Merrickville Wastewater System

Waterworks # 110001729

Annual Report

Prepared For: Village of Merrickville-Wolford

Reporting Period of January 1st – December 31st 2024

Issued: May 05, 2025

Revision: 2

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	1121-7YRQLF	January 18, 2010	N/A
CLI ECA	264-W601	May 16, 2023	1.0

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1 Revision History

Date	Rev#	Revisions	Revised By
March 28, 2025	0	Annual Report Issued	PCT
April 28, 2025	1	2024 Sludge Volumes	PCT
May 05, 2025	2	Imported Sewage (April)	PCT

2 Operations and Compliance Reliability Indices

Compliance Event	Details
Ministry of Environment Inspections	No MECP inspections in 2024.
Ministry of Labour Inspections	No MOL inspections in 2024.
Non-Compliance	1 Non-compliance in 2024 • Details reference in report
Community Complaints	No community complaints in 2024.
Spills	No spills (other than sewage) in 2024.
Overflows	No overflow events in 2024.
Bypass	No bypass events in 2024.

3 Process Description

The Merrickville Wastewater system utilizes an ISAM treatment system. This system incorporates a surge/anoxic mix tank to optimally control the process and it provides rapid and complete treatment. The surge tank provides flow and nutrient equalization to optimally provide treatment at the full range of flows and loadings.

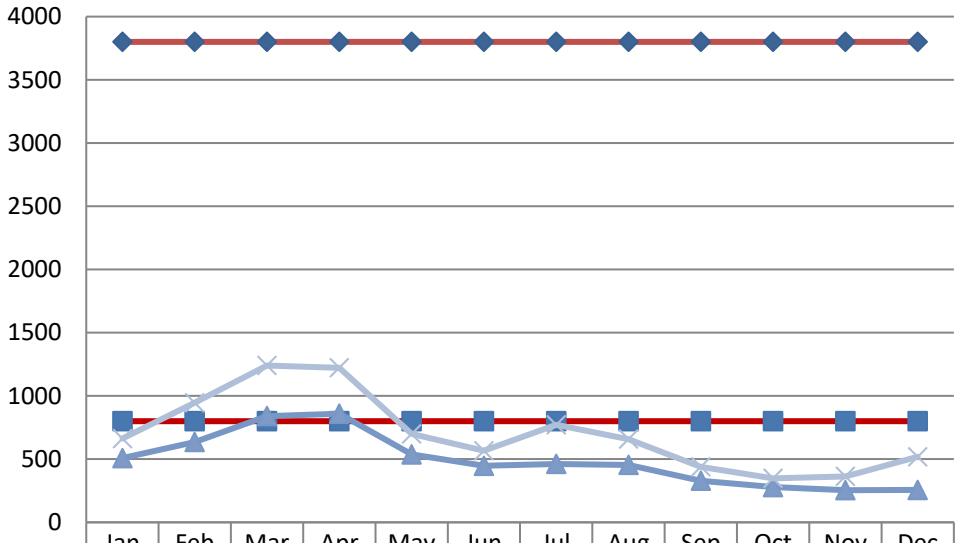
The secondary treatment process employs sequencing batch reactor (SBR) technology consisting of anaerobic tanks, anoxic tanks and a sequencing batch reactor. The SBR incorporates an anaerobic selector chamber which provides consistent phosphorous removal by subjecting the recirculated biomass to anaerobic conditions, forcing the release of phosphorous, but also creates soluble carbon as a food source for phosphorous removal through anaerobic conversion of settleable BOD to soluble carbon. Additionally, anaerobic sludge digestion occurs in the anaerobic selector chamber, reducing waste solids production by up to 65% for the entire secondary process.

Effluent is disinfected using Ultraviolet disinfection. Permanent Diesel generator is on-site to provide back-up power.

4 Treatment Flows

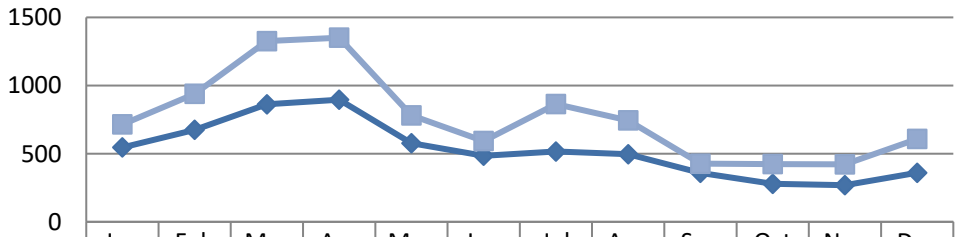
Annual average flow for 2024 was 497 m³/d, which is 62% of the daily flow rated capacity of 800 m³/d. A flow reduction plan was established for 2018.

4.1 Raw Flow (m3/d)



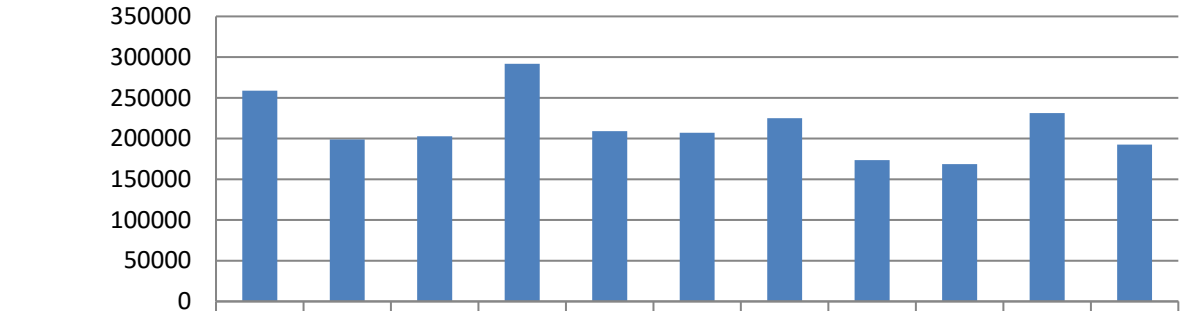
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Peak Flow Capacity	3800	3800	3800	3800	3800	3800	3800	3800	3800	3800	3800	3800
Rated Capacity	800	800	800	800	800	800	800	800	800	800	800	800
Average Daily Flow	508	635	840	859	537	447	462	454	329	279	254	256
Maximum Daily Flow	662	946	1240	1222	699	566	771	658	439	348	363	518

4.2 Effluent Flow (m3/d)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Average Daily Flow	546	675	862	896	577	485	516	496	359	279	269	360
Maximum Daily Flow	715	939	1326	1351	781	593	864	744	427	424	422	608

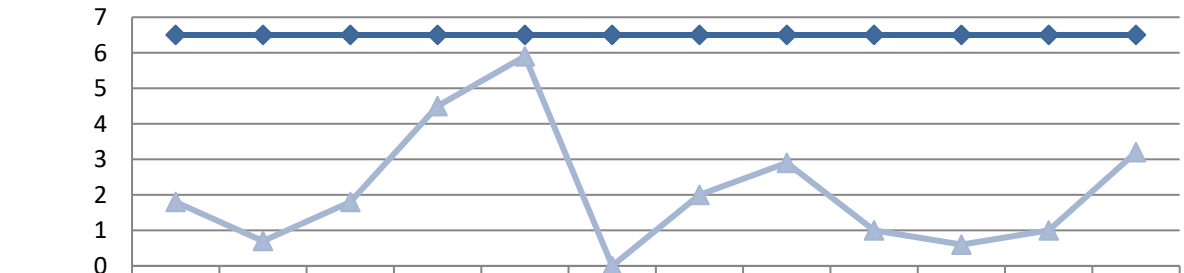
4.2.1 *Annual Comparison (m3)*



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Total Annual Flow	258709	198948	202822	291715	209152	207174	225043	173530	168536	231278	192640

