Annual Report

Hudson Drinking Water System

2024

Prepared by **Northern Waterworks Inc.**
on behalf of the **Municipality of Sioux Lookout**

NORTHERN WATERWORKS INC.

SIOUX LOOKOUT
Hub of the North

Contents

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, 2024).

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 Municipal Office in Sioux Lookout, at the Lost Lake Seniors Drop-In Centre in Hudson and on the Municipality'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.

2 System Overview & Expenses

2.1 System Description

The Hudson 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.

Table 1: System information	
Drinking-Water System Name:	Hudson Drinking Water System
DWS Number:	220005385
DWS Category:	Large Municipal Residential
DWS Owner:	The Corporation of the Municipality of Sioux Lookout
DWS Operating Authority:	Northern Waterworks Inc.
DWS Components:	• Raw water pumping station • Hudson Water Treatment Plant • Hudson water distribution system
Treatment Processes:	• Chemical coagulation, flocculation and clarification • Dual media (rapid sand) filtration • Ultraviolet disinfection (primary disinfection) • Free chlorine disinfection (secondary disinfection) • pH adjustment

Water production begins as raw water flows by gravity from the intake structure located in Lost Lake to an underground reservoir located at the raw water pumping station. Pumps then transfer water from the reservoir and through a short transmission line to the treatment units at the water treatment plant. At the Hudson Water Treatment Plant, polyaluminum chloride coagulant is injected and rapidly mixed into the raw water immediately upstream from the package treatment units. Coagulated water enters two treatment units each including a three-chambered flocculation basin, a clarifier and filter.

Water is gently mixed as it passes through the flocculation basins to promote floc formation, and the optional application of polymer (flocculant) at this stage of treatment is intended to

form larger floc aggregates. Process water then enters the clarifier where its velocity is reduced to allow for the separation and settling of floc. Supernatant overflows into the clarifier effluent launders and is directed to the filter; settled floc is automatically removed from the clarifier.

Impurities that were not captured and settled as floc in the clarifier are removed by passing water through a dual media filter composed of anthracite and silica sand on a layer of support gravel. The filters are periodically cleaned by using an air scour to agitate the entire media bed and reversing the flow of water through the filter using dedicated pumps. Sodium metabisulfite may be used as required to dechlorinate the treated water that is used clean the filters.

Filtered water then passes through one of two available UV reactors for disinfection as it is directed to the treated water storage reservoir. Prior to entering the reservoir, chlorine and sodium hydroxide are applied to the filtrate for secondary disinfection and pH adjustment purposes, respectively. Disinfected water is stored in the reservoir and is transferred to the Hudson water distribution system using pumps.

The Hudson water distribution system was installed exclusively in 1990 and includes approximately 6 km of water mains, 46 valves and 7 hydrants. Watermain materials consist of HDPE and PVC ranging in size from 50 to 150 mm in diameter. Secondary disinfection requirements are achieved by maintaining a free chlorine residual at all locations.

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.

Table 2: Water treatment chemicals used in 2024

Treatment Chemical	Application
polyaluminum chloride	coagulant
sodium hydroxide	pH/alkalinity adjustment
chlorine gas	secondary disinfectant

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 2024 are summarized in Table 3.

Table 3: Major expenses incurred in 2024

Category	Description	Expense
Inventory	Spare Parts for UV system	$2,818
Inventory	Transfer Pump	$1,538
Replacement	Lab Sink faucets	$2,000
Maintenance	Clearwell cleaning	$12,995
Replacement	Chemical Feed system parts	$2,606
Replacement	Low Lift PLC cards and wiring	$12,000
Replacement	Replaced VFD pump for pump #1	$17,000

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 2024, a total of 288 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. All results were below the associated Ontario Drinking Water Quality Standards.

Table 4: Results summary for microbiological parameters

Sample Type	# of Samples	EC Results Range[1] (MPN/ 100mL)	TC Results Range[1] (MPN/ 100mL)	# of HPC Samples	HPC[2] Results Range (CFU/mL)
Raw Water	52	0 to 30	0 to 2420	---	---
Treated Water	60	absent	absent	51	0 to 193
Distribution	176	absent	absent	102	0 to 20

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. HPC results are not an indicator of water safety and, as such, are not used as an indicator of potential adverse human health effects. HPC measurement is a useful operational tool for monitoring general bacteriological water quality throughout the treatment process and in the distribution system.

