

Little Current Water Treatment

Large Municipal Residential Drinking Water System

January 1, 2018 – December 31, 2018

O.Reg 170/03 Schedule 22 Summary Report
O.Reg 170/03 Section 11 Annual Report
&
O.Reg 387/04 Annual Record of Water Taking

Prepared by the Ontario Clean Water Agency
For The Corporation of the Town of Northeastern Manitoulin and the Islands



Ontario Clean Water Agency
Agence Ontarienne Des Eaux



Drinking-Water System Number: 220002191

Drinking-Water System Name: LITTLE CURRENT DRINKING WATER SYSTEM

Drinking-Water System Owner: The Corporation of the Town of Northeastern Manitoulin and the Islands

Drinking-Water System Category: Large Municipal Residential

SECTION 1: INTRODUCTION

This document is prepared in accordance with Section 11 and Schedule 22 of O.Reg.170/03 under the Safe Drinking Water Act and with Section 9 of O.Reg.387/04 under the Ontario Water Resources Act. The reports are prepared by the Ontario Clean Water Agency. Acronyms and definitions can be found at the end of the report.

A copy of the Summary Report must be provided to the members of the municipal council by March 31, 2019.

SECTION 2: REQUIREMENTS OF THE REPORTS

Schedule 22 Report

The report must list the requirements of the Act, the regulations, the system's approval and any order that the system **failed to meet** at any time during the period covered by the report. It must also specify the duration of the failure, and for each failure referred to, describe the measures that were taken to correct the failure.

For the purpose of enabling the owner of the system to assess the rated capability of their system to meet existing and future planned water uses, the following information is required to be included in this report:

- 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.
- A comparison of the summary to the rated capacity and flow rates approved in the systems approval.

Section 11 Report

The annual report must contain the following:

- A brief description of the drinking water system and a list of chemicals used by the system.
- A description of any major expenses incurred during the period covered by the report to install, repair or replace required equipment.
- A summary of all adverse water quality incidents (AWQI) reported to the Ministry
- A summary of corrective actions taken in response all AWQIs
- A summary of all test results required under the regulation, under an approval, municipal drinking water licence or order, including an OWRA order.
- A statement of where a Schedule 22 report will be available for inspection.

The report must be prepared not later than February 28 of the following year.

Regulation 387 Report

On or before March 31 in every year, every holder of a permit to take water (PTTW) shall submit to a Director the data collected and recorded for the previous year.

A record of annual water taking can be found in [Appendix A](#).



SECTION 3: SCHEDULE 22 REPORT

Flows - Treated

In accordance with the Municipal Drinking Water License (MDWL), the Little Current WTP shall not be operated to exceed a maximum daily volume of 3100 m³/d to the distribution system.

The daily treated water maximum flow was 1,877.3 m³ in September and represents 60.6% of capacity.

The quantity of treated water supplied during the reporting period **did not** exceed the rated maximum capacity.

