



CREEMORE WASTEWATER TREATMENT PLANT

2022 Performance Report

Contents

Definitions	2
Section 1: Wastewater System General Information	3
Section 2: Facility Description	4
Section 3: Process Description.....	4
Section 4: Annual Average Performance Assessment	8
Effluent Objectives and Limits.....	8
Compliance (Concentration and Loading)	9
Objectives	9
Effluent Sampling Requirements, Monitoring and Recording.....	9
Compliance Testing and Analysis.....	9
In-house Testing and Analysis for Process Control	10
Flow Measurement	10
Section 5: Capacity Assessment	10
Section 6: Sludge Management	11
Section 7: Bypasses, Overflows and Spills.....	11
Section 8: Maintenance	11
Section 9: Complaints.....	12
Section 10: Comments	12

Definitions

BOD	Biochemical Oxygen Demand
CBOD ₅	Carbonaceous Biochemical Oxygen Demand
DO	Dissolved Oxygen
ECA	Environmental Compliance Approval
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
TDH	Total Dynamic Head
TKN	Total Kjeldahl Nitrogen
TP	Total Phosphorous
TS	Total Solids
TSS	Total Suspended Solids
UV	Ultraviolet
WWTP	Wastewater Treatment Plant

Section 1: Wastewater System General Information

System Information	
Wastewater System Reporting	Creemore Wastewater Treatment Plant 83 Mary Street Creemore, Ontario L0M 1G0 (705) 466-2741
Wastewater Works Number	120002683
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 31, 2024
Bell-Adams, Jennifer	3	11169	August 31, 2025
Card, Cathy	3	83840	December 31, 2025
Huber, Jonathan	2	96092	May 31, 2024
MacNicol, Jason	1	95922	January 31, 2026
Plummer, Reg	2	55946	May 31, 2023
Regts, Brad	2	104259	Sept 30, 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 31, 2024
Huber, Jon	2	113839	April 30, 2024
Regts, Brad		104258	Feb 28, 2026

Plant Certificate of Approval, Environmental Compliance Approvals & Amendments		
Certificate Number	Date	Description/Reason for Amendment
30589-99-006	July 23 rd , 1999	Construction approval
8-1149-99-006	December 3 rd , 1999	Air Approval
3-0589-99-006	September 9 th , 1999	Amended to indicate compliance with Condition #5 of the Certificate of Approval with respect to construction.
8250-8AWHU7	January 28 th , 2011	Amendment for equalization tank installation application submitted by RJ Burnside
3281-AKGR3E	April 6 th , 2017	Amendment for modification of membrane filtration

Section 2: Facility Description

The Creemore Wastewater Treatment Plant is owned by the Township of Clearview and operated by the Town of Collingwood.

The plant is located on Lot 8, Conc. IV in the Township of Clearview and services the Village of Creemore. The plant was initially designed to service a population of 1,500, the community's commercial core and the Creemore Springs Brewery Ltd. Provisions were made as part of the design for a future plant capacity increase to accommodate a population of 2,500.

The sewage treatment process consists of an influent pumping station, automatic fine screening (with a manually raked bypass raw sewage screen) and a 2-basin membrane filtration technology treatment process, UV disinfection, effluent re-aeration chamber and outfall to the Mad River.

Phosphorus removal is achieved by ferric chloride addition. Sludge Stabilization is accomplished in a single basin aerobic digester equipped with a Zee-Weed membrane system for thickening. Sludge storage /hauling facilities are also provided.

Standby power is provided by a diesel-driven generator.

Section 3: Process Description

Gravity flow from the Community Collection system arrives at Site MH102. An emergency overflow sewer is also connected at this point.

The Creemore WWTP building has an overall dimension of approximately 34m x 25m and contains the following:

Inlet Pumping Station

- Influent pumping station consisting of a 48.4m³ wet well.
- Each well is equipped with an ABS submersible pump.
- Each pump has an initial rated capacity of 34.2 L/sec to handle Stage I peak flow. Each pump is capable of being upgraded to 53.7 L/sec to accommodate Stage II peak flow.

Equalization Tank

- One (1) 1,400 m³ equalization tank with sewage returning to the influent pumping station when peak flow has receded.

Screening

- Influent channel located above the influent pumping room.
- Two channels:
 - 1 - fitted with an automated mechanically cleaned screw screen with a 2 mm screen opening.
 - 1 - bypass channel equipped with a manually cleaned bar screen.

Flow Distribution

- Screened wastewater flows by gravity to the aeration basins.
- Flow is split evenly between the two tanks through a splitter box, which contains an overflow weir and v-notch weir to provide flow equalization.

Biological Treatment (Aeration)

- Two (2) aeration tanks with anoxic and aerobic zones. The anoxic zone is separated from the aerobic zone by a curtain wall with openings to permit flow from the anoxic to the aerobic zone.
- A coarse bubble diffuser also provides mixing in anoxic zone.
- Each tank also has a submersible re-circulation pump for returning mixed liquor from the aerobic to the anoxic zone and a sludge wasting pump to remove excess biomass to sludge thickener.
- An aerobic environment is maintained in the aerobic portion of the tank with a fine bubble diffused air system.

Membrane Filtration

- Tank ZW-1 holds four (4) Suez modules (Zeeweed) membrane cassettes located in the aerobic zone of the tanks.
- Tank ZW-2 holds four (4) Suez 500D modules (Zeeweed) membrane cassettes located in the aerobic zone of the tanks.
- Associated with the cassettes are the permeate collection headers, air scour distribution pipes for the membranes, pressure and level sensors, oxygen meters, TSS sensors, three (3) permeate pumps, flow meters and turbidity meters, air separation columns, air removal vacuum pumps, associated valves and piping.

Chemical Systems

Phosphorus removal by ferric chloride addition:

- 1 - 25,000 L bulk storage tank - buried
- 1 – 1,400 L day tank
- 2 – chemical addition metering pumps

Membrane Cleaning

Sodium hypochlorite solution consisting of:

- 100 gal. storage tank (12% hypo)
- 4 – chemical addition metering pumps

Citric acid system consisting of:

- 1 – 100 gal. storage tank with mixer
- 2 – chemical addition metering pumps

Disinfection

- Ultraviolet (UV) disinfection consisting of one (1) bank of modules providing a minimum dose of 30,000 micro watts/sec/cm² at peak flow rate of 3,140 m³/d and 70% lamp output and minimum UV transmittance of 65% to provide an effluent target of 100 CFU/100 mL of E.coli. (monthly geometric mean density). A serpentine weir placed at the end of the channel maintains liquid level within the channel.

Sludge Stabilization

Aerobic Digestion

- One (1) aerobic sludge digestion tank equipped with coarse bubble aeration system.

Sludge Thickener

- A sludge thickener consisting of a 500D membrane cassette and pumps for extracting and returning the liquid portion to the inlet works, back pulse/aerator flush pump and a transfer pump for transferring thickened sludge to the aerobic digester is also employed.

Sludge Holding Tank

- One (1) glass lined steel storage tank with a capacity of 1,400 m³; located outside of the treatment plant building equipped with a mixing system.
- Underground pumping station housing one sludge loading/mixing pump and associated valving.

Air Blower Room

- Blower room contains seven (7) blowers for process air requirements, two (2) air compressors with one (1) air dryer to supply instrument air.
- Three (3) air blowers, two (2) duty and one (1) standby to supply supplemental air to the diffuser grid in the aeration tanks.
- Two (2) air blowers, one (1) duty and one (1) standby to supply cyclic air scour to the membrane cassettes.

