MUNICIPALITY OF
West Perth

2025 Annual Wastewater Report

Mitchell Wastewater Treatment Plant

MUNICIPALITY OF
West Perth

Introduction

This 2025 Annual Wastewater Report has been prepared for the Town of Mitchell Wastewater Treatment Plant and Collection System for the period of January 1 to December 31, 2025. The report fulfills the requirements of Environmental Compliance Approval (ECA) No. 6954-B6YMGQ, which requires that an annual performance report be submitted to the District Manager by March 31 of the year following the reporting period.

In accordance with the ECA, this report summarizes and interprets influent, imported sewage, and final effluent monitoring data, including flow rates, loadings, and comparisons to applicable compliance limits and design objectives. It also reviews historical trends and assesses the overall performance and adequacy of the Works.

The report further provides summaries of operational issues and corrective actions, maintenance and calibration activities, sludge generation and disposal, complaints received, bypasses and overflow events, completed modifications, and efforts undertaken to achieve conformance with Procedure F-5-1. A nitrate monitoring summary is included in accordance with the West Perth Nitrate Monitoring and Reporting Plan.

Through this report, the Municipality demonstrates its ongoing commitment to regulatory compliance, environmental protection, and responsible wastewater management.

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A. Summary and interpretation of all Influent, Imported Sewage and Processed Organic Waste monitoring data and a review of the historical trend of the characteristics and flow rates;

The Mitchell Wastewater Treatment Plant (MWWTP) receives wastewater from residential properties, small businesses, and industrial facilities through the collection system. The two largest wastewater producers are a dairy production facility and poultry processing facility. Environmental Services measures discharge volumes of both facilities independently.

The annual average influent flow to the MWWTP was approximately 4.772 MLD, which represents approximately 66.3% of the hydraulic design capacity for the treatment facility (average day design flow of 7.2 MLD). The maximum daily flow of 21.916 MLD occurred in the month of January. The average daily flow was lower than 2024 and maximum daily flow was higher than 2024 (average of 0.009 MLD, maximum of 6.547 MLD).

The MWWTP was able to treat the average daily flows. Peak flows were diverted and temporarily stored in the peak overflow cell and pumped back into the treatment plant when incoming flow volumes returned to normal.

The MWWTP has an on-site receiving station that is designed to accept imported liquid waste. Accepted waste is pumped and metered to the MWWTP during periods of low loading. Imported waste was not accepted in 2025.

Table 1 shows the monthly average characteristics of waste entering the MWWTP, Table 2 shows the monthly average characteristics of the imported waste, and Table 3 shows the average monthly influent volumes in 2025.

2025 Monthly Average Influent	BOD_5 (mg/L)	TKN (mg/L)	Total Phosphorus (mg/L)	Total Suspended Solids (mg/L)
January	260.00	21.00	6.58	178.20
February	282.50	28.50	6.19	143.25
March	88.20	15.30	3.37	94.51
April	175.00	17.25	3.65	139.96
May	275.00	21.00	5.05	218.25
June	384.00	28.60	8.66	366.36
July	575.00	29.00	8.07	285.38
August	367.50	30.25	8.13	270.45
September	274.00	19.20	11.21	290.44
October	318.75	24.75	7.57	256.89
November	377.50	20.50	6.61	264.40
December	291.20	23.12	8.79	211.52

Table 1: Summary of 2025 influent concentrations.

2025 Imported Waste Averages	BOD_5 (mg/L)	TKN (mg/L)	Total Phosphorus (mg/L)	Total Suspended Solids (mg/L)
January	N/A	N/A	N/A	N/A
February	N/A	N/A	N/A	N/A
March	N/A	N/A	N/A	N/A
April	N/A	N/A	N/A	N/A
May	N/A	N/A	N/A	N/A
June	N/A	N/A	N/A	N/A
July	N/A	N/A	N/A	N/A
August	N/A	N/A	N/A	N/A
September	N/A	N/A	N/A	N/A
October	N/A	N/A	N/A	N/A
November	N/A	N/A	N/A	N/A
December	N/A	N/A	N/A	N/A

Table 2: Summary of 2025 imported waste influent characteristics.

2025 Influent	Average Monthly Influent (m^3)
January	4856
February	4186
March	7960
April	6013
May	4112
June	4140
July	3756
August	3691
September	3912
October	4258
November	4352
December	6030

Table 3: The average monthly volume of all influent to the MWWTP in 2025.

The following graphs display the average monthly concentrations of specified parameters of influent to the MWWTP for 2024 and 2025:

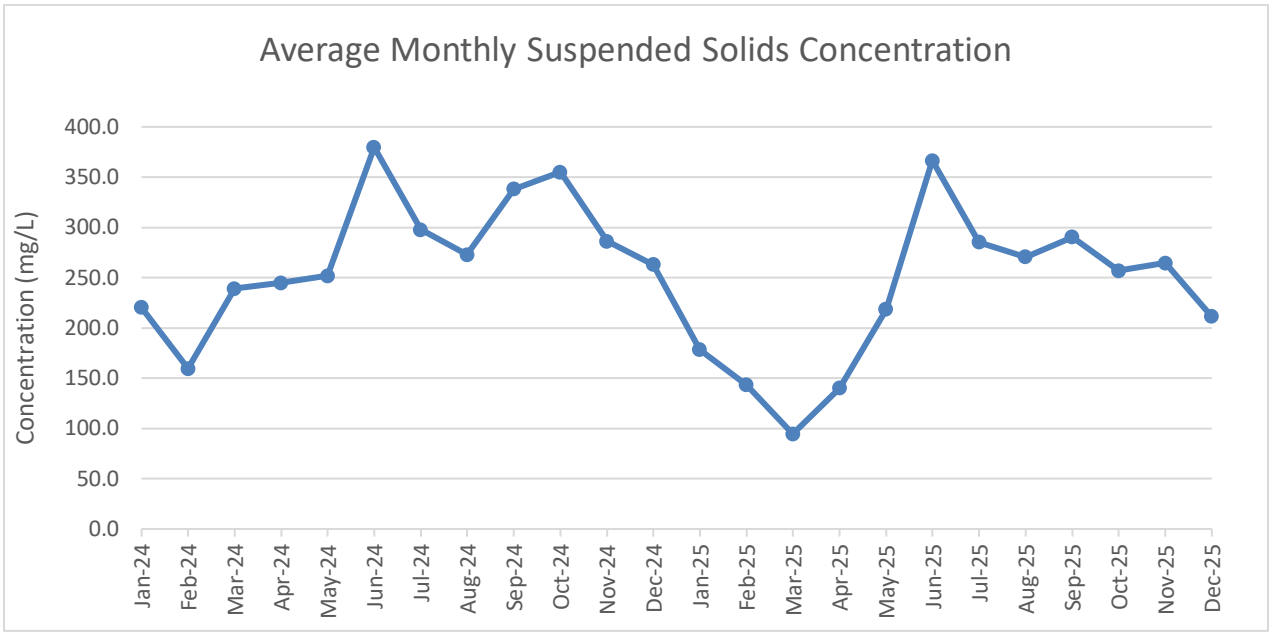

Figure 1: The historical trend of suspended solids concentration from January 2024 - December 2025.

