

# Lindsay Drinking Water System

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Waterworks # 220000175

System Category – Large Municipal Residential

## Annual Water Report

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

Issued: February 28, 2019

Revision: 0

Operating Authority:



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 serves more than 10,000 residents. The annual reports are available to residents free of charge at the City of Kawartha Lakes – Public Works Administration Office located at 12 Peel Street in Lindsay, Ontario. The reports are also available on the City's website at: [www.kawarthalakes.ca](http://www.kawarthalakes.ca).

## Compliance Report Card

**Drinking Water System Number:** 220000175

**Drinking Water System Name:** Lindsay WTP

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

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

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

	# of Events	Date	Details
Drinking Water			
<b>MECP Inspections</b>	1	2018 11 22	Annual Announced Drinking Water Inspection - Final Inspection Rating of 100%
<b>AWQI's</b>	3	2018 08 21 2018 09 13 2018 10 04	Grant Drive Oakwood 2TC & 1 E.coli. Glenelg Street at Water Street Tie-in 1TC. THM Running Annual Average of 103.75 ug/L
<b>Number of Non-Compliances</b>	0		
<b>Number of Boil Water Advisories</b>	1	2018 08 21	Grant Drive Oakwood 2TC & 1 E.coli

## System Process Description

### Raw Source

The Lindsay Water Treatment Plant receives raw water from the Scugog River, which is a surface water source.

### Treatment

The treatment system consists of the following:

- Two screened intake pipes
- Three low lift pumps

- CO<sub>2</sub> pH correction
- Coagulant and polymer addition
- Two ballasted floc/clarification units each with coagulation, flocculation, up-flow settling tank with inclined tube settlers and “micro-sand” recirculation pumps
- Five GAC/sand filters
- Chlorination
- Two clearwells, East & West Cells
- Four high lift pumps
- On-site wastewater equalization and sludge thickening
- Standby power
- SCADA system
- Thornhill Reservoir and pumping station
- Verulam elevated storage tank
- Oakwood Reservoir and pumping station

*Treatment Chemicals used during the reporting year:*

Chemical Name	Use	Supplier
Sodium Hypochlorite	Disinfection	Lavo
Sodium Hydroxide	pH Correction	PVS Benson
Aluminum Sulphate (Alum)	Coagulation	Chemtrade
Carbon Dioxide	pH Correction	Praxair
Polyaluminumchloride (PAC)	Coagulation	Kemira
Magna Floc Polymer	Coagulation	Northland Chemical

## Summary of Non-Compliance

**Adverse Water Quality Incidents**

Date	AWQI #	Location	Problem	Details	Legislation	Corrective Action Taken
2018 08 22	142008	Oakwood Distribution	Operator error	2 Total Coliform, 1 E.coli	O. Reg. 170/03	Flush & Re-sampled
2018 09 14	142858	Lindsay Distribution	Repair Tie-in	1 TC	O. Reg. 170/03	Flush & Re-sampled
2018 10 04	143445	Lindsay Distribution	THM Running Annual Average	103.75	O. Reg. 170/03	N/A

**Non-Compliance:**

<b>Legislation Requirement(s) System Failed to Meet</b>	<b>Duration of the Failure (i.e. Date(s))</b>	<b>Corrective Action</b>	<b>Status</b>
<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>

There were no non-compliances identified during this period.

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

<b>Legislation</b>	<b>Requirement(s) system failed to meet</b>	<b>Duration of the failure (i.e. date(s))</b>	<b>Corrective Action</b>	<b>Status</b>
<b>All Applicable</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>

There were no non-compliances identified during this period.

