Petawawa Wastewater System

Waterworks # 120000587

Annual Report

Prepared For: Town of Petawawa

Reporting Period of January 1st – December 31st, 2024

Issued: Feb 26, 2025

Revision: 0

Operating Authority:

OCWA

ONTARIO CLEAN WATER AGENCY
AGENCE ONTARIENNE DES EAUX

This report has been prepared to meet the requirements set out in:

Document	Document #	Issue Date	Issue Number
Facility ECA	A-500-3113268754	November 16, 2021	Version 1.0
ECA for Municipal Sewage Collection System	199-W601	November 2, 2022	1.0

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1 Revision History

Date	Rev #	Revisions	Revised By
26-Feb-2025	0	Issued	Brenda Royce, PCT

2 Operations and Compliance Reliability Indices

Compliance Event	Details
Ministry of Environment Inspections	• Last inspection was Feb 3, 2015
Ministry of Labour Inspections	• None
Non-Compliance	Two (2) Events • By-Pass due to Equipment Malfunction • Final Effluent E. Coli Monthly GMD Exceedance
Community Complaints	Three (3) Events • all sewer plugged issues/odour
Spills	• None
Overflows	• None
By-Pass	One (1) Event • By-Pass due to Equipment Malfunction

3 Process Description

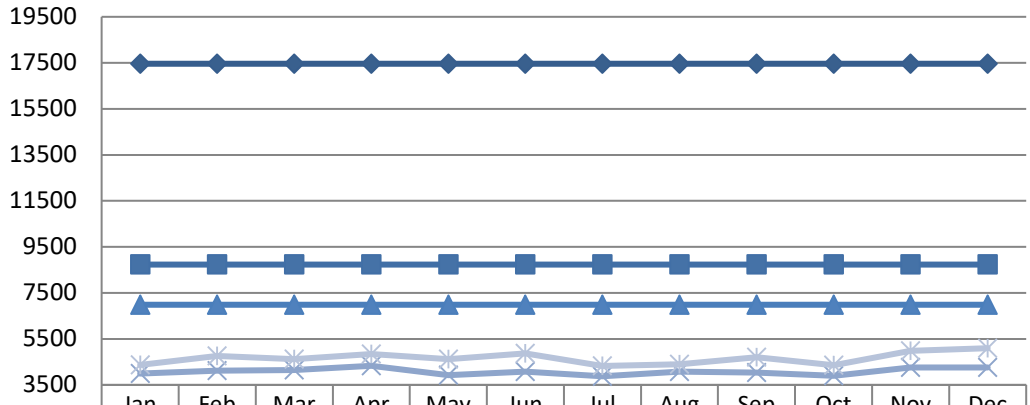
Petawawa's Wastewater Treatment Facility is a secondary treatment process that includes primary treatment (screening, grit removal, pre-aeration, scum removal, sedimentation or primary clarification), secondary treatment using sequencing batch reactivator (SBR) technology (activated sludge process combining biological and physical treatments), UV disinfection, sludge thickening process with the use of anaerobic sludge digestion, as well as a full bio-solids utilization program. This facility uses technology that is a biological process, so that no chemicals or chemical by-products are passed on to the receiving stream, which is the Ottawa River.

The Petawawa WPCP is still presently being transformed into a Net Zero Resource Recovery Facility by upgrading its anaerobic digesters to divert waste from landfill and boost biogas production for use as electricity , making the plant energy neutral or positive (Net Zero), and reducing GHG emissions. This will involve the utilization of biogas in a Combined Heat and Power (CHP) unit for the purpose of making the WWTP Net Zero. This project also aims to find beneficial usage of remaining biogas as clean fuel in the future.

4 Treatment Flows

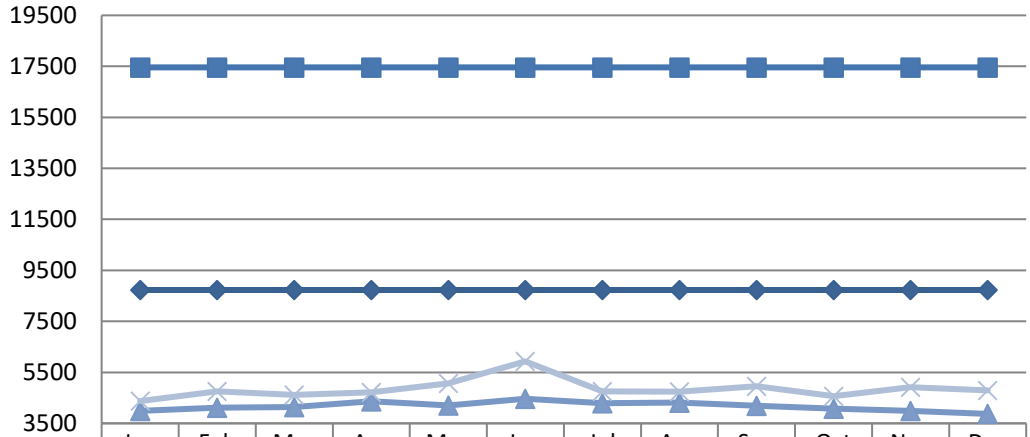
Based on the 2024 average daily raw flow, the plant is operating at 47.5% of the design capacity.

4.1 Raw Flow (m3/d)



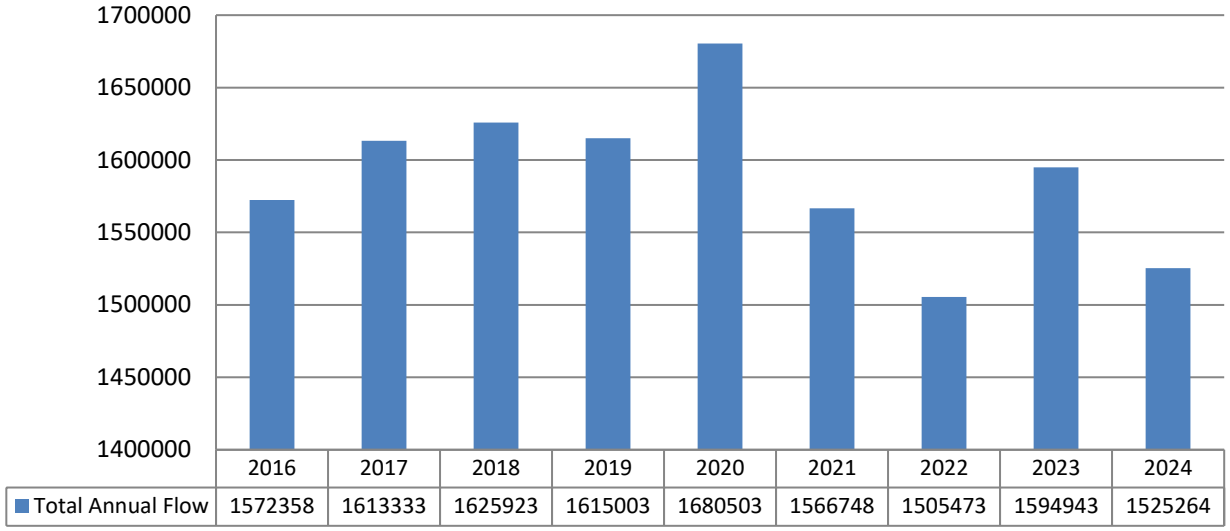
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Peak Daily	17460	17460	17460	17460	17460	17460	17460	17460	17460	17460	17460	17460
Rated Capacity	8730	8730	8730	8730	8730	8730	8730	8730	8730	8730	8730	8730
80%	6984	6984	6984	6984	6984	6984	6984	6984	6984	6984	6984	6984
Average Daily Flow	3987	4120	4141	4330	3928	4083	3874	4070	4039	3898	4256	4262
Maximum Daily Flow	4373	4755	4614	4842	4619	4875	4323	4394	4706	4352	4983	5095

4.2 Effluent Flow (m3/d)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Rated Capacity	8730	8730	8730	8730	8730	8730	8730	8730	8730	8730	8730	8730
Peak Daily	17460	17460	17460	17460	17460	17460	17460	17460	17460	17460	17460	17460
Average Daily Flow	3987	4120	4146	4368	4200	4465	4292	4316	4190	4075	3987	3871
Maximum Daily Flow	4373	4755	4614	4716	5065	5932	4756	4742	4951	4563	4923	4791

4.2.1 *Annual Comparison (m3)*



	2016	2017	2018	2019	2020	2021	2022	2023	2024
Total Annual Flow	1572358	1613333	1625923	1615003	1680503	1566748	1505473	1594943	1525264

4.3 Imported Waste/Sewage

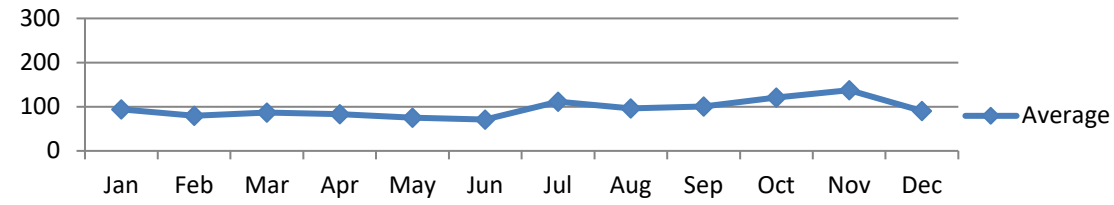
There is no imported wastes accepted at this facility during 2024.

5 Raw Sewage Quality

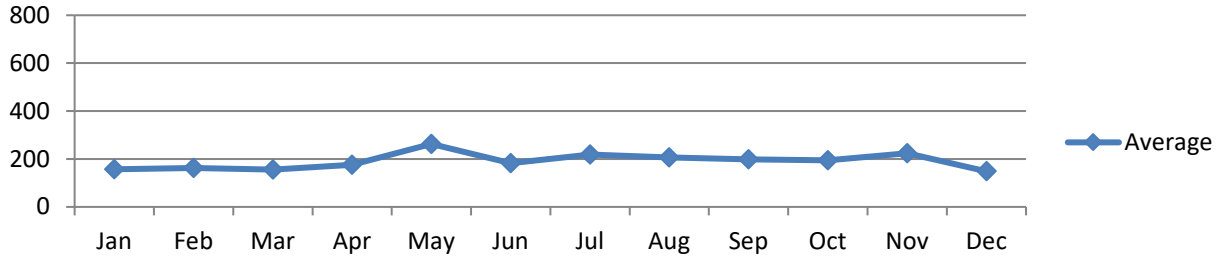
Current year minimum, maximum and averages are available in Appendix A – Performance Assessment Report.

