

Annual Report

Sioux Lookout Urban Drinking Water System



2025

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



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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, 2025).

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 Town of Sioux Lookout Municipal Office 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 Sioux Lookout Urban 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: | Sioux Lookout Urban Drinking Water System |
| DWS Number: | 220001405 |
| DWS Category: | Large Municipal Residential |
| DWS Owner: | The Corporation of the Municipality of Sioux Lookout |
| DWS Operating Authority: | Northern Waterworks Inc. |
| DWS Components: | <ul style="list-style-type: none"> • Raw water pumping station • Sioux Lookout Water Treatment Plant • Sioux Lookout water distribution system, including the community standpipe and a booster station |
| Treatment Processes: | <ul style="list-style-type: none"> • Chemical coagulation and flocculation • Membrane ultrafiltration • Ultraviolet disinfection (primary disinfection) • Free chlorine disinfection (primary and secondary disinfection) • Fluoridation • pH adjustment |

Water production begins as raw water flows by gravity from the intake structure located in Pelican Lake to an underground reservoir located at the raw water pumping station. Pumps then transfer water from the reservoir and through a transmission line to the flocculation tanks at the water treatment plant. At the treatment facility, aluminum sulphate (coagulant) and sodium hydroxide (pH/alkalinity adjustment) are injected and rapidly mixed into the raw water immediately upstream from the flocculation tanks. In the tanks water is gently mixed to promote floc formation, which will in turn facilitate filtration.

Flocculated water is directed to underground process reservoirs containing submerged membrane ultrafilters. Permeate (filtered water) is drawn through the filters using a vacuum generated by pumps, effectively filtering impurities from the water. Permeate is then passed through one of two available UV reactors for disinfection and is injected with sodium hypochlorite (disinfectant), fluorosilicic acid (fluoridation) and sodium hydroxide (pH/alkalinity adjustment) as it is directed to the chlorine contact chamber and reservoir. The disinfected water is held in the contact chamber and reservoir for a sufficient amount of time to achieve free chlorine primary disinfection.

Treated water is delivered from the reservoir to the water distribution system using pumps located at the treatment facility. The Sioux Lookout water distribution system consists of approximately 34 km of water mains, 250 water main gate valves, 172 hydrants, a community standpipe for regulating pressure and providing extra storage, and a booster station serving the northeast portion of the system. Secondary disinfection requirements in the distribution system 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 2025

| Treatment Chemical | Application |
|-----------------------------------|---|
| aluminum sulphate | coagulant |
| fluorosilicic acid | fluoridation |
| sodium hydroxide | pH/alkalinity adjustment |
| sodium hypochlorite ¹ | disinfectant, membrane filter cleans |
| calcium thiosulphate ¹ | membrane filter cleans (dechlorination) |
| citric acid ¹ | membrane filter cleans (pH adjustment) |
| hydrochloric acid ¹ | membrane filter cleans (pH adjustment) |

1. Cleaning and neutralizing agents used for membrane filter cleans are applied 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 2025 are summarized in Table 3.



Table 3: Major expenses incurred in 2025

| Category | Description | Expense |
|-------------|---|-------------|
| Maintenance | Tank liner repairs | \$15,328.50 |
| Replacement | VFD replacement & rebuilds for blowers | \$61,913.36 |
| Replacement | Replaced Caustic Pumps A&B | \$18,720.31 |
| Replacement | Compressor for Process Air | \$6628.44 |
| Replacement | Transfer Switch | \$15,870 |
| Inventory | Lab Equipment | \$1,436.32 |
| Inventory | Analyzer Probes | \$2,775.43 |
| Inventory | Chemical Pump Repair Kits | \$2,780.42 |
| Replacement | 12 UV Bulbs for UV#1 | \$7,080.42 |
| Maintenance | Remove UV from Delco PLC and add to Sioux | \$25,068.85 |
| Replacement | Main WTP UPS | \$2,722.65 |
| Replacement | Permeate Pump rebuild | \$8,371.03 |
| Maintenance | Reject Pump Rebuild | \$9,739.51 |
| Inventory | Reject flow meter | \$3,152.19 |
| Replacement | Chlorine probe Standpipe | \$2,413.9 |
| Maintenance | Annual Flow meter Verification | \$2,001.73 |
| Maintenance | Annual Backflow device testing | \$1,539.85 |
| Maintenance | Repair Leaking Flanges on Clearwell piping and process skid | \$6,646.00 |
| Inventory | Parts for The UV System | \$3,051.57 |

