Mississippi Mills Drinking Water System

Waterworks # 220001290
System Category – Large Municipal Residential

Annual Water Report

Prepared For: Municipality of Mississippi Mills

Reporting Period of January 1st – December 31st 2018

Issued: March 8, 2019

Revision: 1

Operating Authority:

OCWA
ONTARIO CLEAN WATER AGENCY
AGENCE ONTARIENNE DES EAUX

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 users at the Municipality of Mississippi Mills Office. Notification will be at the Municipal Office and copies provided free of charge if requested. The Municipality of Mississippi Mills is located at 3131 Old Perth Rd., Almonte, Ontario, K0A 1A0. View the Municipalities website at www.mississippimills.ca

There are no additional drinking water systems that receive drinking water from this system.

Compliance Report Card

Compliance Event	# of Events
Ministry of Environment Inspections	1 Inspection Feb 16th, 2018 – 100% Inspection Rating
Ministry of Labour Inspections	No Inspections for the reporting period
QEMS External Audit	One (1) External On-Site Audit 3 OFI (Opportunity for Improvement) Element 3 - Commitment/Endorsement, Element 8 - Risk Assessment Outcomes and Element 13 – Essential Supplies and Services
AWQI's/BWA	AWQI # 140350 Sodium for Wells 3, 5, 7&8 AWQI # 141445 Sodium for Well 6
Non-Compliance	1 – Exceedence of the PTTW for Well 6
Community Complaints	There were no Community Complaints during the reporting period.
Spills	There were no Spills during the reporting period.

System Process Description

The Mississippi Mills Drinking Water System consists of 5 drilled wells located throughout the Ward of Almonte. The system supplies water to only the Ward of Almonte and is owned by The Corporation of the Municipality of Mississippi Mills. The Ontario Clean Water Agency is the Operating Authority.

Well 3 is located in the eastern portion of the Town, approximately 60 m north of Ottawa Street and Harold Street. Well 3 is contained in its own brick construction pump house and is equipped with a turbine pump. Disinfection is achieved through injection of sodium hypochlorite into the feeder main prior to the treated water being discharged into a chlorine contact tank.

Well 5 is located along Almonte Street (County Road 16) near the south west end of Town. Well 5 is contained in its own brick construction pump house and is equipped with a vertical turbine pump. Disinfection is achieved through injection of sodium hypochlorite into the feeder main prior to the treated water being discharged into a chlorine contact tank.

Well 6 is an artesian well which is located in Gemmill's Park in the south end of Town, immediately east of Highway 29. Well 6 is contained in its own brick construction pump house and is equipped with a turbine pump. Disinfection is achieved through injection of sodium hypochlorite into the feeder main prior to the treated water being discharged into a chlorine contact tank.

Wells 7 and 8 are located within a single pump house near the northeast edge of Town, along the north side of Paterson Street. Well 7 and 8 are enclosed within a single brick and aluminum clad vented watertight pump house. Each well is equipped with a vertical turbine pump. The pumps are located directly on top of the well casings. Disinfection is achieved through injection of liquid sodium hypochlorite into the feeder main of each well, prior to the treated water being discharged into a single chlorine contact chamber.

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
2018-07-09	140350	Well 3,5,7&8	Sodium 20mg/L Exceedence	Well 3 – 47.5 Well 5 – 66.7 Well 7&8 – 43.8	Reg 170/03	Re-sampled each well as per direction from the Health Unit Well 3 – 42.8 Well 5 – 63.8 Well 7&8 – 42.1
2018-08-08	141445	Well 6	Sodium 20 mg/L Exceedence	Well 6 – 37.2	Reg 170/03	Re-sample Well 6 as per direction from the Heatlh Unit Well 6 – 38.6

Non-Compliance

Legislation	requirement(s) system failed to meet	duration of the failure (i.e. date(s))	Corrective Action	Status
PTTW	Flow Exceedence	1 hour	During the 5 year Well 6 maintenance was performed by International Water	Completed

			Supply. As part of the maintenance a flow and pressure test is completed on the well. While performing this test the flow rates were exceeded. It should be noted that flow was going to waste and primary disinfection was not an issue. The pump was then removed from the well in order to facilitate a camera inspection of the well interior.	

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
PTTW	OCWA's Compliance Binder contained the old PTTW which has been replaced by PTTW #8175-AQPHA8 dated Sept. 8, 2017. The Ministry Inspector provided OCWA with a copy of the new PTTW. Condition 1.6 requires the Permit Holder to keep this Permit available at all times at or near the site of the taking. Condition 4.3 of the PTTW states that the Permit Holder shall ensure that the data collected under the monitoring program (record of all water takings and static water levels) is analysed, interpreted and summarized in an annual report prepared by a Professional Geoscientist or qualified Professional Engineer. This condition is new to the PTTW.	N/A	GeoFirma provided a record of water taking and static water levels	Completed

Reg 170/03	It was noted on April 27, May 2 and June 19, 2017 in the OCWA log book for Well 5, that the operator did not sign in to the log book for the entries made at 14:42 and 22:18 on April 27, at 14:37 on May 2 and at 13:00 on June 9, 2017; the same for log book for Wells 7 & 8 on August 2, 2017; Well 6 on September 18, 2017, November 20, 2017(no shift times) and December 5, 2017 (no name, no OIC, no shift times); and for Well 3 on October 2, 2017 at 14:46. The OIC is to be identified in the log book (OIC to be completed if OIC is not on site) as this was not done on June 29, 2017, July 8, 2017 or November 11, 2017 for Wells 7 & 8 (operator also did not record shift times July 8, 2017).	N/A	Operators will receive logbook training at the next compliance meeting. This meeting will cover all aspects of log entries. Date, shift time and identifying the OIC will be reviewed.	Completed
	The Municipality's and OCWA's operations manuals need to be updated.	N/A	Operations manuals have been updated	Completed
Reg 170/03	Treated water samples were last taken for testing of Fluoride on October 20, 2015 and were previously taken on April 10, 2012. The number of days between these sampling dates is 3 years, 6 months, 10 days.	N/A	Sampling calendar has been updated to reflect the proper sampling schedule for Fluoride. Fluoride sampling was completed April 2018.	Completed

Flows

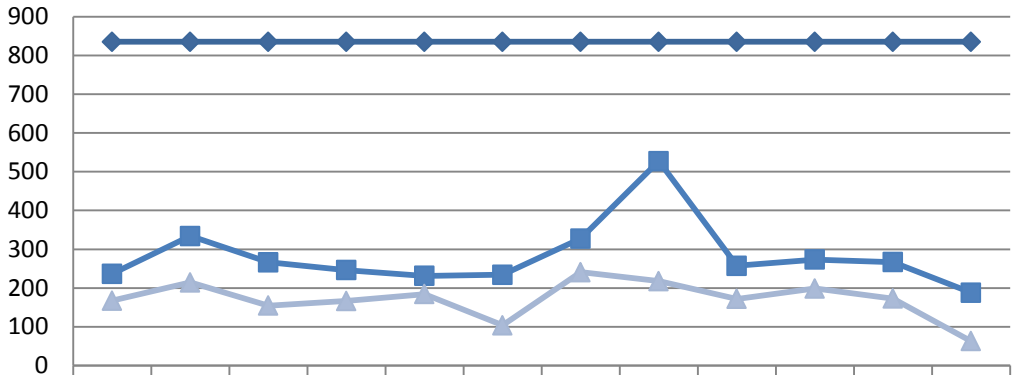
The Mississippi Mills Drinking Water System is operating on average under half the rated capacity.

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 #0568-9LUL2N. The confirmation and a copy of the data that was submitted are attached in Appendix A.

