

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, 2022

Issued: Feb 27, 2023

Revision: 1

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

Report Availability	1
Compliance Report Card	1
System Process Description	1
Raw Source	1
Treatment.....	1
Treatment Chemicals used during the reporting year:	2
Distribution.....	2
Summary of Non-Compliance	2
Adverse Water Quality Incidents.....	2
Non-Compliance	2
Non-Compliance Identified in a Ministry Inspection:.....	3
Flows	3
Raw Water Flows.....	3
Total Monthly Flows (m3/d)	3
Monthly Rated Flows (L/s)	4
Treated Water Flows	4
Monthly Rated Flows	4
Annual Total Flow Comparison	5
Regulatory Sample Results Summary	6
Microbiological Testing	6
Operational Testing	6
Inorganic Parameters	6
Schedule 15 Sampling:.....	7
Organic Parameters.....	7
Additional Legislated Samples.....	9
Major Maintenance Summary	9
Distribution Maintenance ¹⁰	10
WTRS Data and Submission Confirmation	11

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 the Environment, Conservation and Parks (MECP) Inspection(s)	Mar 4, 2022 – received 100% (2021-2022 Inspection period).
Ministry of Labour Inspection(s)	There were no inspections during the reporting period.
QEMS External Audit	Surveillance System Audit (S1 - Off-Site) held this year. Completed on Nov 10, 2022 – No Non-Conformances; One (1) OFI identified.
AWQI's	Three (3)
Non-Compliances	Two (2)
Community Complaints	Nine (9) Community Complaints: Frozen Water line - 5 Low water pressure - 2 Taste & Odour - 2
Spills	There were no Spills reported during the reporting period.
Water Main Breaks	Three (3)

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 Petawawa WTP supplies water to Garrison Petawawa (Federal Jurisdiction). The south end of the distribution system is connected (only if required) to the City of Pembroke/Laurentian Valley Drinking Water System. Flow is controlled using Booster Pumping Station #1.

Treatment

Petawawa Water Treatment Plant is a conventional water treatment system using coagulation, flocculation, and sedimentation processes. Pre and post pH adjustment is also utilized. 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
PAX-XL6	Coagulant	Kemira
Fluoride	Fluoridation	Brenntag
Soda Ash Dense (bulk/bags)	pH Adjustment	Brenntag/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 (3) towers and two (2) booster pumping stations. The distribution system consists of about 4105 service connections in the Town of Petawawa, approximately 3962 of which are residential. There are approx. 37 dead ends and approx. 606 fire hydrants. The distribution pipes are made of asbestos cement, cast iron, and polyvinyl chloride (PVC).

Summary of Non-Compliances

Adverse Water Quality Incidents

Date	AWQI #	Location	Problem	Details	Legislation	Corrective Action Taken
Jul 19, 2022	N/A	Distribution System	HAA RAA Exceedance – Q2 of 2022	HAA formation problem in the distribution system	Result of 89.2 (MAC is 80 ug/L)	Sent to MECP SAC, MECP local office Water Inspector, MOH, and client the AWQI form, Section 2C, to notify of exceedance. No further actions required.
Oct 3, 2022	N/A	Distribution System	HAA RAA Exceedance – Q3 of 2022	HAA formation problem in the distribution system	Result of 86.5	Sent to MECP SAC, MECP local office Water Inspector, MOH, and client the AWQI form, Section 2C, to notify of exceedance. No further actions required.
Jan 9, 2023	N/A	Distribution System	HAA RAA Exceedance – Q4 of 2022	HAA formation problem in the distribution system	Result of 84.7	Sent to MECP SAC, MECP local office Water Inspector, MOH, and client the AWQI form, Section 2C, to notify of exceedance. No further actions required.