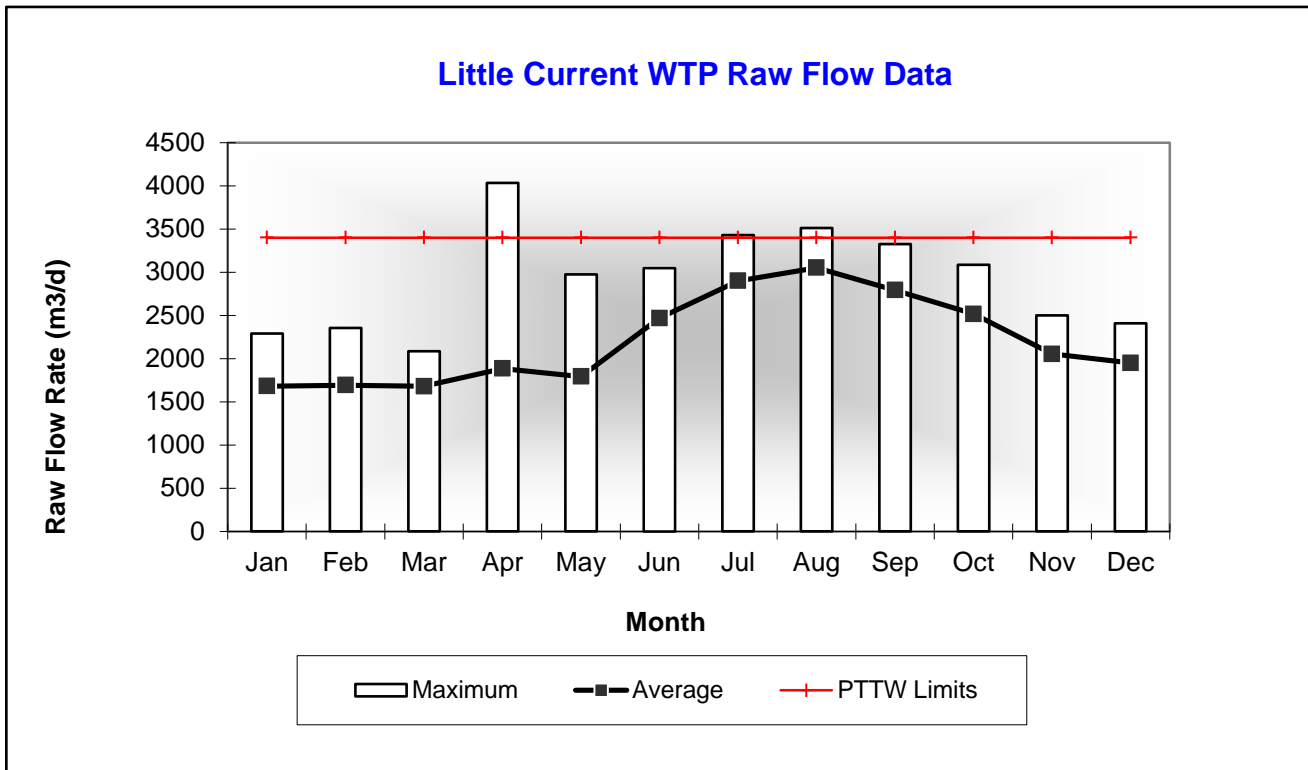
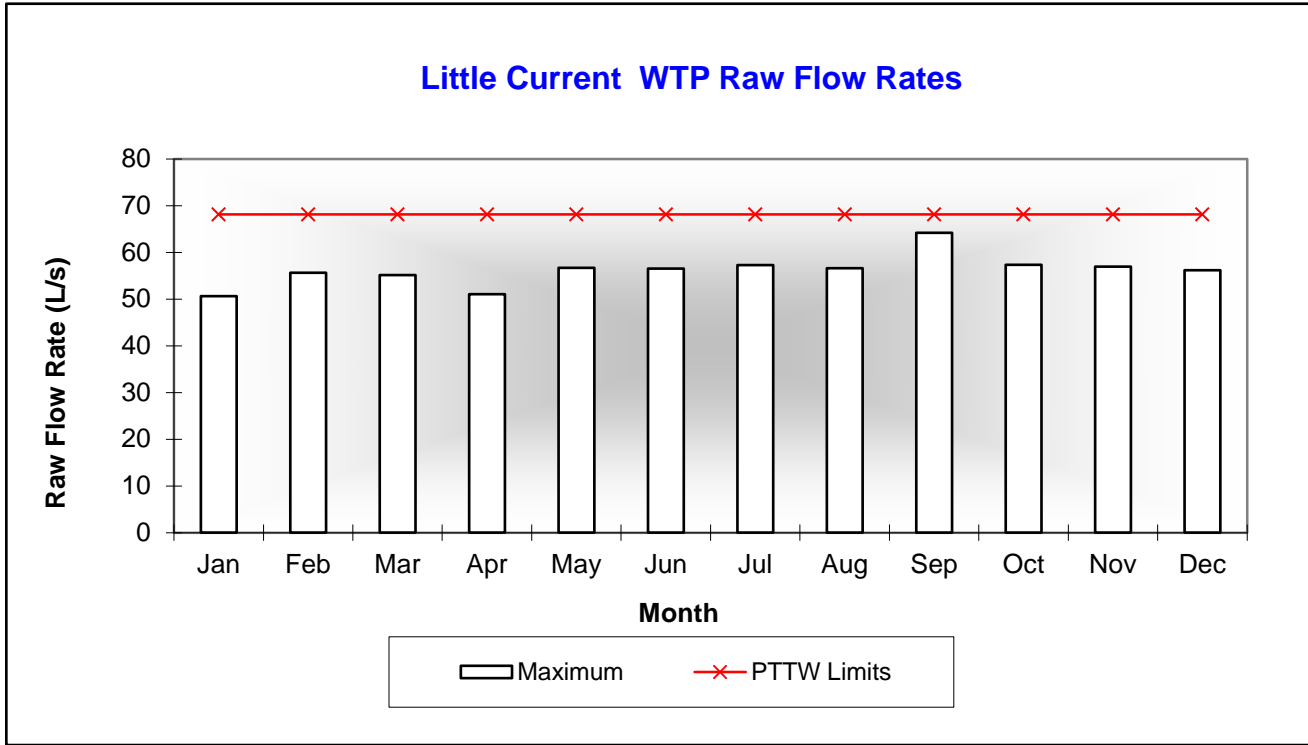
Flows - Raw

Daily raw maximum instantaneous flow is stated in the PTTW at a maximum rate of flow of 68.1 L/s and a maximum daily volume of 3400 m³/d.

The average monthly raw water flow for this reporting period was 2,208.16m³/d. The maximum daily flow was 4,032.1m³/d representing 118.6% of water taking limits.

The quantity of raw water taken **did** exceed daily flow limits stipulated within the PTTW. According to the Operator, the daily flow exceedances were due to PLC issues as well as filter train cleanings.

RAW WATER FLOW DATA - TOTAL ALL SOURCES						
Month	Total Monthly Flow (m3)	Average Flow (m3/d)	Maximum Flow (m3/d)	Maximum Flow Rate (L/s)	Limits	
					L/s (PTTW)	m³/d (PTTW)
January	52,136.1	1,681.81	2,289	50.6	68.1	3400
February	47,368.1	1,691.72	2,353.4	55.61	68.1	3400
March	52,062.5	1,679.44	2,084.2	55.11	68.1	3400
April	56,530.5	1,884.35	4,032.1	51.02	68.1	3400
May	55,546	1,791.81	2,973.2	56.66	68.1	3400
June	74,045.3	2,468.18	3,047.8	56.5	68.1	3400
July	89,873.7	2,899.15	3,428.2	57.25	68.1	3400
August	94,625	3,052.42	3,510.3	56.58	68.1	3400
September	83,751.4	2,791.71	3,324.2	64.16	68.1	3400
October	77,981	2,515.52	3,084.5	57.31	68.1	3400
November	61,600.6	2,053.35	2,498.9	56.92	68.1	3400
December	60,459.9	1,950.32	2,407.4	56.15	68.1	3400
Total	805,980.2					
Average		2,208.16				
Maximum			4,032.1	64.16	68.1	3400





