Killaloe Wastewater System

Waterworks #110001532

Annual Report

Prepared For: The Township of Killaloe, Hagarty and Richards

Reporting Period of January 1st – December 31st 2022

Issued: March 10th, 2023

Revision: 0

Operating Authority:

OCWA

ONTARIO CLEAN WATER AGENCY
AGENCE ONTARIENNE DES EAUX

This report has been prepared as a general summary of results and events as the Certificate of Approval governing this facility does not require an annual report to be prepared, or define effluent objectives and limits. It is there by operated based solely on provincial guidelines. This report has been prepared to meet the requirements set out in the collection system ECA listed below.

Document	Document #	Issue Date	Issue Number
Facility ECA	1-575-78-005	1978-08-22	N/A
ECA for Municipal Sewage Collection System	259-W601	2022-03-03	1

Table of Contents

1 Revision History

Date	Rev#	Revisions	Revised By
2023-03-09	0	Annual Report Issued	Kaylee Saar, OCWA

2 Operations and Compliance Reliability Indices

Compliance Event	Details
Ministry of Environment Inspections	0
Ministry of Labour Inspections	0
Non-Compliance	0
Community Complaints	0
Spills	0
Overflows	0
Bypass	0
Sewer main blockages	0

3 Process Description

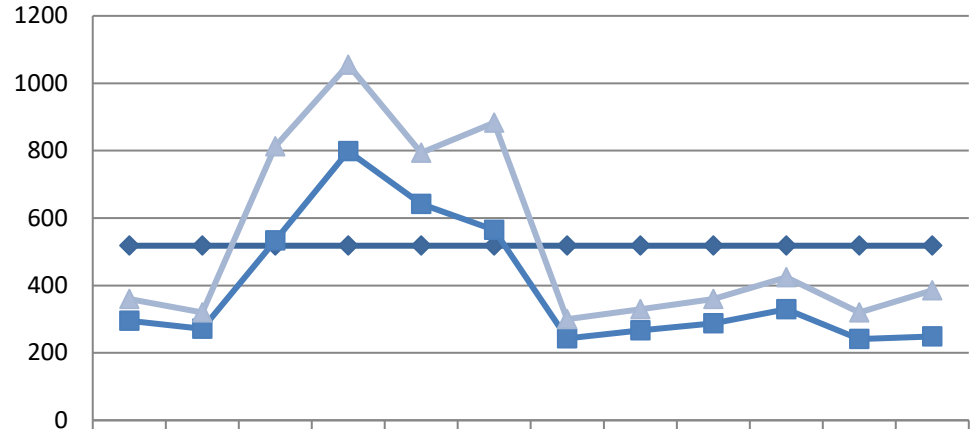
The Killaloe Wastewater Treatment System consists of a sewage treatment plant and one sewage pumping station. Wastewater from the Village of Killaloe is collected at the Henry Street pumping station and is then pumped to the Class II Wastewater Treatment Facility located at 113 Keetch Street. Upon entering the facility, the incoming wastewater receives preliminary treatment by passing through two grit removal channels equipped with proportional weirs, an emergency by-pass bar screen and a three inch Parshall Flume for measuring the influent flow.

Primary and secondary treatment is achieved through the Extended Aeration Process consisting of a comminutor, a clarifier with the chemical addition of PAS-8 for phosphorus removal, an aeration chamber with fine bubble aeration, and an aerated sludge holding tank/digester. The activated sludge which settles to the bottom of the clarifier is either returned to the head of the aeration tank or is diverted to the digester. Bio-solids are aerobically digested, stored on site and later land applied under the Nutrient Management Act. The treated effluent overflows the clarifier weirs and is collected and sent to the chorine contact chamber. Disinfection is achieved in the contact chamber with the addition of sodium hypochlorite prior to being de-chlorinated by calcium thiosulfate in the 12 inch diameter outfall sewer before discharging into Brennan's Creek and ultimately Golden Lake.

4 Treatment Flows

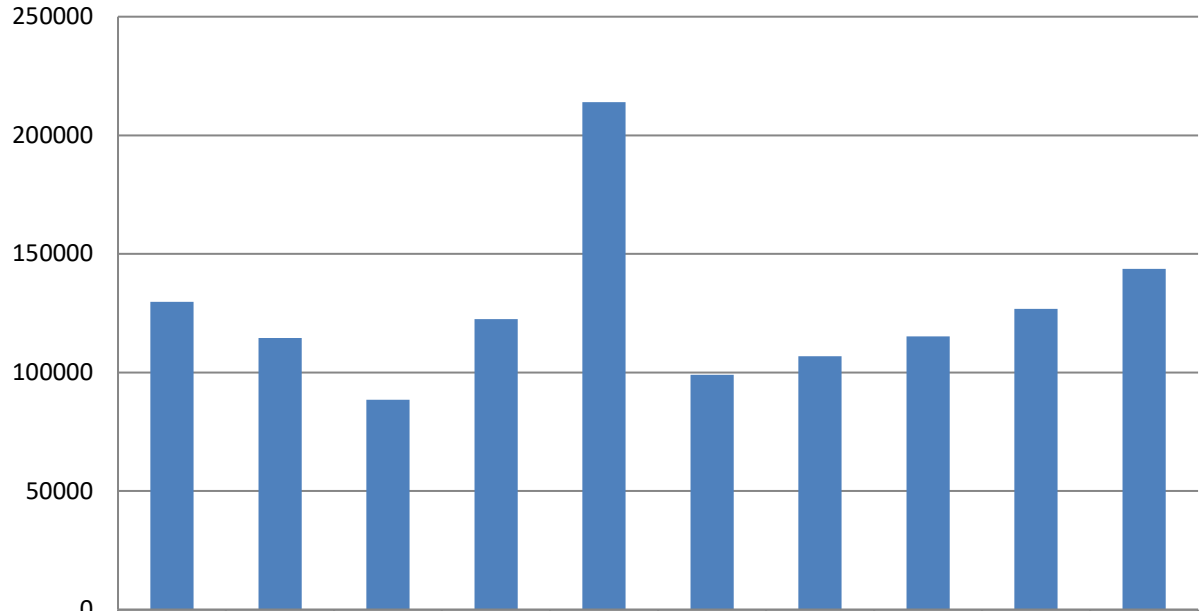
The annual average daily flow for 2022 was 393 m^3/d, which represents 75% of the facility's 518 m^3/d rated capacity.