**Flows**

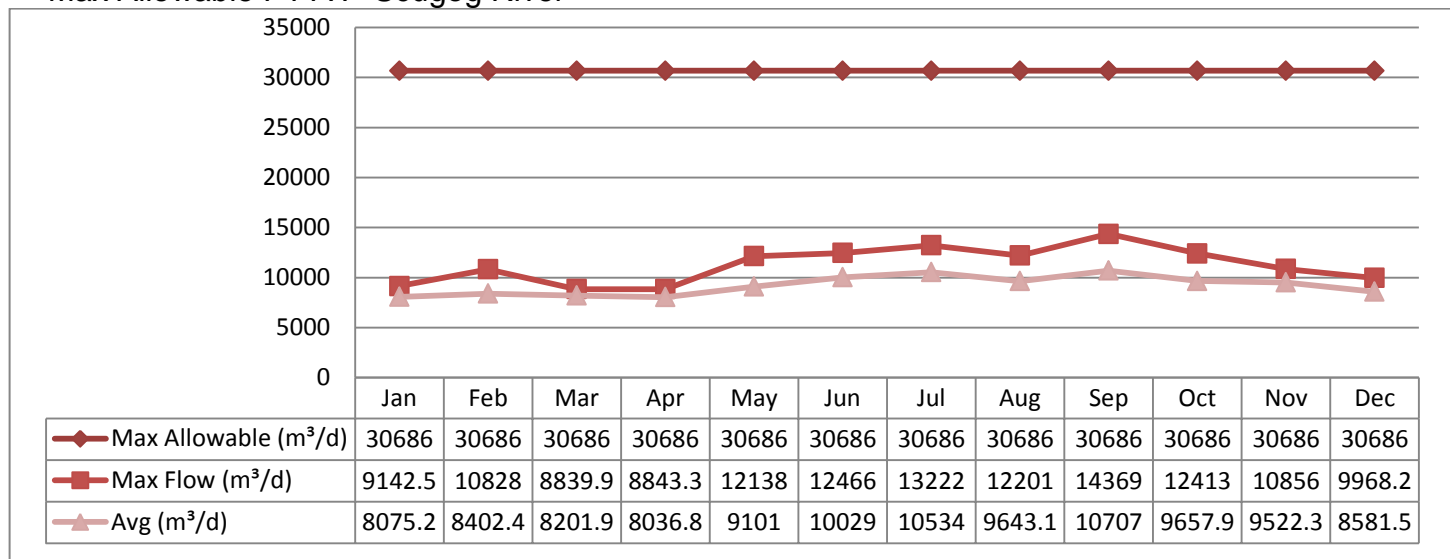
The Lindsay Drinking Water System maximum allowable water taking is 30,685.5 m<sup>3</sup>/day, and on average the plant is operating at under half this capacity.

**Raw Water Flows**

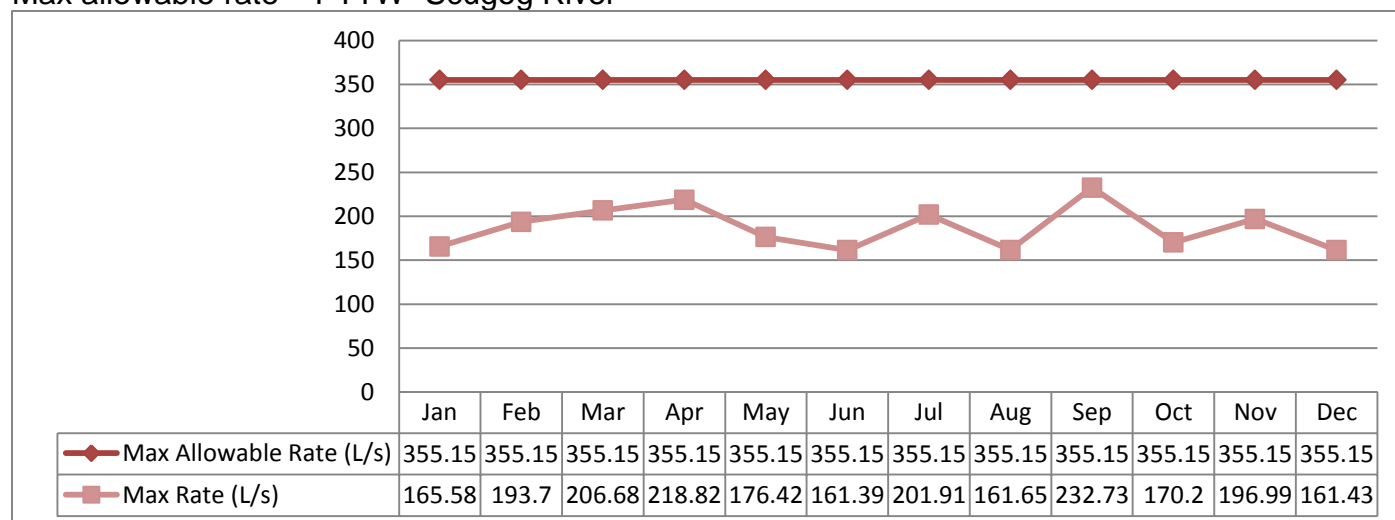
The Raw Water flows are regulated under the Permit to Take Water. 2018 Raw Flow Data was submitted to the Ministry electronically under permit #5365-8W2JWA (January 1 – August 30) and permit #8160-B3MP6L (August 31 – December 31). The confirmation and a copy of the data that was submitted are attached in Appendix B.

