Ontario Clean Water Agency
Agence Ontarienne Des Eaux

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February 2023

Mayor James McPherson and Council
The Corporation of the Municipality of Greenstone
P.O. Box 70
Geraldton, Ontario
P0T 1M0

Re: 2022 Annual Summary Report for the Beardmore Drinking-Water System
2022 Annual Summary Report for the Caramat Drinking-Water System
2022 Annual Summary Report for the Geraldton Drinking-Water System
2022 Annual Summary Report for the Longlac Drinking-Water System
2022 Annual Summary Report for the Nakina Drinking-Water System

Ontario's Drinking-Water Systems Regulation (O.Reg.170/03), made under the *Safe Drinking Water Act, 2002*, requires that the owner of a drinking water system prepare an annual summary for municipalities on the operation of the system and the quality of its water.

The annual summary must cover the period of January 1st to December 31st in a year and must *be prepared not later than March 31st* of the following year. Pursuant to the legislative requirements, enclosed for your records is the 2022 Annual Summary for the Greenstone Drinking-Water Systems.

Pursuant to the legislative requirements, *Schedule 22 Summary Reports for Municipalities*, the annual summary must:

(a) list the 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; and,

(b) for each requirement referred to in clause (a) that was not met, specify the duration of the failure and the measures that were taken to correct the failure."

- O. Reg. 170/03 s. 22 (2)

"The report must also include the following information for the purpose of enabling the owner of the system to assess the rated capability of their system to meet existing and planned uses of the system:

1. A summary of the quantities and flow rates of the water supplied during the period covered by the report, including monthly average and maximum daily flows.

2. A comparison of the summary referred to in paragraph 1 to the rated capacity and flow rates approved in the system's approval, drinking water works permit or municipal drinking water licence, or if the system is receiving all of its water from another system under an

agreement pursuant to subsection 5 (4), to the flow rates specified in the written agreement."

-O. Reg. 170/03 s. 22 (3)

In addition, Section 12 (1) - 4 - gives the direction that a copy of the annual summary for the system is given, without charge, to every person who requests a copy and be made available for inspection by any member of the public during normal business hours. The reports should be made available at the office of the municipality, or at a location that is accessible to the users of the water system.

These reports were prepared by the Ontario Clean Water Agency on behalf of the Corporation of the Municipality of Greenstone and are based on information kept on record by OCWA at each specific water treatment plant. The report covers the period January 1st through to December 31st 2022.

Yours truly,

Patrick Albert

Patrick Albert
Senior Operations Manager
Northwestern Ontario Regional Hub

Copy to: Mark Wright - CAO
Brian Aaltonen – Director of Public Services
Operations Staff – Beardmore WTP
Operations Staff – Caramat WTP
Operations Staff – Geraldton WTP
Operations Staff – Longlac WTP
Operations Staff – Nakina WS

2022 Schedule 22 Annual Summary Report

Beardmore Drinking-Water System

February 2023

Prepared by the

Ontario Clean Water Agency
Agence Ontarienne Des Eaux

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Section 1: Introduction

This report is a summary of water quality information for the Beardmore Drinking-Water System, published in accordance with Schedule 22 of Ontario's Drinking-Water Systems Regulation for the reporting period of January 1st to December 31st 2022. The Beardmore Drinking-Water System is categorized as a Large Municipal Residential Drinking-Water System.

This report is prepared by The Ontario Clean Water Agency on behalf of the Corporation of the Municipality of Greenstone – Beardmore Ward. A copy of the Summary Report is to be provided to the members of the municipal council by March 31st 2023.

Section 2: What Does This Report Contain?

"The report must,

(a) list the 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; and,

(b) for each requirement referred to in clause (a) that was not met, specify the duration of the failure and the measures that were taken to correct the failure."

- O. Reg. 170/03 s. 22 (2)

"The report must also include the following information for the purpose of enabling the owner of the system to assess the rated capability of their system to meet existing and planned uses of the system:

1. A summary of the quantities and flow rates of the water supplied during the period covered by the report, including monthly average and maximum daily flows.

2. A comparison of the summary referred to in paragraph 1 to the rated capacity and flow rates approved in the system's approval, drinking water works permit or municipal drinking water licence, or if the system is receiving all of its water from another system under an agreement pursuant to subsection 5 (4), to the flow rates specified in the written agreement."

-O. Reg. 170/03 s. 22 (3)

Section 3: Daily Flow Rates

In accordance with the ***Municipal Drinking Water Licence 225-102 Schedule C: System – Specific Conditions 1.0 Performance Limits***, the Beardmore drinking water system shall not be operated to exceed the rated capacity for maximum flow rate from the treatment subsystem to the distribution system of **752 m^3 / day**.

The drinking water system may be operated temporarily at a rate above the rated capacity where necessary for:

(i) the purposes of fighting a large fire or,

(ii) the maintenance of the drinking-water system

In 2022, the average monthly raw flow rate was 2326.01 m^3; the average raw daily flow rate was 76.57 m^3, with a maximum raw daily flow rate of 300.78 m^3.

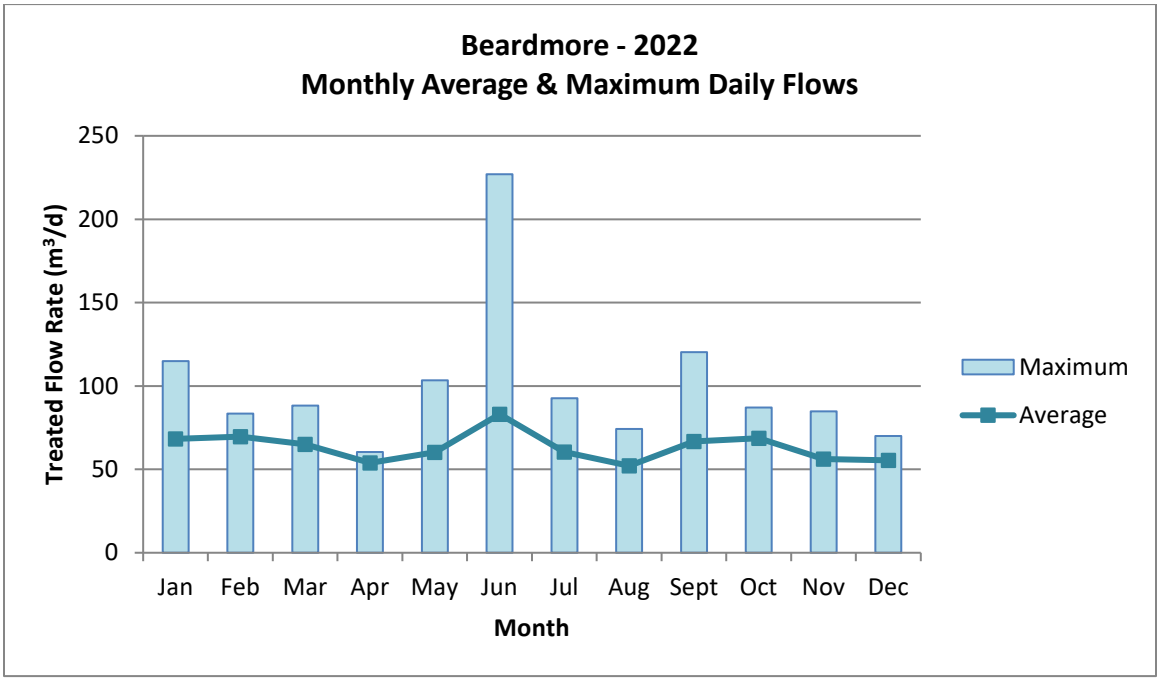
In 2022, the average monthly treated flow rate was 1923.98 m^3; the average daily treated flow was 63.32 m^3 and the maximum daily treated flow for the year was 226.95 m^3; this represents 30.18 % of the allowable daily volume.