4.1 Raw Flow (m^3/d)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Limit	518	518	518	518	518	518	518	518	518	518	518	518
Average Daily Flow (m3/d)	296	271	533	798	641	565	243	267	288	329	241	249
Maximum Daily Flow (m3\d)	360	320	813	1,055	794	883	300	329	360	424	320	385

4.1.1 *Annual Effluent Flow Comparison (m^3)*

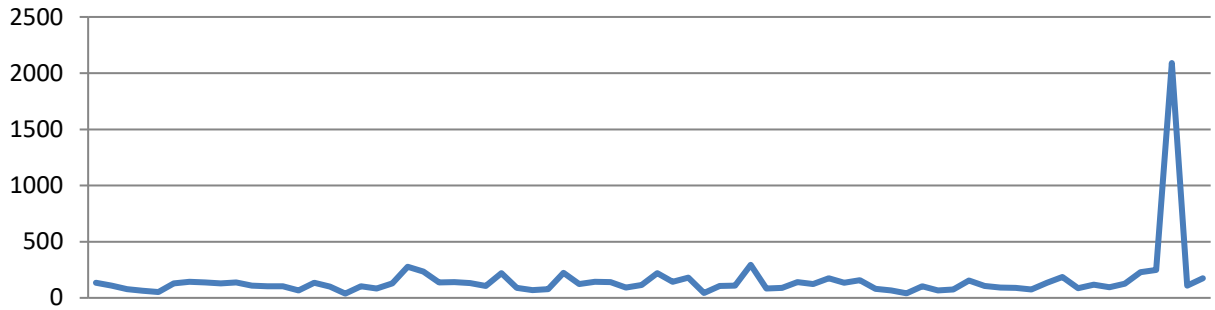


	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Total Annual Flow	129853	114491	88454	122448	213981	99094	106910	115255	126870	143679