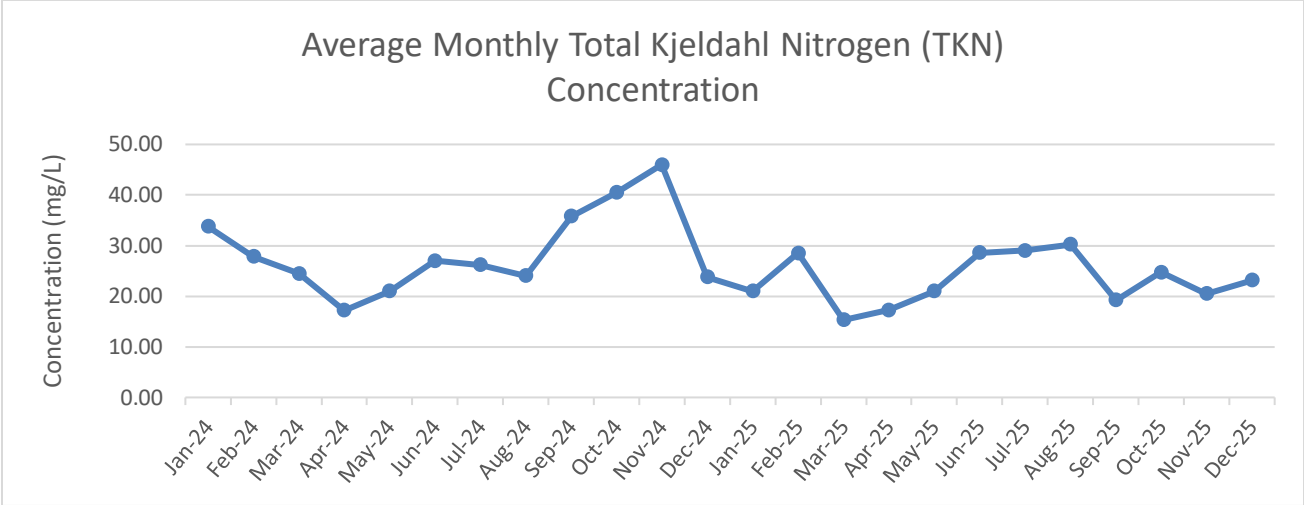

Figure 2: The historical trend of total kjeldahl nitrogen concentration from January 2024 - December 2025.

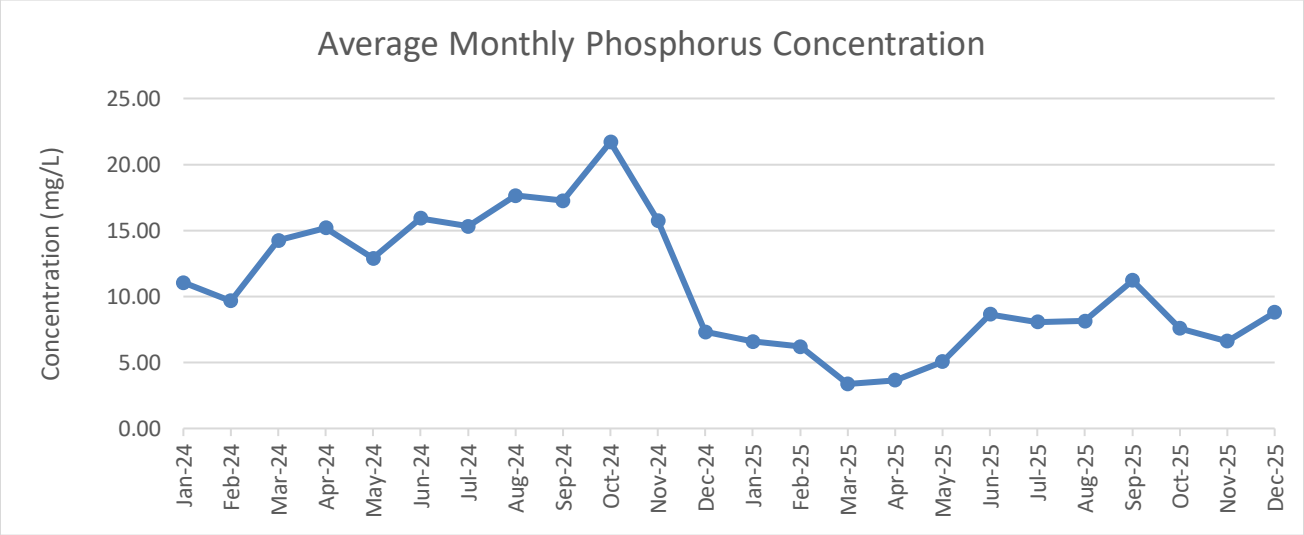

Figure 3: The historical trend of total phosphorus concentration from January 2024 - December 2025.

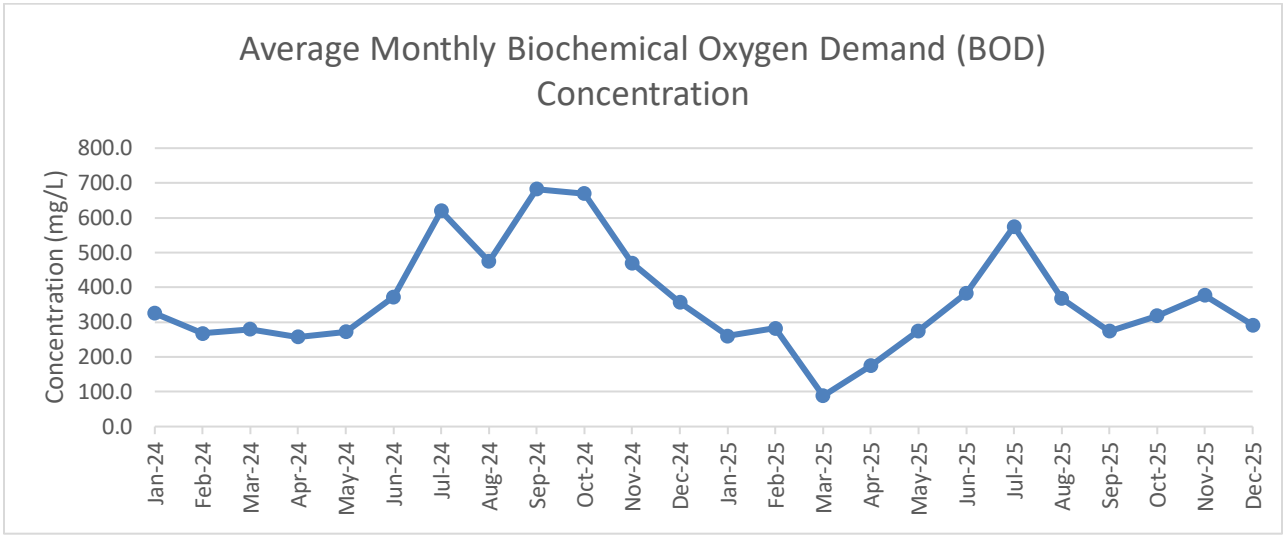

Figure 4: The historical trend of biochemical oxygen demand concentration from January 2024 - December 2025.

The following graphs show the flow rates of influent and imported waste to the MWWTP in 2024 and 2025:

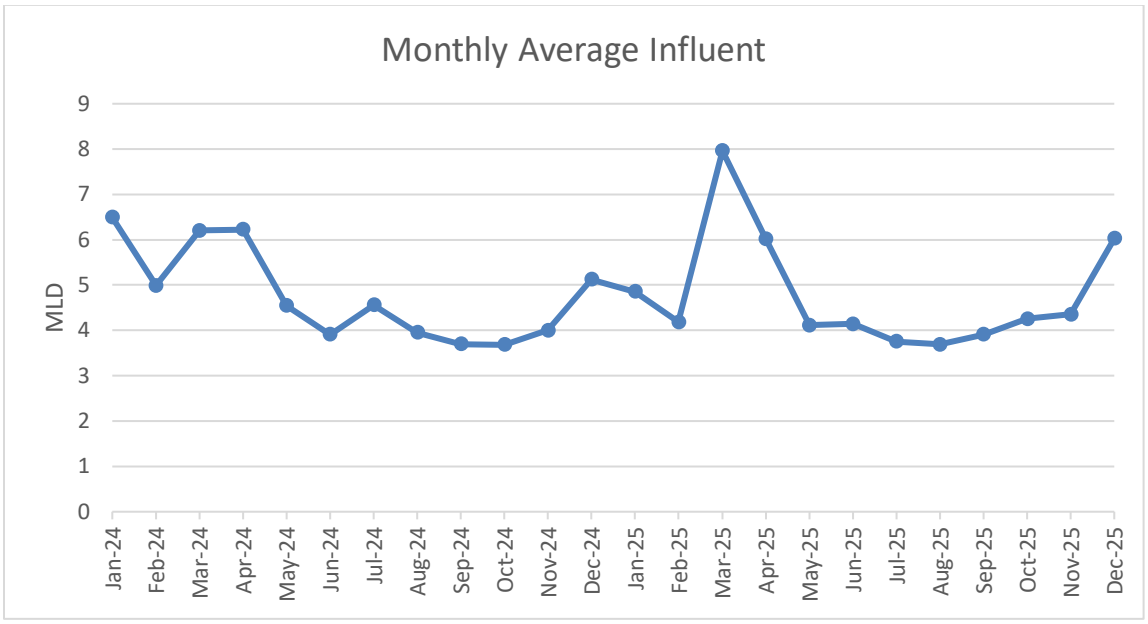

Figure 5: The historical trend of monthly average influent to the MWWTP from January 2024 – December 2025.

