COLLINGWOOD

CLEARVIEW TOWNSHIP

Stayner

2025 Annual Wastewater Performance Report

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Acronyms

BOD	Biochemical Oxygen Demand
$CBOD_5$	Five Day Carbonaceous Biochemical Oxygen Demand
Cfu	Colony Forming Units
COD	Chemical Oxygen Demand
DO	Dissolved Oxygen
ECA	Environmental Compliance Approval
E.coli	Thermally tolerant forms of Escherichia
Hg	Mercury
FP	Filtered Phosphorous
GEOMEAN	Average of a set of Products
HP	Horsepower
kg	Kilograms
kW	Kilowatt
MECP	Ministry of the Environment, Conservation and Parks
mg/l	Milligrams per litre
Ml/d	Mega litres per day
m^3/d	Cubic metres per day
NH_3	Ammonia
NO_2	Nitrites
NO_3	Nitrates
pH	Acidity, 'potential of hydrogen'
STF	Sewage Treatment Facility
SVI	Sludge Volume Index
$TBOD_5$ or BOD_5	Five Day Biochemical Oxygen Demand
TAN	Total Ammonia Nitrogen
TKN	Total Kjeldahl Nitrogen
TP	Total Phosphorous
TS	Total Solids
TSS	Total Suspended Solids
UV	Ultraviolet
VFA	Volatile Fatty Acids
VS	Volatile Solids
WPCP	Wastewater Treatment Plant

Introduction

The Town of Collingwood operates Stayner Water Pollution Control Plant (WPCP) and Sewage Pumping Stations (SPS): Dominion Drive SPS and Stayner SPS, owned by the Township of Clearview. WPCP has class II certification, and its Wastewater Works Number is 1100695.

This report has been prepared to address the annual performance reporting requirements for the Stayer Water Pollution Control Plant (WPCP) as outlined in the Environmental Compliance Approval (ECA) 3718-A4CQTD issued January 4, 2016.

The report summarizes the monitoring and operational results and covers the period from January 1, 2025, to December 31, 2025. All compliance and objective limits were met in 2025, except for the following: the compliance limit for Total Ammonia Nitrogen (TAN) was exceeded in April; the objective limits for Total Suspended Solids (TSS) and Total Ammonia Nitrogen (TAN) were exceeded in April; and the Total Suspended Solids (TSS) objective limit was also exceeded in December, as detailed in the report.

This report is submitted to the District Manager of the Ministry of the Environment, Conservation and Parks (MECP) by March 31st.

Facility Description

The Stayner Water Pollution Control Plant (WPCP) was built in 1984 and subsequently upgraded in 1991 and modified in 2004 giving the plant a rated capacity of 2500 m^3/d average daily flow and a peak flow rate of 6250 m^3/d. The plant serves the population of Stayner of about 4,699 persons.

Wastewater generated within the community of Stayner flows to the plant by gravity with the assistance of two pumping stations to boost the flow where required.

The treatment process consists of activated sludge extended aeration treatment in combination with a lagoon polishing and storage system with effluent discharge to Lamont Creek.

Major unit operations at the Stayner WPCP include the following:

Inlet Works

- Influent chamber receiving raw sewage via a forcemain from Dominion Drive Pumping Station, distributing flows to the two aeration cells with an emergency bypass to the lagoons

Aeration

- Two aeration tanks, each equipped with fine bubble aeration system and two air blowers

Secondary Clarifiers

- Two secondary clarifiers, with sludge and scum removal mechanisms

Return and Waste Activated Sludge Facilities

- Two activated sludge pumps, each equipped with variable speed drives, complete with a magnetic flow meter on both return and activated sludge lines

Sludge Storage Facility

- One lagoon (lagoon#2) measuring for storage of waste activated sludge

Phosphorus Removal Facilities

- One phosphorus removal chemical tank in a containment crib and two chemical metering pumps

Effluent Storage Lagoons

- Three cells (lagoons #1, #3 and #4) for treated effluent storage

Effluent Outfall

- Outfall sewer discharging to a riprap lined ditch conveying effluent to Lamont Creek

- One stream flow measuring and calculation system

Annual Average Performance Assessment

Effluent Objectives and Limits

- The effluent objectives and effluent concentration limits are summarized below in Table 1A and Table 1B. The loading limits are summarized below in Table 1C.
- The plant is to be operated and maintained such that the concentrations and waste loadings of the materials named below as effluent parameters are not exceeded in the final effluent.

Table 1A - Effluent Objectives & Effluent Concentration Limits

	Objective, mg/L	Limit, mg/L
$CBOD_5$	5	10
TSS	10	15
TP	0.3	0.4

Note: To determine compliance with and enforcing the above: the monthly average concentration of a parameter named in Column 1 shall not exceed the corresponding maximum concentration set out in Column 3 of Table 1A.