4.3 Imported Sewage

4.3.1 *Septage Flow (m3/d)*



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Limit	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
	1.8	0.7	1.8	4.5	5.9	0.0	2.0	2.9	1.0	0.6	1.0	3.2

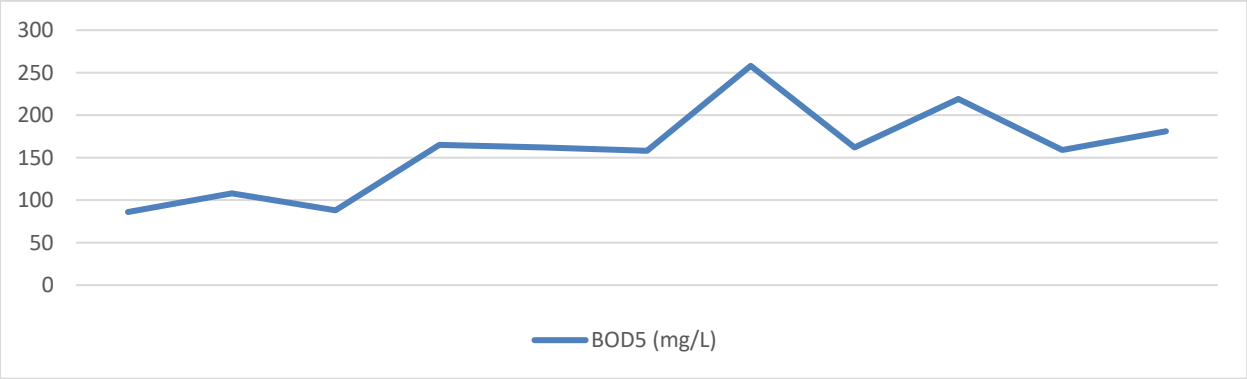
Septage flow was calculated using total m3 for the month divided by days in that month. The operator ensures no more than 6 m3 of septage is processed per day.

5 Raw Sewage Quality

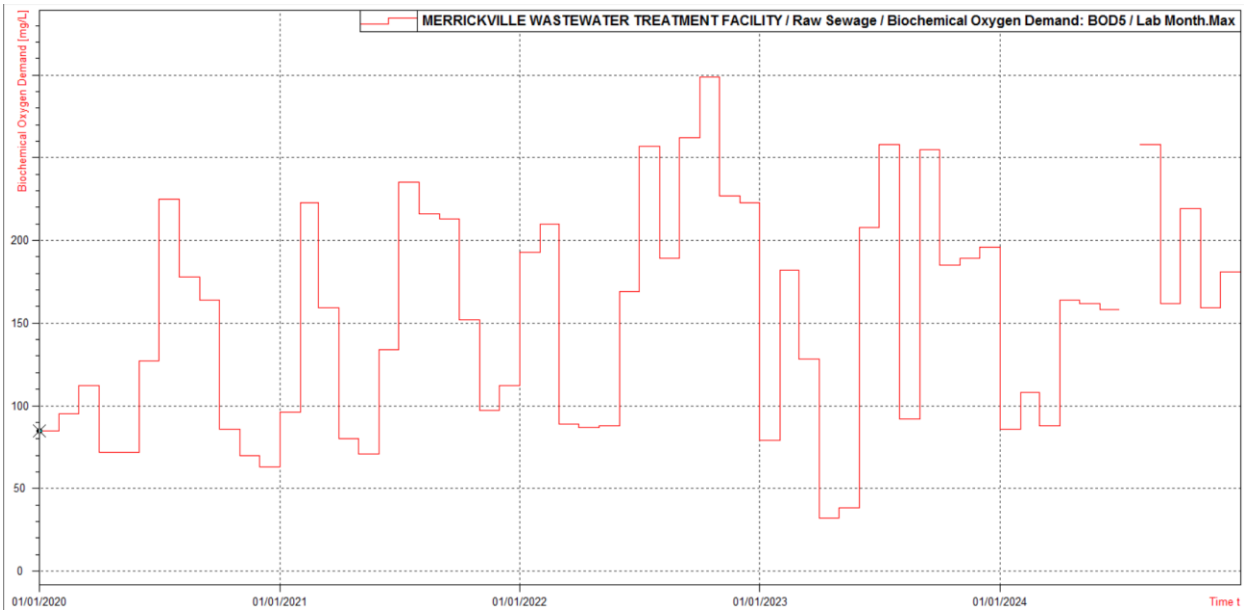
Current year minimum, maximum and averages are available in Appendix A – Performance Assessment Report.

5.1 Influent Quality

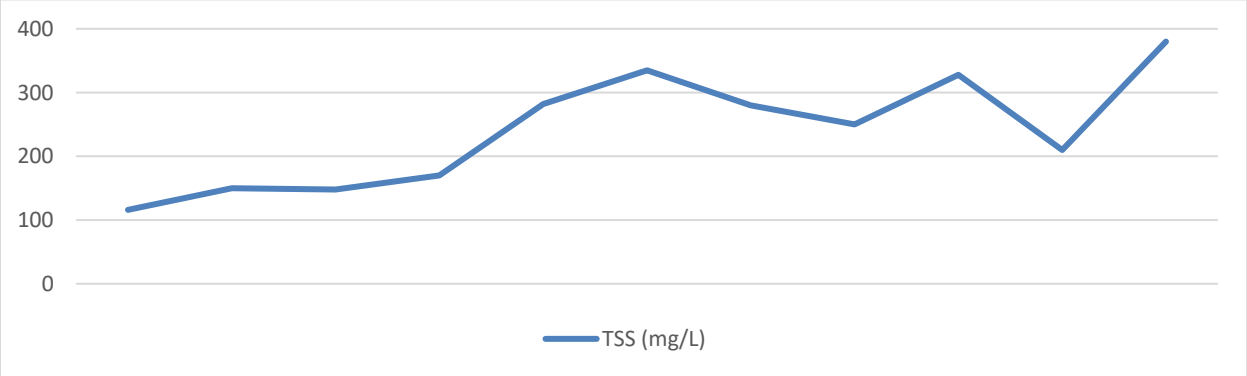
5.1.1 2024 BOD5 (mg/L)



