Ontario Clean Water Agency
Agence Ontarienne Des Eaux

Lucan Biddulph Wastewater System

Client Operations Report

Third Quarter 2024

Lucan Water Pollution Control Plant
Granton Wastewater Treatment Plant

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Compliance Summary

The two wastewater treatment plants and associated pumping stations within the collection system performed well in 2024. There have been no spills, overflows or bypasses or OCWA-reported non-compliances.

On March 6, 2024, the MECP conducted an inspection of the Granton WWTP. There were two non-compliances and two recommendations. The non-compliances included not installing a flow measuring device for final effluent and not demonstrating compliance with Total Suspended Solids (TSS) limits. The installation of the flow meter is planned to be addressed by requesting an amendment of the Environmental Compliance Approval (ECA). The period included in the MECP inspection was 2022 to 2023. In 2024, TSS in the final effluent has met compliance limits. The recommendations included conforming with final effluent TSS and pH objectives.

Monitoring Results

All samples were obtained as required by the Lucan WPCP and Granton WWTP Environmental Compliance Approvals (ECA's).

Lucan WPCP

The Lucan WPCP is currently at 79% of its rated capacity. There have been 61 days to date in 2024 where raw flow exceeded the ECA rated capacity of 1700 m^3/d. There have been zero days when the plant has been outside of normal operating conditions—defined as 3600 m^3/d as per a 2023 engineering assessment. Thus, no extra sampling has had to occur for being outside of normal operating conditions as per the ECA.

All ECA limits have been met to date in 2024. However, the plant has not yet met the minimum objective for pH. Alum is being used in the treatment process to remove suspended solids and phosphorus concentrations. While this prevents limit exceedances, it reduces the pH of effluent leading to objective exceedances. Objectives were not met for TSS in April, June and July and for Total Phosphorus (TP) from June to September.

Granton WWTP

The Granton WWTP is currently at 38% of its rated capacity. There have been 7 days thus far in 2024 where raw flow exceeded the rated capacity of 270 m^3/d. The Granton ECA does not require additional sampling when above rated capacity.

All ECA limits have been met to date in 2024. However, the plant did not meet TSS objectives January to March, and May to September. Minimum pH objectives were also not met January to May, August and September and dissolved oxygen (DO) minimum objectives were not met in July and August. Challenges related to objective exceedances for TSS include design limitations. Chemicals were switched to being flow-paced in September, 2024, however, there has been difficulty in adjusting dosages and thus in meeting TSS and pH objectives. DO objectives not being met may have been from sludge build up and/or temporary raw flow conditions.

	Lucan WPCP				Granton WWTP			
	Q1	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**
% Rated Capacity	79				38			
# Average Daily Raw Flow Exceedances	46	10	5		3	2	2	
# of Effluent Objective Exceedances	3	6	7		6	10	7	
# of Effluent Limit Exceedances	0	0	0		0	0	0	

Maintenance and Capital Activities

Lucan WPCP

First Quarter

- Installed and tested filter #2 back wash pump
- Troubleshoot issue with WIN 911 and SCADA not responding. Installed new WIN 911 test button/alarm on SCADA and through site Verbatim
- Pulled effluent pump to send for repairs
- Replaced faulty control transformer and contactor for effluent pump- pump back in service
- Pulled sanitary wet well pump 2 due to it failing. Debris removed. Replaced shorted feed wiring, installed new exterior junction box and explosion proof conduit (EYS)
- Installed rebuilt unit heater in filter building

Second Quarter

- Annual calibration of flow meter and portable ph/DO meters (April 10)
- Troubleshot filter #2 level sensor (April 10)
- Disassembled Filter #2 backwash pump and removed debris (April 12)
- Removed sludge from digesters (April 16)
- Removed sludge from digesters (April 25)
- Semi-annual wet well cleaning at Chestnut PS (April 03)
- Pulled pump #1 at Chestnut PS to inspect and test (April 15)
- Semi-annual wet well cleaning at St. Joseph PS (April 03)
- Removed sludge from digesters (May 09)
- OCWA mechanic removed blower 3 for rebuild - out of service (June 13)
- MECP approved emergency sludge haul to lagoons (June 14)

Third Quarter

- Removed filter backwash pump #2 to troubleshoot and sent in for repairs and put back in service
- Naylor onsite to troubleshoot blowers for aeration
- Cleaned out west aeration tanks of sludge and repaired pipes

- Hauled sledge in July and again in September
- Communications issue: SCADA communications down onsite contacted provider- Issue resolved

Granton WWTP:

First Quarter:

- Hauled sludge from RBC to Lucan WPCP digesters (Jan 16, Feb 20 and Mar 21)
- Performed annual inspection of HVAC system
- MECP Inspection of facility

Second Quarter

- Annual calibration of flow meter (April 10)
- Monthly sludge haul (April 17)
- Municipality onsite to troubleshoot make-up air fan. Lucan municipality to install new barring that is required (May 16)
- Partial monthly sludge haul due to lack of sludge capacity (June 18)
- Hannah Equipment in to inspect damage on RBC (June 26)
- Semi-annual wet well cleaning (April 03)

Third Quarter

- Monthly sludge haul
- Installed flow paced chemical dosing system
- Communications issue: SCADA communications down onsite contacted provider- Issue resolved
- Called combination truck in to be on stand by, due to heavy rains and high level in wet well. Issue resolved as pumps caught up with flow

The table below identifies the work orders that have been completed in each quarter. There are some ongoing work orders that will be completed.

% Work Order Completion	**Lucan WPCP**				**Granton WWTP**			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Preventative Maintenance	94	100	80		74	95	100	
Operational	80	100	100		70	100	100	
Corrective	100	80	90		100	n/a	100	
Capital	100	n/a	80		n/a	n/a	100	

Alarm Summary

Lucan WPCP

First Quarter

- No power alarm due to weather (Joseph St SPS)

Second Quarter

- Site power outage due to windstorm at Lucan WPCP, Chestnut SPS, Joseph SPS-power disruption (April 12)
- Grit chamber alarm due to mechanical failure at Lucan WPCP (April 30)
- SCADA loss of communications at Chestnut SPS (May 30)
- Sewage pump 1 fault due to power disruption at Chestnut SPS (June 06)

Third Quarter

- Blower #1 failure due to motor overload
- Town wide power failure due to weather
- Blower #2 failure due to motor overload
- Power disruption: Blowers #1, #2 and RAS pump fail due to weather

Granton WWTP

First Quarter

- Generator running alarm due to town wide power outage due to weather (Granton RBC)

Second Quarter

- Site power outage due to windstorm at RBC, Main SPS (April 12)
- SCADA loss of communications at RBC, Main SPS (May 24)
- Generator running due to power flickering at RBC (June 20)

Third Quarter

- Nothing to report

	Lucan WPCP # Alarms Received	Granton WWTP # Alarms Received
Q1	1	1
Q2	4	3
Q3	4	0
Q4		
Total To Date	9	4

Community Concerns

No complaints have been received for third quarter

Health and Safety

Nothing to report

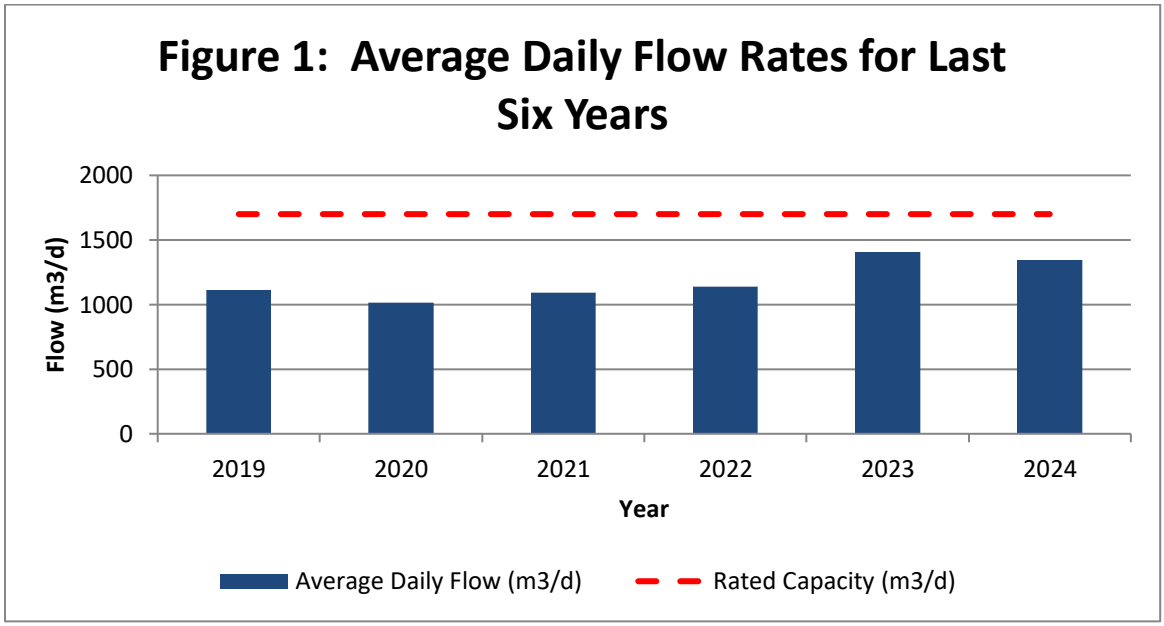
Location	Annual Inspection Completion Date	# Action Items Identified	# Action Items Completed
Lucan WPCP	Q1	7	7
Lucan WPCP Office	Q1	0	0
Granton WWTP	Q1	1	0
Lucan WPCP	Q2	1	1
Lucan WPCP Office	Q2	0	0
Granton WWTP	Q2	0	0
Lucan WPCP	Q3	1	1
Lucan WPCP Office	Q3	1	0
Granton WWTP	Q3	0	0

Appendix A: Performance Assessment Report for Lucan Water Pollution Control Plant and Pumping Stations