- The monthly average effluent concentration for Suspended Solids was slightly above the objective of 10.0 mg/L in April 2025 with a monthly average of 11.1 mg/L but fell within applicable compliance limit.
- The monthly average effluent concentration for Suspended Solids was also above the objective of 10 mg/L in December 2025 with an average concentration of 14.7 mg/L but fell within the applicable compliance limit.
- Total Phosphorous (TP) and CBOD5 objective and compliance limits have been met throughout 2025.

The sampling results are provided in Appendix B for more detail.

Table 1B - Effluent Objectives & Effluent Concentration Limits		
TAN, mg/L		
Month	**Objective**	**Limit**
January	3.0	4.0
February	3.0	4.0
March	3.0	4.0
April	2.0	2.5
May	2.0	2.5
June	1.0	1.5
July	1.0	1.5
August	1.0	1.5
September	2.0	2.5
October	2.0	2.5
November	3.0	4.0
December	3.0	4.0
pH	6.5-9.0	6.0-9.0

Note: The TAN and pH of the effluent shall be maintained within the limits outlined in Column 3 of Table 1B.

- The monthly average effluent concentration for Total Ammonia Nitrogen (TAN) was above the limit of 2.5 mg/L in April 2025 with a monthly average concentration of 3.0 mg/L.
- The pH values fell within the range of the objective and compliance limits in 2025.

The sampling results are provided in Appendix B for more detail.

Effluent Waste Loading Limits

Table 1C - Effluent Loading Limits				
Monthly Average Loading Limits (kgs/d)				
Month	**$CBOD_5$**	**TSS**	**TP**	**TAN**
January	16.3	24.5	0.65	6.5
February	19.7	29.6	0.79	7.9
March	82.0	123.0	3.28	32.8
April	86.4	129.6	3.46	21.6
May	17.6	26.4	0.7	4.4
June	6.3	9.5	0.25	0.9
July	2.8	4.2	0.11	0.4
August	3.2	4.8	0.13	0.5
September	1.9	2.9	0.08	0.5
October	10.4	15.6	0.42	2.6
November	21.4	32.1	0.86	8.6
December	33.3	50.0	1.33	13.3

Note: The monthly average loading of a parameter listed in Columns 2 to 5 of Table 1C shall not exceed the corresponding maximum waste loading as set for the corresponding month (Column 1).

- The effluent loading objective and compliance limits (kg/d) have been met for Total Kjeldahl Nitrogen (TKN), $CBOD_5$ (kg/d) and Total Phosphorous (TP) in 2025.

The sampling results are provided in Appendix B for more detail.

Effluent Discharge to Lamont Creek

The average daily effluent discharge rate to Lamont Creek shall not exceed the daily discharges listed in Table 2 below. However, periodic discharges above the prescribed limits are allowed if a minimum dilution ratio of 3:1 (3 parts creek flow and 1 part effluent discharge), based on actual measurements of flow rate in the Lamont Creek. Notwithstanding these periodic excess discharges, the average annual effluent discharge should not exceed 2,500 m^3/d, which is the rated capacity of the treatment works.

Table 2 –Effluent Discharges to Lamont Creek

Month	Average Daily Discharge (m^3/d)
January	1,630
February	1,970
March	8,200
April	8,640
May	1,760
June	630
July	280
August	320
September	190
October	1,040
November	2,140
December	3,330

During wet weather events Lamont Creek backs up into the final effluent channel, causing the discharge flow meter to become blinded. This results in the meter inaccurately recording flow from the polishing lagoons to Lamont Creek.

This occurred once in 2025, during heavy rainfall on March 16, leading to a recorded flow above the prescribed limit. A letter was submitted to the MECP to clarify that no non-compliance occurred.

Compliance Testing and Analysis

- Monitoring requirements are specified under Condition 9 of the ECA. Grab samples of raw sewage are required to be collected at the Dominion Street pumping station weekly and analyzed for

$CBOD_5$, TSS, TP and TKN. Grab samples of final effluent are required to be collected weekly (during discharge periods) and analyzed for BOD_5, TSS, TP, TAN and Escherichia coli (E. coli). Temperature and pH of the final effluent are required to be tested on-site weekly.

