Coboconk Sewage Lagoons

Works # 120002353

Annual Wastewater Performance Report

Prepared For: The City of Kawartha Lakes

Reporting Period of January 1st – December 31st, 2022

Issued: March 23, 2023

Revision: 0

Operating Authorities:

Kawartha Lakes

OCWA

ONTARIO CLEAN WATER AGENCY
AGENCE ONTARIENNE DES EAUX

2022 Performance Report for Coboconk Sewage Lagoons

The Coboconk Sewage Lagoons is a dual lagoon system with continuous phosphorus removal using aluminum sulphate, and seasonal effluent discharges. The discharge window in the spring is April 1 to May 31 and in the fall is November 1 to December 31.

The Coboconk Sewage Lagoons operate under Amended Environmental Compliance Approval (ECA) #9527-AHVRDY issued March 17, 2017. Condition 11 (5) Reporting of the ECA requires the following:

The Owner shall prepare and submit to the Water Supervisor a performance report, on an annual basis, within ninety (90) days following the end of the period being reported upon. The first such report shall cover the first annual period following the commencement of operation of the Works and subsequent reports shall be submitted to cover successive annual periods following thereafter. The reports shall contain, but shall not be limited to, the following information:

(a) a summary and interpretation of all monitoring data and a comparison to the effluent limits outlined in Condition 7, including an overview of the success and adequacy of the Works;
(b) a summary and interpretation of all effluent plume monitoring data and effluent discharge impact assessment to Gull River
(c) tabulation of calculated un-ionized ammonia concentrations in final effluent, based on Total Ammonia Nitrogen concentrations, temperature and pH of final effluent;
(d) tabulation of daily flow rates and monthly volumes including average daily flows for discharge periods reported;
(e) a summary of all Bypass, spill or abnormal discharge events;
(f) an overview of the sludge disposal program, including tabulation of quantity and quality of sludge and the disposal areas used for each sludge source during the reporting period, together with an outline of the proposed sludge handling method and disposal areas to be utilized over the next reporting period;
(g) a description of any operating problems encountered and corrective actions taken;
(h) a description of efforts made and results achieved in meeting the Effluent Objectives of Condition 6
(i) a summary of any complaints received during the reporting period and any steps taken to address the complaints;
(j) a copy of all Notice of Modifications submitted to the Water Supervisor as a result of Schedule B, Section 1, with a status report on the implementation of each modification;
(k) a report summarizing all modifications completed as a result of Schedule B, Section 3; and
(l) any other information the Water Supervisor may require from time to time.

During the period of 2022, the Ontario Clean Water Agency (OCWA) operated the Coboconk Sewage Lagoons on behalf of the Corporation of the City of Kawartha Lakes.

OCWA's goals have remained consistent during this period and remain consistent with the following priorities:

- provide quality assurance, safety and environmental compliance of facility operations;
- assist our clients in achieving compliance;
- provide advice on up-to-date technology in Operations and Maintenance service delivery.

This report will show that the Ontario Clean Water Agency has made every attempt to achieve its goals through its operational performance. This performance was enhanced through the use of an electronic process data collection database, an electronic maintenance and work order database, an electronic operational excellence database, a training program focused on providing the right skills to staff - also captured and tracked by the use of an electronic database and a multi-skilled, flexible workforce.

This report will show that the requirements of the facility ECA including effluent monitoring, effluent plume monitoring and reporting requirements were consistently met and that effluent quality was consistently within ECA requirements.

(a) Attached as Appendix I is the Performance Assessment Report (PAR) and as Appendix II is the Lagoon Discharge Report. These reports summarize flows and monitoring data for 2022. During the reporting period all effluent quality was below the Effluent Limits set in the ECA. These results are indicative of the facility's ability to adequately treat the sewage it receives. The following table summarizes the effluent parameters with limits and 2022 effluent results for each discharge.

Table 1. Coboconk Sewage Lagoons – Effluent Compliance Limits – 2022 Discharges

Effluent Parameter *(Column 1)*	Concentration (mg/L unless otherwise indicated) *(Column 2)*	Concentration (mg/L)	Compliant (Y/N)	Waste Loading (kg/d unless otherwise indicated) *(Column 3)*	Waste Loading (kg/d)	Compliant (Y/N)
Spring Apr 5 - 12						
CBOD5	25.0 (average per discharge)	<4.0	Y	231.0	<22.5	Y
Total Suspended Solids	25.0 (average per discharge)	3.0	Y	231.0	16.9	Y
Total Phosphorus	0.5 (average per discharge)	<0.03	Y	4.62	<0.17	Y
Total Ammonia Nitrogen Spring (Apr 1 to May 31)	15.0 (daily limit)	5.5 7.8 6.9 6.2	Y Y Y Y	139.0	33.4 67.9 29.1 1.1	Y Y Y Y
Hydrogen Sulphide	0.1 (daily limit)	<0.02 <0.02 <0.02 <0.02	Y Y Y Y	0.92	0.12 0.17 0.08 0.004	Y Y Y Y
pH	6.0 to 9.5 at all times	6.9 7.1 7.5 6.8	Y Y Y Y	-	-	-
Spring May 17 - 20						
CBOD5	25.0 (average per discharge)	<2.5	Y	231.0	<17.2	Y
Total Suspended Solids	25.0 (average per discharge)	3.0	Y	231.0	20.6	Y
Total Phosphorus	0.5 (average per discharge)	<0.03	Y	4.62	<0.21	Y
Total Ammonia Nitrogen Spring (Apr 1 to May 31)	15.0 (daily limit)	3.9 5.2	Y Y	139.0	22.7 30.4	Y Y
Hydrogen Sulphide	0.1 (daily limit)	<0.02 <0.02	Y Y	0.92	0.12 0.12	Y Y
pH	6.0 to 9.5 at all times	7.3 7.6	Y Y	-	-	-
Fall Nov 30 – Dec 2						

CBOD5	25.0 (average per discharge)	<2.0	Y	231.0	<11.6	Y
Total Suspended Solids	25.0 (average per discharge)	<3.0	Y	231.0	<17.4	Y
Total Phosphorus	0.5 (average per discharge)	<0.03	Y	4.62	<0.17	Y
Total Ammonia Nitrogen Fall (Nov 1 to Dec 31)	8.0 (daily limit)	0.3 0.4	Y Y	74.0	1.4 1.7	Y Y
Hydrogen Sulphide	0.1 (daily limit)	<0.02 <0.02	Y Y	0.92	0.09 0.09	Y Y
pH	6.0 to 9.5 at all times	7.7 7.2	Y Y	-	-	-

Note:
For the purposes of determining compliance with and enforcing subsection (1):
(a) The Seasonal Average Concentration of CBOD5, Total Suspended Solids and Phosphorus named in Column 1 of subsection (1) shall not exceed the corresponding maximum concentration set out in Column 2 of subsection (1).

(b) The Seasonal Average Loading of CBOD5, Total Suspended Solids and Phosphorus named in Column 1 of subsection (1) shall not exceed the corresponding maximum concentration set out in Column 2 of subsection (1).

(c) The Daily Concentration of Total Ammonia Nitrogen and Hydrogen Sulphide named in Column 1 of subsection (1) shall not exceed the corresponding maximum concentration set out in Column 2 of subsection (1).

(d) The Daily Loading of Total Ammonia Nitrogen and Hydrogen Sulphide named in Column 1 of subsection(1) shall not exceed the corresponding maximum waste loading set out in Column 3 of subsection (1).

(e) The pH of the effluent shall be maintained within the limits outlined in subsection (1), at all times.

The ECA requires one grab sample to be collected on the first day of a discharge, every third calendar day of the discharge and on the last day of the discharge. The discharge windows are April 1 to May 31 which is the Spring Discharge, and November 1 to December 31 which is the Fall Discharge. Each window allows a maximum period of 14 days at a discharge flow rate not exceeding 9,245m^3/day.

The results in Table 1 show that the effluent concentrations and the waste loadings of $cBOD_5$, total suspected solids, total phosphorus, Total Ammonia Nitrogen and Hydrogen Sulphide were in compliance with the ECA. The pH of the effluent was maintained within the limits and compliant at all times.

Additionally, ECA Effluent Limits, (3) states *"...the monthly Geometric Mean Density of E. Coli does not exceed 200 organisms per 100 milliliters of effluent discharged..."*

Many wastewater treatment facilities must test for and report results using a 'Geometric Mean' (average) of all the test results obtained during a specific reporting period. The geometric mean calculation is different than a normal arithmetic mean (average) calculation and is considered to be a more accurate calculation. A geometric mean, unlike an arithmetic mean, tends to dampen the effect of very high or low values which might bias the mean if a straight average (arithmetic mean) were calculated.

Table 2 provides monthly geometric mean density values of E.Coli in the Coboconk Lagoon effluent for each month that a discharge occurred in 2022.

