

Minden Drinking Water System

Waterworks # 210000194
System Category – Large 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: 0

Operating Authority:



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

Table of Contents

Annual Water Report	1
Report Availability	1
Compliance Report Card	1
System Process Description	2
Raw Source.....	2
Treatment.....	2
Treatment Chemicals used during the reporting year:	2
Summary of Non-Compliance.....	2
Adverse Water Quality Incidents	2
Non-Compliance.....	3
Flows	3
Raw Water Flows	3
Total Monthly Flows (m ³ /d)-Well #1	4
Monthly Rate Flows (L/s)-Well #1	4
Total Monthly Flows (m ³ /d)-Well #2	5
Monthly Rate Flows (L/s)-Well #2.....	5
Treated Water Flows	6
Monthly Rated Flows.....	6
Annual Total Flow Comparison	6
Regulatory Sample Results Summary	7
Microbiological Testing.....	7
Operational Testing	7
Inorganic Parameters	7
Schedule 15 Sampling:	8
Organic Parameters	8
Additional Legislated Samples	10
Major Maintenance Summary.....	10
WTRS Data Submission Confirmation.....	A

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 Administration Office is located at 7 Milne Street in Minden, Ontario.

Compliance Report Card

Drinking Water System Number: 210000194

Drinking Water System Name: Minden DWS

Drinking Water System Owner: Township of Minden Hills

Drinking Water System Category: Large 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	Announced-Detailed Drinking Water Inspection - Final Inspection Rating of 98.19%
AWQI's	1	August 9, 2018	1 Total Coliform in Treated Water sample.
Number of Non-Compliances	1		Exceedances of the L/min on Well #2 occurred intermittently when the well was being sampled.
Number of Boil Water Advisories	0		

System Process Description

Raw Source

The Minden 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 water flow meters
- Chemical feed system consisting of two metering pumps for iron and manganese sequestering with sodium silicate and two metering pumps for primary and secondary disinfection with sodium hypochlorite solution
- Chlorine contact chamber
- Continuous online free chlorine residual monitoring of treated water prior to entering the distribution system
- 1500 cubic meter elevated water storage tower
- Standby power generator at pumphouse

Treatment Chemicals used during the reporting year:

Chemical Name	Use	Supplier
Sodium Hypochlorite	Disinfection	Brenntag
Sodium Silicate	Iron and Manganese Sequestering	Swish

Summary of Non-Compliance

Adverse Water Quality Incidents

Date	AWQI #	Location	Problem	Details	Legislation	Corrective Action Taken
August 9, 2018	141487	Treated Water	Total Coliform	1 Total Coliform in weekly Treated Water Sample	O.Reg 170/03	Resampled.

Non-Compliances

Legislation	Requirement(s) system failed to meet	Duration of the failure (i.e. date(s))	Corrective Action	Status
Permit to Take Water – identified in MECP 2018-19 Inspection	Exceedances of the allowed L/min on Well #2.	Occurred intermittently when the well was being sampled.	Day sheets revised to include maximum L/s based on the maximum L/min dictated by the PTTW.	Complete
			Any raw water flow exceedances to be noted in log book and include date, time, duration, quantity, location and cause.	Complete
			Investigating installation of VFD on the well pump to alleviate intermittent flow exceedances.	In progress.

