

# Annual Report

## Ignace Drinking Water System



# 2023

Prepared by **Northern Waterworks Inc.**  
on behalf of the **Township of Ignace**



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# 1 Introduction

## 1.1 Annual Reporting Requirements

This consolidated Annual Report (the Report) has been prepared in accordance with both section 11 (Annual Reports) and Schedule 22 (Summary Reports for Municipalities) of Ontario Regulation 170/03 (Drinking Water Systems Regulation). This Report is intended to inform both the public and Municipal Council about the operation of the system over the previous calendar year (January 1 to December 31, 2023).

Section 11 of O. Reg. 170/03 requires the development and distribution to the public of an annual report summarizing water quality monitoring results, adverse water quality incidents, system expenses and chemicals used in the water treatment process.

Schedule 22 of O. Reg. 170/03 requires the development and distribution to Council of an annual report summarizing incidents of regulatory non-compliance and associated corrective actions, in addition to providing flow monitoring results for the purpose of enabling the Owner to assess the capability of the system to meet existing and planned demand.

## 1.2 Report Availability

In accordance with section 11 of O. Reg. 170/03, this Report must be given, without charge, to every person who requests a copy. Effective steps must also be 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. This Annual Report shall be made available for inspection by the public at the Ignace Municipal Office and on the Township's website.

In accordance with Schedule 22 of O. Reg. 170/03, this Annual Report must be given to the members of Municipal Council. Section 19 (Standard of care, municipal drinking-water system) of Ontario's *Safe Drinking Water Act* (SDWA) also places certain responsibilities upon those municipal officials who oversee an accredited operating authority or exercise decision-making authority over a system. The examination of this Report is one of the methods by which municipal officials may fulfil the obligations required by section 19 of the SDWA.

System users and members of Council should contact a representative of NWI for assistance in interpreting this Report. Questions and comments may be directed to the local NWI Operations Manager or by email to [compliance@nwi.ca](mailto:compliance@nwi.ca).

## 2 System Overview & Expenses

### 2.1 System Description

The Ignace Drinking Water System must meet extensive treatment and testing requirements to ensure that human health is protected. The operation and maintenance of the system is governed by Ontario's *Safe Drinking Water Act* and the regulations therein, in addition to requirements within system-specific environmental approvals. Important system information is summarized in Table 1.

Drinking-Water System Name:	Ignace Drinking Water System
DWS Number:	260091338
DWS Category:	Large Municipal Residential
DWS Owner:	The Corporation of the Township of Ignace
DWS Operating Authority:	Northern Waterworks Inc.
DWS Components:	<ul style="list-style-type: none"><li>• Raw water pumping station and transmission line</li><li>• Ignace Water Treatment Plant</li><li>• Ignace water distribution system</li></ul>
Treatment Processes:	<ul style="list-style-type: none"><li>• Chemical coagulation and flocculation</li><li>• Membrane ultrafiltration</li><li>• Free chlorine disinfection</li><li>• pH adjustment</li></ul>

Water production begins as raw water flows by gravity from the intake structure located in Kekwanzik (Michel) Lake and into two intake reservoirs located at the raw water pumping station. Pumps then transfer water from the intake wells to the Ignace Water Treatment Plant through a 3.1 km transmission line.

Upon transfer to the treatment facility, polyaluminum chloride (coagulant) is injected into the raw water upstream from two coagulation tanks. Coagulant is mixed with the raw water in the tanks in order to create a suitable floc that will facilitate the subsequent membrane ultrafiltration process.

From the coagulation tanks water is directed to the membrane ultrafiltration treatment units. The membrane ultrafilters are submerged in the coagulated water and permeate (filtered water) is drawn through the filters using a vacuum generated by pumps, effectively filtering impurities from the water. Sodium hypochlorite (disinfectant) is then applied to permeate as it is directed to the treated water storage reservoir. Additional chemical feed systems are used for periodic membrane filter cleaning and neutralization, including sodium hypochlorite, citric acid, sodium bisulphite and sodium hydroxide. Wastewater from the membrane filtration process is directed to a waste equalization tank at the treatment facility, from where it is pumped to the sanitary sewer system.

Primary disinfection is achieved as sodium hypochlorite mixes with the permeate in the reservoir. Treated water is then delivered to the water distribution system using dedicated high lift pumps. Secondary disinfection requirements in the distribution system are achieved by maintaining a free chlorine residual at all locations. Sodium hydroxide is also added for pH control as water is transferred to the distribution system.