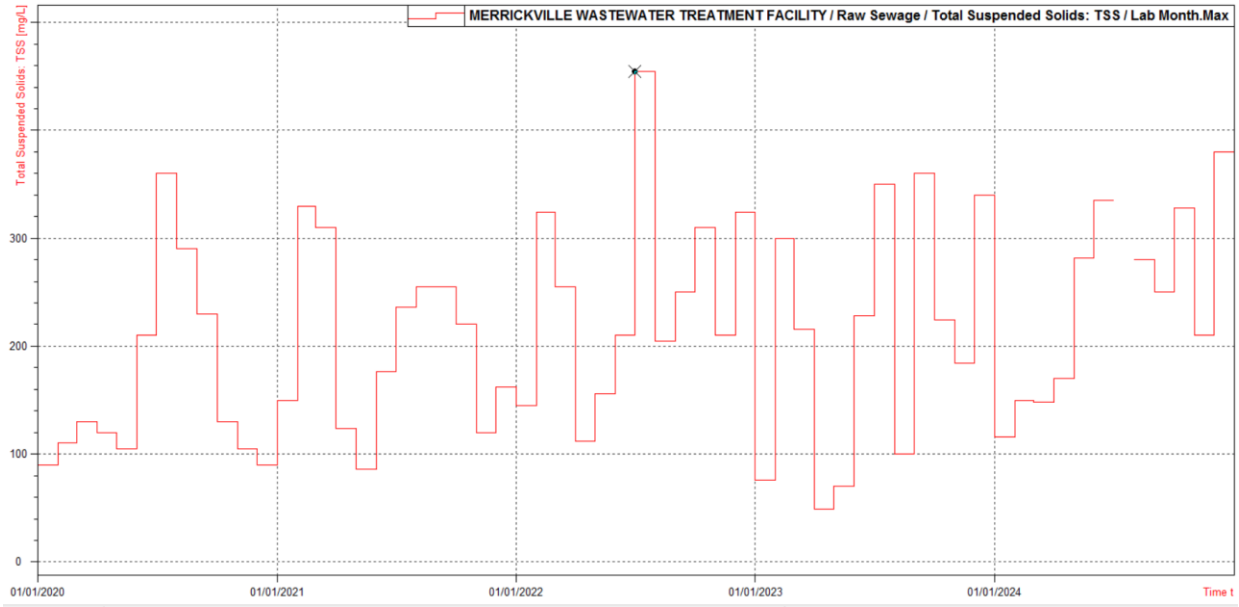
5.1.2 5-year BOD5 (mg/L)



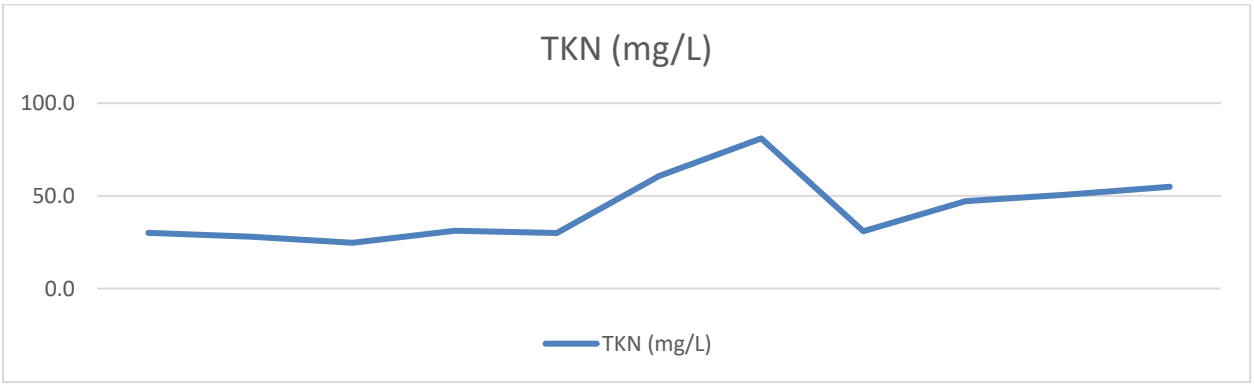
5.1.3 2024 Total Suspended Solids (mg/L)



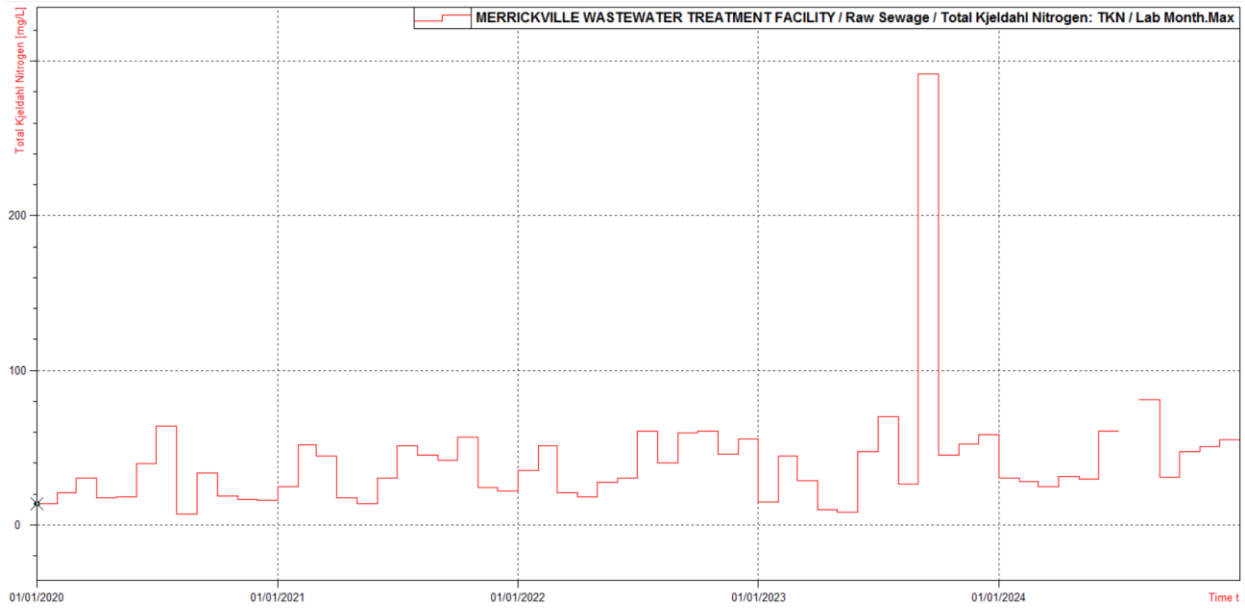
5.1.4 *5-year Total Suspended Solids (mg/L)*



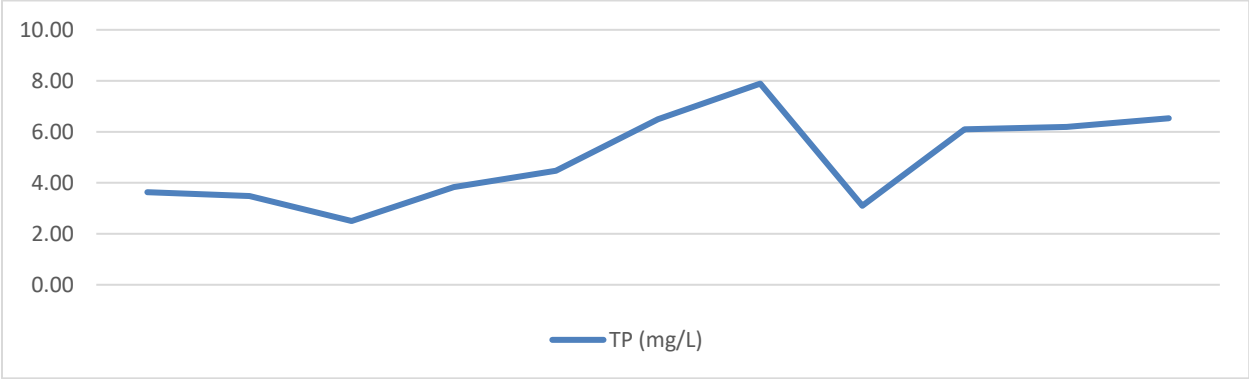
5.1.5 *2024 Total Kjeldahl Nitrogen (mg/L)*