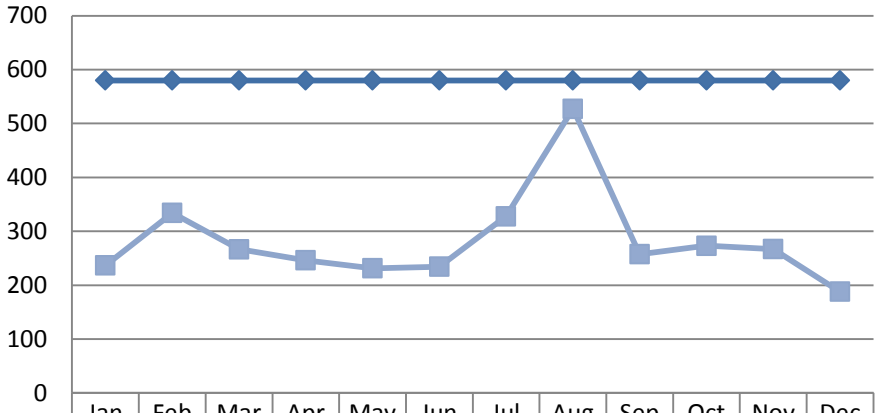
Well 3

Total Monthly Flows (m³/d)
Max Allowable PTTW



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Max Allowable (m³/d)	835.2	835.2	835.2	835.2	835.2	835.2	835.2	835.2	835.2	835.2	835.2	835.2
Max Flow (m³/d)	236.8	334.1	266.6	246.3	231.4	234.4	327.7	527.3	257.4	273.3	266.9	187.9
Avg (m³/d)	167.6	214.5	154.7	166.5	184.6	104.1	241.0	217.8	171.9	198.7	172.6	63.0

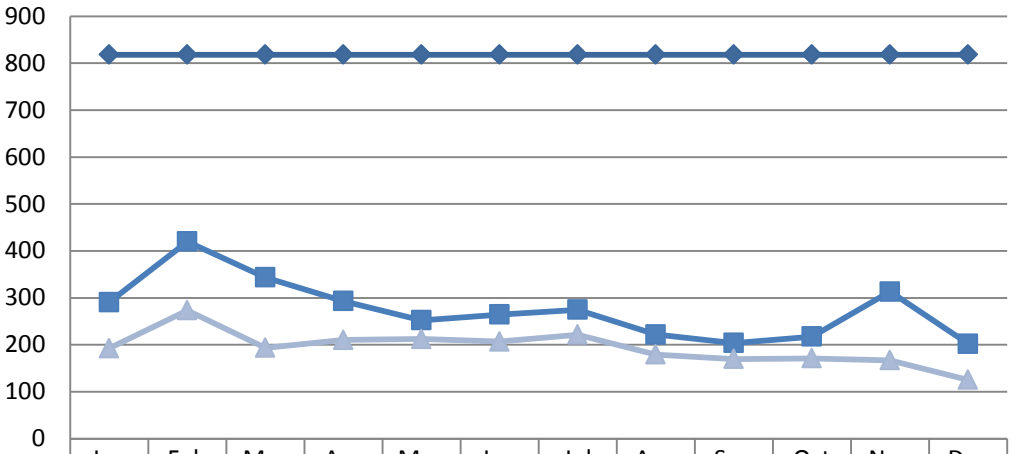
Monthly Rated Flows (L/min)
Max allowable rate - PTTW



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Max Allowable Rate (L/min)	580	580	580	580	580	580	580	580	580	580	580	580
Max Rate (L/min)	236.8	334.1	266.6	246.3	231.4	234.4	327.7	527.3	257.4	273.3	266.9	187.9

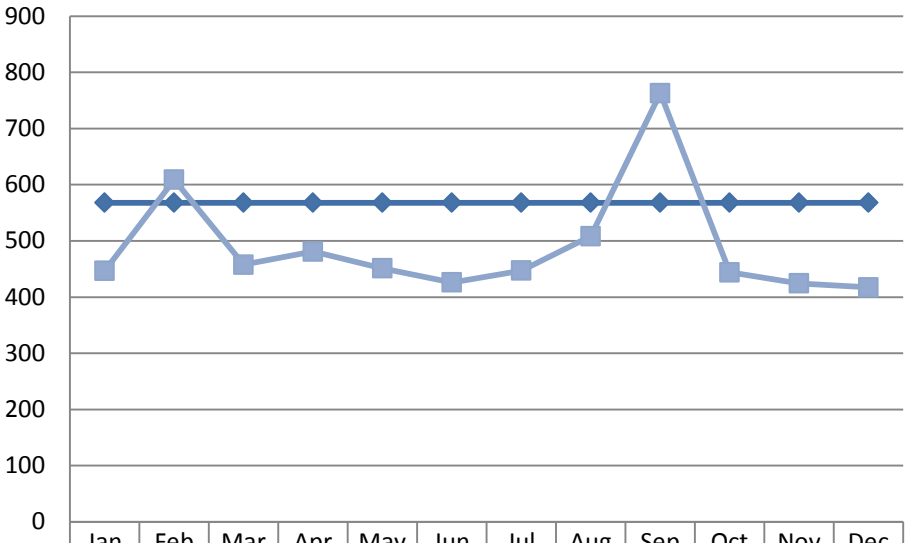
Well 5

Total Monthly Flows (m³/d)
Max Allowable PTTW



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Max Allowable (m³/d)	817.9	817.9	817.9	817.9	817.9	817.9	817.9	817.9	817.9	817.9	817.9	817.9
Max Flow (m³/d)	290.7	420.0	343.4	293.2	252.4	264.4	274.7	222.0	203.8	217.5	313.2	202.3
Avg (m³/d)	192.7	273.2	193.7	210.4	212.3	206.8	221.7	179.1	169.8	171.0	167.1	125.6

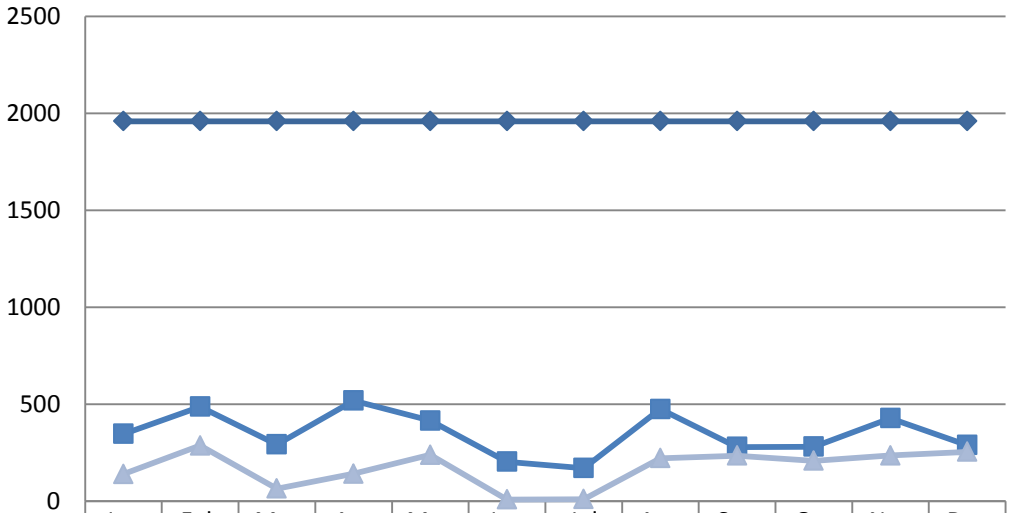
Monthly Rated Flows (L/min)
Max allowable rate – PTTW
On September 5th, 2018 Well 5 flow spiked at 762.98 l/min for 5 seconds. The month average was 387.36 L/min



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Max Allowable Rate (L/min)	568	568	568	568	568	568	568	568	568	568	568	568
Max Rate (L/min)	446.8	609	457.7	481.1	451.2	426.1	447.1	508.5	763	444.1	424.3	417.2