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 residual associated with secondary disinfection. In accordance with the system's *Municipal Drinking Water Licence*, additional parameters that must be monitored include treated water pH and alkalinity. 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)	No. of Samples	Units	Min. Result	Max. Result	Annual Avg.	Adverse Result[3]
Turbidity (Raw Water)	53	NTU	0.312	1.84	0.956	n/a
Turbidity (Filter 1)	Continuous	NTU	0.009	0.172	0.018	>1.0
Turbidity (Filter 2)	Continuous	NTU	0.010	0.074	0.019	>1.0
Turbidity (Treated)	366	NTU	0.050	0.940	0.125	n/a
pH (Treated)	Continuous	---	7.50	8.10	7.70	n/a
Alkalinity (Treated)	159	mg/L	40	55	46	n/a
Aluminum Residual (Treated)	52	mg/L	0.001	0.122	0.054	n/a
FCR[2] (Treated)	Continuous	mg/L	0.42	1.88	1.18	n/a
FCR[2] (Distribution)[3]	500+	mg/L	0.34	1.71	n/a	<0.05

1. FCR = free chlorine residual.
2. 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. n/a indicates no existing regulatory limit. Monitoring is for operational purposes.

3.4 Conventional Filtration & UV Disinfection Performance

In accordance with the system's *Municipal Drinking Water Licence*, the conventional filtration process must meet certain performance criteria in order to claim removal credits for Cryptosporidium oocysts and Giardia cysts. In addition to continuously monitoring filtrate turbidity and other requirements, filtrate turbidity must be less than or equal to 0.3 NTU in at least 95% of the measurements each month. Table 6 summarizes filtrate turbidity compliance against the <0.3 NTU/95% 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 0.3 NTU in a calendar month in 2024. No Adverse Water Quality Incidents (AWQIs) pertaining to conventional filtration performance occurred during the reporting period.

Table 6: Filtration performance summary

Filter	Minimum Result	Maximum Result	Adverse Result
Filter 1	100%	100%	<95%
Filter 2	100%	100%	<95%

To ensure primary disinfection, the UV reactors at the facility must operate within their validated operating conditions to achieve a minimum continuous pass-through UV dose of 40 mj/cm^2. The dose is a function of the flow through the reactors, the applied UV intensity and the UV transmittance (purity) of the filtrate. The reactors are considered to be operating "off-specification" any time when conditions are below a minimum UV intensity, below a minimum UV transmittance or above a maximum flow rate for more than 2 minutes.

Table 7 summarizes UV equipment performance against the validated operating conditions. An off-specification event is classified as an AWQI if UV equipment operates outside of the validated range for a continuous period of 10 minutes. There were zero (0) AWQI with respect to the UV system in 2024.

Table 7: UV disinfection performance summary

Parameter	No. of Samples	Units	Min. Result	Max. Result	Annual Avg.	Adverse Result
Flow (Combined Filtrate)	Continuous	L/s	n/a	6.72	4.92	>9.3
UV Intensity (Reactor 1)	Continuous	W/m^2	0.0[1]	n/a	73.0	<50.6
UV Intensity (Reactor 2)	Continuous	W/m^2	0.0[1]	n/a	80.5	<50.6
UV Transmittance (Filter 1)	53	%/1cm	88.9	93.9	91.1	<85.1
UV Transmittance (Filter 2)	53	%/1cm	89.4	93.3	91.1	<85.1
1 – Occurrence was less than 2 minutes						

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 8. All results were below the Ontario Drinking Water Quality Standards.

