2023 ANNUAL PERFORMANCE REPORT, Version 2

PORT MCNICOLL WASTEWATER TREATMENT PLANT

For the period of
January 1st, 2023 to December 31st, 2023

Prepared for the Corporation of the Township of Tay by the Ontario Clean Water Agency

TAY TOWNSHIP

ONTARIO CLEAN WATER AGENCY
AGENCE ONTARIENNE DES EAUX

REQUIREMENTS FOR ANNUAL PERFORMANCE REPORT

This annual performance report is prepared in accordance with Amended Environmental Compliance Approval No. 8421-9PMHXN Section 10.(5) items a) through l) for the for the Port McNicoll Wastewater Treatment Plant and with Environmental Compliance Approval #129-W601, Issue 1 for the Tay Township Municipal Collection System.

10. REPORTING

(5) The Owner shall prepare and submit a performance report to the Water Supervisor on an annual basis, within ninety (90) days following the end of the period being reported upon. The reports shall contain, but shall not be limited to, the following information:

(a) a summary and interpretation of all monitoring data and a comparison to the effluent limits outlined in Condition 6, including an overview of the success and adequacy of the Works;

(b) a description of any operating problems encountered and corrective actions taken;

(c) a summary of all maintenance carried out on any major structure, equipment, apparatus, mechanism or thing forming part of the Works;

(d) a summary of any effluent quality assurance or control measures undertaken in the reporting period;

(e) a summary of the calibration and maintenance carried out on all effluent monitoring equipment; and

(f) a description of efforts made and results achieved in meeting the Effluent Objectives of Condition 5.

(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;

(h) a summary of any complaints received during the reporting period and any steps taken to address the complaints;

(i) a summary of all By-pass, spill or abnormal discharge events;

(j) a copy of all Notice of Modifications submitted to the Water Supervisor as a result of Schedule B, Section 1, with a status report on the implementation of each modification;

(k) a report summarizing all modifications completed as a result of Schedule B, Section 3; and

(l) any other information the Water Supervisor requires from time to time.

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This annual performance report is prepared in accordance with Amended Environmental Compliance Approval No. 8421-9PMHXN Section 10.(5) items a) through l) for the for the Port McNicoll Wastewater Treatment Plant and with Environmental Compliance Approval #129-W601, Issue 1 for the Tay Township Municipal Collection System for the 'Reporting Period' of January 1, 2023 – December 31, 2023.

1. System Description

The Port McNicoll Wastewater Treatment Plant (WWTP) is a Class II Treatment and Collection facility. The Port McNicoll WWTP is a membrane bio-reactor (MBR) modified activated sludge process plant with chemical addition that serves the Community of Port McNicoll. The works is for the collection, transmission, treatment and disposal or domestic sewage consisting of a Raw Sewage Pumping Station, Sewage Treatment Plant. Biosolids Storage and Outfall Sewer.

Raw sewage is collected at the sewage pumping station, and conveyed to the sewage treatment plant through sewage forcemains. Raw sewage passes through a screw-type mechanical screen or bar screen (standby) to remove larger debris. The sewage is then directed to the aeration system consisting of two train bio-reactor tanks with an arrangement of membrane cassettes. The aeration system consists of two anoxic zones (for phosphorous removal and ammonia reduction). Treated effluent flows through UV for disinfection, and is discharged into Hogg Bay. Accumulated sludge is directed through the Zenon sludge thickening process, sludge digester and the sludge storage tank, which is then hauled off-site for land application. The facility is equipped with standby power in the event of a power failure.

An overview of the Port McNicoll Wastewater Treatment System can be found in the following table:

Table 1. Port McNicoll Wastewater Treatment Plant System Overview

Facility Name:	Port McNicoll Wastewater Treatment Plant
Facility Type:	Aeration, Chemical Dosing, Screening, UV Disinfection
Plant Classification:	WWT II, WWC II
Works Number:	110001417
Rated Capacity:	1,918 m^3/day
Discharge Point:	Hogg Bay
Environmental Compliance Approval:	8421-9PMHXN (Issue Date: October 21, 2014)

2. Monitoring Data and Comparison with ECA Objectives and Limits

ECA 8421-9PMHXN, Section 10.(5)(a) requires:

"A summary and interpretation of all monitoring data and a comparison to the effluent limits outlined in Condition 6, including an overview of the success and adequacy of the Works;"

Where Condition 6 *"is imposed to ensure that the effluent discharged from the Works to the Hogg Bay meets the Ministry's effluent quality requirements thus minimizing environmental impact on the receiver and to protect water quality, fish and other aquatic life in the receiving water body."*

2.1 Discharge Data Report (MECP)

The Ontario Clean Water Agency (OCWA) has an agreement with the MECP to submit quarterly discharge data for all OCWA operated municipal sewage treatment facilities 45 days at the end of each quarter. Monitoring data is submitted via the Ministry of Environment Wastewater System (MEWS). The MECP has these reports stored in a shared location where MECP Inspectors can obtain and review them. There are no limits/objectives for discharge for the quarterly Discharge Data Report.

2.2 Monitoring Report (WSER)

A monitoring report required under the Wastewater Systems Effluent Regulation (WSER) is submitted on a quarterly basis to the Government of Canada via the Effluent Regulatory Reporting Information System (ERRIS). The quarterly monitoring report requires that the following information be reported for the Port McNicoll WWTP:

- Number of days effluent was deposited
- Total volume of effluent deposited
- Average CBOD (limit of 25 mg/L)
- Average concentration of suspended solids (limit of 25 mg/L)

The monitoring reports can be found within the ERRIS. All results for average $CBOD_5$ and concentration of suspended solids were below the limits set out in WSER.

2.3 Influent ECA Monitoring Program Requirements

The following table (Table 2) outlines the influent water quality monitoring program required by the most current ECA for the reporting period. There are additional in-house samples taken and analyzed throughout the year in order to help with process performance monitoring, adjustment, and optimization. These parameters were analyzed by an accredited analytical laboratory (SGS Canada Inc., Lakefield, Ontario).

Table 2. Influent Water Quality Monitoring Program and Sampling Points- ***as per ECA 8421-9PMHXN Section 9(3)- Table 3- Influent Monitoring***

Influent Monitoring		
Raw Sewage Parameter	**Type of Sample**	**Minimum Frequency**
Biochemical Oxygen Demand (BOD_5)	Composite	Bi-Weekly
Suspended Solids	Composite	Bi-Weekly
Total Phosphorus	Composite	Bi-Weekly
Dissolved Reactive Phosphorus	Composite	Bi-Weekly
Total Kjeldahl Nitrogen Ammonia + Ammonium Nitrogen	Composite	Bi-Weekly
Nitrite + Nitrate Nitrogen	Composite	Bi-Weekly
Alkalinity	Composite	Bi-Weekly
Chlorides	Composite	Bi-Weekly
Conductivity	Composite	Bi-Weekly
pH	Composite	Bi-Weekly

2.4 Raw Sewage (Influent) Characteristics: Summary and Interpretation of Reporting Year

The following parameters in Table 3 and 4 are not reportable as they do not have limits or objectives but are monitored as required by the ECA and used to characterize the contents of incoming sewage flow.

A summary of the influent laboratory results can be seen in the following tables (Table 3 and 4) for samples taken and analyzed during the reporting period. Sample results are based on a bi-weekly composite sample taken and analyzed by an accredited external laboratory. A total of 27 influent samples were analyzed for the reporting period.

Table 3: Raw Sewage (Influent) Quality Analysis for 2023

Month	Monthly Influent Concentrations (mg/L)				
	BOD_5	**Total Suspended Solids**	**Total Phosphorus**	**Dissolved Reactive Phosphorus**	**Total Kjeldahl Nitrogen**
January	91.33	109.33	1.31	0.15	11.87
February	88.00	111.00	1.30	0.03	12.90
March	80.00	93.00	1.04	0.06	9.55
April	46.00	37.50	0.72	0.04	7.35
May	31.00	46.50	0.59	0.03	9.50
June	55.50	81.50	0.97	0.03	14.95
July	107.00	138.00	1.77	0.11	15.20

Month	Monthly Influent Concentrations (mg/L)				
	BOD_5	Total Suspended Solids	Total Phosphorus	Dissolved Reactive Phosphorus	Total Kjeldahl Nitrogen
August	95.67	116.00	1.87	0.22	16.50
September	197.50	147.00	1.93	0.10	15.90
October	51.50	51.50	0.70	0.04	10.00
November	75.50	73.50	1.10	0.09	14.25
December	55.50	65.00	0.82	0.04	11.15
2023 Annual Average	**83.07**	**92.70**	**1.23**	**0.09**	**12.66**

Table 4: Raw Sewage (Influent) Quality Analysis for 2023

Month	Monthly Influent Concentrations (mg/L)					
	Nitrite + Nitrate Nitrogen	Alkalinity	Chlorides	Conductivity	pH	
					Minimum	Maximum
January	2.69	220.33	79.33	736.00	7.42	7.70
February	1.12	224.00	83.50	782.50	7.64	7.81
March	1.42	221.00	84.00	736.00	7.40	7.77
April	2.30	220.00	69.00	685.50	7.55	7.69
May	1.12	213.50	60.50	683.00	7.74	7.93
June	0.06	201.50	70.00	712.00	7.38	7.62
July	0.06	200.33	67.33	689.33	7.62	7.76
August	0.09	211.33	68.33	725.67	7.34	7.46
September	0.18	168.00	73.00	660.00	7.49	7.78
October	1.32	181.00	57.00	480.50	7.50	7.76
November	0.53	219.50	69.50	700.50	7.46	7.76
December	1.24	215.00	65.50	738.00	7.49	7.60
2023	**1.00**	**208.26**	**70.70**	**696.63**	**7.34**	**7.93**

Influent Laboratory analysis for the reporting year based on samples at the inlet of the works averaged a Biochemical Oxygen Demand (BOD_5) concentration of 83.07 mg/L, a Total Suspended Solids (TSS) concentration of 92.70 mg/L, a Total Phosphorus (TP) concentration of 1.23 mg/L, a Dissolved Reactive Phosphorus concentration of 0.09 mg/L, a Total Kjeldahl Nitrogen concentration of 12.66 mg/L. Additionally, an average Nitrite + Nitrate Nitrogen concentration of 1.00 mg/L, an Alkalinity concentration of 208.26 mg/L, a Chloride concentration of 70.70 mg/L, and a Conductivity concentration of 696.63 µS/cm. pH was maintained between 7.34 – 7.93 during the reporting period.