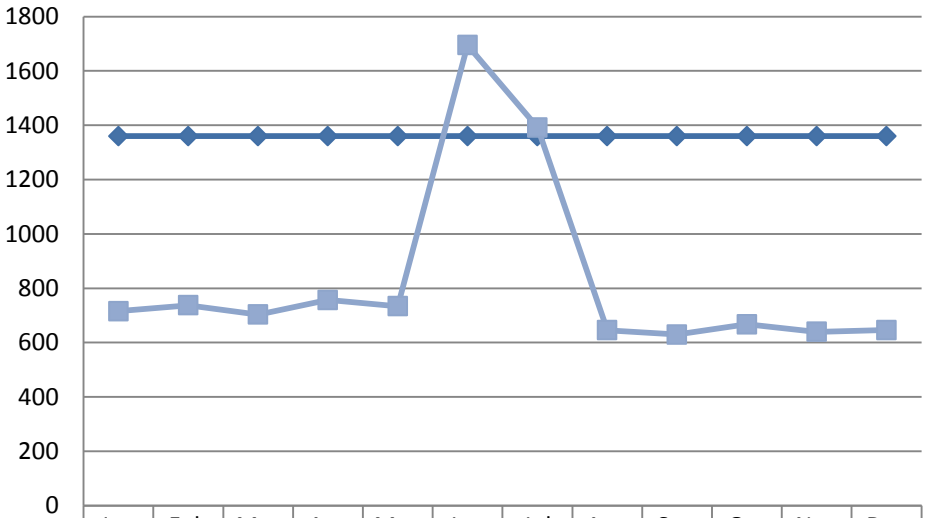
Well 6

Total Monthly Flows (m³/d)
Max Allowable PTTW



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Max Allowable (m³/d)	1958.4	1958.4	1958.4	1958.4	1958.4	1958.4	1958.4	1958.4	1958.4	1958.4	1958.4	1958.4
Max Flow (m³/d)	346.8	487.0	292.2	518.3	415.0	203.3	169.7	474.2	279.2	280.2	427.1	289.0
Avg (m³/d)	139.4	286.7	64.3	141.1	238.2	7.9	10.3	221.0	234.3	208.1	235.3	253.9

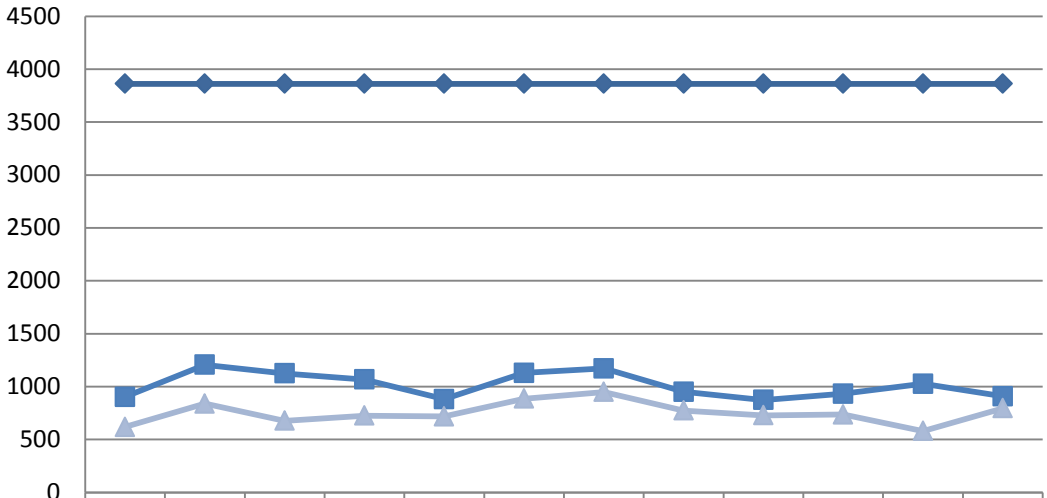
Monthly Rated Flows (L/s)
Max allowable rate – PTTW
Rated flow exceeded in June for the 5 year Inspection of Well 6. See Non-Comformance section of report.



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Max Allowable Rate (L/sec)	1360	1360	1360	1360	1360	1360	1360	1360	1360	1360	1360	1360
Max Rate (L/s)	715.8	737.7	703.1	757.0	733.7	1694.7	1391.9	645.5	629.4	667.3	639.4	645.9

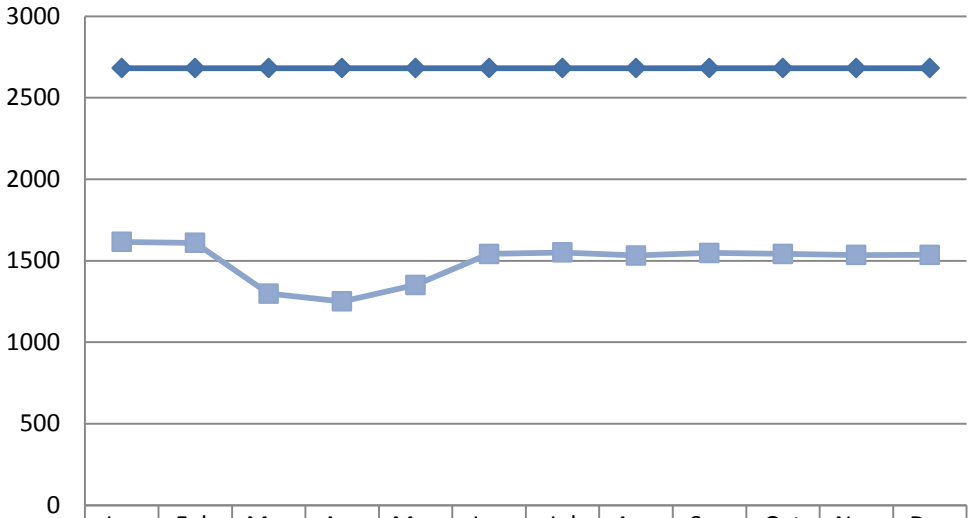
Well 7

Total Monthly Flows (m³/d)
Max Allowable PTTW



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Max Allowable (m³/d)	3862	3862	3862	3862	3862	3862	3862	3862	3862	3862	3862	3862
Max Flow (m³/d)	902.5	1205.6	1124.0	1067.4	881.2	1129.0	1171.7	950.1	874.0	932.9	1027.0	908.4
Avg (m³/d)	618.7	838.4	676.8	724.9	718.2	885.9	949.0	773.7	727.8	735.8	580.6	794.9

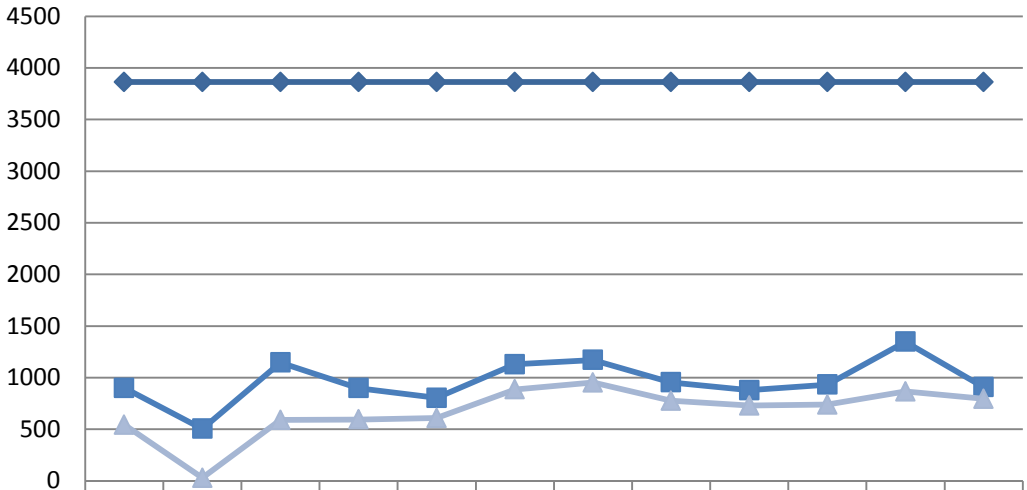
Monthly Rated Flows (L/min)
Max allowable rate - PTTW



