

# Norland Drinking Water System

Waterworks # 250001910  
System Category – Small Municipal Residential

## Annual Water Report

Prepared For: The City of Kawartha Lakes

Reporting Period of January 1<sup>st</sup>, 2018 – December 31<sup>st</sup>, 2018

Issued: February 15, 2019

Revision: 0

Operating Authorities:



**OCWA**

 **ONTARIO CLEAN WATER AGENCY**  
**AGENCE ONTARIENNE DES EAUX**

This report has been prepared to satisfy the annual reporting requirements in  
O. Reg. 170/03 Section 11 and Schedule 22

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## Report Availability

This system does not serve more than 10,000 residences and the annual reports will be available to residents at the City of Kawartha Lakes Public Works Administration Office and on the City's website at [www.kawarthalakes.ca](http://www.kawarthalakes.ca). Notification that the reports are available free of charge will be made on the City of Kawartha Lakes website. The City of Kawartha Lakes Public Works Administration Office is located at 12 Peel Street in Lindsay, Ontario.

## Compliance Report Card

**Drinking Water System Number:** 250001910

**Drinking Water System Name:** Norland DWS

**Drinking Water System Owner:** City of Kawartha Lakes

**Drinking Water System Category:** Small Municipal Residential

**Period Being Reported:** January 1, 2018 - December 31, 2018

|  | # of Events | Date             | Details   |
|--|-------------|------------------|---|
| <b>Health &amp; Safety</b>             |             |                  |   |
| Number of Incidents                    | 0           |                  |   |
| <b>Drinking Water</b>                  |             |                  |   |
| <b>MECP Inspections</b>                | 1           | January 17, 2019 | Announced-Focused Drinking Water Inspection - Final Inspection Rating of 100% |
| <b>AWQI's</b>                          | 0           |                  |   |
| <b>Number of Non-Compliances</b>       | 0           |                  |   |
| <b>Number of Boil Water Advisories</b> | 0           |                  |   |

## System Process Description

### Raw Source

The Norland Water Treatment Plant is supplied with surface water from the Gull River.

### Treatment

The treatment system is a dual train conventional filtration package plant consisting of the following:

- In-line static mixer
- Coagulant feed system with SternPac addition upstream of static mixer
- Two stage variable speed flocculators located in flocculation tanks
- Coagulant aid feed system with polymer added to flocculation tanks
- Two upflow clarifier units equipped with tube settlers

- Two dual media rapid gravity filters
- Sodium hypochlorite feed system for primary disinfection
- Dual celled chlorine contact tanks located beneath the plant
- Two highlift pump chambers housing four highlift pumps
- Sodium hypochlorite feed system for post chlorination
- Online analyzers to monitor both free treated chlorine and filter effluent turbidity
- Wastewater treatment system that consists of two backwash pumps and a settling tank that receives backwash wastewater and clarifier sludge
- SCADA computer control system
- Standby power generator

**Treatment Chemicals used during the reporting year:**

| Chemical Name          | Use           | Supplier             |
|------------------------|---------------|----------------------|
| Sodium Hypochlorite    | Disinfection  | Brenntag             |
| Polyalumunium Chloride | Flocculation  | FloChem              |
| Polymer                | Flocculation  | Basf                 |
| Sodium hydroxide       | pH adjustment | Not required in 2018 |

**Summary of Non-Compliance**

**Adverse Water Quality Incidents**

| Date  | AWQI # | Location | Problem | Details | Legislation | Corrective Action Taken |
|---|--------|----------|---------|---------|-------------|-------------------------|
| There were no AWQIs reported during the reporting period. |        |          |         |         |             |                         |

**Non-Compliance**

| Legislation   | requirement(s) system failed to meet | duration of the failure (i.e. date(s)) | Corrective Action | Status |
|---|--------------------------------------|--|-------------------|--------|
| There were no non-compliances reported during the reporting period. |                                      |  |                   |        |

**Non-Compliance Identified in a Ministry Inspection**

| Legislation   | requirement(s) system failed to meet | duration of the failure (i.e. date(s)) | Corrective Action | Status |
|---|--------------------------------------|--|-------------------|--------|
| There were no non-compliances identified in a Ministry Inspection during this period. |                                      |  |                   |        |