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 2025, a total of 342 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.

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 | 53 | 0 to 9 | 0 to 1120 | --- | --- |
| Treated Water | 53 | absent | absent | 53 | 0 to 7 |
| Distribution | 236 | absent | absent | 106 | 0 to 23 |

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, treated water fluoride residuals and 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) | No. of Samples | Units | Min. Result | Max. Result | Annual Avg. | Adverse Result ³ |
|--|----------------|-------|-------------|-------------|-------------|-----------------------------|
| Turbidity (Raw Water) | 52 | NTU | 0.265 | 1.49 | 0.705 | n/a |
| Turbidity (Filter 1) | Continuous | NTU | 0.012 | 0.877 | 0.054 | >1.0 |
| Turbidity (Filter 2) | Continuous | NTU | 0.022 | 0.111 | 0.042 | >1.0 |
| Turbidity (Treated) | 366 | NTU | 0.000 | 0.213 | 0.082 | n/a |
| pH (Treated) | Continuous | --- | 7.2 | 8.8 | 7.8 | n/a |
| Alkalinity (Treated) | 54 | mg/L | 20 | 35 | 26 | n/a |
| Aluminum Residual (Treated) | 52 | mg/L | 0.003 | 0.042 | 0.013 | n/a |
| Fluoride Residual (Treated) | Continuous | mg/L | 0.08 | 1.46 | 0.81 | >1.5 |
| FCR ¹ (Treated) | Continuous | mg/L | 2.07 | 2.38 | 2.26 | n/a |
| FCR ¹ (Distribution) ² | 520+ | mg/L | 0.73 | 2.86 | 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 Membrane Filtration & UV Disinfection Performance

In accordance with the *Municipal Drinking Water Licence*, the filtration process must meet certain performance criteria in order to claim removal credits for *Cryptosporidium* oocysts and *Giardia* cysts. Specifically, 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, and minimum and maximum values in the table correspond to the proportion of time that turbidity was less than or equal to 0.1 NTU in a calendar month. No Adverse Water Quality Incidents (AWQIs) pertaining to membrane filtration performance occurred during the reporting period.

| Filter | Minimum Result | Maximum Result | Adverse Result |
|----------|----------------|----------------|----------------|
| Filter 1 | 100% | 100% | <99% |
| Filter 2 | 99.9% | 100% | <99% |

To achieve primary disinfection, the UV reactors at the Sioux Lookout WTP must operate within their validated operating conditions to achieve a minimum continuous pass-through UV dose of 20 mJ/cm² (based on a *Cryptosporidium* bracket reduction equivalent dose). 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 calculated dosage, 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*. No AWQIs pertaining to UV disinfection occurred during the reporting period.

| Parameter | Number of Samples | Units | Min. Result | Max. Result | Annual Avg. | Adverse Result |
|--------------------------------|-------------------|--------------------|-------------------|-------------|-------------|----------------|
| Flow (Raw Water ¹) | Continuous | L/s | n/a | 53.1 | n/a | >65.0 |
| Min UV Dosage (Reactor 1) | Continuous | mJ/cm ² | 3.13 ² | n/a | 29.07 | <20.0 |
| Min UV Dosage (Reactor 2) | Continuous | mJ/cm ² | 0.00 ² | n/a | 35.75 | <20.0 |
| UV Transmittance (Filter 1) | 106 | %/1cm | 85.5 | 89.6 | 88.0 | <82.0 |
| UV Transmittance (Filter 2) | 105 | %/1cm | 83.3 | 89.8 | 88.0 | <82.0 |

