

Lutterworth Pines Drinking Water System

Waterworks # 260091936
System Category – Small Municipal Residential

Annual Water Report

Prepared For: The Township of Minden Hills

Reporting Period of January 1st – December 31st 2020

Issued: February 22, 2021

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 does not serve more than 10,000 residence and the annual reports will be available to residents at the Township of Minden Hills Municipal Office. Notification will be at the Municipal Office and copies provided free of charge if requested. The Township of Minden Hills Municipal Office is located at 7 Milne Street in Minden, Ontario.

Compliance Report Card

Drinking Water System Number: 260091936

Drinking Water System Name: Lutterworth Pines DWS

Drinking Water System Owner: Township of Minden Hills

Drinking Water System Category: Small Municipal Residential

Period Being Reported: January 1, 2020 - December 31, 2020

	# of Events	Date	Details
Health & Safety			
Number of Incidents	0		
Drinking Water			
MECP Inspections	1	June 1, 2020	Announced-Focused Drinking Water Inspection - Final Inspection Rating of 100%
AWQI's	2	January 13, 2020	Treated Water Sodium result of 22.5mg/L; resample result of 19.2mg/L
		December 8, 2020	Raw water pipe split and caused loss of pressure. Boil Water Advisory issued, repaired pipe, restored pressure, flushed and sampled.
Number of Non-Compliances	0		
Number of Boil Water Advisories	1	December 8, 2020	Issued for pressure loss AWQI noted above.

System Process Description

Raw Source

The Lutterworth Pines Water Treatment Plant is supplied with raw groundwater from two non-GUDI wells: Well # 1 and Well # 2.

Treatment

The treatment system consists of the following:

- Two drilled groundwater production wells deemed non-GUDI
- Raw and treated water flow meters
- Kinetico media vessel using ion exchange technology for the removal of uranium with pre-treatment 20um cartridge filter
- Chemical feed system consisting of two metering pumps for primary and secondary disinfection with sodium hypochlorite solution
- Four 452L chlorine contact tanks
- Continuous online free chlorine residual monitoring of treated water prior to entering the distribution system
- Three 450L pressure tanks
- Standby power generator

Treatment Chemicals used during the reporting year:

Chemical Name	Use	Supplier
Sodium Hypochlorite	Disinfection	Brenntag

Summary of Non-Compliance

Adverse Water Quality Incidents

Date	AWQI #	Location	Problem	Details	Legislation	Corrective Action Taken
Jan 13, 2020	149418	Treated Water	Sodium result above 20mg/L	Result of 22.5mg/L	O. Reg 170	Resample, result 19.2mg/L
Dec 8, 2020	153201	Distribution	Loss of pressure	Raw water pipe split resulting in pressure loss	O. Reg 170	Repair pipe, issue Boil Water Advisory, restore pressure, flush and sample

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 this period.				

Flows

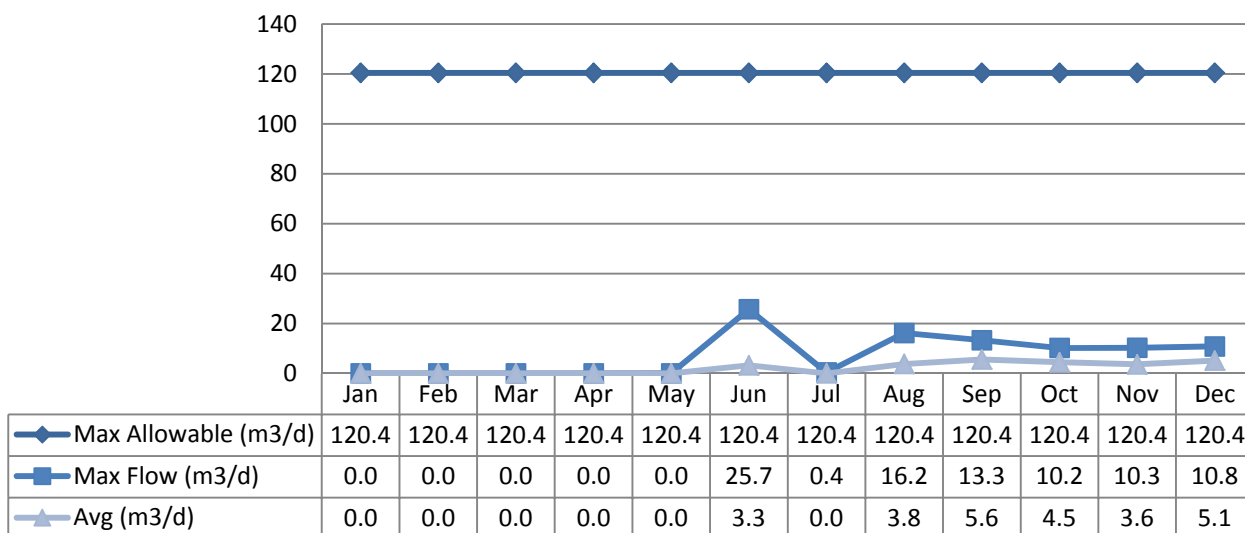
The Lutterworth Pines Drinking Water System is operating on average under half the rated capacity.