Table 8: Nitrate and nitrite results

Sample Date	Nitrate		Nitrite	
	Result	ODWQS	Result	ODWQS
13-Feb-2024	0.041	10	<0.010	1
14-May-2024	<0.020		<0.010	
13-Aug-2024	0.030		<0.010	
19-Nov-2024	<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 9 and Table 10, respectively. Compliance with the provincial standards for trihalomethane and haloacetic acid concentrations is determined by calculating a running annual average (RAA). The 2024 running annual averages for THMs and HAAs were below the respective Ontario Drinking Water Quality Standards.

Table 9: Total THM results

Sample Date	Result (µg/L)	Quarterly Average (µg/L)
13-Feb-24	53.8	53.8
Q1 Regulatory Average (RAA)		68.7
14-May-24	45.9	45.9
Q2 Regulatory Average (RAA)		67.0
13-Aug-24	102	102
Q3 Regulatory Average (RAA)		66.0
19-Nov-24	54.1	54.1
Q4 Regulatory Average (RAA)		64.0
ODWQS Limit (RAA)		100

Table 10: Total HAA results

Sample Date	Result (µg/L)	Quarterly Average (µg/L)
13-Feb-24	42.6	53.9
Q1 Regulatory Average (RAA)		53.9
14-May-24	38.4	38.4
Q2 Regulatory Average (RAA)		51.3
13-Aug-24	62.4	62.4
Q3 Regulatory Average (RAA)		49.6
20-Nov-24	36.9	36.9
Q4 Regulatory Average (RAA)		45.1
ODWQS Limit (RAA)		80

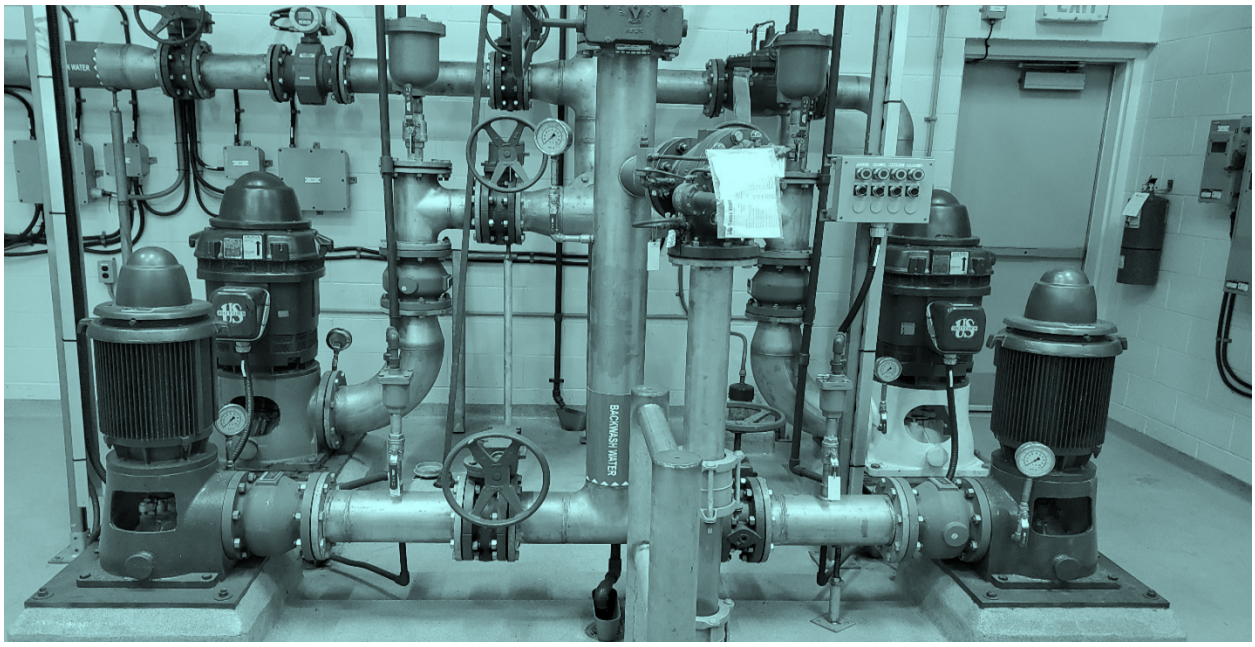
3.7 Environmental Discharge Sampling

The *Municipal Drinking Water Licence* for the Hudson Drinking Water System requires sampling associated with discharges to the natural environment. Specifically, samples must be collected from settling tank effluent on a quarterly basis and tested for the parameter total suspended solids (TSS). This effluent is discharged to a disbursement field which has been designed for the management of residues produced during the normal operation of the treatment facility. Environmental discharge sampling results are provided in Table 11.