5.1 Influent Trending

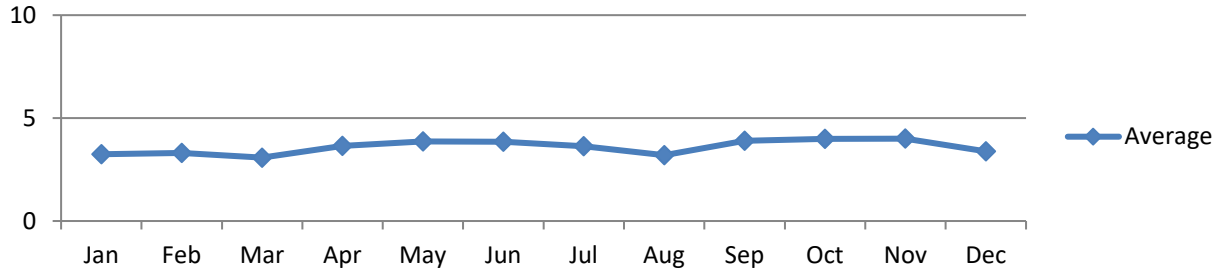
5.1.1 *BOD5*



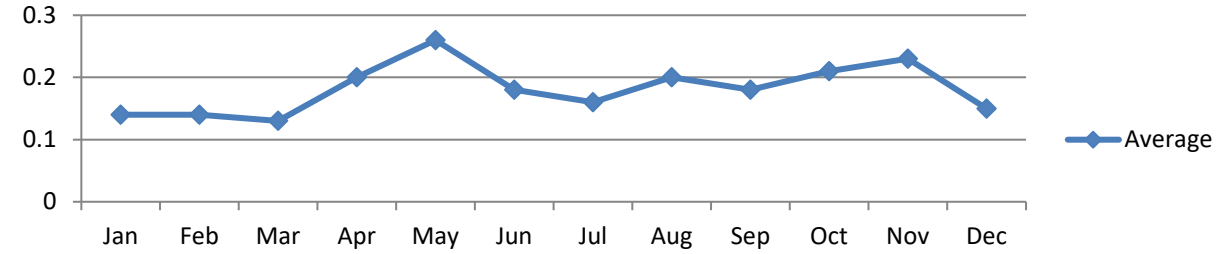
5.1.2 *Total Suspended Solids*



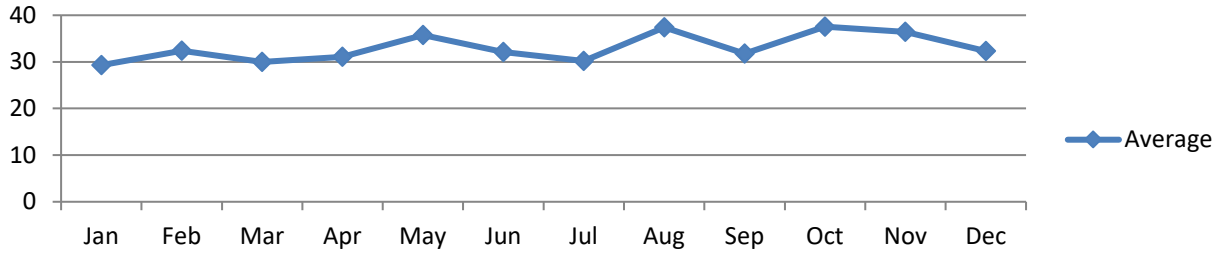
5.1.3 Total Phosphorus



5.1.4 Un-Ionized Ammonia



5.1.5 Total Kjeldahl Nitrogen (TKN)



5.2 Imported Waste Quality

There is no imported wastes accepted at this facility.

6 Effluent Quality

6.1 Effluent Quality Assurance and Control Measures Taken

This system is part of OCWA's Laurentian View Cluster. The cluster is supported by the Eastern Regional Hub, and corporate resources. Operational Services are delivered by OCWA staff that live and work in the community. The systems are operated to meet compliance with applicable regulations. The system has comprehensive manuals detailing operations, maintenance, instrumentation, and emergency

procedures. All procedures are treated as active documents and are updated, as required. These documents are also part of OCWA's Quality & Environmental Management System.

The process is reviewed and maintained by certified operators. These operators complete in-house rounds and testing to monitor the process. All Sampling and Analysis follow approved methods and protocols for sampling, analysis and recording as specified in the Ministry's Procedure F-10-1, "Procedures for Sampling and Analysis Requirements for Municipal and Private Sewage Treatment Works", the Ministry's publication, "Protocol for the Sampling and Analysis of Industrial/Municipal Wastewater" and the publication, "Standard Methods for the Examination of Water and Wastewater".

All final effluent samples collected during the reporting period to meet legislated sampling requirements, are submitted to Eurofins laboratory in Ottawa for analysis, with the exception of disinfection residuals and temperature. Eurofins laboratory in Ottawa has been deemed accredited by the Canadian Association for Laboratory Accreditation (CALA), meeting strict provincial guidelines including an extensive quality assurance/quality control program. By choosing this laboratory, the Ontario Clean Water Agency is ensuring appropriate control measures are undertaken during sample analysis. The disinfection residuals and temperature parameters are analyzed in the field at the time of sample collection by certified operators, to ensure accuracy and precision of the results obtained.

OCWA uses several computer systems, which include:

- Process Data Management (PDM)
    - This database program consolidates all operational data from a variety of sources including field data, online instrumentation, and electronic receipt of lab test results for reporting, tracking and analysis.
- Maximo – OCWA's Work Management System (WMS)
    - This program is used to track and schedule maintenance activities for all equipment in the system. Also, it is used to assign tasks for specific operational tasks.
- SCADA
    - The SCADA system allows for process optimization and data logging, process trending, remote alarming.

The operations team also has access to a network of operational compliance and process specialists to assist for emerging process issues. This aids in establishing additional control measures to ensure a quality effluent product.

Detailed individual sample results for, both raw sewage and final effluent, can be requested from the operating authority.

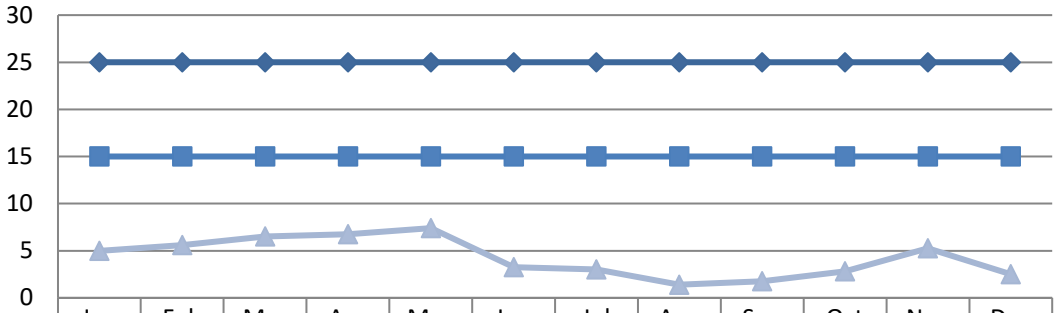
6.2 CBOD5

Compliance Limit for this parameter MET.

Compliance Objective for this parameter MET.

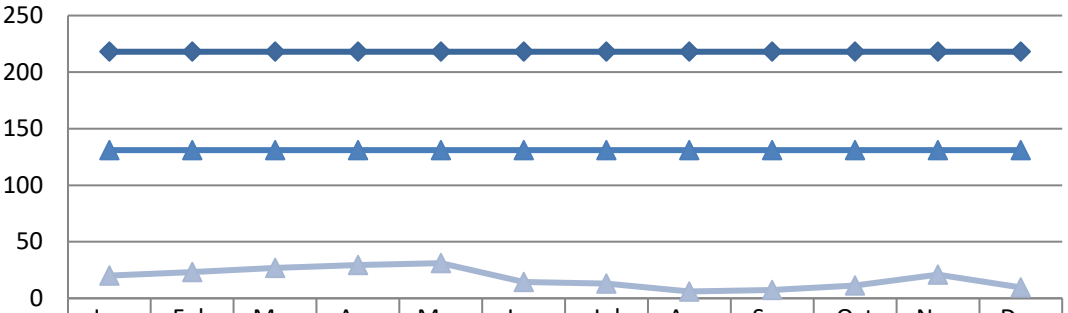
Compliance Objective was met >50% of the time.

6.2.1 Concentration (mg/L)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ECA Limit	25	25	25	25	25	25	25	25	25	25	25	25
ECA Objective	15	15	15	15	15	15	15	15	15	15	15	15
Average	5	5.6	6.5	6.8	7.4	3.25	3	1.4	1.75	2.8	5.25	2.5

6.2.2 Loading (kg/d)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ECA Limit	218	218	218	218	218	218	218	218	218	218	218	218
ECA Objective	131	131	131	131	131	131	131	131	131	131	131	131
Average	19.937	23.073	26.9	29.484	31.079	14.511	12.877	6.043	7.332	11.41	20.9	9.676

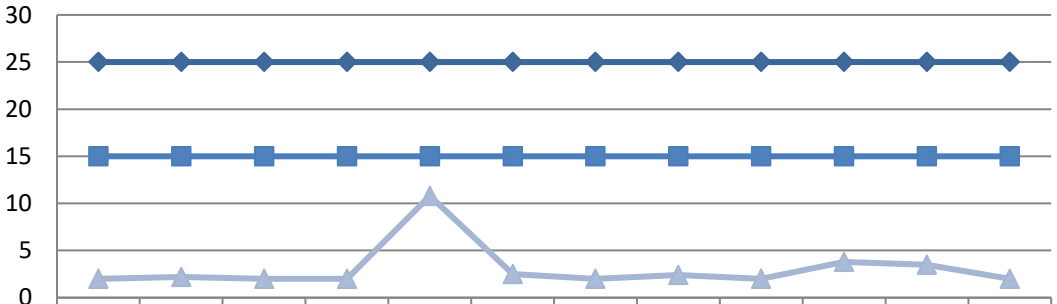
6.3 Total Suspended Solids

Compliance Limit for this parameter MET.

