

Petawawa Drinking Water System

Waterworks # 210002101
System Category – Large Municipal Residential

Annual Water Report

Prepared For: Town of Petawawa

Reporting Period of January 1st – December 31st, 2018

Issued: Feb. 25th, 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

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Report Availability

This system serves more than 10,000 residences and the annual report will be available to residents at the Town of Petawawa Municipal Office. Notification will be at the Municipal Office and copies provided free of charge, if requested. The Town of Petawawa office is located at 1111 Victoria Street in Petawawa, ON.

Compliance Report Card

Compliance Event	# of Events
Ministry of Environment Inspections	Feb. 6/18
Ministry of Labour Inspections	None
QEMS External Audit	Off-Site Surveillance Audit (Oct. 3/18) & On-Site Re-Accreditation Audit (Oct. 23/18)
AWQI's/BWA	Sodium Exceedance
Non-Compliance	None
Community Complaints	2 – June 26/18 & Aug. 20/18 – both in regards to odour of water
Spills	None
Water main Breaks	None

System Process Description

Raw Source

The source water to the Petawawa WTP is the Ottawa River (Allumette Lake). Once water is treated, it is supplied to the distribution system. The PT WTP supplies water to Garrison Petawawa (Federal Jurisdiction) and also has the capability of obtaining water from the City of Pembroke, if needed, and also to provide Pembroke with water, if they require it, via flow control out of Booster Pumping Station #1.

Treatment

Petawawa Water Treatment Plant is a conventional water treatment system using PAS-8 as the primary coagulant, and polymer as the secondary coagulant to achieve coagulation, flocculation, and sedimentation. Pre and post pH adjustment with soda ash is also utilized during the water treatment process. Dual media filters provide filtration and chlorine gas is used for disinfection. Fluoridation is also practiced.

Treatment Chemicals used during the reporting year:

Chemical Name	Use	Supplier
PAS-8	Coagulant	Kemira
Fluoride	Fluoridation	Brenntag
Soda Ash Dense (bulk & bags)	pH Adjustment	Univar/Reliable Industrial Supply
Chlorine Gas	Disinfection	Brenntag
Superfloc A-100 Flocculant	Coagulant Aid (Polymer)	Kemira

Distribution

The distribution consists of a network of piping, three towers and two booster pumping stations.

Summary of Non-ComplianceAdverse Water Quality Incidents

Date	AWQI #	Location	Problem	Details	Legislation	Corrective Action Taken
July 9/18	115981	Treated Water & Distribution Water	Na exceedance	Mistakenly tested and reported by Lab	O. Reg. 170/03	Sodium is only reportable every 60 month period. The last reported result was in 2014, therefore there was no need for it to be reported in 2018.

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 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
There were no Non-Compliances reported in the 2018 inspection report. The report rating was 100%.				

Flows

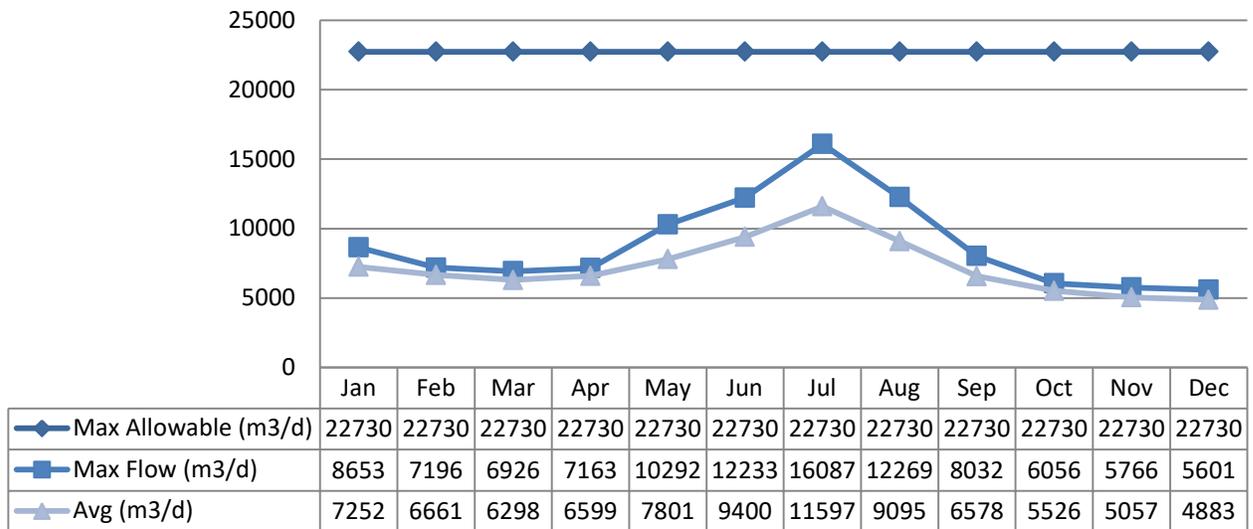
The Petawawa Drinking Water System is operating on average under half the rated capacity of the plant at 32.5% for 2018.

