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The Municipality of Trent Hills

Annual Report

Campbellford Wastewater System 2024

Prepared by

Wastewater Operations Department

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Section 11(4) of the Environmental Compliance Approval no. 8181-AXYQ6K, for the Campbellford Wastewater Treatment Facility states, "The owner shall prepare performance reports on a calendar year basis and submit to the District Manager by March 31 of the calendar year following the period being reported upon. The reports shall contain, but shall not be limited to, the following information pertaining to the reporting period:

- (a) A summary and interpretation of all Influent, Imported Sewage monitoring data, and a review of the historical trend of the sewage characteristics and flow rates;
- (b) A summary and interpretation of all Final Effluent monitoring data, including concentration, flow rates, loading and a comparison to the design objectives and compliance limits in this approval, including an overview of the success and adequacy of the Works;
- (c) A summary of any deviation from the monitoring schedule and reasons for the current reporting year and a schedule for the next reporting year;
- (d) A summary of all operating issues encountered and corrective actions taken;
- (e) A summary of all normal and emergency repairs and maintenance activities carried out on any major structure, equipment, apparatus or mechanism forming part of the Works;
- (f) A summary of any effluent quality assurance or control measures taken;
- (g) A summary of the calibration and maintenance carried out on all Influent, Imported Sewage and Final Effluent monitoring equipment to ensure the accuracy is within the tolerance of that equipment as required in this Approval or recommended by the manufacturer;
- (h) 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 situations:
 - 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
 - ii. when the Annual Average Daily Influent Flow reaches 80% of the Rated Capacity;
- (i) A tabulation of the volume of sludge generated, an outline of anticipated volumes to be generated in the next reporting period and a summary of the locations to where the sludge was disposed;
- (j) A summary of any complaints received and any steps taken to address the complaints;
- (k) A summary of all By-passes, Overflows, other situations outside Normal Operating Conditions and spills within the meaning of Part X of EPA and abnormal discharge events;
- (l) A summary of all Notice of Modifications to Sewage Works completed under Paragraph 1.d. of Condition 10, including a report status of implementation of all modification.
- (m) 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 system that result in overall Bypass/Overflow elimination including expenditures and proposed projects to eliminate Bypass/Overflows with estimated budget forecast for the following year following that for which the report is submitted, and a summary of efforts made to achieve conformance with Procedure F-5-5 and establish/maintain a Pollution Prevention and Control Plan (PPCP)
- (n) Any changes or updates to the schedule for completion of construction and commissioning operation of major process (es)/Equipment groups in the Proposed Works.

Section 1 – ECA Condition 11 (4) (a)

A summary of all monitoring data collected at the Campbellford Wastewater Treatment Facility (WWTF) during the reporting period is located in Appendix III. The summary or Performance Report provides Flow data, Raw sewage, Imported sewage and Final effluent analytical results and an Effluent loadings summary.

Below is a summary of Influent and Imported Sewage Data. During the spring and winter, months in the reporting year flows are elevated due to infiltration and inflow, which historically is consistent. The Municipality of Trent Hills developed the Sanitary Sewer Maintenance Program in 2020 in an effort to build on the existing program that has been in place in the past. This program outlines schedules, guidelines and standards to assess infrastructure, prevent future sewer blockages and to reduce inflow. Repairs to the collection system are completed annually in conjunction with the flushing and CCTV program. Municipal staff continue to monitor flows during pumping station inspections and manhole inspections focusing in on areas of concern. Maintenance and repairs continue on an annual basis in the sewer main located in the core wall along the Trent River.

Campbellford WWTF - Monthly Average Influent Flow - 2024												
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Total Monthly Flow m3	121314	76368	80956	153081	92194	81497	97888	74613	68040	67908	60176	74599
Average Daily Flow m3/d	3913	2633	2698	5102	2974	2716	3157	2406	2268	2190	2005	2406
Minimum Daily Flow m3	1953	2156	2153	2454	2313	2175	2495	2125	1946	1918	1851	1824
Maximum Daily Flow m3	6625	3514	3471	9807	4226	3567	6572	2678	3177	2905	2244	3838

The chart below summarizes the Monthly Influent Monitoring.

