

# 2023 ANNUAL SEWAGE REPORT

MAPLETON WASTEWATER  
POLLUTION CONTROL  
PLANT



For the period of  
January 1<sup>st</sup>, 2023 to December 31<sup>st</sup>, 2023

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



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Appendix A: 2023 Performance Assessment Report

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## 1. System Description

The Mapleton Wastewater Pollution Control plant (WPCP) is a Lagoon Treatment System consisting of five lagoons which receives residential and commercial wastewater and provides a level of treatment to meet the Environmental Compliance Approval (ECA) #1391-B38PLA. Owned by the Township of Mapleton, the works is operated on behalf of the Owner by the Ontario Clean Water Agency for the treatment of sanitary sewage and disposal of effluent to Conestogo River. The Rated Capacity of the works is 900 m<sup>3</sup>/day.

The major process units consist of: inlet works, preliminary treatment (aeration cell), a biological treatment stabilization cell, supplementary treatment system for phosphorus removal, 3 final effluent polishing cells, effluent pumping station, post-secondary treatment through sand filtration and UV disinfection. The WWTP discharges the treated effluent via its outfall into the Conestogo River.

An overview of Mapleton Wastewater Pollution Control Plant can be found in Table 1:

**Table 1.** Mapleton Wastewater Pollution Control Plant Overview

|  |   |
|--|---|
| <b>Facility Name</b>                     | Mapleton Wastewater Pollution Control Plant   |
| <b>Facility Type</b>                     | Facultative Lagoons, Aerated Lagoon (Cell #2), Alum addition/phosphorous removal, sand filters, sewer system and UV Disinfection, and two pumping stations. |
| <b>Plant Classification</b>              | WWT I, WWC I  |
| <b>Works Number</b>                      | 120001782   |
| <b>Design Capacity</b>                   | 900 m <sup>3</sup> /day   |
| <b>Receiving Water</b>                   | Conestogo River   |
| <b>Environmental Compliance Approval</b> | ECA# 1391-B38PLA, issued August 2, 2018   |

## 2. Influent and Effluent Monitoring and Comparison to Effluent Objectives and Effluent Limits

As per Section 11(4)(a) of ECA 1391-B38PLA, a summary and interpretation of all Influent monitoring data, and a review of the historical trend of the sewage characteristics and flow rates is required.

### 2.1 Influent (Raw Sewage)

As per Section 11(4)(a) of ECA 1391-B38PLA, a summary and interpretation of all Influent monitoring data, and a review of the historical trend of the sewage characteristics and flow rates is required.

#### 2.1.1 Sampling Frequency: Influent

Samples of raw sewage (influent) are collected and analyzed on a regular basis. The sampling types and frequencies are summarized in Table 2. The sampling frequencies meet the requirements set out in Schedule D of ECA 1391-B38PLA.

**Table 2.** Influent Water Quality Monitoring Program and Sampling Points

| Parameter                             | Sample Type | Minimum Frequency |
|---------------------------------------|-------------|-------------------|
| BOD <sub>5</sub> <sup>2A</sup>        | Grab        | Bi-Weekly         |
| Total Suspended Solids <sup>2A</sup>  | Grab        | Bi-Weekly         |
| Total Phosphorous <sup>2A</sup>       | Grab        | Bi-Weekly         |
| Total Kjeldahl Nitrogen <sup>2A</sup> | Grab        | Bi-Weekly         |

<sup>2A</sup>Refer to Appendix A for monthly sample results.

### 2.1.2 Influent (Raw Sewage) Monitoring Data

The following parameters in Table 3 are not reportable as they do not have limits or objectives but are monitored on a regular basis (see Section 2.1.1 for sampling frequency) as required by Schedule D of ECA 1391-B38PLA. Table 3 summarizes the influent monitoring data for the reporting period.

Laboratory analysis of the influent throughout the year indicated that BOD<sub>5</sub>, Total Phosphorus and Total Kjeldahl Nitrogen peaked in October, 2023 at 398.50 mg/L, 10.37 mg/L and 93.95 mg/L respectively. The highest recorded Total Suspended Solid was recorded in November, 2023 at 422.00 mg/L. Overall, there were no notable fluctuations to influent contents for the reporting year.

**Table 3.** Raw Sewage Monitoring Parameters as required by ECA 1391-B38PLA for Mapleton Wastewater Pollution Control Plant, 2023

| Parameter                             | Average (mg/L) | Minimum (mg/L) | Maximum (mg/L) |
|---------------------------------------|----------------|----------------|----------------|
| BOD <sub>5</sub> <sup>3A</sup>        | 225.15         | 119.00         | 398.50         |
| Total Suspended Solids <sup>3A</sup>  | 225.00         | 80.00          | 422.00         |
| Total Phosphorous <sup>3A</sup>       | 6.22           | 2.65           | 10.37          |
| Total Kjeldahl Nitrogen <sup>3A</sup> | 56.26          | 28.55          | 93.95          |

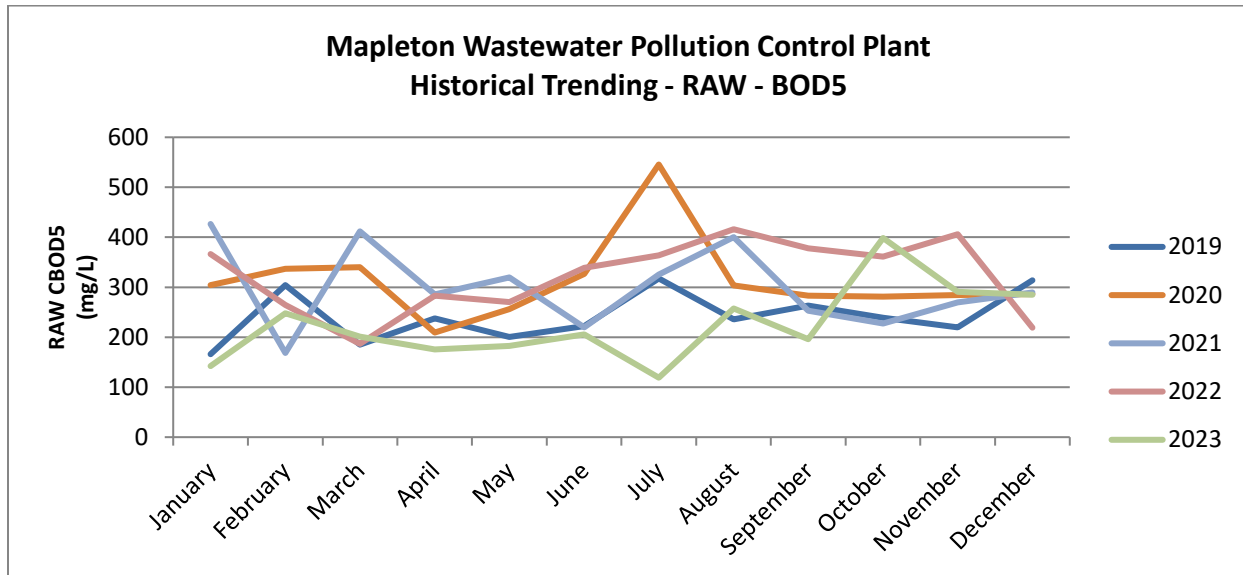
<sup>3A</sup>Refer to Appendix A for monthly sample results.

### 2.1.3 Historical Trends of Influent (Sewage) Characteristics and Influent Flowrates

#### *Sewage Characteristics*

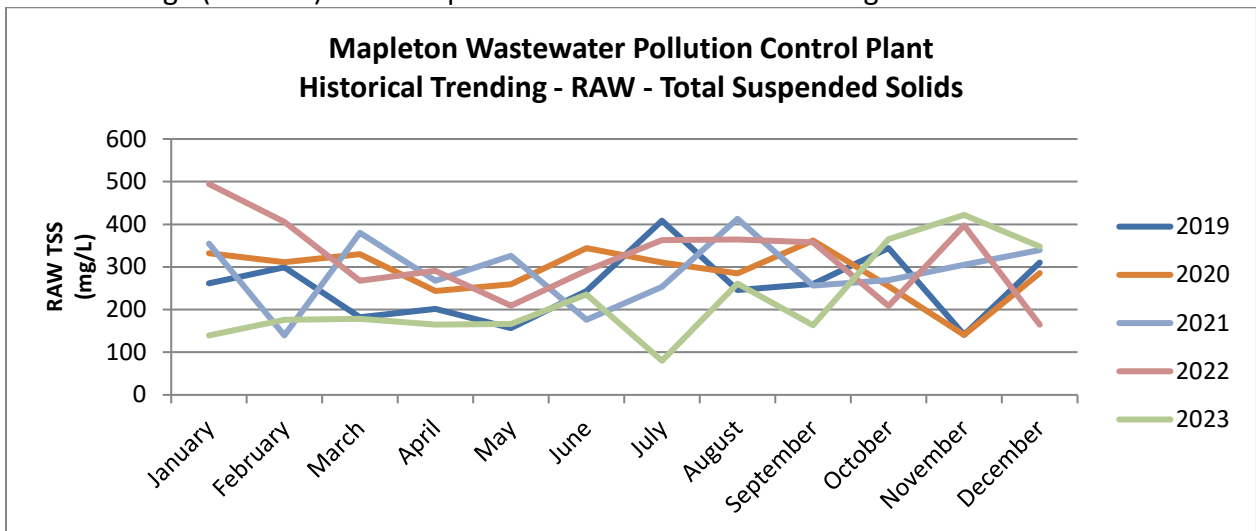
The below graph shows historical raw Biochemical Oxygen Demand (BOD<sub>5</sub>) trending from 2019 to 2023. A review of the trends from the last 5 years for BOD<sub>5</sub> shows that the average BOD<sub>5</sub> concentration in the raw sewage fluctuates year per year with no consistent observable trend. An overall decrease in BOD<sub>5</sub> loading was observed in 2023 compared to previous years. BOD<sub>5</sub> annual average was 321.11 mg/L in 2022 and was decreased this year at 225.15 mg/L.

**Graph 1. Raw Sewage (Influent) BOD<sub>5</sub> Historical Trending for 2019-2023**



The below graph shows the historical raw Total Suspended Solids trending from 2019 to 2023. A review of the current 2023 trends versus the last 5 years has shown a decrease in loadings of Total Suspended Solids for parts of the year. TSS annual average was 317.96 mg/L in 2022 and was decreased this year at 225.00 mg/L.

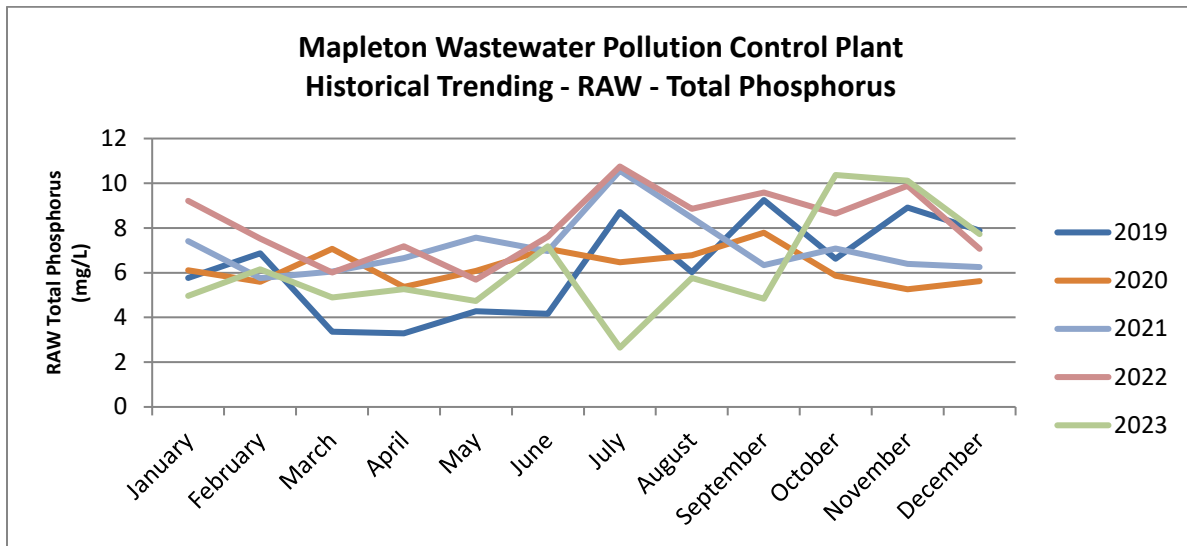
**Graph 2. Raw Sewage (Influent) Total Suspended Solids Historical Trending for 2019-2023**