When comparing the data to 2022 trends all parameter concentrations are relatively similar in 2022 and 2023. The average concentration of Biochemical Oxygen Demand (BOD_5) was 79.50 (3.57 mg/L lower in 2022), Total Phosphorus was 1.20 mg/L (0.03 mg/L lower in 2022), Dissolved Reactive Phosphorus was 0.07 (0.02 mg/L lower in 2022), and Total Kjeldahl Nitrogen was 14.31 mg/L (1.65 mg/L higher than 2023). Additionally, an average Nitrite + Nitrate Nitrogen concentration of 1.20 mg/L (0.20 mg/L higher than 2023), Chloride was 71.68 mg/L (0.98 mg/L higher than 2023), and a Conductivity concentration of 694.76 µS/cm (1.87 µS/cm higher in 2023). For 2022 pH was maintained between 7.03 and 7.94.

2.5 Raw Sewage (Influent) Flow: Summary and Interpretation of Reporting Year

The Rated Capacity listed in the most current ECA for Port McNicoll WWTP is 1,918 cubic meters per day. Typically the Rated Capacity listed in an ECA is determined based on the highest average annual flow during which the sewage treatment plant can consistently meet site specific effluent quality criteria (as per the Ontario Design Guidelines for Sewage Works); this is usually dictated by the most limiting treatment/process unit in the system. ECA 8421-9PMHXN, Section 5(2) requires the Owner to use its best efforts to (b) operate the works within the Rated Capacity of the Works.

The Peak Flow Rate is the maximum rate of sewage flow for which the plant or process unit was designed. Each process in the treatment system will have its own Peak Flow Rate. The Peak Flow Rate of an entire treatment system is determined by the process unit with the lowest Peak Flow Rate. For Port McNicoll WWTP, the Plant Peak Flow Rate is limited by the Inlet Works, which has a Peak Flow Rate of 3,836 cubic metres per day.

2.6 Comparison of Influent Flow to Rated Capacity

A summary of influent flows data and comparison to the Rated Capacity during the reporting period can be found in the below table and graph. Based on the definition of the Rated Capacity, a single exceedance does not necessarily result in a non-compliance event, however, if a system continually exceeds its Rated Capacity, this could result in reduced treatment efficiency and lead to effluent objective exceedances.

Table 5. Raw Sewage (Influent) Flow Data during Reporting Period

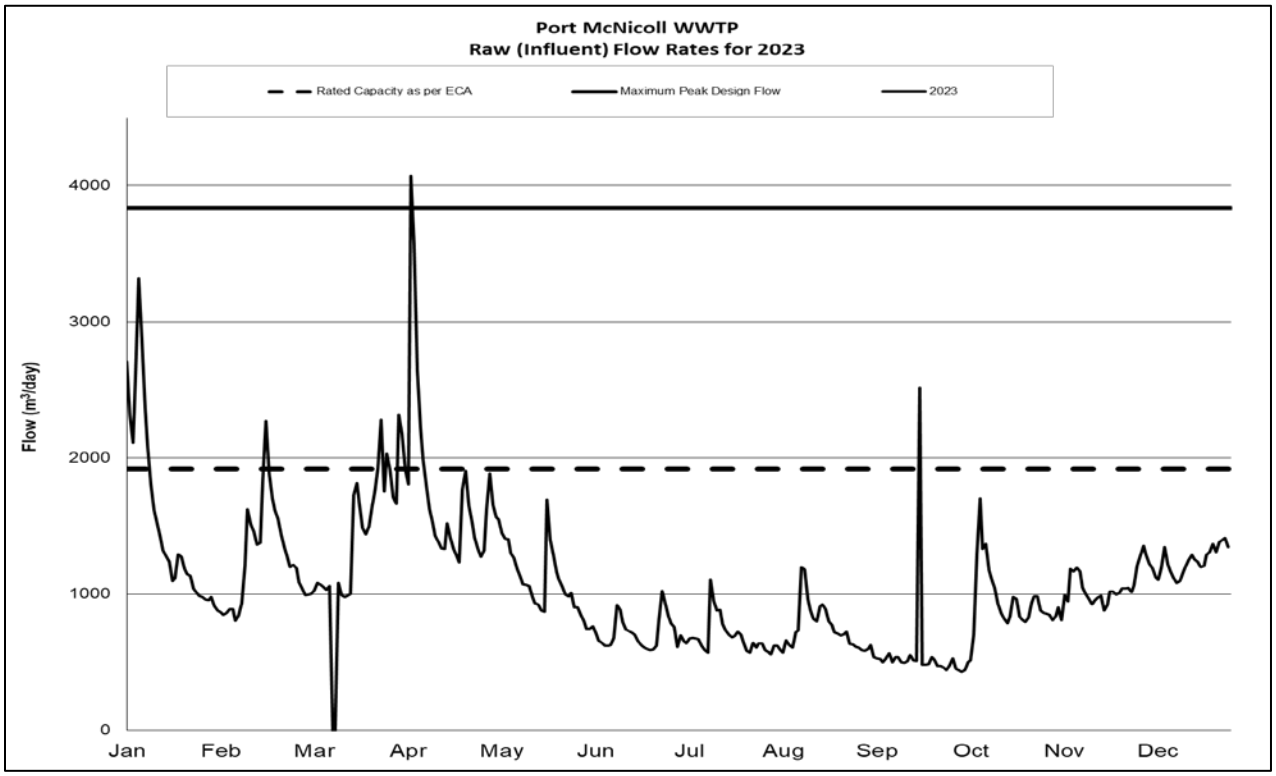
Month	**Average Influent Flow** (m^3/day)	**% of Rated Capacity** (1,918 m^3/day)	**Maximum Influent Flow** (m^3/day)	**% of Plant Peak Flow Rate** (3,836 m^3/day)	**Total Influent Flow** (m^3)
January	1,533.06	80%	3,318.00	86%	47,525.00
February	1,290.14	67%	2,270.00	59%	36,124.00
March	1,401.89	73%	2,282.00	59%	40,655.00

Month	**Average Influent Flow** (m^3/day)	**% of Rated Capacity** (1,918 m^3/day)	**Maximum Influent Flow** (m^3/day)	**% of Plant Peak Flow Rate** (3,836 m^3/day)	**Total Influent Flow** (m^3)
April	1,792.10	93%	4,069.00	106%	53,763.00
May	1,191.25	62%	1,889.00	49%	36,929.00
June	725.73	38%	1,024.00	27%	21,772.00
July	696.45	36%	1,110.00	29%	21,590.00
August	743.83	39%	1,199.00	31%	23,059.00
September	586.26	31%	2,520.00	66%	17,588.00
October	874.32	46%	1,704.00	44%	27,104.00
November	987.13	51%	1,193.00	31%	29,614.00
December	1,245.74	65%	1,415.00	37%	38,618.00
2023	**1,086.33**	**57%**	**4,069.00**	**106%**	**394,341.00**

Note: As per the ECA, 'Rated Capacity' is defined as "the Average Daily Flow for which the Works are approved to handle".

Note: As per the ECA, 'Average Daily Flow' is defined as "the cumulative total sewage flow to the sewage works during a calendar year divided by the number of days during which sewage was flowing to the sewage works that year".

Figure 1. Peak Flow versus Rated Capacity and Peak Flow Rate during Reporting Period



The average daily flow of 1,086.33 m^3 is based on the total flow for the reporting period divided by the number of operational days (i.e. 365) as per the 'Average Daily Flow' definition in the ECA.

If the Annual Average Daily Flow reaches/exceeds 80% of the Rated Capacity, current best practice is to assess issues and provide recommendations for proactive actions. For 2023, the Annual Average Daily Flow was below 80% of the 'Rated Capacity' at 57% of the 'Rated Capacity'. The highest recorded peak flow event of 4,069 m^3 occurred on April 05, 2023, which was 106% of the Rated Capacity and is attributed to heavy continuous rainfall.

Refer to Appendix A for detailed monthly raw sewage (influent) flows at the facility.

2.7 Effluent ECA Monitoring Program

The following table outlines the monitoring programs at the Port McNicoll WWTP as required by the most current ECA for the reporting period. There are additional in-house samples taken and analyzed throughout the year in order to help with process performance monitoring, adjustment, and optimization.