Campbellford WWTF - Monthly Average Influent Monitoring - 2024												
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
pH	8.04	7.92	7.94	8.10	8.03	7.99	7.91	7.88	7.95	8.10	8.04	8.30
Temperature *C	6.30	6.80	7.47	9.60	14.11	18.04	20.08	21.42	20.25	16.42	13.20	8.20
BOD mg/L	118	125	161	108	118	153	142	163	141	156	169	145
Phosphorous mg/L	1.73	2.28	2.13	2.02	2.48	2.65	2.18	1.71	2.19	1.99	2.26	2.18
Total Suspended Solids mg/L	121	168	136	157	140	224	174	183	173	193	158	195
Total Kjeldahl Nitrogen mg/L	17.50	26.00	20.67	18.60	24.40	22.90	18.90	14.30	15.60	17.70	19.90	18.20

Below is the Monthly Imported Sewage Receiving Rates and monitoring.

Campbellford WWTF - Monthly Total Imported Sewage Received (m3) - 2024													
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total Received
Total Received (m3)	1515.47	1232.08	1926.76	1411.46	1805.43	1420	1474.11	1064.61	1097.74	1101.88	940.38	658.38	15648.30

Campbellford WWTF - Monthly Imported Sewage Lab Analysis - 2024												
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
BOD mg/L	60	50	67	29	22	18	392	217	49	40	26	25
Total Suspended Solids mg/L	18	16	11	7	18	22	35	14	48	11	7	315
Total Phosphorous mg/L	2.87	2.38	2.8	2.93	2.81	3.01	1.8	2.97	3.63	2.76	2.49	0.77
TKN mg/L	451	509	452	446	381	424	434	398	525	428	414	401
Ammonia + Ammonium	421	372	396	413	397	452	358	415	419	417	385	394

Below are results from Quarterly Leachate Related Final Effluent Sampling as outlined in Schedule D of ECA #8181-AXYQ6K.

Campbellford WWTF - Quarterly Leachate Related Effluent Sampling - 2024						
	Jan	Apr	July	Oct		Average
Boron	0.258	0.21	0.13	0.079		0.16925
Cobalt	0.000247	0.000271	0.00017	0.00011		0.0002
Magnesium	8.91	8.77	7.98	6.14		7.950
Manganese	0.00813	0.00383	0.00545	0.00495		0.00559
Potassium	14	13.1	10.8	6.24		11.04
Strontium	0.249	0.246	0.216	0.173		0.221
Bis(2-ethylexyl) Phthalate	<2	<2	<2	2.1		2

The Municipality of Trent Hills was approached in July of 2022 by Empire Cheese for permission to process their wastewater from their manufacturing facility in Trent Hills. The Municipality continued to receive wastewater from Empire Cheese throughout 2024. As requested from the MECP, the chart below outlines the added loadings on the plant. Plant staff continue to sample

The following table provides a monthly summary of the pH of the effluent. Non – compliance is deemed to have occurred when any singular measurement is outside the required range of 6.0 to 9.5, as specified in Condition 7(1) Schedule C of the ECA.

Campbellford WWTF - Monthly pH Results Effluent Monitoring - 2024												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Minimum pH	7.09	7.05	7.04	7.29	7.40	7.25	7.41	7.45	7.64	7.62	7.06	7.11
Maximum pH	8.42	7.68	8.15	8.09	7.73	7.94	8.04	8.14	8.36	8.50	8.48	8.72
Average pH	7.88	7.37	7.63	7.64	7.57	7.64	7.77	7.80	7.92	7.96	8.04	7.87

The above results show that the pH was maintained between 7.04 and 8.04 for the 2024 reporting period, which is within the compliance range of 6.0 to 9.5 specified in the ECA.

Campbellford WWTF - Monthly Temperature Results Effluent Monitoring - 2024												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Minimum Temperature *C	7.09	7.05	7.04	7.29	7.40	7.25	7.41	7.45	7.64	7.62	7.06	7.11
Maximum Temperature *C	8.42	7.68	8.15	8.09	7.73	7.94	8.04	8.14	8.36	8.50	8.48	8.72
Average Temperature *C	7.88	7.37	7.63	7.64	7.57	7.64	7.77	7.80	7.92	7.96	8.04	7.87

There is no compliance range for the final effluent temperature, however the ECA requires that samples are collected and tested on-site for final effluent temperature, so the results have been included in this report.

Section 3 - ECA Condition 11(4) (c)

All monitoring during 2024 was in accordance with ECA 8181-AXYQ6K. There was no deviation from the monitoring schedule other than the fact that we continue to monitor the centrate entering the plant that is not specified in the updated ECA and Campbellford WWTF also monitors digested sludge quality and dewatered biosolids to optimize plant processes. A sample calendar is located in Appendix I located at the end of this report.