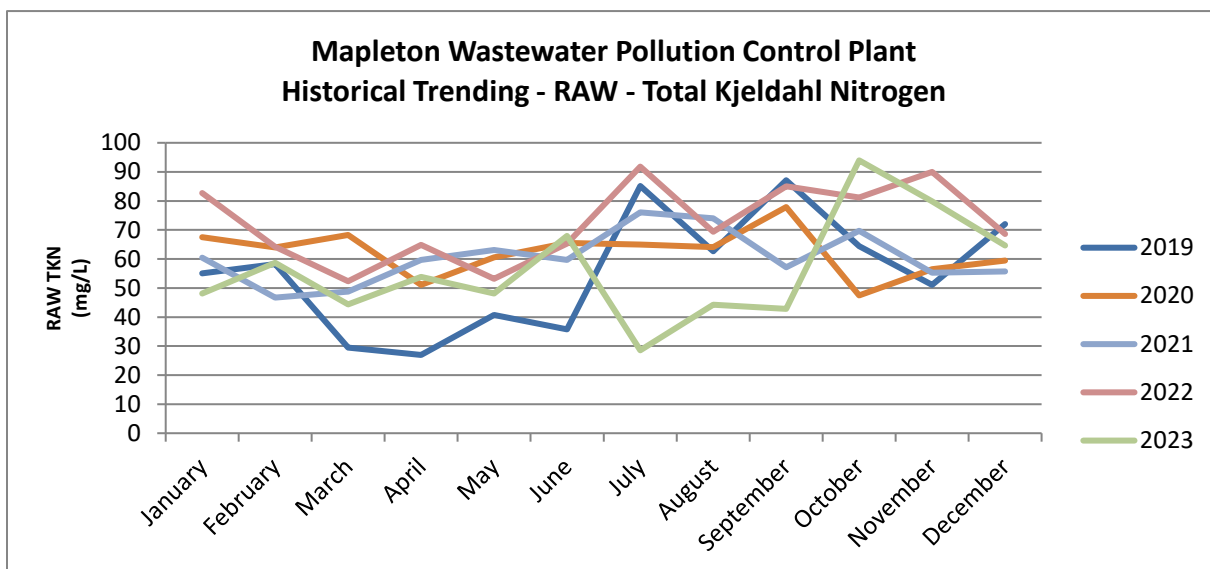
The below graph shows the historical raw Total Phosphorus trending from 2019 to 2023. A review of the current 2023 trends versus the last 5 years has shown a slight decrease in loadings of phosphorus for the parts of the year. TP annual average was 8.17 mg/L in 2022 and was decreased this year at 6.22 mg/L.

**Graph 3. Raw Sewage (Influent) Total Phosphorus Historical Trending for 2019-2023**



The below graph shows the historical raw Total Kjeldahl Nitrogen trending from 2019 to 2023. A review of the 2023 trends versus the last 5 years for TKN has shown a slight decrease in loadings concentrations to previous years. TKN annual average was 72.36 mg/L in 2022 and was decreased this year at 56.26 mg/L.

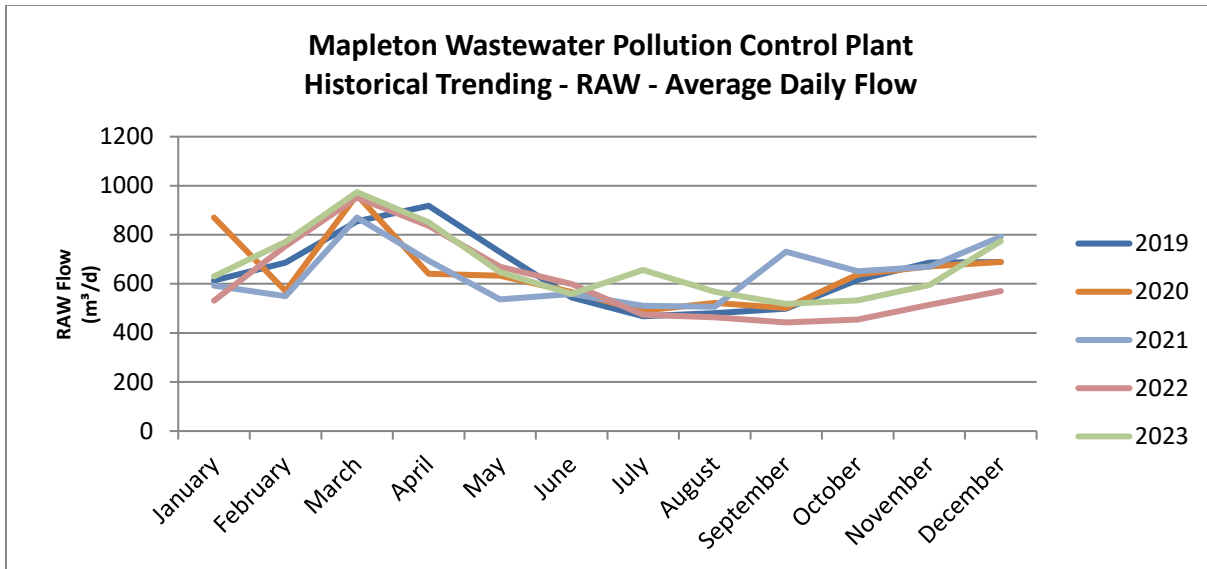
**Graph 4. Raw Sewage (Influent) Total Kjeldahl Nitrogen Historical Trending for 2019-2023**



**Influent Flow:**

The below graph shows historical raw flow trending from 2019 to 2023. The graph shows that the average flows have remained fairly consistent with a slight increase. There is a consistent peak in the months of March-April which would represent warmer temperatures resulting in snow melt and seasonal precipitation.

**Graph 5. Monthly Historical Trending of Daily Average Influent Flow for 2019 to 2023**



The total raw sewage volume of wastewater treated in 2023 was 245,673.00 m<sup>3</sup>, which was an increase from 222,675.00m<sup>3</sup> total raw sewage volume for 2022. The annual average daily flow of raw sewage was 754.20 m<sup>3</sup>/day was 83.80 % of the rated capacity (900 m<sup>3</sup>/day). The maximum peak flow of 2,497.00 m<sup>3</sup>/day occurred in March due to higher seasonal temperatures which resulted in rapid snow melt as well as heavy rainfall. This represents a peak flow of 2.7 times the rated capacity.

**2.2 Final Effluent Monitoring and Flow Rates**

As per Section 11(4)(b) of ECA 1391-B38PLA, a summary and interpretation of all Final Effluent monitoring data, including concentration, flow rates, loading and a comparison to the designed objectives and compliance limits in this approval, including an overview of the success and adequacy of the Works is required.

**2.2.1 Sampling Frequency: Effluent**

Samples of effluent are collected and analyzed on a regular basis. The sampling types and frequencies are summarized in Table 4. The sampling frequencies meet the requirements set out in Schedule D of ECA 1391-B38PLA.



**Table 4.** Effluent Sampling Monitoring – Sampling Frequencies

| Parameters                           | Sample Type       | Minimum Frequency |
|--------------------------------------|-------------------|-------------------|
| CBOD <sub>5</sub> <sup>4A</sup>      | 24-hour Composite | Weekly            |
| Total Suspended Solids <sup>4A</sup> | 24-hour Composite | Weekly            |
| Total Phosphorous <sup>4A</sup>      | 24-hour Composite | Weekly            |
| Total Ammonia Nitrogen <sup>4A</sup> | 24-hour Composite | Weekly            |
| <i>E. Coli</i> <sup>4A</sup>         | Grab              | Weekly            |
| pH                                   | Grab/Probe        | Weekly            |
| Temperature                          | Grab/Probe        | Weekly            |
| Un-ionized Ammonia                   | Calculated        | Weekly            |

<sup>4A</sup>Refer to Appendix A for monthly sample results.

*Notes: As per the ECA pH and temperature of the Final Effluent shall be determined in the field at the time of sampling for Total Ammonia Nitrogen and the concentration of un-ionized ammonia shall be calculated using the total ammonia concentration, pH and temperature using the methodology stipulated in "Ontario's Provincial Water Quality Objectives" dated July 1994, as amended.*

## 2.2.2 Effluent Objectives and Limits

The effluent objectives as per Schedule B of ECA 1391-B38PLA for the Mapleton Wastewater Pollution Control Plant are summarized in table 5:

**Table 5.** Effluent Objectives as per Schedule B of ECA 1391-B38PLA

| Effluent Parameter     | Concentration Objective (mg/L)                    |
|------------------------|---|
| CBOD <sub>5</sub>      | 5.0   |
| Total Suspended Solids | 15.0  |
| Total Ammonia Nitrogen | 3.0   |
| Total Phosphorous      | 0.25  |
| <i>E. Coli</i>         | 100 CFU/100mL<br>(Monthly Geometric Mean Density) |
| pH                     | 6.5 - 8.5 inclusive                               |

The effluent limits that are to be met as per Schedule C of ECA 1391-B38PLA for the Mapleton Wastewater Pollution Control Plant are summarized in Table 6. Any exceedance with the limits found in Table 6 constitutes a non-compliance.

**Table 6.** Effluent Limits as per Schedule C of ECA 1391-B38PLA

| Effluent Parameter   | Concentration Limit (mg/L) |
|--|----------------------------|
| CBOD <sub>5</sub><br>(April, October)<br>(March, November, December) | 7.5<br>10.0                |
| Total Suspended Solids   | 25.0                       |
| Total Ammonia Nitrogen   | 5.0                        |
| Total Phosphorous  | 0.42                       |

| Effluent Parameter | Concentration Limit (mg/L)                        |
|--------------------|---|
| <i>E.Coli</i>      | 200 CFU/100mL<br>(Monthly Geometric Mean Density) |
| pH                 | 6.0 - 9.5 Inclusive                               |

### 2.2.3 Effluent Monitoring Data

The following parameters in Table 7 have limits and objectives, they are monitored on a regular basis (see Section 2.2.1 for sampling frequency) as required by Schedule D of ECA 1391-B38PLA. Table 7 summarizes the effluent monitoring data for the reporting period.

**Table 7.** Effluent Monitoring Parameters as required by ECA 1391-B38PLA for Mapleton Wastewater Pollution Control Plant, 2023

| Parameters                           | Average (mg/L) | Minimum (mg/L) | Maximum (mg/L) | Average Annual Loading (kg/d) |
|--------------------------------------|----------------|----------------|----------------|-------------------------------|
| CBOD <sub>5</sub> <sup>7A</sup>      | <2.68          | 2.00           | <4.67          | <5.96                         |
| Total Suspended Solids <sup>7A</sup> | 9.26           | <7.00          | 15.33          | 20.57                         |
| Total Phosphorus <sup>7A</sup>       | 0.09           | 0.05           | 0.14           | 0.19                          |
| Total Ammonia Nitrogen <sup>7A</sup> | 1.91           | 0.13           | 6.87           | 4.24                          |
| <i>E.Coli</i> <sup>7A</sup> (GMD)    | -              | 1.41           | 2.00           | -                             |
| pH                                   | -              | 7.27           | 9.36           | -                             |
| Temperature                          | 6.57           | 0.80           | 20.70          | -                             |
| Unionized Ammonia                    | 0.094          | 0.001          | 0.755          | -                             |

<sup>7A</sup>Refer to Appendix A for monthly sample results.

### 2.2.4 Comparison of Data to Effluent Objectives and Effluent Limits

Analytical and monitoring data for the Mapleton Wastewater Pollution Control Plan is stored in OCWAs data management system (WISKI7). Annual and monthly averages for flows, CBOD<sub>5</sub>, Total Suspended Solids, Total Phosphorous, Nitrogen-series, *E.coli* and pH can be found in Appendix A. A comparison of analytical data from effluent samples to the effluent objectives and effluent limits shown in tables 8 to 13. The Discharge period for the Mapleton WPCP is March-April and October-December.

