

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 2018

Issued: February 15 2019

Revision: 1 Date: March 28, 2019

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, 2018 - December 31, 2018

	# of Events	Date	Details
Health & Safety			
Number of Incidents	0		
Drinking Water			
MECP Inspections	1	November 27, 2018	Unannounced-Focused Drinking Water Inspection - Final Inspection Rating of 100%
AWQI's	0		
Number of Non-Compliances	0		
Number of Boil Water Advisories	0		

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
There were no adverse water quality incidents 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-compliance issues reported during the reporting period.				

Flows

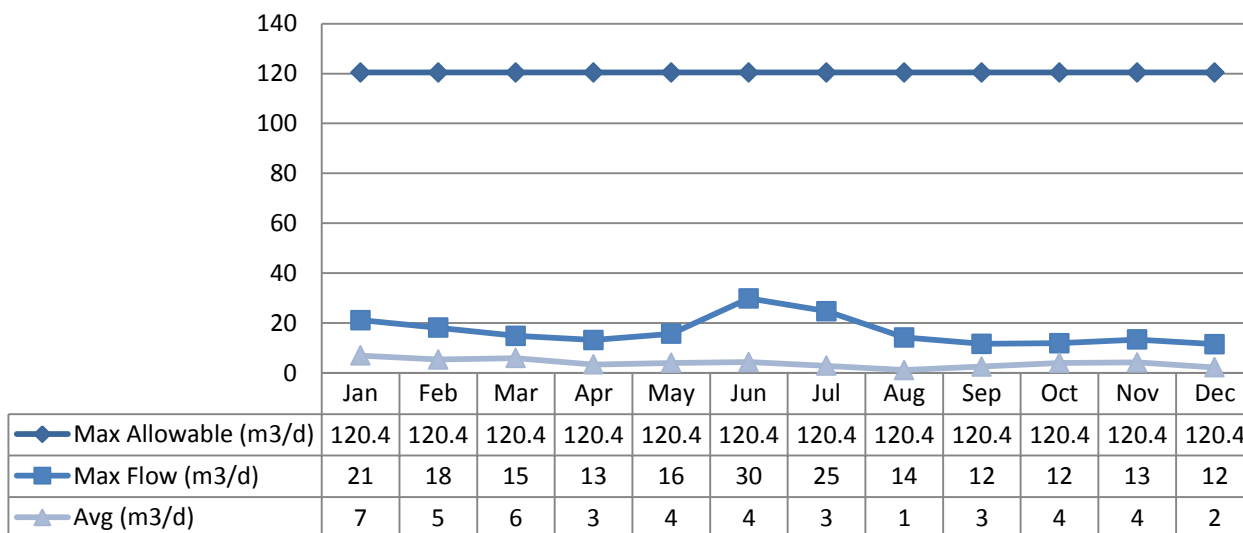
The Lutterworth Pines Drinking Water System is operating on average under half the rated capacity.

Raw Water Flows

The Raw Water takings are regulated by the Permit to Take Water (PTTW). 2018 Raw Flow Data was submitted to the Ministry electronically under permit #3450-7HEQFN for January 1 to August 28 and under permit #7458-B2JNYL for the period of August 29 to December 31, 2018. The confirmation for the data that was submitted is attached in Appendix A.

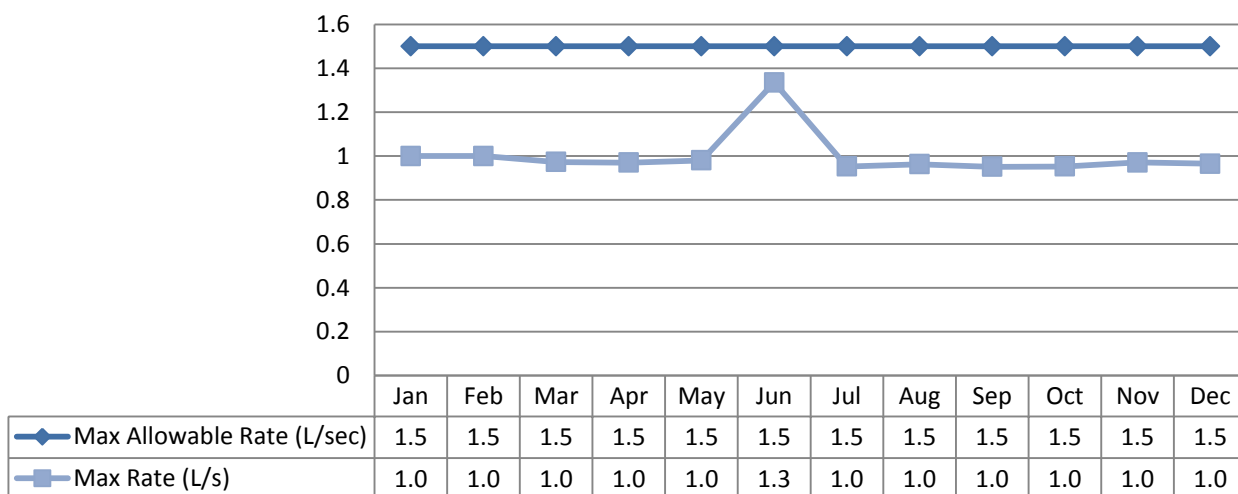
Total Monthly Flows (m3/d)