Non-Compliances

Legislation	Requirement(s) system failed to meet	Duration of the failure (i.e. date(s))	Corrective Action	Status
O. Reg. 170/03 Schedule 15. 1-4(2)1	Failed to complete sampling of pH and alkalinity (lead sampling program) by the	April 16-20, 2022	Sampling for these parameters was completed on April 20th and submitted to the lab for testing	Completed

	end of the winter session of April 15 th , 2022			
MDWL #199-101(#3) Schedule C, Section 1.5	Annual RAA of Backwash Total Chlorine Exceedance	Jun 2021-2022	Presently, we have the supernatant from the backwash facilities being discharged to the on-site sewer station that is directed to the PT WPCP for treatment and disinfection	Ongoing

Non-Compliances Identified in a Ministry Inspection: (2021-2022 Inspection)

Legislation	requirement(s) system failed to meet	duration of the failure (i.e. date(s))	Corrective Action	Status
There were no non-compliances in the Ministry inspection, reported during the reporting period.				

Flows

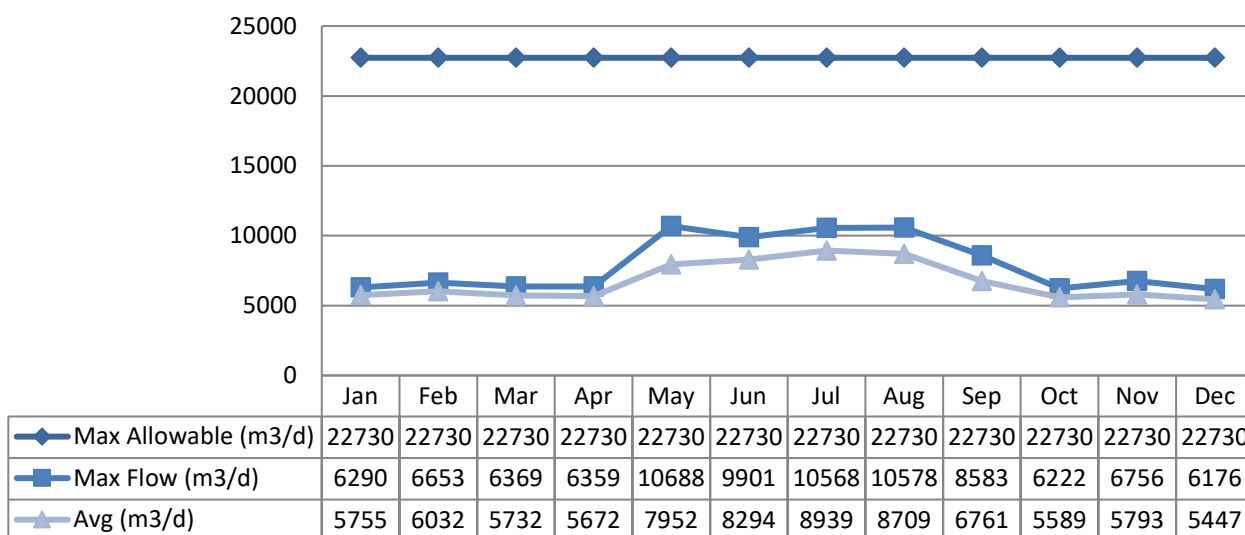
In 2022, the average day flow was at approximately 28.7% of the current plant design for the Petawawa Drinking Water System, and the maximum day flow was at approximately 45.7% of the plant design of 21 500 m³/d.

Raw Water Flows

The Raw Water flows are regulated under the Permit to Take Water. 2020 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.

