



March 27, 2024

Town of Goderich
c/o Sean Thomas – Director of Operations
57 West St
Goderich, ON
N7A 2K5

RE: Goderich WWTP Works # 120000943
Annual Report for Reporting Year 2023

Veolia Water Canada is pleased to submit the 2023 annual report for the Goderich WWTP as per requirement of Condition 10, Reporting, Sub-section (6) of Amended Certificate of Approval 0749-7KEJHK issued October 16th, 2008.

If you have any questions or concerns, please do not hesitate to call.

Respectfully yours,

Steve Johnston
Veolia Water - Goderich

Annual Report

2023 Operating Year

Goderich Water Pollution Control Plant

Works # 120000943

PREPARED BY

Veolia Water

**211 Sunset Drive
Goderich, ON
N7A 4C5**

FOR

The Town of Goderich

Sean Thomas - Director of Operations

**57 West St
Goderich, ON
N7A 2K5**

Resourcing the world



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1.0 INTRODUCTION

The Town of Goderich Water Pollution Control Plant, Works #120000943 is located at 211 Sunset Drive. The plant was classified as a Class II Wastewater Treatment Facility until a reclassification was undertaken in 2022. Notice was received by the Town of Goderich on September 8, 2022, in a letter from OWWCO dated August 31, 2022, that the Goderich Water Pollution Control Plant Class II classification had been changed to a Wastewater Treatment Class III Facility.

The wastewater treatment system was originally constructed in 1967. Throughout the years the plant has undergone many expansions with the last being completed in 2009 with the installation of Ultraviolet Light (UV) disinfection in place of Chlorine gas as a disinfectant.

The system is operated under Amended Certificate of Approval (ECA) No. 0749-7KEJHK, dated October 16, 2008.

The works consist of the following components:

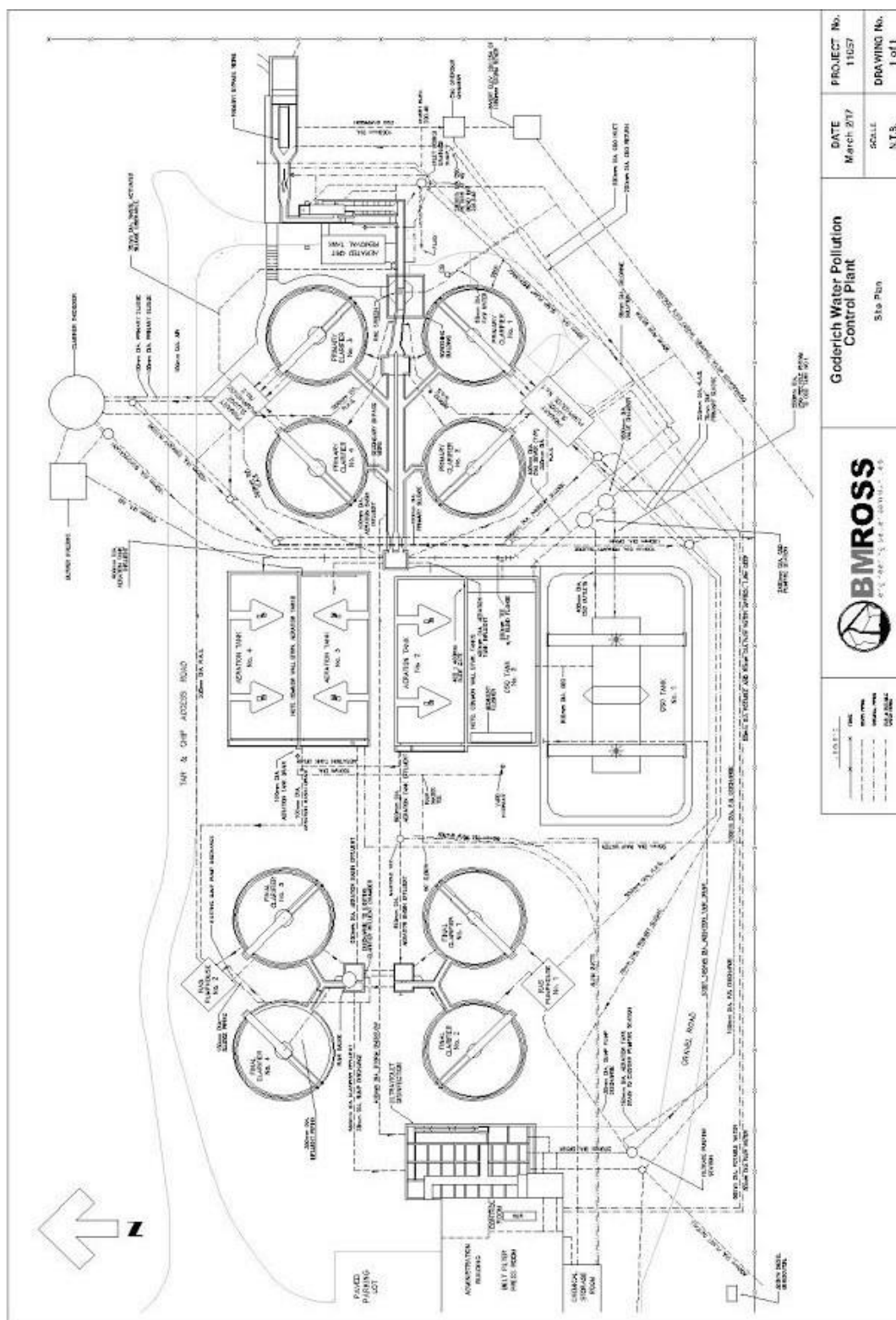
- Course fixed Bar Screen.
- Aerated Grit Tank and Grit removal system.
- Inclined Mechanical Fine Screen and Compactor
- 4 Primary Clarifiers.
- 2 Raw Sludge Pumps
- 1 Waste Return Pump
- 3 Aeration Tanks with two (2) mechanical aerators in each.
- 4 Secondary Clarifiers.
- 6 Return Activated Sludge Pumps
- UV Disinfection System
- Belt Filter Press
- By-pass Diversion Chamber
- 2 Combined Sewer Overflow (CSO) Tanks

