

# Annual Report

## Atikokan Drinking Water System



2023



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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 Atikokan Public Library and on the Town of Atikokan's website.

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

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

## 2 System Overview & Expenses

### 2.1 System Description

The Atikokan 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 (DWS) Name:	Atikokan Drinking Water System
DWS Number:	220000950
DWS Owner:	The Corporation of the Town of Atikokan
DWS Operating Authority:	Northern Waterworks Inc.
DWS Category:	Large Municipal Residential
DWS Components:	<ul style="list-style-type: none"> <li>• Raw water pumping station</li> <li>• Atikokan Water Treatment Plant</li> <li>• Atikokan Water distribution system</li> </ul>
Treatment Processes:	<ul style="list-style-type: none"> <li>• Coagulation, sand-ballasted flocculation, and clarification</li> <li>• Dual media (rapid sand) filtration</li> <li>• Free chlorine disinfection</li> <li>• pH adjustment</li> </ul>

Water production begins as pumps at the raw water pumping station transfer source water from the Atikokan River and through a transmission line to the two proprietary Actiflo treatment units located at the Atikokan Water Treatment Plant, each of which includes a coagulation basin, injection basin, maturation basin and settling zone. Polyaluminum chloride (coagulant) is injected into the raw water immediately upstream from the coagulation basin, and water and coagulant are rapidly mixed in the basin before flow is directed to the injection basin. In the injection basin, microsand and polymer solution (flocculant) are added to facilitate the formation of robust flocs. Floc formation continues in the maturation basin before water is directed to the settling zone, where its velocity is reduced to allow for the separation and settling of floc. Supernatant then overflows into a launder and is directed to the filter units.

Impurities that were not captured and settled in the clarifier are removed by passing water through four dual media filters composed of anthracite and silica sand. The filters are periodically cleaned by reversing the flow of water through the filter using pumps. Chlorine gas (disinfectant), sodium carbonate solution (pH/alkalinity adjustment) and hydrofluorosilicic acid (fluoridation) are added to the filtrate as it is directed from the filters to the treated water storage reservoir.

Primary disinfection is achieved as disinfectant mixes with the filtrate in the reservoir. Treated water is then delivered from the reservoir to the water distribution system using pumps. Secondary disinfection requirements in the water 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
polyaluminum chloride (SternPAC)	coagulant
silica dioxide (Actisand)	flocculant
polymer (Superfloc C-492)	flocculant
sodium carbonate (soda ash)	pH/alkalinity adjustment
hydrofluorosilicic acid	fluoridation
chlorine gas	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 2023 are summarized in Table 3.

Category	Description	Expense
Maintenance	Aeration tank cleanings	\$62,150
Replace	Battery replacements	\$6,346.76
Replace	Digester pump	\$15,997.43
Maintenance	Backflow preventor repairs	\$5,411.00
New Equipment	Flygt Ready 8s submersible pumps	\$6,286.15
Maintenance	Rebuild RAS pumps	\$14,723.58
Maintenance	Automation Now – Troubleshooting and Repairs	\$11,787
Maintenance	Flow meter calibration verifications (all sites) <sup>1</sup>	\$7,085.10
Maintenance	Replace 600v Mercury bulbs in influent building	\$2,113.10
Maintenance	Annual backflow testing	\$2,237.40
Replace	Replace fluorescent lighting with LED lighting	\$16,055.17
Maintenance	Investigate Singer valve issues	\$5,736.45
Maintenance	SCBA flow testing	\$887.50
Replace	Automation Now – Supply and replace Level sensor for SPS 5	\$5,142.69
Replace	Automation Now – Supply and replace UPS batteries for WTP PLC	\$7,350.88
Maintenance	Automation Now – SCADA 2 repairs	\$3,389.33
Replace	Engineering - O'Brien Watermain (Town project)	~\$24,000.00

1. All sites include the raw water pumping station, water treatment plant, wastewater treatment plant, and all sewage pumping stations.

### 3 Water Quality

#### 3.1 Overview

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

#### 3.2 Microbiological Parameters

Microbiological sampling and testing requirements are provided in Schedule 10 (Microbiological sampling and testing) of O. Reg. 170/03. In 2023, a total of 291 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.

