Barry's Bay Wastewater System

Waterworks #110001854

Annual Report

Prepared For: The Township of Madawaska Valley

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 to meet the requirements set out in:

Document	Document #	Issue Date	Issue Number
Facility ECA	2702-7TKNBE	2009-08-31	N/A
ECA for Municipal Sewage Collection System	193-W601	2022-12-22	1

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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	3 - see Operating Issues/Problems for details
Community Complaints	5 - see Summary of Complaints for details
Spills	0
Overflows	0
Bypass	0
Sewer main blockages	0

3 Process Description

The Barry's Bay sewage collection system is a gravity fed collection system consisting of separated sewers and three pumping stations discharging to the wastewater treatment facility. The Barry's Bay wastewater treatment plant is a Class III treatment facility. The incoming wastewater receives primary treatment consisting of fine screen with screw auger and grinder. Secondary treatment is achieved through two sequencing batch reactors (SBR) equipped with a fixed decanter using the ISAM™ (Integrated Surge Anoxic Mix) system. Sludge is wasted to the ISAM™ tank while mixed liquor is returned to the SAM™ tank. One equalization tank (effluent tank) connected to both SBRs, provides equalization storage prior to filtration.

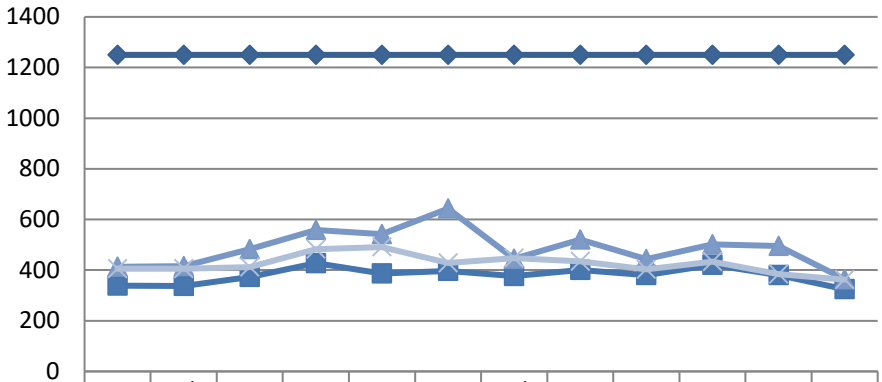
PAS-8 (Polyaluminum sulfate) is used for phosphorus removal and is dosed in two locations within the process, at the SBR and pre-filtration. Soda ash is used for alkalinity control and is dosed in two locations within the process, at the inlet headworks and the SAM™ tank. Two UV banks provide disinfection, capable of peak flow rate of 4400 m^3/day. Effluent is discharged to Kamaniskeg Lake. Activated sludge which has been removed from the SBR's is pumped into a 100 m^3 two-celled aerobic sludge digester. Activated sludge that is stabilized (or digested) is sent to a 350 m^3 storage tank. Supernatant from the biosolids holding tank is returned to head of plant. Sludge is hauled offsite for land application.

4 Treatment Flows

The annual average daily flow for 2022 was 379 m^3/d, which represents 30% of the facility's 1250 m^3/d rated capacity.

4.1 Raw Flow (m^3/d)

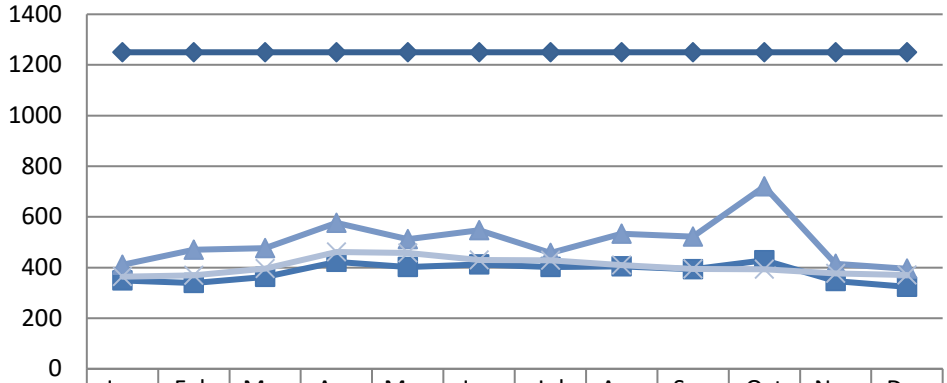
4.1.1 2022 Raw Flow



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Limit	1250	1250	1250	1250	1250	1250	1250	1250	1250	1250	1250	1250
Avg Daily Flow (m3/d)	338	337	373	428	386	397	376	400	381	421	380	325
Max Daily Flow (m3/d)	413	416	483	558	542	643	445	520	443	501	495	364
5 year avg. (m3/d)	406	406	412	482	491	429	447	435	403	433	384	362

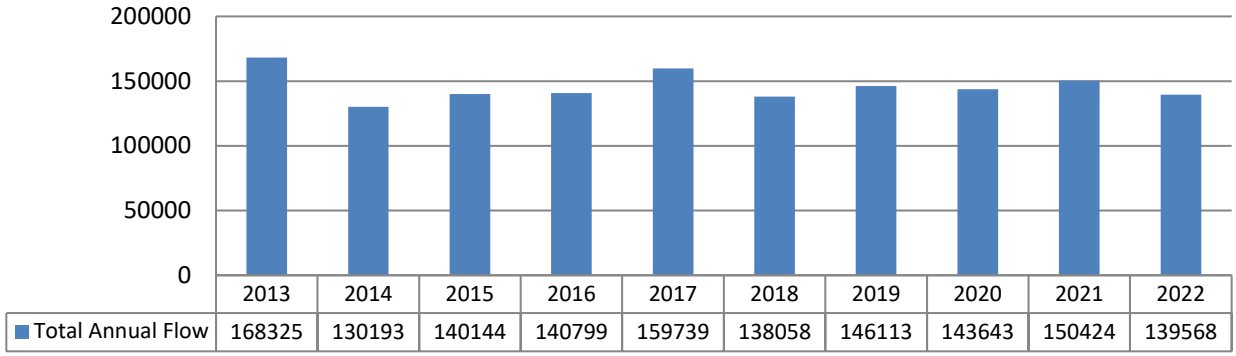
4.2 Effluent Flow (m^3/d)

4.2.1 2022 Effluent Flow



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Limit	1250	1250	1250	1250	1250	1250	1250	1250	1250	1250	1250	1250
Avg Daily Flow (m3/d)	349	339	363	423	402	412	401	404	393	429	347	324
Max Daily Flow (m3/d)	411	470	477	576	512	547	458	533	522	720	414	395
5 year avg. (m3/d)	364	369	395	461	457	430	428	409	395	393	377	370

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



	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Total Annual Flow	168325	130193	140144	140799	159739	138058	146113	143643	150424	139568

4.3 Imported Sewage

4.3.1 *Leachate Flow (m3/d)*

There was no leachate accepted at this facility in 2022.

