

2021 Section 11 Annual Report

Terrace Bay Drinking Water System

February 2022

Prepared by the



Ontario Clean Water Agency
Agence Ontarienne Des Eaux



Section 11 ANNUAL REPORT

Drinking-Water System Number:	250001769
Drinking-Water System Name:	Terrace Bay Water Treatment Plant
Drinking-Water System Owner:	The Corporation of the Township of Terrace Bay
Drinking-Water System Category:	Large Municipal Residential Drinking Water-System
Period being reported:	January 1 – December 31, 2021

<p><u>Complete if your Category is Large Municipal Residential or Small Municipal Residential</u></p> <p>Does your Drinking-Water System serve more than 10,000 people? Yes [] No [X]</p> <p>Is your annual report available to the public at no charge on a web site on the Internet? Yes [] No [X]</p> <p>Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.</p> <div style="border: 1px solid black; padding: 5px;"> <p>Township of Terrace Bay 1 Selkirk Ave. P.O. Box 40 Terrace Bay, ON POT 2W0</p> </div>	<p><u>Complete for all other Categories.</u></p> <p>Number of Designated Facilities served: <div style="border: 1px solid black; padding: 2px; display: inline-block;">N/A</div> </p> <p>Did you provide a copy of your annual report to all Designated Facilities you serve? Yes [] No []</p> <p>Number of Interested Authorities you report to: <div style="border: 1px solid black; padding: 2px; display: inline-block;">N/A</div> </p> <p>Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility? Yes [] No []</p>
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Note: For the following tables below, additional rows or columns may be added or an appendix may be attached to the report

List all Drinking-Water Systems (if any), which receive all of their drinking water from your system:

Drinking Water System Name	Drinking Water System Number
N/A	N/A

Did you provide a copy of your annual report to all Drinking-Water System owners that are connected to you and to whom you provide all of its drinking water?

Yes [] No []



Ontario Drinking-Water Systems Regulation O. Reg. 170/03

Indicate how you notified system users that your annual report is available, and is free of charge.

- Public access/notice via the web
- Public access/notice via Government Office
- Public access/notice via a newspaper
- Public access/notice via Public Request
- Public access/notice via a Public Library
- Public access/notice via other method – Community Television Channel

Describe your Drinking-Water System

The raw water intake for the low lift pumping station is located in Jackfish Channel on Lake Superior. The intake line is a 170 m long, 300 mm diameter line located 75 m west of the intake for Terrace Bay Pulp.

The low lift-pump station houses three pumps and is located approximately 50 m west of the mill pump house. The water is pumped to the Terrace Bay Water Treatment Plant via a 250 mm diameter pipe 2.5 km long.

There are 4 identical standby ground water wells located adjacent to the low lift pump station for emergency situations. Each well is 250 mm in diameter, 17 m deep and equipped with a submersible pump. The stand by wells discharge into the wet well of the low lift pump station.

The low lift pump station has a 150 kW propane powered generator for emergency standby power and is located as a stand alone unit in a weather proof enclosure.

Water Treatment Plant:

Raw water entering the plant is directed to four (4) slow sand filter units, each with a 1.2 m thickness of filter sand; 600 mm gravel and perforated pipe under drain system. Filtered water then passes through two (2) ultraviolet disinfection units (one duty, one standby) providing a minimum ultraviolet dosage of 40 millijoules/cm² at a peak flow rate of 45 L/s. UV water entering the reservoir feed pipe is injected with a sodium hypochlorite solution.

In July 2013, a phosphate blend corrosion inhibitor feed system was installed and commissioned. The system consists of two chemical metering pumps, storage drum, feed tubing and injection point to inject Carus 8600 for corrosion control.

Chlorinated water is then directed to an underground 5193 m³ concrete reservoir, consisting of 4 interconnecting chambers, with baffles, providing chlorine contact time.

There is a 480 kW propane generator, providing emergency standby power for the water treatment plant, disinfection process and high lift pumps; this allows for the production and distribution of potable water during a power loss.



List all water treatment chemicals used over this reporting period

- | |
|---|
| <ul style="list-style-type: none"> - Sodium Hypochlorite - Carus 8600 |
|---|

Were any significant expenses incurred to?

- Install required equipment
- Repair required equipment
- Replace required equipment

Please provide a brief description and a breakdown of monetary expenses incurred

Install	Repair	Replace	Description	Expense
	X		UV System Maintenance (EDA)	\$5,835.11
	X		Annual Generator Maintenance x2 (Gal Power)	\$3,068.12
	X		Overhead Hoist Inspections and Repairs From 2020 (Need to Discuss)	\$2,507.36
		X	Chemical Systems Parts, eg. valves, sensors, PRVs	\$3,503.88
	X		Transfer switch & VFD call ins due to unscheduled power outage	\$7,374.92
		X	Critical Spare Part (Sodium Hypo Chemical Pump	\$10,281.10
	X		Automation Now Tech Support for the Year	\$1,773.07
	X		Hydrant Flushing / Valve Exercising Program (OCWA)	\$6,910.00



Ontario Drinking-Water Systems Regulation O. Reg. 170/03

Provide details on the notices submitted in accordance with subsection 18(1) of the Safe Drinking-Water Act or section 16-4 of Schedule 16 of O.Reg.170/03 and reported to Spills Action Centre

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
8-Apr-21	Adverse Lead exceedance at Hydrant 35- Terrace Heights	0.0207	mg/L	resample	April 21 2021
5-Jul-21	Loss of distribution pressure - lightning hit transformer			resample & boil water advisory	July 9 2021
22-Jul-21	Lead - 79 Hudson	26.6	mg/L	-	-
2-Dec-21	Loss of pressure due to power outage			BWA & resample	December 4 2021

Microbiological testing done under the Schedule 10, 11 or 12 of Regulation 170/03, during this reporting period.