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 #3814-9J2RQN. The confirmation and a copy of the data that was submitted are attached in Appendix A.

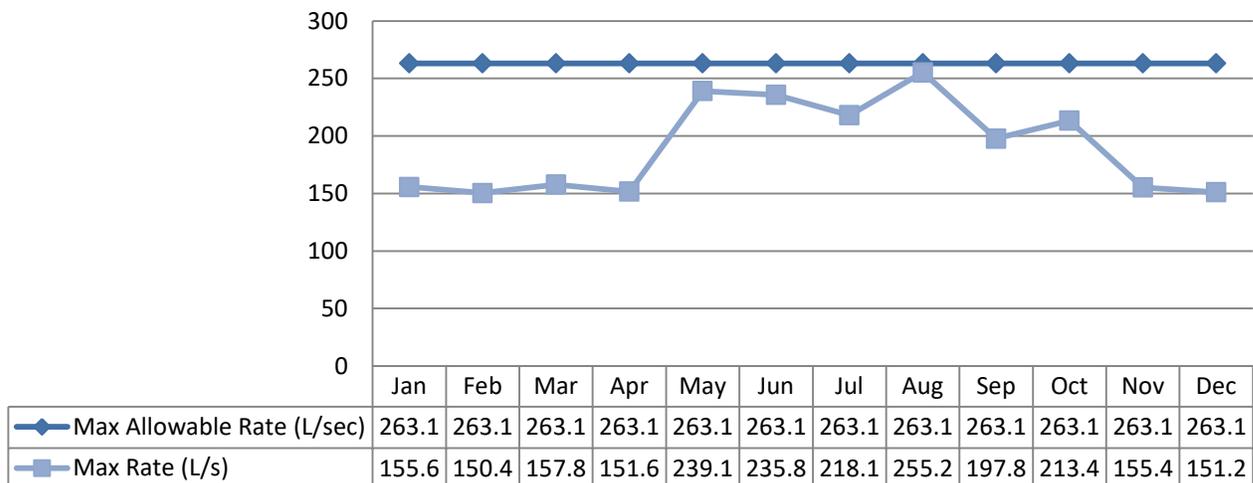
Total Monthly Flows (m3/d)

Max Allowable - PTTW



Monthly Rated Flows (L/s)