- Compliance sampling and analysis of raw sewage are carried out weekly. 48-hour composite samples are collected using a refrigerated automatic sampler for analysis of $CBOD_5$, TSS, TP and TKN.
- Compliance sampling and analysis of final effluent are carried out weekly when discharging and secondary effluent analysis is carried out weekly to monitor the quality of the effluent being received by the storage lagoons.
- Samples are collected at the outfall to Lamont Creek, analysis of $CBOD_5$, TSS, TP, and TKN, total ammonia nitrogen, nitrite, nitrate and E. coli. Lastly, grab samples are collected weekly and tested for pH and temperature.
- Except for the samples collected for pH and temperature testing, analysis for all compliance samples is carried out by an external contract laboratory, Testmark Laboratories, in Mississauga, ON. The plant also complies with Guideline F-10-1 concerning sampling and analysis requirements which satisfies Condition 9 (4) (a) of the ECA.
- The temperature and pH of the final effluent is measured in the field at the time of sampling for TAN so the concentration of un-ionized ammonia can be calculated, as set out in condition 8 (5).
- The Stayner WPCP external sampling program is attached as Appendix A.
- All external laboratory analysis results are reported in the Municipal Utility Monitoring forms which are submitted electronically to the Barrie District Office and are used in generating the annual plant performance report.

In-House Testing and Analysis for Process Control

- Grab samples are taken twice per week of the secondary effluent and final effluent (if discharging to Lamont Creek).
- Grab samples are also obtained for other process streams as required for process control purposes. Grab samples are also obtained for other process streams as required for process control purposes.
- All samples are analyzed on-site or at the Collingwood WPCP laboratory using techniques in standard methods or using approved methods for HACH DR/2800 Spectrophotometer.
- The Stayner WPCP internal sampling program is attached as Appendix A

- Flow Measurement.
- Raw sewage (influent) flows at Dominion PS are monitored by a magnetic flow meter installed on the station force main. Final effluent flows are continuously monitored by means of Parshall flume in conjunction with a Milltronics flow monitor.
- Both the influent and final effluent flows are trended through the SCADA system.
- The flow meters are calibrated annually for accuracy (must be +/- 15%of flow rate) to satisfy condition 9 (7) of the ECA.

Capacity Assessment

The annual average daily flow (ADF) has fallen within the design limit for this reporting period as Table 3 demonstrates. The peak influent flow for any day did not exceed the design flow.

Table 3 - Capacity	Design	Current Year
ADF (m^3/d)	2,500	1,718
Peak Flow Rate (m^3/d)	6,250	5,309

The annual average performance data is summarized in Appendix B.

Sludge Management

The sludge is routinely wasted from the plant to lagoon #2. In 2025, approximately 41,519 m^3 was wasted in total. The sludge accountability for 2025 is the following:

- Reported 520.25 kg/d.
- Projected 448.32 kg/d.
- Accountability – 16 % (desirable +/- 15%)

The sludge removal did not take place in 2025, as sludge measurement levels determined that it wasn't required, and a reassessment will take place in 2026.

- Sludge removal is not part of the Town of Collingwood's scope of work and is managed by Clearview Township. Sludge removal has been identified as a recurring operational need as part of the capital works budget.

Bypass Occurrences

There were no bypass occurrences in 2025.

Maintenance

Routine preventive maintenance was performed throughout the year in accordance with the recommendations of the original equipment manufacturer. There were no major equipment failures or malfunctions that occurred during this reporting period that would compromise effluent

quality. Maintenance records are kept for each piece of equipment at the plant and are available at the plant for viewing.

The Calibrations were carried out on the plant instrumentation, flow metering and level sensing equipment between June 9th and June 16th by SCG Flowmetrix.

Date 2025	Equipment Calibrated/Maintained	Pass/Fail	Comments
June 9th – 16th	Dominion Street Level sensor	No Instrument to verify	An equipment upgrade is required, and Clearview township has been notified
June 9th – 16th	Effluent flowmeter	Pass	
June 9th – 16th	WAS flowmeter	Pass	
June 9th – 16th	RAS flowmeter	Pass	

2025 Maintenance Tracking	
Rotork Valves	Serviced as preventative maintenance
DO Probes	Clean and maintenance
Clarifier #2	Cleaned out
Clarifier #1 MCC	Transformer and coil replaced
Clarifier #2	Drive replacement
MCC	Phase loss detection device installed
Return Sludge Pump	Impeller inspection and maintenance
Clarifier #2	Drive chain replaced
Blower #3	Serviced by supplier
Generator fuel tank	Inspections

Complaints

There were no complaints in 2025.

Operational Challenges

Although the influent $CBOD_5$ lab results are trending lower over the year, there are still higher than typical strengths from time to time. With the completion of blower upgrades, there is more stable operational control, but slug loading could still become an issue if incoming waste from industrial contributors is not monitored.

During wet weather events, Lamont Creek can experience flooding of its banks. The water reaches the outflow from the lagoons and temporarily blinds the effluent flow meter, which gives false readings. Each of these instances requires a letter to the MECP to explain that a non-compliance has not occurred and also requires the operator to stop the flow so that a proper assessment can be made.