## **Flows**

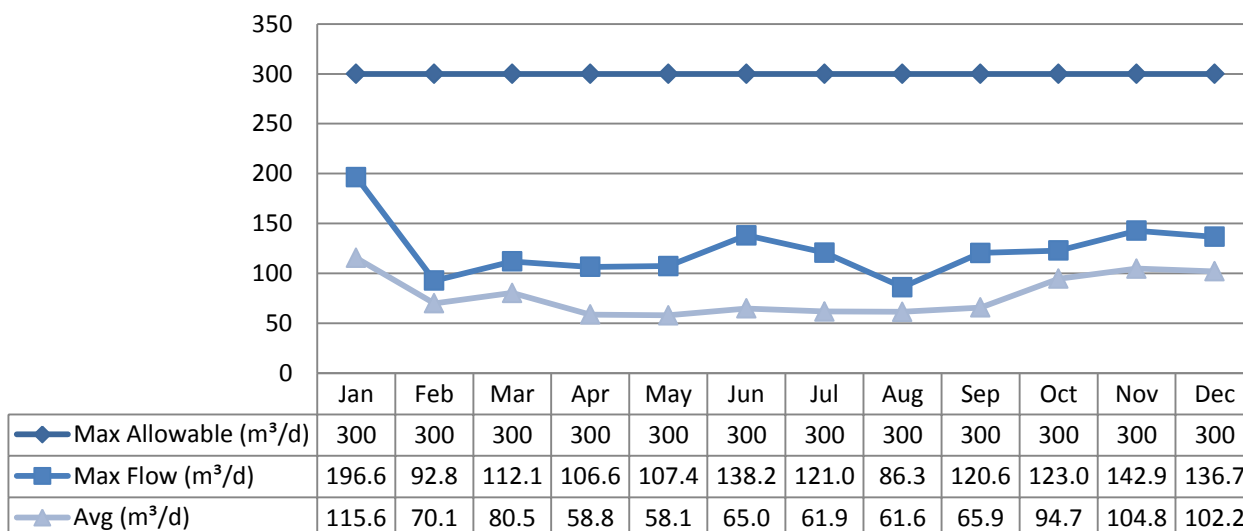
The Norland Drinking Water System is operating on average under half the rated capacity.

### **Raw Water Flows**

The Raw Water takings are regulated by the Permit to Take Water (PTTW). 2018 Raw Flow Data was submitted to the Ministry electronically under permit #6033-AQ5HFW. The confirmation for the data that was submitted is attached in Appendix A.

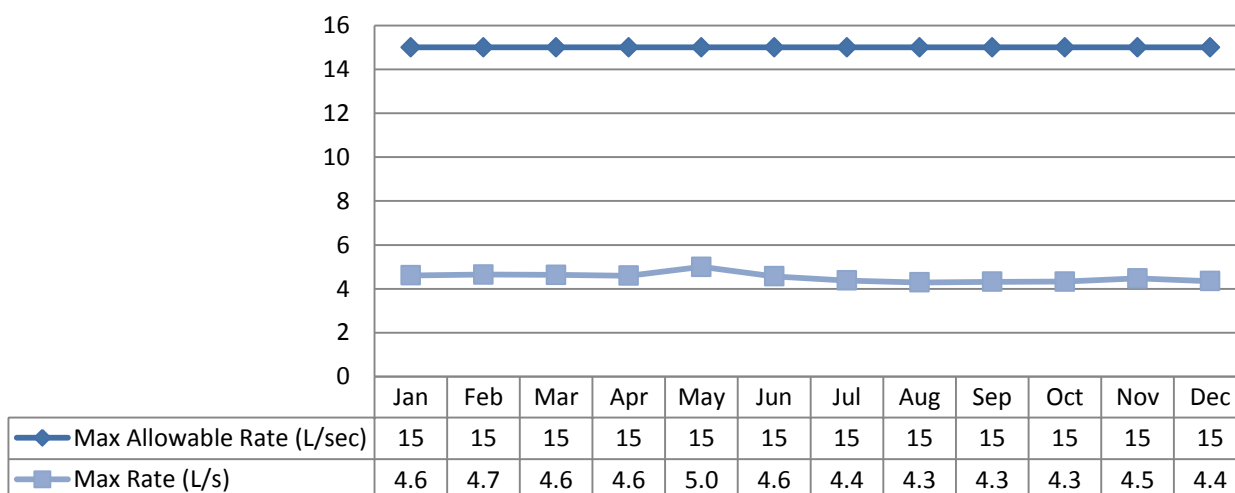
#### **Total Monthly Flows (m<sup>3</sup>/d)**