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

## Max Allowable PTTW- Scugog River

Monthly Rated Flows (L/s)

## Max allowable rate – PTTW- Scugog River

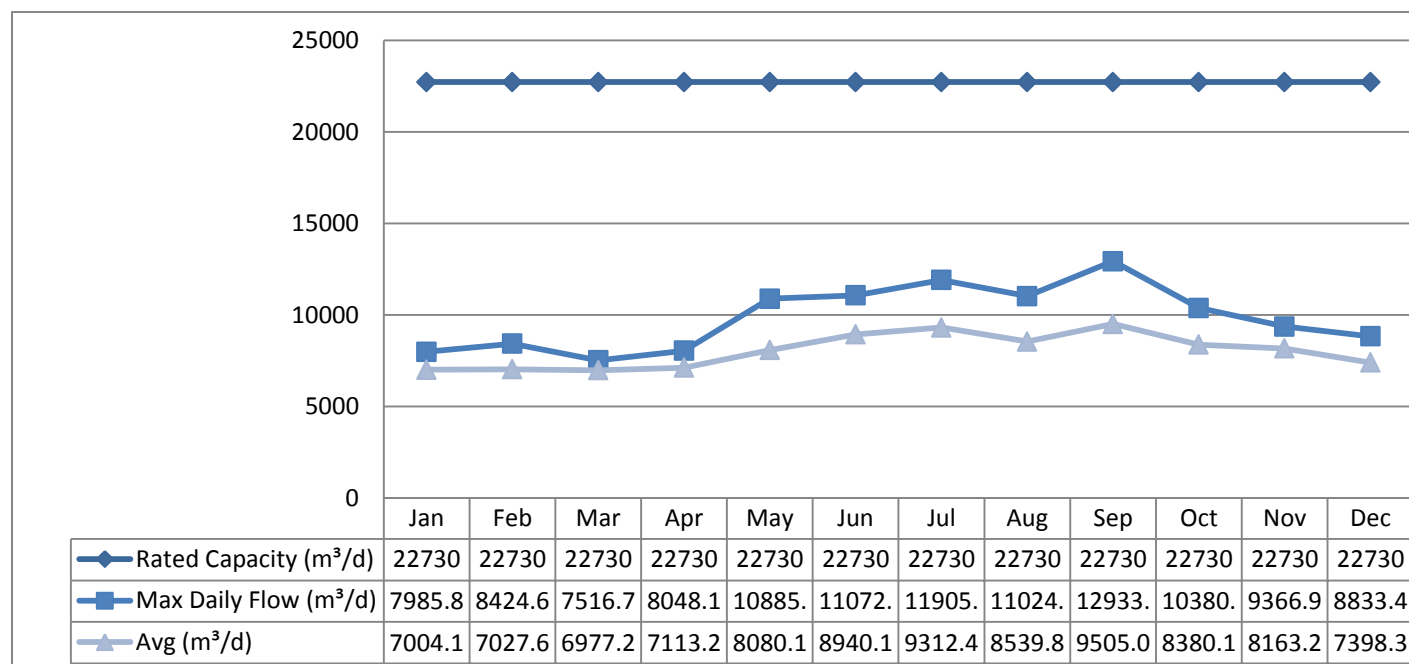


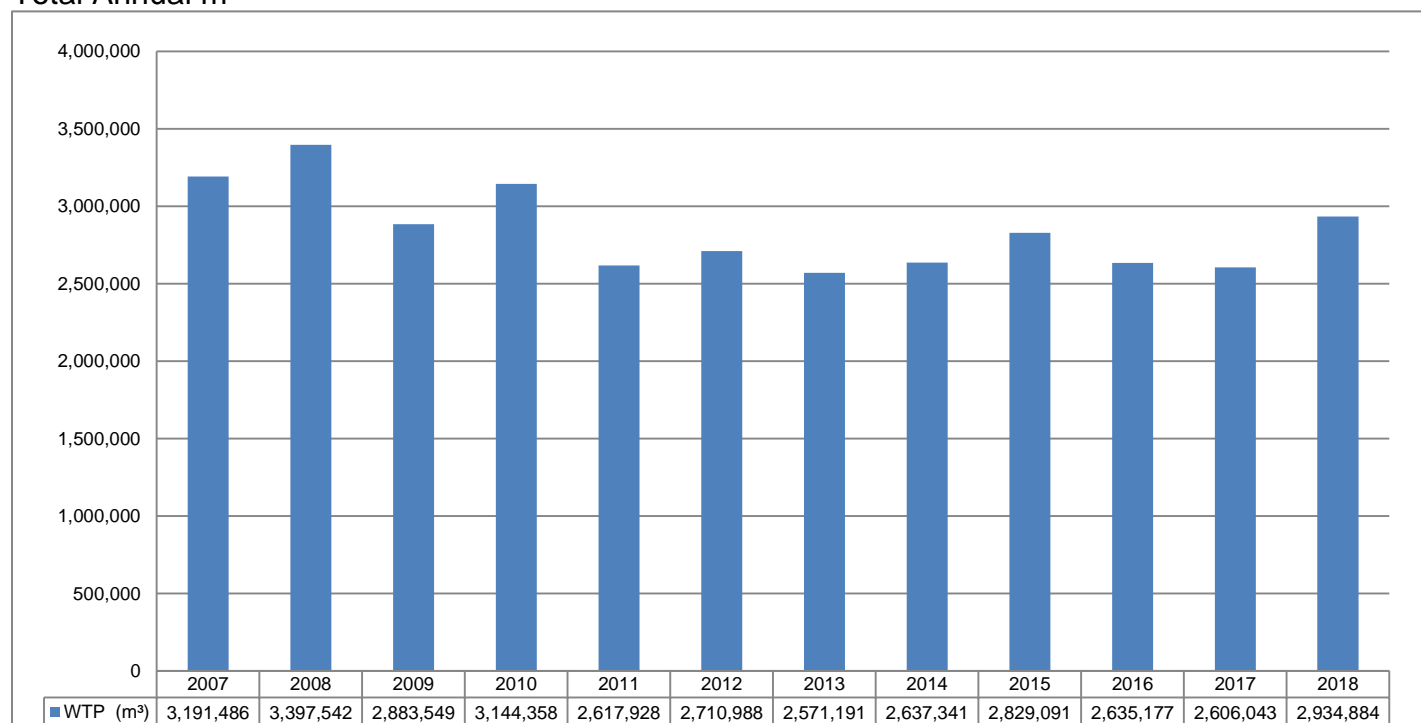
**Treated Water Flows**

The Treated Water flow is regulated under the Municipal Drinking Water Licence.

**Monthly Rated Flows**

Rated Capacity – MDWL



*Annual Total Flow Comparison*Total Annual m<sup>3</sup>**Regulatory Sample Results Summary**

The City of Kawartha Lakes adheres to operational and compliance limits however during certain operational circumstances some results may be temporarily outside of limits but not limited to pump start-ups, power outages/generator tests, alarm verification, maintenance, etc. These are normal occurrences and are listed within the report; however it is not indicative of a true exceedance.



**Microbiological Testing**

Sample Source	No. Of Samples Collected	Range of E.coli Results	Range of Total Coliform Results	Range of HPC Results
		Min / Max	Min / Max	Min / Max
Raw Water	52	2 / 520	32 / 72000	N/A
Treated	52	0 / 0	0 / 0	0 / 4
Distribution	606	0 / 1	0 / 2	0 / 11

