STAYNER WASTEWATER TREATMENT PLANT

2022 Performance Report

Contents

Definitions

BOD	Biochemical Oxygen Demand
$CBOD_5$	Carbonaceous Biochemical Oxygen Demand
Cfu	Colony Forming Units
COD	Chemical Oxygen Demand
DO	Dissolved Oxygen
ECA	Environmental Compliance Approval
Hg	Mercury
FP	Filtered Phosphorous
GEOMEAN	Average of a set of Products
HP	Horsepower
kg	Kilograms
kW	Kilowatt
mg/l	Milligrams per litre
Ml/d	Mega litres per day
m^3/d	Cubic metres per day
NH_3	Ammonia
NO_2	Nitrites
NO_3	Nitrates
OEM	Original Equipment Manufacturer
STF	Sewage Treatment Facility
SVI	Sludge Volume Index
TBOD	Total Biochemical Oxygen Demand
TAN	Total Ammonia Nitrogen
TKN	Total Kjeldahl Nitrogen
TP	Total Phosphorous
TS	Total Solids
TSS	Total Suspended Solids
UV	Ultraviolet
VFA	Volatile Fatty Acids
VS	Volatile Solids
WWTP	Wastewater Treatment Plant

Section 1:Wastewater System General Information

System Information	
Wastewater System Reporting	Stayner Wastewater Treatment Plant Lot 26, Lot 27 Concession 11, Township of Clearview Access to plant is from Mowatt Street
Wastewater Works Number	1100695
Wastewater System Owner	Town of Collingwood
Wastewater System Category	Class II Certification
Period Reported	January 1, 2022 – December 31, 2022
Plant Owner	The Corporation of the Township of Clearview 217 Gideon Street, P.O. Box 200 Stayner, Ontario L0M 1S0 (705) 428-6230
Plant Operating Authority	Town of Collingwood P.O. Box 157 97 Hurontario St. Collingwood, Ontario L9Y 3Z5 Tel. (705) 445-1581

Wastewater Treatment (WWT) Operator Listing			
Name	WWT Classification	Licence No.	Expiry Date
Barrette, Tyler	3	73068	January 31st, 2024
Bell-Adams, Jennifer	3	11169	August 31st, 2025
Card, Cathy	3	83840	December 31, 2025
Huber, Jonathan	2	96092	May 31st, 2024
MacNicol, Jason	1	95922	January 31st, 2026
Plummer, Reg	2	55946	May 31st, 2023
Regts, Brad	2	104259	Sept 30th, 2024
Weatherall, Christian	1	120350	December 31, 2025

Wastewater Collection (WWC) Operator Listing			
Name	WWC Classification	Licence No.	Expiry Date
Barrette, Tyler	2	73067	March 31st, 2024
Card, Cathy	OIT	OT65417	April 30th, 2025
Huber, Jonathan	2	113839	April 30th, 2024
Regts, Brad	1	104258	March 31st, 2025
Weatherall, Christian	OIT	OT114869	July 31st, 2024

Plant Certificate of Approval & Amendments

The Plant is operated according to the conditions set out in ECA (Environmental Compliance Approval) #3718-A4CQTD issued January 4, 2016.

Section 2: Facility Description

The Stayner Wastewater Treatment Plant is owned by the Township of Clearview and operated by the Town of Collingwood under a four-year contract expiring December 31st, 2022.

The current population of Stayner is approximately 4525 persons.

The plant was built in 1984 and subsequently upgraded in 1991 and modified in 2004 giving the plant a rated capacity of 2500 m3/d average daily flow and a peak flow rate of 6250 m3/d.

The treatment process consists of activated sludge extended aeration treatment in combination with a lagoon polishing and storage system with effluent discharge to Lamont Creek.

Section 3: Process Description

Wastewater generated within the community of Stayner is collected via gravity sewer to the main pumping station located at Dominion Drive. The existing pumping station located on the west side of Dominion Drive was upgraded (C of A No. 8872-5NTKX6) in 2004 to a firm rated capacity of 94.75 L/sec.

Dominion Drive Pumping Station

- 3.3m x 4.3m cast in place concrete dry well
- An extension on the existing concrete wet well to a total volume of 15.3 m^3 integral with the new dry well
- Electric channel grinder (muffin monster)
- 2 vertical axis centrifugal sewage pumps each having a peak design flow rate of 94.75 L/sec at 22.9 m of TDH. and drive motor capacity of 37.5 kw, complete with variable frequency drives with piping connecting to an existing 250 mm diameter force main
- A natural gas fixed 60 kw standby gen-set
- A 400 mm diameter gravity overflow sewer, approximately 10 meters in length, to Lamont Creek

- A wet well venting system with an exhaust fan rated at approximately 236 L/sec capacity exhausting to the atmosphere via a 300 mm diameter, 6m high stainless steel stack

Stayner Sewage Pumping Station #2 – Phase 1

- Two (2) 525 mm diameter sanitary sewers to a confluence manhole with a 675 mm diameter inlet sewer to the influent channel of the pumping station.
- An influent channel equipped with a grinder having a Peak Flow Rate of 171.6 L/s and two slide gates discharging to the two compartments of the wet well which are connected by an isolation valve.
- Three (3) drywell-installed submersible pumps each equipped with a VFD, Pump No.1 as the lead/jockey pump rated at 28.9 L/s at 30.9 m TDH and at 57.9 L/s at 43.8 m TDH, Pumps No.2 and 3 as duty/standby peak flow pumps each rated at 92 L/s at 17.0 m TDH.
- A chemical system for treatment of hydrogen sulphide for odour control in the force main, consisting of two (2) double-walled chemical solution storage tanks, two (2) chemical feed pumps (one as shelf spare) with injection point located in the influent channel.
- One (1) 200 mm diameter force main and one (1) 350 mm diameter force main each with magnetic flow meter and station bypass access chamber, both approximately 6,300 m long from the pumping station to the outlet sanitary sewer manhole near the intersection of Knox road West and Sunnidale Road in the Town of Wasaga Beach, wherefrom the sewage is conveyed via the Town of Wasaga Beach sanitary sewage collection system to Wasaga Beach Water Pollution Control Plant for treatment.
- One (1) 200 mm diameter force main with magnetic flow meter and station bypass access chamber approximately 1,100 m long from the pumping station to the Stayner Sewage Treatment Plant for use initially until such time as the flow would result in exceedance of the capacity of the Stayner Sewage Treatment Plant, and in emergency situations only.
- One (1) 250 kW outdoor waterproof standby diesel generator set No.1 with sub-base fuel tank.

Stayner Sewage Pumping Station #2 – Phase 2 (Future)

- Two (2) drywell-installed submersible pumps each equipped with VFD, pump No.3 to replace the Phase 1 pump and Pump No.4 as standby peak flow pumps each rated at 142.8 L/s at 45.2 m TDH
- One (1) 400 kW outdoors waterproof standby diesel generator set No.2 with sub base fuel tank

All other controls, electrical equipment, instrumentation, piping, pumps, valves and appurtenances essential for the proper operation of the aforementioned sewage works

WWTP Configuration

- Wastewater from the Dominion St. pumping station and Pump Station #2 are conveyed via force main to a flow splitter box upstream of the aeration basins
- Two parallel treatment trains (aeration basin and secondary clarifier) follow
- Clarifier effluent is directed to one of three effluent storage lagoons (#1, #3, #4), or occasionally discharged directly to Lamont Creek
- WAS is pumped to Lagoon #2 for long term storage and the supernatant flows by gravity to lagoon #3
- RAS is returned to aeration cells via splitter box
- The treated effluent (from the lagoon) is discharged to Lamont Creek according to rates listed in Table 3 (Effluent Discharges to Lamont Creek). There is no disinfection provided for effluent being discharged to the creek.

Process Data

Major unit process data is listed below:

Table 1: Major Unit Process Data
Dominion Drive Pumping Station
Bar Screens: • 1 x electric channel grinder (Muffin Monster)
Wet Well Pumps: • 2 x Fairbanks Morse, 50 hp, vertical axis, close coupled centrifugal pumps each having a peak design flow rate of 94.75 L/sec at 22.9 m of TDH and drive motor capacity of 37.5 kilowatts. Standby Power: • 1 x natural gas Harper Detroit 60 kilowatt generator set Force Main: • Pumps connected to a 250 mm force main
Stayner Sewage Pumping Station #2
Bar Screens: • 1 x electric channel grinder Wet Well Pumps: • 3 drywell installed submersible pumps. Pump #1 rated at 28.9 l/s at 30.9m TDH and Pumps #2 and #3 rated at 92 l/s at 17.0m TDH. Standby Power: • 1 x 250kW outdoors-installed waterproof diesel generator Force Main: • 1 x 200mm diameter force main supplying to the Stayner Treatment Plant • 1 x 200mm and one 350mm diameter force main feeding to Wasaga Beach
WWTP Aeration Basins

Type:	Extended aeration with full floor coverage fine bubble diffused air (Sanitaire)
Number:	2 parallel trains
Total Volume:	4320 m^3 (2 x 2160 m^3)
Air Supply:	1 blower rated at 401.7 L/s 1 blower rated at 63.9 m3/min 1 blower (rental) rated at 5500 m3/h
RAS/WAS Pumps:	2
WWTP Secondary Clarifiers	
Number:	2 model "H" circular clarifiers by AMWELL
Volume:	2894 m^3 (2 @ 1447 m^3)
Drives/Mechanisms:	AMWELL
WWTP Polishing Storage Lagoons	
• No. 1, 3 & 4 with a combined volume of 294,095 m^3	
WWTP Wasting Lagoon #2	
• Volume: 74,692 m^3	

Section 4: Annual Average Performance Assessment

Effluent Objectives and Limits

- The effluent objectives and effluent concentration limits are summarized below in Table 2A. The loading limits are summarized below in Table 2B.