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Max Allowable Rate (L/min)	2682	2682	2682	2682	2682	2682	2682	2682	2682	2682	2682	2682
Max Rate (L/min)	1615.9	1609.6	1298.6	1250.8	1351.7	1542.0	1551.3	1532.0	1548.4	1542.5	1535.3	1536.1

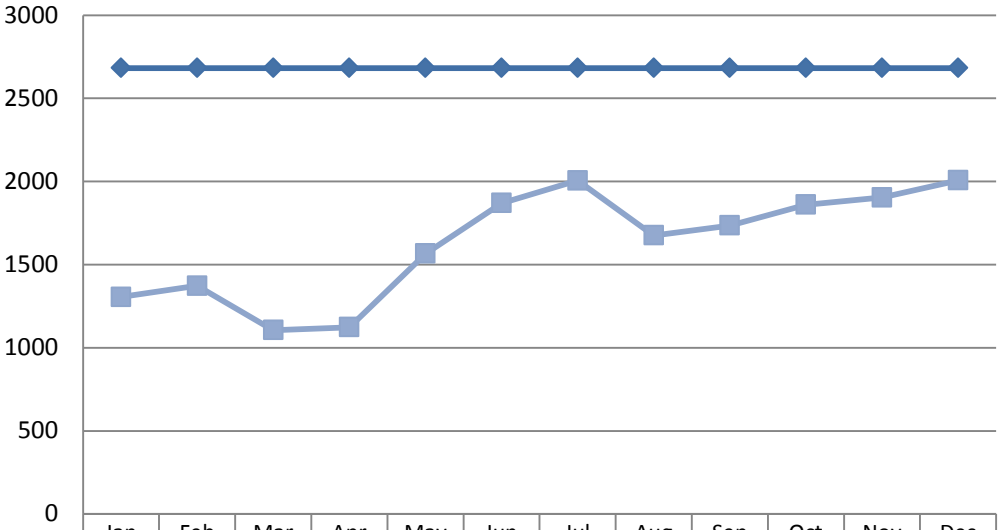
Well 8

Total Monthly Flows (m³/d)
Max Allowable PTTW



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Max Allowable (m³/d)	3862	3862	3862	3862	3862	3862	3862	3862	3862	3862	3862	3862
Max Flow (m³/d)	901.2	505.6	1147.2	898.5	804.3	1129.1	1172.2	954.0	878.0	932.9	1348.0	908.0
Avg (m³/d)	543.4	29.9	590.1	595.7	609.5	886.2	952.5	775.8	730.0	739.1	865.9	794.9

Monthly Rated Flows (L/min)
Max allowable rate - PTTW



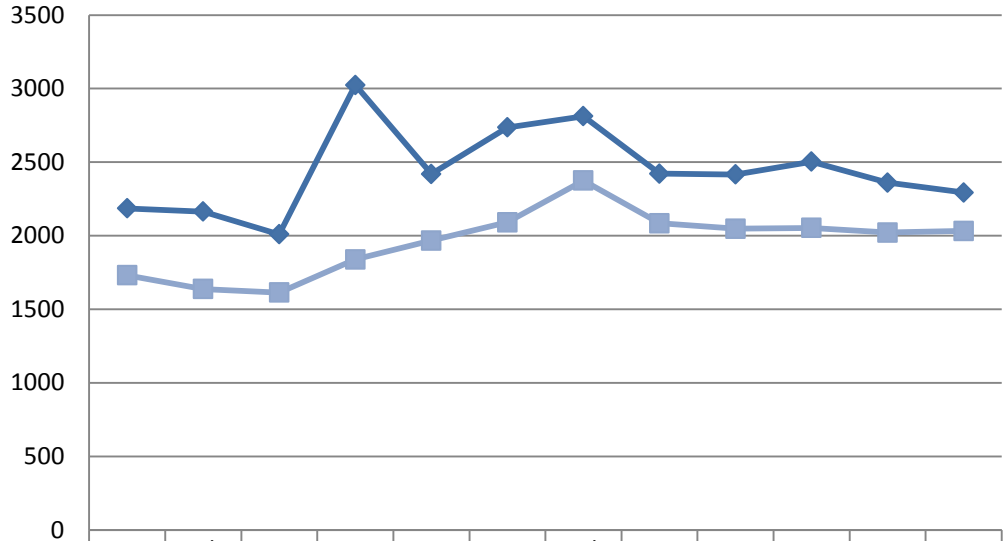
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Max Allowable Rate (L/min)	2682	2682	2682	2682	2682	2682	2682	2682	2682	2682	2682	2682
Max Rate (L/min)	1304.7	1372.8	1106.4	1122.8	1565.7	1870.1	2005.5	1676.0	1735.5	1859.9	1903.3	2006.6

System Water Flows

The System Water flows are regulated under the Municipal Licence.

Monthly Flows

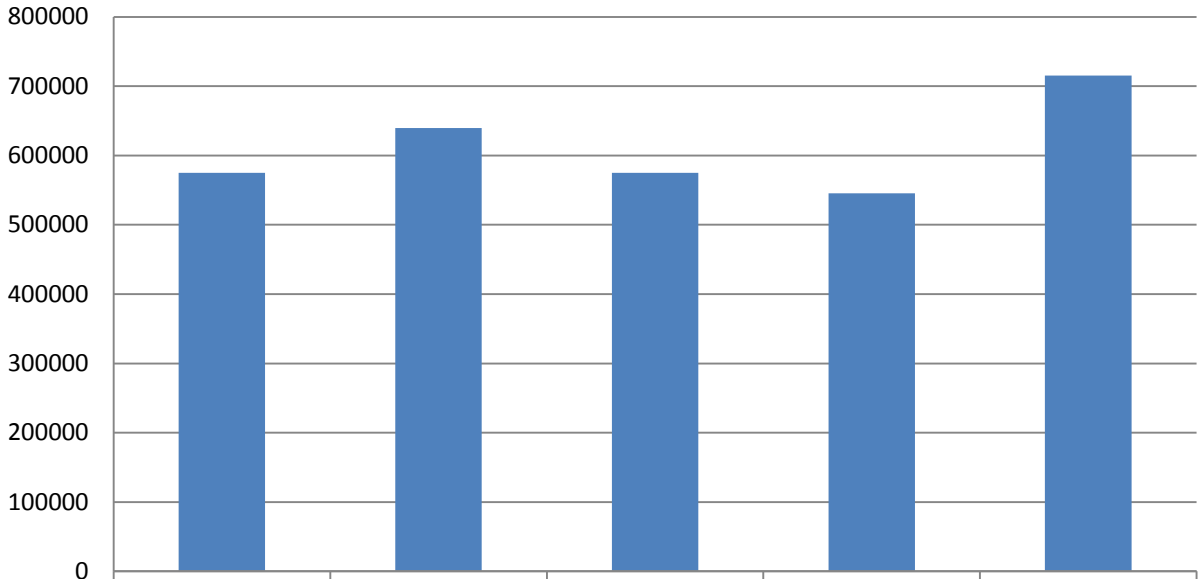
Rated Capacity - MDWL



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Max Daily Flow (m^3/d)	2186	2164	2010	3024	2419	2736	2812	2421	2416	2503	2361	2293
Avg (m^3/d)	1731	1638	1614	1839	1967	2091	2375	2084	2047	2053	2021	2032