Raw Water Flows

The Raw Water takings are regulated by the Permit to Take Water (PTTW). 2020 Raw Flow Data was submitted to the Ministry electronically under permit #7458-B2JNYL. The confirmation for the data that was submitted is attached in Appendix A.

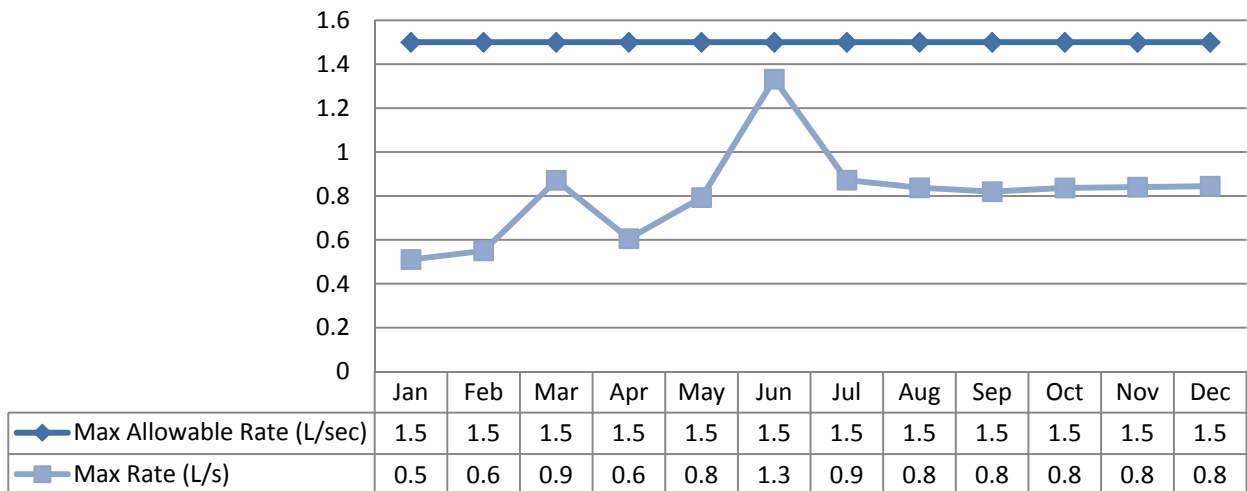
Total Monthly Flows (m3/d)

Max Allowable PTTW- Well #1



Monthly Rated Flows (L/s)