Table 2. Coboconk Sewage Lagoon – Effluent E. coli Results for 2022 (org/100mL)

Seasonal Discharge Month	April	May	November	December
Monthly Geometric Mean Density of	4.9	2.8	2	2
Compliant with Limit of 200 org/100 mL (Y/N)	Y	Y	Y	Y

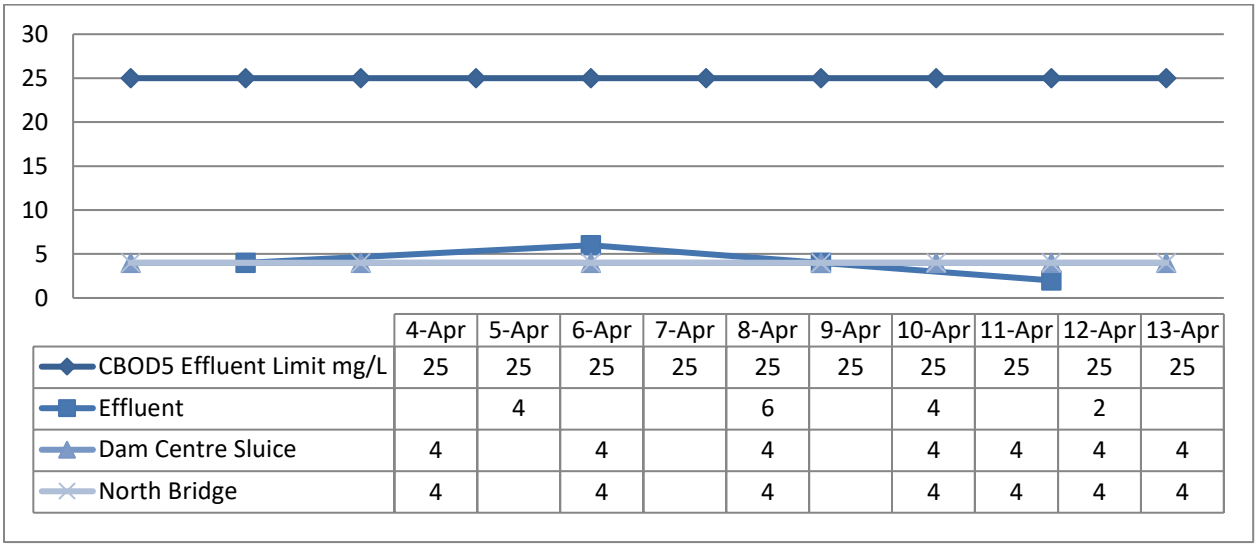
Total Kjeldhal Nitrogen (TKN) was also sampled in the effluent and results ranged from 5.6 – 8.3mg/L in April and 4.7 – 7.7mg/L in May, during the spring discharge periods and <0.5 – 0.7mg/L during the fall discharge period.

(b) An Effluent Plume Monitoring Program is conducted during each seasonal discharge period to assess the dilution effect of the sewage effluent discharged to the Gull River. Samples are collected from the North Bridge and Dam Centre Sluice and analyzed for CBOD5, Total Suspended Solids (TSS), Total Phosphorus (TP), Total Ammonia Nitrogen (TAN), Total Kjeldahl Nitrogen (TKN), Hydrogen Sulphide, pH and Temperature. The ECA requires a grab sample be collected one day prior to the seasonal effluent discharge period, every other day during the effluent discharge period, and one day following the end of the seasonal discharge period.

Spring discharge occurred April 5 to 12 and May 17 to 20, 2022. Fall discharge occurred November 30 to December 2, 2022. Results for the effluent, North Bridge and Centre Sluice Dam are presented in the following graphs and tables for each Effluent Plume Monitoring parameter.

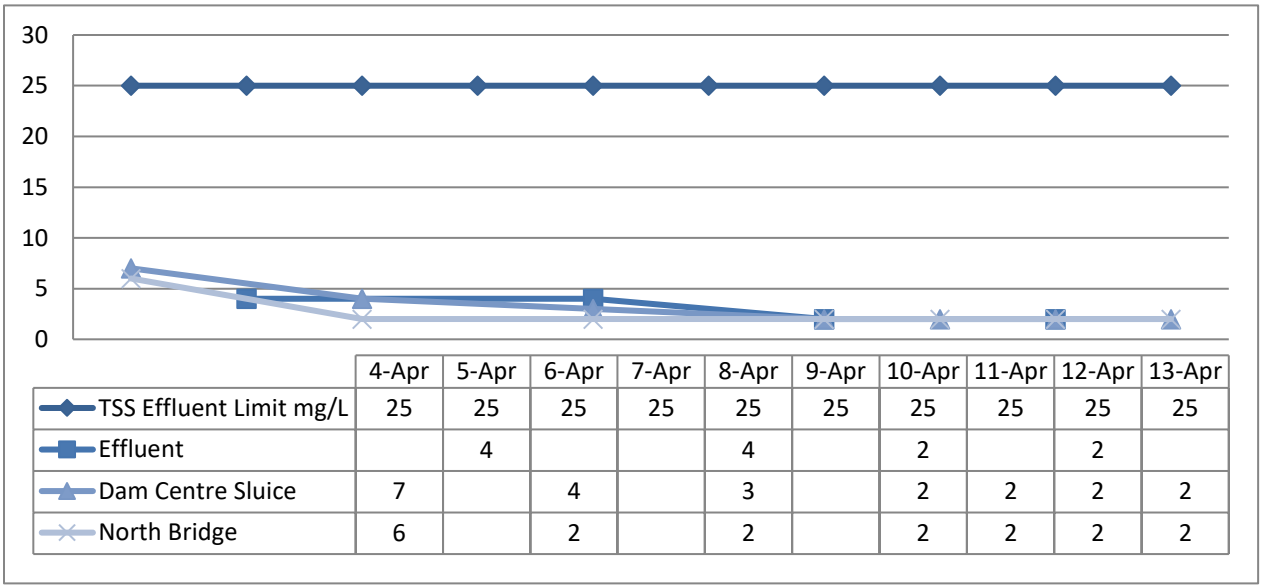
Spring Discharge – April 5 to 12, 2022
Note: North Bridge and Centre Sluice Dam Hydrogen Sulphide samples were not collected on April 4, 2022. The local MECP Inspector was notified on April 25, 2022 once the omission was identified.

CBOD5



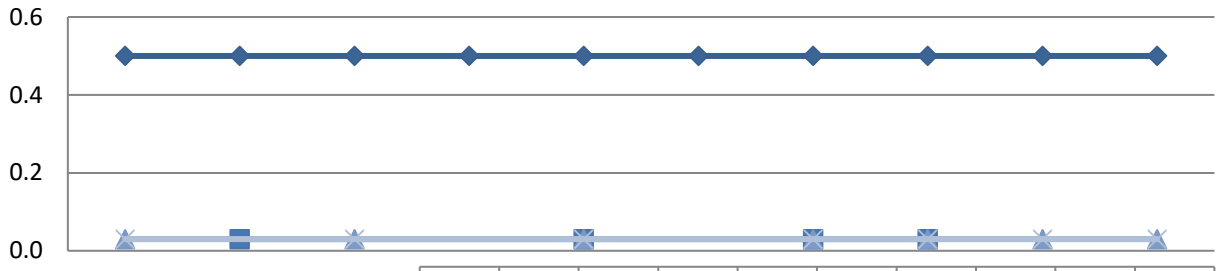
	4-Apr	5-Apr	6-Apr	7-Apr	8-Apr	9-Apr	10-Apr	11-Apr	12-Apr	13-Apr
CBOD5 Effluent Limit mg/L	25	25	25	25	25	25	25	25	25	25
Effluent		4			6		4		2	
Dam Centre Sluice	4		4		4		4	4	4	4
North Bridge	4		4		4		4	4	4	4

Total Suspended Solids



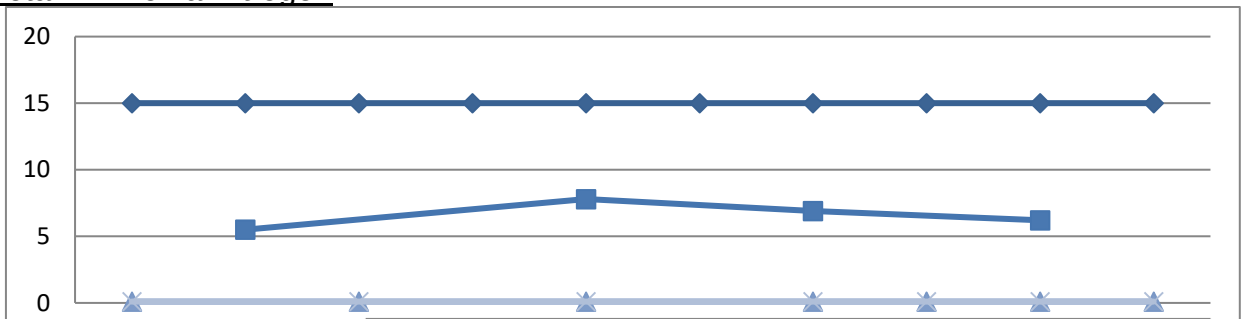
	4-Apr	5-Apr	6-Apr	7-Apr	8-Apr	9-Apr	10-Apr	11-Apr	12-Apr	13-Apr
TSS Effluent Limit mg/L	25	25	25	25	25	25	25	25	25	25
Effluent		4			4		2		2	
Dam Centre Sluice	7		4		3		2	2	2	2
North Bridge	6		2		2		2	2	2	2

Total Phosphorus



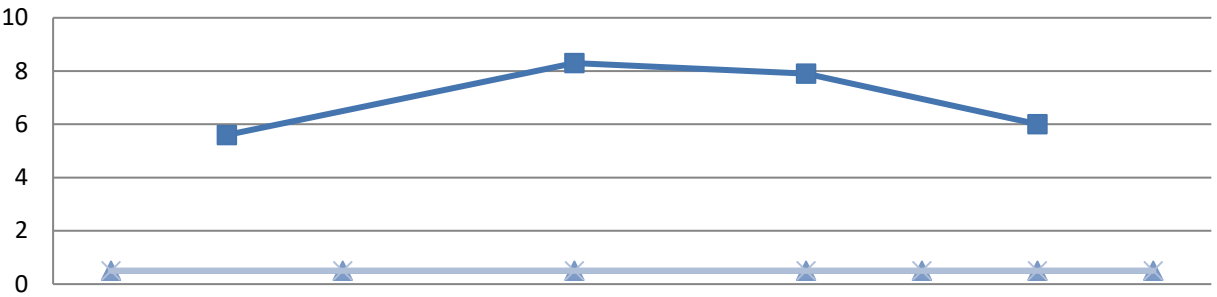
	4-Apr	5-Apr	6-Apr	7-Apr	8-Apr	9-Apr	10-Apr	11-Apr	12-Apr	13-Apr
Total Phosporus Effluent Limit mg/L	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Effluent		0.03			0.03		0.03	0.03		
Dam Centre Sluice	0.03		0.03		0.03		0.03	0.03	0.03	0.03
North Bridge	0.03		0.03		0.03		0.03	0.03	0.03	0.03