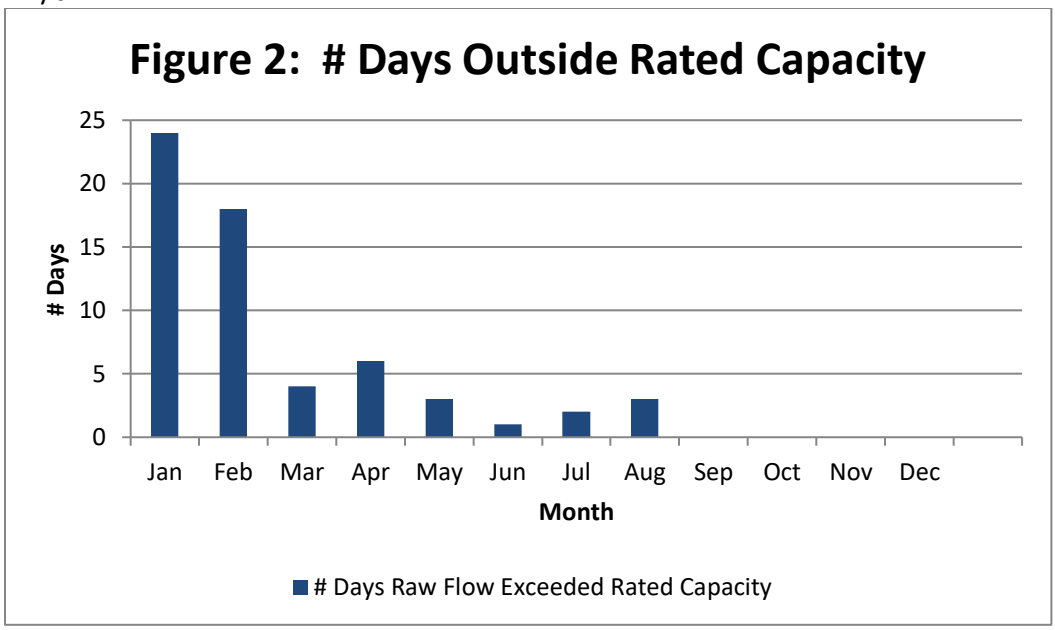
Classification:	Class 4 WWT; Class 2 WWC
Environmental Compliance Approval:	7008-B7CJWY Issued February 11, 2019
Treatment Type:	Extended Aeration
Population Serviced:	2600
Rated Capacity:	1700 m^3/d
Effluent Discharges to:	Heenan Drain
Facilities:	WPCP (6242 Fallon Drive) Lagoon (6207 Fallon Drive) Chestnut St. Pumping Station (210 Campanale Way) Joseph Pumping Station (122 Joseph St.)

Flow Information

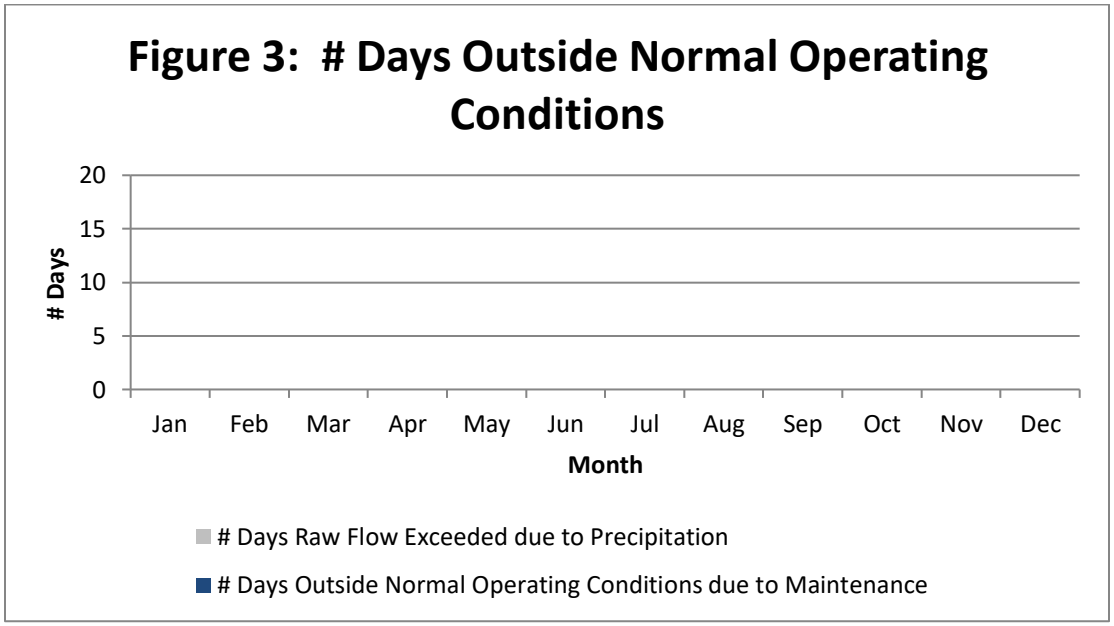
The Lucan WPCP is rated for a daily flow of 1700 m^3/d, averaged annually. Refer to Figure 1 for a comparison of average daily flow rates for the last six years against the rated capacity of the plant. The WPCP is currently at 79% of the rated capacity of 1700 m^3/d.



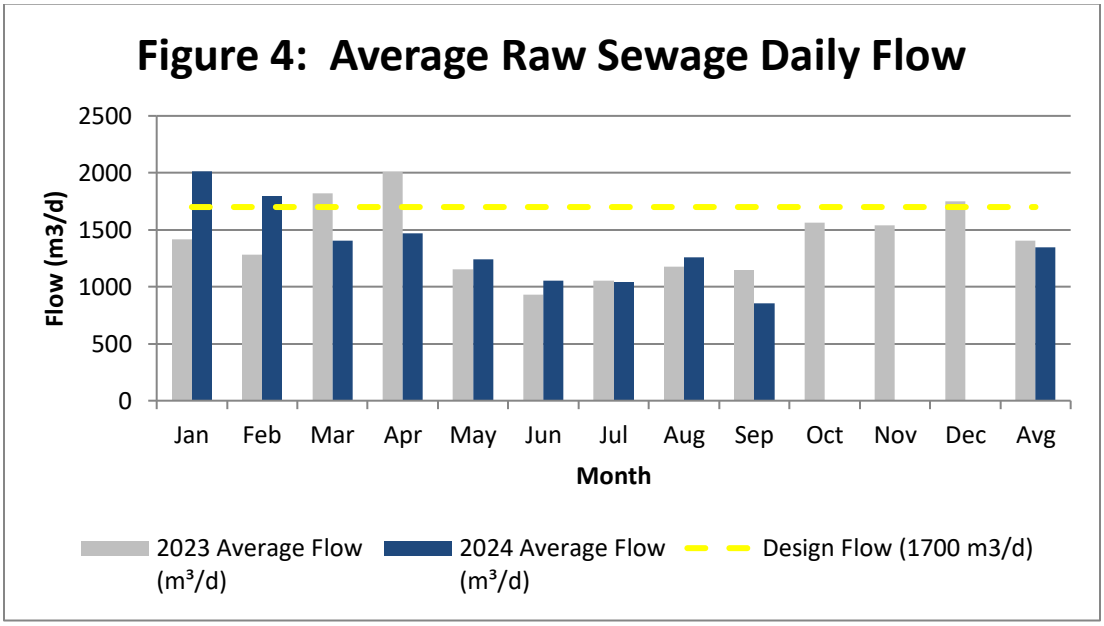
There have been 61 days to date when the Lucan WPCP operated above its rated capacity. See Figure 2 below for the total days per month the plant was above the rated capacity of 1700 m^3/d.



The Lucan WPCP ECA requires additional daily sampling when the plant operates outside of normal operating conditions. As per an engineer's assessment in 2023, raw inflow less than 3600 m^3/d is considered normal operating conditions. The plant may be outside of normal operating conditions due to either plant maintenance or heavy precipitation. To date in 2024, there were zero days the plant operated outside of normal operating conditions (Figure 3).



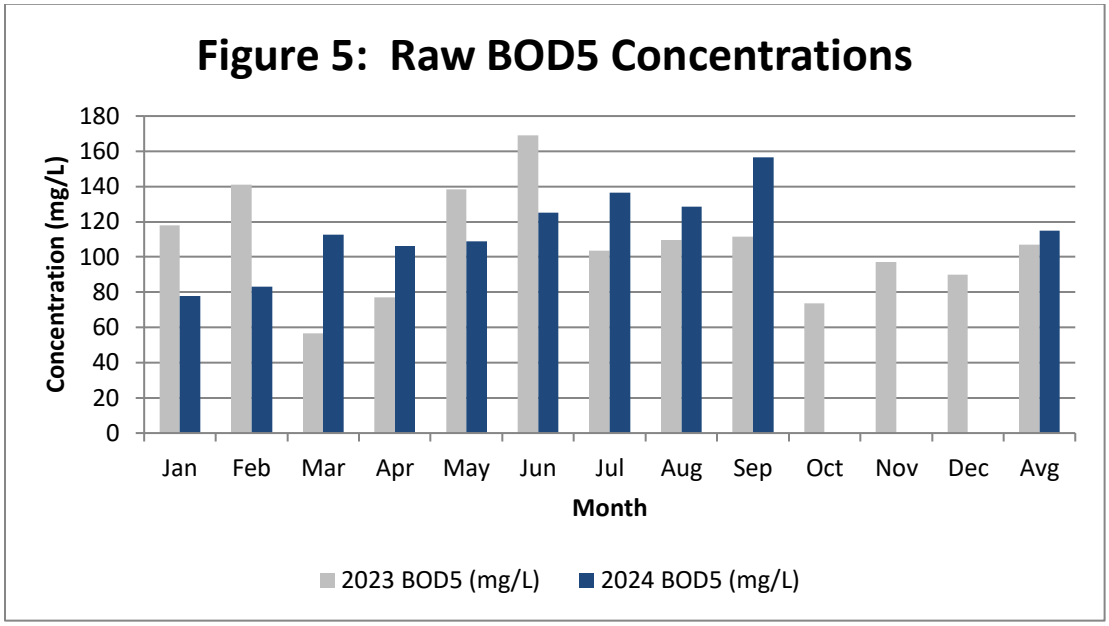
To date in 2024, raw sewage average daily flow is 1348 m^3/d. The average daily flow for the same period in 2023 was 1333 m^3/d. Currently, the monthly average daily flow is at 79% of the rated capacity of the plant. Refer to Figure 4 for the monthly average flow and the corresponding annual average.