Max allowable rate - PTTW

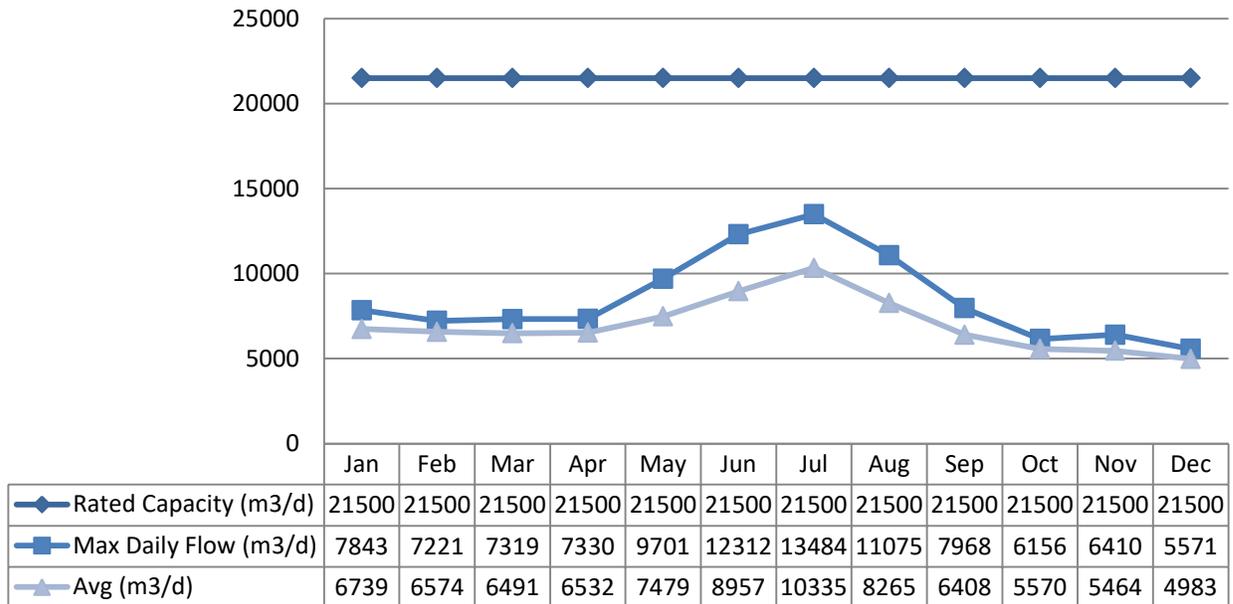


Treated Water Flows

The Treated Water flows are regulated under the Municipal Licence.

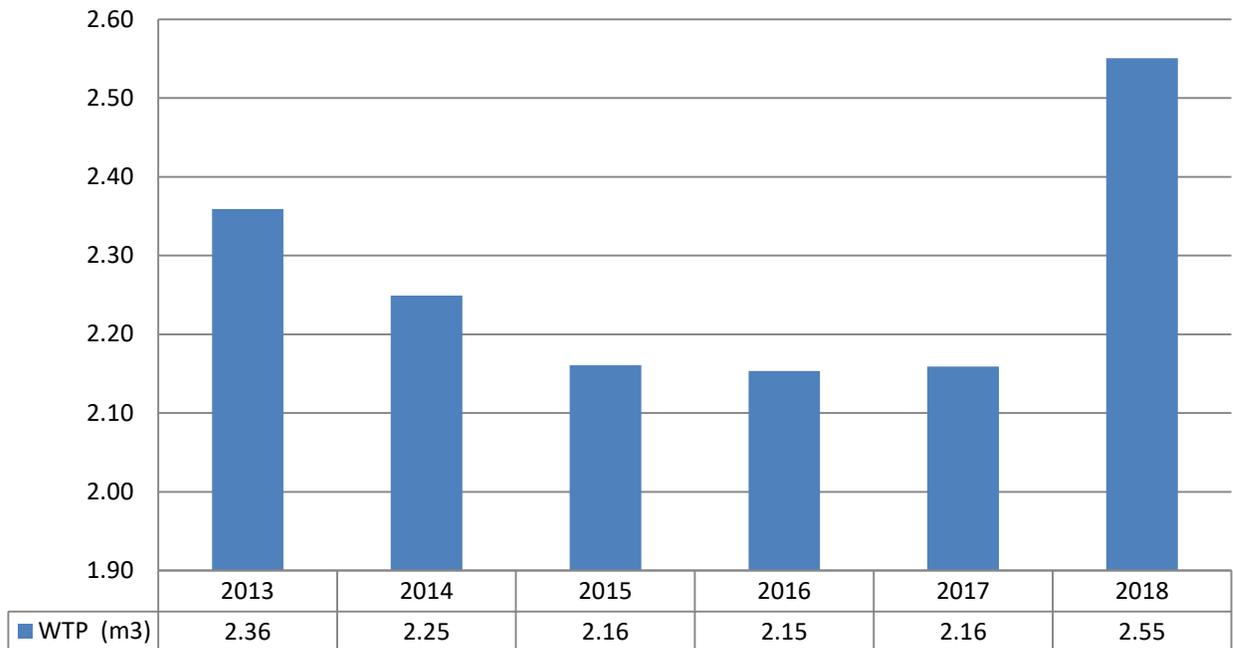
Monthly Rated Flows

Rated Capacity - MDWL



Annual Total Flow Comparison

Total Annual m3



Regulatory Sample Results Summary

Microbiological Testing

	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 Water	52	0	35	0	71		
Treated Water	52	0	0	0	0	0	5
Distribution Water	344	0	0	0	0	0	8

