

# Norland Drinking Water System

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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> – December 31<sup>st</sup> 2022

Issued: February 13 2023

Revision: 0

Operating Authorities:



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. The annual reports will be available to residents at the City of Kawartha Lakes Public Works Administration Office by appointment and on the [City's website](#). Notification that 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 322 Kent Street West 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, 2022 - December 31, 2022

	# of Events	Date	Details
<b>Health &amp; Safety</b>			
Number of Incidents	0		
<b>Drinking Water</b>			
MECP Inspections	1	February 8, 2022	2021-22 Announced-Focused Drinking Water Inspection - Final Inspection Rating of 98.04%
AWQI's	0		
Number of Non-Compliances	0		
Number of Boil Water Advisories	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 Jutzi
Polyaluminium Chloride	Flocculation	FloChem
Polymer	Flocculation	Basf
Sodium hydroxide	pH adjustment	Not required in 2022

## Summary of Non-Compliance

### Adverse Water Quality Incidents

There were no adverse water quality incidents during the reporting period.

### Non-Compliance

There were no non-compliance incidents 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
O. Reg. 170/03	72 hour trend review	Apr 1 – 6, 2021	Notified MECP when discovered. Additional training on 72 hour review requirement.	Complete

## Flows

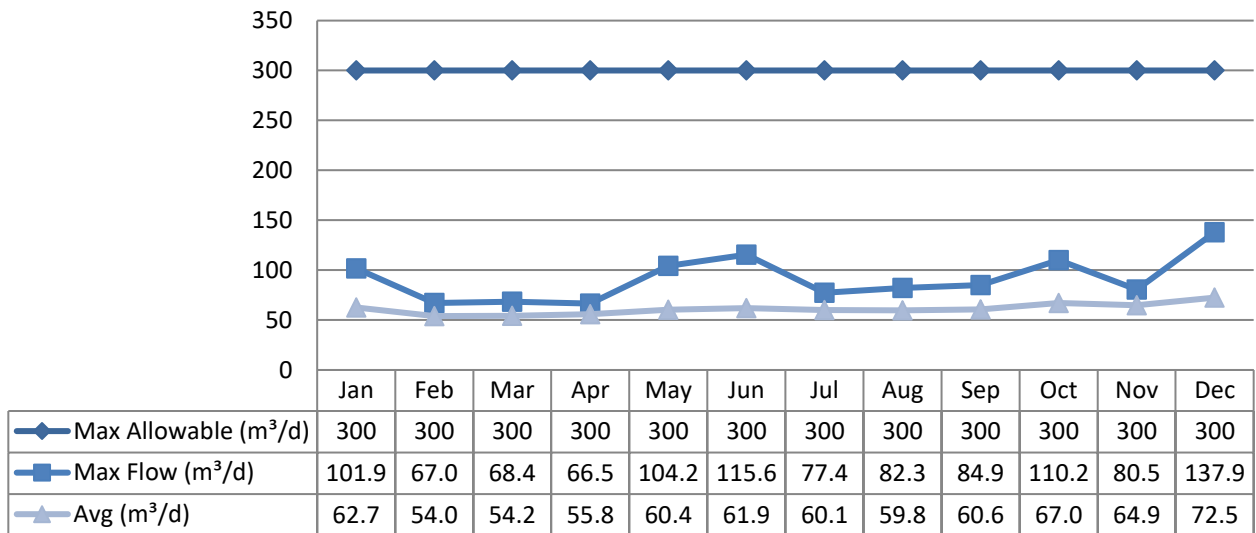
The Norland Drinking Water System is operating on average under half the rated capacity.

## **Raw Water Flows**

The Raw Water takings are regulated by the Permit to Take Water (PTTW). 2022 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.

