Annual Report

Madsen Drinking Water System

2023

Prepared by **Northern Waterworks Inc.**
on behalf of the **Municipality of Red Lake**

NORTHERN WATERWORKS INC.

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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 Red Lake 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 Madsen 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:	Madsen Drinking Water System
DWS Number:	210001479
DWS Category:	Small Municipal Residential
DWS Owner:	The Corporation of the Municipality of Red Lake
DWS Operating Authority:	Northern Waterworks Inc.
DWS Components:	• Raw water pumping station • Madsen Water Treatment Plant • Madsen water distribution system
Treatment Processes:	• Pre-oxidation • Chemical coagulation, flocculation and clarification • Dual media (rapid sand) filtration • Free chlorine disinfection • pH adjustment

Water production begins as pumps at the raw water pumping station transfer raw water from its source at Russett Lake to a storage reservoir located at the Madsen Water Treatment Plant. Upon transfer, potassium permanganate is added to the raw water to oxidize iron and manganese for precipitation and removal in downstream treatment processes. Pumps at the treatment facility then deliver the raw water from the storage reservoir directly to the package treatment units. Polyaluminum chloride (coagulant) is injected and rapidly mixed into the raw water immediately upstream from the two package treatment units, which each include a three-chambered flocculation basin, clarifier and filter.

To promote floc formation water is gently mixed as it passes through the flocculation basins. Polymer solution (flocculant) is also added to the water at this stage of treatment to form

larger and more stable 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 unit; settled floc (sludge) is automatically removed from the bottom of 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. Sodium hypochlorite (disinfectant) and sodium carbonate solution (pH/alkalinity adjustment) are added to the filtrate as it is directed from the filters to the treated water storage reservoir. 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 pumps.

Primary disinfection is achieved as disinfectant mixes with the water in the reservoir. Treated water is then delivered from the reservoir to the water distribution system using pumps. 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 2023

Treatment Chemical	Application
potassium permanganate	oxidizing agent
polyaluminum chloride	coagulant
polymer (Polyfloc CP1160P)	flocculant
sodium hypochlorite	disinfectant
sodium carbonate (soda ash)	pH/alkalinity adjustment

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
Replace/Upgrade	SCADA Emergency upgrades	$7,890
Maintenance/Repairs	SCADA firmware updates[1]	$9,000
Maintenance	Diesel Water Pump repairs	$5,030
Maintenance	Flow meter calibration verifications	$2,000
Total cost for updates in Red Lake, BCMI and Madsen		

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 11 (Microbiological sampling and testing) of O. Reg. 170/03. In 2023, a total of 156 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 Results Range (CFU/mL)
Raw Water	52	0 to 6	0 to 387	---	---
Treated Water	52	absent	absent	52	0 to 1
Distribution	52	absent	absent	52	0 to 3
Distribution (nonroutine)	0	---	---	---	---

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 constitutes 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 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.

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)	52	NTU	0.498	1.870	1.025	n/a
Turbidity (Filter 1)	Continuous	NTU	0.019	0.420	0.062	>1.0
Turbidity (Filter 2)	Continuous	NTU	0.020	0.382	0.057	>1.0
Turbidity (Treated)	365	NTU	0.023	2.719	0.198	n/a
pH (Treated)	365	---	7.0	8.7	7.8	n/a
Alkalinity (Treated)	236	mg/L	32.0	102.3	54.0	n/a
Alum Residual (Treated)	234	mg/L	0.012	0.21	0.024	n/a
FCR[1] (Treated)[2]	Continuous	mg/L	0.560	1.521	1.085	n/a
FCR[1] (Distribution)[3]	365	mg/L	0.73	3.06	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 values in the table pertain to the minimum and maximum results collected across all locations in the calendar year.

3.4 Conventional Filtration Performance

In accordance with the system's *Municipal Drinking Water Licence*, conventional 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 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 2023. One AWQIs pertaining to conventional filtration performance occurred during the reporting period due to a loss of continuous monitoring of filter effluent. Refer to section 5.2 Adverse Water Quality Incidents for more information.

Table 6: Filtration performance summary

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

3.5 Nitrate & Nitrite

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	0.122	10	<0.010	1
15-May-2023	0.026		<0.010	
22-Aug-2023	0.033		<0.010	
20-Nov-2023	0.026		<0.010	

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.

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.