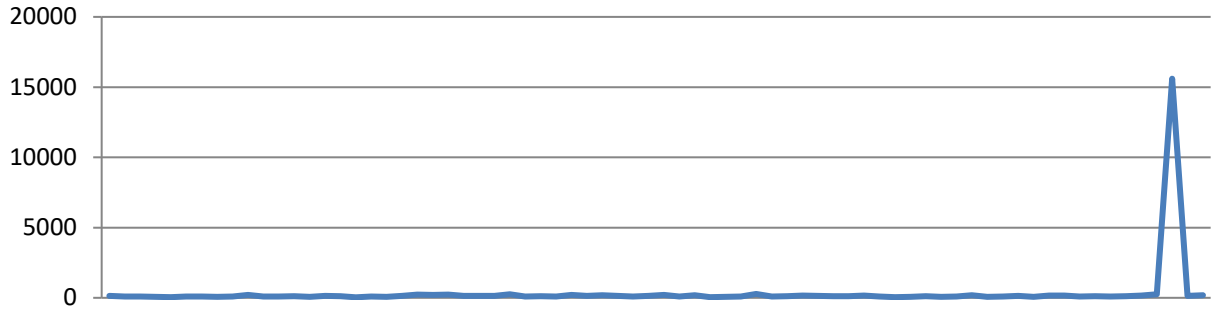
5 Raw Sewage Quality

5 Year Average Trends for Raw Sewage Quality are graphed below:

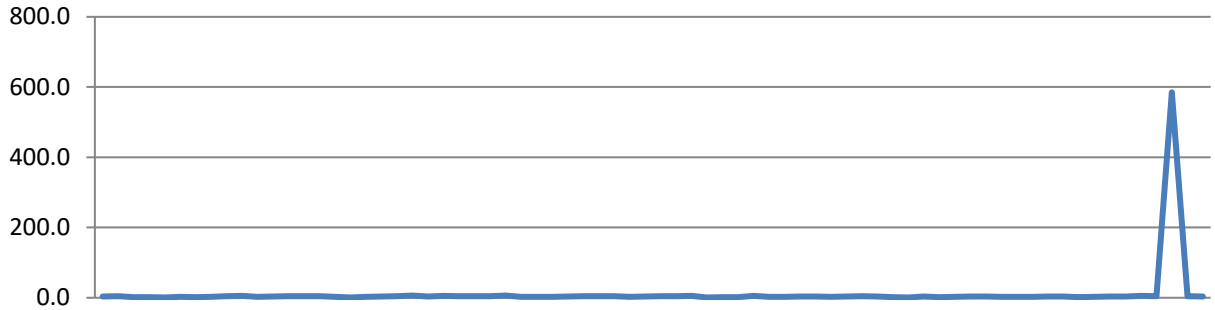
BOD5



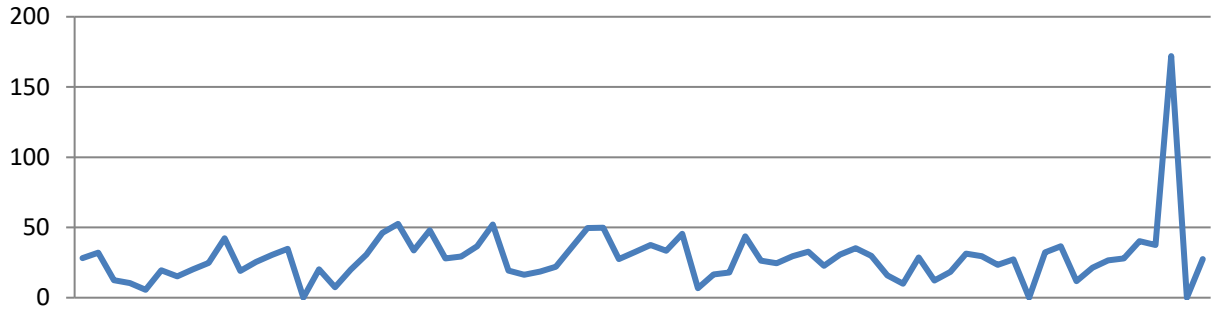
Total Suspended Solids



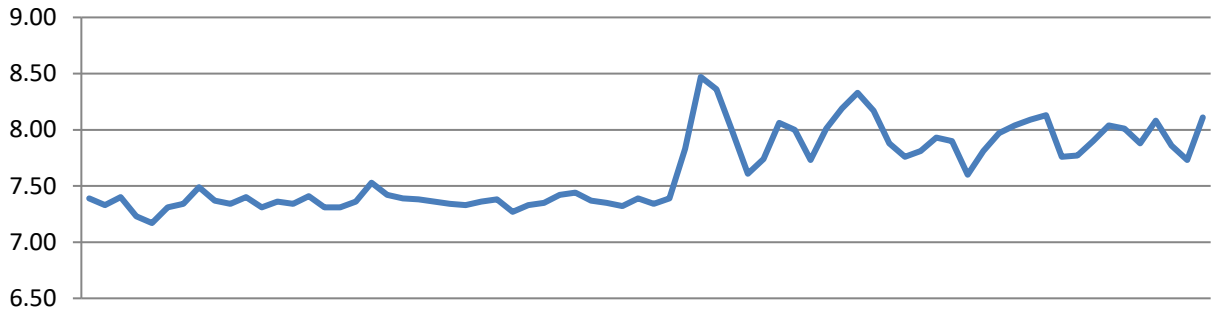
Total Phosphorus



Total Ammonia Nitrogen



pH



6 Effluent Quality

There are no effluent objectives or limits defined in the Certificate of Approval for this facility. This facility operates to ensure current provincial guidelines are not exceeded. However, there were five instances when the Ministry's F-Guideline Monthly Geometric Mean Density of 200 CFU/100 mL for E.Coli was exceeded in February, April, August, September and November in 2022. See the Operating Issues/Problems section of this report for further details.

The Federal Government also regulates the effluent flow, and the monthly average CBOD5 and total suspended solids in the effluent under the Federal Fisheries Act. The results are submitted to Environment and Climate Change Canada's effluent regulatory reporting information system, under wastewater systems effluent regulations (WSER) on a quarterly basis.

Effluent results from the Killaloe wastewater treatment facility for 2022 are tabulated on pages 7-10 of this report.

6.1 Effluent Quality Assurance and Control Measures Taken

This system is part of OCWA's Madawaska Cluster. The cluster is supported by the Eastern Regional Hub, and corporate resources. Operational Services are delivered by OCWA staff that live and work in the community. The systems are operated to meet compliance with applicable regulations. The system has comprehensive manuals detailing operations, maintenance, instrumentation, and emergency procedures. All procedures are treated as active documents and are updated as required. These documents are also part of OCWA's Quality & Environmental Management System.

The process is reviewed and maintained by certified operators. These operator's complete in-house rounds and testing to monitor the process. All Sampling and analysis follow approved methods and protocols for sampling, analysis and recording as specified in the Ministry's Procedure F-10-1, "Procedures for Sampling and Analysis Requirements for Municipal and Private Sewage Treatment Works", the Ministry's publication, "Protocol for the Sampling and Analysis of Industrial/Municipal Wastewater" and the publication, "Standard Methods for the Examination of Water and Wastewater".

All final effluent samples collected during the reporting period to meet legislated sampling requirements are submitted to SGS Lakefield Research Ltd. laboratory in Lakefield, Ontario for analysis, with the exception of disinfection residuals and temperature. SGS Lakefield Research Ltd. has been deemed accredited by the Canadian Association for Laboratory Accreditation (CALA), meeting strict provincial guidelines including an extensive quality assurance/quality control program. By choosing this

laboratory, the Ontario Clean Water Agency is ensuring appropriate control measures are undertaken during sample analysis. The disinfection residuals and temperature parameters are analyzed in the field at the time of sample collection by certified operators, to ensure accuracy and precision of the results obtained.

OCWA uses several computer systems which include:

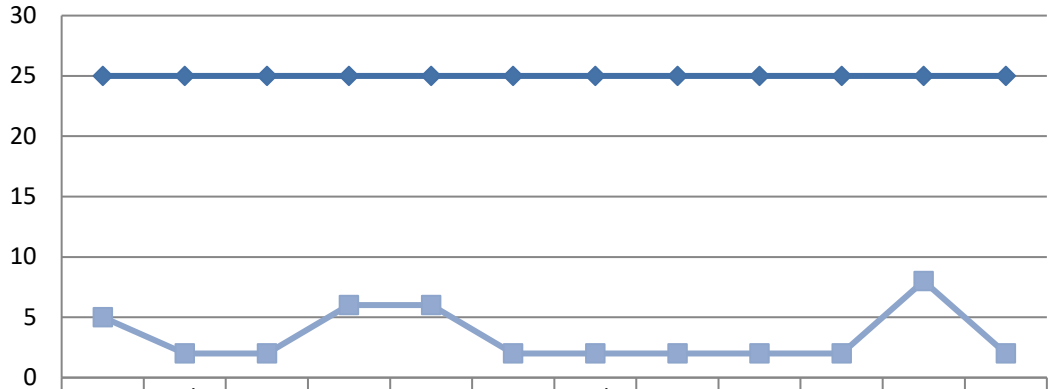
- Process Data Management (PDM)
  - This database program consolidates all operational data from a variety of sources including field data, online instrumentation, and electronic receipt of lab test results for reporting, tracking and analysis.
- Maximo – OCWA's Work Management System (WMS)
  - This program is used to track and schedule maintenance activities for all equipment in the system. It is also used to assign tasks for specific operational tasks.
- Wonderware (OUTPOST5)/SCADA
  - Wide-area SCADA system allows for process optimization and data logging, process trending, remote alarming.

The operations team also has access to a network of operational compliance and process specialists to assist for emerging process issues. This aids in establishing additional control measures to ensure a quality effluent product.

Detailed individual sample results for both raw sewage and final effluent can be requested from the operating authority.

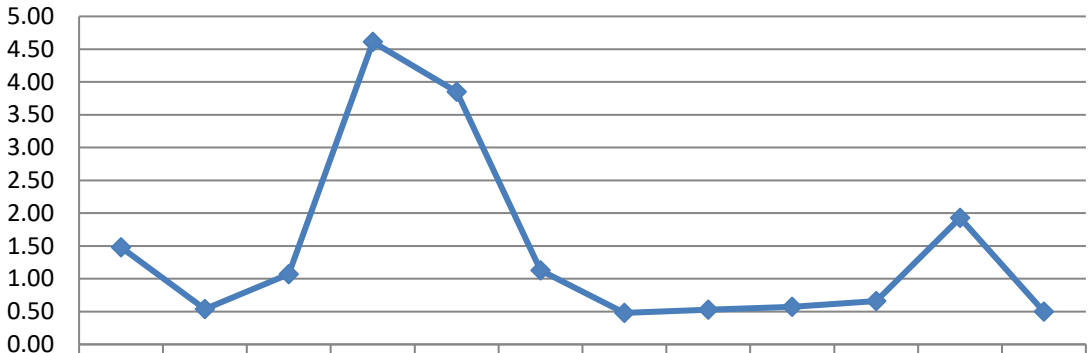
6.2 CBOD5

6.2.1 Concentration (mg/L)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Guideline (mg/L)	25	25	25	25	25	25	25	25	25	25	25	25
Average (mg/L)	5	2	2	6	6	2	2	2	2	2	8	2

