

Annual Report

Atikokan Drinking Water System



Contents

1	Introduction	3
1.1	Annual Reporting Requirements	3
1.2	Report Availability	3
2	System Overview & Expenses	4
2.1	System Description	4
2.2	Water Treatment Chemicals	5
2.3	System Expenses	6
3	Water Quality	6
3.1	Overview	7
3.2	Microbiological Parameters	8
3.3	Operational Parameters	8
3.4	Conventional Filtration Performance	9
3.5	Nitrate & Nitrite	10
3.6	Trihalomethanes & Haloacetic Acids	11
3.7	Lead Sampling	12
3.8	Inorganic & Organic Parameters	13
3.9	Special Herbicide Monitoring	15
3.10	Environmental Discharge Sampling	15
4	Water Production	15
4.1	Overview	16
4.2	Flow Monitoring Results	16
4.3	Recent Historical Flows	17
5	Compliance	18
5.1	Overview	19
5.2	Adverse Water Quality Incidents	19
5.3	Regulatory Compliance	20

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, 2022).

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.

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">• Raw water pumping station• Atikokan Water Treatment Plant• Atikokan Water distribution system
Treatment Processes:	<ul style="list-style-type: none">• Coagulation, sand-ballasted 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 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.

Table 2: Water treatment chemicals used in 2022	
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 2022 are summarized in Table 3.

Table 3: Major expenses incurred in 2022¹

Category	Description	Expense
Maintenance	Water Distribution Leak Detection Survey	\$7,178
Replace	Filter Room Air Compressor/Dryer/Control	\$30,806
New Equipment	Air Conditioner for Control Room and Power Feed	\$4,273
Replace	Filter Room Air Compressor	\$12,143
Maintenance	Testing of Backflow Preventers	\$2,218
Replace	Hour Meter – Integrators (8)	\$2,035
Maintenance	Automation Now – Troubleshooting and Repairs	\$11,787
Maintenance	Flow meter calibration verifications (all sites) ¹	\$6,526
Maintenance	VFS's for Clarifier JMI	\$2,491
Replace	Decant Tank Overflow Sensor	\$12,643
Replace	Benchtop pH Meter	\$2,581
Maintenance	Tramin - Troubleshooting High Pump Failures	\$9,918
New Equipment	Power Feed for Air Conditioner	\$1,642
Maintenance	Furnace Inspection/Service	\$2,225
Equipment Rental	Backhoe/Hammer rental	\$7,644
Maintenance	Thawing Services from Warburton	\$15,594
Maintenance	Service Box Rods	\$1,290
Equipment	Clamps	\$6,969
Repair	Waterline Repairs	\$5,407
Replace	Clement Water Dams Monitoring and Removal	\$3,040
Replace	Hydrant Parts	\$15,128
Equipment	Single Jacket Fire Hose	\$2,232

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 2022, 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.

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 47	12 to >2420	---	---
Treated Water	53	absent	absent	52	0 to 2
Distribution	186	absent	absent	57	0 to 6
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.

Table 5: Results summary for operational parameters

Parameter (Sample Type)	Number of Samples	Units	Min. Result	Max. Result	Annual Avg.	Adverse Result ¹
Turbidity (Raw Water)	253	NTU	0.57	3.24	1.07	n/a
Turbidity (Filter 1)	Continuous	NTU	0.051	2.000	0.098	> 1.0
Turbidity (Filter 2)	Continuous	NTU	0.038	2.000	0.096	> 1.0
Turbidity (Filter 3)	Continuous	NTU	0.038	2.000	0.075	> 1.0
Turbidity (Filter 4)	Continuous	NTU	0.026	1.998	0.055	> 1.0
Turbidity (Treated)	364	NTU	0.10	0.84	0.18	n/a
pH (Treated)	365	---	6.87	7.60	7.28	n/a
Aluminum Residual (Treated)	52	mg/L	0.027	0.283	0.066	n/a
Fluoride Residual (Treated)	Continuous	mg/L	0.37	1.01	0.72	> 1.5
FCR ² (Treated)	Continuous	mg/L	1.83	5.16	2.66	n/a
FCR ³ (Distribution)	450+	mg/L	0.01	3.38	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 three (3) AWQI 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 2022. No AWQIs pertaining to conventional filtration performance occurred during the reporting period.

Table 6: Filtration performance summary

Filter	Minimum Result	Maximum Result	Adverse Result
Filter 1	97.10%	100%	<95%
Filter 2	96.70%	99.90%	<95%
Filter 3	97.20%	100%	<95%
Filter 4	97.20%	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)
14-Feb-2022	0.061	10	<0.010	1
24-May-2022	0.053		<0.010	
15-Aug-2022	<0.020		<0.010	
21-Nov-2022	0.049		<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 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 2022 running annual average for THMs and was below the respective Ontario Drinking Water Quality Standards. One (1) AWQI was reported for an HAA exceedance in Q4 of 2022. Extra samples were taken in Q3 and Q4 to monitor the levels more closely.