- The plant is to be operated and maintained such that the concentrations and waste loadings of the materials named below as effluent parameters are not exceeded in the final effluent.

Table 2A: Effluent Objectives & Effluent Concentration Limits		
	mg/L	**mg/L**
$CBOD_5$	5	10
Total Suspended Solids	10	15
Total Phosphorus	0.3	0.4

Table 2A: Effluent Objectives & Effluent Concentration Limits		
Total Ammonia Nitrogen (Ammonia plus ammonium)		
January	3.0	4.0
February	3.0	4.0
March	3.0	4.0
April	2.0	2.5
May	2.0	2.5
June	1.0	1.5
July	1.0	1.5
August	1.0	1.5
September	2.0	2.5
October	2.0	2.5
November	3.0	4.0
December	3.0	4.0
pH	6.5-9.0	6.0-9.0

Table 2B: Effluent Loading Limits				
Monthly Average Loading (kgs/d)				
Month	**$CBOD_5$**	**TSS**	**TP**	**NH_3**
January	16.3	24.5	0.65	6.5
February	19.7	29.6	0.79	7.9
March	82.0	123.0	3.28	32.8
April	86.4	129.6	3.46	21.6
May	17.6	26.4	0.7	4.4
June	6.3	9.5	0.25	0.9
July	2.8	4.2	0.11	0.4
August	3.2	4.8	0.13	0.5
September	1.9	2.9	0.08	0.5
October	10.4	15.6	0.42	2.6
November	21.4	32.1	0.86	8.6
December	33.3	50.0	1.33	13.3

Effluent Limits

To determine compliance with and enforcing of the above:

- In reference to Table 2A, the monthly average concentration of a parameter named in Column 1 shall not exceed the corresponding maximum concentration set out in Column 3.
- In reference to Table 2B, the monthly average loading of a parameter named in Columns 2 to 5 shall not exceed the corresponding maximum waste loading as set for the corresponding month (Column 1).
- The pH of the effluent shall be maintained within the limits outlined in Column 3 of Table 2A, at all times.

Effluent Objectives

The monthly average effluent concentration objective:

- Total Ammonia Nitrogen (TAN) exceeded the objective of 3.0 mg/L in December with a concentration of 5.2 mg/L.
- $CBOD_5$ exceeded the objective of 5.0mg/L in January, February, March, and May with concentrations of 7.9 mg/L, 7.7 mg/L, 10.8 mg/L and 5.9 mg/L.
- TSS exceeded the objective of 10 mg/L in May and November with concentrations of 10.5 mg/L and 10.4 mg/L.
- TP exceeded the objective of 0.30mg/L in October with a concentration of 0.33mg/L.
- The pH values fell within the range of 6.5 to 9.0 inclusive, at all times.

Effluent Compliance

- Total Ammonia Nitrogen (TAN) exceeded the monthly average concentration limit of 4.0 mg/L in December with a concentration of 5.2 mg/L
- $CBOD_5$ exceeded the monthly average concentration limit of 10.0 mg/L in March with a concentration of 10.8 mg/L
- Total Suspended Solids (TSS) met the monthly average concentration limit of 15.0mg/L throughout 2022
- Total Phosphorous met the monthly average compliance limit of 0.40mg/L throughout 2022.
- The pH values fell within the range of 6.0 to 9.0 inclusive, at all times.

Documentation sent to the MECP notifying them of the effluent non-compliance events is attached as Appendix E.

Loading Compliance

- TKN (kg/d): was not exceeded in 2022
- $CBOD_5$ (kg/d): was not exceeded in 2022
- TSS (kg/d): was not exceeded in 2022
- TP (kg/d): was not exceeded in 2022

Effluent Discharge to Lamont Creek

The average daily effluent discharge rate to Lamont Creek shall not exceed the daily discharges listed in Table 3 below. However, periodic discharges in excess of these daily discharges are allowed if a minimum dilution ratio of 3:1 (3 parts creek flow and 1 part effluent discharge), based on actual measurements of flow rate in the Lamont Creek. Notwithstanding these periodic excess discharges, the average annual effluent discharge should not exceed 2,500 m3/d, which is the rated capacity of the treatment works.

Table 3 – Effluent Discharges to Lamont Creek

Month	Average Daily Discharge (m^3/d)
January	1,630
February	1,970
March	8,200
April	8,640
May	1,760
June	630
July	280
August	320
September	190
October	1,040
November	2,140
December	3,330

During certain times of the year, Lamont Creek backs up into the final effluent channel and the discharge flow meter becomes blinded. This causes the flow meter to incorrectly record that there is discharge coming from the polishing lagoons towards Lamont Creek. This type of back up did not occur in 2022.

Compliance Testing and Analysis

- Monitoring requirements are specified under Condition 9 of the ECA. Grab samples of raw sewage are required to be collected at the Dominion Street pumping station weekly and analyzed for $CBOD_5$, total SS, TP and TKN. Grab samples of final effluent are required to be collected weekly (during discharge periods) and analyzed for BOD5, TSS, TP, Total Ammonia Nitrogen and E. coli. Temperature and pH of the final effluent are required to be tested on-site weekly.
- Compliance sampling and analysis of raw sewage are carried out weekly. 48-hour composite samples are collected using a refrigerated automatic sampler for analysis of $CBOD_5$, total suspended solids, total phosphorus, and total Kjeldahl nitrogen.
- Compliance sampling and analysis of final effluent are carried out weekly when discharging and secondary effluent analysis is carried out weekly to monitor the quality of the effluent being received by the storage lagoons.

- Samples are collected at the outfall to Lamont Creek, analysis of $CBOD_5$, total suspended solids, total phosphorus, and total Kjeldahl nitrogen, total ammonia nitrogen, nitrite, nitrate and E. coli. Lastly, grab samples are collected weekly and tested for PH and temperature.
- With the exception of the samples collected for pH and temperature testing, analysis for all compliance samples is carried out by an external contract laboratory, Testmark Laboratories, in Mississauga, ON. The plant also complies with Guideline F-10-1 concerning sampling and analysis requirements which satisfies Condition 9 (4) (a) of the ECA.
- The temperature and pH of the final effluent is measured in the field at the time of sampling for Total Ammonia Nitrogen so the concentration of un-ionized ammonia can be calculated, as set out in condition 8 (5).
- The Stayner WPCP external sampling program is attached as Appendix A.
- All external laboratory analysis results are reported in the Municipal Utility Monitoring forms which are submitted electronically to the Barrie District Office and are used in generating the annual plant performance report.

In-house Testing and Analysis for Process Control

- 48-Hour composite samples are collected twice per week of influent at the Dominion Street Pumping Station.
- Grab samples are taken twice per week of the secondary effluent and final effluent (if discharging to Lamont Creek).
- Grab samples are also obtained for other process streams as required for process control purposes.
- All samples are analyzed on-site or at the Collingwood WPCP laboratory using techniques in standard methods or using approved methods for HACH DR/2800 Spectrophotometer.
- The Stayner WPCP internal sampling program is attached as Appendix A

Flow Measurement

- Raw sewage (influent) flows at Dominion PS are monitored by a magnetic flow meter installed on the station force main. Final effluent flows are continuously monitored by means of Parshall flume in conjunction with a Milltronics flow monitor.
- Both the influent and final effluent flows are trended through the SCADA system
- The meters are calibrated annually for accuracy (must be +/- 15%of flow rate) to satisfy condition 9(7) of the ECA.
- The calibration reports are attached as Appendix D

Section 5: Capacity Assessment

	Design	Current Year
ADF (m^3/d)	2,500	1,342
Peak Flow Rate (m^3/d)	6,250	2,631

The annual average daily flow (ADF) has fallen within the design limit for this reporting period. The peak influent flow for any day did not exceed the design flow.

The annual average performance data is summarized in Appendix B.