Lagoons 1, 3 and 4 are seeing increased algal growth each year, which could impact the ability to stay compliant with ECA objectives or limits during discharge.

- There has been a notable increase of nitrogen ammonia in the lagoons during 2025. The reasons are unknown, but algae growth and die-off have increased year after year, which could be a contributing factor.
- Lagoon maintenance is required, which can impact the ability to stay compliant with ECA requirements and should be considered a continual capital improvement.

Appendix A Sampling & Process Control

Samples are analyzed using procedures from the most current edition of "Standard Methods for the Examination of Water and Wastewater" or HACH DR 2800 Spectrophotometer methods.

Samples are obtained by the Operators and returned to the Collingwood Lab for analysis other than pH, DO, Temp, and 30 min. settling tests which are done on-site at the time the sample is taken. Operators are responsible for obtaining sufficient samples for the laboratory technician.

In-House Sampling:

Unit Process	Type Sample	Parameters Tested	Minimum Frequency
Influent	24 hr. composite	pH, TSS, TP	2 x per week
Aeration			2 x per week
• mixed liquor	Grab	half hour settling, pH,	
• RAS	Grab	TSS	
• WAS	Grab	TSS	
		TSS	
Secondary Effluent	Grab	TP, TAN, TSS, pH	2 x per week
Final Effluent	Grab	TSS, pH,TP, TAN	2 x per week if discharging to Creek

External Lab Analysis:

Unit Process	Type Sample	Parameters Tested	Minimum Frequency
Influent	Composite	TP, TSS, $CBOD_5$, TKN	Weekly minimum as per ECA
Effluent	Grab	TSS, $CBOD_5$, TP, FP, TAN, NO3, NO2, TKN, E-coli	Weekly minimum as per ECA
	On-site at time of sample collection	pH & Temperature	Weekly

Samples are sent to an outside Lab to supplement the testing completed in-house and provide a QA/QC check.

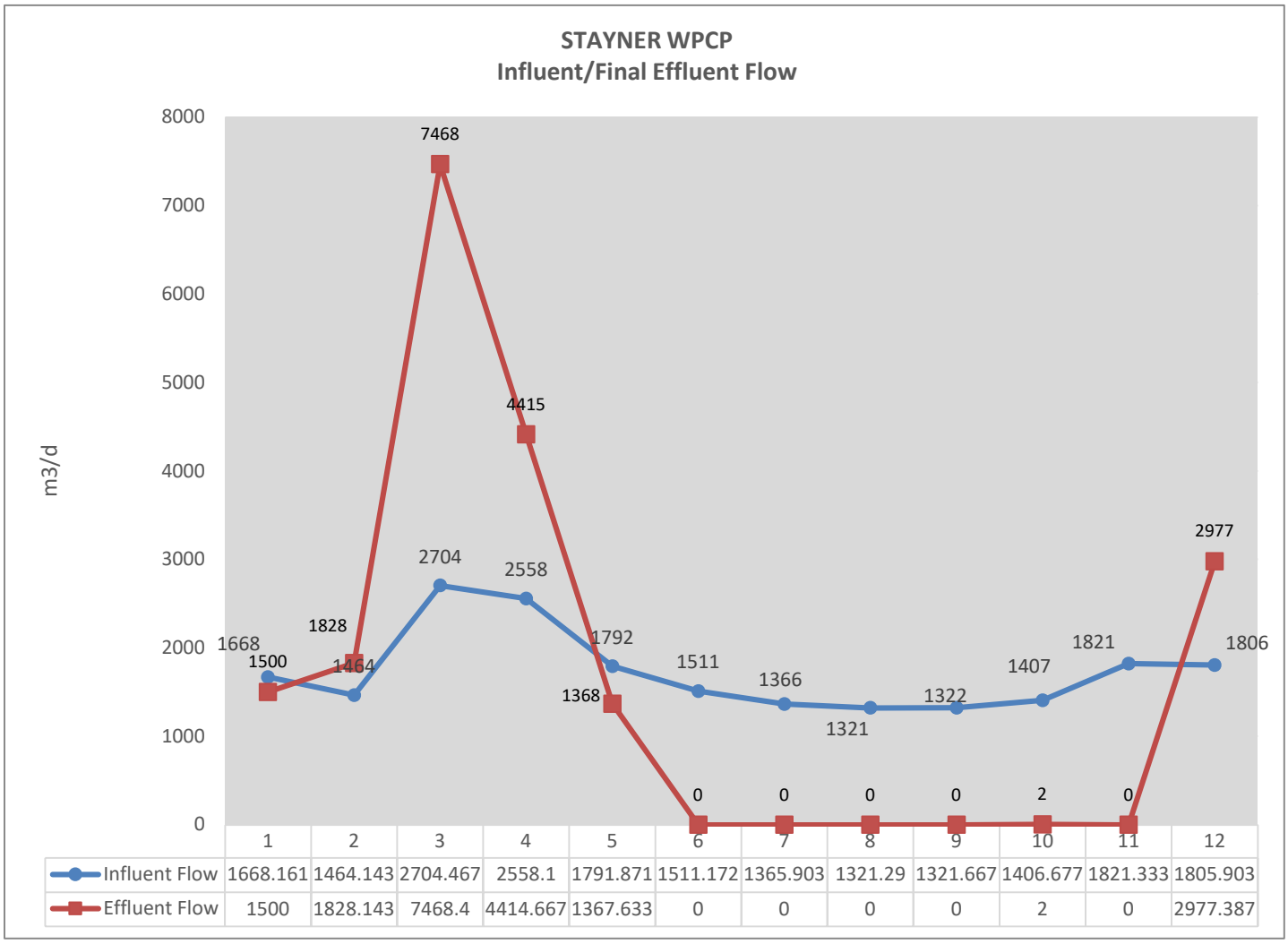
The external lab is an accredited laboratory, and these results are recorded on the monthly MUMPS reports.

