

Kagawong Water Treatment

Large Municipal Residential Drinking Water System

January 1, 2017 – December 31, 2017

*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 Township of Billings



Ontario Clean Water Agency
Agence Ontarienne Des Eaux



Drinking-Water System Number: 220003084
Drinking-Water System Name: KAGAWONG DRINKING WATER SYSTEM
Drinking-Water System Owner: The Corporation of the Township of Billings
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, [2018](#).

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 Kagawong WTP shall not be operated to exceed a maximum daily volume of 1002 m³/d to the distribution system.

The daily treated water maximum flow was 523.4 m³ in October and represents 52.2% of capacity.

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

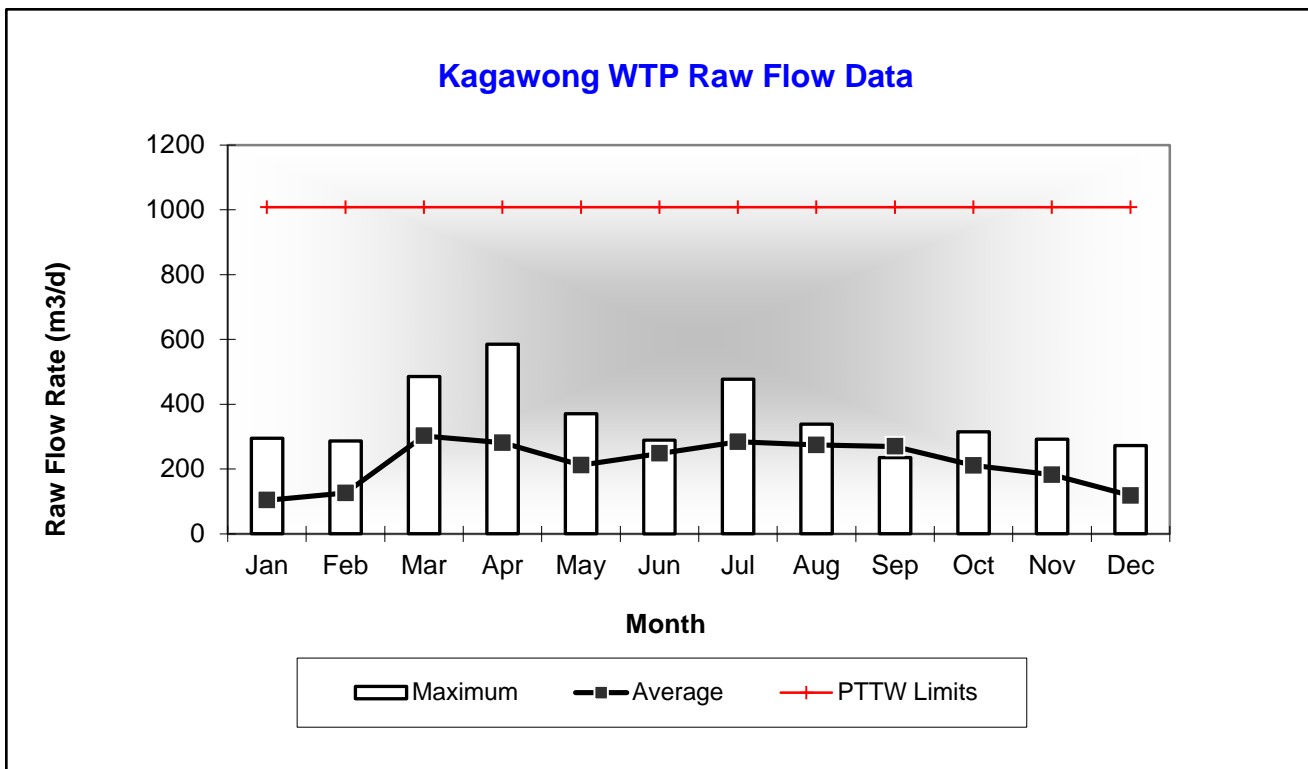
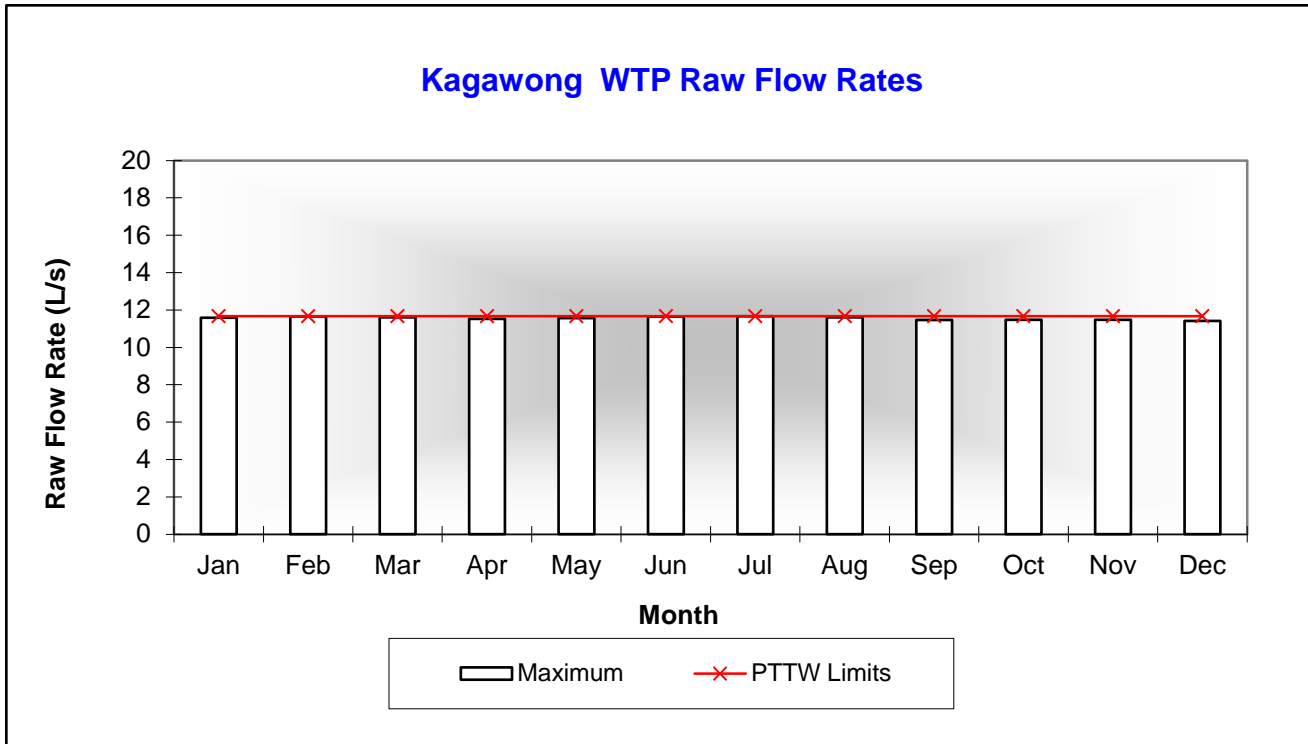
Flows - Raw