- Two (2) air blowers to supply air to the aerobic digester diffuser grid and the air scour for the membrane cassettes.

Standby Power

- 1 - 375 kW diesel generator set to provide stand-by power capability.
- A process schematic of the existing treatment facilities is shown in Appendix D for reference.

Table 1: Major Unit Process Data	
Headworks	
Wet Well Pumps:	
<ul style="list-style-type: none"> • 2 - 7.5 hp submersible pumps rated at 34.2 L/s for stage one flow 	
Screening:	
<ul style="list-style-type: none"> • 1 - mechanically cleaned screw screen with 2 mm opening • 1 - manually cleaned bar screen located in overflow/bypass channel 	
Aeration Tanks Incorporating Membrane Filtration	
Type:	Membrane Technology, Suez ZeeWeed 16-M membrane cassettes
Number:	2 - Trains with anoxic and aerobic zones
Cell Dimensions:	5.3m x 10.6 x 6.4 liquid depth
Total Volume:	720m ³
RAS Pumps:	2 - 7.5 hp submersible pumps rated at 65 L/s
WAS Pumps:	2 – 2.4 hp submersible pumps rated at 36 L/s
Disinfection System	
Disinfection System:	
<ul style="list-style-type: none"> • 1 bank of UV lights (6 lamps), low pressure intensity rated at a peak flow of 3,140 m³/d effluent target of 100 CFU/100 mL of E.coli (monthly geometric mean density) 	
Sludge Stabilization and Storage	
Aerobic Digester:	
<ul style="list-style-type: none"> • Concrete tank utilizing a coarse bubble diffused air system • Total volume - 272 m³ at liquid depth of 6.4 m 	
Sludge Thickener:	
<ul style="list-style-type: none"> • 1 - Zenon membrane 500D cassette in a concrete tank 3.7 m x 2.75 m x 5.2 m working depth for a capacity of approximately 53 m³ 	
Sludge Holding Tank:	
<ul style="list-style-type: none"> • 1 - 1400 m³ glass lined storage tank 	
Process and Membrane Air Supply	
Process Air:	
<ul style="list-style-type: none"> • 2 - 40 hp Aerzen blowers • 1- 15 hp Hibon blower 	
Membrane Air:	
<ul style="list-style-type: none"> • 1 - 40 hp Hibon blower • 2 - 50 hp Hibon blowers 	
Digester Air Supply:	

Table 1: Major Unit Process Data	
<ul style="list-style-type: none"> 1 - 30 hp Arezen blower 1 – 30 hp Hibon blower 	
Standby Power Supply	
Standby Power Supply: <ul style="list-style-type: none"> 1 - 375 kw continuous rated diesel generator set 	

Section 4: Annual Average Performance Assessment

Effluent Objectives and Limits

- Effluent Compliance Limits (concentrations and loadings) are prescribed in Section 7 (2) of the ECA 3281-AKGR3E and are summarized below in Table 2.

Table 2A: Effluent Objectives	
Effluent Parameter	Concentration Objective (mg/L unless otherwise indicated)
CBOD ₅	5.0mg/L
Suspended Solids	5.0mg/L
Total Phosphorous	0.1mg/L
Total Ammonia Nitrogen	1.0 (May 1 – Nov 30) 3.0 (Dec 1 – April 30)
E. Coli	100 organisms per 100mL Monthly Geometric Mean Density

Table 2B: Effluent Concentration Limits		
Effluent Parameter	Monthly Average Concentration (mg/L unless otherwise indicated)	Monthly Average Loading
CBOD ₅	10 mg/L	14.0 kg/d
Suspended Solids	10 mg/L	14.0 kg/d
Total Phosphorus	0.2 mg/L	0.28 kg/d
TAN		
May 1 to November 1	2.0 mg/L	2.8 kg/d
December 1 to April 30	4.0 mg/L	5.6 kg/d
Dissolved Oxygen	4.0 mg/L (minimum level)	-
pH Range	6.0 – 9.5	-
E.Coli	200 CFU/100mL (Monthly geometric mean density)	-

- Compliance for all parameters except pH and E. coli bacteria is based on a monthly average concentration/loading.
- Compliance for E. coli is based on a monthly geometric mean density.
- Section 7 (2) d. requires that the pH of the effluent be maintained within the range 6.0 to 9.5, inclusive, at all times.

Compliance (Concentration and Loading)

- CBOD₅ was out of compliance in March with an average monthly concentration of 290.2 mg/L and an average monthly loading concentration of 68.7 kg/d
- TSS was out of compliance in March with an average monthly concentration of 18.6 mg/L .
- TP was out of compliance in the month of March and April with an average monthly concentration of 1.29mg/L and 0.55mg/L and an average monthly loading concentration of 0.32 kg/d and 0.22 kg/d
- TAN was out of compliance in the month of June and July with an average monthly concentration of 4.0mg/L and 6.33mg/L. TAN was also out of compliance in December with an average monthly concentration of 6.15 mg/L
- E-Coli was out of compliance in the month of March with an average monthly concentration of 611CFU/100mL

Objectives

- CBOD₅ exceeded the effluent objective of 5.0 mg/L in March with a monthly average concentration of 290.2 mg/L
- TSS exceeded the effluent objective of 5.0 mg/L in March with a monthly average concentration of 18.6 mg/L
- TP exceeded the effluent objective of 0.1 mg/L in March, April, June, July, August, and December with monthly average concentrations of 1.29 mg/L, 0.55 mg/L 0.17 mg/L 0.13 mg/L 0.18 mg/L 0.19 mg/L and 0.17 mg/L.
- TAN exceeded the effluent objective of 1.0 mg/L in June and July with concentrations of 4.0 mg/L and 6.33 mg/L and the effluent objective of 3.0 mg/L in December with a monthly average of 6.15 mg/L
- E-Coli exceeded the effluent objective in June with a monthly concentration of 121 CFU/100mL

The monthly flow and process quality data are summarized in Appendix B.

Effluent Sampling Requirements, Monitoring and Recording

Compliance Testing and Analysis

- Monitoring requirements are specified under Condition 9 of the ECA. Twenty-four (24) hour composite samples of raw sewage are required to be collected monthly and analysed for BOD₅, TSS, TP and TKN. Twenty-four (24) hour composite samples of final effluent are required to be collected weekly and analysed for CBOD₅, TSS, TP and TAN. Grab samples of final effluent are required to be collected weekly for analysis for E.coli, temperature, pH and DO. The plant's current regular monitoring program exceeds these minimum requirements.
- Compliance sampling and analysis of raw sewage is carried out weekly. Twenty-four (24) hour composite samples are collected using an automatic sampler for analysis of BOD₅, TSS, TP, and TKN.
- Compliance sampling and analysis of final effluent is carried out weekly. Twenty-four (24) hour composite samples are collected using a refrigerated automatic

sampler for analysis of CBOD₅, TSS, TP, and TKN, total ammonia nitrogen, nitrite and nitrate. Grab samples of final effluent are also collected weekly for analysis of E.coli bacteria. Lastly, grab samples are collected a minimum of once a week and tested for pH and temperature.