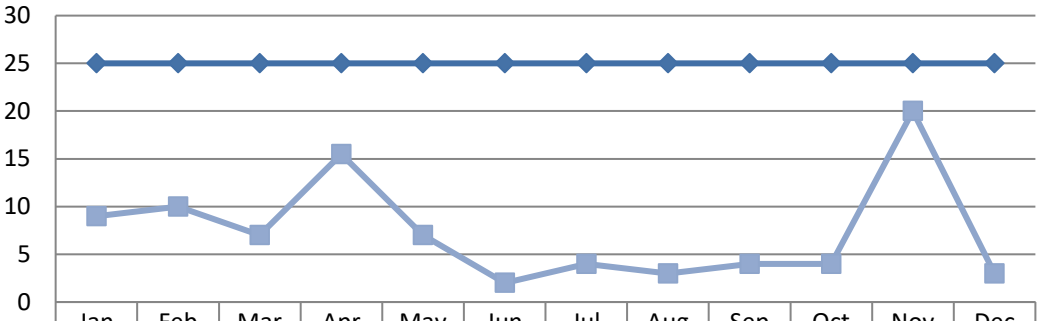
6.2.2 Loading (kg/d)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Average (kg/d)	1.48	0.54	1.07	4.61	3.85	1.13	0.48	0.53	0.57	0.66	1.93	0.50

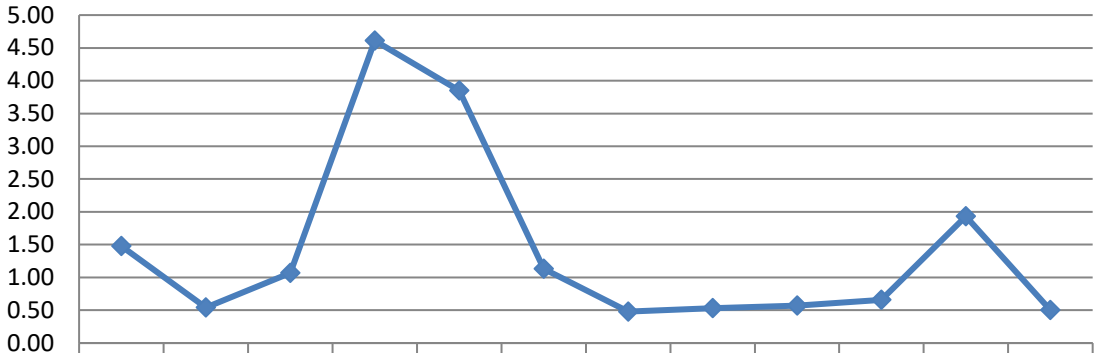
6.3 Total Suspended Solids

6.3.1 Concentration (mg/L)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Guideline (mg/L)	25	25	25	25	25	25	25	25	25	25	25	25
Average (mg/L)	9	10	7	16	7	2	4	3	4	4	20	3

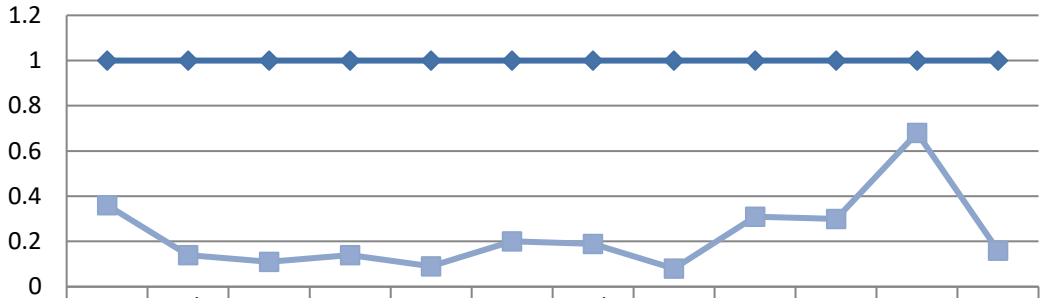
6.3.2 Loading (kg/d)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Average (kg/d)	1.48	0.54	1.07	4.61	3.85	1.13	0.48	0.53	0.57	0.66	1.93	0.50

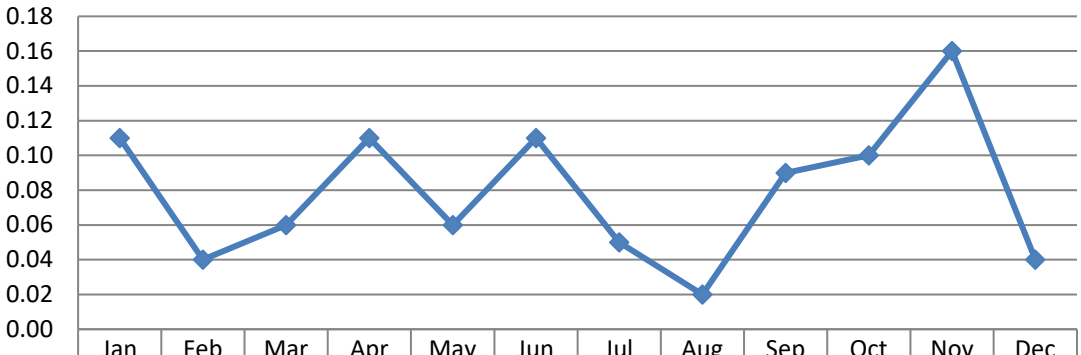
6.4 Total Phosphorus

6.4.1 Concentration (mg/L)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Guideline (mg/L)	1	1	1	1	1	1	1	1	1	1	1	1
Average (mg/L)	0.4	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.3	0.3	0.7	0.2

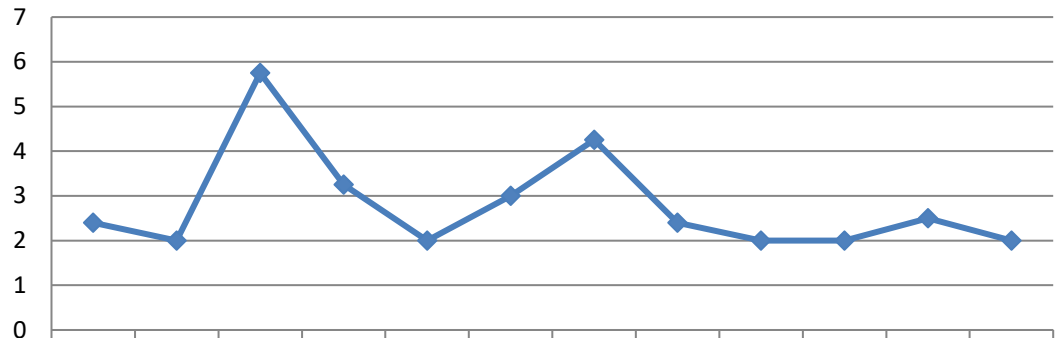
6.4.2 Loading (kg/d)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Average (kg/d)	0.11	0.04	0.06	0.11	0.06	0.11	0.05	0.02	0.09	0.10	0.16	0.04

