 2024, there was a **3.7% increase** in potable water distributed at the Nanticoke Water Treatment Plant.

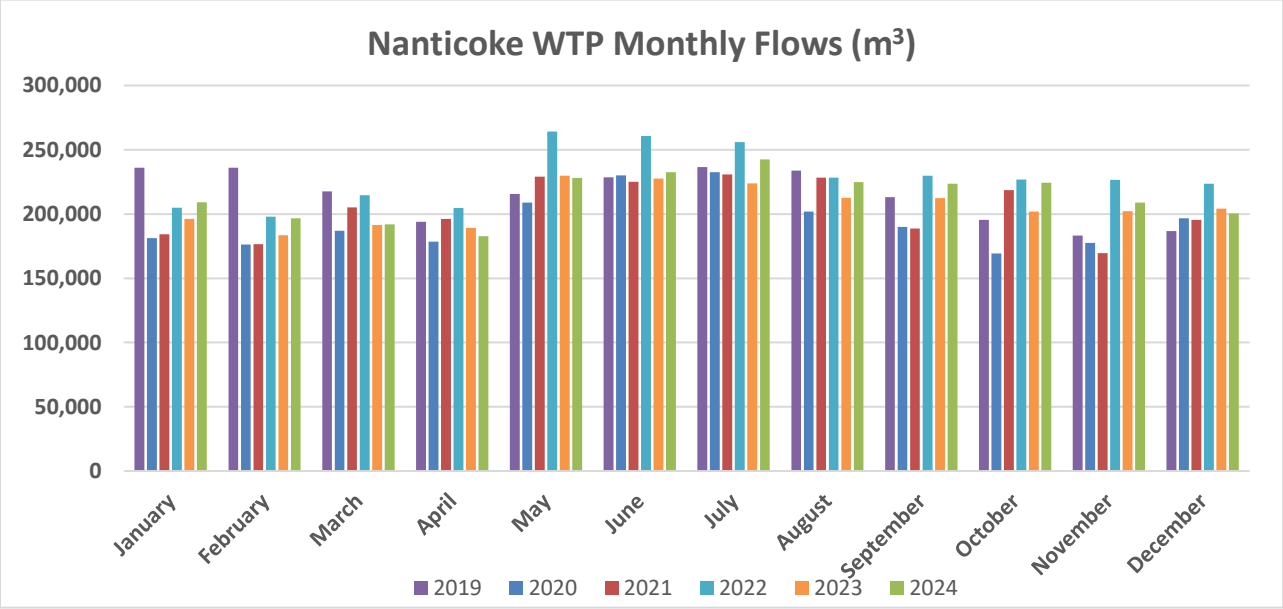


Figure 4: Nanticoke WTP Five Year Monthly Potable Flow Comparison

The facility has a rated capacity of 13,636 cubic meters per day. When compared against the maximum daily flow for 2024, the Nanticoke Water Treatment Plant operated at approximately 78.4% of design capacity, however this calculation does not take into account any operational and infrastructure limitations.

Table 11: Comparison of Rated Capacity and 2024 Maximum Flow Rate

System and Municipal Drinking Water License	Rated Capacity (m^3/day)	Maximum Daily Flow (m^3)	Percentage of Capacity
Nanticoke 066-102	13,636	10,701	78.4%

Average system water flows are approximately **7026 m^3/day**. This would represent 52% of rated capacity.

To ensure the water treatment facility is capable of meeting current and projected demands, Haldimand County staff annually review plant capability and performance and update development allocation accordingly.

Regulatory Compliance

Adverse Water Quality Incidents

Regulatory compliance requires reporting adverse water quality incidents to the Ministry of Health (MOH) and the MECP. In all instances, corrective action is initiated to resolve the issue.

#	Adverse Type	Corrective Action	Status
1	June 20, 2024 Low pressure event. Townsend communications was lost from 02:05-02:29. Before communication was lost Townsend pressure was 54psi, and when it restored it was at 9.93psi, the minimum Nanticoke discharge pressure during this time gap was 345kpa (50psi) at 02:14.	Flushing of hydrants and chlorine residual testing was completed.	Resolved

Annual Drinking Water Inspection

The MECP annually confirms compliance with drinking water legislation by conducting inspections on drinking water systems. All aspects of the drinking water system are reviewed, including treatment equipment, disinfection, training records, and operational data required under the Safe Drinking Water Act, Ontario Regulations 170/03, 169/03 and 128/04. These inspections provide Haldimand County and OCWA an opportunity to review best management practices and work towards continually improving the operation and management of the drinking water systems. Any issues of regulatory non-compliance are identified and corrective actions issued.

The findings for the 2024 annual drinking water system inspections are included in this report. Below is a summary of the key findings for the inspection:

Nanticoke Drinking Water System – DWS# 210001558

There were three non-compliances identified during the 2024 inspection period. The inspection rating for 2024 for the Nanticoke System was **96.8%**

#	Finding Type	Finding	Status
1	Non-compliance	A weekly Microcystin sample was missed for the week of June 19, 2023	Corrective actions complete
2	Non-compliance	Haloacetic Acid samples were not taken on the 1st calendar quarter of 2024, but were completed in subsequent quarters of 2024	Corrective actions complete
3	Non-compliance	Trihalomethane samples were not taken on the 1st calendar quarter of 2024, but were completed in subsequent quarters of 2024	Corrective actions complete

Haldimand County continues to work closely with regulatory bodies to ensure a continued supply of safe, reliable drinking water to its users. All recommendations and corrective actions have been addressed and communicated to the MECP.