Daily raw maximum instantaneous flow is stated in the PTTW at a maximum rate of flow of 11.67 L/s and a maximum daily volume of 1008 m³/d.

The average monthly raw water flow for this reporting period was 218.01 m³/d. The maximum daily flow was 584.8 m³/d representing 58% of water taking limits.

The quantity of raw water taken **did not** exceed any limits stipulated within the PTTW based on the information available.

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	3,211	103.58	294.6	11.58	11.67	1,008
February	3,519.2	125.69	286.2	11.65	11.67	1,008
March	9,370.7	302.28	485.1	11.6	11.67	1,008
April	8,421.8	280.73	584.8	11.52	11.67	1,008
May	6,561	211.65	370.3	11.56	11.67	1,008
June	7,441.1	248.04	289	11.64	11.67	1,008
July	8,796.4	283.75	476.8	11.66	11.67	1,008
August	8,502.5	274.27	338.1	11.6	11.67	1,008
September	8,093.9	269.8	234.9	11.46	11.67	1,008
October	6,532.1	210.71	314.5	11.47	11.67	1,008
November	5,471.3	182.38	291.7	11.47	11.67	1,008
December	3,651.4	117.79	272.1	11.41	11.67	1,008
Total	79,572.4					
Average		218.01				
Maximum			584.8	11.66	11.67	1,008





Annual Raw Water Review

Raw Water Taking	Total Taking m3/d	Average Day m3/d	Max Day m3/d	Max Day % of PTTW allowable 1008 m3/d
2017	79,572.4	218.01	584.8	58%
2016	77,884.8	213	593	53.1%
2015	73,847.8*	232	460	45.6%
2014	81,982.4	225	495	49.1%

*Based on available flow data

System Failures and Corrective Actions

The latest inspection of the drinking water facility took place on **July 5, 2017**. The facility scored **0/493** providing a rating of **100%**.

There was one non-compliance listed in the inspection report under other; this did not affect the rating.

The following instance(s) of non-compliance were also noted during the inspection:

As required by Schedule E of the DWWP and in accordance with the Procedures for Disinfection of Drinking Water in Ontario, in order to achieve the noted log removal credits for the filtration portion of treatment process, filter efficiency requirements must be met monthly.

For this plant, a performance criterion for filtered water turbidity of less than or equal to 0.1 NTU in 99% of the measurements each month shall be met for each filter train. Submitted filter efficiency reports indicate monthly efficiency levels greater than 99% , yet filtrate data for filter #2 during the month of February 2017, includes numerous turbidity values that may/may not have occurred during times when filter was in operation. This needs to be evaluated by the operating authority.