6.5 Total Ammonia Nitrogen

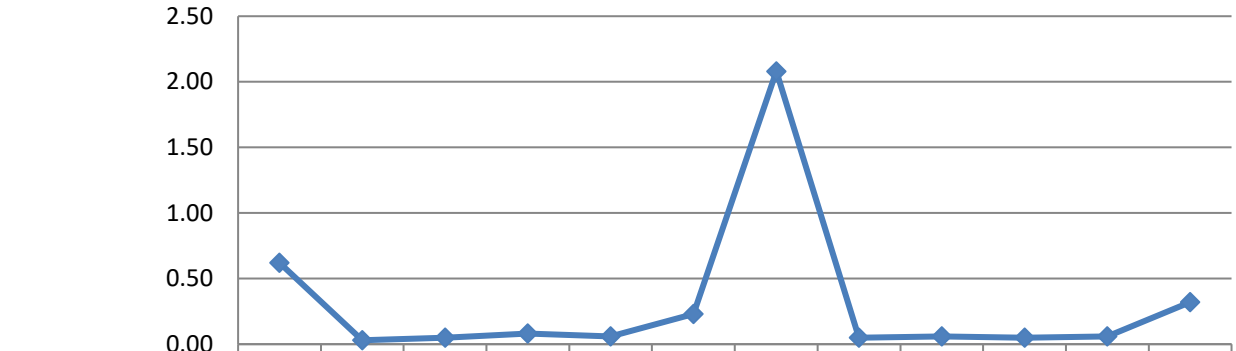
6.5.1 Concentration (mg/L)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Average (mg/L)	2	2	6	3	2	3	4	2	2	2	3	2

Note: There is no guideline limit on Total Ammonia Nitrogen

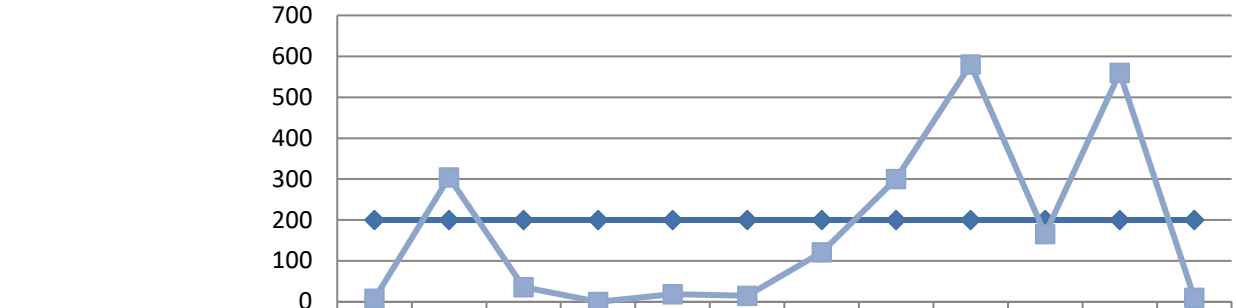
6.5.2 *Loading (kg/d)*



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Average (kg/d)	0.62	0.03	0.05	0.08	0.06	0.23	2.08	0.05	0.06	0.05	0.06	0.32

6.6 E-coli

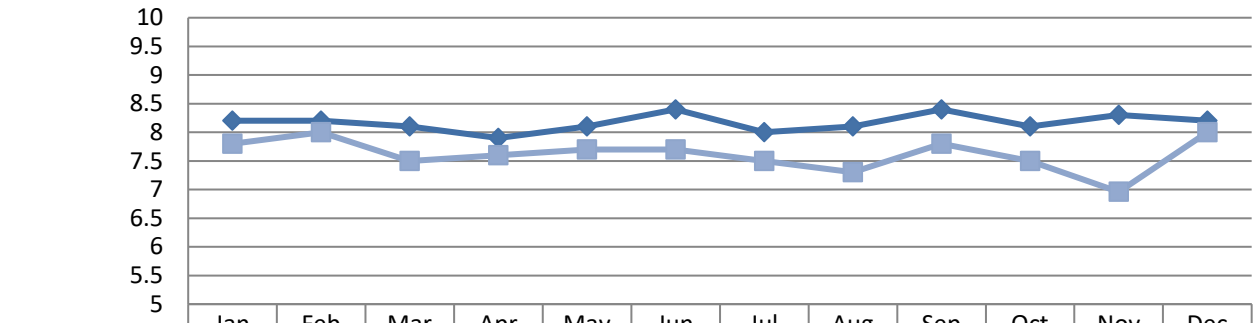
6.6.1 *Geometric Mean (CFU/100mL)*



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Guideline (CFU/100 mL)	200	200	200	200	200	200	200	200	200	200	200	200
Average (CFU/100 mL)	8	304	36	0	19	15	121	300	580	166	560	10

Note: The samples collected April 12th and 20th 2022 were NDOGEC - No Data: Overgrown with E.coli, since there is no quantified number the monthly average is reflected as 0 CFU/100 mL

6.7 pH



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Maximum	8.2	8.2	8.1	7.9	8.1	8.4	8	8.1	8.4	8.1	8.3	8.2
Minimum	7.8	8	7.5	7.6	7.7	7.7	7.5	7.3	7.8	7.5	6.96	8

7 Monitoring Schedule

7.1 Deviations

Date	Details	Cause of Deviation
There were no deviations from the 2022 Sample Schedule.		

8 Operating Issues/Problems

The Killaloe WPCP operated well during 2022, though there were several final effluent samples collected that lead to five exceedances of the Ministry's *E.Coli* monthly geometric mean density (GMD) guideline of 200 CFU/100 mL. Since the Killaloe WPCP Certificate of Approval does not have defined effluent limits, the GMD guideline exceedance is considered a non-conformance and is not reportable to the Ministry. Actions taken for the guideline exceedances are detailed below in section 8.1.