A summary of raw and treated flows, including maximum raw flow into the treatment system as well as treated average, maximum and total flow rates are included in the tables below.

The quantity of raw water supplied during the reporting period did not exceed the terms and conditions of the *Permit to Take Water* nor did the treated flows directed to the distribution system exceed the rated capacity for this system.

Monthly Raw & Treated Flow Rates for 2022

Month	Average Daily Raw Flow Rate (m^3/d)	Maximum Daily Raw Flow Rate (m^3/d)	Average Daily Treated Flow Rate (m^3/d)	Maximum Daily Treated Flow Rate (m^3/d)	Total Monthly Treated Flow Rate (m^3/month)
January	77.86	109.27	68.31	114.85	2,117.54
February	82.41	118.84	69.59	83.37	1,948.55
March	77.55	106.99	64.98	88.29	2,014.50
April	67.62	137.00	53.92	60.47	1,617.61
May	69.67	135.97	60.21	103.46	1,866.47
June	106.28	300.78	83.09	226.95	2,492.64
July	74.27	120.02	60.49	92.68	1,875.33
August	64.42	103.93	52.13	74.31	1,615.97
September	82.40	160.10	66.76	120.32	2,002.66
October	79.82	109.66	68.66	87.01	2,128.42
November	68.90	123.69	56.26	84.87	1,687.81
December	67.66	93.74	55.49	70.03	1,720.28
		2022 Total Treated Flows (m^3)		**23,087.78**	



Section 4: System Failures and Correction

The Ministry of Environment conducted an announced inspection of the water plant on August 23 2022. There where nine non-compliance noted from the inspection. The IRR for the inspection report was 91.14%.

Item	Non-Compliance Identified	Compliance Date	Action Being Taken to Address item	Status
1	Standby power generators were not tested under normal load conditions. Inspector Observations: The generator is fairly new (2016) so it hasn't been tested under normal load conditions yet, but the operating authority has intentions of retaining a third party to conduct periodic load testing. The generator at the plant is overpowered and uses approximately 10-30% of the generator's capacity.			N/A - BMP
2	Operators were not examining continuous monitoring test results or they were not examining the results within 72 hours of the test.Inspector's Observations: Records indicate that continuous monitoring results are being examined within 72 hours of the test, with the following exception: From April 19, 2022 at approximately 08:10 CST to April 21, 2022 at approximately 15:56 CST there was a total loss of effluent turbidity trending which is believed to be associated with the facility transferring from their Wonderwear system to a new PLC (Red Lion System). Operators did not acknowledge this data gap in the logbook, during the following day's review of continuous monitoring data, although it was noted that trends were checked and no issues were found. In addition, on August 22, 2022, at 14:00, the operator documented in the log book they were finally able to access Wonderware and review trends dating back to August 19, 2022. This in itself suggests the data was reviewed at a frequency > 72 hours; however, the last time it was documented that trending was reviewed was August 18, 2022, at 07:58.		This incident is tied to the missing data during the PLC update process.The Operators failed to note the mising data in the logbook. Procedure for 72 hour review issued.	Complete
3	Continuous monitoring equipment that was being utilized to fulfill O. Reg. 170/03 requirements was not performing tests for the parameters with at least the minimum frequency specified in the Table in Schedule 6 of O. Reg. 170/03 and/or was not recording data with the prescribed format.Inspector's Observations: It is a requirement of Section 6-5 of Schedule 6 of O. Reg. 170/03, that treated water chlorine readings be taken and recorded at least once every 5 minutes and that effluent turbidity readings be taken and recorded every 15 minutes. The intent of recording this information is to demonstrate that primary disinfection is being achieved as water is directed to users. During the time of the inspection, trending associated with the water treatment plant was reviewed. The SCADA system recorded treated chlorine and effluent turbidity parameters every minute, with the exception of the following loss of data: From April 19, 2022 at approximately 08:10 CST until		During the upgrade to the electronic system data was not being collected.	Complete

	April 21, 2022 at approximately 15: 56 CST there was a total loss of effluent turbidity trending. During this time, the facility was in the process of transferring over from their current Wonderwear system to a new PLC (Red Lion System). This is believed to be associated with the cause of the data gap. There is no back up data for this event. Furthermore, this data gap was not noted by operators in days following, during a review of continuous monitoring trending (see Inspection Question ID: MRDW1035001).		
4	All continuous monitoring equipment utilized for sampling and testing required by O. Reg. 170/03, or Municipal Drinking Water License or Drinking Water Works Permit or order, were not equipped with alarms or shut-off mechanisms that satisfy the standards described in Schedule 6. Inspector's Observations:O. Reg. 170/03, Schedule 6, section 6-5(1.1)1 states that the continuous monitoring equipment must cause an alarm to signal immediately if the equipment malfunctions or loses power or a test result for a parameter is above the maximum alarm standard or below the minimum alarm standard specified in the Table to this section. When operators are called out for an alarm, they receive an alert on their cell phone, including a text, and can remotely acknowledge the alarm. Some of the alarm settings include: Low chlorine alarm - 0.6 mg/L (call out/alarm) 10 second delay with call out to operator. High chlorine alarm - 2.0 mg/L (call out/alarm) 10 second delay. High turbidity alarm - 0.9 NTU (call out/alarm) 10 second delay for call out and plant shutdown. Low turbidity alarm - 0.1 NTU (call out/alarm) 10 second delay for call out and plant shutdown. From April 19, 2022 to April 21, 2022, work was completed at the plant to change outmultiple valves and relocate the turbidity analyzers. During this timeframe the filter effluent turbidity analyzer alarms were not operational. To minimize this risk, the filters were only operated during the day when operators were present. The plant was configured so that it could not make water in the evenings. Thereis no reason to believe there was an issue with treatment during this time.	OCWA will contact the MECP before major maintenance activities that may impact disinfection.	Complete
5	There was no backflow prevention program, policy and/or bylaw in place.		N/A – BMP
6	The owner was not able to maintain proper pressures in the distribution system and/or pressure was not monitored to alert the operator of conditions which may lead to loss of pressure below the value under which the system is designed to operate.		N/A – BMP
7	The owner did not have a program or maintained a schedule for routine cleanout, inspection and maintenance of reservoirs and elevated storage tanks within the distribution system. Inspector Observations: The operating authority has a procedure in place for cleaning out their reservoirs; however, there is no set schedule for this maintenance to take place.		N/A – BMP
8	The owner and/or operating authority did not undertake efforts to promote water conservation and/or reduce water losses in their system. Inspector Observations:		N/A - BMP