Annual Total Flow Comparison

Total Annual m^3



	2014	2015	2016	2017	2018
WTP (m^3)	574901	639353	574901	545401	715368

Regulatory Sample Results Summary

Microbiological Testing

	No. of Samples Collected	Range of E.Coli Results		Range of Total Coliform Results		No. of HPC Samples Collected	Range of HPC Results	
		Min	Max	Min	Max		Min	Max
MMills DWS RW Well 3	48	0	0	0	0			
MMills DWS RW Well 5	49	0	0	0	0			
MMills DWS RW Well 6	46	0	0	0	0			
MMills DWS RW Well 7	51	0	0	0	26			
MMills DWS RW Well 8	46	0	0	0	0			
MMills DWS TW Well 3	51	0	0	0	0	52	2	32
MMills DWS TW Well 5	51	0	0	0	0	52	2	78
MMills DWS TW Well 6	47	0	0	0	0	48	2	2
MMills DWS TW Wells 7&8 combined	46	0	0	0	0	52	2	72
Distribution	208	0	0	0	0	208	2	18
* Number of Samples collected varies due to the individual well being Out of Service*								

Operational Testing

	No. of Samples Collected	Range of Results	
		Minimum	Maximum
Turbidity, On-Line (NTU) - RW5	8760	0	2.17
Turbidity, On-Line (NTU) - RW6	8760	0	2.26
Turbidity, On-Line (NTU) - RW7	8760	0	2
Turbidity, On-Line (NTU) - RW8	8760	0	2
Free Chlorine Residual, On-Line (mg/L) - TW3	8760	0.16	2.17
Free Chlorine Residual, On-Line (mg/L) - TW5	8760	0.34	2
Free Chlorine Residual, On-Line (mg/L) - TW78	8760	0.54	2
Free Chlorine Residual, On-Line (mg/L) - TW6	8760	0.34	2
Free Chlorine Residual, On-Line (mg/L) - DW	8760	0.38	2.387
Free Chlorine Residual, DW Field (mg/L) Lab Upload - DW	208	0.41	2.2

NOTE: 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 36 months 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
- BDL = Below the laboratory detection level

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	No. of Exceedances	
				MAC	1/2 MAC
Treated Water					
Antimony: Sb (ug/L) - TW3	2018/09/11	<MDL 0.1	6.0	No	No
Antimony: Sb (ug/L) - TW5	2018/09/11	<MDL 0.1	6.0	No	No
Antimony: Sb (ug/L) - TW6	2018/09/11	<MDL 0.1	6.0	No	No
Antimony: Sb (ug/L) - TW78	2018/09/11	<MDL 0.1	6.0	No	No
Arsenic: As (ug/L) - TW3	2018/09/11	<MDL 0.1	10.0	No	No
Arsenic: As (ug/L) - TW5	2018/09/11	<MDL 0.1	10.0	No	No
Arsenic: As (ug/L) - TW6	2018/09/11	<MDL 0.1	10.0	No	No
Arsenic: As (ug/L) - TW78	2018/09/11	<MDL 0.1	10.0	No	No
Barium: Ba (ug/L) - TW3	2018/09/11	142.0	1000.0	No	No
Barium: Ba (ug/L) - TW5	2018/09/11	157.0	1000.0	No	No
Barium: Ba (ug/L) - TW6	2018/09/11	101.0	1000.0	No	No
Barium: Ba (ug/L) - TW78	2018/09/11	147.0	1000.0	No	No
Boron: B (ug/L) - TW3	2018/09/11	175.0	5000.0	No	No
Boron: B (ug/L) - TW5	2018/09/11	49.0	5000.0	No	No
Boron: B (ug/L) - TW6	2018/09/11	191.0	5000.0	No	No
Boron: B (ug/L) - TW78	2018/09/11	170.0	5000.0	No	No
Cadmium: Cd (ug/L) - TW3	2018/09/11	<MDL 0.02	5.0	No	No
Cadmium: Cd (ug/L) - TW5	2018/09/11	<MDL 0.02	5.0	No	No
Cadmium: Cd (ug/L) - TW6	2018/09/11	<MDL 0.02	5.0	No	No
Cadmium: Cd (ug/L) - TW78	2018/09/11	<MDL 0.02	5.0	No	No
Chromium: Cr (ug/L) - TW3	2018/09/11	<MDL 2.0	50.0	No	No
Chromium: Cr (ug/L) - TW5	2018/09/11	<MDL 2.0	50.0	No	No
Chromium: Cr (ug/L) - TW6	2018/09/11	<MDL 2.0	50.0	No	No
Chromium: Cr (ug/L) - TW78	2018/09/11	<MDL 2.0	50.0	No	No
Mercury: Hg (ug/L) - TW3	2018/09/11	<MDL 0.02	1.0	No	No
Mercury: Hg (ug/L) - TW5	2018/09/11	<MDL 0.02	1.0	No	No
Mercury: Hg (ug/L) - TW6	2018/09/11	<MDL 0.02	1.0	No	No
Mercury: Hg (ug/L) - TW78	2018/09/11	<MDL 0.02	1.0	No	No
Selenium: Se (ug/L) - TW3	2018/09/11	<MDL 1.0	50.0	No	No
Selenium: Se (ug/L) - TW5	2018/09/11	<MDL 1.0	50.0	No	No
Selenium: Se (ug/L) - TW6	2018/09/11	<MDL 1.0	50.0	No	No
Selenium: Se (ug/L) - TW78	2018/09/11	1.0	50.0	No	No
Uranium: U (ug/L) - TW3	2018/09/11	0.98	20.0	No	No
Uranium: U (ug/L) - TW5	2018/09/11	0.69	20.0	No	No
Uranium: U (ug/L) - TW6	2018/09/11	0.79	20.0	No	No
Uranium: U (ug/L) - TW78	2018/09/11	1.01	20.0	No	No
Additional Inorganics					
Fluoride (mg/L) - TW3	2018/10/16	<MDL 0.1	1.5	No	No
Fluoride (mg/L) - TW5	2018/10/16	<MDL 0.1	1.5	No	No
Fluoride (mg/L) - TW6	2018/10/16	<MDL 0.1	1.5	No	No
Fluoride (mg/L) - TW78	2018/10/16	<MDL 0.1	1.5	No	No
Nitrite (mg/L) - TW3	2018/01/03	<MDL 0.1	1.0	No	No
Nitrite (mg/L) - TW3	2018/04/04	<MDL 0.1	1.0	No	No

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	No. of Exceedances	
				MAC	1/2 MAC
Nitrite (mg/L) - TW3	2018/07/04	<MDL 0.1	1.0	No	No
Nitrite (mg/L) - TW3	2018/10/16	<MDL 0.1	1.0	No	No
Nitrite (mg/L) - TW5	2018/01/03	<MDL 0.1	1.0	No	No
Nitrite (mg/L) - TW5	2018/04/04	<MDL 0.1	1.0	No	No
Nitrite (mg/L) - TW5	2018/07/04	<MDL 0.1	1.0	No	No
Nitrite (mg/L) - TW5	2018/10/16	<MDL 0.1	1.0	No	No
Nitrite (mg/L) - TW6	2018/01/03	<MDL 0.1	1.0	No	No
Nitrite (mg/L) - TW6	2018/04/04	<MDL 0.1	1.0	No	No
Nitrite (mg/L) - TW6 * Well Out of Service*	2018/07/04	-	1.0	No	No
Nitrite (mg/L) - TW6	2018/10/16	<MDL 0.1	1.0	No	No
Nitrite (mg/L) - TW78	2018/01/03	<MDL 0.1	1.0	No	No
Nitrite (mg/L) - TW78	2018/04/04	<MDL 0.1	1.0	No	No
Nitrite (mg/L) - TW78	2018/07/04	<MDL 0.1	1.0	No	No
Nitrite (mg/L) - TW78	2018/10/16	<MDL 0.1	1.0	No	No
Nitrate (mg/L) - TW3	2018/01/03	0.2	10.0	No	No
Nitrate (mg/L) - TW3	2018/04/04	0.2	10.0	No	No
Nitrate (mg/L) - TW3	2018/07/04	0.7	10.0	No	No
Nitrate (mg/L) - TW3	2018/10/16	0.6	10.0	No	No
Nitrate (mg/L) - TW5	2018/01/03	0.4	10.0	No	No
Nitrate (mg/L) - TW5	2018/04/04	0.3	10.0	No	No
Nitrate (mg/L) - TW5	2018/07/04	0.3	10.0	No	No
Nitrate (mg/L) - TW5	2018/10/16	0.1	10.0	No	No
Nitrate (mg/L) - TW6	2018/01/03	0.2	10.0	No	No
Nitrate (mg/L) - TW6	2018/04/04	0.3	10.0	No	No
Nitrate (mg/L) - TW6 * Well Out of Service*	2018/07/04	-	10.0	No	No
Nitrate (mg/L) - TW6	2018/10/16	0.6	10.0	No	No
Nitrate (mg/L) - TW78	2018/01/03	1.2	10.0	No	No
Nitrate (mg/L) - TW78	2018/04/04	0.8	10.0	No	No
Nitrate (mg/L) - TW78	2018/07/04	0.7	10.0	No	No
Nitrate (mg/L) - TW78	2018/10/16	0.6	10.0	No	No
Sodium: Na (mg/L) - TW3	2018/07/12	42.8	20*	Yes	Yes
Sodium: Na (mg/L) - TW5	2018/07/12	63.8	20*	Yes	Yes
Sodium: Na (mg/L) - TW6	2018/08/10	38.6	20*	Yes	Yes
Sodium: Na (mg/L) - TW78	2018/07/12	42.1	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 the plumbing exemption. 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)	3	6	264	295	N/A	N/A