Max Allowable PTTW- Well #1



Monthly Rated Flows (L/s)

Max allowable rate – PTTW- Well #1



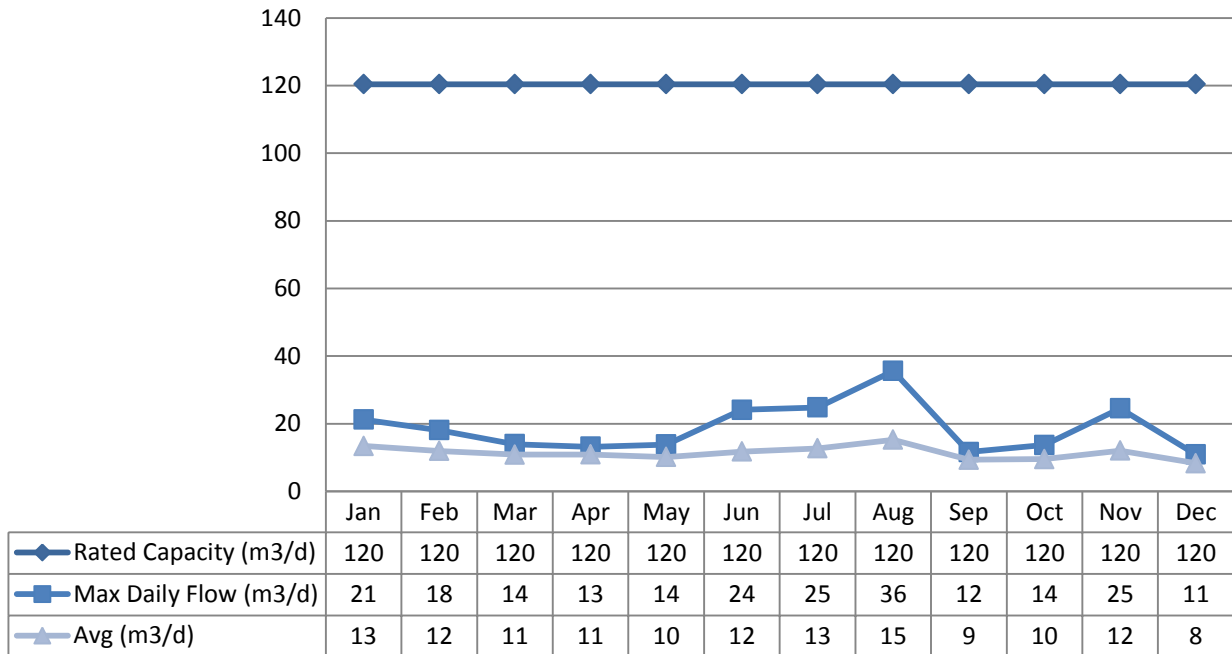
Note: The spike in June was due to scheduled Flow Meter calibration.

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.