Table 6. Effluent Water Quality Monitoring Program and Sampling Points- ***as per ECA 8421-9PMHXN Section 9(3)- Table 4- Effluent Monitoring***

Effluent Monitoring		
Final Effluent Parameter	**Type of Sample**	**Minimum Frequency**
$CBOD_5$	Composite	Bi-Weekly
Suspended Solids	Composite	Bi-Weekly
Total Phosphorus	Composite	Bi-Weekly
Dissolved Reactive Phosphorus	Composite	Bi-Weekly
Total Kjeldahl Nitrogen Ammonia + Ammonium Nitrogen	Composite	Bi-Weekly
Nitrite + Nitrate Nitrogen	Composite	Bi-Weekly
Alkalinity	Composite	Bi-Weekly
Chlorides	Composite	Bi-Weekly
Conductivity	Composite	Bi-Weekly
pH	Composite	Bi-Weekly
E.Coli	Grab	Weekly

Note: $CBOD_5$ = Carbonaceous Biochemical Oxygen Demand

The following tables outline the final effluent objectives, limits and loadings at the Port McNicoll WWTP as per its ECA. The applicable effluent parameters are either "concentrations" expressed as milligrams per litre or "loadings" expressed as kilograms per day. As per Section 6, concertation Limits for $CBOD_5$, TSS, TP, and TAN are reportable based on a monthly average effluent concentration, *E.Coli* based on a monthly Geometric Mean Density, pH based on a Single Sample Result, and the Loading Limits are reportable based on a Monthly Average Daily Effluent Loading.

Table 7: Final Effluent Design Objectives- ***as per ECA 8421-9PMHXN Section 5(1)- Table 1- Effluent Objectives***

Effluent Water Quality Objectives		
Effluent Parameter	**Effluent Concentration Objective** (mg/L unless otherwise indicated)	**Total Loading Objective** (kg/day unless otherwise indicated)
Carbonaceous Biochemical Oxygen Demand ($CBOD_5$)	7.0	13.43
Total Suspended Solids	7.0	13.43
Total Phosphorus	0.15	0.29
Total Ammonia Nitrogen (June 1 – August 31)	2.0	3.8
E.Coli	200 organisms/100 mL	--
pH of the effluent maintained between 6.5 to 9.0, inclusive, at all times		

Table 8. Final Effluent Design Limits- ***as per ECA 8421-9PMHXN Section 6(1)- Table 2- Effluent Objectives***

Effluent Water Quality Limits			
Effluent Parameter	**Effluent Concentration Limit (mg/L)**	**Waste Loading Limit (Kg/day)**	**Reportable**
$CBOD_5$	15.00	28.77	Monthly
Total Suspended Solids	15.00	28.77	Monthly
Total Phosphorus	0.25	0.48	Monthly
Total Ammonia Nitrogen (June 1 – August 31)	5.00	9.59	Monthly
Total Ammonia Nitrogen (September 1 to May 31)	15.00	28.77	Monthly
E.Coli	200 organisms/100 mL	--	Monthly
pH of the effluent maintained between 6.0 to 9.5, inclusive, at all times			

2.8 Effluent Monitoring Data: Summary and Interpretation of Reporting Year and Comparison to Objectives and Limits

ECA 8421-9PMHXN, Section 10.(5)(a) requires:

"A summary and interpretation of all monitoring data and a comparison to the effluent limits outlined in Condition 6, including an overview of the success and adequacy of the Works;" where Condition 6 *"is imposed to ensure that the effluent discharged from the Works to the Hogg Bay*

meets the Ministry's effluent quality requirements thus minimizing environmental impact on the receiver and to protect water quality, fish and other aquatic life in the receiving water body."

and where ECA 8421-9PMHXN, section 10(5)(f) requires:

"A description of efforts made and results achieved in meeting the Effluent Objectives of Condition 5;" where Condition 5 *"is imposed to establish non-enforceable effluent quality objectives which the Owner is obligated to use best efforts to strive towards on an ongoing basis. These objectives are to be used as a mechanism to trigger corrective action proactively and voluntarily before environmental impairment occur and before the compliance limits of Condition 6 are exceeded."*

The following tables (Table 9-14) summarizes the effluent water quality for the reporting period compared with the ECA compliance objectives and limits.

A review of the effluent monitoring data shows that the following parameters were within the objectives (as applicable) and limits set out in the most current ECA for the duration of the 2023 reporting period:

- $CBOD_5$ monthly average effluent concentration
- $CBOD_5$ monthly average daily effluent loading
- TSS monthly average effluent concentration
- TSS monthly average daily effluent loading
- TP monthly average daily effluent loading
- TAN monthly average effluent concentration
- TAN monthly average daily effluent loading
- *E.Coli* monthly geometric density

A review of the effluent monitoring data shows that the following parameters were within the limits set out in the most current ECA for the duration of reporting period but were unable to meet the objectives in the following instances:

- TP – 1 single sample objective exceedance- July, 2023
- pH – 1 single sample objective exceedance - October, 2023
- CBOD5 – 1 single sample objective exceedance – June, 2023
- TSS – 1 single sample objective exceedance – July, 2023

It should be noted that as per the ECA, the objectives are non-enforceable design objectives to be used as a mechanism to trigger corrective action proactively and voluntarily before environmental impairment occurs. Exceedances of objectives is not reportable.

Refer to **Appendix A** 2023 Annual Performance Report for a more detailed description of monthly sample results**.**

Table 9: Effluent Sampling Results: CBOD5 and CBOD5 Loading Concentrations

Month	Monthly Average (mg/L)	Within Limits? (15.0 mg/L)	Within Objectives? (7.0 mg/L)	Monthly Loading (kg/d)	Within Waste Loading Limit? (28.77 kg/d)
January	<2.00	Yes	Yes	3.35	Yes
February	<2.00	Yes	Yes	2.84	Yes
March	<2.00	Yes	Yes	3.07	Yes
April	3.00	Yes	Yes	6.06	Yes
May	<2.00	Yes	Yes	2.64	Yes
June	6.00	Yes	Yes	5.04	Yes
July	3.00	Yes	Yes	1.63	Yes
August	<2.00	Yes	Yes	1.71	Yes
September	<2.00	Yes	Yes	1.27	Yes
October	<2.00	Yes	Yes	2.00	Yes
November	<2.00	Yes	Yes	2.23	Yes
December	3.00	Yes	Yes	4.17	Yes
2023 Average	**2.44**	**--**	**--**	**2.97**	**--**

**As per the ECA, CBOD5 Concentration Averaging Calculator is a Monthly Average Effluent Concentration*

**As per the ECA, CBOD5 Loading Limits Concentration Averaging Calculator is a Monthly Average Daily Effluent Loading*

Table 10: Effluent Sampling Results: TSS and TSS Loading Concentrations

Month	Monthly Average (mg/L)	Within Limits? (15.0 mg/L)	Within Objectives? (7.0 mg/L)	Monthly Loading (kg/d)	Within Waste Loading Limit? (28.77 kg/d)
January	<2.00	Yes	Yes	3.35	Yes
February	<2.00	Yes	Yes	2.84	Yes
March	<2.00	Yes	Yes	3.07	Yes
April	<2.00	Yes	Yes	4.04	Yes
May	3.00	Yes	Yes	3.96	Yes
June	<2.00	Yes	Yes	1.68	Yes
July	4.33	Yes	Yes	3.52	Yes
August	<2.00	Yes	Yes	1.71	Yes
September	<2.00	Yes	Yes	1.27	Yes
October	<2.00	Yes	Yes	2.00	Yes
November	<2.00	Yes	Yes	2.23	Yes
December	<2.00	Yes	Yes	2.78	Yes
2023 Average	**2.33**	**--**	**--**	**2.84**	**--**

**As per the ECA, TSS Concertation Averaging Calculator is a Monthly Average Effluent Concentration*

**As per the ECA, TSS Loading Limits Concentration Averaging Calculator is a Monthly Average Daily Effluent Loading*

Table 11: Effluent Sampling Results: TP and TP Loading Concentrations

Month	**Monthly Average** (mg/L)	**Within Limits?** *(0.25 mg/L)*	**Within Objectives?** *(0.15 mg/L)*	**Monthly Loading** (kg/d)	**Within Waste Loading Objective ?** (0.29 kg/d)	**Within Waste Loading Limit?** (0.48 kg/d)
January	0.03	Yes	Yes	0.05	Yes	Yes
February	0.03	Yes	Yes	0.04	Yes	Yes
March	0.03	Yes	Yes	0.05	Yes	Yes
April	0.03	Yes	Yes	0.06	Yes	Yes
May	0.03	Yes	Yes	0.04	Yes	Yes
June	0.06	Yes	Yes	0.05	Yes	Yes
July	0.16	Yes	No	0.13	Yes	Yes
August	0.13	Yes	Yes	0.11	Yes	Yes
September	0.12	Yes	Yes	0.08	Yes	Yes
October	0.09	Yes	Yes	0.09	Yes	Yes
November	0.05	Yes	Yes	0.06	Yes	Yes
December	0.03	Yes	Yes	0.04	Yes	Yes
2023 Average	**0.07**	**--**	**--**	**0.09**	**--**	**--**

**As per the ECA, TP Concentration Averaging Calculator is a Monthly Average Effluent Concentration*

**As per the ECA, TP Loading Limits Concentration Averaging Calculator is a Monthly Average Daily Effluent Loading*

Table 12: Effluent Sampling Results: TAN and TAN Loading Concentrations

Month	**Monthly Average** (mg/L)	**Within Monthly Objective ?** (2.0 mg/L)	**Within Monthly Compliance Limit?** (5.0 mg/L Jun 1 – Aug 31) (15 mg/L Sept 1 – May 31)	**Monthly Loading** (kg/d)	**Within Waste Loading Objective ?** (3.8 kg/d)	**Within Waste Loading Limit?** (9.59 kg/d Jun 1 – Aug 31) (28.77 kg/d Sept 1 – May 31)
January	<0.10	Yes	Yes	0.17	Yes	Yes
February	<0.10	Yes	Yes	0.14	Yes	Yes
March	<0.10	Yes	Yes	0.15	Yes	Yes
April	<0.10	Yes	Yes	0.20	Yes	Yes
May	<0.10	Yes	Yes	0.13	Yes	Yes
June	<0.10	Yes	Yes	0.08	Yes	Yes
July	<0.10	Yes	Yes	0.08	Yes	Yes
August	<0.10	Yes	Yes	0.09	Yes	Yes