Section 6: Sludge Management

- Sludge is routinely wasted from the plant to wasting lagoon #2.
- In 2022, approximately 38,321m3 was wasted in total.
- Sludge Accountability for 2022:
    - Reported 444.97 kg/d
    - Projected 404.13 kg/d
    - Accountability – 10.1 % (desirable +/- 15%)
- Sludge removal took place in 2022.
- A total of 9,150.40 m3 of sludge was removed from lagoon #2 in 2022 and directly applied to approved land.
- Sludge removal is not part of the Town of Collingwood's scope of work and is managed by Clearview Township. Sludge removal has been identified as a recurring operational need as part of the capital works budget.

Section 7: Bypass Occurrences

- There were no bypass occurrences in 2022.

Section 8: Maintenance

- Routine preventative maintenance was performed throughout the year in accordance with the recommendations of the O.E.M. (original equipment manufacturer).
- There were no major equipment failures or malfunctions that occurred during this reporting period that would compromise effluent quality.

- Maintenance records are kept for each piece of equipment at the plant and are available at the plant for viewing.
- Calibrations were carried out on the plant instrumentation and flow metering equipment and the reports are included in Appendix D.
- A relay was replaced on the RAS flow meter after the calibrations were performed. The flow meter was verified by ARO technologies.
- Blower #2 VFD failed and has been repaired and is operational.
- Blower #3 and associated piping was added for additional air capacity.
- An upgrade to the SCADA/computer system was performed by ARO technologies.

Section 9: Complaints

- There were no complaints in 2022

Section 10: Operational Challenges

- Elevated BOD_5 in the discharges from Reinhart Foods Ltd. (RFL) continue to create operational challenges although these challenges occur less often as a result of a monitoring program and an additional blower put in place by Clearview Township
- Lack of sludge removal from the lagoons over the past few years has made it very difficult to continue to meet the effluent limits for the Stayner Wastewater Treatment Plant, particularly with the poor influent quality and numerous plant upsets resulting from Reinhart's discharges. Collingwood operators are working with Clearview to address both the poor influent quality at the Stayner Sewage Treatment Plant and to ensure the lagoons are properly maintained to allow a buffer to manage the final effluent quality when some of these higher loading events occur. Although sludge was disposed of from the wasting lagoon in 2022 the township has begun developing a program to ensure that sludge will be removed on a scheduled basis.

Appendix A
Sampling & Process Control

Samples are analyzed using procedures from the most current edition of “Standard Methods for the Examination of Water and Wastewater” or HACH DR 2800 Spectrophotometer methods.

Samples are obtained by the Operators and returned to the Collingwood Lab for analysis other than pH, DO, Temp and 30 min. settling test which are done on site at the time sample is taken. Operators are responsible for obtaining sufficient samples for the laboratory technician.

In house Sampling:

Unit Process	Type Sample	Parameters Tested	Minimum Frequency
Influent	24 hr. composite	pH, SS, TP	2 x per week
Aeration • mixed liquor • RAS • WAS	Grab Grab Grab	half hour settling, pH, SS SS SS	2 x per week
Secondary Effluent	Grab	TP, NH3, SS, pH	2 x per week
Final Effluent	Grab	SS, pH,TP, NH3	2 x per week if discharging to Creek

External Lab Analysis:

Unit Process	Type Sample	Parameters Tested	Minimum Frequency
Influent	Composite	TP, SS, CBOD5, TKN	Weekly minimum as per ECA
Effluent	Grab	SS, CBOD5, TP, FP, TAN, N03, N02, TKN, E-coli	Weekly minimum as per ECA
	On-site at time of sample collection	pH & Temperature	Weekly

Samples are sent to an outside Lab to supplement the testing done in-house and provide a QA/QC check.

The external lab is an accredited laboratory, and these results are recorded on the monthly MUMPS reports.