Appendix B Monthly Flow & Process Quality

TOWNSHIP OF CLEARVIEW, STAYNER WPCP PERFORMANCE EVALUATION

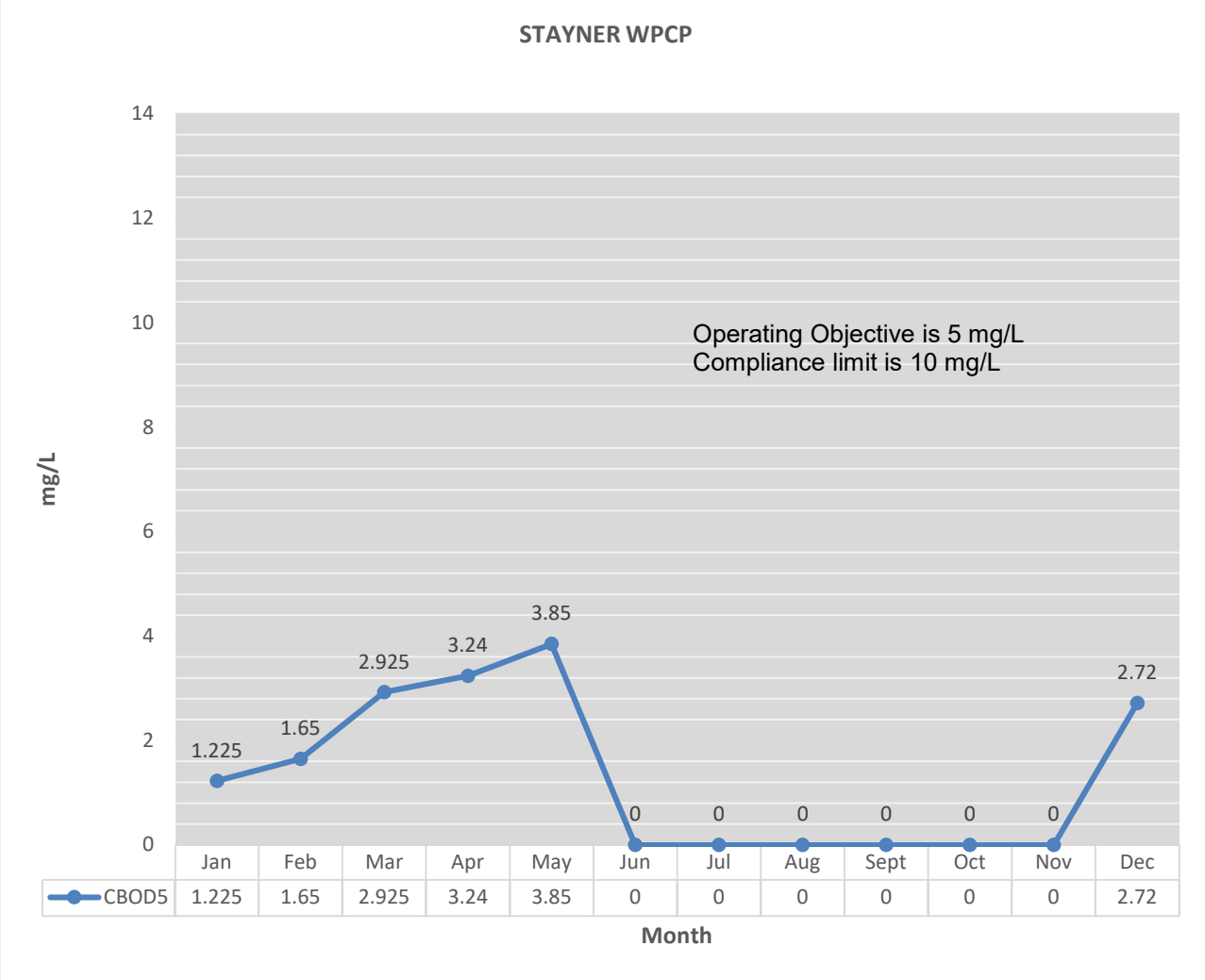
2025	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year summary
FLOWS(m3/d)													
Influent													
ADF	1668	1464	2704	2558	1792	1511	1366	1321	1322	1407	1821	1806	1718
Total	51,713	40,996	81,134	76,743	55,548	43,824	42,343	40,960	39,650	43,607	54,640	55,983	627,141
Max day	2,314	1837	4953	5309	2215	1818	1561	1524	1438	1886	2308	2413	
Min day	1,391	1300	1668	1836	1538	1374	1254	1211	1235	1270	1564	1579	
Final Effluent													
ADF	1,500	1828	7468	4415	1368					2		2977	1,605
Total	46,500	51,188	224,052	132,440	41,029	0	0	0	0	2	0	92,299	587,510
Max day	1,627	1935	9008	7726	1662	0	0	0	0	2	0	3064	9,008
Min day	1455	1591	3254	365	504	0	0	0	0	2	0	1700	0
Max aver. daily discharge limits	1630	1970	8200	8640	1760	630	280	320	190	1040	2140	3330	**2500**
$CBOD_5$ (mg/L)													
Influent	438	163	228	356	261	288	372	478	450	816	505	858	
Effluent	1.2	1.7	2.9	3.2	3.9							2.7	
	monthly average concentration: objective limit is 5mg/L, compliance limit is 10mg/L												
$CBOD_5$ (kg/d)													
Final Effluent monthly ave loading	1.8	3.0	21.8	14.3	5.3							8.1	
Monthly average loading compliance limit	16.3	19.7	82.0	86.4	17.6	6.3	2.8	3.2	1.9	10.4	21.4	33.3	
	compliance limit is a monthly average concentration of 10 mg/L and a monthly average loading limit of 14 kg/d in the Final Effluent												
TSS (mg/L)													
Influent	189	209	220	97	209	133	181	154	243	291	205	263	199
Effluent	3.4	4.8	6.3	11.1	9.2							14.7	
	monthly average concentration: objective limit is 10mg/L, compliance limit is 15mg/L												
TSS (kg/d)													
Final Effluent monthly ave loading	5.1	8.8	46.7	49.2	12.5							43.8	
Compliance monthly average loading	24.5	29.6	123.0	129.6	26.4	9.5	4.2	4.8	2.9	15.6	32.1	50.0	