Annual Raw Water Review

Raw Water Taking	Total Taking m3/d	Average Day m3/d	Max Day m3/d	Max Day % of PTTW allowable 3400 m3/d
2018	805,980.2	2,208.16	4,032.1	118.6 %
2017	754,481	2,067.07	4,551.5	133.9 %
2016	592,593	1,619.1	3125	91.1 %
2015	702,275	1,924.04	3213	94.5 %
2014	761,122	1767.2	4939	145.3 %
2013	680,253	1863.7	3345	98.4 %

System Failures and Corrective Actions

During a review of the sampling data, the PCT found the 3rd quarter sampling was conducted on June 26, 2018. Although the sample was taken at least 60 days but not more than 120 days after the last sample, it was not taken within the defied quarter as per Reg 170. Since the error was only found in October, the operator was unable to collect samples within the proper timeframe. The non-compliance was reported on October 24, 2018.

The latest inspection of the drinking water facility took place on [December 12, 2018](#). The inspection report has not been received.

AWQIs reported to the Ministry

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

SECTION 4: SECTION 11 REPORT

Information to be provided

Population Served	1700
Does your Drinking-Water System serve more than 10,000 people?	No
Is your annual report available to the public at no charge on a web site on the Internet?	Yes
Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.	Town of Little Current, Municipal Office 15 Manitowaning Road Little Current, Ontario P0P 1K0
Number of Designated Facilities served:	0
Did you provide a copy of your annual report to all Designated Facilities you serve?	NA
Number of Interested Authorities you report to:	0



Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility?	<i>N/A</i>
List all Drinking-Water Systems (if any), and their DWS Number which receive all of their drinking water from your system:	<i>N/A</i>
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?	<i>N/A</i>
Indicate how you notified system users that your annual report is available, and is free of charge.	<i>Public access/notice via the web - & via Government Office</i>
Indicate if you notified system users that your annual report is available and is free of charge using an alternate method	<i>Yes</i>

Facility Description

The Little Current Water treatment facility consists of a low lift pumping station with three submersible pumps. The low lift pumping station includes a zebra mussel control system utilizing sodium hypochlorite.

Treatment consists of membrane filtration which is comprised of two concrete tanks, each tank with six ultrafiltration units. The rated capacity is 35.9 L/s into the treatment system. Each unit contains 12 modules each module has a filtering area of 23.23 m². There are three permeate pumps used to push the water to the chlorine contact chamber. The contact chamber maintains a constant volume of 162 m³. Following the chlorine contact chamber there are two clear wells, each having a storage volume of 749.8 m³. The high lift pumping consists of four centrifugal high lift pumps, with two pumps having a capacity of 57.87 L/s and two pumps having a capacity of 28.94 L/s. The process back pulse & reject water from the plant is de-chlorinated and discharged back to the North Channel.

Wastewater from membrane cleaning is neutralized and discharged to the sanitary sewer system.

Chemicals Used

Sodium Hypochlorite 12%	Disinfection
Calcium Thiosulphate	Dechlorination of reject water & wastewater
Caustic Soda	Neutralizing membrane wastewater

Significant Expenses

Significant expenses incurred to

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

Work Order	Completion Date	Comment
897402	04-Sep-18	<i>Highlift Pump</i> The suction header for the highlift pumps was cracked. Spec and Sons repaired the crack
938605	11-Dec-18	<i>High Lift Pump 6110</i> Replaced pump with a new vertical turbine pump and motor
1017153	07-Jan-18	<i>Replaced sample pump 6010</i>



Adverse Water Quality Incidents

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	Comment / Corrective Action	Corrective Action Date
N/A	N/A	N/A	N/A	N/A	N/A

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

	No. of Samples Collected	Range of E.Coli		Range of Total Coliform Results		Number of HPC Samples	Range of HPC Results	
		Min #	Max #	Min #	Max #		Collected	Min #
Raw Water	52	0	5	0	56	n/a	n/a	n/a
Treated Water	52	0	0	0	0	52	0	6
Distribution	157	0	0	0	0	52	0	2

Operational testing done under Schedule 7, 8 or 9 of Regulation 170/03

	No. of Samples Collected	Range of Results		Units of Measure
		Minimum	Maximum	
Turbidity – Filter 1	8760	0.031	0.326	(NTU)
Turbidity – Filter 2	8760	0.035	0.469	(NTU)
Free Chlorine Residual – TW	8760	0.627	5.30	(mg/L)
Free Chlorine Residual, Distribution Location 1	105	0.80	1.83	(mg/L)
Free Chlorine Residual, Distribution Location 2	105	0.49	1.90	(mg/L)
Free Chlorine Residual, Distribution Location 3	105	0.75	1.71	(mg/L)
Free Chlorine Residual, Distribution Location 4	52	0.72	1.71	(mg/L)

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 and limits	Month Sampled	Day Sampled	Result	Unit of Measure
197-101 March 11, 2011 Renewed on March 8, 2016	Membrane Reject Water Total Suspended Solids 25 mg/L	Jan	2	<2	mg/L
		Feb	2	<2	mg/L
		Mar	1	<2	mg/L
		Apr	9	<2	mg/L
		May	1	<2	mg/L
		Jun	4	<2	mg/L
		Jul	3	<2	mg/L
		Aug	2	2	mg/L
		Sep	7	3	mg/L