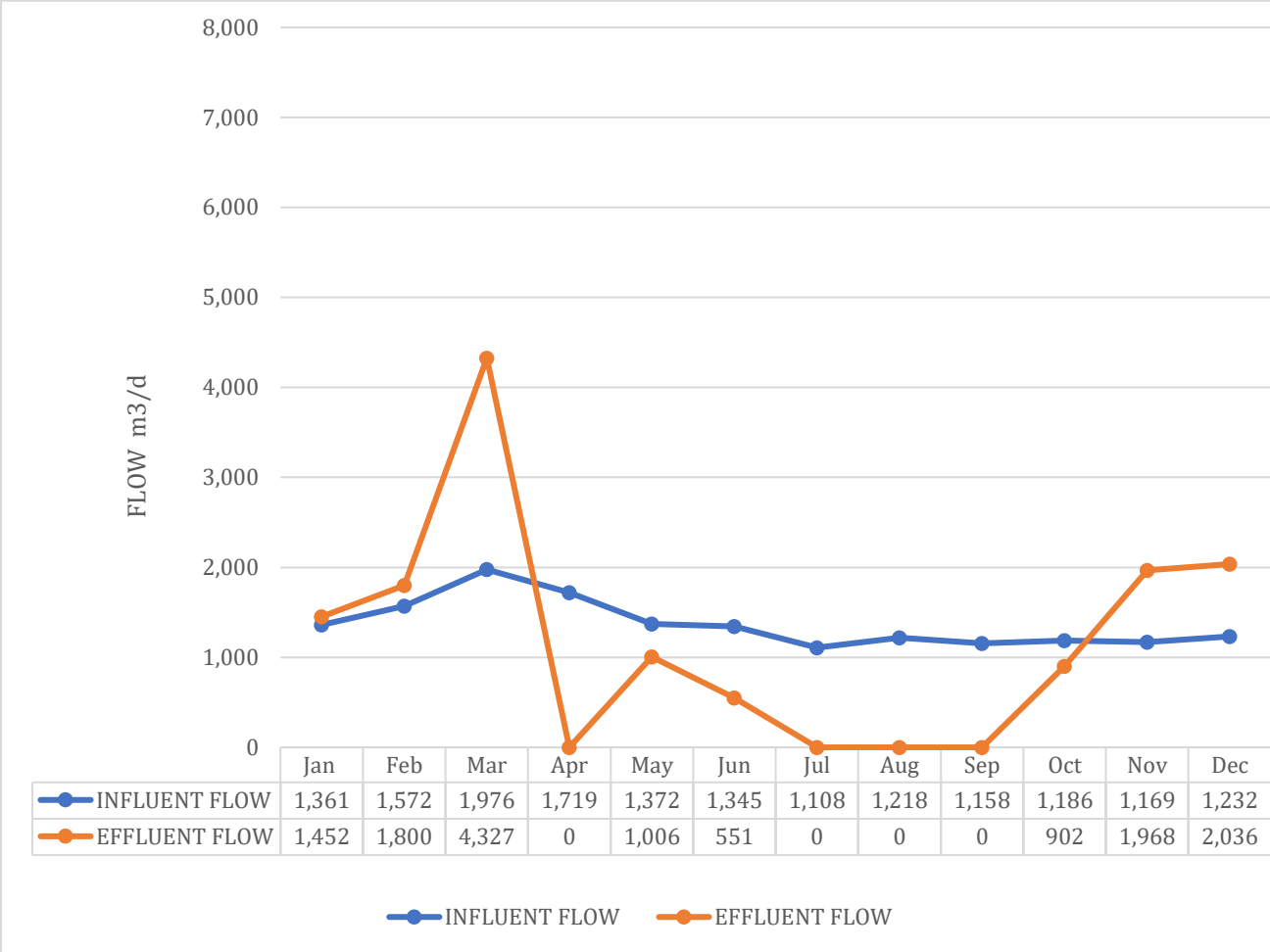
Appendix B

Monthly Flow & Process Quality Data

TOWNSHIP OF CLEARVIEW
STAYNER WWTP PERFORMANCE EVALUATION

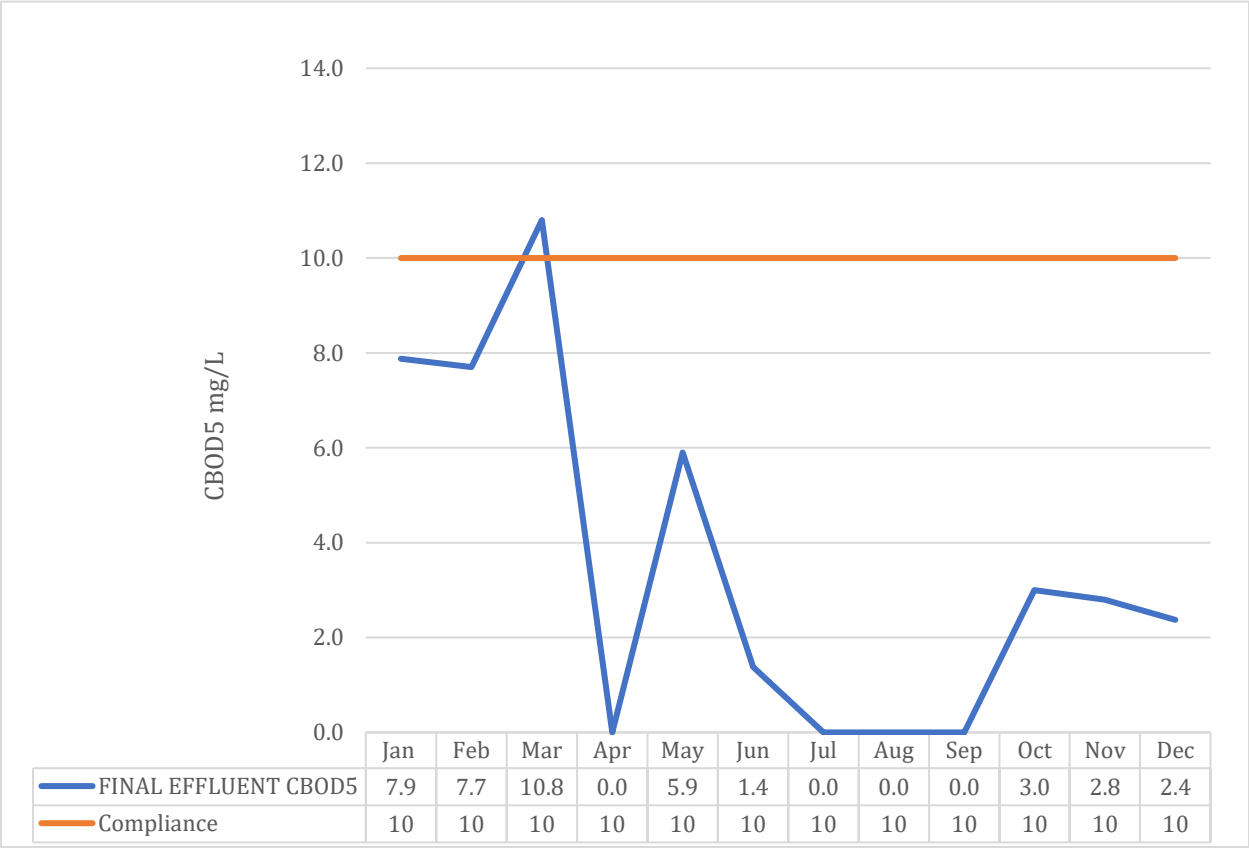
2022	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year Summary
FLOWS(m3/d)													
Influent													
ADF	1,361	1,572	1,976	1,719	1,372	1,345	1,108	1,218	1,158	1,186	1,169	1,232	1,342
Total	40,839	40,868	59,283	51,574	42,543	40,347	34,362	37,748	34,725	36,761	32,738	38,186	489,974
Max day	1,547	2,631	2,564	2,245	1,742	2,014	1,213	1,366	1,483	1,338	1,466	1,869	2,631
Min day	1,226	1,255	1,382	1,493	1,213	1,037	978	1,017	1,018	1,059	1,022	1,042	978
Final Effluent													
ADF	1,452	1,800	4,327	0	1,006	551	0	0	0	902	1,968	2,036	1,141
Total	43,545	50,400	129,795	0	31,199	16,521	0	0	0	27,972	55,095	63,120	417,647
Max day	1,457	5,016	6,523	0	1,714	4,267	0	0	0	1,024	2,103	3,154	6,523
Min day	1,400	1,534	820	0	0	0	0	0	0	0	644	391	0
Max average daily discharge	1630	1970	8200	8640	1760	630	280	320	190	1040	2140	3330	2500
$CBOD_5$ (mg/L)										5			
Influent	802	815	742	475	870	654	905	630	750	770	792	560	730
Effluent	7.9	7.7	10.8	0.0	5.9	1.4	0.0	0.0	0.0	3.0	2.8	2.4	3.5
	monthly average concentration: objective is 5mg/L ,compliance limit is 10mg/L												
$CBOD_5$ (kg/d)													
Final Effluent monthly ave loading	11.4	13.9	46.7	0.00	5.94	0.76	0.00	0.00	0.00	2.71	5.51	4.84	
Compliance monthly average loading	16.3	19.7	82.0	86.4	17.6	6.3	2.8	3.2	1.9	10.4	21.4	33.3	
SS (mg/L)													
Influent	262	246	181	99	167	150	224	207	435	196	449	298	243
Effluent	8.4	4.8	7.5	0.0	10.5	5.3	0.0	0.0	0.0	9.2	10.4	8.0	5.3
	monthly average concentration: objective is 10mg/L ,compliance limit is 15mg/L												
SS (kg/d)													
Final Effluent monthly ave loading	12.2	8.6	32.3	0.0	10.6	2.9	0.0	0.0	0.0	8.3	20.5	16.2	
Compliance monthly average loading	24.5	29.6	123.0	129.6	26.4	9.5	4.2	4.8	2.9	15.6	32.1	50.0	
TP (mg/L)													
Influent	6.3	5.2	4.2	3.8	5.0	4.5	18.9	4.9	7.8	5.4	8.6	7.7	7
Effluent	0.18	0.29	0.24	0.00	0.30	0.28	0.00	0.00	0.00	0.33	0.27	0.25	0.18
	monthly average concentration: objective is 0.3mg/L ,compliance limit is 0.4mg/L												
TP (kg/d)													
Final Effluent monthly ave loading	0.26	0.53	1.05	0.00	0.31	0.16	0.00	0.00	0.00	0.30	0.54	0.50	
Compliance monthly average loading	0.65	0.79	3.28	3.46	0.70	0.25	0.11	0.13	0.08	0.42	0.86	1.33	
TAN (NH_3+NH_4^+) (mg/L)	monthly average concentration:objective is 3.0 mg/L , compliance limit is 4.0 mg/L												
Effluent	1.7	1.3	1.8	0.0	1.1	0.2	0.0	0.0	0.0	0.3	0.1	5.2	0.99
	monthly average concentration: objective is 2.0mg/L,compliance limit is 2.5mg/L :objective is1.0mg/L,compliance limit is 1.5mg/L												
TAN (kg/d)													
Final Effluent monthly ave loading	2.46	2.26	7.96	0.00	1.15	0.13	0.00	0.00	0.00	0.30	0.22	10.66	
Compliance monthly average loading	6.50	7.90	32.80	21.60	4.40	0.90	0.40	0.50	0.50	2.60	8.60	13.30	
TKN (mg/L)													
Influent	39.3	33.3	27.7	28.1	28.9	25.7	28.2	26.4	63.7	40.8	56.1	50.7	37
Effluent	4.95	3.73	5.08	0.00	4.07	1.50	0.00	0.00	0.00	2.75	2.64	9.20	2.83
NO3 (mg/L)													
Effluent	0.53	0.64	0.66	0.00	6.34	5.04	0.00	0.00	0.00	0.59	0.62	0.53	1.25
NO2 (mg/L)													
Effluent	0.05	0.05	0.11	0.00	0.26	0.1	0.0	0.0	0.0	0.2	0.2	0.1	0.09
FP (mg/L)													
Effluent	0.05	0.52	0.28	0.00	0.25	0.20	0.00	0.00	0.00	0.537	0.258	0.272	0.20
Temperature and pH													
Effluent	Temperature and pH determined in the field at time of sampling as per ECA												
	Values are used to calculate unionized ammonia												
pH													
Influent	7.4	7.2	7.2	7.1	7.2	6.9	6.6	6.8	6.2	6.8	6.7	7.3	
Effluent	7.8	7.6	7.6	0.0	8.1	0.0	0.0	0.0	0.0	0.0	8.0	7.9	
Min	7.6	7.4	7.3	0.0	7.6	7.6	0.0	0.0	0.0	7.6	7.5	7.1	
Max	8.0	7.9	7.8	0.0	8.9	8.9	0.0	0.0	0.0	8.9	8.8	8.9	
	Compliance means maintaining the the pH of the final effluent within the limits 6.0 to 9.0 (objective within 6.5 to 9.0)												
E-Coli (MPN/100mL)													
Effluent	770	1657	1081	0	1472	305	0	0	0	1237	3933	2123	