Section 4 – ECA Condition 11(4) (d)

Although the Campbellford WWTF operated efficiently and within compliant limits as set out in ECA #8181-AXYQ6K Condition 7(1) Schedule C there was one notable operational challenge in 2024. The facility that Trent Hills disposed of dewatered bio-solids ceased operations in Belleville in January 2024. Faced with an alternative disposal the nearest site was operated by GFL in Iroquois, ON. This resulted in added trucking costs but slightly lower tipping fees. This resulted in a 20% increase in bio-solids disposal year over year. At present, staff are exploring alternative disposal methods to manage costs. Flows decreased slightly by 12.1% from 2023 and the plant continued to receive leachate from Northumberland County, wastewater from the Empire Cheese Factory and other imported sewage that had no negative impacts on the process.

Section 5 – C of A Condition 11 (4) (e)

Municipality of Trent Hills maintenance activities are based on the Worktech program. Preventative maintenance schedules have been set up by automatically generating work orders on a Monthly, Quarterly, Bi-Annual or Annual basis for all pieces of equipment. This is based on the manufacturers recommended schedule and/or regulatory schedules.

Corrective or breakdown maintenance is completed as soon as problems are identified and are listed in the chart below. Each piece of equipment is visually inspected daily as part of general plant checks as well as the performance that is trended through SCADA.

Work orders are completed and entered into Worktech for historical purposes and this ensures that routine and preventative maintenance procedures are followed.

Preventative Maintenance Work Orders Completed

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Summary of all Normal and Emergency Repairs 2024	
Month	Repair
January	Control panel on transfer switch at Riverside Trail PS installed Install updated alarm system in Campbellford Complete annual boiler system maintenance
February	
March	Complete electrical upgrade in Campbellford centrifuge building, add new MCC Replace starter on P6 Recirculation Pump Install new guide rails on centrate tank pumps Install stairs to basement at Main PS #1
April	Change diaphragm in digester gas train Annual maintenance and load testing of all generators Replace centrate tank Miltronics level monitor due to failure Install level probes on digester 1 and 2
May	SPS#2 transformer blown, replaced Grinder installed in Campbellford – issue after installation with screen motor, replaced at suppliers cost
June	Repair check valve #3 at Main PS
July	Condenser failed in MCC room and will require replacement in 2025 Primary Clarifier 2 required isolation due to heat lamp falling in. Full inspection when empty LMWS install new hatch at SPS#2 and support beam in preparation for pipe replacement SPS#2 Blown transformer – the panel has been ordered and will be installed in late 2024 or early 2025
August	Carmichael on site to troubleshoot boiler operation. Determine faulty changeover valves – will replace in 2025
September	Experienced a grounding issue at the main plant when the generator ran, the SCADA would not work. Installed fiber between the buildings Replace bulb on UV
October	Install oil pump in Blower #1 Campbellford – failed motor GFL on site to clean out centrate tank.
November	LMWS install lower pipes, base for pump1 and guide rails at SPS#2
December	Hydro change over at Main PS initiated by Hydro One Atlas Copco on site to check heaters in blowers. Determine failed transformer – Order and will replace.

Section 6 – EC A Condition 11 (4) (f)

Effluent control measures include daily plant checks and flow monitoring, in-house sampling and testing for operational parameters such as suspended solids, pH, soluble phosphorous and dissolved oxygen at least three times weekly. In house testing provides real time results, which enhance process and operational performance. All in house sampling and analysis is performed by certified operators utilizing methods and protocols for sampling, analysis and recording as specified in the Ministry’s Procedure F–10-1, “Procedures for Sampling and Analysis Requirements for Municipal and Private Sewage Treatment Works”, the Ministry’s publication, “Standard Methods for the Examination of Water and Wastewater”.

Staff are also conducting a complete solids inventory at least once per week to further optimize plant process. Solids inventory in the plant is being maintained on a consistent balance.

All effluent samples collected during the reporting period to meet C of A sampling requirements were analyzed by SGS Lakefield, with the exception of pH and temperature. SGS Lakefield has been deemed by the Canadian Association for Laboratory Accreditation (CALA) to be an accredited laboratory, meeting strict provincial guidelines including an extensive quality assurance/quality control program.

Section 7 – ECA Condition 11(4) (g)

The Worktech system automatically generates work orders and schedules calibration and certification of Flowmeters and lab equipment.

These calibrations are carried out by a certified, third party qualified technician and performed on an annual basis. A copy of the 2024 Annual Calibration Record for the raw sewage flow meter is located in Appendix II.