Compliance Objective for this parameter MET.

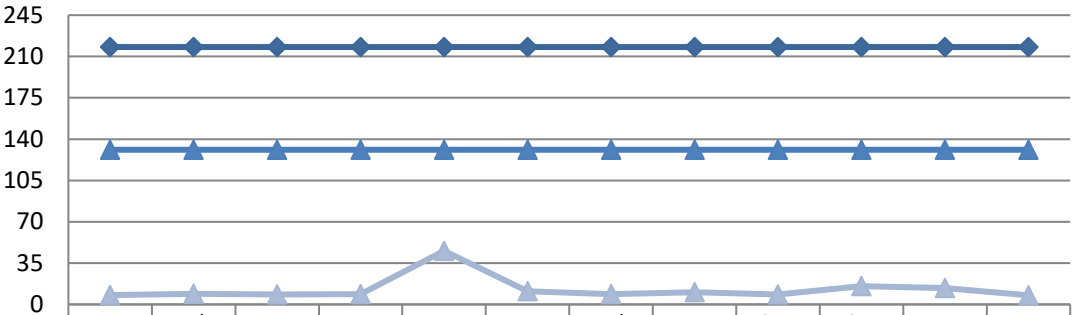
Compliance Objective was met >50% of the time.

6.3.1 Concentration (mg/L)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ECA Limit	25	25	25	25	25	25	25	25	25	25	25	25
ECA Objective	15	15	15	15	15	15	15	15	15	15	15	15
Average	2.0	2.2	2.0	2.0	10.8	2.5	2.0	2.4	2.0	3.8	3.5	2.0

6.3.2 Loading (kg/d)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ECA Limit	218	218	218	218	218	218	218	218	218	218	218	218
ECA Objective	131	131	131	131	131	131	131	131	131	131	131	131
Average	7.975	9.1	8.3	8.7	45.4	11.2	8.584	10.4	8.38	15.485	13.953	7.74

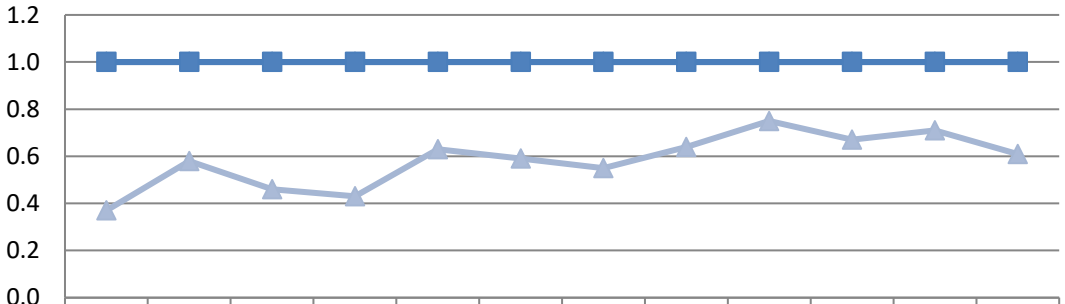
6.4 Total Phosphorus

Compliance Limit for this parameter MET.

Compliance Objective for this parameter MET.

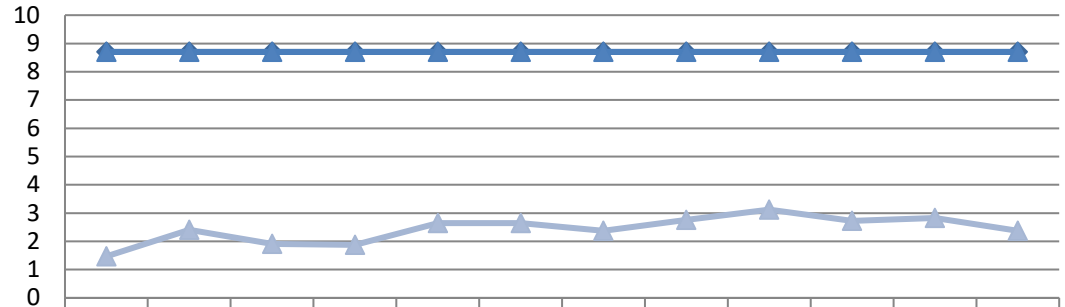
Compliance Objective was met >50% of the time.

6.4.1 Concentration (mg/L)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ECA Limit	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
ECA Objective	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Average	0.4	0.6	0.5	0.4	0.6	0.6	0.6	0.6	0.8	0.7	0.7	0.6

6.4.2 Loading (kg/d)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ECA Limit	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7
ECA Objective	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7
Average	1.5	2.4	1.9	1.9	2.7	2.6	2.4	2.8	3.1	2.7	2.8	2.4

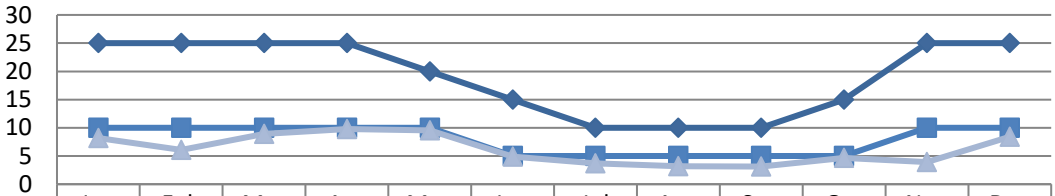
6.5 Total Ammonia Nitrogen

Compliance Limit for this parameter MET.

Compliance Objective for this parameter MET.

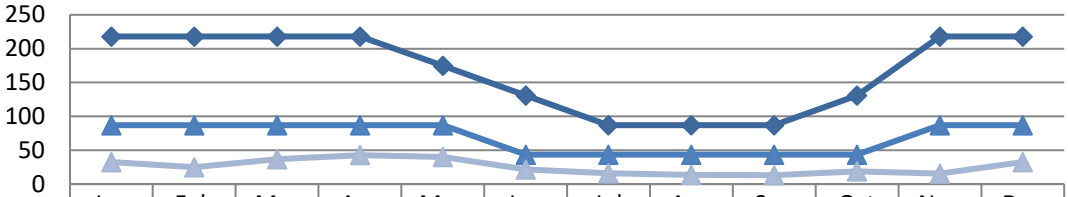
Compliance Objective WAS Met >50% of the time.

6.5.1 Concentration (mg/L)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ECA Limit	25	25	25	25	20	15	10	10	10	15	25	25
ECA Objective	10	10	10	10	10	5	5	5	5	5	10	10
Average	8	6	9	10	10	5	4	3	3	5	4	8

6.5.2 Loading (kg/d)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ECA Limit	218	218	218	218	175	131	87	87	87	131	218	218
ECA Objective	87.0	87.0	87.0	87.0	87.0	43.5	43.5	43.5	43.5	43.5	87.0	87.0
Average	32.7	24.9	36.9	42.7	39.9	21.7	15.84	13.8	13.1	18.9	15.6	32.6

6.6 Acute Lethality

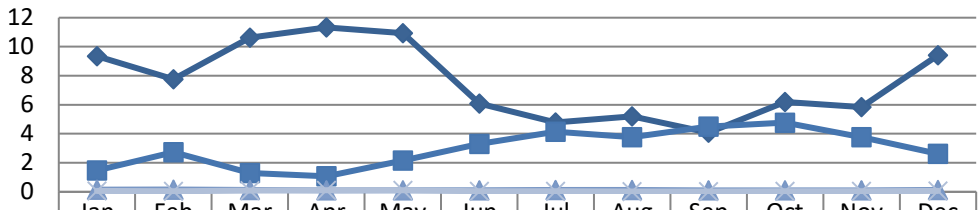
There was one (1) sample collected in 2024 and tested for acute lethality for Rainbow Trout. This sampling is required federally. Results are displayed as % mortality. An adverse result is a > 50% mortality rate.

Compliance Limit for this parameter was MET.

Date	Rainbow Trout
Apr 23, 2024	0

6.7 Un-Ionized Ammonia/Nitrate/Nitrite/TKN

There are no compliance or objective limits for these parameters.

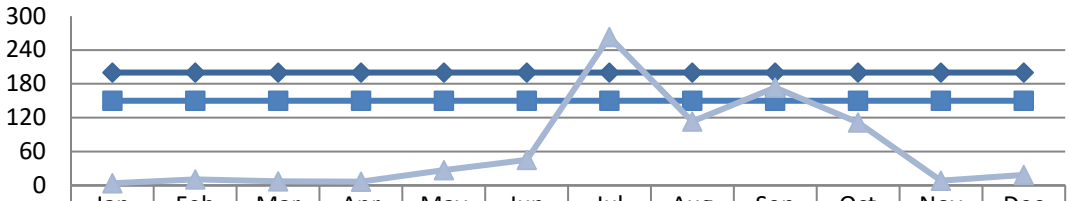


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TKN	9.34	7.76	10.62	11.33	10.9	6.09	4.78	5.19	4.08	6.19	5.84	9.42
Nitrate	1.47	2.73	1.3	1.07	2.16	3.3	4.14	3.76	4.49	4.77	3.77	2.61
Nitrite	0.150	0.160	0.120	0.100	0.110	0.110	0.130	0.140	0.100	0.100	0.100	0.120
Un-ionized Ammonia	0.07	0.04	0.08	0.11	0.11	0.04	0.03	0.02	0.02	0.03	0.03	0.07

6.8 E-coli

Compliance Limit for this parameter NOT MET (month of July) - See Section 8.1
Compliance Objective for this parameter NOT MET (month of July & Sept) - See Section 8.1
Compliance Objective WAS met >50% of the time.