Flows

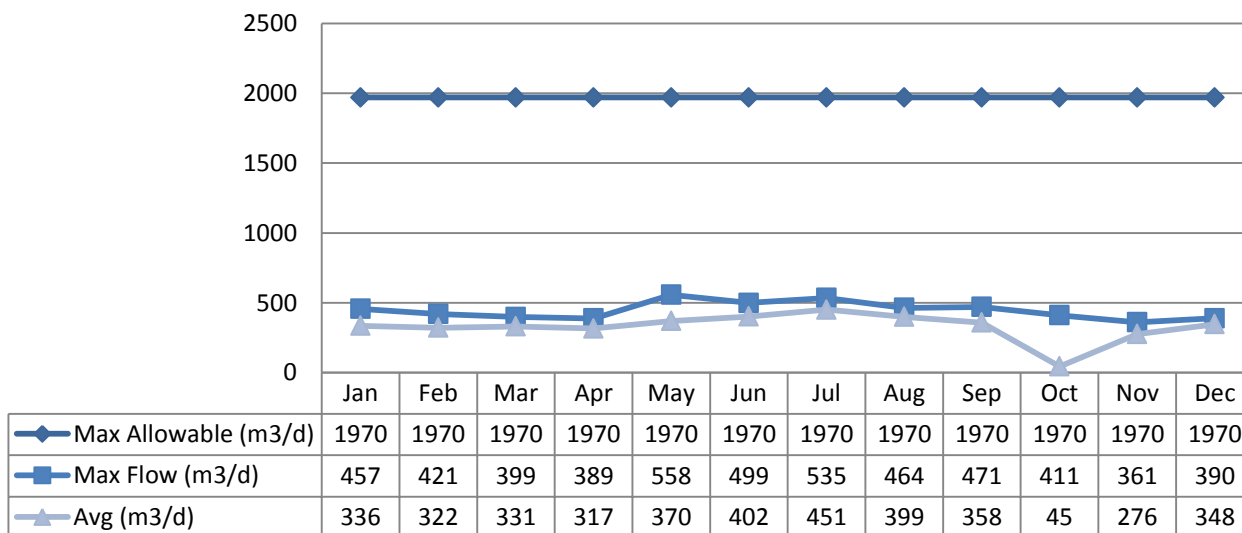
The Minden Drinking Water System is operating on average under half the rated capacity.

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 #5308-972L6Q. The confirmation for the data that was submitted is attached in Appendix A.

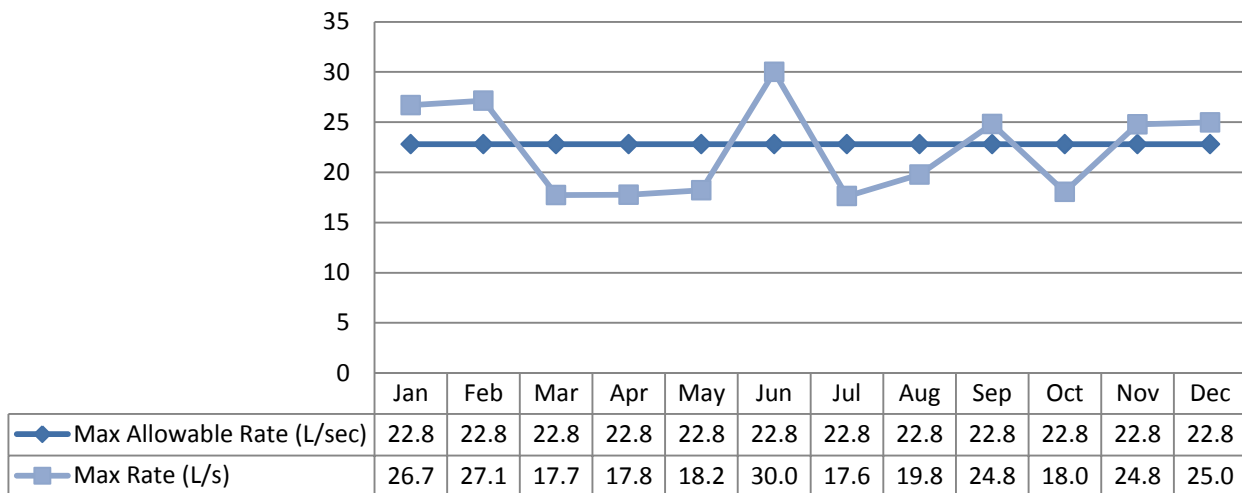
Total Monthly Flows (m3/d)

Max Allowable PTTW- Well #1



Monthly Rated Flows (L/s)