**Operational Testing**

Parameter	No. of Samples Collected	Range of Results	Range of Results
		Minimum	Maximum
Turbidity (NTU)	5760	0.59 NTU	0.02 NTU
Chlorine	8760	1.01 mg/L	2.53 mg/L
Fluoride (If the DWS provides fluoridation)	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

**Additional Legislated Sampling**

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 26, 2016	TSS	2018 01 02	<2	mg/L
July 26, 2016	TSS	2018 02 05	<2	mg/L
July 26, 2016	TSS	2018 03 05	2	mg/L
July 26, 2016	TSS	2018 04 02	2	mg/L
July 26, 2016	TSS	2018 05 08	<2	mg/L
July 26, 2016	TSS	2018 06 04	2	mg/L
July 26, 2016	TSS	2018 07 03	5	mg/L
July 26, 2016	TSS	2018 08 07	6	mg/L
July 26, 2016	TSS	2018 09 11	6	mg/L
July 26, 2016	TSS	2018 10 01	4	mg/L
July 26, 2016	TSS	2018 11 05	3	mg/L
July 26, 2016	TSS	2018 12 03	3	mg/L
<b>Summary</b>	<b>TSS</b>	<b>2018</b>	<b>Min: &lt;2 Max: 6 AVG: 3.6667 based on 12 numerical results</b>	<b>mg/L</b>

**Inorganic Parameters**

These parameters are tested as a requirement under O. Reg. 170/03. Sodium and Fluoride are required to be tested every 5 years. Nitrate and Nitrite are tested quarterly and the metals are tested annually as required 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.

