

February 2021

Mayor Jody Davis and Council
The Corporation of the Township of Terrace Bay
P.O. Box 40
TERRACE BAY, Ontario.
POT 2W0

Re: 2020 Annual Summary Report for the Terrace Bay 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 2020 Annual Summary for the Terrace Bay Drinking-Water System.

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.

This report was prepared by the Ontario Clean Water Agency on behalf of the Township of Terrace Bay and is based on information kept on record by OCWA at the Terrace Bay WTP. The report covers the period January 1st to December 31st 2020.

Yours truly,

Patrick Albert

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Operations Manager
Ontario Clean Water Agency
North Western Ontario Regional Hub

Copy to: John Hall – CAO
Terry Hanley – Public Works Supervisor
Operations Staff – Terrace Bay WTP

2020 Schedule 22 Annual Summary Report

Terrace Bay Drinking-Water System

February 2021

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 Terrace Bay 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 2020. The Terrace Bay 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 Township of Terrace Bay. A copy of the Summary Report is to be provided to the members of the municipal council by March 31st 2020.

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 237-101 Schedule C: System – Specific Conditions 1.0 Performance Limits***, the Terrace Bay 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 **3888 m³ / 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

The Terrace Bay Drinking-Water facility operated below the rated capacity of 3888 m³ / day in 2020. The average monthly raw flow rate was 48897.00m³; the average raw daily flow rate was 1603.25m³, with a maximum raw daily flow rate of 2817.00m³.

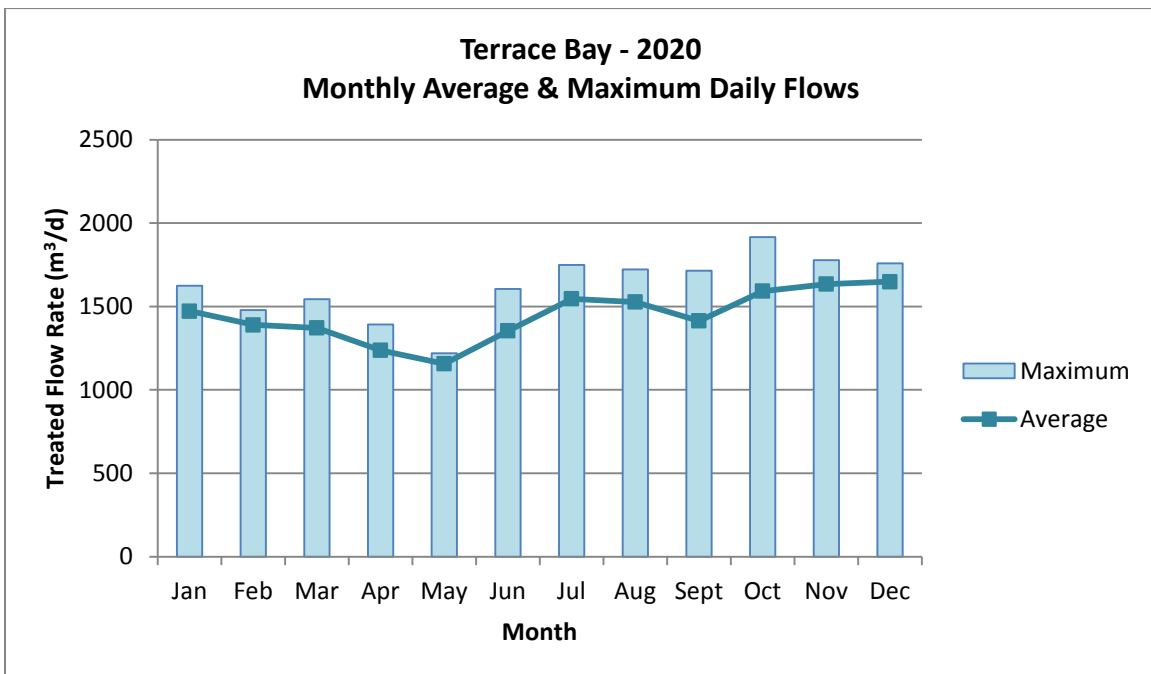
In 2020, the average monthly treated flow rate was 48691.18m³; the average daily treated flow rate was 1596.57 m³; and the maximum daily treated flow rate for the year was 2807.30m³ representing 72.20% of the allowable daily volume.