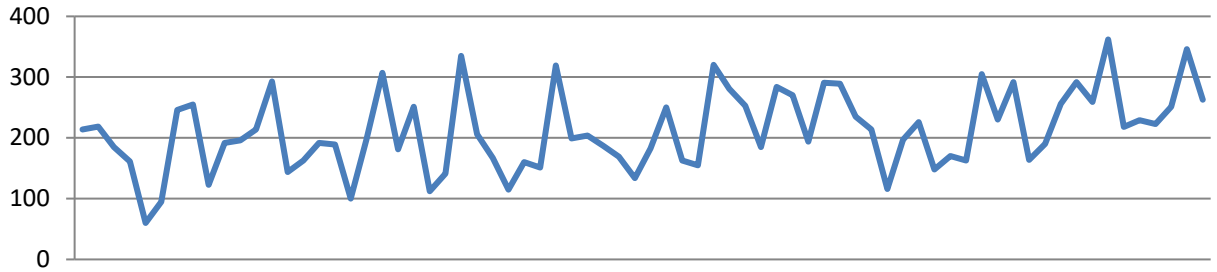
4.3.2 *Septage Flow (m3/d)*

There was no septage accepted at this facility in 2022.

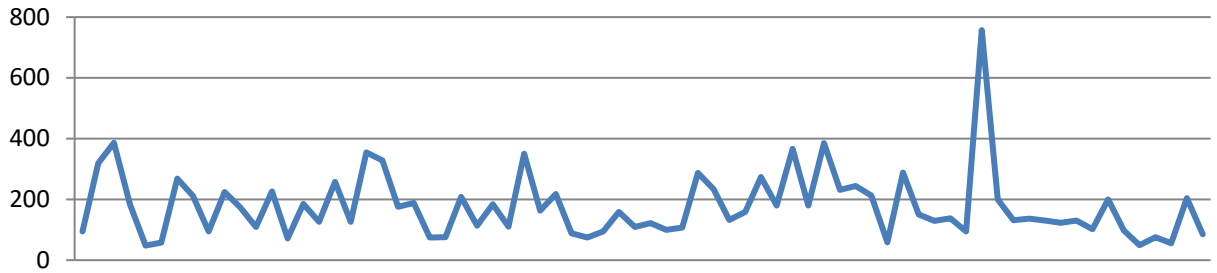
5 Raw Sewage Quality

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

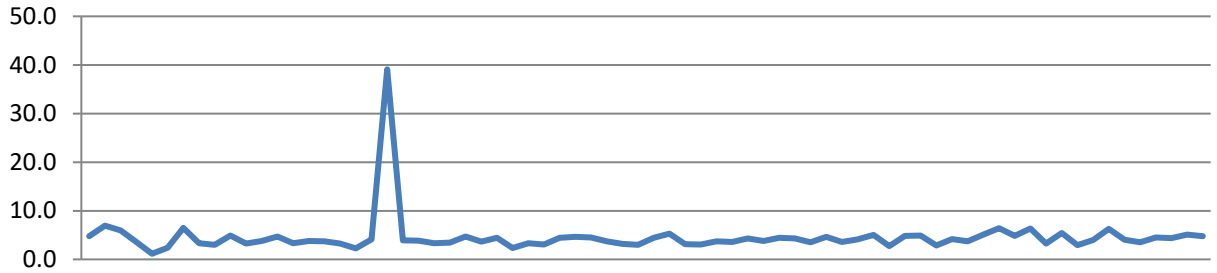
5.1 BOD5



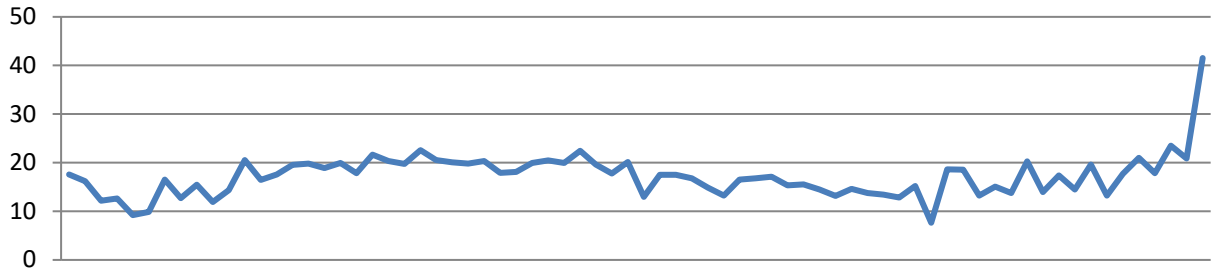
5.2 Total Suspended Solids



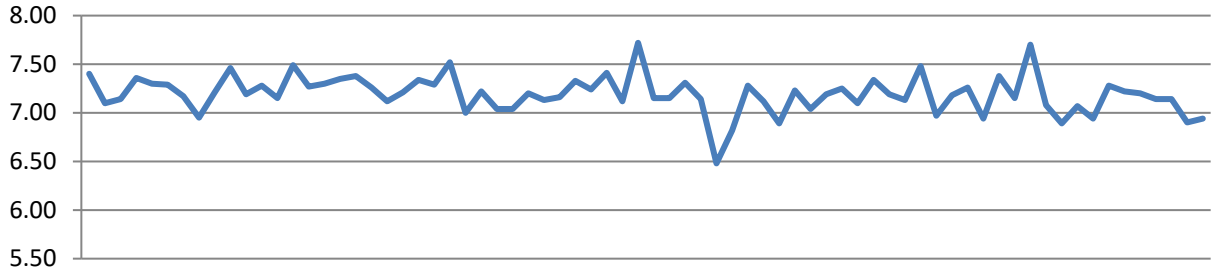
5.3 Total Phosphorus



5.4 Total Ammonia Nitrogen



5.5 pH



6 Effluent Quality

In 2022, the monthly average concentrations of the carbonaceous biochemical oxygen demand ($CBOD_5$) remained below the effluent objectives and limits outlined in the facility's ECA throughout the year. In addition, the effluent pH remained within the limits and objectives. However, the monthly average concentrations of the total suspended solids (TSS) exceeded the facility's ECA objective twice, and the ECA limit once. The monthly average concentrations of the total ammonia nitrogen (TAN) exceeded the facility's ECA objective in ten times in 2022. The monthly average concentrations of the total phosphorus (TP) exceeded the facility's ECA objective nine times, met the ECA limit twice, and exceeded the ECA limit once. The geometric mean density of *E. Coli* in the effluent exceeded the ECA objective and ECA Limit once. See the Operating Issues/Problems section of this report for further details.