Table 8: Total THM results

Sample Date	Result (µg/L)
13-Feb-23	41.1
15-May-23	39.5
15-Aug-23	77.6
20-Nov-23	57.3
Regulatory Average (RAA)	53.9
ODWQS (RAA)	100

Table 9: Total HAA results

Sample Date	Result (µg/L)
13-Feb-23	33.6
15-May-23	47.4
15-Aug-23	59.9
20-Nov-23	28.5
Regulatory Average (RAA)	42.4
ODWQS (RAA)	80

3.7 Lead Sampling

Based upon favourable lead sampling results in the community and in accordance with Schedule 15.1 (Lead) of O. Reg. 170/03, the Madsen Drinking Water System previously qualified for reduced lead sampling in the second half of 2017. Favourable results from reduced lead sampling conducted in 2019 and 2020 have allowed the system to qualify for an exemption from sampling at plumbing locations. Two (2) 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 10 summarizes the results of lead sampling and related required tests.

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

Sample Date	Distribution Sample Location	pH	Alkalinity (mg/L)	Lead Result (µg/L)	Lead ODWQS (µg/L)
10-May-2023	Main Street Bleeder	8.00	51.0	<1.0	10
21-Aug-2023	Main Street Bleeder	7.82	53	N/A[1]	10

1. Lead will next be tested in distribution samples during the Summer 2025 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	21-Aug-2023	µg/L	<0.60	6
Arsenic	21-Aug-2023	µg/L	<1.0	10
Barium	21-Aug-2023	µg/L	<10	1000
Boron	21-Aug-2023	µg/L	<50	5000
Cadmium	21-Aug-2023	µg/L	<0.10	5
Chromium	21-Aug-2023	µg/L	2.3	50
Fluoride	13-Feb-2023	mg/L	<0.020	1.5
Mercury	21-Aug-2023	µg/L	<0.10	1
Selenium	21-Aug-2023	µg/L	<1.0	50
Sodium	13-Feb-2023	mg/L	24.6	20
Uranium	21-Aug-2023	µg/L	<2.0	20

1. The parameter sodium is not considered a toxic element and is not associated with a Standard as prescribed in O. Reg. 169/03, although an exceedance of 20 mg/L requires reporting and corrective actions. The result in the table was not reported as an Adverse Water Quality Incident as there is already a Sodium advisory in place.

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 organic parameters was conducted on August 21, 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	<0.0002	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	<0.050	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

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 Madsen Drinking Water System operated within its rated capacity and supplied a total of 62,303 m^3 of treated water. On an average day in 2023, 171 m^3 of treated water was supplied to the community, which represents 35% of the rated capacity of the Madsen Water Treatment Plant (691 m^3/day). The maximum daily flow in 2023 was 342 m^3/day, which represents 42% of the rated capacity of the treatment facility. Flow monitoring results are summarized in Figure 1 and Table 13. The capacity assessments provided in the table compare the average and maximum daily flows to the rated capacity of the facility.