Sample Type	# of Samples	EC Results Range <sup>1</sup> (MPN/100mL)	TC Results Range <sup>1</sup> (MPN/100mL)	# of HPC Samples	HPC Results Range (CFU/mL)
Raw Water	52	0 to 23	33 to >2420	---	---
Treated Water	54	absent	absent	52	0 to 3
Distribution	189	absent	absent	61	0 to 4

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 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. Three (3) Adverse Water Quality Incidents (AWQI) pertaining to low free chlorine residuals in the water distribution system occurred during the reporting period. Refer to the *Compliance* section of this report for more information.

Parameter (Sample Type)	Number of Samples	Units	Min. Result	Max. Result	Annual Avg.	Adverse Result <sup>1</sup>
Turbidity (Raw Water)	250	NTU	0.080	3.84	1.06	n/a
Turbidity (Filter 1)	Continuous	NTU	0.034	1.998	0.096	>1.0
Turbidity (Filter 2)	Continuous	NTU	0.016	1.998	0.103	>1.0
Turbidity (Filter 3)	Continuous	NTU	0.028	1.998	0.075	>1.0
Turbidity (Filter 4)	Continuous	NTU	0.014	1.998	0.057	>1.0
Turbidity (Treated)	364	NTU	0.109	0.844	0.246	n/a
pH (Treated)	362	---	6.94	7.81	7.36	n/a
Aluminum Residual (Treated)	52	mg/L	0.024	0.589	0.091	n/a
Fluoride Residual (Treated)	Continuous	mg/L	0.07	1.47	0.73	>1.5
FCR <sup>2</sup> (Treated)	Continuous	mg/L	0.76	3.07	2.20	n/a
FCR <sup>3</sup> (Distribution)	450+	mg/L	0.22	2.92	n/a	<0.05

1. Adverse results for filtrate turbidity are prescribed within Schedule 16 of O. Reg. 170/03. There are additional factors not included in the table that are necessary to determine whether a result is adverse, such as the duration of the result.
2. FCR = free chlorine residual. 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. There were no AWQIs for low chlorine residual in the distribution system.

### 3.4 Conventional Filtration Performance

In accordance with the system's *Municipal Drinking Water Licence*, conventional filtration facilities 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. No AWQIs pertaining to conventional filtration performance occurred during the reporting period.

Filter	Minimum Result	Maximum Result	Adverse Result
Filter 1	96.9%	100%	<95%
Filter 2	95.5%	100%	<95%
Filter 3	95.3%	100%	<95%
Filter 4	95.2%	100%	<95%



### 3.5 Nitrate & Nitrite

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

Table 7: Nitrate and nitrite results				
Sample Date	Nitrate		Nitrite	
	Result (mg/L)	ODWQS (mg/L)	Result (mg/L)	ODWQS (mg/L)
13-Feb-2023	0.067	10	<0.010	1
18-May-2023	<0.020		<0.010	
*				
14-Nov-2023	0.060		<0.010	

\*Q3 nitrate/nitrite samples were not taken. The Ministry was notified of this sampling error.

### 3.6 Trihalomethanes & Haloacetic Acids

Trihalomethanes (THMs) and haloacetic acids (HAAs) are normally 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) each quarter.

Table 8: Total THM results	
Sample Date	Result (µg/L)
13-Feb-2023	62.0
18-May-2023	80.2
18-Aug-2023	76.3
14-Nov-2023	50.6
Regulatory Average (RAA)	67.3
ODWQS (RAA)	100

The 2023 running annual average for THMs was below the respective Ontario Drinking Water Quality Standards. Three (3) AWQIs were reported for an HAA exceedance in 2023. Samples were taken monthly instead of quarterly throughout 2023 to monitor the levels more closely. The ongoing AWQIs were resolved at the end of Q3. Monthly HAA sampling will continue in 2024 and return to quarterly sampling in 2025 if there are no further exceedances.

Table 9: Total HAA results		
Sample Date	Result (µg/L)	Quarterly Average Result (µg/L)
23-Jan-23	80.4	62.7
13-Feb-23	66.7	
13-Feb-23	59.9	
20-Mar-23	52.8	
20-Mar-23	53.8	
Q1 Regulatory Average (RAA)		90.8
10-Apr-23	57.1	81.2
2-May-23	70.6	
18-May-23	77.9	
26-Jun-23	119.0	
Q2 Regulatory Average (RAA)		89.8
31-Jul-23	97.3	85.8
18-Aug-23	87.4	
21-Sep-23	72.8	
Q3 Regulatory Average (RAA)		78.7
31-Oct-23	84.3	76.3
14-Nov-23	69.1	
5-Dec-23	75.6	
Q4 Regulatory Average (RAA)		76.5
ODWQS (RAA)		80