Imported Sewage volume measured by haul truck volumes.

Section 8 – ECA Condition 11(4) (h)

The following table provides continuous efforts made to meet Effluent Objectives:

Efforts Made to Meet the Effluent Objectives of Condition 6
1. Sampling effluent as per the C of A
2. Visual inspection of the plant and processes while performing rounds.
3. Ensuring that Alum is being dosed
4. Closely monitoring solids inventory in the plant as well as detention times
5. Operations staff closely monitor MCRT and waste accordingly
6. Monitoring treatment processes through regular in house lab routines
7. Monitoring and further integrating SCADA
8. Performing preventative maintenance and completing work orders
9. Calibrating laboratory equipment according to manufacturer’s recommendations
10. By conducting flow monitoring, flushing and CCTV in collection system we are working to reduce flows to the wastewater plant and ease the stress on the process during times of increased flow.

All effluent **objectives** are in the Tables in Section 2 of this annual report. All objectives were met during the reporting period.

Condition 6 – Effluent Objectives, subsection (1) (b) states: *The Owner shall use best efforts to: ensure that the effluent from the works is essentially free of floating and settleable solids and does not contain oil or any other substance in amounts sufficient to create a visible film or sheen or foam or discoloration on the receiving waters.*”

There were no incidences throughout the reporting period of Condition 6 (1) (b)

Condition 6 – Effluent Objectives, subsection (1) (c) states, “The Owner shall design and undertake everything practicable to operate the Sewage Treatment Plant in accordance to the following objectives: c. Annual Average Daily Influent Flow is within the Rated Capacity of the Sewage Treatment Plant.”

The following table provides a comparison of the rated capacity of the works to the actual flow data obtained during the 2024 reporting period.

Campbellford WWTF - Monthly Effluent Monitoring Flows - 2024												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Average Daily Flow m3/d	3913	2633	2698	5102	2974	2716	3157	2406	2268	2190	2005	2406
Rated Capacity m3/d	6600	6600	6600	6600	6600	6600	6600	6600	6600	6600	6600	6600

The above table shows that the Campbellford WWTF ECA rated capacity was not exceeded during any month in 2024. The Annual Average Daily Influent Flow of 2872 m3/day is 43.5% of the Rated Capacity of the Sewage Treatment Plant of 6600 m3/d.

Section 9 – ECA Condition 11 (4) (i)

During the 2024 reporting period, 6977 m3 of bio-solids were hauled and disposed of from the Campbellford Wastewater Treatment Facility. This amount is 1.5% lower than 7081.6 m3 in 2023. We expect the amount of biosolids generated for the next reporting period to remain consistent with present rates.

The final disposal method for the biosolids produced are being accepted at a certified processing facility operated by GFL in Iroquois, ON.

Tabulated below is a summary of the volumes of biosolids disposed of during the 2024 reporting period.

Campbellford WWTF - Biosolids Summary - 2024												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Volume m3	585.43	388.46	455.76	479.80	732.70	643.83	802.58	603.99	610.50	769.07	468.08	437.25
Total Volume m3												6977.45
Average m3 per Month												581.45

Section 10 – ECA Condition 11 (4) (j)

There were no community complaints received during the 2024 reporting period.

Section 11 – ECA Condition 11 (4) (k)

There were no by-pass, spills or abnormal discharge events during the 2024 reporting period.

Section 12 – ECA Condition 11 (4) (l)

No Notice of Modifications to Sewage Works completed in 2024.

Section 13 – ECA Condition 11 (4) (m)

The Campbellford sewer system has not experienced Bypass/Overflow situations in recent years and has worked towards 85% of the sewer being separated at this point. In efforts to eliminate the possibility of Overflow/Bypass events as well as Inflow and Infiltration in the system, the Municipality has a multi-year plan in place to flush and CCTV a portion of the system each year. This means that all areas of the wastewater collection systems in Trent Hills are flushed, and CCTV inspected over a seven (7) year maintenance cycle. Areas identified for repair, are completed immediately or in some situations are identified for future rehabilitation.

During periods of elevated flow, municipal staff complete flow monitoring to identify areas of concern. The core wall, which has been an area of concern in the past, is being inspected on an annual basis and repairs completed as required.

In 2020, the Trent Hills Sanitary Sewer Maintenance Program was developed to include the existing work being completed as well as a maintenance schedule, standards, etc. in an effort to assess infrastructure, prevent sewer blockages and reduce inflow. This program included the introduction of the Manhole Inspection program.