#### Concentrations and Loading

**Table 8.** 2023 Monthly Average Concentration and Loading of CBOD<sub>5</sub> in Comparison to ECA Objectives and Limits for Mapleton WPCP

|          | CBOD <sub>5</sub>                    |                               |   |                                |
|----------|--------------------------------------|-------------------------------|---|--------------------------------|
|          | Monthly Average Concentration (mg/L) | Within Objectives (5.00 mg/L) | Within Limits (Apr, Oct – 7.50 mg/L ) (Mar, Nov, Dec - 10.00 mg/L ) | Monthly Average Loading (kg/d) |
| January  | n/a                                  | n/a                           | n/a   | n/a                            |
| February | n/a                                  | n/a                           | n/a   | n/a                            |

|                  | <b>CBOD<sub>5</sub></b>              |                               |   |                                |
|------------------|--------------------------------------|-------------------------------|---|--------------------------------|
|                  | Monthly Average Concentration (mg/L) | Within Objectives (5.00 mg/L) | Within Limits (Apr, Oct – 7.50 mg/L ) (Mar, Nov, Dec - 10.00 mg/L ) | Monthly Average Loading (kg/d) |
| <b>March</b>     | <2.75                                | Yes                           | Yes   | <7.66                          |
| <b>April</b>     | <4.67                                | Yes                           | Yes   | <10.60                         |
| <b>May</b>       | n/a                                  | n/a                           | n/a   | n/a                            |
| <b>June</b>      | n/a                                  | n/a                           | n/a   | n/a                            |
| <b>July</b>      | n/a                                  | n/a                           | n/a   | n/a                            |
| <b>August</b>    | n/a                                  | n/a                           | n/a   | n/a                            |
| <b>September</b> | n/a                                  | n/a                           | n/a   | n/a                            |
| <b>October</b>   | <2.00                                | Yes                           | Yes   | <2.93                          |
| <b>November</b>  | <2.00                                | Yes                           | Yes   | <4.92                          |
| <b>December</b>  | <2.67                                | Yes                           | Yes   | <5.87                          |

\*There are no CBOD<sub>5</sub> loading objectives or limits in the ECA

\*As per the ECA, CBOD<sub>5</sub> Averaging Calculator is a Monthly Average Effluent Concentration.

**Table 9.** 2023 Monthly Average Concentration and Loading of Total Suspended Solids in Comparison to ECA Objectives and Limits for Mapleton WPCP

|                  | <b>Total Suspended Solids</b>        |                                |                            |                                |
|------------------|--------------------------------------|--------------------------------|----------------------------|--------------------------------|
|                  | Monthly Average Concentration (mg/L) | Within Objectives (15.00 mg/L) | Within Limits (25.00 mg/L) | Monthly Average Loading (kg/d) |
| <b>January</b>   | n/a                                  | n/a                            | n/a                        | n/a                            |
| <b>February</b>  | n/a                                  | n/a                            | n/a                        | n/a                            |
| <b>March</b>     | 7.75                                 | Yes                            | Yes                        | 21.59                          |
| <b>April</b>     | 10.33                                | Yes                            | Yes                        | 23.48                          |
| <b>May</b>       | n/a                                  | n/a                            | n/a                        | n/a                            |
| <b>June</b>      | n/a                                  | n/a                            | n/a                        | n/a                            |
| <b>July</b>      | n/a                                  | n/a                            | n/a                        | n/a                            |
| <b>August</b>    | n/a                                  | n/a                            | n/a                        | n/a                            |
| <b>September</b> | n/a                                  | n/a                            | n/a                        | n/a                            |
| <b>October</b>   | <7.00                                | Yes                            | Yes                        | <10.24                         |
| <b>November</b>  | 8.00                                 | Yes                            | Yes                        | 19.67                          |
| <b>December</b>  | 15.33                                | Yes                            | Yes                        | 33.77                          |

\*There are no TSS loading objectives or limits in the ECA

\*As per the ECA, TSS Concentration Averaging Calculator is an Monthly Average Effluent Concentration.

**Table 10.** 2023 Monthly Average Concentration and Loading of Total Phosphorus in Comparison to ECA Objectives and Limits for Mapleton WPCP

|                 | <b>Total Phosphorus</b>              |                               |                           |                                |
|-----------------|--------------------------------------|-------------------------------|---------------------------|--------------------------------|
|                 | Monthly Average Concentration (mg/L) | Within Objectives (0.25 mg/L) | Within Limits (0.42 mg/L) | Monthly Average Loading (kg/d) |
| January         | n/a                                  | n/a                           | n/a                       | n/a                            |
| February        | n/a                                  | n/a                           | n/a                       | n/a                            |
| <b>March</b>    | 0.05                                 | Yes                           | Yes                       | 0.14                           |
| <b>April</b>    | 0.05                                 | Yes                           | Yes                       | 0.12                           |
| May             | n/a                                  | n/a                           | n/a                       | n/a                            |
| June            | n/a                                  | n/a                           | n/a                       | n/a                            |
| July            | n/a                                  | n/a                           | n/a                       | n/a                            |
| August          | n/a                                  | n/a                           | n/a                       | n/a                            |
| September       | n/a                                  | n/a                           | n/a                       | n/a                            |
| <b>October</b>  | <0.07                                | Yes                           | Yes                       | <0.10                          |
| <b>November</b> | 0.12                                 | Yes                           | Yes                       | 0.29                           |
| <b>December</b> | <0.14                                | Yes                           | Yes                       | 0.32                           |

\*There are no TP loading objectives or limits in the ECA

\*As per the ECA, TP Concentration Averaging Calculator is an Monthly Average Effluent Concentration.

**Table 11.** 2023 Monthly Average Concentration and Loading of Total Ammonia Nitrogen in Comparison to ECA Objectives and Limits for Mapleton WPCP

|                 | <b>Total Ammonia Nitrogen (Ammonia Nitrogen + Ammonium Nitrogen)</b> |                              |                          |                                |
|-----------------|--|------------------------------|--------------------------|--------------------------------|
|                 | Monthly Average Concentration (mg/L)                                 | Within Objectives (3.0 mg/L) | Within Limits (5.0 mg/L) | Monthly Average Loading (kg/d) |
| January         | n/a  | n/a                          | n/a                      | n/a                            |
| February        | n/a  | n/a                          | n/a                      | n/a                            |
| <b>March</b>    | 3.35   | <b>No</b>                    | Yes                      | 9.33                           |
| <b>April</b>    | 6.87   | <b>No</b>                    | <b>No</b> <sup>11A</sup> | 15.60                          |
| May             | n/a  | n/a                          | n/a                      | n/a                            |
| June            | n/a  | n/a                          | n/a                      | n/a                            |
| July            | n/a  | n/a                          | n/a                      | n/a                            |
| August          | n/a  | n/a                          | n/a                      | n/a                            |
| September       | n/a  | n/a                          | n/a                      | n/a                            |
| <b>October</b>  | <0.13  | Yes                          | Yes                      | <0.18                          |
| <b>November</b> | <0.20  | Yes                          | Yes                      | <0.49                          |
| <b>December</b> | <0.27  | Yes                          | Yes                      | <0.59                          |

\*There are no TAN loading objectives or limits in the ECA

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

<sup>11A</sup>Notification of non-compliances were made for the limit exceedance in April 2023- full details are provided in Appendix D

**Table 12.** 2023 Monthly Average Concentration and Loading of *E.Coli* in Comparison to ECA Objectives and Limits for Mapleton WPCP

|           | <i>E.coli</i>                              |                                   |                               |
|-----------|--|-----------------------------------|-------------------------------|
|           | Monthly Geometric Mean Density (CFU/100mL) | Within Objectives (100 CFU/100mL) | Within Limits (200 CFU/100mL) |
| January   | n/a  | n/a                               | n/a                           |
| February  | n/a  | n/a                               | n/a                           |
| March     | 1.41                                       | Yes                               | Yes                           |
| April     | 2.00                                       | Yes                               | Yes                           |
| May       | n/a  | n/a                               | n/a                           |
| June      | n/a  | n/a                               | n/a                           |
| July      | n/a  | n/a                               | n/a                           |
| August    | n/a  | n/a                               | n/a                           |
| September | n/a  | n/a                               | n/a                           |
| October   | 2.00                                       | Yes                               | Yes                           |
| November  | 2.00                                       | Yes                               | Yes                           |
| December  | 2.71                                       | Yes                               | Yes                           |

\*As per the ECA, *E.coli* Averaging Calculator is Monthly Mean Geometric Density.

**Table 13.** 2023 Monthly Minimum and Maximum pH for Mapleton WPCP

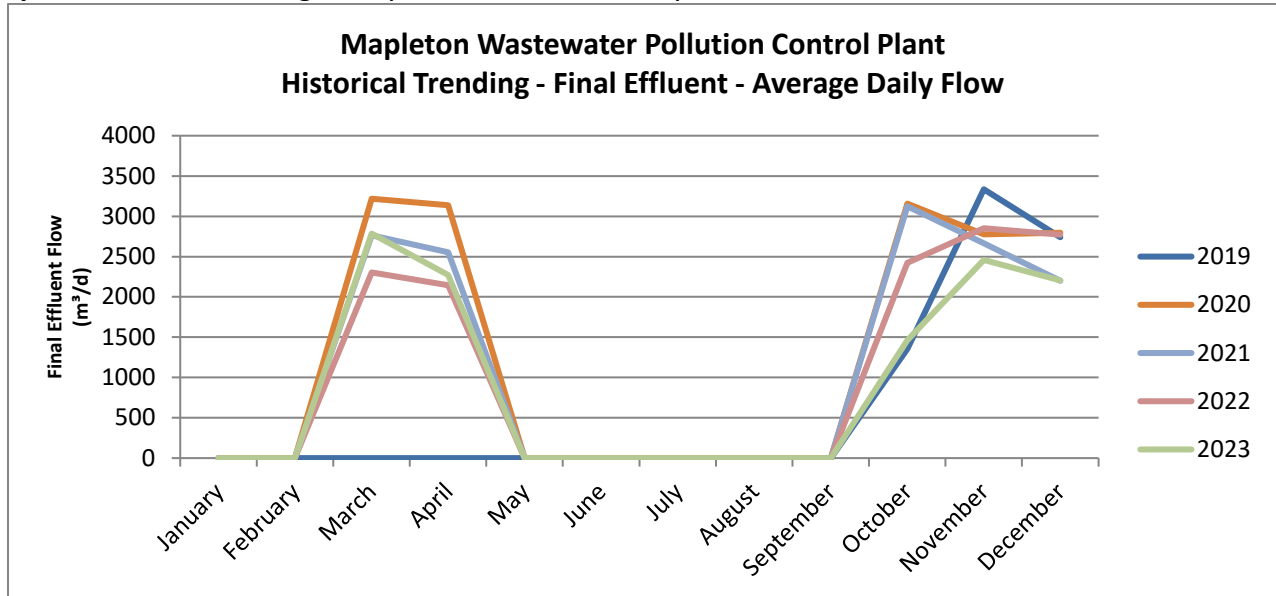
|           | pH      |         |                               |                           |
|-----------|---------|---------|-------------------------------|---------------------------|
|           | Minimum | Maximum | Within Objectives (6.5 – 8.5) | Within Limits (6.0 – 9.5) |
| January   | n/a     | n/a     | n/a                           | n/a                       |
| February  | n/a     | n/a     | n/a                           | n/a                       |
| March     | 8.39    | 9.36    | No                            | Yes                       |
| April     | 8.14    | 8.92    | No                            | Yes                       |
| May       | n/a     | n/a     | n/a                           | n/a                       |
| June      | n/a     | n/a     | n/a                           | n/a                       |
| July      | n/a     | n/a     | n/a                           | n/a                       |
| August    | n/a     | n/a     | n/a                           | n/a                       |
| September | n/a     | n/a     | n/a                           | n/a                       |
| October   | 7.57    | 7.74    | Yes                           | Yes                       |
| November  | 7.29    | 7.70    | Yes                           | Yes                       |
| December  | 7.27    | 8.05    | Yes                           | Yes                       |

## 2.2.5 Final Effluent Flow and Maximum Discharge Rates

### Effluent Flow

The below graph shows historical final effluent flow trending from 2019 to 2023. The graph shows that during the discharge periods the final effluent average flows have remained fairly consistent between the discharge periods.

**Graph 6.** Historical Average Daily Final Effluent Flow by Month for 2019 to 2023



The total effluent volume of wastewater treated in 2023 was 275,292.63 m<sup>3</sup> with an annual average daily flow of effluent was 2,220.10 m<sup>3</sup>/day, which was an increase from the total effluent volume of wastewater treated in 2022 of 239,105.55m<sup>3</sup> and annual average daily flow of 2,543.68m<sup>3</sup>. See table 14 for comparison of maximum daily effluent flow to the maximum final effluent discharge rates as per Schedule C.