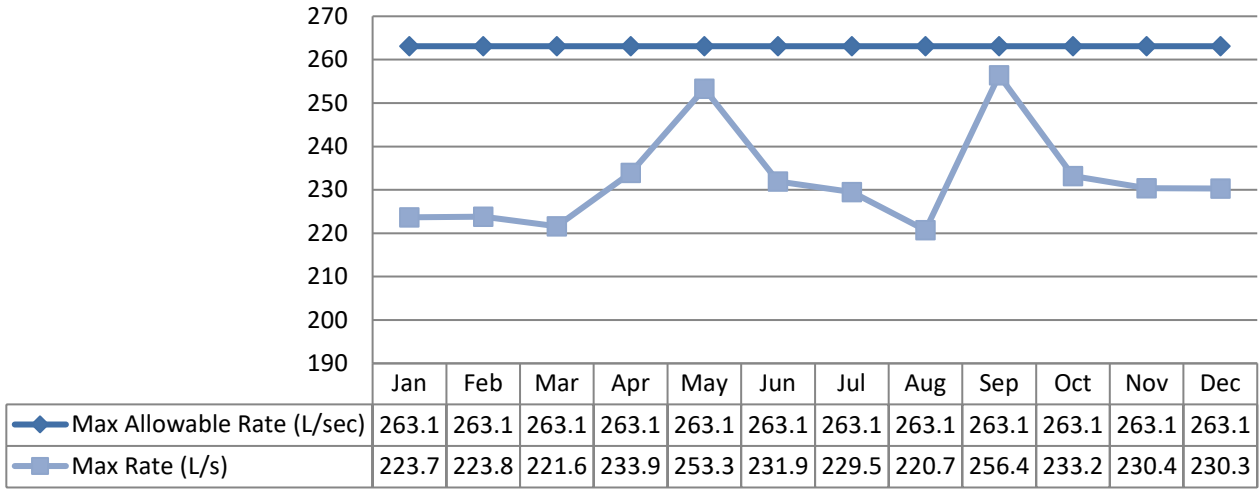
Total Monthly Flows (m3/d)

Max Allowable - PTTW



Monthly Rated Flows (L/s)

Max allowable rate - PTTW

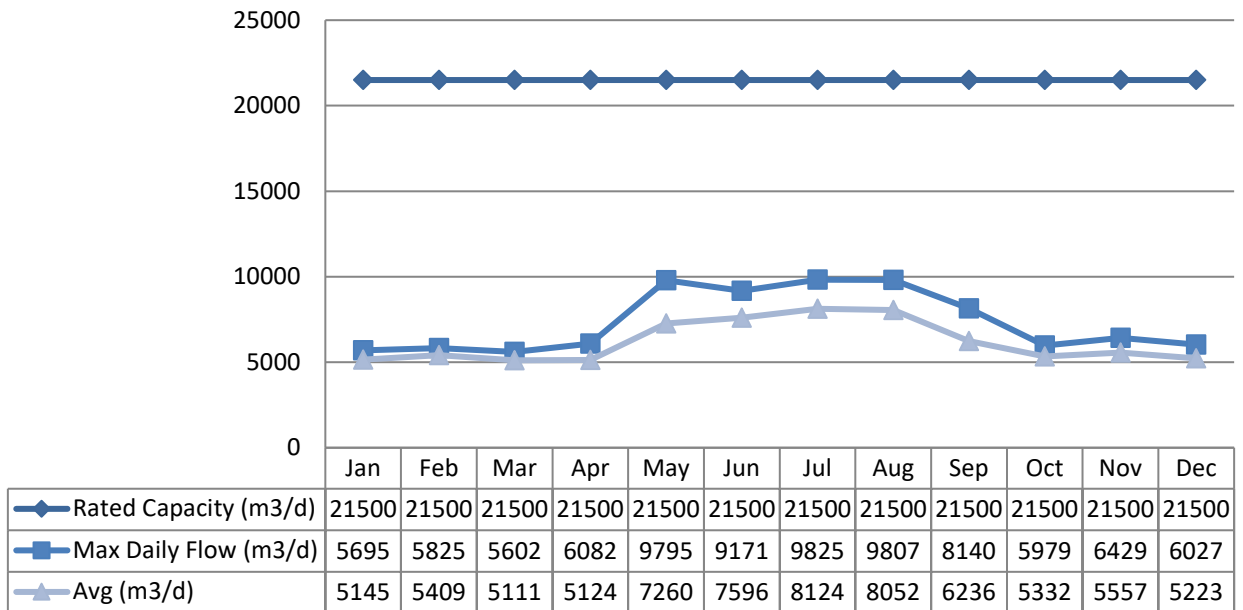


Treated Water Flows

The Treated Water flows are regulated under the Municipal Licence.