The Federal Government also regulates the effluent flow, and the monthly average $CBOD_5$ 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 Cobden wastewater treatment facility for 2022 are tabulated on pages 7-11 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.

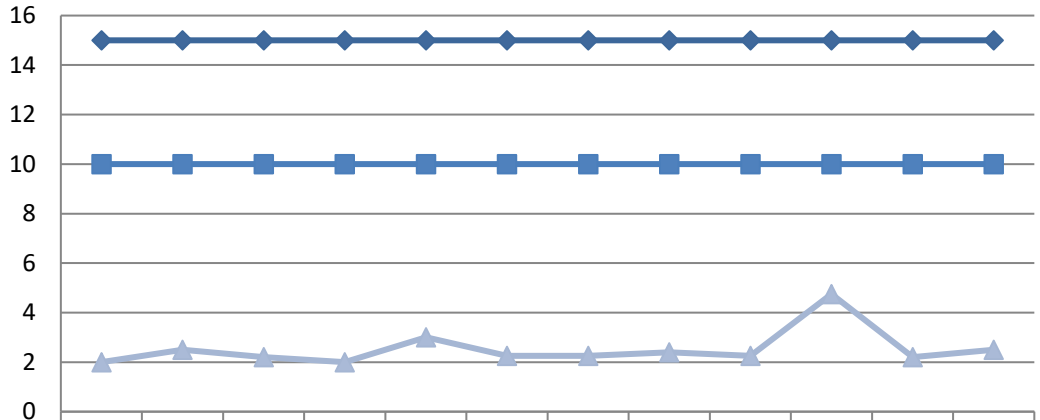
The operations team also has access to a network of operational compliance and process specialists to assist for emerging process issues. This aids in establishing additional control measures to ensure a quality effluent product.

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

6.2 CBOD5

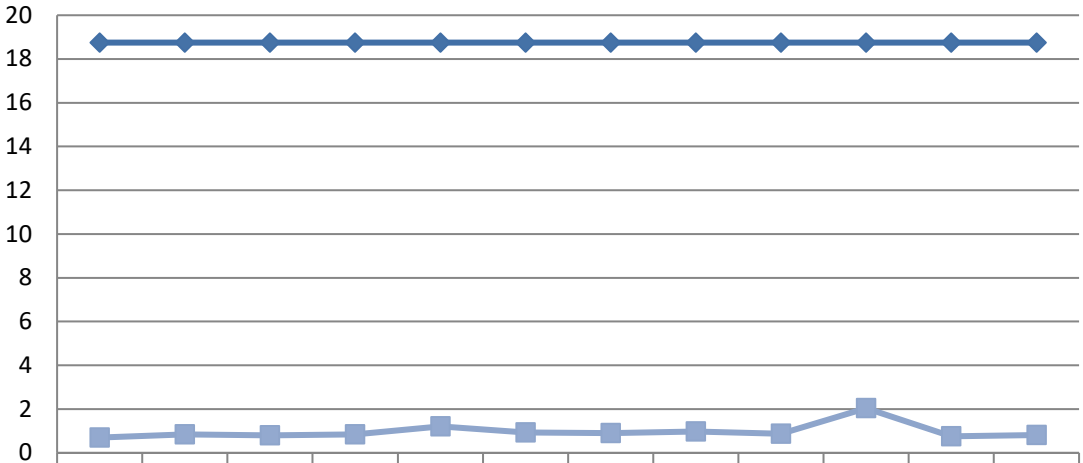
There was no Compliance Objective or Compliance Limit exceedance for this parameter.

6.2.1 Concentration (mg/L)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Limit (mg/L)	15	15	15	15	15	15	15	15	15	15	15	15
Objective (mg/L)	10	10	10	10	10	10	10	10	10	10	10	10
Average (mg/L)	2	3	2	2	3	2	2	2	2	5	2	3

6.2.2 Loading (kg/d)

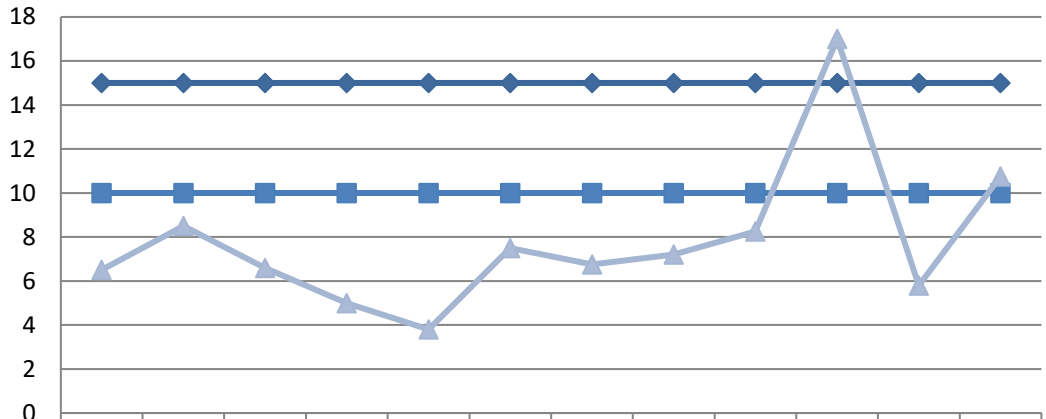


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Limit (kg/d)	18.75	18.75	18.75	18.75	18.75	18.75	18.75	18.75	18.75	18.75	18.75	18.75
Average (kg/d)	0.70	0.85	0.80	0.84	1.21	0.93	0.90	0.97	0.88	2.04	0.76	0.81