2022 MONTHLY AVERAGE FLOWS



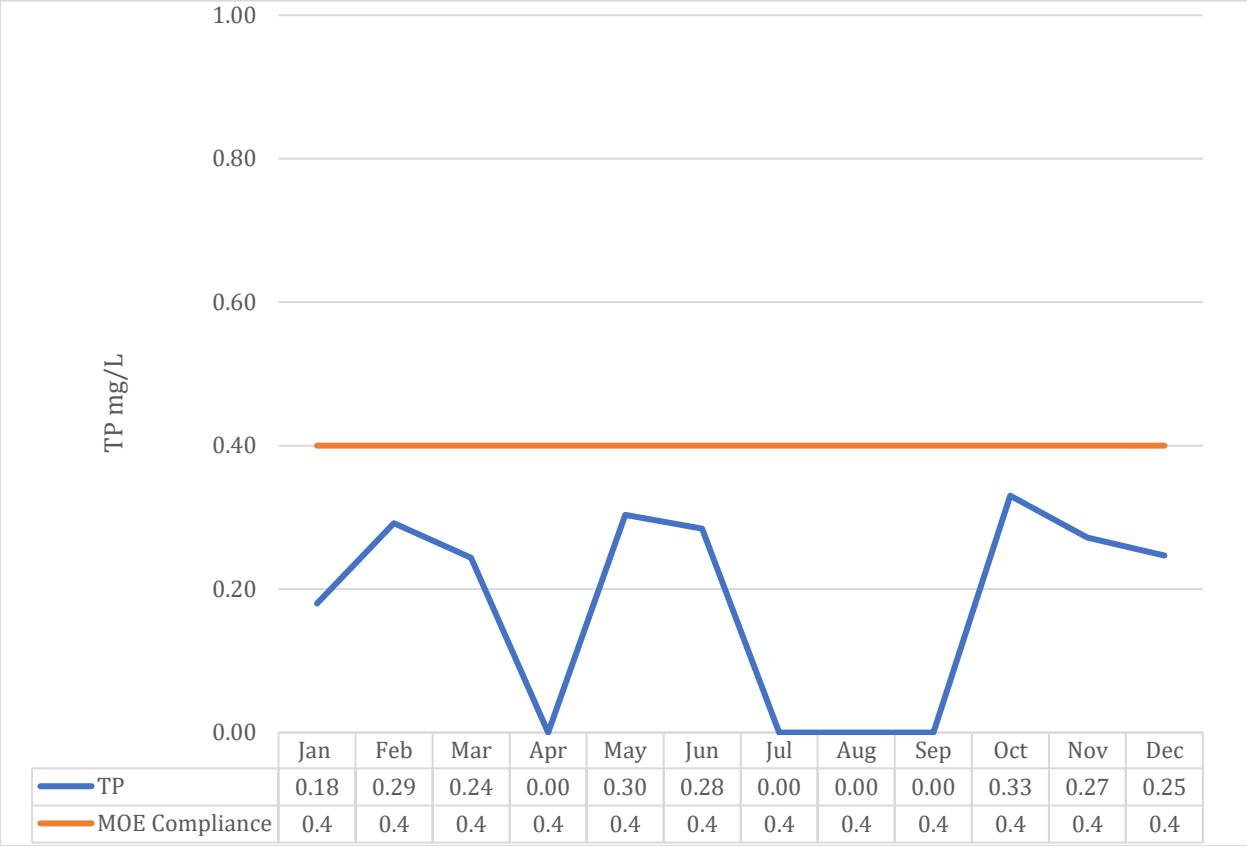
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
INFLUENT FLOW	1,361	1,572	1,976	1,719	1,372	1,345	1,108	1,218	1,158	1,186	1,169	1,232
EFFLUENT FLOW	1,452	1,800	4,327	0	1,006	551	0	0	0	902	1,968	2,036

2022 MONTHLY AVERAGE CONCENTRATION
FINAL EFFLUENT CBOD5



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
FINAL EFFLUENT CBOD5	7.9	7.7	10.8	0.0	5.9	1.4	0.0	0.0	0.0	3.0	2.8	2.4
Compliance	10	10	10	10	10	10	10	10	10	10	10	10

2022 MONTHLY AVERAGE CONCENTRATION FINAL EFFLUENT TP

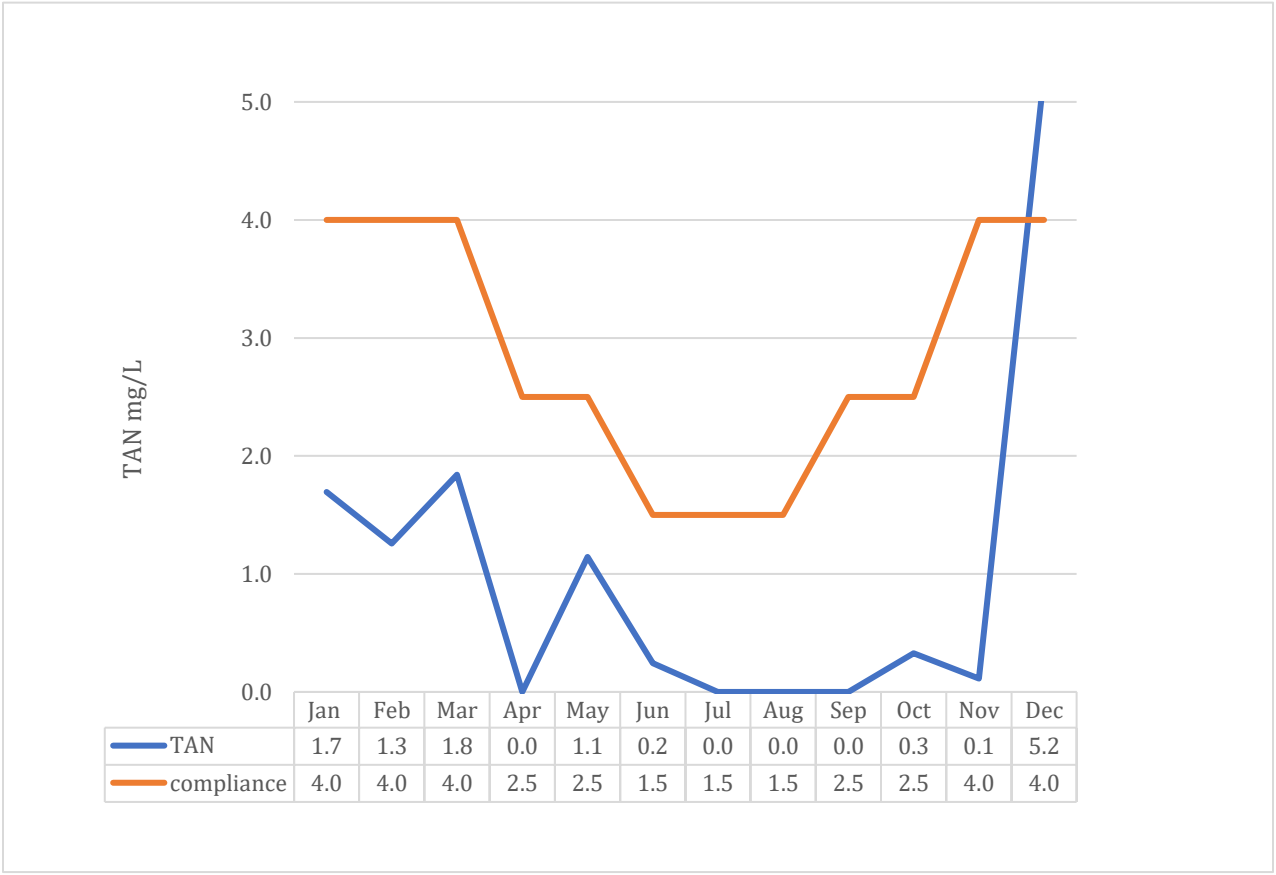


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TP	0.18	0.29	0.24	0.00	0.30	0.28	0.00	0.00	0.00	0.33	0.27	0.25
MOE Compliance	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4

2022 MONTHLY AVERAGE CONCENTRATION FINAL EFFLUENT SS

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
SS	8.4	4.8	7.5	0.0	10.5	5.3	0.0	0.0	0.0	9.2	10.4	8.0
compliance	15	15	15	15	15	15	15	15	15	15	15	15

2022 MONTHLY AVERAGE CONCENTRATION FINAL EFFLUENT TAN (ammonia plus ammonium)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TAN	1.7	1.3	1.8	0.0	1.1	0.2	0.0	0.0	0.0	0.3	0.1	5.2
compliance	4.0	4.0	4.0	2.5	2.5	1.5	1.5	1.5	2.5	2.5	4.0	4.0

Appendix D
Calibration Reports

Lakeside Process Controls Ltd.

2475 Hogan Drive
Mississauga, ON L5N 0E9
Telephone: (905) 412-0500

INSTRUMENTATION VERIFICATION REPORT

Town of Collingwood

SITE: **STAYNER WWTP**

ISSUE DATE: **AUGUST 22, 2022**

CALIBRATION DATE: **AUGUST 4, 2022**

PREPARED BY: **COREY YAKE**

Lakeside Process Controls Ltd.

2475 Hogan Drive
Mississauga, ON L5N 0E9
Telephone: (905) 412-0500

PARTICIPANTS

Corey Yake – Lakeside Process Controls.

SCOPE OF WORK

Annual Verification of Town of Collingwood Flow Devices – Groups B,C,D

Instrument Number	Model Number	Location
Influent Flow	IFC 020	Stayner
FIT-110	Watermaster	Stayner
FIT-111	Watermaster	Stayner
FIT-112	Watermaster	Stayner
WAS Flow	IFC 010	Stayner
Final Effluent	MultiRanger Plus	Stayner
RAS Flow	IFC 010	Stayner

Lakeside Process Controls Ltd.