A schematic of the treatment facility is shown as **Figure 1.1**. The Water Pollution Control plant is operated by Veolia Water Canada.

Veolia is also responsible for the following Pumping Stations:

- Station A – Outside of Salt Mine on North Harbour Rd.
- Station B – North end of the Harbour.
- Gloucester Terrace – North end of Cambria Rd
- Main Beach – North side of road just before Washrooms and Concessions building
- South Cove – East side of Bethune Crescent by Community Clubhouse
- Essex Street – West side of Essex Street. North East corner of Park (end of Picton Street)

Figure 1.1



2.0 SUMMARY AND INTERPRETATION OF MONITORING DATA

2.1 Flows

Flow data for the reporting period is obtained from the SCADA system and records maintained by Veolia, the operator of the works. **(See Appendix A)** The flows are recorded from an open channel flow meter located at the south end of the UV disinfection channel.

Table 2.1 is a summary of the 2023 monthly flows at the WPCP and monthly recorded rainfall amounts. The annual average daily flow for 2023 was 5505 m³/day, which is 61% of the rated plant flow capacity of 9,050m³/day.

Table 2.1 | 2023 Monthly Flow / Rainfall Amounts

Month	Total Flow (m ³)	Average Day (m ³)	Maximum Day (m ³)	Rainfall (mm)
January	189,824	6,123	10,133	37.50
February	176,399	6,300	10,094	18.20
March	240,945	7,772	14,137	76.00
April	230,017	7,667	14,082	42.70
May	169,578	5,470	7,265	22.60
June	122,071	4,069	5,366	25.90
July	115,711	3,733	7,104	95.80
August	118,416	3,820	5,294	99.90
September	105,978	3,533	4,758	9.40
October	139,613	4,504	7,056	108.80
November	178,660	5,955	9,353	58.70
December	220,637	7,117	13,080	83.60
Total	2,007,849			679.10
Average		5,505		56.59
Maximum			14,137	

Table 2.1.2 is a monthly comparison of the Water Treatment plant flows (Treated Water) versus the Water Pollution Control plant effluent flows. The Treated Water enters the Distribution System for use and then is returned via the Collection System for treatment at the Wastewater Treatment Plant.

Table 2.1.2 | Water Treatment Plant vs. Water Pollution Control Plant 2023 Monthly Flows.

Month	Water Treatment Plant		Water Pollution Control Plant		Water Flows as a % of Wastewater
	Monthly Flows (m ³)	Daily Avg. (m ³)	Monthly Flows (m ³)	Daily Avg. (m ³)	
January	86,666	2,796	189,824	6,123	46 %
February	77,303	2,761	176,399	6,300	44 %
March	84,425	2,723	240,945	7,772	35 %
April	88,215	2,941	230,017	7,667	38 %
May	116,512	3,758	169,578	5,470	69 %
June	148,133	4,938	122,071	4,069	121 %
July	143,071	4,615	115,711	3,733	123 %
August	129,973	4,193	118,416	3,820	109 %
September	115,210	3,840	105,978	3,533	109 %
October	101,998	3,290	139,613	4,504	73 %
November	86,216	2,874	178,660	5,955	48 %
December	91,862	2,963	220,637	7,117	42 %
Total	1,269,584		2,007,849		
Average	105,799	3,474	167,321	5,505	71 %

Table 2.1.3 is a visual representation of the flows produced and entering the distribution system from the Water Treatment Plant and the flows entering and treated at the Wastewater Treatment Plant. The differences are listed as extraneous flows.

