

# Annual Report

## Sioux Lookout Urban Drinking Water System



# 2020

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, 2020).

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, on the Municipality's website, and on NWI'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* 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 O. Reg. 170/03.

System users and members of Council are strongly encouraged to 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 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.

<b>Table 1: System information</b>	
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"> <li>• Raw water pumping station</li> <li>• Sioux Lookout Water Treatment Plant</li> <li>• Sioux Lookout water distribution system, including the community standpipe and a booster station</li> </ul>
Treatment Processes:	<ul style="list-style-type: none"> <li>• Chemical coagulation and flocculation</li> <li>• Membrane ultrafiltration</li> <li>• Ultraviolet disinfection (primary disinfection)</li> <li>• Free chlorine disinfection (primary and secondary disinfection)</li> <li>• pH adjustment</li> </ul>

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.

Treatment Chemical	Application
aluminum sulphate	coagulant
fluorosilicic acid	fluoridation
sodium hydroxide	pH/alkalinity adjustment
sodium hypochlorite <sup>1</sup>	disinfectant, membrane filter cleans
calcium thiosulphate <sup>1</sup>	membrane filter cleans (dechlorination)
citric acid <sup>1</sup>	membrane filter cleans (pH adjustment)
hydrochloric acid <sup>1</sup>	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 2020 are summarized in Table 3.

Category	Description	Expense
New Equipment	Watermain extension at Airport property <sup>1</sup>	\$37,000
Repair/Replace	Distribution system maintenance activities <sup>2</sup>	\$21,000
Replace	Treated water fluoride residual inline analyzer	\$12,714
Replace	Treated water chlorine residual and pH inline analyzer	\$6,363
New Equipment	Motorized stairclimbing dolly for chemical drums	\$5,088
Replace	10-inch distribution header isolation gate valve	\$4,438
Repair	Membrane filter reject wastewater pump	\$4,299
Replace	Reject wastewater electromagnetic flowmeter	\$3,223
Replace	Industrial weighing scale for fluorosilicic acid drums	\$3,152
Inventory	Fluorosilicic acid chemical metering pump	\$2,845
Inventory	Pressure transmitter for standpipe	\$2,502
Replace	Uninterruptible power supply at standpipe	\$2,373
Repair/Replace	Various automation and programming upgrades	\$2,181
Replace	Two (2) pH electrodes for floc tanks	\$2,144
New Equipment	Portable submersible pump with hose for dewatering	\$2,047
Replace	80-gallon electric commercial hot water tank	\$1,960
Inventory/Replace	Two (2) pneumatic actuators and five (5) spool valves	\$1,901
Repair	Reject wastewater pump electrical deficiencies	\$1,560
Replace	Uninterruptible power supply for PLC	\$1,500
Repair/Replace	Chemical metering pump repair kits and accessories	\$1,485
Inventory	Miscellaneous tubing, piping and pipe fittings	\$1,452

1. This project involved the installation of 30 linear meters of new 150 mm diameter watermain, one (1) new 150 mm watermain valve and one (1) new 50 mm water service.
2. Distribution system maintenance activities included a) two (2) watermain break emergency repairs, b) the decommissioning of one (1) abandoned water service, and c) the installation of three (3) new upgraded water service connections for new developments on existing lots.

## 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 2020, a total of 318 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 <sup>1</sup> (MPN/100mL)	TC Results Range <sup>1</sup> (MPN/100mL)	# of HPC Samples	HPC Results Range (CFU/mL)
Raw Water	53	0 to 9	0 to >2420	---	---
Treated Water	53	absent	absent	51	0 to 3
Distribution	212	absent	absent	101	0 to 5
Distribution (nonroutine)	4	absent	absent	---	---

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.

### 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 residual 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.

Parameter (Sample Type) <sup>1</sup>	No. of Samples	Units	Min. Result	Max. Result	Annual Avg.	Adverse Result
Turbidity (Raw Water)	54	NTU	0.38	1.42	0.64	n/a
Turbidity (Filter 1)	Continuous	NTU	0.018	0.109	0.032	>1.0
Turbidity (Filter 2)	Continuous	NTU	0.028	0.123	0.035	>1.0
Turbidity (Treated)	366	NTU	0.054	0.324	0.077	n/a
pH (Treated)	Continuous	---	7.2	8.5	7.7	n/a
Alkalinity (Treated)	54	mg/L	15	35	24	n/a
Aluminum Residual (Treated)	53	mg/L	0.003	0.065	0.013	n/a
Fluoride Residual (Treated)	Continuous	mg/L	0.66	0.95	0.81	>1.5
FCR (Treated)	Continuous	mg/L	0.40	2.75	2.11	n/a
FCR (Distribution) <sup>2</sup>	520+	mg/L	0.21	2.28	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 for this reason an annual average cannot be provided. The values in the table pertain to the minimum and maximum results collected across all locations in the calendar year.