Max Allowable PTTW - Raw



#### **Monthly Rated Flows (L/s)**

Max allowable rate – PTTW- Raw

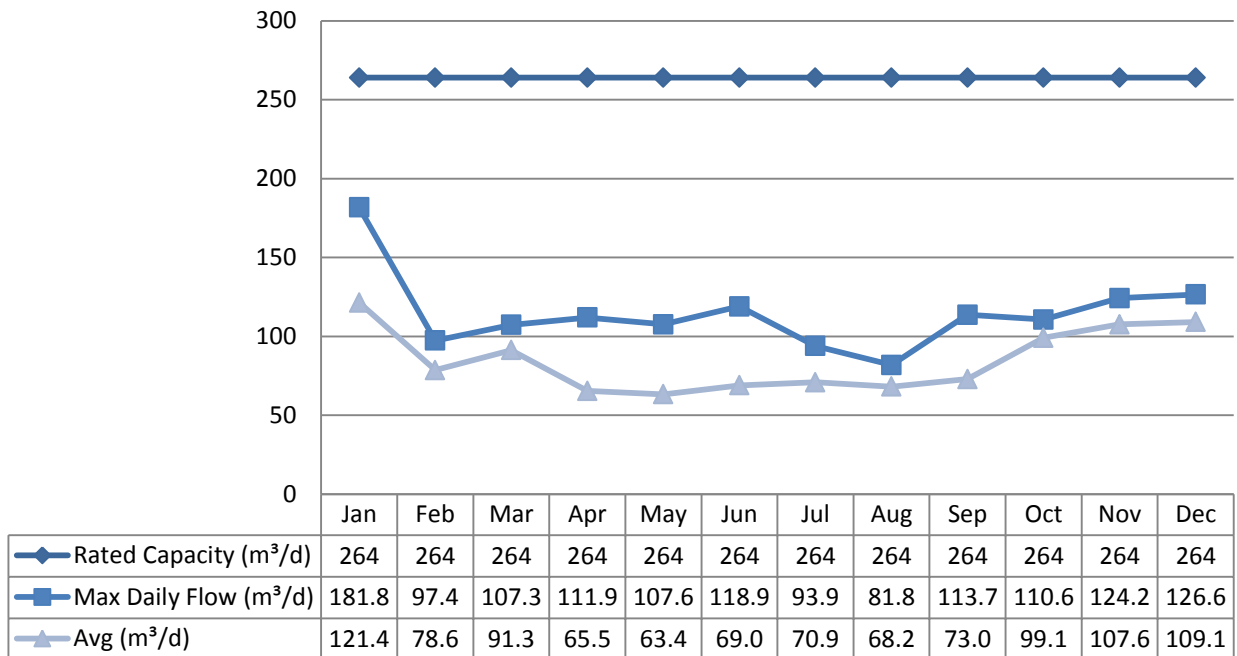


### Treated Water Flows

The Treated Water flows are regulated under the Municipal Licence.

