Town of Bradford West Gwillimbury
2024 Wastewater Performance Report

Infrastructure Services, March 2025

www.townofbwg.com

Town of Bradford West Gwillimbury

225 Dissette St., P.O. Box 419, Bradford, Ontario, L3Z 3G8

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Executive Summary

This report contains the relevant information to meet the annual reporting requirements for the Town of Bradford West Gwillimbury's (Town's) Wastewater system. The performance report is for the period from January 1, 2024 to December 31, 2024. Annual performance reports for the wastewater system are required to be submitted to the Ministry of the Environment, Conservation and Parks (MECP) by March 31st.

The requirements are outlined in the regulatory documents for the system, they are as follows:

- Water Pollution Control Plant Environmental Compliance Approval (ECA) No. 3746-D6FS3J
- Wastewater Sewage System Consolidated Linear Infrastructure (CLI) ECA No. 116-W601.

1. General Wastewater System Information

1.1. Service Information

The Town's wastewater system services a population of approximately 36,249. This includes 11,759 residential connections and 324 general connections (industrial, commercial and institutional). The Water Pollution Control Plant (WPCP) and Wastewater Collection (WWC) system is owned and operated by the Town of Bradford West Gwillimbury.

1.2. General Wastewater System Maintenance

To ensure that all WPCP and Collection System equipment is reliable and in good working order, the Town has a Preventative Maintenance (PM) program in place for all wastewater system equipment and associated facilities. The PM program is based on the recommendations of the original equipment manufacturer as per the WPCP ECA section (8) Operation and Maintenance and WWC System Schedule E Section (3) Operations and Maintenance.

To conduct efficient and effective maintenance at each facility, plant maintenance activities are tracked on a computerized maintenance management system (CMMS). The CMMS monitors and schedules all the WPCP and associated facilities maintenance plans, issues work orders for these plans and any other scheduled and unscheduled work that may be required.

Inspection, testing, and calibration of electrical, mechanical, instrumentation, and Supervisory Control and Data Acquisition (SCADA) equipment is performed and documented by fully trained and qualified technicians. Identified PM deficiencies are flagged and scheduled for repair in a priority manner. Critical process equipment that is not performing to specification is repaired or replaced immediately.

The Wastewater Division manages approximately 3,300 PM work orders for the system as a whole. The work orders are automatically generated by the Town's current PM program,

WorkTech. A total of 3,338 work orders were completed in the wastewater system during 2024.

1.3. Calibration of Wastewater System Equipment

The calibration of all electrical, mechanical, instrumentation, and SCADA equipment is completed by trained and qualified technicians. All annual calibrations of major equipment of the works have been completed which includes but is not limited to laboratory equipment and flow meters. All flow meter calibrations are completed at minimum once a year. Annual calibrations of flow monitoring equipment at the WPCP and in the WWC pumping stations were completed by third-party technicians. The calibrations were completed in the months of June and July, 2024. Calibration of the laboratory equipment was completed in June 2024.

1.4. Wastewater System Complaints

In 2024 there were four (4) odour complaints related to wastewater operations. One (1) of the complaints related to the WPCP. Three (3) of the complaints related to the WWC system. Only complaints related to the WPCP are required to be reported to the MECP. However, details on all complaints were shared with the MECP Barrie District Office.

Table 1 below contains a summary of the complaints received for the wastewater system and the corrective actions taken to address the issues.

Table 1. Summary of Wastewater System Complaints.

System	Complaint	Corrective Action
WPCP	A general sewage odour was experienced by the affected resident in the evening when they had their windows open.	Four (4) odour control units are to be added to the septage receiving station vent stacks (see **Section 2.12**). No further action was given by the MECP.
WWC	Sewage odour occurring in the area along the road, coming from manholes and vent stacks of sanitary sewer line.	Odour control units have been placed on vent stacks along a length of sanitary forcemain where low flows have caused septic sewage related odour issues. The manhole lids in the affected area were sealed to prevent odours from escaping. Hydrogen Sulfide monitoring was conducted to examine the success of the carbon filters installed. In addition, at the pumping station connected to the forcemain, water is being added to the wet well to increase flow through the pipe until home occupancy in the area increases. No further action was given by the MECP after the Town took the described steps to address the complaints.
WWC	Continued sewage odours at a second location along the same stretch of road where the sanitary forcemain ends and the gravity sewer begins.	
WWC	Odour control unit has fallen off the vent stack and required reinstallation.	

2. Bradford Water Pollution Control Plant

2.1. General Facility Description

The WPCP is located at 225 Dissette Street, Bradford West Gwillimbury.

In 2012 the Town's WPCP was re-rated to its current classification, a Class four (4) system. Currently the facility is comprised of Plant B, C and D. Plant B was offline for all of 2024.

Table 2 contains an overview of the Bradford WPCP. It includes the current rated capacity, the 2024 service area, the major processes of each plant, and other applicable information regarding the operation of the WPCP.

Table 2. Water Pollution Control Plant Details.

Water Pollution Control Plant	
Rated Capacity	19,400 m^3/day
Service Area	Bradford West Gwillimbury
2024 Service Population	36,249
In-service Date	Plant B 1982 Plant C 1997 Plant D 2009
Effluent Receiver	West Holland River
Major Processes	
Plant B	Extended Aeration
Plant C	Sequencing Batch Reactors (SBR)
Plant D	Extended Aeration
	Tertiary treatment
	U.V Disinfection Continuous Discharge
	Biosolids Storage Ponds 20,000 m^3 (only 10,000 m^3 aerated)
	Digester Sludge Stabilization
	Biosolids Storage Tanks 25,000 m^3
	Emergency Sewage Overflow Pond 44,000 m^3

2.2. Regulatory Requirements

The WPCP reporting requirements and the section of the report that addresses each topic is found in **Table 3.**

Table 3. ECA Reporting Requirements

ECA Reporting Requirement	Report Section
A. A summary and interpretation of all Influent and Imported Sewage monitoring data, and a review of the historical tend of the sewage characteristics and flow rates.	**2.3**
B. A summary and interpretation of all Final Effluent monitoring data, including concentration, flow rates, loading and a comparison to the design objectives and compliance limits in this Approval, including an overview of the success and adequacy of the Works.	**2.4**
C. A summary of all operating issues encountered and corrective actions taken.	**2.8**
D. 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.	**1.2, 2.7**
E. A summary of any effluent assurance or control measures undertaken.	**2.5**
F. A summary of the calibration and maintenance carried out on all Influent, Imported Sewage, 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.	**1.3**
G. 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: I. When any of the design objectives is not archived more than 50% of the time in a year, or there is an increasing trend in deterioration of Final Effluent quality. II. When the Annual Average Daily Influent Flow reaches 80% of the Rated Capacity.	**2.4.2**
H. 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.	**2.10**
I. A summary of any complaints received and any steps taken to address the complaints.	**1.4**
J. A summary of all Bypasses, Overflows, other situations outside of Normal Operating Conditions and spills within the meaning of Part X of EPA and abnormal discharge events.	**2.9**
K. A summary of all Notice of Modification to Sewage Works completed under Paragraph I. d. of Condition 10, including a report on status of implementation of all modification.	**2.12**
L. A summary of efforts made to achieve conformance with Procedure F-5-1 including but not limited to projects undertaken and competed in the sanitary sewer system that result in overall Bypass/ Overflow elimination including expenditures and proposed projects to eliminate Bypass/ Overflows with estimated budget forecast for the year following that for which the report is submitted.	**2.13**
M. 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	**2.11**
N. A summary of any deviation from the monitoring schedule and reasons for the current reporting year and a schedule for the next reporting year.	**2.6**

2.3. Influent and Imported Sewage Monitoring Data

Influent flows are continuously monitored and recorded at the WPCP. The following sections detail the influent flows to the WPCP and the concentration of influent parameters. **Table 4** contains a summary of the influent flow data for 2024.

2.3.1. Influent Flows

Table 4. WPCP Influent Flows in 2024.

Influent Flows 2024					
Month	**Maximum Daily Flow (m^3)**	**Average Daily Influent (m^3)**	**Total Flow (m^3)**	**Maximum Flow Plant C (m^3)**	**Maximum Flow Plant D (m^3)**
Jan	18,341	13,971	433,088	6,146	12,195
Feb	14,474	13,483	377,515	4,668	9,806
Mar	14,657	13,373	414,568	5,311	10,132
Apr	22,859	16,211	486,328	5,122	17,737
May	16,388	13,548	419,976	4,064	12,324
Jun	17,946	13,222	396,648	4,220	13,726
Jul	21,519	13,992	433,764	6,827	17,041
Aug	13,000	11,789	365,469	3,409	9,892
Sep	12,469	11,268	338,037	3,818	8,863
Oct	12,042	11,262	349,112	3,997	8,718
Nov	11,584	10,819	324,581	3,314	8,270
Dec	15,864	11,587	359,211	4,182	11,682
Annual Total (m^3)			**4,698,297**		

2.3.2. Influent Flow Concentrations

The following sections include a summary of the influent flow concentrations for the 2024 year. Influent samples are required monthly by the WPCP ECA. Additional samples are taken beyond the minimum requirements. Full influent samples are taken every other week.

2.3.2.1. BOD_5

The monthly average influent concentrations for Biochemical Oxygen Demand (BOD_5) are graphed in **Figure 1**. March experienced the highest BOD_5 monthly average concentration of 305 mg/L, and June had the lowest concentration of 169 mg/L. The annual average concentration was 257 mg/L, and the monthly annual concentration was 252 mg/L.

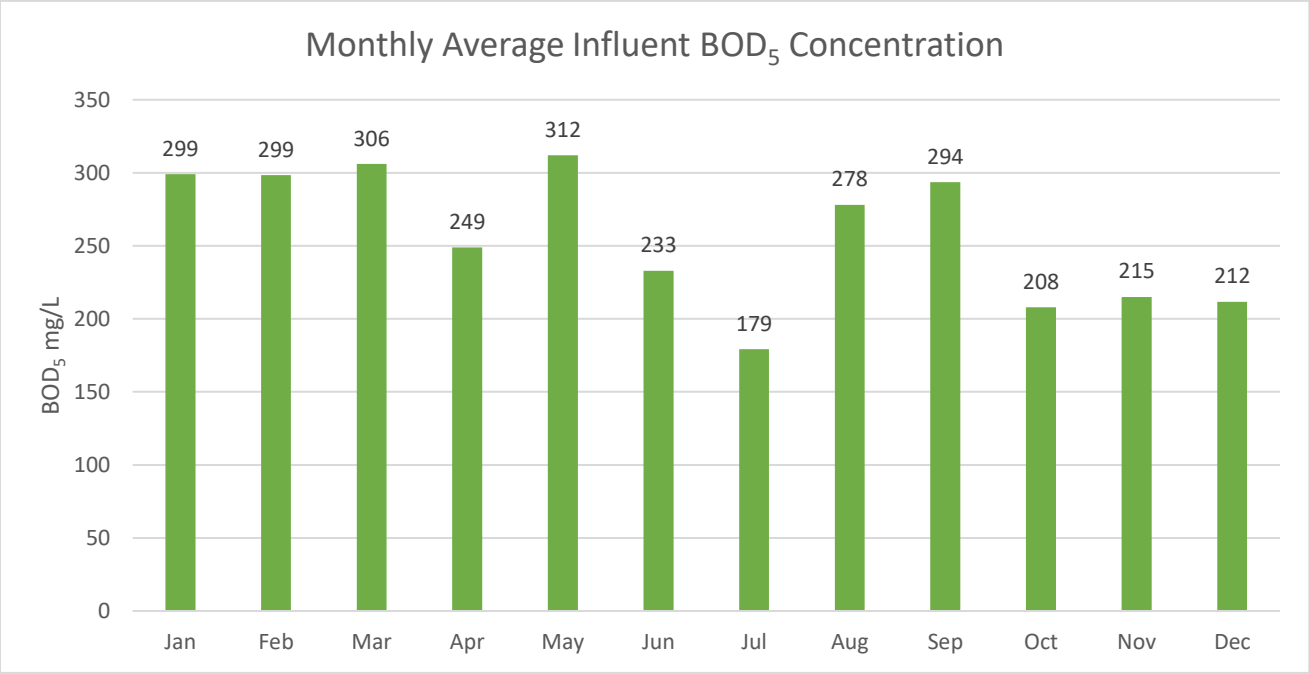


Figure 1. Monthly Average Influent BOD_5 Concentration.

A historical trend of influent BOD_5 concentrations can be found in **Appendix B**. The historical trend captures monthly data from 2017 to 2024. There have been no significant changes to the influent BOD_5 concentrations over the past five (5) years, the annual average BOD_5 concentration has ranged from 223 to 257 mg/L.

2.3.2.2. TSS

The monthly average influent Total Suspended Solids (TSS) concentration has been graphed in **Figure 2**. November had the highest TSS concentration at 731 mg/L, while July had the lowest at 248 mg/L. The annual average concentration for TSS was 384 mg/L and the monthly annual concentration was 392 mg/L.

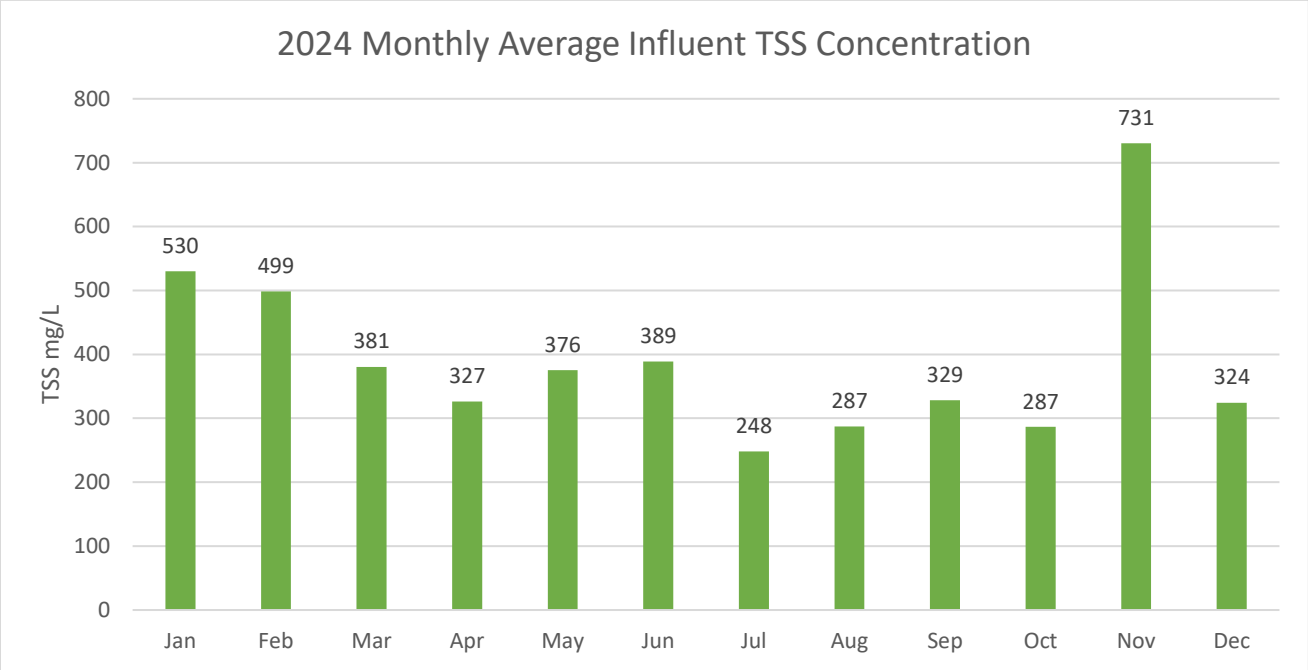


Figure 2. Monthly Average Influent TSS Concentration.

A historical trend of influent TSS concentrations can be found in **Appendix C**. The historical trend captures monthly data from 2017 to 2024. There has been an increase in the monthly annual concentration of TSS starting in 2019, this trend continues into 2024.

2.3.2.3. Total Phosphorus

The monthly average influent Total Phosphorus concentration is graphed below in **Figure 3**. The annual average concentration for Total Phosphorus is 4.32 mg/L. The highest average monthly concentration was in November at 9.34 mg/L and the lowest was in April at 3.10 mg/L.

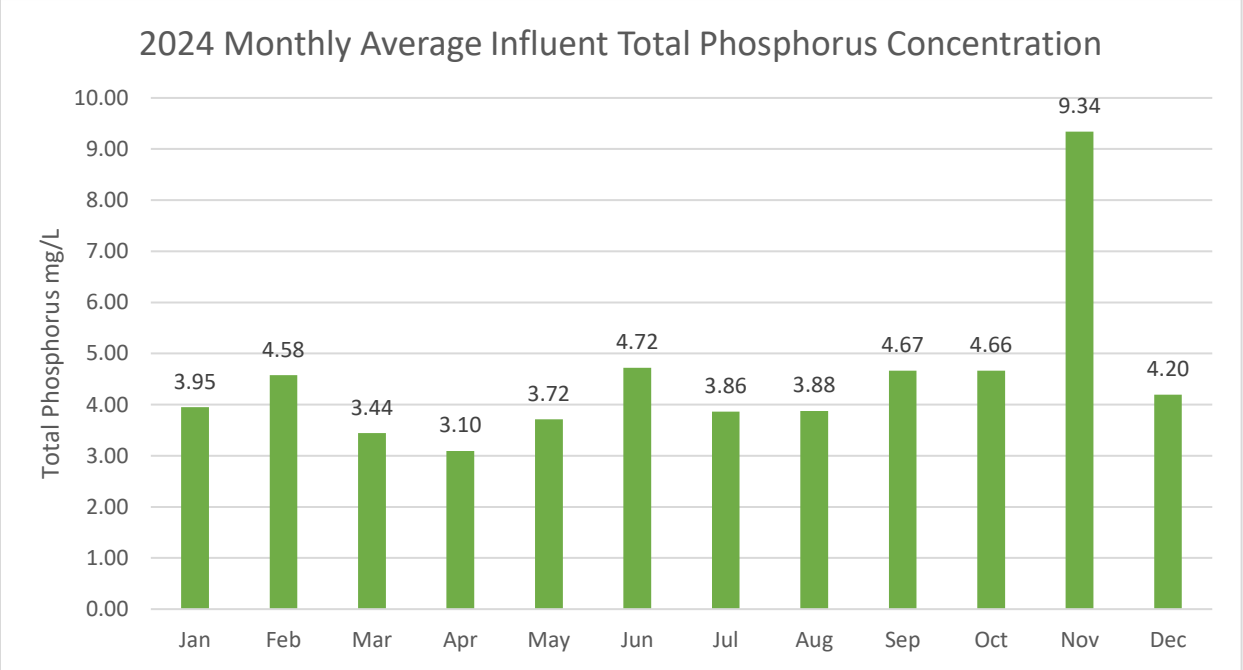


Figure 3. Monthly Average Influent Total Phosphorus Concentration.

A historical trend of influent Total Phosphorus concentrations can be found in **Appendix D**. The historical trend captures monthly data from 2017 to 2024. Total Phosphorus has seen some level of fluctuations on a yearly basis. 2024 saw an increase from 2023. It also had the highest single monthly average since the beginning of the trend in 2017. This spike was seen in November 2024.

2.3.2.4. TKN

The monthly average influent concentrations for Total Kjeldahl Nitrogen (TKN) are graphed in **Figure 4**. November experienced the highest monthly average concentration at 52.63 mg/L. While April had the lowest monthly average concentration of 32.94 mg/L. The monthly annual average concentration was 40.88 mg/L. The annual average concentration was 40.68 mg/L.