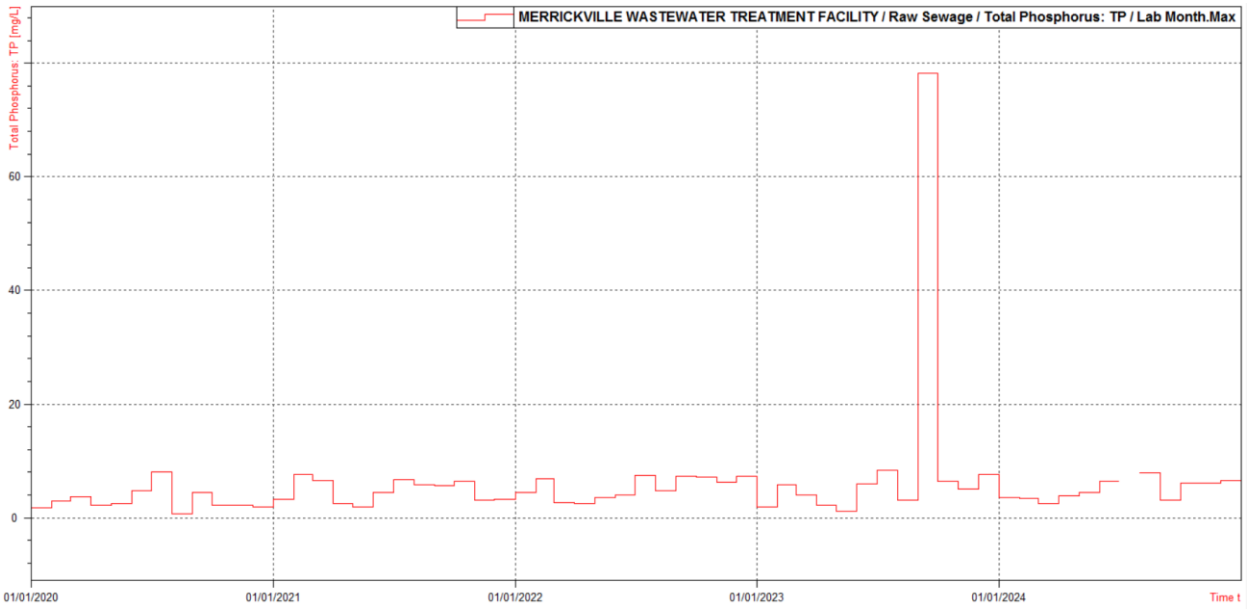
5.1.6 *5-year Total Kjeldahl Nitrogen (mg/L)*



5.1.7 *2024 Total Phosphorus (mg/L)*



5.1.8 5-year Total Phosphorus (mg/L)



5.2 Imported Waste Quality

No septage sampling requirements, as per the ECA.

6 Effluent Quality

The monthly average concentrations of carbonaceous biochemical oxygen demand (CBOD5), total suspended solids (TSS), and total ammonia nitrogen (TAN) remained below the effluent objectives and limits outlined in the facility's Certificate of Approval during 2024. The monthly average concentration for total phosphorus remained below the effluent limits outlined in the facility's Certificate of Approval during 2024. The geometric mean density of E. coli in the effluent also remained below the ECA limit and objective in 2024. In addition the effluent pH remained within the limits and objectives throughout the year.

Effluent results from the WWTP for 2024 are tabulated below. Additional data can be found in the Performance Assessment Reports attached in Appendix A.

6.1 Effluent Quality Assurance and Control Measures Taken

This system is part of OCWA's Seaway Valley 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 Caduceon Kingston for analysis, with the exception of pH and temperature. Caduceon Kingston 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 pH 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.

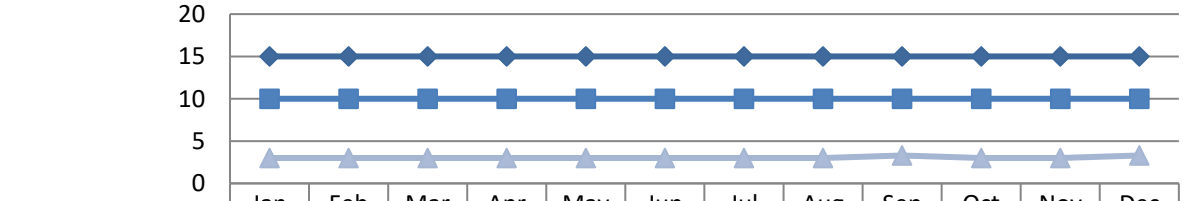
The operations team also has access to a network of operational compliance and process specialists to assist for emerging process issues. This aids in establishing additional control measures to ensure a quality effluent product.

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

6.2 CBOD5 (mg/L)

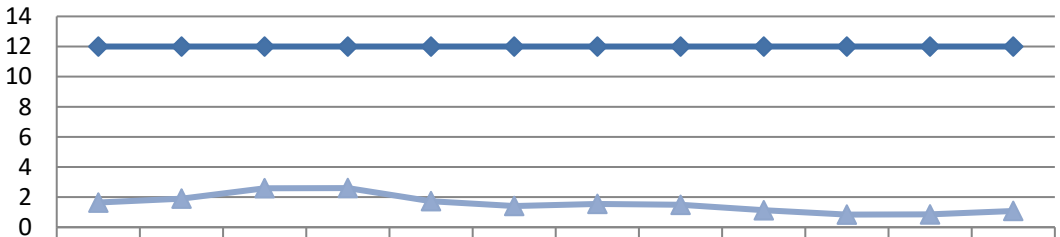
Compliance Limit and Objective for this parameter was met in 2024.