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 flows directed to the treatment system exceed the rated capacity for this system.

Monthly Raw & Treated Flow Rates for 2020

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	1588.19	1698.00	1586.42	1698.50	49179.00
February	1643.41	1947.00	1637.23	1814.00	47479.70
March	1613.84	1729.00	1614.36	1727.70	50045.20
April	1541.20	2045.00	1534.03	1728.40	46020.90
May	1578.52	1901.00	1567.78	1900.20	48601.30
June	1671.30	2452.00	1670.32	2451.80	50109.60
July	1758.87	2817.00	1710.98	2807.30	53040.30
August	1543.32	1847.00	1542.26	1844.30	47810.20
September	1399.13	1668.00	1388.85	1542.70	41665.50
October	1545.35	2079.00	1535.21	2073.30	47591.60
November	1745.57	2166.00	1762.43	2159.40	52873.00
December	1610.26	1714.00	1608.96	1711.00	49877.90
2020 Total Treated Flows (m ³)				584294.20	



Section 4: System Failures and Correction

The Ministry of Environment conducted an *announced* inspection of the Terrace Bay Drinking Water System on July 24, 2020. The final inspection report identified four non-conformance as summarized in the table below.

The 2020 final inspection rating record for the Terrace Bay Drinking Water System was 90.88%.

Item	Non-Compliance Identified	Compliance Date	Action Being Taken to Address item	Status
1	<p>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.</p> <p>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.</p> <p>Some of the alarm settings include: Low chlorine alarm - 0.7 mg/L (call out/alarm) High chlorine alarm - 4.0 mg/L (call out/alarm) High turbidity alarm - 0.3 NTU (call out/alarm) High high turbidity alarm - 1 NTU (call out/alarm - plant does not automatically shut down)</p> <p>The alarms were set at values that were consistent with the requirements of section 6-5, Schedule 6, O. Reg. 170/03; however, there was a 30 second delay on the chlorine alarm and a 780 second delay on the turbidity alarms. As a result, the equipment did not cause an alarm to signal immediately.</p> <p>Action(s) Required: During the inspection, immediately after the alarm delays were identified, the overall responsible operator adjusted the regulatory alarms on the SCADA system so that they no longer had a delay. The operating authority shall continue to operate the system so that there are no delays on regulatory alarms. No further action is required at this time.</p>	N/A	N/A	Completed
2	<p>All UV sensors were not checked and calibrated as required.</p> <p>The Terrace Bay Municipal Drinking Water Licence (MDWL), Issue #4, Schedule E, requires that the duty UV sensors shall be checked on at least a</p>	Dec 4 2020	The UV system has a manufacture set notice to calibrate the UV with the reference sensor after 28 days of duty operation. The inspector specified the MDWL requires a monthly check irrespective if it is	Completed