Distribution System	Number of Sampling Points	Number of Samples	Range of Results		MAC (ug/L)	Number of Exceedances
			Minimum	Maximum		
pH	3	6	7.19	7.29	N/A	N/A
Lead (ug/l)	3	6	0.28	1.88	10	0

Organic Parameters

These parameters are tested every 36 months 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 (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
Treated Water					
Alachlor (ug/L) - TW3	2018/09/11	<MDL 0.3	5.00	No	No
Alachlor (ug/L) - TW5	2018/09/11	<MDL 0.3	5.00	No	No
Alachlor (ug/L) - TW78	2018/09/11	<MDL 0.3	5.00	No	No
Alachlor (ug/L) - TW6	2018/09/11	<MDL 0.3	5.00	No	No
Azinphos-methyl (ug/L) - TW3	2018/09/11	<MDL 1.0	20.00	No	No
Azinphos-methyl (ug/L) - TW5	2018/09/11	<MDL 1.0	20.00	No	No
Azinphos-methyl (ug/L) - TW78	2018/09/11	<MDL 1.0	20.00	No	No
Azinphos-methyl (ug/L) - TW6	2018/09/11	<MDL 1.0	20.00	No	No
Benzene (ug/L) - TW3	2018/09/11	<MDL 0.5	1.00	No	No
Benzene (ug/L) - TW5	2018/09/11	<MDL 0.5	1.00	No	No
Benzene (ug/L) - TW78	2018/09/11	<MDL 0.5	1.00	No	No
Benzene (ug/L) - TW6	2018/09/11	<MDL 0.5	1.00	No	No
Benzo(a)pyrene (ug/L) - TW3	2018/09/11	<MDL 0.005	0.01	No	No
Benzo(a)pyrene (ug/L) - TW5	2018/09/11	<MDL 0.005	0.01	No	No
Benzo(a)pyrene (ug/L) - TW78	2018/09/11	<MDL 0.005	0.01	No	No
Benzo(a)pyrene (ug/L) - TW6	2018/09/11	<MDL 0.005	0.01	No	No
Bromoxynil (ug/L) - TW3	2018/09/11	<MDL 0.3	5.00	No	No
Bromoxynil (ug/L) - TW5	2018/09/11	<MDL 0.3	5.00	No	No
Bromoxynil (ug/L) - TW78	2018/09/11	<MDL 0.3	5.00	No	No
Bromoxynil (ug/L) - TW6	2018/09/11	<MDL 0.3	5.00	No	No
Carbaryl (ug/L) - TW3	2018/09/11	<MDL 3.0	90.00	No	No
Carbaryl (ug/L) - TW5	2018/09/11	<MDL 3.0	90.00	No	No
Carbaryl (ug/L) - TW78	2018/09/11	<MDL 3.0	90.00	No	No
Carbaryl (ug/L) - TW6	2018/09/11	<MDL 3.0	90.00	No	No
Carbofuran (ug/L) - TW3	2018/09/11	<MDL 1.0	90.00	No	No
Carbofuran (ug/L) - TW5	2018/09/11	<MDL 1.0	90.00	No	No
Carbofuran (ug/L) - TW78	2018/09/11	<MDL 1.0	90.00	No	No
Carbofuran (ug/L) - TW6	2018/09/11	<MDL 1.0	90.00	No	No
Carbon Tetrachloride (ug/L) - TW3	2018/09/11	<MDL 0.2	2.00	No	No
Carbon Tetrachloride (ug/L) - TW5	2018/09/11	<MDL 0.2	2.00	No	No
Carbon Tetrachloride (ug/L) - TW78	2018/09/11	<MDL 0.2	2.00	No	No

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
Carbon Tetrachloride (ug/L) - TW6	2018/09/11	<MDL 0.2	2.00	No	No
Chlorpyrifos (ug/L) - TW3	2018/09/11	<MDL 0.5	90.00	No	No
Chlorpyrifos (ug/L) - TW5	2018/09/11	<MDL 0.5	90.00	No	No
Chlorpyrifos (ug/L) - TW78	2018/09/11	<MDL 0.5	90.00	No	No
Chlorpyrifos (ug/L) - TW6	2018/09/11	<MDL 0.5	90.00	No	No
Diazinon (ug/L) - TW3	2018/09/11	<MDL 1.0	20.00	No	No
Diazinon (ug/L) - TW5	2018/09/11	<MDL 1.0	20.00	No	No
Diazinon (ug/L) - TW78	2018/09/11	<MDL 1.0	20.00	No	No
Diazinon (ug/L) - TW6	2018/09/11	<MDL 1.0	20.00	No	No
Dicamba (ug/L) - TW3	2018/09/11	<MDL 5.0	120.00	No	No
Dicamba (ug/L) - TW5	2018/09/11	<MDL 5.0	120.00	No	No
Dicamba (ug/L) - TW78	2018/09/11	<MDL 5.0	120.00	No	No
Dicamba (ug/L) - TW6	2018/09/11	<MDL 5.0	120.00	No	No
1,2-Dichlorobenzene (ug/L) - TW3	2018/09/11	<MDL 0.1	200.00	No	No
1,2-Dichlorobenzene (ug/L) - TW5	2018/09/11	<MDL 0.1	200.00	No	No
1,2-Dichlorobenzene (ug/L) - TW78	2018/09/11	<MDL 0.1	200.00	No	No
1,2-Dichlorobenzene (ug/L) - TW6	2018/09/11	<MDL 0.1	200.00	No	No
1,4-Dichlorobenzene (ug/L) - TW3	2018/09/11	<MDL 0.2	5.00	No	No
1,4-Dichlorobenzene (ug/L) - TW5	2018/09/11	<MDL 0.2	5.00	No	No
1,4-Dichlorobenzene (ug/L) - TW78	2018/09/11	<MDL 0.2	5.00	No	No
1,4-Dichlorobenzene (ug/L) - TW6	2018/09/11	<MDL 0.2	5.00	No	No
1,2-Dichloroethane (ug/L) - TW3	2018/09/11	<MDL 0.1	5.00	No	No
1,2-Dichloroethane (ug/L) - TW5	2018/09/11	<MDL 0.1	5.00	No	No
1,2-Dichloroethane (ug/L) - TW78	2018/09/11	<MDL 0.1	5.00	No	No
1,2-Dichloroethane (ug/L) - TW6	2018/09/11	<MDL 0.1	5.00	No	No
1,1-Dichloroethylene (ug/L) - TW3	2018/09/11	<MDL 0.1	14.00	No	No
1,1-Dichloroethylene (ug/L) - TW5	2018/09/11	<MDL 0.1	14.00	No	No
1,1-Dichloroethylene (ug/L) - TW78	2018/09/11	<MDL 0.1	14.00	No	No
1,1-Dichloroethylene (ug/L) - TW6	2018/09/11	<MDL 0.1	14.00	No	No
Dichloromethane (Methylene Chloride) (ug/L) - TW3	2018/09/11	<MDL 0.3	50.00	No	No
Dichloromethane (Methylene Chloride) (ug/L) - TW5	2018/09/11	<MDL 0.3	50.00	No	No
Dichloromethane (Methylene Chloride) (ug/L) - TW78	2018/09/11	<MDL 0.3	50.00	No	No
Dichloromethane (Methylene Chloride) (ug/L) - TW6	2018/09/11	<MDL 0.3	50.00	No	No
2,4-Dichlorophenol (ug/L) - TW3	2018/09/11	<MDL 0.1	900.00	No	No
2,4-Dichlorophenol (ug/L) - TW5	2018/09/11	<MDL 0.1	900.00	No	No
2,4-Dichlorophenol (ug/L) - TW78	2018/09/11	<MDL 0.1	900.00	No	No
2,4-Dichlorophenol (ug/L) - TW6	2018/09/11	<MDL 0.1	900.00	No	No