**Table 14.** Monthly Average Daily Effluent Flow

| 2023     | Monthly Average Daily Effluent Flow (m <sup>3</sup> ) | Monthly Average Daily Effluent Flow Limit (m <sup>3</sup> /day) |
|----------|---|---|
| March    | 2785.51   | 2,599 <sup>14A</sup>  |
| April    | 2271.87   | 4,000   |
| October  | 1462.55   | 233 <sup>14A</sup>  |
| November | 2458.44   | 1,854 <sup>14A</sup>  |
| December | 2202.51   | 4,000   |

<sup>14A</sup>As per section 8(5) The Owner shall operate the Works such that discharge of Final Effluent from the Works is conducted on a seasonal discharge basis with the effluent being discharged only during the months at the rates as specified in Schedule C. However, discharges in excess of these daily discharges is allowed if the minimum 10:1 of the streamflow to daily discharge rate for the applicable period of that design streamflow occurs, based on actual measurements of flow rate in the Conestogo River.



<sup>14A</sup>As per Section 8(5)(b) The Owner shall, during the discharge of Final Effluent, make reference to the streamflow data of the Conestogo River from the Grand River Conservation Authority Website. The Owner shall take responsibility for interpreting the hydrometric data for that day and make the appropriate operational changes. The streamflow provided shall be the basis of proportional discharge for that day and the next six days for the purposes of determining the final effluent discharge rate;

### 2.3 Overview of Success and Adequacy of the Works

During the reporting period. The Mapleton WWTP provided overall effective wastewater treatment, producing final effluent with an annual average TSS concentration of 9.26 mg/L with a removal efficiency of >93.74%. The annual average effluent Total Phosphorus concentration was 0.09 mg/L with a removal efficiency of >98.14%.

The bacteriological quality of the effluent complied with the environmental compliance approval requirement of <200 colony forming units per 100 mL sample. The maximum geometric mean density of organisms for 2023 was 2.71 per 100 mL, indicating extremely effective effluent disinfection.

Based on the monitoring program and effluent quality data, the Mapleton WWTP provided effective treatment for the majority of the 2023 reporting period. Refer to *Appendix A* for more detail on the annual and monthly effluent quality results. For the greater part of the reporting year, Mapleton WWTP was in compliance with all of the effluent concentration for the reporting year, with the exception of one non-compliance incident in April 2023 for TAN (See section 4 Operating Issues and Corrective Actions for more information).

### 3. Deviation(s) from the Monitoring Schedule

As per Section 11(4)(c) of ECA 1391-B38PLA, a summary of any deviation from the monitoring schedule and reasons for the current reporting year and a schedule for the next reporting year is required<sup>15A</sup>.

**Table 15.** Deviations from the 2023 Sampling Schedule

| Date  | Reason for Deviation  |
|---|---|
| January 4, 2023   | Raw samples taken 1 day later than scheduled – Due to statutory holiday             |
| March 1, 2023   | Raw samples taken 1 day later than scheduled – Due to staff scheduling              |
| April 5 <sup>th</sup> , 21 <sup>st</sup> , 2023                                   | Effluent samples taken 1 day later than scheduled – Due to staff scheduling         |
| August 2 <sup>nd</sup> , 16 <sup>th</sup> , 30 <sup>th</sup>                      | Raw samples taken 1 day later than scheduled – Due to staff scheduling              |
| September 13 <sup>th</sup> , 28 <sup>th</sup>                                     | Raw samples taken 1 day later than scheduled – Due to staff scheduling              |
| October 5 <sup>th</sup> , 18 <sup>th</sup> , 25 <sup>th</sup>                     | Raw and effluent samples taken 1 day later than scheduled – Due to staff scheduling |
| November 8 <sup>th</sup> , 15 <sup>th</sup> , 22 <sup>nd</sup> , 29 <sup>th</sup> | Raw and effluent samples taken 1 day later than scheduled – Due to staff scheduling |
| December 13 <sup>th</sup> , 20 <sup>th</sup>                                      | Raw and effluent samples taken 1 day later than scheduled – Due to staff scheduling |

<sup>15A</sup>Refer to Appendix B the schedule for the next reporting year (2024).

#### **4. Operating Issues and Corrective Actions**

As per Section 11(4)(d) of ECA 1391-B38PLA, *a summary of all operating issues encountered and corrective actions taken* is required.

There was one operating problems encountered during the reporting period.

- April, 2023 - blower continued to trip out before cause was determined. The blower was taken out of service for blower motor repairs. This event caused the total ammonia nitrogen (TAN) monthly average to exceed the ECA compliance limit. Corrective actions taken include taking blower out of service, electrician confirmed motor ground and tripping out, motor was removed and new motor ordered and replaced on July 19, 2023. Verbal and written notice of non-compliance was provided to the MECP on June 5, 2023.

All repairs/maintenance can be found in Section 5 of this report.

#### **5. Maintenance Activities**

As per Section 11(4)(e) of ECA 1391-B38PLA, *a summary of all normal and emergency repairs and maintenance activities carried out on any major structure, equipment, apparatus or mechanism forming parts of the Works* is required.

##### **5.1 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.

##### **5.2 Preventative Maintenance Activities**

The preventative maintenance tasks completed throughout the reporting period are as follows:

- Monthly blower inspections
- Monthly Filter and UV inspection (during discharge)
- Annual calibrations (flow meters, pH meters, etc.)
- Annual lifting device inspection

##### **5.3 Major Maintenance**

Major maintenance activities completed for the reporting period are as follows:

- Filter 3 Clean Out

- Blower motor replacement
- Filter air compressor repair
- Filter reject pump replacement
- Raw sewage pump #2 inspection and repair
- Sand filter air lift replacements
- Sand filter inspection
- Annual wet well cleanout
- Annual pump inspections
- 3<sup>rd</sup> Party flow meter calibrations

## **6. Effluent Quality Assurance and Control**

As per Section 11(4)(f) of ECA 1391-B38PLA, *a summary of any effluent quality assurance or control measures undertaken* is required:

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 and preventative maintenance of equipment. The sections below provide further details of these measures.

### **6.1 Adherence to Provincial Regulations**

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

### **6.2 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.

### **6.3 Operation by Licensed Operators**

The WPCP was 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.

### **6.4 Sampling and Analysis**

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

## 6.5 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 effectively maintaining process control. All in-house monitoring equipment is calibrated based on the manufacturer's recommendations. Using their expertise, Operators of the facility make best efforts to stay within the ECA Effluent Objectives and Limits.

## 7. Calibration and Maintenance Procedures

As per Section 11(4)(g) of ECA 1391-B38PLA, a summary of the calibration and maintenance carried out on all Influent and Final Effluent monitoring equipment to ensure that the accuracy is within the tolerance of that equipment as required in this Approval or recommended by the manufacturer is required.

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.

Indus Controls was contracted to calibrate flow measuring equipment on September 28, 2023. All flow meters passed verification. Copies of these calibration reports can be found in **Appendix C** of this report.

## 8. Efforts and Results Achieved in Meeting Effluent Objectives

As per Section 11(4)(h) of ECA 1391-B38PLA, *a summary of efforts made to achieve the design objectives in this Approval, including an assessment of the issues and recommendations for pro-active actions if any are required under the following situation:*

- i. When any of the design objectives is not achieved more than 50% of the time in a year, or there is an increasing trend in deterioration of Final Effluent quality;*

The Mapleton WPCP was able to achieve final effluent parameter design limits (refer to Table 6) for all monitored parameters during the reporting period with the exception of April where the Total Ammonia Nitrogen was objective and limit were exceeded. See Section 4 Operational Issues and Corrective Actions for an assessment of the issue and pro-active actions taken for corrective measures.

Overall, based on the data, design objectives were achieved greater than 50% of the time in the reporting year. All final effluent was within the Effluent Design Objectives for the majority of the reporting period and there appears to be no increased trend in deterioration of final effluent quality. There were instances in March and April where the Total Ammonia Nitrogen and pH did not meet the effluent objectives as per section 2.2.4 tables 11 and 13 of this report.

During the reporting period, operations staff regularly completed visual inspections of final effluent samples and found the effluent to be essentially free of floating and settleable solids. No oil and no visible film, sheen, foam or discoloration were observed in the final effluent.

*ii. When the Annual Average Daily Influent Flow reaches 80% of the Rated Capacity;*

During the reporting period the annual average daily influent flow did not exceed 80% of the rated capacity. The annual average daily flow of raw sewage in 2023 was 67.97 % (611.74 m<sup>3</sup>/day) of the rated capacity (900 m<sup>3</sup>/day). As this Average Daily Influent Flow is approaching 80% of the Rated Capacity, the Owner of the system has been made aware of the increased capacity required in the future. Currently, capacity upgrades are being investigated.

As per the ECA, Condition 6 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 occurs and before the compliances limits of Condition 6 are exceeded.”

OCWA as the Operating Authority (on behalf of the Owner) has made best efforts to stay within the Effluent Objectives in the ECA. These efforts are supported through:

- Continuous monitoring equipment
- Regular plant inspections/checks
- In-house sampling and testing
- Laboratory (3<sup>rd</sup> party) analysis of influent and effluent samples
- Data review
- Process optimization and adjustments (as required)
- Scheduled/preventative maintenance
- Repairs as necessary

A summary of the effluent quality in comparison to the effluent objectives can be found in Tables 8 to 13. These results show that sewage treatment operations for 2023 minimized environmental impairment and provided effluent quality that was within the effluent objectives outlined in the ECA the majority of the time.

**9. Sludge Generation**

As per Section 11(4)(i) of ECA 1391-B38PLA, *an estimate of sludge volumes in the lagoon cells. Sludge volume is to be measured every five (5) years, but may be estimated in the interim years. A summary of disposal locations and volumes of sludge disposed of must also be provided if sludge was disposed of during the reporting period* is required

There was no sludge hauled/disposed of from the lagoon system in 2023. Currently, the volume of sludge in all cells is being procured for estimated sludge depth calculation in 2024. The Township and the Town’s engineer on record CIMA+ Engineering are working towards scheduling and prioritizing capital projects required for the Town.

The estimate sludge volume in the lagoon cells can be seen in table 16 below.

**Table 16.** Estimated Lagoon Cell Sludge Volumes for 2023

| Cell   | Estimated Sludge Volume (m <sup>3</sup> ) |
|--------|---|
| Cell 1 | 825                                       |

|         |     |
|---------|-----|
| Cell 2  | 525 |
| Cell 3  | 245 |
| Cell 4A | 150 |
| Cell 4B | 125 |

**10. Complaints**

As per Section 11(4)(j) of ECA 1391-B38PLA, a summary of any complaints received during the reporting period and any steps taken to address the complaints is required.

A standard operating procedure (SOP) is in place for addressing complaints received from the community. All complaints are addressed and documented in the facility logbook. Community complaint information is entered in OCWA’s electronic database system “WMS Maximo”. This system contains all the required information and history of all complaints.

There were no complaints reported during the reporting period.

**11. By-pass, Spill or Abnormal Discharge Events**

As per Section 11(4)(k) of ECA 1391-B38PLA, a summary of all By-pass, Overflows, other situations outside Normal Operating Conditions and spills within the meaning of Part X of EPA and abnormal discharge events is required.

There were no bypass, spill or abnormal discharge events that occurred during the reporting period.

ECA 1391-B38PLA requires that Quarterly bypass/overflow reports are to be submitted to the Water Supervisor. All 2023 quarterly reports were submitted to the Water Supervisor by the deadlines specified in the ECA.

**12. Notice of Modifications**

As per Section 11(4)(l) of ECA 1391-B38PLA, a summary of all Notice of Modifications to Sewage Works completed under Paragraph 1.d. of Condition 10, including a report on status of implementation of all modification is required.

There were no modifications made during the reporting period to the Mapleton Wastewater Pollution Control Plant which would require a Notice of Modifications be submitted to the Water Supervisor.

**13. Bypass/Overflow Proposed Elimination Projects**

As per Section 11(4)(m) of ECA 1391-B38PLA, a summary of efforts made to achieve conformance with Procedure F-5-1 including but not limited to projects undertaken and completed in the sanitary sewer systems that result in overall Bypass/Overflow elimination including expenditures and proposed projects to eliminate Bypass/Overflows with estimated budget forecast for the year following that for which the report is submitted is required.



The Mapleton Wastewater Pollution Control Plant has not had bypass/overflow occurrences during this reporting period, therefore this doesn't propose any future occurrences which would require a project/expenditure to eliminate bypass/overflows.

**14. Changes/updates to Scheduled Construction/Commissioning**

As per Section 11(4)(n) of ECA 1391-B38PLA, any changes or updates to the schedule for the completion of construction and commissioning operation of major process(es)/equipment groups in the Proposed Works is required.

The Proposed Works reached substantial completion as of November 15, 2018.