## 2.2 Water Treatment Chemicals

In accordance with section 11 of O. Reg. 170/03, this Report must include a list of all water treatment chemicals used by the system during the period covered by the report (summarized in Table 2). All chemicals used in the treatment process are NSF/ANSI 60 certified for use in potable water, as required by system approvals.

Treatment Chemical	Application
polyaluminum chloride	coagulant
sodium hypochlorite <sup>1</sup>	disinfectant, membrane filter cleaning agent
sodium hydroxide <sup>1</sup>	pH/alkalinity adjustment, neutralizing agent
citric acid <sup>1</sup>	membrane filter cleaning agent
sodium bisulphite <sup>1</sup>	neutralizing agent (dechlorination)

1. Membrane filter cleaning and neutralizing agents are used in smaller amounts. These chemicals are not injected into the process water stream.

## 2.3 System Expenses

In accordance with section 11 of O. Reg. 170/03, this Report must describe any major expenses incurred during the reporting period to install, repair or replace required equipment. This Report also summarizes those expenses related to strengthening equipment inventories and to maintenance activities undertaken by subcontracted service providers. Major expenses incurred in 2023 are summarized in Table 3.

**Table 3:** Major expenses incurred in 2023

Category	Description	Expense
Repair	Membrane cassette replacement (24 for Train #1)	\$92,9551
Replace	Raw water pumping station PLC replacement	\$98,255
Inspection	Intake and reservoir inspection	\$6,000 <sup>1</sup>
Replace	Main plant PLC replacement	\$121,947
Maintenance	Natural gas boiler inspection and service	\$2,436
Maintenance	Fire extinguisher inspection	\$215
Maintenance	Flow meter calibration verifications	\$3,226
Replace	Digital Chart recorders	\$47,346
Replace	Air compressor at water plant	\$6,469
Maintenance	Backflow prevention device inspection and testing	\$1,977
Maintenance	Digital Engineering parts and service for 2023	\$24,577

1 – These values are estimates as the final invoice value has not been received. Ordered membranes in 2023 but won't be received until late 2024.



## 3 Water Quality

### 3.1 Overview

Water quality monitoring is conducted to determine and confirm that drinking water delivered to the consumer is safe and aesthetically pleasing. Monitoring is also required to assess compliance with legislation and to control the treatment process. In accordance with section 11 of O. Reg. 170/03, this Report must summarize the results of water quality tests required by regulations, approvals, and orders. The following sections summarize the results of all required water quality tests and compare the results to applicable water quality standards.

### 3.2 Microbiological Parameters

Microbiological sampling and testing requirements are provided in Schedule 10 (Microbiological sampling and testing) of O. Reg. 170/03. In 2023, a total of 200 routine source, treated and distribution water samples were collected for microbiological analysis by an accredited laboratory. Samples were collected on a weekly basis and included tests for E. coli (EC), total coliforms (TC) and heterotrophic plate counts (HPC). Results from microbiological analyses are summarized in Table 4.

Sample Type	# of Samples	EC Results Range <sup>1</sup> (MPN/100mL)	TC Results Range <sup>1</sup> (MPN/100mL)	# of HPC Samples	HPC Results Range (CFU/mL)
Raw Water	52	0	0 to 461	---	---
Treated Water	53	absent	absent	53	0 – 210
Treated Water	1	absent	present <sup>2</sup>	---	---
Distribution	134	absent	present <sup>2</sup>	65	0 to 35

1. The Ontario Drinking Water Quality Standard for E. Coli and Total Coliforms in a treated or distribution sample is 'not detectable'. The presence of either parameter in a treated or distribution sample is considered an exceedance.
2. Total coliforms were detected in one treated water sample. The exceedance was reported. Immediate resampling indicated no coliforms present in treated water.
3. Total coliforms were detected in one treated water sample and one distribution sample.

### 3.3 Operational Parameters

In accordance with Schedule 7 (Operational checks) of O. Reg. 170/03, regulated operational parameters that must be monitored include raw water turbidity, filtrate turbidity and the free chlorine residuals associated with primary and secondary disinfection. Table 5 summarizes water quality results for regulated and selected unregulated operational parameters. In accordance with Schedule 6 (Operational checks, sampling and testing – general) of O. Reg. 170/03, certain operational parameters are continuously monitored. No Adverse Water Quality Incidents (AWQIs) pertaining to operational parameters occurred during the reporting period.