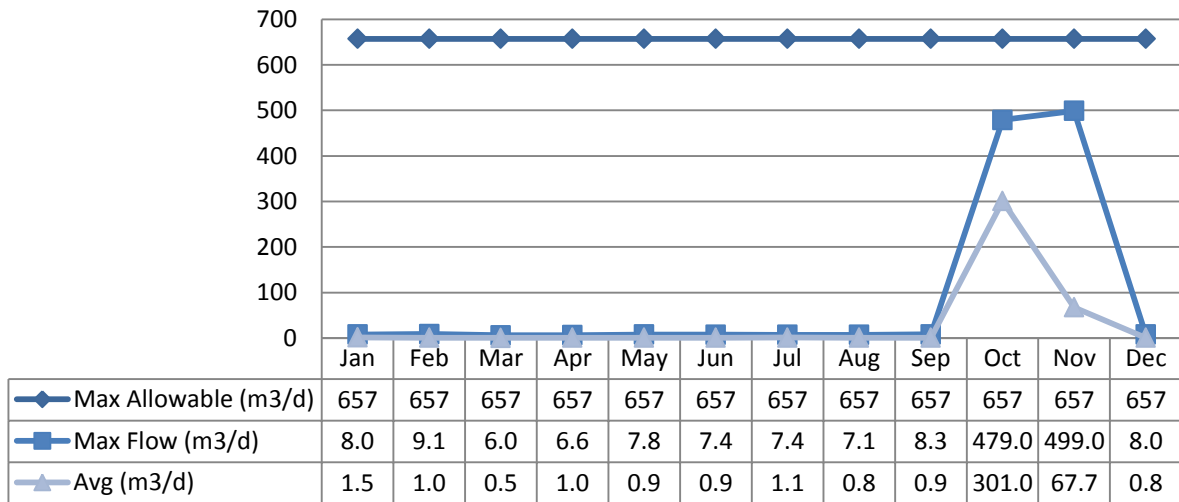
Max allowable rate – PTTW- Well #1



Note: The above table shows there were exceedances in instantaneous peak flow rate (L/s) which occurred on pump start up and were not sustained. The actual limit in the PTTW is 1,368L/min. The spike in June was due to scheduled Flow Meter calibration.

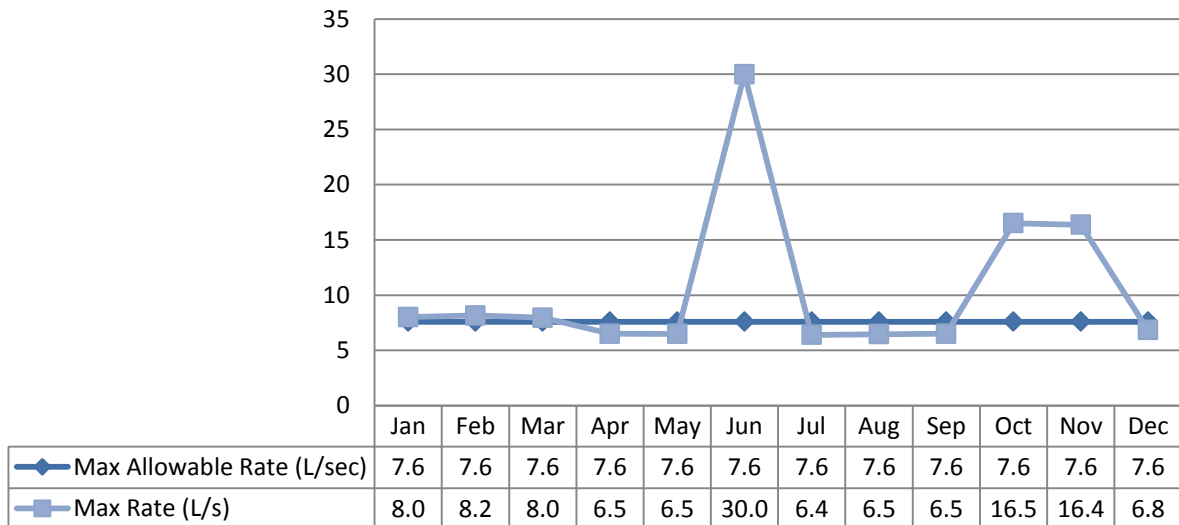
Total Monthly Flows (m3/d)

Max Allowable PTTW- Well #2



Monthly Rated Flows (L/s)