Action(s) Required:

By October 31, 2017, in accordance with Section 31 of the Safe Drinking Water Act, the operating authority is required to evaluate filtrate turbidity levels from Filter #2 during the month of February 2017, and provide the associated manual filter efficiency calculation to the undersigned.

Action(s) Taken:

The filter turbidity and filter run times for filter #2 were evaluated by the operating authority and proved that the filter efficiency was achieved. Below is a manual calculation showing this.

Total filter run time: 9361mins

Run time with turbidity above 0.1NTU: 47min

$$\frac{47\text{min}}{9361\text{min}} = 0.005$$

$$0.005 \times 100\% = 0.5\%$$

$$100\% - 0.5\% = 99.5\% \quad \text{Therefore the filter efficiency is 99.5\%}$$

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	300
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.	Township of Billings, Township Office 15 Old Mill Road Kagawong, Ontario POP 1J0
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?	NA
List all Drinking-Water Systems (if any), and their DWS Number which receive all of their drinking water from your system:	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?	N/A
Indicate how you notified system users that your annual report is available, and is free of charge.	Public access/notice via newspaper
Indicate if you notified system users that your annual report is available and is free of charge using an alternate method	Yes

The Kagawong 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.

Prior to Aug 27, 2015, treatment consisted of membrane filtration comprised of two concrete tanks each having six ultrafiltration units. Each unit contained 12 modules with a filtering area of 23.23 m². There were three permeate pumps used to push the water to the chlorine contact chamber.

An upgrade to the membrane system was completed in 2015. The membrane system now consists of 2 ultrafiltration zeebox package units. By August 2nd, 1 unit was online and providing water to the distribution while the second unit was online by November 2nd.

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.



Chemicals Used

Sodium Hypochlorite (12%)	Disinfection and clean-in-place
Sodium Hydroxide	Neutralization of wastewater
Citric Acid	Clean-in-place
Calcium Thiosulphate (Captor)	Dechlorination of reject water & wastewater

Significant Expenses

Significant expenses incurred to

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

Work Order	Completion Date	Comment
264456	03-Oct-17	Membrane tank header repair
345201	12-Jun-17	HLP 1 Repair Replaced defective contactor and control fuse
472022	03-Oct-17	Plant Maintenance Made repairs to dehumidifier, heaters, main floor exhaust system and basement exhaust system. All systems back online after repairs.

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 #		Min #	Max #
Raw Water	52	0	5	0	18	N/A	N/A	N/A
Treated Water	52	0	0	0	0	52	0	460
Distribution	116	0	0	0	0	52	0	480

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	0.75	(NTU)
Turbidity – Filter 2	8760	0	0.86	(NTU)
Free Chlorine Residual – TW	8760	0.67	3.57	(mg/L)
Free Chlorine Residual, Distribution Location 1	103	0.61	1.86	(mg/L)
Free Chlorine Residual, Distribution Location 2	103	0.33	1.42	(mg/L)
Free Chlorine Residual, Distribution Location 3	101	0.62	1.63	(mg/L)
Free Chlorine Residual, Distribution Location 4	51	0.62	1.33	(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
255-101 Issue 1 May 24, 2011 Renewed on May 20, 2016	Point of discharge from the backwash reservoir Total Suspended Solids 25 mg/L (annual average)	Jan	10	3	mg/L
		Feb	6	2	mg/L
		Mar	6	2	mg/L
		Apr	3	2	mg/L
		May	1	2	mg/L
		Jun	5	2	mg/L
		Jul	10	5	mg/L
		Aug	1	2	mg/L
		Sep	5	5	mg/L
		Oct	2	3	mg/L
		Nov	14	2	mg/L
		Dec	4	2	mg/L
		Annual Average			

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	2017/01/16	0.1	6.0	No	No
Arsenic: As (ug/L) - TW	2017/01/16	0.4	25.0	No	No
Barium: Ba (ug/L) - TW	2017/01/16	18.6	1000.0	No	No
Boron: B (ug/L) - TW	2017/01/16	69.0	5000.0	No	No
Cadmium: Cd (ug/L) - TW	2017/01/16	0.005	5.0	No	No
Chromium: Cr (ug/L) - TW	2017/01/16	0.64	50.0	No	No
Mercury: Hg (ug/L) - TW	2017/01/16	<MDL 0.01	1.0	No	No
Selenium: Se (ug/L) - TW	2017/01/16	0.26	10.0	No	No
Uranium: U (ug/L) - TW	2017/01/16	0.198	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	2016/01/05	0.07	1.5	No	No
Nitrite (mg/L) - TW	2017/01/16	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2017/04/03	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2017/07/10	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2017/10/02	<MDL 0.003	1.0	No	No
Nitrate (mg/L) - TW	2017/01/16	0.214	10.0	No	No
Nitrate (mg/L) - TW	2017/04/03	0.208	10.0	No	No
Nitrate (mg/L) - TW	2017/07/10	0.175	10.0	No	No
Nitrate (mg/L) - TW	2017/10/02	0.099	10.0	No	No
Sodium: Na (mg/L) - TW	2016/01/05	6.09	20*	No	No



*There is no "MAC" for Sodium. The aesthetic objective for sodium in drinking water is 200 mg/L. The local Medical Officer of Health should be notified when the sodium concentration exceeds 20 mg/L so that this information may be communicated to local physicians for their use with patients on sodium restricted diets.