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW3	2018/09/11	<MDL 5.0	100.00	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW5	2018/09/11	<MDL 5.0	100.00	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW78	2018/09/11	<MDL 5.0	100.00	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW6	2018/09/11	<MDL 5.0	100.00	No	No
Diclofop-methyl (ug/L) - TW3	2018/09/11	<MDL 0.5	9.00	No	No
Diclofop-methyl (ug/L) - TW5	2018/09/11	<MDL 0.5	9.00	No	No
Diclofop-methyl (ug/L) - TW78	2018/09/11	<MDL 0.5	9.00	No	No
Diclofop-methyl (ug/L) - TW6	2018/09/11	<MDL 0.5	9.00	No	No
Dimethoate (ug/L) - TW3	2018/09/11	<MDL 1.0	20.00	No	No
Dimethoate (ug/L) - TW5	2018/09/11	<MDL 1.0	20.00	No	No
Dimethoate (ug/L) - TW78	2018/09/11	<MDL 1.0	20.00	No	No
Dimethoate (ug/L) - TW6	2018/09/11	<MDL 1.0	20.00	No	No
Diquat (ug/L) - TW3	2018/09/11	<MDL 5.0	70.00	No	No
Diquat (ug/L) - TW5	2018/09/11	<MDL 5.0	70.00	No	No
Diquat (ug/L) - TW78	2018/09/11	<MDL 5.0	70.00	No	No
Diquat (ug/L) - TW6	2018/09/11	<MDL 5.0	70.00	No	No
Diuron (ug/L) - TW3	2018/09/11	<MDL 5.0	150.00	No	No
Diuron (ug/L) - TW5	2018/09/11	<MDL 5.0	150.00	No	No
Diuron (ug/L) - TW78	2018/09/11	<MDL 5.0	150.00	No	No
Diuron (ug/L) - TW6	2018/09/11	<MDL 5.0	150.00	No	No
Glyphosate (ug/L) - TW3	2018/09/11	<MDL 25.0	280.00	No	No
Glyphosate (ug/L) - TW5	2018/09/11	<MDL 25.0	280.00	No	No
Glyphosate (ug/L) - TW78	2018/09/11	<MDL 25.0	280.00	No	No
Glyphosate (ug/L) - TW6	2018/09/11	<MDL 25.0	280.00	No	No
Malathion (ug/L) - TW3	2018/09/11	<MDL 5.0	190.00	No	No
Malathion (ug/L) - TW5	2018/09/11	<MDL 5.0	190.00	No	No
Malathion (ug/L) - TW78	2018/09/11	<MDL 5.0	190.00	No	No
Malathion (ug/L) - TW6	2018/09/11	<MDL 5.0	190.00	No	No
Metolachlor (ug/L) - TW3	2018/09/11	<MDL 3.0	50.00	No	No
Metolachlor (ug/L) - TW5	2018/09/11	<MDL 3.0	50.00	No	No
Metolachlor (ug/L) - TW78	2018/09/11	<MDL 3.0	50.00	No	No
Metolachlor (ug/L) - TW6	2018/09/11	<MDL 3.0	50.00	No	No
Metribuzin (ug/L) - TW3	2018/09/11	<MDL 3.0	80.00	No	No
Metribuzin (ug/L) - TW5	2018/09/11	<MDL 3.0	80.00	No	No
Metribuzin (ug/L) - TW78	2018/09/11	<MDL 3.0	80.00	No	No
Metribuzin (ug/L) - TW6	2018/09/11	<MDL 3.0	80.00	No	No
Monochlorobenzene (Chlorobenzene) (ug/L) - TW3	2018/09/11	<MDL 0.2	80.00	No	No

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
Monochlorobenzene (Chlorobenzene) (ug/L) - TW5	2018/09/11	<MDL 0.2	80.00	No	No
Monochlorobenzene (Chlorobenzene) (ug/L) - TW78	2018/09/11	<MDL 0.2	80.00	No	No
Monochlorobenzene (Chlorobenzene) (ug/L) - TW6	2018/09/11	<MDL 0.2	80.00	No	No
Paraquat (ug/L) - TW3	2018/09/11	<MDL 1.0	10.00	No	No
Paraquat (ug/L) - TW5	2018/09/11	<MDL 1.0	10.00	No	No
Paraquat (ug/L) - TW78	2018/09/11	<MDL 1.0	10.00	No	No
Paraquat (ug/L) - TW6	2018/09/11	<MDL 1.0	10.00	No	No
PCB (ug/L) - TW3	2018/09/11	<MDL 0.05	3.00	No	No
PCB (ug/L) - TW5	2018/09/11	<MDL 0.05	3.00	No	No
PCB (ug/L) - TW78	2018/09/11	<MDL 0.05	3.00	No	No
PCB (ug/L) - TW6	2018/09/11	<MDL 0.05	3.00	No	No
Pentachlorophenol (ug/L) - TW3	2018/09/11	<MDL 0.1	60.00	No	No
Pentachlorophenol (ug/L) - TW5	2018/09/11	<MDL 0.1	60.00	No	No
Pentachlorophenol (ug/L) - TW78	2018/09/11	<MDL 0.1	60.00	No	No
Pentachlorophenol (ug/L) - TW6	2018/09/11	<MDL 0.1	60.00	No	No
Phorate (ug/L) - TW3	2018/09/11	<MDL 0.3	2.00	No	No
Phorate (ug/L) - TW5	2018/09/11	<MDL 0.3	2.00	No	No
Phorate (ug/L) - TW78	2018/09/11	<MDL 0.3	2	No	No
Phorate (ug/L) - TW6	2018/09/11	<MDL 0.3	2	No	No
Picloram (ug/L) - TW3	2018/09/11	<MDL 5.0	190	No	No
Picloram (ug/L) - TW5	2018/09/11	<MDL 5.0	190	No	No
Picloram (ug/L) - TW78	2018/09/11	<MDL 5.0	190	No	No
Picloram (ug/L) - TW6	2018/09/11	<MDL 5.0	190	No	No
Prometryne (ug/L) - TW3	2018/09/11	<MDL 0.1	1	No	No
Prometryne (ug/L) - TW5	2018/09/11	<MDL 0.1	1	No	No
Prometryne (ug/L) - TW78	2018/09/11	<MDL 0.1	1	No	No
Prometryne (ug/L) - TW6	2018/09/11	<MDL 0.1	1	No	No
Simazine (ug/L) - TW3	2018/09/11	<MDL 0.5	10	No	No
Simazine (ug/L) - TW5	2018/09/11	<MDL 0.5	10	No	No
Simazine (ug/L) - TW78	2018/09/11	<MDL 0.5	10	No	No
Simazine (ug/L) - TW6	2018/09/11	<MDL 0.5	10	No	No
Terbufos (ug/L) - TW3	2018/09/11	<MDL 0.3	1	No	No
Terbufos (ug/L) - TW5	2018/09/11	<MDL 0.3	1	No	No
Terbufos (ug/L) - TW78	2018/09/11	<MDL 0.3	1	No	No
Terbufos (ug/L) - TW6	2018/09/11	<MDL 0.3	1	No	No
Tetrachloroethylene (ug/L) - TW3	2018/09/11	<MDL 0.2	10	No	No
Tetrachloroethylene (ug/L) - TW5	2018/09/11	<MDL 0.2	10	No	No
Tetrachloroethylene (ug/L) - TW78	2018/09/11	<MDL 0.2	10	No	No