6.2.1 Concentration (mg/L)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ECA Limit	15	15	15	15	15	15	15	15	15	15	15	15
ECA Objective	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Average	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.3	3.0	3.0	3.3

6.2.2 Loading (kg/d)

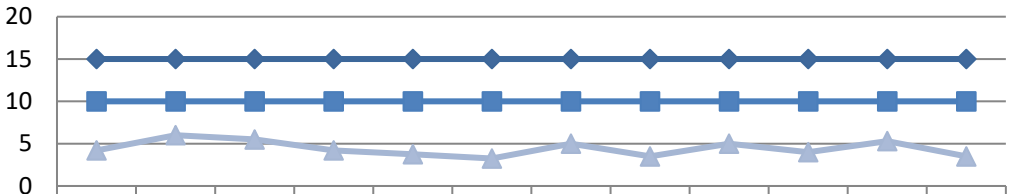


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ECA Limit	12	12	12	12	12	12	12	12	12	12	12	12
Average	1.64	1.90	2.59	2.60	1.73	1.41	1.55	1.49	1.13	0.84	0.85	1.08

6.3 Total Suspended Solids (mg/L)

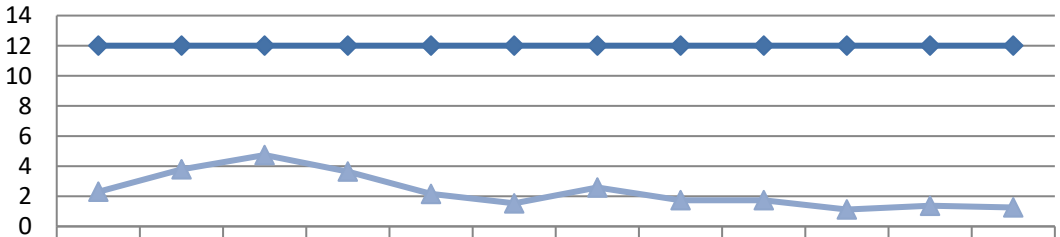
Compliance Limit and Objective for this parameter was met in 2024.

6.3.1 Concentration (mg/L)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ECA Limit	15	15	15	15	15	15	15	15	15	15	15	15
ECA Objective	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Average	4.2	6.0	5.5	4.2	3.8	3.3	5.0	3.5	5.0	4.0	5.3	3.5

6.3.2 Loading (kg/d)

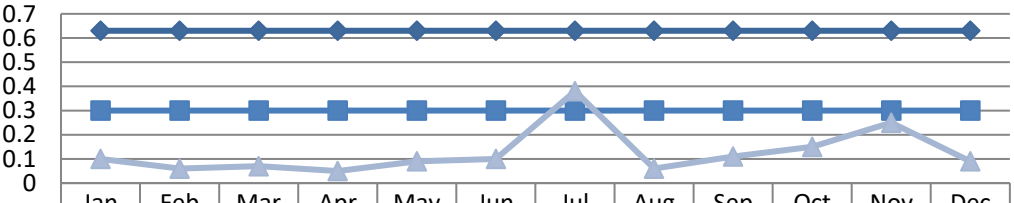


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ECA Limit	12	12	12	12	12	12	12	12	12	12	12	12
Average	2.30	3.79	4.74	3.64	2.16	1.53	2.58	1.74	1.74	1.12	1.37	1.26

6.4 Total Phosphorus (mg/L)

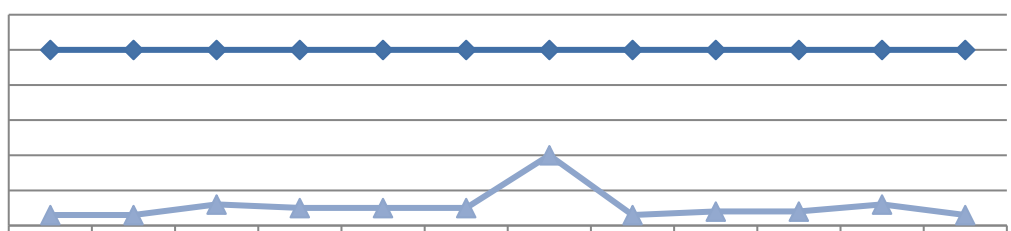
Compliance Limit for this parameter was met in 2024 Objective exceedance in August detailed in Operational Issues section.

6.4.1 Concentration (mg/L)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ECA Limit	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63
ECA Objective	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Average	0.10	0.06	0.07	0.05	0.09	0.10	0.38	0.06	0.11	0.15	0.25	0.09

6.4.2 Loading (kg/d)

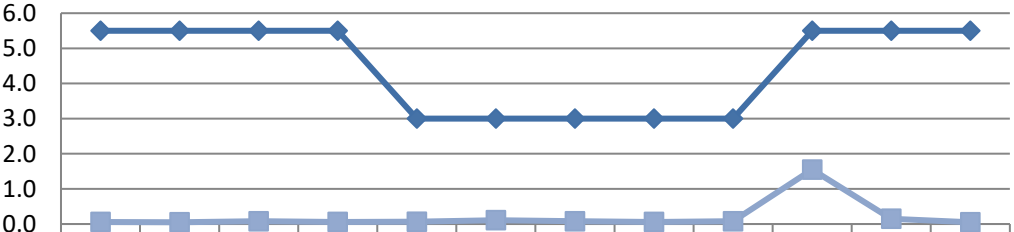


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ECA Limit	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Average	0.03	0.03	0.06	0.05	0.05	0.05	0.20	0.03	0.04	0.04	0.06	0.03

6.5 Total Ammonia Nitrogen (mg/L)

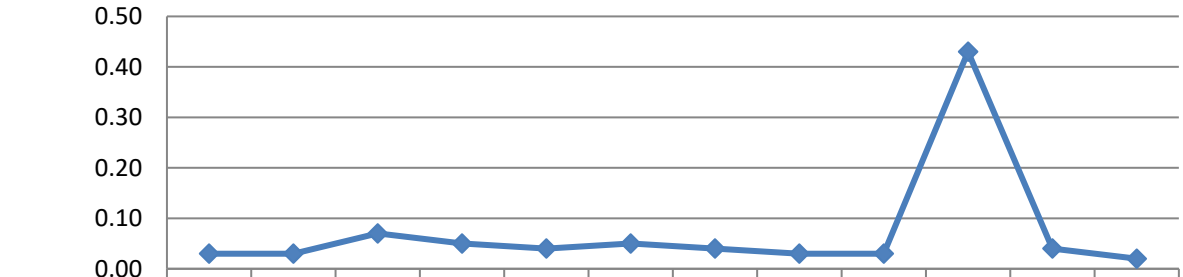
Compliance Objective for this parameter was met in 2024.

6.5.1 Concentration (mg/L)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ECA Objective	5.5	5.5	5.5	5.5	3.0	3.0	3.0	3.0	3.0	5.5	5.5	5.5
Average	0.06	0.05	0.08	0.06	0.07	0.11	0.08	0.06	0.08	1.55	0.15	0.05

6.5.2 Loading (kg/d)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Average	0.03	0.03	0.07	0.05	0.04	0.05	0.04	0.03	0.03	0.43	0.04	0.02

6.6 Acute Lethality

There were two (2) samples collected in 2024 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.

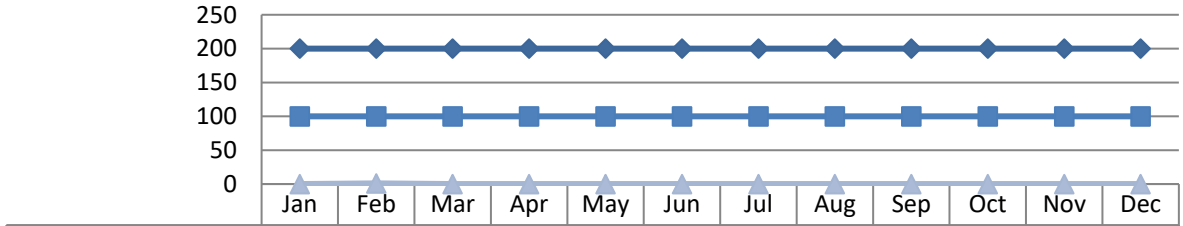
The compliance limit for this parameter was met in 2024.