Total Ammonia Nitrogen



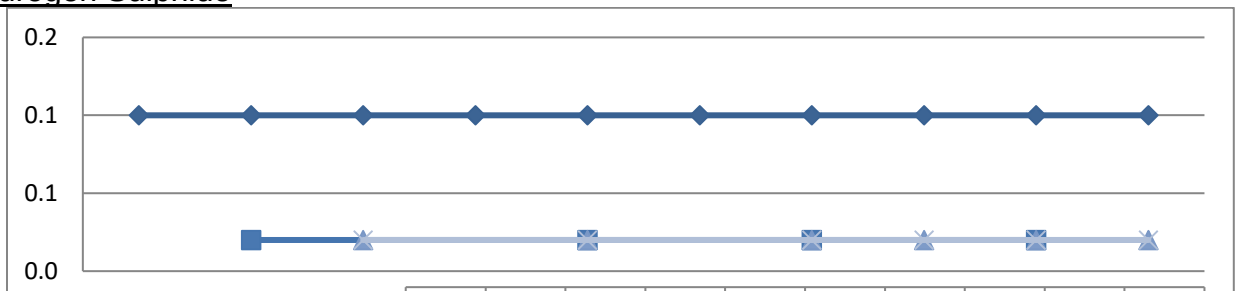
	4-Apr	5-Apr	6-Apr	7-Apr	8-Apr	9-Apr	10-Apr	11-Apr	12-Apr	13-Apr
TAN Effluent Limit mg/L	15	15	15	15	15	15	15	15	15	15
Effluent		5.5			7.8		6.9		6.2	
Dam Centre Sluice	0.1		0.1		0.1		0.1	0.1	0.1	0.1
North Bridge	0.1		0.1		0.1		0.1	0.1	0.1	0.1

Total Kjeldahl Nitrogen



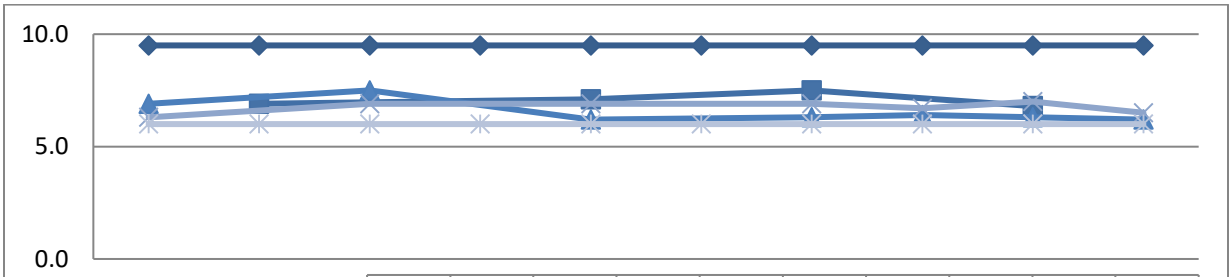
	4-Apr	5-Apr	6-Apr	7-Apr	8-Apr	9-Apr	10-Apr	11-Apr	12-Apr	13-Apr
TKN no limit mg/L										
Effluent		5.6			8.3		7.9		6.0	
Dam Centre Sluice	0.5		0.5		0.5		0.5	0.5	0.5	0.5
North Bridge	0.5		0.5		0.5		0.5	0.5	0.5	0.5

Hydrogen Sulphide



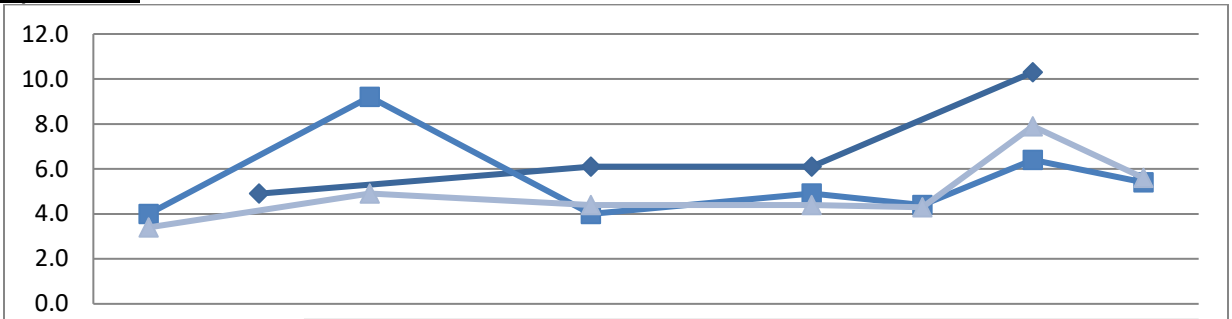
	4-Apr	5-Apr	6-Apr	7-Apr	8-Apr	9-Apr	10-Apr	11-Apr	12-Apr	13-Apr
Hydrogen Sulphide Effluent Limit mg/L	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Effluent		0.02			0.02		0.02		0.02	
Dam Centre Sluice			0.02		0.02		0.02	0.02	0.02	0.02
North Bridge			0.02		0.02		0.02	0.02	0.02	0.02

pH



	4-Apr	5-Apr	6-Apr	7-Apr	8-Apr	9-Apr	10-Apr	11-Apr	12-Apr	13-Apr
pH Upper Effluent Limit	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5
Effluent		6.9			7.1		7.5		6.8	
Dam Centre Sluice	6.9		7.5		6.2		6.3	6.4	6.3	6.2
North Bridge	6.3		6.9		6.9		6.9	6.7	7.0	6.5
pH Lower Effluent Limit	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0

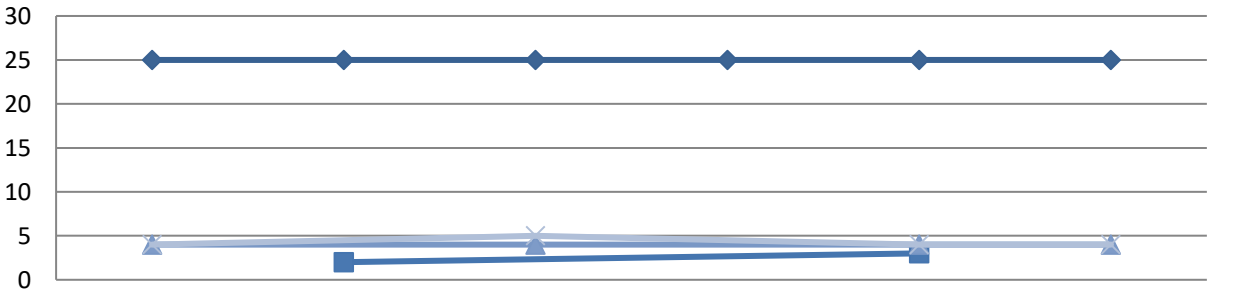
Temperature



	4-Apr	5-Apr	6-Apr	7-Apr	8-Apr	9-Apr	10-Apr	11-Apr	12-Apr	13-Apr
Effluent		4.9			6.1		6.1		10.3	
Dam Centre Sluice	4.0		9.2		4.0		4.9	4.4	6.4	5.4
North Bridge	3.4		4.9		4.4		4.4	4.3	7.9	5.6