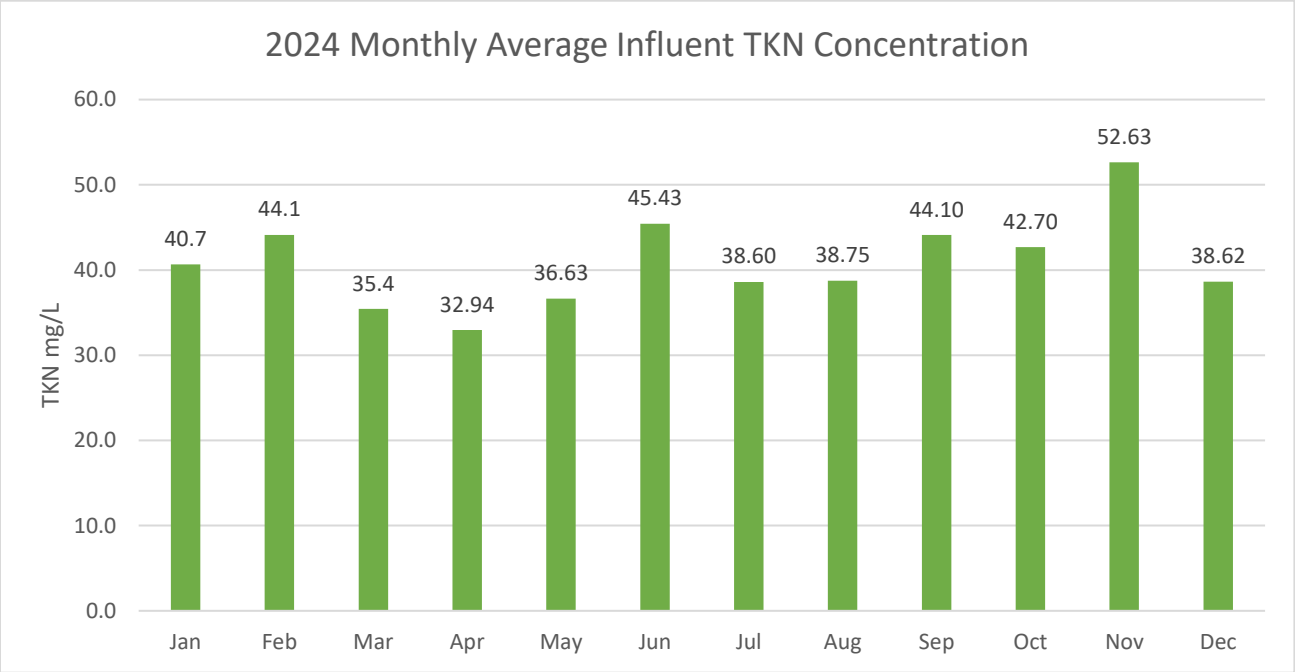


Figure 4. Monthly Average Influent TKN Concentration.

A historical trend of influent TKN concentrations can be found in **Appendix E**. The historical trend captures monthly data from 2017 to 2024. The concentration of TKN did not see significant fluctuations between 2023 and 2024 with a 0.53 mg/L difference between their averages. TKN concentrations have fluctuated slightly through the years, with a monthly average concentration range from a low of 37.11 mg/L (2019) to a high of 52.43 mg/L (2022).

2.3.3. Imported Sewage Flows

Imported Septage is the waste removed from a residential sewage system within the Town which was contained within a septic tank or sewage holding tank.

The Septage Hauling Program in conjunction with the Sewer Use By-law 2013-68, was implemented January 1st, 2017. The program has given the Town the increased ability to ensure the source of septage received at the WPCP is only from within the geographical boundaries of the Town. The program will continue in 2025 with no changes.

The monitoring parameters for imported sewage sampling can be found in Schedule D of the WPCP ECA.

Table 5 shows the volume of imported sewage accepted in 2024 by month.

Table 5. Imported Sewage Flows in 2024.

Imported Sewage Flows 2024	
Month	**Total Flow (m^3)**
Jan	40.49
Feb	12.20
Mar	40.85
Apr	118.77
May	115.33
Jun	103.40
Jul	196.15
Aug	150.16
Sep	130.24
Oct	175.13
Nov	80.65
Dec	23.22
Total	**1186.59**

2.3.4. Imported Sewage Concentrations

Figures 5-8 depict the monitoring analysis of the required parameters: BOD_5, TSS, TKN, and Total Phosphorus. There is a high variety within the concentrations for all parameters analyzed for imported sewage, due to the volatility of the type of material. Imported sewage was received in all months of 2024.

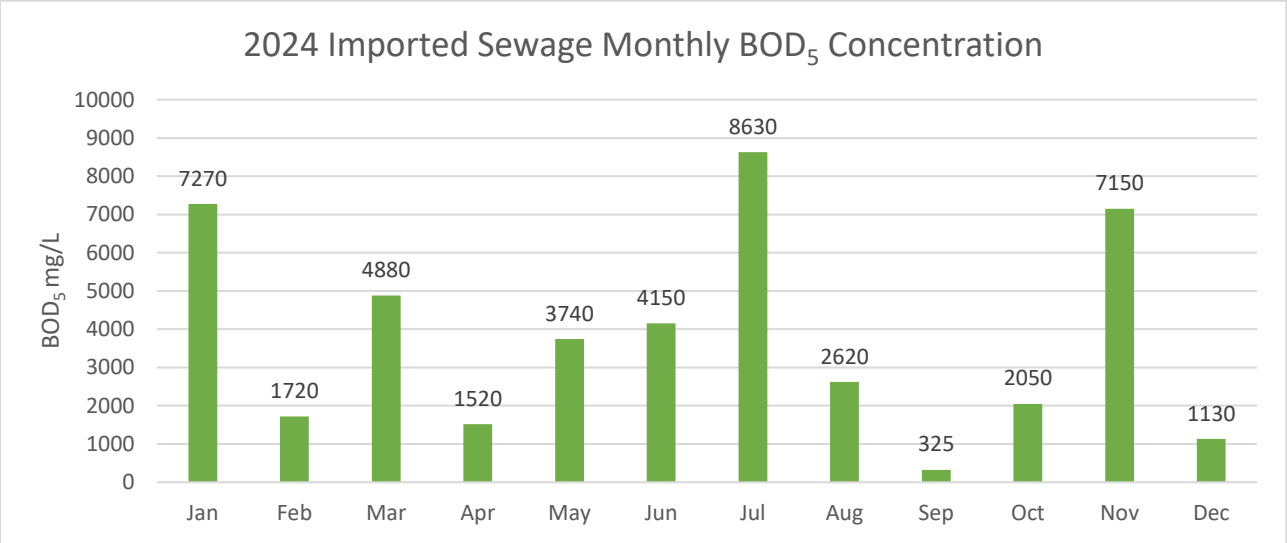


Figure 5. Imported Sewage Monthly BOD5 Concentration.

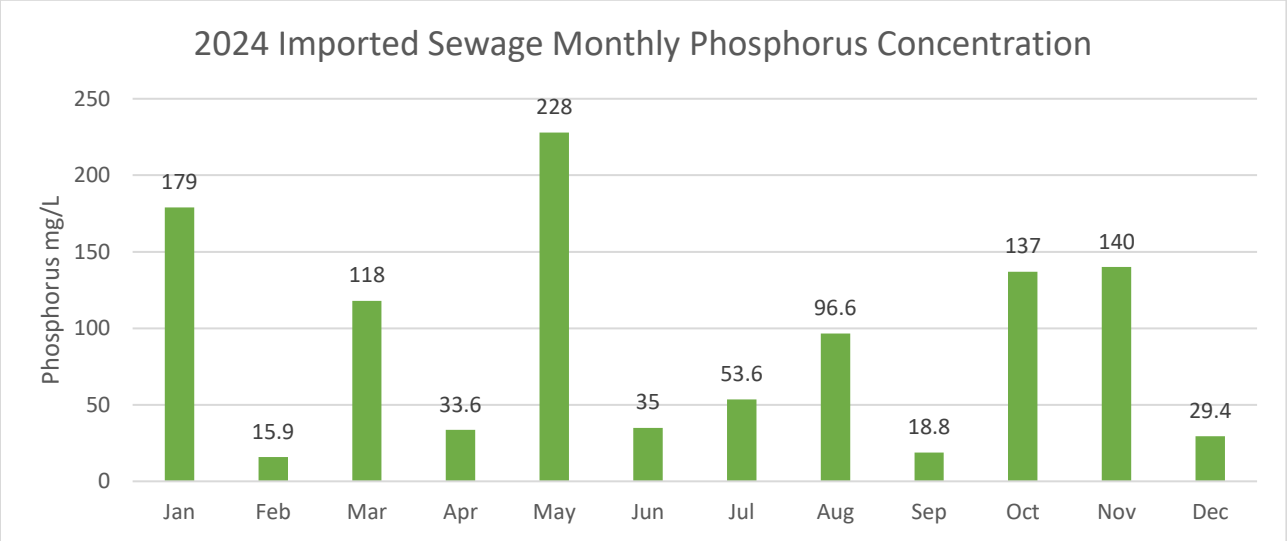


Figure 6. Imported Sewage Monthly Total Phosphorus Concentration.

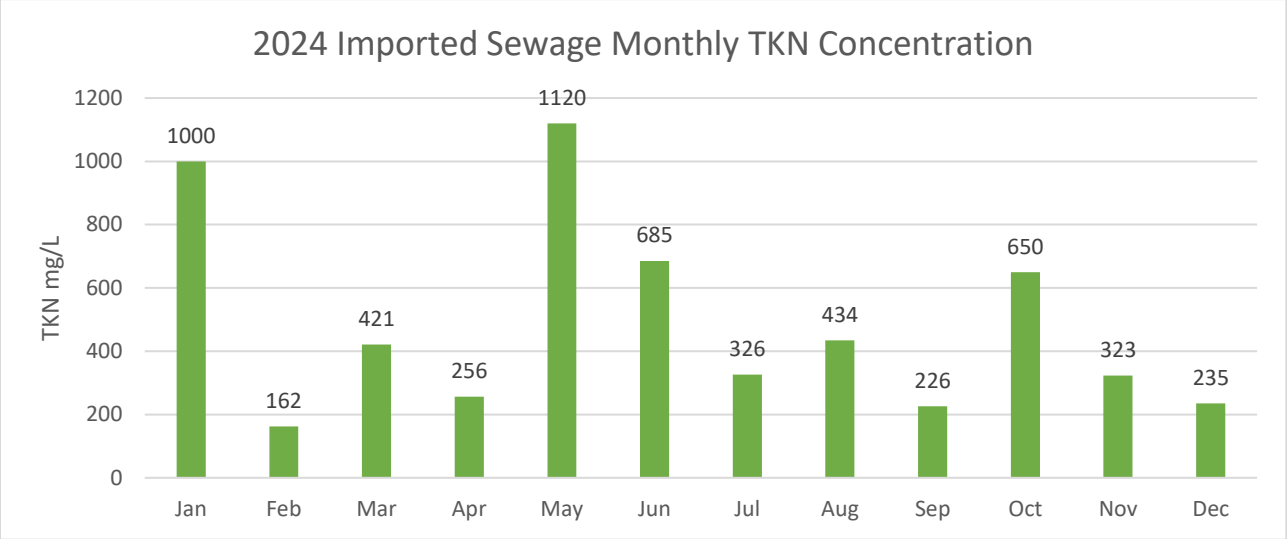


Figure 7. Imported Sewage Monthly TKN Concentration.

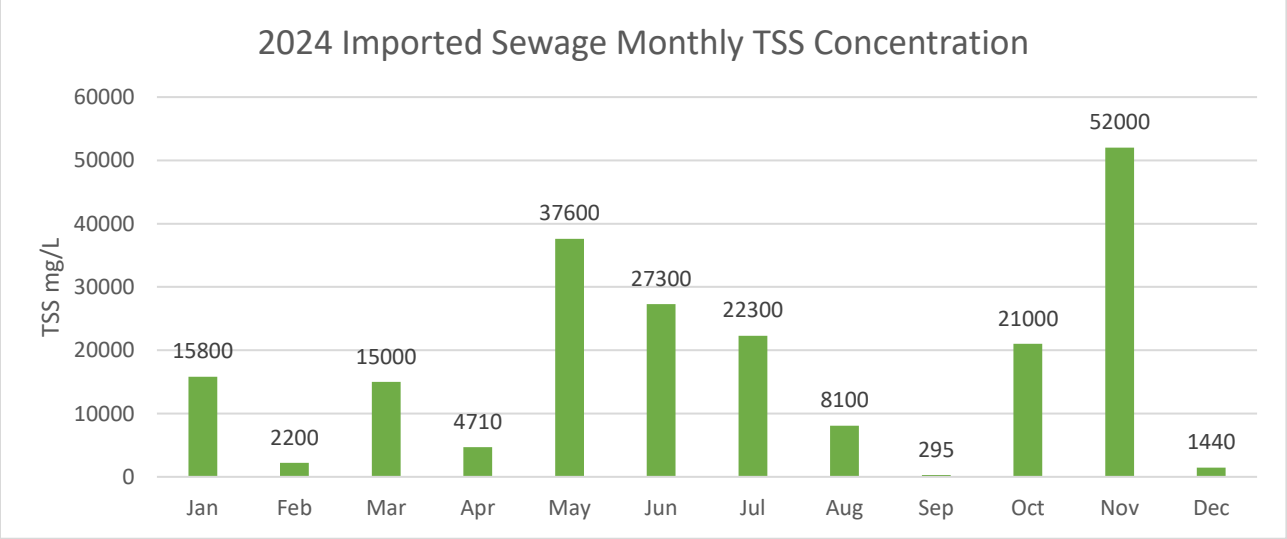


Figure 8. Imported Sewage Monthly TSS Concentration.

2.4. Final Effluent Monitoring Data

Like influent flows to the WPCP, effluent flows are monitored and recorded as required by the ECA. The following sections detail the final effluent flows, compares influent and effluent flows, and analyzes the final effluent concentrations for the monitoring parameters required.

2.4.1. Final Effluent Flows

A summary of effluent flow data can be found in **Table 6.** The maximum daily flow occurred on April 13th, 2024 as a result of several days of heavy rainfall.

Table 6. WPCP Effluent Flows in 2024.

Effluent Flows 2024					
Month	**Maximum Daily Flow (m^3)**	**Average Daily Effluent (m^3)**	**Total Flow (m^3)**	**Maximum Flow Plant C (m^3)**	**Maximum Flow Plant D (m^3)**
Jan	14,935	11,853	367,429	3,406	11,670
Feb	12,109	11,399	319,161	3,412	9,190
Mar	12,448	11,537	357,650	3,658	9,470
Apr	17,932	14,471	434,139	3,532	14,410
May	14,765	11,945	370,304	4,218	11,660
Jun	16,996	11,269	338,081	3,236	13,760
Jul	17,842	11,793	365,591	3,442	14,400
Aug	13,355	10,049	311,525	4,535	8,820
Sep	10,865	9,803	294,084	2,755	8,110
Oct	12,249	9,603	297,705	4,781	8,970
Nov	10,316	9,637	289,099	2,786	7,570
Dec	14,816	10,553	327,157	3,376	11,440
Annual Total (m^3)			**4,071,924**		

A comparison of total monthly influent and total monthly effluent flows can be found in **Figure 9.** Influent flow is higher than effluent flow for all months of the year. April had the highest monthly total flows for both influent (486,328 m^3) and effluent (434,139 m^3). November had the lowest monthly total flows for both influent (324,581 m^3) and effluent (289,099 m^3).

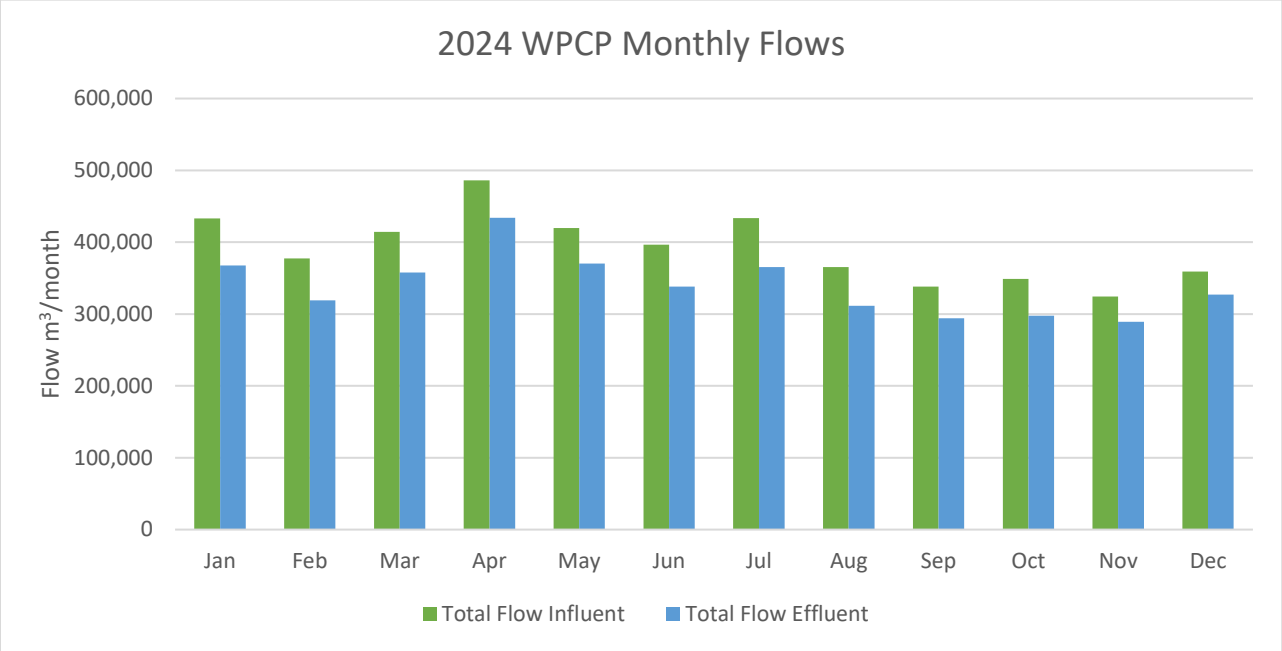


Figure 9. WPCP Total Monthly Flows.

Figure 10 below displays the monthly average influent and effluent flows for the year. The rated capacity refers to the average daily flow for which the works is approved to handle, specifically influent. Both influent and effluent flow remain below the rated capacity. The average daily influent flow for the works in 2024 was 12,872 m^3/day and the effluent flow was 11,156 m^3/day.

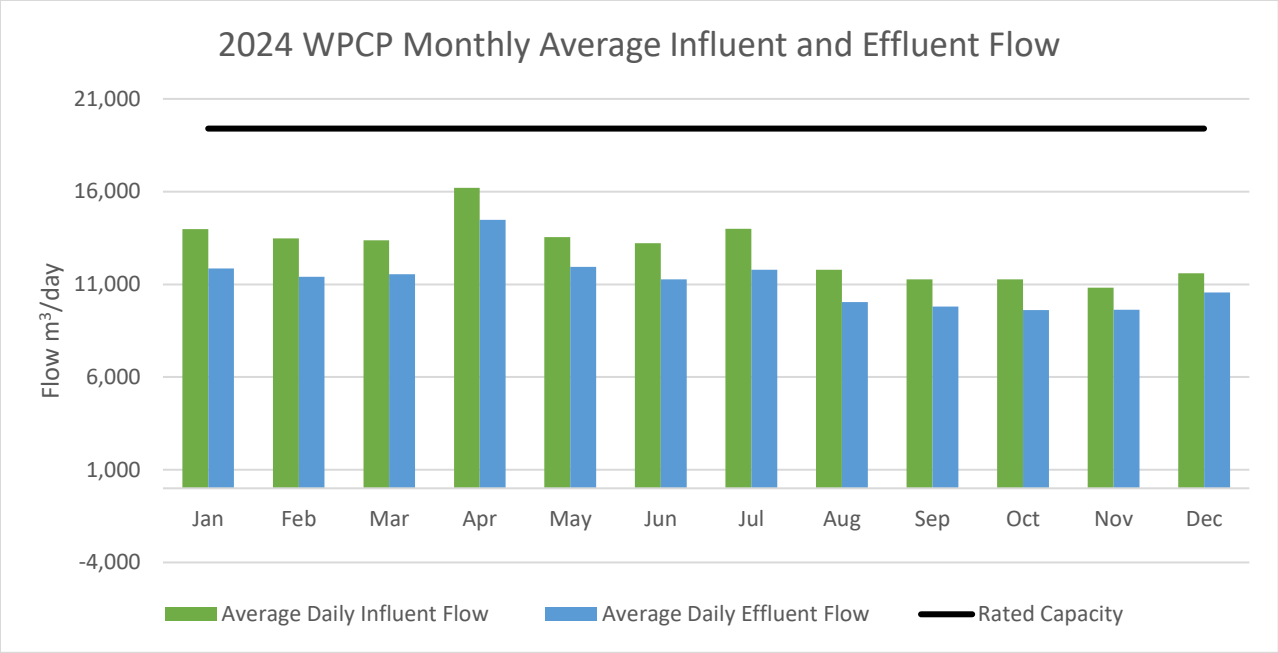


Figure 10. Average Daily Influent and Effluent Flow.