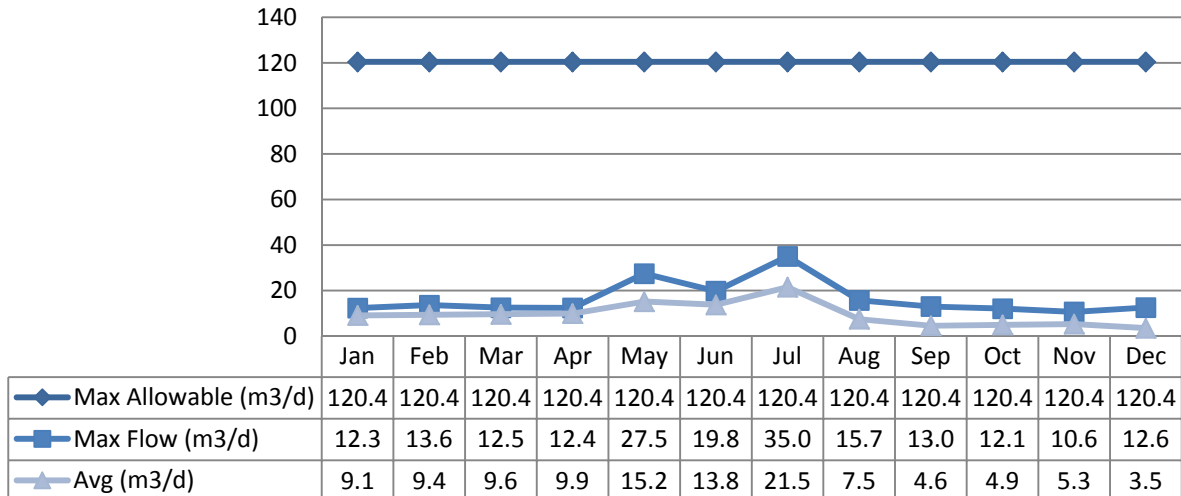
Max allowable rate – PTTW- Well #1



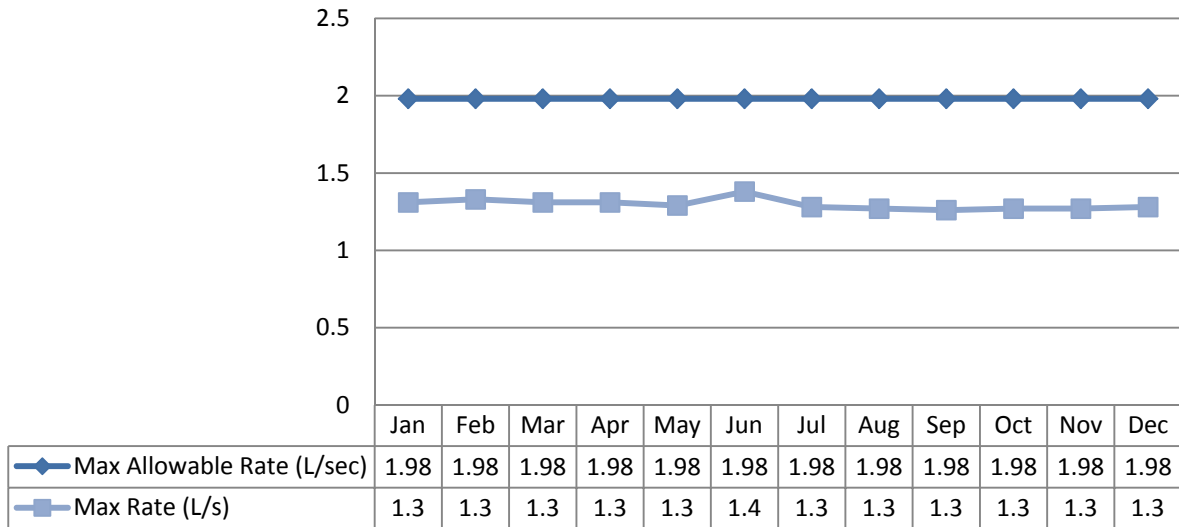
Note: The spike in June was due to scheduled Flow Meter calibration.

Total Monthly Flows (m3/d)