1. The UV reactors are operating off-specification if the maximum raw water flow rate exceeds 65.0 L/s.
2. All off-specification events were for a continuous period of less than 3 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.

| Sample Date | Nitrate | | Nitrite | |
|-------------|---------------|--------------|---------------|--------------|
| | Result (mg/L) | ODWQS (mg/L) | Result (mg/L) | ODWQS (mg/L) |
| 18-Feb-2025 | 0.074 | 10 | <0.010 | 1 |
| 14-May-2025 | 0.059 | | <0.010 | |
| 12-Aug-2025 | 0.021 | | <0.010 | |
| 11-Nov-2025 | 0.054 | | <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 2025 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) |
| 18-Feb-25 | 59.6 | 59.6 |
| Q1 Regulatory Average (RAA) | | 89.8 |
| 14-May-25 | 51.4 | 51.4 |
| Q2 Regulatory Average (RAA) | | 85.8 |
| 12-Aug-25 | 140.0 | 140.0 |
| Q3 Regulatory Average (RAA) | | 86.3 |
| 11-Nov-25 | 91.2 | 91.2 |
| Q4 Regulatory Average (RAA) | | 85.6 |
| ODWQS Limit (RAA) | | 100 |

| Table 10: Total HAA results | | |
|-----------------------------|---------------|--------------------------|
| Sample Date | Result (µg/L) | Quarterly Average (µg/L) |
| 18-Feb-25 | 56.9 | 56.9 |
| Q1 Regulatory Average (RAA) | | 69.8 |
| 14-May-25 | 39.7 | 39.7 |
| Q2 Regulatory Average (RAA) | | 66.1 |
| 12-Aug-25 | 104.0 | 104.0 |
| Q3 Regulatory Average (RAA) | | 70.0 |
| 11-Nov-25 | 46.7 | 46.7 |
| Q4 Regulatory Average (RAA) | | 65.8 |
| ODWQS Limit (RAA) | | 80 |

3.7 Lead Sampling

Based upon favourable drinking-water lead sampling results in the community, the Sioux Lookout Urban Drinking Water System previously qualified for reduced lead sampling and is now exempt from sampling at plumbing locations in accordance with Schedule 15.1 (Lead) of O. Reg. 170/03. Distribution 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 (last completed in 2024) after the plumbing sample exemption was activated. Table 11 summarizes the results of lead sampling and related required tests.

| Sample Date | Distribution Sample Location | Lead ¹ (µg/L) | pH | Alkalinity (mg/L) |
|--------------|---|--|-----|----------------------|
| 3-Apr-2023 | Bleeder - 92 Ethel St | lead analyses not required ² | 7.6 | 30 |
| 3-Apr-2023 | Bleeder – Queen St/Second Ave | | 7.7 | 25 |
| 3-Apr-2023 | Standpipe | | 7.6 | 30 |
| 13-Sept-2023 | Hydrant at Meadwell/Fourth Ave | | 7.6 | 35 |
| 13-Sept-2023 | Hydrant at Prince St/Fourth Ave | | 7.7 | 35 |
| 13-Sept-2023 | Hydrant at Front St/Third Ave | | 7.6 | 35 |
| 10-Apr-2024 | Hydrant at North Star Air | <1.0 | 7.5 | 25 |
| 10-Apr-2024 | Bleeder – Lake St. | <1.0 | 7.8 | 25 |
| 10-Apr-2024 | Bleeder – 4 th Street/Meadwell | <1.0 | 7.8 | 25 |
| 8-Oct-2024 | Hydrant at North Star Air | <1.0 | 7.5 | 25 |
| 8-Oct-2024 | Bleeder – Lake St. | <1.0 | 7.7 | 25 |
| 8-Oct-2024 | Hydrant at Front St/Third Ave | <1.0 | 7.6 | 25 |
| 15-Apr-2025 | West Queen Bleeder | lead analyses not required ² | 7.7 | 25 |
| 15-Apr-2025 | Lake St Bleeder | | 7.6 | 20 |
| 15-Apr-2025 | Front St/ 1st Bleeder | | 7.5 | 25 |
| 25-Sept-2025 | Front St/1st Bleeder | | 7.5 | 45 |
| 25-Sept-2025 | Prince/3rd Hydrant | | 7.8 | 45 |
| 25-Sept-2025 | West Queen Bleeder | | 7.6 | 40 |