The Municipal budget for CCTV and flushing will remain at \$57,000 for the three (3) systems within the Municipality of Trent Hills and \$23,000 for repairs.

Section 14 – ECA Condition 11 (4) (n)

No changes or updates for 2024.

Wastewater System Effluent Regulations

The Wastewater Systems Effluent Regulations (WSER) is a federal regulation under the Fisheries Act that came into effect on January 1, 2013.

These regulations apply to a wastewater system that:

- Is designed to collect an average daily volume (ADV) of 100m³ or more of influent, or
- Collects an average daily volume (ADV) of 100m³ or more of influent during any calendar year.

An owner or operator must calculate, for each calendar year, the Average Daily Volume of effluent deposited via the system's final discharge point according to the following formula:

Sum of daily effluent volumes deposited (m³) / number of days in calendar year (365 days)

Note: The formula uses the number of days in the calendar year **Not** the number of days discharging.

Sampling and reporting requirements are dependent on the system type and its annual average daily volume of effluent. In 2024, the Campbellford Wastewater Treatment Plant deposited 2872 m³ average daily effluent volumes.

The quarterly reports monitoring reports were submitted to Environment Canada as required, annual toxicity and required sampling were completed and the plant met all quality standards in 2024.

Any questions regarding the information contained in this report should be directed to the undersigned at 705-653-1870

Troy Stephens

Troy Stephens,
Manager of Water and Wastewater Services
Municipality of Trent Hills

APPENDIX I

Sample Calendar 2025

2025 – Waste Water Calendar - Campbellford

January							February							March							April											
Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat					
				1	2	3	4							1											1	30	31	1	2	3	4	5
5	6	7	8	9	10	11	2	3	4	5	6	7	8	2	3	4	5	6	7	8	6	7	8	9	10	11	12					
12	13	14	15	16	17	18	9	10	11	12	13	14	15	9	10	11	12	13	14	15	13	14	15	16	17	18	19					
19	20	21	22	23	24	25	16	17	18	19	20	21	22	16	17	18	19	20	21	22	20	21	22	23	24	25	26					
26	27	28	29	30	31		23	24	25	26	27	28		23	24	25	26	27	28	29	27	28	29	30								

May							June							July							August											
Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat					
				1	2	3	1	2	3	4	5	6	7																			
4	5	6	7	8	9	10	8	9	10	11	12	13	14	6	7	8	9	10	11	12	3	4	5	6	7	8	9					
11	12	13	14	15	16	17	15	16	17	18	19	20	21	13	14	15	16	17	18	19	10	11	12	13	14	15	16					
18	19	20	21	22	23	24	22	23	24	25	26	27	28	20	21	22	23	24	25	26	17	18	19	20	21	22	23					
25	26	27	28	29	30	31	29	30						27	28	29	30	31			24	25	26	27	28	29	30					

September							October							November							December											
Su	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat					
31	1	2	3	4	5	6																				30	1	2	3	4	5	6
7	8	9	10	11	12	13	5	6	7	8	9	10	11	2	3	4	5	6	7	8	7	8	9	10	11	12	13					
14	15	16	17	18	19	20	12	13	14	15	16	17	18	9	10	11	12	13	14	15	14	15	16	17	18	19	20					
21	22	23	24	25	26	27	19	20	21	22	23	24	25	16	17	18	19	20	21	22	21	22	23	24	25	26	27					
28	29	30					26	27	28	29	30	31		23	24	25	26	27	28	29	28	29	30	31								

Weekly – Final Effluent – Composite for TP, TAN, cBOD5, TSS, Unionized Ammonia – Grab for E. Coli – Raw Sewage – Composite cBODs, TP, TSS, TKN	* On Site Effluent Testing – at least 3 times/week (Mon-Fri)
Bi-weekly WSER Requirements – Final Effluent Composite for CBODs, TSS	
Monthly – Imported Sewage – BOD5, TSS, TP, TKN – Dewatered Sludge Cake – Grab for TS, Volatile Solids, Total P, TKN, NH3 + NH4, as N, NO2 & NO3 as N, pH, alkalinity Metal Scan (AS, Cd, Co, Cr, Cu, Hg, Mo, Ni, Pb, Se, Sn) and potassium – Secondary Digested Sludge – Grab for TS, Volatile Solids, Volatile Acids, pH and alkalinity	
Quarterly Effluent – Boron, Cobalt, Magnesium, Manganese, Potassium, Strontium, Bis (2-ethylhexyl) Phthalate	
Quarterly Requirement – Centrate – BODs, COD, Total P, TSS, TKN	
Statutory Holiday	WSER Annual – Final Effluent – Acute Lethality (Rainbow Trout)