6.3 Total Suspended Solids

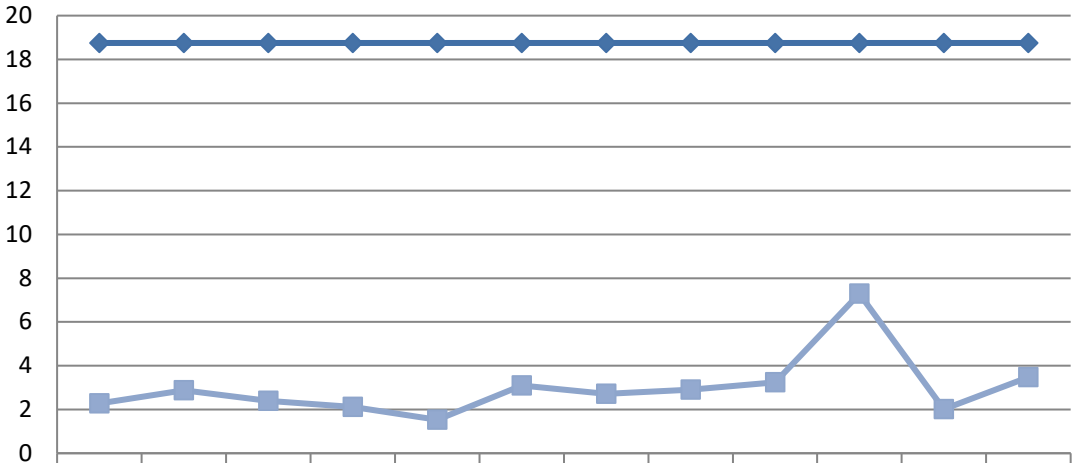
There were two Compliance Objective exceedances and one Compliance Limit exceedance for this parameter, see Operational Issues/Problems section of this report for details.

6.3.1 Concentration (mg/L



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Limit (mg/L)	15	15	15	15	15	15	15	15	15	15	15	15
Objective (mg/L)	10	10	10	10	10	10	10	10	10	10	10	10
Average (mg/L)	7	9	7	5	4	8	7	7	8	17	6	11

6.3.2 Loading (kg/d)

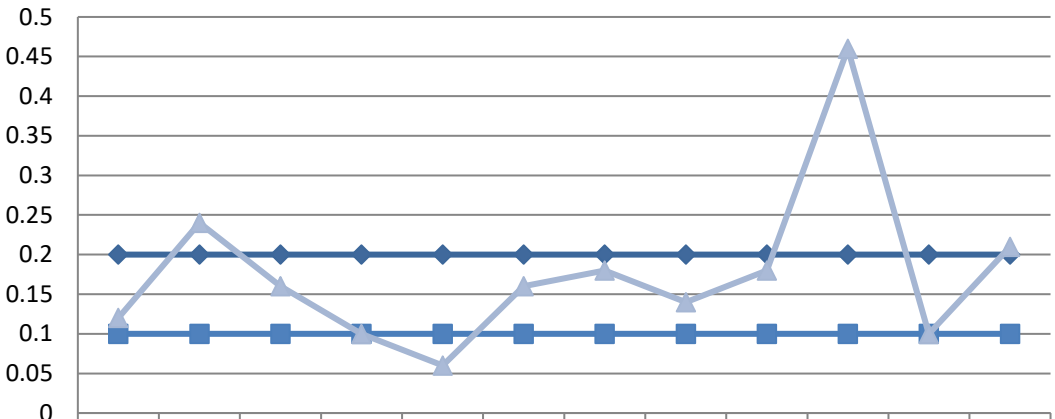


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Limit (kg/d)	18.75	18.75	18.75	18.75	18.75	18.75	18.75	18.75	18.75	18.75	18.75	18.75
Average (kg/d)	2.27	2.88	2.40	2.11	1.53	3.09	2.71	2.91	3.24	7.29	2.01	3.48

6.4 Total Phosphorus

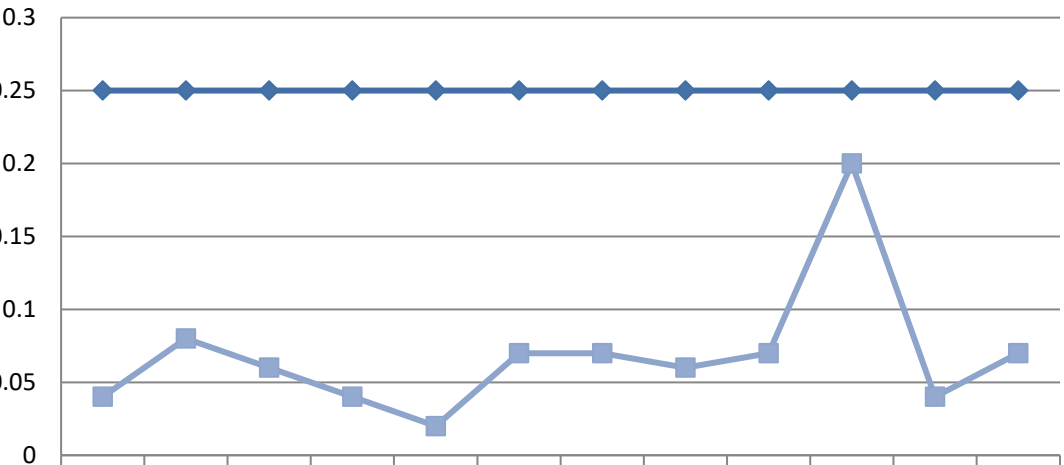
There were nine Compliance Objective exceedances and one Compliance Limit exceedance for this parameter, see Operational Issues/Problems section of this report for details.

6.4.1 Concentration (mg/L)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Limit (mg/)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Objective (mg/L)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Average (mg/L)	0.1	0.2	0.2	0.1	0.1	0.2	0.2	0.1	0.2	0.5	0.1	0.2

6.4.2 Loading (kg/d)

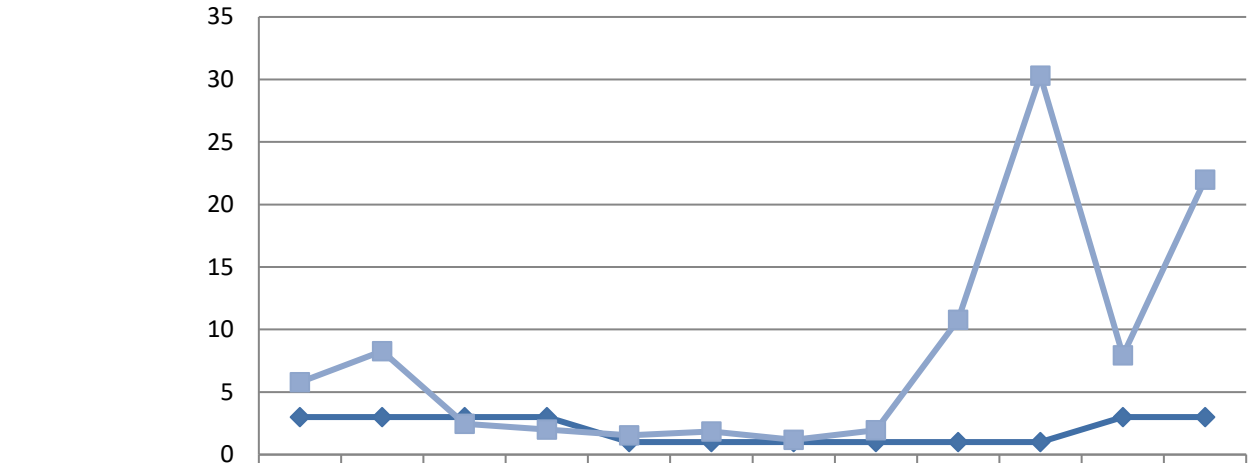


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Limit (kg/d)	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Average (kg/d)	0.04	0.08	0.06	0.04	0.02	0.07	0.07	0.06	0.07	0.20	0.04	0.07

6.5 Total Ammonia Nitrogen

There were ten Compliance Objective exceedances for this parameter, see Operational Issues/Problems section of this report for details. There is no Compliance Limit for this parameter.