	Oct	1	2	mg/L
	Nov	5	<2	mg/L
	Dec	27	2	mg/L
	Annual Average		2.1	mg/L

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

TREATED WATER	Sample Date (yyyy/mm/dd)	Sample Result	MAC	No. of Exceedances	
				MAC	1/2 MAC
Antimony: Sb (ug/L) - TW	2018/01/02	0.09	6.0	No	No
Arsenic: As (ug/L) - TW	2018/01/02	0.3	25.0	No	No
Barium: Ba (ug/L) - TW	2018/01/02	11.8	1000.0	No	No
Boron: B (ug/L) - TW	2018/01/02	10.0	5000.0	No	No
Cadmium: Cd (ug/L) - TW	2018/01/02	<MDL 0.003	5.0	No	No
Chromium: Cr (ug/L) - TW	2018/01/02	0.16	50.0	No	No
Mercury: Hg (ug/L) - TW	2018/01/02	<MDL 0.01	1.0	No	No
Selenium: Se (ug/L) - TW	2018/01/02	0.38	10.0	No	No
Uranium: U (ug/L) - TW	2018/01/02	0.153	20.0	No	No

TREATED WATER	Sample Date (yyyy/mm/dd)	Sample Result	MAC	No. of Exceedances	
				MAC	1/2 MAC
Fluoride (mg/L) - TW	2017/01/26	0.08	1.5	No	No
Nitrite (mg/L) - TW	2018/01/02	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2018/06/26	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW			1.0	No	No
Nitrite (mg/L) - TW	2018/10/01	<MDL 0.003	1.0	No	No
Nitrate (mg/L) - TW	2018/01/02	0.167	10.0	No	No
Nitrate (mg/L) - TW	2018/06/26	0.1	10.0	No	No
Nitrate (mg/L) - TW			10.0	No	No
Nitrate (mg/L) - TW	2018/10/01	0.138	10.0	No	No
Sodium: Na (mg/L) - TW	2017/01/26	6.59	20*	No	No

Summary of Lead testing under Schedule 15.1 during this reporting period

Location Type	No. of Samples	Range of Results		MAC (ug/L)	Number of Exceedances
		Minimum	Maximum		
Distribution - Lead Results (ug/L)	4	0.01	1.26	10	0
Distribution - Alkalinity (mg/L)	4	65	75	N/A	N/A
Distribution - pH In-House	4	7.85	8.00	N/A	N/A



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

TREATED WATER	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
Alachlor (ug/L) - TW	2018/01/02	<MDL 0.02	5.00	No	No
Atrazine + N-dealkylated metabolites (ug/L) - TW	2018/01/02	0.01	9.00	No	No
Azinphos-methyl (ug/L) - TW	2018/01/02	<MDL 0.05	0.70	No	No
Benzene (ug/L) - TW	2018/01/02	<MDL 0.32	5.00	No	No
Benzo(a)pyrene (ug/L) - TW	2018/01/02	<MDL 0.004	20.00	No	No
Bromoxynil (ug/L) - TW	2018/01/02	<MDL 0.33	40.00	No	No
Carbaryl (ug/L) - TW	2018/01/02	<MDL 0.05	5.00	No	No
Carbofuran (ug/L) - TW	2018/01/02	<MDL 0.01	0.01	No	No
Carbon Tetrachloride (ug/L) - TW	2018/01/02	<MDL 0.16	5.00	No	No
Chlorpyrifos (ug/L) - TW	2018/01/02	<MDL 0.02	90.00	No	No
Diazinon (ug/L) - TW	2018/01/02	<MDL 0.02	90.00	No	No
Dicamba (ug/L) - TW	2018/01/02	<MDL 0.2	5.00	No	No
1,2-Dichlorobenzene (ug/L) - TW	2018/01/02	<MDL 0.41	7.00	No	No
1,4-Dichlorobenzene (ug/L) - TW	2018/01/02	<MDL 0.36	90.00	No	No
1,2-Dichloroethane (ug/L) - TW	2018/01/02	<MDL 0.35	10.00	No	No
1,1-Dichloroethylene (ug/L) - TW	2018/01/02	<MDL 0.33	20.00	No	No
Dichloromethane (Methylene Chloride) (ug/L) - TW	2018/01/02	<MDL 0.35	120.00	No	No
2,4-Dichlorophenol (ug/L) - TW	2018/01/02	<MDL 0.15	200.00	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW	2018/01/02	<MDL 0.19	5.00	No	No
Diclofop-methyl (ug/L) - TW	2018/01/02	<MDL 0.4	30.00	No	No
Dimethoate (ug/L) - TW	2018/01/02	<MDL 0.03	5.00	No	No
Diquat (ug/L) - TW	2018/01/02	<MDL 1.0	14.00	No	No
Diuron (ug/L) - TW	2018/01/02	<MDL 0.03	50.00	No	No
Glyphosate (ug/L) - TW	2018/01/02	<MDL 1.0	900.00	No	No
Malathion (ug/L) - TW	2018/01/02	<MDL 0.02	100.00	No	No
2-methyl-4-chlorophenoxyacetic acid (MCPA) (mg/L) - TW	2018/01/02	<MDL 0.01	N/A	N/A	N/A
Metolachlor (ug/L) - TW	2018/01/02	<MDL 0.02	9.00	No	No
Metribuzin (ug/L) - TW	2018/01/02	<MDL 0.3	20.00	No	No
Monochlorobenzene (Chlorobenzene) (ug/L) - TW	2018/01/02	<MDL 1.0	10.00	No	No
Paraquat (ug/L) - TW	2018/01/02	<MDL 0.04	70.00	No	No
PCB (ug/L) - TW	2018/01/02	<MDL 0.15	150.00	No	No
Pentachlorophenol (ug/L) - TW	2018/01/02	<MDL 0.01	280.00	No	No
Phorate (ug/L) - TW	2018/01/02	<MDL 1.0	3.00	No	No
Picloram (ug/L) - TW	2018/01/02	<MDL 0.03	4.00	No	No
Prometryne (ug/L) - TW	2018/01/02	<MDL 0.01	190.00	No	No
Simazine (ug/L) - TW	2018/01/02	<MDL 0.01	900.00	No	No
Terbufos (ug/L) - TW	2018/01/02	<MDL 0.35	50.00	No	No
Tetrachloroethylene (ug/L) - TW	2018/01/02	<MDL 0.2	80.00	No	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW	2018/01/02	<MDL 0.01	80.00	No	No
Triallate (ug/L) - TW	2018/01/02	<MDL 0.44	10.00	No	No