- Except for the samples collected for pH and temperature testing, analysis for all compliance samples is carried out by an external contract laboratory, Testmark laboratories LTD.
- The plant also complies with Guideline F-10-1 concerning sampling and analysis requirements which satisfies condition 2.1 (d).
- The temperature and pH of the final effluent is taken in the field at the time of sampling for Total Ammonia Nitrogen. The Creemore WWTP 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 wastewater reporting and are used in generating the annual plant performance report.

In-house Testing and Analysis for Process Control

- Influent and Final effluent samples are collected Monday, Tuesday, Wednesday and Thursday. 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 WWTP laboratory using techniques in standard methods or using approved methods for HACH DR/2010 Spectrophotometer.
- The Creemore WWTP internal sampling program is attached as Appendix A.

Flow Measurement

- Magnetic flow meters are used to monitor both raw sewage and final effluent flows.
- Both the influent and final effluent flows are trended through the SCADA system.
- The meters are calibrated annually for accuracy to within +/- 5% of actual flow rate within the range of 10% to 100% of the full scale reading to satisfy 9 (6) of the ECA.
- The calibration reports are attached as Appendix E.

Section 5: Capacity Assessment

	Design	Current year
Maximum average daily flow in m³/d	Stage 1: 860	491
% of capacity based on Average Daily Flow		57.0% of Stage 1

- The Annual average daily flow has fallen within the limit for this reporting period.
- The annual average performance data is summarized in Appendix B.

Section 6: Sludge Management

- Waste activated sludge is aerobically digested at the Creemore WWTP. Digested sludge is pumped to an outdoor sludge storage tank equipped with submersible mixers. Stabilized bio solids are spread on licensed agricultural land as a nutrient and soil conditioner.
- Sludge produced at the Creemore WWTP meets the quality criteria specified in the Ontario Guidelines for Sewage Sludge Utilization on Agricultural lands. Sludge is applied in accordance with these guidelines and the conditions set out in the site Certificate of Approvals. However, sludge disposal through direct utilization on land is not practical during winter months, during periods of inclement weather and when agricultural fields are inaccessible. The provincial guidelines for bio solids utilization on land recommends municipalities provide six (6) months sludge storage facilities. The outdoor storage tank has a volume of 1400m³.
- Sludge disposal operations are currently contracted to a private hauler, Region of Huronia Environmental Services Limited, R. R. #1, New Lowell, Ontario, L0M 1N0. This firm possess a valid C of A #7383-4LAHXD authorizing it to transport processed organic waste from the Creemore WWTP to approved organic conditioning sites.
- A total volume of 13,343.80 m³ of bio solids was disposed of from the Creemore facility in 2022. This amount is abnormally high due to the catastrophic failure experienced within the treatment process during January, February, March and April which increased the need for wasting to the aerobic digester. This sludge was held in lagoon storage with Region of Huronia Environmental Services for future land application. A total of 696.0m³ was directly applied to approved land.
- A Sludge volume of 5,500 m³ is predicted for the year 2023 due to growth.
- Samples of aerobic sludge are collected twice monthly and sent for metals, E.coli, and nutrient analysis to Testmark Laboratories Ltd in Mississauga, Ontario.
- This sampling frequency satisfies the recommended sampling requirements for sludge as outlined under section 3 of the "Guidelines."

Section 7: Bypasses, Overflows and Spills

- There were no bypasses, overflows, or spills to report in 2022

Section 8: Maintenance

- Routine preventative maintenance was performed throughout the year in accordance with the recommendations of the original equipment manufacturer.
- Influent pumps P76A and P76B were replaced with new pumps.
- The UV disinfection lamps were replaced in June 2022.
- Eight guide brackets were machined and installed on ZW#1 cassettes.
- ZW#2 air separation vessel was repaired and installed in August 2022.
- ZW#1 and ZW#2 - new air relief valves installed in August 2022

- New ferric chloride air diaphragm pump was installed in November 2022.
- New pressure gauge and transmitter installed on the thickener in November 2022.
- Calibrations were carried out on the flow metering equipment and the report of these calibrations has been attached as Appendix E.
- New pressure switches have been installed on ZW-1 and ZW-2
- New pressure transmitters have been installed on ZW-1 and ZW-2
- Semi-annual inspections and maintenance on the standby generator and monthly operations test, inspection, and maintenance were completed.
- Maintenance records are kept for each piece of equipment at the plant and are available at the plant for viewing.

Section 9: Complaints

- There were no complaints in 2022.

Section 10: Comments

- The plant continues to receive high strength wastewater (in terms of soluble BOD₅, SS, & TP) from the Creemore Springs Brewery.
- foaming issues continue to occur sporadically in the aeration basins
- A failure of the treatment system took place during January, February, and March of 2022. In January 2022 when the newly installed membrane cassettes were lifted out of the aeration basin for regular preventative maintenance, the mechanical parts failed due to the installation of galvanized fittings. Operational staff have relayed that improper fittings were used during the manufacturer installation of the new membrane cassettes in July 2021. This created a series of operational difficulties which were documented and provided to Clearview Township in March of 2022. During this mechanical failure, the plant had reduced capacity. Surrounding municipalities and a local contractor worked together to receive the sewage from the Creemore WPCP to prevent any detrimental effect on the Environment. As a result of this effort no spills, bypasses or overflows occurred.

Appendix A

Sampling and Process control

Composite samples are taken on both the influent and final effluent flow. Samples are taken Monday – Thursday, dependent on staffing.

Samples are analyzed using procedures from the most current edition of “Standard Methods for the Examination of Water and Wastewater” and approved methods for HACH DR 2010 Spectrophotometer.

Samples are obtained by the operators and returned to the Collingwood Lab for analysis (pH, DO & Temp 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	Frequency
Influent	Composite	pH, TSS, TP, NH3	Daily M-T
Aeration			
I. Mixed Liquor	Grab	TSS	Daily M-T
Sludge Stabilization			
I. Thickened sludge	Grab	TS & VS	As required
II. Digested sludge	Grab	TS & VS	As required
Final Effluent	Grab Composite	TSS, pH, DO, Temp, TP, NH3 TSS, pH, DO, Temp, TP, NH3	Monday Tuesday, Wednesday, Thursday

External Lab Analysis			
Unit Process	Type Sample	Parameters Tested	Frequency
Influent	Composite	TP, TSS, BOD5, TAN TKN, N03, N02	Weekly
Effluent	Composite	TSS, CBOD5, TP, TAN N03, N02, TKN	Weekly
	Grab	E-Coli	Weekly
Bio solids (Aerobic Sludge)	Grab	TS, VS, ICAP, TP, NH3, TKN, anions, E-Coli	Twice/Month

- 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 lab and these results are reported on the monthly R1 sheets.