Table 2.1.3 | Visual Representation of Flows Produced at WTP vs Flows Treated at WWTP

January

■ Treated Water as % Wastewater ■ Extraneous Flow



February

■ Treated Water as % Wastewater ■ Extraneous Flow



March

■ Treated Water as % Wastewater ■ Extraneous Flow



April

■ Treated Water as % Wastewater ■ Extraneous Flow



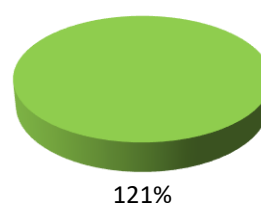
May

■ Treated Water as % Wastewater ■ Extraneous Flow



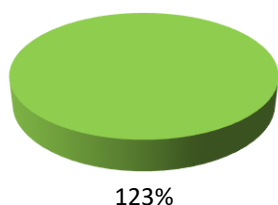
June

■ Treated Water as % Wastewater ■ Extraneous Flow



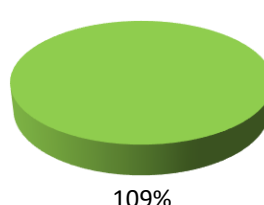
July

■ Treated Water as % Wastewater ■ Extraneous Flow



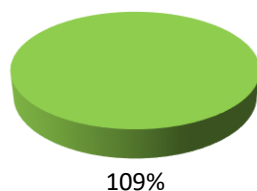
August

■ Treated Water as % Wastewater ■ Extraneous Flow



September

■ Treated Water as % Wastewater ■ Extraneous Flow



October

■ Treated Water as % Wastewater ■ Extraneous Flow



November

■ Treated Water as % Wastewater ■ Extraneous Flow



December

■ Treated Water as % Wastewater ■ Extraneous Flow



Total - Annual

■ Treated Water as % Wastewater ■ Extraneous Flow



The Distribution and Collection systems are essentially a closed system. What enters the Distribution system, treated water, should be the bulk of what is returned via the Collection system to the Wastewater Treatment Facility.

As can be seen in the above table and subsequent charts, there are significant flows most months of the year that are referred to as “extraneous” flows. These amounts cannot be accounted for from the treated water numbers entering the Distribution system. As everything that enters the Wastewater Treatment Plant must enter from the Collection system, these “extraneous” flows are picked up in the Collection System and returned to the Wastewater Treatment Plant for Treatment.

Treated Water flows for June, July, August, and September are 121%, 123%, 109%, and 109% of Wastewater Flows respectively. This is normal as treated water from the Distribution System is used for lawn watering, car washing etc. and is not returned via the Collection System. There is more treated water being produced than is being returned for Wastewater Treatment during these periods.

Note: The Wastewater Treatment Plant receives Leachate from the Mid-Huron Landfill site via the Parsons Court transfer station. In 2023 the WWTP received 11,338 m³ representing 0.56% of the Plants annual flow.

2.2 2023 Raw Sewage Sample Results

The Certificate of Approval (ECA) specifies raw sewage monitoring on a quarterly basis (minimum) for BOD₅, Total Suspended Solids (TSS), and Total Phosphorus (TP). Veolia monitors these parameters along with CBOD₅ on a monthly basis. These samples are sent to an accredited laboratory for analysis. The Goderich WWTP used SGS Labs for its analyses.

Table 2.2 provides a summary of the 2023 Raw Sewage sample results.

Table 2.2 | 2023 Raw Sewage Concentrations – Plant Influent

Month	BOD ₅ (mg/L)	Suspended Solids (mg/L)	Total Phosphorus (mg/L)	CBOD ₅ (mg/L)
January	14	16	0.77	23
February	62	55	1.22	73
March	73	48	1.23	38
April	66	76	2.10	56
May	75	103	2.91	75
June	168	167	3.23	154
July	155	159	1.90	170
August	52	43	2.83	61
September	72	39	2.75	61
October	98	102	2.10	96
November	95	94	1.20	81
December	52	28	0.99	43
Average	82	78	1.94	78

2.3 Final Effluent ECA Objectives and ECA Compliance Limits

Table 2.3 provides the final effluent design objectives contained in the ECA.

Table 2.3 | Final Effluent ECA Design Objectives

Parameter	Concentration Objectives
CBOD ₅	≤ 10.0 mg/L
Suspended Solids	≤ 12.0 mg/L
Total Phosphorus	≤ 0.7 mg/L

Table 2.3.2 provides the Final Effluent limits contained in the ECA.

Table 2.3.2 | ECA Final Effluent Limits

Parameter	Non-Compliance Limits Average Monthly Concentrations
CBOD ₅	15.0 mg/L
Suspended Solids	15.0 mg/L
Total Phosphorus	1.0 mg/L
pH	Maintained between 6.0 to 9.5
<i>E. Coli</i>	200 cfu/ 100 ml (Geometric Mean Density)

2.4 2023 Final Effluent

The ECA requires Final Effluent monitoring on a weekly basis for CBOD₅, TSS, TP, E. Coli, pH, Temperature, and Unionized Ammonia (calculated). Analysis and results for weekly Final Effluent samples are provided by an accredited laboratory. The Goderich WWTP used SGS Labs for its analyses.

Table 2.4 provides a summary of the 2023 monthly average final effluent samples results.