1. The Ontario Drinking Water Quality Standard for lead in drinking-water is 10 µg/L.
2. Distribution samples were last collected and tested for lead during Summer 2024 sampling period and will begin again in Winter 2026-27 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 parameter sodium is sampled every five (5) years in treated water in accordance with Schedules 13 and 23 of O. Reg. 170/03. Although grab samples may be analyzed, regulatory testing for fluoride is achieved using continuous monitoring equipment at the Sioux Lookout Water Treatment Plant in accordance with Schedule 6 of O. Reg. 170/03. The most recent inorganic parameter sampling results are provided in Table 12. All results were below the associated Ontario Drinking Water Quality Standards.

| Parameter | Most Recent Sample Date | Units | Result | ODWQS |
|-----------|-------------------------|-------|--------|-------|
| Antimony | 12-Aug-2025 | µg/L | <0.60 | 6 |
| Arsenic | 12-Aug-2025 | µg/L | <1.0 | 10 |
| Barium | 12-Aug-2025 | µg/L | <10 | 1000 |
| Boron | 12-Aug-2025 | µg/L | <50 | 5000 |
| Cadmium | 12-Aug-2025 | µg/L | <0.10 | 5 |
| Chromium | 12-Aug-2025 | µg/L | <1.0 | 50 |
| Fluoride | 20-May-2025 | mg/L | 0.762 | 1.5 |
| Mercury | 12-Aug-2025 | µg/L | <0.100 | 1 |
| Selenium | 12-Aug-2025 | µg/L | <1.0 | 50 |
| Sodium | 20-May-2025 | mg/L | 12.6 | 20 |
| Uranium | 12-Aug-2025 | 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 the organic parameters was conducted on August 11, 2025. Sampling results for organic parameters are provided in Table 13; all results were below the associated Ontario Drinking Water Quality Standards.

Table 13: Organic parameter sampling results

| Parameter | Result (µg/L) | ODWQS (µg/L) | Parameter | Result (µg/L) | ODWQS (µg/L) |
|------------------------|---------------|--------------|---------------------------|---------------|--------------|
| Aalachlor | <0.050 | 5 | Diuron | <0.050 | 150 |
| Atrazine & Metabolites | <0.14 | 5 | Glyphosate | <1.0 | 280 |
| Azinphos-methyl | <0.10 | 20 | Malathion | <0.025 | 190 |
| Benzene | <0.50 | 1 | MCPA | <0.00005 | 100 |
| Benzo(a)pyrene | <0.005 | 0.01 | Metolachlor | <0.025 | 50 |
| Bromoxnyl | <0.050 | 5 | Metribuzin | <0.10 | 80 |
| Carbaryl | <0.050 | 90 | Monochlorobenzene | <0.50 | 80 |
| Carbofuran | <0.025 | 90 | Paraquat | <1.0 | 10 |
| Carbon Tetrachloride | <0.20 | 2 | Pentachlorophenol | <0.50 | 60 |
| Chlorpyrifos | <0.10 | 90 | Phorate | <0.25 | 2 |
| Diazinon | <0.025 | 20 | Picloram | <0.10 | 190 |
| Dicamba | <0.10 | 120 | Total PCBs | <0.030 | 3 |
| 1,2-Dichlorobenzene | <0.50 | 200 | Prometryn | <0.025 | 1 |
| 1,4-Dichlorobenzene | <0.50 | 5 | Simazine | <0.10 | 10 |
| 1,2-Dichloroethane | <0.50 | 5 | Terbufos | <0.50 | 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 | <0.10 | 230 |
| 2,4-D | <0.050 | 100 | Trichloroethylene | <0.50 | 5 |
| Diclofop-methyl | <0.10 | 9 | 2,4,6-Trichlorophenol | <0.20 | 5 |
| Dimethoate | <20.0 | 20 | Trifluralin | <0.10 | 45 |
| Diquat | <1.0 | 70 | Vinyl Chloride | <0.20 | 1 |