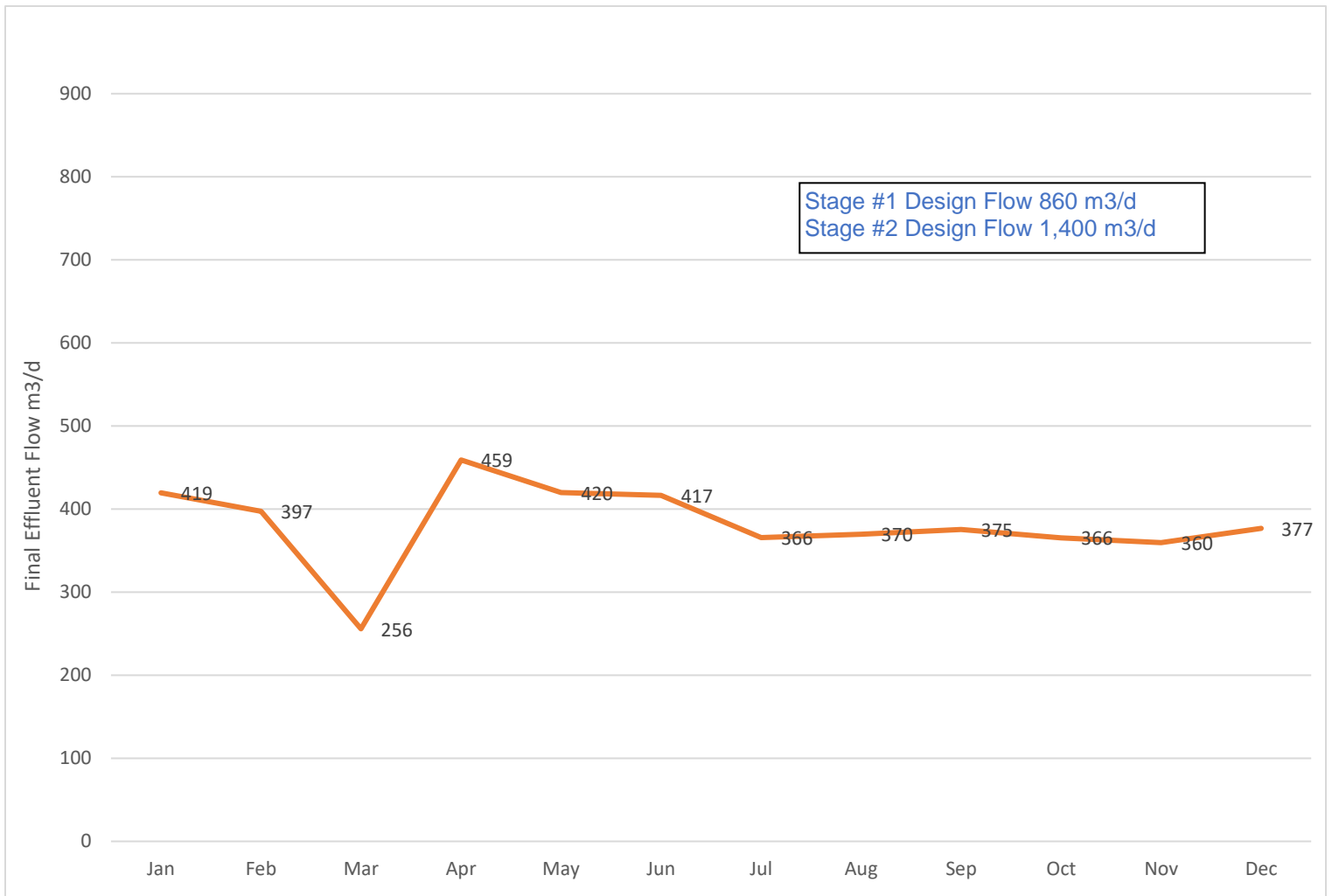
Appendix B

Monthly Flow and Process Quality Data

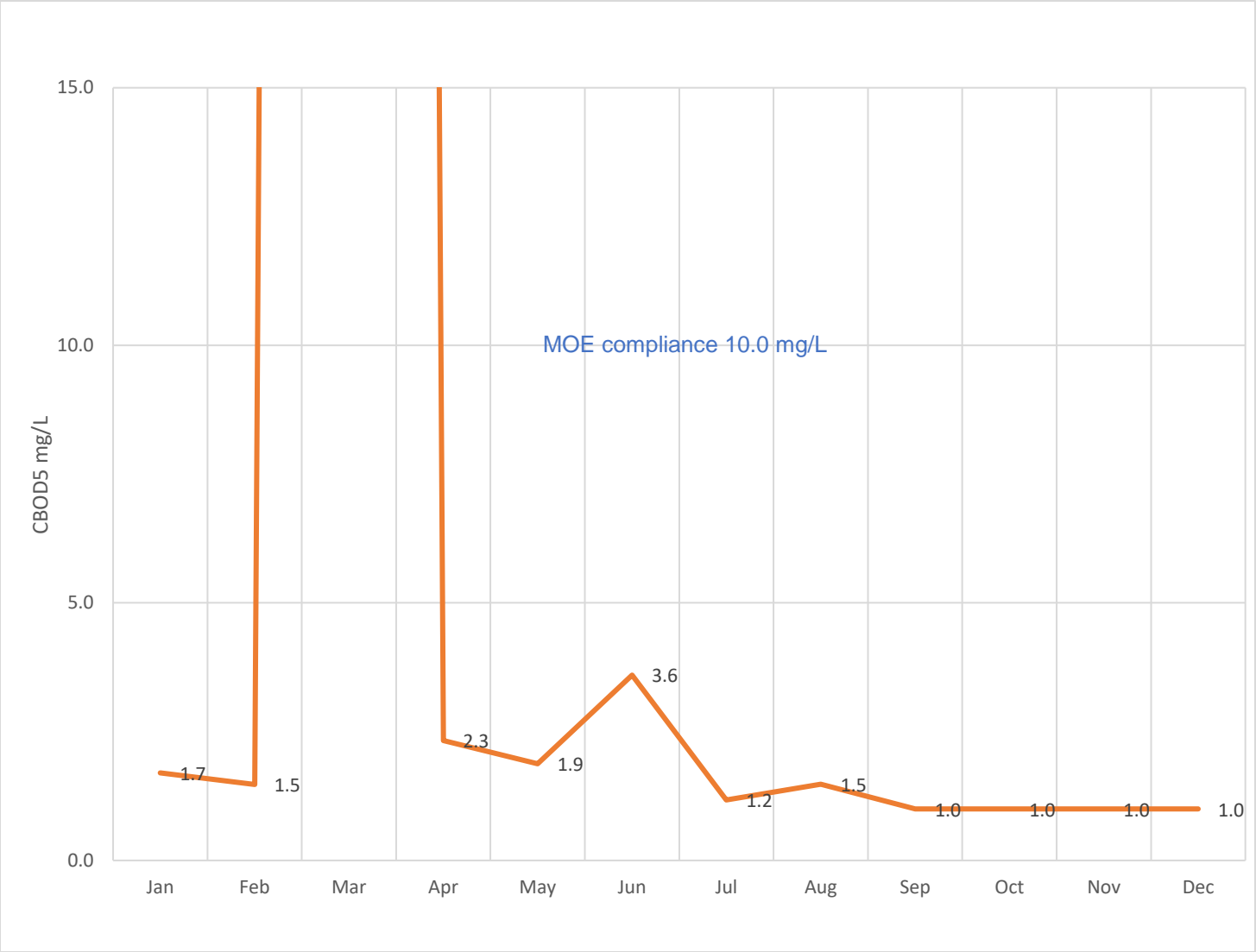
CREEMORE WWTP PERFORMANCE EVALUATION 2022