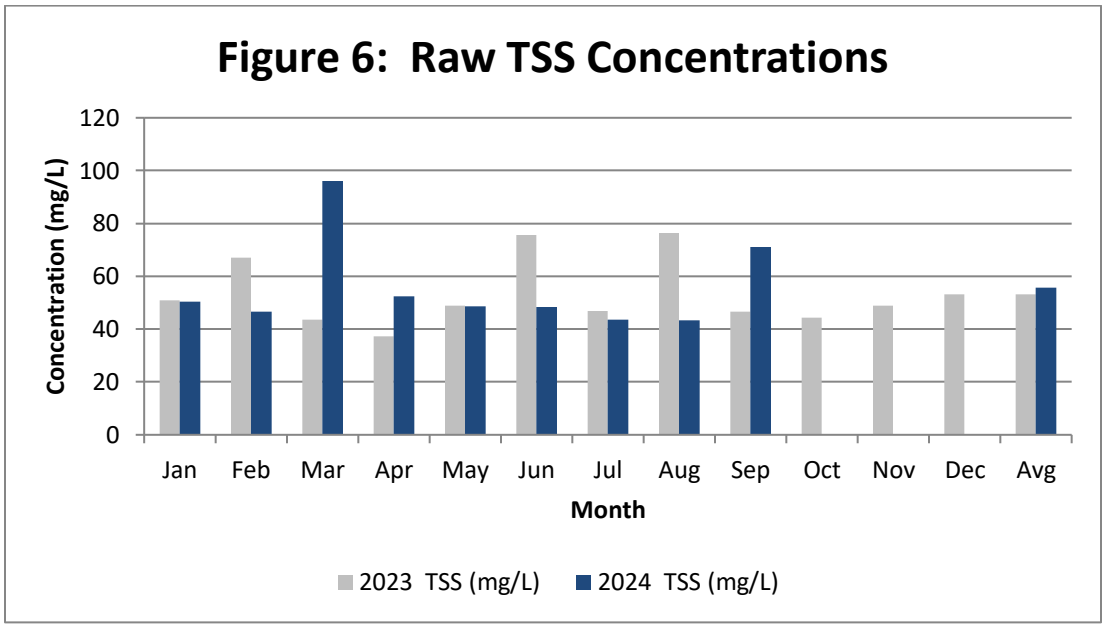
Raw Sewage Monitoring

Raw sewage samples are collected on a weekly basis following ECA requirements. The ECA does not stipulate raw sewage compliance values. However, increased raw wastewater loading can result in ineffective treatment of the raw sewage and lead to effluent limit exceedances.

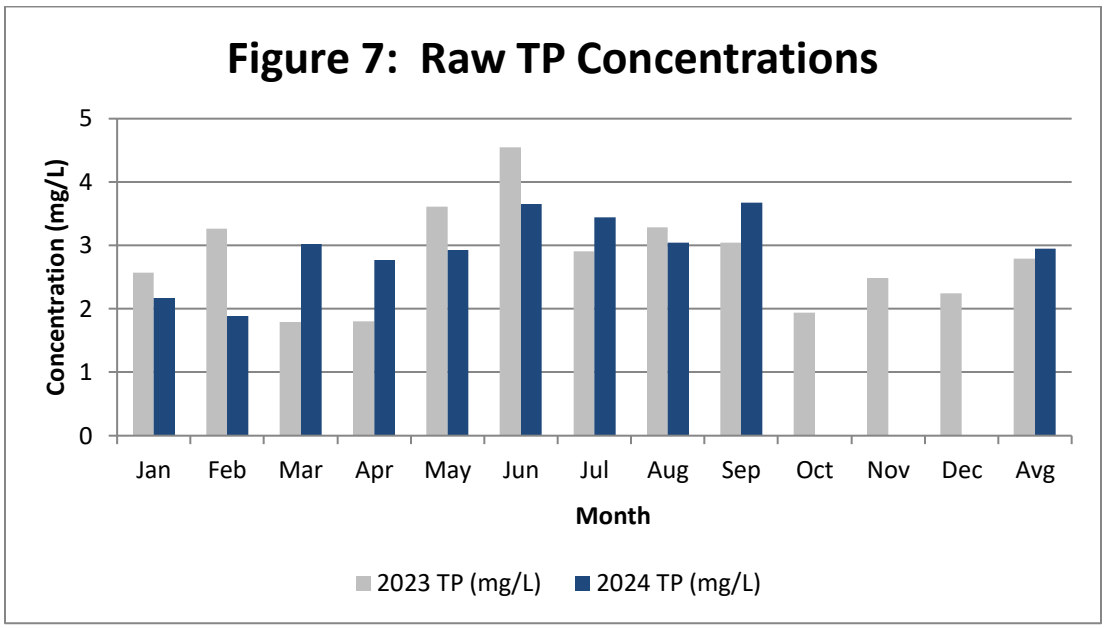
The 2024 average monthly concentration to date of raw Biochemical Oxygen Demand (BOD^5) is 115 mg/L. Refer to Figure 5 for a comparison of 2024 monthly raw BOD^5 concentrations to 2023 concentrations.



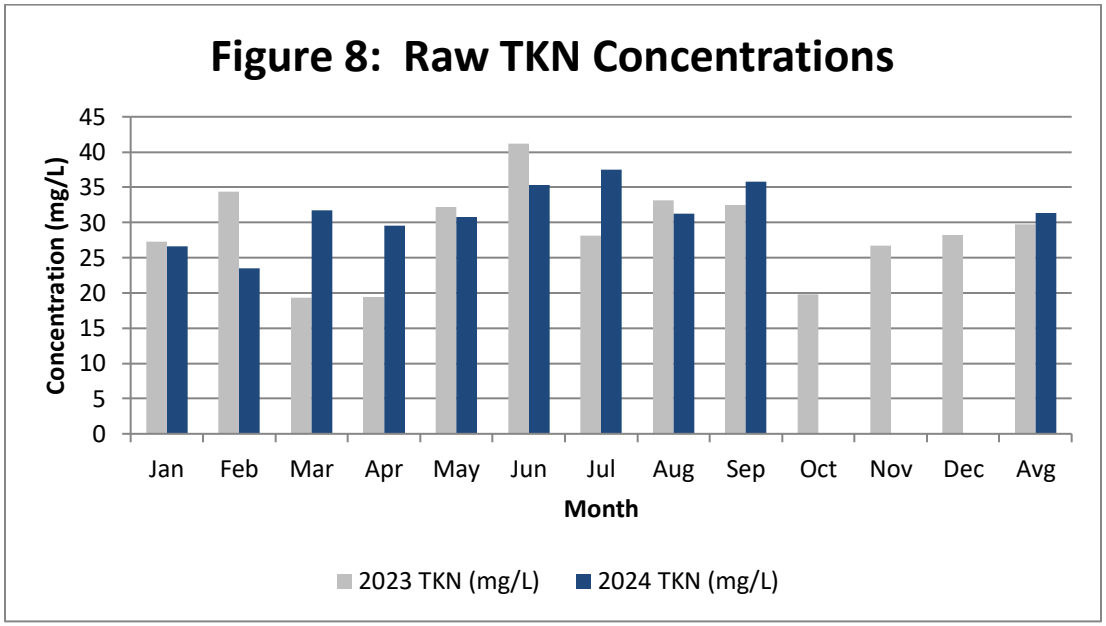
The 2024 average monthly concentration to date of raw Total Suspended Solids (TSS) is 56 mg/L. Refer to Figure 6 for a comparison of 2024 monthly raw TSS concentrations to 2023 concentrations.



The 2024 average monthly concentration to date of raw Total Phosphorus (TP) is 3.0 mg/L. Refer to Figure 7 for a comparison of 2024 monthly raw TP concentrations to 2023 concentrations.



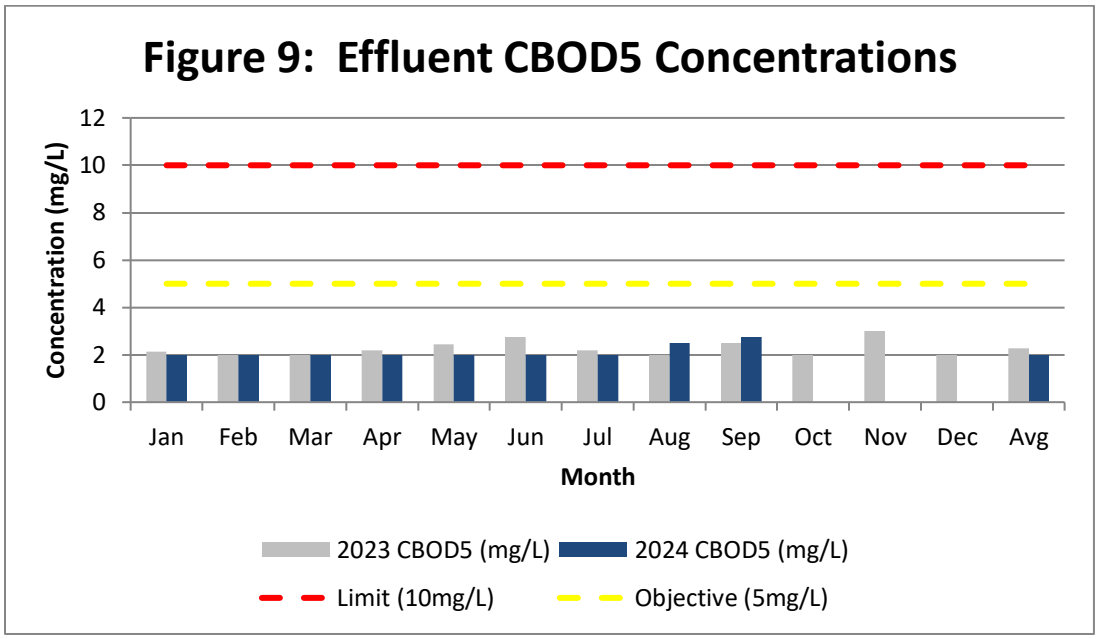
The 2024 average monthly concentration to date of raw Total Kjeldahl Nitrogen (TKN) is 31 mg/L. Refer to Figure 8 for a comparison of 2024 monthly raw TKN concentrations to 2023 concentrations.