APPENDIX II

Calibration Record

Tower Electronics Canada Inc. Calibration Certificate

Customer:

Troy Stephens
 Wastewater Collection/Treatment Plant Head Operator
 Municipality of Trent Hills
 705-653-1870

Calibration by:

Dan Matchett

Standards:

Fluke 289 S/N 96220182 NIST Cal Due April 2025
 ABB VSE V/30005/7015 NIST Cal Due April 2025

Instrument Type

Magnetic Flow Meter

Method of verification

Secondary VSE/Velocity Simulation

Units: LPS
Zero: 0.00
Span: 200.00
Totalizer: M3

Meter Information

Date of Test: 2024-05-13
 Location: Campbellford WWTP
 Meter Under Test: Raw Flow
 Client Tag: n/a
 Manufacturer: ABB
 Model: Magmaster
 Serial Number: V43335/2/1
 Totalizer As Found: 30476354m3
 Totalizer As Left: 30476383m3

Programming Parameters:

DN Size: DN300
 Cal Factor: 1.431
 Zero Cal: 0
 Acceptable Tolerance: 15%
Calibration Due: May-25

Flow Test						
Velocity m/s	Sim Flow LPS	Meter Display	SCADA	Disp Error%	SCADAErr%	
0.000	0.000	0.000	0.000	0.000	0.000	
0.100	10.113	9.220	9.650	0.446	0.232	
0.200	20.226	20.620	20.140	0.197	0.043	
0.500	50.565	50.680	50.390	0.058	0.087	
1.000	101.130	100.620	100.080	0.255	0.525	
				Average Error%	0.19	0.18
				Result:	PASS	PASS

Totalizer Test		
Sim Flow Rate	101.130	LPS
Start Totalizer	30476373.000	M3
End Totalizer	30476381.000	M3
Volume Simulated	8.000	
Time(Seconds)	78.900	
Calculated Totalizer	7.979	
Error%	0.261	
Result:	PASS	

Comments:

Unit passes verification.