Month	**Monthly Average** (mg/L)	**Within Monthly Objective ?** (2.0 mg/L)	**Within Monthly Compliance Limit?** (5.0 mg/L Jun 1 – Aug 31) (15 mg/L Sept 1 – May 31)	**Monthly Loading** (kg/d)	**Within Waste Loading Objective ?** (3.8 kg/d)	**Within Waste Loading Limit?** (9.59 kg/d Jun 1 – Aug 31) (28.77 kg/d Sept 1 – May 31)
September	<0.10	Yes	Yes	0.06	Yes	Yes
October	<0.10	Yes	Yes	0.10	Yes	Yes
November	<0.10	Yes	Yes	0.11	Yes	Yes
December	<0.10	Yes	Yes	0.14	Yes	Yes
2023 Average	**<0.10**	**--**	**--**	**0.12**	**--**	**-**

**As per the ECA, TAN Concentration Averaging Calculator is a Monthly Average Effluent Concentration*

**As per the ECA, TAN Loading Limits Concentration Averaging Calculator is a Monthly Average Daily Effluent Loading*

Table 13: Effluent Sampling Results: *E.Coli* Concentrations

Month	**Monthly Geometric Mean Density** (cfu/100 mL)	**Within Monthly Objective and Compliance Limit?** (200 cfu/100 mL)
January	2.00	Yes
February	1.68	Yes
March	1.41	Yes
April	2.00	Yes
May	2.00	Yes
June	2.00	Yes
July	1.74	Yes
August	2.00	Yes
September	2.00	Yes
October	1.52	Yes
November	2.00	Yes
December	1.68	Yes

**As per the ECA, E.Coli Concentration Averaging Calculator is a Monthly Geometric Density*

Table 14. Effluent Quality Data during Reporting Period: pH

2023	**pH**			
	Min.	**Max.**	**Within Objective?** (6.5 – 9.0) inclusive at all times)	**Within Limits?** (6.0 – 9.5) inclusive at all times
January	6.63	7.03	Yes	Yes
February	6.85	7.16	Yes	Yes
March	6.68	7.77	Yes	Yes
April	7.08	7.90	Yes	Yes

2023	pH			
	Min.	Max.	Within Objective? (6.5 – 9.0) inclusive at all times)	Within Limits? (6.0 – 9.5) inclusive at all times
May	6.82	7.28	Yes	Yes
June	6.72	7.32	Yes	Yes
July	6.93	7.47	Yes	Yes
August	6.84	7.39	Yes	Yes
September	6.87	7.23	Yes	Yes
October	6.25	7.54	No	Yes
November	7.11	7.39	Yes	Yes
December	7.26	7.56	Yes	Yes

Refer to the below section (Section 2.7) for a comparison of effluent discharge data compared to the ECA objectives, limits and loadings with relation to the success and adequacy of the system.

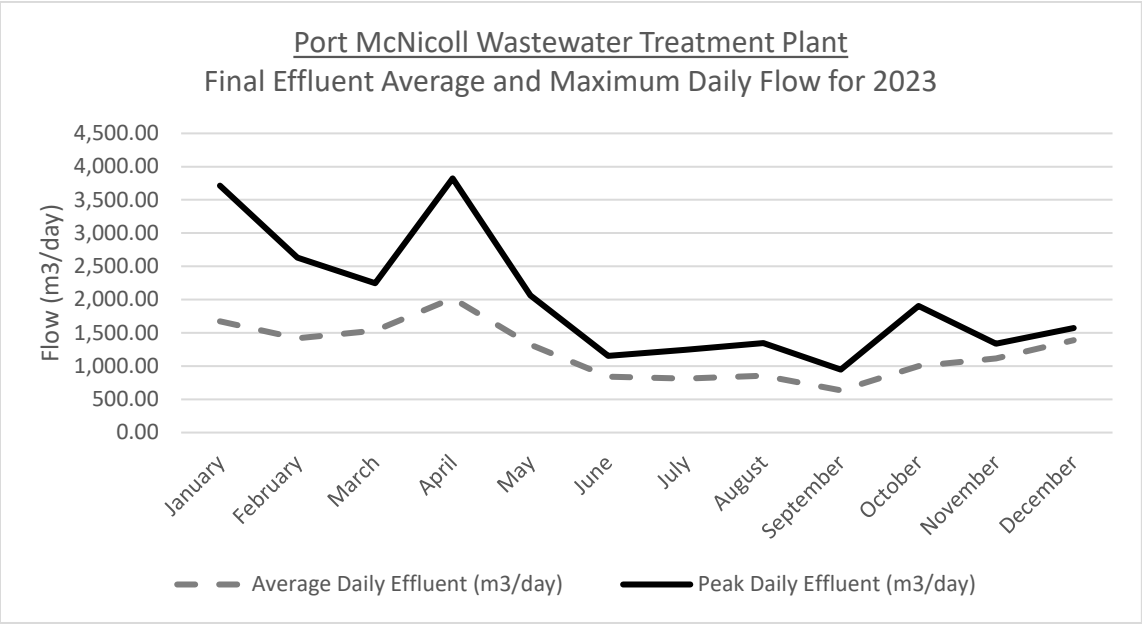
2.9 Effluent Flow: Summary and Interpretation of Reporting Year

The following table outlines the final effluent average daily flow data in 2023 and the graph shows the final effluent daily and peak final effluent flow by month for the reporting period.

Table 15: Final Effluent Average Daily Flow and Peak Flow Data by Month for 2023

Month	Average Daily Effluent (m^3/day)	Peak Daily Effluent (m^3/day)	Total (m^3/day)
January	1,673.77	3,712.00	51,887.00
February	1,418.92	2,633.00	39,730.00
March	1,533.79	2,247.00	44,480.00
April	2,019.56	3,823.00	60,587.00
May	1,320.06	2,061.00	40,922.00
June	840.63	1,154.00	25,219.00
July	813.35	1,245.00	25,214.00
August	853.61	1,348.00	26,462.00
September	635.10	947.00	19,053.00
October	999.83	1,906.00	30,995.00
November	1,114.86	1,338.00	33,446.00
December	1,389.29	1,573.00	43,068.00
2023 Average	**1,215.05**	**3,823.00**	**441,063.00**

Figure 2: 2023 Average Daily and Peak Daily Final Effluent Flow by Month for 2023



During the reporting period, the average annual daily flow for final effluent to outfall (Hogg Bay) was 1,215.05 m^3/day. The maximum peak final effluent daily flow was 3,823.0 m^3/day, which occurred on April 6, 2023, corresponding with the maximum peak daily influent flows on April 6, 2023.

2.10 Success & Adequacy of the System

ECA 8421-9PMHXN, Section 10.(5)(a) requires:

"A summary and interpretation of all monitoring data and a comparison to the effluent limits outlined in Condition 6, including an overview of the success and adequacy of the Works;" where Condition 6 *"is imposed to ensure that the effluent discharged from the Works to the Hogg Bay meets the Ministry's effluent quality requirements thus minimizing environmental impact on the receiver and to protect water quality, fish and other aquatic life in the receiving water body."*

In 2023, Port McNicoll WWTP produced effluent with the following removal rates:

Parameter	Percent Removal
$CBOD_5$	96.03
Total Suspended Solids	97.01
Total Phosphorus	84.45

During the reporting period, Port McNicoll WWWTP provided effective wastewater treatment, producing effluent with removal rates for $CBOD_5$ at 96.03%, 97.01% for Total Suspended Solids, and 84.45% for Total Phosphorus.

Based on the monitoring program and effluent quality data, the Port McNicoll WWTP provided effective wastewater treatment for all wastewater parameters. This facility was in compliance with all of the effluent concentration and loading limits for the reporting year, there were no reportable non-compliance incidents. The bacteriological quality of the effluent complied with the ECA monthly geometric mean density of less than 200 *E.Coli* organisms per 100 mL sample of effluent discharged from the plant which indicates effective effluent disinfection.

For the duration of the reporting period, CBOD5 remained in compliance with ECA compliance limits (15 mg/L) and loading limits (28.77 kg/d). There was one instance where the CBOD5 was above the ECA objective (7.0 mg/L). This occurred on June 5, 2023 with 10.0 mg/L. The following samples were in compliance with both ECA objectives and limits. See *Section 2.5 Table 9* for a breakdown of month to month discharge sampling results.

For the duration of the reporting period, Total Suspended Solids remained in compliance with ECA compliance limits (15 mg/L) and waste loading limits (28.77 kg/d) and objectives (13.43 kg/d). There was one instance where the TSS was above the ECA objective (7.0 mg/L). This instance occurred on July 17, 2023, with 8.0 mg/L. The following samples were in compliance with both ECA objectives and limits. See *Section 2.5 Table 10* for a breakdown of month to month discharge sampling results.

For the duration of the reporting period, pH remained in compliance with ECA compliance limits (6.0 – 9.5 inclusive). There was one instance in which the pH dropped slightly below the objective limit (6.5 to 8.5 inclusive) during the reporting period. This instance occurred on October 5, 2023 with 6.25. The cause is unknown, but the following sample pH was in compliance with both ECA objectives and limits. See *Section 2.5, Table 14* for a breakdown of month to month discharge data sampling results.

For the duration of the reporting period, Total Phosphorus remained in compliance with ECA compliance limits (0.25 mg/L). There was one instance where the Total Phosphorus exceeded slightly above the objective (0.15 mg/L) during the reporting period. This instance occurred on July 17, 2023 with 0.18 mg/L, but the following samples were in compliance with both ECA objectives and limits.

For 2023 best efforts were used to operate the works within the rated capacity of the system. For the reporting period, the annual average Daily flow was 1,086.33 which was below 80% of the Rated Capacity at 57%. Best efforts were also made to ensure that the effluent from the works was free of floating and settleable solids and did not contain oil or any other substances in amounts sufficient to create a visible film or sheen or foam or discolouration on the receiving waters.