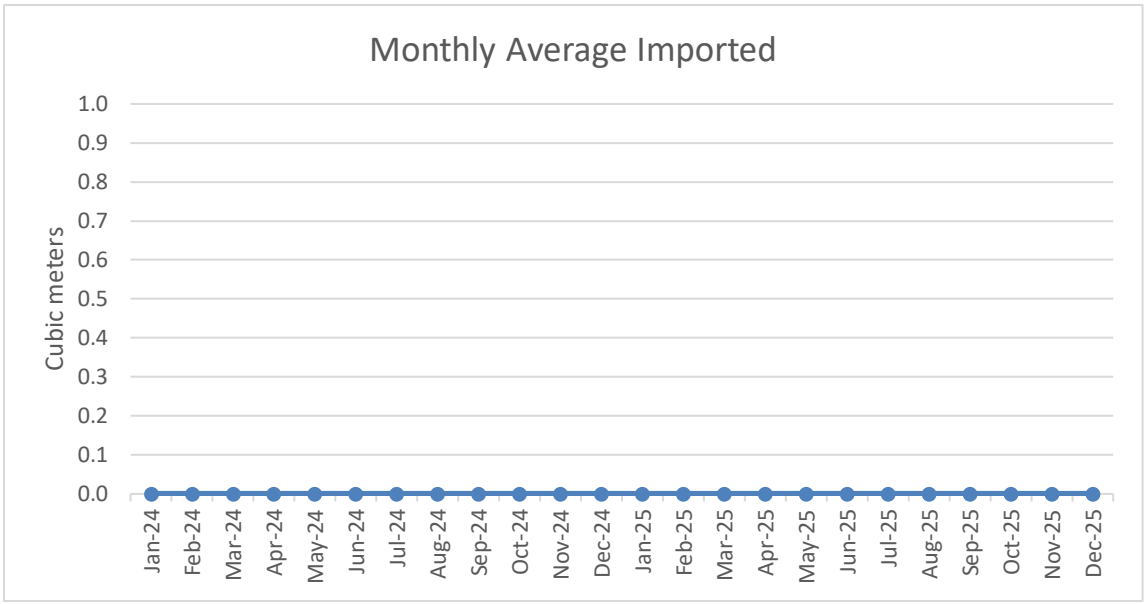

Figure 6: The historical trend of monthly average imported waste to the MWWTP from January 2024 - December 2025.

B. Summary and interpretation of final effluent monitoring data:

The following tables and graphs compare the effluent concentrations in 2025 to compliance limits and design objectives stated in the Environmental Compliance Approval (ECA):

Effluent Parameter	Annual Average Concentration	Concentration Criteria Limit Dec 1 – Apr 30	Concentration Criteria Limit May 1 – Nov 30
$CBOD_5$	1.93 mg/L	15.0 mg/L	10.0 mg/L
Total Suspended Solids	2.43 mg/L	15.0 mg/L	10.0 mg/L
Total Phosphorus	0.18 mg/L	1.0 mg/L	0.5 mg/L
Total Ammonia Nitrogen	0.25 mg/L	5.0 mg/L	3.0 mg/L
E. Coli	4 CFU / 100 mL	200 CFU/ 100 mL using MPN Method Mar 15 to Oct 31	
pH	7.56	Between 6.0-9.5 inclusive	
Unionized Ammonia	0.0033 mg/L	0.1 mg/L	

Table 4: 2025 annual average effluent concentrations compared to the design limits for specified periods.

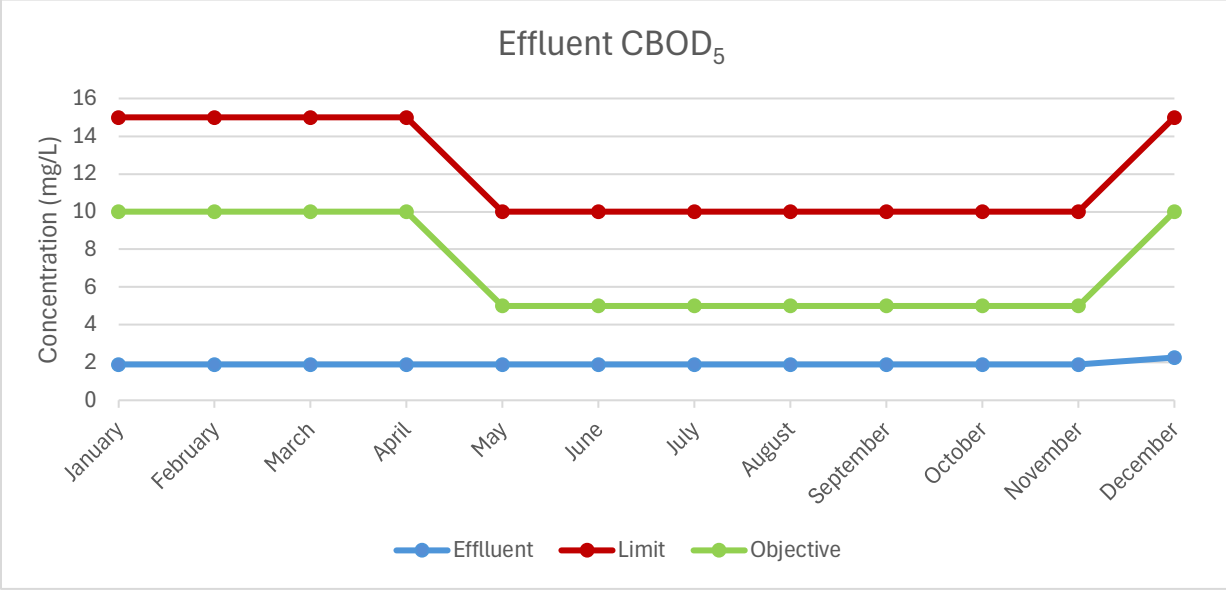

Figure 7: Comparison of the 2025 monthly average concentrations of effluent $CBOD_5$ to design objectives and compliance limits.