TP (mg/L)													
Influent	5.6	5.9	3.7	2.9	4.4	4.6	5.2	4.3	4.3	6.1	3.4	4.8	
Effluent	0.05	0.06	0.08	0.19	0.20							0.15	
	monthly average concentration: objective limit is 0.3mg/L ,compliance limit is 0.4mg/L												
TP (kg/d)													
Final Effluent monthly ave loading	0.07	0.12	0.61	0.83	0.28							0.43	
Compliance monthly average loading	0.65	0.79	3.28	3.46	0.70	0.25	0.11	0.13	0.08	0.42	0.86	1.33	
Effluent TAN (mg/L)	0.6	1.2	1.5	3.0	0.2							0.3	
Compliance limit	4	4	4	2.5	2.5	1.5	1.5	1.5	2.5	2.5	4	4	
	monthly average monthly concentration: objective limit is 3.0 mg/L, compliance limit is 4.0 mg/L(Feb-Mar; Nov, Dec)												
TAN (kg/d)	monthly average concentration: objective limit is 2.0mg/L, compliance limit is 2.5mg/L(Apr, May, Sep, Oct) :objective limit is 1.0 mg/L, compliance limit is 1.5 (Jul, Aug)												
Final Effluent monthly ave loading	0.84	2.26	10.98	13.28	0.24							0.93	
Monthly average loading compliance limit	6.50	7.90	32.80	21.60	4.40	0.90	0.40	0.50	0.50	2.60	8.60	13.30	
TKN (mg/L)													
Influent	45.6	46.9	27.2	26.3	31.6	34.3	39.7	40.9	39.9	35.6	32.0	75.9	
Effluent	2.3	2.9	3.7	5.8	3.0							3.7	
NO3 (mg/L)													
Effluent	9.13	7.69	4	4	13							7	
NO2 (mg/L)													
Effluent	1.45	1.14	0.57	0.51	0.82							0.31	
FP (mg/L)													
Effluent	0.02	0.02	0.05	0.162	0.02							0.007	
Temperature and pH													
Effluent	Temperature and pH determined in the field at time of sampling as per ECA												
pH													
Influent	7.5	7.7	7.4	7.3	7.1	7.1	7.3	7.2	7.0	7.0	7.1	7.2	
Effluent	8.0	7.8	7.9	8.1	8.0							7.9	
Min	7.7	7.5	7.6	7.2	7.6	0.0	0.0	0.0	0.0	0.0	0.0	7.6	
Max	8.5	8.0	8.2	8.9	8.2	0.0	0.0	0.0	0.0	0.0	0.0	8.1	
	Compliance means maintaining the pH of the final effluent within the limits 6.0 to 9.0 (objective within 6.5 to 9.0)												
E-Coli (MPN/100mL)													
Effluent	49	57	39	177	1491							4080	