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
Tetrachloroethylene (ug/L) - TW6	2018/09/11	<MDL 0.2	10	No	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW3	2018/09/11	<MDL 0.1	100	No	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW5	2018/09/11	<MDL 0.1	100	No	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW78	2018/09/11	<MDL 0.1	100	No	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW6	2018/09/11	<MDL 0.1	100	No	No
Triallate (ug/L) - TW3	2018/09/11	<MDL 10.0	230	No	No
Triallate (ug/L) - TW5	2018/09/11	<MDL 10.0	230	No	No
Triallate (ug/L) - TW78	2018/09/11	<MDL 10.0	230	No	No
Triallate (ug/L) - TW6	2018/09/11	<MDL 10.0	230	No	No
Trichloroethylene (ug/L) - TW3	2018/09/11	<MDL 0.1	5	No	No
Trichloroethylene (ug/L) - TW5	2018/09/11	<MDL 0.1	5	No	No
Trichloroethylene (ug/L) - TW78	2018/09/11	<MDL 0.1	5	No	No
Trichloroethylene (ug/L) - TW6	2018/09/11	<MDL 0.1	5	No	No
2,4,6-Trichlorophenol (ug/L) - TW3	2018/09/11	<MDL 0.1	5	No	No
2,4,6-Trichlorophenol (ug/L) - TW5	2018/09/11	<MDL 0.1	5	No	No
2,4,6-Trichlorophenol (ug/L) - TW78	2018/09/11	<MDL 0.1	5	No	No
2,4,6-Trichlorophenol (ug/L) - TW6	2018/09/11	<MDL 0.1	5	No	No
2-methyl-4-chlorophenoxyacetic acid (MCPA) (ug/L) - TW3	2018/09/11	<MDL 10.0	100	No	No
2-methyl-4-chlorophenoxyacetic acid (MCPA) (ug/L) - TW5	2018/09/11	<MDL 10.0	100	No	No
2-methyl-4-chlorophenoxyacetic acid (MCPA) (ug/L) - TW78	2018/09/11	<MDL 10.0	100	No	No
2-methyl-4-chlorophenoxyacetic acid (MCPA) (ug/L) - TW6	2018/09/11	<MDL 10.0	100	No	No
Trifluralin (ug/L) - TW3	2018/09/11	<MDL 0.5	45	No	No
Trifluralin (ug/L) - TW5	2018/09/11	<MDL 0.5	45	No	No
Trifluralin (ug/L) - TW78	2018/09/11	<MDL 0.5	45	No	No
Trifluralin (ug/L) - TW6	2018/09/11	<MDL 0.5	45	No	No
Vinyl Chloride (ug/L) - TW3	2018/09/11	<MDL 0.2	1	No	No
Vinyl Chloride (ug/L) - TW5	2018/09/11	<MDL 0.2	1	No	No
Vinyl Chloride (ug/L) - TW78	2018/09/11	<MDL 0.2	1	No	No
Vinyl Chloride (ug/L) - TW6	2018/09/11	<MDL 0.2	1	No	No
Distribution Water					
Trihalomethane: Total (ug/L) Annual Average - DW	2018/01/01	10.35	100	No	No
HAA Total (ug/L) Annual Average - DW	2018/01/01	4.55		N/A	N/A

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

Additional Legislated Samples

The two following tables are the sample results from additional sample collected at Well 5:

The first table contains the results of sample collected because the area had once housed transformers. Please note the samples are collected on raw water. There is no MAC / IMAC (Maximum Acceptable Concentration / Interim Maximum Acceptable Concentration) for raw water but the treated water MAC /IMAC have been provided for reference.

The second table contains the results of sample collected because of the wells' proximity to the wastewater treatment lagoons. These results help to assess the integrity of the lagoon cells.

Raw Water: Well 5 Parameter	Unit of Measure	Sample Date	Result Value	ODWS	
				MAC	IMAC
Arsenic	ug/L	July 4, 2018	<0.0001		25.0
Chromium	ug/L	July 4, 2018	<0.002	50	
PCBs (Polychlorinated Biphenyls)	ug/L	July 4, 2018	<0.05		3.0

Treated Water Parameter	Unit of Measure	Treated Water: Well 5 Annual Average 2015
TKN (Total Kjeldahl Nitrogen)	mg/L	0.01
Total Phosphorus	mg/L	0.01
Phosphate (O-PO4)	mg/L	<0.01
Dissolved Reactive Phosphorus	mg/L	0.01
NH3 + NH4 as N	mg/L	0.018

Major Maintenance Summary

WO #	Description
897153	Capital Surefeed Cl2 Pump Alternation for Wells 3, 5 & 6 MM WT 5676
742490	Capital #1 Blanket Items under $200 MM WT 5676 (2018)
821759	Capital Garage Door Transition Modification MM WT 5676
898540	Capital Chlorine System Parts MM WT 5676
243779	Defered Capital Air Relief On Well Systems MMWT 5676 (2017)
641342	Capital Garage Door Transition Modification MM WT 5676
664784	Capital Pocket Colorimeter MM WT 5676 (2018)
700136	Capital Chlorine system parts MM WT 5676
701990	Capital UPS for Distribution Free Cl2 Analyzer MM WT 5676
742817	Capital DWQMS 3rd party audit WT MM 5676

WO #	Description
780594	Capital Tower safety inspection and report MM WT 5676
860904	Capital Well 6 Wire Brushing and well cleaning MMWT 5676
861718	Capital 2017 Annual Well report MM WT 5676
862552	Capital Air Relief On Well Systems MMWT 5676
941422	Air relief for wells (2nd set) MM WT 5676
980554	Capital Well #3 plc power supply MM WT 5676
700634	Capital Distribution Chlorine Analyzer Replacement MM WT 5676
741397	Capital Well 06 video inspection MM WT 5676
740364	Capital New key cylinder Well 6 Mississippi Mills wt 5676
741222	Capital steps for pouring chlorine Mississippi Mills wt 5676
1017787	Capital Well 7 VFD fan failure MM WT 5676
741398	Capital well 06 pump repairs MM WT 5676
640741	Capital Well 8 flow meter failure MM WT 5676
661644	Capital valve regulator replacement Mississippi Mills wt 5676

Distribution Highlights

Information below provided by the Muncipality of Mississippi Mills

Maintenance and Operations:

- Water main flushing program completed;
- Valve turning program completed;
- Several repairs – water main breaks, valves, hydrants, services and curb stops;
- Menzie Street water main looping from Ottawa Street to Maude Street;
- State Street and Martin Street easement and water main from Spring Street to Clyde Street;
- New water main commissioned Riverfront Phase 4 Subdivision.

Planning Initiatives:

- Schedule ‘B’ Class EA - Water Storage;
- Radio Frequency Meter Upgrades;
- Engineering for future water and sewer works on Victoria Street, Concession 11A looping;
- Annual Infiltration and Inflow Program;
- Completed Water and Wastewater Master Plan update February 2018;
- Well Site Mechanical/Electrical/Instrumentation upgrades in 2019.

Appendix A

WTRS Data and Submission Confirmation