Max allowable rate – PTTW- Well #2



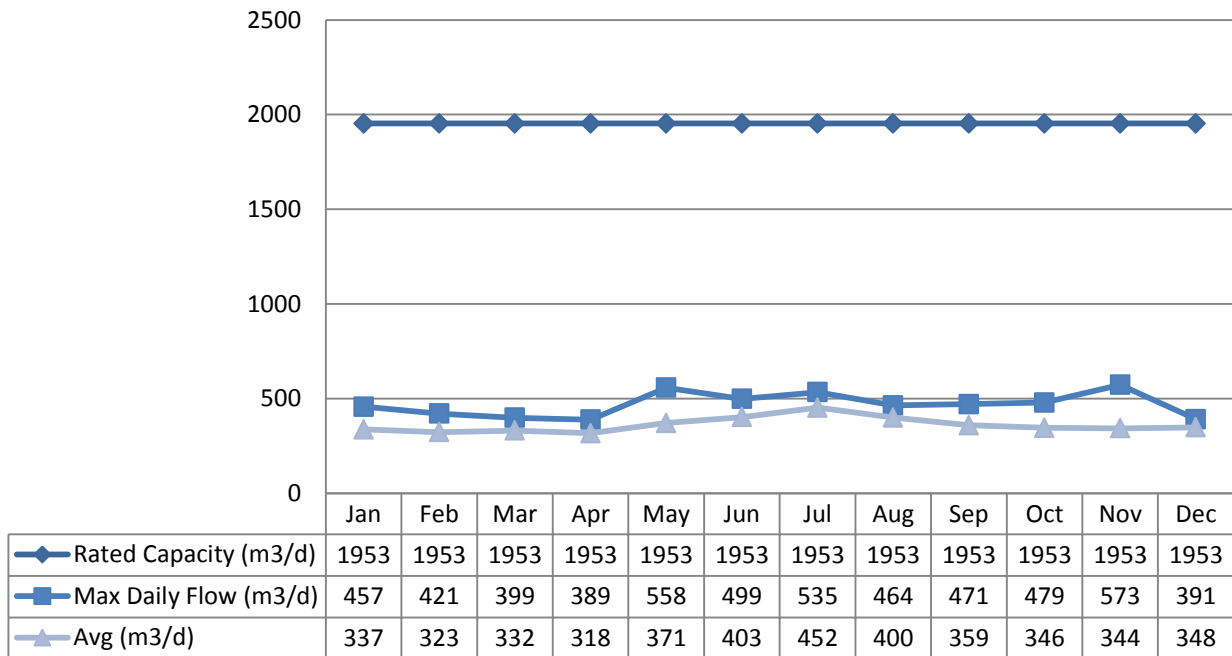
Note: The above table shows there were exceedances in instantaneous peak flow rate (L/s) which occurred intermittently when the well was sampled. The actual PPTTW limit is 456L/min. The spike in June was due to scheduled Flow Meter calibration. Well #2 was used as the primary well in October and November when Well #1 pump failed. Consent was received from the MECP to use Well #2 at a higher L/min rate and to use it for more than 14 days as stated in the PTTW.