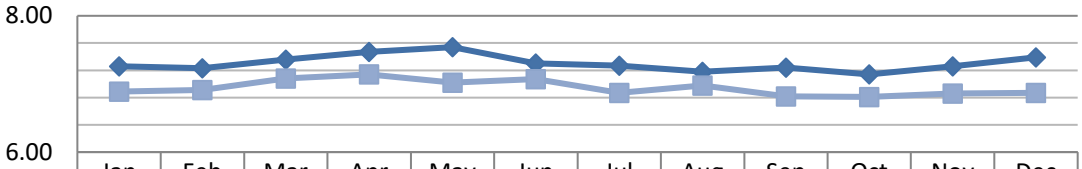
6.8.1 Geometric Mean (cfu/100mL)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ECA Limit	200	200	200	200	200	200	200	200	200	200	200	200
ECA Objective	150	150	150	150	150	150	150	150	150	150	150	150
Average	3.81	10.7	7.3	6.47	27.25	45.21	263.2	113.0	173.2	111.60	8.18	18.6

6.9 pH

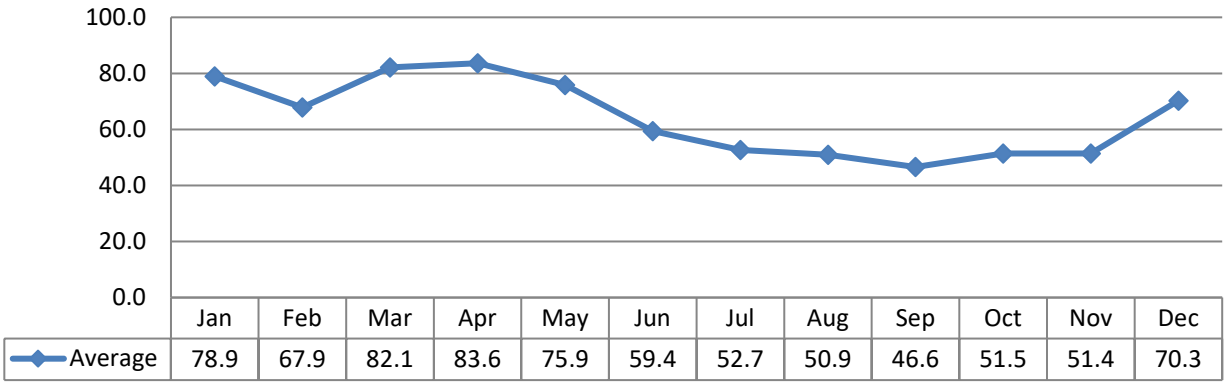
Compliance Limit range for this parameter is 6.0 - 9.5. The parameter MET.
Each instance the pH is outside of that range, it is reported as a non-compliance.
Compliance Objective range for this parameter is 6.5 - 8.5. The parameter MET.



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Maximum	7.26	7.23	7.36	7.47	7.54	7.30	7.27	7.18	7.24	7.14	7.26	7.39
Minimum	6.89	6.91	7.08	7.14	7.02	7.07	6.87	6.98	6.82	6.81	6.86	6.87

6.10 Alkalinity

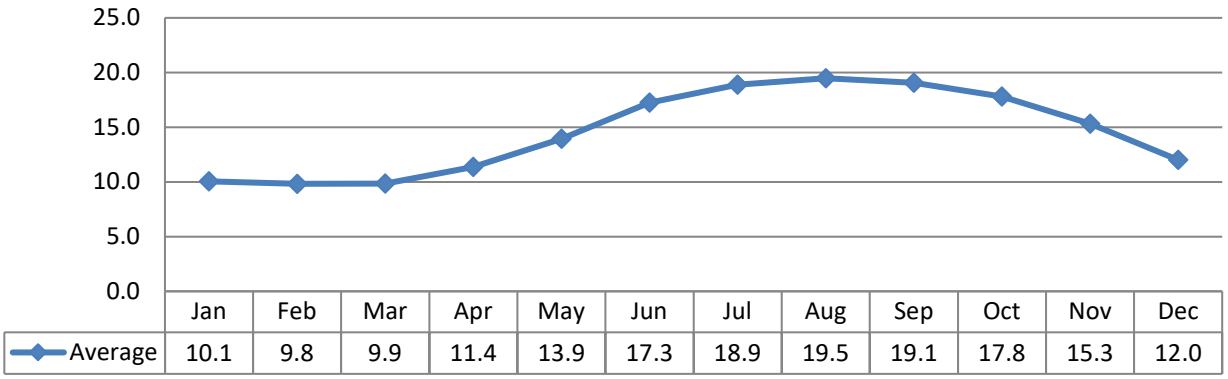
Alkalinity is required to be tested, but there are no compliance limits for this parameter.



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Average	78.9	67.9	82.1	83.6	75.9	59.4	52.7	50.9	46.6	51.5	51.4	70.3

6.11 Temperature

Temperature is required to be tested, but there are no compliance limits for this parameter.



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Average	10.1	9.8	9.9	11.4	13.9	17.3	18.9	19.5	19.1	17.8	15.3	12.0

7 Monitoring Schedule

The 2024 Calendar can be viewed in Appendix B.

7.1 Deviations

Date	Details	Cause of Deviation
More Final Effluent E. Coli samples were collected in the months of July-Aug and Oct-Dec for troubleshooting the newly installed UV system.		

8 Operating Issues/Problems

- The most notable problem at the plant during 2024 was with the newly installed UV system. Sample results were indicating higher than normal values for the final effluent E. Coli. It was determined that the flow to UV system was outside of the optimal rate. The flows were adjusted and the results returned to normal.

- *The flow level in the trough was changed, as it was determined that the upper UV bulb bank had too much water flowing over it.*

8.1 Effluent Quality Non-Compliance Summary

Month	Exceedance of	Limit	Value	Corrective Action
Jul 2024	ECA Limit – FE E.Coli	200	263.2	Adjust controls in the UV system and re-sampling
Sept 2023	ECA Objective – FE E. Coli	150	173.2	

8.2 Summary of Abnormal Sewage Discharge Events

Abnormal Discharge Events include Bypass', Overflows, Diversions and Spills of Sewage. Summary Details are included in Appendix C.

8.3 Spills (Other than Sewage)

Date	Location	Details	Volume (m3)	Start Date and Time	End Date and Time
N/A					

9 Maintenance

Routine planned maintenance activities are scheduled in WMS and include:

- Inspect, adjust and calibrate process control equipment to ensure proper operation of water distribution systems, pumps, chemical feeders, and all other equipment installed at the facilities.
- Carry out a routine maintenance program including greasing and oiling as specified in the lubrication schedule.
- Perform day-to-day maintenance duties to equipment including checking machinery and electrical equipment when required.
- Maintain an equipment inventory
- Maintain accurate records of work conducted, activities, and achievements.

Planned maintenance activities are communicated to the person responsible for completing the task through the issuance of WMS work orders. Work orders are automatically generated on a schedule as determined based on manufacturer's recommendations and site specific operational and maintenance needs and are assigned directly to the appropriate operations personnel. This schedule is set up by the designated WMS Primary. Work orders are completed and electronically entered into WMS by the person responsible for completing the task.

Unplanned maintenance is conducted, as required.

9.1 Normal Maintenance and Repairs

Work Order	Details
3730272	Monthly inspections of the collection system manholes.
3730278/373082	Monthly and quarterly H&S equipment checks.
3731476	Monthly inspections of diesel engine generators at the plant, Harry Street, East Street, Earl Street and Renfrew Street P.S.
3733205	Weekly checks of the pumping stations (4).
3733217	Monthly checks and maintenance of the UV system.
3733224	Monthly inspections and cleaning of the SBR DO analyzers.
3740884	Annual raw water portable sampler checks and inspection.
3740946	Annual final effluent portable sampler checks and inspection.
3751539	Monthly alarm testing in control room.
3751605	Monthly testing of gas portable generators (3).
3751626	Maintenance of the two boilers.
3753615	Monthly building and ground maintenance and repairs.
3759408	Replaced burnt out light bulbs in Digester 1 and 2 Gallery and Hallway.
3760658	Winterized all padlocks for all facilities and sub stations.
3761480	Replaced mechanical seal in boiler circulating pump #5.
3761481	Replaced bearing assembly for boiler circulating pump #7.
3761928	Drained boiler loop for contractor to tie into heating line to new scrubber.
3763104	Contractor replaced panel mate on emergency generator at Renfrew St. P.S.
3763341	Installed new heater in screw pump room.
3763344	Contractor performed jar testing with a selection of polymers.
3763911	Removed, cleaned and serviced valves for boiler #1 & #2 methane gas train.
3764034	Serviced flame arrestor and backpressure check valves for both boilers.
3764334	Replaced motor on circulating pump #10 for digester #3 & #4 heat exchanger.
3802182	Replaced velocity sensor on raw flow meter
3803430	Worked with contractor to troubleshoot the raw flow meter.
3803542	Performed maintenance on original 4-inch digester gas valves for Net Zero Project.
3805006	Troubleshooting sludge thickener performance with new polymer, different dosages, and extra flushing.
3806096	Net Zero Shut Down of plant for clarifier draining to use as surge tank, hydro off to install breaker for CHP unit.
3840865	Quarterly inspection of Spill Kit.
3847255	Repair of East Street P.S. generator issues.
3847610	Upgrades to UV system at plant.
3847880	Filled digesters #3 & #4 with 4m of water for pressure testing and commissioning for the Net Zero Project.
3849098	Clean out of the polymer tanks by pressure washing.
3851406	Commissioning of new digesters and associate equipment and setting up fittings and

	reservoir to test organics unloading station.
3902528	Installed new voltage monitor in cabinet in the thickener room.
3902753/3904360	Replaced bearings and seals on SBR blower #2, #3, #5.
3951732	Contractor modified and replaced voltage regulator on East Street generator.
3952582	Tested backflow preventers in bar screen room, sample sink in basement, main line coming into control building and at the Renfrew Street P.S. building.
3952626	Contractor to repair programming in UV system and clear warnings form the actuator.
4000503	Repair of the complete shear of shaft between head bearing and discharge side of the screw flight on screw pump #2.
4001705	Repair of WAS flow meter not showing any flow.
4046703	Replacement of SBR #3 wasting pump.
4093053	Troubleshooting of the new UV system that is not properly disinfecting the final effluent.
4138696	Annual lifting equipment inspections by contractor.
4144707	Installed new replacement flow meter for sludge thickener.
4192127	Replaced impeller on East Street P.S. pump #2.
4195004	Replaced high level float at East Street P.S.
4195490	Replaced lower limit switch for SBR #2 decanter.
4237765/4237766	Troubleshooting for pressure dropping on glycol loop for heat exchangers.
4276781	Repaired leak on piping for radiant heater in bar screen room.
4279678	Repaired screw pump blockage by removing cover from end of screw pump assembly and cleaned out debris and hosed out screens to enable water to be released.