2025 Monthly Average Flows

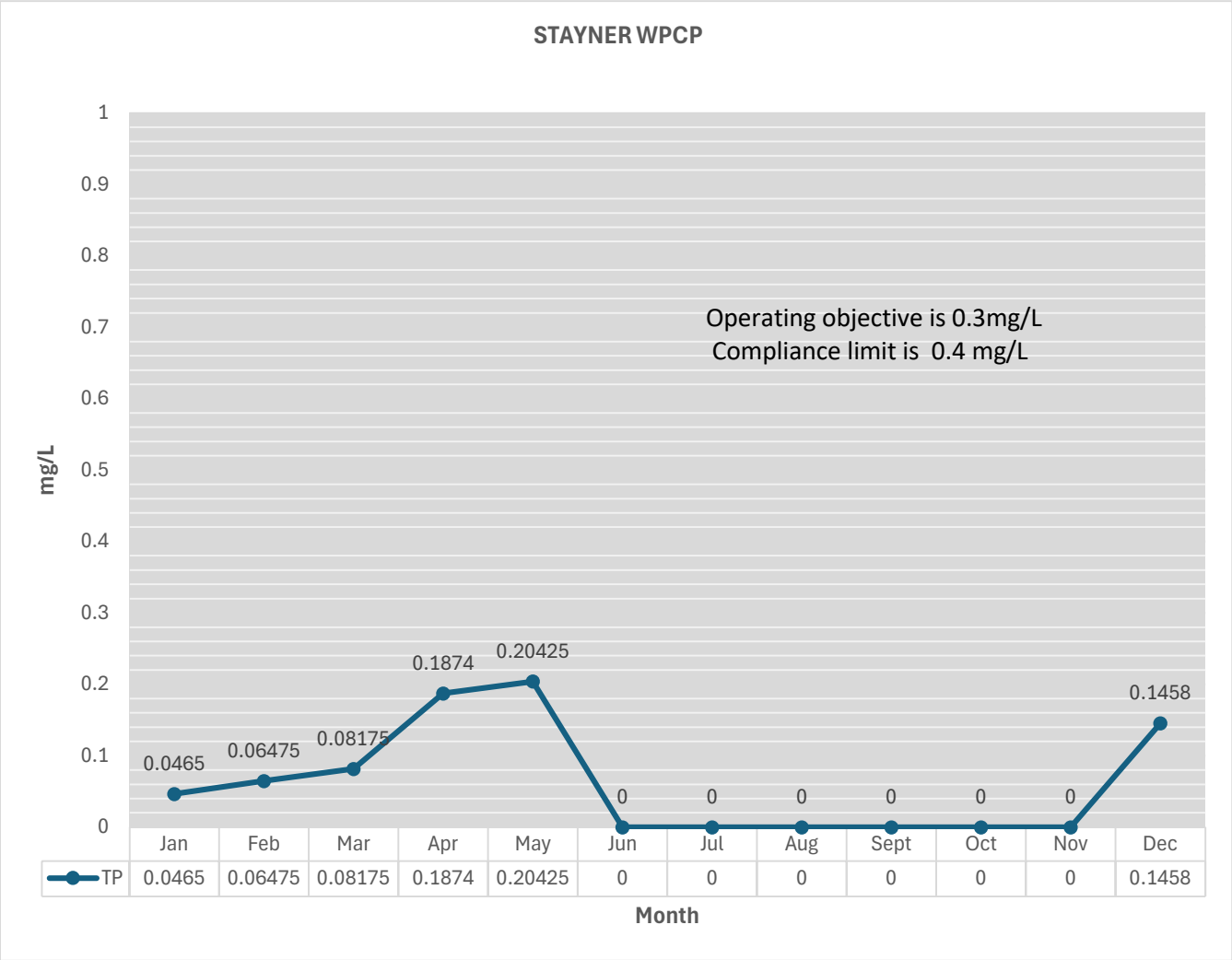


	1	2	3	4	5	6	7	8	9	10	11	12
Influent Flow	1668.161	1464.143	2704.467	2558.1	1791.871	1511.172	1365.903	1321.29	1321.667	1406.677	1821.333	1805.903
Effluent Flow	1500	1828.143	7468.4	4414.667	1367.633	0	0	0	0	2	0	2977.387