**15. 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.

|   |   |
|---|---|
| <b>Municipal Sewage Collection System ECA #</b> | 105-W601, Issue 1                           |
| <b>Sewage Works</b>                             | Mapleton Sewage Collection Systems          |
| <b>Collection System Owner</b>                  | The Corporation of the Township of Mapleton |
| <b>Reporting Period</b>                         | January 1, 2023 to December 31, 2023        |

**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 #105-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 1<sup>st</sup> 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 #105-W601, Schedule E will be available for inspection. (CLI-ECA #101-W601, Schedule E, Section 4.6.1 & 4.7.1):**

- Township of Mapleton Town Office, 7275 Sideroad 16, Drayton, Ontario, N0G 1P0
- <http://www.mapleton.ca>

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.

## 15.1 Description of the Works

The Township of Mapleton Sewage Collection System is owned by the Township of Mapleton and operated on behalf of the Owner by the Ontario Clean Water Agency (OCWA). The system is composed of two subsystems: The Drayton Sewage Collection System and the Moorefield Sewage Collection System which service the areas of Drayton and Moorefield respectively.

### The Drayton Collection System

The Drayton Collection System includes gravity sewers and one final sewage pumping station with a forcemain that discharges to the Mapleton Wastewater Pollution Control Plant. The sewage pumping station(s) in the Authorized system include:

- Drayton Sewage Pumping Station (SPS) – located at 13 Main St. West (accessed off of Mill Street) in Drayton the works consists of one wet well, two pumps (one duty and one standby), one basket screen at the inlet, floats and alarms, and emergency overflow, all of which pumps via forcemain to the Mapleton WPCP. The SPS is equipped with stand-by diesel generator in case of power failure.

### **The Moorefield Collection System**

The Moorefield collection system includes individual packaged sewage pumping stations at each property connected to a low pressure sanitary sewer system and one final sewage pumping station in Moorefield with a forcemain that discharges to the Mapleton Wastewater Pollution Control Plant. The sewage pumping station(s) in the Authorized system include:

- Moorefield Sewage Pumping Station (SPS) - located at 20 Booth St. East in Moorefield the works consists of one wet well, two pumps (one duty and one standby), floats and alarms, and emergency overflow, all of which pumps via forcemain to the Mapleton WPCP. The SPS is equipped with stand-by diesel generator in case of power failure.

The Mapleton 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 two authorized sanitary sewer overflow points at each of the SPS listed above. For Drayton SPS the authorized emergency overflow point is the wet well discharging to the Conestogo River and for the Moorefield SPS the authorized emergency overflow point is the wet well discharging to a ditch that would then discharge to Moorefield Creek.

## **15.2 Summary of Monitoring Data and Interpretation**

No monitoring data is required within the municipal sewage collection system.

## **15.3 Summary of Operating Problems Encountered and Corrective Actions Taken**

There were no operating problems encountered within the municipal sewage collection system.

## **15.4 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.

Indus Control was contracted to calibrate flow measuring equipment within the Sewage Pump Stations on September 28, 2023. Copies of these calibration reports can be found in **Appendix C** of this report.

The following Maintenance and Repair Activities were completed during the reporting period:

#### **Drayton Sewage Pump Station**

- Float replacement
- Raw sewage pump #2 inspection and repair
- Monthly/Annual Generator Inspection and load testing
- Annual Pump Inspections and lifecycle replacement
- Annual Wet Well Inspection and Clean Out
- Annual CCTV and flushing of collection system

#### **Moorefield Sewage Pump Station**

- Float replacement
- Flow meter replacement
- Monthly/Annual Generator Inspection and load testing
- Annual Pump Inspection and lifecycle replacement
- Annual Wet Well Inspection and Clean Out

### **15.5 Community Complaints Received in Relation to the Sewage Works**

A standard operating procedure (SOP) is in place for addressing complaints received from the community. All complaints are addressed and documented in the facility logbook. Community complaint information is entered in OCWA's WMS database system "Maximo". This system contains all the required information and history of all complaints.

There were no complaints reported during the reporting period.

### **15.6 Alterations to the Authorized System**

There were no alterations to the authorized system that occurred during the reporting period.

### **15.7 Summary of Collection System Overflow(s) and Spill(s) of Sewage**

There were no collection system overflow(s) or spill(s) events that occurred during the reporting period.

### **15.8 Efforts Made to Reduce Collection System Overflows, Spills, STP Overflows, and/or STP Bypasses**

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

- Annual pump inspections
- 3<sup>rd</sup> Party generator inspection and load testing
- Annual Wet Well Clean out and inspection

**2023 Annual Performance Report  
Mapleton Wastewater Pollution Control Plant  
ECA# 1391-B38PLA August 2, 2018**

Appendix A

Performance Assessment Report

2023

**6093 DRAYTON WASTEWATER TREATMENT LAGOON 120001782**

|  | 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--> |
|--|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-------------|-----------|-----------|---------------|
| <b>Flows</b>   |           |           |           |           |           |           |           |           |           |           |           |           |             |           |           |               |
| Raw Flow: Total - Raw Sewage Drayton m³/d              | 19,545.00 | 20,802.00 | 27,404.00 | 22,986.00 | 17,711.00 | 14,534.00 | 17,958.00 | 15,453.00 | 13,458.00 | 14,306.00 | 15,588.00 | 21,348.00 | 221,093.00  |           |           | 0.00          |
| Raw Flow: Total - Raw Sewage Flow from Moorefield m³/d | 0.00      | 1,076.00  | 2,788.00  | 2,556.00  | 2,244.00  | 2,241.00  | 2,332.00  | 2,157.00  | 2,090.00  | 2,191.00  | 2,265.00  | 2,640.00  | 24,580.00   |           |           | 0.00          |
| Raw Flow: Total - Raw Sewage Total m³/d                | 0.00      | 10,036.00 | 30,192.00 | 25,542.00 | 19,415.00 | 16,775.00 | 19,685.00 | 17,610.00 | 15,548.00 | 16,497.00 | 17,853.00 | 23,988.00 | 213,141.00  |           |           | 0.00          |
| Raw Flow: Avg - Raw Sewage Drayton m³/d                | 630.48    | 742.93    | 884.00    | 766.20    | 571.32    | 484.47    | 579.29    | 498.48    | 448.60    | 461.48    | 519.60    | 688.65    |             | 605.73    |           | 750.00        |
| Raw Flow: Avg - Raw Sewage Flow from Moorefield m³/d   | 0.00      | 82.77     | 89.94     | 85.20     | 74.80     | 74.70     | 77.73     | 69.58     | 69.67     | 70.68     | 75.50     | 85.16     |             | 77.54     |           |               |
| Raw Flow: Avg - Raw Sewage Total m³/d                  | 0.00      | 772.00    | 973.94    | 851.40    | 647.17    | 559.17    | 656.17    | 568.06    | 518.27    | 532.16    | 595.10    | 773.81    |             | 672.37    |           |               |
| Raw Flow: Max - Raw Sewage Drayton m³/d                | 1,670.00  | 2,488.00  | 2,346.00  | 1,754.00  | 1,045.00  | 826.00    | 1,287.00  | 707.00    | 655.00    | 612.00    | 917.00    | 1,053.00  |             |           | 2,488.00  | 0.00          |
| Raw Flow: Max - Raw Sewage Flow from Moorefield m³/d   | 0.00      | 108.00    | 171.00    | 157.00    | 107.00    | 111.00    | 168.00    | 97.00     | 86.00     | 93.00     | 112.00    | 114.00    |             |           | 171.00    | 0.00          |
| Raw Flow: Max - Raw Sewage Total m³/d                  | 0.00      | 1,029.00  | 2,497.00  | 1,911.00  | 1,132.00  | 897.00    | 1,428.00  | 774.00    | 723.00    | 692.00    | 979.00    | 1,162.00  |             |           | 2,497.00  | 0.00          |
| Raw Flow: Count - Raw Sewage Drayton m³/d              | 31.00     | 28.00     | 31.00     | 30.00     | 31.00     | 30.00     | 31.00     | 31.00     | 30.00     | 31.00     | 30.00     | 31.00     | 365.00      |           |           | 0.00          |
| Raw Flow: Count - Raw Sewage Flow from Moorefield m³/d | 0.00      | 13.00     | 31.00     | 30.00     | 30.00     | 30.00     | 30.00     | 31.00     | 30.00     | 31.00     | 30.00     | 31.00     | 317.00      |           |           | 0.00          |
| Raw Flow: Count - Raw Sewage Total m³/d                | 0.00      | 13.00     | 31.00     | 30.00     | 30.00     | 30.00     | 30.00     | 31.00     | 30.00     | 31.00     | 30.00     | 31.00     | 317.00      |           |           | 0.00          |
| Eff. Flow: Total - Final Effluent m³/d                 | 0.00      | 0.00      | 69,637.84 | 45,437.44 | 0.00      | 0.00      | 0.00      | 0.00      | 0.00      | 42,413.86 | 73,753.21 | 44,050.28 | 275,292.63  |           |           | 0.00          |
| Eff. Flow: Avg - Final Effluent m³/d                   | 0.00      | 0.00      | 2,785.51  | 2,271.87  | 0.00      | 0.00      | 0.00      | 0.00      | 0.00      | 1,462.55  | 2,458.44  | 2,202.51  |             | 2,220.10  |           | 4,000.00      |
| Eff. Flow: Max - Final Effluent m³/d                   | 0.00      | 0.00      | 3,030.51  | 2,718.65  | 0.00      | 0.00      | 0.00      | 0.00      | 0.00      | 2,527.86  | 2,705.94  | 2,675.93  |             |           | 3,030.51  | 0.00          |
| Eff Flow: Count - Final Effluent m³/d                  | 0.00      | 0.00      | 25.00     | 20.00     | 0.00      | 0.00      | 0.00      | 0.00      | 0.00      | 29.00     | 30.00     | 20.00     | 124.00      |           |           | 0.00          |
| <b>Carbonaceous Biochemical Oxygen Demand: CBOD</b>    |           |           |           |           |           |           |           |           |           |           |           |           |             |           |           |               |
| Eff: Avg cBOD5 - Final Effluent mg/L                   | 0.00      | 0.00      | < 2.75    | < 4.67    | 0.00      | 0.00      | 0.00      | 0.00      | 0.00      | < 2.00    | < 2.00    | < 2.67    |             | < 2.68    | < 4.67    | 10.00         |
| Eff: # of samples of cBOD5 - Final Effluent            | 0.00      | 0.00      | 4.00      | 3.00      | 0.00      | 0.00      | 0.00      | 0.00      | 0.00      | 4.00      | 5.00      | 3.00      | 19.00       |           |           | 0.00          |
| Loading: cBOD5 - Final Effluent kg/d                   | 0.000     | 0.000     | < 7.660   | < 10.602  | 0.000     | 0.000     | 0.000     | 0.000     | 0.000     | < 2.925   | < 4.917   | < 5.873   |             | < 5.96    | < 10.60   |               |
| <b>Biochemical Oxygen Demand: BOD5</b>                 |           |           |           |           |           |           |           |           |           |           |           |           |             |           |           |               |
| Raw: Avg BOD5 - Raw Sewage Drayton mg/L                | 142.50    | 248.00    | 201.00    | 175.50    | 182.50    | 205.50    | 119.00    | 257.33    | 196.00    | 398.50    | 291.00    | 285.00    |             | 225.15    | 398.50    | 0.00          |
| Raw: # of samples of BOD5 - Raw Sewage Drayton         | 4.00      | 1.00      | 4.00      | 2.00      | 2.00      | 2.00      | 2.00      | 3.00      | 2.00      | 2.00      | 2.00      | 2.00      | 28.00       |           |           | 0.00          |
| <b>Total Suspended Solids: TSS</b>                     |           |           |           |           |           |           |           |           |           |           |           |           |             |           |           |               |
| Raw: Avg TSS - Raw Sewage Drayton mg/L                 | 139.25    | 176.00    | 178.25    | 165.00    | 166.50    | 235.00    | 80.00     | 261.00    | 163.50    | 365.50    | 422.00    | 348.00    |             | 225.00    | 422.00    | 0.00          |
| Raw: # of samples of TSS - Raw Sewage Drayton          | 4.00      | 1.00      | 4.00      | 2.00      | 2.00      | 2.00      | 2.00      | 3.00      | 2.00      | 2.00      | 2.00      | 2.00      | 28.00       |           |           | 0.00          |
| Eff: Avg TSS - Final Effluent mg/L                     | 0.00      | 0.00      | 7.75      | 10.33     | 0.00      | 0.00      | 0.00      | 0.00      | 0.00      | < 7.00    | 8.00      | 15.33     |             | 9.26      | 15.33     |               |
| Eff: # of samples of TSS - Final Effluent              | 0.00      | 0.00      | 4.00      | 3.00      | 0.00      | 0.00      | 0.00      | 0.00      | 0.00      | 4.00      | 5.00      | 3.00      | 19.00       |           |           | 0.00          |
| Loading: TSS - Final Effluent kg/d                     | 0.000     | 0.000     | 21.588    | 23.476    | 0.000     | 0.000     | 0.000     | 0.000     | 0.000     | < 10.238  | 19.668    | 33.772    |             | 20.57     | 33.77     |               |
| Percent Removal: TSS - Final Effluent %                | 0.00      | 0.00      | 95.65     | 93.74     | 0.00      | 0.00      | 0.00      | 0.00      | 0.00      | 98.08     | 98.10     | 95.59     |             |           | 98.10     | 0.00          |