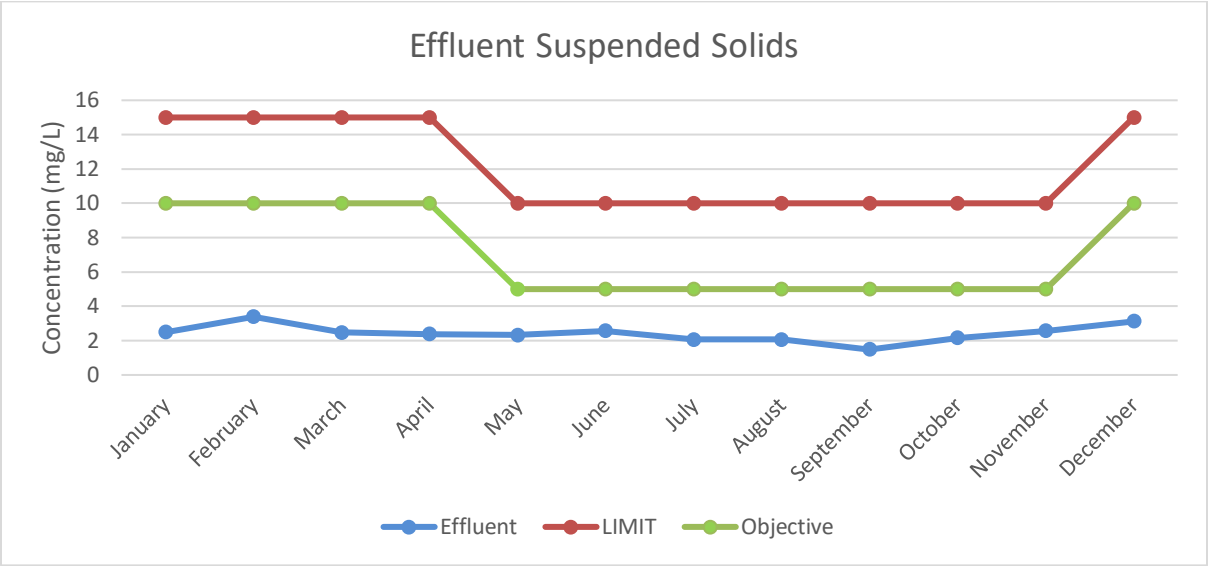

Figure 8: Comparison of the 2025 monthly average concentrations of effluent suspended solids to design objectives and compliance limits.

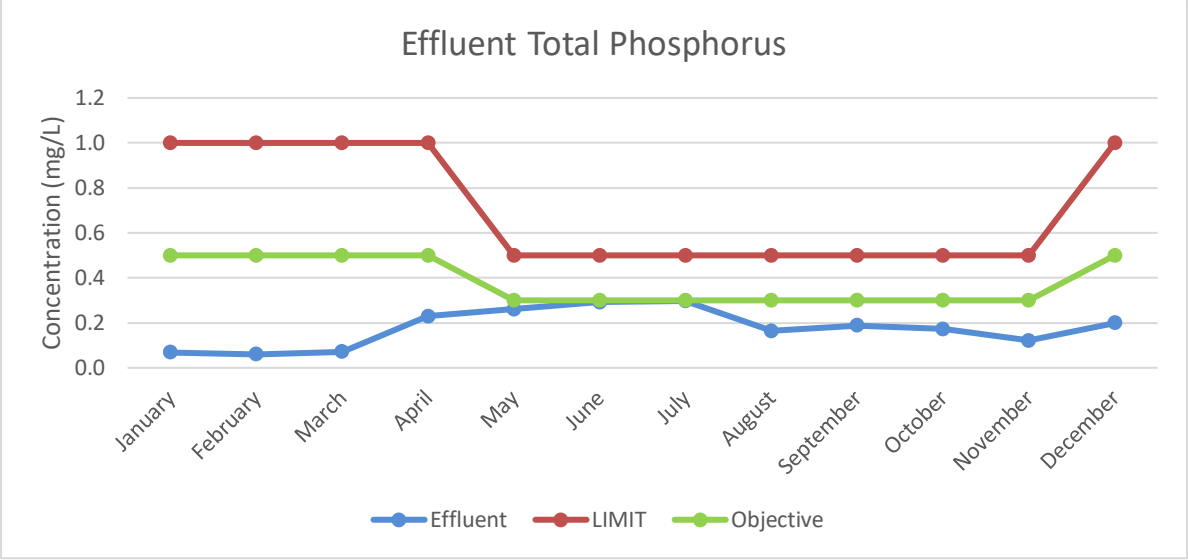

Figure 9: Comparison of the 2025 monthly average concentrations of effluent total phosphorus to design objectives and compliance limits.

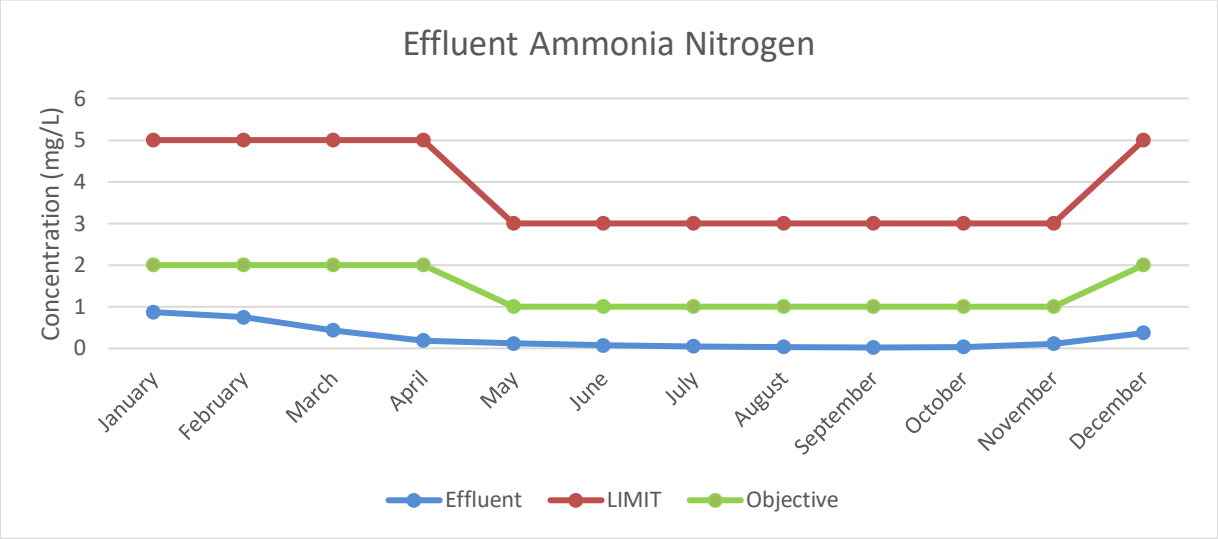

Figure 10: Comparison of the 2025 monthly average concentrations of effluent ammonia nitrogen to design objectives and compliance limits.

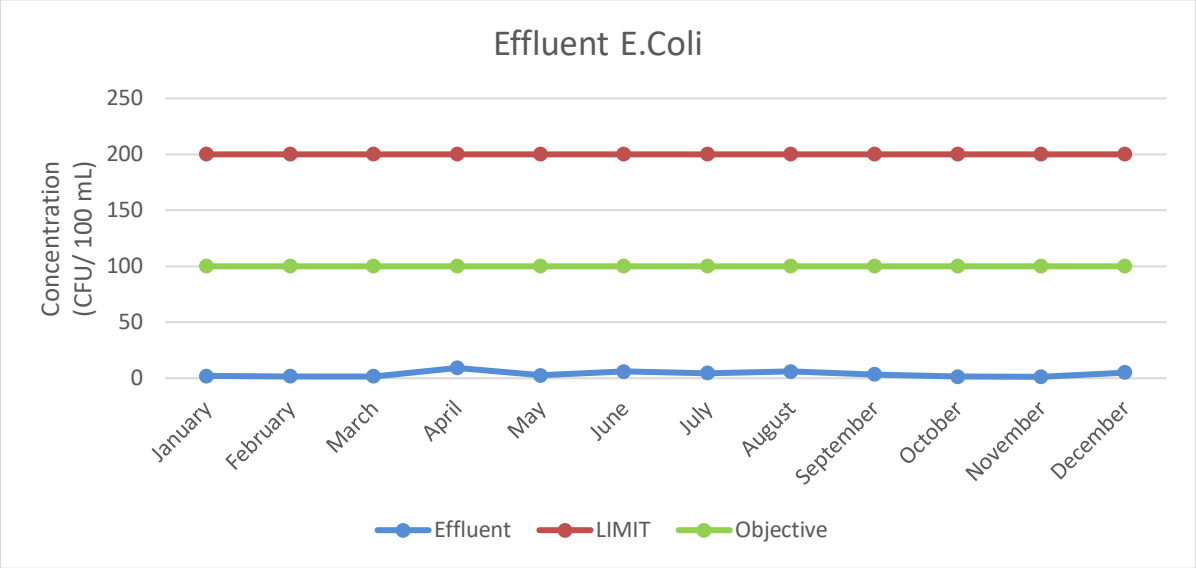

Figure 10: Comparison of the 2025 monthly average concentrations of effluent E. Coli to design objectives and compliance limits.