2475 Hogan Drive
Mississauga, ON L5N 0E9
Telephone: (905) 412-0500

SUMMARY OF RESULTS

Verification was performed on August 4, 2022.

Instrument Number	Pass / Fail	Comments
Influent Flow	Pass	
FIT-110	Pass	
FIT-111	Not Tested	No flow, clamp on verification not possible
FIT-112	Not Tested	No flow, clamp on verification not possible
WAS Flow	Pass	
Final Effluent	Pass	
RAS Flow	Fail	Device display shows correct flow, outputs do not track properly.

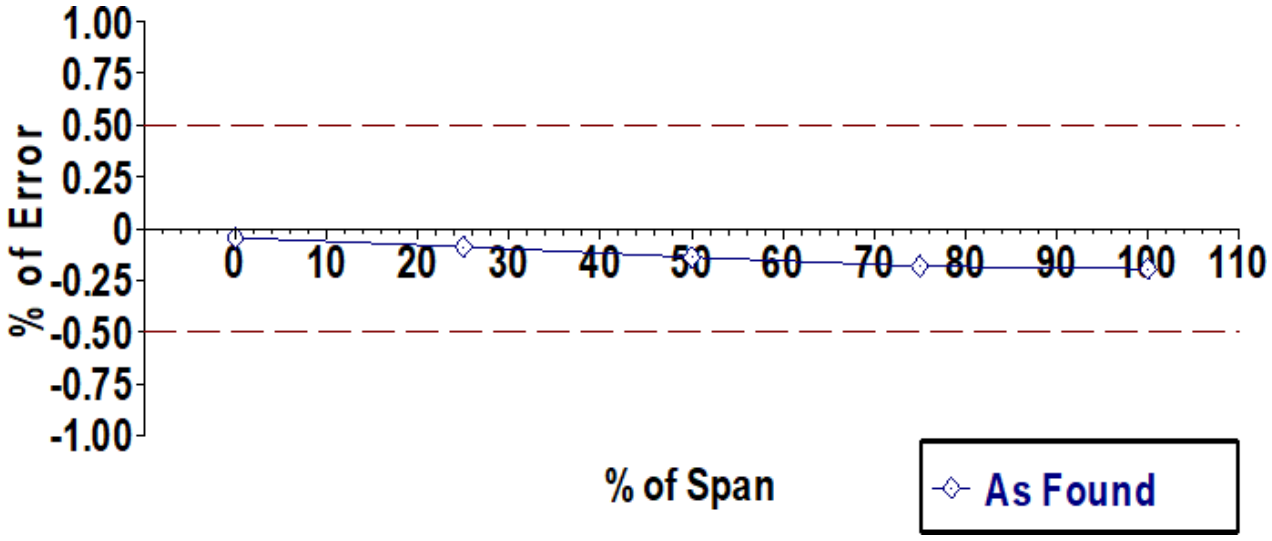
Calibration Certificate 2170
AMS Tag: Final Effluent

Calibrated at: 2022-08-04 1:25:09 PM

Calibration Result: PASSED

Device Identification	
AMS Tag:	Final Effluent
Device Tag:	
Manufacturer:	Milltronics
Model Name:	MultiRanger Plus
Device Identifier:	111990

Device Calibration Data			
Date/Time Calibrated:	2022-08-04 1:25:09 PM	Max Error Limit:	0.50 % of Span
Technician:	LPC_MISS\cxyake	Notification Limit:	0.50 % of Span
User:	LPC_MISS\cxyake	Adjustment Limit:	0.50 % of Span
Ambient Temperature:	22.00 deg C	Calibration Interval:	1 Years
Temperature Standard:	ITS-90	Critical Service:	No
Work Order Number:	14783	Input Range:	4.00 - 20.00 mA
Service Reason:	Not Given	Output Range:	4.00 - 20.00 mA
Service Notes: Device is in confined space. Can not measure sensor to level distance. No flow currently. Empty distance programmed as 85 cm. Measured distance from sensor face as 85.63 cm			
Relationship: Linear			



Test Equipment					
AMS Tag	Manufacturer	Model	Serial Number	Last Calibration	Calibration Interval:
754-CY	Fluke	754	3546010	2021-09-07	1 Years

Errors (%)			
Error	Limit	Actual: As Found	Actual: As Left
Maximum	0.5000	-0.1937 (Pass)	(N/A)
Zero	0.5000	-0.0437 (Pass)	(N/A)
Span	0.5000	-0.1500 (Pass)	(N/A)
Linearity	0.5000	0.0251 (Pass)	(N/A)
Hysteresis	(N/A)	(N/A)	(N/A)

Calibration Results: As Found				
Test Point	Input	Output	Output Error	Output Error (%)
1	4.0000	3.9930	-0.0070	-0.0437
2	8.0000	7.9860	-0.0140	-0.0875
3	12.0000	11.9780	-0.0220	-0.1375
4	16.0000	15.9710	-0.0290	-0.1813
5	20.0000	19.9690	-0.0310	-0.1937

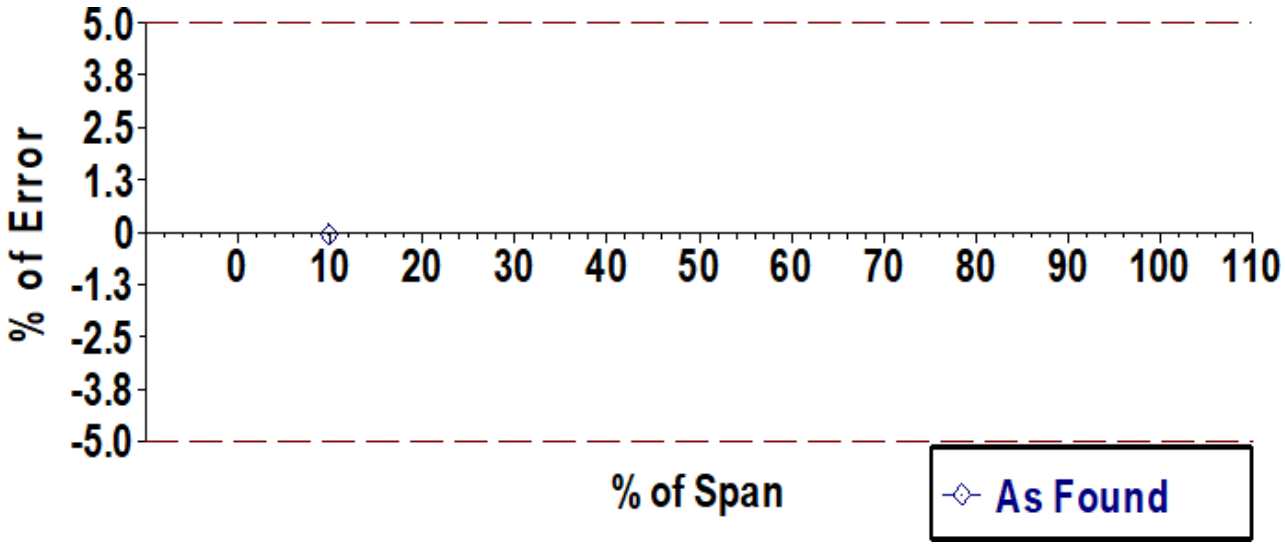
Calibration Results: As Left				
Test Point	Input	Output	Output Error	Output Error (%)

Authorization			
Title	Instrument Tech		
Signature		Date	08/04/202
Title			
Signature		Date	

Calibrated at: 2022-08-04 2:16:33 PM
Calibration Result: PASSED

Device Identification	
AMS Tag:	FIT-110
Device Tag:	
Manufacturer:	ABB
Model Name:	FEW325250A
Device Identifier:	3K620000171410

Device Calibration Data			
Date/Time Calibrated:	2022-08-04 2:16:33 PM	Max Error Limit:	5.00 % of Span
Technician:	LPC_MISS\cxyake	Notification Limit:	5.00 % of Span
User:	LPC_MISS\cxyake	Adjustment Limit:	5.00 % of Span
Ambient Temperature:	22.00 deg C	Calibration Interval:	1 Years
Temperature Standard:	ITS-90	Critical Service:	No
Work Order Number:	14783	Input Range:	0.00 - 100.00 l/s
Service Reason:	Not Given	Output Range:	0.00 - 100.00 l/s
Service Notes:			
Relationship: Linear			



Test Equipment					
AMS Tag	**Manufacturer**	**Model**	**Serial Number**	**Last Calibration**	**Calibration Interval:**
GreyLine PDFM	GreyLine	PDFM	70429	2022-03-01	1 Years

Errors (%)			
Error	**Limit**	**Actual: As Found**	**Actual: As Left**
Maximum	5.0000	-0.0570 (Pass)	(N/A)
Zero	(N/A)	(N/A)	(N/A)
Span	(N/A)	(N/A)	(N/A)
Linearity	(N/A)	(N/A)	(N/A)
Hysteresis	(N/A)	(N/A)	(N/A)