It should also be noted that the average daily flow for 2022 was 393 m^3/d, which represents 75% of the facility's 518 m^3/d rated capacity. The trend of increased flow from 2022 will be monitored in 2023.

8.1 Effluent Quality Non-Compliance Summary

The Killaloe WPCP Certificate of Approval does not have defined effluent limits, any provincial guideline parameter exceedance is considered a guideline non-conformance and is not reportable to the Ministry.

Date	Exceedance of	Limit	Value	Corrective Action
February 2022	Ministry's Guideline: F-5 Levels of Treatment for Municipal and Private Sewage Treatment Works Discharging to Surface Waters	E.Coli monthly geometric mean density (GMD) guideline of 200 CFU/100 mL	304 CFU/100 mL	Chlorine feed rate was lowered to match lowered average daily flow, adjustment did match bacterial load
April 2022	Ministry's Guideline: F-5 Levels of Treatment for Municipal and Private Sewage Treatment Works Discharging to Surface Waters	E.Coli monthly geometric mean density (GMD) guideline of 200 CFU/100 mL	NDOGEC	Cleaned grit channel, Increased chlorine feed rate to accommodate high flows, increased PAS-8 to promote sludge settling and increased wasting rate
August 2022	Ministry's Guideline: F-5 Levels of Treatment for Municipal and Private Sewage Treatment Works Discharging to Surface Waters	E.Coli monthly geometric mean density (GMD) guideline of 200 CFU/100 mL	300 CFU/100 mL	Suspected elevated bacterial load from delayed sludge hauling

Date	Exceedance of	Limit	Value	Corrective Action
September 2022	Ministry's Guideline: F-5 Levels of Treatment for Municipal and Private Sewage Treatment Works Discharging to Surface Waters	E.Coli monthly geometric mean density (GMD) guideline of 200 CFU/100 mL	580 CFU/100 mL	Increased chlorine reed rate, sludge hauled from storage tank allowed for additional wasting from clarifier
November 2022	Ministry's Guideline: F-5 Levels of Treatment for Municipal and Private Sewage Treatment Works Discharging to Surface Waters	E.Coli monthly geometric mean density (GMD) guideline of 200 CFU/100 mL	560CFU/100 mL	Chlorine contact chamber was cleaned, sludge hauled from storage tank allowed for additional wasting from clarifier

8.2 Summary of Abnormal Sewage Discharge Events

Abnormal Discharge Events include Bypass', Overflows, Diversions and Spills of Sewage.
Summary Details are included in Appendix C.

8.3 Spills (Other than Sewage)

Date	Location	Details	Volume (m3)	Start Date and Time	End Date and Time
There were no spill events reported during the reporting period.					

9 Maintenance

Routine planned maintenance activities are scheduled in WMS and include:

- Inspect, adjust and calibrate process control equipment to ensure proper operation of pumps, chemical feeders, and all other equipment installed at the facilities.
- Carry out a routine maintenance program including greasing and oiling as specified in the lubrication schedule.
- Perform day-to-day maintenance duties to equipment including checking machinery and electrical equipment when required.
- Maintain an equipment inventory
- Maintain accurate records of work conducted, activities, and achievements.

Planned maintenance activities are communicated to the person responsible for completing the task through the issuance of WMS work orders. Work orders are automatically generated on a schedule as determined based on manufacturer's recommendations and site specific operational and maintenance needs and are assigned directly to the appropriate operations personnel. This schedule is set up by the designated WMS Primary. Work orders are completed and electronically entered into WMS by the person responsible for completing the task. Unplanned maintenance is conducted as required.

9.1 Normal Maintenance and Repairs

Work Order	Details
3017136	Purchased replacement UPS for sewage pumping station
3016921	Replace raw flow meter housing, and build insulated box for unit
2964173	Building's interior lighting checked and repaired as needed
2921617	HydroVac excavation to locate the under ground sewer lateral at Elm Street residence sewer service

9.2 Emergency Maintenance and Repairs

Work Order	Details
2636241	Phosphorus removal chemical (PAS-8) dosing line had froze, thawed line and found heat trace was damaged. Repaird heat trace.
3068255	600 Volt power feed wire that supplies Henry Street Sewage pumping station damaged and required repairs. Certified technicians from Welk Electric supplied and installed approved weather proof splicing.

9.3 Flow Meter Calibrations and Maintenance

Location	Date of Calibration	Additional Maintenance
Influent Flow Meter	June 22, 2022	N/A
Effluent Flow Meter	No effluent flow meter	N/A
Collection System Flow Meter	No collection system flow meter	N/A

9.4 Authorized Alterations in Collection

Work Order	Details	Significant Drinking Water Threat (Y/N)
There were no authorized alterations made to the collection system during the reporting period.		

9.5 Notice of Modifications

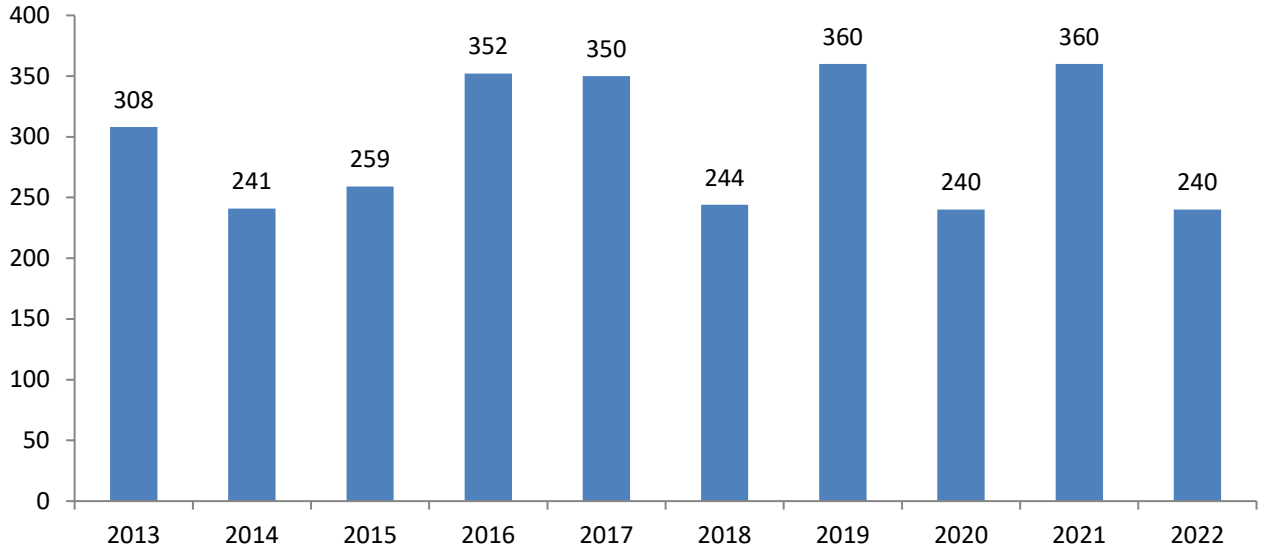
Date	Process	Modification	Status
There were no modifications made to the treatment facility/collection system during the reporting period.			