### 3.7 Lead Sampling

In accordance with Schedule 15.1 (Lead) of O. Reg. 170/03 and based upon favourable community lead sampling results following the Winter 2022-3 sample period (Dec, 2022, to April 15, 2023), the Atikokan Drinking Water System qualified for the reduced sampling schedule with plumbing exemptions. Table 10 summarizes the most recent results of community lead sampling conducted in 2023. Distribution and plumbing samples were collected on April 6, 2023 and all results were below the Ontario Drinking Water Quality Standard for lead in drinking water. Lead samples will next be required in distribution samples in the Summer 2025 sampling period.

**Table 10:** Lead sampling results summary

Sample Type	No. of Sample Points	No. of Samples	Min. Result (µg/L)	Max. Result (µg/L)	ODWQS (µg/L)	Number of Sample Point Exceedances	Number of Sample Exceedances
Distribution	2	2	<1.0	<1.0	10	0	0
Plumbing <sup>1</sup>	11	22	<1.0	6.3		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.

### 3.8 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. 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 in accordance with Schedule 6 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.

Parameter	Most Recent Sample Date	Units	Result	ODWQS
Antimony	21-Sep-2023	µg/L	<0.60	6
Arsenic	21-Sep-2023	µg/L	<1.0	10
Barium	21-Sep-2023	µg/L	<10	1000
Boron	21-Sep-2023	µg/L	<50	5000
Cadmium	21-Sep-2023	µg/L	<0.10	5
Chromium	21-Sep-2023	µg/L	<1.0	50
Fluoride	8-Sep-2022	mg/L	0.721	1.5
Mercury	21-Sep-2023	µg/L	<0.10	1
Selenium	21-Sep-2023	µg/L	<1.0	50
Sodium	8-Sep-2022	mg/L	15	20
Uranium	21-Sep-2023	µg/L	<2.0	20

Organic parameters are sampled on an annual basis in treated water in accordance with Schedules 13 (Chemical sampling and testing) and 24 (Organic parameters) of O. Reg. 170/03. These parameters include various organic acids, pesticides, herbicides, PCBs, volatile organics and other chemicals. Sampling for all organic parameters was conducted on July 26, August 31 and September 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	<0.20	280
Azinphos-methyl	<0.10	20	Malathion	<0.10	190
Benzene	*	1	MCPA	<0.050	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	*	80
Carbofuran	<0.20	90	Paraquat	<1.0	10
Carbon Tetrachloride	*	2	Pentachlorophenol	<0.50	60
Chlorpyrifos	<0.10	90	Phorate	<0.10	2
Diazinon	<0.10	20	Picloram	<0.10	190
Dicamba	<0.10	120	Total PCBs	<0.030	3
1,2-Dichlorobenzene	*	200	Prometryn	<0.10	1
1,4-Dichlorobenzene	*	5	Simazine	<0.10	10
1,2-Dichloroethane	*	5	Terbufos	<0.10	1
1,1-Dichloroethylene	*	14	Tetrachloroethylene	*	10
Dichloromethane	*	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	*	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	*	1
*Annual samples were taken, but analysis of VOC's was not completed. The Ministry was notified of this sampling error.					

### 3.9 Special Herbicide Monitoring

Treated water samples are collected and tested for common herbicides during the spring and summer months. This program is intended to monitor water quality before, during and after annual vegetation control activities are undertaken with respect to the railway right-of-way. The

results from additional monitoring for herbicides are provided in Table 13. The table includes the results from samples collected on September 21, 2023 as part of the routine sampling program described in section 3.8. No herbicides were detected in any of the samples and all results were below the associated Ontario Drinking Water Quality Standards.