3. Operational Issues and Corrective Actions

ECA 8421-9PMHXN, Section 10 (5)(b) requires:

"A description of any operating problems encountered and corrective actions taken;"

There were no operating problems encountered during the reporting period.

4. Maintenance Activities

ECA 8421-9PMHXN, section 10(5)(c) requires:

"A summary of all maintenance carried out on any major structure, equipment, apparatus, mechanism or thing forming a part of the works;"

4.1 Work Management System

Planned maintenance, including scheduled and non-scheduled maintenance activities are scheduled using a computerized Work Management System (WMS) that allows user to:

- Enter detailed asset information
- Generate and process work orders
- Access maintenance and inspection procedures
- Plan, schedule, and document all asset related tasks and activities
- Access maintenance records and asset histories

Work Orders are automatically generated by the WMS program and are assigned to the applicable Operations staff accordingly.

4.2 Preventative Maintenance Activities

There were a number of preventative maintenance tasks completed throughout the reporting period. They are as follows:

- Monthly Generator Test
- Alarm Testing
- Alum Pump Maintenance
- UV Inspections
- Change Rag Bag
- Monthly Verifications and Calibrations
- Monthly Headworks Inspections
- Monthly Process and Blowers Inspections
- Annual Pump Maintenance
- Annual Calibrations

4.3 Repairs and Improvement

There were a number of repairs and/or improvements completed throughout the reporting period. They are as follows:

- Compressor Pump Replacements
- Alarm Upgrades

- Valve Maintenance
- PLC Upgrades
- UV Bank Service
- Sewer Lateral Repair
- Belt Replacement
- Blower Maintenance

5. Effluent Quality Assurance

ECA 8421-9PMHXN, section 10(5)(d) requires:

"A summary of any effluent quality assurance or control measures undertaken in the reporting period;"

Quality assurance and control measures undertaken during the reporting period include adherence to provincial regulations, use of accredited laboratories, operation of the system by licensed Operators, scheduled sampling and analysis, in-house laboratory analysis and calibration of equipment. The sections below provide further details of these measures.

5.1 Adherence to Provincial Regulations

The Ontario Clean Water Agency operates the Port McNicoll WWTP in accordance with provincial regulations and the Environmental Compliance Approval.

5.2 Use of Accredited Laboratories

Analytical tests to monitor the effluent quality are conducted by a laboratory audited by the Canadian Association for Laboratory Accreditation Inc. (CALA) and accredited by the Standards Council of Canada (SCC). Accreditation ensures that the laboratory has acceptable laboratory protocols and test methods in place. It also requires the laboratory to provide evidence and assurances of the proficiency of the analysts performing the test methods. During the reporting period, all chemical sample analyses were conducted by SGS (Lakefield) Canada Inc.

5.3 Operation by Licensed Operators

Port McNicoll WWTP is operated and maintained by licensed Operators. The mandatory licensing program for operators of sewage treatment facilities in Ontario is regulated under the Ontario Water Resources Act (OWRA) Regulation 435/93 and Ontario Regulation 129/04. A Licensed individual has successfully passed the licensing exam and meets the education and experience requirements set out in the regulation.

5.4 Sampling and Analysis

The Ontario Clean Water Agency followed a sampling and analysis schedule that meets the requirements of the ECA.

5.5 In-House Analysis

In-house analysis were conducted by Licensed Operators for monitoring purposes using Standard Methods. The data generated from these tests is used to determine the treatment efficiency while maintaining process control. All in-house monitoring equipment is calibrated based on the manufacturer's recommendations. The Operators of the facility continue to use their expertise in order to meet our objective of no exceedances of the ECA Effluent Compliance Limits and OCWA will continue to make best efforts to meet the ECA Effluent Objectives.

5.6 Calibrations

Third-party and in-house calibrations are completed on various equipment and monitoring and analysis items as required based on manufacturer's recommendations. Refer to Section 6 for more information regarding calibration of monitoring equipment.

6. Calibration of Monitoring Equipment

ECA 8421-9PMHXN, section 10(5)(e) requires:

"A summary of the calibration and maintenance carried out on all effluent monitoring equipment;"

The flow meters used to measure raw sewage (influent) and final effluent at Port McNicoll WWTP were calibrated on September 25, 2023 by Indus Control. All program parameters received a passing inspection. Refer to Appendix B for detailed calibration records/reports.

7. Sludge Production and Disposal

ECA 8421-9PMHXN, section 10(5)(g) requires:

"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;"

During the reporting period, a total volume of 1,147.00 m^3 of sludge produced at the Port McNicoll WWTP and hauled by Wessuc Inc. The sludge was either delivered to lagoons for storage or applied as soil conditioner to agricultural land to Non-Agricultural Source Material Plan (NASM Plan) sites/locations which were approved by the Ontario Ministry of Agriculture, Food and Rural

Affairs (OMAFRA) under Ontario Regulation 338/09. NASM Plans under the Nutrient Management Act are issued to the owner (farmer) who is responsible for managing this plan with assistance from the NASM Plan Developer.

Refer to Table 16 for a tabulation of the hauled sludge and the locations of where the sludge was disposed and Appendix C a detailed record of specific sludge haulage dates and volumes.

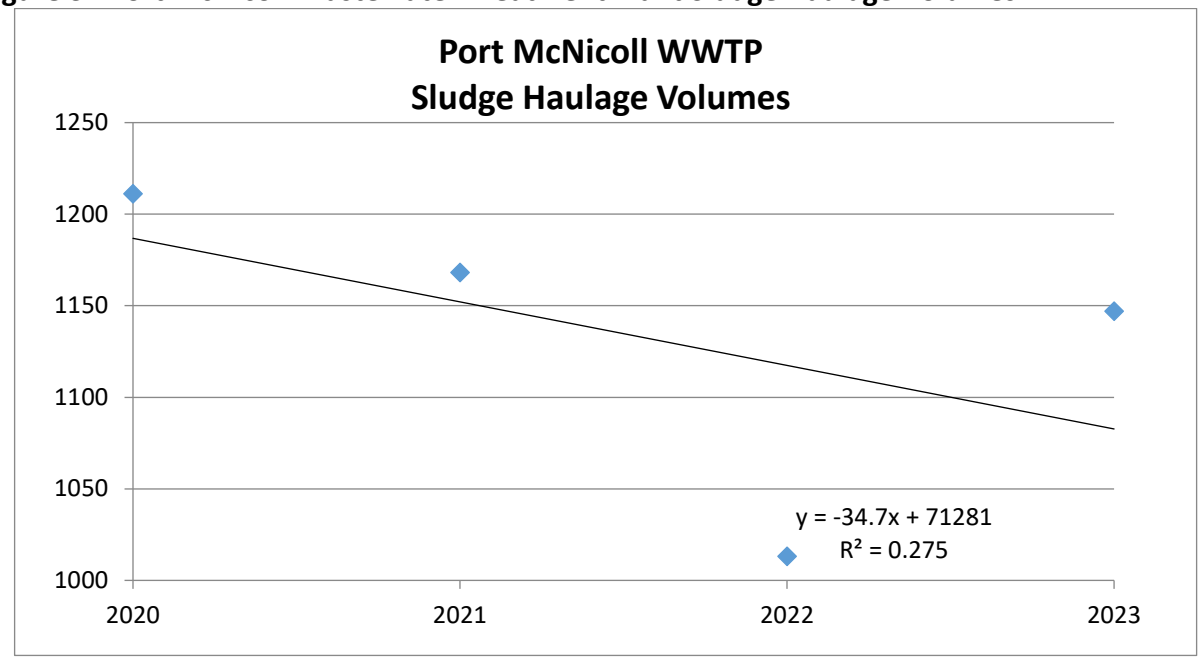
Table 16. Sludge Hauling during the Reporting Period

Haulage Months	Site	Location	NASM #	Volume of Sludge Hauled (m^3)
May	S11099	Field	24949	292.00
June	S11080, S12099	Field	24923, 24339	315.00
August	S11043	Field	60593	180.00
October	S11008	Field	60843	360.00
			Total Sludge Haulage for 2023	**1,147.00**

During the reporting period, a total volume of 1,147.00 m^3 of sludge was hauled from Port McNicoll WWTP to field. Compared to 2022, this was an increase of approximately 12% (1,013.00 m^3).

To estimate the volume of sludge generated in the next reporting period, a linear regression using data from previous years was used. The regression model estimates the sludge volume for 2024 to be approximately 831.57 m^3 or less, the accuracy of this estimate is affected by the R^2 value (27.5% see Figure 2), the closer the R^2 value is to 100%, the better the regression model fits to the data. Operations staff will continue to optimize the dewatering process to reduce the relative volume of sludge.

Figure 3. Port McNicoll Wastewater Treatment Plant Sludge Haulage Volumes



Biosolids produced at the Port McNicoll WWTP met all the quality criteria specified in the Regulation for the reporting period. A summary of the Port McNicoll WWTP sludge quality with a comparison to quality criteria can be referenced in *Appendix D*.

8. Community Complaints

ECA 8421-9PMHXN, section 10(5)(h) requires:
"A summary of any complaints received during the reporting period and any steps taken to address the complaints;"

There is a standard operating procedure (SOP) in place that outlines the steps required for receiving and addressing community complaints. All complaints are to be discussed and/or investigated, and resolved as required. The community complaint is logged in detail in the facility logbook and then various details are entered into OCWA's electronic database system "Maximo." This database contains the history of all complaints with the relevant information enclosed.

For the reporting period, there were no community complaints received.