Max Allowable PTTW- Well #2



Monthly Rated Flows (L/s)
Max allowable rate – PTTW- Well #2

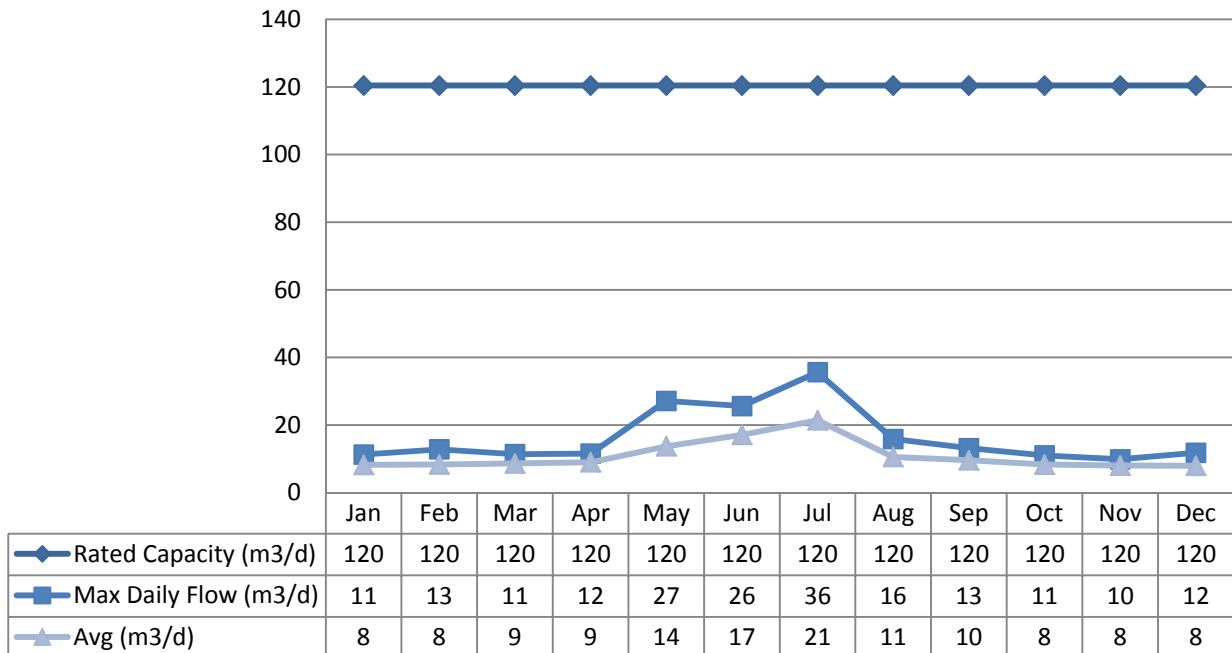


Treated Water Flows

The Treated Water flows are regulated under the Municipal Licence. The Lutterworth Pines DWS does not have a treated flow meter so the total raw water flows are used.

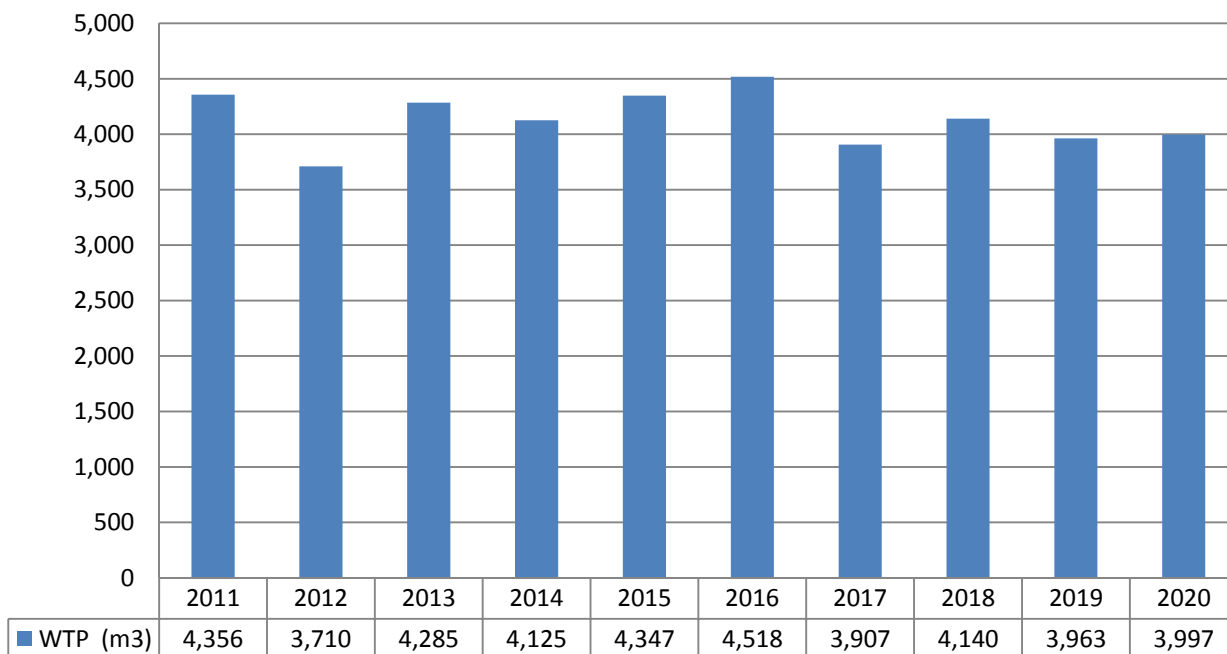
Monthly Rated Flows

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
Raw Well 1	12	0	0	0	0		
Raw Well 2	12	0	0	0	0		
Distribution	28	0	0	0	0	0	10