In 2024, the total volume of effluent discharged to the West Holland River decreased slightly by point three one percent (0.31%). More specifically the WPCP discharged 12,523 m^3 less effluent in 2024. **Figure 11** visually identifies the year over year trend from 2015 to 2024 in monthly total effluent discharged at the WPCP.

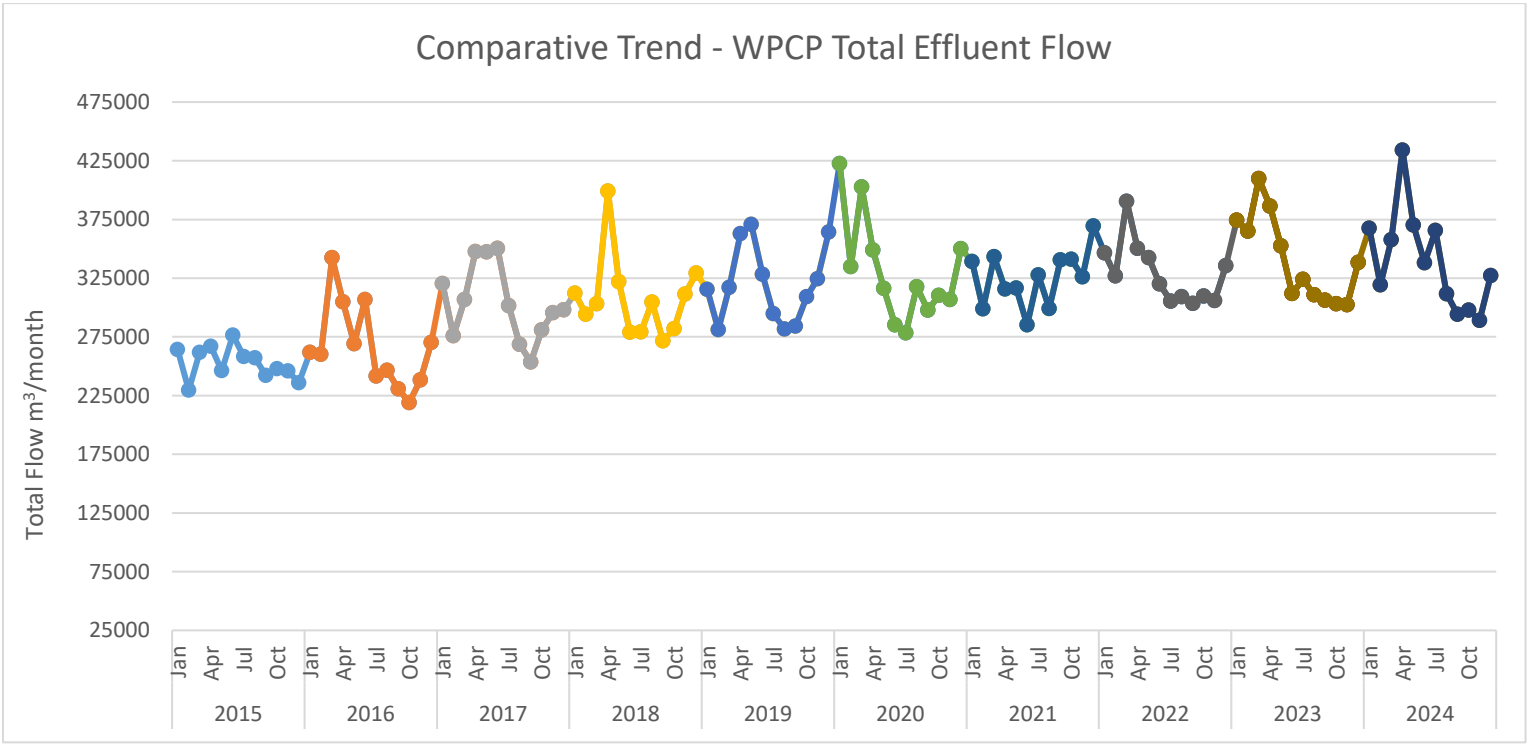


Figure 11. Historical Trend Total Effluent Flow.

2.4.2. Design Objectives Summary

The rated capacity is defined as the annual average daily influent flow for which WPCP is designed to handle. The rated capacity of the WPCP is 19,400 m3/day.

Table 7 contains a comparison of the average daily flow to Rated Capacity for influent. The annual average daily influent flow is below 80% of the Rated Capacity of the WPCP, as required. An addendum to the previously completed Environmental Study Report (ESR) was finalized in October 2024. The ESR supports planned upgrades to the WPCP that will allow for an increased Rate Capacity required to accommodate future growth.

Table 7. Rated Capacity Utilization.

	Influent
Average Daily Flow in 2024	12,872 m^3
Percentage of Rated Capacity Utilized	66%

The Final Effluent Design objectives were consistently achieved throughout the year, there is no evidence of a deteriorating Final Effluent quality trend.

2.4.3. Final Effluent Concentrations

The following subsections provide an overview of effluent concentration data analysis.

The WPCP ECA outlines effluent objectives to establish non-enforceable effluent quality concentrations as a trigger to best maintain the operational effluent quality. The WPCP has used best efforts to maintain operational effluent objectives outlined below in **Table 8**. The Effluent Objectives Table from ECA No. 3746-D6FS3J has been displayed to identify the requirements.

Table 8. ECA Effluent Objectives.

Effluent Objectives		
Effluent Parameter	Averaging Calculator	Objective (mg/L unless otherwise indicated)
$CBOD_5$	Monthly Average Effluent Concentration	5
Total Suspended Solids	Monthly Average Effluent Concentration	5
Total Phosphorus	Monthly Average Effluent Concentration	0.096
Total Ammonia Nitrogen	Monthly Average Effluent Concentration	0.6 (May 1 to October 31)
		2.0 (November 1 to April 30)
E. coli	Monthly Geometric Mean Density	50 CFU/100mL
pH	Single Sample Result	6.5-8.5 inclusive

The WPCP ECA outlines effluent limits to maintain the health of the West Holland River and to meet the MECP's effluent quality requirements. The effluent limits are outlined below in **Table 9**. Analytical results used are from the analysis by SGS Canada Inc.

All sampling is completed within the guidelines of the ECA and carried out in compliance with the sampling methods and procedures set out by the MECP. The sample frequency and analysis either meets or surpasses the minimum requirements.

The WPCP operated within the requirements for all parameters outlined within the current WPCP ECA.

Table 9. Final Effluent Compliance Limits.

Final Effluent Compliance Limits		
Effluent Concentration Limits		
Final Effluent Parameter	Averaging Calculator	Limit (maximum unless otherwise indicated)
CBOD5	Monthly Average Effluent Concentration	10 mg/L
Total Suspended Solids	Monthly Average Effluent Concentration	10 mg/L
Total Phosphorus	Annual Average Effluent Concentration	0.098 mg/L
Total Ammonia Nitrogen	Monthly Average Effluent Concentration	0.8 (May 1 to October 31) 2.5 (November 1 to April 30)
E. coli	Monthly Geometric Mean Density	100 CFU/100mL
pH	Single Sample Result	6.0-9.5 inclusive
Effluent Loading Limits		
Final Effluent Parameter	Averaging Calculator	Limit (maximum unless otherwise indicated)
CBOD5	Monthly Average Daily Effluent Loading	194 kg/d
Total Suspended Solids	Monthly Average Daily Effluent Loading	194 kg/d
Total Phosphorus	Annual Average Daily Effluent Loading	1.912 kg/d

2.4.3.1. Nitrite and Nitrate

The below **Figures 12** and **13** graph the monthly average effluent concentrations for Nitrate and Nitrite. The ECA does not prescribe objectives and limits for the parameters.

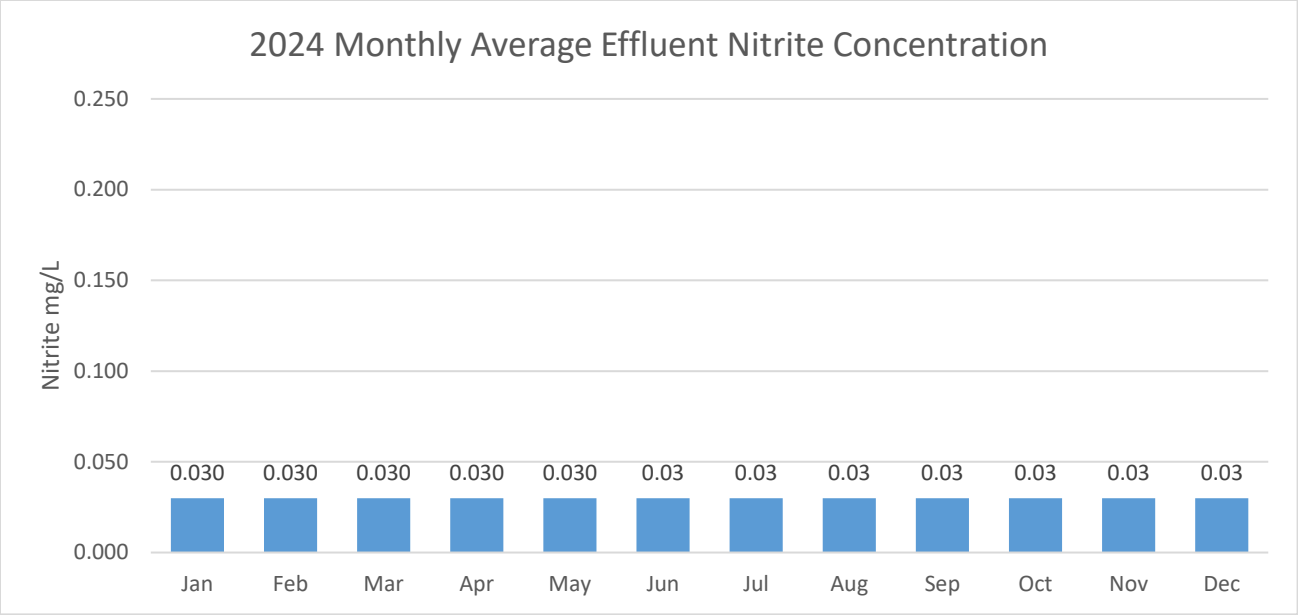


Figure 12. Monthly Average Effluent Nitrite Concentration.

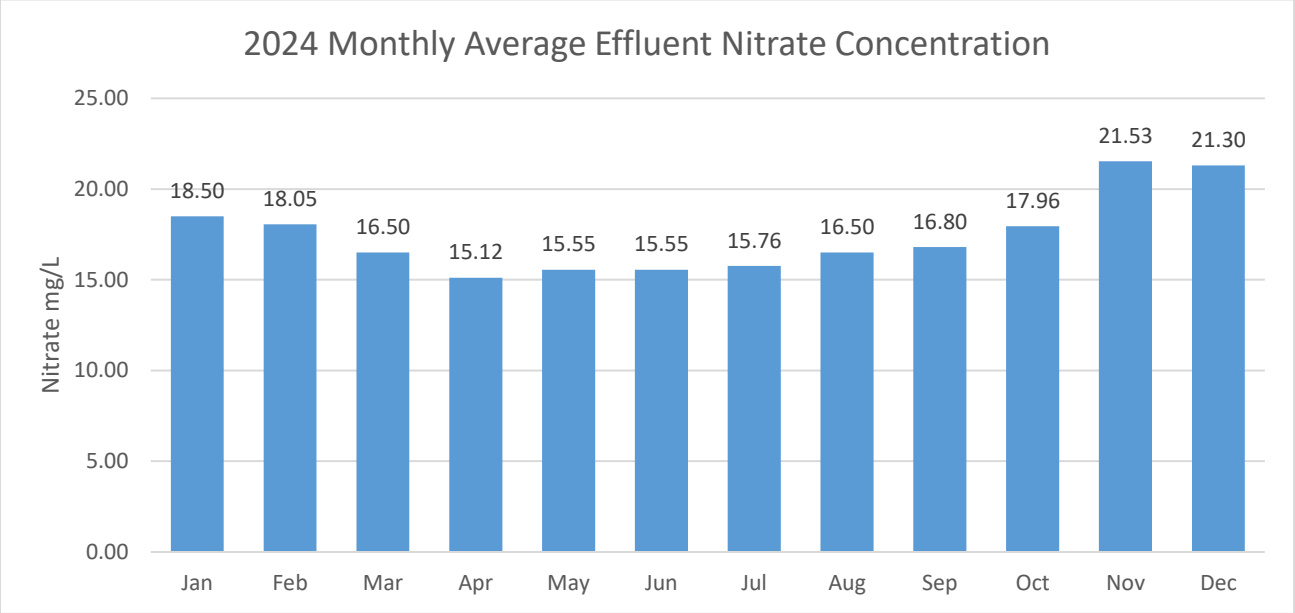


Figure 13. Monthly Average Effluent Nitrate Concentration.

2.4.3.2. Unionized Ammonia

Unionized Ammonia is a calculated parameter using the effluent TAN concentration, pH, and temperature. pH and temperature are determined in the field at the time of sampling for TAN.

The unionized ammonia concentration does not fluctuate significantly throughout 2024. The monthly average for all months is at 0.0010 mg/L as seen in **Figure 14**.

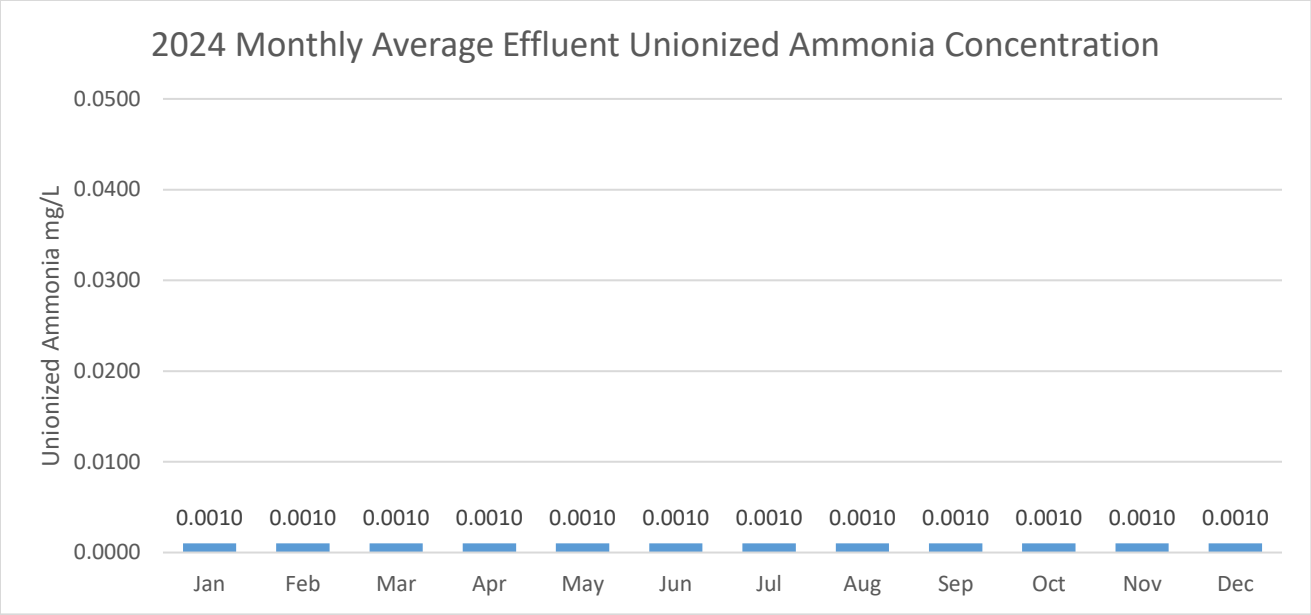


Figure 14. Monthly Average Effluent Unionized Ammonia Concentration.

2.4.3.3. TKN

The monthly average effluent TKN concentrations saw some fluctuations throughout the year. The monthly average concentrations are graphed below in **Figure 15**.

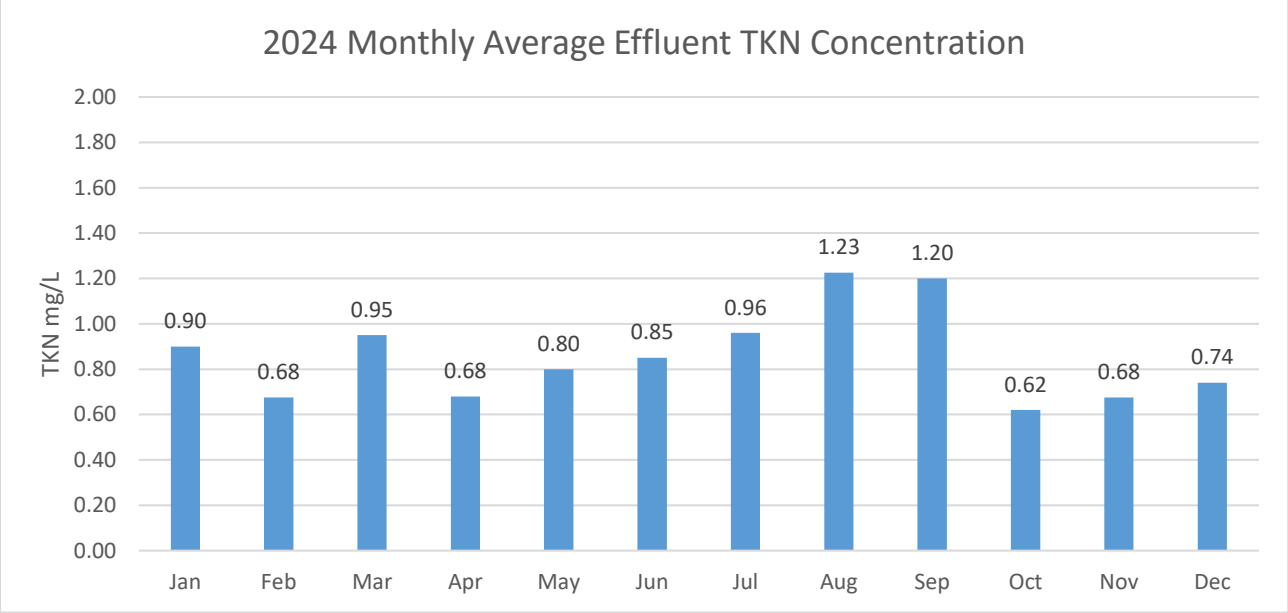


Figure 15. Monthly Average TKN Concentration.

2.4.3.4. pH

pH was consistently maintained between the ECA limits of 6.0 to 9.5 within the reporting year as seen in **Figure 16**. The monthly averages ranged between 6.9 and 7.1. The single sample results ranged within 6.5 - 7.7, as mentioned pH was maintained within both the ECA high and low limits and objectives.