3.9 Harmful Algal Bloom Monitoring

Starting in 2022 a requirement was added to the Municipal Drinking Water License to monitor for Harmful Algae Blooms (HABs). If a bloom is suspected or occurring, 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 2025.



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 14 provides a summary of suspected or occurring HABs in Sioux Lookout since monitoring began.

| Year | Suspected | Harmful Algal Blooms |
|------|-----------|----------------------|
| 2022 | - | 0 |
| 2023 | 2 | 0 |
| 2024 | - | 0 |
| 2025 | | |

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 Sioux Lookout Urban Drinking Water System operated within its rated capacity and supplied a total of 742,119 m³ of treated water. On an average day in 2025, 2,033 m³ of treated water was supplied to the community, which represents 43% of the rated capacity of the Sioux Lookout Water Treatment Plant (5,200 m³/day). The maximum daily flow in 2025 was 2,906 m³/day, which represents 56% of the rated capacity of the treatment facility. Flow monitoring results are summarized in Figure 1 and Table 15. The capacity assessments in the table compare the average and maximum daily flows to the rated capacity of the treatment facility.

Figure 1: 2025 average and maximum daily treated water flows

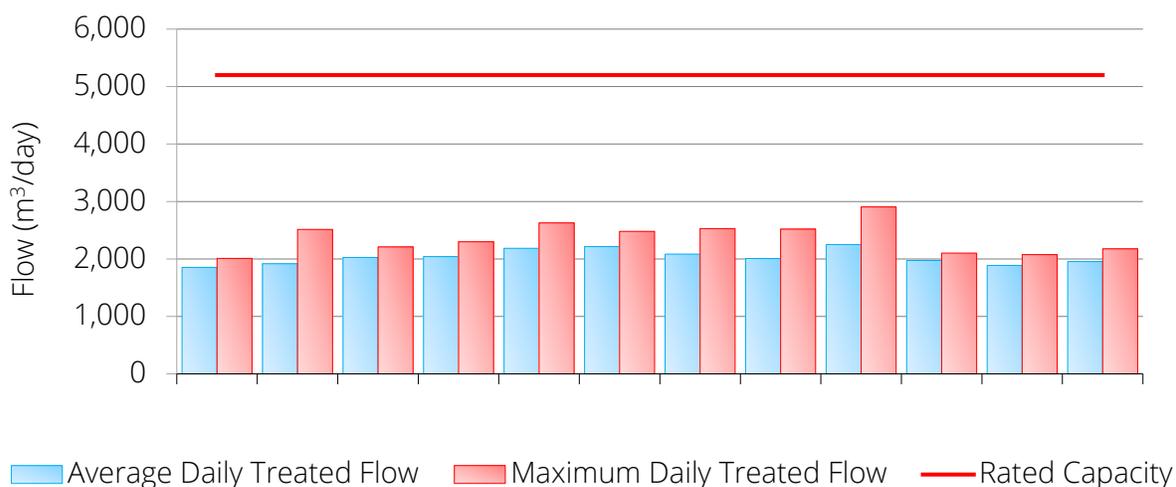


Table 15: 2025 water production summary

| Month | Total Volumes (m ³) | | Daily Flows (m ³ /day) | | Capacity Assessments | |
|---------|---------------------------------|---------------|-----------------------------------|-------------------------|-------------------------|-------------------------|
| | Raw Water | Treated Water | Average - Treated Water | Maximum - Treated Water | Average - Treated Water | Maximum - Treated Water |
| Jan | 66,288 | 57,451 | 1,853 | 2,010 | 36% | 39% |
| Feb | 64,444 | 55,584 | 1,917 | 2,514 | 37% | 48% |
| Mar | 72,870 | 62,802 | 2,026 | 2,209 | 39% | 42% |
| Apr | 69,419 | 61,228 | 2,041 | 2,299 | 39% | 44% |
| May | 76,198 | 67,753 | 2,186 | 2,627 | 42% | 51% |
| Jun | 74,290 | 66,448 | 2,215 | 2,480 | 43% | 48% |
| Jul | 72,649 | 64,624 | 2,085 | 2,529 | 40% | 49% |
| Aug | 68,856 | 62,244 | 2,008 | 2,519 | 39% | 48% |
| Sep | 76,810 | 67,531 | 2,251 | 2,906 | 43% | 56% |
| Oct | 69,990 | 61,177 | 1,973 | 2,102 | 38% | 40% |
| Nov | 64,813 | 56,635 | 1,888 | 2,075 | 36% | 40% |