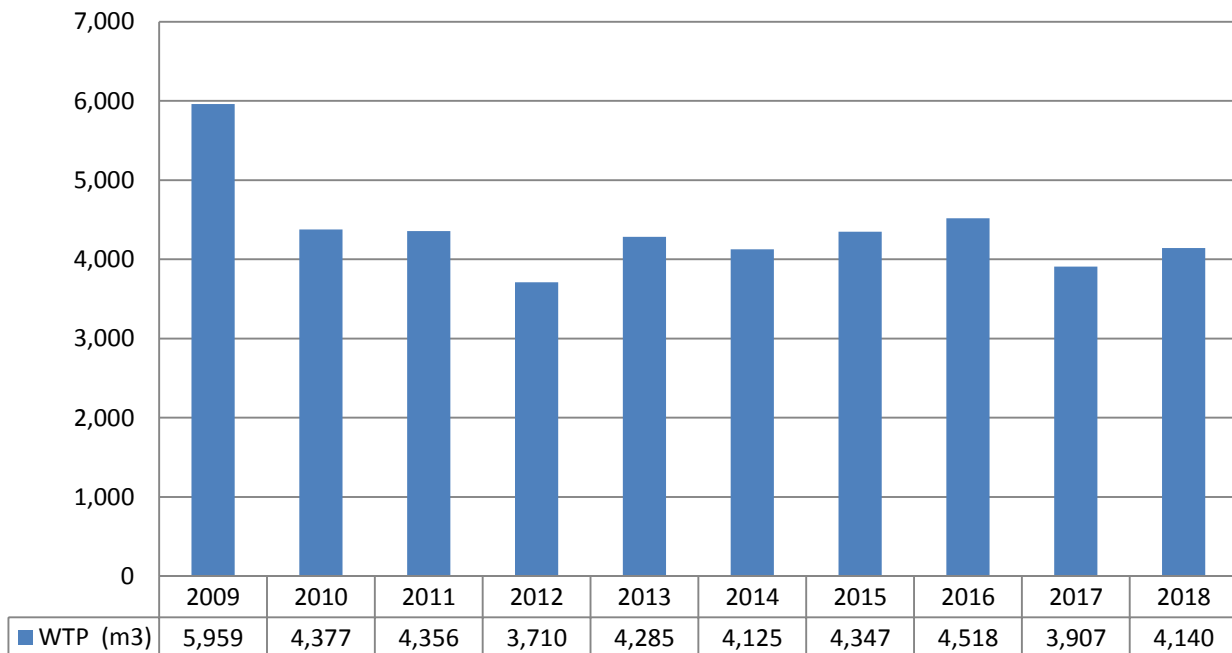
Monthly Rated Flows

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	27	0	0	0	0	0	1

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	2015/01/13	0.04	6.0	No	No
Arsenic: As (ug/L) - TW	2015/01/13	0.3	10.0	No	No
Barium: Ba (ug/L) - TW	2015/01/13	41.4	1000.0	No	No
Boron: B (ug/L) - TW	2015/01/13	170.0	5000.0	No	No
Cadmium: Cd (ug/L) - TW	2015/01/13	0.006	5.0	No	No
Chromium: Cr (ug/L) - TW	2015/01/13	< MDL0.03	50.0	No	No
Mercury: Hg (ug/L) - TW	2015/01/13	0.02	1.0	No	No
Selenium: Se (ug/L) - TW	2015/01/13	<MDL 1.0	50.0	No	No
Uranium: U (ug/L) - TW	2015/01/13	0.315	20.0	No	No
Additional Inorganics					
Fluoride (mg/L) - TW	2015/01/13	0.68	1.5	No	No

Treated Water	Sample Date (yyyy/mm/dd)	Sample Result	MAC	No. of Exceedances	
				MAC	1/2 MAC
Nitrite (mg/L) - TW	2018/01/22	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2018/04/03	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2018/07/16	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2018/10/01	<MDL 0.003	1.0	No	No
Nitrate (mg/L) - TW	2018/01/22	0.026	10.0	No	No
Nitrate (mg/L) - TW	2018/04/03	0.039	10.0	No	No
Nitrate (mg/L) - TW	2018/07/16	0.03	10.0	No	No
Nitrate (mg/L) - TW	2018/10/01	0.06	10.0	No	No
Sodium: Na (mg/L) - TW	2015/01/13	22.7	20*	Yes	Yes
Sodium: Na (mg/L) - TW	2015/01/16	31.3	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 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	169	172	N/A	N/A
pH	2	2	7.16	7.50	N/A	N/A
Lead (ug/l)	N/A	N/A				

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	2015/01/13	<MDL 0.02	5.00	No	No
Atrazine + N-dealkylated metabolites (ug/L) - TW	2015/01/13	<MDL 0.01	5.00	No	No
Azinphos-methyl (ug/L) - TW	2015/01/13	<MDL 0.02	20.00	No	No
Benzene (ug/L) - TW	2015/01/13	<MDL 0.32	1.00	No	No
Benzo(a)pyrene (ug/L) - TW	2015/01/13	<MDL 0.004	0.01	No	No
Bromoxynil (ug/L) - TW	2015/01/13	<MDL 0.33	5.00	No	No