Operational Testing

	No. of Samples Collected	Range of Results	
		Minimum	Maximum
Turbidity, In-House (NTU) - RW	105	0.7	6.91
Turbidity, On-Line (NTU) - RW	8760	0.603	7.11
Turbidity, In-House (NTU) - TW	104	0.045	0.188
Turbidity, In-House (NTU) - Filt1	105	0.037	0.426
Turbidity, In-House (NTU) - Filt2	105	0.047	0.373
Turbidity, In-House (NTU) - Filt3	105	0.027	0.339
Free Chlorine Residual, On-Line (mg/L) - TW	8760	0.12	4.64
Free Chlorine Residual, In-House (mg/L) - TW	106	0.98	1.91
Total Chlorine Residual, In-House (mg/L) - TW	106	0.73	2.13
Free Chlorine Residual, In-House (mg/L) - DW	306	0.061	1.47
Fluoride Residual, In-House (mg/l) - TW	108	0.37	0.8

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 annually, 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) - TW	2018/01/02	<MDL 0.5	6.0	No	No
Arsenic: As (ug/L) - TW	2018/01/02	<MDL 1.0	10.0	No	No
Barium: Ba (ug/L) - TW	2018/01/02	10.0	1000.0	No	No
Boron: B (ug/L) - TW	2018/01/02	<MDL 10.0	5000.0	No	No
Cadmium: Cd (ug/L) - TW	2018/01/02	<MDL 0.1	5.0	No	No
Chromium: Cr (ug/L) - TW	2018/01/02	<MDL 1.0	50.0	No	No
Mercury: Hg (ug/L) - TW	2018/01/02	<MDL 0.1	1.0	No	No

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	No. of Exceedances	
				MAC	1/2 MAC
Selenium: Se (ug/L) - TW	2018/01/02	<MDL 1.0	50.0	No	No
Uranium: U (ug/L) - TW	2018/01/02	<MDL 1.0	20.0	No	No
Additional Inorganics					
Fluoride (mg/L) - TW	2018/12/27	0.58	1.5	No	No
Nitrite (mg/L) - TW	2018/01/02	<MDL 0.1	1.0	No	No
Nitrite (mg/L) - TW	2018/04/09	<MDL 0.1	1.0	No	No
Nitrite (mg/L) - TW	2018/07/09	<MDL 0.1	1.0	No	No
Nitrite (mg/L) - TW	2018/10/01	<MDL 0.1	1.0	No	No
Nitrate (mg/L) - TW	2018/01/02	0.21	10.0	No	No
Nitrate (mg/L) - TW	2018/04/09	0.21	10.0	No	No
Nitrate (mg/L) - TW	2018/07/09	0.14	10.0	No	No
Nitrate (mg/L) - TW	2018/10/01	0.14	10.0	No	No
Sodium: Na (mg/L) - TW	2018/07/03	22.0	20.0*	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 therefore, hydrant samples were collected.

Distribution System	Number of Sampling Points	Number of Samples	Range of Results		MAC (mg/L)	Number of Exceedances
			Minimum	Maximum		
Alkalinity (mg/L)	4	8	29	36	500	0
pH	4	8	6.84	7.12	8.5	0
Lead (mg/L)	4	8	< 0.001	< 0.001	0.010	0

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.

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
Treated Water					
Alachlor (ug/L) - TW	2018/01/02	<MDL 0.5	5.00	No	No
Atrazine + N-dealkylated metabolites (ug/L) - TW	2018/01/02	<MDL 0.2	5.00	No	No
Azinphos-methyl (ug/L) - TW	2018/01/02	<MDL 2.0	20.00	No	No
Benzene (ug/L) - TW	2018/01/02	<MDL 0.5	1.00	No	No
Benzo(a)pyrene (ug/L) - TW	2018/01/02	<MDL 0.01	0.01	No	Yes*
Bromoxynil (ug/L) - TW	2018/01/02	<MDL 0.5	5.00	No	No
Carbaryl (ug/L) - TW	2018/01/02	<MDL 5.0	90.00	No	No
Carbofuran (ug/L) - TW	2018/01/02	<MDL 5.0	90.00	No	No
Carbon Tetrachloride (ug/L) - TW	2018/01/02	<MDL 0.2	2.00	No	No