Summary of Lead testing under Schedule 15.1 during this reporting period

Location Type	Number of Samples	Range of Results		MAC (ug/L)	Number of Exceedances
		Minimum	Maximum		
Distribution - Lead Results (ug/L)	0	n/a	n/a	10	0
Distribution - Alkalinity (mg/L)	2	62	70	N/A	N/A
Distribution - pH In-House	2	6.59	7.83	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	2017/01/16	<MDL 0.02	5.00	No	No
Aldicarb (ug/L) - TW	2017/01/16	0.01	9.00	No	No
Aldrin+Dieldrin (ug/L) - TW	2017/01/16	<MDL 0.05	0.70	No	No
Atrazine + N-dealkylated metabolites (ug/L) - TW	2017/01/16	<MDL 0.32	5.00	No	No
Azinphos-methyl (ug/L) - TW	2017/01/16	<MDL 0.004	20.00	No	No
Bendiocarb (ug/L) - TW	2017/01/16	<MDL 0.33	40.00	No	No
Benzene (ug/L) - TW	2017/01/16	<MDL 0.05	5.00	No	No
Benzo(a)pyrene (ug/L) - TW	2017/01/16	<MDL 0.01	0.01	No	No
Bromoxynil (ug/L) - TW	2017/01/16	<MDL 0.16	5.00	No	No
Carbaryl (ug/L) - TW	2017/01/16	<MDL 0.02	90.00	No	No
Carbofuran (ug/L) - TW	2017/01/16	<MDL 0.02	90.00	No	No
Carbon Tetrachloride (ug/L) - TW	2017/01/16	<MDL 0.2	5.00	No	No
Chlordane: Total (ug/L) - TW	2017/01/16	<MDL 0.41	7.00	No	No
Chlorpyrifos (ug/L) - TW	2017/01/16	<MDL 0.36	90.00	No	No
Cyanazine (ug/L) - TW	2017/01/16	<MDL 0.35	10.00	No	No
Diazinon (ug/L) - TW	2017/01/16	<MDL 0.33	20.00	No	No
Dicamba (ug/L) - TW	2017/01/16	<MDL 0.35	120.00	No	No
1,2-Dichlorobenzene (ug/L) - TW	2017/01/16	<MDL 0.15	200.00	No	No
1,4-Dichlorobenzene (ug/L) - TW	2017/01/16	<MDL 0.19	5.00	No	No
DDT + metabolites (ug/L) - TW	2017/01/16	<MDL 0.4	30.00	No	No
1,2-Dichloroethane (ug/L) - TW	2017/01/16	<MDL 0.03	5.00	No	No
1,1-Dichloroethylene (ug/L) - TW	2017/01/16	<MDL 1.0	14.00	No	No
Dichloromethane (Methylene Chloride) (ug/L) - TW	2017/01/16	<MDL 0.03	50.00	No	No
2,4-Dichlorophenol (ug/L) - TW	2017/01/16	<MDL 1.0	900.00	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW	2017/01/16	<MDL 0.02	100.00	No	No
Diclofop-methyl (ug/L) - TW	2017/01/16	<MDL 0.01	9.00	No	No
Dimethoate (ug/L) - TW	2017/01/16	<MDL 0.02	20.00	No	No
Dinoseb (ug/L) - TW	2017/01/16	<MDL 0.3	10.00	No	No