Table 11: Environmental discharge results

Sample Date	14-Feb-2024	21-May-2024	13-Aug-2024	14-Nov-2024
TSS Result (mg/L)	196	3.3	4.5	5.8

Backwashes occur more frequently in the winter months due to the use of bleeders and increased or more frequent flows cause more solids to enter the disbursement field. The Operating Authority recommends the municipality undertake an engineering review of the disbursement field to determine options for improved handling of settling tank effluent.



3.8 Lead Sampling

In accordance with Schedule 15.1 (Lead) of O. Reg. 170/03, a *Corrosion Control Plan* for the Hudson DWS was required to be developed in 2011 following unfavourable results associated with the community lead sampling program. The selected corrosion control measure involves maintaining treated water pH at a value of 7.8 +/- 0.2 units using a sodium hydroxide chemical feed system. Corrosion control has been effective, and data suggest that reductions in both the average and 90th percentile lead concentrations are between 80% to 85%. The ODWQS sample exceedance rate has also been reduced from 16.4% to 2.4%.

The system now adheres to the lead monitoring program outlined in its *Municipal Drinking Water Licence*, which requires the collection of distribution and plumbing samples on an annual basis. Table 12 summarizes the results of community lead sampling conducted in 2024. All distribution and plumbing samples were collected September 27, 2024, and all results were below the Ontario Drinking Water Quality Standard for lead in drinking water.

Table 12: Lead sampling results summary

Sample	No. of	No. of	Min.	Max.	ODWQS	No. of	No. of
Treated	1	2	<1.0	<1.0	10	0	0
Distribution	2	2	<1.0			0	0
Plumbing[1]	5	10	<1.0	6.5		0	0

1. In accordance with the protocol outlined in Schedule 15.1 of O. Reg. 170/03, two samples are collected and analyzed for lead at each sample point for plumbing samples.

3.9 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 13. All results were below the associated Ontario Drinking Water Quality Standards.

Table 13: Inorganic parameter sampling results				
Parameter	Most Recent Sample Date	Units	Result	ODWQS
Antimony	13-Aug-2024	µg/L	<0.60	6
Arsenic	13-Aug-2024	µg/L	<1.0	10
Barium	13-Aug-2024	µg/L	<10	1000
Boron	13-Aug-2024	µg/L	<50	5000
Cadmium	13-Aug-2024	µg/L	<0.10	5
Chromium	13-Aug-2024	µg/L	<1.0	50
Fluoride	25-Feb-2020	mg/L	<0.020	1.5
Mercury	13-Aug-2024	µg/L	<0.100	1
Selenium	13-Aug-2024	µg/L	<1.0	50
Sodium	25-Feb-2020	mg/L	9.34	20
Uranium	13-Aug-2024	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 except total PCBs was conducted on August 13, 2024. Sampling results are provided in Table 14; all results were below the associated Ontario Drinking Water Quality Standards.