	This facility does not have a leak detection program, but it is a small system so monitoring flows will alert operators of possible leaks/watermain breaks in the system.	
9	The following was noted during the inspection: Inspector Observations: 1. Operators do not consistently document the time the operator received the alarm and the time in which they arrived at the plant to respond to the alarm.	N/A - BMP

Section 5: Conclusion

In the reporting year of 2022, there were five adverse water quality incidents (AWQI) reports filed.

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
Jan 26 2022	Had a low distribution pressure for approximately 3 minutes due to commissioning new fire pump. Upon start up of the fire pump the service pumps kicked out and took us some time to get them operational again causing a pressure drop to 15PSI in the distribution system.	15	Psi	Chlorine resiudals from around town as per MOH - completed and satisfactory to MOH. No further action	Jan 26 2022
Feb 1 2022	Missing all Data trending from Feb 1/22 - 16:52 to Feb 2/22 - 05:50. 13 Hrs in total. Unable to retrieve loss data. IT group cloned the Northwest site that caused a conflict between the two servers which resulted in loss of Communication.			IT group shut down everything on the new server so it no longer is in conflict with the Northwest server.	Feb 2 2022
Apr 25 2022	Hand-off-auto switch on Carus 8500 feeder didn't fully engane in the auto position causing the feeder not to come on automatically when the process started up			Worked the switch to ensure that it is operating in auto position. Electrical upgrade is currently being done to the entire plant and switches	April 25 2022
May 2 2022	Missing data due to communications loss			Communication data restored	May 2 2022
June 23 2022	Operational - Broken pipe in clear well pump well			Temporary system to supply water via a hydrant. Town wide BWA. Repair	June 29 2022

leak and disinfect. Sample.

For the operating year of 2022, the Beardmore Drinking-Water System was able to meet the demand of water use within the town without exceeding the Municipal Drinking Water Licence and Permit to Take Water.

2022 Schedule 22 Annual Summary Report

Caramat Drinking-Water System

February 2023

Prepared by the

Ontario Clean Water Agency
Agence Ontarienne Des Eaux

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Section 1: Introduction

This report is a summary of water quality information for the Caramat Drinking-Water System, published in accordance with Schedule 22 of Ontario's Drinking-Water Systems Regulation for the reporting period of January 1st to December 31st 2022. The Caramat Drinking-Water System is categorized as a Small Municipal Residential Drinking-Water System.

This report is prepared by The Ontario Clean Water Agency on behalf of the Corporation of the Municipality of Greenstone – Caramat Ward. A copy of the Summary Report is to be provided to the members of the municipal council by March 31st 2023.

Section 2: What Does This Report Contain?

"The report must,

(a) list the 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; and,

(b) for each requirement referred to in clause (a) that was not met, specify the duration of the failure and the measures that were taken to correct the failure."

- O. Reg. 170/03 s. 22 (2)

"The report must also include the following information for the purpose of enabling the owner of the system to assess the rated capability of their system to meet existing and planned uses of the system:

1. A summary of the quantities and flow rates of the water supplied during the period covered by the report, including monthly average and maximum daily flows.

2. A comparison of the summary referred to in paragraph 1 to the rated capacity and flow rates approved in the system's approval, drinking water works permit or municipal drinking water licence, or if the system is receiving all of its water from another system under an agreement pursuant to subsection 5 (4), to the flow rates specified in the written agreement."

-O. Reg. 170/03 s. 22 (3)

Section 3: Daily Flow Rates

In accordance with the ***Municipal Drinking Water Licence 225-101 Schedule C: System – Specific Conditions 1.0 Performance Limits***, the Caramat drinking water system shall not be operated to exceed the rated capacity for maximum flow rate from the treatment subsystem to the distribution system of **75.2 m^3 / day**.

The drinking water system may be operated temporarily at a rate above the rated capacity where necessary for:

(i) the purposes of fighting a large fire or,

(ii) the maintenance of the drinking-water system

In 2022, the average monthly raw flow rate was 424.72 m^3; the average raw daily flow rate was 13.94 m^3, with a maximum raw daily flow rate of 34.60 m^3.