Trichloroethylene (ug/L) - TW	2018/01/02	<MDL 0.25	50.00	No	No
2,4,6-Trichlorophenol (ug/L) - TW	2018/01/02	<MDL 0.12	3.00	No	No
Trifluralin (ug/L) - TW	2018/01/02	<MDL 0.02	60.00	No	No
Vinyl Chloride (ug/L) - TW	2018/01/02	<MDL 0.17	2.00	No	No
DISTRIBUTION WATER					
Trihalomethane: Total (ug/L) Annual Average - DW	2018/12/31	37.75	100.00	No	Yes
HAA Total (ug/L) Annual Average - DW	2018/12/31	25.525		N/A	N/A

SECTION 5: RAW WATER SUBMISSIONS

Raw water flows were submitted to the Ministry on [February 12, 2019](#).

Location: WTRS / WT DATA / Input WT Record WTRS-WT-008

Water Taking Data submitted successfully.

Confirmation:

Thank you for submitting your water taking data online.

Permit Number: 0404-7T3LM7
Permit Holder: THE CORPORATION OF THE TOWN OF NORTHEASTERN MANITOULIN AND THE ISLANDS.
Received on: Feb 12, 2019 3:15 PM

This confirmation indicates that your data has been received by the Ministry, but should not be construed as acceptance of this data if it differs from that specified on the Permit Number, assigned to the Permit Holder stated above.

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SECTION 6: CONCLUSION

The Little Current WTP delivers water that, in all its treated and distribution samples, indicates the water to be free of bacteriological contamination.

For the 2018 operating year, the Little Current WTP was able to meet the demand of water use without exceeding the MDWL but did exceed daily flow limits stipulated within the PTTW. According to the Operator, the daily flow exceedances were due to PLC issues as well as filter train cleanings.



List of Acronyms and Definitions

Alkalinity	The capacity of water for neutralizing an acid solution
AWQI	Adverse Water Quality Incident- when a water sample test result exceeds the Ontario Drinking Water Quality Standards
Backwash	Water pumped backwards to clean filters
BWA	Boil Water Advisory; Issued when risk of contamination is possible in drinking water
CFU	Colony Forming Units
Chlorine Residual	A low level of chlorine remaining in water after disinfection occurs
DW	Distribution Water
DWA	Drinking Water Advisory; Issued when water cannot be consumed by any means
DWWP	Drinking Water Works Permit - provides a description of the overall system
E.Coli	Bacteria used as indicators to measure the degree of pollution and sanitary quality of water
GUDI 170/03	Groundwater Under Direct Influence – Considered to be surface water under O.Reg
HPC	Heterotrophic Plant Count
L/s	Litres per Second
m ³ /d	Cubic Metres per Day
MAC	Maximum Acceptable Concentration
MDL	Minimum Detection Level
MDWL requirements	Municipal Drinking Water Licence - relates to the operation and performance
mg/L	Miligrams per Litre
Ministry	Ministry of the Environment and Climate Change
MOECC	Ministry of the Environment and Climate Change
O.Reg	Ontario Regulation
PTTW water	Permit to Take Water – Permit which allows water taking from groundwater or surface
RW	Raw Water
TC	Total Coliforms
TSS	Total Suspended Solids
Turbidity	Cloudiness or haziness of water
TW	Treated Water



Appendix A

Raw Water Flows

Ontario Clean Water Agency
Annual Water Taking and Transfer Report
 From 01/01/2018 To 12/31/2018

Facility: LITTLE CURRENT DRINKING WATER SYSTEM-6278
 Tag: Raw Flow: Sum (m3/d)
 Tag Group: Raw Water

Permit#: 0404-7T3LM7
 Source Name: Lake Huron
 Source: Lake
 Type:
 Purpose: Municipal