Table 2.4 | 2023 Final Effluent Monthly Sample Average Results (See Appendix A)

***Note - Final Effluent Unionized Ammonia minimum analysis reported from SGS is 0.001 mg/L**

Month	CBOD ₅ (mg/L)	Suspended Solids (mg/L)	Total Phosphorus (mg/L)	NH ₃ -N (mg/L)	E. Coli (cfu/100mL)	Minimum pH (units)	Maximum pH (units)	Unionized Ammonia (mg/L)
Jan	2.00	4.50	0.33	0.13	20	7.84	8.26	0.001
Feb	3.25	4.00	0.33	0.20	9	8.02	8.14	0.001
Mar	2.20	2.80	0.32	0.12	12	7.99	8.30	0.001
Apr	2.50	3.00	0.23	0.10	5	7.94	8.14	0.001
May	2.40	2.60	0.33	0.48	3	7.20	8.26	0.001
Jun	2.00	2.50	0.44	0.10	1	7.80	7.97	0.001
Jul	2.00	3.00	0.50	0.10	7	7.75	7.91	0.001
Aug	2.00	4.60	0.38	0.10	6	7.38	7.94	0.001
Sept	2.25	4.00	0.52	0.10	15	7.80	7.82	0.001
Oct	2.20	4.20	0.44	0.10	42	7.43	8.00	0.001
Nov	2.00	4.75	0.33	0.10	44	7.84	8.21	0.001
Dec	2.50	5.50	0.36	0.18	47	7.49	7.99	0.001
Annual Average	2.27	3.77	0.37	0.15	18	7.71	8.08	0.001
MECP Limits	15.00	15.00	1.0	*2.0	200	>6.00	<9.5	
Avg. Monthly								

***Note - Final Effluent NH₃-N minimum analysis reported from SGS is 0.10 mg/L**

***Final Effluent NH₃-N is a Contractual Limit**

Table 2.4.2 provides the weekly sample results for Final Effluent in 2023

Table 2.4.2 | 2023 Final Effluent Weekly Sample Results

Date (Weekly Samples)	CBOD ₅ (mg/L)	Suspended Solids (mg/L)	NH ₃ -N (mg/L)	Total Phosphorus (mg/L)	pH	Unionized Ammonia (mg/L)	E. Coli (cfu/100mL) Geo. Mean
01/03/23	2.00	6.00	0.10	0.34	8.16	.001	36
01/10/23	2.00	4.00	0.20	0.29	7.84	.001	16
01/17/23	2.00	5.00	0.10	0.35	7.95	.001	20
01/24/23	2.00	3.00	0.10	0.33	8.26	.001	14
Jan Average	2.00	4.50	0.13	0.33	8.05	.001	20
02/01/23	2.00	4.00	0.10	0.36	8.03	.001	7
02/07/23	2.00	5.00	0.30	0.35	8.02	.001	8
02/14/23	6.00	2.00	0.10	0.29	8.14	.001	19
02/21/23	3.00	5.00	0.30	0.32	8.08	.001	7
Feb Average	3.25	4.00	0.20	0.42	8.07	.001	9
03/01/23	3.00	2.00	0.20	0.34	8.08	.001	12
03/07/23	2.00	3.00	0.10	0.34	7.99	.001	14
03/14/23	2.00	3.00	0.10	0.28	8.24	.001	5
03/21/23	2.00	3.00	0.10	0.30	8.30	.001	30
03/28/23	2.00	3.00	0.10	0.32	8.05	.001	9
Mar Average	2.20	2.80	0.12	0.32	8.13	.001	12
04/04/23	4.00	5.00	0.10	0.21	8.14	.001	12
04/11/23	2.00	3.00	0.10	0.23	8.02	.001	16
04/18/23	2.00	2.00	0.10	0.23	7.94	.002	4
04/25/23	2.00	2.00	0.10	0.25	7.95	.001	1
Apr Average	2.50	3.00	0.10	0.23	8.01	.001	5
05/02/23	2.00	3.00	0.50	0.28	8.26	.001	62
05/09/23	4.00	2.00	0.60	0.26	8.10	.001	2
05/16/23	2.00	3.00	0.50	0.35	7.88	.001	0
05/23/23	2.00	2.00	0.50	0.33	7.82	.001	0
05/30/23	2.00	3.00	0.30	0.43	7.20	.001	0
May Average	2.40	2.60	0.48	0.33	7.85	.001	3
06/06/23	2.00	2.00	0.10	0.40	7.97	.001	1
06/13/23	2.00	2.00	0.10	0.37	7.92	.001	2
06/20/23	2.00	4.00	0.10	0.50	7.84	.001	1
06/27/23	2.00	2.00	0.10	0.47	7.80	.001	1
June Average	2.00	2.50	0.10	0.44	7.88	.001	3