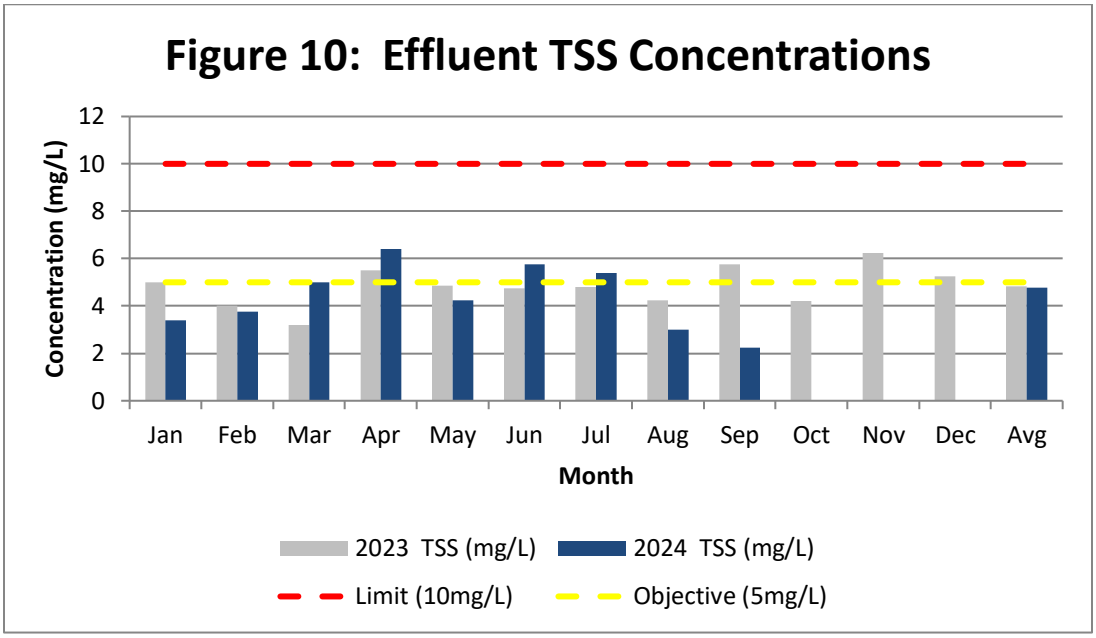
Effluent Monitoring

Effluent is sampled on a weekly basis following the requirements of the ECA.

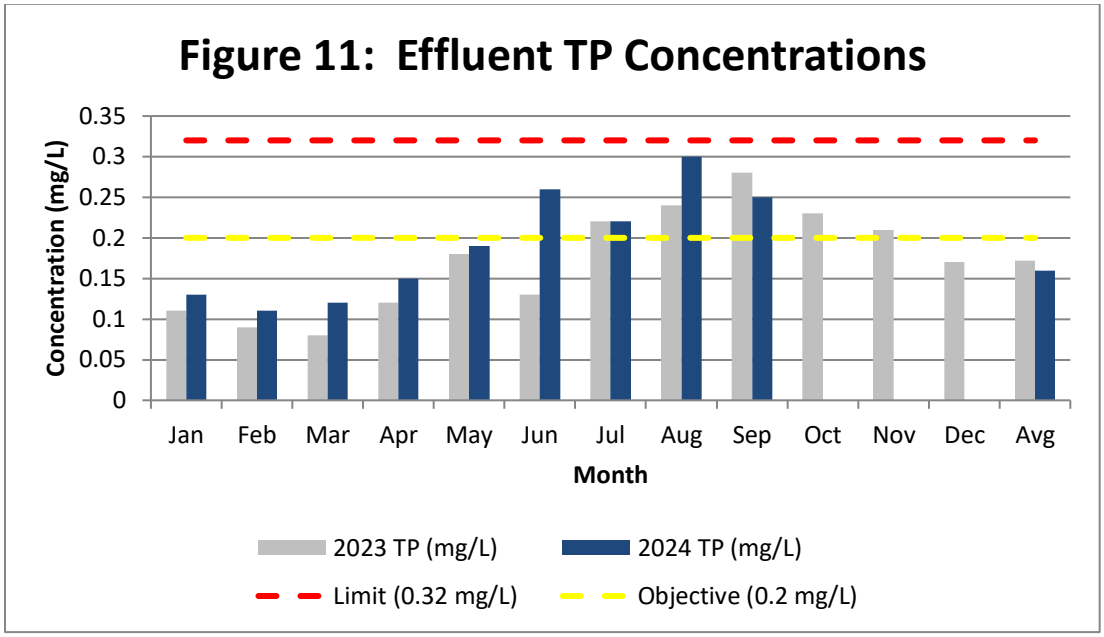
The 2024 average monthly concentration to date of effluent Carbonaceous Biochemical Oxygen Demand ($CBOD^5$) is 2 mg/L. This is an 5% decrease from the value for the same time period in 2023. ECA objectives and limits have been met. Refer to Figure 9 for a comparison of 2024 monthly effluent $CBOD^5$ concentrations to 2023 concentrations.



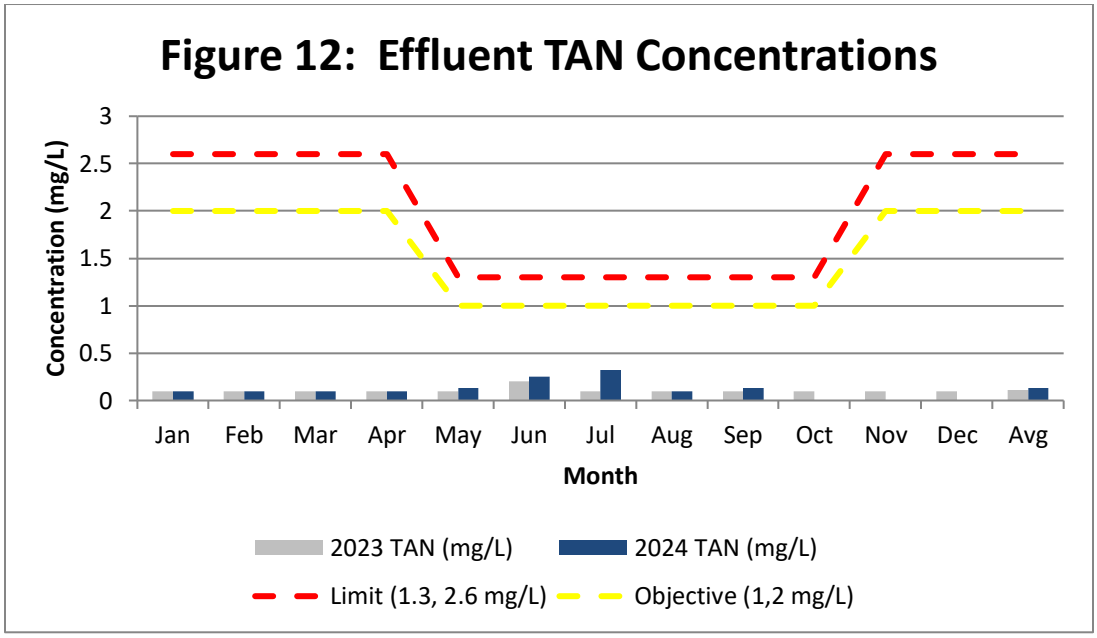
The 2024 average monthly concentration to date of Total Suspended Solids (TSS) is 4.8 mg/L. This is a 2% increase compared to the value for the same time period in 2023. ECA objectives were not met in April, June, or July. Limits were met in all months. Refer to Figure 10 for a comparison of 2024 monthly effluent TSS concentrations to 2023 concentrations.



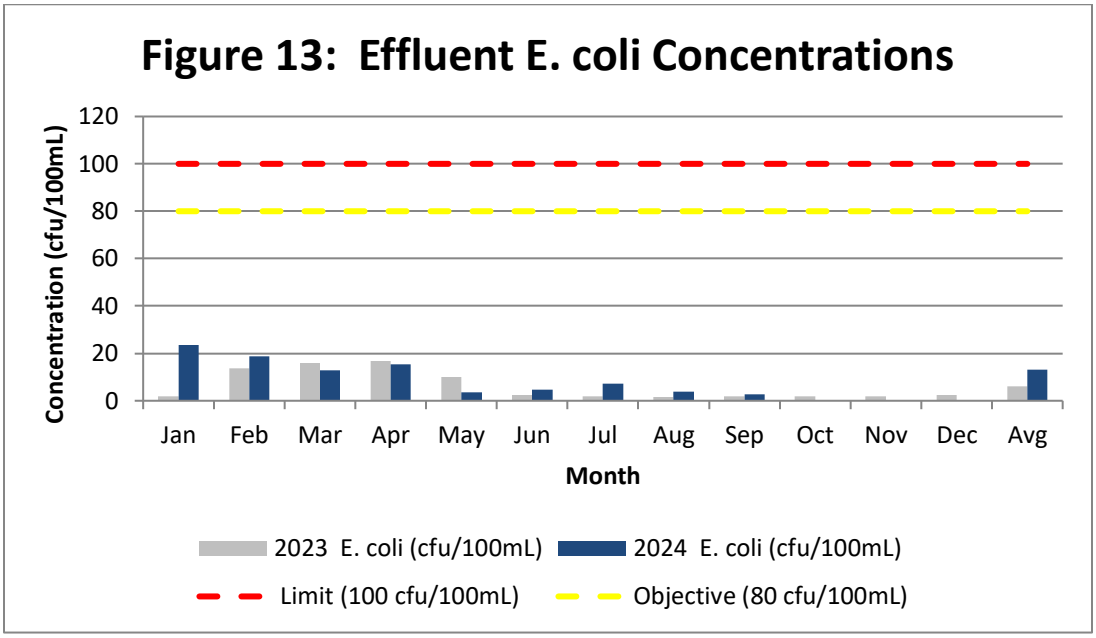
The 2024 average monthly concentration to date of effluent Total Phosphorus (TP) is 0.16 mg/L. This is equal to the value for the same time period in 2023. ECA objectives were not met in June to September, although all limits have been met. Refer to Figure 11 for a comparison of 2024 monthly effluent TP concentrations to 2023 concentrations.