Report Availability

This report can be viewed online at:

haldimandcounty.ca/drinking-water/

Reports can also be obtained upon request at the Haldimand County Administration Building:

Cayuga Administration Building
53 Thorburn St. S
Cayuga, ON
N0A 1E0

For more information on report content, please contact the Haldimand County Environmental Operations Division at:

Email: wwwops@haldimandcounty.on.ca

Telephone: 905-318-5932

Appendix A

Inorganic and Organic Sample Results

Inorganic Parameters

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Antimony	March 5, 2024	ND	ug/L	No
Arsenic	March 5, 2024	0.3	ug/L	No
Barium	March 5, 2024	23.7	ug/L	No
Boron	March 5, 2024	19	ug/L	No
Cadmium	March 5, 2024	0.003	ug/L	No
Chromium	March 5, 2024	ND	ug/L	No
Mercury	March 5, 2024	ND	mg/L	No
Nitrite	February 6, 2024 May 7, 2024 August 15, 2024 November 5, 2024	ND ND ND ND	mg/L	No
Nitrate	February 6, 2024 May 7, 2024 August 15, 2024 November 5, 2024	0.358 0.174 0.113 0.069	mg/L	No
Selenium	March 5, 2024	0.20	ug/L	No
Uranium	March 5, 2024	0.066	ug/L	No

ND = Not Detectable

Organic Parameters

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Alachlor	March 5, 2024	ND	ug/L	No
Atrazine + Metabolites	March 5, 2024	0.06	ug/L	No
Azinphos-methyl	March 5, 2024	ND	ug/L	No
Benzene	March 5, 2024	ND	ug/L	No
Benzo(a)pyrene	March 5, 2024	ND	ug/L	No
Bromoxynil	March 5, 2024	ND	ug/L	No
Carbaryl	March 5, 2024	ND	ug/L	No
Carbofuran	March 5, 2024	ND	ug/L	No
Carbon Tetrachloride	March 5, 2024	ND	ug/L	No
Chlorpyrifos	March 5, 2024	ND	ug/L	No
Diazinon	March 5, 2024	ND	ug/L	No
Dicamba	March 5, 2024	ND	ug/L	No
1,2-Dichlorobenzene	March 5, 2024	ND	ug/L	No
1,4- Dichlorobenzene	March 5, 2024	ND	ug/L	No
1,2- Dichloroethane	March 5, 2024	ND	ug/L	No
1,1- Dichloroethylene	March 5, 2024	ND	ug/L	No
Dichloromethane (Methylene Chloride)	March 5, 2024	ND	ug/L	No
2,4- Dichlorophenol	March 5, 2024	ND	ug/L	No
2,4- Dichlorophenoxy acetic acid (2,4-D)	March 5, 2024	ND	ug/L	No
Diclofop-methyl	March 5, 2024	ND	ug/L	No
Dimethoate	March 5, 2024	ND	ug/L	No
Diquat	March 5, 2024	ND	ug/L	No
Glyphosate	March 5, 2024	ND	ug/L	No
Malathion	March 5, 2024	ND	ug/L	No
MCPA	March 5, 2024	ND	ug/L	No
Metolachlor	March 5, 2024	0.02	ug/L	No
Metribuzin	March 5, 2024	ND	ug/L	No
Monochlorobenzene (Chlorobenzene)	March 5, 2024	ND	ug/L	No
Paraquat	March 5, 2024	ND	ug/L	No
Pentachlorophenol	March 5, 2024	ND	ug/L	No
Phorate	March 5, 2024	ND	ug/L	No
Picloram	March 5, 2024	ND	ug/L	No
Prometryne	March 5, 2024	ND	ug/L	No
Simazine	March 5, 2024	ND	ug/L	No
Terbufos	March 5, 2024	ND	ug/L	No
Tetrachloroethylene	March 5, 2024	ND	ug/L	No
2,3,4,6- Tetrachlorophenol	March 5, 2024	ND	ug/L	No
Total PCBs	March 5, 2024	ND	ug/L	No
Triallate	March 5, 2024	ND	ug/L	No
Trichloroethylene	March 5, 2024	ND	ug/L	No
2,4,6- Trichlorophenol	March 5, 2024	ND	ug/L	No
Vinyl Chloride	March 5, 2024	ND	ug/L	No

ND = Not Detectable

Microcystin Sample Results

Microcystin Parameter

Sample Date	Raw Water Results	Treated Water Results	Unit of Measure	Exceedance
June 3, 2024	0.1	ND	ug/L	No (less than minimum detection limit)
June 10, 2024	0.1	ND		
June 17, 2024	0.1	ND		
June 24, 2024	0.1	ND		
July 1, 2024	0.1	ND		
July 8, 2024	0.1	ND		
July 15, 2024	0.1	ND		
July 22, 2024	0.1	ND		
July 29, 2024	0.1	ND		
August 5, 2024	0.1	ND		
August 12, 2024	0.1	ND		
August 19, 2024	0.1	ND		
September 2 2024	0.1	ND		
September 9, 2024	0.1	ND		
September 19, 2024	0.1	ND		
September 23, 2024	0.1	ND		
October 7, 2024	0.1	ND		
October 14, 2024	0.1	ND		
October 21, 2024	0.1	ND		
October 28, 2024	0.1	ND		
November 4, 2024	0.1	ND		

ND = Not Detectable