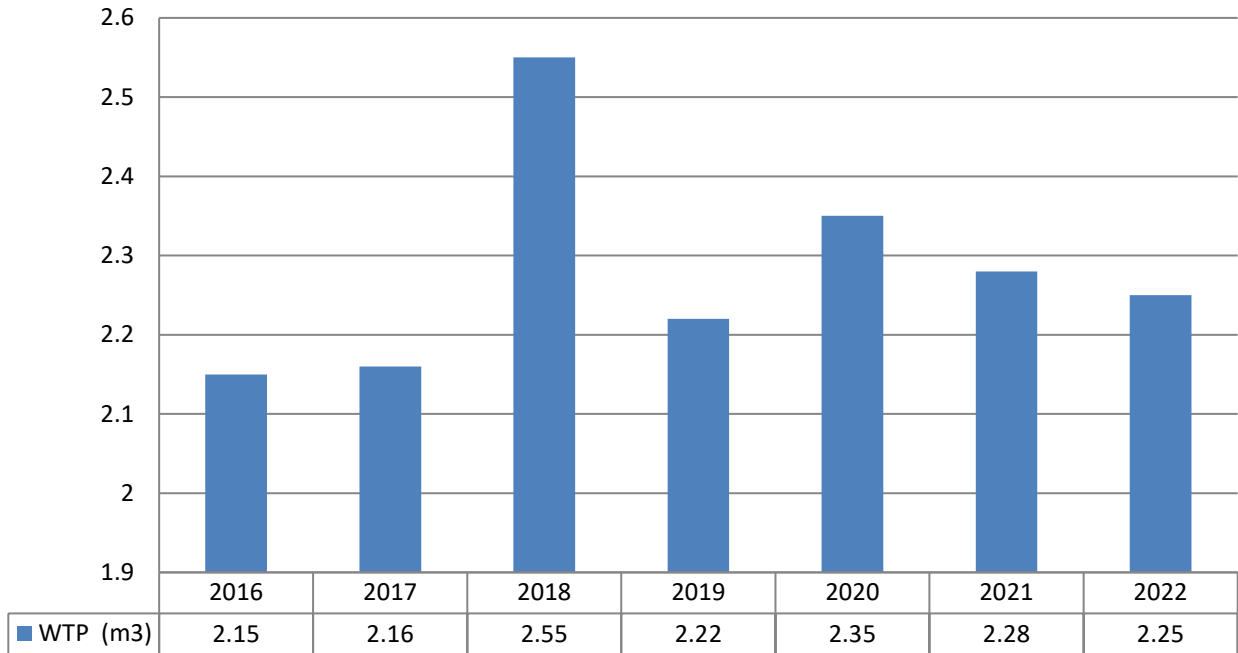
Monthly Rated Flows

Rated Capacity - MDWL



Annual Total Flow Comparison

Total Annual m3(x 10⁶)



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	No. Samples	Min	Max
Raw Water	52	0	8	0	39			
Treated Water	51	0	0	0	0	51	0	217
Distribution Water	376	0	0	0	0	107	0	137

Operational Testing

	No. of Samples Collected	Range of Results	
		Minimum	Maximum
Turbidity, In-House (NTU) - RW	104	0.88	9.80
Turbidity, On-Line (NTU) - RW	8760	0.10	5.71
Turbidity, In-House (NTU) - TW	104	0.04	0.16
Turbidity, In-House (NTU) - Filt1	104	0.04	0.25
Turbidity, On-Line (NTU) – Filt1	8760	0.02	0.83
Turbidity, In-House (NTU) - Filt2	104	0.04	0.21
Turbidity, On-Line (NTU) – Filt2	8760	0.01	0.90
Turbidity, In-House (NTU) - Filt3	104	0.05	0.22
Turbidity, On-Line (NTU) – Filt3	8760	0.01	0.78
Free Chlorine Residual, In-House (mg/L) - TW	106	0.81	2.14
Free Chlorine Residual, On-Line (mg/L) - TW	8760	0.44	3.41
Total Chlorine Residual, In-House (mg/L) - TW	106	0.97	2.43
Free Chlorine Residual, In-House (mg/L) - DW	376	0.31	1.83
Free Chlorine Residual, On-Line (mg/L) - DW	8760	0.07	5.31
Fluoride Residual, In-House (mg/L) - TW	135	0	0.80
Fluoride Residual, On-Line (mg/L) - TW	8760	0	1.09

NOTE: Spikes/Drops to zero recorded by on-line instrumentation were a result of air bubbles and various maintenance/calibration activities. All spikes are reviewed for compliance with MDWL.