Annual Report - 2023 Operating Year

Goderich Water Pollution Control Plant

Works # 120000943

Date (Weekly Samples)	CBOD ₅ (mg/L)	Total Suspended Solids (mg/L)	NH ₃ -N (mg/L)	Total Phosphorus (mg/L)	pH	Unionized Ammonia (mg/L)	E. Coli (cfu/100mL)
07/05/23	2.00	2.00	0.10	0.56	7.75	.001	2
07/11/23	2.00	3.00	0.10	0.51	7.82	.001	30
07/18/23	2.00	5.00	0.10	0.44	7.91	.001	18
07/25/23	2.00	3.00	0.10	0.47	7.83	.001	2
July Average	2.00	3.00	0.10	0.50	7.83	.001	7
08/01/23	2.00	11.00	0.10	0.43	7.83	.001	4
08/08/23	2.00	5.00	0.10	0.52	7.94	.001	4
08/15/23	2.00	2.00	0.10	0.23	7.56	.001	43
08/22/23	2.00	2.00	0.10	0.34	7.87	.001	2
08/29/23	2.00	3.00	0.10	0.37	7.38	.001	8
Aug Average	2.00	4.60	0.10	0.38	7.72	.001	6
09/05/23	2.00	7.00	0.10	0.64	7.80	.001	3
09/12/23	3.00	4.00	0.10	0.62	7.81	.001	10
09/19/23	2.00	2.00	0.10	0.39	7.81	.001	109
09/26/23	2.00	3.00	0.10	0.43	7.82	.001	15
Sept Average	2.25	4.00	0.10	0.52	7.81	.001	15
10/03/23	2.00	2.00	0.10	0.46	7.67	.001	138
10/10/23	2.00	4.00	0.10	0.37	7.92	.001	38
10/17/23	3.00	10.00	0.10	0.53	7.43	.001	130
10/24/23	2.00	2.00	0.10	0.43	7.96	.001	16
10/30/23	2.00	3.00	0.10	0.41	8.00	.001	12
Oct Average	2.20	4.20	0.10	0.44	7.80	.001	42
11/07/23	2.00	5.00	0.10	0.36	8.21	.001	6
11/14/23	2.00	5.00	0.10	0.32	7.97	.001	22
11/21/23	2.00	4.00	0.10	0.31	7.96	.001	30
11/28/23	2.00	5.00	0.10	0.34	7.84	.001	960
Nov Average	2.00	4.80	0.10	0.33	8.00	.001	44
12/05/23	4.00	9.00	0.10	0.44	7.78	.001	57
12/12/23	2.00	2.00	0.20	0.32	7.99	.001	166
12/19/23	2.00	8.00	0.30	0.28	7.90	.001	16
12/26/23	2.00	3.00	0.10	0.41	7.49	.001	31
Dec Average	2.50	5.50	0.18	0.36	7.7	.001	47
Annual Average	2.27	3.77	0.15	0.37	7.91	.001	18
MECP Limits (Avg. Monthly)	15.0	15.0	*2.0	1.0	> 6.0 <9.5		200

* NH₃-N is a Contractual Limit

* E. Coli (cfu/100ml) limit is Average Monthly Concentrations reported as Geometric Mean Density

In summary, while there were a few instances where the weekly results returned a higher-than-normal value, all parameters are below MECP Limits as established in the ECA for the Goderich Wastewater Treatment Plant.