Table 14: Organic parameter sampling results

Parameter	Result (µg/L)	ODWQS (µg/L)	Parameter	Result (µg/L)	ODWQS (µg/L)
Alachlor	<0.050	5	Diuron	<0.050	150
Atrazine & Metabolites	<0.14	5	Glyphosate	<0.20	280
Azinphos-methyl	<0.100	20	Malathion	<0.0250	190
Benzene	<0.50	1	MCPA	<0.00005	100
Benzo(a)pyrene	<0.005	0.01	Metolachlor	<0.0250	50
Bromoxynil	<0.250	5	Metribuzin	<0.100	80
Carbaryl	<0.050	90	Monochlorobenzene	<0.50	80
Carbofuran	<0.0250	90	Paraquat	<1.0	10
Carbon Tetrachloride	<0.20	2	Pentachlorophenol	<0.50	60
Chlorpyrifos	<0.10	90	Phorate	<0.250	2
Diazinon	<0.0250	20	Picloram	<0.50	190
Dicamba	<0.10	120	Total PCBs	<0.030	3
1,2-Dichlorobenzene	<0.50	200	Prometryne	<0.0250	1
1,4-Dichlorobenzene	<0.50	5	Simazine	<0.100	10
1,2-Dichloroethane	<0.50	5	Terbufos	<0.100	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	<0.20	900	Triallate	<0.100	230
2,4-D	<0.050	100	Trichloroethylene	<0.50	5
Diclofop-methyl	<0.100	9	2,4,6-Trichlorophenol	<0.20	5
Dimethoate	<0.050	20	Trifluralin	<0.10	45
Diquat	<1.0	70	Vinyl Chloride	<0.50	1

3.10 Harmful Algal Bloom Monitoring

Starting in 2022 a requirement was added to the Municipal Drinking Water License to monitor for Harmful Algae 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 were zero (0) reported or suspected blooms during the standard monitoring period in 2024.

There were also no suspected or occurring HABs outside the standard period of June 1 to October 31. Historic sample results have consistently identified no microcystin in raw or treated water when algal blooms are observed. Table 15 provides a summary of suspected or occurring HABs in Hudson since monitoring began.

Table 15: Recent historical algal bloom summary

Year	Suspected	Harmful Algal Blooms
2022	0	0
2023	1	0
2024	0	0

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 Hudson Drinking Water System operated within its rated capacity and supplied a total of 33,191 m^3 of treated water. On an average day in 2024, 88 m^3 of treated water was supplied to the community, which represents 12% of the rated capacity of the Hudson Water Treatment Plant (726 m^3/day). The maximum daily flow in 2024 was 345 m^3/day, which represents 48% of the rated capacity of the treatment facility. Flow monitoring results are summarized in Figure 1 and Table 16. The capacity assessments in the table compare the average and maximum daily flows to the rated capacity of the treatment facility.