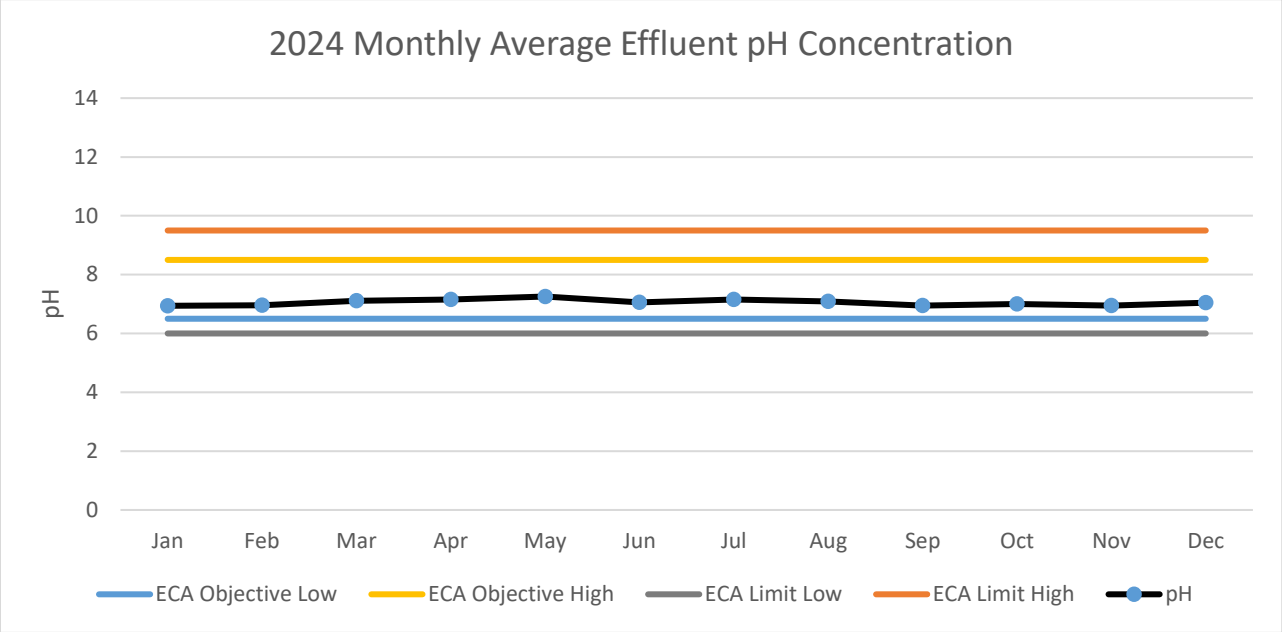


Figure 16. Monthly Average pH Compared to the ECA.

A Historical Trend of monthly pH recordings from 2015 to 2024 can be found in **Appendix F**. Slight variations can be seen over the years. Four of the last five years have been stable with few changes with 2021 being the outlier. 2024 saw more variation than 2023 though it remained overall stable.

2.4.3.5. TSS

Figure 17 below graphs the 2024 TSS data and is compared to the limit and objective set by the WPCP ECA. The monthly average concentration for TSS fluctuated slightly throughout the year. March had the highest average at 3.5 mg/L. Both April and October had the lowest average at 2.20 mg/L. The monthly average TSS remained below both the objective and limit in all months.

The annual average concentration for TSS was 2.74 mg/L and the annual monthly average concentration was 2.76 mg/L, both below the ECA objective.

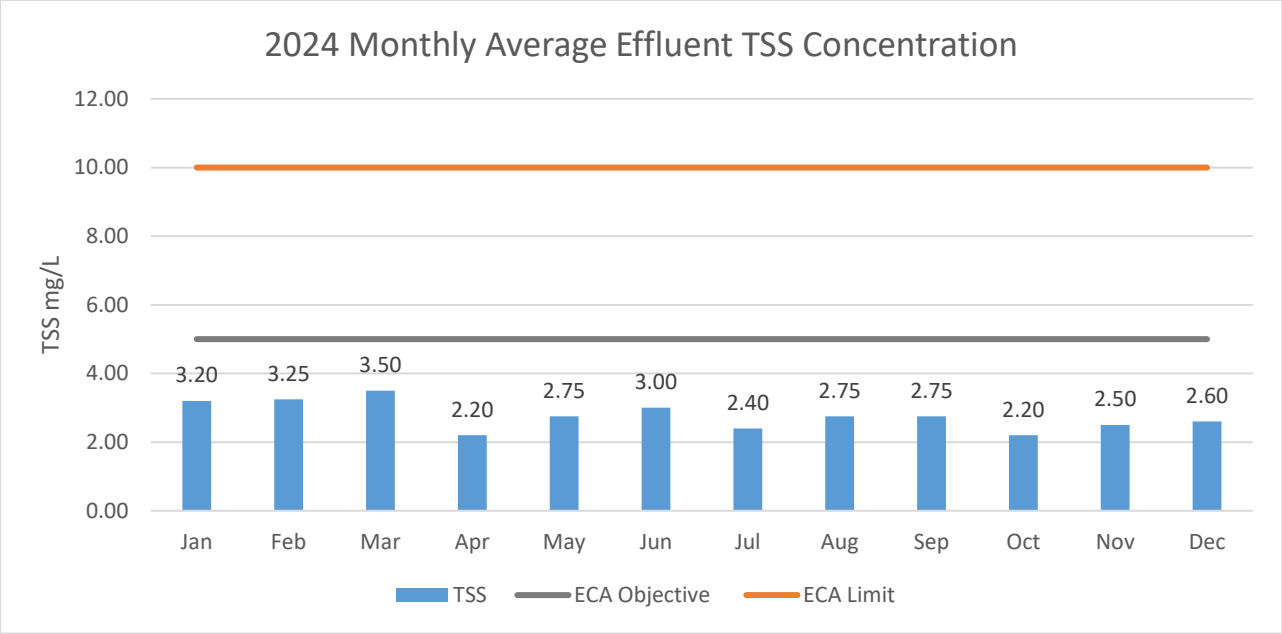


Figure 17. Monthly Average Total Suspended Solids Concentration Compared to the ECA.

In **Appendix G**, TSS is graphed as a Historical Trend from 2015 to 2024. 2024 saw a decrease in monthly average TSS concentrations. It had the lowest averages seen since 2017. Monthly average concentrations remain below the ECA objective and limit for all of 2024.

Throughout 2024 the monthly loading remains well below the ECA limit of 194 kg/day, as shown in **Figure 18** below.

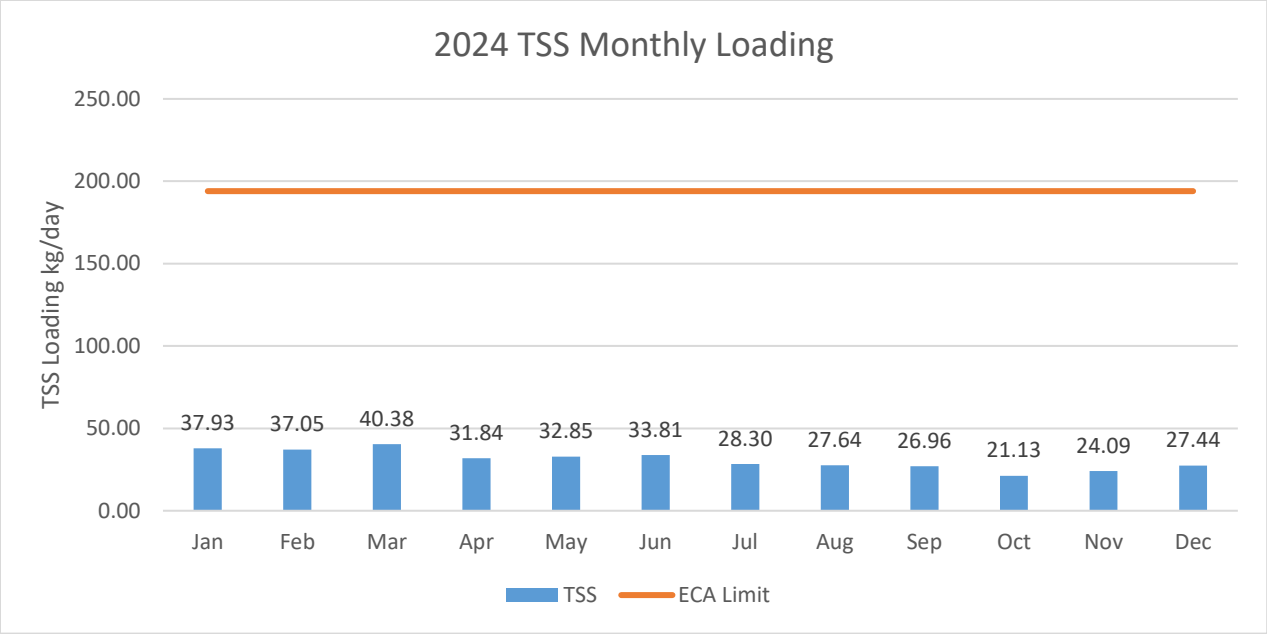


Figure 18. Monthly Average TSS Waste Loading Concentration Compared to the ECA.

2.4.3.6. E. coli

Figure 19 below identifies the *E. coli* effluent data throughout 2024 compared to the ECA limit and objective. *E. coli* did not exceed the ECA limit or surpass the objective. The *E. coli* monthly geometric mean ranged from 1.52 to 2.38 cfu/100mL. The single sample results ranged from 0 to 8 cfu/100mL. There were four (4) occurrences where the *E. coli* result was zero (0) (Jan 9, Jan 30, Aug 6, and Oct 1). To calculate the geometric, mean the value one (1) was used.

There were no occurrences when the single sample results or monthly average concentration exceeded the ECA objective or limit.

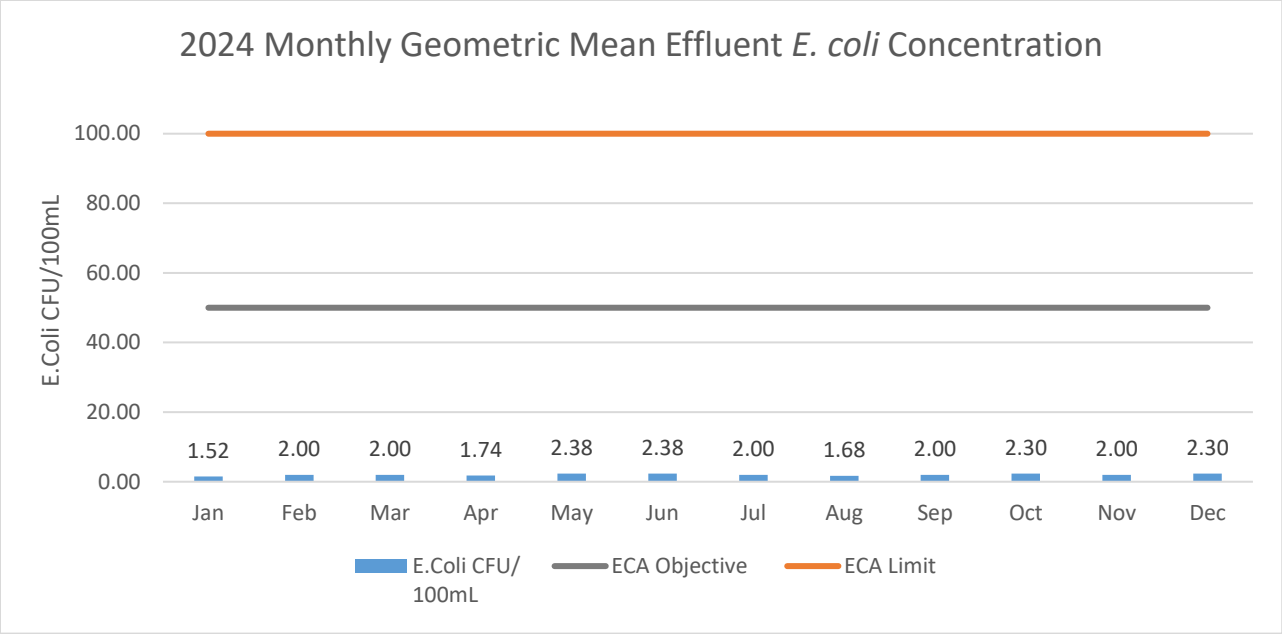


Figure 19. Monthly Geometric Mean *E. coli* Concentration Compared to the ECA.

In **Appendix H**, *E. coli* concentrations are graphed as a Historical Trend for 2015 to 2024. Overall, the effluent characteristics for *E. coli* remain well below the objective and limit of the ECA. An upward trend in *E. coli* concentrations was seen at the end of 2021 into 2022. 2024 saw a decrease in monthly averages back to levels like those seen in 2015, the year with the lowest annual average.

2.4.3.7. Carbonaceous Biochemical Oxygen Demand

In 2024 the Carbonaceous Biochemical Oxygen Demand ($CBOD_5$) concentration did not exceed either the ECA objective or limit. **Figure 20** below displays the $CBOD_5$ concentrations compared to the ECA objective and limit. The highest monthly average concentration was 3.25 mg/L in March. The lowest monthly average concentration of 2 mg/L occurred in every month except for January, February, March, and June.

The both the monthly annual average concentration and the annual average concentration were 2.25 mg/L.

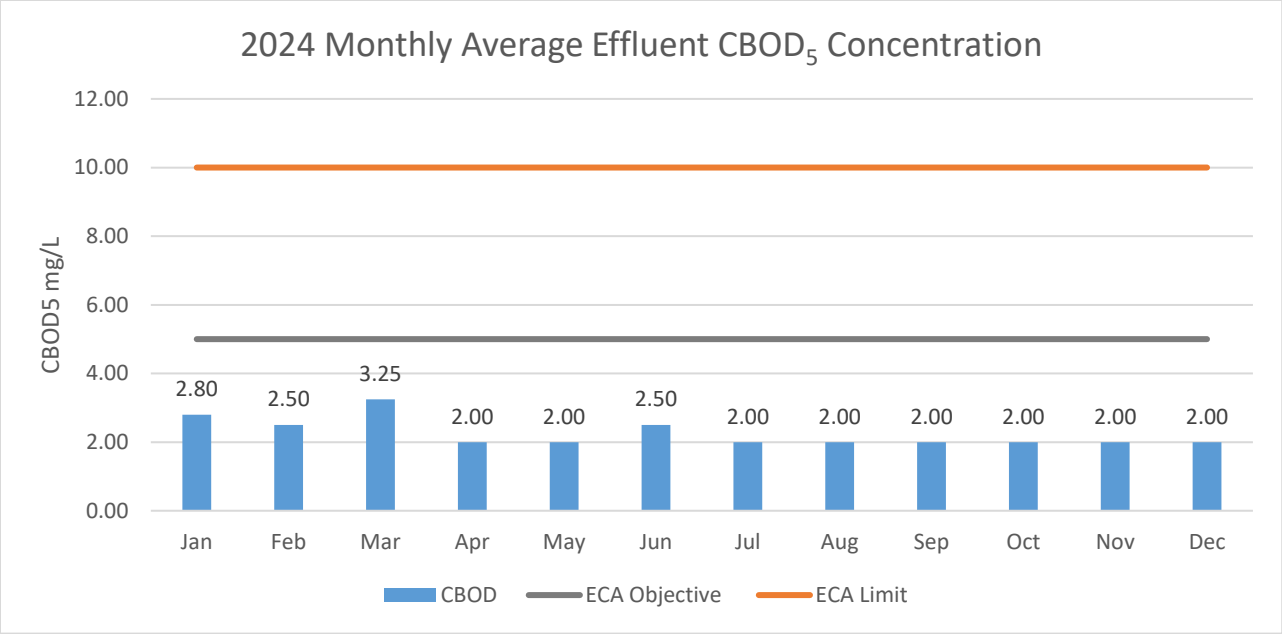


Figure 20. Monthly Average $CBOD_5$ Concentration Compared to the ECA.

In **Appendix I**, a Historical Trend of the monthly averages for $CBOD_5$ is graphed. The monthly average concentration is consistently similar varying marginally month to month from 2015 to 2024, there is no trend currently indicating a change in the effluent characteristics of $CBOD_5$. There was one (1) significantly high monthly average concentration in June of 2016, although a similar monthly average concentration has not been recorded since and the result did not exceed the ECA limit.

$CBOD_5$ monthly waste loading stayed below the ECA limit, as shown in **Figure 21**. The average loading does not fluctuate considerably throughout the year though some variation is seen (range from 19.27 to 37.50 kg/day). The average loading stays well below the limit of 194 kg/day.

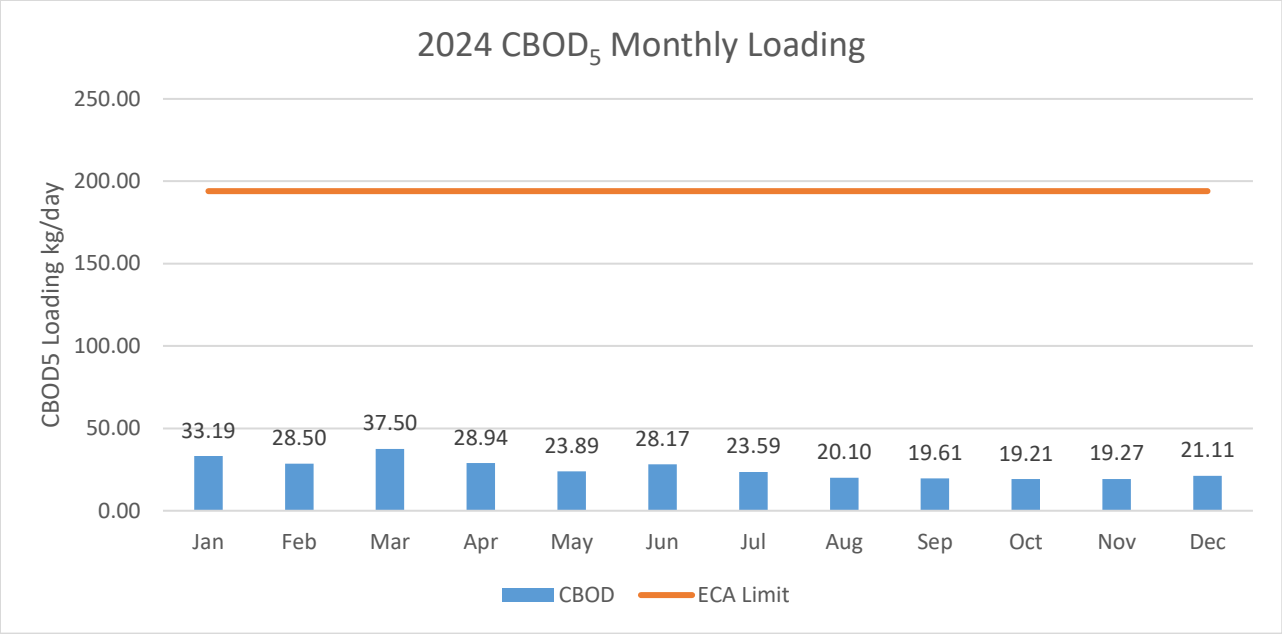


Figure 21. Monthly Effluent Average $CBOD_5$ Waste Loading Compared to the ECA.

2.4.3.8. Total Ammonia Nitrogen

Total Ammonia Nitrogen (TAN) monthly average concentrations stayed below the objective and limit of the ECA for all months as shown in **Figure 22** below. As identified in the ECA, the limit and objective for TAN increases to 2.5 mg/L and 2.0 mg/L respectively in November to April and decreases to 0.8 mg/L and 0.6 mg/L respectively in May to October. The monthly average concentrations range between 0.09 mg/L (December) and 0.04 mg/L (February). Overall, there is minimal variability throughout the year.

The monthly annual average concentration and the annual average concentration were 0.05 mg/L.