Operational Testing

	No. of Samples Collected	Range of Results	
		Minimum	Maximum
Chlorine	8760	0.00	5.00
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 170/03. Sodium, Fluoride and metals are required to be tested every 5 years. 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	No. of Exceedances	
				MAC	1/2 MAC
Antimony: Sb (ug/L) - TW	2020/01/06	<MDL 0.09	6.0	No	No
Arsenic: As (ug/L) - TW	2020/01/06	0.3	10.0	No	No
Barium: Ba (ug/L) - TW	2020/01/06	16.6	1000.0	No	No
Boron: B (ug/L) - TW	2020/01/06	128.0	5000.0	No	No
Cadmium: Cd (ug/L) - TW	2020/01/06	0.003	5.0	No	No
Chromium: Cr (ug/L) - TW	2020/01/06	0.1	50.0	No	No
Mercury: Hg (ug/L) - TW	2020/01/06	<MDL 0.01	1.0	No	No
Selenium: Se (ug/L) - TW	2020/01/06	<MDL 0.04	50.0	No	No
Uranium: U (ug/L) - TW	2020/01/06	1.66	20.0	No	No
Additional Inorganics					
Fluoride (mg/L) - TW	2020/01/06	0.68	1.5	No	No
Nitrite (mg/L) - TW	2020/01/06	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2020/04/07	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2020/07/07	0.02	1.0	No	No
Nitrite (mg/L) - TW	2020/10/05	<MDL 0.003	1.0	No	No
Nitrate (mg/L) - TW	2020/01/06	0.02	10.0	No	No
Nitrate (mg/L) - TW	2020/04/07	0.026	10.0	No	No
Nitrate (mg/L) - TW	2020/07/07	0.012	10.0	No	No
Nitrate (mg/L) - TW	2020/10/05	0.045	10.0	No	No
Sodium: Na (mg/L) - TW	2020/01/06	22.5	20*	Yes	Yes
Sodium: Na (mg/L) - TW	2020/01/13	19.2	20*	No	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 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		MAC (ug/L)	Number of Exceedances
			Minimum	Maximum		
Alkalinity (mg/L)	2	2	163	179	N/A	N/A
pH	2	2	7.69	7.80	N/A	N/A
Lead (ug/l)	0	0				

Organic Parameters

These parameters are tested every 5 years 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	Number of Exceedances	
				MAC	1/2 MAC
Alachlor (ug/L) - TW	2020/01/06	<MDL 0.02	5.0	No	No
Atrazine + N-dealkylated metabolites (ug/L) - TW	2020/01/06	<MDL 0.01	5.0	No	No
Azinphos-methyl (ug/L) - TW	2020/01/06	<MDL 0.05	20.0	No	No
Benzene (ug/L) - TW	2020/01/06	<MDL 0.32	1.0	No	No
Benzo(a)pyrene (ug/L) - TW	2020/01/06	<MDL 0.004	0.01	No	No
Bromoxynil (ug/L) - TW	2020/01/06	<MDL 0.33	5.0	No	No
Carbaryl (ug/L) - TW	2020/01/06	<MDL 0.05	90.0	No	No
Carbofuran (ug/L) - TW	2020/01/06	<MDL 0.01	90.0	No	No
Carbon Tetrachloride (ug/L) - TW	2020/01/06	<MDL 0.17	2.0	No	No
Chlorpyrifos (ug/L) - TW	2020/01/06	<MDL 0.02	90.0	No	No
Diazinon (ug/L) - TW	2020/01/06	<MDL 0.02	20.0	No	No
Dicamba (ug/L) - TW	2020/01/06	<MDL 0.2	120.0	No	No
1,2-Dichlorobenzene (ug/L) - TW	2020/01/06	<MDL 0.41	200.0	No	No
1,4-Dichlorobenzene (ug/L) - TW	2020/01/06	<MDL 0.36	5.0	No	No
1,2-Dichloroethane (ug/L) - TW	2020/01/06	<MDL 0.35	5.0	No	No
1,1-Dichloroethylene (ug/L) - TW	2020/01/06	<MDL 0.33	14.0	No	No
Dichloromethane (Methylene Chloride) (ug/L) - TW	2020/01/06	<MDL 0.35	50.0	No	No
2,4-Dichlorophenol (ug/L) - TW	2020/01/06	<MDL 0.15	900.0	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW	2020/01/06	<MDL 0.19	100.0	No	No
Diclofop-methyl (ug/L) - TW	2020/01/06	<MDL 0.4	9.0	No	No
Dimethoate (ug/L) - TW	2020/01/06	<MDL 0.06	20.0	No	No
Diquat (ug/L) - TW	2020/01/06	<MDL 1.0	70.0	No	No