Table 8: Total THM results

Sample Date	Result (µg/L)
14-Feb-2022	51.9
24-May-2022	68.2
15-Aug-2022	138
21-Nov-2022	62.8
Regulatory Average (RAA)	80.2
ODWQS (RAA)	100

Table 9: Total HAA results

Sample Date	Result (µg/L)
14-Feb-2022	54.4
24-May-2022	85.3
15-Aug-2022	134
12-Sep-2022	126
17-Oct-22	79.9
21-Nov-2022	94
19-Dec-22	81.5
Regulatory Average (RAA)	88.7
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 Summer 2020 sample period (June 15, 2020, to October 15, 2020), the Atikokan Drinking Water System qualified for the reduced sampling schedule. Lead sampling under the reduced schedule will resume in the Summer 2022 sample period (June 15, 2022, to October 15, 2022). Table 10 summarizes the most recent results of community lead sampling conducted in 2022. Distribution and plumbing samples were collected on October 14, 2022, and all results were below the Ontario Drinking Water Quality Standard for lead in drinking water.

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 ¹	11	22	<1.0	6.8		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	12-Sep-2022	µg/L	<0.60	6
Arsenic	12-Sep-2022	µg/L	<1.0	10
Barium	12-Sep-2022	µg/L	<10	1000
Boron	12-Sep-2022	µg/L	<50	5000
Cadmium	12-Sep-2022	µg/L	<0.10	5
Chromium	12-Sep-2022	µg/L	<1.0	50
Fluoride	8-Sep-2022	mg/L	0.721	1.5
Mercury	12-Sep-2022	µg/L	<0.10	1
Selenium	12-Sep-2022	µg/L	<1.0	50
Sodium	8-Sep-2022	mg/L	15	20
Uranium	12-Sep-2022	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 19, 2022 and September 12, 2022, 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	<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

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 July 19, 2022, 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		AMPA	Bromoxynil	2,4-D	Dicamba	Dinoseb	Glyphosate	MCPA	Picloram	2,4,5-TP	Diuron
ODWQS (µg/L)		---	5	100	120	---	280	100	190	---	150
Sample Date & Type		Results (µg/L)									
17-May-2022	Treated	<0.50	<0.20	<0.20	<0.20	<0.20	<5.0	<0.20	<0.20	<0.20	<1.0
19-Jul-2022	Treated	<0.50	<0.20	<0.20	<0.20	<0.20	<5.0	<0.20	<0.20	<0.20	<1.0
15-Aug-2022	Treated	<0.50	<0.20	<0.20	<0.20	<0.20	<5.0	<0.20	<0.20	<0.20	<1.0
12-Sep-2022	Treated	<0.50	<0.20	<0.20	<0.20	<0.20	<5.0	<0.20	<0.20	<0.20	<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 2022, there were two (2) discharge event and the effluent discharged to the natural environment had a TSS average concentration of 23.4 mg/L. This was below the limit provided in the *Licence*.

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 592,231 m³ of treated water. On an average day in 2022, 1,623 m³ of treated water was supplied to the community, which represents 27% of the rated capacity of the Atikokan Water Treatment Plant (6,048 m³/day). The maximum daily flow in 2022 was 2,889 m³/day, which represents 48% of the rated capacity of the treatment facility. Flow monitoring results are summarized in Figure 1 and Table 14.