**Table 5:** Results summary for operational parameters

Parameter (Sample Type)	Number of Samples	Units	Min. Result	Max. Result	Annual Avg.	Adverse Result
Turbidity (Raw Water)	133	NTU	0.04	6.06	1.10	n/a
Turbidity (Filter 1)	Continuous	NTU	0.011	0.407	0.065	>1.0
Turbidity (Filter 2)	Continuous	NTU	0.015	0.460	0.059	>1.0
Turbidity (Filter 3)	Continuous	NTU	0.013	0.998	0.076	>1.0
Turbidity (Filter 4)	Continuous	NTU	0.016	0.999	0.086	>1.0
Turbidity (Treated)	365	NTU	0.032	0.950	0.096	n/a
pH (Treated)	Continuous	---	5.37	8.85	7.30	n/a
Aluminum Residual (Treated)	133	mg/L	0.000	0.145	0.036	n/a
FCR <sup>1</sup> (Treated) <sup>2</sup>	Continuous	mg/L	0.61	3.11	1.53	n/a
FCR <sup>1</sup> (Distribution) <sup>3</sup>	500+	mg/L	0.24	1.97	n/a	<0.05

1. FCR = free chlorine residual.
2. There is no adverse result corresponding to the treated water free chlorine residual. However, an observation of adverse water quality occurs if the residual is low enough such that water has not been disinfected in accordance with the system's *Municipal Drinking Water Licence*.
3. Free chlorine residuals are tested at various locations in the distribution system. The free chlorine residual varies with water age and distribution system location, and the values in the table pertain to the minimum and maximum results collected across all locations in the calendar year.

### 3.4 Membrane Ultrafiltration Performance

In accordance with the system's *Municipal Drinking Water Licence*, membrane filters must meet certain performance criteria in order to claim removal credits for *Cryptosporidium* oocysts and *Giardia* cysts. In addition to continuously monitoring filtrate turbidity, membrane filter integrity must be monitored and turbidity must be less than or equal to 0.1 NTU in at least 99% of the measurements each month. Table 6 summarizes filtrate turbidity compliance against the <0.1 NTU/99% performance criterion. Minimum and maximum values in the table correspond to the proportion of time that filtered water turbidity was less than or equal to 0.1 NTU in a calendar month in 2023. No AWQIs pertaining to membrane filtration performance occurred during the reporting period.

**Table 6:** Filtration performance summary

Filter	Minimum Result	Maximum Result	Adverse Result
Filter 1	99.92%	100%	<99%
Filter 2	99.96%	100%	<99%
Filter 3	99.91%	100%	<99%
Filter 4	99.93%	100%	<99%

### 3.5 Nitrate & Nitrite

Treated water is tested for nitrate and nitrite concentrations on a quarterly basis in accordance with Schedule 13 (Chemical sampling and testing) of O. Reg. 170/03. Nitrate and nitrite results are provided in Table 7. All results were below the Ontario Drinking Water Quality Standards.

**Table 7:** Nitrate and nitrite results

Sample Date	Nitrate		Nitrite	
	Result (mg/L)	ODWQS (mg/L)	Result (mg/L)	ODWQS (mg/L)
13-Feb-2023	0.071	10	<0.010	1
15-May-2023	0.073		<0.010	
15-Aug-2023	<0.020		<0.010	
14-Nov-2023	<0.020		<0.010	

### 3.6 Trihalomethanes & Haloacetic Acids

Trihalomethanes (THMs) and haloacetic acids (HAAs) are sampled on a quarterly basis from a distribution system location that is likely to have an elevated potential for their formation, in accordance with Schedule 13 (Chemical sampling and testing) of O. Reg. 170/03. Total THM and HAA results are provided in Table 8 and Table 9, respectively. Compliance with the provincial standards for trihalomethane and haloacetic acid concentrations is determined by calculating a running annual average (RAA). The 2023 running annual averages for THMs and HAAs were below the respective Ontario Drinking Water Quality Standards.