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 mg/L	MAC mg/L	No. of Exceedances	
				MAC	1/2 MAC
Treated Water					
Antimony: Sb (mg/L) - TW	2022/01/10	<MDL 0.5	6.0	No	No
Arsenic: As (mg/L) - TW	2022/01/10	<MDL 1.0	10.0	No	No
Barium: Ba (mg/L) - TW	2022/01/10	<MDL 10.0	1000.0	No	No

	Sample Date (yyyy/mm/dd)	Sample Result mg/L	MAC mg/L	No. of Exceedances	
				MAC	1/2 MAC
Boron: B (mg/L) - TW	2022/01/10	<MDL 10.0	5000.0	No	No
Cadmium: Cd (mg/L) - TW	2022/01/10	<MDL 0.1	5.0	No	No
Chromium: Cr (mg/L) - TW	2022/01/10	<MDL 1.0	50.0	No	No
Mercury: Hg (mg/L) - TW	2022/01/10	<MDL 0.1	1.0	No	No
Selenium: Se (mg/L) - TW	2022/01/10	<MDL 1.0	50.0	No	No
Uranium: U (mg/L) - TW	2022/01/10	<MDL 1.0	20.0	No	No
Additional Inorganics					
Fluoride (mg/L) - TW	2022/12/28	0.53	1.5	No	Yes
Nitrite (mg/L) - TW	2022/01/10	<MDL 0.1	1.0	No	No
Nitrite (mg/L) - TW	2022/04/04	<MDL 0.1	1.0	No	No
Nitrite (mg/L) - TW	2022/07/04	<MDL 0.1	1.0	No	No
Nitrite (mg/L) - TW	2022/10/03	<MDL 0.1	1.0	No	No
Nitrate (mg/L) - TW	2022/01/10	0.20	10.0	No	No
Nitrate (mg/L) - TW	2022/04/04	0.25	10.0	No	No
Nitrate (mg/L) - TW	2022/07/04	0.21	10.0	No	No
Nitrate (mg/L) - TW	2022/10/03	0.26	10.0	No	No
Sodium: Na (mg/L) - TW	2019/04/29	14.0	20.0*	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 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: Lead

The Schedule 15 Sampling is required under MDWL. This system is under the plumbing exemption, therefore, hydrant samples only were collected. (*Lead will be sampled again in 2024 – every 3 years)

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	30	37	500	0
pH	4	8	6.98	7.46	8.5	0
Lead (mg/L)	N/A	N/A	N/A	N/A	N/A	N/A

Organic Parameters

These parameters are tested annually as a requirement under MDWL. 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	2022/01/10	<MDL 0.5	5.00	No	No
Atrazine + N-dealkylated metabolites (ug/L) - TW	2022/01/10	<MDL 1.0	5.00	No	No
Azinphos-methyl (ug/L) - TW	2022/01/10	<MDL 2.0	20.00	No	No
Benzene (ug/L) - TW	2020/01/10	<MDL 0.5	1.00	No	No
Benzo(a)pyrene (ug/L) - TW	2022/01/10	<MDL 0.01	0.01	No	Yes*
Bromoxynil (ug/L) - TW	2022/01/10	<MDL 0.5	5.00	No	No
Carbaryl (ug/L) - TW	2022/01/10	<MDL 5.0	90.00	No	No