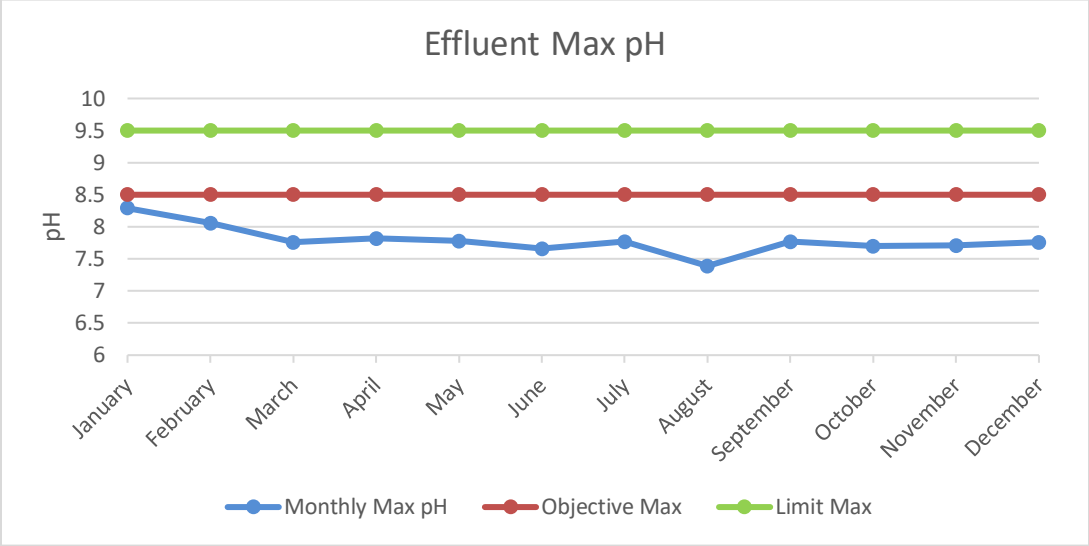

Figure 11: Comparison of the 2025 monthly maximum effluent pH to design objectives and compliance limits.

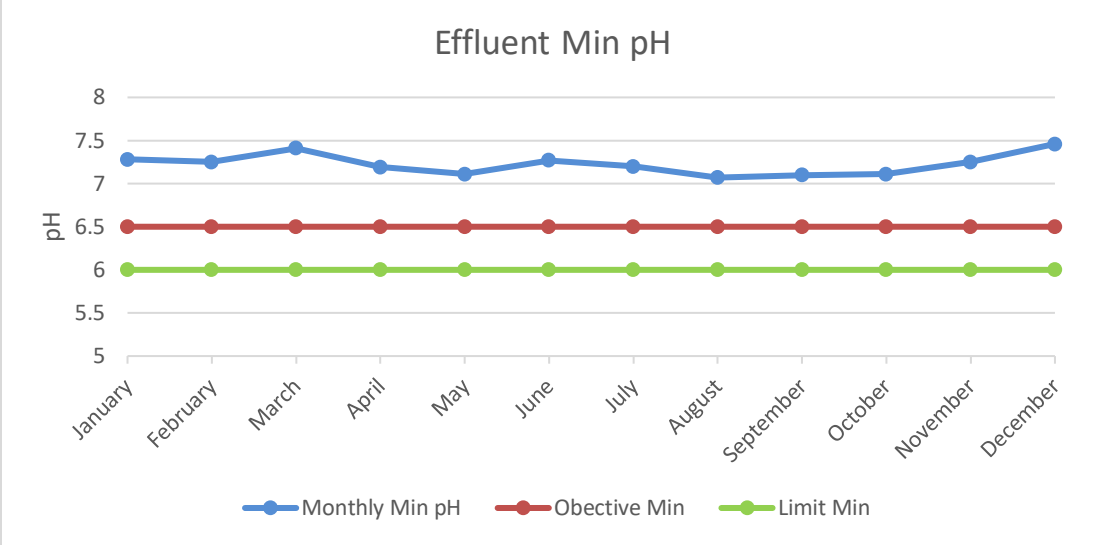

Figure 12: Comparison of the 2025 monthly minimum effluent pH to design objectives and compliance limits.

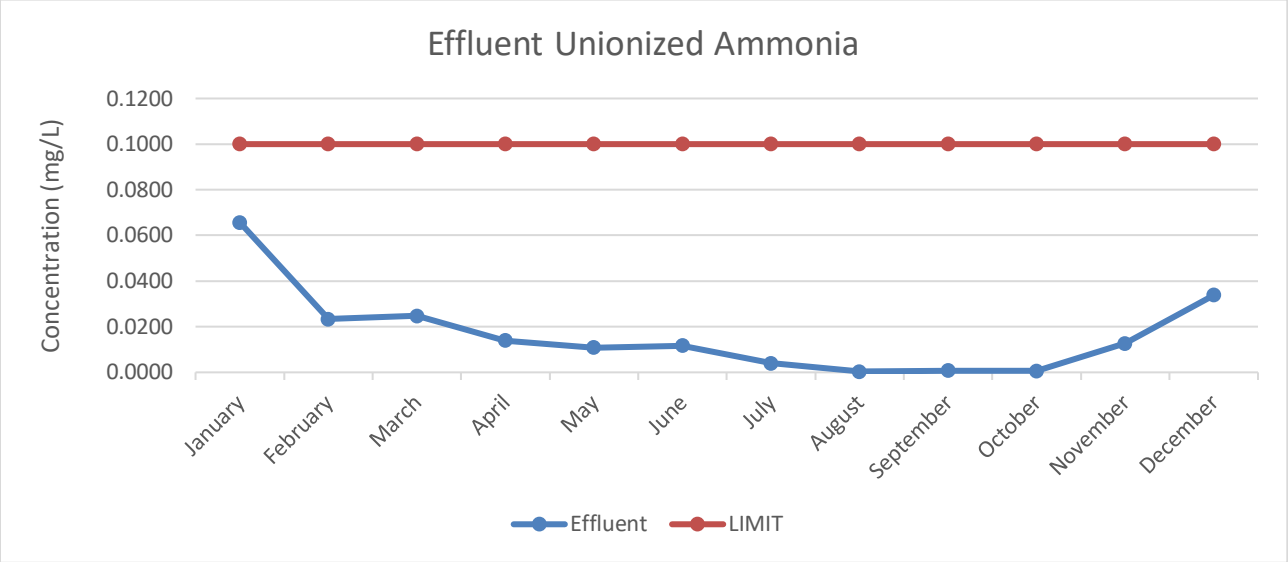

Figure 14: Comparison of the 2025 monthly max concentrations of effluent unionized ammonia to the compliance limits.

The following table shows the estimated effluent flow rates for the reporting period:

Month	Average Daily Flow (m^3)	Total Flow (m^3)
January	4654.81	144,299
February	3925.29	109,908
March	7836.0	242,916
April	6468.83	194,065
May	4554.71	141,196
June	3955.43	118,663
July	3581.94	111,040
August	3524.68	109,265
September	3821.77	114,653
October	3925.16	121,680
November	4155.57	124,667
December	5371.55	166,518

Table 5: Estimated effluent flow rates for 2025.