Figure 1: 2023 average and maximum daily treated water flows

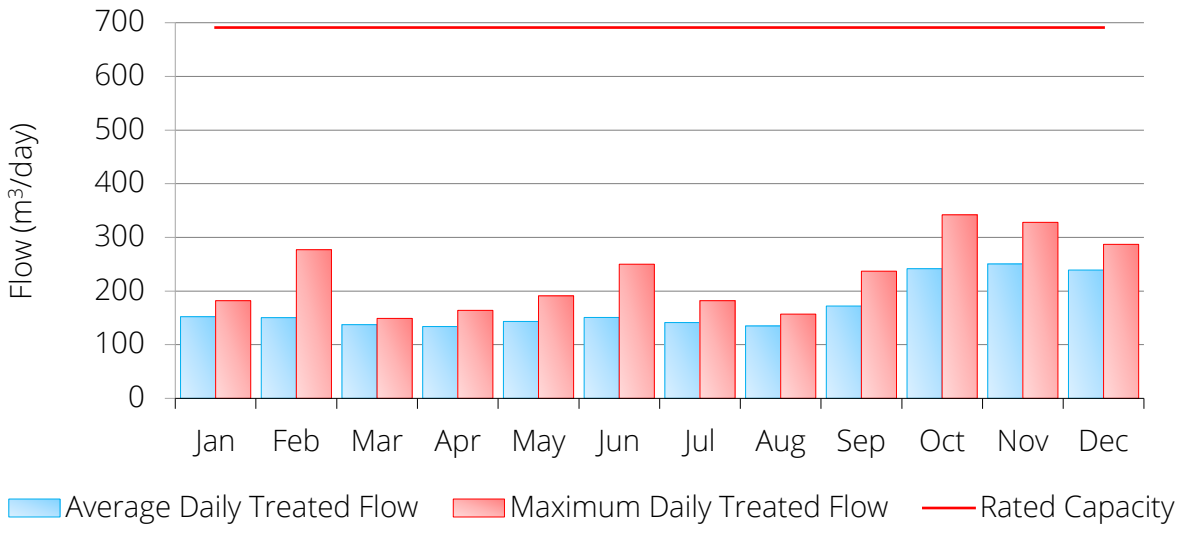
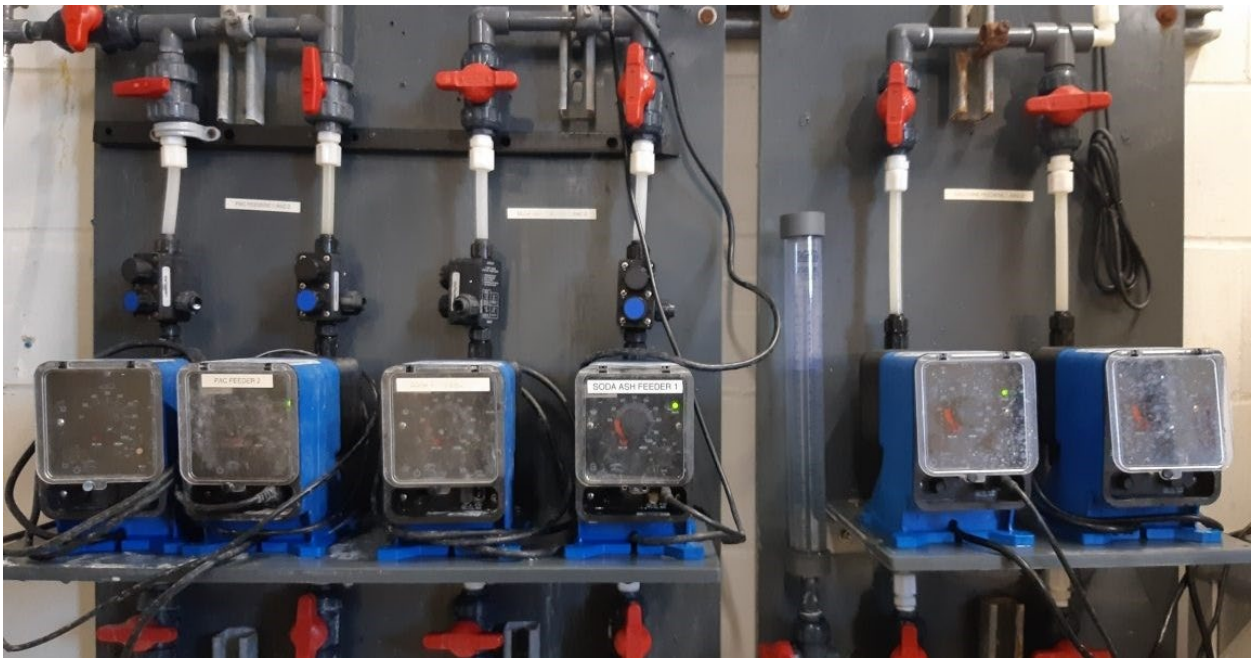


Table 13: 2023 water production summary

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	5,613	4,717	152	182	22%	26%
Feb	5,005	4,211	150	277	22%	40%
Mar	5,037	4,257	137	149	20%	22%
Apr	4,745	4,015	134	164	19%	24%
May	5,179	4,443	143	191	21%	28%
Jun	5,258	4,523	151	250	22%	36%
Jul	5,069	4,379	141	182	20%	26%
Aug	4,759	4,181	135	157	20%	23%
Sep	5,893	5,162	172	237	25%	34%
Oct	8,563	7,490	242	342	35%	49%
Nov	8,451	7,512	250	328	36%	47%
Dec	8,317	7,413	239	287	35%	42%
Total	71,886	62,303	---	--	---	--
	5,991	5,192	171	--	25%	--



4.3 Recent Historical Flows

Table 14 summarizes recent historical flow monitoring results for the Madsen Drinking Water System. There was a significant increase in the volumes of source water withdrawn and treated water supplied in 2023 when compared to 2022. As a small system, average daily flows and annual total volumes in Madsen can be disproportionately affected by events such as a significant watermain break or a heavy user. Total annual volumes of treated water supplied in the near future may be expected to be between 25,000 m^3 and 65,000 m^3, which represents approximately 10% to 26% of the rated capacity of the Madsen Water Treatment Plant