**Table 13: Additional herbicide monitoring results**

Parameter		Bromoxynil	2,4-D	Dicamba	Glyphosate	MCPA	Picloram	Diuron
ODWQS (µg/L)		5	100	120	280	100	190	150
Sample Date & Type		Results (µg/L)						
18-May-2023	Treated	<0.050	<0.050	<0.10	---	<0.050	<0.10	<1.0
26-Jun-2023	Treated	<0.050	<0.050	<0.10	---	<0.050	<0.10	<1.0
26-Jul-2023	Treated	<0.050	<0.050	<0.10	<0.20	<0.050	<0.10	<1.0
31-Aug-2023	Treated	<0.050	<0.050	<0.10	<0.20	<0.050	<0.10	<1.0
21-Sep-2023	Treated	<0.20	<0.050	<0.10	<0.20	<0.050	<0.10	<1.0

### 3.10 Environmental Discharge Sampling

The *Municipal Drinking Water Licence* for the Atikokan Drinking Water System requires additional sampling associated with discharges to the natural environment. During normal water treatment plant operation, process wastewater is transferred directly to the wastewater collection (sanitary sewer) system. If conditioned process wastewater is discharged to the natural environment, as may be the case during the management of a treatment process upset, composite samples must be collected and analyzed for total suspended solids (TSS). The *Licence* also requires that the effluent discharged to the natural environment has an annual average TSS concentration below 25 mg/L. In 2023, there were zero (0) discharge events.

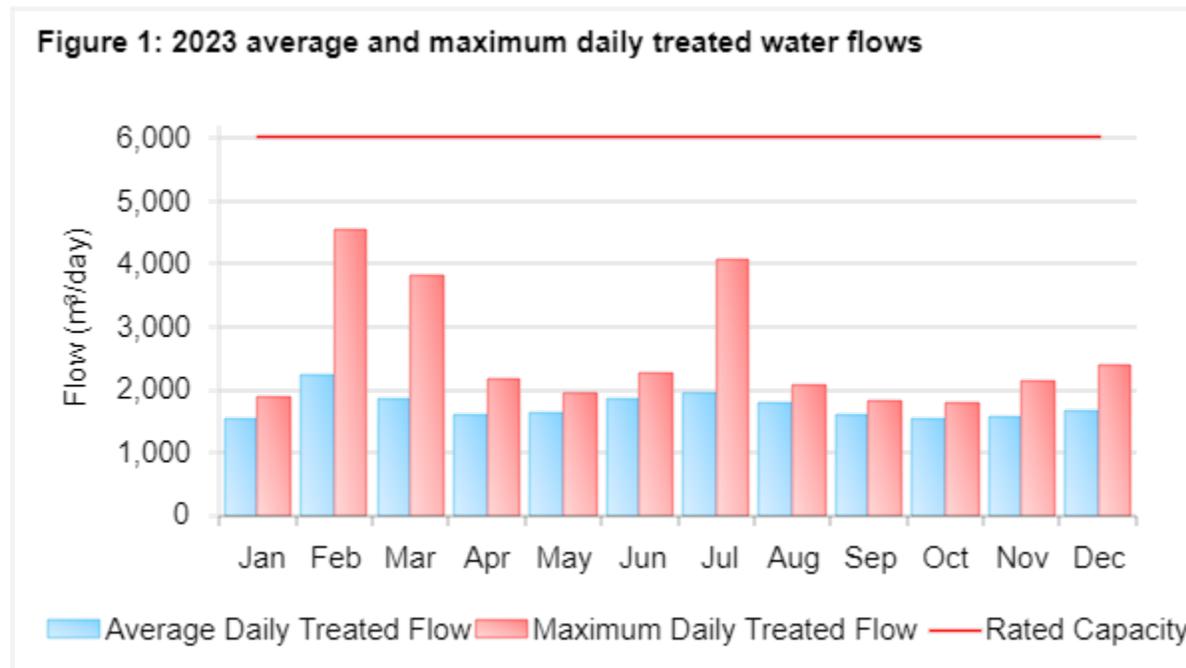
## 4 Water Production

### 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 Atikokan DWS operated within its rated capacity and supplied a total of 633,871 m<sup>3</sup> of treated water. On an average day in 2023, 1,740 m<sup>3</sup> of treated water was supplied to the community, which represents 37% of the rated capacity of the Atikokan Water Treatment Plant (6,048 m<sup>3</sup>/day). The maximum daily flow in 2023 was 4,543 m<sup>3</sup>/day, which represents 75% of the rated capacity of the treatment facility. Flow monitoring results are summarized in Figure 1 and Table 14.