9.2 Emergency Maintenance and Repairs

Work Order	Details
3763105	Harry Street P.S. panel mate was frozen and was not connected to IP address, so SCADA integrator was called to fix programming.
3763303	Call in due to SCADA system off line due to problems at Harry Street P.S.
3952581	Call in for generator fault.
4000423	Call in due to screw pump failure causing by-pass.
4001303	Call in due to Zone 8 common alarm.
4001854	Call in due to wash press high amps lockout at the primary head works.
4094633	Call in due to Earl Street P.S. supervisory alarm.
4278683	Call in due to SBR #3 fault alarm.
39521523952616	Call in due to phone line failure at plant.
4278752	SCADA integrator fixed UV system stuck in alarm state after reset of CP4, SCADA and UV PLC by repairing programming.

9.3 Flow Meter Calibrations and Maintenance

Location	Date of Calibration	Additional Maintenance
Influent Flow Meter	Nov 22, 2024	
Effluent Flow Meter	Nov 22, 2024	

Location	Date of Calibration	Additional Maintenance
Collection Flow Meters	N/A	

9.4 Authorized Alterations in Collection System

Work Order	Details	Significant Drinking Water Threat (Y/N)
N/A		

9.5 Notice of Modifications

Date	Process	Modification	Status
N/A			

10 Sludge Generation

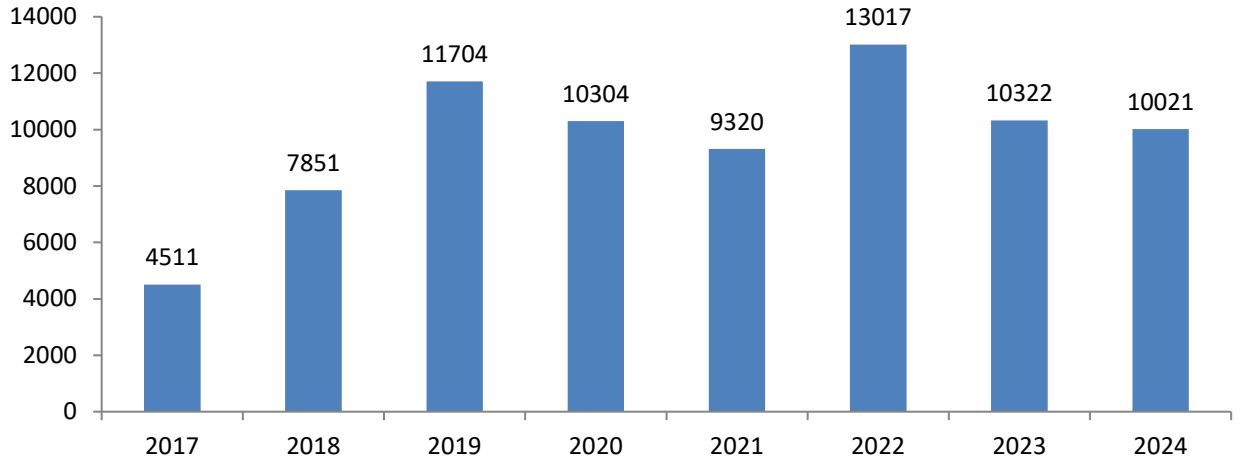
10.1 Sludge Volume Generation Summary

Month	Volume m3
January	
February	
March	
April	2331
May	2195
June	
July	
August	
September	
October	5495
November	
December	
TOTAL	**10,021**

10.2 Sludge Disposal Summary

Date	Disposal Location	Approval Number	Total Volume (m3)
Apr 25-26, 2024	Greg Splinter – Hales Creek Farm	24768	2331.0
May 2, 2024	Scott Tabbert – Biggs Farm	25039	1030.0
May 3, 2024	Scott Tabbert – Sunny Hillcrest Farm	25039	1165.0
Oct 17-21, 2024	Scott Tabbert – Christink Farm	60287	2189.0
Oct 17-21, 2024	Scott Tabbert – Sunny Hillcrest – Moore Farm	24707	3306.0

10.3 Annual Comparison (m3/year)



It is anticipated that sludge volumes will remain similar to the 2024 volumes.

11 Summary of Complaints

Location	Date	Nature of Complaint	Actions Taken
Algonquin Street	Feb 2	Sewer plugged	Camera'd line back to house; Contractor did rodding to remove roots and blockage was corrected.
Victoria Street	Jul 29	Sewer plugged	Checked manholes on street; Resident needed plumber to correct issue.
Petawawa Blvd	Nov 19	Sewer plugged and odour	Checked manholes on street; All good in the mainline. No further action required by OCWA.

Appendix A

Appendix A - Performance Assessment Report (PAR)

Ontario Clean Water Agency
Agence Ontarienne Des Eaux

Performance Assessment Report

From 1/1/2024 to 12/31/2024 11:59:59 PM

5571 PETAWAWA WASTEWATER TREATMENT FACILITY 120000587

	1 / 2024	2/ 2024	3/ 2024	4/ 2024	5/ 2024	6/ 2024	7/ 2024	8/ 2024	9/ 2024	10/ 2024	11/ 2024	12/ 2024	<--Total-->	<--Avg-->	<--Max-->	<-Criteria->
Flows																
Raw Flow: Total - Raw Sewage m³/d	123,611.00	119,486.00	128,358.00	129,907.00	121,780.00	122,486.00	120,106.00	126,166.00	121,168.00	120,851.00	127,684.00	132,120.00	1,493,723.00			0.00
Raw Flow: Avg - Raw Sewage m³/d	3,987.45	4,120.21	4,140.58	4,330.23	3,928.39	4,082.87	3,874.39	4,069.87	4,038.93	3,898.42	4,256.13	4,261.94		4,081.21		8,730.00
Raw Flow: Max - Raw Sewage m³/d	4,373.00	4,755.00	4,614.00	4,842.00	4,619.00	4,875.00	4,323.00	4,394.00	4,706.00	4,352.00	4,983.00	5,095.00			5,095.00	0.00
Raw Flow: Count - Raw Sewage m³/d	31.00	29.00	31.00	30.00	31.00	30.00	31.00	31.00	30.00	31.00	30.00	31.00	366.00			0.00
Eff. Flow: Total - Final Effluent m³/d	123,611.00	119,486.00	128,523.00	131,040.00	130,197.00	133,944.00	133,059.00	133,799.00	125,699.00	126,321.00	119,597.00	119,988.00	1,525,264.00			0.00
Eff. Flow: Avg - Final Effluent m³/d	3,987.45	4,120.21	4,145.90	4,368.00	4,199.90	4,464.80	4,292.23	4,316.10	4,189.97	4,074.87	3,986.57	3,870.58		4,167.39		8,730.00
Eff. Flow: Max - Final Effluent m³/d	4,373.00	4,755.00	4,614.00	4,716.00	5,065.00	5,932.00	4,756.00	4,742.00	4,951.00	4,563.00	4,923.00	4,791.00			5,932.00	0.00
Eff Flow: Count - Final Effluent m³/d	31.00	29.00	31.00	30.00	31.00	30.00	31.00	31.00	30.00	31.00	30.00	31.00	366.00			0.00
Carbonaceous Biochemical Oxygen Demand: CBOD																
Raw: Avg cBOD5 - Raw Sewage mg/L	0.00	0.00	0.00	0.00	60.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		60.00	60.00	0.00
Raw: # of samples of cBOD5 - Raw Sewage	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00			0.00
Eff: Avg cBOD5 - Final Effluent mg/L	5.00	5.60	6.50	6.75	7.40	3.25	3.00	< 1.40	< 1.75	< 2.80	5.25	2.50		4.27	7.40	25.00
Eff: # of samples of cBOD5 - Final Effluent	4.00	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	5.00	4.00	4.00	52.00			0.00
Loading: cBOD5 - Final Effluent kg/d	19.937	23.073	26.948	29.484	31.079	14.511	12.877	< 6.043	< 7.332	< 11.410	20.929	9.676		17.79	31.08	
Percent Removal: cBOD5 - Raw Sewage %	0.00	0.00	0.00	0.00	87.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00		87.67	87.67	0.00
Biochemical Oxygen Demand: BOD5																
Raw: Avg BOD5 - Raw Sewage mg/L	93.75	79.40	87.00	83.50	75.00	< 71.00	111.75	96.20	100.25	120.60	137.50	90.75		95.56	137.50	0.00
Raw: # of samples of BOD5 - Raw Sewage	4.00	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	5.00	4.00	4.00	52.00			0.00
Percent Removal: BOD5 - Raw Sewage %	0.00	0.00	0.00	0.00	0.00	< 0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00
Total Suspended Solids: TSS																
Raw: Avg TSS - Raw Sewage mg/L	156.50	163.00	155.17	175.50	262.71	183.00	219.13	206.00	198.25	195.00	224.50	148.50		190.60	262.71	0.00
Raw: # of samples of TSS - Raw Sewage	4.00	5.00	6.00	4.00	7.00	4.00	8.00	5.00	4.00	5.00	4.00	4.00	60.00			0.00
Eff: Avg TSS - Final Effluent mg/L	< 2.00	< 2.20	< 2.00	< 2.00	< 10.80	< 2.50	< 2.00	< 2.40	< 2.00	< 3.80	< 3.50	< 2.00		< 3.08	< 10.80	25.00
Eff: # of samples of TSS - Final Effluent	4.00	5.00	6.00	4.00	5.00	4.00	9.00	5.00	4.00	5.00	4.00	4.00	59.00			0.00
Loading: TSS - Final Effluent kg/d	< 7.975	< 9.064	< 8.292	< 8.736	< 45.359	< 11.162	< 8.584	< 10.359	< 8.380	< 15.485	< 13.953	< 7.741		< 12.86	< 45.36	
Percent Removal: TSS - Raw Sewage %	98.72	98.65	98.71	98.86	95.89	98.63	99.09	98.83	98.99	98.05	98.44	98.65		98.46	99.09	0.00
Total Phosphorus: TP																
Raw: Avg TP - Raw Sewage mg/L	3.25	3.30	3.08	3.65	3.86	3.85	3.64	3.19	3.89	3.99	4.00	3.39		3.59	4.00	0.00
Raw: # of samples of TP - Raw Sewage	14.00	13.00	12.00	13.00	16.00	12.00	14.00	13.00	12.00	15.00	12.00	14.00	160.00			0.00