The following table compares the annual average daily effluent loading to the limit set out by the ECA:

Effluent Parameter	Loading (kg/day)	Loading Criteria (kg/day) Dec 1 – Apr 30	Loading Criteria (kg/day) May 1 – Nov 30
$CBOD_5$	9.25	108	72
Total Suspended Solids	11.74	108	72
Total Phosphorus	0.81	7.2	3.6
Total Ammonia Nitrogen	1.33	36	21.6

Table 6: Comparison of 2025 effluent loading to limits for specified periods.

The calculated removal efficiencies achieved at the MWWTP for the main effluent parameters are highlighted as follows:

- $CBOD_5$ removal efficiency was 99.4%
- Suspended solids removal efficiency was 98.9%
- Total Phosphorus removal efficiency was 97.4%

C. Summary of deviations from the 2025 monitoring schedule and reasons and a schedule for 2026;

The following deviations occurred from the 2025 schedule:

Date	Sample Type	Reason
1/06/25	Monthly Sludge	Lagoon Frozen
1/20/25	River Sample	River Frozen
1/27/25	River Sample	River Frozen
2/03/25	River Sample	River Frozen
2/03/25	Monthly Sludge	Lagoon Frozen
2/10/25	River Sample	River Frozen
2/18/25	River Sample	River Frozen
2/24/25	River Sample	River Frozen
3/03/25	River Sample	River Frozen
3/03/25	Monthly Sludge	Lagoon Frozen
12/08/25	River Sample	River Frozen
12/15/25	River Sample	River Frozen
12/29/25	River Sample	River Frozen

Below is the Sampling Schedule for 2026:

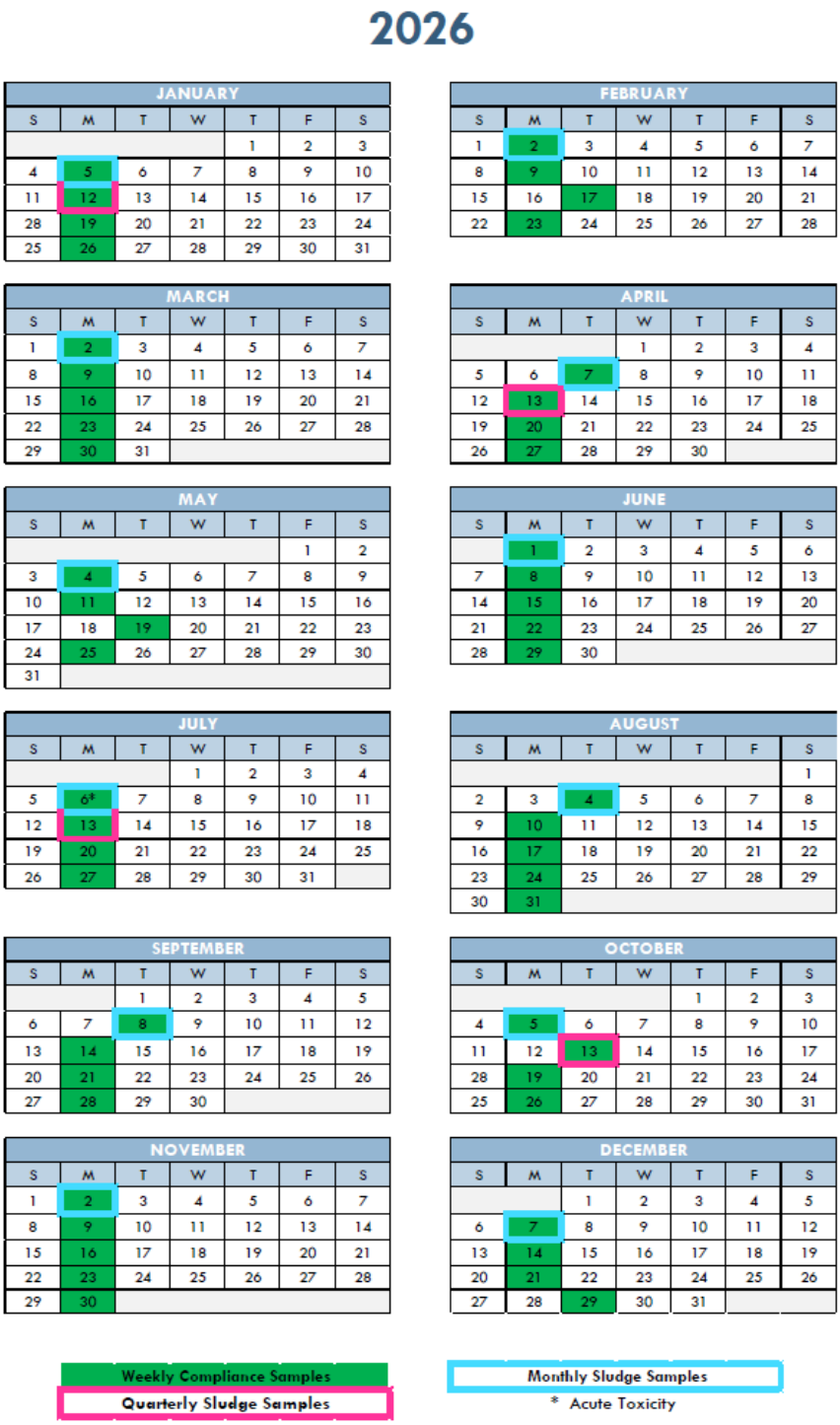

Figure 15: 2026 Sampling Schedule

D. Summary of operating issues encountered and corrective actions taken;

- The Grit Vortex drive at the MWWTP failed, preventing the preliminary treatment process for sediment removal. Operators reconfigured the drive to restore normal operation.
- The Prosoft communication card located in the blower PLC control panel failed, resulting in a loss of communication between the blowers and the PLC system. The blowers were placed in manual mode to maintain continued operation while troubleshooting. A replacement Prosoft card was installed, and the required program was uploaded to the new unit. Once completed, communication between the blowers and the PLC panel was successfully restored, and the system was returned to normal automatic operation.
- Chain for scum pump for Clarifier 1 at WWTP broke, resulting in the pump being unable to operate. The chamber was pumped down, and pump was removed for repair. After repairs were completed, the pump was reinstalled and the system was returned to normal operation.
- The pilot light on the alum pump control panel malfunctioned and caused a short circuit, which tripped the breaker supplying power to the pumps. As a result, alum feed was interrupted. The issue was reported to MECP and HPPH. The pilot light was repaired, the breaker was reset, and the alum dosing system was restored to normal operation.

E. Summary of repairs and maintenance activities;

The computerized maintenance management system is used to schedule maintenance activities at the MWWTP and SPS. The operators can generate preventive maintenance and corrective work orders; as well as document work performed and issue work order history reports.

A highlight of the major maintenance carried out for 2025 is outlined below:

- The raw sewage pumps at both Hebert and James Street SPS were inspected monthly and maintained by operators.
- The Herbert St SPS, James St SPS and MWWTP diesel generators received their annual service in 2025. They were also inspected and ran monthly under load.
- Annual greasing and oil changes were completed on Blower 4. Vibration readings were also taken annually.
- Blowers 1,2 and 3 were inspected and maintained as per manufacturers' recommendations.
- Flowmeters were verified by a third party contractor.
- All submersible pumps were inspected.
- Aerobic Digesters 1 and 2, including the headers and piping, were cleaned, inspected, and serviced by operators in spring and fall.
- Clarifier drives and gearboxes were inspected.
- Valves at MWWTP, Herbert St SPS and James St SPS were exercised.
- The air lift piping on all the filter air lifts were pulled and inspected.