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
Chlorpyrifos (ug/L) - TW	2018/01/02	<MDL 1.0	90.00	No	No
Diazinon (ug/L) - TW	2018/01/02	<MDL 1.0	20.00	No	No
Dicamba (ug/L) - TW	2018/01/02	<MDL 1.0	120.00	No	No
1,2-Dichlorobenzene (ug/L) - TW	2018/01/02	<MDL 0.4	200.00	No	No
1,4-Dichlorobenzene (ug/L) - TW	2018/01/02	<MDL 0.4	5.00	No	No
1,2-Dichloroethane (ug/L) - TW	2018/01/02	<MDL 0.2	5.00	No	No
1,1-Dichloroethylene (ug/L) - TW	2018/01/02	<MDL 0.5	14.00	No	No
Dichloromethane (Methylene Chloride) (ug/L) - TW	2018/01/02	<MDL 4.0	50.00	No	No
2,4-Dichlorophenol (ug/L) - TW	2018/01/02	<MDL 0.2	900.00	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW	2018/01/02	<MDL 1.0	100.00	No	No
Diclofop-methyl (ug/L) - TW	2018/01/02	<MDL 0.9	9.00	No	No
Dimethoate (ug/L) - TW	2018/01/02	<MDL 2.5	20.00	No	No
Diquat (ug/L) - TW	2018/01/02	<MDL 5.0	70.00	No	No
Diuron (ug/L) - TW	2018/01/02	<MDL 10.0	150.00	No	No
Glyphosate (ug/L) - TW	2018/01/02	<MDL 10.0	280.00	No	No
Malathion (ug/L) - TW	2018/01/02	<MDL 0.5	190.00	No	No
2-Methyl-4chlorophenoxyacetic Acid (MCPA)	2018/01/02	<MDL 1.0	50.00	No	No
Metolachlor (ug/L) - TW	2018/01/02	<MDL 5.0	80.00	No	No
Metribuzin (ug/L) - TW	2018/01/02	<MDL 0.5	80.00	No	No
Monochlorobenzene (Chlorobenzene) (ug/L) - TW	2018/01/02	<MDL 1.0	10.00	No	No
Paraquat (ug/L) - TW	2018/01/02	<MDL 0.1	3.00	No	No
PCB (ug/L) - TW	2018/01/02	<MDL 1.0	60.00	No	No
Pentachlorophenol (ug/L) - TW	2018/01/02	<MDL 0.5	2.00	No	No
Phorate (ug/L) - TW	2018/01/02	<MDL 5.0	190.00	No	No
Picloram (ug/L) - TW	2018/01/02	<MDL 0.25	1.00	No	No
Prometryne (ug/L) - TW	2018/01/02	<MDL 1.0	10.00	No	No
Simazine (ug/L) - TW	2018/01/02	<MDL 0.4	1.00	No	No
Terbufos (ug/L) - TW	2018/01/02	<MDL 0.3	10.00	No	No
Tetrachloroethylene (ug/L) - TW	2018/01/02	<MDL 1.0	100.00	No	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW	2018/01/02	<MDL 1.0	230.00	No	No
Triallate (ug/L) - TW	2018/01/02	<MDL 0.3	5.00	No	No
Trichloroethylene (ug/L) - TW	2018/01/02	<MDL 1.0	5.00	No	No
2,4,6-Trichlorophenol (ug/L) - TW	2018/01/02	<MDL 10.0	100.00	No	No
Trifluralin (ug/L) - TW	2018/01/02	<MDL 1.0	45.00	No	No
Vinyl Chloride (ug/L) - TW	2018/01/02	<MDL 0.2	1.00	No	No
Distribution Water					
Trihalomethane: Total (ug/L) Annual Average - DW	2018/01/01	47.625	100.00	No	No
HAA: Total (ug/L) Annual Average - DW	2018/01/01	69.575		N/A	N/A

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

*BDL = Below the laboratory detection level

Additional Legislated Samples

Sample	Parameter	Date	Result	MAC
Backwash Effluent	Suspended Solids	January	3.0 mg/L	
		April	4.0 mg/L	
		July	< 2 mg/L	
		October	5.0 mg/L	
		Annual Average	3.5 mg/L	25 mg/L

Major Maintenance Summary (Capital)