Sample Date	Result (µg/L)
13-Feb-2023	38.1
15-May-2023	58.7
15-Aug-2023	84.9
14-Nov-2023	59.8
Regulatory Average (RAA)	60.4
ODWQS (RAA)	100

Sample Date	Result (µg/L)
13-Feb-2023	44.8
15-May-2023	78.6
15-Aug-2023	85.9
14-Nov-2023	62.4
Regulatory Average (RAA)	67.9
ODWQS (RAA)	80

### 3.7 Lead Sampling

Based upon favourable sampling results in the community, the Ignace DWS previously qualified for reduced lead sampling and ultimately became exempt from sampling at plumbing locations in accordance with Schedule 15.1 (Lead) of O. Reg. 170/03. Four (4) distribution system samples must now be collected every year and analyzed for pH and alkalinity. Additionally, these distribution system samples must be analyzed for lead in every third 12-month period after the plumbing sample exemption was activated. Table 10 summarizes the recent historical results of community lead sampling and related required tests.

**Table 10:** Distribution pH, alkalinity and lead sampling results

Sample Date	Hydrant ID Number	Lead (µg/L)	pH	Alkalinity (mg/L)
13-Oct-2020	103	lead analyses not required <sup>1</sup>	7.47	20
13-Oct-2020	61		7.45	20
15-Apr-2021	11		7.42	20
15-Apr-2021	123		7.53	20
15-Sep-2021	133		7.31	20
15-Sep-2021	81		7.24	20
4-Apr-2022	29		7.42	25
4-Apr-2022	63		7.48	25
20-Sep-2022	10	<1.0	7.35	20
20-Sep-2022	84	<1.0	7.44	20
6-Feb-2023	89	<1.0	7.38	35
6-Feb-2023	136	<1.0	7.56	25
26-Sep-2023	1	lead analyses not required <sup>1</sup>	6.90	12
11-Oct-2023	120		6.96	7.5

1. Distribution samples were collected and tested for lead during Summer 2022 and Winter 2022-23 sampling period and will begin again in Winter 2024-25 sampling period.

### 3.8 Inorganic & Organic Parameters

Most inorganic parameters are sampled on an annual basis in treated water in accordance with Schedules 13 (Chemical sampling and testing) and 23 (Inorganic parameters) of O. Reg. 170/03. The inorganic parameters sodium and fluoride are sampled every five (5) years in treated water in accordance with Schedules 13 and 23 of O. Reg. 170/03. The most recent inorganic parameter sampling results are provided in Table 11. All results were below the associated Ontario Drinking Water Quality Standards.

**Table 11:** Inorganic parameter sampling results

Parameter	Most Recent Sample Date	Units	Result	ODWQS
Antimony	15-Aug-2023	µg/L	<0.60	6
Arsenic	15-Aug-2023	µg/L	<1.0	10
Barium	15-Aug-2023	µg/L	<10	1000
Boron	15-Aug-2023	µg/L	<50	5000
Cadmium	15-Aug-2023	µg/L	<0.10	5
Chromium	15-Aug-2023	µg/L	<1.0	50
Fluoride	10-Feb-2020	mg/L	<0.020	1.5
Mercury	15-Aug-2023	µg/L	<0.10	1
Selenium	15-Aug-2023	µg/L	<1.0	50
Sodium	10-Feb-2020	mg/L	6.67	20
Uranium	15-Aug-2023	µg/L	<2.0	20



Organic parameters are sampled on an annual basis in treated water in accordance with Schedules 13 (Chemical sampling and testing) and 24 (Organic parameters) of O. Reg. 170/03. These parameters include various organic acids, pesticides, herbicides, PCBs, volatile organics and other chemicals. Sampling for all organic parameters was conducted on August 15, 2023, and results are provided in Table 12. All results were below the associated Ontario Drinking Water Quality Standards.

**Table 12: Organic parameter sampling results**

Parameter	Result (µg/L)	ODWQS (µg/L)	Parameter	Result (µg/L)	ODWQS (µg/L)
Alachlor	<0.10	5	Diuron	<1.0	150
Atrazine & Metabolites	<0.20	5	Glyphosate	<0.2	280
Azinphos-methyl	<0.10	20	Malathion	<0.10	190
Benzene	<0.50	1	MCPA	<0.20	100
Benzo(a)pyrene	<0.005	0.01	Metolachlor	<0.10	50
Bromoxynil	<0.20	5	Metribuzin	<0.10	80
Carbaryl	<0.20	90	Monochlorobenzene	<0.50	80
Carbofuran	<0.20	90	Paraquat	<1.0	10
Carbon Tetrachloride	<0.20	2	Pentachlorophenol	<0.50	60
Chlorpyrifos	<0.10	90	Phorate	<0.10	2
Diazinon	<0.10	20	Picloram	<0.20	190
Dicamba	<0.20	120	Total PCBs	<0.030	3
1,2-Dichlorobenzene	<0.50	200	Prometryne	<0.10	1
1,4-Dichlorobenzene	<0.50	5	Simazine	<0.10	10
1,2-Dichloroethane	<0.50	5	Terbufos	<0.10	1
1,1-Dichloroethylene	<0.50	14	Tetrachloroethylene	<0.50	10
Dichloromethane	<1.0	50	2,3,4,6-Tetrachlorophenol	<0.50	100
2,4-Dichlorophenol	<0.30	900	Triallate	<0.10	230
2,4-D	<0.05	100	Trichloroethylene	<0.50	5
Diclofop-methyl	<0.10	9	2,4,6-Trichlorophenol	<0.50	5
Dimethoate	<0.10	20	Trifluralin	<0.10	45
Diquat	<1.0	70	Vinyl Chloride	<0.50	1