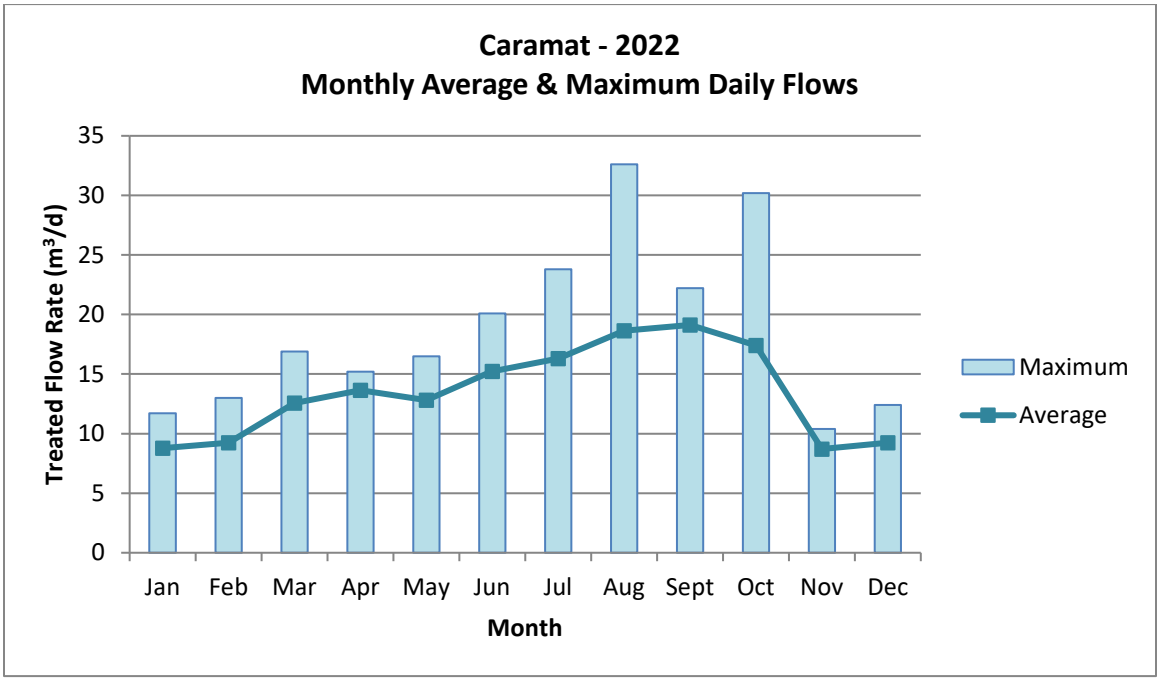
In 2022, the average monthly treated flow rate was 410.77 m^3; the average daily treated flow was 13.48 m^3 and the maximum daily treated flow for the year was 32.60 m^3; this represents 43.35% of the allowable daily volume.

A summary of raw and treated flows, including maximum raw flow into the treatment system as well as treated average, maximum and total flow rates are included in the tables below.

The quantity of raw water supplied during the reporting period did not exceed the terms and conditions of the *Permit to Take Water* nor did the treated flows directed to the distribution system exceed the rated capacity for this system.

Monthly Raw & Treated Flow Rates for 2022

Month	Average Daily Raw Flow Rate (m^3/d)	Maximum Daily Raw Flow Rate (m^3/d)	Average Daily Treated Flow Rate (m^3/d)	Maximum Daily Treated Flow Rate (m^3/d)	Total Monthly Treated Flow Rate (m^3/month)
January	10.61	13.70	8.79	11.70	272.40
February	11.01	14.40	9.22	13.00	258.30
March	13.65	16.60	12.58	16.90	390.00
April	13.20	15.40	13.65	15.20	409.50
May	13.01	16.30	12.80	16.50	396.90
June	14.16	21.40	15.24	20.10	457.20
July	16.04	21.60	16.31	23.80	505.70
August	18.49	21.60	18.65	32.60	578.10
September	18.86	21.40	19.12	22.20	573.70
October	18.29	34.60	17.41	30.20	539.60
November	9.32	11.70	8.71	10.40	261.30
December	10.63	14.60	9.24	12.40	286.50
		2022 Total Treated Flows (m^3)		**4,929.20**	



Section 4: System Failures and Correction

The Ministry of the Environment conducted an *announced* inspection of the Caramat Drinking-Water System on June 6 2022. There was one non-compliance identified in the inspection.

The inspection rating was 95.47%.

Item	Non-Compliance Identified	Compliance Date	Action Being Taken to Address item	Status
1	All continuous monitoring equipment utilized for sampling and testing required by O. Reg. 170/03, or Municipal Drinking Water Licence or Drinking Water Works Permit or order, were not equipped with alarms or shut-off mechanisms that satisfy the standards described in Schedule 6. Chlorine: The minimum chlorine residual to achieve primary disinfection after the clear well, prior to treated water being delivered to the distribution system is 0.8 mg/L according to the "Caramat Water Treatment Plant Daily CT Value Worksheet" document. There are two sets of alarms. The low alarms are set in Wonderware, and the low-low alarms are set in the HMI auto-dialer system, which are persistent alarms.At the time of the inspection, the low chlorine alarm was set to 1.0 mg/L, and the low-low alarm was set to 0.9 mg/L. Chlorine alarms meet legislative requirements. Turbidity: The high turbidity alarms on each filter effluent were set to 0.5 NTU with a 600 second delay on Wonderware and 0.9 NTU with a 600 second delay on the HMI auto-dialer system. The delay in alarms does not meet legislative requirements. High turbidity alarms call out the operator and trigger a system shut down, while low chlorine alarms call out the operator for response. In accordance with Section 6-5 (1) 5-10, Schedule 6 to O. Reg. 170/03: In the case of a turbidity meter installed on the effluent line of a filter, regardless of theresult recording protocol, the regulatory alarm must sound when a test result exceeds 1.0 NTU and the filter effluent is directing water to the next treatment process. In addition to the mandatory regulatory alarm at 1.0 NTU, DWS owners may set alarms to sound well before a filter effluent turbidity reaches 1.0 NTU. This would be an operational	July 7 2022	Operators had delays to reduce nuciance alarms. Alarm delays removed.	Complete

alarm (not a regulatory alarm and need not be reported) that would allow the owner/operator to take appropriate action (filter back wash etc.) on the filter, well before its effluent turbidity reaches the 1.0 NTU level.	

Section 5: Conclusion

In the reporting year of 2022, there was one adverse water quality incident (AWQI) reports filed as summarized in the below table.

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
Dec 30 2022	TC presence	16	mg/L	Flush and Resample upstream and downstream and at point of AWQI	Jan 6 2023

The treated water samples at the plant and in the distribution system were shown to be free of bacteriological contaminants and met the Ontario Drinking Water Quality Standards.

For the operating year of 2022, the Caramat Drinking-Water System was able to meet the demand of water use within the town without exceeding the Municipal Drinking Water Licence and Permit to Take Water.

2022 Schedule 22 Annual Summary Report

Geraldton Drinking-Water System

February 2023

Prepared by the

Ontario Clean Water Agency
Agence Ontarienne Des Eaux

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Section 1: Introduction

This report is a summary of water quality information for the Geraldton Drinking-Water System, published in accordance with Schedule 22 of Ontario's Drinking-Water Systems Regulation for the reporting period of January 1st to December 31st 2022. The Geraldton Drinking-Water System is categorized as a Large Municipal Residential Drinking Water System.

This report is prepared by The Ontario Clean Water Agency on behalf of the Corporation of the Municipality of Greenstone – Geraldton Ward. A copy of the Summary Report is to be provided to the members of the municipal council by March 31st 2023.

Section 2: What Does This Report Contain?