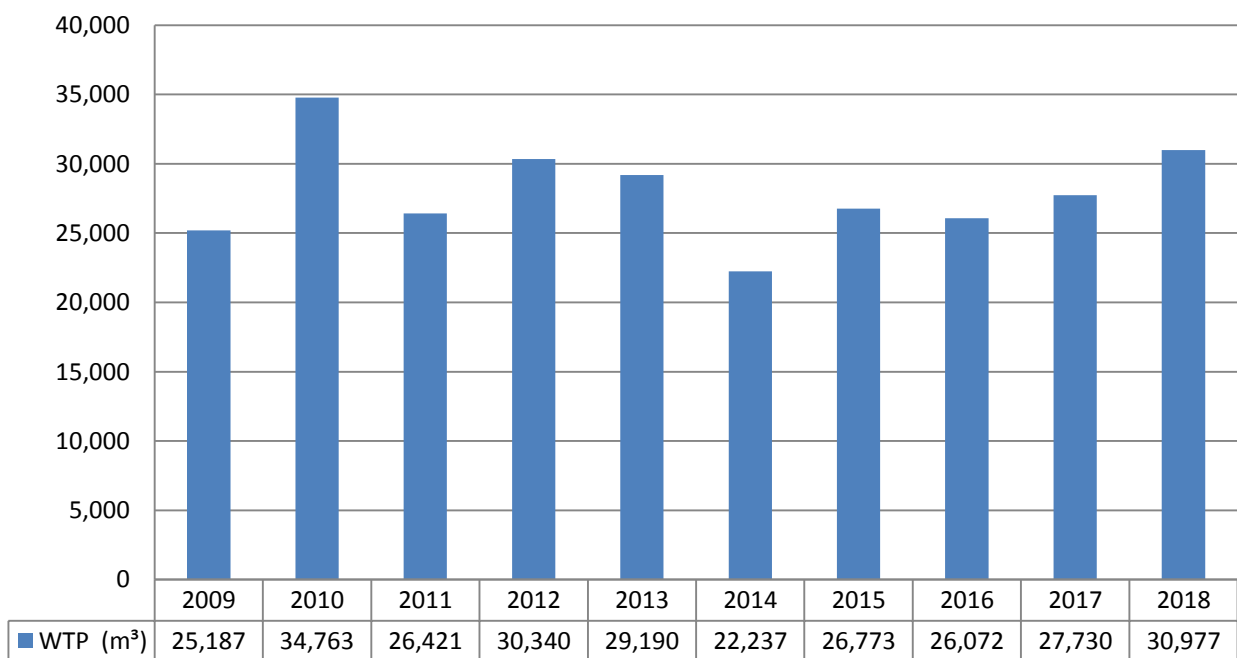
### Monthly Rated Flows

Rated Capacity - MDWL



### Annual Total Flow Comparison

Total Annual m³



## Regulatory Sample Results Summary

### Microbiological Testing

|                     | No. of Samples Collected | Range of E.Coli Results |     | Range of Total Coliform Results |     | Range of HPC Results |     |
|---------------------|--------------------------|-------------------------|-----|---------------------------------|-----|----------------------|-----|
|                     |                          | Min                     | Max | Min                             | Max | Min                  | Max |
| <b>Raw</b>          | 26                       | 0                       | 33  | 18                              | 280 |                      |     |
| <b>Distribution</b> | 52                       | 0                       | 0   | 0                               | 0   | 0                    | 3   |

### Operational Testing

|  | No. of Samples Collected | Range of Results |         |
|--|--------------------------|------------------|---------|
|  |                          | Minimum          | Maximum |
| <b>Turbidity Filter 1 (NTU)</b>                    | 8760                     | 0.00             | 2.00    |
| <b>Turbidity Filter 2 (NTU)</b>                    | 8760                     | 0.00             | 1.45    |
| <b>Chlorine</b>                                    | 8760                     | 0.00             | 3.00    |
| <b>Fluoride</b> (If the DWS provides fluoridation) | N/A                      | N/A              | N/A     |

**Note:** Record the unit of measure if it is **not** milligrams per litre.

**Note:** For continuous monitors 8760 is used as the number of samples. Spikes recorded by on-line instrumentation were a result of air bubbles and various maintenance/calibration activities. All spikes are reviewed for compliance with O. Reg. 170/03.

### Inorganic Parameters

These parameters are tested as a requirement under O. Reg. 170/03. Sodium, Fluoride and the metals are required to be tested every five years while Nitrate and Nitrite are tested quarterly. In the event any of the parameters exceed half of the maximum allowable concentration the parameter is required to be sampled quarterly.