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
Carbofuran (ug/L) - TW	2022/01/10	<MDL 5.0	90.00	No	No
Carbon Tetrachloride (ug/L) - TW	2022/01/10	<MDL 0.2	2.00	No	No
Chlorpyrifos (ug/L) - TW	2022/01/10	<MDL 1.0	90.00	No	No
Diazinon (ug/L) - TW	2022/01/10	<MDL 1.0	20.00	No	No
Dicamba (ug/L) - TW	2022/01/10	<MDL 1.0	120.00	No	No
1,2-Dichlorobenzene (ug/L) - TW	2022/01/10	<MDL 0.4	200.00	No	No
1,4-Dichlorobenzene (ug/L) - TW	2022/01/10	<MDL 0.4	5.00	No	No
1,2-Dichloroethane (ug/L) - TW	2022/01/10	<MDL 0.2	5.00	No	No
1,1-Dichloroethylene (ug/L) - TW	2022/01/10	<MDL 0.5	14.00	No	No
Dichloromethane (Methylene Chloride) (ug/L) - TW	2022/01/10	<MDL 4.0	50.00	No	No
2,4-Dichlorophenol (ug/L) - TW	2022/01/10	<MDL 1.0	900.00	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW	2022/01/10	<MDL 1.0	100.00	No	No
Diclofop-methyl (ug/L) - TW	2022/01/10	<MDL 0.9	9.00	No	No
Dimethoate (ug/L) - TW	2022/01/10	<MDL 2.5	20.00	No	No
Diquat (ug/L) - TW	2022/01/10	<MDL 5.0	70.00	No	No
Diuron (ug/L) - TW	2022/01/10	<MDL 10.0	150.00	No	No
Glyphosate (ug/L) - TW	2022/01/10	<MDL10.0	280.00	No	No
Malathion (ug/L) - TW	2022/01/10	<MDL 0.5	190.00	No	No
2-Methyl-4-chlorophenoxyacetic Acid (MCPA) (ug/L) - TW	2022/01/10	<MDL 1.0	100.00	No	No
Metolachlor (ug/L) - TW	2022/01/10	<MDL 1.0	50.00	No	No
Metribuzin (ug/L) - TW	2022/01/10	<MDL 5.0	80.00	No	No
Monochlorobenzene (Chlorobenzene) (ug/L) - TW	2022/01/10	<MDL 0.5	80.00	No	No
Paraquat (ug/L) - TW	2022/01/10	<MDL 1.0	10.00	No	No
PCB (ug/L) - TW	2022/01/10	<MDL 0.1	3.00	No	No
Pentachlorophenol (ug/L) - TW	2022/01/10	<MDL 1.0	60.00	No	No
Phorate (ug/L) - TW	2022/01/10	<MDL 0.5	2.00	No	No
Picloram (ug/L) - TW	2022/01/10	<MDL 5.0	190.00	No	No
Prometryne (ug/L) - TW	2022/01/10	<MDL 0.25	1.00	No	No
Simazine (ug/L) - TW	2022/01/10	<MDL 1.0	10.00	No	No
Terbufos (ug/L) - TW	2022/01/10	<MDL 0.4	1.00	No	No
Tetrachloroethylene (ug/L) - TW	2022/01/10	<MDL 0.3	10.00	No	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW	2022/01/10	<MDL 1.0	100.00	No	No
Triallate (ug/L) - TW	2022/01/10	<MDL 1.0	230.00	No	No
Trichloroethylene (ug/L) - TW	2022/01/10	<MDL 0.3	5.00	No	No
2,4,6-Trichlorophenol (ug/L) - TW	2022/01/10	<MDL 0.7	5.00	No	No
Trifluralin (ug/L) - TW	2022/01/10	<MDL 1.0	45.00	No	No
Vinyl Chloride (ug/L) - TW	2022/01/10	<MDL 0.2	1.00	No	No
Distribution Water					
Trihalomethane: Total (ug/L) Annual Average - DW	2022	80.9	100.00	No	Yes
HAA: Total (ug/L) Annual Average - DW	2022	84.7	80.0	Yes	Yes

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

*BDL = Below the laboratory detection level

Additional Legislated Samples

Legislation	Sample	Parameter	Date	Sample Result (mg/L)	Total Chlorine Residual (mg/L)
MDWL	Backwash Effluent	Total Suspended Solids - TSS	January	< 2	0.04
			February	< 2	0.03
			March	2	0.04
			April	7	0.04
			May	< 2	0.05
			*June	10	0.06
			July	**NS	NS
			August	NS	NS
			September	NS	NS
			October	NS	NS
			November	NS	NS
			December	NS	NS
			Annual Average	< 4.2 (MAC=25)	0.04 (MAC=0.02)

*The renewed MDWL called for the TSS to be sampled monthly starting in June 2021 and sample for total chlorine residual, for the mentioned annual averages (June 2021 – June 2022).