"The report must,

(a) list the 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; and,

(b) for each requirement referred to in clause (a) that was not met, specify the duration of the failure and the measures that were taken to correct the failure."

- O. Reg. 170/03 s. 22 (2)

"The report must also include the following information for the purpose of enabling the owner of the system to assess the rated capability of their system to meet existing and planned uses of the system:

1. A summary of the quantities and flow rates of the water supplied during the period covered by the report, including monthly average and maximum daily flows.

2. A comparison of the summary referred to in paragraph 1 to the rated capacity and flow rates approved in the system's approval, drinking water works permit or municipal drinking water licence, or if the system is receiving all of its water from another system under an agreement pursuant to subsection 5 (4), to the flow rates specified in the written agreement."

-O. Reg. 170/03 s. 22 (3)

Section 3: Daily Flow Rates

In accordance with the ***Municipal Drinking Water Licence 225-104 Schedule C: System – Specific Conditions 1.0 Performance Limits***, the Geraldton Drinking-Water system shall not be operated to exceed the rated capacity for maximum flow rate from the treatment subsystem to the distribution system of **6045 m^3 / day**.

The drinking water system may be operated temporarily at a rate above the rated capacity where necessary for:

(i) the purposes of fighting a large fire or,

(ii) the maintenance of the drinking-water system

In 2022, the average monthly raw flow rate was 43342.42 m^3; the average raw daily flow rate was 1425.69m^3, with a maximum raw daily flow rate of 3071.00m^3.

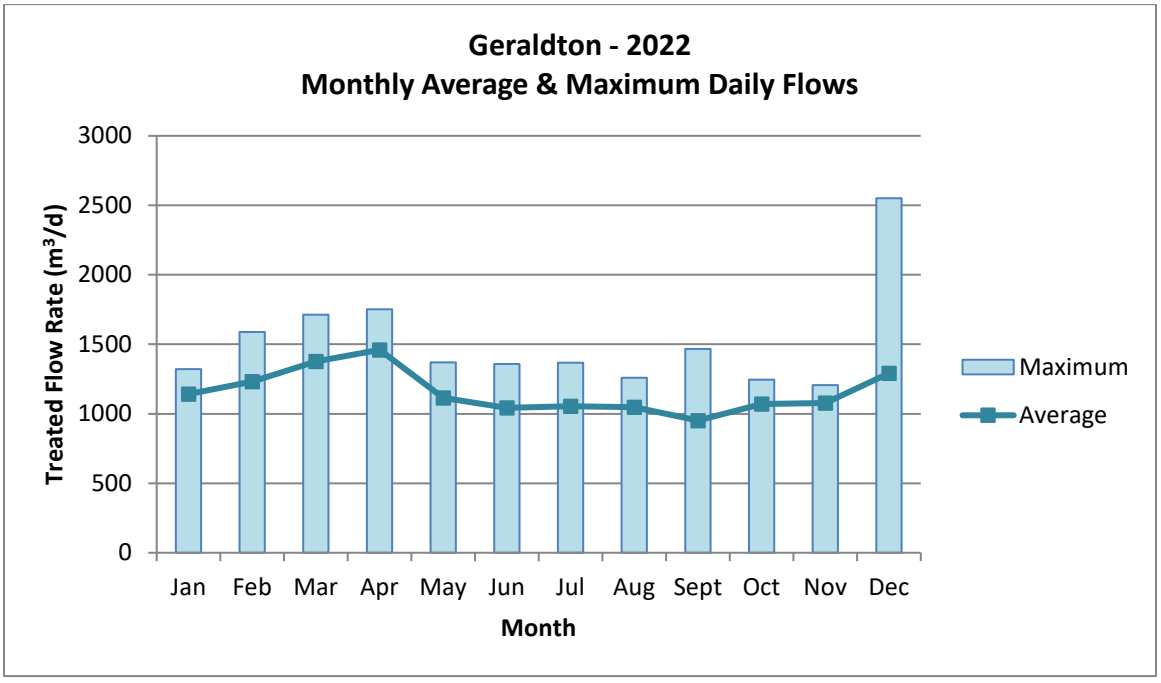
In 2022, the average monthly treated flow rate was 35117.04 m^3; the average daily treated flow was 1154.93 m^3 and the maximum daily treated flow for the year was 2551.00 m^3; this represents 42.20% of the allowable daily volume.

A summary of raw and treated flows, including maximum raw flow into the treatment system as well as treated average, maximum and total flow rates are included in the tables below.

The quantity of raw water supplied during the reporting period did not exceed the terms and conditions of the *Permit to Take Water* nor did the treated flows directed to the distribution system exceed the rated capacity for this system.

Monthly Raw & Treated Flow Rates for 2022

Month	Average Daily Raw Flow Rate (m^3/d)	Maximum Daily Raw Flow Rate (m^3/d)	Average Daily Treated Flow Rate (m^3/d)	Maximum Daily Treated Flow Rate (m^3/d)	Total Monthly Treated Flow Rate (m^3/month)
January	1,413.48	1,734.00	1,141.87	1,321.00	35,398.00
February	1,507.18	1,841.00	1,232.43	1,589.00	34,508.00
March	1,633.61	1,984.00	1,376.58	1,713.00	42,674.00
April	1,727.43	2,180.00	1,460.27	1,751.00	43,808.00
May	1,380.19	1,637.00	1,114.35	1,369.00	34,545.00
June	1,283.50	1,605.00	1,042.60	1,358.00	31,278.00
July	1,288.16	1,653.00	1,053.16	1,367.00	32,648.00
August	1,297.29	1,553.00	1,047.35	1,259.00	32,468.00
September	1,399.37	1,769.00	951.45	1,467.00	28,543.50
October	1,301.65	1,479.00	1,069.81	1,246.00	33,164.00
November	1,316.53	1,451.00	1,078.13	1,207.00	32,344.00
December	1,559.90	3,071.00	1,291.16	2,551.00	40,026.00
		2022 Total Treated Flows (m^3)			**421,404.50**



Section 4: System Failures and Correction

The Ministry of Environment conducted an *inspection* of the Geraldton Drinking-Water System on December 12 2022. There were two non-compliances identified in the report.

The inspection rating was not available at the time of this report.