Treated Water	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
Carbaryl (ug/L) - TW	2015/01/13	<MDL 0.01	90.00	No	No
Carbofuran (ug/L) - TW	2015/01/13	<MDL 0.01	90.00	No	No
Carbon Tetrachloride (ug/L) - TW	2015/01/13	<MDL 0.16	2.00	No	No
Chlorpyrifos (ug/L) - TW	2015/01/13	<MDL 0.02	90.00	No	No
Diazinon (ug/L) - TW	2015/01/13	<MDL 0.02	20.00	No	No
Dicamba (ug/L) - TW	2015/01/13	<MDL 0.2	120.00	No	No
1,2-Dichlorobenzene (ug/L) - TW	2015/01/13	<MDL 0.41	200.00	No	No
1,4-Dichlorobenzene (ug/L) - TW	2015/01/13	<MDL 0.36	5.00	No	No
1,2-Dichloroethane (ug/L) - TW	2015/01/13	<MDL 0.35	5.00	No	No
1,1-Dichloroethylene (ug/L) - TW	2015/01/13	<MDL 0.33	14.00	No	No
Dichloromethane (Methylene Chloride) (ug/L) - TW	2015/01/13	<MDL 0.35	50.00	No	No
2,4-Dichlorophenol (ug/L) - TW	2015/01/13	<MDL 0.15	900.00	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW	2015/01/13	<MDL 0.19	100.00	No	No
Diclofop-methyl (ug/L) - TW	2015/01/13	<MDL 0.4	9.00	No	No
Dimethoate (ug/L) - TW	2015/01/13	<MDL 0.03	20.00	No	No
Diquat (ug/L) - TW	2015/01/13	<MDL 1.0	70.00	No	No
Diuron (ug/L) - TW	2015/01/13	<MDL 0.03	150.00	No	No
Glyphosate (ug/L) - TW	2015/01/13	<MDL 1.0	280.00	No	No
Malathion (ug/L) - TW	2015/01/13	<MDL 0.02	190.00	No	No
Metolachlor (ug/L) - TW	2015/01/13	<MDL 0.01	50.00	No	No
Metribuzin (ug/L) - TW	2015/01/13	<MDL 0.02	80.00	No	No
Monochlorobenzene (Chlorobenzene) (ug/L) - TW	2015/01/13	<MDL 0.3	80.00	No	No
Paraquat (ug/L) - TW	2015/01/13	<MDL 1.0	10.00	No	No
PCB (ug/L) - TW	2015/01/13	<MDL 0.04	3.00	No	No
Pentachlorophenol (ug/L) - TW	2015/01/13	<MDL 0.15	60.00	No	No
Phorate (ug/L) - TW	2015/01/13	<MDL 0.01	2.00	No	No
Picloram (ug/L) - TW	2015/01/13	<MDL 1.0	190.00	No	No
Prometryne (ug/L) - TW	2015/01/13	<MDL 0.03	1.00	No	No
Simazine (ug/L) - TW	2015/01/13	<MDL 0.01	10.00	No	No
Terbufos (ug/L) - TW	2015/01/13	<MDL 0.01	1.00	No	No
Tetrachloroethylene (ug/L) - TW	2015/01/13	<MDL 0.35	10.00	No	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW	2015/01/13	<MDL 0.2	100.00	No	No
Triallate (ug/L) - TW	2015/01/13	<MDL 0.01	230.00	No	No
Trichloroethylene (ug/L) - TW	2015/01/13	<MDL 0.44	5.00	No	No
2,4,6-Trichlorophenol (ug/L) - TW	2015/01/13	<MDL 0.25	5.00	No	No
Trifluralin (ug/L) - TW	2015/01/13	<MDL 0.02	45.00	No	No
Vinyl Chloride (ug/L) - TW	2015/01/13	<MDL 0.17	1.00	No	No

Treated Water	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
Distribution Water					
Trihalomethane: Total (ug/L) Annual Average - DW	2018	8	100	No	No
HAA Total (ug/L) Annual Average - DW	2018	5.3	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 Licence	Date Collected	Uranium (ug/L)
Point of Entrance to Distribution System (Treated Water)	January	0.137, 0.292
	February	0.685
	March	2.34
	April	4.37
	May	0.046
	June	0.002
	July	<MDL 0.002
	August	0.003
	September	0.006
	October	0.004
	November	0.009
	December	0.034