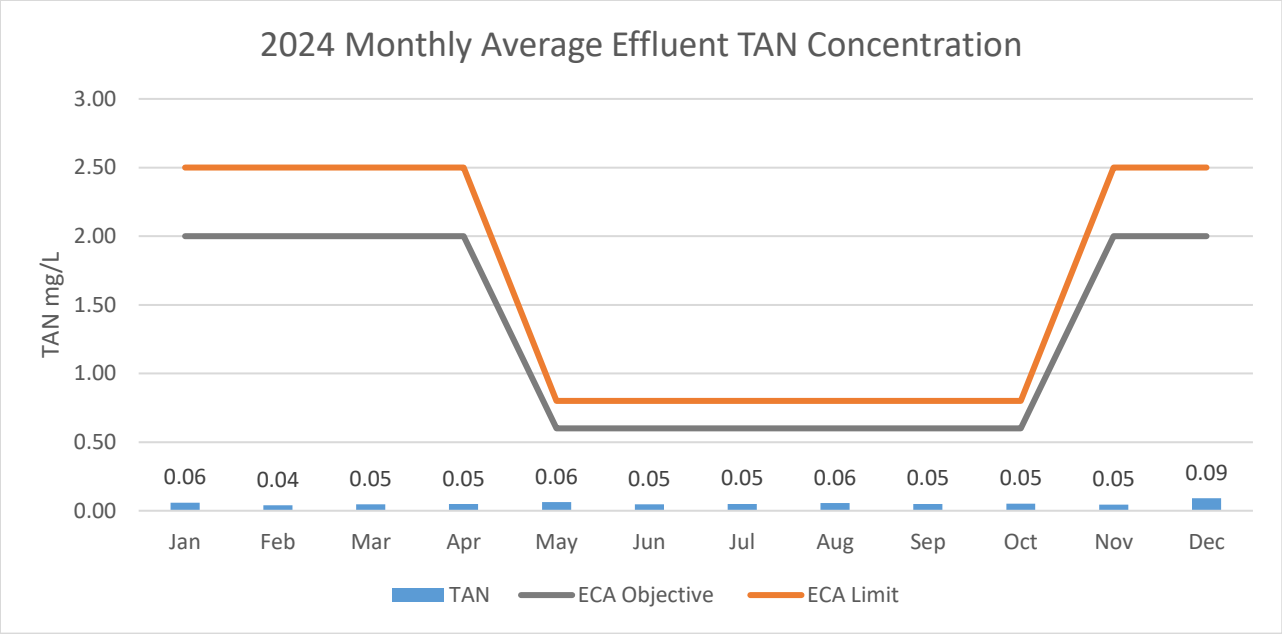


Figure 22. Monthly Average TAN Concentration Compared to the ECA.

In **Appendix J**, the monthly average TAN concentrations are graphed as a Historical Trend for 2015 to 2024. 2024 continued a downward trend that began in 2022 after a spike in concentrations in 2021.

2.4.3.9. Total Phosphorus

The monthly average Total Phosphorus concentrations fluctuated between 0.045 mg/L and 0.072 mg/L. ECA compliance is determined based on the annual average effluent concentration. Only the ECA objective for Total Phosphorus is subject to a monthly average concentration.

Figure 23 below depicts the average monthly effluent concentrations for Total Phosphorus.

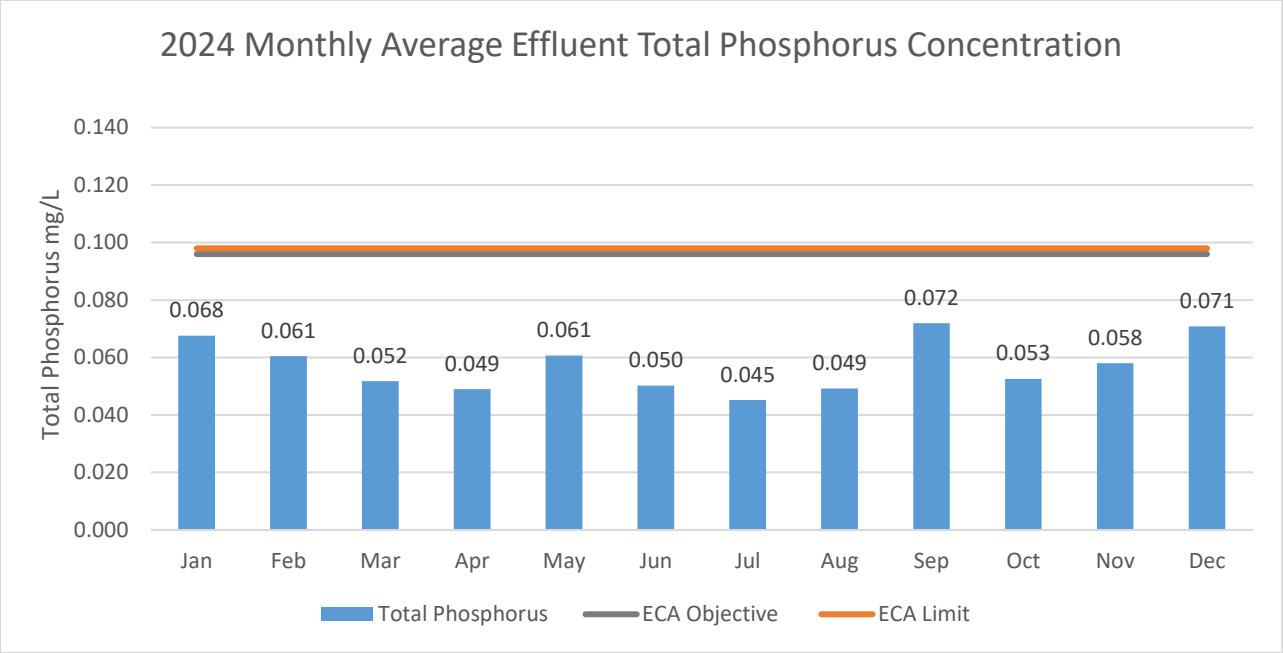


Figure 23. Monthly Average Total Phosphorus Concentration Compared to the ECA.

In **Appendix K**, Total Phosphorus monthly concentrations has been graphed in a Historical Trend for 2015 to 2024. Frequent variation can be seen over the years. January of 2021 had the highest monthly average concentration of the trend. 2024 saw an overall decrease in Total Phosphorus concentrations compared to 2023.

The Annual Average Daily Effluent Loading of Total Phosphorus for the WPCP was 0.639 kg/day. It is well below the compliance limit of 1.912 kg/day. The Annual Average Daily Effluent loading is depicted in **Figure 24**.

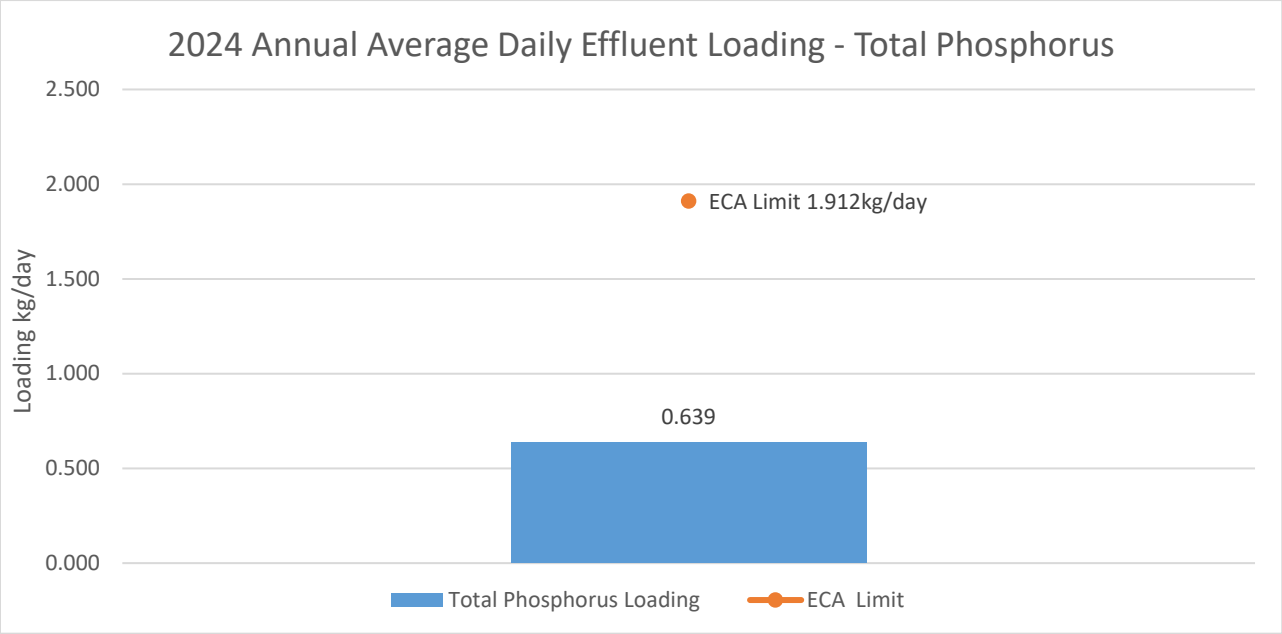


Figure 24. Annual Average Daily Effluent Loading Total Phosphorus.

The Total Phosphorus annual average effluent concentration does not surpass the objective (0.096 mg/L) or the limit (0.098 mg/L). The annual average effluent concentration was 0.057 mg/L in 2024.

The annual average Total Phosphorus concentrations have been compared below in **Figure 25**. The highest annual average concentration occurred in 2016 and lowest in 2018. 2024 saw a decrease from 2023 with concentrations going from 0.061 mg/L to 0.057 mg/L. All annual average concentrations remain below the annual average concentration limit.

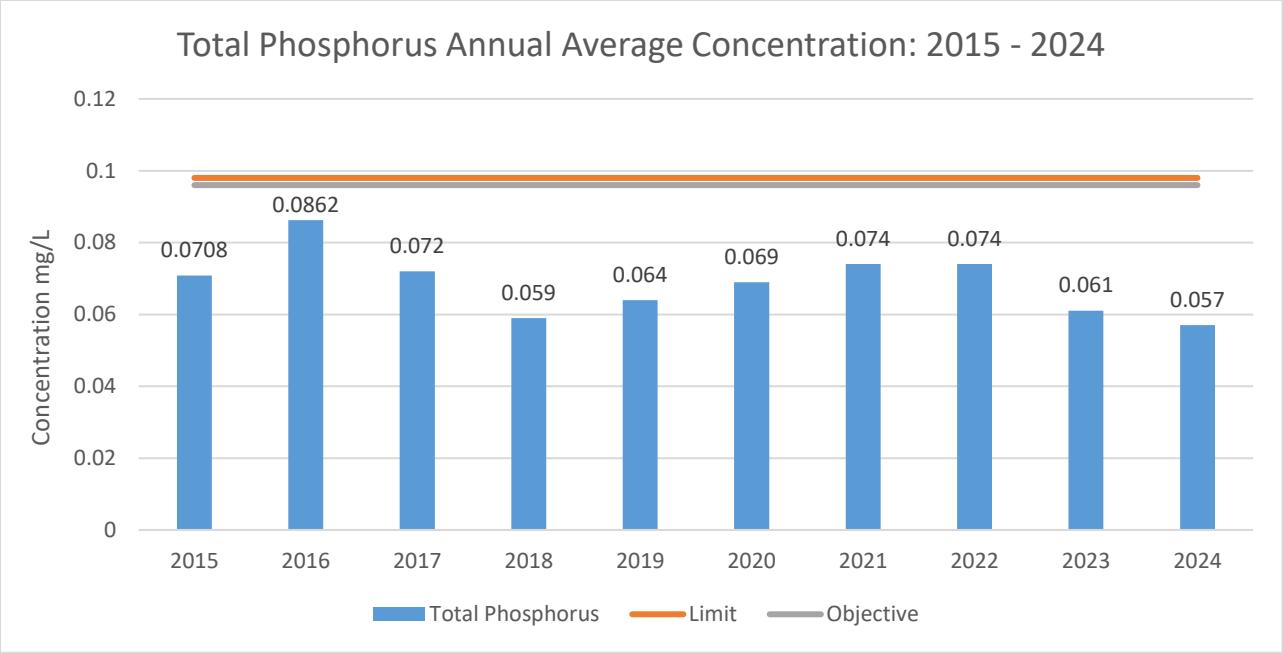


Figure 25. Total Phosphorus Annual Average Concentration Trend 2015-2024.

2.4.3.10. Benthic Study

In 2024 the Town retained Hutchinson Environmental Ltd. To complete a benthic invertebrate study in the WPCP receiving stream. This study is completed every two (2) years as due diligence. This was the ninth (9th) invertebrate study completed by the Town. Benthic invertebrates can be used as indicator species of water quality based on their abundance and variety of species present. Regular monitoring helps determine whether wastewater discharges negatively impact the receiving stream.

Samples were collected from the West Holland River, the receiving stream of the WPCP, in October 2024. Biological metrics were compared upstream and downstream of the of the WPCP outfall, the differences between the sampling locations were not statistically significant. Based on the results, it was concluded that treated effluent from the WPCP is not significantly impacting benthic invertebrate populations.

2.5. Effluent Quality Assurances or Control Measures

The WPCP has met strict regulatory requirements for effluent disposal into the receiving stream to protect water quality, fish, and other aquatic life, as identified within the current ECA.

In 2024, the WPCP utilized SGS Canada Inc., an accredited service provider certified by the Canadian Association of Laboratory Accreditation (CALA), to conduct all required testing. Their Accreditation No. is 1001225. SGS carried out the necessary analyses on WPCP influent, imported sewage, and effluent samples in compliance with the prescribed frequency outlined in the WPCP ECA. Below is a list of the analyzed parameters:

- Biochemical Oxygen Demand (BOD_5)[1]
- Unionized Ammonia[2]
- Carbonaceous Biochemical Oxygen Demand ($CBOD_5$)
- *E. coli*[2]
- Total Suspended Solids (TSS)
- Total Ammonia Nitrogen (TAN)
- Total Phosphorus
- Total Kjeldahl Nitrogen (TKN)
- Nitrite as Nitrogen[2]
- Nitrate as Nitrogen[2]

Analytical results provided by SGS laboratory are tracked internally to monitor compliance with regulatory requirements.

In addition to the sample analysis conducted by SGS laboratory, the WPCP has its own laboratory on-site. The on-site laboratory allows operational analysis to be conducted to inform process adjustments and improvements to enhance effluent quality. The parameters analyzed in the internal laboratory are as follows:

- pH
- Temperature
- Total Phosphorus
- TAN
- Alkalinity

The WPCP has continued to implement and update a Quality Management System, Standard Operating Procedures (SOP's) and Policies. Additionally, the Septage Hauling Program under the Sewer Use By-law 2013-68 (By-law) remains enforced. The Town has continued to monitor new Industrial, Commercial and Institutional (ICI's) facilities connected to Town infrastructure through the By-law.

[1] Influent analysis only.
[2] Effluent analysis only.

2.6. Summary of Deviations from the Monitoring Schedule

Condition 9 Monitoring and Recording of the ECA requires a scheduled monitoring program, that meets the requirements of Schedule E of the ECA. This includes sample type, location, and frequency of analysis.

The Town maintains a sampling schedule to meet the requirements of the ECA, the 2025 schedule can be found in **Appendix A**.

There were two variances from the sampling schedule in 2024. A sampling issue with the final composite sampler led to a delay in the collection of the November 12, 2024 effluent sample. The effluent composite sample was collected on November 13, 2024 after the sampler issue was resolved. The MECP Barrie District office was notified of the deviation from the schedule and no further corrective action was required.

The second change was for a continual improvement effort and is not a deviation as it wasn't a result of an issue. An additional biosolids sample was collected in December 2024. The original 2024 sample schedule had sampling of biosolids ending in November as biosolids sampling is only required for the WPCP from February to November. The extra sampling was completed for the purpose of gathering additional biosolids data.

All required sampling was completed in 2024.

2.7. WPCP Maintenance Summary

The WPCP met the operational and maintenance requirements stipulated within the ECA. Maintenance activities are tracked and recorded using the Town's work order system. In addition to the routine maintenance previously discussed in **Section 1.2**, the following list provides a highlight to maintenance completed within the reporting year:

- Plant D filter building inlet and outlet channels cleaned.
- Plant C Blower #2 rebuilt.
- Annual backup and storage of PLC programs completed.
- O_2 sensors in the headworks building were replaced.
- Installation of a buzzer and red light on septage receiving pit to alarm if a high level is reached.

2.8. Operating Issues Encountered and Corrective Actions

In 2024 there were five (5) events where flow monitoring recording was interrupted, all events were reported to the MECP Barrie District Office. The Town's WPCP maintained continuous monitoring and recording of influent and effluent flow as required in Condition 9 of the ECA.

The first event was included in the 2023 Annual report as the issue started in the 2023 calendar year and was resolved in early January 2024. Flow monitoring data was corrupted during a plant wide PLC upgrade project. The issue was corrected, and the flow meter was

recalibrated by a third-party technician. The incident was reported to the MECP, and no further information was requested.

Three (3) of the incidents were all related to the same root cause. An obstruction in the plant C influent pipe upstream of the flow meter was causing turbulent flows leading to air bubbles in the pipe that reduced flow meter accuracy. Trapped air was bled from the line to relieve the issue for the first two occurrences. When the issue reoccurred a third time a thorough investigation uncovered the obstruction. Following the removal of the obstruction by plant staff the flow meter accuracy returned to normal. All instances of inaccurate flows were reported to the MECP.

The fifth occurrence of inaccurate flow monitoring by a flow meter was the result of a calibration error. The Plant D effluent flow meter encountered accuracy issues after being serviced by a third-party flow meter technician. The inaccurate readings were discovered, and a second service and calibration were completed, resolving the flow meter errors within three days. The MECP was notified of flow meter's inaccuracy and provided with estimated flows based on calculations by plant staff.

2.9. Bypasses, Overflows, and Spills at WPCP

The WPCP had two (2) spill events in 2024. There were no bypass, overflow, or other abnormal discharge events in 2024. Both spills at the WPCP were a result of contractor error. **Table 10** includes a summary of the spill events that occurred in 2024.

Table 10. Summary of WPCP Spill Events in 2024.

Date	SAC No.	Cause	Corrective Action
4/26/2024	1-69KQSJ	Contractor error overfilling biosolids truck. Approximately 2 m^3 of biosolids material was spilled.	The spill lasted approximately one (1) minute. Cleanup began within 10 minutes of the spill occurring. BWG staff remediated the area by hosing it down and collecting spilled material via vacuum truck. The spilled material was disposed of at the on-site sewage storage pond. Additional training of contractor staff was asked for by the Town to prevent future spills as requested by the MECP for corrective action.
8/22/2024	1-A58AUT	Contractor error overfilling biosolids truck. Approximately 0.9 m3 of material was spilled.	The spilled material was contained and covered in sawdust to absorb it. Cleanup was completed jointly by BWG staff and the contractor. Contaminated sawdust was collected by the contractor and disposed of. Training of new contractor staff and proof of training records was requested by the Town for corrective action.

2.10. Biosolids Management

The WPCP produced 30,830 m^3 of sludge in the reporting year. The biosolids that were produced met the MECP Ontario Guidelines for Sewage Sludge Utilization on Agricultural Lands and conditions specified under the Nutrient Management Act.

The biosolids produced by the WPCP were land applied to agricultural fields starting in April to November in accordance with the Nutrient Management Act. A summary of NASM land application is provided below (**Table 11**). The total amount of Non-agricultural Source Material (NASM) applied to agricultural land is an approximate total of 30,830 m^3. The volume of sludge expected to be produced within 2025 is 32,000m^3.

Table 11. NASM Land Application Totals 2024

NASM Land Application Total 2024	
NSAM Plan	**Total Land Applied (m^3)**
24856	2051
24592	1020
61283	127
24923	1051
61496	2669
24151	1875
60501	745
25020	285
24893	990
24771	2071
24629	3111
61646	135
61681	3777
24132	2845
61809	654
24473	1712
61745	3686
24323	1891
61499	135
Total Sum	**30,830**

2.11. Construction or Commissioning of Works Updates

The Sludge Management System Upgrade at the WPCP is currently 6 weeks behind the baseline schedule that was provided to the MECP. The substantial performance date for the upgrade project is expected to be September 30, 2025. The delays are mainly due to extremely cold weather in December and January which has slowed the progress of the work. The upgrades are to improve the sludge thickening process at the WPCP.