Figure 1: 2024 average and maximum daily treated water flows

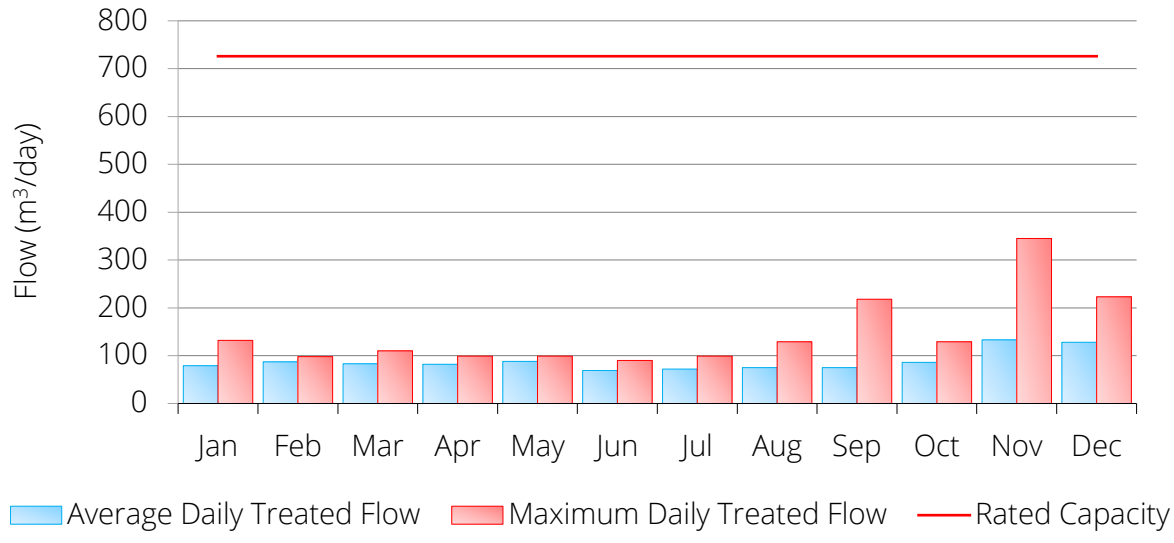


Table 16: 2024 Water production summary

Month	Total Volumes (m^3)		Daily Flows (m^3/day)		Capacity Assessments	
	Raw Water	Treated Water	Average - Treated	Maximum - Treated	Average - Treated	Maximum - Treated
Jan	2,567	2,447	79	132	11%	18%
Feb	2,641	2,524	87	98	12%	13%
Mar	2,709	2,588	83	110	11%	15%
Apr	2,602	2,446	82	99	11%	14%
May	2,902	2,723	88	99	12%	14%
Jun	2,178	2,078	69	90	10%	12%
Jul	2,334	2,227	72	99	10%	14%
Aug	2,445	2,339	75	129	10%	18%
Sep	2,310	2,257	75	218	10%	30%
Oct	2,751	2,672	86	129	12%	18%
Nov	3,636	3,982	133	345	18%	48%
Dec	4,116	3,972	128	223	18%	31%
Total	33,191	32,255	---	---	---	---
Average	2,766	2,688	88	---	12%	20%

4.3 Recent Historical Flows

Table 17 summarizes recent historical flow monitoring results for the Hudson Drinking Water System. There was a slight decrease in the volumes of source water withdrawn and treated water supplied in 2024 when compared to 2023. Total annual volumes of treated water supplied in the near future may be expected to be between 15,000 m^3 and 40,000 m^3, which represents approximately 6% to 15% of the rated capacity of the Hudson Water Treatment Plant.

Table 17: Recent historical water production summary

Year	Total Volumes (m^3)		Daily Flows (m^3/day)		Annual % Change	
	Raw Water	Treated Water	Average – Treated	Maximum – Treated	Raw Water	Treated Water
2011	52,922	45,980	126	238	+23.2%	+22.7%
2012	33,668	25,760	70	236	-36.4%	-44.0%
2013	28,380	20,642	57	136	-15.7%	-19.9%
2014	32,466	24,077	66	202	+14.4%	+16.6%
2015	29,321	22,501	62	157	-9.7%	-6.5%
2016	27,326	21,186	58	119	-6.8%	-5.8%
2017	37,731	32,219	88	208	+38.1%	+52.1%
2018	28,237	26,006	71	196	-25.2%	-19.3%
2019	26,557	24,668	68	183	-6.0%	-5.1%
2020	32,642	30,521	83	168	+22.9%	+23.7%
2021	32,380	31,079	85	319	-0.8%	+1.8%
2022	35,763	33,947	93	179	10.4%	9.2%
2023	34,351	32,775	90	152	-3.9%	-3.5%
2024	33,191	32,255	88	345[1]	-3.4%	-1.6%

1 Max during clearwell cleaning. Max treated excluding clearwell cleaning was 218m^3/day.

5 Compliance

5.1 Overview

Northern Waterworks Inc. and the Municipality of Sioux Lookout 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 Hudson.
- 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 recurrence of all identified incidents of adverse water quality and regulatory noncompliance.

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 April 9, 2024. The final inspection rating was 100%. There were zero (0) incidents of regulatory noncompliance and zero (0) recommended actions identified.

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.

There was one (1) adverse water quality incident that occurred during the reporting period.

- AWQI 166886 (November 14, 2024)

An estimated 3 cubic meters of super chlorinated water was directed to the distribution system. At 12:33 a chlorine residual greater than 5.00mg/L was recorded at the treated point of entry to the distribution system. Operators began flushing at the plant at 12:45, after discovering that the highlift pump in the super chlorinated reservoir had started running and putting water into the distribution system due to a power transfer. The pump was shut down and switched back to the pump in the other reservoir.

Operators started flushing hydrants and testing chlorine residuals across the town. A bleeder was left on a hydrant at the east end of town overnight. In the morning it was taken down and the residual was 0.67mg/L at 07:51 on November 15, 2024.

The Northwestern Health Unit asked that if complaints were received to notify customers to flush their taps for at least 5 minutes before using water. No complaints were received.