Diquat (ug/L) - TW	2017/01/16	<MDL 1.0	70.00	No	No
Diuron (ug/L) - TW	2017/01/16	<MDL 0.04	150.00	No	No
Glyphosate (ug/L) - TW	2017/01/16	<MDL 0.15	280.00	No	No
Heptachlor+hepachlor epoxide (ug/L) - TW	2017/01/16	<MDL 0.01	3.00	No	No
Lindane (ug/L) - TW	2017/01/16	<MDL 1.0	4.00	No	No
Malathion (ug/L) - TW	2017/01/16	<MDL 0.03	190.00	No	No
2-methyl-4-chlorophenoxyacetic acid (MCPA) (mg/L) - TW	2017/01/16	<MDL0.00012	N/A	N/A	N/A
Methoxychlor (ug/L) - TW	2017/01/16	<MDL 0.01	900.00	No	No
Metolachlor (ug/L) - TW	2017/01/16	<MDL 0.01	50.00	No	No
Metribuzin (ug/L) - TW	2017/01/16	<MDL 0.35	80.00	No	No
Monochlorobenzene (Chlorobenzene) (ug/L) - TW	2017/01/16	<MDL 0.2	80.00	No	No
Paraquat (ug/L) - TW	2017/01/16	<MDL 0.01	10.00	No	No
Parathion (ug/L) - TW	2017/01/16	<MDL 0.44	50.00	No	No
PCB (ug/L) - TW	2017/01/16	<MDL 0.25	3.00	No	No
Pentachlorophenol (ug/L) - TW	2017/01/16	<MDL 0.02	60.00	No	No
Phorate (ug/L) - TW	2017/01/16	<MDL 0.17	2.00	No	No
Picloram (ug/L) - TW	2017/01/16	<MDL 0.02	190.00	No	No
Prometryne (ug/L) - TW	2017/01/16	0.01	1.00	No	No
Simazine (ug/L) - TW	2017/01/16	<MDL 0.05	10.00	No	No
Temephos (ug/L) - TW	2017/01/16	<MDL 0.32	280.00	No	No
Terbufos (ug/L) - TW	2017/01/16	<MDL 0.004	1.00	No	No
Tetrachloroethylene (ug/L) - TW	2017/01/16	<MDL 0.33	30.00	No	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW	2017/01/16	<MDL 0.05	100.00	No	No
Triallate (ug/L) - TW	2017/01/16	<MDL 0.01	230.00	No	No
Trichloroethylene (ug/L) - TW	2017/01/16	<MDL 0.16	50.00	No	No
2,4,6-Trichlorophenol (ug/L) - TW	2017/01/16	<MDL 0.02	5.00	No	No
2,4,5-T (ug/L) - TW	2017/01/16	<MDL 0.02	280.00	No	No
Trifluralin (ug/L) - TW	2017/01/16	<MDL 0.2	45.00	No	No
Vinyl Chloride (ug/L) - TW	2017/01/16	<MDL 0.41	2.00	No	No
DISTRIBUTION WATER					
Trihalomethane: Total (ug/L) Annual Average – DW1	2017/12/31	58.5	100.00	No	Yes
HAA Total (ug/L) Annual Average – DW1	2017/12/31	34		N/A	N/A



SECTION 5: RAW WATER SUBMISSIONS

Raw water flows were submitted to the Ministry on [Feb 7, 2018](#).



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: 7363-75XNEP
Permit Holder: THE CORPORATION OF THE TOWNSHIP OF BILLINGS.
Received on: Feb 7, 2018 2:30 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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TOWN2 BILLINGS2 | 2018/02/07
version: v4.5.0.8 (build#: 18)
Last modified: 2018/01/11

SECTION 6: CONCLUSION

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

Based on the information available, or the [2017](#) operating year, the [Kagawong WTP](#) was able to meet the demand of water use without exceeding the PTTW m³/d allowance or the MDWL. However, PTTW L/s were exceeded.



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 requirements
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 water
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 01/01/2017 To 12/31/2017

Facility: KAGAWONG DRINKING WATER SYSTEM-1010
 Tag: Raw Flow: Sum (m3/d)
 Tag Group: Raw Water

Permit#: 7363-7SXNEP
 Source Name: Lake Huron (North Channel, Mudge Bay)
 Source: Lake
 Type:
 Purpose: Municipal

Coordinate Zone: 17
 Easting: 401405
 Northing: 5085124
 Method deter: Metered

Date Measured	Value (m³/d)	Value (Litres)
01/01/2017	32.4000	32400.0000
02/01/2017	263.3000	263300.0000
03/01/2017	0.0000	0.0000
04/01/2017	166.5000	166500.0000
05/01/2017	120.0000	120000.0000
06/01/2017	0.0000	0.0000
07/01/2017	238.2000	238200.0000
08/01/2017	59.0000	59000.0000
09/01/2017	0.0000	0.0000
10/01/2017	294.6000	294600.0000
11/01/2017	0.0000	0.0000
12/01/2017	15.8000	15800.0000
13/01/2017	240.0000	240000.0000
14/01/2017	0.3000	300.0000
15/01/2017	184.2000	184200.0000
16/01/2017	131.7000	131700.0000
17/01/2017	6.4000	6400.0000
18/01/2017	209.2000	209200.0000
19/01/2017	56.3000	56300.0000
20/01/2017	165.5000	165500.0000
21/01/2017	0.0000	0.0000
22/01/2017	76.1000	76100.0000
23/01/2017	209.7000	209700.0000
24/01/2017	0.0000	0.0000
25/01/2017	204.2000	204200.0000
26/01/2017	68.0000	68000.0000
27/01/2017	179.8000	179800.0000
28/01/2017	0.0000	0.0000
29/01/2017	4.2000	4200.0000
30/01/2017	281.2000	281200.0000
31/01/2017	4.4000	4400.0000
01/02/2017	225.4000	225400.0000
02/02/2017	102.5000	102500.0000
03/02/2017	0.0000	0.0000
04/02/2017	22.8000	22800.0000
05/02/2017	327.5000	327500.0000
06/02/2017	64.5000	64500.0000
07/02/2017	0.0000	0.0000
08/02/2017	235.4000	235400.0000
09/02/2017	0.0000	0.0000
10/02/2017	171.2000	171200.0000
11/02/2017	134.0000	134000.0000