Coordinate Zone: 17
 Easting: 428654
 Northing: 5092305
 Method deter: Metered

Date Measured	Value (m³/d)	Value (Litres)
01/01/2018	1818.0000	1818000.0000
02/01/2018	1543.0000	1543000.0000
03/01/2018	1539.0000	1539000.0000
04/01/2018	2146.0000	2146000.0000
05/01/2018	1187.0000	1187000.0000
06/01/2018	2090.0000	2090000.0000
07/01/2018	1715.0000	1715000.0000
08/01/2018	1615.0000	1615000.0000
09/01/2018	1700.0000	1700000.0000
10/01/2018	1395.8000	1395800.0000
11/01/2018	1957.0000	1957000.0000
12/01/2018	2072.0000	2072000.0000
13/01/2018	1189.0000	1189000.0000
14/01/2018	2289.0000	2289000.0000
15/01/2018	1855.0000	1855000.0000
16/01/2018	1377.0000	1377000.0000
17/01/2018	1634.0000	1634000.0000
18/01/2018	1932.0000	1932000.0000
19/01/2018	1741.0000	1741000.0000
20/01/2018	1189.0000	1189000.0000
21/01/2018	2030.0000	2030000.0000
22/01/2018	1150.1000	1150100.0000
23/01/2018	1878.1000	1878100.0000
24/01/2018	1590.8000	1590800.0000
25/01/2018	1554.7000	1554700.0000
26/01/2018	2052.1001	2052100.1000
27/01/2018	1208.4000	1208400.0000
28/01/2018	2041.6000	2041600.0000
29/01/2018	1149.3000	1149300.0000
30/01/2018	2013.1000	2013100.0000
31/01/2018	1484.1000	1484100.0000
01/02/2018	1625.3000	1625300.0000
02/02/2018	1960.2000	1960200.0000
03/02/2018	1384.1000	1384100.0000
04/02/2018	2050.1001	2050100.1000
05/02/2018	1127.2000	1127200.0000
06/02/2018	2034.8000	2034800.0000
07/02/2018	1443.1000	1443100.0000
08/02/2018	1743.0000	1743000.0000
09/02/2018	1845.6000	1845600.0000
10/02/2018	1366.0000	1366000.0000
11/02/2018	2056.1001	2056100.1000

12/02/2018	1038.2000	1038200.0000
13/02/2018	2353.3999	2353399.9000
14/02/2018	1944.6000	1944600.0000
15/02/2018	1339.8000	1339800.0000
16/02/2018	1685.2000	1685200.0000
17/02/2018	1794.1000	1794100.0000
18/02/2018	1408.9000	1408900.0000
19/02/2018	1749.7000	1749700.0000
20/02/2018	1583.3000	1583300.0000
21/02/2018	1539.4000	1539400.0000
22/02/2018	1636.8000	1636800.0000
23/02/2018	1543.6000	1543600.0000
24/02/2018	1566.3000	1566300.0000
25/02/2018	1617.8000	1617800.0000
26/02/2018	2131.2000	2131200.0000
27/02/2018	1613.6000	1613600.0000
28/02/2018	2186.7000	2186700.0000
01/03/2018	1273.2000	1273200.0000
02/03/2018	1643.1000	1643100.0000
03/03/2018	1309.2000	1309200.0000
04/03/2018	1595.1000	1595100.0000
05/03/2018	2063.3999	2063399.9000
06/03/2018	1415.4000	1415400.0000
07/03/2018	1526.5000	1526500.0000
08/03/2018	1967.9000	1967900.0000
09/03/2018	1764.7000	1764700.0000
10/03/2018	1177.7000	1177700.0000
11/03/2018	2050.7000	2050700.0000
12/03/2018	1079.3000	1079300.0000
13/03/2018	1902.3000	1902300.0000
14/03/2018	1410.4000	1410400.0000
15/03/2018	1556.0000	1556000.0000
16/03/2018	1931.1000	1931100.0000
17/03/2018	2064.8999	2064899.9000
18/03/2018	1942.1000	1942100.0000
19/03/2018	2061.0000	2061000.0000
20/03/2018	1500.2000	1500200.0000
21/03/2018	1982.2000	1982200.0000
22/03/2018	2084.2000	2084200.0000
23/03/2018	1938.4000	1938400.0000
24/03/2018	1235.0000	1235000.0000
25/03/2018	1792.1000	1792100.0000
26/03/2018	1452.8000	1452800.0000
27/03/2018	1599.1000	1599100.0000
28/03/2018	1709.7000	1709700.0000
29/03/2018	1856.6000	1856600.0000
30/03/2018	1943.6000	1943600.0000
31/03/2018	1234.6000	1234600.0000
01/04/2018	1793.4000	1793400.0000
02/04/2018	1436.5000	1436500.0000
03/04/2018	1582.5000	1582500.0000
04/04/2018	1907.8000	1907800.0000
05/04/2018	2041.2000	2041200.0000
06/04/2018	1617.9000	1617900.0000
07/04/2018	1941.2000	1941200.0000
08/04/2018	3730.6001	3730600.1000
09/04/2018	4032.1001	4032100.1000
10/04/2018	2350.2000	2350200.0000
11/04/2018	1939.4000	1939400.0000
12/04/2018	1448.7000	1448700.0000
13/04/2018	1627.2000	1627200.0000