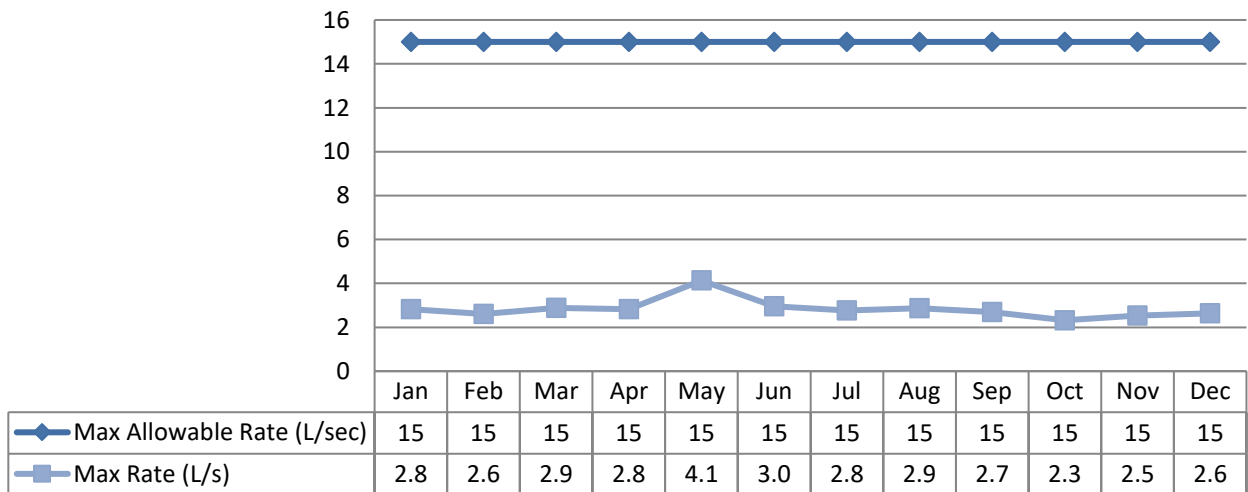
### Total Monthly Flows (m<sup>3</sup>/d)

Max Allowable PTTW- Raw



### Monthly Rated Flows (L/s)

Max allowable rate – PTTW- Raw

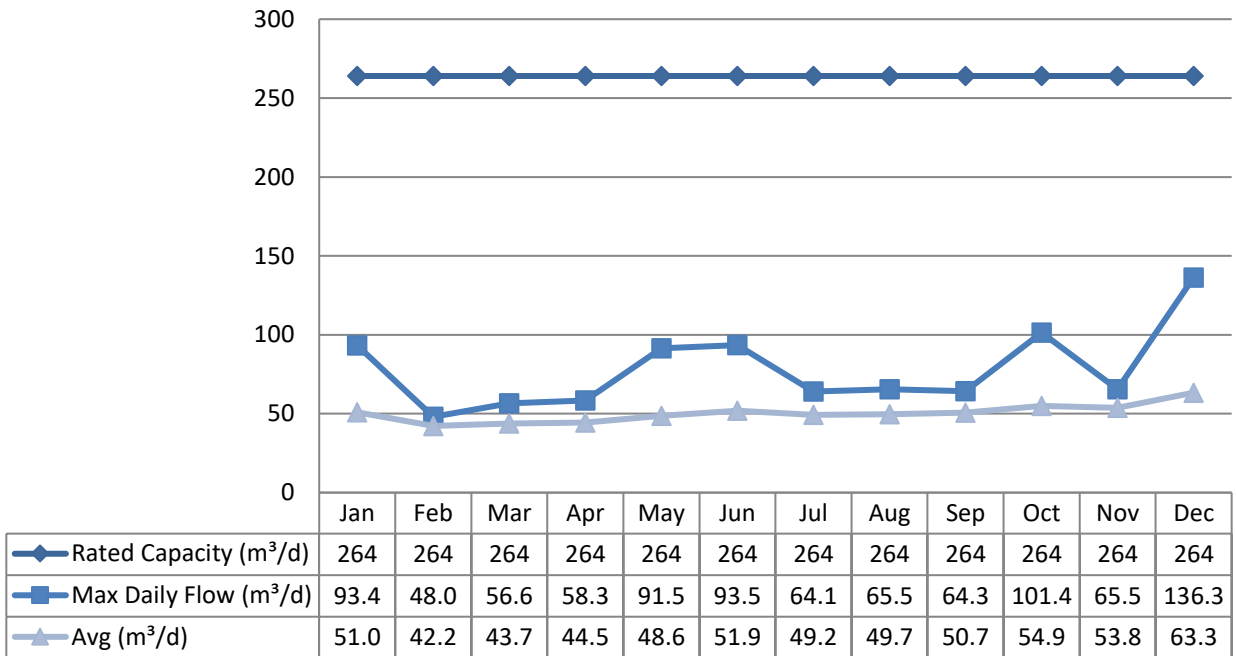


## **Treated Water Flows**

The Treated Water flows are regulated under the Municipal Licence.