12/02/2017	0.0000	0.0000
13/02/2017	231.9000	231900.0000
14/02/2017	0.0000	0.0000
15/02/2017	224.5000	224500.0000
16/02/2017	0.0000	0.0000
17/02/2017	17.9000	17900.0000
18/02/2017	0.0000	0.0000
19/02/2017	243.5000	243500.0000
20/02/2017	0.0000	0.0000
21/02/2017	189.5000	189500.0000
22/02/2017	0.0000	0.0000
23/02/2017	0.0000	0.0000
24/02/2017	338.2000	338200.0000
25/02/2017	343.1000	343100.0000
26/02/2017	76.4000	76400.0000
27/02/2017	386.2000	386200.0000
28/02/2017	184.7000	184700.0000
01/03/2017	248.5000	248500.0000
02/03/2017	410.8000	410800.0000
03/03/2017	240.6000	240600.0000
04/03/2017	342.3000	342300.0000
05/03/2017	170.6000	170600.0000
06/03/2017	245.1000	245100.0000
07/03/2017	391.5000	391500.0000
08/03/2017	181.8000	181800.0000
09/03/2017	470.7000	470700.0000
10/03/2017	254.7000	254700.0000
11/03/2017	155.7000	155700.0000
12/03/2017	485.1000	485100.0000
13/03/2017	280.1000	280100.0000
14/03/2017	271.3000	271300.0000
15/03/2017	206.2000	206200.0000
16/03/2017	257.4000	257400.0000
17/03/2017	384.7000	384700.0000
18/03/2017	405.7000	405700.0000
19/03/2017	183.8000	183800.0000
20/03/2017	197.9000	197900.0000
21/03/2017	378.0000	378000.0000
22/03/2017	402.2000	402200.0000
23/03/2017	251.0000	251000.0000
24/03/2017	382.1000	382100.0000
25/03/2017	213.1000	213100.0000
26/03/2017	267.7000	267700.0000
27/03/2017	446.5000	446500.0000
28/03/2017	386.0000	386000.0000
29/03/2017	216.2000	216200.0000
30/03/2017	233.3000	233300.0000
31/03/2017	410.1000	410100.0000
01/04/2017	455.2000	455200.0000
02/04/2017	407.0000	407000.0000
03/04/2017	451.3000	451300.0000
04/04/2017	415.1000	415100.0000
05/04/2017	435.1000	435100.0000
06/04/2017	205.5000	205500.0000
07/04/2017	548.6000	548600.0000
08/04/2017	268.0000	268000.0000
09/04/2017	357.3000	357300.0000
10/04/2017	412.3000	412300.0000
11/04/2017	584.8000	584800.0000
12/04/2017	270.3000	270300.0000
13/04/2017	218.3000	218300.0000

14/04/2017	178.8000	178800.0000
15/04/2017	186.2000	186200.0000
16/04/2017	285.8000	285800.0000
17/04/2017	160.6000	160600.0000
18/04/2017	218.2000	218200.0000
19/04/2017	165.2000	165200.0000
20/04/2017	206.5000	206500.0000
21/04/2017	179.7000	179700.0000
22/04/2017	205.3000	205300.0000
23/04/2017	217.8000	217800.0000
24/04/2017	189.2000	189200.0000
25/04/2017	186.6000	186600.0000
26/04/2017	200.4000	200400.0000
27/04/2017	195.2000	195200.0000
28/04/2017	241.0000	241000.0000
29/04/2017	183.1000	183100.0000
30/04/2017	193.4000	193400.0000
01/05/2017	220.7000	220700.0000
02/05/2017	120.3000	120300.0000
03/05/2017	187.0000	187000.0000
04/05/2017	198.8000	198800.0000
05/05/2017	204.6000	204600.0000
06/05/2017	238.8000	238800.0000
07/05/2017	82.6000	82600.0000
08/05/2017	283.5000	283500.0000
09/05/2017	222.0000	222000.0000
10/05/2017	161.3000	161300.0000
11/05/2017	215.1000	215100.0000
12/05/2017	189.3000	189300.0000
13/05/2017	227.2000	227200.0000
14/05/2017	233.7000	233700.0000
15/05/2017	238.9000	238900.0000
16/05/2017	214.6000	214600.0000
17/05/2017	113.0000	113000.0000
18/05/2017	187.7000	187700.0000
19/05/2017	370.3000	370300.0000
20/05/2017	264.3000	264300.0000
21/05/2017	227.3000	227300.0000
22/05/2017	226.2000	226200.0000
23/05/2017	231.0000	231000.0000
24/05/2017	163.6000	163600.0000
25/05/2017	231.7000	231700.0000
26/05/2017	206.5000	206500.0000
27/05/2017	217.4000	217400.0000
28/05/2017	229.3000	229300.0000
29/05/2017	233.4000	233400.0000
30/05/2017	205.1000	205100.0000
31/05/2017	215.8000	215800.0000
01/06/2017	224.3000	224300.0000
02/06/2017	253.5000	253500.0000
03/06/2017	237.7000	237700.0000
04/06/2017	236.2000	236200.0000
05/06/2017	227.0000	227000.0000
06/06/2017	219.1000	219100.0000
07/06/2017	244.6000	244600.0000
08/06/2017	285.1000	285100.0000
09/06/2017	252.0000	252000.0000
10/06/2017	278.0000	278000.0000
11/06/2017	267.2000	267200.0000
12/06/2017	225.5000	225500.0000
13/06/2017	278.1000	278100.0000