6.5.1 Concentration (mg/L)

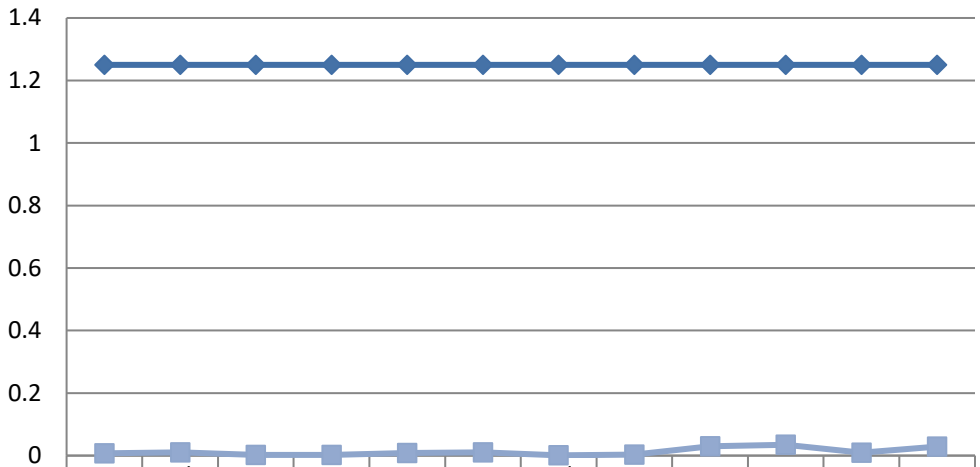


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Objective (mg/L)	3	3	3	3	1	1	1	1	1	1	3	3
Average (mg/L)	6	8	2	2	2	2	1	2	11	30	8	22

6.6 Un-Ionized Ammonia/Nitrogen/TKN

There was no Compliance Limit exceedance for this parameter, there is no Compliance Objective for this parameter.

6.6.1 Concentration (mg/L)

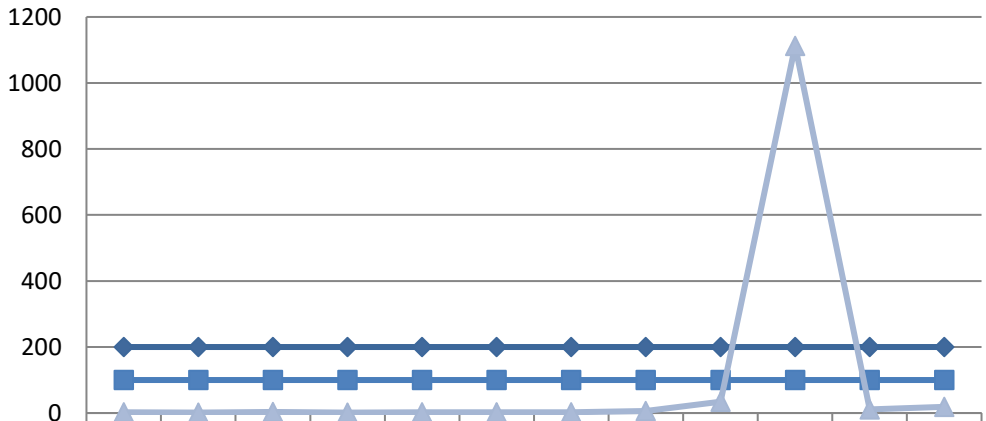


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Federal Limit (mg/L)	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Average (mg/L)	0.007	0.010	0.003	0.002	0.009	0.011	0.001	0.003	0.030	0.035	0.010	0.029

6.7 E-coli

There was one Compliance Objective exceedance and one Compliance Limit exceedance for this parameter, see Operational Issues/Problems section of this report for details.

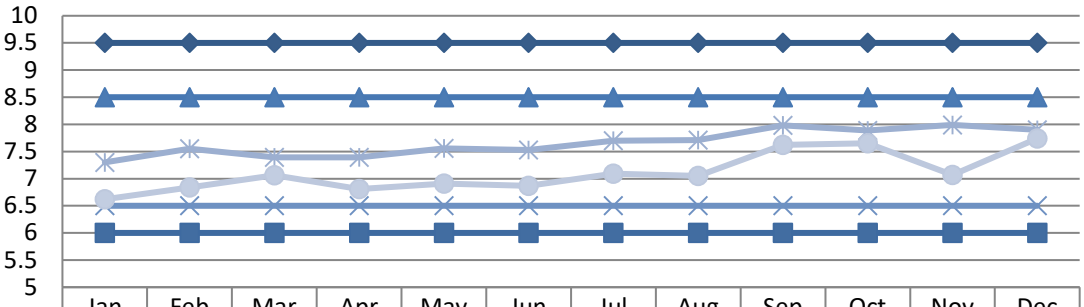
6.7.1 Geometric Mean (CFU/100mL)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Limit (CFU/100 mL)	200	200	200	200	200	200	200	200	200	200	200	200
Objective (CFU/100 mL)	100	100	100	100	100	100	100	100	100	100	100	100
Average (CFU/100 mL)	2	1	3	2	3	3	2	6	34	1113	11	19

6.8 pH

pH is to remain in the range of 6-9. Each instance the pH is outside of that range is reported as a non-compliance.



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Max Limit	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5
Min Limit	6	6	6	6	6	6	6	6	6	6	6	6
Max Objective	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5
Min Objective	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Monthly Max	7.3	7.55	7.39	7.39	7.56	7.53	7.7	7.71	7.98	7.89	7.99	7.9
Monthly Min	6.62	6.84	7.06	6.81	6.91	6.87	7.09	7.05	7.62	7.65	7.07	7.74

6.9 Acute Lethality

There were four (4) samples collected in 2022 and tested for acute lethality (Rainbow Trout and Daphnia Magna). This sampling is required both provincially and federally. Results are displayed as % mortality. An adverse result is a > 50% mortality rate.