APPENDIX III
2024 Performance Summary

G Campbellford WWTF 2024 Performance Report

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Tot	Avg	Min	Max	Criteria
Flows																	
Effluent Flow Total (m3)	121314	76368	80956	153081	92194	81497	97888	74613	68040	67908	60176	74599	1048634				
Effluent Flow Avg. (m3/d)	3913	2633	2698	5102	2974	2716	3157	2406	2268	2190	2005	2406		2872			
Effluent Flow Min. (m3/d)	1953	2156	2153	2454	2313	2175	2495	2125	1946	1918	1851	1824			1824		
Effluent Flow Max. (m3/d)	6625	3514	3471	9807	4226	3567	6572	2678	3177	2905	2244	3838				9807	
Raw Temperature																	
Min	3.50	6.20	6.30	7.80	10.80	16.70	18.10	20.40	19.20	13.90	10.80	6.80			3.50		
Max	8.70	7.70	8.40	10.70	17.40	19.90	21.80	22.00	21.30	19.70	16.30	10.50				22.00	
Avg	6.30	6.80	7.47	9.60	14.11	18.04	20.08	21.42	20.25	16.42	13.20	8.20		13.49			
Raw pH																	
Min	7.67	7.47	7.55	7.85	7.74	7.80	7.70	7.22	7.64	7.90	6.85	7.78			6.85		
Max	8.35	8.24	8.36	8.24	8.28	8.27	8.18	8.15	8.25	8.23	8.80	8.72				8.80	
Avg	8.04	7.92	7.94	8.10	8.03	7.99	7.91	7.88	7.95	8.10	8.04	8.30		8.02			
Final Temperature																	
Min	3.50	6.00	6.90	8.60	12.20	17.60	20.00	21.10	19.10	14.40	10.80	6.90			3.50		
Max	10.00	7.80	9.70	11.70	17.70	21.20	22.80	23.90	21.90	20.30	16.50	10.90				23.90	
Avg	6.34	7.23	8.40	9.90	15.22	19.14	21.44	22.29	20.65	17.20	13.55	8.50		14.16			
Final pH																	
Min	7.09	7.05	7.04	7.29	7.40	7.25	7.41	7.45	7.64	7.62	7.06	7.11			7.04		
Max	8.42	7.68	8.15	8.09	7.73	7.94	8.04	8.14	8.36	8.50	8.48	8.72				8.72	
Average	7.88	7.37	7.63	7.64	7.57	7.64	7.77	7.80	7.92	7.96	8.04	7.87		7.76			
# of Samples	14.00	11.00	14.00	12.00	14.00	13.00	14.00	13.00	13.00	13.00	13.00	14.00	158				
CBOD																	
Effluent Avg cBOD5 mg/L	5.00	4.00	6.75	4.00	5.00	3.00	4.00	4.50	4.00	4.00	4.00	4.00		4.35			
Loading cBOD5 kg/d	22.17	11.19	25.63	20.40	14.87	8.14	12.63	12.03	9.07	8.76	8.02	9.62		13.54			
Effluent # Samples	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	5.00	4.00	4.00	5.00	53				
BOD5																	
Raw BOD5 mg/L	118.00	125.00	161.00	108.00	118.00	153.00	142.00	162.70	141.00	156.00	169.00	145.00		141.56			
Raw # Samples	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	5.00	4.00	4.00	5.00	53				
TSS																	
Raw Avg. TSS	121.00	168.00	136.00	157.00	140.00	224.00	174.00	183.00	173.00	193.00	158.00	195.00		168.50			
Raw # Samples	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	5.00	4.00	4.00	5.00	53				
Effluent Avg. TSS	4.00	5.00	6.00	4.00	4.00	4.00	4.00	6.25	4.00	4.00	3.00	4.00		4.35			
Effluent # Samples	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	5.00	4.00	4.00	5.00	53				
Loading TSS kg/d	17.21	13.16	14.39	21.43	10.40	11.54	12.63	9.62	11.34	8.21	7.02	8.66		12.13			
Percent Removal TSS	96.37	97.02	94.88	97.32	97.49	98.10	97.70	97.03	97.11	98.05	97.78	98.15		97.25			
Total Phosphorous																	
Raw Avg. TP	1.73	2.28	2.13	2.02	2.48	2.65	2.18	1.71	2.19	1.99	2.26	2.18		2.15			
Raw # Samples	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	5.00	4.00	4.00	5.00	53				
Effluent Avg. TP	0.11	0.11	0.12	0.12	0.14	0.17	0.17	0.14	0.22	0.19	0.12	0.07		0.14			
Effluent # Samples	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	5.00	4.00	4.00	5.00	53				
Loading TP kg/d	0.44	0.27	0.35	0.63	0.41	0.46	0.54	0.29	0.50	0.41	0.24	0.16		0.39			
Percent Removal TP	93.50	95.40	91.70	94.10	94.40	93.50	92.00	92.80	89.90	90.50	94.60	96.80		93.27			
Nitrogen																	
Raw Avg. TKN	17.50	26.00	20.67	18.60	24.40	22.90	18.90	14.30	15.60	17.70	19.90	18.20		19.56			
Raw # Samples	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	5.00	4.00	4.00	5.00	53				
Effluent Avg. TAN	0.40	1.30	0.75	0.30	0.10	0.10	0.10	0.10	0.20	0.20	0.10	0.40		0.34			
Effluent # Samples	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	5.00	4.00	4.00	5.00	53				
Loading TAN	1.64	3.29	6.74	5.10	0.29	0.27	0.31	0.24	0.60	0.65	0.20	3.85		1.93			
Unionized Ammonia	0.004	0.004	0.004	0.002	0.001	0.001	0.003	0.002	0.006	0.003	0.002	0.005		0.003			
Disinfection																	
GMD Ecol	31.00	3.00	9.20	15.00	5.00	26.00	19.00	76.00	6.00	8.00	21.00	9.00		19.02			
Effluent # Samples	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	5.00	4.00	4.00	5.00	53				
Dewatering																	
Sludge Dewatered m3	585.43	388.46	455.76	479.80	732.70	643.83	802.58	603.99	630.50	769.07	468.08	437.25	6977.45	581.45			
m3/hr	17.42	15.59	15.58	14.18	17.05	19.70	16.88	17.40	16.23	17.40	17.11	18.34		16.97			
Landfill Total kg	13420	34830	32450	14120	29130	29690	34240	11150	29030	33880	16310	27270	304510.00	25375.83			
kg/m3	22.92	89.66	71.19	57.35	39.75	44.54	42.66	18.46	47.55	44.05	34.84	62.36		48			
Centrate total m3	538.00	291.04	371.17	426.96	638.90	517.98	663.04	463.70	481.28	596.56	376.14	369.14	5733.91	477.83			
Polymer Used kg	439.50	282.60	354.20	358.50	610.50	464.50	678.53	498.80	511.10	627.40	381.10	342.80	5549.53	462.46			
Digester Gas																	