**Table 14: 2023 water production summary**

Month	Total Volumes (m <sup>3</sup> )		Daily Flows (m <sup>3</sup> /day)		Capacity Assessments <sup>1</sup>	
	Raw Water	Treated Water	Average - Treated	Maximum - Treated	Average - Treated	Maximum - Treated
Jan	56,440	47,749	1,540	1,899	25%	31%
Feb	74,250	63,044	2,252	4,543	37%	75%
Mar	72,700	57,668	1,860	3,821	31%	63%
Apr	60,730	48,005	1,600	2,178	26%	36%
May	65,250	50,564	1,631	1,968	27%	33%
Jun	65,860	55,420	1,847	2,261	31%	37%
Jul	69,010	60,776	1,961	4,079	32%	67%
Aug	61,900	55,722	1,797	2,080	30%	34%
Sep	53,610	48,537	1,618	1,818	27%	30%
Oct	51,750	47,400	1,529	1,783	25%	29%
Nov	56,630	46,798	1,560	2,131	26%	35%
Dec	62,310	52,188	1,683	2,410	28%	40%
Total	750,440	633,871	---	---	---	---
Average	62,537	52,823	1,740	---	37%	---

1. Capacity assessments compare the average and maximum daily treated water flows to the 6048 m<sup>3</sup>/day rated capacity of the treatment facility.

### 4.3 Recent Historical Flows

Table 15 summarizes recent historical flow monitoring results for the Atikokan Drinking Water System. There were small increases in the volumes of source water withdrawn and treated water supplied in 2023 when compared to 2022, and average daily treated water flows in 2023 were similar to 2022. In addition to population factors, annual variations in average daily flows are in part attributable to the frequency and severity of distribution system leaks and to the quantities of water used to prevent lines from freezing.

**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	Maximum - Treated	Raw Water	Treated Water
2011	762,600	615,934	1,687	3,889	-4.4%	-0.6%
2012	747,243	642,622	1,756	3,082	-2.0%	+4.3%
2013	798,360	639,019	1,751	5,530	+6.8%	-0.6%
2014	943,794	789,592	2,163	3,770	+18.2%	+23.6%
2015	1,029,030	825,522	2,262	4,124	+9.0%	+4.6%
2016	771,350	656,030	1,792	3,389	-25.0%	-20.5%
2017	768,291	639,453	1,752	2,813	-0.4%	-2.5%
2018	927,760	785,846	2,153	3,464	+20.8%	+22.9%
2019	789,460	673,698	1,846	3,834	-14.9%	-14.3%
2020	854,630	728,241	1,990	3,227	+8.3%	+8.1%
2021	695,660	588,926	1,613	2,888	-18.6%	-19.1%
2022	710,850	592,321	1,621	4214	+2.2%	0.6%
2023	750,440	633,871	1,740	4543	+5.6%	+7.0%



## 5 Compliance

### 5.1 Overview

Northern Waterworks Inc. and the Town of Atikokan 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 Atikokan;
- 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 six (6) adverse water quality incidents that occurred during the reporting period are summarized below.

- **AWQI 161103 (January 5, 2023) & AWQI 161719 (April 7, 2023) & AWQI No. 162457 (July 6, 2023)**

The calculated running annual average (RAA) for haloacetic acid (HAA) at the end of quarter 4 (2022) was 88.7µg/L which was above the regulatory limit of 80µg/L. The calculated running annual average (RAA) for haloacetic acid (HAA) at the end of quarter 1 was 90.8µg/L which was above the regulatory limit of 80µg/L. The calculated running annual average (RAA) for haloacetic acid (HAA) at the end of quarter 2 was 89.8µg/L which was above the regulatory limit of 80µg/L. There were no corrective actions required by the Northwest Health Unit. Efforts to minimize HAAs included maintaining optimized treatment processes where possible and reducing water age in the distribution system (i.e., by managing storage levels, using bleeders, recurrent

localized flushing, etc.). A Notice of Issue Resolution was submitted to the Ministry on October 5, 2023 when the calculated running annual average (RAA) for haloacetic acid (HAA) at the end of quarter 3 was 78.7µg/L which was below the regulatory limit of 80µg/L.

- **AWQI 161283 (February 6, 2023)**

A loss of continuous monitoring for the treated water point of entry to the distribution system occurred from 23:26 Feb 5th to 07:54 Feb 6th. The system was not continuously monitoring Cl<sub>2</sub> for a duration of 8 hours and 28 minutes. Chlorine Contact Time (CT) was calculated to ensure disinfection was achieved during the time period. Operator tested distribution residuals from Lone Pine Rink on Feb 5th at 23:57 (0.51mg/L) and on Feb 6th at 08:00 (1.34 mg/L) There were no further corrective actions required by the Northwest Health Unit.