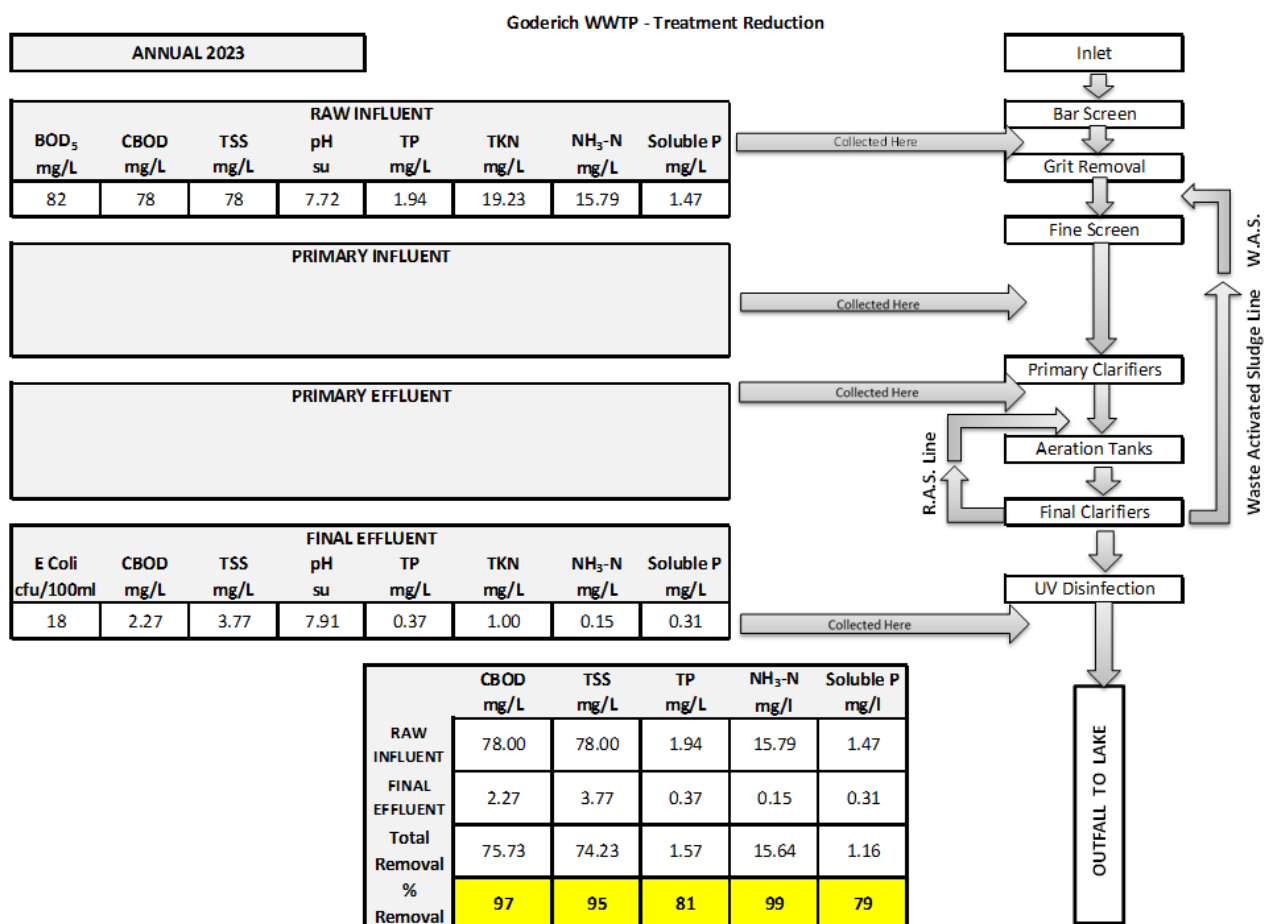
2.5 2023 Performance Summary

Table No. 2.5 is a summary of the overall effectiveness of the treatment of raw sewage from its entry to the Final Effluent entering Lake Huron.

Table 2.5 | Overall Sewage Reduction Based on Annual Averages

Parameter (mg/L unless noted)	Raw Sewage	Final Effluent	Design Objective	MECP Limit	% Reduction
CBOD ₅	78	2.27	10.0	15.0	97 %
Suspended Solids	78	3.77	12.0	15.0	95 %
Total Phosphorus	1.94	0.37	0.7	1.0	81 %

Figure 2.5 | Performance Summary Visualization



In general terms, the works are providing excellent treatment of the incoming sewage, and there is anticipated to be little, if any, impact to the receiving body (Lake Huron) from the works.

3.0 OPERATIONS

3.1 General

Condition **(10.6.a)** of the ECA requires the owner to report a summary and interpretation of monitoring data and comparisons to effluent limits and objectives. **Section 2.0** of this report provides a summary and interpretation of monitoring data and comparisons to effluent limits and effluent objectives.

3.2 Operating Problems (ECA 10.6.b)

Other than a few minor equipment breakdowns, which were repaired in a timely matter without affecting the treatment process, we did not experience any operating problems in 2023.

3.3 Maintenance and Repairs (ECA 10.6.c)

Routine maintenance occurred as required. The following activities were specifically carried out.

- Replacement of SCADA Computer and updated software and licenses.
- Pressure Washed Interior of Wet Well at Gloucester Pumping Station. Spring and Fall.
- Pressure Washed Interior of Wet Well at Main Beach Pumping Station. Spring and Fall.
- Flushed grease in RAS pumps.
- Annual Backflow Preventer Certifications done by Fergusons Plumbing and Heating.
- H2S meters calibrated by Hetek.
- Final Effluent flow meter calibrated by Iconix.
- Annual inspection of hoists and chain falls by Acu-Tec.
- Replacement brush for Mechanical Fine Screen.
- Exterior Doors Replaced on Primary Pump House #2 and RAS Pump House #2.
- New Composite Sampler installed at headworks for capturing raw water samples and Covid Sampling
- Vortex Mixer replaced on Sludge Feed Line in Belt Press Room

3.4 Effluent Quality Assurance (ECA 10.6.d)

According to the Wastewater Systems Effluent Regulations Final Effluent is to be sampled quarterly to determine if the effluent being deposited is acutely lethal. Paragraph 11(6)(a) states that if samples tested in each of four consecutive quarters were determined not to be acutely lethal, then the Wastewater System is eligible to reduce the sampling frequency for the determination of acute lethality.

Due to reporting four consecutive quarters of not acutely lethal results in 2016 the Goderich Wastewater Treatment Plant has been granted a sampling frequency of once yearly. A Final Effluent sample was collected July 26, 2023 and sent to an accredited lab to be tested for Acute Lethality. The result of the sample was zero (0), not acutely lethal.

All monitoring and sampling for quality assurance was completed as required by the ECA.

3.5 Calibration of Effluent Monitoring Equipment (10.6.e)

The final effluent flow monitoring equipment was calibrated by Advanced Meter Service (AMS) For Details (See Appendix B)

The HACH bench top pH meter is calibrated in-house on a monthly basis by Veolia operators using the 4.01, 7.00 and 10.01 buffers. The pH meter and Colorimeter are calibrated by a HACH Technician annually. Fixed mount D.O. sensors are calibrated annually. The Plant is equipped with a variety of Gas (H₂S, LEL and 4 Gas Units) detection units which are calibrated semi-annually by Hetek Solutions Inc.

3.6 Effluent Quality Objectives (ECA 10.6.f)

With the use of the In-house labs and tests we can monitor the settleability of MLSS, Final Effluent Total Suspended Solids and Soluble Phosphorus levels. The results from these tests give us an indication where we stand in relation to meeting our Effluent Objectives and allow us to make process changes when necessary. All results are entered into the daily logbook and Hach WIMS database.