Campbellford WWTF 2024 Performance Report

Digester Gas Produced	3828.6	5589.0	5323.4	4887.7	5692.3	4941.8	3193.00	3214.80	2934.0	3920.2	4032.00	4652.00	52208.80	4350.73
Average /day	123.50	192.72	171.72	162.80	183.62	154.73	103.00	103.70	97.80	126.46	134.4	150.1		142.9
To Boiler	0.00	0.00	1072.50	2463.20	0.00	900.40	793.30	848.20	0.00	0.00	0.00	0.00	6077.60	506.47
Avg./day boiler	0.00	0.00	34.60	84.94	0.00	30.01	25.59	27.36	0.00	0.00	0.00	0.00		16.88
To Waste Burner	3715.10	5589.00	4088.20	3483.50	5692.30	3738.24	3435.8	2386.59	2934.00	3920.20	4032.00	4652.00	46666.93	3888.91
Avg./day Waste burner	119.84	192.72	131.87	116.40	183.62	124.60	78.25	76.98	97.80	126.46	134.40	150.10		127.75
Alum														
Alum Used Total kg	1139.00	1042.51	1011.53	978.90	1011.53	1184.94	1387.25	1387.25	1342.50	1550.11	1872.00	1936.26	15843.78	1320.32
Average Dosage	10.78	13.77	12.28	7.60	11.23	14.70	14.92	18.67	20.02	23.09	31.22	26.87		17.10
Imported Sewage														
Kirkland's	25.91	6.81	62.73	63.64	97.73	86.3	61.27	0	0	11.36	0	11.36	427.21	35.60
Blue Loo	19.59	16.77	14	11.59	31.5	36.6	43.75	39.34	37.11	37.24	20.25	11.38	319.12	26.59
Empire	234.25	215.6	207.9	215.6	200.2	184.8	53.9	0	71.9	195.1	192.5	154	1925.75	160.48
Just In Time	0	0	15.4	0	0	11.3	64.09	17.27	22.73	18.18	0	0	148.97	12.41
Don Campbell	17.72	8.18	7.27	3.18	0	0	0	0	0	0	13.63	14.54	64.52	5.38
Munro Septic													25	2.08
Larry's Septic Service	0	12.72	95.46	25.45	0	0	0	0	0	0	0	89.1	222.73	18.56
Northumberland County	1218	972	1524	1092	1476	1101	1251	1008	966	840	714	378	12540.00	1045.00
Total Imported Sewage	1515.47	1232.08	1926.76	1411.46	1805.43	1420	1474.11	1064.61	1097.74	1101.88	940.38	658.38	15648.30	1304.025
BOD5	60	50	67	29	22	18	392	217	49	40	26	25		83
Total Suspended Solids	18	16	11	7	18	22	35	14	48	11	7	315		44
Total Phosphorous	2.87	2.38	2.8	2.93	2.81	3.01	1.8	2.97	3.63	2.76	2.48	0.77		2.60
TKN	451	509	452	446	381	424	434	398	525	428	414	401		439
Ammonia + Ammonium	421	372	396	413	397	452	358	415	419	417	385	394		403
Empire Cheese Lab														
BOD5	15800	5320	5020	6880	8360	6680	10900	ND	7390	9240	4070	5260		7665
Total Suspended Solids	2510	856	2180	1480	1820	1710	1490	ND	2370	2890	1560	1930		1887
Total Phosphorous	66.2	74.5	111	101	95.4	75.8	45.6	ND	63.7	198	52.8	63		86
TKN	308	186	362	315	284	262	325	ND	234	322	153	156		255
Ammonia + Ammonium	48.4	16.7	20	54.9	25.6	103	103	ND	66.2	82.8	52.6	27.9		54.65
Leachate Related Effluent Sampling														
Boron	0.258			0.21			0.13			0.079				0.16925
Cobalt	0.000247			0.000271			0.000174			0.000112				0.000201
Magnesium	8.51			8.77			7.98			6.14				7.850
Manganese	0.00813			0.00383			0.00545			0.00485				0.00559
Potassium	14			13.1			10.8			6.24				11.04
Strontium	0.249			0.246			0.216			0.173				0.221
Bis(2-ethylhexyl) Phthalate	<2			<2			<2			2.1				2