WO #	Description
1016041	Replacement of drive belts required for various pieces of equipment at the water treatment facility in Petawawa.
1016153	Installation of power to the Leeder Lane flow meter pit. This has been completed to facilitate the replacement of the current flow meter in service. The new meter will be consistent with equipment at the Wolfe Street location.
898520	Painting supplies, seal bearings, grease gun, hydrant parts, electrical supplies for BPS#1, CL2 analyzer installation, spare belts for soda ash pump, replacement light by diesel tank, spare motor for flash mixer, pocket colorimeter, hydrant antifreeze, supplies for poly pump installation, coupling insert for flash mixer drive unit, electrical supplies for control room and boiler switch, replacement drive belts for poly / PAS-8 pumps, and miscellaneous hardware.
938712	Spare parts required for the poly feed system.
980571	Replacement parts for the Trac Vac sludge removal system in the clearwell.
981920	Service call for SCADA, touch screen panel for base tower, snow shovels, extra sampling, motor, painting supplies, Reznor heater inspection, and repair, tubing, thermostat, LED exit light, and other miscellaneous hardware.
1017821	Parts and labour required for the repair of hydrant owned by Shaw's Lumber. OCWA operator received required parts and repaired hydrant, and also advised Shaw's that if the hydrant was to be used in future, that they would need a backflow preventer.
741507	Replacement of battery operated flow meter at Leeder Lane. Current unit has been non-operational, as it has failed to pass the verification checks this spring and it therefore, it was decided to replace to a non-battery operated meter from Endress and Hauser. Some additional electrical modifications will be completed by Petawawa Electric in order to supply AC power to the location. Wired up meter and bonded ground rings in pit. Changed parameters accommodate our monitoring.
782254	Supply and install new 16" stainless steel combination vent/vacuum reliefs on the Town and Township towers. Also, provided at the same time remote video inspection and report on the inside of all three towers.

Various WO	Repair of broken hydrants within the Petawawa distribution system. Repairs include hydrants number 117B, 27A, 172, 227 and 14A.
940391	New analog input card purchased for the PLC at the WTP in Petawawa. Had some issues with one card recently and have no spares. It was decided that a spare be ordered to insure system remain operational in the event of a failure.
740530	Intake structure inspection.

Distribution Maintenance

Date	Location Reference	Details
Feb. 2018	Wilbert Street	Low pressure at house
2018	Various Locations	Two (2) Service repairs
March 2018	Mary Street	Temporary Service sampling
2018	Various Locations	Two (2) Odour Complaints
2018	Various Locations	Five (5) Repaired hydrants
Seasonal Flushing	Town of Petawawa	System flushing (Spring & Fall)
Nov. 2018	H & H Subdivision	Flush dead end hydrants
2018	Various locations	Twelve (12) Water Inspections
2018	Various Locations	One (1) Locate Request

Appendix A

WTRS Data and Submission Confirmation

PETAWAWA DRINKING WATER SYSTEM / Raw Water

Yearly Summary (Flow DAILY) 2018

Report extracted 01/28/2019 10:24

Annual Values and Summary

Units: cubic meter per day

Station:

Daily Max: 16087.0 on July 12

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	7039.00	6669.00	6309.00	5744.00	6387.00	7658.00	9664.00	10517.00	6775.00	5925.00	5360.00	4191.00
2	6812.00	6898.00	6276.00	6276.00	6223.00	7650.00	11009.00	9186.00	6626.00	4391.00	5729.00	4689.00
3	7188.00	6593.00	6055.00	6548.00	5913.00	6745.00	11789.00	10384.00	6658.00	5961.00	5320.00	4355.00
4	7078.00	6472.00	6277.00	6393.00	5680.00	7473.00	12075.00	10973.00	7605.00	5437.00	5632.00	4759.00
5	7554.00	6926.00	6919.00	6787.00	5522.00	8346.00	12730.00	10417.00	6809.00	6056.00	5444.00	4749.00
6	7274.00	6662.00	6864.00	6668.00	5960.00	8296.00	10452.00	10530.00	7757.00	5255.00	5766.00	4809.00
7	7437.00	6702.00	6528.00	6396.00	6449.00	7992.00	8349.00	9480.00	7167.00	5097.00	5736.00	4914.00
8	7968.00	6704.00	6444.00	6526.00	6426.00	8529.00	9966.00	10735.00	6950.00	5537.00	5559.00	4481.00
9	7811.00	6796.00	6305.00	6993.00	6544.00	9307.00	12969.00	8733.00	6844.00	5781.00	5699.00	4612.00
10	8653.00	6547.00	5873.00	6843.00	6667.00	9865.00	15014.00	9415.00	7753.00	5935.00	5182.00	4931.00
11	8366.00	7040.00	5767.00	6862.00	6038.00	10696.00	13888.00	10193.00	6544.00	5796.00	4851.00	5065.00
12	7766.00	7196.00	6026.00	6886.00	6844.00	10766.00	16087.00	10121.00	6679.00	5681.00	4997.00	5010.00
13	6759.00	6862.00	5952.00	6908.00	7447.00	10500.00	15568.00	11096.00	5279.00	5414.00	4945.00	4861.00
14	7348.00	6772.00	5876.00	6417.00	9068.00	7547.00	12842.00	12269.00	6672.00	5456.00	4707.00	5261.00
15	7662.00	6911.00	6210.00	6492.00	9870.00	7548.00	12155.00	12248.00	6964.00	5759.00	4977.00	4690.00
16	7555.00	6538.00	5856.00	6716.00	8648.00	8659.00	13428.00	11381.00	6444.00	5708.00	4724.00	4892.00
17	7251.00	6680.00	6079.00	6734.00	9151.00	9681.00	11953.00	9804.00	8032.00	5551.00	4660.00	4922.00
18	7543.00	6501.00	6172.00	7163.00	8718.00	9528.00	13173.00	7108.00	7229.00	5380.00	4657.00	5000.00
19	7020.00	6588.00	6378.00	6777.00	8323.00	8620.00	13851.00	7085.00	6720.00	5456.00	5601.00	4768.00
20	6951.00	6641.00	6274.00	6904.00	6906.00	8950.00	14210.00	8259.00	6742.00	5532.00	5504.00	4834.00
21	6764.00	6431.00	6472.00	6506.00	7591.00	9594.00	14141.00	9166.00	6494.00	5012.00	4380.00	5028.00
22	7324.00	6888.00	6622.00	6271.00	9896.00	11126.00	13715.00	6669.00	5057.00	5513.00	5177.00	4780.00
23	6711.00	6253.00	6437.00	6843.00	9543.00	10340.00	9874.00	7033.00	5806.00	5657.00	4526.00	5102.00
24	6719.00	6287.00	6407.00	6641.00	9811.00	9686.00	8273.00	8014.00	6449.00	5293.00	4387.00	4732.00
25	7217.00	6330.00	6327.00	6898.00	10292.00	9686.00	8336.00	7713.00	6446.00	5521.00	4010.00	5039.00
26	6728.00	7003.00	6926.00	6526.00	7659.00	11825.00	8462.00	6692.00	5867.00	5623.00	4836.00	4396.00
27	6778.00	6210.00	6218.00	6134.00	7697.00	11848.00	9341.00	7684.00	6046.00	5032.00	4731.00	4560.00
28	6399.00	6411.00	6596.00	6741.00	8015.00	10348.00	8596.00	6960.00	6285.00	5600.00	4960.00	5497.00
29	7499.00		6447.00	5880.00	8639.00	10944.00	8260.00	8044.00	5237.00	5807.00	4836.00	5328.00
30	6723.00		6121.00	6495.00	10043.00	12233.00	9195.00	6917.00	5407.00	5677.00	4819.00	5601.00
31	6927.00		6226.00		9864.00		10133.00	7129.00		5451.00		5517.00
Min	6399.00	6210.00	5767.00	5744.00	5522.00	6745.00	8260.00	6669.00	5057.00	4391.00	4010.00	4191.00
Mean	7252.39	6661.11	6298.03	6598.93	7801.10	9399.53	11596.71	9095.32	6578.10	5525.61	5057.07	4883.00
Max	8653.00	7196.00	6926.00	7163.00	10292.00	12233.00	16087.00	12269.00	8032.00	6056.00	5766.00	5601.00

Legend: '---' Missing Data
'+' No Day

Created on 01/28/19 10:24

by roycebr

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: 3814-9J2RQN

Permit Holder: THE CORPORATION OF THE TOWN OF PETAWAWA.

Received on: Feb 12, 2019 2:28 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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