There was no Compliance Limit exceedance for this parameter.

Quarter	Rainbow Trout	Daphnia Magna
1st Quarter	0%	0%
2nd Quarter	0%	0%
3rd Quarter	0%	0%
4th Quarter	0%	0%

7 Monitoring Schedule

7.1 Deviations

Date	Details	Cause of Deviation
There were no deviations from the 2022 monitoring schedule.		

8 Operating Issues/Problems

During the 2022 reporting year, the contributor to operational issues was the PAS-8 dosing line freezing in January and February, limiting the amount of phosphorus removed. Additionally, the plant experienced a biological upset beginning in October leading to three effluent parameter limit exceedances, and continuing into November. Historically the plant regularly experiences ammonia objective exceedances. Efforts to combat the effluent exceedances in October are detailed below.

Operations staff adjusted the process to support the chemical precipitation and enhanced biological removal of suspended solids, phosphorus and *E. Coli* by:

- Adjusting anoxic times to promote better mixing and increase dissolved oxygen (DO) to the process to support the microbes responsible for digesting the solids
- Cleaning the UV sleeves and changing any faulty bulbs to ensure adequate disinfection was being achieved to removing *E. Coli*
- Cleaning the effluent trough occurred to remove any settled grit that could damage the UV disinfection equipment
- Performing an “Air Lance” on the tertiary filters by removing any biolfim on the top of the filter and scouring air throughout the filter to evenly disperse filter media improving performance

- Additional wasting occurred from the surge anoxic mix tank at the start of the process to remove contaminated solids from recirculating throughout the process
- Verified the jet motor pump operation, and increased run time to add more DO to the process
- Additional in house labwork was performed to monitor operational improvements
- Began the use of vitasim nitrifiers and ammonia assimulators to process to reduce ammonia in-process and add in DO staying in the process

The following table is a summary of limit exceedances as a result of operating issues.

Date	Exceedance of	Limit	Value	Corrective Action
October 2022	Total Phosphorus monthly average concentration	0.2 mg/L	0.46 mg/L	See corrective actions listed above
	Total Suspended Solids monthly average concentration	15 mg/L	17 mg/L	
	E.Coli monthly geometric mean density (GMD)	200 CFU/100 mL	1113 CFU/100 mL	

8.1 Effluent Quality Non-Compliance Summary

The effluent objectives are based on current requirements in the facility's Environmental Compliance Approval (ECA). ECA objective exceedances are non-reportable, and are used as an operational target. As the operating authority we shall use our best efforts to operate the facility in a manner that ensures the objectives are not exceeded in the treated effluent.

In the 2022 reporting year, the final effluent saw objective exceedances more than 50% of the time during the year for total ammonia nitrogen and total phosphorus. Though the plant did not experience deterioration in the final effluent with CBOD5, suspended solids and E.Coli measuring consistently below the objectives set out in the facility's ECA. Additionally the plant's influent flow remained below 50% of the rated capacity in 2022. At this time no proactive actions are suggested. The plant's pH ranged from 6.62 -7.99 and suggests that the alkalinity needed to settle out solids and phosphorus did not remain consistent. An effort to stabilize the alkalinity and ammonia loading will be made in the 2023 operating year.

The following table is a summary of objective exceedances and the efforts made to meet the objectives.

Date	Exceedance of	Limit	Value	Corrective Action
January 2022	Total Ammonia monthly average concentration	3 mg/L	5.9 mg/L	Increased Aeration Time
	Total Phosphorus monthly average concentration	0.1 mg/L	0.13 mg/L	Thaw frozen PAS-8 dosing line, monitor pump operations
February 2022	Total Ammonia monthly average concentration	3 mg/L	8.3 mg/L	Increased Aeration Time

Date	Exceedance of	Limit	Value	Corrective Action
February 2022	Total Phosphorus monthly average concentration	0.1 mg/L	0.25 mg/L	Adjusted the coagulant dosage
March 2022	Total Phosphorus monthly average concentration	0.1 mg/L	0.16 mg/L	Adjusted the coagulant dosage
May 2022	Total Ammonia monthly average concentration	1 mg/L	1.5 mg/L	Increased Aeration Time
June 2022	Total Ammonia monthly average concentration	1 mg/L	1.9 mg/L	Increased Aeration Time
	Total Phosphorus monthly average concentration	0.1 mg/L	0.16 mg/L	Adjusted the coagulant dosage
July 2022	Total Ammonia monthly average concentration	1 mg/L	1.2 mg/L	Increased Aeration Time
	Total Phosphorus monthly average concentration	0.1 mg/L	0.18 mg/L	Adjusted the coagulant dosage
August 2022	Total Ammonia monthly average concentration	1 mg/L	2 mg/L	Increased Aeration Time
	Total Phosphorus monthly average concentration	0.1 mg/L	0.14 mg/L	Adjusted the coagulant dosage
September 2022	Total Ammonia monthly average concentration	1 mg/L	10.8 mg/L	Increased Aeration Time
	Total Phosphorus monthly average concentration	0.1 mg/L	0.18 mg/L	Adjusted the coagulant dosage
October 2022	Total Ammonia monthly average concentration	1 mg/L	30.3 mg/L	Add vitasim nitrifiers and ammonia assimulators to process
	Total Phosphorus monthly average concentration	0.1 mg/L	0.46 mg/L*	Adjusted the coagulant dosage
	Total Suspended Solids monthly average concentration	10 mg/L	17 mg/L*	Increased SBR waste rate to lower MLSS
	E.Coli monthly geometric mean density (GMD)	100 CFU/100 mL	1113 CFU/100 mL*	Clean UV sleeves
November 2022	Total Ammonia monthly average concentration	3 mg/L	7.9 mg/L	Add vitasim nitrifiers and ammonia assimulators to process

Date	Exceedance of	Limit	Value	Corrective Action
December 2022	Total Ammonia monthly average concentration	3 mg/L	22 mg/L	Add ammonia assimilator to process
	Total Phosphorus monthly average concentration	0.1 mg/L	0.21 mg/L	Adjusted the coagulant dosage
	Total Suspended Solids monthly average concentration	10 mg/L	11 mg/L	GFL hauled sludge, Increased SBR waste to digester to lower MLSS

*Note the reported value exceeded an ECA Limit, for further details please refer to Operating Issues/Problems

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 B.