- MAC = Maximum Allowable Concentration as per O. Reg. 169/03
- MDL = Method Detection Limit

| Treated Water            | Sample Date (yyyy/mm/dd) | Sample Result | MAC    | Exceedances | Exceedances |
|--------------------------|--------------------------|---------------|--------|-------------|-------------|
|                          |                          |               |        | MAC         | 1/2 MAC     |
| Antimony: Sb (ug/L) - TW | 2015/01/14               | 0.02          | 6.0    | No          | No          |
| Arsenic: As (ug/L) - TW  | 2015/01/14               | < 0.2         | 10.0   | No          | No          |
| Barium: Ba (ug/L) - TW   | 2015/01/14               | 17.9          | 1000.0 | No          | No          |
| Boron: B (ug/L) - TW     | 2015/01/14               | 6.1           | 5000.0 | No          | No          |
| Cadmium: Cd (ug/L) - TW  | 2015/01/14               | 0.005         | 5.0    | No          | No          |
| Chromium: Cr (ug/L) - TW | 2015/01/14               | 0.1           | 50.0   | No          | No          |
| Mercury: Hg (ug/L) - TW  | 2015/01/14               | 0.01          | 1.0    | No          | No          |
| Selenium: Se (ug/L) - TW | 2015/01/14               | < 1.0         | 50.0   | No          | No          |
| Uranium: U (ug/L) - TW   | 2015/01/14               | < 0.002       | 20.0   | No          | No          |

| Treated Water                | Sample Date<br>(yyyy/mm/dd) | Sample<br>Result | MAC  | Exceedances | Exceedances |
|------------------------------|-----------------------------|------------------|------|-------------|-------------|
|                              |                             |                  |      | MAC         | 1/2 MAC     |
| <b>Additional Inorganics</b> |                             |                  |      |             |             |
| Fluoride (mg/L) - TW         | 2015/01/14                  | < 0.06           | 1.5  | No          | No          |
| Nitrite (mg/L) - TW          | 2018/01/15                  | <MDL<br>0.003    | 1.0  | No          | No          |
| Nitrite (mg/L) - TW          | 2018/04/09                  | <MDL<br>0.003    | 1.0  | No          | No          |
| Nitrite (mg/L) - TW          | 2018/07/09                  | <MDL<br>0.003    | 1.0  | No          | No          |
| Nitrite (mg/L) - TW          | 2018/10/01                  | <MDL<br>0.003    | 1.0  | No          | No          |
| Nitrate (mg/L) - TW          | 2018/01/15                  | 0.114            | 10.0 | No          | No          |
| Nitrate (mg/L) - TW          | 2018/04/09                  | 0.124            | 10.0 | No          | No          |
| Nitrate (mg/L) - TW          | 2018/07/09                  | 0.022            | 10.0 | No          | No          |
| Nitrate (mg/L) - TW          | 2018/10/01                  | 0.008            | 10.0 | No          | No          |
| Sodium: Na (mg/L) - TW       | 2015/01/14                  | 6.08             | 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.

Schedule 15 Sampling:

The Schedule 15 Sampling is required under O. Reg. 170/03. This system is under reduced sampling. No plumbing samples were collected.

| Distribution<br>System | Number of<br>Sampling<br>Points | Number of<br>Samples | Range of Results |         | MAC<br>(ug/L) | Exceedances |
|------------------------|---------------------------------|----------------------|------------------|---------|---------------|-------------|
|                        |                                 |                      | Minimum          | Maximum |               |             |
| Alkalinity (mg/L)      | 2                               | 2                    | 13               | 16      | N/A           | N/A         |
| pH                     | 2                               | 2                    | 7.29             | 7.16    | N/A           | N/A         |
| Lead (ug/l)            | N/A                             | N/A                  |                  |         |               |             |



### Organic Parameters

These parameters are tested as a requirement under O. Reg. 170/03. In the event any of the parameters exceed half of the maximum allowable concentration the parameter is required to be sampled quarterly.