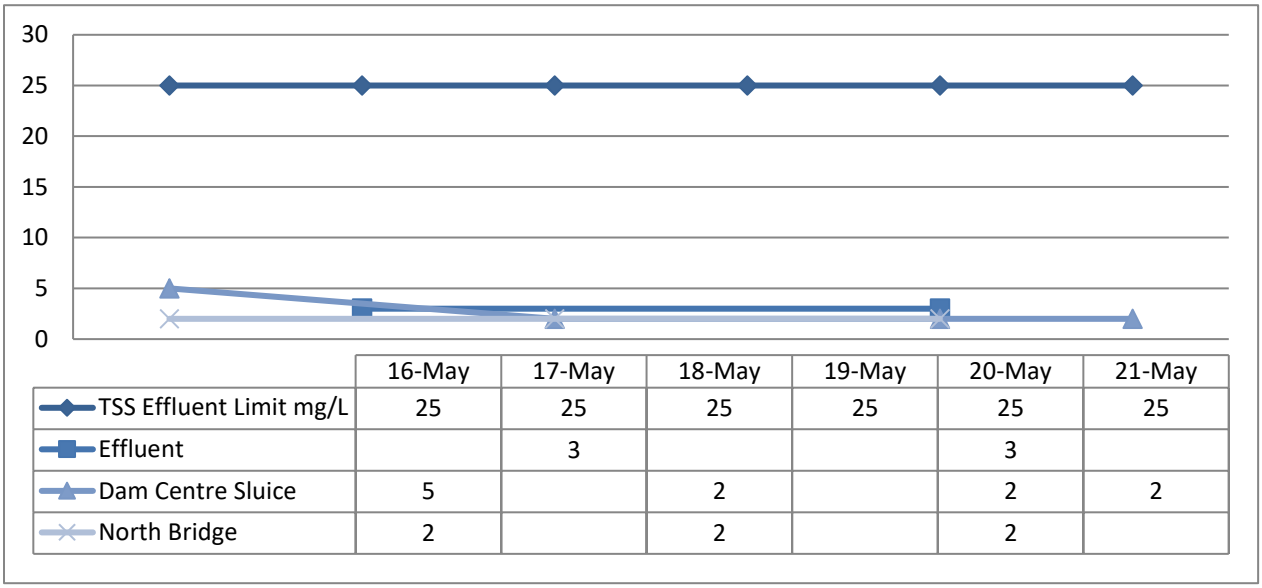
Spring Discharge – May 17 to 20, 2022

CBOD5



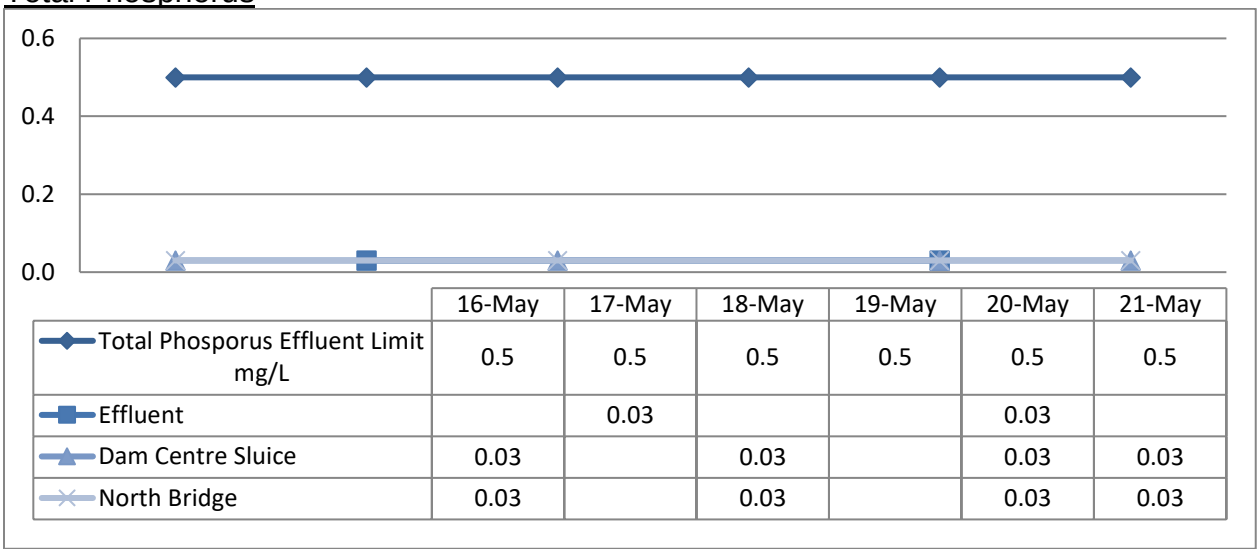
	16-May	17-May	18-May	19-May	20-May	21-May
CBOD5 Effluent Limit mg/L	25	25	25	25	25	25
Effluent		2			3	
Dam Centre Sluice	4		4		4	4
North Bridge	4		5		4	4

Total Suspended Solids



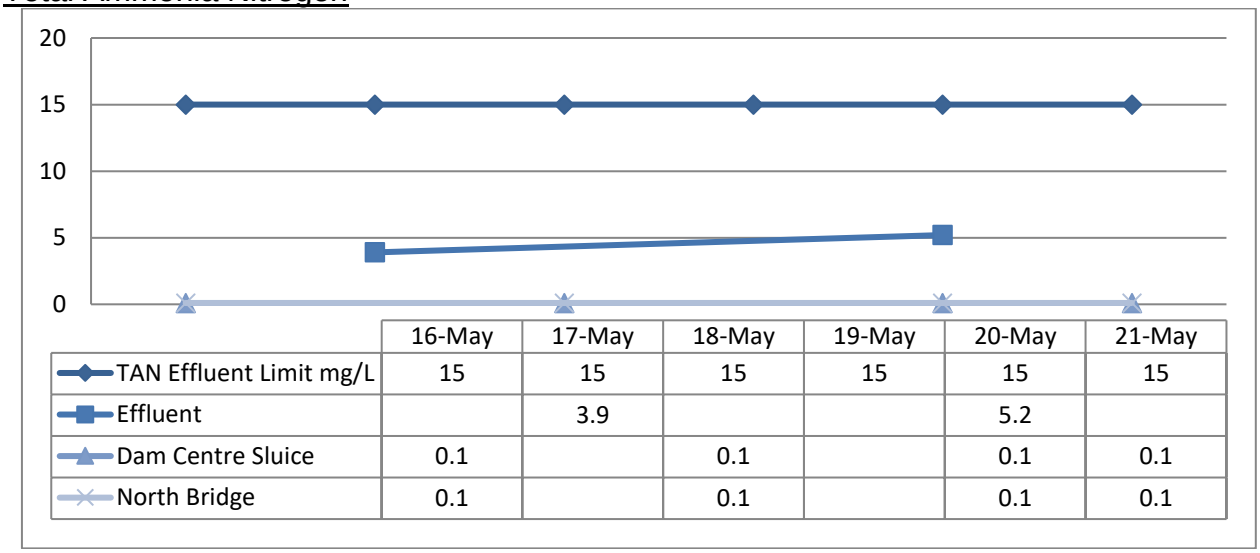
	16-May	17-May	18-May	19-May	20-May	21-May
TSS Effluent Limit mg/L	25	25	25	25	25	25
Effluent		3			3	
Dam Centre Sluice	5		2		2	2
North Bridge	2		2		2	

Total Phosphorus



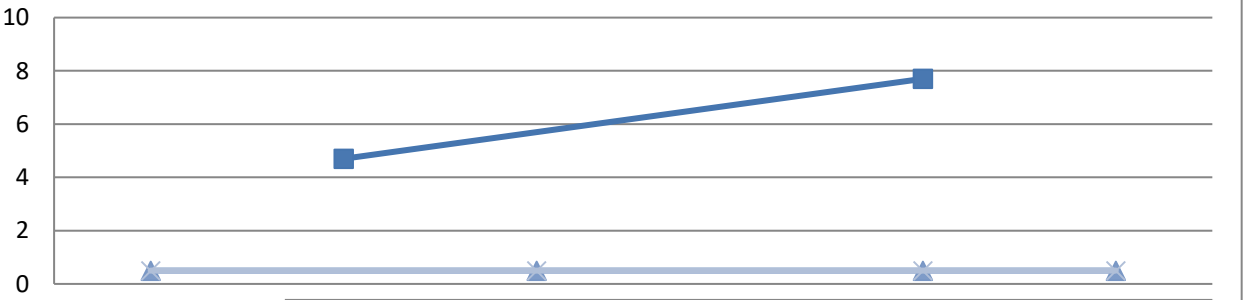
	16-May	17-May	18-May	19-May	20-May	21-May
Total Phosporus Effluent Limit mg/L	0.5	0.5	0.5	0.5	0.5	0.5
Effluent		0.03			0.03	
Dam Centre Sluice	0.03		0.03		0.03	0.03
North Bridge	0.03		0.03		0.03	0.03

Total Ammonia Nitrogen



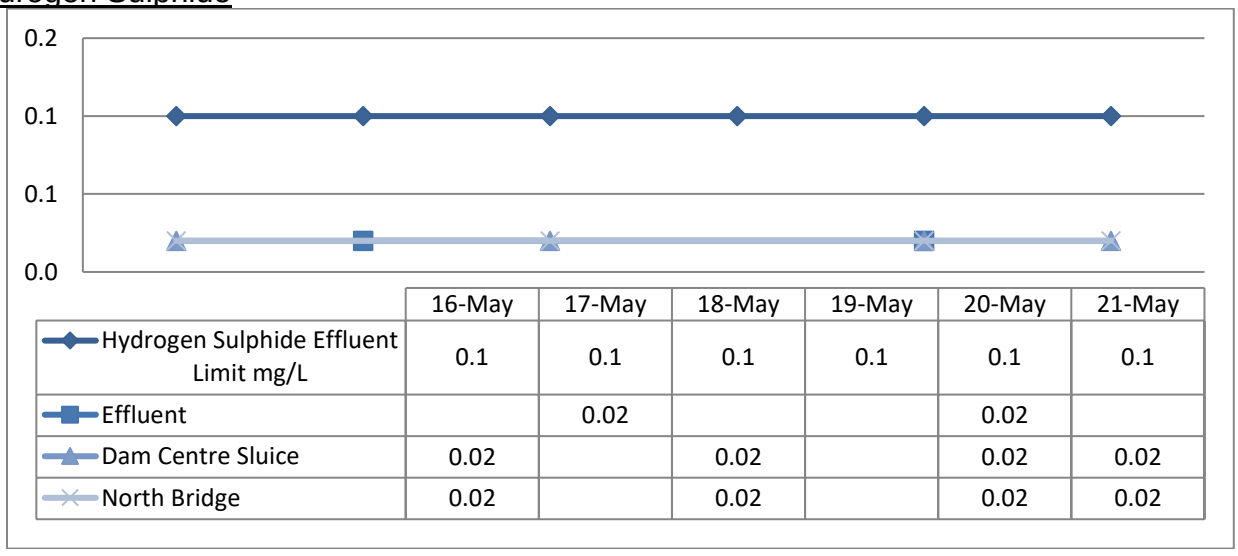
	16-May	17-May	18-May	19-May	20-May	21-May
TAN Effluent Limit mg/L	15	15	15	15	15	15
Effluent		3.9			5.2	
Dam Centre Sluice	0.1		0.1		0.1	0.1
North Bridge	0.1		0.1		0.1	0.1

Total Kjeldahl Nitrogen



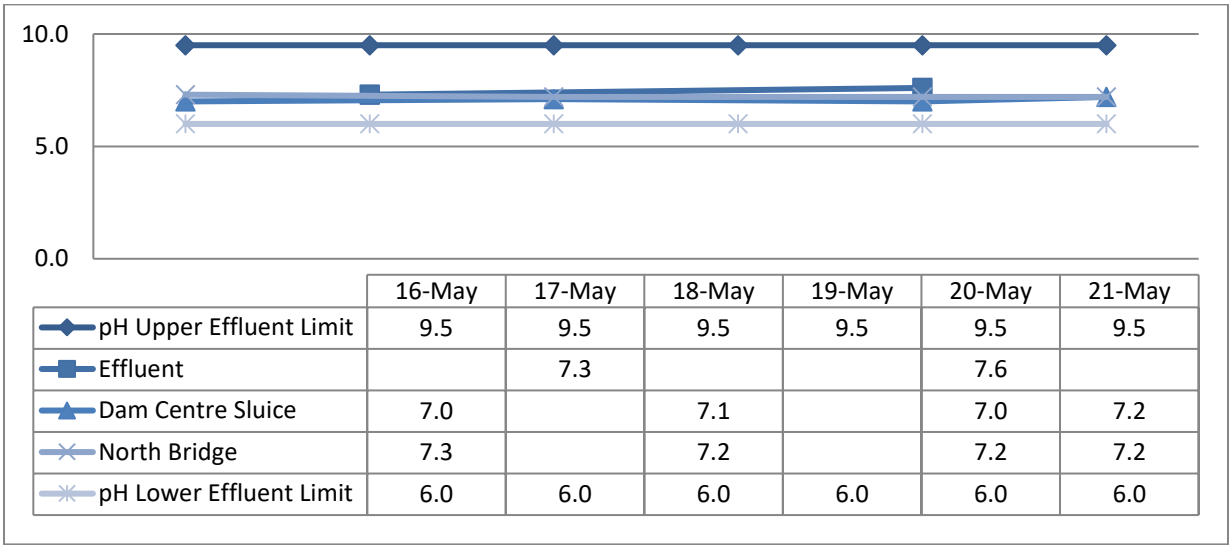
	16-May	17-May	18-May	19-May	20-May	21-May
TKN no limit mg/L						
Effluent		4.7			7.7	
Dam Centre Sluice	0.5		0.5		0.5	0.5
North Bridge	0.5		0.5		0.5	0.5