### 3.9 Harmful Algae Bloom Monitoring

Starting in 2022 a requirement was added to the Municipal Drinking Water License to monitor for Harmful Algal Blooms. If a bloom is identified or suspected, then microcystin testing must be undertaken. According to the HAB plan sampling must continue for three (3) weeks of no microcystin identified. There was one (1) suspected bloom in 2022. Testing results shown in Table 15 did not identify any microcystin. There were zero (0) suspected blooms in 2023.

Table 15: Microcystin results

Sample Date	20-Sep-2022		3-Oct-2022		11-Oct-2022		17-Oct-2022	
Microcystin (µg/L)	Raw	Treated	Raw	Treated	Raw	Treated	Raw	Treated
	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1



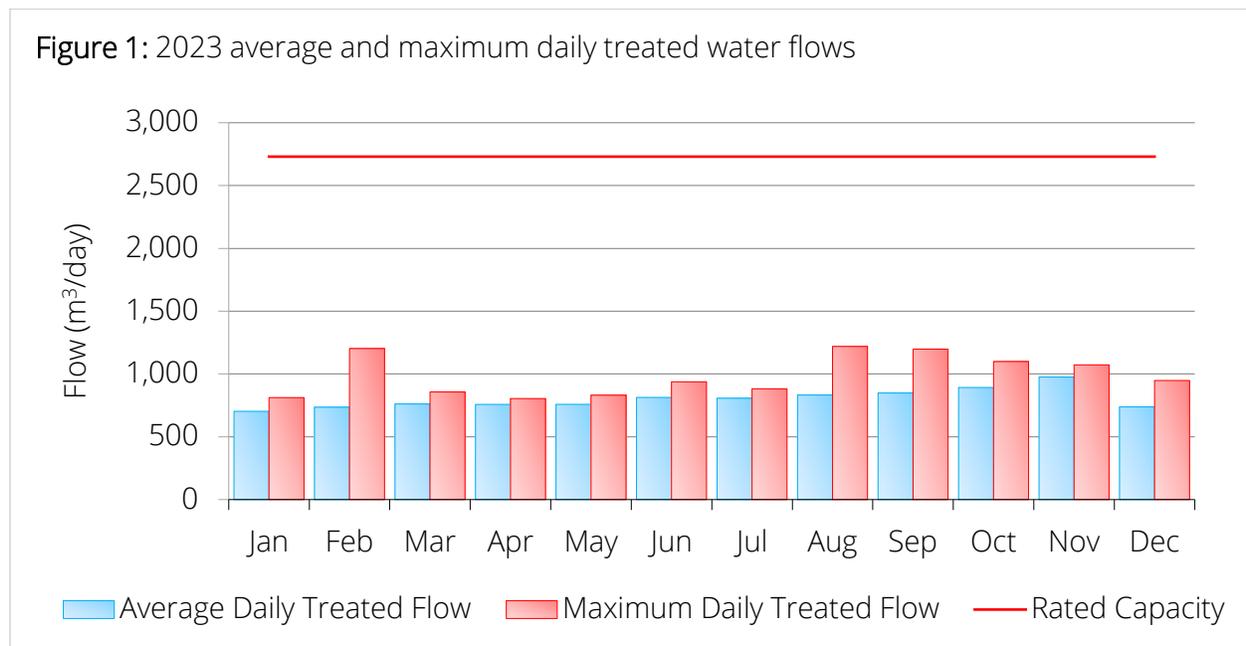
## 4 Water Production

### 4.1 Overview

In accordance with Schedule 22 (Summary Reports for Municipalities) of O. Reg. 170/03, this Annual Report must include certain information for the purpose of enabling the Owner to assess the capability of the system to meet existing and planned uses. Specifically, this Report must include a summary of the quantities and flow rates of the water supplied during the reporting period, including monthly average and maximum daily flows. The Report must also include a comparison of flow monitoring results to the rated capacity and flow rates approved in the system's *Municipal Drinking Water Licence*.