Calibration Results: As Found				
Test Point	**Input**	**Output**	**Output Error**	**Output Error (%)**
1	9.8570	9.8000	-0.0570	-0.0570

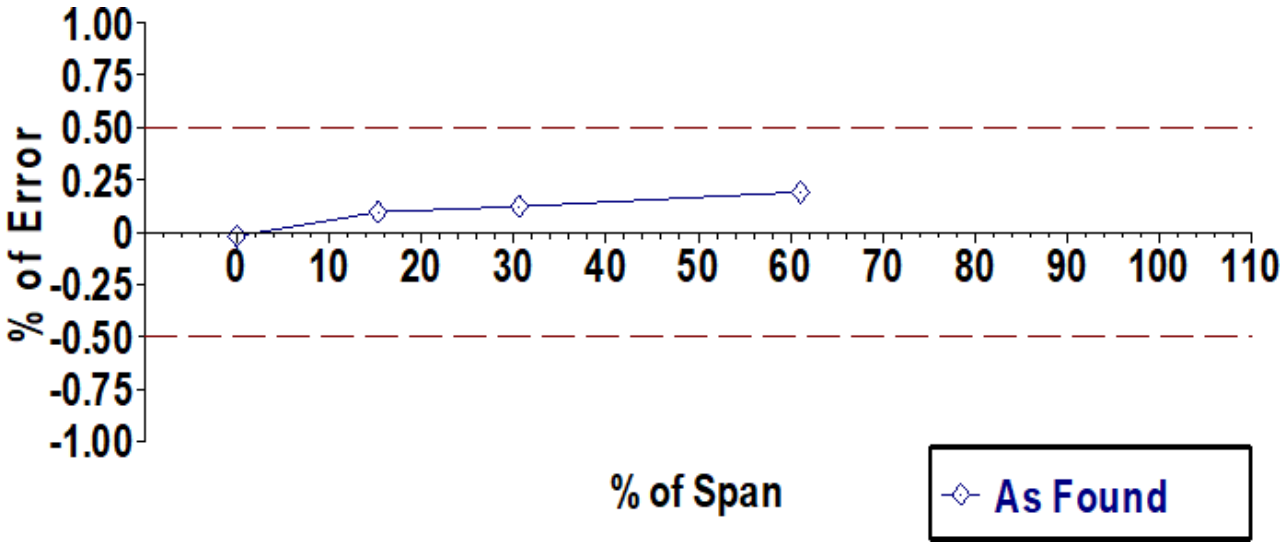
Calibration Results: As Left				
Test Point	**Input**	**Output**	**Output Error**	**Output Error (%)**

Authorization			
Title	Instrument Tech		
Signature		**Date**	08/04/202
Title			
Signature		**Date**	

Calibrated at: 2022-08-04 2:05:38 PM
Calibration Result: PASSED

Device Identification	
AMS Tag:	Influent Flow
Device Tag:	
Manufacturer:	KROHNE
Model Name:	IFC 100W
Device Identifier:	C18500206

Device Calibration Data			
Date/Time Calibrated:	2022-08-04 2:05:38 PM	Max Error Limit:	0.50 % of Span
Technician:	LPC_MISS\cxyake	Notification Limit:	0.50 % of Span
User:	LPC_MISS\cxyake	Adjustment Limit:	0.50 % of Span
Ambient Temperature:	22.00 deg C	Calibration Interval:	1 Years
Temperature Standard:	ITS-90	Critical Service:	No
Work Order Number:	14783	Input Range:	0.00 - 500.00 CuMtr/hr
Service Reason:	Not Given	Output Range:	4.00 - 20.00 mA
Service Notes:			
Relationship: Linear			



Test Equipment					
AMS Tag	Manufacturer	Model	Serial Number	Last Calibration	Calibration Interval:
754-CY	Fluke	754	3546010	2021-09-07	1 Years
Krohne GS8B	KROHNE	GS8B	U0672747008	2022-06-01	1 Years

Errors (%)			
Error	Limit	Actual: As Found	Actual: As Left
Maximum	0.5000	0.1913 (Pass)	(N/A)
Zero	(N/A)	(N/A)	(N/A)
Span	(N/A)	(N/A)	(N/A)
Linearity	(N/A)	(N/A)	(N/A)
Hysteresis	(N/A)	(N/A)	(N/A)

Calibration Results: As Found				
Test Point	Input	Output	Output Error	Output Error (%)
1	0.0000	3.9970	-0.0030	-0.0188
2	76.4590	6.4620	0.0153	0.0957
3	152.9190	8.9130	0.0196	0.1225
4	305.3870	13.8030	0.0306	0.1913

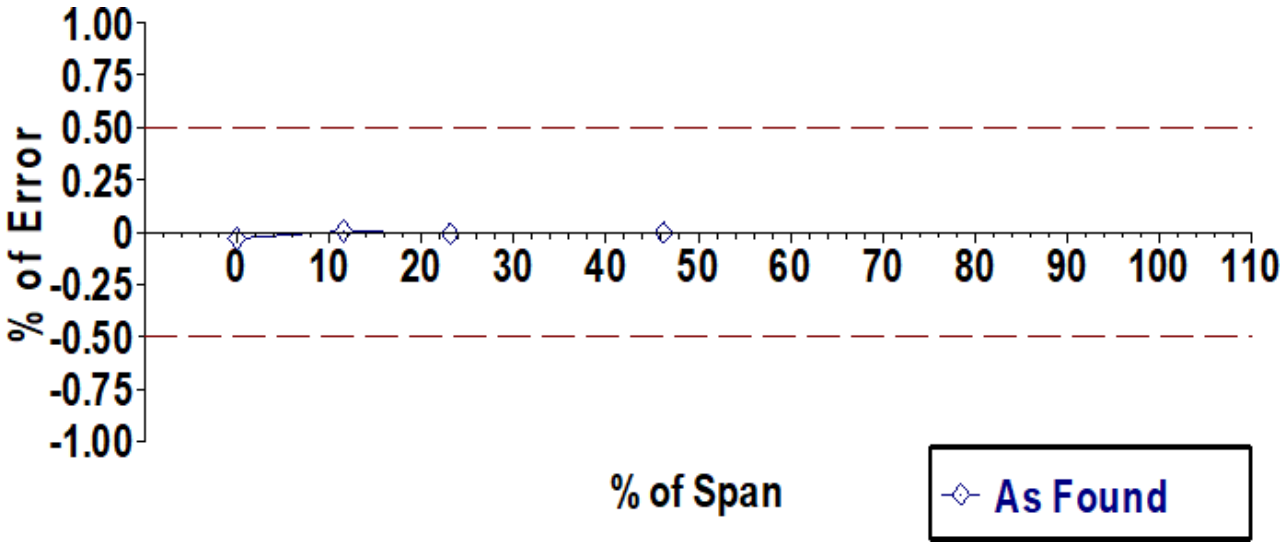
Calibration Results: As Left				
Test Point	Input	Output	Output Error	Output Error (%)

Authorization			
Title	Instrument Tech		
Signature		Date	08/04/202
Title			
Signature		Date	

Calibrated at: 2022-08-04 1:06:22 PM
Calibration Result: PASSED

Device Identification	
AMS Tag:	WAS Flow
Device Tag:	
Manufacturer:	KROHNE
Model Name:	IFC010D
Device Identifier:	A0012068

Device Calibration Data			
Date/Time Calibrated:	2022-08-04 1:06:22 PM	Max Error Limit:	0.50 % of Span
Technician:	LPC_MISS\cxyake	Notification Limit:	0.50 % of Span
User:	LPC_MISS\cxyake	Adjustment Limit:	0.50 % of Span
Ambient Temperature:	22.00 deg C	Calibration Interval:	1 Years
Temperature Standard:	ITS-90	Critical Service:	No
Work Order Number:	14783	Input Range:	0.00 - 340.70 CuMtr/hr
Service Reason:	Not Given	Output Range:	4.00 - 20.00 mA
Service Notes:			
Relationship: Linear			



Test Equipment					
AMS Tag	Manufacturer	Model	Serial Number	Last Calibration	Calibration Interval:
754-CY	Fluke	754	3546010	2021-09-07	1 Years
Krohne GS8B	KROHNE	GS8B	U0672747008	2022-06-01	1 Years

Errors (%)			
Error	Limit	Actual: As Found	Actual: As Left
Maximum	0.5000	-0.0313 (Pass)	(N/A)
Zero	(N/A)	(N/A)	(N/A)
Span	(N/A)	(N/A)	(N/A)
Linearity	(N/A)	(N/A)	(N/A)
Hysteresis	(N/A)	(N/A)	(N/A)

Calibration Results: As Found				
Test Point	Input	Output	Output Error	Output Error (%)
1	0.0000	3.9950	-0.0050	-0.0313
2	39.3740	5.8500	0.0009	0.0057
3	78.7490	7.6970	-0.0012	-0.0076
4	157.4970	11.3960	-0.0004	-0.0025