| Dec | 68,143 | 58,642 | 1,955 | 2,176 | 38% | 42% |
| Total | 844,770 | 742,119 | --- | MAX: | --- | --- |
| Average | 70,398 | 61,843 | 2,033 | 2,906 | 43% | --- |

4.3 Recent Historical Flows

Table 16 summarizes recent historical flow monitoring results for the Sioux Lookout Urban Drinking Water System. There was a slight increase in the volumes of source water withdrawn and treated water supplied in 2025 when compared to 2024, and system flows have remained stable over the previous decade. Total annual volumes of treated water supplied in the near future may be expected to be between 700,000 m³ and 850,000 m³, which represents approximately 37% to 45% of the rated capacity of the Sioux Lookout Water Treatment Plant.

Table 16: Recent historical water production summary

| Year | Total Volumes (m ³) | | Daily Flows (m ³ /day) | | Annual % Change | |
|------|---------------------------------|---------------|-----------------------------------|-------------------------------|-----------------|------------------|
| | Raw Water | Treated Water | Average – Treated Water | Maximum – Treated Water | Raw Water | Treated Water |
| 2015 | 819,063 | 663,813 | 1,819 | 2,495 | +15.3% | +9.5% |
| 2016 | 804,401 | 679,025 | 1,855 | 2,522 | -1.8% | +2.3% |
| 2017 | 782,201 | 680,914 | 1,866 | 3,111 | -2.8% | +0.3% |
| 2018 | 760,142 | 652,723 | 1,788 | 2,446 | -2.8% | -4.1% |
| 2019 | 755,581 | 657,334 | 1,801 | 2,517 | -0.6% | +0.7% |
| 2020 | 760,661 | 660,678 | 1,805 | 2,363 | +0.7% | +0.5% |
| 2021 | 759,972 | 656,924 | 1,800 | 2,311 | -0.1% | -0.6% |
| 2022 | 800,029 | 690,435 | 1,892 | 2,700 | 5.3% | 5.1% |
| 2023 | 866,000 | 751,196 | 2,058 | 2,727 | 8.2% | 8.8% |
| 2024 | 832,969 | 712,024 | 1,951 | 2,937 | -3.8% | -5.2% |
| 2025 | 844,770 | 742,119 | 2,033 | 2,906 | 1.4% | 4.2% |

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 Sioux Lookout;
- 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.

One (1) inspection by Ontario's Ministry of the Environment, Conservation and Parks was initiated during the reporting period. The inspection was initiated on October 8, 2025, and the report was received on November 18, 2025, with a final inspection rating of 100%. Zero (0) incidents of regulatory non-compliance were 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 were zero (0) adverse water quality incidents that occurred during the reporting period.