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
2678254	Replaced Soda Ash chemical dosing line
2678260	Replaced PAS-8 chemical dosing line
2778005	EQ Tank cleaned and inspected

Work Order	Details
3013421	Thermostat/Block heater replaced on generator by Galpower
3148695	Replaced UV Reactor #1 Ballast
3104302	Repaired pumping station #1, pump #1 power cord
3105534	Replaced mechanical seal and repaired pipe guide ear on sludge transfer pump

9.2 Emergency Maintenance and Repairs

Work Order	Details
2923360	Odour control units purchased to help prevent and control odour from the sewage plant
3066162	VitaStim Ammonia Assimilators and VitaStim Nitrifiers purchased to aid in the removal of ammonia

9.3 Flow Meter Calibrations and Maintenance

Location	Date of Calibration	Additional Maintenance
Influent Flow Meter	August 11, 2022	Coil failure, flow tube requires replacement
Supernatant Flow Meter	August 11, 2022	N/A
Sludge Hauling Flow Meter	August 11, 2022	N/A
Effluent Flow Meter	February 24, 2022	N/A
Collection System Flow Meter	No collection system flow meter	N/A

9.4 Authorized Alterations in Collection System

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 or the collection system during the reporting period.			

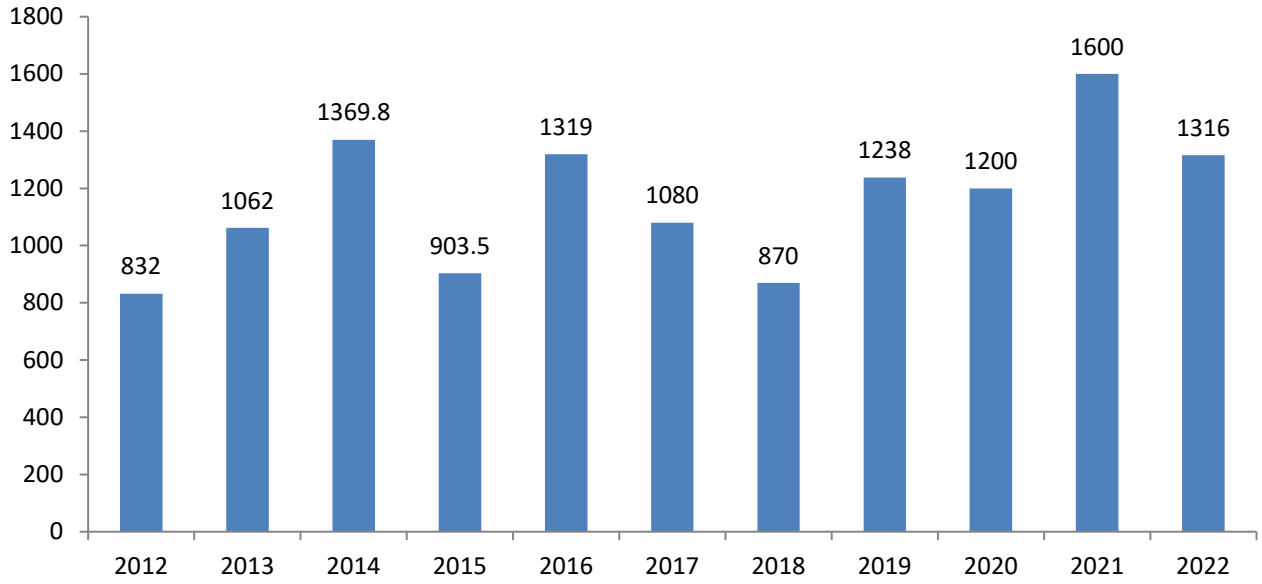
10 Sludge Generation

In 2022, a total of 1316 m^3 of liquid biosolids was hauled offsite by GFL Environmental Inc. and utilized as soil conditioner or hauled to processing facility. It is anticipated that approximately the same volume of sludge will be generated in 2023.

10.1 Sludge Disposal Summary

Date	Disposal Location	Approval Number	Total Volume (m³)
May 24, 2022	GFL Storage Facility	ECA# S-3708-42	200
May 31, 2022	DeVries - Home	NASM #23774	240
June 1, 2022	GFL Storage Facility	ECA# S-3708-42	236
August 4-5, 2022	Pauls, Rick - Home	NASM #24580	160
November 24, 2022	Bateman, Brad - Evans	NASM #23873	120
November 25, 2022	GFL Storage Facility	ECA# S-3708-42	200
December 1-2, 2022	GFL Storage Facility	ECA# S-3708-42	160
Total Annual Volume (m³)			1316

10.2 Annual Comparison (m³/year)



11 Summary of Complaints

Location	Date	Nature of Complaint	Actions Taken
96 Sandhill Drive	07/03/2022	Sewer Blockage	Confirmed flow in trunk line, flow present, Welk's plumber found blockage in lateral, Vac truck to flush
19369 Opeongo Road	09/03/2022	Sewer Blockage	Confirmed flow in trunk line, flow present, advised customer to call a plumber
20 Martin Street	05/05/2022	Sewer Blockage	Confirmed flow in trunk line using a dye above and below issue, customer to call plumber to remove blockage from lateral line

Location	Date	Nature of Complaint	Actions Taken
126 Lakeshore Drive	07/07/2022	Odour Complaint	optimized the blower run times and increased wasting volumes
126 Lakeshore Drive	29/08/2022	Odour Complaint	Continued to optimize the blower run times and increase wasting volumes, added new odour canisters
126 Lakeshore Drive	25/09/2022	Odour Complaint	Continued to optimize the blower run times and increase wasting volumes
16 Wilno Street	15/11/2022	Sewer Blockage	Found defective sewage pump in residence, advise customer to call plumber

Appendix A

Appendix A - Biosolids Quality Report

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

Facility: BARRY'S BAY WASTEWATER TREATMENT FACILITY
Works: 5979
Period: 01/01/2022 to 12/01/2022