Hydrogen Sulphide



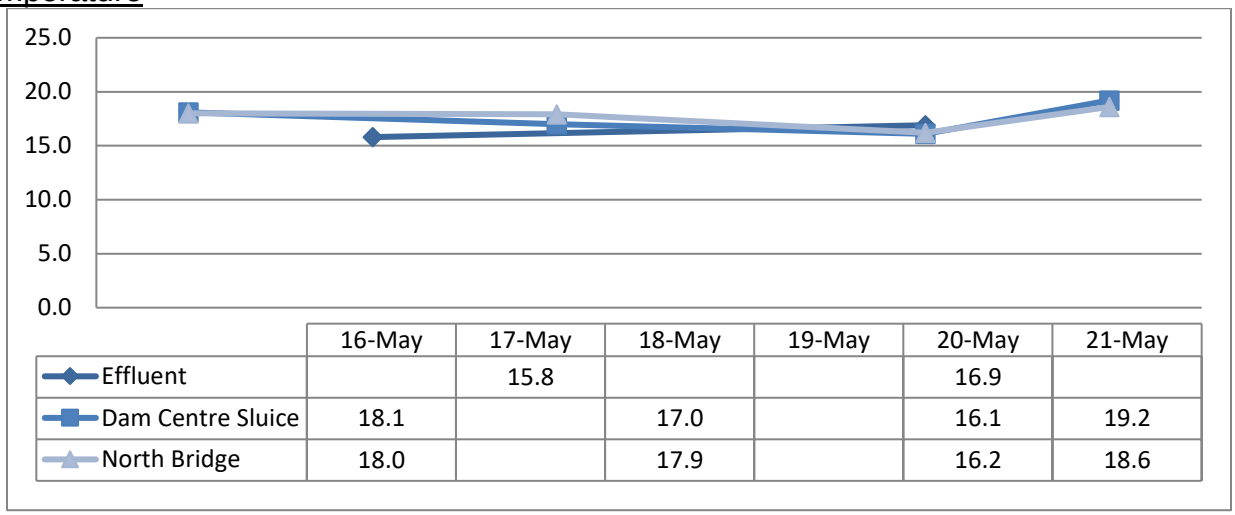
	16-May	17-May	18-May	19-May	20-May	21-May
Hydrogen Sulphide Effluent Limit mg/L	0.1	0.1	0.1	0.1	0.1	0.1
Effluent		0.02			0.02	
Dam Centre Sluice	0.02		0.02		0.02	0.02
North Bridge	0.02		0.02		0.02	0.02

pH



	16-May	17-May	18-May	19-May	20-May	21-May
pH Upper Effluent Limit	9.5	9.5	9.5	9.5	9.5	9.5
Effluent		7.3			7.6	
Dam Centre Sluice	7.0		7.1		7.0	7.2
North Bridge	7.3		7.2		7.2	7.2
pH Lower Effluent Limit	6.0	6.0	6.0	6.0	6.0	6.0

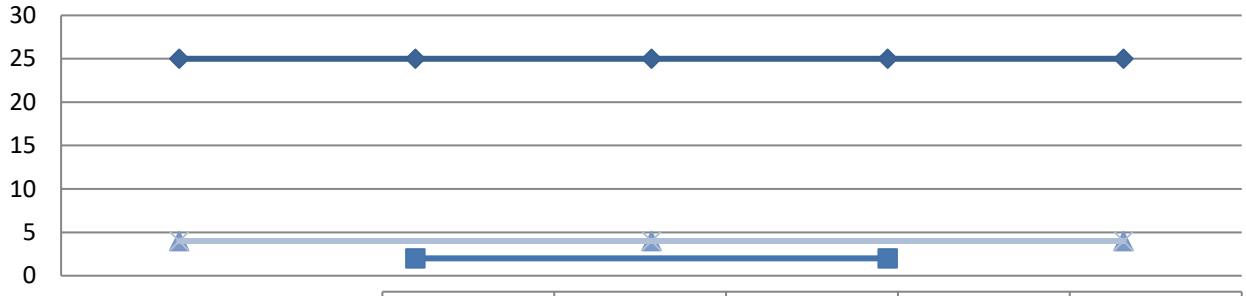
Temperature



	16-May	17-May	18-May	19-May	20-May	21-May
Effluent		15.8			16.9	
Dam Centre Sluice	18.1		17.0		16.1	19.2
North Bridge	18.0		17.9		16.2	18.6

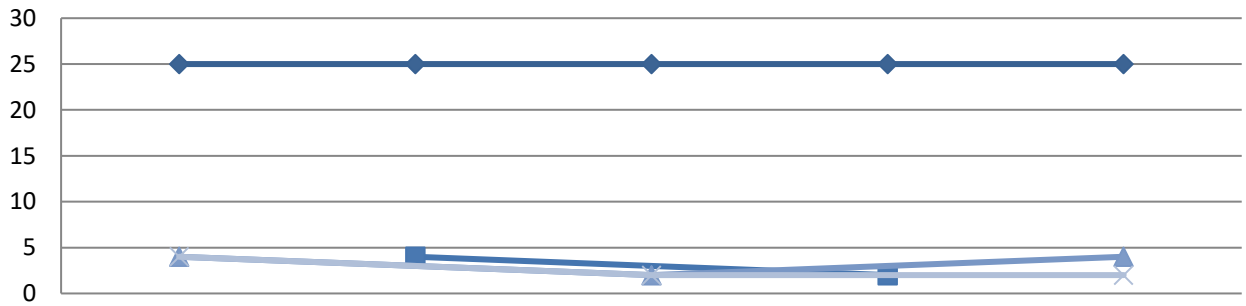
Fall Discharge – November 30 – December 2, 2022

CBOD5



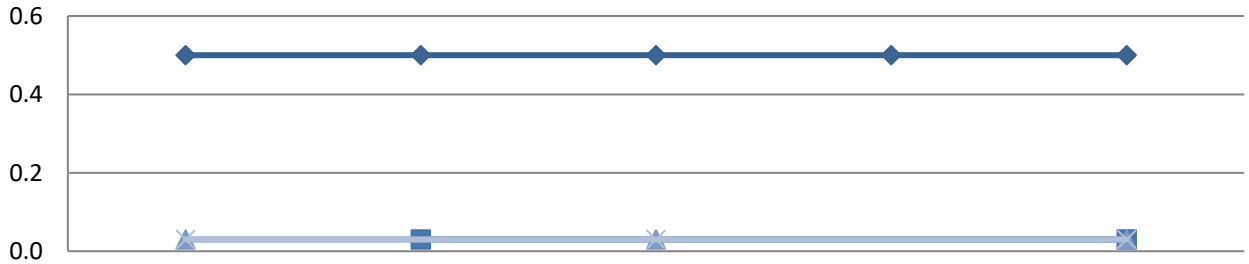
	29-Nov	30-Nov	1-Dec	2-Dec	3-Dec
CBOD5 Effluent Limit mg/L	25	25	25	25	25
Effluent		2		2	
Dam Centre Sluice	4		4		4
North Bridge	4		4		4

Total Suspended Solids



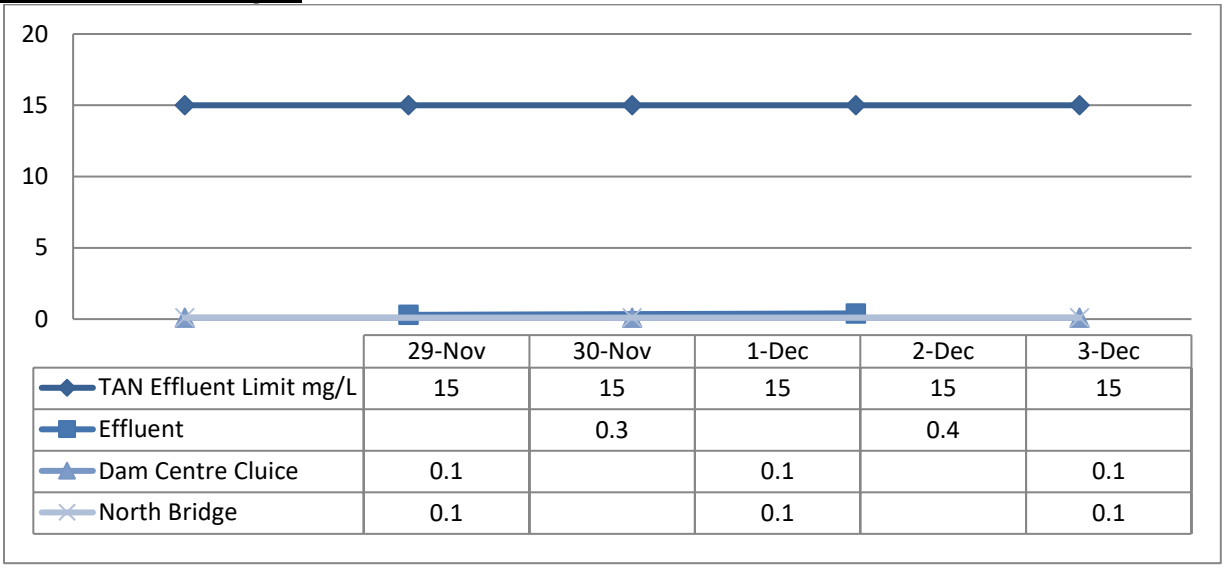
	29-Nov	30-Nov	1-Dec	2-Dec	3-Dec
TSS Effluent Limit mg/L	25	25	25	25	25
Effluent		4		2	
Dam Centre Sluice	4		2		4
North Bridge	4		2		2