**NS – Not Sampled – OCWA decided to have the supernatant from the backwash tanks be discharged to the sewage pumping station on-site at the water plant, that is then conveyed through the sewage collection system to the wastewater treatment plant, until a permanent alternative is installed. Therefore, monthly sampling of the TSS and total chlorine were not needed (approved by MECP).

Major Maintenance Summary (Capital)

WO #	Description
2723890	Replacement of the LED street lights at the water plant.
3145139	Compressor maintenance, part of warranty work, and training for operators for future maintenance activities.
2723884	Painting supplies, oil filter for valve turner, change curb stop at 1 Doran Road, bushings, seal bearings and couplings, exhaust fan motor, voltmeter, probe, Stabl Cal Calibration set, and other supplies.
2823648	Electrical installation of a new air compressor at the plant and the relocation of the current, as a spare.
2824647	Air stroke actuators required as spare parts for the Trac-Vac system.
2923354	Painting supplies, hour meter, electrical supplies, compressor maintenance, keys, batteries for generators, PVC cement, seal-bearing assembly, submersible pump, colorimeter, and other miscellaneous hardware.
2967742	New chlorine analyzers for the free chlorine on the final treated water and filter effluent.
2637702	Electrical repair work completed at the water plant.
3062392	Installation of a new gas-fired hot water tank.

Distribution Maintenance/Activities

Date	Details
Jan 2022	Three (3) Community Complaints: Zachary Street – strong chlorine taste & smell; Hilda Street – frozen water line; Isabel Street – frozen water line. Fire Hydrant Flushing – dead ends & maintenance.
Feb 2022	Fire Hydrant Flushing – dead ends & line maintenance.
Mar 2022	Three (3) Community Complaints: Petawawa Blvd. – frozen water line – installed temporary water line to home; East Street – low water pressure – faucet problem; Armstrong Road – frozen water line. Fire Hydrant Flushing – dead ends & line maintenance.
Apr 2022	One (1) Community Complaint: Petawawa Blvd. – low water pressure. One (1) Water main break – Hilda Street. Temporary water line on Petawawa Blvd. was disconnected (Mar 4 – Apr 19). GPS fire hydrants and entered data into Access dB. Annual spring hydrant checks and flushing commenced.
May 2022	Two (2) Water main breaks – Audrey Street & Albert Street. Annual hydrant inspections and water main flushing continued. Three (3) Water and Wastewater lateral inspections. Numerous activities pertaining to various construction projects in town.
Jun 2022	Bacti sampling and water main flushing on new water main at the end of Wilson Avenue. Hydrant repairs and greasing. Four (4) Water and Wastewater lateral inspections. Continued with numerous activities pertaining to various construction projects in town.
Jul 2022	Hydrant repairs in preparation for hydrant painting, scheduled in August. Continued with numerous activities pertaining to various construction projects in town.
Aug 2022	Two hundred & Fifty (250) hydrants descaled and painted by contractor throughout the town. Continued with numerous activities pertaining to various construction projects in town.
Sept 2022	One (1) Community Complaint – Viking Road – no water flow to home. Numbering of newly painted fire hydrants. Repaired broken fire hydrant at 3225 Petawawa Blvd. Dead end hydrant flushing. Repaired curb stop valve box at 66 John Street. Continued with numerous activities pertaining to various construction projects in town.
Oct 2022	Numbering of newly painted fire hydrants and dead end flushing of hydrants. Continued with numerous activities pertaining to various construction projects in town.
Nov 2022	Dead end hydrant flushing completed. Continued with numerous activities pertaining to various construction projects in town.
Dec 2022	Numbering of newly painted fire hydrants. Inspected broken hydrant (#359) at 80 Laurentian Drive and ordered parts to repair. Continued with numerous activities pertaining to various construction projects in town.

Appendix A

WTRS Data and Submission Confirmation

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 23, 2023 8:02 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.

[Return to Main Page](#)

TOWN2 PETAWAWA2 | 2023/02/23

version: v4.5.0.21 (build#: 22)

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