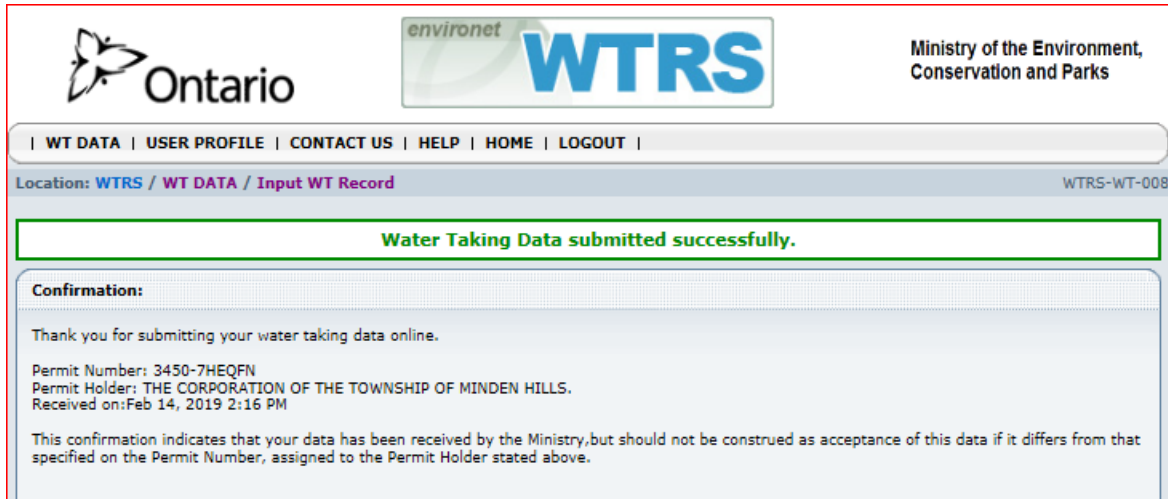
Note: MDWL requires quarterly sampling for uranium however for operational purposes, samples are collected monthly.

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

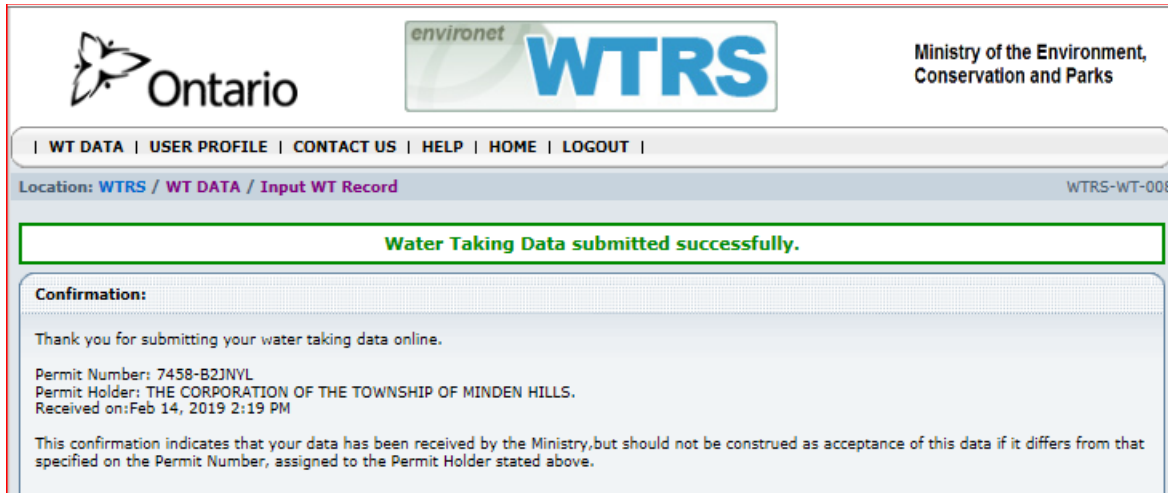
WO #	Description
969616	Replacement of generator starter.
938709	Replacement of faulty hour meter and coolant temperature sender. Installation of updated controller software and calibration of fuel level gauge.
861516	Replacement of disinfection chlorine chemical feed pumps.
938537	Installation of wireless DSC.
821509	Replacement of VFD on Well #1 pump.

Appendix A

WTRS Data Submission Confirmation



The screenshot shows the WTRS (Water Taking Reporting System) interface. At the top left is the Ontario logo. In the center is the 'environet WTRS' logo. At the top right is the text 'Ministry of the Environment, Conservation and Parks'. Below the logos is a navigation bar with links: | WT DATA | USER PROFILE | CONTACT US | HELP | HOME | LOGOUT |. Below the navigation bar is a breadcrumb trail: Location: WTRS / WT DATA / Input WT Record. On the right side of the breadcrumb trail is the identifier WTRS-WT-008. A green-bordered box contains the message 'Water Taking Data submitted successfully.'. Below this is a 'Confirmation:' section with the following text: 'Thank you for submitting your water taking data online. Permit Number: 3450-7HEQFN Permit Holder: THE CORPORATION OF THE TOWNSHIP OF MINDEN HILLS. Received on: Feb 14, 2019 2:16 PM'. A final paragraph states: '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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