	Number of Samples	Range of E.Coli Or Fecal Results (min #)-(max #)	Range of Total Coliform Results (min #)-(max #)	Number of HPC Samples	Range of HPC Results (min #)-(max #)
Raw	53	0 – 3	0 – 52	N/A	N/A
Treated	53	0	0	53	0 – 1
Distribution	118	0	0-0	50	0 – 106

Operational testing done under Schedule 7, 8 or 9 of Regulation 170/03 during the period covered by this Annual Report.

	Number of Grab Samples	Range of Results (min #)-(max #)
Turbidity		
Raw	237	0.07 – 1.96 NTU
Filter #1	8760	0.00 – 0.54 NTU
Filter #2	8760	0.00 – 5.3 NTU
Filter #3	8760	0.00 – 0.96 NTU
Filter #4	8760	0.00 – 0.17 NTU
Chlorine		
Treated	8760	0.14 – 4.08 mg/L
Distribution	310	0.14 – 1.36 mg/L
Fluoride (If the DWS provides fluoridation)	N/A	N/A

NOTE: For continuous monitors use 8760 as the number of samples.

** Turbidity & chlorine Min/Max (lows/highs) are due to planned maintenance and not plant upset.*



Ontario Drinking-Water Systems Regulation O. Reg. 170/03

Summary of additional testing and sampling carried out in accordance with the requirement of an approval, order or other legal instrument.

Date of legal instrument issued	Parameter	Date Sampled	Result	Unit of Measure
July 9, 2021 Municipal Drinking Water Licence (MDWL)#237-101	Total Suspended Solids (Infiltration Pond)	2021/08/18	<3.0	mg/L
		2021/09/30	<3.0	mg/L
		2021/10/28	<3.0	mg/L
		2021/11/30	<3.0	mg/L
		2021/12/22	<3.0	mg/L
July 9, 2021 Municipal Drinking Water Licence (MDWL)#237-101	Total Chlorine Residual (Infiltration Pond)	2021/08/18	0.0	mg/L
		2021/09/30	0.07	mg/L
		2021/10/28	0.12	mg/L
		2021/11/30	0.05	mg/L
		2021/12/22	0.06	mg/L

Summary of Inorganic parameters tested during this reporting period or the most recent sample results

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Antimony	2021/01/11	<0.6	µg/L	No
Arsenic	2021/01/11	<1.0	µg/L	No
Barium	2021/01/11	11.0	µg/L	No
Boron	2021/01/11	<50.0	µg/L	No
Cadmium	2021/01/11	<0.1	µg/L	No
Chromium	2021/01/11	<1.0	µg/L	No
*Lead	Refer to Summary Table Below			
Mercury	2021/01/11	<0.1	µg/L	No
Selenium	2021/01/11	<1.0	µg/L	No
Sodium	2019/01/22	3.7	mg/L	No
Uranium	2021/01/11	<2.0	µg/L	No
Fluoride	2019/01/22	<0.01	mg/L	No
Nitrite	2021/01/11	<0.010	mg/L	No
	2021/04/06	<0.010	mg/L	No
	2021/07/19	<0.010	mg/L	No
	2021/10/04	<0.010	mg/L	No
Nitrate	2021/01/11	0.361	mg/L	No
	2021/04/06	0.254	mg/L	No
	2021/07/19	0.393	mg/L	No
	2021/10/04	0.347	mg/L	No

*only for drinking water systems testing under Schedule 15.2; this includes large municipal non-residential systems, small municipal non-residential systems, non-municipal seasonal residential systems, large non-municipal non-residential systems, and small non-municipal non-residential systems



Summary of lead testing under Schedule 15.1 during this reporting period

(applicable to the following drinking water systems; large municipal residential systems, small municipal residential systems, and non-municipal year-round residential systems)

Location Type	Number of Samples	Range of Lead Results (min#) – (max #)	Number of Exceedances
Plumbing	30	<1 – 196	5
Distribution	15	1 – 1.9	0

Summary of Organic parameters sampled during this reporting period or the most recent sample results