9. By-Pass, Spill or Abnormal Discharge Events

ECA 8421-9PMHXN, section 10(5)(i) requires:
"A summary of all By-pass, spill or abnormal discharge event;"

Quarterly by-pass reports were submitted to the MECP, as required in the ECA for the reporting period on May 3, 2023, August 9, 2023, October 31, 2023, and January 19, 2024.

9.1 By-Pass Events

There were no reportable bypass events for this reporting period.

9.2 Spill or Abnormal Discharge Events

There were no reportable spill events that occurred at the WWTP during this reporting period. See section 16.7 for a summary of any collection system overflow and spill of sewage events.

10. Notice of Modifications (Limited Operational Flexibility)

ECA 8421-9PMHXN, section 10(5)(j) requires:

"A *copy of all Notice of Modifications submitted to the Water Supervisor as a result of Schedule B, Section 1, with a status report on the implementation of each modification;"* where *"Schedule B, Section 1 is the "Limited Operational Flexibility Criteria for Modifications to Municipal Sewage Works."*

There were no Notices of Modifications submitted to the Water Supervisor during the reporting period.

11. Summary of Modifications

ECA 8421-9PMHXN, section 10(5)(k) requires:

"A report summarizing all modifications completed as a result of Schedule B, Section 3;" where Schedule B, Section 3 refers to *"normal or emergency operational modifications, such as repairs, reconstructions, or other improvements that are part of maintenance activities, including cleaning, renovations to existing approved sewage works equipment, provided that the modification is made with Equivalent Equipment, are considered pre-approved."*

Normal or emergency operational modifications, such as repairs, reconstructions, or other improvements that are part of maintenance activities, including cleaning, renovations to existing approved sewage works equipment are included in Section 4 of this report.

12. Other Information

ECA 8421-9PMHXN, section 10(5)(l) requires:

"Any other information the Water Supervisor requires from time to time."

There was no information required from the Water Supervisor during the reporting period.

13. Municipal Sewage Collection System- Annual Performance Report

This report was prepared in accordance with the requirements of the Environmental Compliance Approval for a Municipal Sewage Collection Systems, Schedule E, Section 4.6.1.

Municipal Sewage Collection System ECA #	129-W601, Issue 1
Sewage Works	Tay Township Municipal Sewage Collection System
Collection System Owner	The Corporation of the Township of Tay
Reporting Period	July 1, 2023 to December 31, 2023

Note: As per Schedule E, Section 4.6.1 of CLI-ECA #129-W601, the first report shall cover the period of July 1st, 2023 to December 31st, 2023 and be submitted to the Director on or before March 31st, 2024.

Is the Annual Report available to the public at no charge on a website on the Internet?

Yes

Note: As per Schedule E, Section 4.7.1 of CLI-ECA #129-W601, the annual performance report must be made available, on request and without charge, to members of the public who are served by the Authorized System; and 4.7.2 must be made available, by June 1st of the same reporting year, to members of the public without charge by publishing the report on the Internet, if the Owner maintains a website on the Internet.

Location where Annual Performance Report required under CLI-ECA #129-W601, Schedule E will be available for inspection. *(CLI-ECA #129-W601, Schedule E, Section 4.6.1 & 4.7.1):*

- Township of Tay Municipal Office at 450 Park Street, Victoria Harbour, Tay Township
- https://www.tay.ca/en/

Pursuant to Schedule E, sections 4.6.3 to 4.6.9, this Annual Performance Report shall:

a) 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.

b) If applicable, include a summary of any operating problems encountered and corrective actions taken.

c) 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.

d) Include a summary of any complaints related to the Sewage Works received during the reporting period and any steps taken to address the complaints.

e) Include 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.

f) Include a summary of all Collection System Overflow(s) and Spill(s) of Sewage.
   i. Dates;
   ii. Volumes and durations;
   iii. If applicable, loadings for total suspended solids, BOD, total phosphorus, and total kjeldahl nitrogen and sampling results for E.Coli;
   iv. Disinfection, if any; and
   v. Any adverse impacts(s) and any corrective actions, if applicable

g) Includes a summary of efforts made to reduce Collection System Overflows, Spills, STP Overflows, and/or STP Bypasses, including the following items, as applicable:
   i. 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.
   ii. Details of the establishment and maintenance of a PPCP, including a summary of project progresses compared to the PPCP's timelines.
   iii. An assessment of the effectiveness of each action taken.
   iv. 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.
   v. Public reporting approach including proactive efforts.

13.1 Description of the Works

The Tay Township Municipal Sewage Collection System is owned by the Township of Tay and operated by the Ontario Clean Water Agency (OCWA) and is composed of two subsystems: The Port McNicoll Sewage Collection System and the Victoria Harbour Sewage Collection System. For the purposes of this annual report, the below information will cover the Port McNicoll Municipal Collection System. Information regarding the Victoria Harbour Municipal Sewage Collection System can be found enclosed in the Corporation of the Township of Tay: Victoria Harbour Wastewater Treatment Plant 2023.

The Port McNicoll Collection System consists of Sewage Works for the collection, and transmission of Sewage, consisting of a Raw Sewage Pumping Station, forcemains, with discharge

into the inlet works of the Port McNicoll Sewage Treatment Plant. The sewage pumping stations in the Authorized system include:

- CNB Pump Station #8 (PS) – consists of two centrifugal pumps (one duty and one standby) which pumps into a common header that splits into the twinned forcemains at the headworks of the WWTP. The PS is equipped with PLC, level control system and a stand-by diesel generator in case of power failure.

The Port McNicoll Municipal Collection System contains no combined sewage pumping stations, no combined sewage storage structures or combined storage tanks. The authorized collection system also contains no authorized combined sewer collection system overflow points and no authorized sanitary sewer overflow points.

13.2 Summary of Monitoring Data and Interpretation

No monitoring data was required within the municipal sewage collection system for the reporting period.

13.3 Summary of Operating Problems Encountered and Corrective Actions Taken

There was one operating problem that was encountered within the municipal sewage collection that occurred outside of the reporting period- See section 16.7 “Summary of collection system overflows and spills of sewage” for more information.

13.4 Summary of Calibration, Maintenance, and Repairs

All in-house monitoring equipment is calibrated/verified as per manufacturer’s recommendations. Monitoring and metering equipment is also calibrated by a third party on an annual basis. Preventative maintenance is scheduled for all equipment at the sewage treatment plant and pumping stations at regular frequency (frequency depends on the equipment and type of maintenance). Maintenance activities are scheduled within the work management system Maximo, upon completion, operators set the work order to complete. On a monthly basis, preventative work orders are reviewed for completion. See *Section 4. Maintenance Summary* for more information.

13.5 Community Complaints Received in Relation to the Sewage Works

There was one community complaint regarding the municipal collection system received in 2023, which fell outside of the reporting period of July 1 to December 31, 2023.

2023	Details of Community Complaints
June 2, 2023	Resident located on First Ave called to report a loud noise coming from the CNB Pump Station, and sewage spilling out of the door-

	See section 16.7 " Summary of collection system overflows and spills of sewage" for more information

13.6 Alterations to the Authorized System

There were no repairs and/or improvements made during the reporting period. See *Section 11. Summary of Modifications* for more information.

13.7 Summary of Collection System Overflow(s) and Spill(s) of Sewage

There was one collection system overflow/spill of sewage for the municipal collection system in 2023, which fell outside of the reporting period of July 1 to December 31, 2023.

Date (yyyy/mm/dd)	Event	Details
2023/06/02	Raw Sewage Spill (Emergency Overflow Event)	SAC Reference Number: 1-3i8G6J Spill Location: CNB Pump Station – contents spilled out of the pump station onto the pump station property Duration: Approximately one hour Spill Contents: Untreated Sewage Approximate Volume: 2,000 L <u>Incident Description</u> On June 2, 2023 at 9:50pm: OCWA received a call from Huronia Alarms due to a resident complaint that CNB Pump Station was making noise and that sewage was coming out of the door. The operator arrived on site and turned off Pump 1. The sewage spilled due to the equipment failure of the gasket plate on Pump 1. <u>Actions and Correction Actions Taken to Control Incident</u> Operations staff responded to the incident immediately and turned off the pump responsible for the spill, switched duty pumps and redirected flow back into the process. Township vacuum truck arrived to clean up the spill. Untreated sewage cleaned up by a vacuum truck and emptied at Victoria Harbour WWTP drying pad. Replacement fill plate cover installed on pump 1 on June 15, 2023. <u>Reporting Communications</u> • June 2, 2023- OCWA verbally notified Spills Action Centre (SAC), MECP, and Township of Tay. • Written notification was provided to SAC, MECP and PHI on 2023/06/07

13.8 Efforts Made to Reduce Collection System Overflows, Spills, STP Overflows, and/or STP Bypasses

The sewage pumping station is equipped with alarm monitoring for high flow events. Preventative maintenance procedures are in place to ensure the sewage pumping stations are operating as designed and include:

- Wet Well Cleanouts
- Daily Pump Station Inspection
- Alarm Testing
- Generator Inspection and Maintenance
- Headworks Inspections