Item	Non-Compliance Identified	Compliance Date	Action Being Taken to Address item	Status
1	The owner/operating authority was not in compliance with the requirement to prepare Form 2 documents as required by their Drinking Water Works Permit during the inspection period. Schedule B Condition 4.0 of the Drinking Water Works Permit No. 225-204 allows for the pre-authorized alteration of the drinking water system by adding, modifying, replacing or removing certain components, such as the replacement of chemical metering pumps. On May 17, 2022, new alum chemical metering pumps were commissioned at the treatment facility. This planned minor alteration is permitted provided that a Form 2 document be prepared prior to the modified or replaced components being placed into service. At the time of the inspection a Form 2 document was not prepared for this alteration. The Form 2 documentation was competed retroactively on January 5, 2023.	Jan 5 2023	Operator/Manager failed to get Form 2 completed for Alum pump replacement.	Complete
2a	The following issues were also noted during the inspection: 1) There were several occasions during the review period when records did not adequately demonstrate that primary disinfection was achieved after the low chlorine alarm was activated. For example, on December 6, 2022, a low chlorine residual alarm was activated and the residual appeared to decrease to 0.41 mg/L before the high lift pump shut down. There was no record in the logbook demonstrating that CT provided was greater than CT required during this event. Operators also did not appear to have ready access to the facility's CT calculator. At the time of the inspection, it was confirmed that primary disinfection was achieved for all low chlorine alarm events.		The CT calculator was placed on the desk top of all operators to ensure access at all times. CT calculation checks are to be documented in the log book.	Complete
2b	The operating authority should consider recording the results of secondary disinfectant monitoring in an electronic format. This format will better protect data and facilitate any internal auditing processes		The residuals will be entered in the log book at the time of collection	Complete

used by the operating authority

Section 5: Conclusion

In the reporting year of 2022, there were seven adverse water quality incident (AWQI) reports filed as summarized below.

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
Feb 2 2022	loss of data for 13hrs, cl2 and turbidity not being recorded, because of mtc work done by IT Data might be able to be retrieved through the old system that's still operating, need a tech to do.				Feb 3 2022
Feb 8 2022	Loss of pressure from water link break 6" on main street. Water break repairs completed Feb 8 2022 23:00. BWA issued			Received results from ALS, samples absent of E coli and TC, called MOH talked to Colin Mclellan verbal notification to rescind boil water advisory, notify all businesses	Feb 10 2022
Feb 15 2022	Loss of pressure, water break on 6" line. 2 businesses and 1 residence affected.			Repaired main, Collect 1 set of bacti samples	Feb 22 2022
May 25 2022	Loss of pressure on 6" line due to main break. 15 residence affected			collect 2 sets of bacti samples	May 30 2022
June 27 2022	Loss of pressure to isolate for curb stop repair 11 residence affected			collect 2 sets of bacti samples	June 30 2022
Sept 27 2022	Loss of pressure, water break. 3 residence affected.			collect 2 sets of bacti samples	Oct 3 2022
Dec 5 2022	Loss of pressure, water break. 24 residence affected.			collect 2 locations of bacti samples	Dec 8 2022

The inspection found the plant to be producing good quality water. The treated water samples at the plant were shown to be free of bacteriological contaminants and met the Ontario Drinking Water Quality Standards.

For the operating year of 2022, the Geraldton Drinking-Water System was able to meet the demand of water use within the town without exceeding the Municipal Drinking Water Licence and Permit to Take Water.

2022 Schedule 22 Annual Summary Report

Longlac Drinking-Water System

February 2023

Prepared by the

Ontario Clean Water Agency
Agence Ontarienne Des Eaux

Table of Contents

Section 1: Introduction

This report is a summary of water quality information for the Longlac Drinking-Water System, published in accordance with Schedule 22 of Ontario's Drinking-Water Systems Regulation for the reporting period of January 1st to December 31st 2022. The Longlac Drinking-Water System is categorized as a Large Municipal Residential Drinking Water System.

This report is prepared by The Ontario Clean Water Agency on behalf of the Corporation of the Municipality of Greenstone – Longlac Ward. A copy of the Summary Report is to be provided to the members of the municipal council by March 31st 2023.

Section 2: What Does This Report Contain?

"The report must,

(a) list the 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; and,

(b) for each requirement referred to in clause (a) that was not met, specify the duration of the failure and the measures that were taken to correct the failure."

- O. Reg. 170/03 s. 22 (2)

"The report must also include the following information for the purpose of enabling the owner of the system to assess the rated capability of their system to meet existing and planned uses of the system:

1. A summary of the quantities and flow rates of the water supplied during the period covered by the report, including monthly average and maximum daily flows.

2. A comparison of the summary referred to in paragraph 1 to the rated capacity and flow rates approved in the system's approval, drinking water works permit or municipal drinking water licence, or if the system is receiving all of its water from another system under an agreement pursuant to subsection 5 (4), to the flow rates specified in the written agreement."

-O. Reg. 170/03 s. 22 (3)

Section 3: Daily Flow Rates

In accordance with the ***Municipal Drinking Water Licence 225-105 Schedule C: System – Specific Conditions 1.0 Performance Limits***, the Longlac drinking water system shall not be operated to exceed the rated capacity for maximum flow rate from the treatment subsystem to the distribution system of **4540 m^3 / day**.

The drinking water system may be operated temporarily at a rate above the rated capacity where necessary for:

(i) the purposes of fighting a large fire or,

(ii) the maintenance of the drinking-water system

In 2022, the average monthly raw flow rate was 33,619.42 m^3; the average raw daily flow rate was 1,105.53 m^3, with a maximum raw daily flow rate of 1,560.00 m^3.