Treated Water	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
Diuron (ug/L) - TW	2020/01/06	<MDL 0.03	150.0	No	No
Glyphosate (ug/L) - TW	2020/01/06	<MDL 1.0	280.0	No	No
Malathion (ug/L) - TW	2020/01/06	<MDL 0.02	190.0	No	No
Metolachlor (ug/L) - TW	2020/01/06	<MDL 0.01	50.0	No	No
Metribuzin (ug/L) - TW	2020/01/06	<MDL 0.02	80.0	No	No
Monochlorobenzene (Chlorobenzene) (ug/L) - TW	2020/01/06	<MDL 0.3	80.0	No	No
Paraquat (ug/L) - TW	2020/01/06	<MDL 1.0	10.0	No	No
PCB (ug/L) - TW	2020/01/06	<MDL 0.04	3.0	No	No
Pentachlorophenol (ug/L) - TW	2020/01/06	<MDL 0.15	60.0	No	No
Phorate (ug/L) - TW	2020/01/06	<MDL 0.01	2.0	No	No
Picloram (ug/L) - TW	2020/01/06	<MDL 1.0	190.0	No	No
Prometryne (ug/L) - TW	2020/01/06	<MDL 0.03	1.0	No	No
Simazine (ug/L) - TW	2020/01/06	<MDL 0.01	10.0	No	No
Terbufos (ug/L) - TW	2020/01/06	<MDL 0.01	1.0	No	No
Tetrachloroethylene (ug/L) - TW	2020/01/06	<MDL 0.35	10.0	No	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW	2020/01/06	<MDL 0.2	100.0	No	No
Triallate (ug/L) - TW	2020/01/06	<MDL 0.01	230.0	No	No
Trichloroethylene (ug/L) - TW	2020/01/06	<MDL 0.44	5.0	No	No
2,4,6-Trichlorophenol (ug/L) - TW	2020/01/06	<MDL 0.25	5.0	No	No
2-methyl-4-chlorophenoxyacetic acid (MCPA) (ug/L) - TW	2020/01/06	<MDL 0.12	100.0		
Trifluralin (ug/L) - TW	2020/01/06	<MDL 0.02	45.0	No	No
Vinyl Chloride (ug/L) - TW	2020/01/06	<MDL 0.17	1.0	No	No
Distribution Water					
Trihalomethane: Total (ug/L) Annual Average - DW	2020	6.2	100	No	No
HAA Total (ug/L) Annual Average - DW	2020	5.3	80	No	No

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

MDL = Method Detection Limit

Additional Legislated Samples

Municipal Drinking Water Licence	Date Collected	Uranium (ug/L)
Point of Entrance to Distribution System (Treated Water)	January	1.66
	February	2.60
	March	2.70
	April	5.07
	May	0.03
	June	0.003
	July	0.26
	August	5.78
	September	2.42
	October	2.62
	November	7.72
	December	0.003



Note: MDWL requires quarterly sampling for uranium however for operational purposes, samples are collected monthly.

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

WO #	Description
1747568	Replacement of sample hydrant
1624249	Uranium Filter Resin Replacement
1663634	Generator Door Handle Replacement
1961279	Generator Engine Cooling System Replacement
1832484	DSC Troubleshooting
1790865	Replacement Pressure Relief Valve for Chemical Feed System
2040400	DSC Repaired
1832897	Uranium Resin Disposal

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: 7458-B2JNYL
Permit Holder: THE CORPORATION OF THE TOWNSHIP OF MINDEN HILLS.
Received on: Feb 19, 2021 1:11 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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TOWNSHIP OF MINDEN HILLS | 2021/02/19
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