### 4.2 Flow Monitoring Results

Throughout the reporting period the Ignace Drinking Water System operated within its rated capacity and supplied a total of 337,994m<sup>3</sup> of treated water. On an average day in 2023, 802m<sup>3</sup> of treated water was supplied to the community, which represents 29% of the rated capacity of the Ignace WTP (2,730 m<sup>3</sup>/day). The maximum daily flow in 2023 was 1,219 m<sup>3</sup>/day, which represents 45% of the rated capacity of the facility. Flow monitoring results are summarized in Figure 1 and Table 13.



**Table 13: 2023 water production summary**

Month	Total Volumes (m <sup>3</sup> )		Daily Flows (m <sup>3</sup> /day)		Capacity Assessments <sup>1</sup>	
	Raw Water	Treated Water	Average - Treated	Maximum - Treated	Average - Treated	Maximum - Treated
Jan	25,630	21,784	703	812	26%	30%
Feb	24,260	20,588	735	1202	27%	44%
Mar	26,699	23,593	761	857	28%	31%
Apr	25,827	22,729	758	804	28%	29%
May	26,811	23,504	758	831	28%	30%
Jun	28,101	24,401	813	938	30%	34%
Jul	28,480	25,007	807	882	30%	32%
Aug	29,563	25,801	832	1219	30%	45%
Sep	29,466	25,454	848	1198	31%	44%
Oct	31,864	27,665	892	1099	33%	40%
Nov	34,078	29,265	975	1073	36%	39%
Dec	27,215	22,877	738	948	27%	35%
Total	337,994	292,667	---	---	---	---
Average	28,166	24,389	802	---	29%	---

1. Capacity assessments compare the average and maximum daily treated water flows to the rated capacity of the treatment facility.

### 4.3 Recent Historical Flows

Table 14 summarizes recent historical flow monitoring results for the Ignace Drinking Water System. There were increases in the volumes of source water withdrawn and treated water supplied in 2023 when compared to 2022, but average daily treated water flows in 2023 were comparable to previous years.

**Table 14:** Recent historical water production summary

Year	Total Volumes (m <sup>3</sup> )		Daily Flows (m <sup>3</sup> /day)		Annual % Change	
	Raw Water	Treated Water	Average – Treated Water	Maximum – Treated Water	Raw Water	Treated Water
2010	351,186	316,347	867	1,516	---	---
2011	363,698	313,179	858	1,322	+3.6%	-1.0%
2012	422,058	363,261	993	1,587	+16.0%	+16.0%
2013	434,332	350,617	961	1,441	+2.9%	-3.5%
2014	528,264	465,760	1,276	2,205	+21.6%	+32.8%
2015	548,154	475,844	1,304	2,344	+3.8%	+2.2%
2016	433,726	380,345	1,039	1,559	-20.9%	-20.1%
2017	366,981	312,558	856	1,371	-15.4%	-17.8%
2018	374,025	316,758	868	1,478	+1.9%	+1.3%
2019	350,787	304,161	833	1,489	-6.2%	-4.0%
2020	322,124	272,104	743	1,037	-8.2%	-10.5%
2021	297,106	262,229	718	1,112	-7.8%	-3.6%
2022	281,169	245,718	673	1,144	-5.4%	-6.3%
2023	337,994	292,667	802	1,219	20.2%	19.1%



## 5 Compliance

### 5.1 Overview

Northern Waterworks Inc. and the Township of Ignace employ an operational strategy that is committed to achieving the following goals:

- Providing a safe and reliable supply of drinking water to the community of Ignace;
- Meeting or exceeding all applicable legislative and regulatory requirements; and,
- Maintaining and continually improving the operation and maintenance of the system.

The following sections will summarize incidents of adverse water quality and regulatory noncompliance that occurred during the reporting period. NWI is committed to employing timely and effective corrective actions to prevent the recurrence of identified incidents of noncompliance and adverse water quality.