10 Sludge Generation

10.1 Sludge Disposal Summary

Date	Disposal Location	Approval Number	Total Volume (m^3)
June 2, 2022	GFL Storage Facility	ECA# S-3708-42	120
September 20, 2022	GFL Storage Facility	ECA# S-3708-42	40
November 25, 2022	GFL Storage Facility	ECA# S-3708-42	40
December 1, 2022	GFL Storage Facility	ECA# S-3708-42	40
Total Annual Volume (m^3)			240

10.2 Annual Comparison (m^3/year)



It is anticipated that sludge volumes will remain similar to the 2022 volumes.

11 Summary of Complaints

Location	Date	Nature of Complaint	Actions Taken
There were no complaints reported during the reporting period.			

Appendix A

Appendix A - Biosolids Quality Report

Ontario Clean Water Agency
Biosolids Quality Report - Liquid
Digestor Type: AEROBIC
Solids and Nutrients

Facility: KILLALOE WASTEWATER TREATMENT FACILITY
Works: 5539
Period: 01/01/2022 to 12/01/2022

Facility Works Number: *1.10001532E8*
Facility Name: *KILLALOE WASTEWATER TREATMENT FACILITY*
Facility Owner: *Municipality: Township of Killaloe, Hagarty & Richards*
Facility Classification: *Class 2 Wastewater Treatment*
Receiver: *Brennan Creek*
Service Population:
Total Design Capacity: *597.0 m3/day*
Period Being Reported: 01/01/2022 12/01/2022

Note: all parameters in this report will be derived from the Bslq Station

Month	Total Sludge Hauled (m3)	Avg. Total Solids (mg/L)	Avg. Volatile Solids (mg/L)	Avg. Total Phosphorus (mg/L)	Ammonia (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)	TKN (mg/L)	Ammonia + Nitrate (mg/L)	Potassium (mg/L)
Site	**KILLALOE WASTEWATER TREATMENT FACILITY**									
Station	**Bslq Station only**									
Parameter Short Name	**HauledVol**	**TS**	**VS**	**TP**	**NH3p_NH4p_N**	**NO3-N**	**NO2-N**	**TKN**	**calculation in report - no T/S**	**K**
T/s	**IH Month.Total**	**Lab Published Month Mean**	**Lab Published Month Mean**	**Lab Published Month Mean**	**Lab Published Month Mean**	**Lab Published Month Mean**	**Lab Published Month Mean**	**Lab Published Month Mean**		**Lab Published Month Mean**
Jan		22,200.000	17,500.000	630.000	26.100	0.300	0.200	1,220.000	13.200	150.000
Feb		23,000.000	18,100.000	400.000	11.300	0.300	0.600	1,550.000	5.800	120.000
Mar		22,600.000	18,000.000	770.000	16.400	0.300	0.300	1,500.000	8.350	190.000
Apr		25,500.000	20,500.000	650.000	11.500	0.300	2.900	1,500.000	5.900	160.000
May		27,700.000	22,200.000	750.000	23.200	0.300	0.200	1,670.000	11.750	170.000
Jun	120.000	16,400.000	9,300.000	270.000	40.600	0.300	0.400	671.000	20.450	64.000
Jul		28,300.000	22,300.000	860.000	71.200	0.300	0.200	1,790.000	35.750	200.000
Aug		22,500.000	16,900.000	700.000	225.000	0.300	0.400	1,390.000	112.650	170.000
Sep	40.000	19,300.000	14,100.000	670.000	382.000	0.300	0.200	1,540.000	191.150	170.000
Oct		1,890.000	1,040.000	7.000	43.800	0.300	0.200	88.000	22.050	17.000
Nov	40.000	22,500.000	17,300.000	550.000	38.000	0.300	0.300	1,260.000	19.150	130.000
Dec	40.000	20,300.000	15,400.000	570.000	31.000	1.700	1.200	1,140.000	16.350	130.000
Average	60.000	21,015.833	16,053.333	568.917	76.675	0.417	0.592	1,276.583	38.546	139.250
Total	240.000	252,190.000	192,640.000	6,827.000	920.100	5.000	7.100	15,319.000	462.550	1,671.000

Ontario Clean Water Agency
Biosolids Quality Report - Liquid
Digestor Type: AEROBIC
Metals and Criteria

Facility: KILLALOE WASTEWATER TREATMENT FACILITY
Works: 5539
Period: 01/01/2022 to 12/01/2022

Note: all parameters in this report will be derived from the Bslq Station

Month	Arsenic (mg/L)	Cadmium (mg/L)	Cobalt (mg/L)	Chromium (mg/L)	Copper (mg/L)	Mercury (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Lead (mg/L)	Selenium (mg/L)	Zinc (mg/L)
Site	**KILLALOE WASTEWATER TREATMENT FACILITY**										
Station	**Bslq Station only**										
Parameter Short Name	**As**	**Cd**	**Co**	**Cr**	**Cu**	**Hg**	**Mo**	**Ni**	**Pb**	**Se**	**Zn**
T/s	**Lab Published Month Mean**	**Lab Published Month Mean**	**Lab Published Month Mean**	**Lab Published Month Mean**	**Lab Published Month Mean**	**Lab Published Month Mean**	**Lab Published Month Mean**	**Lab Published Month Mean**	**Lab Published Month Mean**	**Lab Published Month Mean**	**Lab Published Month Mean**
Jan	0.100	0.015	0.040	0.240	27.000	0.007	0.100	0.310	0.300	0.100	12.000
Feb	0.100	0.005	0.020	0.150	1.900	0.003	0.060	0.120	0.100	0.100	3.000
Mar	0.100	0.015	0.040	0.240	26.000	0.006	0.120	0.300	0.300	0.100	12.000
Apr	0.100	0.018	0.040	0.260	29.000	0.006	0.110	0.350	0.300	0.100	13.000
May	0.100	0.021	0.040	0.270	28.000	0.007	0.110	0.360	0.300	0.100	13.000
Jun	0.100	0.007	0.020	0.110	13.000	0.002	0.050	0.170	0.100	0.100	6.000
Jul	0.100	0.022	0.050	0.300	32.000	0.006	0.160	0.410	0.300	0.100	15.000
Aug	0.100	0.022	0.050	0.300	33.000	0.007	0.130	0.400	0.300	0.100	16.000
Sep	0.100	0.017	0.040	0.250	27.000	0.007	0.130	0.310	0.300	0.100	13.000
Oct	0.100	0.005	0.010	0.010	0.300	0.001	0.050	0.040	0.100	0.100	1.000
Nov	0.100	0.019	0.040	0.230	26.000	0.007	0.090	0.290	0.300	0.100	12.000
Dec	0.100	0.013	0.040	0.190	24.000	0.005	0.110	0.260	0.300	0.100	12.000
Average	0.100	0.015	0.036	0.213	22.267	0.005	0.102	0.277	0.250	0.100	10.667
Max. Permissible Metal Concentrations (mg/kg of	170.000	34.000	340.000	2,800.000	1,700.000	11.000	94.000	420.000	1,100.000	34.000	4,200.000
Metal Concentrations in Sludge (mg/kg)	4.758	0.710	1.705	10.111	1,059.519	0.254	4.838	13.165	11.896	4.758	507.554