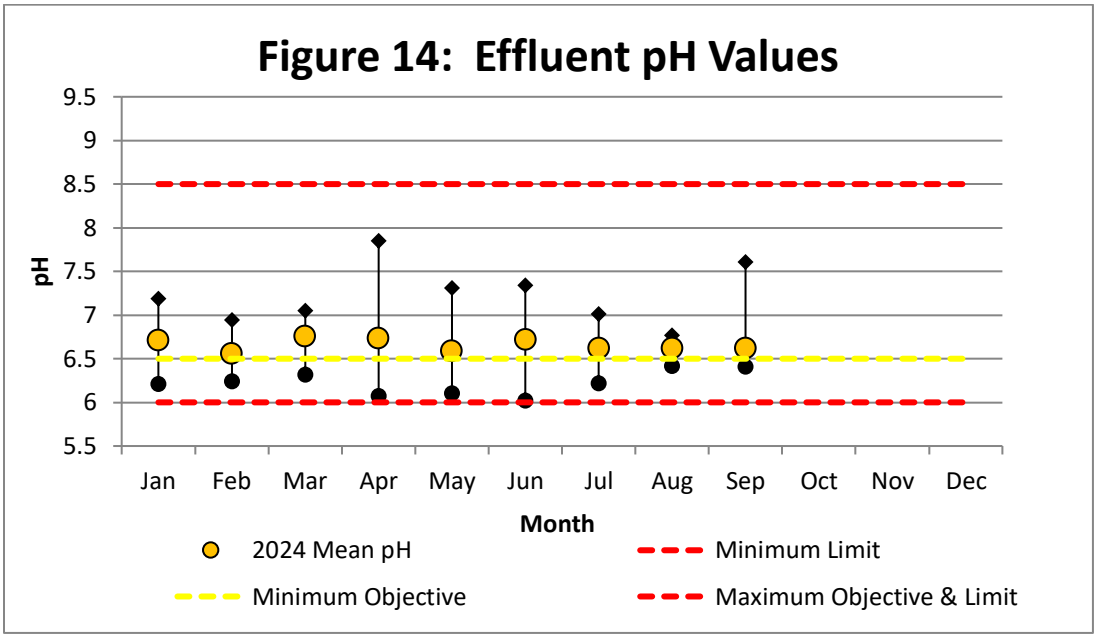
The 2024 average monthly concentration to date of effluent Total Ammonia Nitrogen (TAN) is 0.1 mg/L. This is equal to the value for the same time period in 2023. ECA objectives and limits have been met. Refer to Figure 12 for a comparison of 2024 monthly effluent TAN concentrations to 2023 concentrations.



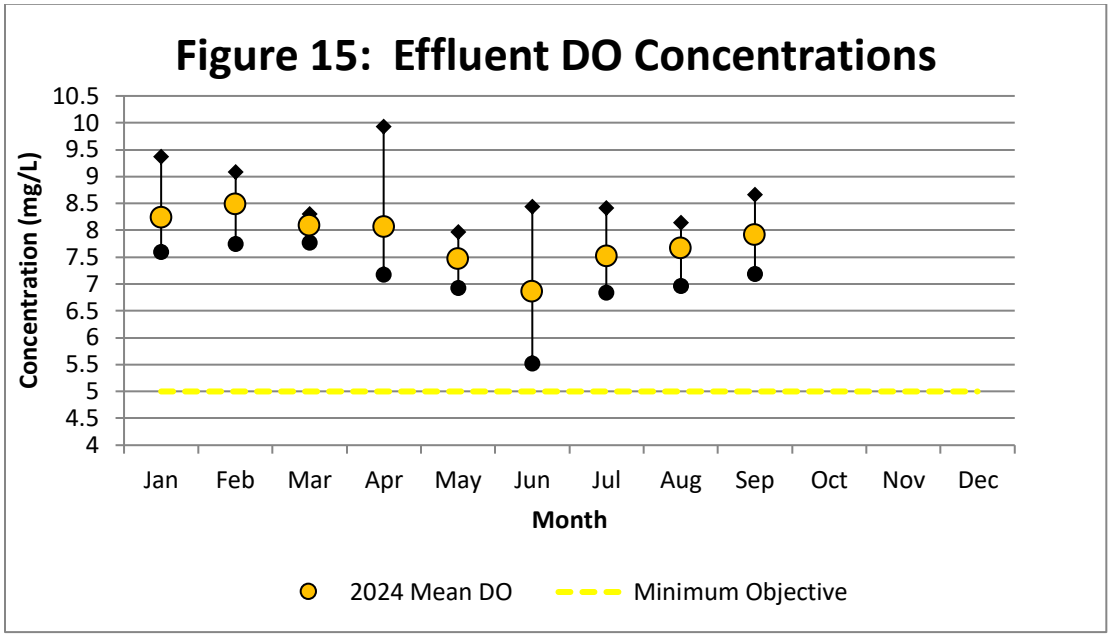
The 2024 average monthly concentration to date (geometric mean) of effluent E. coli is 13.2 cfu/100mL. This is a 30% increase from the value for the same time period in 2023. Nonetheless, ECA objectives and limits have been met. Refer to Figure 13 for a comparison of 2024 monthly effluent E. coli concentrations to 2023 concentrations.



To date in 2024, pH values have ranged from 6.02 to 7.85. ECA limits have been met, however, the minimum objective has not yet been met in 2024. The most efficient manner in which to increase alkalinity (thereby raising pH) at the plant is currently being explored. Refer to Figure 14 for a review of 2024 monthly effluent pH values compared to the objectives and limits.



To date in 2024, Dissolved Oxygen (DO) concentration values have ranged from 5.52 to 9.93. ECA objectives were met. There is no ECA limit. Refer to Figure 15 for a review of 2024 monthly effluent DO concentrations compared to the objective.

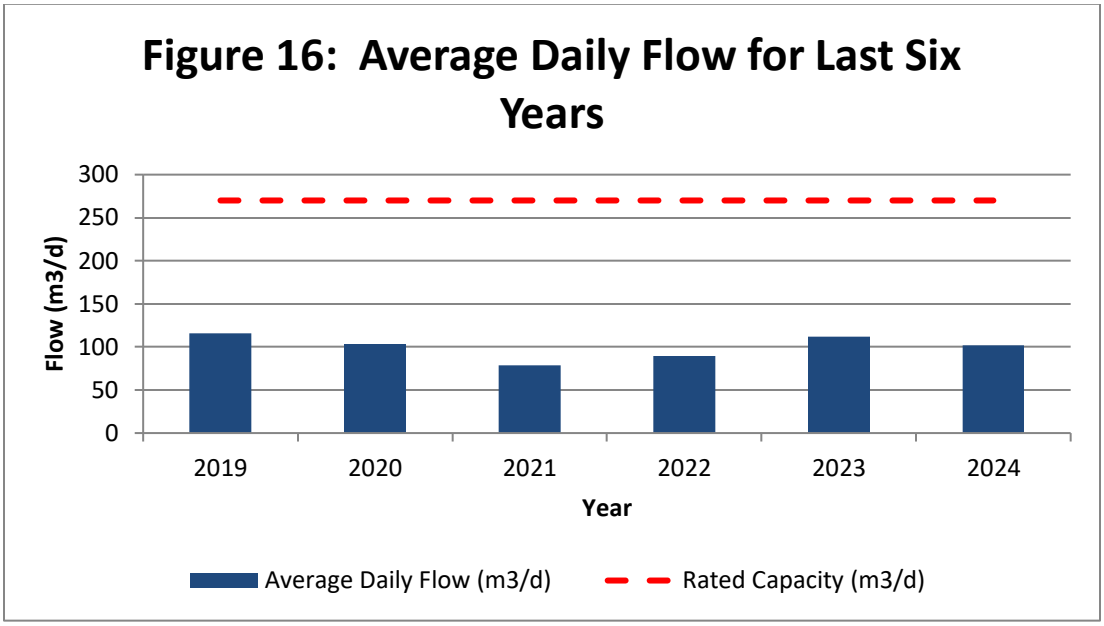


Appendix B: Performance Assessment Report for Granton Wastewater Treatment Plant and Pumping Station

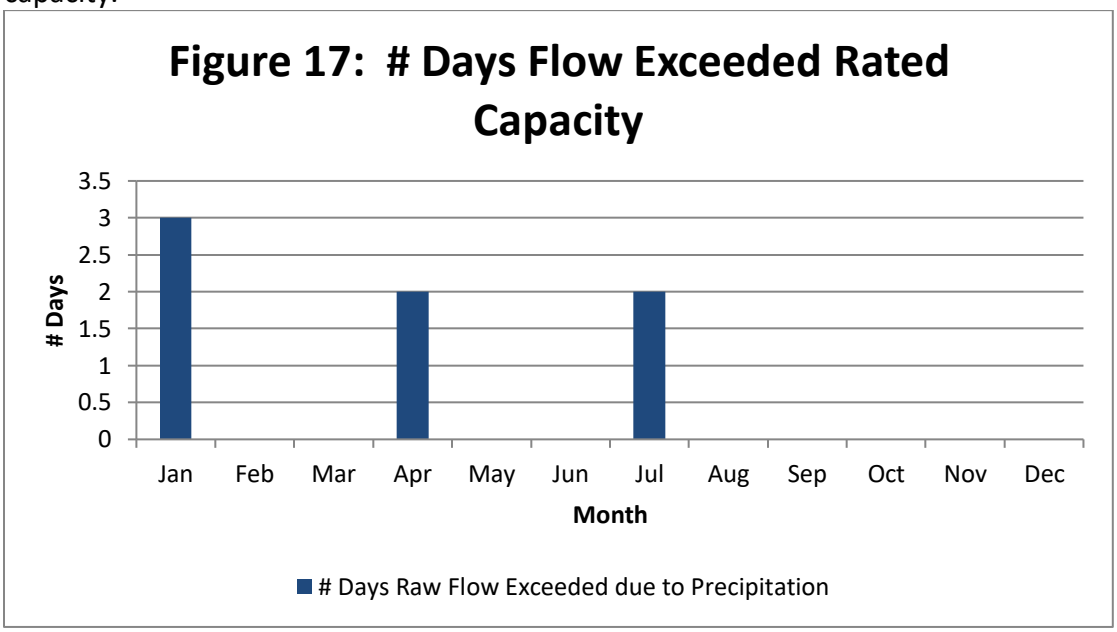
Classification:	Class 1 WWT; Class 1 WWC
Environmental Compliance Approval:	2212-AJDKEV Issued March 30, 2017
Treatment Type:	Rotating Biological Contactor (RBC)
Population Serviced:	280
Rated Capacity:	270 m^3/d
Effluent Discharges to:	Cook Drain to Medway Creek
Facilities:	RBC (34195 Granton Line)
	Pumping Station (34311 Granton Line)