2022	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean	ECA Criteria
Flows (m³/d)														
Influent														
ADF	402	459	491	481	415	422	329	342	338	333	331	357	391	
Total	12,456	12,843	15,224	14,435	12,865	12,673	10,214	10,604	10,133	10,316	9,943	11,082	142,789	
Max Day	469	578	562	560	521	492	442	468	406	389	415	411		
Min Day	324	375	407	398	320	341	238	261	251	271	267	298		
Final Effluent														
ADF	419	397	256	459	420	417	366	370	375	366	360	377	376	
Total	13,001	11,129	7,932	13,774	13,015	10,830	11,337	11,457	11,259	11,331	10,790	11,676	137,531	
Max Day	545	591	444	573	508	507	530	438	549	483	474	486		
Min Day	319	126	95	336	157	245	250	313	299	291	301	309		
BOD5 (mg/L)														
Influent	825	1040	1018	1508	1250	1288	698	1012	1198	1068	1198	903	1084	
Effluent CBOD5	1.7	1.5	290.2	2.3	1.9	3.6	1.2	1.5	1.0	1.0	1.0	1.0	25.7	10.0 mg/L
BOD5 (kg/d)														
Effluent average loading	0.55	0.41	68.78	0.92	0.65	1.68	0.40	0.55	0.30	0.33	0.37	0.32		14.0 kg/d
Compliance is a monthly average concentration of 10.0 mg/L and a monthly average loading of 14.0 kg/d in the Final Effluent														
SS (mg/L)														
Influent	252	212	270	250	261	329	235	327	414	296	363	391	300	
Effluent	1.1	1.3	18.6	1.7	0.9	2.4	0.8	1.3	1.2	1.1	1.2	2.6	2.8	10.0 mg/L
SS (kg/d)														
Effluent average loading	0.34	0.31	4.62	0.65	0.32	1.06	0.00	0.47	0.36	0.37	0.45	0.82		14.0 kg/d
Compliance is a monthly average concentration of 10.0 mg/L and a monthly average loading of 14.0 kg/d in the Final Effluent														
TP (mg/L)														
Influent	11.9	10.7	10.7	7.4	14.0	16.9	21.1	13.5	19.8	16.1	10.0	19.3	14	
Effluent	0.05	0.05	1.29	0.55	0.17	0.13	0.18	0.19	0.06	0.05	0.07	0.17	0.25	0.2 mg/L
TP (kg/d)														
Effluent average loading	0.016	0.014	0.317	0.222	0.059	0.054	0.056	0.071	0.018	0.017	0.024	0.053		0.28 kg/d
Compliance is a monthly average concentration of 0.2 mg/L and a monthly average loading of 0.28 kg/d in the Final Effluent														
TAN (mg/L)														
Influent	28.4	17.3	17.0	17.5	18.7	28.9	25.8	29.3	47.8	33.8	39.6	41.5	29	
Effluent	0.29	0.28	1.28	0.73	0.07	4.00	6.33	0.89	0.22	0.33	0.16	6.15	1.73	
TAN (kg/d)														
Effluent average loading	0.08	0.06	0.29	0.27	0.02	1.79	1.77	0.07	0.06	0.11	0.06	1.98		
May 1 to Nov 31	Compliance is an monthly average concentration of 2.0 mg/L and a monthly average loading of 2.8 kg/d in the Final Effluent													
Dec 1 to Apr 30	Compliance is an monthly average concentration of 4.0 mg/L and a monthly average loading of 5.6 kg/d in the Final Effluent													
DO (mg/L)														
Feff min value	6.7	9.2	5.6	8.4	7.8	4.7	4.9	5.5	4.6	5.0	5.2	6.7		
Feff max value	8.1	10.1	9.7	9.1	8.6	7.1	7.0	6.8	5.9	7.5	7.5	7.9		>4.0 mg/L
Compliance means maintaining a minimum dissolved oxygen concentration of 4.0 mg/L in the final effluent														
E-Coli (CFU/100mL)														
Effluent	6	9	611	15	3	121	3	3	5	5	4	13		200/100mL
Compliance means the monthly geometric mean density of E-Coli does not exceed 200 organisms / 100mL of Final Effluent														
pH														
Feff min value	7.3	7.5	7.1	7.1	7.5	6.9	6.4	7.0	6.7	6.9	7.1	7.1		>, = 6.0
Feff max value	7.8	7.9	7.9	8.0	7.8	7.9	7.7	7.7	7.9	7.8	7.8	7.7		<, = 9.5
Compliance means maintaining the pH of the final effluent within the limits 6.0 to 9.5														
TKN														
Influent	55.75	41.7	46.0	39.28	47.1	49.2	32.2	44.5	86.7	70.5	77.5	103.3	57.8	
Effluent	1.80	2.63	6.36	4.60	1.45	3.72	5.75	1.82	1.07	2.05	1.80	16.10	4.1	

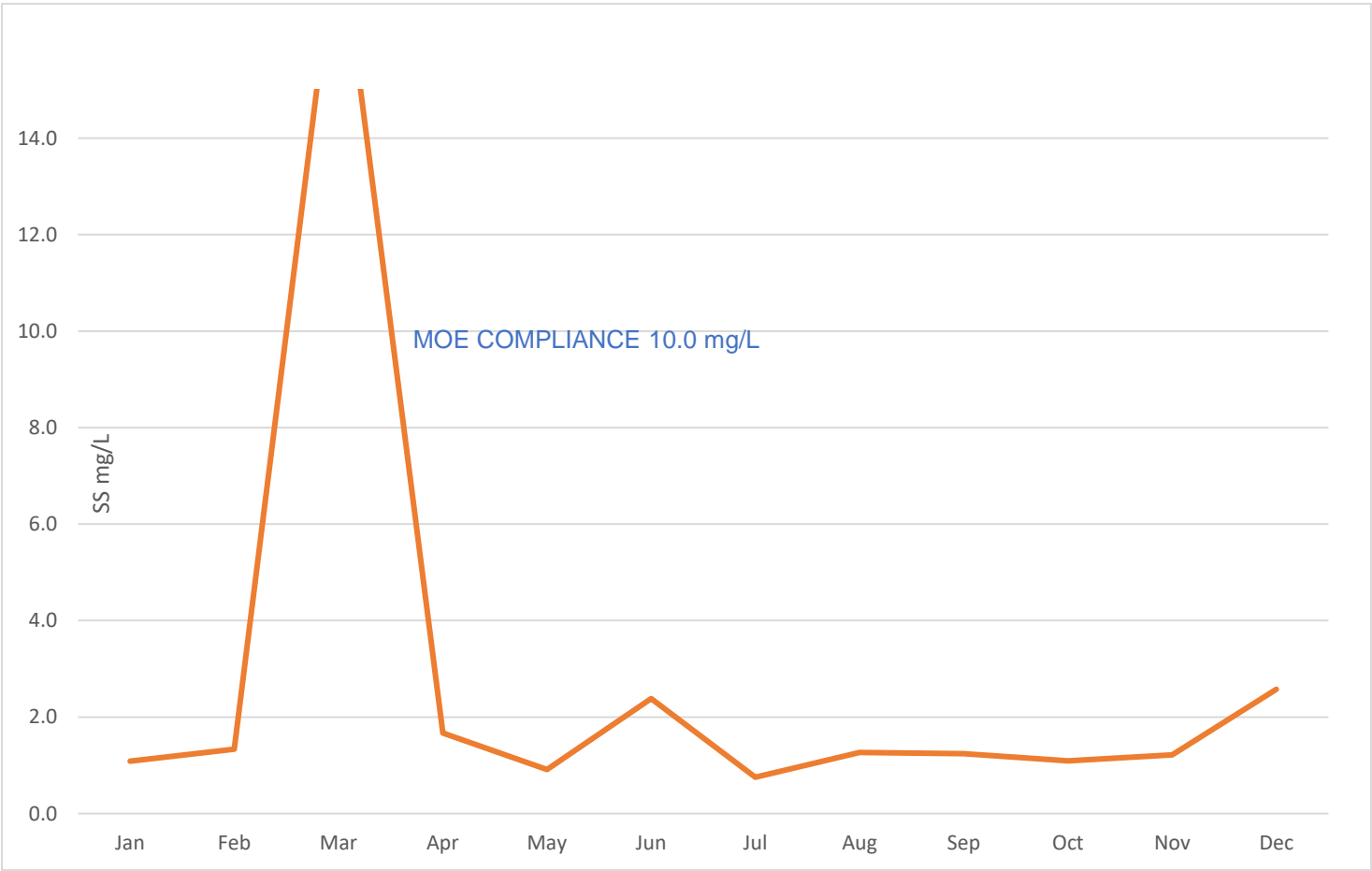
2022 MONTHLY AVERAGE FINAL EFFLUENT FLOW