Ontario Clean Water Agency
Biosolids Quality Report - Liquid - Based on Last 4 Samples
Digestor Type: AEROBIC

Facility: KILLALOE WASTEWATER TREATMENT FACILITY
Works: 5539
Period: 01/01/2022 to 12/01/2022

Note: all parameters in this report will be derived from the Bslq Station

Parameter Short Name	Time Series	09/13/2022	10/12/2022	11/08/2022	12/06/2022	Average	Metal Concentrations in Sludge (mg/kg):	Max. Permissible Metal Concentrations (mg/kg of Solids):
As (mg/L)	Lab Published	0.100	0.100	0.100	0.100	0.100	6.251	170
Cd (mg/L)	Lab Published	0.017	0.005	0.019	0.013	0.013	0.813	34
Co (mg/L)	Lab Published	0.040	0.010	0.040	0.040	0.032	2.000	340
Cr (mg/L)	Lab Published	0.250	0.010	0.230	0.190	0.170	10.627	2800
Cu (mg/L)	Lab Published	27.000	0.300	26.000	24.000	19.325	1,208.001	1700
Hg (mg/L)	Lab Published	0.007	0.001	0.007	0.005	0.005	0.313	11
Mo (mg/L)	Lab Published	0.130	0.050	0.090	0.110	0.095	5.938	94
Ni (mg/L)	Lab Published	0.310	0.040	0.290	0.260	0.225	14.065	420
Pb (mg/L)	Lab Published	0.300	0.100	0.300	0.300	0.250	15.627	1100
Se (mg/L)	Lab Published	0.100	0.100	0.100	0.100	0.100	6.251	34
Zn (mg/L)	Lab Published	13.000	1.000	12.000	12.000	9.500	593.843	4200
E. Coli: Dry Wt (cfu/g)	Lab Published	21,244.000	1,058,201.000	377,778.000	527,094.000	258,661.802	E.Coli average is the GMD	
TS (mg/L)	Lab Published	19,300.000	1,890.000	22,500.000	20,300.000	15,997.500		
VS (mg/L)	Lab Published	14,100.000	1,040.000	17,300.000	15,400.000	11,960.000		
TP (mg/L)	Lab Published	670.000	7.000	550.000	570.000	449.250		
NO2-N (mg/L)	Lab Published	0.200	0.200	0.300	1.200	0.475		
TKN (mg/L)	Lab Published	1,540.000	88.000	1,260.000	1,140.000	1,007.000		
K (mg/L)	Lab Published	170.000	17.000	130.000	130.000	111.750		
NH3p_NH4p_N (mg/L)	Lab Published	382.000	43.800	38.000	31.000	123.700		
NO3-N (mg/L)	Lab Published	0.300	0.300	0.300	1.700	0.650		

Appendix B

Appendix B - Details of Abnormal Sewage Discharge Events

Event Details Summary

Facility Bypass

Date	Location	Details	Volume (m3)	Start Time	End Time	Duration (h)	Discharge Receiver	Disinfection Provided
There were no bypass events reported during the reporting period.								

Facility Overflow

Date	Location	Details	Volume (m3)	Start Time	End Time	Duration (h)	Discharge Receiver	Disinfection Provided
There were no overflow events reported during the reporting period.								

Collection Overflow

There are no authorized overflow locations in this system.

Spills of Sewage

Date	Location	Details	Volume (m3)	Start Time	End Time	Duration (h)	Discharge Receiver	Disinfection Provided
There were no Spill events reported during the reporting period.								

Collection System Monitoring Data

Event Date	Event Location	Volume (m3)	Parameter	mg/L	Source Loading	Any Adverse Impacts & Corrective Actions
There were no overflow or spill of sewage events in the Collection System reported during the reporting period.			BOD			
			Total Suspended Solids			
			Total Phosphorus			
			Total Kjeldahl Nitrogen (TKN)			
			E.Coli			

Appendix C

Appendix C - ECA Annual Report Requirements

Facility ECA #1-575-78-005	Section in Report
The Certificate of Approval governing this facility does not require an annual report to be prepared, or define effluent objectives and limits.	N/A
Collection ECA #259-W601 Schedule E	
4.6.3 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.	Operating Issues and Problems
4.6.4 Includes a summary of any operating problems encountered and corrective actions taken.	Operating Issues and Problems
4.6.5 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.	Maintenance
4.6.6 Includes a summary of any complaints related to the Sewage Works received during the reporting period and any steps taken to address the complaints.	Summary of Complaints
4.6.7 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.	Maintenance
4.6.8 Includes a summary of all Collection System Overflow(s) and Spill(s) of Sewage, including: a) Dates; b) Volumes and durations; c) If applicable, loadings for total suspended solids, BOD, total phosphorus, and total Kjeldahl nitrogen, and sampling results for E.coli; d) Disinfection, if any; and e) Any adverse impact(s) and any corrective actions, if applicable.	Operating Issues and Problems Appendix C
4.6.9 Includes a summary of efforts made to reduce Collection System Overflows, Spills, STP Overflows, and/or STP Bypasses, including the following items, as applicable: a) 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. b) Details of the establishment and maintenance of a PPCP, including a summary of project progresses compared to the PPCP's timelines. c) An assessment of the effectiveness of each action taken. d) 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. e) Public reporting approach including proactive efforts.	Maintenance Operating Issues and Problems