**Total Phosphorus: TP**

|  |       |       |       |       |       |       |       |       |       |         |       |         |       |      |       |      |
|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|-------|---------|-------|------|-------|------|
| Raw: Avg TP - Raw Sewage Drayton mg/L        | 4.97  | 6.16  | 4.89  | 5.26  | 4.73  | 7.19  | 2.65  | 5.76  | 4.83  | 10.37   | 10.11 | 7.72    |       | 6.22 | 10.37 | 0.00 |
| Raw: # of samples of TP - Raw Sewage Drayton | 4.00  | 1.00  | 4.00  | 2.00  | 2.00  | 2.00  | 2.00  | 3.00  | 2.00  | 2.00    | 2.00  | 2.00    | 28.00 |      |       | 0.00 |
| Eff: Avg TP - Final Effluent mg/L            | 0.00  | 0.00  | 0.05  | 0.05  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | < 0.07  | 0.12  | < 0.14  |       | 0.09 | 0.14  | 0.50 |
| Eff: # of samples of TP - Final Effluent     | 0.00  | 0.00  | 4.00  | 3.00  | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 4.00    | 5.00  | 3.00    | 19.00 |      |       | 0.00 |
| Loading: TP - Final Effluent kg/d            | 0.000 | 0.000 | 0.139 | 0.114 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | < 0.102 | 0.285 | < 0.316 |       | 0.19 | 0.32  |      |
| Percent Removal: TP - Final Effluent %       | 0.00  | 0.00  | 98.98 | 99.05 | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 99.32   | 98.85 | 98.14   |       |      | 99.32 | 0.00 |

**Nitrogen Series**

|   |       |       |       |        |       |       |       |       |       |         |         |         |       |       |       |      |
|---|-------|-------|-------|--------|-------|-------|-------|-------|-------|---------|---------|---------|-------|-------|-------|------|
| Raw: Avg TKN - Raw Sewage Drayton mg/L        | 48.13 | 58.70 | 44.38 | 53.80  | 48.15 | 67.90 | 28.55 | 44.30 | 42.80 | 93.95   | 79.80   | 64.65   |       | 56.26 | 93.95 | 0.00 |
| Raw: # of samples of TKN - Raw Sewage Drayton | 4.00  | 1.00  | 4.00  | 2.00   | 2.00  | 2.00  | 2.00  | 3.00  | 2.00  | 2.00    | 2.00    | 2.00    | 28.00 |       |       | 0.00 |
| Eff: Avg TAN - Final Effluent mg/L            | 0.00  | 0.00  | 3.35  | 6.87   | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | < 0.13  | < 0.20  | < 0.27  |       | 1.91  | 6.87  | 5.00 |
| Eff: # of samples of TAN - Final Effluent     | 0.00  | 0.00  | 4.00  | 3.00   | 0.00  | 0.00  | 0.00  | 0.00  | 0.00  | 4.00    | 5.00    | 3.00    | 19.00 |       |       | 0.00 |
| Loading: TAN - Final Effluent kg/d            | 0.000 | 0.000 | 9.331 | 15.600 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | < 0.183 | < 0.492 | < 0.587 |       | 4.24  | 15.60 |      |

**Disinfection**

|   |      |      |      |      |      |      |      |      |      |      |      |      |       |  |  |      |
|---|------|------|------|------|------|------|------|------|------|------|------|------|-------|--|--|------|
| Eff: GMD E. Coli - Final Effluent cfu/100mL   | 0.00 | 0.00 | 1.41 | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.00 | 2.00 | 2.71 |       |  |  |      |
| Eff: # of samples of E. Coli - Final Effluent | 0.00 | 0.00 | 4.00 | 3.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 4.00 | 5.00 | 3.00 | 19.00 |  |  | 0.00 |

**2023 Annual Performance Report  
Mapleton Wastewater Pollution Control Plant  
ECA# 1391-B38PLA August 2, 2018**

Appendix B

2024 Sampling Schedule

**2024 Sampling Calendar  
DRAYTON LAGOON (Org #6093)  
WWT I, WWC I**

| JANUARY |    |       |    |    |    |    |
|---------|----|-------|----|----|----|----|
| M       | T  | W     | TH | F  | St | Su |
|         |    |       |    |    |    |    |
| 1       | 2  | 3-BW  | 4  | 5  | 6  | 7  |
| 8       | 9  | 10    | 11 | 12 | 13 | 14 |
| 15      | 16 | 17-BW | 18 | 19 | 20 | 21 |
| 22      | 23 | 24    | 25 | 26 | 27 | 28 |
| 29      | 30 | 31-BW |    |    |    |    |

| FEBRUARY |        |        |        |        |    |    |
|----------|--------|--------|--------|--------|----|----|
| M        | T      | W      | TH     | F      | St | Su |
|          |        |        | 1      | 2      | 3  | 4  |
| 5        | 6      | 7      | 8      | 9      | 10 | 11 |
| 12       | 13     | 14-BW  | 15     | 16     | 17 | 18 |
| 19       | 20-LCS | 21-LCS | 22-LCS | 23-LCS | 24 | 25 |
| 26       | 27     | 28-BW  | 29     |        |    |    |
|          |        |        |        |        |    |    |

| MARCH |    |           |    |    |    |    |
|-------|----|-----------|----|----|----|----|
| M     | T  | W         | TH | F  | St | Su |
|       |    |           |    | 1  | 2  | 3  |
| 4     | 5  | 6-W/R     | 7  | 8  | 9  | 10 |
| 11    | 12 | 13-BW/W/R | 14 | 15 | 16 | 17 |
| 18    | 19 | 20-W/R    | 21 | 22 | 23 | 24 |
| 25    | 26 | 27-BW/W/R | 28 | 29 | 30 | 31 |
|       |    |           |    |    |    |    |

| APRIL |    |           |    |    |    |    |
|-------|----|-----------|----|----|----|----|
| M     | T  | W         | TH | F  | St | Su |
| 1     | 2  | 3-W/R     | 4  | 5  | 6  | 7  |
| 8     | 9  | 10-BW/W/R | 11 | 12 | 13 | 14 |
| 15    | 16 | 17-W/R    | 18 | 19 | 20 | 21 |
| 22    | 23 | 24-BW/W/R | 25 | 26 | 27 | 28 |
| 29    | 30 |           |    |    |    |    |
|       |    |           |    |    |    |    |

| MAY |    |       |    |    |    |    |
|-----|----|-------|----|----|----|----|
| M   | T  | W     | TH | F  | St | Su |
|     |    | 1     | 2  | 3  | 4  | 5  |
| 6   | 7  | 8-BW  | 9  | 10 | 11 | 12 |
| 13  | 14 | 15    | 16 | 17 | 18 | 19 |
| 20  | 21 | 22-BW | 23 | 24 | 25 | 26 |
| 27  | 28 | 29    | 30 | 31 |    |    |
|     |    |       |    |    |    |    |

| JUNE |    |       |    |    |    |    |
|------|----|-------|----|----|----|----|
| M    | T  | W     | TH | F  | St | Su |
|      |    |       |    |    | 1  | 2  |
| 3    | 4  | 5-BW  | 6  | 7  | 8  | 9  |
| 10   | 11 | 12    | 13 | 14 | 15 | 16 |
| 17   | 18 | 19-BW | 20 | 21 | 22 | 23 |
| 24   | 25 | 26    | 27 | 28 | 29 | 30 |
|      |    |       |    |    |    |    |

|                      |  |
|----------------------|--|
| Stat Holiday/Weekend | <b>BW=Bi-Weekly Raw; W=Weekly Effluent; R=Weekly River; LCS=Lagoon Cell Sampling</b> (Required at least 7 days prior to discharge) |
| <b>Sample Day</b>    | Discharge Periods: March-April & October-December  |

If you are NOT able to sample on the scheduled day, call your PCT as soon as possible

**2024 Sampling Calendar  
DRAYTON LAGOON (Org #6093)  
WWT I, WWC I**

| JULY |    |       |    |    |    |    |
|------|----|-------|----|----|----|----|
| M    | T  | W     | TH | F  | St | Su |
| 1    | 2  | 3-BW  | 4  | 5  | 6  | 7  |
| 8    | 9  | 10    | 11 | 12 | 13 | 14 |
| 15   | 16 | 17-BW | 18 | 19 | 20 | 21 |
| 22   | 23 | 24    | 25 | 26 | 27 | 28 |
| 29   | 30 | 31-BW |    |    |    |    |
|      |    |       |    |    |    |    |

| AUGUST |    |       |    |    |    |    |
|--------|----|-------|----|----|----|----|
| M      | T  | W     | TH | F  | St | Su |
|        |    |       | 1  | 2  | 3  | 4  |
| 5      | 6  | 7     | 8  | 9  | 10 | 11 |
| 12     | 13 | 14-BW | 15 | 16 | 17 | 18 |
| 19     | 20 | 21    | 22 | 23 | 24 | 25 |
| 26     | 27 | 28-BW | 29 | 30 | 31 |    |
|        |    |       |    |    |    |    |

| SEPTEMBER |        |        |        |        |    |    |
|-----------|--------|--------|--------|--------|----|----|
| M         | T      | W      | TH     | F      | St | Su |
|           |        |        |        |        |    | 1  |
| 2         | 3      | 4      | 5      | 6      | 7  | 8  |
| 9         | 10     | 11-BW  | 12     | 13     | 14 | 15 |
| 16-LCS    | 17-LSC | 18-LSC | 19-LSC | 20-LSC | 21 | 22 |
| 23        | 24     | 25-BW  | 26     | 27     | 28 | 29 |
| 30        |        |        |        |        |    |    |

| OCTOBER |    |           |    |    |    |    |
|---------|----|-----------|----|----|----|----|
| M       | T  | W         | TH | F  | St | Su |
|         | 1  | 2-W/R     | 3  | 4  | 5  | 6  |
| 7       | 8  | 9-BW/W/R  | 10 | 11 | 12 | 13 |
| 14      | 15 | 16-W/R    | 17 | 18 | 19 | 20 |
| 21      | 22 | 23-BW/W/R | 24 | 25 | 26 | 27 |
| 28      | 29 | 30-W/R    | 31 |    |    |    |
|         |    |           |    |    |    |    |

| NOVEMBER |    |           |    |    |    |    |
|----------|----|-----------|----|----|----|----|
| M        | T  | W         | TH | F  | St | Su |
|          |    |           |    | 1  | 2  | 3  |
| 4        | 5  | 6-BW/W/R  | 7  | 8  | 9  | 10 |
| 11       | 12 | 13-W/R    | 14 | 15 | 16 | 17 |
| 18       | 19 | 20-BW/W/R | 21 | 22 | 23 | 24 |
| 25       | 26 | 27-W/R    | 28 | 29 | 30 |    |
|          |    |           |    |    |    |    |

| DECEMBER  |    |           |    |    |    |    |
|-----------|----|-----------|----|----|----|----|
| M         | T  | W         | TH | F  | St | Su |
|           |    |           |    |    |    | 1  |
| 2         | 3  | 4-BW/W/R  | 5  | 6  | 7  | 8  |
| 9         | 10 | 11-W/R    | 12 | 13 | 14 | 15 |
| 16        | 17 | 18-BW/W/R | 19 | 20 | 21 | 22 |
| 23-W/R    | 24 | 25        | 26 | 27 | 28 | 29 |
| 30-BW/W/R | 31 | 1         |    |    |    |    |

|                      |   |
|----------------------|---|
| Stat Holiday/Weekend | BW=Bi-Weekly Raw; W=Weekly Effluent; R=Weekly River; LCS=Lagoon Cell Sampling (Required at least 7 days prior to discharge) |
| Sample Day           | Discharge Periods: March-April & October-December   |

If you are NOT able to sample on the scheduled day, call your PCT as soon as possible