Table 14: 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
2008	44,172	35,959	98	321	+20.2%	+22.2%
2009	47,489	37,576	103	255	+7.5%	+4.5%
2010	37,619	29,256	80	179	-20.8%	-22.1%
2011	32,282	26,739	73	234	-14.2%	-8.6%
2012	50,859	43,989	120	324	+57.5%	+64.5%
2013	40,656	32,605	89	211	-20.1%	-25.9%
2014	36,440	29,334	80	264	-10.4%	-10.0%
2015	40,124	33,852	93	323	+10.1%	+15.4%
2016	60,597	47,244	129	436	+51.0%	+39.6%
2017	72,569	57,113	156	305	+19.8%	+20.9%
2018	38,325	30,958	85	190	-47.2%	-45.8%
2019	45,910	37,036	101	212	+19.8%	+19.6%
2020	41,770	35,132	96	348	-9.0%	-5.1%
2021	53,624	45,450	125	308	+28.4%	+29.4%
2022	55,066	46,221	127	257	+2.7%	+1.7%
2023	71,886	62,303	171	342	30.5%	34.8%

5 Compliance

5.1 Overview

Northern Waterworks Inc. and the Municipality of Red Lake 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 Madsen;
- 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 adverse water quality and 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.

The two (2) adverse water quality incidents that occurred during the reporting period are summarized below.

- AWQI No. 162604 (July 16, 2023)

  Adverse results for filtrate turbidity are prescribed within Schedule 16 of O. Reg. 170/03. While filters are in production, and directing water to the next stage of treatment, filtrate turbidity must be continually monitored and must be less than 0.3 NTU in at least 95% of the measurements in each calendar month. In addition, filtrate turbidity cannot exceed 1.0 NTU for more than 15 minutes.

  On July 16, 2023 from 07:12 until 07:53 a loss of continuous monitoring of filter effluent occurred for more than 15 minutes due to power running on generators which caused the filter turbidity analyzers to fault in communication. The electrical

fault with the analyzers was repaired and the event did not result in a concern with the safety of the drinking water. No further corrective action was required.

- AWQI No. 163761 (Oct 10, 2023)

  An adverse water quality incident was reported to the ministry after Operator error caused an elevated distribution chlorine when a disinfecting chemical feeder was left at wrong set point (should be 0.620 but was left at 62.0). This caused a high distribution chlorine residual alarm for the on-call operator. Upon arrival to the plant on-call operator noticed elevated distribution chlorine, corrected the set point and performed flushing in the distribution system. No further corrective action was required.

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. 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 on May 29, 2023 and the report was received on June 29, 2023. The final inspection rating was 94.6% and three (3) 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

O. Reg 128/04, section 26. (2) describes the duties that an OIC must perform. O. Reg 128/04, section 27. (5) states that an OIC shall record any unusual or abnormal conditions that were observed in the subsystem and any action that was taken. A treated chlorine alarm set point was temporarily lowered to avoid unnecessary callouts after operators responded to and resolved a low chlorine event. A note of the chlorine alarm set point change was not noted in the logbook. The lowering of the treated chlorine alarm set point is considered to be an "adjustment made to the process", and an "action that was taken" in response to an abnormal

condition. It is worth noting that primary disinfection was maintained during the period in question, as verified by an operator running a CT calculation.

By August 4, 2023, NWI provided the water inspector with a PDF file of all logbook entries made from June 6, 2023 to July 31, 2023.

- Noncompliance item no. 2

Where required continuous monitoring equipment, used for the monitoring of chlorine residual and/or turbidity triggered an alarm or an automatic shut-off, a qualified person did not respond in a timely manner and/or did not take appropriate actions. On June 22 & 23, 2022, effluent turbidity from filter #2 exceeded the alarm set point after normal work hours, triggering an alarm/call-out to the on-call operator. On both these occasions, the on-call phone was unexplainably in silent mode and the operator did not receive the call. Further, the successive phone numbers that were programmed into the autodialer belonged to individuals who no longer operated for NWI. As a result, operators did not respond to the above mentioned alarms in a timely manner. It should be noted that primary disinfection was maintained throughout this period of time.

On June 23, 2023, NWI purchased a new on-call phone and updated the phone numbers that were programmed into the auto-dialer system. Since these changes, operators have responded in a timely manner to alarms at the Madsen WTP.

- Noncompliance item no. 3

All sampling requirements for lead prescribed by schedule 15.1 of O. Reg. 170/03 were not being met. Lead and alkalinity sampling was required in the distribution system during the inspection review period within the following sampling windows: June 15 to October 15, 2022; and, December 15, 2022 to April 15, 2023. Lead and alkalinity samples were collected within the first sampling window on September 6, 2022, but outside of the second sampling window on May 10, 2023. Samples were collected as soon as the error was discovered.

The Municipality of Red Lake and NWI shall ensure that lead sampling is performed within the sampling windows prescribed by Schedule 15.1 of O. Reg. 170/03. The next round of sampling

is required between June 15 to October 15, 2025 and December 15, 2025 to April 15, 2026. Compliance with regards to lead sampling will be assessed at that time.