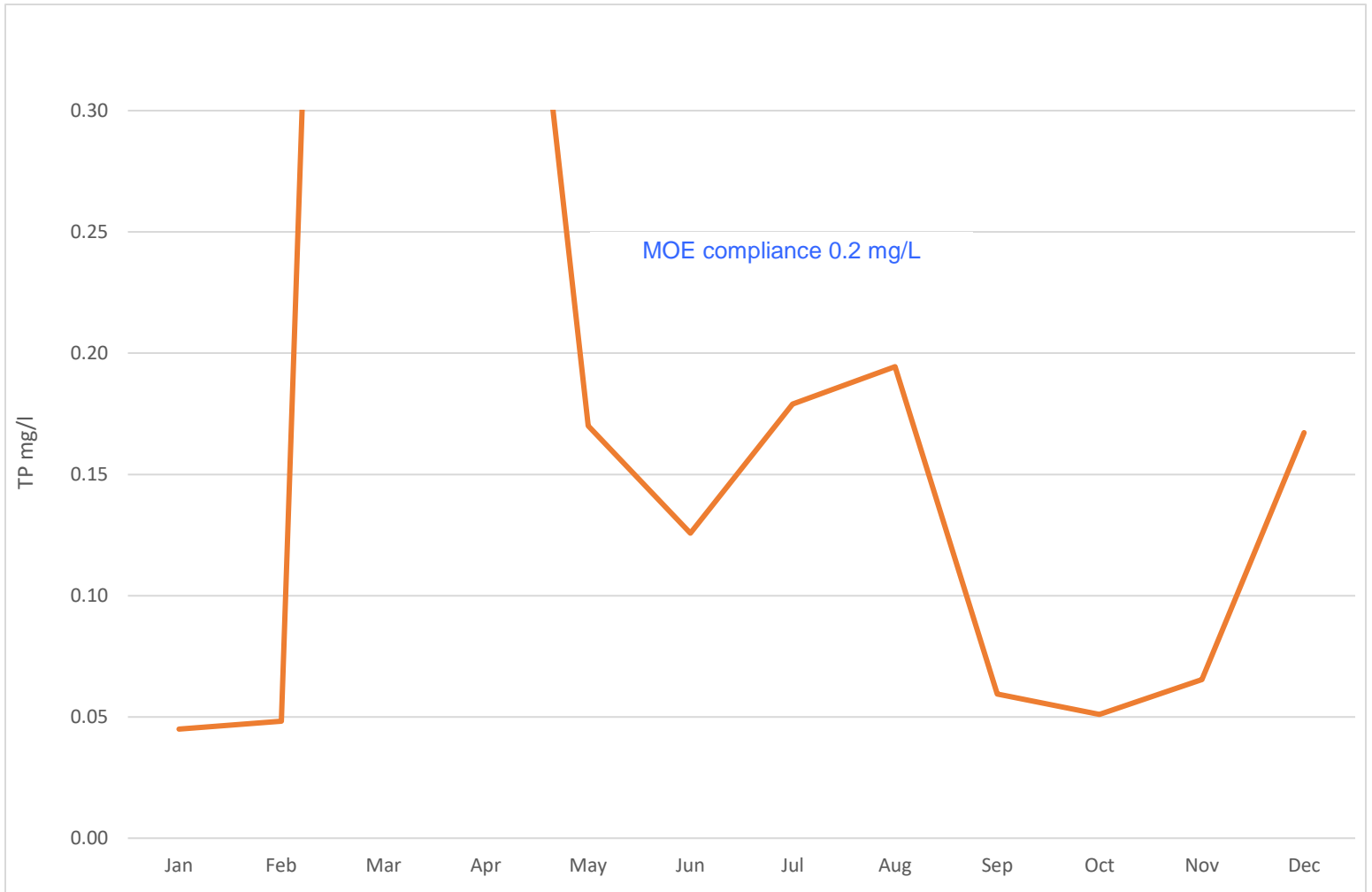
2022 MONTHLY AVERAGE FINAL
EFFLUENT CBOD5