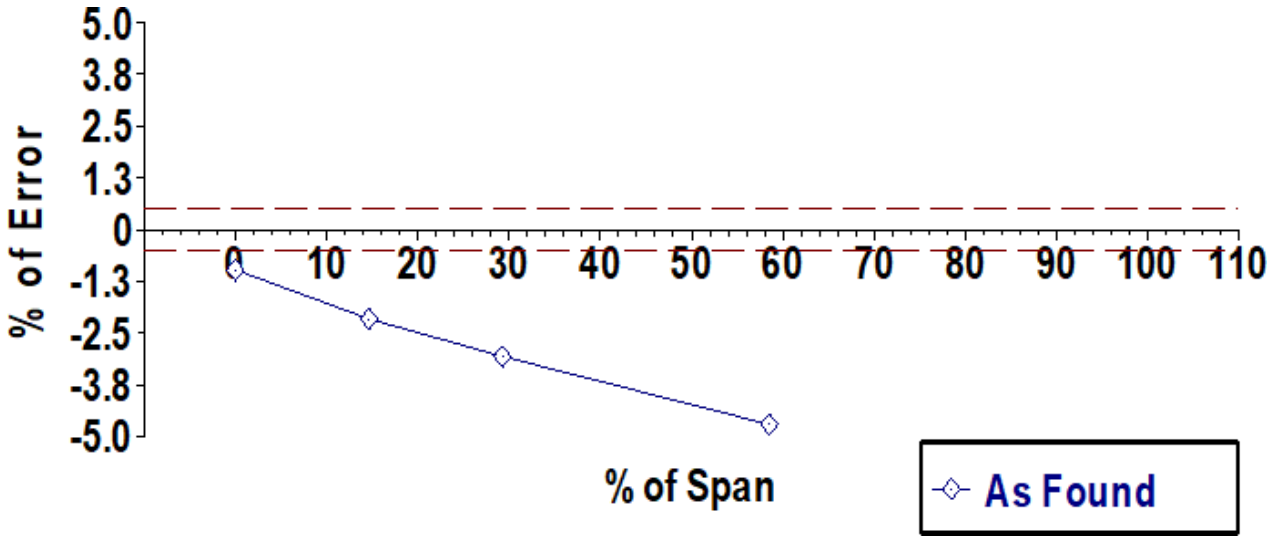
Calibration Results: As Left				
Test Point	Input	Output	Output Error	Output Error (%)

Authorization			
Title	Instrument Tech		
Signature		Date	08/04/202
Title			
Signature		Date	

Calibrated at: 2022-08-04 12:54:26 PM
Calibration Result: FAILED

Device Identification	
AMS Tag:	RAS Flow
Device Tag:	
Manufacturer:	KROHNE
Model Name:	IFC010D
Device Identifier:	A0015892

Device Calibration Data			
Date/Time Calibrated:	2022-08-04 12:54:26 PM	Max Error Limit:	0.50 % of Span
Technician:	LPC_MISS\cxyake	Notification Limit:	0.50 % of Span
User:	LPC_MISS\cxyake	Adjustment Limit:	0.50 % of Span
Ambient Temperature:	22.00 deg C	Calibration Interval:	1 Years
Temperature Standard:	ITS-90	Critical Service:	No
Work Order Number:	14783	Input Range:	0.00 - 227.10 CuMtr/hr
Service Reason:	Not Given	Output Range:	4.00 - 20.00 mA
Service Notes: Device display shows correct flow rate. Output is out of tolerance. No D/A Trim possible.			
Relationship: Linear			



Test Equipment					
AMS Tag	Manufacturer	Model	Serial Number	Last Calibration	Calibration Interval:
754-CY	Fluke	754	3546010	2021-09-07	1 Years
Krohne GS8B	KROHNE	GS8B	U0672747008	2022-06-01	1 Years

Errors (%)			
Error	Limit	Actual: As Found	Actual: As Left
Maximum	0.5000	-4.6962 (Fail)	(N/A)
Zero	(N/A)	(N/A)	(N/A)
Span	(N/A)	(N/A)	(N/A)
Linearity	(N/A)	(N/A)	(N/A)
Hysteresis	(N/A)	(N/A)	(N/A)

Calibration Results: As Found				
Test Point	Input	Output	Output Error	Output Error (%)
1	0.0000	3.8450	-0.1550	-0.9688
2	33.2150	5.9960	-0.3441	-2.1507
3	66.4300	8.1910	-0.4892	-3.0577
4	132.8590	12.6090	-0.7514	-4.6962

Calibration Results: As Left				
Test Point	Input	Output	Output Error	Output Error (%)

Authorization			
Title	Instrument Tech		
Signature		Date	08/04/202
Title			
Signature		Date	

Appendix E
Exceedance & Corrective Actions

April 20, 2022

Ministry of the Environment, Conservation and Parks
Barrie District Office
Unit 1203
54 Cedar Point Drive
Barrie, Ontario
L4N 5R7

Attention: Mark Kowalyk, Provincial Officer

Hello Mark,

I am writing to you with a report of non-compliance for the Stayer WWTP. While reviewing the data from the external lab results the March 2022 monthly average for CBOD was 10.8 mg/L in the final effluent and the plant's limit is 10.0 mg/L of CBOD.

We had some poor CBOD results during the first half of the month while we were seeding the plant with mixed liquor from Collingwood's WWTP to try and get better treatment and better effluent due to operational issues which was sourced back to high strength influent wastewater from Industrial Wastewater (Reinhart foods).
The seeding appears to have taken and with some operational changes the effluent CBOD concentrations dropped towards the end of the month to 3ppm which unfortunately still did not meet the plant's monthly discharge limit.

We have since stopped discharging to Lamont Creek and will analyze our lagoon samples inhouse before discharging to Lamont Creek resumes.

I hope this meets your satisfaction.

Thank you,

Tyler Barrette

From: Tyler Barrette <tbarrette@collingwood.ca>
Sent: March 9, 2022 10:37 AM
To: mark.kowalyk@ontario.ca
Cc: Jennifer Adams <jadams@collingwood.ca>; Bradley Regts <bregts@collingwood.ca>
Subject: Stayner WWTP Creek back up

March 9, 2022

Ministry of Environment
Conservation and Parks
Barrie District Office
Unit 1201
54 Cedar Point Drive
Barrie, Ontario
L4N 5R7

Attention: Mark Kowalyk, Drinking Water Inspector

Incident Period: Lamont Creek backup February 17th, 2022

I am writing to inform you that on February 17, 2022, were we experienced with snow melt from increased temperatures, rain fall and wind which increase the flow in Lamont Creek resulting in river water backing up into Stayner WWTP's effluent discharge flow channel. The backup in the effluent to creek channel resulted in inaccurately increasing our daily effluent discharge to the creek. The flow meter recorded a daily total of 5016m3/day and the effluent flow guideline line to Lamont Creek is 1970m3/day.
If you have any questions, please contact me at by email or my cell 7054414219

Regar
ds,

Tyler Barrette
ORO Town Of Collingwood WWTP
Town of Collingwood

cc: Jennifer Adams; Manager Wastewater Operations and Bradley Regts; Stayner WWTP OIC

Good afternoon Aaron,

This letter is to inform you that The Collingwood Wastewater Treatment division was unable to get the Stayner and Creemore flow meter calibration completed within a year of the previous calibration. Last year they were completed on June 17th and 18th (2021) and this year they were completed on August 4th and 15th (2022) this puts us out of the required +/- 30 days from the anniversary date of the previous calibration by approximately 17 days or so.

We did have it scheduled to occur before June, but we ended up needing to change instrumentation companies and then a combination of scheduling conflicts came up with the heavy vacation calendar.

Please let me know if you require any additional information

Thank you,

Jennifer

Jennifer Adams

Supervisor, Wastewater Treatment Operations

Environmental Services

Town of Collingwood

3 Birch St, Collingwood, Ont L9Y 2T8

Mobile 705-443-9921

705-445-1581 Ext 3311

jadams@collingwood.ca

January 16, 2023

Ministry of the Environment, Conservation and Parks

Barrie District Office

Unit 1203

54 Cedar Point Drive

Barrie, Ontario

L4N 5R7

Attention: Aaron Mattson, Provincial Officer

I am writing this letter to inform you of a non-compliance with the Stayner WPCP final effluent results for December 2022.

The Ammonia limit for the month of December is 4.0ppm and our average we obtained from the lab was 5.24ppm

We believe that this non-compliance was directly caused from an power outage that occurred when a tree fell onto the hydro lines during a wind storm leaving the plant without power for over 25 hours and the plant is now starting to show signs of recovering.

If you have any questions, please let me know.

Thank you,

Tyler Barrette

Overall Responsible Operator

Town Of Collingwood

Cell 705-441-4219