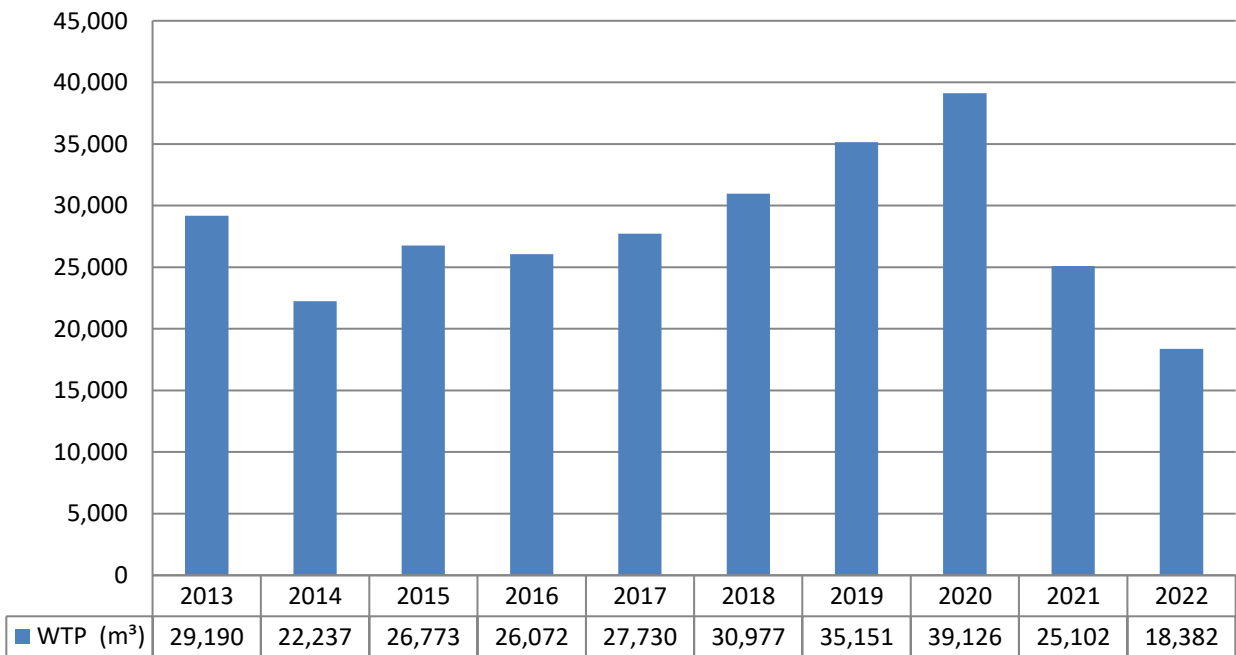
Monthly Rated Flows

Rated Capacity - MDWL



Annual Total Flow Comparison

Total Annual m³



## Regulatory Sample Results Summary

### Microbiological Testing

Water Source	No. of Samples Collected	Range of E.coli Results MIN	Range of E.coli result MAX	Range of Total Coliform Results MIN	Range of Total Coliform Results MAX	No. of Samples Collected	Range of HPC Results MIN	Range of HPC Results MAX
Raw	26	0	37*	17	136*			
Distribution	52	0	0	0	0	52	0	2

- Four sample results had NGODT – No data Overgrown with Target Bacteria

### Operational Testing

Location	No. of Samples Collected	Range of Results Minimum	Range of Results Maximum
Turbidity Filter 1 (NTU)	8760	0.00	2.00
Turbidity Filter 2 (NTU)	8760	0.00	2.00
Chlorine	8760	0.00	2.64
Fluoride (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 5 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