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Alachlor	2021/01/11	< 0.1	µg/L	No
Atrazine	2018/01/17	< 0.2	µg/L	No
Atrazine & Metabolites	2021/01/11	< 0.1	µg/L	No
Azinphos-methyl	2021/01/11	< 0.5	µg/L	No
Benzene	2021/01/11	< 0.005	µg/L	No
Benzo(a)pyrene	2021/01/11	< 0.2	µg/L	No
Bromoxynil	2021/01/11	< 0.2	µg/L	No
Carbaryl	2021/01/11	< 0.2	µg/L	No
Carbofuran	2021/01/11	< 0.2	µg/L	No
Carbon Tetrachloride	2021/01/11	< 0.1	µg/L	No
Chlorpyrifos	2021/01/11	< 0.1	µg/L	No
Diazinon	2021/01/11	< 0.2	µg/L	No
Dicamba	2021/01/11	< 0.5	µg/L	No
1,2-Dichlorobenzene	2021/01/11	< 0.5	µg/L	No
1,4-Dichlorobenzene	2021/01/11	< 0.5	µg/L	No
1,2-Dichloroethane	2021/01/11	< 0.5	µg/L	No
1,1-Dichloroethylene (vinylidene chloride)	2021/01/11	< 5.0	µg/L	No
Dichloromethane (methylene chloride)	2021/01/11	< 0.3	µg/L	No
2-4 Dichlorophenol	2021/01/11	< 0.2	µg/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	2021/01/11	< 0.2	µg/L	No
Diclofop-methyl	2021/01/11	< 0.1	µg/L	No
Dimethoate	2021/01/11	< 1.0	µg/L	No
Diquat	2021/01/11	< 1.0	µg/L	No
Diuron	2021/01/11	< 5.0	µg/L	No
Glyphosate	2021/01/11	< 0.1	µg/L	No
Haloacetic acids (HAA)	2021/10/21	6.4	µg/L	No
(NOTE: show latest annual average)	2021 Average	9.075		No



Ontario Drinking-Water Systems Regulation O. Reg. 170/03

Malathion	2021/01/11	< 0.1	µg/L	No
Metolachlor	2021/01/11	< 0.1	µg/L	No
Metribuzin	2021/01/11	< 0.1	µg/L	No
Monochlorobenzene	2021/01/11	< 0.5	µg/L	No
Paraquat	2021/01/11	< 1.0	µg/L	No
Pentachlorophenol	2021/01/11	< 0.035	µg/L	No
Phorate	2021/01/11	< 0.5	µg/L	No
Picloram	2021/01/11	< 0.1	µg/L	No
Polychlorinated Biphenyls(PCB)	2021/01/11	< 0.2	µg/L	No
Prometryne	2021/01/11	< 0.1	µg/L	No
Simazine	2021/01/11	< 0.1	µg/L	No
THM	2021/10/21	20.5	µg/L	No
(NOTE: show latest annual average)	2021 Average	19.3	µg/L	No
Terbufos	2021/01/11	< 0.2	µg/L	No
Tetrachloroethylene	2021/01/11	< 0.5	µg/L	No
2,3,4,6-Tetrachlorophenol	2021/01/11	< 0.5	µg/L	No
Triallate	2021/01/11	< 0.1	µg/L	No
Trichloroethylene	2021/01/11	< 0.5	µg/L	No
2,4,6-Trichlorophenol	2021/01/11	< 0.5	µg/L	No
Trifluralin	2021/01/11	< 0.1	µg/L	No
Vinyl Chloride	2021/01/11	< 0.2	µg/L	No
MCPA	2021/01/11	< 0.2	µg/L	No

List any Inorganic or Organic parameter(s) that exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards.

Parameter	Result Value	Unit of Measure	Date of Sample
N/A	N/A	N/A	N/A

February 2022

Mayor Jody Davis and Council
The Corporation of the Township of Terrace Bay
P.O. Box 40
Terrace Bay, Ontario
P0T 2W0

Re: O. Regulation 170 - 2021 Section 11 Annual 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 report on the operation of the system and the quality of its water.

The annual report must cover the period of January 1st to December 31st in a year and *must be prepared not later than February 28th* of the following year. Pursuant to the legislative requirements, enclosed for your records is the 2021 Annual Report for the Terrace Bay Drinking-Water System.

Pursuant to the legislative requirements, Section 11 (6): the annual report must:

- (a) contain a brief description of the drinking-water system, including a list of water treatment chemicals used by the system during the period covered by the report;
- (b) summarize any reports made to the Ministry under subsection 18 (1) of the Act or section 16-4 of Schedule 16 during the period covered by the report;
- (c) summarize the results of tests required under this Regulation, or an approval or order, including an OWRA order, during the period covered by the report and, if tests required under this Regulation in respect of a parameter were not required during that period, summarize the most recent results of tests of that parameter;
- (d) describe any corrective actions taken under Schedule 17 or 18 during the period covered by the report;
- (e) describe any major expenses incurred during the period covered by the report to install, repair or replace required equipment; and

(f) in the case of a large municipal residential system or a small municipal residential system, include a statement of where a report prepared under Schedule 22 will be available for inspection under subsection 12 (4). O. Reg. 170/03, s. 11 (6)

In addition, Section 11 (7) gives the direction that a copy of an annual report 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 report should be made available at the office of the municipality, or at a location that is accessible to the users of the water system.

Yours truly,

Patrick Couture

Patrick Couture
Senior Operations Manager
Northwestern Ontario Regional Hub
807-228-2617

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