| Treated Water                                       | Sample Date<br>(yyyy/mm/dd) | Sample<br>Result | MAC    | Exceedances |            |
|---|-----------------------------|------------------|--------|-------------|------------|
|   |                             |                  |        | MAC         | 1/2<br>MAC |
| Alachlor (ug/L) - TW                                | 2015/01/14                  | <MDL 0.02        | 5.00   | No          | No         |
| Atrazine + N-dealkylated metabolites (ug/L) - TW    | 2015/01/14                  | <MDL 0.01        | 5.00   | No          | No         |
| Azinphos-methyl (ug/L) - TW                         | 2015/01/14                  | <MDL 0.02        | 20.00  | No          | No         |
| Benzene (ug/L) - TW                                 | 2015/01/14                  | <MDL 0.32        | 1.00   | No          | No         |
| Benzo(a)pyrene (ug/L) - TW                          | 2015/01/14                  | <MDL 0.004       | 0.01   | No          | No         |
| Bromoxynil (ug/L) - TW                              | 2015/01/14                  | <MDL 0.33        | 5.00   | No          | No         |
| Carbaryl (ug/L) - TW                                | 2015/01/14                  | <MDL 0.01        | 90.00  | No          | No         |
| Carbofuran (ug/L) - TW                              | 2015/01/14                  | <MDL 0.01        | 90.00  | No          | No         |
| Carbon Tetrachloride (ug/L) - TW                    | 2015/01/14                  | <MDL 0.16        | 2.00   | No          | No         |
| Chlorpyrifos (ug/L) - TW                            | 2015/01/14                  | <MDL 0.02        | 90.00  | No          | No         |
| Diazinon (ug/L) - TW                                | 2015/01/14                  | <MDL 0.02        | 20.00  | No          | No         |
| Dicamba (ug/L) - TW                                 | 2015/01/14                  | <MDL 0.2         | 120.00 | No          | No         |
| 1,2-Dichlorobenzene (ug/L) - TW                     | 2015/01/14                  | <MDL 0.41        | 200.00 | No          | No         |
| 1,4-Dichlorobenzene (ug/L) - TW                     | 2015/01/14                  | <MDL 0.36        | 5.00   | No          | No         |
| 1,2-Dichloroethane (ug/L) - TW                      | 2015/01/14                  | <MDL 0.35        | 5.00   | No          | No         |
| 1,1-Dichloroethylene (ug/L) - TW                    | 2015/01/14                  | <MDL 0.33        | 14.00  | No          | No         |
| Dichloromethane (Methylene Chloride) (ug/L) - TW    | 2015/01/14                  | <MDL 0.35        | 50.00  | No          | No         |
| 2,4-Dichlorophenol (ug/L) - TW                      | 2015/01/14                  | <MDL 0.15        | 900.00 | No          | No         |
| 2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW | 2015/01/14                  | <MDL 0.19        | 100.00 | No          | No         |
| Diclofop-methyl (ug/L) - TW                         | 2015/01/14                  | <MDL 0.4         | 9.00   | No          | No         |
| Dimethoate (ug/L) - TW                              | 2015/01/14                  | <MDL 0.03        | 20.00  | No          | No         |
| Diquat (ug/L) - TW                                  | 2015/01/14                  | <MDL 1.0         | 70.00  | No          | No         |
| Diuron (ug/L) - TW                                  | 2015/01/14                  | <MDL 0.03        | 150.00 | No          | No         |
| Glyphosate (ug/L) - TW                              | 2015/01/14                  | <MDL 1.0         | 280.00 | No          | No         |
| Malathion (ug/L) - TW                               | 2015/01/14                  | <MDL 0.02        | 190.00 | No          | No         |
| Metolachlor (ug/L) - TW                             | 2015/01/14                  | <MDL 0.01        | 80.00  | No          | No         |
| Metribuzin (ug/L) - TW                              | 2015/01/14                  | <MDL 0.02        | 80.00  | No          | No         |
| Monochlorobenzene (Chlorobenzene) (ug/L) - TW       | 2015/01/14                  | <MDL 0.3         | 10.00  | No          | No         |
| Paraquat (ug/L) - TW                                | 2015/01/14                  | <MDL 1.0         | 3.00   | No          | No         |
| PCB (ug/L) - TW                                     | 2015/01/14                  | <MDL 0.04        | 60.00  | No          | No         |
| Pentachlorophenol (ug/L) - TW                       | 2015/01/14                  | <MDL 0.15        | 2.00   | No          | No         |
| Phorate (ug/L) - TW                                 | 2015/01/14                  | <MDL 0.01        | 190.00 | No          | No         |