- The UV system was monitored daily by the operators. Sleeves were cleaned monthly, and bulbs replaced as needed.
- Third party contractors inspected the gas detectors, chain falls, beams, and lab equipment.
- The alum dosing system was flushed and inspected.
- Compressors were serviced.
- Replaced bulbs, sleeves and O-rings for UV bank 1A.
- James St Pump 1 was rebuilt.
- A new HVAC unit was installed at the MWWTP.
- Replaced decant valves for Sludge Storage Lagoon.
- The new pump for Herbert St SPS was installed in Pump 1's spot and Pump 2 and 3 were rebuilt. Herbert St. SPS returned to normal operation.
- Risers installed on manholes beside Whirl Creek, behind James St. SPS.
- Inspected valve chambers for James St. Forcemain.

F. Summary of effluent quality assurance;

A 24hr-composite sampler located downstream of the UV channel is used to collect the effluent sample. A 100 mL sample is collected every 50 minutes over a 24hr period to produce a composite sample. Staff use this sample to perform analysis twice a week along with raw and mixed liquor to ensure effluent quality. The results from the effluent analysis along with other process samples are used to adjust the various processes to achieve the highest quality effluent possible. Once a week, samples are sent to Bureau Veritas Laboratories in Mississauga, Ontario.

Samples sent to Bureau Veritas Laboratories are delivered in coolers with sufficient ice packs to maintain a cool temperature. The samples are accompanied by a Chain of Custody document, which details the following: the operator responsible for collecting the sample, the time of collection, the type of sample, and the requested analysis. This document ensures that the samples are handled exclusively by authorized personnel before undergoing analysis.

Bureau Veritas Laboratories holds accreditations from several organizations, including the Ministry of Environment, Conservation and Parks and is also accredited under ISO/IEC 17025 standards. Each laboratory report is accompanied by a Certificate of Analysis.

G. Summary of calibration and maintenance carried out on monitoring equipment;

Copies of the calibration reports for the return activated sludge, waste activated sludge, filter backwash water and influent flow meters are filed at the MWWTP. The flow meters are calibrated annually by a qualified third party contractor.

Portable dissolved oxygen probes and meters are cleaned after every use. They are calibrated annually by a qualified third party contractor.

The pH meter is calibrated once a month by operators as per manufacturer's instructions.

H. Summary of efforts made to achieve the design objectives;

Operators consistently perform routine maintenance on equipment to ensure proper operation. Weekly in-house process control analysis are performed to ensure that the MWWTP operates efficiently and in a manner that meets design objectives. Operational changes are made as required to meet design objectives.

I. A tabulation of generated sludge, locations of sludge disposal and anticipated volumes for the next reporting period;

In 2025, approximately 69,099m³ of sludge was generated. The MWWTP produced 438m³ less sludge than in 2024. Based on current loadings, and anticipated influent volumes we expect a similar amount of sludge generation in 2026.

Digested sludge from the MWWTP and biosolids from the storage lagoon are removed by a licensed waste hauler.

Biosolids are land applied to sites approved by OMAFRA/MECP. The summary of the biosolids applied during 2025 are as follows:

Year	Land Application Site Number	Sludge Applied to Land (m^3)
2025	Submission ID: 24683	3567
	Submission ID: 25128	1445
	Submission ID: 62727	2323
	Submission ID: 24661	2220
	Submission ID: 24661	4045
	Submission ID: 25083	1905

Table 7: Summary of 2025 biosolids.

J. Summary of complaints received, and actions taken to address the complaints;

- On February 28, a resident on Trafalgar St. called to report they had a possible frozen sanitary line and mentioned they had arranged for a plumber to attend. Staff inspected nearby manholes, upstream and downstream from the resident, and found no blockages. Staff advised the resident to proceed with their plumber.
- On March 10, staff were contacted by a business on Ontario Rd. requesting an on-site visit by a staff member to discuss ongoing plumbing issues. After discussion with the owner and their plumbing contractor, it was determined that the blockage was the responsibility of the property owner. It was also noted that grease traps at the location had not been cleaned out.
- On April 3, a St. Andrew St. resident reported basement flooding. Staff explained that the sanitary and storm systems were likely overwhelmed by heavy rainfall, with a recent power outage potentially contributing. It was found that the resident's sump pump was incorrectly connected to the sanitary system instead of the storm system.
- On May 21, a property owner on Ontario Rd. reported a backup that had been cleared by a plumber. Staff investigated and found no blockages in the nearby mains. As a preventative measure, it is recommended that the mains in the area be flushed.
- On August 19, a Frances St. property owner reported a sewer backup. They hired a plumber to clear the blockage, and staff investigated. A contractor was subsequently hired to flush the sanitary lateral.

K. Summary of all bypasses, Overflows, spills or abnormal discharge events;

- April 2, 2025 - Heavy rainfall and snowmelt generated flows that exceeded collection system capacity, resulting in a manhole surcharge and spill. The James St SPS operated at maximum capacity, with excess flows diverted to the Herbert St SPS. Both Herbert St pumps ran continuously with both forcemains open to maximize discharge capacity. Despite these measures, influent volumes surpassed pumping capacity and the system was overwhelmed. SAC and HPPH were notified accordingly. The spill lasted 3 hours and 15 minutes, with an estimated volume of 1000m^3. Samples were taken in accordance with the ECA.
- December 11–12, 2025 – A bypass occurred at the MWWTP due to an electrical malfunction. A pilot light on the alum pump control panel shorted, tripping the breaker and interrupting alum dosing. With alum feed offline, effective phosphorus removal did not occur for the duration of the event. The issue was identified and repaired on December 12, at which time the breaker was reset and alum feed was restored. SAC and HPPH were notified in accordance with reporting requirements. The bypass lasted 20hrs, with an estimated volume of 1000m^3. Samples were taken in accordance with the ECA.

L. Summary of all Notice of Modifications to Sewage Works completed including a report on status of implementation of all modification;

There were no *Notice of Modifications to Sewage Works* completed in 2025.

M. Summary of efforts made to achieve conformance with Procedure F-5-1;

Operators conduct routine maintenance on equipment and conduct weekly process control analysis to ensure that the MWWTP, the SPS as well as the collection system are operating efficiently to achieve conformance with Procedure F-5-1.

The MWWTP is equipped with a Peak Sewage Overflow Storage Cell that can be used to prevent exceeding peak flow capacity of the plant.

The Municipality is committed to the improvement of the collection system to eliminate bypass and overflow events. Each year, a section of sanitary sewer is replaced to decrease inflow and infiltration into the collection system. The focus of this year's reconstruction project was Wellington St. The proposed budget allocation for replacing sanitary infrastructure on Wellington St. was $172,000.00.

Older sections of the collection system, particularly where sump pumps discharge into the sanitary system, significantly contribute to potential bypass and overflow events. These connections are eliminated during construction. The Municipality plans to implement procedures for inspecting the collection systems integrity through manhole inspections and smoke testing to identify problem areas that require attention. Additionally, the Municipality will consider the implementation of a Pollution Prevention and Control Plan.

N. Changes or updates to the schedule for the completion of construction and commissioning operation of major process(es)/equipment groups in the Proposed Works

The installation of the secondary clarifier has been postponed due to the evaluation of potential upgrades at the MWWTP. Additionally, the flow meter for measuring return flow from the Peak Sewage Overflow Storage Cell has not been installed yet. The upgrades to the supplementary treatment system have been completed and are now fully commissioned.