	<p>monthly basis against a reference UV sensor or at a frequency as otherwise recommended by the UV equipment manufacturer. Schedule 6 of O. Reg. 170/03, defines monthly to mean at least 20 days, and not more than 40 days after an equipment check that was taken for that purpose in the previous month. This definition applies to frequencies described in the MDWL. During the review period, UV sensor checks were completed as required; except for on the following occasions:</p> <p>UV1 Reference Checks: May 15, 2019 to June 28, 2019 (44 days) July 17, 2019 to August 27, 2019 (41 days) November 6, 2019 to December 23, 2019 (48 days)</p> <p>UV2 Reference Check July 12, 2019 to August 26, 2019 (46 days) January 14, 2020 to February 28, 2020 (45 days) May 7, 2020 to June 16, 2020 (41 days)</p> <p>Action(s) Required: Effective immediately, the owner and operating authority shall ensure that UV sensor checks are completed at least monthly (between 20 to 40 days). By December 4, 2020, the operating authority is to submit to the undersigned officer an action plan that describes how it will be ensured that UV sensor checks are conducted at the required frequency.</p>		<p>duty or not. Work order created to specify one month checks irrespective of duty time.</p>	
<p>3</p>	<p>Records did not confirm that chlorine residual tests were being conducted at the same time and at the same location that microbiological samples were obtained.</p> <p>O. Reg. 170/03, Schedule 6, section 6-3(1), requires that when a water sample is taken and tested for a microbiological parameter, that a second sample be taken at the same time and location and be tested for free chlorine residual (samples taken from raw water exempt). For the review period, this requirement was assessed by reviewing the microbiological sample chain of custody forms, ensuring that a chlorine residual was taken with each sample. This was met, with the exception of October 15, 2019. On this date, it cannot be confirmed if a chlorine residual was taken at the same time and location of the associated microbiological samples because the residual was not documented on the chain of custody form or in the log book.</p> <p>Action(s) Required: Effective immediately the owner and operating authority shall ensure that it can be demonstrated that a chlorine residual is being taken and tested at the same time as microbiological samples, as required by Schedule 6, section 6-3(1), of O. Reg. 170/03.</p>	<p>Immediate</p>	<p>Regular operator was away. Operator from another facility collected and shipped sample but did not record the chlorine residuals on the chain of custody or in the log.</p>	<p>In Process</p>
<p>4</p>	<p>The following instance(s) of non-compliance</p>	<p>Immediate</p>	<p>The plant is a slow sand plant that uses water pumped from Lake</p>	<p>In Process</p>

were also noted during the inspection:

Ontario Water Resources Act, Section 34. The Amended Permit to Take Water (PTTW) no. 5887-8JHPXU, for the Terrace Bay Drinking Water System, authorizes the taking of water from four groundwater wells, as an alternate source, for a maximum of 10 days per year. During the inspection review period, three of the four groundwater wells (wells no. 1, 3, and 4) were used as an alternate source for greater than 10 days in 2019 and 2020. Well no. 2 has been off-line. This has been an on-going non-compliance issue that the owner, operating authority and ministry have been trying to address. The benefit of diluting the raw water is that it reduces the cleaning frequency of the slow sand filters and limits the wear on the wet well pumps. As a result of the 2018-2019 inspection, the Owner applied to seek approval to amend their PTTW to allow for greater use of the four groundwater wells. The application is still in the review stage with the Ministry. Additional testing of the wells has been requested by the Ministry and was being conducted at the time of the inspection.

Action(s) Required:

As of November 2020, KGS Group continues to evaluate the Terrace Bay drinking water wells to provide the necessary data requested by the ministry, to evaluate the PTTW amendment application, to draw more water from the municipal wells. KGS Group is estimating the report will be submitted by the end of November 2020. Despite this, the municipality continues to exceed the number of days they are allowed to take water from each well. It has been indicated that the fall season is the worst time of year for raw water turbidity and operators would like to continue to use the wells in the manner in which they have been doing. As such, the municipality shall submit a summary of their well pump tests to the ministry, as soon as possible, so the permit to take water application process can be completed.

Superior. During some wind events the turbidity increases and plugs the filters. The facility has back-up wells that provide water during these occasions. The wells are permitted for 10 days per year but due to conditions they are used for more days.

Section 5: Conclusion

In the reporting year of 2020, there was one adverse water quality incident (AWQI) reports filed as summarized in the table below.

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
Nov 4 2020	Other Observation - Missing local trending data on Nov 4, 2020 11:56-12:14 and 12:27-12:36 for a total of 27 minutes due to PCL and SCADA system backup performed by Automation Now. Data during this time cannot be recovered.				Nov 4 2020

For the operating year of 2020, the Terrace Bay 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.