14/06/2017	263.3000	263300.0000
15/06/2017	229.3000	229300.0000
16/06/2017	238.1000	238100.0000
17/06/2017	259.2000	259200.0000
18/06/2017	244.0000	244000.0000
19/06/2017	244.8000	244800.0000
20/06/2017	289.0000	289000.0000
21/06/2017	250.2000	250200.0000
22/06/2017	229.3000	229300.0000
23/06/2017	203.0000	203000.0000
24/06/2017	258.0000	258000.0000
25/06/2017	261.9000	261900.0000
26/06/2017	259.9000	259900.0000
27/06/2017	239.2000	239200.0000
28/06/2017	256.6000	256600.0000
29/06/2017	232.7000	232700.0000
30/06/2017	254.3000	254300.0000
01/07/2017	274.6000	274600.0000
02/07/2017	271.5000	271500.0000
03/07/2017	269.0000	269000.0000
04/07/2017	275.5000	275500.0000
05/07/2017	263.1000	263100.0000
06/07/2017	266.2000	266200.0000
07/07/2017	186.6000	186600.0000
08/07/2017	0.0000	0.0000
09/07/2017	393.6000	393600.0000
10/07/2017	476.8000	476800.0000
11/07/2017	296.6000	296600.0000
12/07/2017	263.6000	263600.0000
13/07/2017	266.4000	266400.0000
14/07/2017	241.5000	241500.0000
15/07/2017	318.4000	318400.0000
16/07/2017	286.3000	286300.0000
17/07/2017	281.0000	281000.0000
18/07/2017	325.3000	325300.0000
19/07/2017	286.0000	286000.0000
20/07/2017	312.5000	312500.0000
21/07/2017	330.8000	330800.0000
22/07/2017	321.2000	321200.0000
23/07/2017	236.3000	236300.0000
24/07/2017	271.6000	271600.0000
25/07/2017	303.9000	303900.0000
26/07/2017	224.9000	224900.0000
27/07/2017	295.1000	295100.0000
28/07/2017	294.5000	294500.0000
29/07/2017	310.0000	310000.0000
30/07/2017	309.4000	309400.0000
31/07/2017	344.2000	344200.0000
01/08/2017	338.1000	338100.0000
02/08/2017	268.9000	268900.0000
03/08/2017	267.7000	267700.0000
04/08/2017	265.7000	265700.0000
05/08/2017	262.1000	262100.0000
06/08/2017	263.9000	263900.0000
07/08/2017	314.5000	314500.0000
08/08/2017	295.7000	295700.0000
09/08/2017	280.2000	280200.0000
10/08/2017	278.3000	278300.0000
11/08/2017	219.4000	219400.0000
12/08/2017	330.2000	330200.0000
13/08/2017	284.5000	284500.0000

14/08/2017	291.4000	291400.0000
15/08/2017	303.2000	303200.0000
16/08/2017	281.7000	281700.0000
17/08/2017	257.0000	257000.0000
18/08/2017	255.1000	255100.0000
19/08/2017	289.1000	289100.0000
20/08/2017	277.6000	277600.0000
21/08/2017	273.9000	273900.0000
22/08/2017	291.7000	291700.0000
23/08/2017	256.0000	256000.0000
24/08/2017	251.8000	251800.0000
25/08/2017	221.4000	221400.0000
26/08/2017	267.7000	267700.0000
27/08/2017	264.5000	264500.0000
28/08/2017	248.9000	248900.0000
29/08/2017	258.1000	258100.0000
30/08/2017	258.6000	258600.0000
31/08/2017	285.6000	285600.0000
01/09/2017	279.7000	279700.0000
02/09/2017	278.5000	278500.0000
03/09/2017	279.5000	279500.0000
04/09/2017	273.1000	273100.0000
05/09/2017	269.7000	269700.0000
06/09/2017	197.0000	197000.0000
07/09/2017	255.3000	255300.0000
08/09/2017	264.8000	264800.0000
09/09/2017	277.8000	277800.0000
10/09/2017	216.5000	216500.0000
11/09/2017	219.2000	219200.0000
12/09/2017	254.2000	254200.0000
13/09/2017	273.1000	273100.0000
14/09/2017	279.2000	279200.0000
15/09/2017	268.4000	268400.0000
16/09/2017	270.8000	270800.0000
17/09/2017	324.9000	324900.0000
18/09/2017	283.7000	283700.0000
19/09/2017	282.4000	282400.0000
20/09/2017	283.7000	283700.0000
21/09/2017	269.5000	269500.0000
22/09/2017	320.4000	320400.0000
23/09/2017	318.9000	318900.0000
24/09/2017	281.0000	281000.0000
25/09/2017	278.3000	278300.0000
26/09/2017	268.2000	268200.0000
27/09/2017	252.9000	252900.0000
28/09/2017	262.6000	262600.0000
29/09/2017	232.3000	232300.0000
30/09/2017	278.3000	278300.0000
01/10/2017	251.6000	251600.0000
02/10/2017	314.5000	314500.0000
03/10/2017	252.2000	252200.0000
04/10/2017	266.7000	266700.0000
05/10/2017	285.5000	285500.0000
06/10/2017	268.7000	268700.0000
07/10/2017	251.7000	251700.0000
08/10/2017	273.0000	273000.0000
09/10/2017	260.9000	260900.0000
10/10/2017	272.5000	272500.0000
11/10/2017	233.8000	233800.0000
12/10/2017	259.5000	259500.0000
13/10/2017	262.0000	262000.0000