O. Nitrogen Monitoring Summary

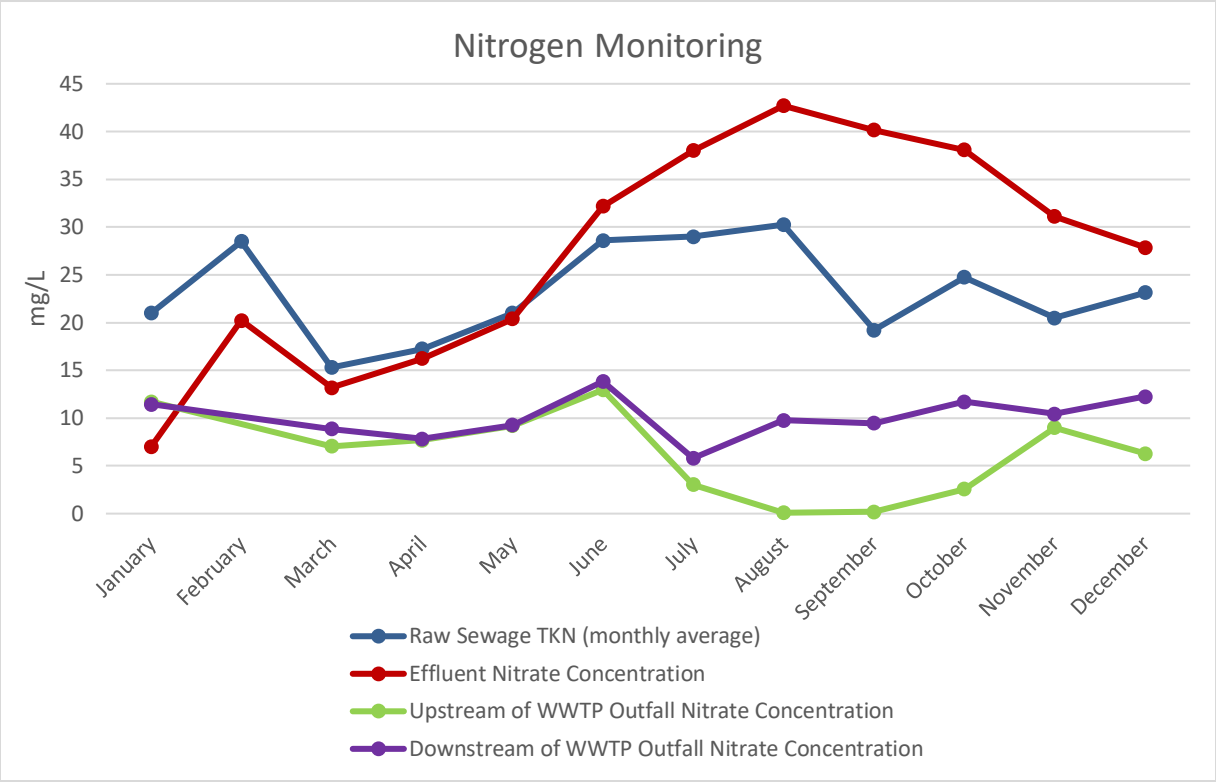

Figure 16. The historical trend of nitrate concentrations from 2025.

Based on ongoing sampling results, the most significant increase of nitrate in the North Thames River occurs during the summer when stream flow is low and minimal effluent dilution is provided. Correspondingly, background nitrate levels in the North Thames River appear to reduce in the summer which in part offsets the impact of additional nitrate loadings from the MWWTP during this time period.

The work plan developed by West Perth to date does not include a component for ecological impacts, if any, from higher nitrate values in the North Thames River.

We understand that high nitrate values may be linked to impacts on amphibians during the egg stage of amphibian life cycle (spring). Results to date would indicate a minimal nitrate increase during the springtime, due to higher dilution and to some degree, higher background nitrate levels in the North Thames River during the spring season.

For 2026, the work plan will continue with sampling at the West Perth Line 29 location. This location will be used to evaluate the net increase of nitrate levels in the North Thames River.

P. Annual Compliance Summary for 2025

2025	FLOWS			BIOCHEMICAL 02 DEMAND				SUSPENDED SOLIDS			PHOSPHORUS			AMMONIA NITROGEN		EFFLUENT				WASTE	
	Total Flow (ML)	Avg. Day Flow (ML)	Max Day Flow (ML)	Avg. Raw (mg/L)	Avg. Load (kg/day)	Avg. Eff. (mg/L)	Avg. Load (kg/day)	Avg. Raw (mg/L)	Avg. Eff. (mg/L)	Avg. Load (kg/day)	Avg. Raw (mg/L)	Avg. Eff. (mg/L)	Avg. Load (kg/day)	Avg. Eff. (mg/L)	Avg. Load (kg/day)	Effluent E. Coli cnt/100ml	DO (mg/L)	pH	Temp °C	Volume m³/month	SS (mg/L)
Jan	150.527	4.85571	6.684	260.0	1,262	1.90	9.23	178.2	2.50	12.14	6.58	0.07	0.34	0.87	4.23	2.0	7.81	7.79	14.4	6,228.0	9,020
Feb	117.209	4.18604	6.109	282.5	1,183	1.90	7.95	143.3	3.39	14.18	6.19	0.06	0.25	0.75	3.13	1.7	7.96	7.67	15.9	7,301.0	7,289
Mar	246.758	7.95994	15.46	88.2	702	1.90	15.1	94.51	2.47	19.63	3.37	0.07	0.57	0.43	3.45	1.8	8.47	7.64	15.8	6,185.0	6,795
Apr	180.402	6.01340	21.92	175.0	1,052	1.90	11.4	140.0	2.39	14.37	3.65	0.23	1.38	0.19	1.15	9.2	7.67	7.66	17.7	4,954.0	8,491
May	127.458	4.11155	5.676	275.0	1,131	1.90	7.81	218.3	2.33	9.56	5.05	0.26	1.07	0.12	0.51	2.5	6.89	7.61	18.9	5,672.0	7,719
Jun	124.185	4.13950	5.895	384.0	1,590	1.90	7.87	366.4	2.57	10.62	8.66	0.29	1.21	0.07	0.30	6.0	6.67	7.52	21.5	5,522.0	7,616
Jul	116.427	3.75571	4.604	575.0	2,160	1.90	7.14	285.4	2.07	7.76	8.07	0.30	1.12	0.05	0.17	4.4	6.35	7.49	21.7	5,387.0	8,032
Aug	114.414	3.69077	5.358	367.5	1,356	1.90	7.01	270.5	2.06	7.61	8.13	0.16	0.61	0.03	0.09	6.0	6.65	7.25	21.2	5,149.0	6,642
Sep	117.361	3.91203	5.371	274.0	1,072	1.90	7.43	290.4	1.48	5.78	11.21	0.19	0.73	0.02	0.09	3.4	6.73	7.43	20.7	4,959.0	9,443
Oct	131.997	4.25797	11.06	318.8	1,357	1.90	8.09	256.9	2.17	9.23	7.57	0.17	0.73	0.03	0.11	1.6	7.10	7.41	19.8	5,814.0	9,876
Nov	130.551	4.35170	5.541	377.5	1,643	1.90	8.27	264.4	2.58	11.21	6.61	0.12	0.53	0.11	0.49	1.3	9.05	7.57	18.0	5,882.0	10,199
Dec	186.917	6.02958	20.10	291.2	1,756	2.27	13.7	211.5	3.12	18.80	8.79	0.20	1.20	0.37	2.25	5.0	9.76	7.63	16.1	6,046.0	9,388
Total	1,744.206	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	69,099.0	-
Avg	145.351	4.772	9.480	306	1,355	1.93	9.25	226.6	2.43	11.74	6.99	0.18	0.81	0.25	1.33	4	7.59	7.56	18.48	5,758.3	8,376
Max	246.758	7.960	21.92	575	2,160	2.27	15.1	366.4	3.39	19.63	11.21	0.30	1.38	0.87	4.23	9	9.76	7.79	21.66	7,301.0	10,199
Criteria	T>5 C	5.800	-	-	-	< 10	72.00	-	< 10	72.00	-	< 0.5	3.60	< 3	21.60	200	-	-	-	-	-
	T<5 C	5.800	-	-	-	< 15	108.00	-	< 15	108.00	-	< 1.0	7.20	< 5	36.00	none	-	-	-	-	-
Meets Concentration Criteria						**YES**	**YES**		**YES**	**YES**		**YES**	**YES**	**YES**	**YES**	**YES**					