### 3.4 Membrane Filtration & UV Disinfection Performance

In accordance with the system's *Municipal Drinking Water Licence*, membrane filtration 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 filtrate 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 2020. 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	99.998%	100%	<99%
Filter 2	99.996%	100%	<99%

To ensure 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/cm<sup>2</sup> (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. 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 Average	Adverse Result
Flow (Combined Filtrate)	Continuous	L/s	n/a	64.0	41.5	>65.0
UV Dosage (Reactor 1)	Continuous	mJ/cm <sup>2</sup>	1.1	n/a	38.3	<20.0
UV Dosage (Reactor 2)	Continuous	mJ/cm <sup>2</sup>	15.8	n/a	35.2	<20.0
UV Transmittance (Filter 1)	317	%/1cm	85.1	94.6	90.1	<82.0
UV Transmittance (Filter 2)	317	%/1cm	85.1	94.9	90.0	<82.0

### 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-2020	0.081	10	<0.010	1
19-May-2020	0.062		<0.010	
11-Aug-2020	<0.020		<0.010	
17-Nov-2020	0.062		<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 2020 running annual averages for THMs and HAAs were below the respective Ontario Drinking Water Quality Standards.

Sample Date	Result (µg/L)	
18-Feb-2020	69.6	
19-May-2020	99.4	
11-Aug-2020	138.0	Avg: 111.0
29-Sep-2020	83.9	
17-Nov-2020	83.6	
Regulatory Average (RAA)	90.9	
ODWQS (RAA)	100	

Sample Date	Result (µg/L)
18-Feb-2020	73.8
19-May-2020	79.7
11-Aug-2020	87.2
17-Nov-2020	49.1
Regulatory Average (RAA)	72.5
ODWQS (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 ultimately became exempt from sampling at plumbing locations in accordance with Schedule 15.1 (Lead) of O. Reg. 170/03. Six (6) 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 after the plumbing sample exemption was activated. Table 11 summarizes the results of community lead sampling and related required tests.

Sample Date	Distribution Sample Location	pH	Alkalinity (mg/L)	Lead Result <sup>1</sup> (µg/L)
06-Apr-2020	Bleeder at 90 Ethel Street	7.62	25	Lead analyses not required in 2020 <sup>2</sup>
06-Apr-2020	Bleeder at 169 Queen Street	7.60	25	
06-Apr-2020	Bleeder at Queen St. & 2 <sup>nd</sup> Ave.	7.45	20	
18-Sep-2020	Hydrant at MNRF Base	7.5	25	
22-Sep-2020	Hydrant at 159 King Street	7.6	30	
28-Sep-2020	Hydrant at 1 <sup>st</sup> Ave. & Cedar Cr.	7.6	25	

1. The Ontario Drinking Water Quality Standard for lead in drinking-water is 10 µg/L.
2. Lead will next be tested in distribution samples during the sampling period corresponding to December 15, 2020 to April 15, 2021, and again during the period corresponding to June 15, 2021 to October 15, 2021. Lead was most recently tested in 2018, and results for all six (6) samples were less than the lower analytical detection limit (<1.0 µg/L).

### 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.

**Table 12:** Inorganic parameter sampling results

Parameter	Most Recent Sample Date	Units	Result	ODWQS
Antimony	11-Aug-2020	µg/L	<0.60	6
Arsenic	11-Aug-2020	µg/L	<1.0	10
Barium	11-Aug-2020	µg/L	<10	1000
Boron	11-Aug-2020	µg/L	<50	5000
Cadmium	11-Aug-2020	µg/L	<0.10	5
Chromium	11-Aug-2020	µg/L	<1.0	50
Fluoride	25-Feb-2020	mg/L	0.688	1.5
Mercury	11-Aug-2020	µg/L	<0.10	1
Selenium	11-Aug-2020	µg/L	<1.0	50
Sodium	25-Feb-2020	mg/L	13.4	20
Uranium	11-Aug-2020	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 11, 2020, and results 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)
Alachlor	<0.10	5	Diuron	<1.0	150
Atrazine & Metabolites	<0.20	5	Glyphosate	<5.0	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	<0.035	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	<0.20	1
1,1-Dichloroethylene	<0.50	14	Tetrachloroethylene	<0.50	10
Dichloromethane	<5.0	50	2,3,4,6-Tetrachlorophenol	<0.50	100
2,4-Dichlorophenol	<0.30	900	Triallate	<0.10	230
2,4-D	<0.20	100	Trichloroethylene	<0.50	5
Diclofop-methyl	<0.20	9	2,4,6-Trichlorophenol	<0.50	5
Dimethoate	<0.10	20	Trifluralin	<0.10	45
Diquat	<1.0	70	Vinyl Chloride	<0.20	1