14/10/2017	258.9000	258900.0000
15/10/2017	152.9000	152900.0000
16/10/2017	149.1000	149100.0000
17/10/2017	227.3000	227300.0000
18/10/2017	113.2000	113200.0000
19/10/2017	220.3000	220300.0000
20/10/2017	111.2000	111200.0000
21/10/2017	220.0000	220000.0000
22/10/2017	119.0000	119000.0000
23/10/2017	147.0000	147000.0000
24/10/2017	106.5000	106500.0000
25/10/2017	262.6000	262600.0000
26/10/2017	116.1000	116100.0000
27/10/2017	221.0000	221000.0000
28/10/2017	120.4000	120400.0000
29/10/2017	221.1000	221100.0000
30/10/2017	92.8000	92800.0000
31/10/2017	220.1000	220100.0000
01/11/2017	113.3000	113300.0000
02/11/2017	218.2000	218200.0000
03/11/2017	102.1000	102100.0000
04/11/2017	224.9000	224900.0000
05/11/2017	125.1000	125100.0000
06/11/2017	229.4000	229400.0000
07/11/2017	108.7000	108700.0000
08/11/2017	227.3000	227300.0000
09/11/2017	117.0000	117000.0000
10/11/2017	224.6000	224600.0000
11/11/2017	120.4000	120400.0000
12/11/2017	262.0000	262000.0000
13/11/2017	256.1000	256100.0000
14/11/2017	225.3000	225300.0000
15/11/2017	207.9000	207900.0000
16/11/2017	230.6000	230600.0000
17/11/2017	252.5000	252500.0000
18/11/2017	252.8000	252800.0000
19/11/2017	247.9000	247900.0000
20/11/2017	151.2000	151200.0000
21/11/2017	229.8000	229800.0000
22/11/2017	132.0000	132000.0000
23/11/2017	201.5000	201500.0000
24/11/2017	109.3000	109300.0000
25/11/2017	194.2000	194200.0000
26/11/2017	133.4000	133400.0000
27/11/2017	115.0000	115000.0000
28/11/2017	0.0000	0.0000
29/11/2017	167.1000	167100.0000
30/11/2017	291.7000	291700.0000
01/12/2017	0.0000	0.0000
02/12/2017	201.2000	201200.0000
03/12/2017	211.4000	211400.0000
04/12/2017	107.8000	107800.0000
05/12/2017	87.0000	87000.0000
06/12/2017	107.2000	107200.0000
07/12/2017	203.6000	203600.0000
08/12/2017	143.8000	143800.0000
09/12/2017	20.5000	20500.0000
10/12/2017	166.2000	166200.0000
11/12/2017	171.4000	171400.0000
12/12/2017	99.6000	99600.0000
13/12/2017	0.0000	0.0000

14/12/2017	272.1000	272100.0000
15/12/2017	0.0000	0.0000
16/12/2017	197.5000	197500.0000
17/12/2017	92.3000	92300.0000
18/12/2017	157.4000	157400.0000
19/12/2017	179.4000	179400.0000
20/12/2017	102.6000	102600.0000
21/12/2017	4.9000	4900.0000
22/12/2017	178.3000	178300.0000
23/12/2017	187.9000	187900.0000
24/12/2017	0.2000	200.0000
25/12/2017	189.7000	189700.0000
26/12/2017	0.2000	200.0000
27/12/2017	196.7000	196700.0000
28/12/2017	148.8000	148800.0000
29/12/2017	39.9000	39900.0000
30/12/2017	182.5000	182500.0000
31/12/2017	1.3000	1300.0000