**2023 Annual Performance Report  
Mapleton Wastewater Pollution Control Plant  
ECA# 1391-B38PLA August 2, 2018**

Appendix C

Calibration Reports

2023



Induscontrol Inc  
3170 Ridgeway Drive, Unit #11  
Mississauga, ON L5L 5R4

## VERIFICATION REPORT - ROSEMOUNT ELECTRO-MAGNETIC FLOW MEASUREMENT

Customer Name: OCWA-Georgian Highlands Region  
Plant Name: Drayton Lagoon

Site/Plant Address: 7101 Side Road 15,  
Drayton, ON, N0G 1P0

### Device Information

Make: Rosemount  
Model: 8712D  
Order Code: NA  
Serial No.: 8602203395  
Tag: NA  
Job Location: Lagoon Flow  
Asset ID: NA

### Service Information

Date: September 28, 2023  
Report No: CO1481-2308-45  
Job No: CO1481-2308

### Flow Details

Unit: l/sec  
Flow Range: 0-25500 (m3/day)  
Current Output: 4-20 mA  
4 mA Set Point: 0  
20 mA Set Point: 25500

### Sensor Details

Line size: 8"  
Flow Cal Tube No.: 0979205909737005  
Mounting: Remote

| Inst. Reading  | AS FOUND | AS LEFT |
|----------------|----------|---------|
| TOTALIZER (m3) | 2825883  | 2825884 |
| FLOW (m3/day)  | 0        | 0       |

### Maintenance Checklist

|                           |  |                                 |
|---------------------------|--|---------------------------------|
| Visual Inspection:        | <input checked="" type="checkbox"/> OK | <input type="checkbox"/> NOT OK |
| Electrical Inspection:    | <input checked="" type="checkbox"/> OK | <input type="checkbox"/> NOT OK |
| Sensor Installation:      | <input checked="" type="checkbox"/> OK | <input type="checkbox"/> NOT OK |
| Transmitter Installation: | <input checked="" type="checkbox"/> OK | <input type="checkbox"/> NOT OK |

### Remarks

|  |
|--|
|  |
|  |
|  |
|  |

### Instrument Test Information and Results

| Test-Point as Per Calibration KIT | Calculated Flow (FPS) | Calculated O/P (mA) | UUT Display (FPS) | UUT Measured Output (mA) | Deviation (FPS) |
|-----------------------------------|-----------------------|---------------------|-------------------|--------------------------|-----------------|
| 0.00                              | 0.00                  | 4.00                | 0.02              | 4.01                     | -0.02           |
| 3.00                              | 3.00                  | 5.60                | 3.01              | 5.62                     | -0.01           |
| 10.00                             | 10.00                 | 9.33                | 9.99              | 9.33                     | 0.01            |
| 30.00                             | 30.00                 | 20.00               | 29.98             | 19.99                    | 0.02            |

### Information of Tools used for Verification of the Instruments

| Details             | Tool/Kit 1 | Tool/Kit 2            | Tool/Kit 3 |
|---------------------|------------|-----------------------|------------|
| Device Description: | Calibrator | Electrical Multimeter | N/A        |
| Manufacturer:       | Rosemount  | Fluke                 | N/A        |
| Model No:           | 8714D      | 179                   | N/A        |

\* Refer Calibration Tools Certificates submittal for more Information

Verification Test Result:  **Passed**  **Fail**  **Not Verified**

Overall Remarks: Measurement Works within Specification.

Service Technician : Chetan Parekh

Stamp/Signature

Printed Date: September 28, 2023

End of Report

Version: 19-12





Induscontrol Inc  
3170 Ridgeway Drive, Unit #11  
Mississauga, ON L5L 5R4

**VERIFICATION REPORT- MULTIRANGER 200  
OPEN CHANNEL FLOW MEASUREMENT**

Customer Name: OCWA-Georgian Highlands Region  
Plant Name: Drayton Lagoon

Site/Plant Address: 7101 Side Road 15,  
Drayton, ON, N0G 1P0

**Device Information**  
Make: Milltronics  
Model: Multiranger 200  
Order Code: N/A  
Serial No.: PBD/BN210450  
Tag: NA  
Job Location: Lagoon

**Service Information**  
Date: September 28, 2023  
Report No: CO1481-2308-46  
Job No: CO1481-2308

| Inst. Reading  | AS FOUND | AS LEFT   |
|----------------|----------|-----------|
| TOTALIZER (m3) | 777623.5 | 777629.69 |

**Flow Details**  
Unit: m3/hr  
Flow Range: 0-1382  
Current Output: 4-20 mA  
4 mA Set Point: 0  
20 mA Set Point: 1382

| Maintenance Checklist  |  |                                 | Remarks |
|------------------------|--|---------------------------------|---------|
| Visual Inspection:     | <input checked="" type="checkbox"/> OK | <input type="checkbox"/> NOT OK |         |
| Electrical Inspection: | <input checked="" type="checkbox"/> OK | <input type="checkbox"/> NOT OK |         |

| Programming Parameter of Instrument |                     |         |           |                 |         |
|-------------------------------------|---------------------|---------|-----------|-----------------|---------|
| Parameter                           | Discription         | Value   | Parameter | Discription     | Value   |
| P001                                | Operation           | 6.00000 | P601      | Flow Exponent   | 1.55    |
| P002                                | Material            | 1.000   | P602      | PMD Dimension   | 0       |
| P004                                | Transducer          | XPS-10  | P603      | Maximum Head    | 0.168 m |
| P005                                | Units               | 1       | P604      | Maximum Flow    | 1382    |
| P006                                | Empty               | 0.952 m | P605      | Zero Head       | 0.00    |
| P007                                | Span                | 0.225 m | P608      | Flow rate Units | 3.00    |
| P620                                | Low Flow cutoff     | 0.075m  | P210      | 4mA Setpoint    | 0.00    |
| P600                                | Primary Mea. Device | 7       | P211      | 20mA Setpoint   | 1382.00 |

| Instrument Test Information and Results |                        |                       |                       |                          |                   |
|---|------------------------|-----------------------|-----------------------|--------------------------|-------------------|
| Input (%)                               | Calculated Flow(m3/hr) | Calculated Input (mA) | Flow on Scada (m3/hr) | UUT Measured Output (mA) | Deviation (m3/hr) |
| 0                                       | 0.00                   | 4.00                  | 0.02                  | 3.99                     | 0.02              |
| 25                                      | 345.50                 | 8.00                  | 345.55                | 8.01                     | 0.05              |
| 50                                      | 691.00                 | 12.00                 | 690.96                | 11.98                    | -0.04             |
| 75                                      | 1036.50                | 16.00                 | 1036.43               | 15.99                    | -0.07             |
| 100                                     | 1382.00                | 20.00                 | 1381.96               | 19.98                    | -0.04             |

| Information of Tools used for Verification of the Instruments |              |       |
|---|--------------|-------|
| Device Description:   | Manufacturer | Model |
| Electrical Multimeter   | Fluke        | 179   |

\* Refer Calibration Tools Certificates submittal for more Information

|                           |  |  |                                       |
|---------------------------|--|--|---------------------------------------|
| Verification Test Result: | <input checked="" type="checkbox"/> Passed | <input checked="" type="checkbox"/> Fail | <input type="checkbox"/> Not Verified |
|---------------------------|--|--|---------------------------------------|

Overall Remarks: Program parameters verified. Measurement works as per specification.

Service Technician : Chetan Parekh  
Printed Date: September 28, 2023  
Stamp/Signature:

# Flowmeter Verification Certificate Transmitter

|                              |                             |
|------------------------------|-----------------------------|
| Georgian Highlands Region    | Drayton - Lagoon            |
| Customer                     | Plant                       |
|                              | FIT-1                       |
| Order code                   | Tag Name                    |
| PROMAG 53 W DN200            | 1.0526 - 1.0526             |
| Device type                  | K-Factor                    |
| L81D5519000                  | 4                           |
| Serial number                | Zero point                  |
| V2.03.00                     | V1.06.00                    |
| Software Version Transmitter | Software Version I/O-Module |
| 28.09.2023                   | 09:18                       |
| Verification date            | Verification time           |

## Verification result Transmitter: Passed

| Test item        | Result     | Applied Limits |
|------------------|------------|----------------|
| Amplifier        | Passed     | Basis: 0.55 %  |
| Current Output 1 | Passed     | 0.05 mA        |
| Pulse Output 1   | Not tested | 0 P            |
| Test Sensor      | Passed     |                |

### FieldCheck Details

|                       |
|-----------------------|
| 551032                |
| Production number     |
| 1.07.10               |
| Software Version      |
| 04/2023               |
| Last Calibration Date |

### Simubox Details

|                       |
|-----------------------|
| 8714684               |
| Production number     |
| 1.00.01               |
| Software Version      |
| 04/2023               |
| Last Calibration Date |

28.09.2023



Date

Operator's Sign

Inspector's Sign

### **Overall results:**

The achieved test results show that the instrument is completely functional, and the measuring results lie within +/- 1% of the original calibration. <sup>1)</sup>

The calibration of the Fieldcheck test system is fully traceable to national standards.

1) Prerequisite is an additional proof of electrode integrity with a high voltage test.

## FieldCheck - Result Tab Transmitter

|                              |                          |                             |                        |
|------------------------------|--------------------------|-----------------------------|------------------------|
| Customer                     |                          | Plant                       |                        |
| Order code                   |                          | Tag Name                    | <b>FIT-1</b>           |
| Device type                  | <b>PROMAG 53 W DN200</b> | K-Factor                    | <b>1.0526 - 1.0526</b> |
| Serial number                | <b>L81D5519000</b>       | Zero point                  | <b>4</b>               |
| Software Version Transmitter | <b>V2.03.00</b>          | Software Version I/O-Module | <b>V1.06.00</b>        |
| Verification date            | <b>28.09.2023</b>        | Verification time           | <b>09:18</b>           |

Verification Flow end value ( 100 % ): 452.389 m3/h

Flow speed 4.00 m/s

| Passed / Failed | Test item               | Simul. Signal        | Limit Value         | Deviation             |
|-----------------|-------------------------|----------------------|---------------------|-----------------------|
|                 | <b>Test Transmitter</b> |                      |                     |                       |
| ✓               | Amplifier               | 22.619 m3/h (5%)     | 1.50 %              | 0.28 %                |
| ✓               |                         | 45.239 m3/h (10.0%)  | 1.00 %              | -0.06 %               |
| ✓               |                         | 226.195 m3/h (50.0%) | 0.60 %              | -0.05 %               |
| ✓               |                         | 452.389 m3/h (100%)  | 0.55 %              | -0.05 %               |
|                 | <b>Current Output 1</b> |                      |                     |                       |
| ✓               |                         | 4.000 mA (0%)        | 0.05 mA             | -0.002 mA             |
| ✓               |                         | 4.800 mA (5%)        | 0.05 mA             | -0.002 mA             |
| ✓               |                         | 5.600 mA (10.0%)     | 0.05 mA             | -0.012 mA             |
| ✓               |                         | 12.000 mA (50.0%)    | 0.05 mA             | 0.001 mA              |
| ✓               |                         | 20.000 mA (100%)     | 0.05 mA             | 0.010 mA              |
| —               | Pulse Output 1          | ---                  | ---                 | ---                   |
|                 |                         | <b>Start value</b>   | <b>Limits range</b> | <b>Measured value</b> |
|                 | <b>Test Sensor</b>      |                      |                     |                       |
| ✓               | Coil Curr. Rise         | 13.300 ms            | 0.000..27.625 ms    | 16.415 ms             |
| ✓               | Coil Curr. Stability    |                      | ---                 | ---                   |
| ✓               | Electrode Integrity     | mV                   | 0.0..300.000 mV     | 0.000 mV              |

Legend of symbols

|        |        |            |              |           |
|--------|--------|------------|--------------|-----------|
| ✓      | ✗      | —          | ?            | !         |
| Passed | Failed | not tested | not testable | Attention |

## FieldCheck: Parameters Transmitter

|                              |                          |                             |                        |
|------------------------------|--------------------------|-----------------------------|------------------------|
| Customer                     |                          | Plant                       |                        |
| Order code                   |                          | Tag Name                    | <b>FIT-1</b>           |
| Device type                  | <b>PROMAG 53 W DN200</b> | K-Factor                    | <b>1.0526 - 1.0526</b> |
| Serial number                | <b>L81D5519000</b>       | Zero point                  | <b>4</b>               |
| Software Version Transmitter | <b>V2.03.00</b>          | Software Version I/O-Module | <b>V1.06.00</b>        |
| Verification date            | <b>28.09.2023</b>        | Verification time           | <b>09:18</b>           |

| <b>Curent Output</b> | <b>Assign</b> | <b>Current Range</b> | <b>Value 0_4mA</b>   | <b>Value 20 mA</b> |  |  |
|----------------------|---------------|----------------------|----------------------|--------------------|--|--|
| Terminal 26/27       | VOLUME FLOW   | 4-20 mA activ        | 0.0 m3/h             | 200.00 m3/h        |  |  |
|                      |               |                      |                      |                    |  |  |
| <b>Pulse Output</b>  | <b>Assign</b> | <b>Pulse Value</b>   | <b>Output signal</b> | <b>Pulse width</b> |  |  |
| Terminal 24/25       | OFF           | ---                  | ---                  | ---                |  |  |
|                      |               |                      |                      |                    |  |  |

Actual System Ident.