Eff: Avg TP - Final Effluent mg/L	0.37	0.58	0.46	0.43	0.63	0.59	0.55	0.64	0.75	0.67	0.71	0.61		0.58	0.75	1.00
Eff: # of samples of TP - Final Effluent	14.00	13.00	12.00	13.00	14.00	12.00	14.00	13.00	12.00	15.00	12.00	14.00	158.00			0.00
Loading: TP - Final Effluent kg/d	1.470	2.409	1.913	1.871	2.651	2.649	2.369	2.760	3.122	2.724	2.821	2.375		2.42	3.12	
Percent Removal: TP - Raw Sewage %	88.64	82.27	85.01	88.27	83.63	84.59	84.84	79.97	80.82	83.23	82.29	81.87		83.79	88.64	0.00

Nitrogen Series

Raw: Avg TKN - Raw Sewage mg/L	29.29	32.36	29.99	31.08	35.75	32.08	30.22	37.42	31.78	37.55	36.44	32.35		33.03	37.55	0.00
Raw: # of samples of TKN - Raw Sewage	14.00	13.00	12.00	13.00	16.00	12.00	14.00	13.00	12.00	15.00	12.00	14.00	160.00			0.00
Eff: Avg TAN - Final Effluent mg/L	8.20	6.05	8.90	9.78	9.51	4.87	3.69	3.20	3.13	4.65	3.92	8.42		6.23	9.78	25.00
Eff: # of samples of TAN - Final Effluent	14.00	13.00	12.00	13.00	14.00	12.00	14.00	13.00	12.00	15.00	12.00	14.00	158.00			0.00
Loading: TAN - Final Effluent kg/d	32.703	24.918	36.878	42.699	39.944	21.736	15.835	13.828	13.132	18.929	15.641	32.579		25.96	42.70	
Eff: Avg NO3-N - Final Effluent mg/L	1.47	2.73	1.30	1.07	2.16	3.30	4.14	3.76	4.49	4.77	3.77	2.61		2.96	4.77	0.00
Eff: # of samples of NO3-N - Final Effluent	14.00	13.00	12.00	13.00	14.00	12.00	14.00	13.00	12.00	15.00	12.00	14.00	158.00			0.00
Eff: Avg NO2-N - Final Effluent mg/L	< 0.15	0.16	< 0.12	< 0.10	< 0.11	< 0.11	< 0.13	< 0.14	< 0.10	< 0.10	< 0.10	< 0.12		< 0.12	< 0.16	0.00
Eff: # of samples of NO2-N - Final Effluent	14.00	13.00	12.00	13.00	14.00	12.00	14.00	13.00	12.00	15.00	12.00	14.00	158.00			0.00

Disinfection

Eff: GMD E. Coli - Final Effluent cfu/100mL	3.81	10.66	7.27	6.47	27.25	45.21	263.20	113.01	173.21	111.60	8.18	18.61				200.00
Eff: # of samples of E. Coli - Final Effluent	4.00	5.00	4.00	4.00	5.00	4.00	8.00	9.00	4.00	10.00	12.00	5.00	74.00			0.00

Appendix B

Appendix B – 2024 Monitoring Schedule

Ontario Clean Water Agency
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PETAWAWA WASTEWATER TREATMENT
Sample Schedule 2024

January	Week 1	**Monday Stat-1st**	1-5
	Week 2		8-12
	Week 3		15-19
	Week 4		22-26
	Week 5		29-31
February	Week 1		1-2
	Week 2		5-9
	Week 3		12-16
	Week 4	**Monday Stat-19th**	19-23
	Week 5		26-29
March	Week 1		1
	Week 2		4-8
	Week 3		11-15
	Week 4		18-22
	Week 5	**Friday Stat-29th**	25-29

April	Week 1	**Monday Stat-1st**	1-5
	Week 2		8-12
	Week 3		15-19
	Week 4		22-26
	Week 5		29-30
May	Week 1		1-3
	Week 2		6-10
	Week 3		13-17
	Week 4	**Monday Stat-20th**	20-24
	Week 5		27-31
June	Week 1		1
	Week 2		3-7
	Week 3		10-14
	Week 4		17-21
	Week 5		24-28

July	Week 1	**Monday Stat-1st**	1-5
	Week 2		8-12
	Week 3		15-19
	Week 4		22-26
	Week 5		29-31
August	Week 1		1-3
	Week 2	**Monday Stat-5th**	5-9
	Week 3		12-16
	Week 4		19-23
	Week 5		26-30
September	Week 1	**Monday Stat-2nd**	2-6
	Week 2		9-13
	Week 3		16-20
	Week 4		23-27
	Week 5	**Monday Stat-30th**	30

October	Week 1		1-4
	Week 2		7-11
	Week 3	**Monday Stat-14th**	14-18
	Week 4		21-25
	Week 5		28-31
November	Week 1		1
	Week 2		4-8
	Week 3	**Monday Stat-11th**	11-15
	Week 4		18-22
	Week 5		25-29
December	Week 1		2-6
	Week 2		9-13
	Week 3		16-20
	Week 4	**Wed/Thurs Stats-25th/26th**	23-27
	Week 5		30-31

Revisions

Date	Revision#	Author	Revision
03-Dec-2018	0	B.Royce	Created
18-Dec-2019	1	B.Royce	Edited for 2020
04-Nov-2020	2	B.Royce	Edited for 2021
01-Dec-2021	3	B.Royce	Dec 2021 calendar to have Raw Grab done weekly and added Full Run and Reg Run sampling
08-Dec-2021	4	B.Royce	Edited for 2022
05-Dec-2023	5	B.Royce	Edited for 2023
08-Dec-2023	6	B.Royce	Edited for 2024

WSER - Wastewater Systems Effluent Regulations
Annual Lethality Testing for Rainbow Trout
>2500 - <17500 (ADF) Average Day Effluent Flow of Previous Year - Bi-weekly Sampling of TSS & CBOD5

QEMS Ontario Clean Water Agency	External Laboratory Sample Schedule **PETAWAWA WASTEWATER TREATMENT** **January 2024**	Issued: 08-Dec-2023 Rev.#: 6 Page 1 of 12
Reviewed by: Brenda Royce (PCT)		Approved by: Senior Ops Manager

Sample days = Tues., Wed., Thurs.

In the event of STAT sample day moved to next working day

STAT - Monday, Jan. 1st

	Week 1			Week 2			Week 3			Week 4			Week 5		
	Monday Stat-1st														
	2	**3**	**4**	**9**	**10**	**11**	**16**	**17**	**18**	**23**	**24**	**25**	**30**	**31**	
	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded
Final Bacti - EC (1sample/week) 1 bottle required															
RS Composite - (2 samples/week) 1 bottle required															
RS Composite ALL (includes CBOD5 & TSS) - (1 sample/week) 2 bottles required															
FE Composite - (2 samples/week) 1 bottle required															
FE Composite ALL (includes CBOD5 & TSS) - (1 sample/week) 2 bottles required															
Raw Grab (1 sample/month) 1 bottle required															
Digester Sludge including Sludge Holding Tank Sample - (1 sample/month) 6 bottles required															
Sludge Holding Tank (1 sample/month) 1 bottle required															
Sludge Holding Tank - E. Coli - (2 samples/month) 1 bottle required															

GMD =

Additional Samples/Notes
If planning to spread sludge in April, take 2 samples in January to meet the 90-day requirement
This schedule is for guidance purposes only
Please refer to all regulatory requirements that affect the sampling schedule

QEMS Ontario Clean Water Agency	External Laboratory Sample Schedule **PETAWAWA WASTEWATER TREATMENT** **February 2024**	Issued: 08-Dec-2023 Rev.#: 6 Page 2 of 12
Reviewed by: Brenda Royce (PCT)	Approved by: Senior Ops Manager	

Sample days = Tues., Wed., Thurs.

In the event of STAT sample day moved to next working day

STAT - Monday, Feb. 19th

	Week 1			Week 2			Week 3			Week 4			Week 5		
										Monday Stat-19th					
	1			**6**	**7**	**8**	**13**	**14**	**15**	**20**	**21**	**22**	**27**	**28**	**29**
	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded
Final Bacti - EC (1sample/week) 1 bottle required															
RS Composite - (2 samples/week) 1 bottle required															
RS Composite ALL (includes CBOD5 & TSS) - (1 sample/week) 2 bottles required															
FE Composite - (2 samples/week) 1 bottle required															
FE Composite ALL (includes CBOD5 & TSS) - (1 sample/week) 2 bottles required															
Raw Grab (1 sample/month) 1 bottle required															
Digester Sludge including Sludge Holding Tank Sample - (1 sample/month) 6 bottles required															
Sludge Holding Tank (1 sample/month) 1 bottle required															
Sludge Holding Tank - E. Coli - (2 samples/month) 1 bottle required															

GMD =

Additional Samples/Notes
If planning to spread in April, take 2 samples in February to meet the 60-day requirement
If planning to spread in May, take 2 samples in February to meet the 90-day requirement
This schedule is for guidance purposes only
Please refer to all regulatory requirements that affect the sampling schedule

QEMS Ontario Clean Water Agency	External Laboratory Sample Schedule **PETAWAWA WASTEWATER TREATMENT** **March 2024**	Issued: 08-Dec-2023 Rev.#: 6 Page 3 of 12
Reviewed by: Brenda Royce (PCT)	Approved by: Senior Ops Manager	

Sample days = Tues., Wed., Thurs.

In the event of STAT sample day moved to next working day

STAT - Friday, Mar. 29th

	Week 1			Week 2			Week 3			Week 4			Week 5		
													Fri. Stat-29th		
				5	**6**	**7**	**12**	**13**	**14**	**19**	**20**	**21**	**26**	**27**	**28**
	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded
Final Bacti - EC (1sample/week) 1 bottle required															
RS Composite - (2 samples/week) 1 bottle required															
RS Composite ALL (includes CBOD5 & TSS) - (1 sample/week) 2 bottles required															
FE Composite - (2 samples/week) 1 bottle required															
FE Composite ALL (includes CBOD5 & TSS) - (1 sample/week) 2 bottles required															
Raw Grab (1 sample/month) 1 bottle required															
Digester Sludge including Sludge Holding Tank Sample - (1 sample/month) 6 bottles required															
Sludge Holding Tank (1 sample/month) 1 bottle required															
Sludge Holding Tank - E. Coli - (2 samples/month) 1 bottle required															

GMD =

Additional Samples/Notes
If planning to spread sludge in April, take 2 samples in March to meet the 30-day requirement
If planning to spread in May, take 2 samples in March to meet the 60-day requirement
If planning to spread in June, take 2 samples in March to meet the 90-day requirement
This schedule is for guidance purposes only
Please refer to all regulatory requirements that affect the sampling schedule

QEMS Ontario Clean Water Agency	External Laboratory Sample Schedule **PETAWAWA WASTEWATER TREATMENT** **April 2024**	Issued: 08-Dec-2023 Rev.#: 6 Page 4 of 12
Reviewed by: Brenda Royce (PCT)	Approved by: Senior Ops Manager	

Sample days = Tues., Wed., Thurs.