Figure 1: 2022 average and maximum daily treated water flows

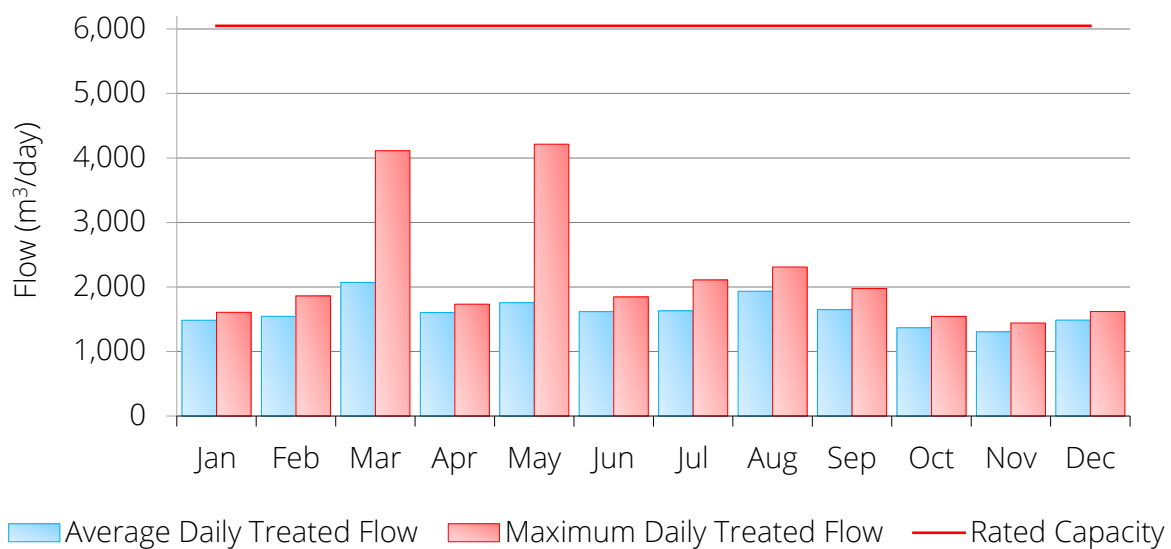


Table 14: 2022 water production summary

Month	Total Volumes (m ³)		Daily Flows (m ³ /day)		Capacity Assessments ¹	
	Raw Water	Treated Water	Average - Treated	Maximum - Treated	Average - Treated	Maximum - Treated
Jan	55,150	46,034	1,485	1,608	25%	27%
Feb	53,130	43,284	1,546	1,861	26%	31%
Mar	76,780	64,194	2,071	4,112	34%	68%
Apr	58,270	48,110	1,604	1,734	27%	29%
May	64,070	54,462	1,757	4,214	29%	70%
Jun	56,860	48,546	1,618	1,846	27%	31%
Jul	62,620	50,551	1,631	2,109	27%	35%
Aug	70,250	59,976	1,935	2,310	32%	38%
Sep	63,220	49,470	1,649	1,976	27%	33%
Oct	49,650	42,406	1,368	1,545	23%	26%
Nov	45,850	39,181	1,306	1,442	22%	24%
Dec	52,950	46,107	1,487	1,620	25%	27%
Total	708,800	592,231	---	---	---	---
Average	59,067	49,360	1,623	---	27%	---

1. Capacity assessments compare the average and maximum daily treated water flows to the 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 appreciable reductions in the volumes of source water withdrawn and treated water supplied in 2022 when compared to 2020, and average daily treated water flows in 2022 were similar to 2021. 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 ³)		Daily Flows (m ³ /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	708,800	592,231	1,623	2,889	1.9%	0.6%



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 five (5) adverse water quality incidents that occurred during the reporting period are summarized below.

- **AWQI No. 159323 (July 27, 2022)**
Incident of low distribution pressure as High Lift Pump #4 failed. The system pressure was low for approximately 2 hours. A boil water advisory (BWA) was initiated on July 27, 2022. Samples were taken from 10 distribution locations on July 27, 2022 and July 29, 2022. All results were absent for total coliforms and E. Coli. The BWA was rescinded on August 2, 2022.
- **AWQI No. 159513 (August 11, 2022)**
Adverse results occurred as the free chlorine residual in distribution samples collected from 4 Hogarth Boulevard were less than 0.05 mg/L.

Corrective action was performed in accordance with Schedule 17 of O. Reg. 170/03 and included flushing adjacent water mains to restore secondary disinfection. The free chlorine residual after the flushing were above the required limits (1.40 mg/L).

- **AWQI No. 159550 (August 15, 2022) & AWQI No. 159590 (August 17, 2022)**
First adverse results occurred as the free chlorine residual in distribution samples collected from 6 Grenville Ave. on August 15, 2022 were less than 0.05 mg/L. This sampling was in response to the AWQI from August 11, 2022. Corrective action was performed in accordance with Schedule 17 of O. Reg. 170/03 and included flushing adjacent water mains to restore secondary disinfection and continuing to monitor secondary disinfection in the area. Residual was 1.33 mg/L when flushing was completed. The second adverse occurred when samples were collected as a follow-up to the previous AWQI's. Chlorine residual below 0.05mg/L was found at 6 Grenville Ave. on August 17, 2022. Corrective action was performed in accordance with Schedule 17 of O. Reg. 170/03 and included flushing adjacent water mains to restore secondary disinfection. A bleeder was installed on August 18, 2022.
- **AWQI No. 160240 (October 4, 2022)**
The calculated running annual average (RAA) for haloacetic acid (HAA) at the end of quarter 3 was 85.3µg/L which was above the regulatory limit of 80µg/L. There were no corrective actions required by the Northwest Health Unit.

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 June 27, 2022. The final inspection rating was 100% and there were no findings during this inspection.