Total Phosphorus



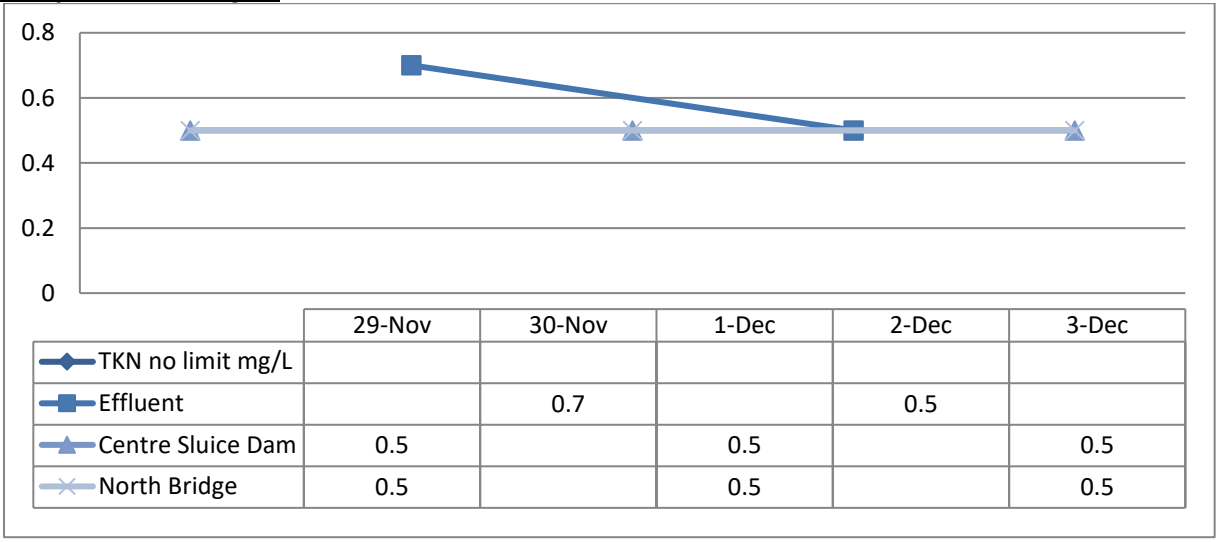
	29-Nov	30-Nov	1-Dec	2-Dec	3-Dec
Total Phosporus Effluent Limit mg/L	0.5	0.5	0.5	0.5	0.5
Effluent		0.03			0.03
Dam Centre Sluice	0.03		0.03		0.03
North Bridge	0.03		0.03		0.03

Total Ammonia Nitrogen



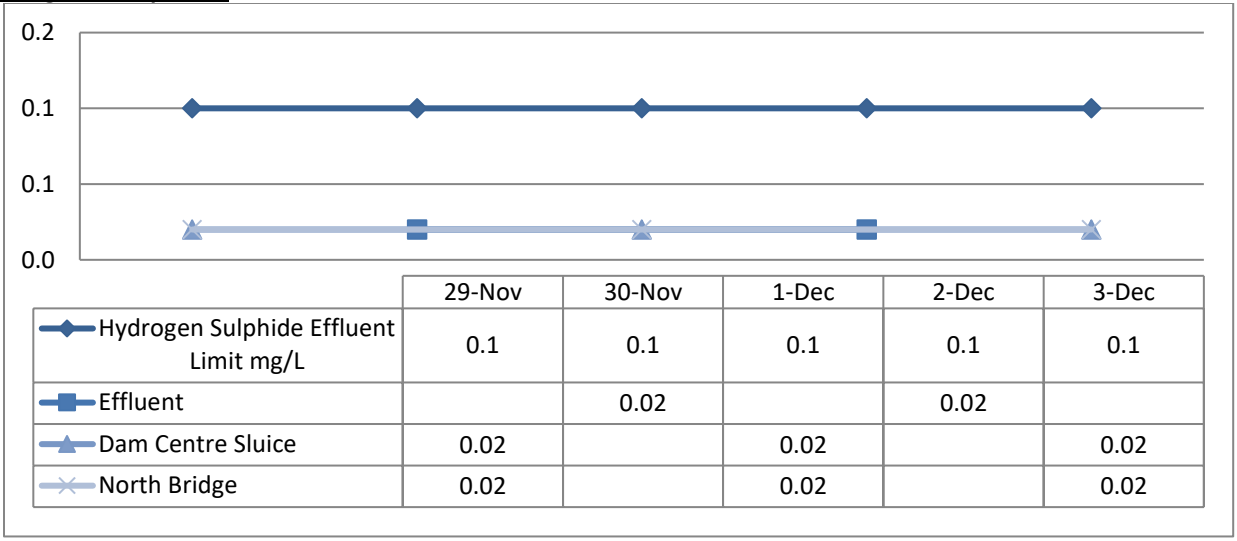
	29-Nov	30-Nov	1-Dec	2-Dec	3-Dec
TAN Effluent Limit mg/L	15	15	15	15	15
Effluent		0.3		0.4	
Dam Centre Cluice	0.1		0.1		0.1
North Bridge	0.1		0.1		0.1

Total Kjeldahl Nitrogen



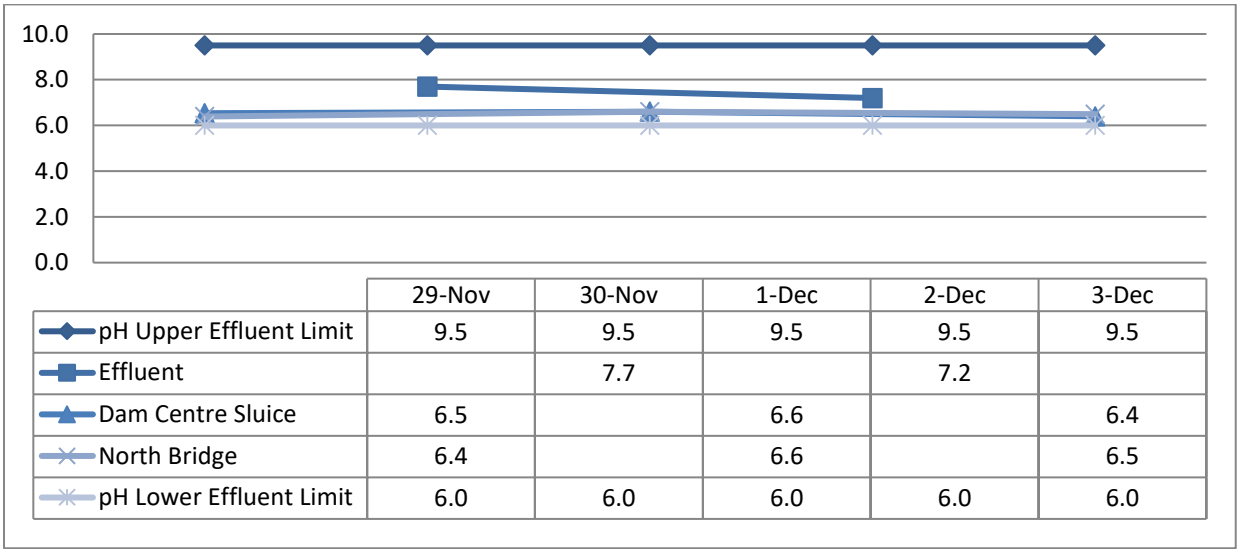
	29-Nov	30-Nov	1-Dec	2-Dec	3-Dec
TKN no limit mg/L					
Effluent		0.7		0.5	
Centre Sluice Dam	0.5		0.5		0.5
North Bridge	0.5		0.5		0.5

Hydrogen Sulphide



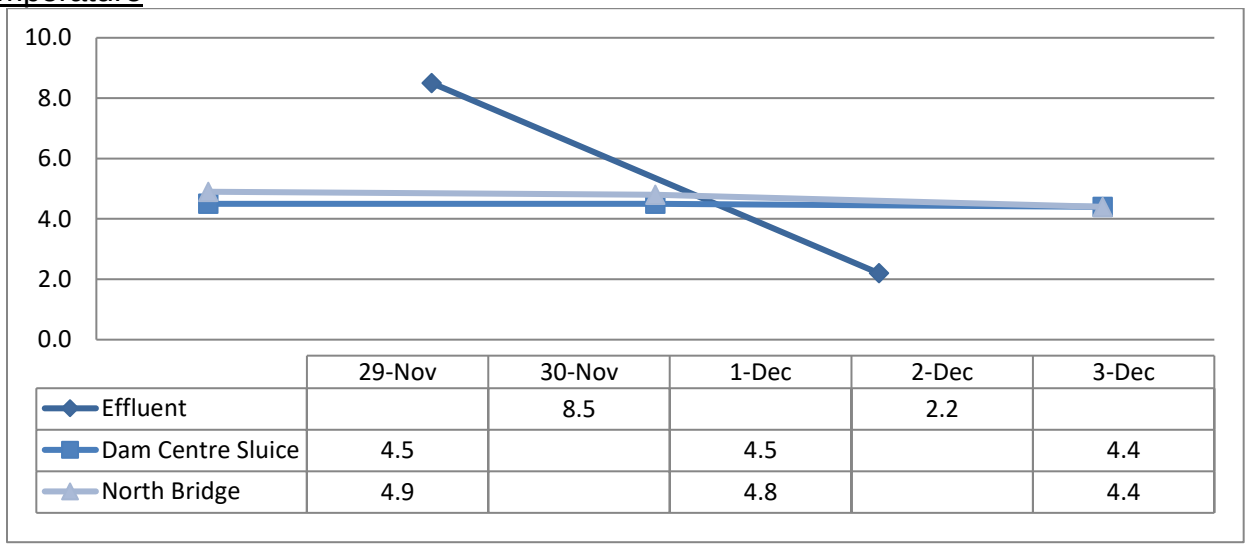
	29-Nov	30-Nov	1-Dec	2-Dec	3-Dec
Hydrogen Sulphide Effluent Limit mg/L	0.1	0.1	0.1	0.1	0.1
Effluent		0.02		0.02	
Dam Centre Sluice	0.02		0.02		0.02
North Bridge	0.02		0.02		0.02

pH



	29-Nov	30-Nov	1-Dec	2-Dec	3-Dec
pH Upper Effluent Limit	9.5	9.5	9.5	9.5	9.5
Effluent		7.7		7.2	
Dam Centre Sluice	6.5		6.6		6.4
North Bridge	6.4		6.6		6.5
pH Lower Effluent Limit	6.0	6.0	6.0	6.0	6.0

Temperature



	29-Nov	30-Nov	1-Dec	2-Dec	3-Dec
Effluent		8.5		2.2	
Dam Centre Sluice	4.5		4.5		4.4
North Bridge	4.9		4.8		4.4

These results suggest that, for the parameters analyzed, the effluent discharges have had little to no impact on the water quality of the Gull River in 2022.