In the event of STAT sample day moved to next working day

STAT - Monday, Apr. 1st

	Week 1			Week 2			Week 3			Week 4			Week 5		
	Monday Stat-1st														
	2	**3**	**4**	**9**	**10**	**11**	**16**	**17**	**18**	**23**	**24**	**25**	**30**		
	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded
Final Bacti - EC (1sample/week) 1 bottle required															
RS Composite - (2 samples/week) 1 bottle required															
RS Composite ALL (includes CBOD5 & TSS) - (1 sample/week) 2 bottles required															
FE Composite - (2 samples/week) 1 bottle required															
FE Composite ALL (includes CBOD5 & TSS) - (1 sample/week) 2 bottles required															
FE - Acute Lethality Test **** For WSER**															
Raw Grab (1 sample/month) 1 bottle required															
Digester Sludge including Sludge Holding Tank Sample - (1 sample/month) 6 bottles required															
Sludge Holding Tank (1 sample/month) 1 bottle required															
Sludge Holding Tank - E. Coli - (2 samples/month) 1 bottle required															

GMD =

Additional Samples/Notes
2 Sludge holding samples MUST be completed monthly until the end of the hauling season
If planning to spread sludge in May, take 2 samples in March to meet the 30-day requirement
If planning to spread in May, take 2 samples in March to meet the 60-day requirement
If planning to spread in June, take 2 samples in March to meet the 90-day requirement
****Sample to be sent by Purolator Courier to Aquatox - BE SURE TO USE APPROPRIATE CHAIN OF CUSTODY & SAMPLING FOR RAINBOW TROUT ONLY!!**
This schedule is for guidance purposes only
Please refer to all regulatory requirements that affect the sampling schedule

QEMS Ontario Clean Water Agency	External Laboratory Sample Schedule **PETAWAWA WASTEWATER TREATMENT** **May 2024**	Issued: 08-Dec-2023 Rev.#: 6 Page 5 of 12
Reviewed by: Brenda Royce (PCT)		Approved by: Senior Ops Manager

Sample days = Tues., Wed., Thurs.

In the event of STAT sample day moved to next working day

STAT - Monday, May 20th

	Week 1			Week 2			Week 3			Week 4			Week 5		
										Monday Stat-20th					
	1	**2**		**7**	**8**	**9**	**14**	**15**	**16**	**21**	**22**	**23**	**28**	**29**	**30**
	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded
Final Bacti - EC (1sample/week) 1 bottle required															
RS Composite - (2 samples/week) 1 bottle required															
RS Composite ALL (includes CBOD5 & TSS) - (1 sample/week) 2 bottles required															
FE Composite - (2 samples/week) 1 bottle required															
FE Composite ALL (includes CBOD5 & TSS) - (1 sample/week) 2 bottles required															
Raw Grab (1 sample/month) 1 bottle required															
Digester Sludge including Sludge Holding Tank Sample - (1 sample/month) 6 bottles required															
Sludge Holding Tank (1 sample/month) 1 bottle required															
Sludge Holding Tank - E. Coli - (2 samples/month) 1 bottle required															

GMD =

Additional Samples/Notes
2 sludge holding samples must be completed monthly until the end of the hauling season
This schedule is for guidance purposes only
Please refer to all regulatory requirements that affect the sampling schedule

QEMS Ontario Clean Water Agency	External Laboratory Sample Schedule **PETAWAWA WASTEWATER TREATMENT** **June 2024**	Issued: 08-Dec-2023 Rev.#: 6 Page 6 of 12
Reviewed by: Brenda Royce (PCT)	Approved by: Senior Ops Manager	

Sample days = Tues., Wed., Thurs.

In the event of STAT sample day moved to next working day

	Week 1			Week 2			Week 3			Week 4			Week 5		
				4	5	6	11	12	13	18	19	20	25	26	27
	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded
Final Bacti - EC (1sample/week) 1 bottle required															
RS Composite - (2 samples/week) 1 bottle required															
RS Composite ALL (includes CBOD5 & TSS) - (1 sample/week) 2 bottles required															
FE Composite - (2 samples/week) 1 bottle required															
FE Composite ALL (includes CBOD5 & TSS) - (1 sample/week) 2 bottles required															
Raw Grab (1 sample/month) 1 bottle required															
Digester Sludge including Sludge Holding Tank Sample - (1 sample/month) 6 bottles required															
Sludge Holding Tank (1 sample/month) 1 bottle required															
Sludge Holding Tank - E. Coli - (2 samples/month) 1 bottle required															

GMD =

Additional Samples/Notes
2 sludge holding samples must be completed monthly until the end of the hauling season
This schedule is for guidance purposes only
Please refer to all regulatory requirements that affect the sampling schedule

QEMS Ontario Clean Water Agency	External Laboratory Sample Schedule **PETAWAWA WASTEWATER TREATMENT** **July 2024**	Issued: 08-Dec-2023 Rev.#: 6 Page 7 of 12
Reviewed by: Brenda Royce (PCT)	Approved by: Senior Ops Manager	

Sample days = Tues., Wed., Thurs.

In the event of STAT sample day moved to next working day

STAT - Monday, July 1st

	Week 1			Week 2			Week 3			Week 4			Week 5		
	Monday Stat-1st														
	2	**3**	**4**	**9**	**10**	**11**	**16**	**17**	**18**	**23**	**24**	**25**	**30**	**31**	
	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded
Final Bacti - EC (1sample/week) 1 bottle required															
RS Composite - (2 samples/week) 1 bottle required															
RS Composite ALL (includes CBOD5 & TSS) - (1 sample/week) 2 bottles required															
FE Composite - (2 samples/week) 1 bottle required															
FE Composite ALL (includes CBOD5 & TSS) - (1 sample/week) 2 bottles required															
Raw Grab (1 sample/month) 1 bottle required															
Digester Sludge including Sludge Holding Tank Sample - (1 sample/month) 6 bottles required															
Sludge Holding Tank (1 sample/month) 1 bottle required															
Sludge Holding Tank - E. Coli - (2 samples/month) 1 bottle required															

GMD =

Additional Samples/Notes

2 sludge holding samples must be completed monthly until the end of the hauling season

This schedule is for guidance purposes only

Please refer to all regulatory requirements that affect the sampling schedule

QEMS Ontario Clean Water Agency	External Laboratory Sample Schedule **PETAWAWA WASTEWATER TREATMENT** **August 2024**	Issued: 08-Dec-2023 Rev.#: 6 Page 8 of 12
Reviewed by: Brenda Royce (PCT)	Approved by: Senior Ops Manager	

Sample days = Tues., Wed., Thurs.

In the event of STAT sample day moved to next working day

STAT - Monday, August 5th

	Week 1			Week 2			Week 3			Week 4			Week 5		
				Monday Stat-5th											
			1	**6**	**7**	**8**	**13**	**14**	**15**	**20**	**21**	**22**	**27**	**28**	**29**
	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded
Final Bacti - EC (1sample/week) 1 bottle required															
RS Composite - (2 samples/week) 1 bottle required															
RS Composite ALL (includes CBOD5 & TSS) - (1 sample/week) 2 bottles required															
FE Composite - (2 samples/week) 1 bottle required															
FE Composite ALL (includes CBOD5 & TSS) - (1 sample/week) 2 bottles required															
Raw Grab (1 sample/month) 1 bottle required															
Digester Sludge including Sludge Holding Tank Sample - (1 sample/month) 6 bottles required															
Sludge Holding Tank (1 sample/month) 1 bottle required															
Sludge Holding Tank - E. Coli - (2 samples/month) 1 bottle required															

GMD =

Additional Samples/Notes
2 sludge holding samples must be completed monthly until the end of the hauling season
This schedule is for guidance purposes only
Please refer to all regulatory requirements that affect the sampling schedule

QEMS Ontario Clean Water Agency	External Laboratory Sample Schedule **PETAWAWA WASTEWATER TREATMENT** **September 2024**	Issued: 08-Dec-2023 Rev.#: 6 Page 9 of 12
Reviewed by: Brenda Royce (PCT)		Approved by: Senior Ops Manager

Sample days = Tues., Wed., Thurs.

In the event of STAT sample day moved to next working day

STAT - Monday, September 2nd & 30th

	Week 1			Week 2			Week 3			Week 4			Week 5		
				Monday Stat-4th									***Monday Stat-30th***		
	3	**4**	**5**	**10**	**11**	**12**	**17**	**18**	**19**	**24**	**25**	**26**			
	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded
Final Bacti - EC (1sample/week) 1 bottle required															
RS Composite - (2 samples/week) 1 bottle required															
RS Composite ALL (includes CBOD5 & TSS) - (1 sample/week) 2 bottles required															
FE Composite - (2 samples/week) 1 bottle required															
FE Composite ALL (includes CBOD5 & TSS) - (1 sample/week) 2 bottles required															
Raw Grab (1 sample/month) 1 bottle required															
Digester Sludge including Sludge Holding Tank Sample - (1 sample/month) 6 bottles required															
Sludge Holding Tank (1 sample/month) 1 bottle required															
Sludge Holding Tank - E. Coli - (2 samples/month) 1 bottle required															

GMD =

Additional Samples/Notes
2 sludge holding samples must be completed monthly until the end of the hauling season
This schedule is for guidance purposes only
Please refer to all regulatory requirements that affect the sampling schedule

QEMS Ontario Clean Water Agency	External Laboratory Sample Schedule **PETAWAWA WASTEWATER TREATMENT** **October 2024**	Issued: 08-Dec-2023 Rev.#: 6 Page 10 of 12
Reviewed by: Brenda Royce (PCT)	Approved by: Senior Ops Manager	

Sample days = Tues., Wed., Thurs.