Date	Rainbow Trout	Daphnia Magna
February 9, 2024	0%	0%
August 13, 2024	0%	0%

6.7 E-coli (cfu/100mL)

Compliance Limit and Objective for this parameter was met in 2024.

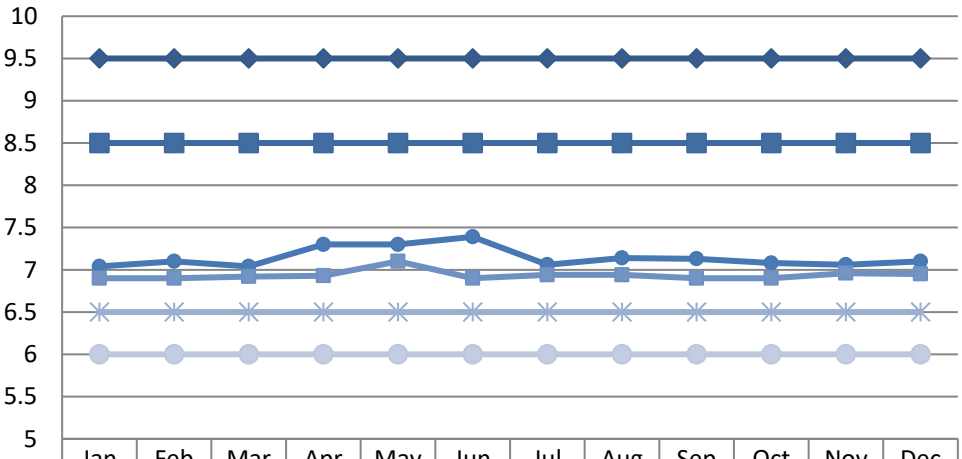
6.7.1 Geometric Mean (cfu/100mL)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ECA Limit	200	200	200	200	200	200	200	200	200	200	200	200
ECA Objective	100	100	100	100	100	100	100	100	100	100	100	100
Geometric Mean	0	1	0	0	0	0	0	0	0	0	0	0

6.8 pH

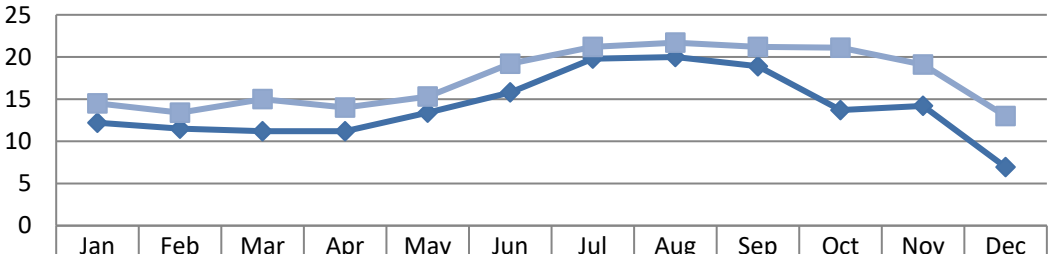
Compliance Limit and Objective for this parameter was met in 2024.



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ECA 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
ECA 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
Maximum	7.04	7.1	7.04	7.3	7.3	7.39	7.06	7.14	7.13	7.08	7.06	7.1
Minimum	6.9	6.9	6.92	6.93	7.1	6.9	6.94	6.94	6.9	6.9	6.96	6.95
ECA 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
ECA Min Limit	6	6	6	6	6	6	6	6	6	6	6	6

6.9 Temperature

There are no compliance limits or objectives defined for Effluent.



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Minimum	12.2	11.5	11.2	11.2	13.4	15.8	19.8	20	18.9	13.7	14.2	6.94
Maximum	14.5	13.4	15	14	15.3	19.2	21.2	21.7	21.2	21.1	19.1	13

7 Operating Issues/Problems

There are no other operating issues/problems outside the objective exceedance mentioned below.

7.1 Effluent Quality Non-Compliance Summary

Date	Exceedance of	Objective	Value	Corrective Action
July 2024	Missed Monthly Raw Sample	N/A	N/A	Reviewed Sample schedule requirements and created work order.

7.2 Summary of Abnormal Sewage Discharge Events

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

7.3 Spills (Other than Sewage)

Date	Location	Details	Volume (m3)	Start Date and Time	End Date and Time
No spills (other than sewage) in 2024.					

8 Maintenance

Routine planned maintenance activities are scheduled in WMS and include:

- Inspect, adjust and calibrate process control equipment to ensure proper operation of water distribution systems, 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.

8.1 Normal Maintenance and Repairs

Work Order	Details
3761656	Replaced Jet pump.
3761659	Outfall inspection.
4052004	Chemical pump.
3759341	Generator Battery.

8.2 Emergency Maintenance and Repairs

Work Order	Details
3761664 & 4143078	Bio tank repair and clean out.

8.3 Flow Meter Calibrations and Maintenance

Location	Date of Calibration	Additional Maintenance
FIT-701 Sludge	May 10th, 2024	None.
FIT-402 Final Effluent	May 10th, 2024	None.
FIT-501 Septage/Supernatant	May 10th, 2024	None.
FIT-305 Raw Sewage	May 10th, 2024	None.

8.4 Authorized Alterations in Collection System

Work Order	Details	Significant Drinking Water Threat (Y/N)
No alterations made in collection system in 2024.		

8.5 Notice of Modifications

Date	Process	Modification	Status
No modifications made in 2024.			

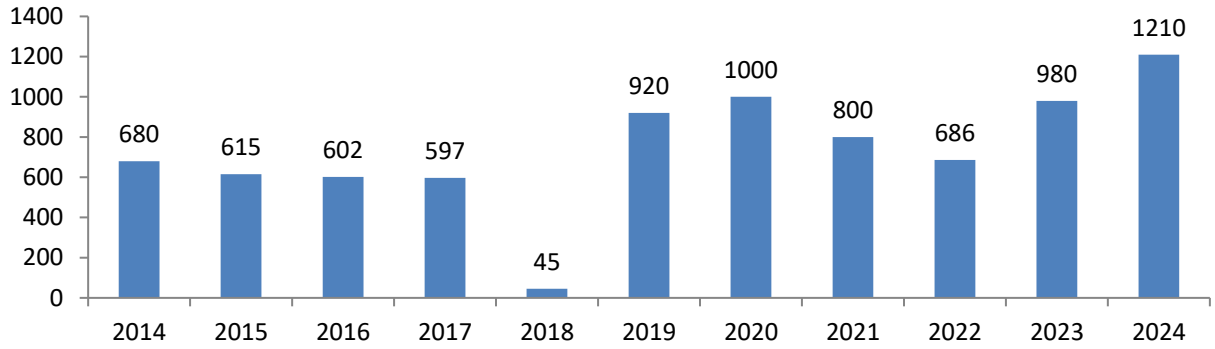
9 Sludge Generation

9.1 Sludge Disposal Summary

Date	Disposal Location	Approval Number	Total Volume (m3)
May 16-17, 2024	Sunol Farms – Turner Farm	CofA # 6069-5BXNTB	520
August 27-29, 2024	Sunol Farms – Turner Farm	CofA # 6069-5BXNTB	690

In 2024, a total of 1210 m3 of liquid bio-solids was hauled offsite by GFL and utilized as soil conditioner. It was spread in May (NASM Submission ID #24589) and August (NASM Submission ID #61733). It is anticipated that approximately the same volume of sludge will be generated in 2024.