<b>Treated Water</b>	<b>Sample Date (yyyy/mm/dd)</b>	<b>Sample Result</b>	<b>MAC</b>	<b>No. Of Exceedances MAC</b>	<b>No. Of Exceedances ½ MAC</b>
Antimony: Sb (ug/L) - TW	2020/01/13	0.12	6.0	No	No
Arsenic: As (ug/L) - TW	2020/01/13	<MDL 0.2	10.0	No	No
Barium: Ba (ug/L) - TW	2020/01/13	19.2	1000.0	No	No
Boron: B (ug/L) - TW	2020/01/13	20	5000.0	No	No
Cadmium: Cd (ug/L) - TW	2020/01/13	<MDL 0.003	5.0	No	No
Chromium: Cr (ug/L) - TW	2020/01/13	0.11	50.0	No	No
Mercury: Hg (ug/L) - TW	2020/01/13	<MDL 0.01	1.0	No	No
Selenium: Se (ug/L) - TW	2020/01/13	0.04	50.0	No	No
Uranium: U (ug/L) - TW	2020/01/13	0.024	20.0	No	No
<b>Additional Inorganics</b>					
Fluoride (mg/L) - TW	2020/01/13	<MDL 0.06	1.5	No	No
Nitrite (mg/L) - TW	2022/01/05	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2022/04/04	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2022/07/04	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2022/10/11	<MDL 0.003	1.0	No	No
Nitrate (mg/L) - TW	2022/01/05	0.105	10.0	No	No
Nitrate (mg/L) - TW	2022/04/04	0.132	10.0	No	No
Nitrate (mg/L) - TW	2022/07/04	0.038	10.0	No	No
Nitrate (mg/L) - TW	2022/10/11	0.007	10.0	No	No
Sodium: Na (mg/L) - TW	2020/01/13	7.77	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 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	No. of Sampling Points	No. of Samples	Range of Results Minimum	Range of Results Maximum	MAC (ug/L)	No. of Exceedances
Alkalinity (mg/L)	2	2	15	15	N/A	N/A
pH	2	2	6.77	7.394	N/A	N/A
Lead (ug/l)	N/A	N/A	N/A	N/A	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.

Treated Water	Sample Date (yyyy/mm/dd)	Sample Result	MAC	No. of Exceedance MAC	No. of Exceedance 1/2 MAC
Alachlor (ug/L) - TW	2020/01/13	<MDL 0.02	5.0	No	No
Atrazine + N-dealkylated metabolites (ug/L) - TW	2020/01/13	<MDL 0.01	5.0	No	No
Azinphos-methyl (ug/L) - TW	2020/01/13	<MDL 0.05	20.0	No	No
Benzene (ug/L) - TW	2020/01/13	<MDL 0.32	1.0	No	No
Benzo(a)pyrene (ug/L) -TW	2020/01/13	<MDL 0.004	0.01	No	No
Bromoxynil (ug/L) - TW	2020/01/13	<MDL 0.33	5.0	No	No
Carbaryl (ug/L) - TW	2020/01/13	<MDL 0.05	90.0	No	No
Carbofuran (ug/L) - TW	2020/01/13	<MDL 0.01	90.0	No	No
Carbon Tetrachloride (ug/L) - TW	2020/01/13	<MDL 0.17	2.0	No	No
Chlorpyrifos (ug/L) - TW	2020/01/13	<MDL 0.02	90.0	No	No
Diazinon (ug/L) - TW	2020/01/13	<MDL 0.02	20.0	No	No
Dicamba (ug/L) - TW	2020/01/13	<MDL 0.2	120.0	No	No
1,2-Dichlorobenzene (ug/L) - TW	2020/01/13	<MDL 0.41	200.0	No	No
1,4-Dichlorobenzene (ug/L) - TW	2020/01/13	<MDL 0.36	5.0	No	No
1,2-Dichloroethane (ug/L) - TW	2020/01/13	<MDL 0.35	5.0	No	No
1,1-Dichloroethylene (ug/L) - TW	2020/01/13	<MDL 0.33	14.0	No	No
Dichloromethane (Methylene Chloride) (ug/L) - TW	2020/01/13	<MDL 0.35	50.0	No	No
2,4-Dichlorophenol (ug/L) - TW	2020/01/13	<MDL 0.15	900.0	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW	2020/01/13	<MDL 0.19	100.0	No	No