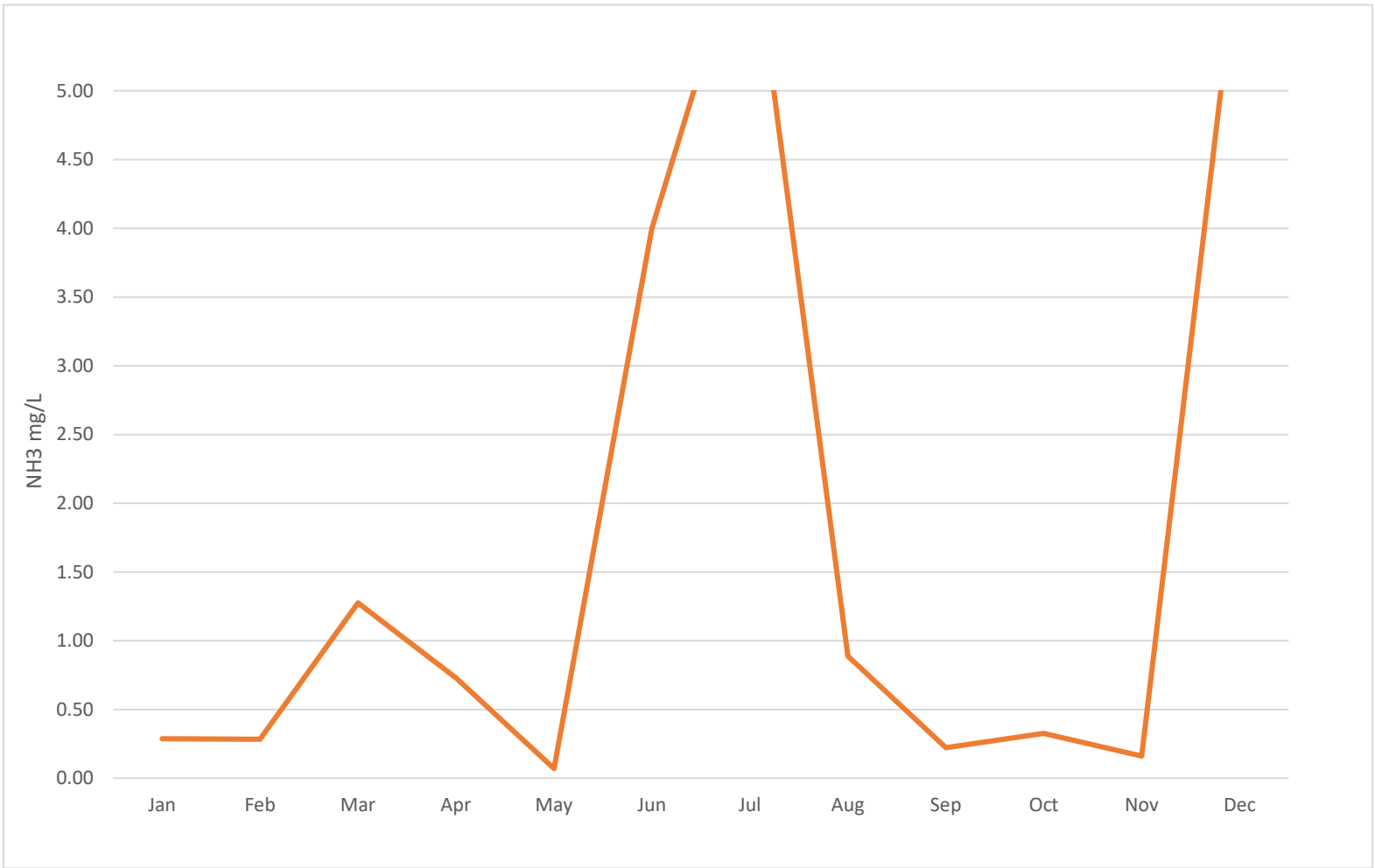
2022 MONTHLY AVERAGE FINAL
EFFLUENT SS



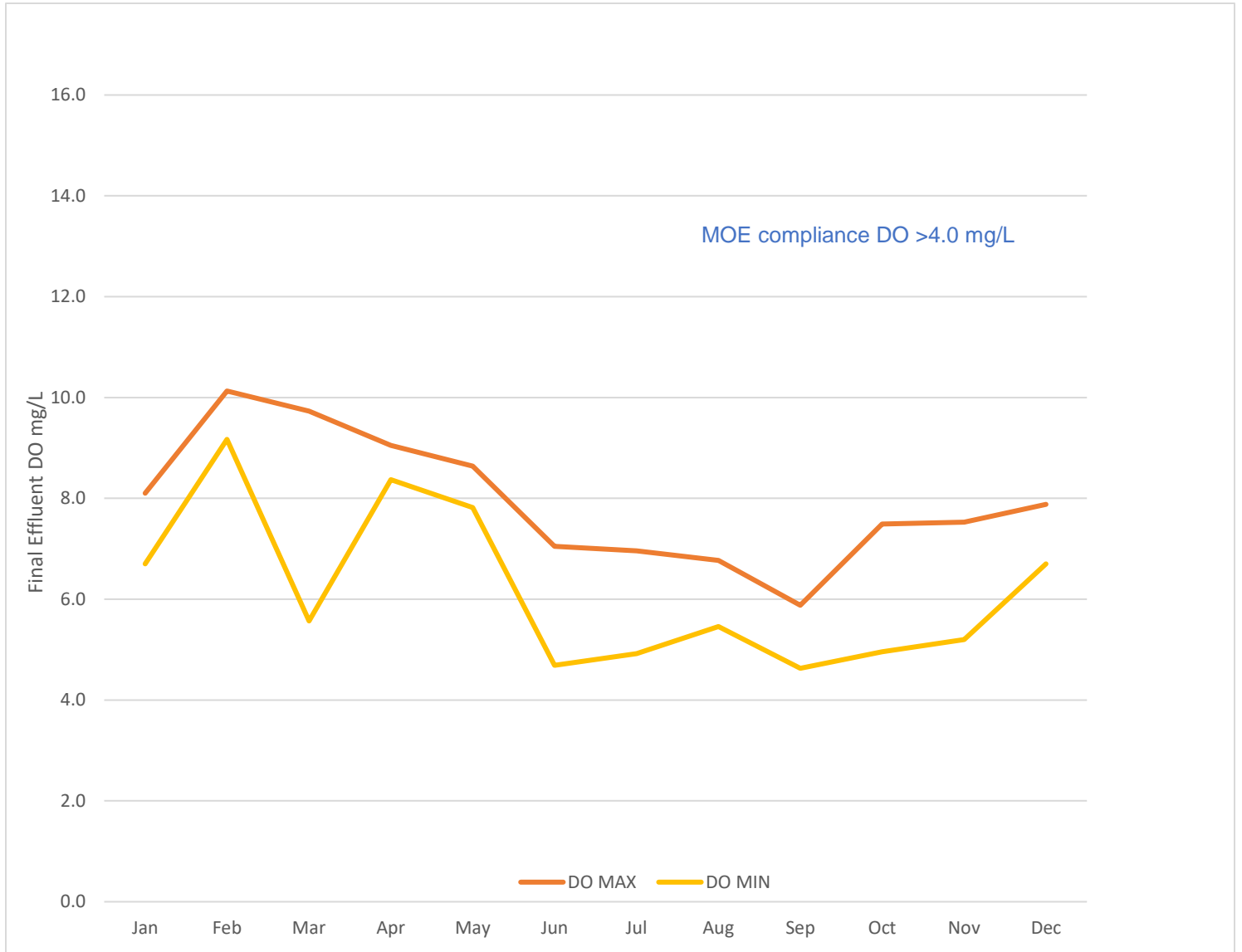
2022 MONTHLY AVERAGE FINAL EFFLUET TP



2022 MONTHLY AVERAGE FINAL
EFFLUENT NH3



2022 MONTHLY AVERAGE FINAL EFFLUENT DO



Appendix B

Calibration and Instrumentation Reports

INSTRUMENTATION VERIFICATION REPORT

Town of Collingwood

SITE: CREEMORE WWTP

ISSUE DATE: AUGUST 22, 2022

CALIBRATION DATE: AUGUST 15, 2022

PREPARED BY: COREY YAKE

PARTICIPANTS

Corey Yake – Lakeside Process Controls.

SCOPE OF WORK

Annual Verification of Town of Creemore WWTP Flow Devices

Instrument Number	Model Number	Location
FIT-7520	53W2H	Creemore
FIT-7620	IFC 090	Creemore

SUMMARY OF RESULTS

Verification was performed on August 15, 2022.