The aeration system upgrade project for Plant D is in the tendering process. The substantial performance date of the project is anticipated to September 2026. Once the tendering process is complete and the construction contract has been awarded, a baseline schedule will be finalized, and the date will be confirmed.

2.12. Notice of Modification to Sewage Works

There was one (1) Notice of Modification to Sewage Works prepared in 2024. A summary can be found below in **Table 12**.

Table 12. Summary of 2024 Notice of Modification to Sewage Works

Part 4 Declaration Date	Description	Status
12/18/2024	The installation of four (4) odour control units on the septage receiving station to control vent stack emissions.	To be completed in 2025.

2.13. Conformance with Procedure F-5-1 Summary

The Town undertakes several regular maintenance initiatives in the WWC system to reduce/eliminate the occurrence of bypasses and overflows at the WPCP. These maintenance activities are detailed in **Section 3.5 Maintenance and Repairs** under the WWC system portion of the report.

In the event that the plant is unable to handle the flow, there is a provision at the WPCP to allow the excess flow to be diverted to one (1) of the on-site storage ponds. If this happens, the sewage is held in the storage pond until such a time that it is feasible to return the sewage back to the head of the plant. The WPCP is equipped with a 1,000-kilowatt (kW) diesel generator which provides one hundred percent (100%) back-up power to the WPCP in case of a power outage. This eliminates any sewage diversion to the holding pond due to a power failure.

Regular routine inspections and maintenance of critical WPCP equipment ensure breakdowns that could lead to overflows and bypasses are avoided.

2.14. Wastewater System Effluent Regulation (WSER)

WSER is a Federal Regulation in place to protect the environment and human health. The regulation applies to facilities that deposit deleterious substances into areas frequented by fish and areas referred to in the Fisheries Act subsection 36(3). The regulation also applies to facilities that have an influent of at least 100 m^3 per day or year. The BWG WPCP is required to follow the regulation.

The Town of BWG submitted all required quarterly reports for 2024. The reports state the total effluent deposited (m^3), the number of day's effluent was deposited, average $CBOD_5$ and average TSS concentrations. One (1) report in each year must include acute lethality testing.

The acute lethality sampling was conducted in the second quarter on June 11th, 2024 and the results determined that the effluent was not acutely lethal. Nautilus Environmental conducted the acute lethality testing for the WPCP. **Figures 26 and 27** graph the quarterly average for TSS and CBOD5 WSER reporting.

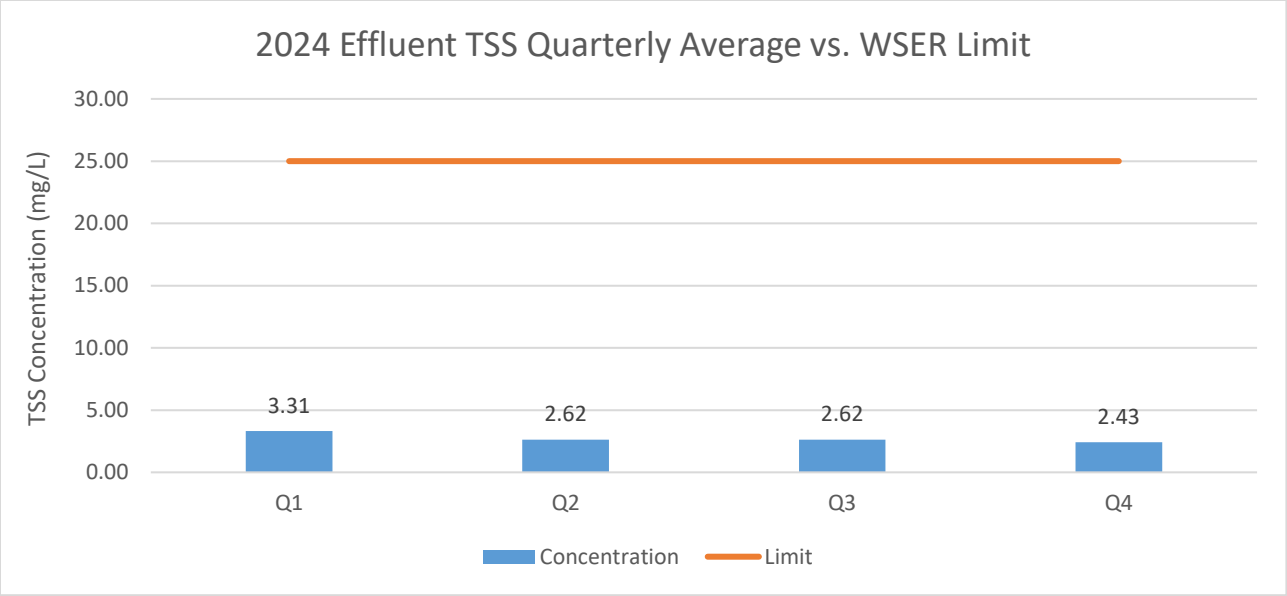


Figure 26. Effluent TSS Quarterly Average vs. WSER Limit.

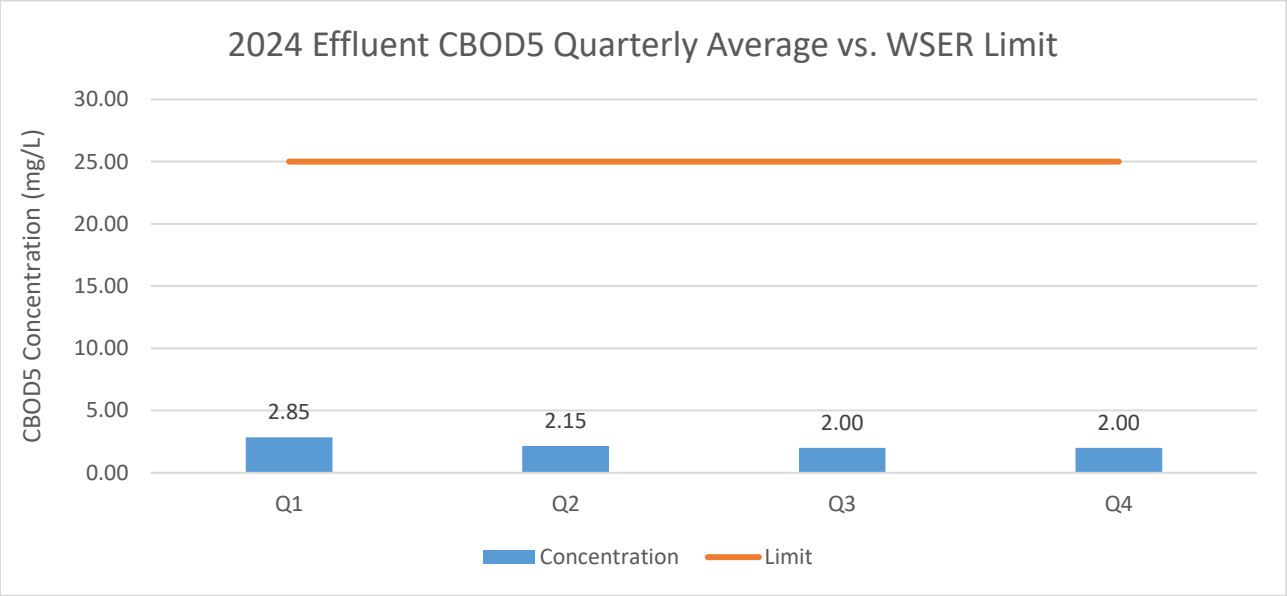


Figure 27. Effluent CBOD5 Quarterly Average vs. WSER Limit.

3. Bradford West Gwillimbury Wastewater Collection System

3.1. General Collection System Description

The Town's Collection System is categorized as a Class three (3) system. The BWG collection system consists of approximately 2,084 maintenance holes, 28.3 km of forcemain, 123.77 km of gravity sewers, and nine (9) Pumping Stations. Continual improvements to the Town's GIS system are the reason for the decrease in gravity and forcemain kilometres between the 2024 and 2023 annual reports.

A detailed description of each pumping station can be found in the Town's Sanitary CLI ECA (116-W601).

The function of the pumping stations within the BWG collection system is to collect and transport sewage to the WPCP for treatment.

3.2. Regulatory Requirements

The WWC system reporting requirements and the section of the report that addresses each topic is found in **Table 13**.

Table 13. CLI ECA Reporting Requirement

CLI ECA Reporting Requirement	Report Section
A. 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.	**3.3**
B. Includes a summary of any operating problems encountered and corrective actions taken.	**3.4**
C. 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.	**1.3, 3.4**
D. Includes a summary of any complaints related to the Sewage Works received during the reporting period and any steps taken to address the complaints.	**1.4**
E. 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.	**3.6**
F. Includes a summary of all Collection System Overflow(s) and Spill(s) of Sewage, including: I. Dates; II. Volumes and durations; III. If applicable, loadings for total suspended solids, BOD, Total Phosphorus, and total Kjeldahl nitrogen, and sampling results for E.coli; IV. Disinfection, if any; and V. Any adverse impact(s) and any corrective actions, if applicable.	**3.7**
G. Includes a summary of efforts made to reduce Collection System Overflows, Spills, STP Overflows, and/or STP Bypasses, including the following items, as applicable I. 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. II. Details of the establishment and maintenance of a PPCP including a summary of project progresses compared to the PPCP's timelines. III. An assessment of the effectiveness of each action taken. IV. 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. V. Public reporting approach including proactive efforts.	**3.8**

3.3. Monitoring Data

All sewage that enters the Town's WWC system eventually reaches the WPCP for treatment. The monitoring data for the WPCP influent quality can be found in **Section 2.3.2**. The following table, **Table 14**, details the main monitoring programs for the WWC system.

Table 14. Monitoring Programs for the WWC System

Monitoring Program	Program Process	Program Purpose
Flow Monitoring at Sewage Pumping Stations	All pumping stations are monitored by SCADA. Flow data for the pumping stations is recorded by the system and stored on a data server. In addition, during routine pump station inspections flow measurements are recorded in station specific logbooks.	To allow for real-time remote monitoring of the pumping stations.
SCADA Alarm Testing	Routine testing of the SCADA alarm system is completed at all pumping stations. These tests are done on either a weekly or monthly basis.	To ensure the remote monitoring system for the pumping stations is functioning properly.
CCTV Inspections	Sewers within the Authorized System are inspected using specialized video camera equipment on a rotating basis.	The data collected during inspections are used to determine maintenance, repair, and replacement needs in the sanitary sewer system.
Surrogate Sampling of Pumping Stations with Sewer Overflow Points	A grab sample is taken from select pumping stations noted in the CLI ECA and tested for specific parameters.	The test results are to provide a baseline contaminant concentration in case of an overflow. The program is to meet the requirements of the CLI ECA.
Sanitary Sewer Modeling	A sanitary sewer model tracks the actual and theoretical capacity of the WWC system. The model was created using the existing sewer design (diameter of pipes, material, etc.) and hydraulic capacity.	The sanitary sewer model is important to support the Town's growth. As development applications are received their potential impacts on the system can be properly calculated to ensure the sewer capacity is not exceeded. The model is also used to identify potential capital improvement projects where sanitary sewer size can increase to improve capacity.

3.4. Operational Issues and Corrective Actions

More than half of the call-out's related to the WWC system were because of communication loss between SCADA and the pumping stations. In total, eleven (11) communication loss call-outs occurred in 2024.

The water service at Green Valley Pumping Station broke and required repair with the assistance of the Water Division.

Regular removal of rags from the bar screen at Dissette Pumping Stations is required. In addition, Pump 1 from Dissette Pumping Station East had to be pulled and deragged. The "I Don't Flush" Campaign continues to be featured on the Town's Wastewater page to educate residents on what should and should not be flushing down the drain.

3.5. Maintenance and Repairs

As mentioned in **Section 1.2 General Wastewater System Maintenance**, the Town utilized a PM program to schedule and track maintenance related to the WWC system. All required maintenance has been carried out to ensure the WWC System is in compliance with all regulatory requirements.

Notable maintenance activities completed in 2024 include:

- 674.8 meters of sanitary main line inspected via CCTV.
- 787 property line lateral Inspected and added to GIS.
- 226 new build lateral line Inspected.
- 977 segments of sanitary sewer lines flushed in Town.
- Regular valve exercising in the WWC System to prevent seizing of valves.
- Annual pumping station wet well cleaning.
- A new flow meter was installed at Dissette Pumping Station East.
- Replaced a float in the Dissette Pumping Station West Wet Well.
- Low level float replaced on west side of 400 Pumping Station.

The Wastewater Division has shifted to completing most maintenance in-house. The flushing programs, pump inspections, infrared inspections, and all CCTV inspections are completed internally by staff.

3.6. Summary of Alterations to the Authorized System

Within the reporting period there was one (1) SS1 forms submitted to the Town. **Table 15** below has a summary of all alteration applications to the existing system received in 2024.

Table 15. Summary of Alteration Applications to the Existing System.

Alternation Type	Project Name	Submission Date	Description	Status
SS1-Separate Sewer/Forcemain	Fortis Crescent	4/18/2024	New sanitary sewer connecting to existing manhole.	Construction has not started.

The Alteration was not determined to pose a Significant Drinking Water Threat. The proposed works is wholly located within the municipal boundaries of the Town of BWG.

3.7. Summary of Collection System Overflows and Spills

There were no overflows or spills within the Town's collection system in 2024.

3.8. Efforts to Reduce Collection System Overflows, Spills, STP Overflows, and/or STP Bypasses

The Wastewater department performs regular maintenance activities in the WWC system to reduce the risks of overflows and bypasses events. These programs include: sanitary sewer flushing, pumping station wet well cleanouts, and CCTV inspections.

In addition to the regular maintenance programs, the Capital Department in conjunction with hired consultants completed a smoke testing study during May and June in the WWC system. The location for the study was chosen based on the age of the infrastructure. Results will be used to reduce inflow and infiltration to the WWC system. The final report for the testing has not been received at the time of finalizing this report. The findings will be provided in the 2025 report.

4. Summary

Table 16. WPCP Annual Summary Information Table

2024 WPCP Annual Summary Table			
Service Population		36,249	
Flow			
Item		**Influent**	**Effluent**
Average Daily Flow (m^3)		12,872	11,156
Average Daily Flow Plant D (m^3)		9,198	8,380
Average Daily Flow Plant C (m^3)		3,674	2,776
Rated Capacity (**19,400m^3/day**) Used		66%	58%
Total Flow (m^3)		4,698,297	4,071,924
Max Day Flow Plant D (m^3)		17,737	14,410
Max Day Flow Plant C(m^3)		6,827	4,781
Total Phosphorus Concentrations and Loadings			
Parameter		**Concentration/ Loading**	**ECA Limit**
Annual Average Daily Effluent Loading (kg/day)		0.639	1.912
Annual Average Effluent Concentration (mg/L)		0.057	0.098
Chemical Usage			
Total Alum (L)		759,591	
Odour Inquires			
Number of odour Inquiries attributed to the Wastewater System		4	
Biosolids			
Approximate volume of biosolids produced (m^3)		30,830 m^3	
Volume of biosolids land applied (m^3)		30,830 m^3	
Septage Hauling Program			
Number Haulers Enrolled:	4	Amount of Septage Received (m^3):	1,186.59

Appendix A

Bradford West Gwillimbury — A Growing Tradition	WPCP Sampling Schedule - 2025 WWD-031	Wastewater Department Resources
Revised: December 19, 2024	Revision: 11	Page 1 of 1

Parameter	pH (Field Analysis)	Temperature (Field Analysis °C)	Total Phosphorus	Total Ammonia Nitrogen (TAN)	Total Kjeldahl Nitrogen (TKN)	Total Suspended Solids (TSS)	Carbonaceous Biological Oxygen Demand (CBOD5)	Biological Oxygen Demand (BOD5)	E.Coli	Total Solids	Nitrate as Nitrogen	Nitrite as Nitrogen	Metals (Al, As, Cd, Co, Cr, Cu, Fe, Hg, K, Mn, Mo, Ni, Pb, Se, Na, Zn)	Un-ionized Ammonia	Benthic Monitoring (NOTE 7)	Acute Lethality (NOTE 6)
Internal Laboratory Analysis																
Raw Influent	Grab															
Frequency	W															
Requirement	Due Diligence															
Final Effluent	Grab/ Probe/ Analyzer	Grab/ Probe/ Analyzer	24Hr Comp	24Hr Comp												
Frequency	W	W	W	W												
Requirement	ECA/ MUMP	ECA	Due Diligence	Due Diligence												
External Laboratory Analysis																
Raw Influent			24Hr Comp	24Hr Comp	24Hr Comp	24Hr Comp	24Hr Comp	24Hr Comp					Grab			
Frequency			W	W	W	BM	BM	BM					Q			
Requirement			ECA/ MUMP	Due Diligence	ECA/ MUMP	ECA/ MUMP	Due Diligence	ECA/ MUMP					NPRI			
Final Effluent			24Hr Comp	24Hr Comp	24Hr Comp	24Hr Comp	24Hr Comp		Grab		24Hr Comp	24Hr Comp	Grab	Calculated	Grab	Grab
Frequency			W	W	W	W	W		W		W	W	Q	W	2 Year	Y
Requirement			ECA/ MUMP	ECA/ MUMP	ECA/ MUMP	ECA/ MUMP/ WSER	ECA/ MUMP/ WSER		ECA/ MUMP		ECA	ECA	NPRI	ECA	Due Diligence	WSER
Sludge/ Biosolids			8Hr Comp	8Hr Comp	8Hr Comp				8Hr Comp	8Hr Comp	8Hr Comp	8Hr Comp	8Hr Comp			
Frequency			M	M	M				M	M	M	M	M			
Requirement			ECA	ECA	Due Diligence				O.Reg 267/03 General	O.Reg 267/03 General/ ECA	O.Reg 267/03 General/ ECA	O.Reg 267/03 General	O.Reg 267/03 General/ ECA			
Imported Sewage			Grab		Grab	Grab		Grab								
Frequency			M		M	M		M								
Requirement			ECA		ECA	ECA		ECA								

ECA 3746-D6FS3J Condition 9.d. **Sampling Rotation Schedule 2025:**	Influent/ Effluent: Wednesday	Imported Sewage: First load of the month received	Biosolids: Tuesday Monthly

Legend	
W	Weekly
D	Daily
Q	Quarterly
BM	Bi-monthly, twice per month
M	Monthly
Y	Yearly
2 Year	Every two (2) years
RED	Scheduled Analysis

Note 1: This schedule is to be used as a reference only and may be altered by the ORO conforming with all applicable legislation.

Note 2: The ECA requirement is in reference to the current Environmental Compliance Approval No. 3746-D6FS3J issued to the Water Pollution Control Plant on October 11, 2024.

Note 3: MUMP requirement is in reference to the Municipal Utility Monitoring Program (MUMP) parameters that are reported to the MECP and the current Water Inspector quarterly.

Note 4: O.Reg 267/03 is the General regulation issued under the Nutrient Management Act, this governs the sampling requirements for non-agricultural source material.

Note 5: WSER requirement is in reference to the Federal Wastewater System Effluent Regulation.

Note 6: Acute Lethality sampling is conducted the second week of June annually.

Note 7: Benthic Monitoring last completed 2024, next sampling 2026. Sampling is conducted in the effluent receiving stream (West Holland River).