Treated Water Flows

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

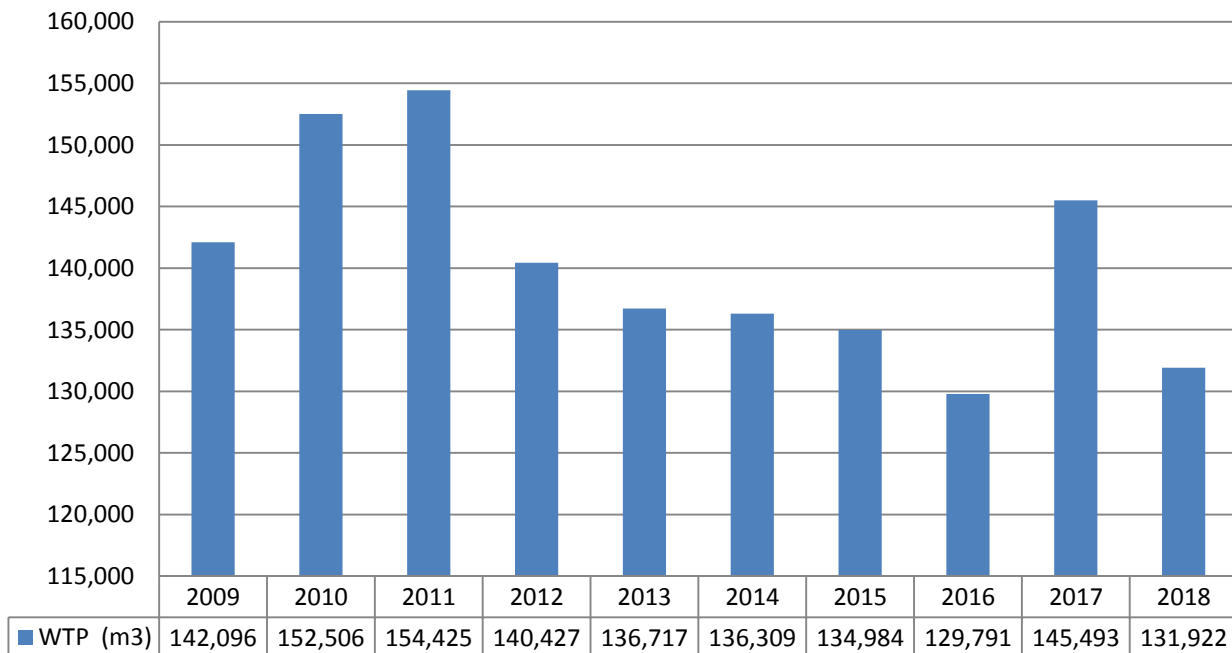
Monthly Rated Flows

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	50	0	0	0	1		
Raw Well 2	52	0	0	0	0		
Treated	53	0	0	0	1	0	700
Distribution	156	0	0	0	0	0	52

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 and Fluoride are required to be tested every 5 years. Nitrate and Nitrite are tested quarterly and the metals are tested every 3 years as required under 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
- 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	2017/01/05	0.05	6.0	No	No
Arsenic: As (ug/L) - TW	2017/01/05	<MDL 0.2	10.0	No	No
Barium: Ba (ug/L) - TW	2017/01/05	139.0	1000.0	No	No
Boron: B (ug/L) - TW	2017/01/05	30.0	5000.0	No	No
Cadmium: Cd (ug/L) - TW	2017/01/05	0.007	5.0	No	No
Chromium: Cr (ug/L) - TW	2017/01/05	0.6	50.0	No	No
Mercury: Hg (ug/L) - TW	2017/01/10	<MDL 0.01	1.0	No	No
Selenium: Se (ug/L) - TW	2017/01/05	<MDL 0.04	50.0	No	No
Uranium: U (ug/L) - TW	2017/01/05	1.01	20.0	No	No

Treated Water	Sample Date (yyyy/mm/dd)	Sample Result	MAC	No. of Exceedances	
				MAC	1/2 MAC
Additional Inorganics					
Fluoride (mg/L) - TW	2018/01/22	0.19	1.5	No	No
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	<MDL 0.006	10.0	No	No
Nitrate (mg/L) - TW	2018/04/03	<MDL 0.006	10.0	No	No
Nitrate (mg/L) - TW	2018/07/16	<MDL 0.006	10.0	No	No
Nitrate (mg/L) - TW	2018/10/01	<MDL 0.006	10.0	No	No
Sodium: Na (mg/L) - TW	2018/01/22	17.0	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)	4	4	138	145	N/A	N/A
pH	4	4	7.67	7.81	N/A	N/A
Lead (ug/l)	2	2	<MDL 0.01	0.43	10	0

Organic Parameters

These parameters are tested every 3 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	2017/01/05	<MDL 0.02	5.00	No	No
Atrazine + N-dealkylated metabolites (ug/L) - TW	2017/01/05	<MDL 0.01	5.00	No	No
Azinphos-methyl (ug/L) - TW	2017/01/05	<MDL 0.05	20.00	No	No
Benzene (ug/L) - TW	2017/01/05	<MDL 0.32	1.00	No	No
Benzo(a)pyrene (ug/L) - TW	2017/01/05	<MDL 0.004	0.01	No	No