Flow Information

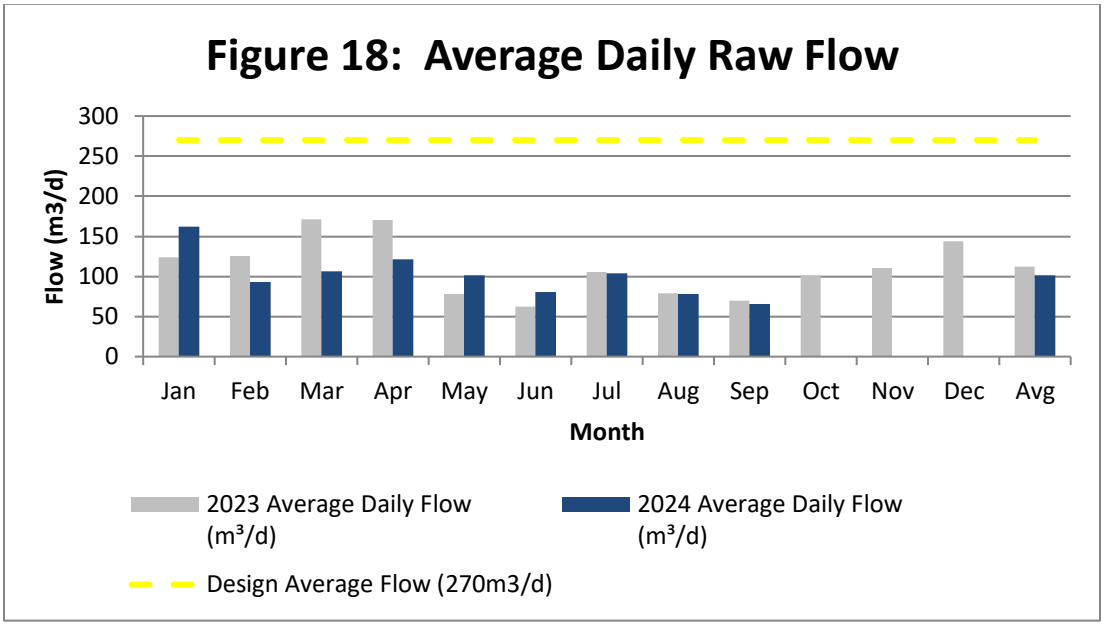
The Granton WWTP is rated for an average daily flow of 270 m^3/d. Refer to Figure 16 for a comparison of average daily flow rates for the last six years against the rated capacity of the plant. The WWTP is currently at 38% of the plant's rated capacity.



The ECA identifies as an objective that the Granton WWTP operate within its rated capacity at all times. Operating the system above the rated capacity can lead to operational challenges. Refer to Figure 17 for the number of days where the Granton WWTP operated above the rated capacity.



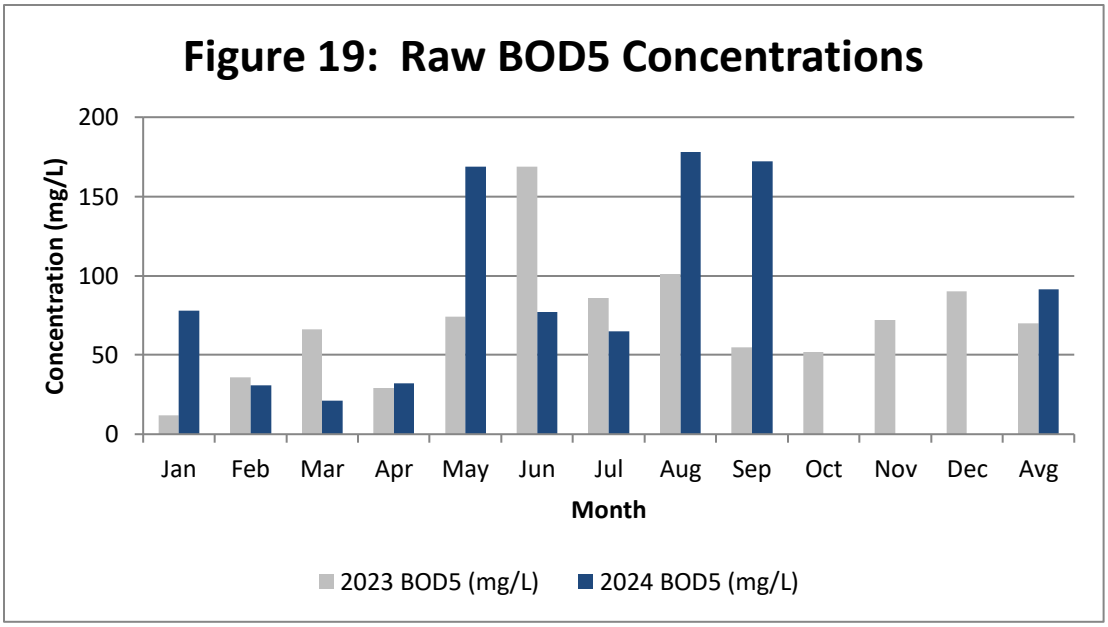
To date in 2024, the raw sewage average daily flow is 101 m^3/d. The average daily flow for the same time period in 2023 was 109 m^3/d. Currently, the average daily flow is at 38% of the plant's rated capacity. Refer to Figure 18 for the monthly average daily flow and the corresponding annual average.



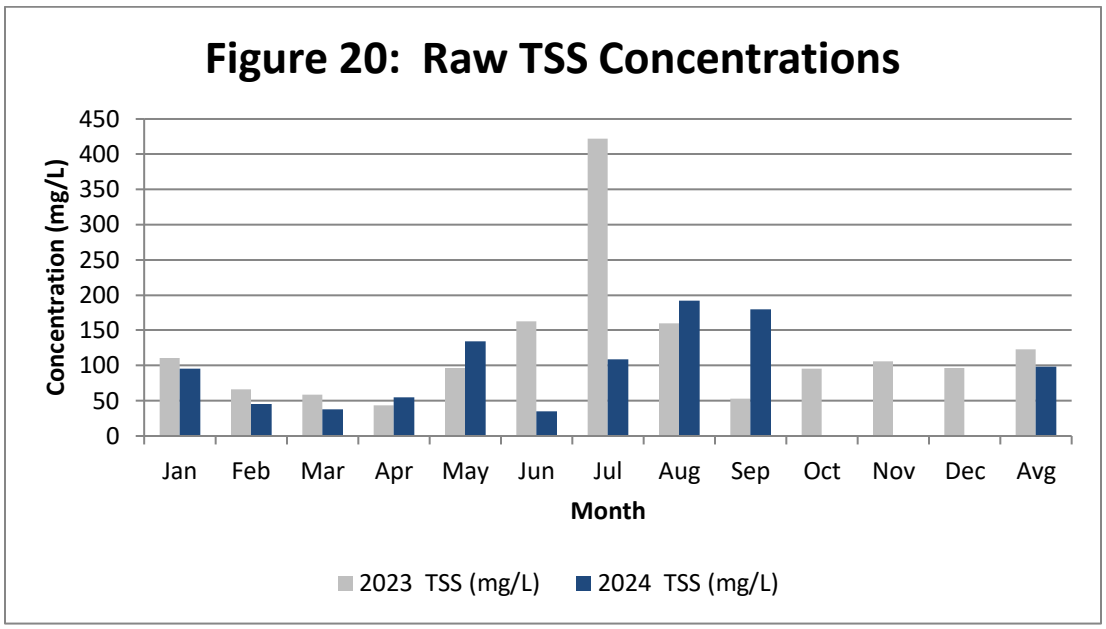
Raw Sewage Monitoring

Raw sewage samples are collected on a monthly basis following the ECA requirements. The ECA does not stipulate raw sewage compliance values. However, increased raw wastewater loading can result in ineffective treatment of the raw sewage and can lead to effluent limit exceedances.