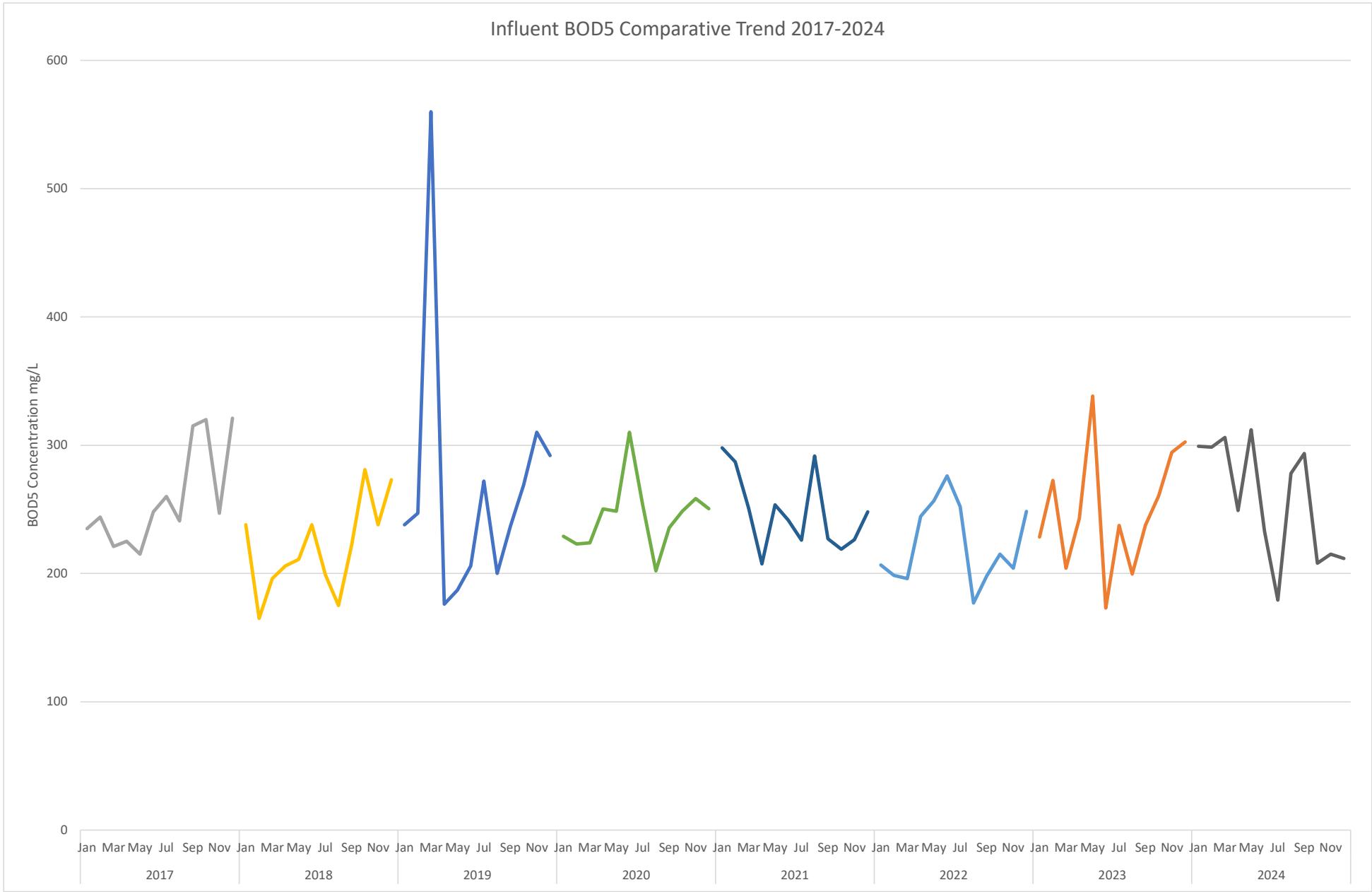
Note 8: Imported Sewage, sampling is only required when septage has been received within the month.

Note 9: The sampling schedule has been developed to conform with the requirements of applicable legislation. In some cases exceeds the frequency required in the legislative tool.

Note 10: NPRI is in reference to the National Pollutant Release Inventory.

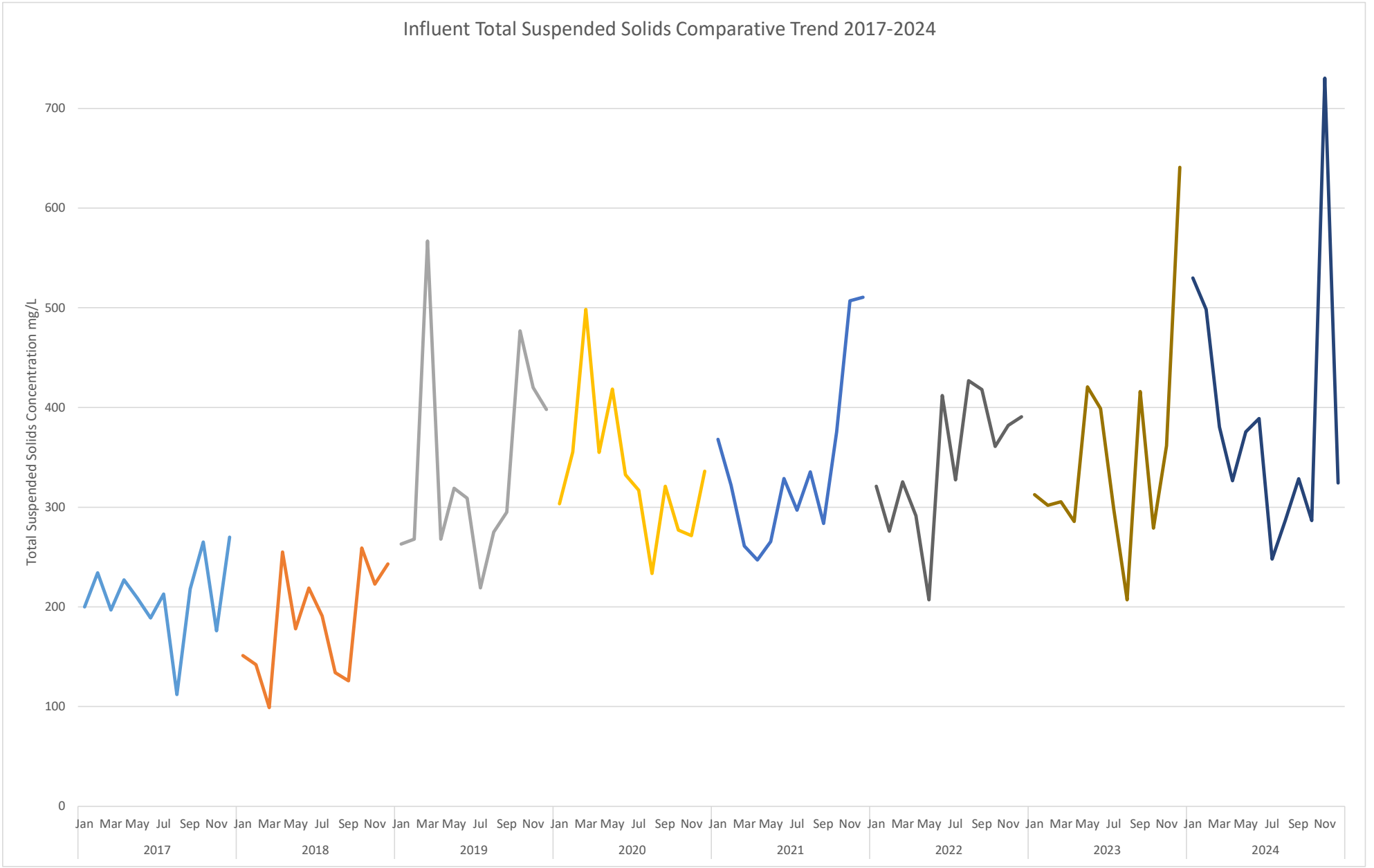
Appendix B

Appendix B


Influent BOD5 Comparative Trend 2017-2024
BOD5 Concentration mg/L
600
500
400
300
200
100
0
Jan Mar May Jul Sep Nov
2017
2018
2019
2020
2021
2022
2023
2024

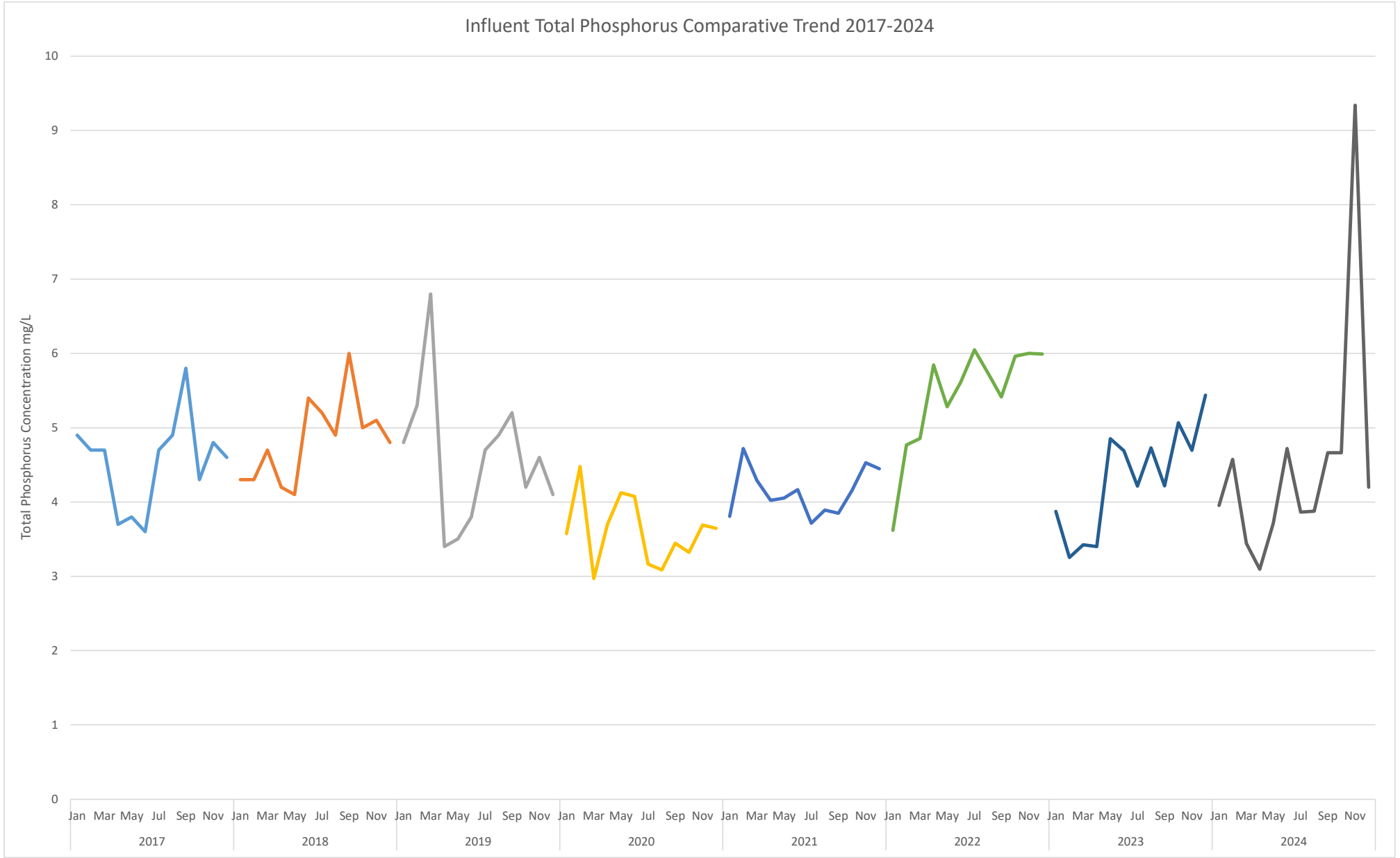
Appendix C

Appendix C


Influent Total Suspended Solids Comparative Trend 2017-2024
Total Suspended Solids Concentration mg/L
0
100
200
300
400
500
600
700
Jan Mar May Jul Sep Nov
2017
2018
2019
2020
2021
2022
2023
2024

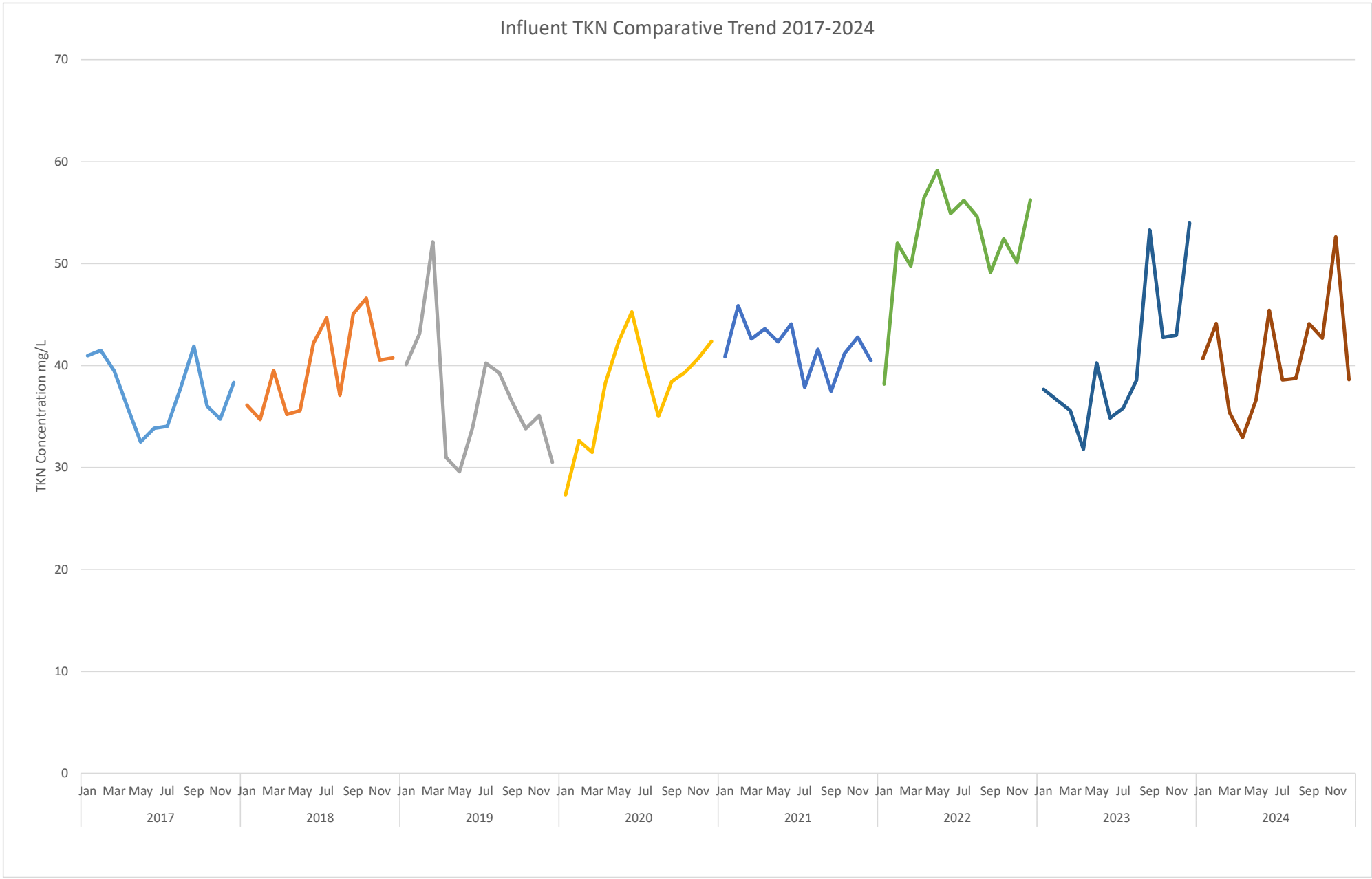
Appendix D

Appendix D


Influent Total Phosphorus Comparative Trend 2017-2024
Total Phosphorus Concentration mg/L
10
9
8
7
6
5
4
3
2
1
0
Jan Mar May Jul Sep Nov
2017
2018
2019
2020
2021
2022
2023
2024

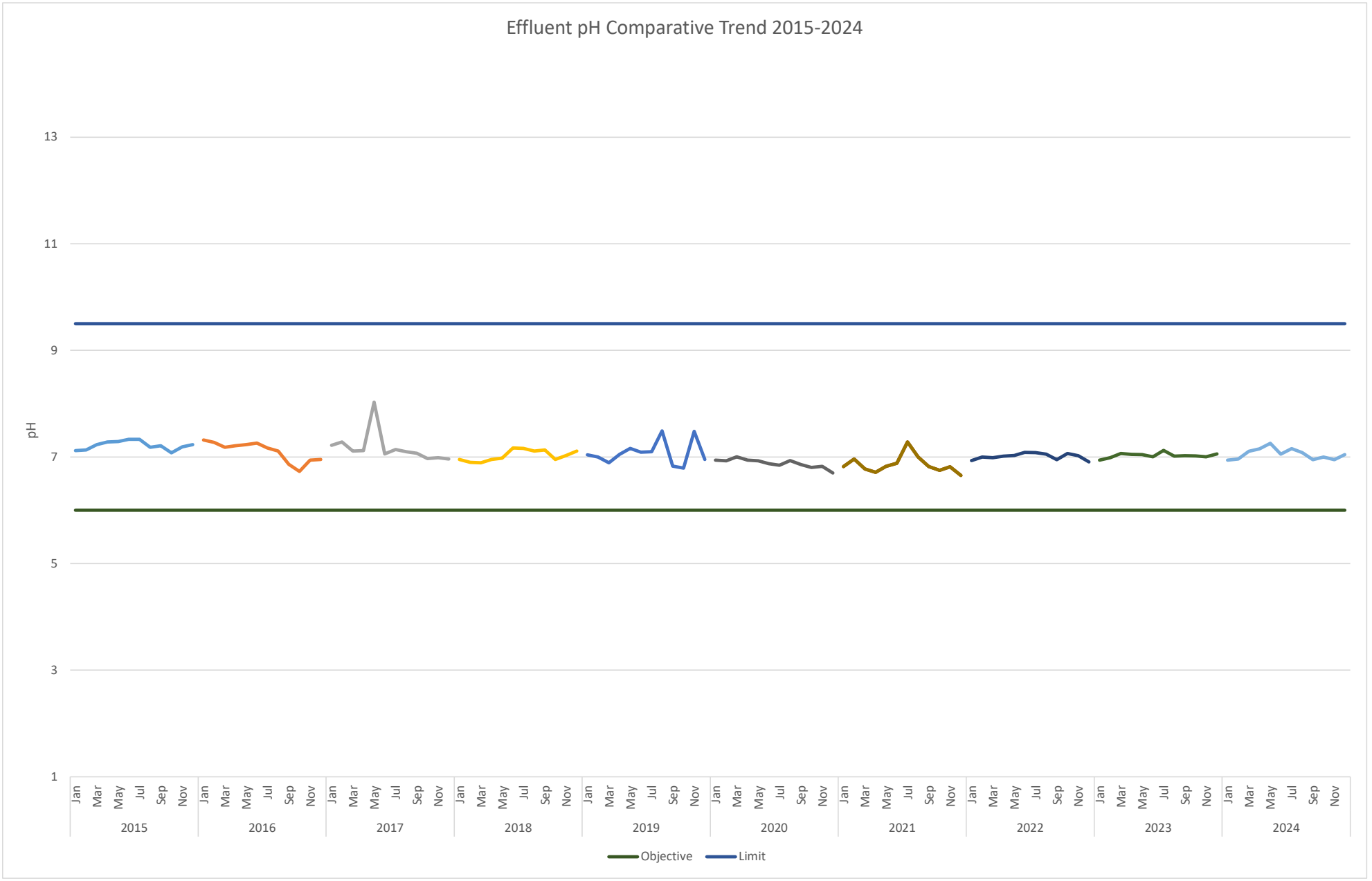
Appendix E

Appendix E


Influent TKN Comparative Trend 2017-2024
TKN Concentration mg/L
70
60
50
40
30
20
10
0
Jan Mar May Jul Sep Nov
2017
2018
2019
2020
2021
2022
2023
2024