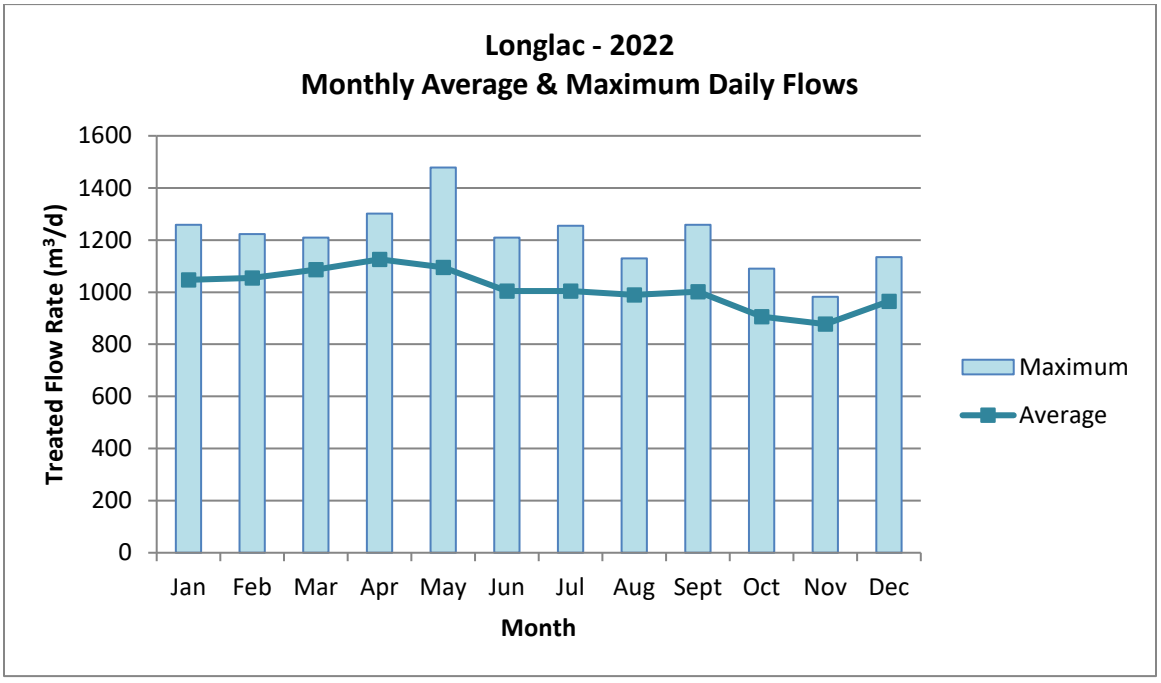
In 2022, the average monthly treated flow rate was 30,726.50 m^3; the average daily treated flow was 1,013.16 m^3 and the maximum daily treated flow for the year was 1,479.00 m^3; this represents 32.58% of the allowable daily volume.

A summary of raw and treated flows, including maximum raw flow into the treatment system as well as treated average, maximum and total flow rates are included in the tables below.

The quantity of raw water supplied during the reporting period did not exceed the terms and conditions of the *Permit to Take Water* nor did the treated flows directed to the distribution system exceed the rated capacity for this system.

Monthly Raw & Treated Flow Rates for 2022

Month	Average Daily Raw Flow Rate (m^3/d)	Maximum Daily Raw Flow Rate (m^3/d)	Average Daily Treated Flow Rate (m^3/d)	Maximum Daily Treated Flow Rate (m^3/d)	Total Monthly Treated Flow Rate (m^3/month)
January	1,148.84	1,371.00	1,047.06	1,258.00	32,459.00
February	1,145.54	1,288.00	1,054.79	1,223.00	29,534.00
March	1,173.97	1,316.00	1,086.32	1,209.00	33,676.00
April	1,228.27	1,375.00	1,126.03	1,301.00	33,781.00
May	1,171.84	1,560.00	1,095.06	1,479.00	33,947.00
June	1,076.47	1,200.00	1,004.30	1,209.00	30,129.00
July	1,087.52	1,214.00	1,004.40	1,255.00	30,132.00
August	1,067.58	1,240.00	989.10	1,130.00	30,662.00
September	1,118.17	1,489.00	1,002.43	1,259.00	30,073.00
October	999.32	1,215.00	906.32	1,090.00	28,096.00
November	963.47	1,156.00	877.37	982.00	26,321.00
December	1,085.35	1,231.00	964.77	1,134.00	29,908.00
			2022 Total Treated Flows (m^3)		**368,718.00**



Section 4: System Failures and Correction

The Ministry of Environment conducted an *unannounced* inspection of the Longlac Drinking-Water System on May 31 2022. There was one non-compliance identified in this inspection. The final inspection rating was 95.27%

Item	Non-Compliance Identified	Compliance Date	Action Being Taken to Address item	Status
1	All continuous monitoring equipment utilized for sampling and testing required by O. Reg. 170/03, or Municipal Drinking Water Licence or Drinking Water Works Permit or order, were not equipped with alarms or shut-off mechanisms that satisfy the standards described in Schedule 6. Chlorine: The minimum chlorine residual required to achieve primary disinfection after the clear well, prior to treated water being delivered to the distribution system is 1.0 mg/L according to the "Chlorine Contact Time Calculations" document. At the time of the inspection, the low chlorine alarm at the chlorine analyzer monitoring primary disinfection was set at 1.0 mg/L. This alarm triggers an immediate call-out and operator response and plant shut down. The chlorine alarms meet legislation. Turbidity: The high turbidity alarm on filter 1 and filter 2 was set at 0.3 NTU with a 600 second (10 minute) delay. The operator will be notified via text message, auto-dialler and Win911 alarms. A high-high set point of 0.5 NTU for 600 seconds (10 minutes) triggers a plant alarm and operator response and plant shut down. The current alarm set points do not meet regulatory requirements. In accordance with Section 6-5 (1) 5-10, Schedule 6 to O. Reg. 170/03: In the case of a turbidity meter installed on the effluent line of a filter, regardless of the result recording protocol, the regulatory alarm must sound when a test result exceeds 1 NTU and the filter effluent is directing water to the next treatment process. In addition to the mandatory regulatory alarm at 1 NTU, DWS owners may set alarms tosound well before a filter effluent turbidity reaches 1 NTU. This would be an operational alarm (not a regulatory alarm and need not be reported) that would allow the owner/operator to take appropriate action (filter back wash etc.) on the filter, well before its effluent turbidity reaches the 1 NTU level.	July 7 2022		Complete

Section 5: Conclusion

In the reporting year of 2022, there was one adverse water quality incident (AWQI) report filed as summarized below.

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
Oct 4 2022	Loss of Pressure			Hydrant repair Riverview - BWA issued for affected homes. Samped three locations . BWA lifted	Oct 7 2022

The inspection found the plant to be producing good quality water. The treated water samples at the plant and in the distribution system were shown to be free of bacteriological contaminants and met the Ontario Drinking Water Quality Standards.

For the operating year of 2022, the Longlac Drinking Water System was able to meet the demand of water use within the town without exceeding the Municipal Drinking Water License and Permit to Take Water.

2022 Schedule 22 Annual Summary Report

Nakina Drinking-Water System

February 2023

Prepared by the

Ontario Clean Water Agency
Agence Ontarienne Des Eaux

Table of Contents

Section 1: Introduction

This report is a summary of water quality information for the Nakina Drinking-Water System, published in accordance with Schedule 22 of Ontario's Drinking-Water Systems Regulation for the reporting period of January 1st to December 31st 2022. The Nakina Drinking-Water System is categorized as a Large Municipal Residential Drinking Water System.

This report is prepared by The Ontario Clean Water Agency on behalf of the Corporation of the Municipality of Greenstone – Nakina Ward. A copy of the Summary Report is to be provided to the members of the municipal council by March 31st 2023.