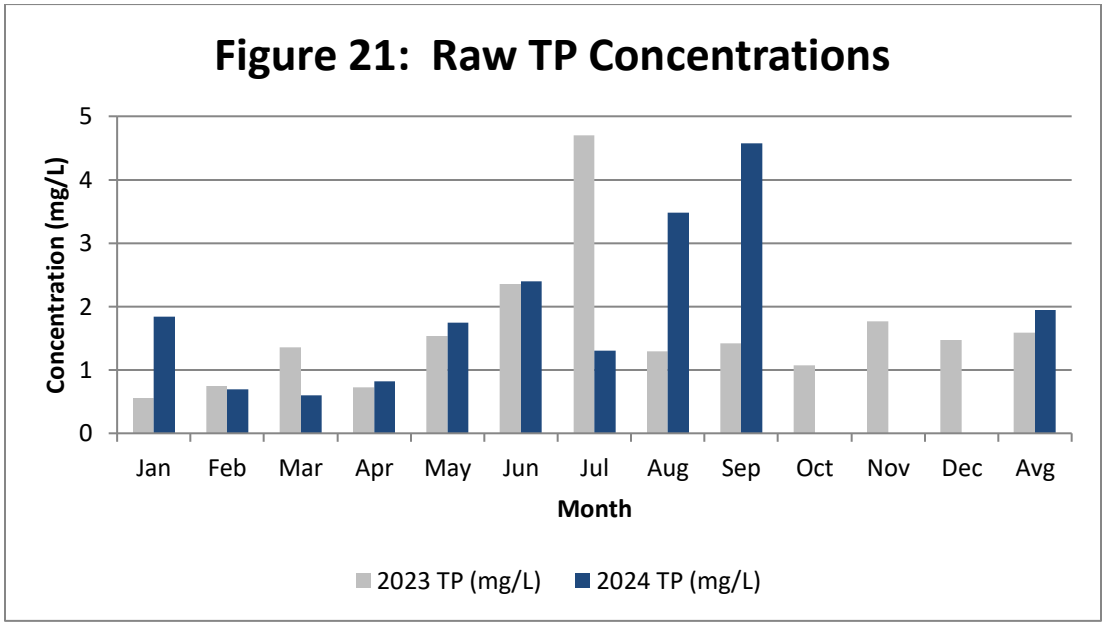
The 2024 average monthly concentration to date of raw Biochemical Oxygen Demand (BOD^5) is 91 mg/L. Refer to Figure 19 for a comparison of 2024 monthly raw BOD^5 concentrations to 2023 concentrations.



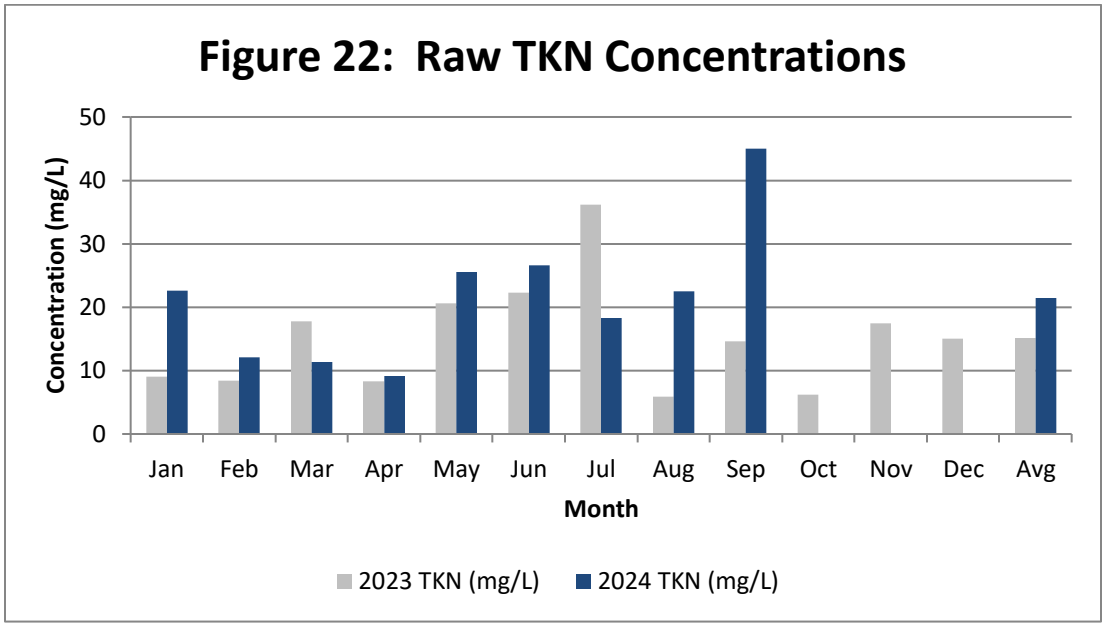
The 2024 average monthly concentration to date of raw Total Suspended Solids (TSS) is 98 mg/L. Refer to Figure 20 for a comparison of 2024 monthly raw TSS concentrations to 2023 concentrations.



The 2024 average monthly concentration to date of raw Total Phosphorus (TP) is 1.9 mg/L. Refer to Figure 21 for a comparison of 2024 monthly raw TP concentrations to 2023 concentrations.



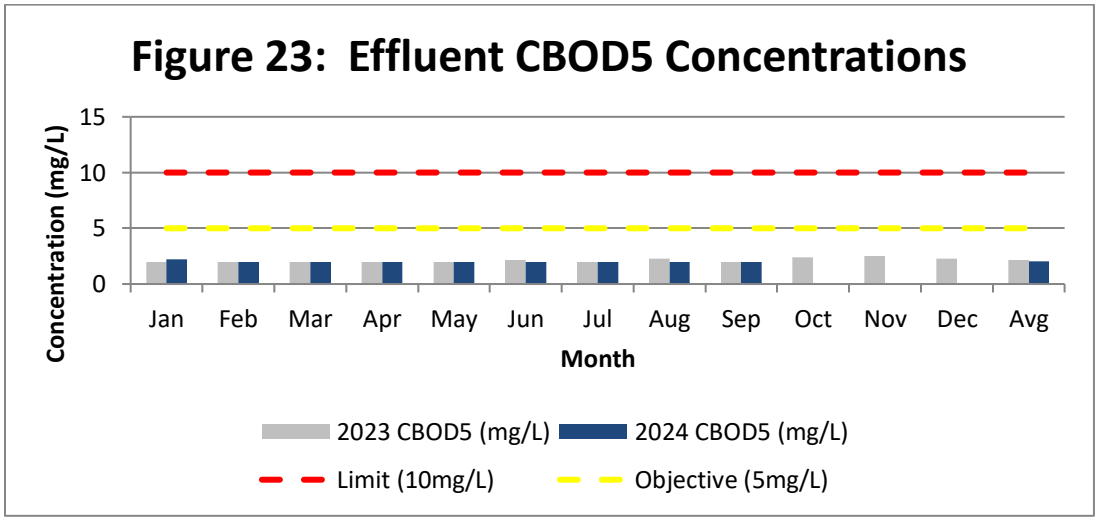
The 2024 average monthly concentration to date of raw Total Kjeldahl Nitrogen (TKN) is 21 mg/L. Refer to Figure 22 for a comparison of 2024 monthly raw TKN concentrations to 2023 concentrations.



Effluent Monitoring

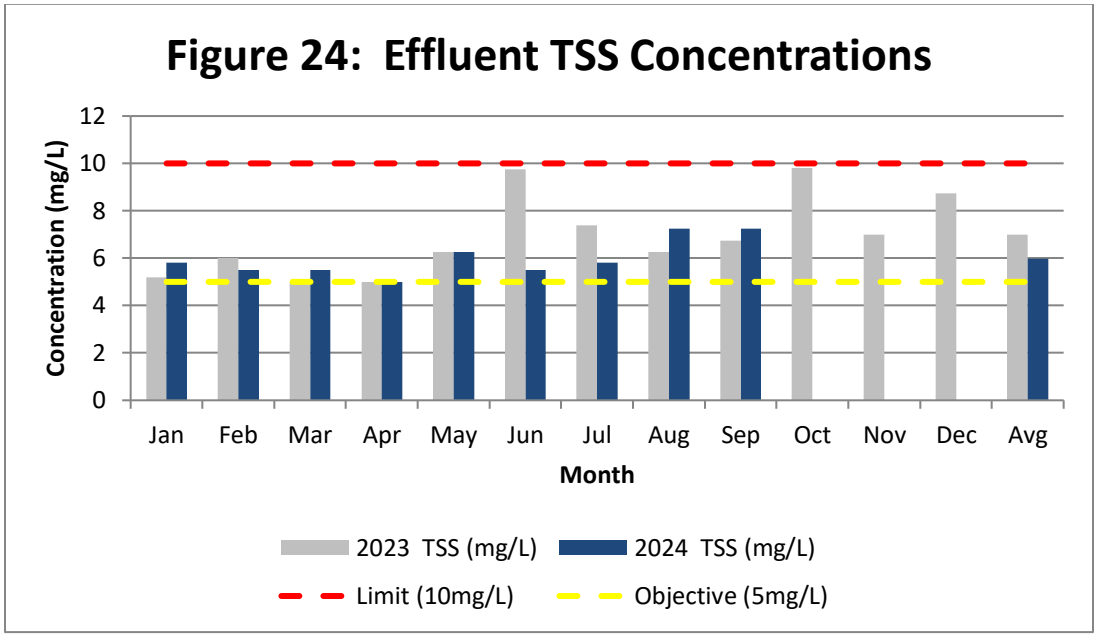
Effluent is sampled on a weekly basis following the requirements of the ECA.

The 2024 average monthly concentration to date of effluent Carbonaceous Biochemical Oxygen Demand ($CBOD^5$) is 2.0 mg/L. This is equal to the value for the same time period in 2023. ECA objectives and limits were met. Refer to Figure 23 for a comparison of 2024 monthly effluent $CBOD^5$ concentrations to 2023 concentrations.