- MAC = Maximum Allowable Concentration as per O. Reg. 169/03
- BDL = Below the laboratory detection level

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Exceedances Y/N	Exceedances Y/N
				<b>MAC</b>	<b>1/2 MAC</b>
<b>Treated Water</b>					
Antimony: Sb (ug/L) – TW	2018 01 09	<MDL 0.02	6.0	No	No
Arsenic: As (ug/L) - TW	2018 01 09	0.3	10.0	No	No
Barium: Ba (ug/L) - TW	2018 01 09	33.5	1000.0	No	No

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Exceedances Y/N	Exceedances Y/N
				MAC	1/2 MAC
Boron: B (ug/L) - TW	2018 01 09	11	5000.0	No	No
Cadmium: Cd (ug/L) - TW	2018 01 09	<MDL 0.003	5.0	No	No
Chromium: Cr (ug/L) - TW	2018 01 09	0.10	50.0	No	No
Mercury: Hg (ug/L) - TW	2018 01 09	<MDL 0.01	1.0	No	No
Selenium: Se (ug/L) - TW	2018 01 09	0.05	50.0	No	No
Uranium: U (ug/L) - TW	2018 01 09	0.018	20.0	No	No
<b>Additional Inorganics</b>					
Fluoride (mg/L) - TW	20181207	0.06	1.5	No	No
Nitrite (mg/L) - TW	20180102	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	20180402	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	20180703	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	20181001	0.005	1.0	No	No
Nitrate (mg/L) - TW	20180102	0.915	10.0	No	No
Nitrate (mg/L) - TW	20180402	1.46	10.0	No	No
Nitrate (mg/L) - TW	20180703	0.059	10.0	No	No
Nitrate (mg/L) - TW	20181001	0.039	10.0	No	No
Sodium: Na (mg/L) - TW	20160711	34.9	20*	Yes	Yes

\*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 mg/L 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 System	Number of Sampling Points	Number of Samples	Range of Results Minimum	Range of Results Maximum	MAC (ug/L)	Number of Exceedances
Alkalinity (mg/L)	4	8	112	174	N/A	N/A
pH	4	8	7.35	7.58	N/A	N/A
Lead (ug/L)	N/A	N/A				

**Organic Parameters**

These parameters are tested annually 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.

	Sample Date	Sample Result	MAC	Exceedances	Exceedances
Treated Water				MAC	1/2 MAC
Alachor (ug/L) – TW	2018 01 09	<MDL 0.02	5.00	No	No
Atrazine + N-dealkylated metabolites (ug/L) - TW	2018 01 09	<MDL 0.01	5.00	No	No
Azinphos-methyl (ug/L) - TW	2018 01 09	<MDL 0.05	20.00	No	No
Benzene (ug/L) - TW	2018 01 09	<MDL 0.32	1.00	No	No
Benzo(a)pyrene (ug/L) - TW	2018 01 09	<MDL 0.004	0.01	No	No
Bromoxynil (ug/L) - TW	2018 01 09	<MDL 0.33	5.00	No	No
Carbaryl (ug/L) - TW	2018 01 09	<MDL 0.05	90.00	No	No
Carbofuran (ug/L) - TW	2018 01 09	<MDL 0.01	90.00	No	No
Carbon Tetrachloride (ug/L) - TW	2018 01 09	<MDL 0.16	2.00	No	No
Chlorpyrifos (ug/L) - TW	2018 01 09	<MDL 0.02	90.00	No	No
Diazinon (ug/L) - TW	2018 01 09	<MDL 0.02	20.00	No	No
Dicamba (ug/L) - TW	2018 01 09	<MDL 0.20	120.00	No	No
1,2-Dichlorobenzene (ug/L) - TW	2018 01 09	<MDL 0.41	200.00	No	No
1,4-Dichlorobenzene (ug/L) - TW	2018 01 09	<MDL 0.36	5.00	No	No
1,2-Dichloroethane (ug/L) - TW	2018 01 09	<MDL 0.35	5.00	No	No
1,1-Dichloroethylene (ug/L) - TW	2018 01 09	<MDL 0.33	14.00	No	No
Dichloromethane (Methylene Chloride) (ug/L) - TW	2018 01 09	<MDL 0.35	50.00	No	No
2,4-Dichlorophenol (ug/L) – TW	2018 01 09	<MDL 0.15	900.00	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW	2018 01 09	<MDL 0.19	100.00	No	No
Diclofop-methyl (ug/L) - TW	2018 01 09	<MDL 0.40	9.00	No	No
Dimethoate (ug/L) - TW	2018 01 09	<MDL 0.03	20.00	No	No
Diquat (ug/L) - TW	2018 01 09	<MDL 1	70.00	No	No
Diuron (ug/L) - TW	2018 01 09	<MDL 0.03	150.00	No	No
Glyphosate (ug/L) - TW	2018 01 09	<MDL 1	280.00	No	No
Malathion (ug/L) - TW	2018 01 09	<MDL 0.02	190.00	No	No
2-Methyl-4chlorophenoxyacetic Acid (MCPA)	2018 01 09	<MDL 0.00012	0.1	No	No
Metolachlor (ug/L) - TW	2018 01 09	<MDL 0.01	50.00	No	No
Metribuzin (ug/L) - TW	2018 01 09	<MDL 0.02	80.00	No	No
Monochlorobenzene (Chlorobenzene) (ug/L) - TW	2018 01 09	<MDL 0.3	80.00	No	No
Paraquat (ug/L) - TW	2018 01 09	<MDL 1	10.00	No	No
PCB (ug/L) - TW	2018 01 09	<MDL 0.04	3.00	No	No