(c) Condition 9 (7) requires the temperature and pH of the effluent be determined in the field at the time of sampling for TAN. The concentration of un-ionized ammonia shall be calculated using the TAN concentration, pH and temperature using the methodology stipulated in “Ontario’s Provincial Water Quality Objective” dated July 1994, as amended, for ammonia (un-ionized). Table 3 provides a tabulation of the Coboconk Sewage Lagoon Effluent Un-ionized Ammonia Results for 2022.

Table 3. Coboconk Lagoon Effluent Un-ionized Ammonia Results for 2022

Date	Total Ammonia Nitrogen (mg/L)	Field Temperature (°C)	Field pH	Unionized Ammonia (mg/L)
Apr 5	5.5	4.9	6.9	0.005
Apr 8	7.8	6.1	7.1	0.014
Apr 10	6.9	6.7	7.5	0.028
Apr 12	6.2	10.3	6.8	0.008
May 17	3.9	15.8	7.3	0.022
May 20	5.2	16.9	7.6	0.066
Nov 30	0.3	8.5	7.7	0.002
Dec 2	0.4	2.2	7.2	0.001

(d) The facility is operated on a semi-annual discharge basis with the effluent discharge commencing no earlier than April 1 or terminating not later than May 31 in spring (Spring Effluent Discharge Period) and not earlier than November 1 or terminating not later than December 31 in the fall (Fall Effluent Discharge Period). Each period is allowed a maximum of 14 days at a discharge flow rate not exceeding 9,245m^3/day. Tables 4 and 5 show the effluent discharges were compliant with the Spring and Fall Effluent Discharge Periods, number of discharge days and the discharge flow rate.

Seasonal Discharge Flows per Discharge Period

Table 4: Spring Effluent Discharge Period April 1 to May 31

Date	Flow Limit m^3/day	Flow (m^3/day)	Compliant Y/N	# Days / Discharge Limit	# of Days of Discharge	Compliant Y/N
Apr 5	9,245	6,072.7	Y	14	12	Y
Apr 6	9,245	8,801.5	Y	14	12	Y
Apr 7	9,245	8,777.3	Y	14	12	Y
Apr 8	9,245	8,701.9	Y	14	12	Y
Apr 9	9,245	8,064.9	Y	14	12	Y
Apr 10	9,245	4,220.0	Y	14	12	Y
Apr 11	9,245	271.4	Y	14	12	Y
Apr 12	9,245	177.5	Y	14	12	Y
May 17	9,245	5,831.8	Y	14	12	Y
May 18	9,245	8,268.7	Y	14	12	Y
May 19	9,245	7,509.0	Y	14	12	Y
May 20	9,245	5,849.6	Y	14	12	Y

Total volume of effluent discharged in the Spring of 2022 was 72,546m^3.

Table 5: Fall Effluent Discharge Period November 1 to December 31

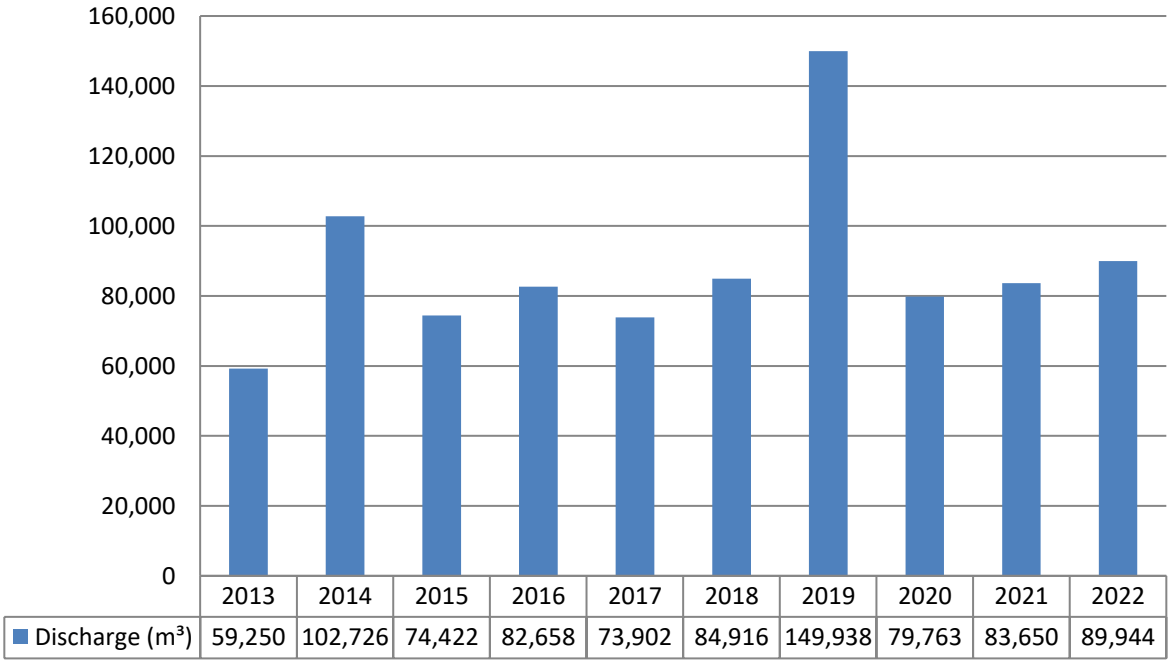
Date	Flow Limit m³/day	Flow (m³/day)	Compliant Y/N	# Days / Discharge Limit	# of Days of Discharge	Compliant Y/N
Nov 30	9,245	4,581.6	Y	14	3	Y
Dec 1	9,245	8,527.7	Y	14	3	Y
Dec 2	9,245	4,288.6	Y	14	3	Y

Total volume of effluent discharged in the Fall of 2022 was 17,398m^3.

The total volume of effluent discharged from the Coboconk Sewage Lagoons is 89,944m^3.

The following chart provides the annual total discharge flow from the Coboconk Sewage Lagoons since 2013.

Annual Total Discharge Flow Comparison



The total discharge effluent flows from the Coboconk Sewage Lagoons have been relatively consistent in recent years however 2019 experienced an increase. Weather conditions have an impact on the amount of effluent discharged each year. Evaporation due to high temperatures and strong winds can lower the volumes while heavy precipitation periods can increase the total effluent discharged.

(e) No Bypasses, Overflows, spills or abnormal discharge events occurred in 2022.

(f) A sludge disposal program took place at the Coboconk Sewage Lagoons from October – November 29, 2012 with all 5,888.8m^3 of sludge being removed from the

south cell and disposed of via field application. No sludge was removed in 2022. Sludge removal is planned to occur in 2023.

(g) An operating problem occurred at the end of the April discharge. Operations planned to stop the discharge on April 10 but one of the valves broke. The discharge was continued at a very low rate until the valve could be repaired on April 12. The discharge was still within the regulated release window and did not adversely impact lagoon operations. Samples were collected of the effluent and the downstream effluent plume monitoring locations to ensure the sampling program requirements were met.

Appendix III (attached) outlines scheduled and corrective maintenance completed throughout 2022.

Table 6 Coboconk Sewage Lagoon Effluent Objectives summarizes the results for the parameters tested.