In addition to In-house labs and test Veolia employs a Process Management Control Plan that compiles the results from in-house labs and testing along with weekly and monthly lab results. The PCMP program provides monitoring of targets and flags throughout the process allowing operators the ability to identify and react to a situation in the process before it affects the quality of the Final Effluent.

In-House Tests conducted and frequency:

- 30-minute settling test of all aeration tanks mixed liquor – Monday thru Friday
- TSS lab of Primary Effluent, Mixed Liquor, RAS, and Final Effluent – Monday, Wednesday, Friday.
- Soluble Phosphorus residual in Final Effluent – Monday thru Friday.
- Primary Clarifier sludge blankets measured – Monday thru Thursday.
- Secondary Clarifier sludge blankets measured – Monday thru Friday.
- Aeration tanks Dissolved Oxygen readings – Monday, Wednesday, Friday.

3.7 Sludge (ECA 10.6.g)

Sludge accumulates in the bottom of the Primary Clarifiers. The sludge blankets in the four (4) primary clarifiers are measured daily Monday thru Thursday. The purpose of the measurement is to monitor sludge levels and determine which Primary Clarifier(s) will have sludge drawn down from. The sludge is removed from the clarifiers by pumping it to the Belt Filter Press and loaded in a 20-yard self-levelling bin (up to) twice weekly. The bin is then picked up and transported under agreement with Canadian Waste Management to an approved facility. Canadian Waste Management hauls the dewatered sludge under ECA #A840311. The waste is taken to Twin Creeks Landfill Site in Lambton County operating under ECA #A032303.

Table 3.7 compares the last five years of sludge hauled to landfill.

Table 3.7 | 5 Year Comparison of Tonnes and Loads of Sludge Hauled to Landfill

YEAR	2019	2020	2021	2022	2023
Tonnes	1144	1228	1197	1120	1143
Loads	75	88	82	74	84
Operating Days	75	88	82	74	84
Avg. Weight Per Load	15.25 Tonnes	13.95 Tonnes	14.60 Tonnes	15.36 Tonnes	14.27 Tonnes

Based on the past five years, we do not anticipate a major increase or decrease in sludge production for 2024.

3.8 Complaints (ECA 10.6.h)

No complaints were received by the Goderich WWTP for the year 2023.

3.9 Bypasses (ECA 10.6.i)

There were zero Plant-Bypasses in 2023 at the Goderich WWTP to Report

APPENDIX “A”