119.0

# Flowmeter Verification Certificate Transmitter

Georgian Highlands Region

Drayton Mill Street PS

Customer

Plant

FIT100

Order code

PROMAG 53 W DN150

Tag Name

1.0955 - 1.0955

Device type

F61F0119000

K-Factor

0

Serial number

V2.03.00

Zero point

V1.05.03

Software Version Transmitter

27.09.2023

Software Version I/O-Module

12:02

Verification date

Verification time

## Verification result Transmitter: Passed

| Test item        | Result     | Applied Limits |
|------------------|------------|----------------|
| Amplifier        | Passed     | Basis: 0.55 %  |
| Current Output 1 | Passed     | 0.05 mA        |
| Pulse Output 1   | Not tested | 0 P            |
| Test Sensor      | Passed     |                |

### FieldCheck Details

551032

Production number

1.07.10

Software Version

04/2023

Last Calibration Date

### Simubox Details

8714684

Production number

1.00.01

Software Version

04/2023

Last Calibration Date

27.09.2023



Date

Operator's Sign

Inspector's Sign

### **Overall results:**

The achieved test results show that the instrument is completely functional, and the measuring results lie within +/- 1% of the original calibration. <sup>1)</sup>

The calibration of the Fieldcheck test system is fully traceable to national standards.

1) Prerequisite is an additional proof of electrode integrity with a high voltage test.

## FieldCheck - Result Tab Transmitter

|                              |                          |                             |                        |
|------------------------------|--------------------------|-----------------------------|------------------------|
| Customer                     |                          | Plant                       |                        |
| Order code                   |                          | Tag Name                    | <b>FIT100</b>          |
| Device type                  | <b>PROMAG 53 W DN150</b> | K-Factor                    | <b>1.0955 - 1.0955</b> |
| Serial number                | <b>F61F0119000</b>       | Zero point                  | <b>0</b>               |
| Software Version Transmitter | <b>V2.03.00</b>          | Software Version I/O-Module | <b>V1.05.03</b>        |
| Verification date            | <b>27.09.2023</b>        | Verification time           | <b>12:02</b>           |

Verification Flow end value ( 100 % ): 70.686 l/s

Flow speed 4.00 m/s

| Passed / Failed | Test item               | Simul. Signal      | Limit Value         | Deviation             |
|-----------------|-------------------------|--------------------|---------------------|-----------------------|
|                 | <b>Test Transmitter</b> |                    |                     |                       |
| ✓               | Amplifier               | 3.534 l/s (5%)     | 1.50 %              | 0.33 %                |
| ✓               |                         | 7.069 l/s (10.0%)  | 1.00 %              | 0.31 %                |
| ✓               |                         | 35.343 l/s (50.0%) | 0.60 %              | 0.04 %                |
| ✓               |                         | 70.686 l/s (100%)  | 0.55 %              | 0.03 %                |
|                 | <b>Current Output 1</b> |                    |                     |                       |
| ✓               |                         | 4.000 mA (0%)      | 0.05 mA             | -0.002 mA             |
| ✓               |                         | 4.800 mA (5%)      | 0.05 mA             | -0.003 mA             |
| ✓               |                         | 5.600 mA (10.0%)   | 0.05 mA             | -0.017 mA             |
| ✓               |                         | 12.000 mA (50.0%)  | 0.05 mA             | -0.003 mA             |
| ✓               |                         | 20.000 mA (100%)   | 0.05 mA             | 0.001 mA              |
| —               | Pulse Output 1          | ---                | ---                 | ---                   |
|                 |                         | <b>Start value</b> | <b>Limits range</b> | <b>Measured value</b> |
|                 | <b>Test Sensor</b>      |                    |                     |                       |
| ✓               | Coil Curr. Rise         | 9.600 ms           | 0.000..21.500 ms    | 16.019 ms             |
| ✓               | Coil Curr. Stability    |                    | ---                 | ---                   |
| ✓               | Electrode Integrity     | mV                 | 0.0..300.000 mV     | 3.277 mV              |

Legend of symbols

|        |        |            |              |           |
|--------|--------|------------|--------------|-----------|
| ✓      | ✗      | —          | ?            | !         |
| Passed | Failed | not tested | not testable | Attention |

## FieldCheck: Parameters Transmitter

|                              |                          |                             |                        |
|------------------------------|--------------------------|-----------------------------|------------------------|
| Customer                     |                          | Plant                       |                        |
| Order code                   |                          | Tag Name                    | <b>FIT100</b>          |
| Device type                  | <b>PROMAG 53 W DN150</b> | K-Factor                    | <b>1.0955 - 1.0955</b> |
| Serial number                | <b>F61F0119000</b>       | Zero point                  | <b>0</b>               |
| Software Version Transmitter | <b>V2.03.00</b>          | Software Version I/O-Module | <b>V1.05.03</b>        |
| Verification date            | <b>27.09.2023</b>        | Verification time           | <b>12:02</b>           |

| <b>Curent Output</b> | <b>Assign</b> | <b>Current Range</b> | <b>Value 0_4mA</b>   | <b>Value 20 mA</b> |  |  |
|----------------------|---------------|----------------------|----------------------|--------------------|--|--|
| Terminal 26/27       | VOLUME FLOW   | 4-20 mA activ        | 0.0 I/s              | 100.00 I/s         |  |  |
|                      |               |                      |                      |                    |  |  |
| <b>Pulse Output</b>  | <b>Assign</b> | <b>Pulse Value</b>   | <b>Output signal</b> | <b>Pulse width</b> |  |  |
| Terminal 24/25       | VOLUME FLOW   | 100.000 I/P          | Passive/Positive     | 100.00 ms          |  |  |
|                      |               |                      |                      |                    |  |  |

Actual System Ident.

123.0



## VeriMaster - Flow Meter Verification Report

| Customer Information  |               | Meter Information     |                |
|-----------------------|---------------|-----------------------|----------------|
| Customer              | Moorefield PS | Meter Owner           | Moorefield     |
| Verification Download | Sep-28-23     | Meter Type            | WaterMaster    |
|                       |               | Sensor Size           | DN100          |
|                       |               | Pipe Status           | Fluid Present  |
|                       |               | Sensor Type           | Fullbore       |
|                       |               | Sensor Serial No      | 3K620000416124 |
|                       |               | Transmitter Serial No | 3K620000416124 |
|                       |               | Tag                   |                |
|                       |               | Location              | ?              |

### Overall Status: Marginal

The flowmeter has detected internal measurement changes or external influences which may affect the measurement accuracy.

| Summary of Results |                               | Verification History          |                            |
|--------------------|-------------------------------|-------------------------------|----------------------------|
| Coil Group         | Warning - Coil open circuit + | OIML Accuracy Alarms          | 1                          |
| Electrode Group    | Passed                        | <b>Totaliser Information</b>  |                            |
| Sensor Group       | Passed                        | Forward                       | 17412.00 m3                |
| Transmitter Signal | Passed                        | Reverse                       | 15.00 m3                   |
| Transmitter Driver | Passed                        | Net                           | 17396.00 m3                |
| Output Group       | Passed                        | <b>Sensor Data</b>            |                            |
| Configuration      | Passed                        | Coil Current                  | 179.9 mA                   |
|                    |                               | Coil Inductance               | 224.7 mH                   |
|                    |                               | Coil Inductance Shift         | -0.4%                      |
|                    |                               | Coil / Loop Resistance        | 40.2 ohm                   |
|                    |                               | <b>Transmitter Data</b>       |                            |
|                    |                               | Tx Gain - Adjustment          | 0.1%                       |
|                    |                               | <b>VeriMaster Information</b> |                            |
|                    |                               | Version                       | 01.00.03                   |
|                    |                               | Limit Version                 | 01.00.01                   |
|                    |                               | <b>Pulse Output</b>           |                            |
|                    |                               | Output 1: 1200.0Hz            | Pass : 1200.000 Hz ; 0.00% |
|                    |                               | Output 1: 600.0Hz             | Pass : 600.000 Hz ; 0.00%  |
|                    |                               | Output 2: 1200.0Hz            | Pass : 1200.000 Hz ; 0.00% |
|                    |                               | Output 2: 600.0Hz             | Pass : 600.000 Hz ; 0.00%  |

| Installation Comments / Equipment used: | Configuration Settings      |                   |
|---|-----------------------------|-------------------|
|   | Mains Frequency             | 60 Hz             |
|   | Qmax                        | 22.22 l/s         |
|   | Pulses/Unit                 | 120.000000        |
|   | Pulses Limit Frequency      | 1200.0 Hz         |
|   | Sensor User Span/Zero       | 100.0%; 0.00 mm/s |
|   | User Flow Cutoff/Hysteresis | 1.00%; 20%        |
|   | Meter Mode                  | Normal operation  |

Date Sep-28-23

Operator Signature

Print

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**2023 Annual Performance Report  
Mapleton Wastewater Pollution Control Plant  
ECA# 1391-B38PLA August 2, 2018**

Appendix D

ECA Limit Exceedance Email/Written Notifications

2023

**From:** [Melissa Cortes](#)  
**To:** "[Neubrand, Rick \(MECP\)](#)"  
**Cc:** [Don Irvine](#); [Caralynn McRae](#); [-GHRH-SPCM@ocwa.com \(Mailing List\)](#); [jmorgan@mapleton.ca](#); [William Smith](#); [Dwight Hallahan](#); [Steve Miller](#)  
**Subject:** Mapleton WPCP Exceedance Notification (TAN) - April 2023  
**Date:** June-05-23 1:42:00 PM  
**Attachments:** [image001.jpg](#)

---

Hello Rick,

This is a notification that the Mapleton Wastewater Pollution Control Plant has met all but one of its ECA compliance limits (**TAN**) for the month of **April 2023**.

**Facility:** Mapleton Wastewater Pollution Control Plant

**ECA #** 1391-B38PLA

**ECA Issued:** August 2, 2018

**April 2023**

| Mapleton Wastewater Pollution Control Plant |          |           | 5 <sup>th</sup> | 11 <sup>th</sup> | 21 <sup>th</sup> | 25 <sup>th</sup> | MONTHLY AVERAGE | Reportable |
|---|----------|-----------|-----------------|------------------|------------------|------------------|-----------------|------------|
| PARAMETER                                   | LIMIT    | OBJECTIVE |                 |                  |                  |                  |                 |            |
| TAN   | 5.0 mg/L | 3.0 mg/L  | 1.60            | -                | 9.90             | 9.10             | 6.87            | Monthly    |

Results Summary

- **TAN** – the monthly average concentration of 6.87 mg/L was above the ECA Compliance Limit.

-

Reporting Actions

Verbally notified Rick Neubrand, Provincial Office/Water Inspector with the MECP Guelph District Office of the exceedance on Monday June 5, 2023 at 1:01pm via phone call.

-

Process Timeline

1. April 4, 2023 – Content Cell Sample of Cell 4A
2. April 4, 2023 – Cell 4A shut down and raw flow directed to Cell 4B
3. April 19, 2023 – Opened discharge from Cell 4A
4. April 20, 2023 – Blower out of service - Blower tripping out on multiple occasions before identifying the cause. After electrician onsite it was determined that the motor was faulting out.
5. April 21, 2023 – Effluent and River Sample Collected and sent to lab for analysis – TAN result over ECA limit
6. April 25, 2023 – Effluent and River Sample Collected and sent to lab for analysis – TAN result over ECA limit
7. Discharge shut down on April 30, 2023

Corrective Actions taken

1. Took blower 1 out of service for motor repairs
2. Electrician onsite confirmed motor going to ground and tripping out
3. Remove motor and order new motor from supplier

If there are any questions or comments concerning this matter, please let us know.

Thank you,

*Melissa Cortes*  
Process & Compliance Technician