- **AWQI 161326 (February 12, 2023)**

114 Dororthy Street. Circumferential break found in 150mm cast iron main. Public works chased this break through the frost for 5 days before locating it. There were several water breaks that appeared simultaneously and the water treatment plant could not handle demand. We decided to close this section of mainline to do the repairs and move on to other water breaks. No air gap was established so an AWQI was called in. Notices were hand delivered to all affected addresses (Ambulance base and Atikokan General Hospital). CL<sub>2</sub> residual was 1.76 mg/L during post repair flushing. Samples were collected on February 13th and 14th, results showed no presence of bacteria. Boil water advisory was rescinded February 17th.

- **AWQI 161326 (March 20, 2023)**

610 Front Street. Circumferential break in 150mm cast iron main line. Public works could not pump water quick enough to establish an air gap. An AWQI was called in a boil water advisory issued to 610-620 Front Street and 2 Highland Park. Notices were hand delivered. CL<sub>2</sub> residual was 1.34 mg/L during flushing. Samples collected March 27 and March 28, 2023. Sample results show no presence of bacteria and the boil water advisory was rescinded March 31, 2023.

- **AWQI 161918 (May 9, 2023)**

An incident of high distribution flows with low distribution pressure from 17:01 until 17:54 on May 9, 2023 while Town staff worked to isolate a large (12") main break caused by the collapse of a culvert on Mercury St. Atikokan Public Works began

flushing at 5 locations immediately after flow and pressure was restored and completed flushing at 20:42. A boil water advisory (BWA) was initiated on May 9, 2023. Samples were taken from 10 distribution locations on May 9 and resampled on May 10, 2023. All results were absent for total coliforms and E. Coli. The BWA was rescinded on May 15, 2023.

- **AWQI 162468 (July 7, 2023)**

210 O'Brien St. - An incident of high distribution flows with low distribution pressure occurred July 7, 2023 while Town staff worked to isolate and repair multiple water main breaks. A 100mm fire service blew in a vacant lot. An air gap could not be established so a localized boil water advisory (BWA) was initiated on July 7, 2023 to the 200 block of O'Brien Street . Notices were hand delivered to all addresses. Since the line was not in use Public Works excavated at the main line and abandoned the 100mm service. Once repairs and flushing were completed, samples were taken from 10 distribution locations on July 10 and resampled on July 11, 2023. CL2 residual was 2.07 mg/L during post repair flushing. All results were absent for total coliforms and E. Coli. The BWA was rescinded on July 17, 2023.

- **AWQI 163423 (September 13, 2023)**

18 Rawn Road. During a water main repair we found a split bell connection in a 150mm cast iron main. Our vacuum truck pump failed and we lost our air gap during the repair. AWQI was called in and boil water advisory (BWA) was issued for 1-26 Rawn Road. Notices were hand delivered to each residence. CL2 residual during flushing was 1.46 mg/L. Samples were collected on September 18 & 19, and both sets of sample results indicated no presence of bacteria. The BWA was rescinded September 21, 2023.

### **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 initiated on August 30, 2023. The final inspection rating was 98.9% and one (1) incident of regulatory noncompliance was 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. On multiple days throughout 2023 (e. g. April 17; May 8, 10, 25; June 1, 12, 26, 29; and August 14), more than one OIC was signed into the WTP logbook and at least one of the OIC's signed in that day was not performing the duties of an OIC.

An owner or operating authority can designate multiple OICs for a subsystem or facility, so having more than one OIC in the logbook is not an issue. However, all OICs must perform the duties of an OIC in respect of the process or processes for which they are responsible. In situations where more than one OIC is designated for a system, each OIC should be aware of the process or processes for which each OIC is responsible. An OIC's responsibility should be apparent based on the log entries.

NWI compliance staff and management met with the MECP Inspectors from the Kenora District office on October 18, 2023 to discuss this non-compliance and question the interpretation of the legislation. Following the meeting, Ministry staff corresponded with their Program Services Unit, Certification group, Ajax office and Peterborough office. They proceeded with the non-compliance observation. However, they did provide a more detailed interpretation of O. Reg 128/04, section 26.

All NWI operators who work in the Atikokan WTP reviewed NWI's Personnel Coverage Policy, which describes requirements for "secondary" OIC and confirmation of this review was provided to the water inspector. No further actions are required at this time and compliance with respect to these issues will be reassessed during the next annual inspection.