14/04/2018	1946.5000	1946500.0000
15/04/2018	1743.4000	1743400.0000
16/04/2018	1983.1000	1983100.0000
17/04/2018	1556.9000	1556900.0000
18/04/2018	1309.5000	1309500.0000
19/04/2018	1796.6000	1796600.0000
20/04/2018	1258.9000	1258900.0000
21/04/2018	1583.1000	1583100.0000
22/04/2018	1662.8000	1662800.0000
23/04/2018	1986.5000	1986500.0000
24/04/2018	1553.7000	1553700.0000
25/04/2018	2639.8999	2639899.9000
26/04/2018	2747.3000	2747300.0000
27/04/2018	1435.7000	1435700.0000
28/04/2018	1388.1000	1388100.0000
29/04/2018	1371.0000	1371000.0000
30/04/2018	1118.9000	1118900.0000
01/05/2018	1672.0000	1672000.0000
02/05/2018	1678.5000	1678500.0000
03/05/2018	1547.0000	1547000.0000
04/05/2018	1875.5000	1875500.0000
05/05/2018	1539.1000	1539099.9756
06/05/2018	1868.4000	1868400.0244
07/05/2018	1317.0000	1317000.0000
08/05/2018	1646.9000	1646900.0244
09/05/2018	1604.1000	1604099.9756
10/05/2018	1399.8000	1399800.0488
11/05/2018	1728.8000	1728800.0488
12/05/2018	1595.8000	1595800.0488
13/05/2018	1918.5000	1918500.0000
14/05/2018	1621.3000	1621300.0488
15/05/2018	1942.5000	1942500.0000
16/05/2018	1936.8000	1936800.0488
17/05/2018	2126.6001	2126600.0977
18/05/2018	2075.3999	2075399.9023
19/05/2018	1136.9000	1136900.0244
20/05/2018	1949.3000	1949300.0488
21/05/2018	1226.5000	1226500.0000
22/05/2018	2087.3000	2087300.0488
23/05/2018	1237.7000	1237699.9512
24/05/2018	1558.9000	1558900.0244
25/05/2018	1541.0000	1541000.0000
26/05/2018	2111.6001	2111600.0977
27/05/2018	2653.3000	2653300.0488
28/05/2018	2973.2000	2973199.9512
29/05/2018	1763.4000	1763400.0244
30/05/2018	1946.8000	1946800.0488
31/05/2018	2266.1001	2266100.0977
01/06/2018	1889.5000	1889500.0000
02/06/2018	2202.1001	2202100.0977
03/06/2018	2291.6001	2291600.0977
04/06/2018	2577.3999	2577399.9023
05/06/2018	1891.9000	1891900.0244
06/06/2018	2423.1001	2423100.0977
07/06/2018	2614.8999	2614899.9023
08/06/2018	2613.3999	2613399.9023
09/06/2018	1759.0000	1759000.0000
10/06/2018	2452.1001	2452100.0977
11/06/2018	2319.5000	2319500.0000
12/06/2018	2676.5000	2676500.0000
13/06/2018	2628.7000	2628699.9512

14/06/2018	1863.4000	1863400.0244
15/06/2018	2222.7000	2222699.9512
16/06/2018	2706.8999	2706899.9023
17/06/2018	1708.8000	1708800.0488
18/06/2018	2586.7000	2586699.9512
19/06/2018	2181.6001	2181600.0977
20/06/2018	2540.6001	2540600.0977
21/06/2018	2987.7000	2987699.9512
22/06/2018	3047.8000	3047800.0488
23/06/2018	2277.1001	2277100.0977
24/06/2018	2470.8999	2470899.9023
25/06/2018	2828.8000	2828800.0488
26/06/2018	2637.7000	2637699.9512
27/06/2018	2993.7000	2993699.9512
28/06/2018	2795.3999	2795399.9023
29/06/2018	2973.2000	2973199.9512
30/06/2018	2882.6001	2882600.0977
01/07/2018	3030.7000	3030699.9512
02/07/2018	2477.0000	2477000.0000
03/07/2018	2835.1001	2835100.0977
04/07/2018	3041.6001	3041600.0977
05/07/2018	2929.0000	2929000.0000
06/07/2018	2921.8999	2921899.9023
07/07/2018	3278.5000	3278500.0000
08/07/2018	2493.5000	2493500.0000
09/07/2018	2974.3999	2974399.9023
10/07/2018	3331.3999	3331399.9023
11/07/2018	2375.1001	2375100.0977
12/07/2018	3069.8999	3069899.9023
13/07/2018	3424.8999	3424899.9023
14/07/2018	2883.5000	2883500.0000
15/07/2018	2751.3000	2751300.0488
16/07/2018	2524.7000	2524699.9512
17/07/2018	3177.1001	3177100.0977
18/07/2018	3320.0000	3320000.0000
19/07/2018	2901.3000	2901300.0488
20/07/2018	2575.3000	2575300.0488
21/07/2018	2928.1001	2928100.0977
22/07/2018	2469.7000	2469699.9512
23/07/2018	2823.3999	2823399.9023
24/07/2018	2298.1001	2298100.0977
25/07/2018	2885.3000	2885300.0488
26/07/2018	3063.1001	3063100.0977
27/07/2018	3120.8000	3120800.0488
28/07/2018	2412.0000	2412000.0000
29/07/2018	3179.3000	3179300.0488
30/07/2018	3428.2000	3428199.9512
31/07/2018	2949.5000	2949500.0000
01/08/2018	3301.2000	3301199.9512
02/08/2018	2725.8999	2725899.9023
03/08/2018	3078.0000	3078000.0000
04/08/2018	2721.3999	2721399.9023
05/08/2018	2394.5000	2394500.0000
06/08/2018	3094.0000	3094000.0000
07/08/2018	3195.7000	3195699.9512
08/08/2018	3036.2000	3036199.9512
09/08/2018	3036.2000	3036199.9512
10/08/2018	3383.0000	3383000.0000
11/08/2018	2198.3000	2198300.0488
12/08/2018	3214.1001	3214100.0977
13/08/2018	3510.3000	3510300.0488