Facility Works Number: *1.10001854E8*
Facility Name: *BARRY'S BAY WASTEWATER TREATMENT FACILITY*
Facility Owner: *Municipality: Madawaska Valley Township*
Facility Classification: *Class 3 Wastewater Treatment*
Receiver: *Kamaniskeg Lake*
Service Population: *1055.0*
Total Design Capacity: *1250.0 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	**BARRY'S BAY 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		24,700.000	17,800.000	818.000	12.200	0.300	0.200	1,520.000	6.250	54.000
Feb		28,200.000	21,000.000	920.000	13.300	0.300	0.200	1,590.000	6.800	100.000
Mar		25,300.000	18,400.000	760.000	14.600	24.000	18.000	1,370.000	19.300	57.000
Apr		24,000.000	17,100.000	760.000	25.700	120.000	19.000	1,880.000	72.850	58.000
May	440.000	23,650.000	16,700.000	740.000	20.900	200.000	14.000	1,370.000	110.450	52.000
Jun	236.000	27,800.000	20,300.000	730.000	15.400	0.300	0.200	1,480.000	7.850	54.000
Jul		28,800.000	21,300.000	880.000	322.000	0.300	5.900	1,760.000	161.150	58.000
Aug	160.000	23,200.000	16,300.000	770.000	839.000	0.300	0.400	1,480.000	419.650	50.000
Sep		28,100.000	20,300.000	990.000	307.000	0.300	2.700	1,600.000	153.650	62.000
Oct		40,350.000	33,000.000	910.000	132.000	3.000	2.000	1,850.000	67.500	54.000
Nov	320.000	35,600.000	27,800.000	812.000	266.000	0.300	1.300	1,520.000	133.150	50.000
Dec	160.000	34,500.000	26,100.000	850.000	203.000	3.000	2.000	1,830.000	103.000	51.000
Average	263.200	28,683.333	21,341.667	828.333	180.925	29.342	5.492	1,604.167	105.133	58.333
Total	1,316.000	344,200.000	256,100.000	9,940.000	2,171.100	352.100	65.900	19,250.000	1,261.600	700.000

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

Facility: BARRY'S BAY WASTEWATER TREATMENT FACILITY
Works: 5979
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	**BARRY'S BAY 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	0.014	0.030	0.300	13.000	0.044	0.100	0.210	0.200	0.100	10.000
Feb	0.100	0.018	0.050	0.480	11.000	0.014	0.160	0.370	0.400	0.100	19.000
Mar	0.100	0.018	0.030	0.240	13.000	0.053	0.100	0.220	0.300	0.100	11.000
Apr	0.100	0.016	0.030	0.280	13.000	0.038	0.110	0.220	0.200	0.100	10.000
May	0.100	0.014	0.030	0.250	11.000	0.033	0.100	0.190	0.200	0.100	9.000
Jun	0.100	0.014	0.030	0.310	13.000	0.038	0.100	0.240	0.200	0.100	10.000
Jul	0.100	0.014	0.040	0.360	13.000	0.051	0.140	0.260	0.200	0.100	10.000
Aug	0.100	0.015	0.040	0.320	15.000	0.063	0.130	0.260	0.300	0.100	11.000
Sep	0.100	0.016	0.040	0.350	15.000	0.048	0.170	0.290	0.200	0.100	12.000
Oct	0.100	0.018	0.040	0.390	17.000	0.066	0.140	0.320	0.300	0.100	15.000
Nov	0.100	0.018	0.040	0.380	16.000	0.046	0.140	0.260	0.400	0.100	12.000
Dec	0.100	0.018	0.030	0.310	16.000	0.055	0.130	0.250	0.300	0.100	13.000
Average	0.100	0.016	0.036	0.331	13.833	0.046	0.127	0.258	0.267	0.100	11.833
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)	3.486	0.561	1.249	11.534	482.278	1.595	4.416	8.977	9.297	3.486	412.551

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

Facility: BARRY'S BAY WASTEWATER TREATMENT FACILITY
Works: 5979
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	09/07/2022	10/04/2022	11/01/2022	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	2.887	170
Cd (mg/L)	Lab Published	0.016	0.018	0.018	0.018	0.018	0.520	34
Co (mg/L)	Lab Published	0.040	0.040	0.040	0.030	0.037	1.068	340
Cr (mg/L)	Lab Published	0.350	0.390	0.380	0.310	0.358	10.336	2800
Cu (mg/L)	Lab Published	15.000	17.000	16.000	16.000	16.000	461.927	1700
Hg (mg/L)	Lab Published	0.048	0.066	0.046	0.055	0.054	1.559	11
Mo (mg/L)	Lab Published	0.170	0.140	0.140	0.130	0.145	4.186	94
Ni (mg/L)	Lab Published	0.290	0.320	0.260	0.250	0.280	8.084	420
Pb (mg/L)	Lab Published	0.200	0.300	0.400	0.300	0.300	8.661	1100
Se (mg/L)	Lab Published	0.100	0.100	0.100	0.100	0.100	2.887	34
Zn (mg/L)	Lab Published	12.000	15.000	12.000	13.000	13.000	375.316	4200
E. Coli: Dry Wt (cfu/g)	Lab Published	24,382.000	66,667.000	1,404.000	89,855.000	21,280.038	E.Coli average is the GMD	
TS (mg/L)	Lab Published	28,100.000	40,350.000	35,600.000	34,500.000	34,637.500		
VS (mg/L)	Lab Published	20,300.000	33,000.000	27,800.000	26,100.000	26,800.000		
TP (mg/L)	Lab Published	990.000	910.000	812.000	850.000	890.500		
NO2-N (mg/L)	Lab Published	2.700	2.000	1.300	2.000	2.000		
TKN (mg/L)	Lab Published	1,600.000	1,850.000	1,520.000	1,830.000	1,700.000		
K (mg/L)	Lab Published	62.000	54.000	50.000	51.000	54.250		
NH3p_NH4p_N (mg/L)	Lab Published	307.000	132.000	266.000	203.000	227.000		
NO3-N (mg/L)	Lab Published	0.300	3.000	0.300	3.000	1.650		

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 #2702-7TKNBE **Section 10**	**Section in Report**
6.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;	Treatment Flows Effluent Quality
6.b. A description of any operating problems encountered and corrective actions taken;	Operating Issues and Problems
6.c. A summary of all maintenance carried out on any major structure, equipment, apparatus, mechanism or thing forming part of the Works;	Maintenance
6.d. A summary of any effluent quality assurance or control measures undertaken in the reporting period;	Effluent Quality
6.e. A summary of the calibration and maintenance carried out on all effluent monitoring equipment; and	Maintenance
6.f. A description of efforts made and results achieved meeting the Effluent Objectives of Condition 6	Operating Issues and Problems Effluent Quality
6.g. A tabulation of the volume of sludge generated in the reporting period, 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;	Sludge Generation
6.h. A summary of any complaints received during the reporting period and any steps taken to address the complaints;	Summary of Complaints
6.i. A summary of all By-pass, spill or abnormal discharge events; and	Operating Issues and Problems Appendix C
6.j Any other information the District Manager requires from time to time	
Collection ECA #193-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;	Operating Issues and Problems Appendix C

d) Disinfection, if any; and e) Any adverse impact(s) and any corrective actions, if applicable.	
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