Performance Assessment Report

Appendix A

Annual Flow & Effluent Quality Summary

Ontario Clean Water Agency
Agence Ontarienne Des Eaux

Performance Assessment Report

From 1/1/2023 to 12/31/2023 11:59:59 PM

1676 PORT MCNICOLL WASTEWATER TREATMENT FACILITY 110001417

	1 / 2023	2/ 2023	3/ 2023	4/ 2023	5/ 2023	6/ 2023	7/ 2023	8/ 2023	9/ 2023	10/ 2023	11/ 2023	12/ 2023	<--Total-->	<--Avg-->	<--Max-->	<-Criteria->
Flows																
Raw Flow: Total - Raw Sewage m³/d	47,525.00	36,124.00	40,655.00	53,763.00	36,929.00	21,772.00	21,590.00	23,059.00	17,588.00	27,104.00	29,614.00	38,618.00	394,341.00			0.00
Raw Flow: Avg - Raw Sewage m³/d	1,533.06	1,290.14	1,401.90	1,792.10	1,191.26	725.73	696.45	743.84	586.27	874.32	987.13	1,245.74		1,086.34		1,918.00
Raw Flow: Max - Raw Sewage m³/d	3,318.00	2,270.00	2,282.00	4,069.00	1,889.00	1,024.00	1,110.00	1,199.00	2,520.00	1,704.00	1,193.00	1,415.00			4,069.00	0.00
Raw Flow: Count - Raw Sewage m³/d	31.00	28.00	29.00	30.00	31.00	30.00	31.00	31.00	30.00	31.00	30.00	31.00	363.00			0.00
Eff. Flow: Total - Final Effluent m³/d	51,887.00	39,730.00	44,480.00	60,587.00	40,922.00	25,219.00	25,214.00	26,462.00	19,053.00	30,995.00	33,446.00	43,068.00	441,063.00			0.00
Eff. Flow: Avg - Final Effluent m³/d	1,673.77	1,418.93	1,533.79	2,019.57	1,320.06	840.63	813.35	853.61	635.10	999.84	1,114.87	1,389.29		1,215.05		
Eff. Flow: Max - Final Effluent m³/d	3,712.00	2,633.00	2,247.00	3,823.00	2,061.00	1,154.00	1,245.00	1,348.00	947.00	1,906.00	1,338.00	1,573.00			3,823.00	0.00
Eff Flow: Count - Final Effluent m³/d	31.00	28.00	29.00	30.00	31.00	30.00	31.00	31.00	30.00	31.00	30.00	31.00	363.00			0.00
Carbonaceous Biochemical Oxygen Demand: CBOD																
Eff: Avg cBOD5 - Final Effluent mg/L	< 2.00	< 2.00	< 2.00	< 3.00	< 2.00	< 6.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	3.00		< 2.44	< 6.00	15.00
Eff: # of samples of cBOD5 - Final Effluent	3.00	2.00	2.00	2.00	2.00	2.00	3.00	3.00	2.00	2.00	2.00	2.00	27.00			0.00
Loading: cBOD5 - Final Effluent kg/d	< 3.348	< 2.838	< 3.068	< 6.059	< 2.640	< 5.044	< 1.627	< 1.707	< 1.270	< 2.000	< 2.230	< 4.168		< 2.97	< 6.06	28.770
Biochemical Oxygen Demand: BOD5																
Raw: Avg BOD5 - Raw Sewage mg/L	91.33	88.00	80.00	46.00	31.00	55.50	107.00	95.67	197.50	51.50	75.50	55.50		81.21	197.50	0.00
Raw: # of samples of BOD5 - Raw Sewage	3.00	2.00	2.00	2.00	2.00	2.00	3.00	3.00	2.00	2.00	2.00	2.00	27.00			0.00
Percent Removal: BOD5 - Raw Sewage %	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00
Total Suspended Solids: TSS																
Raw: Avg TSS - Raw Sewage mg/L	109.33	111.00	93.00	37.50	46.50	81.50	138.00	116.00	147.00	51.50	73.50	65.00		89.15	147.00	0.00
Raw: # of samples of TSS - Raw Sewage	3.00	2.00	2.00	2.00	2.00	2.00	3.00	3.00	2.00	2.00	2.00	2.00	27.00			0.00
Eff: Avg TSS - Final Effluent mg/L	< 2.00	< 2.00	< 2.00	< 2.00	< 3.00	< 2.00	< 4.33	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00		< 2.33	< 4.33	15.00
Eff: # of samples of TSS - Final Effluent	3.00	2.00	2.00	2.00	2.00	2.00	3.00	3.00	2.00	2.00	2.00	2.00	27.00			0.00
Loading: TSS - Final Effluent kg/d	< 3.348	< 2.838	< 3.068	< 4.039	< 3.960	< 1.681	< 3.525	< 1.707	< 1.270	< 2.000	< 2.230	< 2.779		< 2.84	< 4.04	28.770
Percent Removal: TSS - Raw Sewage %	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00
Total Phosphorus: TP																
Raw: Avg TP - Raw Sewage mg/L	1.31	1.30	1.05	0.73	0.59	0.97	1.77	1.87	1.93	0.70	1.10	0.83		1.18	1.93	0.00
Raw: # of samples of TP - Raw Sewage	3.00	2.00	2.00	2.00	2.00	2.00	3.00	3.00	2.00	2.00	2.00	2.00	27.00			0.00
Eff: Avg TP - Final Effluent mg/L	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.07	0.16	0.13	0.12	0.09	< 0.05	< 0.03		< 0.07	< 0.16	0.25
Eff: # of samples of TP - Final Effluent	3.00	2.00	2.00	2.00	2.00	2.00	3.00	3.00	2.00	2.00	2.00	2.00	27.00			0.00
Loading: TP - Final Effluent kg/d	< 0.050	< 0.043	< 0.046	< 0.061	< 0.040	0.055	0.130	0.111	0.076	0.090	< 0.056	< 0.042		< 0.09	< 0.13	0.480

Percent Removal: TP - Raw Sewage %	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00
Nitrogen Series																
Raw: Avg TKN - Raw Sewage mg/L	11.87	12.90	9.55	7.35	9.50	14.95	15.20	16.50	15.90	10.00	14.25	11.15		12.43	16.50	0.00
Raw: # of samples of TKN - Raw Sewage	3.00	2.00	2.00	2.00	2.00	2.00	3.00	3.00	2.00	2.00	2.00	2.00	27.00			0.00
Eff: Avg TAN - Final Effluent mg/L	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		< 0.10	<	15.00
Eff: # of samples of TAN - Final Effluent	3.00	2.00	2.00	2.00	2.00	2.00	3.00	3.00	2.00	2.00	2.00	2.00	27.00			0.00
Loading: TAN - Final Effluent kg/d	< 0.167	< 0.142	< 0.153	< 0.202	< 0.132	< 0.084	< 0.081	< 0.085	< 0.064	< 0.100	< 0.111	< 0.139		< 0.12	< 0.20	28.770
Eff: Avg NO3-N - Final Effluent mg/L	11.19	11.15	9.91	9.14	10.55	11.88	11.93	13.10	21.70	13.30	14.20	10.84		12.41	21.70	0.00
Eff: # of samples of NO3-N - Final Effluent	3.00	2.00	2.00	2.00	2.00	2.00	3.00	3.00	2.00	2.00	2.00	2.00	27.00			0.00
Eff: Avg NO2-N - Final Effluent mg/L	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03		< 0.03	<	0.00
Eff: # of samples of NO2-N - Final Effluent	3.00	2.00	2.00	2.00	2.00	2.00	3.00	3.00	2.00	2.00	2.00	2.00	27.00			0.00
Disinfection																
Eff: GMD E. Coli - Final Effluent cfu/100mL	2.00	1.68	1.41	2.00	2.00	2.00	1.74	2.00	2.00	1.52	2.00	1.68				200.00
Eff: # of samples of E. Coli - Final Effluent	5.00	4.00	4.00	4.00	5.00	4.00	5.00	4.00	4.00	5.00	4.00	4.00	52.00			0.00

Calibration Reports for 2023

Appendix B

With Flow Meter Reports

IndusControl Inc
3170 Ridgeway Dr, Unit 11
Mississauga, ON, L5L 5R4

VERIFICATION REPORT
ELECTRO-MAGNETIC FLOW MEASUREMENT

Customer Name:	Township of Tay	Site/Plant Address:	551 FIRST AVENUE
Plant Name:	Port McNicoll		PORT MCNICOLL, ON L0K1R0

Device Information		Service Information	
Make:	Fisher-Porter	Date:	September 25, 2023
Model:	50XM13NXAD20AABC22	Report No:	CO1493-2309-24
Order Code:	N/A	Job No:	CO1493-2309
Serial No.:	4211000201		
Tag:	FIT7620	**Flow Details**	
Job Location:	Raw sewage	Unit:	L/SEC
Asset Id:	0000350482	Flow Range:	N/A
		Current Output:	4-20 mA
Sensor Details		4 mA Set Point	0
Line size:	8 inch	20 mA Set Point	N/A
Model:	10DX3111AAD18P1A3BA1432		
Max flow	1080 m3/hr		

Inst. Reading	AS FOUND	AS LEFT
TOTALIZER (m3)	4510590	4510602
FLOW (l/sec)	0.0000	0.0000

Maintenance Checklist			Remarks
Visual Inspection:	☑ OK	☐ NOT OK	
Electrical Inspection:	☑ OK	☐ NOT OK	
Sensor Installation:	☑ OK	☐ NOT OK	
Transmitter Installation:	☑ OK	☐ NOT OK	

Instrument Test Information and Results

Test-Point	Flow Measured on Hand-Held Calibrator (l/sec)	UUT Display (l/sec)	Deviation (l/sec)
1	53.8000	54.7200	-0.92
2	53.9200	54.4200	-0.50
3	54.7800	55.8000	-1.02

Information of Tools used for Verification of the Instruments

Details	Tool/Kit 1	Tool/Kit 2	Tool/Kit 2
Device Description:	Portable Doppler flow meter	Electrical Multimeter	NA
Manufacturer:	Greyline	Fluke	NA
Model No:	PDFM 5.1	179	NA

* Refer Calibration Tools Certificates submittal for more Information

Overall Test Result:	☑ Passed	☐ Fail	☐ Not Verified

Overall Remarks:	Measurement working as per specification

Service Technician :	Chetan Parekh	Stamp/Signature	
Printed Date:	September 25, 2023		