14/08/2018	2491.8999	2491899.9023
15/08/2018	3208.0000	3208000.0000
16/08/2018	3360.2000	3360199.9512
17/08/2018	2757.8999	2757899.9023
18/08/2018	3110.2000	3110199.9512
19/08/2018	2386.3999	2386399.9023
20/08/2018	3161.2000	3161199.9512
21/08/2018	3502.7000	3502699.9512
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23/08/2018	3253.3999	3253399.9023
24/08/2018	3074.7000	3074699.9512
25/08/2018	3431.2000	3431199.9512
26/08/2018	2963.8999	2963899.9023
27/08/2018	3242.8999	3242899.9023
28/08/2018	3181.3999	3181399.9023
29/08/2018	3381.5000	3381500.0000
30/08/2018	3094.5000	3094500.0000
31/08/2018	3171.3999	3171399.9023
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02/09/2018	2147.7000	2147699.9512
03/09/2018	3203.7000	3203699.9512
04/09/2018	3245.0000	3245000.0000
05/09/2018	3124.1001	3124100.0977
06/09/2018	3302.5000	3302500.0000
07/09/2018	2659.8999	2659899.9023
08/09/2018	3010.7000	3010699.9512
09/09/2018	2157.8000	2157800.0488
10/09/2018	2812.1001	2812100.0977
11/09/2018	3165.2000	3165199.9512
12/09/2018	3103.8000	3103800.0488
13/09/2018	3324.2000	3324199.9512
14/09/2018	2805.6001	2805600.0977
15/09/2018	3161.8999	3161899.9023
16/09/2018	2877.7000	2877699.9512
17/09/2018	2858.1001	2858100.0977
18/09/2018	2554.2000	2554199.9512
19/09/2018	2573.5000	2573500.0000
20/09/2018	2886.6001	2886600.0977
21/09/2018	2210.8000	2210800.0488
22/09/2018	2561.8000	2561800.0488
23/09/2018	2733.3999	2733399.9023
24/09/2018	3084.3000	3084300.0488
25/09/2018	2964.5000	2964500.0000
26/09/2018	1886.0000	1886000.0000
27/09/2018	2520.2000	2520199.9512
28/09/2018	2300.6001	2300600.0977
29/09/2018	2653.5000	2653500.0000
30/09/2018	2746.7000	2746699.9512
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02/10/2018	2318.5000	2318500.0000
03/10/2018	2874.6001	2874600.0977
04/10/2018	2430.8999	2430899.9023
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06/10/2018	2673.5000	2673500.0000
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08/10/2018	3004.0000	3004000.0000
09/10/2018	2945.3000	2945300.0488
10/10/2018	3084.5000	3084500.0000
11/10/2018	2786.1001	2786100.0977
12/10/2018	2094.0000	2094000.0000
13/10/2018	2453.5000	2453500.0000

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17/10/2018	2748.5000	2748500.0000
18/10/2018	2889.2000	2889199.9512
19/10/2018	1742.6000	1742599.9756
20/10/2018	2197.0000	2197000.0000
21/10/2018	2504.3999	2504399.9023
22/10/2018	2851.8999	2851899.9023
23/10/2018	2599.0000	2599000.0000
24/10/2018	2599.0000	2599000.0000
25/10/2018	2216.0000	2216000.0000
26/10/2018	1784.2000	1784199.9512
27/10/2018	2140.6001	2140600.0977
28/10/2018	2182.1001	2182100.0977
29/10/2018	2469.3999	2469399.9023
30/10/2018	2603.0000	2603000.0000
31/10/2018	1897.4000	1897400.0244
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02/11/2018	2255.3000	2255300.0488
03/11/2018	2498.8999	2498899.9023
04/11/2018	1503.2000	1503199.9512
05/11/2018	2186.7000	2186699.9512
06/11/2018	2350.3000	2350300.0488
07/11/2018	2112.7000	2112699.9512
08/11/2018	2278.0000	2278000.0000
09/11/2018	2179.3000	2179300.0488
10/11/2018	2343.8000	2343800.0488
11/11/2018	2088.5000	2088500.0000
12/11/2018	2252.3999	2252399.9023
13/11/2018	2149.8000	2149800.0488
14/11/2018	2313.3999	2313399.9023
15/11/2018	2289.7000	2289699.9512
16/11/2018	2416.5000	2416500.0000
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19/11/2018	2250.2000	2250199.9512
20/11/2018	2325.8000	2325800.0488
21/11/2018	1692.8000	1692800.0488
22/11/2018	1978.3000	1978300.0488
23/11/2018	1493.3000	1493300.0488
24/11/2018	1924.5000	1924500.0000
25/11/2018	1429.6000	1429599.9756
26/11/2018	1974.6000	1974599.9756
27/11/2018	1581.6000	1581599.9756
28/11/2018	2200.7000	2200699.9512
29/11/2018	2250.2000	2250199.9512
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05/12/2018	1529.3000	1529300.0488
06/12/2018	2285.2000	2285199.9512
07/12/2018	1320.0000	1320000.0000
08/12/2018	2006.2000	2006199.9512
09/12/2018	2173.8000	2173800.0488
10/12/2018	2335.8999	2335899.9023
11/12/2018	1995.9000	1995900.0244
12/12/2018	2249.2000	2249199.9512
13/12/2018	1139.9000	1139900.0244

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15/12/2018	1918.5000	1918500.0000
16/12/2018	2008.2000	2008199.9512
17/12/2018	2170.8999	2170899.9023
18/12/2018	1883.9000	1883900.0244
19/12/2018	2353.3999	2353399.9023
20/12/2018	1816.0000	1816000.0000
21/12/2018	1977.4000	1977400.0244
22/12/2018	2372.8000	2372800.0488
23/12/2018	1695.8000	1695800.0488
24/12/2018	1938.9000	1938900.0244
25/12/2018	2116.0000	2116000.0000
26/12/2018	2278.1001	2278100.0977
27/12/2018	2087.1001	2087100.0977
28/12/2018	2249.0000	2249000.0000
29/12/2018	2407.3999	2407399.9023
30/12/2018	1423.5000	1423500.0000
31/12/2018	2373.6001	2373600.0977