	Sample Date	Sample Result	MAC	Exceedances	Exceedances
Treated Water				MAC	1/2 MAC
Pentachlorophenol (ug/L) - TW	2018 01 09	<MDL 0.15	60.00	No	No
Phorate (ug/L) - TW	2018 01 09	<MDL 0.01	2.00	No	No
Picloram (ug/L) - TW	2018 01 09	<MDL 1	190.00	No	No
Prometryne (ug/L) - TW	2018 01 09	<MDL 0.03	1.00	No	No
Simazine (ug/L) - TW	2018 01 09	<MDL 0.01	10.00	No	No
Terbufos (ug/L) - TW	2018 01 09	<MDL 0.01	1.00	No	No
Tetrachloroethylene (ug/L) - TW	2018 01 09	<MDL 0.35	10.00	No	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW	2018 01 09	<MDL 0.25	5.00	No	No
Triallate (ug/L) - TW	2018 01 09	<MDL 0.01	230.00	No	No
Trichloroethylene (ug/L) - TW	2018 01 09	<MDL 0.44	5.00	No	No
2,4,6-Trichlorophenol (ug/L) - TW	2018 01 09	<MDL 0.25	5.00	No	No
Trifluralin (ug/L) - TW	2018 01 09	<MDL 0.02	45.00	No	No
Vinyl Chloride (ug/L) - TW	2018 01 09	<MDL 0.17	1.00	No	No
Distribution Water					
Trihalomethane: Total (ug/L) Annual Average - DW	2018	103.75	100	Yes	Yes
HAA Total (ug/L) Annual Average - DW	2018	91.88	N/A	N/A	N/A

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

MDL = Laboratory Method Detection Limit

## Major Maintenance Summary

WO #	Description
9624	Diesel Generator Exhaust Replacement.
9972	Mechanical Seal Replacement on Linatex Pump #231
10046	Mechanical Seal Replacement on Linatex Pump #225
10362	Mechanical Seal Replacement on Linatex Pump #224
10749	Mechanical Seal Replacement on Linatex Pump #204
16059	Booster Pump #2 Rebuild at Thornhill Reservoir
16256	Complete Rebuild of Primary Backwash Pump
17217	Replace Aeration Pump and Clean Clearwell at Oakwood Reservoir

# Appendix A

## WTRS Data and Submission Confirmation

Water Taking Reporting System

<https://www.lrcsde.lrc.gov.on.ca/wtrs/external/permits/permitS...>



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: 8160-B3MP6L

Permit Holder: THE CORPORATION OF THE CITY OF KAWARTHA LAKES.

Received on: Jan 3, 2019 12:36 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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Water Taking Reporting System

<https://www.lrcsde.lrc.gov.on.ca/wtrs/external/permits/permitS...>



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: 5365-8W2JWA

Permit Holder: THE CORPORATION OF THE CITY OF KAWARTHA LAKES.

Received on: Jan 3, 2019 12:35 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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