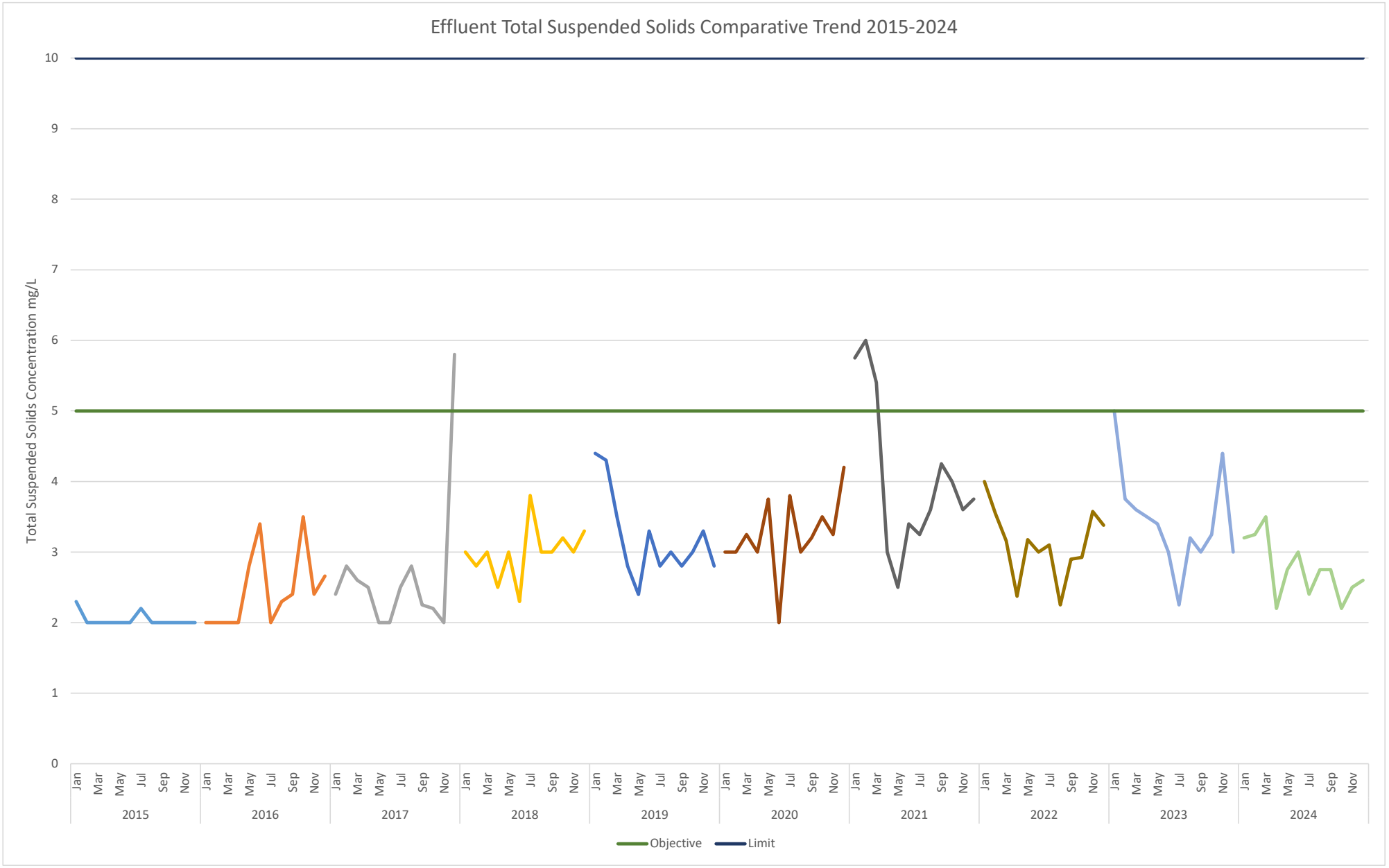
Appendix F

Appendix F


Effluent pH Comparative Trend 2015-2024
pH
13
11
9
7
5
3
1
Jan Mar May Jul Sep Nov
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
Objective
Limit

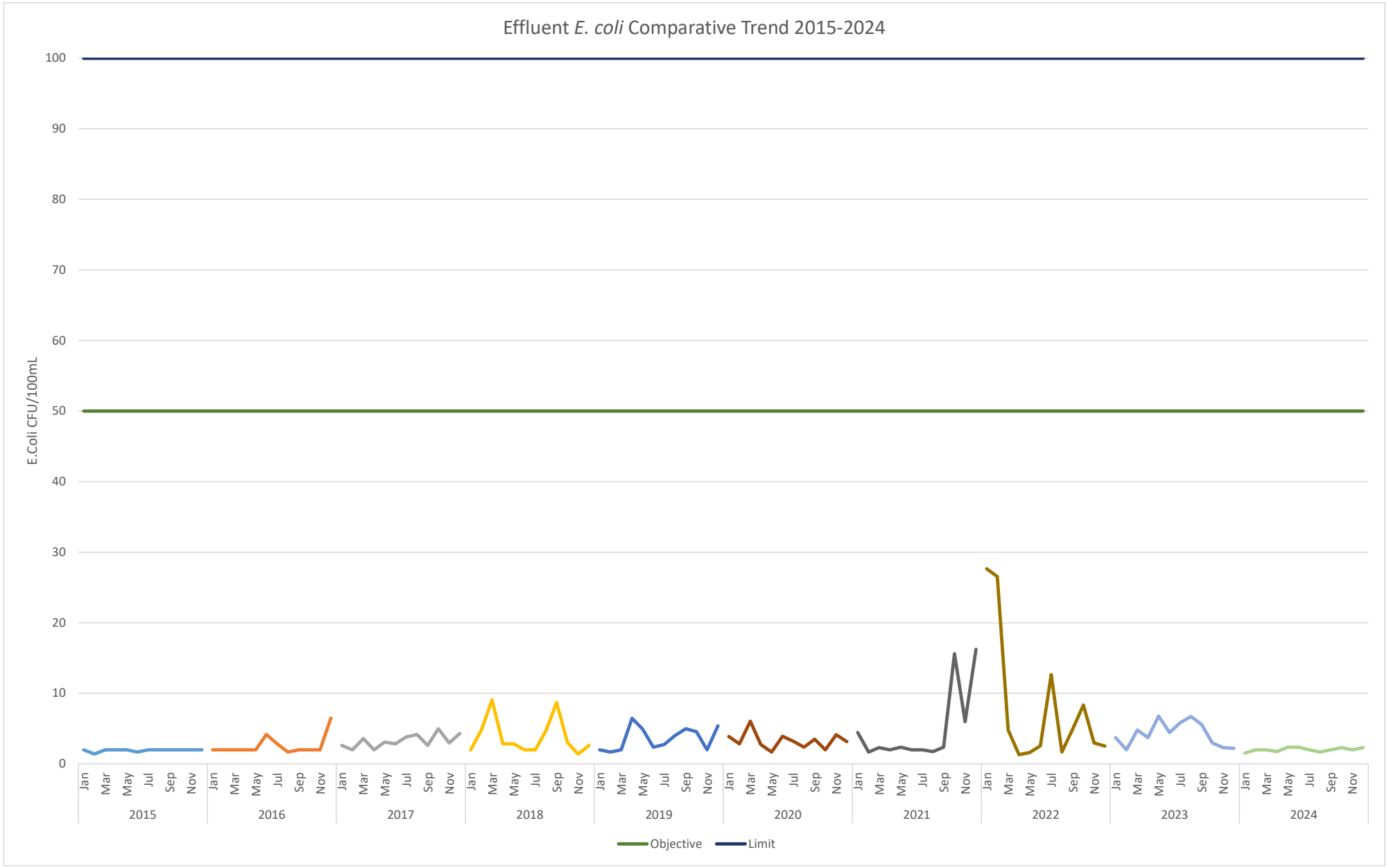
Appendix G

Appendix G


Effluent Total Suspended Solids Comparative Trend 2015-2024
Total Suspended Solids Concentration mg/L
10
9
8
7
6
5
4
3
2
1
0
Jan Mar May Jul Sep Nov
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
Objective
Limit

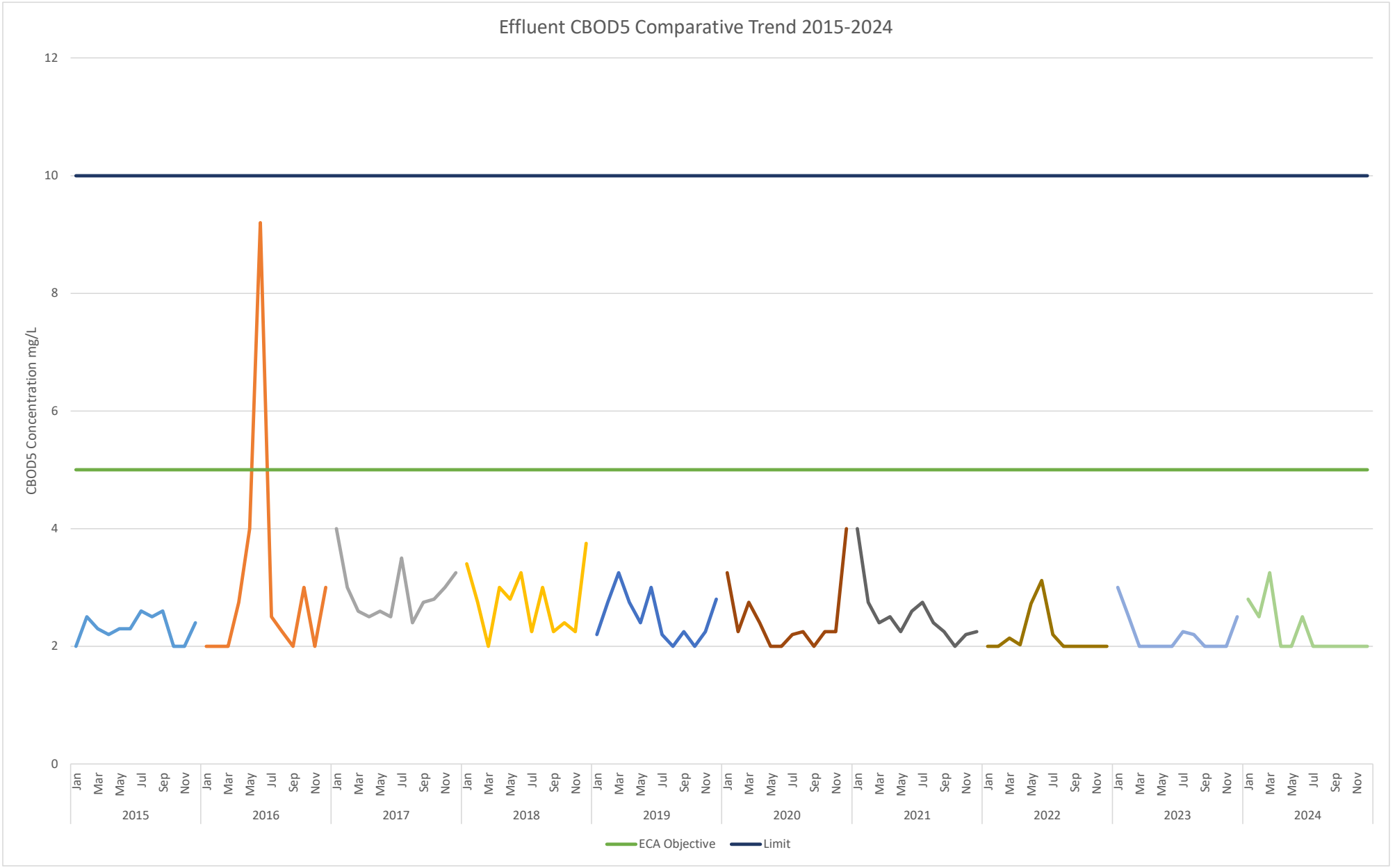
Appendix H

Appendix H


Effluent E. coli Comparative Trend 2015-2024
E.Coli CFU/100mL
100
90
80
70
60
50
40
30
20
10
0
Jan Mar May Jul Sep Nov
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
Objective
Limit

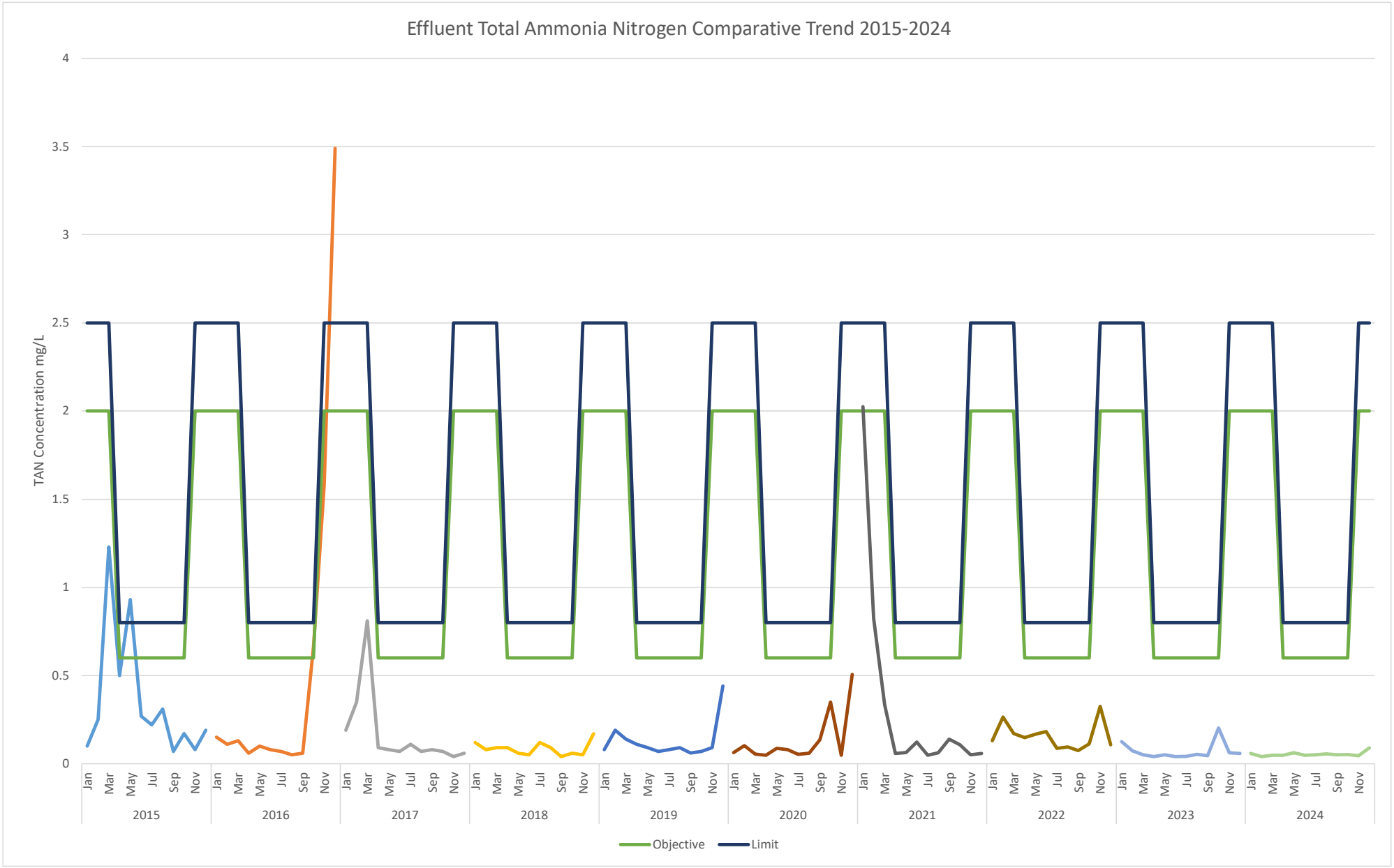
Appendix I

Appendix I


Effluent CBOD5 Comparative Trend 2015-2024
CBOD5 Concentration mg/L
12
10
8
6
4
2
0
Jan Mar May Jul Sep Nov
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
ECA Objective
Limit

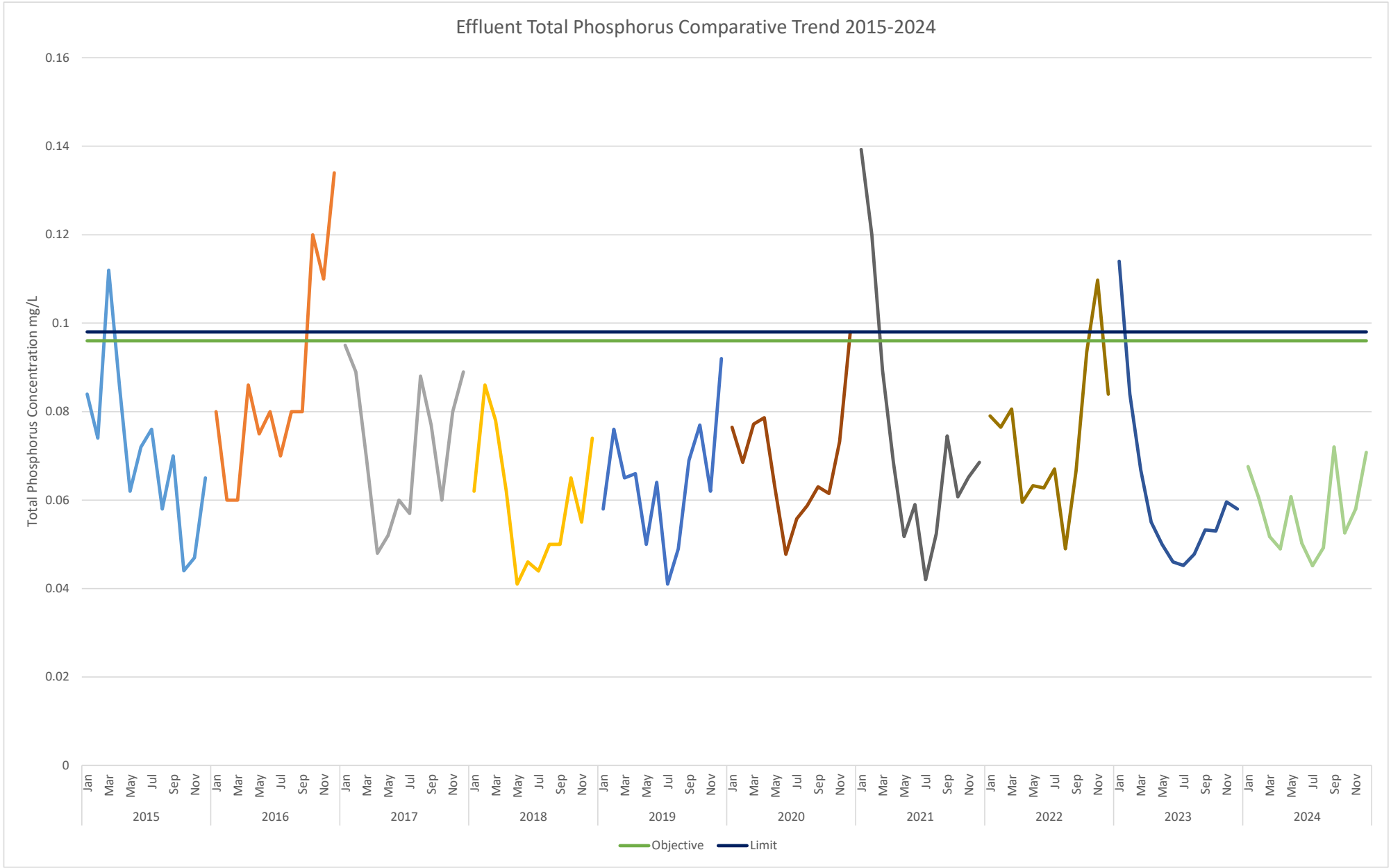
Appendix J

Appendix J


Effluent Total Ammonia Nitrogen Comparative Trend 2015-2024
TAN Concentration mg/L
4
3.5
3
2.5
2
1.5
1
0.5
0
Jan Mar May Jul Sep Nov
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
Objective
Limit

Appendix K

Appendix K


Effluent Total Phosphorus Comparative Trend 2015-2024
Total Phosphorus Concentration mg/L
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
Jan Mar May Jul Sep Nov
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
Objective
Limit