2023 PLANT DATA

GODERICH WPCP MONTHLY REPORT														
	January	February	March	April	May	June	July	August	September	October	Note: Bacteria is a Monthly Geometric Mean			
											November	December	Total	Average
FLOWS (effluent)														
Total Flow (effluent)(m3)	189824	176399	240945	230017	169578	122071	115711	118416	105978	138613	178660	220637	2007849	
Maximum Daily Flow (m3/day)	10133	10994	14137	14082	7265	5366	7104	5294	4758	7056	9953	13080	9052	
Average Daily Flow (m3/day)	6123	6300	7772	7667	5470	4069	3733	3820	3533	4504	5955	7117	5505	
Peak Flow (Instantaneous)(m3/day)	13695	18945	19317	104465	12414	7220	23250	18103	8770	11020	16170	31394	23730	
Return Activated Sludge														
Average Daily Flow (m3/day)	4302	4404	5423	5355	3829	2848	2726	2604	2473	3153	4128	4945	3849	
Return Rate %	70	70	70	70	70	73	68	70	70	70	69	70	70	
Waste Ave. Daily Flow (m3/day)	68	67	70	76	68	60	65	52	45	41	63	63	60	
BYPASS														
Primary Bypass Volume (m3)														
Primary Bypass Duration (hours)														
Primary Bypass Events	0	0	0	0	0	0	0	0	0	0			0	
Secondary Bypass Duration (hours)														
Secondary Bypass Events	0	0	0	0	0	0	0	0	0	0			0	
INFLUENT PARAMETERS														
Raw BOD (mg/l)	14.00	62.00	73.00	66.00	75.00	168.00	155.00	52.00	72.00	98.00	95.00	52.00	81.83	
Raw CBOD (mg/l)	23.00	73.00	38.00	56.00	75.00	154.00	170.00	61.00	61.00	96.00	81.00	43.00	77.58	
Raw CBOD Loading (Kg/day)	140.84	459.90	295.35	429.37	410.27	626.63	634.54	233.01	215.49	432.35	482.38	306.04	4,666.17	388.85
Raw TSS (mg/l)	16.00	55.00	48.00	76.00	103.00	167.00	159.00	43.00	39.00	102.00	94.00	28.00	77.50	
Raw TSS Loading (Kg/day)	97.97	346.50	373.08	582.71	563.44	679.53	593.49	164.25	137.77	459.37	559.80	199.29	4,757.19	396.43
Raw TKN (mg/l)	6.90	14.60	11.40	19.30	26.60	24.60	22.10	34.20	30.80	16.80	11.20	12.20	19.23	
Raw TKN Loading (Kg/day)	42.25	91.98	88.61	147.98	145.51	100.10	82.49	130.64	108.80	75.66	66.70	86.83	1,167.55	97.30
Raw NH3 (mg/l)	4.90	11.70	4.90	12.50	19.40	21.50	19.30	30.80	26.90	16.80	10.10	10.70	15.79	
Raw NH3 Loading (Kg/day)	30.00	14.60	38.08	95.84	106.12	87.48	72.04	117.65	95.03	75.66	60.15	76.16	868.82	72.40
Raw TP (mg/l)	0.77	1.22	1.23	2.10	2.91	3.23	1.90	2.83	2.75	2.10	1.20	0.99	1.94	
Raw TP Loading (Kg/day)	4.71	7.69	9.56	16.10	15.92	13.14	7.09	10.81	9.71	9.46	7.15	7.05	118.39	9.87
Raw pH (SU)	8.18	8.05	8.35	8.02	7.59	7.40	7.66	7.00	7.47	7.51	7.65	7.78	7.72	
EFFLUENT PARAMETERS														
Final CBOD (mg/l)	2.00	3.25	2.20	2.50	2.40	2.00	2.00	2.25	2.20	2.20	2.00	2.50	2.27	
Final CBOD Loading (Kg/day)	12.25	20.47	17.10	19.17	13.13	8.14	7.47	7.64	7.95	9.91	11.91	17.79	152.92	24.47
Final TSS (mg/l)	4.50	4.00	2.80	3.00	2.60	2.50	3.00	4.60	4.00	4.20	4.75	5.50	3.77	
Final TSS Loading (Kg/day)	27.56	25.20	21.76	23.00	14.22	10.17	11.20	17.57	14.13	18.92	28.29	39.15	251.16	39.56
Final TKN (mg/l)	0.65	1.08	0.70	0.98	1.32	0.53	1.38	0.86	1.00	1.10	0.70	1.78	1.00	
Final TKN Loading (Kg/day)	3.96	6.77	5.44	7.48	7.22	2.14	5.13	3.29	3.53	4.95	4.17	12.63	66.73	10.79
Final NH3 (mg/l)	0.13	0.20	0.12	0.10	0.48	0.10	0.10	0.10	0.10	0.10	0.10	0.18	0.15	
Final NH3 Loading (Kg/day)	0.77	1.26	0.93	0.77	2.63	0.41	0.37	0.38	0.35	0.45	0.60	1.25	10.16	1.63
Final Unionized Ammonia (ug/l)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
Final TP (mg/l)	0.33	0.33	0.32	0.23	0.33	0.44	0.50	0.38	0.52	0.44	0.33	0.36	0.37	
Final TP Loading (Kg/day)	2.01	2.08	2.46	1.76	1.81	1.77	1.85	1.44	1.84	1.98	1.98	2.58	23.55	3.76
Final pH (SU)	8.05	8.07	8.13	8.01	7.85	7.88	7.83	7.72	7.81	7.80	8.00	7.79	7.91	
Final Nitrite (mg/l)	0.03	0.07	0.14	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.05	
Final Nitrate (mg/l)	14.05	16.23	14.08	13.63	14.56	17.03	16.35	17.98	16.78	15.20	12.38	11.86	15.04	
Bacteria E.Coli (cfu/100ml)	20	9	12	5	3	1	7	6	15	42	44	47	18	
Sludge Hauled (Loads)	7.0	7.0	8.0	7.0	8.0	8.0	10.0	7.0	5.0	5.0	5.0	5.0	84.0	
Sludge Hauled (Tonnes)	101.73	106.69	121.13	81.27	106.65	105.21	81.77	145.69	105.92	73.60	51.99	61.27	1,142.92	95.24

*Final Unionized Ammonia numbers shown in Monthly report are not correct and not used. Averages are taken from weekly final effluent results analyses as shown in Table 2.4.2 | 2023 Final Effluent Weekly Sample Results

APPENDIX “B”

2023 CALIBRATION CERTIFICATE

EFFLUENT FLOW METER

Annual Report - 2023 Operating Year

Goderich Water Pollution Control Plant

Works # 120000943

AMS Analog / Sensor Report

Date of Service August 2 2023 Customer Name Veolia
Contact: Richard Boddy
Location: 211 Sunset Dr Sewage Plant Service Provided By S.Pate
Make/Model Millitronics
Serial Number Not Seen
Rate of Flow CM/D

Minimum Flow Rate 0 ma Measurement Conv. 0.085
Scale =
Maximum Flow Rate 31000CM/D

Analog Out Put				
Device Reading	Expected Reading	DVM Reading	Accuracy	Pass/Fail
3955 CM/D	6.041ma	6.067ma	100.40%	PASS
3960 CM/D	6.043ma	6.069ma	100.43%	PASS
4000 CM/D	6.064ma	6.110ma	100.76%	PASS
4026 CM/D	6.077ma	6.110ma	100.54%	PASS

Sensor Tube Resistance				
Sensor Meas.	Analog Meter	Device Reading	Expected Reading	Pass/Fail
Electrode 1	GB 318	N/A	2k-20k	
Electrode 2	GB 318	N/A	2k-20k	
Electrode 1/2	GP 318	N/A	4k-40k	
Coil Resistance	MC DVM	N/A	6-100 Ohms	

Comments:

Technicians Signature: S.Pate

Advanced Meter Service
Ingersoll, ON
Amsmeter@outlook.com Ph: 548-388-4696