End of Report

Version: 19-12

IndusControl Inc
3170 Ridgeway Dr, Unit 11
Mississauga, ON, L5L 5R4

VERIFICATION REPORT
ELECTRO-MAGNETIC FLOW MEASUREMENT

Customer Name:	Township of Tay	Site/Plant Address:	551 FIRST AVENUE
Plant Name:	Tay are DWS		PORT MCNICOLL, ON L0K1R0

Device Information		Service Information	
Make:	Khrone	Date:	September 25, 2023
Model:	IFC010F	Report No:	CO1493-2309-25
Order Code:	N/A	Job No:	CO1493-2309
Serial No.:	450078-2/2		
Tag:	FIT7520	Flow Details	
Job Location:	Final sewage	Unit:	m3/hr
Asset Id:	0000350483	Flow Range:	0 - 700
		Current Output:	4-20 mA
Sensor Details		4 mA Set Point	0
Line size:	200 mm 8 inch	20 mA Set Point	700
GKL:	8.4094		

Inst. Reading	AS FOUND	AS LEFT
TOTALIZER (m3)	72893	72905
FLOW (m3/hr)	0.3	128.9

Maintenance Checklist			Remarks
Visual Inspection:	☑ OK	☐ NOT OK	
Electrical Inspection:	☑ OK	☐ NOT OK	
Sensor Installation:	☑ OK	☐ NOT OK	
Transmitter Installation:	☑ OK	☐ NOT OK	

Instrument Test Information and Results

Set-Point as Per Calibration KIT	Calculated Flow (m3/hr)	Calculated O/P (mA)	UUT Display (m3/hr)	UUT Measured Output (mA)	Deviation (m3/hr)
0	0.00	4.00	0.04	4.01	-0.04
A	72.47	5.66	72.89	5.62	-0.42
B	144.94	7.31	145.06	7.28	-0.12
C	289.89	10.63	290.09	10.59	-0.20

Information of Tools used for Verification of the Instruments

Details	Tool/Kit 1	Tool/Kit 2	Tool/Kit 3
Device Description:	Calibrator	Electrical Multimeter	NA
Manufacturer:	Khrone	Fluke	NA
Model No:	GS8B	179	NA

* Refer Calibration Tools Certificates submittal for more Information

Overall Test Result:	☑ Passed	☐ Fail	☐ Not Verified

Overall Remarks:	Measurement working as per specification

Service Technician :	Chetan Parekh	Stamp/Signature	
Printed Date:	September 25, 2023		

End of Report

Version: 19-12

IndusControl Inc
3170 Ridgeway Dr, Unit 11
Mississauga, ON, L5L 5R4

VERIFICATION REPORT
ELECTRO-MAGNETIC FLOW MEASUREMENT

Customer Name:	Township of Tay	Site/Plant Address:	551 FIRST AVENUE
Plant Name:	Port McNicoll		PORT MCNICOLL, ON L0K1R0

Device Information		Service Information	
Make:	Fisher-Porter	Date:	September 26, 2023
Model:	N/A	Report No:	CO1493-2309-26
Order Code:	N/A	Job No:	CO1493-2309
Serial No.:	4587700102		
Tag:	FIT 3520-1	**Flow Details**	
Job Location:	Pearmeate	Unit:	L/SEC
		Flow Range:	N/A
Sensor Details		Current Output:	4-20 mA
Line size:	4 inch	4 mA Set Point	N/A
		20 mA Set Point	N/A

Inst. Reading	AS FOUND	AS LEFT
TOTALIZER (gal)	2176217	2178436
FLOW (l/sec)	0	0

Maintenance Checklist			Remarks
Visual Inspection:	☑ OK	☐ NOT OK	
Electrical Inspection:	☑ OK	☐ NOT OK	
Sensor Installation:	☑ OK	☐ NOT OK	
Transmitter Installation:	☑ OK	☐ NOT OK	

Instrument Test Information and Results

Test-Point	Flow Measured on Hand-Held Calibrator (l/sec)	UUT Display (l/sec)	Deviation (l/sec)
1	20.68	21.30	-0.62
2	19.85	20.90	-1.05
3	19.97	20.45	-0.48

Information of Tools used for Verification of the Instruments

Details	Tool/Kit 1	Tool/Kit 2	Tool/Kit 2
Device Description:	Portable Doppler flow meter	Electrical Multimeter	NA
Manufacturer:	Greyline	Fluke	NA
Model No:	PDFM 5.1	179	NA

* Refer Calibration Tools Certificates submittal for more Information

Overall Test Result:	☑ Passed	☐ Fail	☐ Not Verified

Overall Remarks:	Measurement working as per specification

Service Technician :	Chetan Parekh	Stamp/Signature	
Printed Date:	September 26, 2023		

End of Report

Version: 19-12

IndusControl Inc
3170 Ridgeway Dr, Unit 11
Mississauga, ON, L5L 5R4

VERIFICATION REPORT
ELECTRO-MAGNETIC FLOW MEASUREMENT

Customer Name:	Township of Tay	Site/Plant Address:	551 FIRST AVENUE
Plant Name:	Port McNicoll		PORT MCNICOLL, ON L0K1R0

Device Information		Service Information	
Make:	Fisher-Porter	Date:	September 26, 2023
Model:	N/A	Report No:	CO1493-2309-27
Order Code:	N/A	Job No:	CO1493-2309
Serial No.:	4587700101		
Tag:	FIT 3520-2	**Flow Details**	
Job Location:	Pearmeate	Unit:	L/SEC
		Flow Range:	N/A
		Current Output:	4-20 mA
Sensor Details		4 mA Set Point	N/A
Line size:	4 inch	20 mA Set Point	N/A

Inst. Reading	AS FOUND	AS LEFT
TOTALIZER (gal)	838843	840589
FLOW (l/sec)	0	0

Maintenance Checklist			Remarks
Visual Inspection:	☑ OK	☐ NOT OK	
Electrical Inspection:	☑ OK	☐ NOT OK	
Sensor Installation:	☑ OK	☐ NOT OK	
Transmitter Installation:	☑ OK	☐ NOT OK	

Instrument Test Information and Results

Test-Point	Flow Measured on Hand-Held Calibrator (l/sec)	UUT Display (l/sec)	Deviation (l/sec)
1	16.03	15.11	0.92
2	16.25	15.26	0.99
3	14.70	13.64	1.06

Information of Tools used for Verification of the Instruments

Details	Tool/Kit 1	Tool/Kit 2	Tool/Kit 2
Device Description:	Portable Doppler flow meter	Electrical Multimeter	NA
Manufacturer:	Greyline	Fluke	NA
Model No:	PDFM 5.1	179	NA

* Refer Calibration Tools Certificates submittal for more Information

Overall Test Result:	☑ Passed	☐ Fail	☐ Not Verified

Overall Remarks:	Measurement working as per specification

Service Technician :	Chetan Parekh	Stamp/Signature	
Printed Date:	September 26, 2023		

End of Report

Version: 19-12

Biosolids Quantity and Haulage Records

Appendix C

Date	Site #	NASM #	Port McNicoll	Concession	Lot	Township
June 7, 2023	S11080	24923	270.00	3	8	Springwater
June 22, 2023	S12099	24339	45.00	4	26, 27	Oro Medonte
August 31, 2023	S11043	60593	180.00	13	2	Springwater
October 24, 2023	S11008	60843	225.00	3	18, 19	Springwater
October 25, 2023	S11008	60843	135.00	3	18, 19	Springwater
May 23, 2023	S11099	24949	89.00	1	15	Springwater
May 24, 2023	S11099	24949	203.00	1	15	Springwater
		Total	**1,147.00**			

Biosolids Quality Data

Appendix D

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

Facility: PORT MCNICOLL WASTEWATER TREATMENT FACILITY
Works: 1676
Period: 01/01/2023 to 12/31/2023

Facility Works Number: *120003227*
Facility Name: *PORT MCNICOLL WASTEWATER TREATMENT FACILITY*
Facility Owner: *The Corporation of the Township of Tay*
Facility Classification: *WWT II, WWC II*
Receiver: *Hogg Bay*
Service Population:
Total Design Capacity: *1,918 m3/day*
Period Being Reported: 01/01/2023 12/01/2023

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	**PORT MCNICOLL 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		20,600.000	14,300.000	420.000	1.000	29.000	0.600	890.000	15.000	280.000
Feb		21,600.000	14,700.000	380.000	1.000	76.000	2.000	743.000	38.500	46.000
Mar		18,100.000	12,600.000	530.000	2.600	59.000	2.100	758.000	30.800	83.000
Apr		20,600.000	13,900.000	560.000	2.100	71.000	0.200	631.000	36.550	81.000
May	292.000	24,500.000	16,800.000	679.000	1.900	83.000	0.200	1,020.000	42.450	99.000
Jun	315.000	17,200.000	12,600.000	403.000	56.300	3.000	3.000	808.000	29.650	96.000
Jul		33,500.000	22,400.000	772.000	2.800	172.000	3.000	784.000	87.400	102.000
Aug	180.000									
Sep		38,700.000	25,700.000	980.000	5.400	18.000	3.000	490.000	11.700	72.000
Oct	360.000	36,900.000	25,200.000	1,010.000	21.300	20.000	3.000	1,030.000	20.650	78.000
Nov		38,400.000	31,800.000	1,350.000	4.000	37.000	3.000	718.000	20.500	129.000
Dec		29,400.000	20,800.000	907.000	2.000	96.000	3.000	1,110.000	49.000	84.000
Average	286.750	27,227.273	19,163.636	726.455	9.127	60.364	2.100	816.545	34.745	104.545
Total	1,147.000	299,500.000	210,800.000	7,991.000	100.400	664.000	23.100	8,982.000	382.200	1,150.000