| Treated Water                                       | Sample Date<br>(yyyy/mm/dd) | Sample<br>Result | MAC    | Exceedances |            |
|---|-----------------------------|------------------|--------|-------------|------------|
|   |                             |                  |        | MAC         | 1/2<br>MAC |
| Picloram (ug/L) - TW                                | 2015/01/14                  | <MDL 1.0         | 1.00   | No          | No         |
| Prometryne (ug/L) - TW                              | 2015/01/14                  | <MDL 0.03        | 10.00  | No          | No         |
| Simazine (ug/L) - TW                                | 2015/01/14                  | <MDL 0.01        | 1.00   | No          | No         |
| Terbufos (ug/L) - TW                                | 2015/01/14                  | <MDL 0.01        | 10.00  | No          | No         |
| Tetrachloroethylene (ug/L) - TW                     | 2015/01/14                  | <MDL 0.35        | 100.00 | No          | No         |
| 2,3,4,6-Tetrachlorophenol (ug/L) - TW               | 2015/01/14                  | <MDL 0.2         | 230.00 | No          | No         |
| Triallate (ug/L) - TW                               | 2015/01/14                  | <MDL 0.01        | 5.00   | No          | No         |
| Trichloroethylene (ug/L) - TW                       | 2015/01/14                  | <MDL 0.44        | 5.00   | No          | No         |
| 2,4,6-Trichlorophenol (ug/L) - TW                   | 2015/01/14                  | <MDL 0.25        | 100.00 | No          | No         |
| Trifluralin (ug/L) - TW                             | 2015/01/14                  | <MDL 0.02        | 45.00  | No          | No         |
| Vinyl Chloride (ug/L) - TW                          | 2015/01/14                  | <MDL 0.17        | 1.00   | No          | No         |
| <b>Distribution Water</b>                           |                             |                  |        |             |            |
| Trihalomethane: Total (ug/L) Annual<br>Average - DW | 2018                        | 46               | 100    | No          | No         |
| HAA Total (ug/L) Annual Average - DW                | 2018                        | 45               | N/A    | N/A         | N/A        |

MAC = Maximum Allowable Concentration as per O. Reg. 169/03

MDL = Method Detection Limit

### Additional Legislated Samples

| Municipal Drinking Water<br>Licence | Date Collected | Suspended Solids<br>(mg/L) | Free Chlorine<br>Residual (mg/L) |
|-------------------------------------|----------------|----------------------------|----------------------------------|
| Settling Tank Discharge Point       | January        | 3                          | 0.02                             |
|                                     | February       | 14                         | 0.01                             |
|                                     | March          | 4                          | 0.01                             |
|                                     | April          | 44                         | 0.02                             |
|                                     | May            | 72                         | 0.01                             |
|                                     | June           | 5                          | 0.01                             |
|                                     | July           | 2                          | 0.02                             |
|                                     | August         | <2                         | 0.01                             |
|                                     | September      | 2                          | 0.02                             |
|                                     | October        | 27                         | 0.02                             |
|                                     | November       | 26                         | 0.01                             |
|                                     | December       | <2                         | 0.01                             |
|                                     | Annual Average | 17                         |                                  |



Note: The Suspended Solids annual average limit is 25 mg/L.

**Major Maintenance Summary incurred to install, repair or replace required equipment**

| <b>WO #</b> | <b>Description</b>  |
|-------------|---|
| 627481      | Replacement of ICP UPS.   |
| 701251      | Replacement of UPS battery bank 3 in filter cabinet.                            |
| 695296      | Replacement of clear well 2 level controller.                                   |
| 1015843     | Replacement of clear well cell 2 level meter.                                   |
| 1102747     | Replacement of filtration valving and PLC initiated.                            |
| 821505      | Replacement of coagulant chemical pump.   |
| 627614      | Replacement of primary disinfection chlorine chemical pump (first of 2 pumps).  |
| 627616      | Replacement of primary disinfection chlorine chemical pump (second of 2 pumps). |
| 627999      | Replacement of backwash level meter.  |

# Appendix A

## WTRS Data Submission Confirmation



Ministry of the Environment,  
Conservation and Parks

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**Water Taking Data submitted successfully.**

**Confirmation:**

Thank you for submitting your water taking data online.

Permit Number: 6033-AQ5HFW  
Permit Holder: THE CORPORATION OF THE CITY OF KAWARTHA LAKES.  
Received on: Feb 5, 2019 8:57 AM

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.