Table 6: Coboconk Sewage Lagoon – Effluent Objectives – 2022 Discharges

Effluent Parameter	Concentration Objective (mg/L unless otherwise indicated)	Concentration (mg/L)	Objective Met (Y/N)	Waste Loading (kg/d unless otherwise indicated)	Waste Loading (kg/d)	Objective Met (Y/N)
Spring Apr 5 -12						
CBOD5	15.0 (average per discharge)	<4.0	Y	139.0	<22.5	Y
Total Suspended Solids	20.0 (average per discharge)	3.0	Y	185.0	16.9	Y
Total Phosphorus	<0.5 (average per discharge)	<0.03	Y	<4.62	<0.17	Y
Total Ammonia Nitrogen Spring (Apr 1 to May 31)	10.0 (daily limit)	5.5 7.8 6.9 6.2	Y Y Y Y	92.5	33.4 67.9 29.1 1.1	Y Y Y Y
Hydrogen Sulphide	Absent	<0.02 <0.02 <0.02 <0.02	Y Y Y Y	Absent	0.12 0.17 0.08 0.004	See note below
pH	6.5 to 8.5 at all times	6.9 7.1 7.5 6.8	Y Y Y Y	-	-	-

Effluent Parameter	Concentration Objective (mg/L unless otherwise indicated)	Concentration (mg/L)	Objective Met (Y/N)	Waste Loading (kg/d unless otherwise indicated)	Waste Loading (kg/d)	Objective Met (Y/N)
E. Coli	200 organisms/100mL	<2 36 <2 4	Y Y Y Y	-	-	-
Spring May 17 -20						
CBOD5	15.0 (average per discharge)	<2.5	Y	139.0	<17.2	Y
Total Suspended Solids	20.0 (average per discharge)	3.0	Y	185.0	20.6	Y
Total Phosphorus	<0.5 (average per discharge)	<0.03	Y	<4.62	<0.21	Y
Total Ammonia Nitrogen Spring (Apr 1 to May 31)	10.0 (daily limit)	3.9 5.2	Y Y Y Y	92.5	22.7 30.4	Y Y Y Y
Hydrogen Sulphide	Absent	<0.02 <0.02	Y Y	Absent	0.12 0.12	See note below
pH	6.5 to 8.5 at all times	7.3 7.6	Y Y	-	-	-
E. Coli	200 organisms/100mL	4 2	Y Y	-	-	-
Fall Nov 30 – Dec 2						
CBOD5	15.0 (average per discharge)	<2.0	Y	139.0	<11.6	Y
Total Suspended Solids	20.0 (average per discharge)	<3.0	Y	185.0	<17.4	Y
Total Phosphorus	<0.5 (average per discharge)	<0.03	Y	<4.62	<0.17	Y
Total Ammonia Nitrogen Fall	5.0 (daily)	0.3 0.4	Y Y	46.2	1.4 1.7	Y Y Y

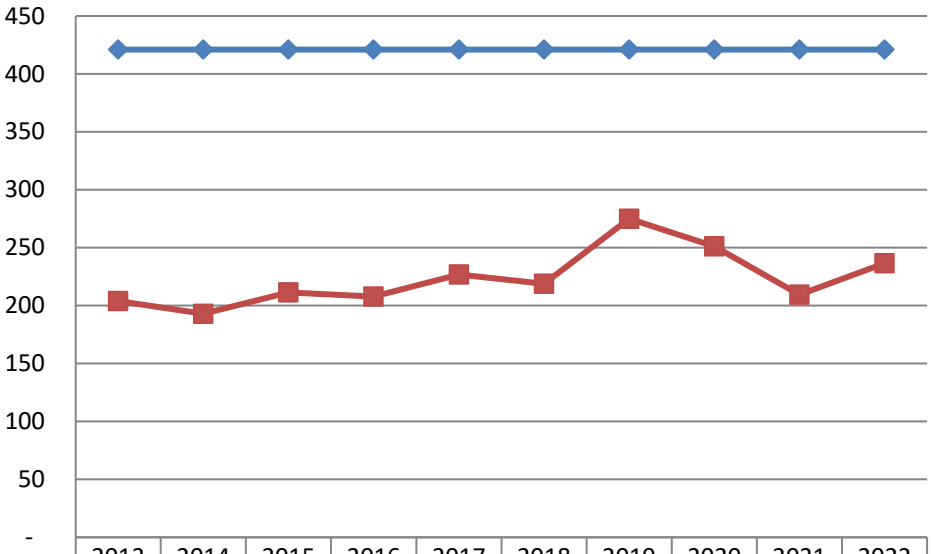
Effluent Parameter	Concentration Objective (mg/L unless otherwise indicated)	Concentration (mg/L)	Objective Met (Y/N)	Waste Loading (kg/d unless otherwise indicated)	Waste Loading (kg/d)	Objective Met (Y/N)
(Nov 1 to Dec 31)						
Hydrogen Sulphide	Absent	<0.02 <0.02	Y Y	Absent	0.09 0.09	See note below
pH	6.5 to 8.5 at all times	7.7 7.2	Y Y	-	-	-
E. Coli	200 organisms/100mL	<2 2	Y Y	-	-	-

Note: For the purpose of calculating loadings for hydrogen sulphide, a value of 0.02mg/L was used; however, a result of < the laboratory's method detection limit is indicative of the possible absence of hydrogen sulphide.

Rated Capacity of 421m^3/day is the Annual Average Daily Flow for which the Coboconk Sewage Lagoons is approved to handle sewage. The Average Daily Flow is determined by the cumulative total sewage flow into the plant during a calendar year, which is then divided by the number of days during which sewage flowed into the plant. The total raw flow for 2022 was 86,318.5m^3 resulting in an average daily flow of 236.49m^3/day. This is an increase from 2021 which had an average daily flow of 209.58m^3/day.

The following graph shows the lagoon has been operating within the Rated Capacity for the past ten years.

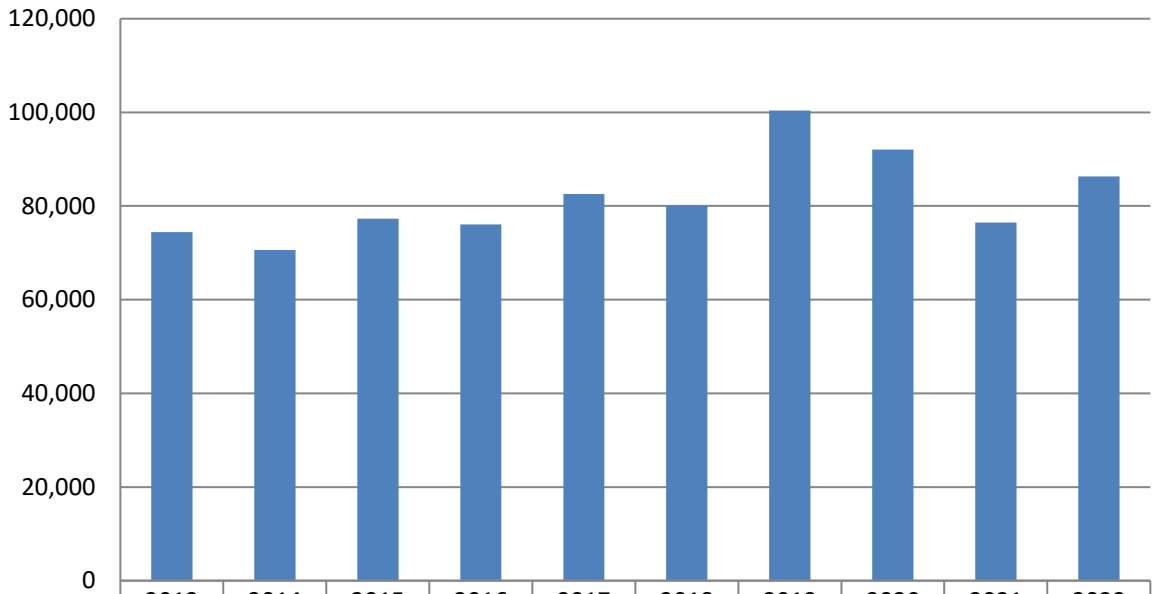
Average Sewage Flow & Rated Capacity Comparison



	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Rated Capacity m³/day	421	421	421	421	421	421	421	421	421	421
Average Sewage Flow (m³/day)	204	193	211	208	227	219	275	251	210	236

Additionally, the following graph depicts total annual sewage flow since 2013 into the Coboconk Sewage Lagoons.

Annual Total Sewage Flow Comparison



	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Raw (m³)	74,395	70,615	77,284	76,039	82,586	80,134	100,379	92,059	76,498	86,319

Effluent quality assurance is maintained in several ways. Laboratory samples are sent to accredited laboratory (SGS Lakefield) for analysis of all effluent parameters. Sampling calendars issued to the operator denote frequency of sampling and these calendars are submitted to the Process Compliance Technician at the end of each month. Raw, effluent and effluent plume monitoring samples are collected as per the ECA and the results are reviewed on a regular basis to ensure compliance with the site's objectives and limits.

Work orders are scheduled through our asset maintenance management system to ensure preventative and corrective maintenance is completed and recorded by operations staff. A summary is attached as Appendix III. Flow meters are calibrated annually and the 2022 calibration report is provided in Appendix IV.

OCWA conducts internal audits of facilities and develops Action Plans to ensure deficiencies are identified and corrected. OCWA has developed comprehensive manuals detailing operations, maintenance, instrumentation and emergency procedures. To ensure facilities are operated in compliance with applicable legal requirements, facility staff has access to a network of compliance and support professionals at the hub, region and corporate level.

Continuous phosphorus removal is achieved with the dosing of aluminum sulphate. A summary of its use and dosing rates for 2022 is provided in Table 7.

Table 7: Coagulant Use and Dosing 2022

Month	Aluminum Sulphate (kg)	Aluminum Sulphate Average Dosage (mg/L)
January	836.4	141.0
February	708.7	122.1
March	1131.9	116.9
April	1141.7	110.4
May	873.5	116.5
June	1094.3	116.1
July	791.9	131.6
August	796.7	126.1
September	750.1	128.4
October	619.7	109.7
November	587.8	117.1
December	1016.5	121.4

Some of the continuous efforts made to meet the Effluent Objectives are as follows:

Efforts Made to Meet the Effluent Objectives of Condition 6

1. Sampling effluent and raw as per the ECA.
2. Routine inspection of the lagoons for berm stability, odours, and condition of cell contents.
3. Ensuring that aluminum sulphate is being dosed.
4. Calibration of the pH meter before use.
5. Performing preventative maintenance activities in accordance with work order schedules.
6. Monitoring treatment processes through review of lab results.
7. Annual calibration of flow meters.
8. Monitoring sludge depth.

(h) A Site Inspection Report was developed by the City and put into use in 2018. Inspections are completed by operations staff and forwarded to the City. These reports are reviewed during the routine meetings held between the City and OCWA. A summary of complaints received by the operating authority is provided in the following table.

Table 8: Summary of Community Complaints

Date	Issue	Actions Taken
March 10	Odour	Operator completed site inspection on March 11 and no odour was detected. Information was provided to owner.

(i) No Notices of Modifications were submitted to the Water Supervisor in 2022.

(j) A summary of all modifications completed as a result of Schedule B, Section 3 are included in Appendix III: Maintenance Summary.

(k) The Water Supervisor has not requested any additional information be included in this report.