In the event of STAT sample day moved to next working day

STAT - Monday, October 14th

	Week 1			Week 2			Week 3			Week 4			Week 5		
							Monday Stat-14th								
	1	**2**	**3**	**8**	**9**	**10**	**15**	**16**	**17**	**22**	**23**	**24**	**29**	**30**	**31**
	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded
Final Bacti - EC (1sample/week) 1 bottle required															
RS Composite - (2 samples/week) 1 bottle required															
RS Composite ALL (includes CBOD5 & TSS) - (1 sample/week) 2 bottles required															
FE Composite - (2 samples/week) 1 bottle required															
FE Composite ALL (includes CBOD5 & TSS) - (1 sample/week) 2 bottles required															
Raw Grab (1 sample/month) 1 bottle required															
Digester Sludge including Sludge Holding Tank Sample - (1 sample/month) 6 bottles required															
Sludge Holding Tank (1 sample/month) 1 bottle required															
Sludge Holding Tank - E. Coli - (2 samples/month) 1 bottle required															

GMD =

Additional Samples/Notes
2 sludge holding samples must be completed monthly until the end of the hauling season
This schedule is for guidance purposes only
Please refer to all regulatory requirements that affect the sampling schedule

QEMS Ontario Clean Water Agency	External Laboratory Sample Schedule **PETAWAWA WASTEWATER TREATMENT** **November 2024**	Issued: 08-Dec-2023 Rev.#: 6 Page 11 of 12
Reviewed by: Brenda Royce (PCT)		Approved by: Senior Ops Manager

Sample days = Tues., Wed., Thurs.

In the event of STAT sample day moved to next working day

STAT - Monday, November 11th

	Week 1			Week 2			Week 3			Week 4			Week 5		
							Friday Stat-11th								
				5	**6**	**7**	**12**	**13**	**14**	**19**	**20**	**21**	**26**	**27**	**28**
	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded
Final Bacti - EC (1sample/week) 1 bottle required															
RS Composite - (2 samples/week) 1 bottle required															
RS Composite ALL (includes CBOD5 & TSS) - (1 sample/week) 2 bottles required															
FE Composite - (2 samples/week) 1 bottle required															
FE Composite ALL (includes CBOD5 & TSS) - (1 sample/week) 2 bottles required															
Raw Grab (1 sample/month) 1 bottle required															
Digester Sludge including Sludge Holding Tank Sample - (1 sample/month) 6 bottles required															
Sludge Holding Tank (1 sample/month) 1 bottle required															
Sludge Holding Tank - E. Coli - (2 samples/month) 1 bottle required															

GMD =

Additional Samples/Notes
2 sludge holding samples must be completed monthly until the end of the hauling season
This schedule is for guidance purposes only
Please refer to all regulatory requirements that affect the sampling schedule

QEMS #NAME?	External Laboratory Sample Schedule **PETAWAWA WASTEWATER TREATMENT** **December 2024**	Issued: 08-Dec-2023 Rev.#: 6 Page 12 of 12
Reviewed by: Brenda Royce (PCT)	Approved by: Senior Ops Manager	

Sample days = Tues., Wed., Thurs.

In the event of STAT sample day moved to next working day

STAT - Wed. Dec. 25th & Thurs. Dec. 26th

	Week 1			Week 2			Week 3			Week 4			Week 5		
													Wed/Thurs Stats-25th/26th		
	3	**4**	**5**	**10**	**11**	**12**	**17**	**18**	**19**	**23**	**24**	**27**	**31**		
	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded	Sampled Received Uploaded
Final Bacti - EC (1sample/week) 1 bottle required															
RS Composite (Reg Run) - (2 samples/week) 1 bottle required															
RS Composite (Full Run - includes BOD5 & TSS) - (1 sample/week) 2 bottles required															
FE Composite (Reg Run) - (2 samples/week) 1 bottle required															
FE Composite (Full Run - includes CBOD5 & TSS) - (1 sample/week) 2 bottles required															
Raw Grab (1 sample/week) 1 bottle required															
Digester Sludge including Sludge Holding Tank Sample - (1 sample/month) 6 bottles required															
Sludge Holding Tank (1 sample/month) 1 bottle required															
Sludge Holding Tank - E. Coli - (2 samples/month) 1 bottle required															

GMD =

Additional Samples/Notes
2 sludge holding samples must be completed monthly until the end of the hauling season
This schedule is for guidance purposes only
Please refer to all regulatory requirements that affect the sampling schedule

Appendix C

Appendix C - Details of Abnormal Sewage Discharge Events

Event Details Summary

Facility By-pass

Date	Location	Details	Volume (m3)	Start Time	End Time	Duration (h)	Discharge Receiver	Disinfection Provided
Jun 19	Petawawa WPCP	Failure of screw pump #2	17	05:12:17	05:26:18	14 min, 0.01 sec	Ottawa River	No

Facility Overflow

Date	Location	Details	Volume (m3)	Start Time	End Time	Duration (h)	Discharge Receiver	Disinfection Provided
N/A								

Collection Overflow

Date	Location	Details	Volume (m3)	Start Time	End Time	Duration (h)	Discharge Receiver	Disinfection Provided
N/A								

Spills of Sewage

Date	Location	Details	Volume (m3)	Start Time	End Time	Duration (h)	Discharge Receiver	Disinfection Provided
N/A								

Collection System Monitoring Data

Event Date	Event Location	Volume (m3)	Parameter	mg/L	Source Loading	Any Adverse Impacts & Corrective Actions
N/A			BOD			
			Total Suspended Solids			
			Total Phosphorus			
			Total Kjeldahl Nitrogen (TKN)			
			E.Coli			

Appendix D

Appendix D - ECA Annual Report Requirements

Facility ECA # A-500-3113268754 **Section 11(4)**	**Section in Report**
a summary and interpretation of all Influent monitoring data, and a review of the historical trend of the sewage characteristics and flow rates;	Raw Sewage Quality Treatment Flows
a summary and interpretation of all Final Effluent monitoring data, including concentration, flow rates, and a comparison to the design objectives and compliance limits in this approval, including an overview of the success and adequacy of the Works	Treatment Flows Effluent Quality
a summary of all operating issues encountered and corrective actions taken;	Operating Issues and Problems
a summary of all normal and emergency repairs and maintenance activities carried out on any major structure, equipment, apparatus or mechanism forming part of the Works;	Maintenance
a summary of any effluent quality assurance or control measures undertaken;	Maintenance
a summary of the calibration and maintenance carried out on all Influent and Final Effluent monitoring equipment to ensure that the accuracy is within the tolerance of that equipment as required in this Approval or recommended by the manufacturer;	Maintenance
a summary of efforts made to achieve the design objectives in this Approval, including an assessment of the issues and recommendations for pro-active actions if any are required under the following situations: when any of the design objectives is not achieved more than 50% of the time in a year, or there is an increasing trend in deterioration of Final Effluent quality when the Annual Average Daily Influent Flow reaches 80% of the Rated Capacity	Effluent Quality Treatment Flows
a tabulation of the volume of sludge generated, an outline of anticipated volumes to be generated in the next reporting period and a summary of the locations to where the sludge was disposed;	Sludge Generation
a summary of any complaints received and any steps taken to address the complaints;	Summary of Complaints
a summary of all Bypasses, Overflows, other situations outside Normal Operating Conditions and spills within the meaning of Part X of EPA and abnormal discharge events;	Operating Issues and Problems Appendix – Details of Abnormal Discharges
a summary of all completed under Notice of Modifications to Sewage Works Paragraph 1.d of Condition 10, including a report on status of implementation of all modification;	Maintenance
a summary of efforts made to achieve conformance with including Procedure F-5-1 but not limited to projects undertaken and completed in the sanitary sewer system that result in overall elimination including expenditures and proposed projects to eliminate with estimated budget forecast for the year following Bypass/Overflows that for which the report is submitted;	N/A – Collection System reporting is now under the CLI ECA reporting requirements.
any changes or updates to the schedule for the completion of construction and commissioning operation of major process(es) / equipment groups in the Proposed Works;	Maintenance
a summary of any deviation from the monitoring schedule and reasons for the	Monitoring Schedule

Facility ECA # A-500-3113268754 **Section 11(4)**	**Section in Report**
current reporting year and a schedule for the next reporting year;.	

Collection ECA # 199-W601 - Schedule E	**Section in Report**
4.6.3 If applicable, includes a summary of all required monitoring data along with an interpretation of the data and any conclusion drawn from the data evaluation about the need for future modifications to the Authorized System or system operations.	Operating Issues and Problems
4.6.4 Includes a summary of any operating problems encountered and corrective actions taken.	Operating Issues and Problems
4.6.5 Includes a summary of all calibration, maintenance, and repairs carried out on any major structure, Equipment, apparatus, mechanism, or thing forming part of the Municipal Sewage Collection System.	Maintenance
4.6.6 Includes a summary of any complaints related to the Sewage Works received during the reporting period and any steps taken to address the complaints.	Summary of Complaints
4.6.7 Includes a summary of all Alterations to the Authorized System within the reporting period that are authorized by this Approval including a list of Alterations that pose a Significant Drinking Water Threat.	Maintenance
4.6.8 Includes a summary of all Collection System Overflow(s) and Spill(s) of Sewage, including: a) Dates; b) Volumes and durations; c) If applicable, loadings for total suspended solids, BOD, total phosphorus, and total Kjeldahl nitrogen, and sampling results for E.coli; d) Disinfection, if any; and e) Any adverse impact(s) and any corrective actions, if applicable.	Operating Issues and Problems Appendix D
4.6.9 Includes a summary of efforts made to reduce Collection System Overflows, Spills, STP Overflows, and/or STP Bypasses, including the following items, as applicable: a) A description of projects undertaken and completed in the Authorized System that result in overall overflow reduction or elimination including expenditures and proposed projects to eliminate overflows with estimated budget forecast for the year following that for which the report is submitted. b) Details of the establishment and maintenance of a PPCP, including a summary of project progresses compared to the PPCP's timelines. c) An assessment of the effectiveness of each action taken. d) An assessment of the ability to meet Procedure F-5-1 or Procedure F-5-5 objectives (as applicable) and if able to meet the objectives, an overview of next steps and estimated timelines to meet the objectives. e) Public reporting approach including proactive efforts.	Maintenance Operating Issues and Problems