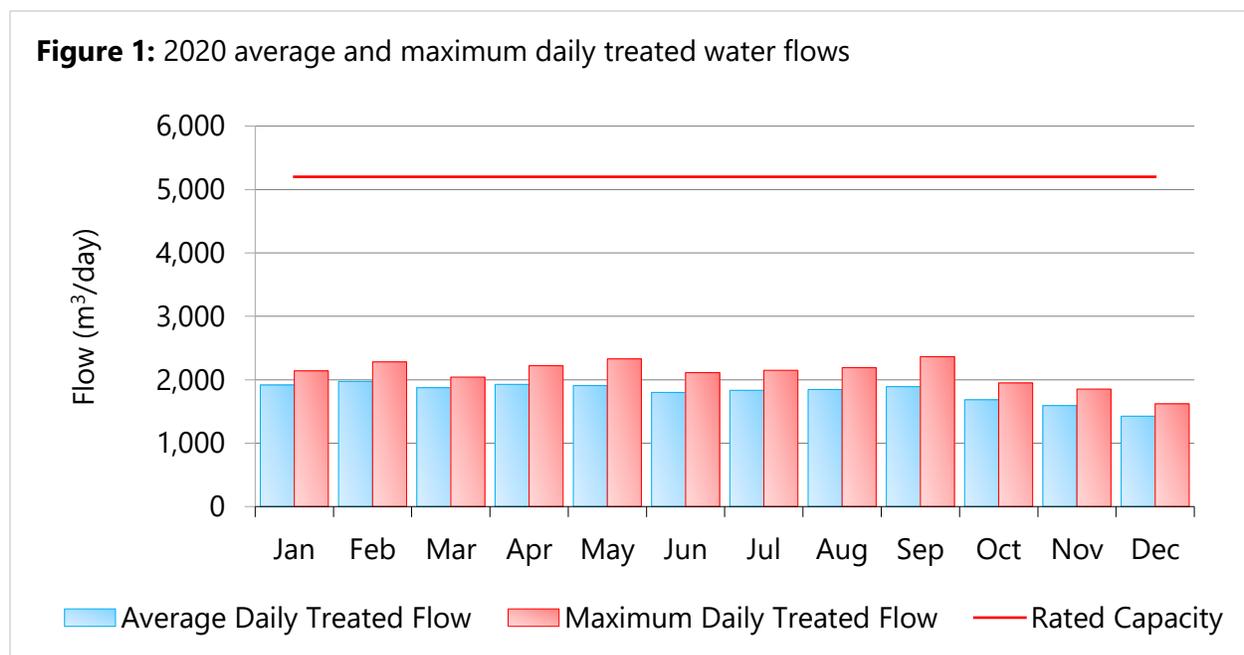
## 4 Water Production

### 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 Sioux Lookout Urban Drinking Water System operated within its rated capacity and supplied a total of 660,678 m<sup>3</sup> of treated water. On an average day in 2020, 1,805 m<sup>3</sup> of treated water was supplied to the community, which represents 35% of the rated capacity of the Sioux Lookout Water Treatment Plant (5,200 m<sup>3</sup>/day). The maximum daily flow in 2020 was 2,363 m<sup>3</sup>/day, which represents 45% of the rated capacity of the treatment facility. Flow monitoring results are summarized in Figure 1 and Table 14. The capacity assessments provided in the table compare the average and maximum daily flows to the rated capacity of the treatment facility.



**Table 14:** 2020 water production summary

Month	Total Volumes (m <sup>3</sup> )		Daily Flows (m <sup>3</sup> /day)		Capacity Assessments	
	Raw Water	Treated Water	Average - Treated Water	Maximum - Treated Water	Average - Treated Water	Maximum - Treated Water
Jan	68,131	59,419	1,917	2,140	37%	41%
Feb	66,730	57,241	1,974	2,281	38%	44%
Mar	68,155	58,105	1,874	2,042	36%	39%
Apr	65,815	57,821	1,927	2,221	37%	43%
May	67,461	59,131	1,907	2,329	37%	45%
Jun	60,527	54,018	1,801	2,112	35%	41%
Jul	64,801	56,845	1,834	2,149	35%	41%
Aug	65,780	57,211	1,846	2,190	35%	42%
Sep	65,419	56,724	1,891	2,363	36%	45%
Oct	61,294	52,200	1,684	1,949	32%	37%
Nov	55,225	47,759	1,592	1,853	31%	36%
Dec	51,323	44,204	1,426	1,620	27%	31%
Total	760,661	660,678	---	---	---	---
Average	63,388	55,057	1,805	---	35%	---

### 4.3 Recent Historical Flows

Table 15 summarizes recent historical flow monitoring results for the Sioux Lookout Urban Drinking Water System. There were no significant changes in the volumes of source water withdrawn and treated water supplied in 2020 when compared to 2019, 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 550,000 m<sup>3</sup> and 800,000 m<sup>3</sup>, which represents approximately 29% to 42% of the rated capacity of the Sioux Lookout Water Treatment Plant.

**Table 15:** 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
2011	888,430	729,341	1,998	3,008	-3.8%	+6.1%
2012	979,670	785,457	2,146	2,837	+10.3%	+7.7%
2013	846,566	697,954	1,912	3,411	-13.6%	-11.1%
2014	710,645	606,465	1,662	2,385	-16.1%	-13.1%
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%

## 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 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.

No adverse water quality incidents occurred during the reporting period.

### 5.3 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.

No inspections were initiated by the Ministry of the Environment, Conservation and Parks during the reporting period and no incidents of regulatory noncompliance were otherwise identified.