9.2 Annual Comparison (m3/year)



It is anticipated that sludge volumes will remain similar to the 2024 volumes. Note in 2018, there was limited hauling due to wet weather.

10 Summary of Complaints

Location	Date	Nature of Complaint	Actions Taken
There were no complaints received in 2024.			

Appendix A

Appendix A – Performance Assessment Report

MERRICKVILLE STP
PERFORMANCE ASSESSMENT REPORT

MUNICIPALITY: MERRICKVILLE-WOLFORD
PROJECT: MERRICKVILLE WWTP
WORKS NUM.: 110001729
DESCRIPTION: TWO SEQUENTIAL BATCH REACTORS AND AEROBIC SLUDGE DIGESTION

YEAR: 2024
WATER COURSE: RIDEAU
DESIGN CAPACITY: 800 m^3/d

MONTH	RAW			TREATED			RAW				SLUDGE	SEPTAGE
	Total Flow m^3	Avg Day Flow m^3	Max Day Flow m^3	Total Flow m^3	Avg Day Flow m^3	Max Day Flow m^3	Raw BOD (mg/L)	Raw TSS (mg/L)	Raw PHOS. (mg/L)	Raw TKN (mg/L)	Liquid Sludge Hauled m^3	Septage Received m^3
JAN	15,737	508	662	16,941	546	715	86	116	3.63	30.1	0	52.9
FEB	18,415	635	946	19,586	675	939	108	150	3.48	28.0	0	19.6
MAR	26,041	840	1,240	26,733	862	1,326	88	148	2.50	24.7	0	52.5
APR	25,755	859	1,222	26,875	896	1,351	165	170	3.83	31.2	0	230.0
MAY	16,639	537	699	17,886	577	781	162	282	4.47	30.0	520	176.0
JUN	13,413	447	566	14,562	485	593	158	335	6.49	60.7	0	
JUL	14,316	462	771	15,996	516	864					0	61.0
AUG	14,061	454	658	15,391	496	744	258	280	7.89	81.0	691	87.0
SEPT	9,880	329	439	10,766	359	427	162	250	3.10	30.9	0	31.0
OCT	8,655	279	348	8,655	279	424	219	328	6.10	47.2	0	17.0
NOV	7,616	254	363	8,078	269	422	159	210	6.19	50.7	0	29.0
DEC	11,036	356	518	11,171	360	608	181	380	6.53	54.9	0	95.0
TOTAL	181,564			192,640							1211	851.0
AVG		497			527		159	241	4.93	42.7		
MAX			1,240			1,351						
CRITERIA		**800**	**3,800**									
COMPLIANCE		**YES**	**YES**									

2024 -MERRICKVILLE STP EFFLUENT SAMPLING MONTHLY AVERAGES

MONTH	DATE	CBOD (mg/L)		TSS (mg/L)		TP (mg/L)		NH_3 (mg/L)		E. Coli (CFU/100ml)
January	01/02/2024	<	3	<	3		0.04		0.07	0
	01/08/2024	<	3		4		0.09	<	0.05	0
	01/15/2024	<	3		3		0.01		0.06	0
	01/22/2024	<	3		3		0.09		0.07	0
	01/29/2024	<	3		8		0.06	<	0.05	0
	Monthly Average		3.0		4.2		0.06		0.06	0
	Compliant?		YES		YES		YES		YES	YES
February	02/05/2024	<	3		7		0.07		0.05	0
	02/12/2024	<	3		4		0.05	<	0.05	7
	02/20/2024	<	3		4		0.05	<	0.05	108
	02/26/2024	<	3		9		0.05	<	0.05	1
	Monthly Average		3.0		6.0		0.06		0.05	1
	Compliant?		YES		YES		YES		YES	YES
March	03/03/2024	<	3		7		0.06	<	0.05	0
	03/11/2024	<	3		7		0.08	<	0.05	5
	03/18/2024	<	3		5		0.08		0.18	0
	03/25/2024	<	3		3		0.04	<	0.05	0
	Monthly Average		3.0		5.5		0.07		0.08	0
	Compliant?		YES		YES		YES		YES	YES
April	04/02/2024	<	3		3		0.05		0.09	0
	04/08/2024	<	3		5		0.03		0.07	1
	04/15/2024	<	3		4		0.04		0.05	1
	04/22/2024	<	3		6		0.04		0.05	0
	04/29/2024	<	3	<	3		0.1	<	0.05	0
	Monthly Average		3.0		4.2		0.05		0.06	0
	Compliant?		YES		YES		YES		YES	YES
May	05/06/2024	<	3		4		0.04		0.05	0
	05/13/2024	<	3		5		0.25	<	0.05	1
	05/21/2024	<	3	<	3		0.05		0.11	0
	05/27/2024	<	3		3		0.02		0.05	0
	Monthly Average		3.0		3.8		0.09		0.07	0
	Compliant?		YES		YES		YES		YES	YES
June	06/03/2024	<	3		3		0.09		0.17	0
	06/10/2024	<	3		4		0.07	<	0.05	0
	06/17/2024	<	3	<	3		0.17		0.15	0
	06/24/2024	<	3	<	3		0.07	<	0.05	1
	Monthly Average		3.0		3.3		0.10		0.11	0
	Compliant?		YES		YES		YES		YES	YES

2024 -MERRICKVILLE STP EFFLUENT SAMPLING MONTHLY AVERAGES

MONTH	DATE	CBOD (mg/L)	TSS (mg/L)	TP (mg/L)	NH_3 (mg/L)	E. Coli (CFU/100ml)
July	07/02/2024	< 3	6	0.22	0.13	0
	07/08/2024	< 3	7	0.46	< 0.05	2
	07/15/2024	< 3	3	0.38	0.11	0
	07/22/2024	< 3	< 3	0.71	< 0.05	0
	07/29/2024	< 3	6	0.12	< 0.05	0
	Monthly Average	3.0	5.0	0.38	0.08	0
	Compliant?	YES	YES	YES	YES	YES
August	08/06/2024	< 3	< 3	0.04	0.06	0
	08/12/2024	< 3	4	0.06	< 0.05	0
	08/12/2024					0
	08/19/2024	< 3	< 3	0.05	0.08	0.00001
	08/19/2024					0.0001
	08/26/2024	< 3	4	0.08	< 0.05	2
	Monthly Average	3.0	3.5	0.06	0.06	0
	Compliant?	YES	YES	YES	YES	YES
September	09/03/2024	4	8	0.18	0.11	3
	09/09/2024	< 3	4	0.06	0.07	2
	09/16/2024	< 3	3	0.06	0.08	0
	09/23/2024	< 3	5	0.13	< 0.05	1
	Monthly Average	3.3	5	0.11	0.08	0
	Compliant?	YES	YES	YES	YES	YES
October	10/01/2024	< 3	4	0.14	0.07	1
	10/07/2024	< 3	4	0.1	0.09	2
	10/15/2024	< 3	4	0.12	7.01	1
	10/21/2024	< 3	5	0.24	0.51	0
	10/28/2024	< 3	< 3	0.17	0.05	0
	Monthly Average	3	4.0	0.15	1.55	0
	Compliant?	YES	YES	YES	YES	YES
November	11/04/2024	< 3	5	0.32	0.21	0
	11/12/2024	< 3	4	0.07	< 0.05	0.00001
	11/18/2024	< 3	7	0.39	< 0.05	2
	11/25/2024	< 4	5	0.2	0.3	0
	Monthly Average	3.3	5.3	0.25	0.15	0
	Compliant?	YES	YES	YES	YES	YES
December	12/02/2024	< 3	3	0.07	< 0.05	0
	12/09/2024	< 3	4	0.1	< 0.05	1
	12/16/2024	< 3	< 3	0.08	< 0.05	0
	12/23/2024	< 3	4	0.09	0.05	0.0001
	Monthly Average	3.0	3.5	0.09	0.05	0
	Compliant?	YES	YES	YES	YES	YES