Section 2: What Does This Report Contain?

"The report must,

(a) list the 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; and,

(b) for each requirement referred to in clause (a) that was not met, specify the duration of the failure and the measures that were taken to correct the failure."

- O. Reg. 170/03 s. 22 (2)

"The report must also include the following information for the purpose of enabling the owner of the system to assess the rated capability of their system to meet existing and planned uses of the system:

1. A summary of the quantities and flow rates of the water supplied during the period covered by the report, including monthly average and maximum daily flows.

2. A comparison of the summary referred to in paragraph 1 to the rated capacity and flow rates approved in the system's approval, drinking water works permit or municipal drinking water licence, or if the system is receiving all of its water from another system under an agreement pursuant to subsection 5 (4), to the flow rates specified in the written agreement."

-O. Reg. 170/03 s. 22 (3)

Section 3: Daily Flow Rates

In accordance with the ***Municipal Drinking Water Licence 225-103 Schedule C: System – Specific Conditions 1.0 Performance Limits***, the Nakina drinking water system shall not be operated to exceed the rated capacity for maximum flow rate from the treatment subsystem to the distribution system of **2000 m^3 / day**.

The drinking water system may be operated temporarily at a rate above the rated capacity where necessary for:

(i) the purposes of fighting a large fire or,

(ii) the maintenance of the drinking-water system

In 2022, the average monthly raw flow rate was 2352.83 m^3; the average raw daily flow rate was 77.15 m^3, with a maximum raw daily flow rate of 407.00 m^3.

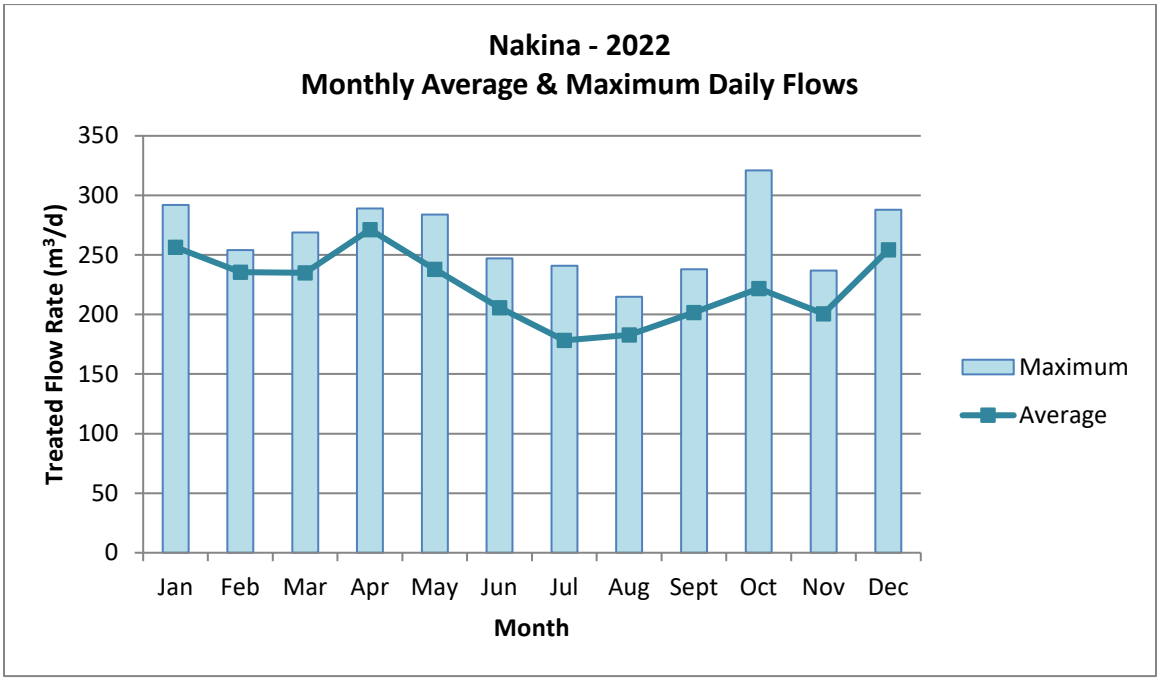
In 2022, the average monthly treated flow rate was 6795.67 m^3; the average daily treated flow was 223.48 m^3 and the maximum daily treated flow for the year was 321.00 m^3; this represents 16.05% of the allowable daily volume.

A summary of raw and treated flows, including maximum raw flow into the treatment system as well as treated average, maximum and total flow rates are included in the tables below.

The quantity of raw water supplied during the reporting period did not exceed the terms and conditions of the *Permit to Take Water* nor did the treated flows directed to the distribution system exceed the rated capacity for this system.

Monthly Raw & Treated Flow Rates for 2022

Month	Average Daily Raw Flow Rate (m^3/d)	Maximum Daily Raw Flow Rate (m^3/d)	Average Daily Treated Flow Rate (m^3/d)	Maximum Daily Treated Flow Rate (m^3/d)	Total Monthly Treated Flow Rate (m^3/month)
January	117.58	357.00	256.65	292.00	7,956.00
February	46.96	277.00	235.43	254.00	6,592.00
March	74.81	260.00	235.00	269.00	7,285.00
April	100.47	400.00	271.33	289.00	8,140.00
May	66.35	335.00	238.06	284.00	7,380.00
June	92.07	266.00	205.63	247.00	6,169.00
July	42.63	263.00	178.26	241.00	5,526.00
August	80.48	251.00	182.87	215.00	5,669.00
September	43.73	299.00	201.70	238.00	6,051.00
October	107.19	278.00	221.90	321.00	6,879.00
November	45.57	216.00	200.60	237.00	6,018.00
December	107.94	407.00	254.29	288.00	7,883.00
		2022 Total Treated Flows (m^3)		**81,548.00**	



Section 4: System Failures and Correction

The Ministry of Environment conducted an inspection of the Nakina Drinking Water System on January 19 2022. The 2022 final inspection report identified no non-compliances.

The 2022 final inspection rating record for the Nakina Drinking Water System was 100%.

Item	Non-Compliance Identified	Compliance Date	Action Being Taken to Address item	Status
N/A	N/A	N/A	N/A	N/A

Section 5: Conclusion

In the reporting year of 2022, there were no adverse water quality incident (AWQI) reports filed.

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
N/A	N/A	N/A	N/A	N/A	N/A

For the operating year of 2022, the Nakina Drinking Water System was able to meet the demand of water use within the town without exceeding the Municipal Drinking Water License. The Permit to Take Water pumping rate was exceeded due to the new well pump pumping efficiency.