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<b>Treated Water</b>	<b>Sample Date (yyyy/mm/dd)</b>	<b>Sample Result</b>	<b>MAC</b>	<b>No. of Exceedance MAC</b>	<b>No. of Exceedance ½ MAC</b>
Diclofop-methyl (ug/L) - TW	2020/01/13	<MDL 0.4	9.0	No	No
Dimethoate (ug/L) - TW	2020/01/13	<MDL 0.06	20.0	No	No
Diquat (ug/L) - TW	2020/01/13	<MDL 1.0	70.0	No	No
Diuron (ug/L) - TW	2020/01/13	<MDL 0.03	150.0	No	No
Glyphosate (ug/L) - TW	2020/01/13	<MDL 1.0	280.0	No	No
Malathion (ug/L) - TW	2020/01/13	<MDL 0.02	190.0	No	No
Metolachlor (ug/L) - TW	2020/01/13	<MDL 0.01	50.0	No	No
Metribuzin (ug/L) - TW	2020/01/13	<MDL 0.02	80.0	No	No
Monochlorobenzene (Chlorobenzene) (ug/L) - TW	2020/01/13	<MDL 0.3	80.0	No	No
Paraquat (ug/L) - TW	2020/01/13	<MDL 1.0	10.0	No	No
PCB (ug/L) - TW	2020/01/13	<MDL 0.04	3.0	No	No
Pentachlorophenol (ug/L) - TW	2020/01/13	<MDL 0.15	60.0	No	No
Phorate (ug/L) - TW	2020/01/13	<MDL 0.01	2.0	No	No
Picloram (ug/L) - TW	2020/01/13	<MDL 1.0	190.0	No	No
Prometryne (ug/L) - TW	2020/01/13	<MDL 0.03	1.0	No	No
Simazine (ug/L) - TW	2020/01/13	<MDL 0.01	10.0	No	No
Terbufos (ug/L) - TW	2020/01/13	<MDL 0.01	1.0	No	No
Tetrachloroethylene (ug/L) - TW	2020/01/13	<MDL 0.35	10.0	No	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW	2020/01/13	<MDL 0.2	100.0	No	No
Triallate (ug/L) - TW	2020/01/13	<MDL 0.01	230.0	No	No
Trichloroethylene (ug/L) - TW	2020/01/13	<MDL 0.44	5.0	No	No
2,4,6-Trichlorophenol (ug/L) - TW	2020/01/13	<MDL 0.25	5.0	No	No
2-methyl-4-chlorophenoxyacetic acid (MCPA) (ug/L) - TW	2020/01/13	<MDL 0.12	100.0	No	No
Trifluralin (ug/L) - TW	2020/01/13	<MDL 0.02	45.0	No	No
Vinyl Chloride (ug/L) - TW	2020/01/13	<MDL 0.17	1.0	No	No
<b>Distribution Water</b>					
Trihalomethane: Total (ug/L) Annual Average - DW	2022	42.5	100	No	No
HAA Total (ug/L) Annual Average - DW	2022	43.2	80	No	Yes

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

MDL = Method Detection Limit

**Additional Legislated Samples**

<b>Municipal Drinking Water Licence</b>	<b>Date Collected</b>	<b>Suspended Solids (mg/L)</b>	<b>Free Chlorine Residual (mg/L)</b>
Settling Tank Discharge Point	January	6	0.02
	February	9	0.02
	March	18	0.01
	April	8	0.02
	May	18	0.01
	June	4	0.01
	July	81	0.02
	August	2	0.00
	September	6	0.03
	October	48	0.01
	November	8	0.02
	December	2	0.01
	Annual Average	18	

Note: The Suspended Solids 12 month running average limit is 25 mg/L.

<b>Municipal Drinking Water Licence</b>	<b>Collected Weekly June – Oct</b>	<b>Total Microcystin Raw Results Range (ug/L)</b>	<b>Total Microcystin Treated Water Results Range (ug/L)</b>	<b>Treated Water Total Microcystin Limit 1.5 ug/L Exceeded Y/N</b>
Harmful Algal Blooms Monitoring required June to October at a minimum. Samples collected weekly. Treated water tested only if Total Microcystins detected in Raw Water.	June	<0.1 – 0.1	<0.1 - <0.1	N
	July	<0.1 - <0.1	-	N
	August	<0.1 - <0.1	-	N
	September	<0.1 - <0.1	-	N
	October	<0.1 – 0.1	<0.1 - <0.1	N
	November	<0.1 - <0.1	<0.1 - <0.1	N



Method Detection Limit is 0.1ug/L. Additional sampling in November as Total Microcystins detected in the raw water in October.

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

<b>WO #</b>	<b>Description</b>
1342267	Lifting Device Repairs
2091979	Replaced Backwash Composite Sampler
2091982	Replace Highlift Pump 2 – deferred to 2023
2636290	Repaired Lowlift
2637545	Repaired Lowlift valve
2721379	Repaired Turbidity Analyzer
3016655	Repaired ESA Deficiencies
509743	Intake inspection

# Appendix A

## WTRS Data Submission Confirmation



Ministry of the Environment,  
Conservation and Parks

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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: 6033-AQ5HFW  
Permit Holder: THE CORPORATION OF THE CITY OF KAWARTHA LAKES.  
Received on: Jan 31, 2023 12:54 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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