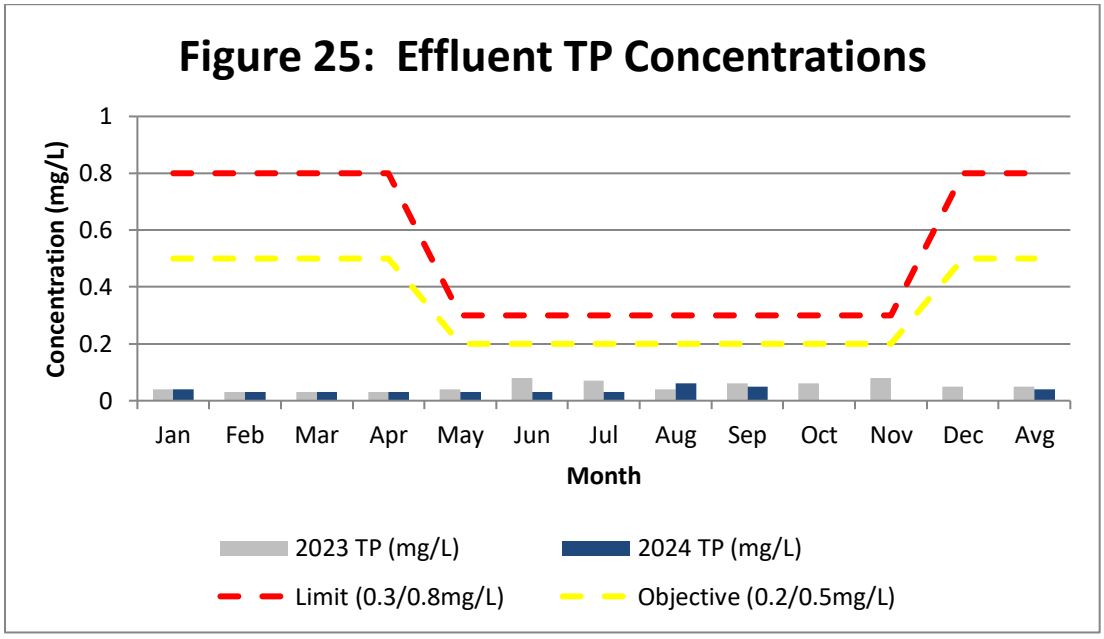


The 2024 average monthly concentration to date of effluent Total Suspended Solids (TSS) is 6.0 mg/L. This is a 7% decrease from the value for the same time period in 2023. ECA limits were

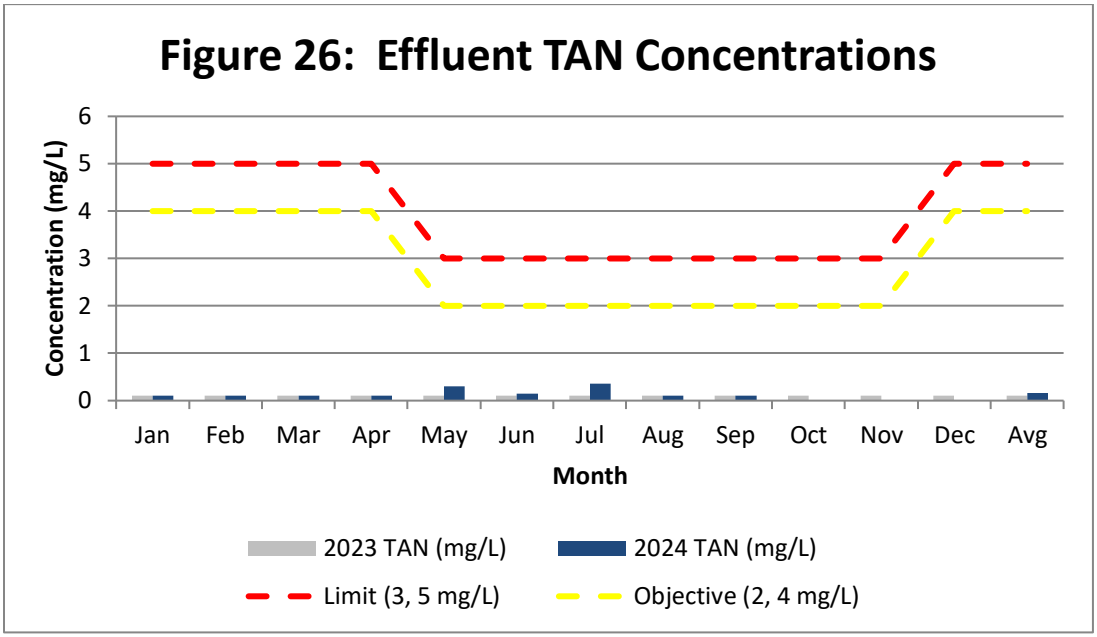
met, however, the objective was not met from January to March, and May to September. Challenges in meeting the TSS objective are attributed to treatment design limitations. Refer to Figure 24 for a comparison of 2024 monthly effluent TSS concentrations to 2023 concentrations.



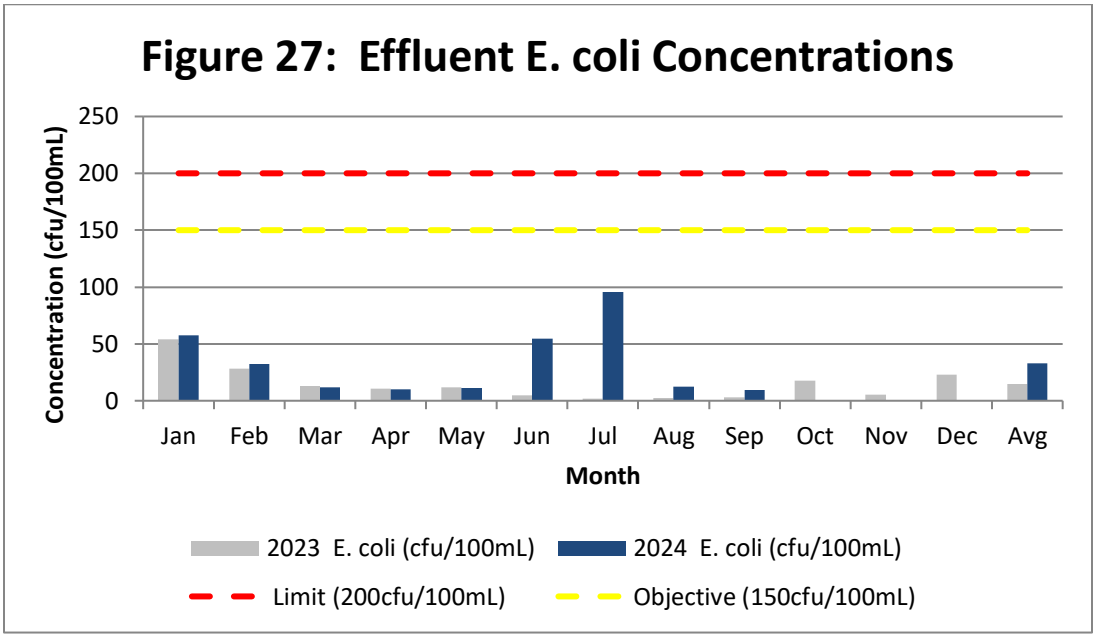
The 2024 average monthly concentration to date of effluent Total Phosphorus (TP) is 0.04 mg/L. This is equal to the value for the same time period in 2023. ECA objectives and limits were met. Refer to Figure 25 for a comparison of 2024 monthly effluent TP concentrations to 2023 concentrations.



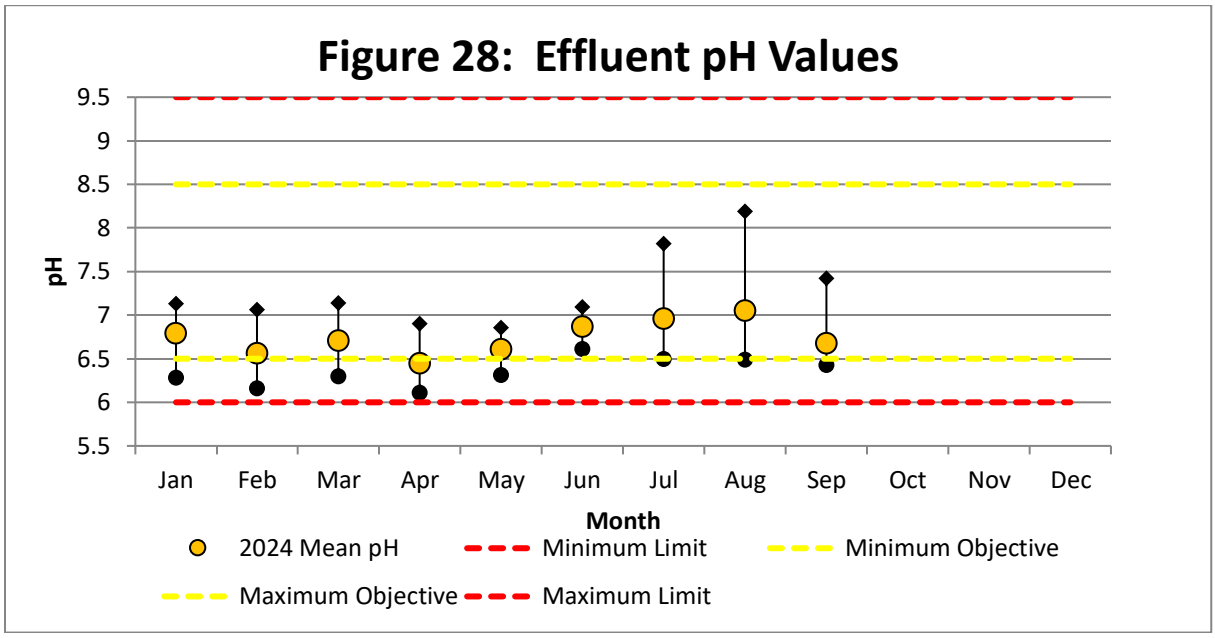
The 2024 average monthly concentration to date of effluent Total Ammonia Nitrogen (TAN) is 0.16 mg/L. This is essentially equal to the value for the same time period in 2023. ECA objectives and limits were met. Refer to Figure 26 for a comparison of 2024 monthly effluent TAN concentrations to 2023 concentrations.



The 2024 average monthly concentration to date (geometric mean) of effluent E. coli is 33 cfu/100mL. This is a 127% increase from the value for the same time period in 2023. However, ECA objectives and limits were met. Refer to Figure 27 for a comparison of 2024 monthly effluent E. coli concentrations to 2023 concentrations.



To date in 2024, pH values have ranged from 6.11 – 8.19. ECA limits were met however, the minimum objective was not met from January to May, August and September. Operators continue to adjust SAX dosing to raise pH levels while ensuring TSS limits are met. Refer to Figure 28 for a review of 2024 monthly effluent pH values compared to the objectives and limits.



To date in 2024, daily Dissolved Oxygen (DO) concentration values have ranged from 4.15 – 9.92. The minimum ECA objective was not met in July and August, however, all limits have been met. Refer to Figure 29 for a comparison of 2024 monthly effluent DO concentrations to the minimum objective and limit.