### 5.2 Regulatory Compliance

In accordance with Schedule 22 (Summary Reports for Municipalities) of O. Reg. 170/03, this Report must list any 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 (i.e., an incident of regulatory noncompliance). Additionally, this Report must specify the duration of the failure and the measures that were taken to correct the failure.

The most recent inspection by Ontario's Ministry of the Environment, Conservation and Parks was initiated on May 15, 2023. The final inspection rating was 95.34% and two (2) incidents of regulatory noncompliance were identified. Information concerning the duration of failures and the measures taken to address those failures is provided below.

#### • Noncompliance item no. 1

The secondary disinfectant residual was not measured as required for the large municipal residential distribution system. A review of the operational spreadsheets showed that daily chlorine residual grab samples are typically taken daily in the distribution system. Chlorine residuals are also collected during routine bacteriological sampling in the distribution system. However, on February 11, 2023, a distribution chlorine residual was not collected because of operator miscommunication. In the early morning hours of February 12, immediately upon

discovering the sample had been missed, a distribution chlorine residual sample was collected and tested.

- **Noncompliance item no. 2**

O. Reg 128/04, section 26. (2) describes the duties that an OIC must perform. On multiple days throughout the inspection review period, more than one OIC was signed into the logbook and at least one of the OIC's signed in that day was not performing the functions of an OIC. This one is our Inspector taking issue with the fact that while they were signed into the logbook as secondary OIC, there are no records/logbook entries to demonstrate the operating decisions/functions (OIC duties from O. Reg 128/04, section 26) performed by the secondary OIC.

By June 30, 2023, all NWI operators who work in the Ignace WTP reviewed NWI's Personnel Coverage Policy, which covers secondary OIC requirements and logbook entries, and confirmation was provided to the water inspector that each operator has reviewed the document.

No further actions are required at this time and compliance with respect to these issues of non-compliance will be reassessed during the next annual inspection.

### **5.3 Adverse Water Quality Incidents**

In accordance with section 11 (Annual Reports) of O. Reg. 170/03, this Report must summarize any reports made to the Ministry under subsection 18(1) (Duty to report adverse test results) of *the Act* or section 16-4 (Duty to report other observations) of Schedule 16 of O. Reg. 170/03. Additionally, this Report must describe any corrective actions taken under Schedule 17 of O. Reg. 170/03 during the period covered by the report. The adverse water quality incident that occurred during the reporting period is summarized below.

- **AWQI No. 162732 (July 22, 2023)**

An electrical storm toggled off all four highlift distribution pumps at 9:18. The standby pressure tanks maintained system wide pressure above 140kPa until 9:21:59. Highlift function was restored at 9:32:23, distribution pressure above 140kPA (20PSI) was restored at 9:32:34. After reviewing pressure trends with the NWHU representative via telephone, the AWQI did not require a Boil Water Advisory. Distribution pressure was

below 140kPa (20PSI) for less than 15 minutes. Distribution residual was maintained. Flushing was completed at Rand St. and the PW Garage by 15:05PM 22 July 2023. No further actions were required.

- **AWQI No. 163019 (August 14-18, 2023)**

During attempted repairs to a fire hydrant, the thrust block broke during excavation resulting in a blown gasket and high flows. All four high-lift pumps engaged however the high-capacity pump was not operated manually. The high lift pumps overheated and triggered a program fault ultimately resulting in a sustained distribution pressure under 140kPa. The Hydrant branch was disinfected and capped until the hydrant could be replaced.

Corrective actions included completing the repair, restoring pressure, issuing a town wide and localized Boil Water Advisory, flushing, and collecting drinking-water samples. The initial sample tested absent for E. coli and total coliform parameters and the town-wide Boil Water Advisory was subsequently rescinded on August 17, 2022. For two (2) affected customers whose water service was not restored until several hours after the rest of the town, the localized BWA was rescinded for them on August 19, 2023 following additional samples that tested absent for E. coli and total coliform parameters.

- **AWQI No. 163829 (October 16, 2023)**

Total coliforms were detected in one distribution water sample. The exceedance was reported. Immediate resampling at the adverse test location, as well as upstream and downstream locations indicated no coliforms present in distribution water.

- **AWQI No. 163881 (October 23, 2023)**

Total coliforms were detected in one treated water sample. The exceedance was reported. Contacted lab to confirm validity of the sample result and received indication that sample bottles were mislabeled, thus invalidating adverse result. Immediate precautionary resampling indicated no coliforms present in treated water.