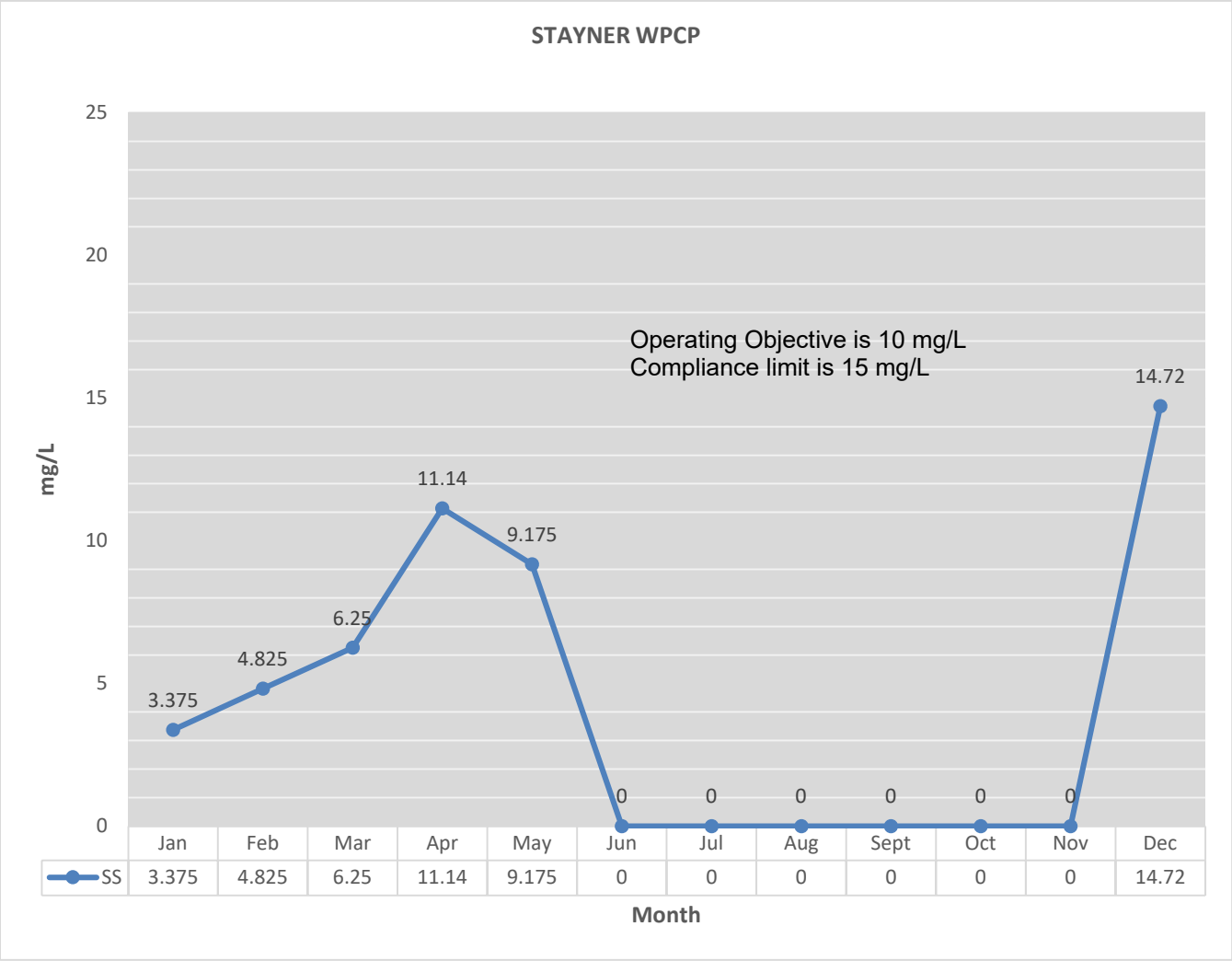
2025 Monthly Average Concentration - Final Effluent $CBOD_5$



2025 Monthly Average Concentration - Final Effluent TP



2025 Monthly Average Concentration - Final Effluent TSS



2025 Monthly Average Concentration - Final Effluent TAN