Treated Water	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
Bromoxynil (ug/L) - TW	2017/01/05	<MDL 0.33	5.00	No	No
Carbaryl (ug/L) - TW	2017/01/05	<MDL 0.05	90.00	No	No
Carbofuran (ug/L) - TW	2017/01/05	<MDL 0.01	90.00	No	No
Carbon Tetrachloride (ug/L) - TW	2017/01/05	<MDL 0.16	2.00	No	No
Chlorpyrifos (ug/L) - TW	2017/01/05	<MDL 0.02	90.00	No	No
Diazinon (ug/L) - TW	2017/01/05	<MDL 0.02	20.00	No	No
Dicamba (ug/L) - TW	2017/01/05	<MDL 0.2	120.00	No	No
1,2-Dichlorobenzene (ug/L) - TW	2017/01/05	<MDL 0.41	200.00	No	No
1,4-Dichlorobenzene (ug/L) - TW	2017/01/05	<MDL 0.36	5.00	No	No
1,2-Dichloroethane (ug/L) - TW	2017/01/05	<MDL 0.35	5.00	No	No
1,1-Dichloroethylene (ug/L) - TW	2017/01/05	<MDL 0.33	14.00	No	No
Dichloromethane (Methylene Chloride) (ug/L) - TW	2017/01/05	<MDL 0.35	50.00	No	No
2,4-Dichlorophenol (ug/L) - TW	2017/01/05	<MDL 0.15	900.00	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW	2017/01/05	<MDL 0.19	100.00	No	No
Diclofop-methyl (ug/L) - TW	2017/01/05	<MDL 0.4	9.00	No	No
Dimethoate (ug/L) - TW	2017/01/05	<MDL 0.03	20.00	No	No
Diquat (ug/L) - TW	2017/01/05	<MDL 1.0	70.00	No	No
Diuron (ug/L) - TW	2017/01/05	<MDL 0.03	150.00	No	No
Glyphosate (ug/L) - TW	2017/01/05	<MDL 1.0	280.00	No	No
Malathion (ug/L) - TW	2017/01/05	<MDL 0.02	190.00	No	No
Metolachlor (ug/L) - TW	2017/01/05	<MDL 0.01	50.00	No	No
Metribuzin (ug/L) - TW	2017/01/05	<MDL 0.02	80.00	No	No
Monochlorobenzene (Chlorobenzene) (ug/L) - TW	2017/01/05	<MDL 0.3	80.00	No	No
Paraquat (ug/L) - TW	2017/01/05	<MDL 1.0	10.00	No	No
PCB (ug/L) - TW	2017/01/05	<MDL 0.04	3.00	No	No
Pentachlorophenol (ug/L) - TW	2017/01/05	<MDL 0.15	60.00	No	No
Phorate (ug/L) - TW	2017/01/05	<MDL 0.01	2.00	No	No
Picloram (ug/L) - TW	2017/01/05	<MDL 1.0	190.00	No	No
Prometryne (ug/L) - TW	2017/01/05	<MDL 0.03	1.00	No	No
Simazine (ug/L) - TW	2017/01/05	<MDL 0.01	10.00	No	No
Terbufos (ug/L) - TW	2017/01/05	<MDL 0.01	1.00	No	No
Tetrachloroethylene (ug/L) - TW	2017/01/05	<MDL 0.35	10.00	No	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW	2017/01/05	<MDL 0.2	100.00	No	No
Triallate (ug/L) - TW	2017/01/05	<MDL 0.01	230.00	No	No
Trichloroethylene (ug/L) - TW	2017/01/05	<MDL 0.44	5.00	No	No
2,4,6-Trichlorophenol (ug/L) - TW	2017/01/05	<MDL 0.25	5.00	No	No
2-methyl-4-chlorophenoxyacetic acid	2017/01/05	<MDL 0.12	100.00	No	No

Treated Water	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
(MCPA) (ug/L) - TW					
Trifluralin (ug/L) - TW	2017/01/05	<MDL 0.02	45.00	No	No
Vinyl Chloride (ug/L) - TW	2017/01/05	<MDL 0.17	1.00	No	No
Distribution Water					
Trihalomethane: Total (ug/L) Annual Average - DW	2018	16	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

There was no additional sampling required.

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

WO #	Description
941526	Replacement of alarm dialer keypad
627066	Replacement of chemical transfer drum pump.
981346	Replacement of Well #1 pump.
627608	Replacement of disinfection chlorine chemical feed pumps.

Appendix A

WTRS Data Submission Confirmation



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Conservation and Parks

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WTRS-WT-008

Water Taking Data submitted successfully.

Confirmation:

Thank you for submitting your water taking data online.

Permit Number: 5308-972L6Q
Permit Holder: THE CORPORATION OF THE TOWNSHIP OF MINDEN HILLS.
Received on: Feb 14, 2019 10:53 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.