Appendix B

Appendix B - Details of Abnormal Sewage Discharge Events

Facility Bypass/Overflow

Date	Location	Details	Volume (m3)	Start Time	End Time	Duration (h)	Discharge Receiver	Disinfection Provided
There were no facility bypass' or overflows to report in 2024.								

Collection Overflow

Date	Location	Details	Volume (m3)	Start Time	End Time	Duration (h)	Discharge Receiver	Disinfection Provided
There were no collection overflows to report in 2024.								

Spills of Sewage

Date	Location	Details	Volume (m3)	Start Time	End Time	Duration (h)	Discharge Receiver	Disinfection Provided
There were no spills of sewage in 2024.								

Collection System Monitoring Data

Event Date	Event Location	Volume (m3)	Parameter	mg/L	Source Loading (kg/d)	Any Adverse Impacts & Corrective Actions
N/A	N/A	N/A	BOD5			None.
			BOD5			
			Total Phosphorus			
			Total Phosphorus			
			Total Suspended Solids			
			Total Suspended Solids			
			E. coli		N/A	
			E. coli		N/A	

Appendix C

Appendix C – Biosolids Quality

2024 - MERRICKVILLE STP MONTHLY AEROBIC BIOSOLIDS CONCENTRATION RATIO

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Ammonia	177	212	236	251	314	389	486	834		359	490	381
Nitrate	0.4	0.5	0.8	<0.4	<.4	<.1	0.6	0.6		0.4	0.6	0.4
Ammonia + Nitrate	557	770	1350	2560	3470	3120	1960	4320		359	342	451
Total Phosphorus	188	300	482	916	1500	1260	689	1940		8	25	28
Total Solids	7360	15300	16200	32600	44500	55600	42300	11300		3440	2320	5910
Aluminum	77	88	236.00	297	339.0	208.0	488	803		2	4	4
Arsenic	0.10	0.01	0.10	0.10	0.10	0.10	0.01	0.20		0.10	0.10	0.10
Cadmium	0.03	0.03	0.03	0.05	0.07	0.04	0.06	0.08		0.03	0.03	0.03
Chromium	0.18	0.35	0.39	1.14	0.90	0.68	1.44	3.33		0.02	0.03	0.02
Cobalt	0.11	0.26	0.25	0.89	1.19	0.60	0.92	1.14		0.03	0.03	0.04
Copper	4.81	8.75	9.12	28.80	29.90	17.40	26.40	41.20		0.34	0.68	0.60
Lead	0.20	0.40	0.40	1.40	1.40	0.80	1.40	2.00		0.10	0.10	0.10
Mercury	0.00	0.01	0.007	0.01	0.01	0.00	0.01	0.05		0.00	0.00	0.00
Molybdenum	0.18	0.27	0.30	0.84	0.85	0.56	0.92	1.67		0.18	0.18	0.18
Nickel	0.32	0.58	0.60	1.86	2.04	1.13	1.92	2.97		0.10	0.28	0.24
Selenium	0.10	0.10	0.10	0.20	0.20	0.20	0.30	0.40		0.10	0.10	0.10
Zinc	8.58	14.70	15.80	44.80	51.50	25.90	49.00	69.60		0.98	4.58	9.30

*** September sample was not taken as the tank was empty due to sludge hauling.**

Metals ratio = mg metals/kg solids

	Metal/Solids Ratio (Sludge)												
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Limit
Arsenic	13.59	0.65	6.17	3.07	2.25	1.80	0.24	17.70	0.00	29.07	43.10	16.92	**170**
Cadmium	4.08	1.96	1.85	1.53	1.57	0.72	1.42	7.08	0.00	8.72	12.93	5.08	**34**
Chromium	24.5	22.9	24.1	35.0	20.2	12.2	34.0	294.7	0.0	5.8	12.9	3.4	**2800**
Cobalt	14.95	16.99	15.43	27.30	26.74	10.79	21.75	100.88	0.00	8.72	12.93	6.77	**340**
Copper	654	572	563	883	672	313	624	41	0	99	293	102	**1700**
Lead	27.2	26.1	24.7	42.9	31.5	14.4	33.1	177.0	0.0	29.1	43.1	16.9	**1100**
Mercury	0.27	0.33	0.43	0.43	0.31	0.04	0.26	4.16	0.00	0.58	0.86	0.34	**11**
Molybdenum	24.46	17.65	18.52	25.77	19.10	10.07	21.75	147.79	0.00	52.33	77.59	30.46	**94**
Nickel	43.5	37.9	37.0	57.1	45.8	20.3	45.4	262.8	0.0	29.1	120.7	40.6	**420**
Selenium	13.59	6.54	6.17	6.13	4.49	3.60	7.09	35.40	0.00	29.07	43.10	16.92	**34**
Zinc	1166	961	975	1374	1157	466	1158	6159	0	285	1974	1574	**4200**
Sludge is Acceptable	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	FALSE	TRUE	TRUE	FALSE	TRUE	

SOME ANALYSIS RESULTS EXPRESSED AS "<" (LESS THAN);HOWEVER, IN ORDER TO COMPLETE THE CALCULATION, ONLY THE NUMERIC VALUE WAS USED; THEREFORE THE AVG. CONC. IS GREATER THAN ACTUAL.

Appendix D

Appendix D - ECA Annual Report Requirements

Facility ECA # 1121-7YRQLF **Section 10(6)**	**Section in Report**
(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, Raw Sewage and Effluent Quality
(b) A description of any operating problems encountered and corrective actions taken;	Operating Issues/Problems
(c) A summary of all maintenance carried out on any major structure, equipment, apparatus, mechanism or thing forming part of the Works ;	Maintenance
(d) A summary of any effluent quality assurance or control measures undertaken in the reporting period;	Effluent Quality
(e) A summary of the calibration and maintenance carried out on all effluent monitoring equipment; and	Maintenance
(f) A description of efforts made and results achieved in meeting the Effluent Objectives of Condition 6.	Effluent Quality
(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
(h) A summary of any complaints received during the reporting period and any steps taken to address the complaints;	Summary of Complaints
(i) A summary of all By-pass , spill or abnormal discharge events; and	Operating Issues/Problems and Appendix B
(j) Any other information the District Manager requires from time to time.	N/A

Collection ECA #264-W601 1.0 **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	Summary of Complaints

Collection ECA #264-W601 1.0 **Schedule E**	
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 B
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