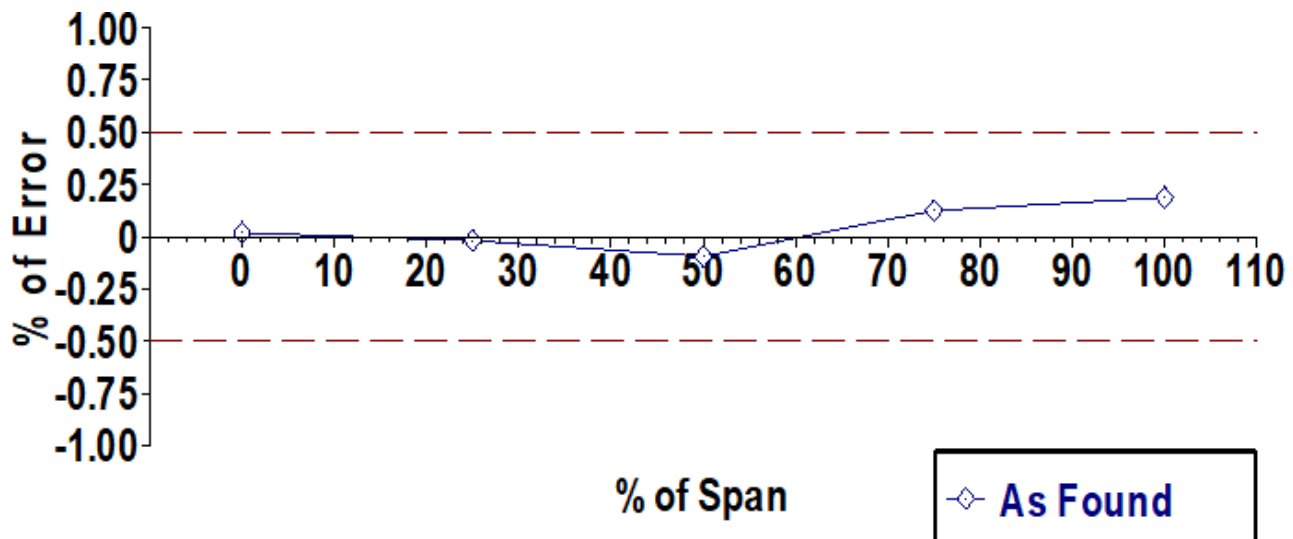
Instrument Number	Pass / Fail	Comments
FIT-7520	Pass	
FIT-7620	Pass	

Calibrated at: 2022-08-15 12:00:47 PM

Calibration Result: PASSED

Device Identification	
AMS Tag:	FIT-7520
Device Tag:	
Manufacturer:	Endress + Hauser
Model Name:	53W2H-UL0B1RC0BSAA
Device Identifier:	5B00D816000

Device Calibration Data			
Date/Time Calibrated:	2022-08-15 12:00:47 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 - 2000.00 CuMtr/day
Service Reason:	Not Given	Output Range:	4.00 - 20.00 mA
Service Notes:			
Relationship: Linear			

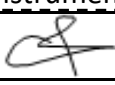


Test Equipment					
AMS Tag	Manufacturer	Model	Serial Number	Last Calibration	Calibration Interval:
Fieldcheck	Endress + Hauser	Fieldcheck	AA04C102000	2021-12-20	1 Years
Simubox - MID	Endress + Hauser	50097102	AA04C002000	2021-12-20	1 Years

Errors (%)			
Error	Limit	Actual: As Found	Actual: As Left
Maximum	0.5000	0.1875 (Pass)	(N/A)
Zero	0.5000	0.0188 (Pass)	(N/A)
Span	0.5000	0.1688 (Pass)	(N/A)
Linearity	0.5000	0.1397 (Pass)	(N/A)
Hysteresis	(N/A)	(N/A)	(N/A)

Calibration Results: As Found				
Test Point	Input	Output	Output Error	Output Error (%)
1	0.0000	4.0030	0.0030	0.0188
2	500.0000	7.9970	-0.0030	-0.0188
3	1000.0000	11.9850	-0.0150	-0.0938
4	1500.0000	16.0200	0.0200	0.1250
5	2000.0000	20.0300	0.0300	0.1875

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

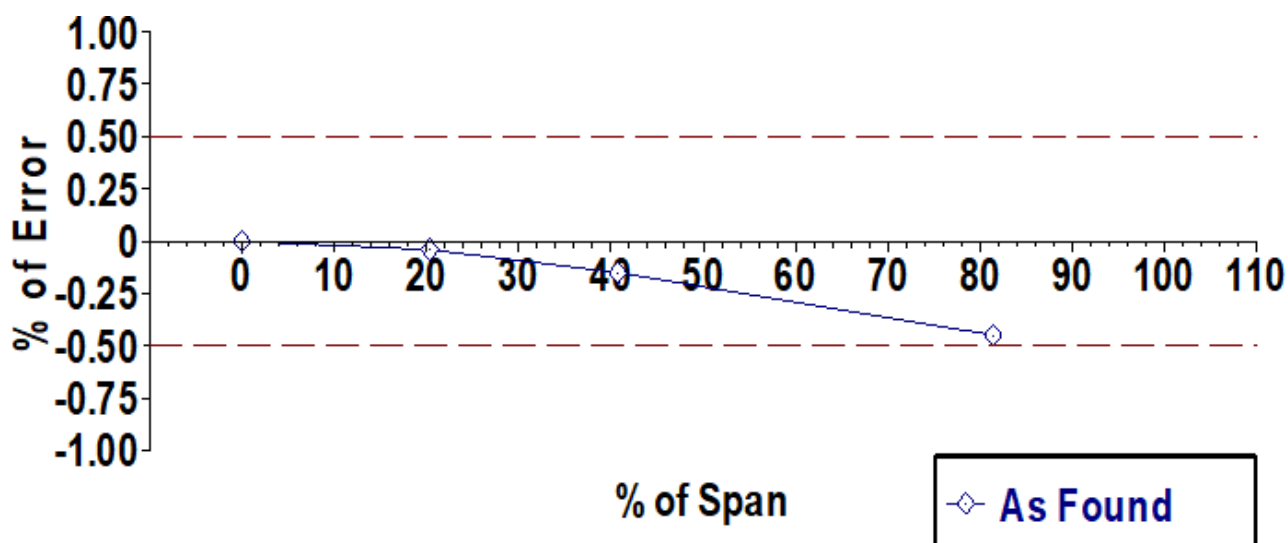
Authorization			
Title	Instrument Tech		
Signature		Date	08/15/2022
Title			
Signature		Date	

Calibrated at: 2022-08-15 11:57:22 AM

Calibration Result: PASSED

Device Identification	
AMS Tag:	FIT-7620
Device Tag:	
Manufacturer:	KROHNE
Model Name:	IFC 090
Device Identifier:	A0145378

Device Calibration Data			
Date/Time Calibrated:	2022-08-15 11:57:22 AM	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 - 55.10 l/s
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	-0.4481 (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	4.0000	0.0000	0.0000
2	11.2180	7.2510	-0.0065	-0.0406
3	22.4360	10.4910	-0.0240	-0.1499
4	44.8710	16.9580	-0.0717	-0.4481

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

Authorization			
Title	Instrument Tech		
Signature		Date	08/15/2022
Title			
Signature		Date	

Appendix E

Exceedance & Corrective Actions

May 18, 2022

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

Hello Aaron,

I am writing to inform you that Creemore WWTP did not meet compliance for phosphorus the month of April, 2022.

The external lab results average for phosphorus the month of April was 0.55ppm and compliance for Creemore is 0.20ppm.

The operator Jon has been battling plugged ferric chloride chemical dosing lines and has since cleared these blockages and we are hopeful that with these blockages being cleared now that we will see a better reduction in phosphorus in our final effluent.

Thank you,

Tyler Barrette
Overall Responsible Operator for the Town Of Collingwood

July 21, 2022

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 Creemore WPCP final effluent results for June 2022.

The Ammonia limit for the month of June is 2.0ppm and our average was 4.0ppm

We believe that this non-compliance was directly caused from over decanting aerobic digested sludge and overwhelmed the plant and did not give the plant enough time to treat the high concentrations of Ammonia before being discharged.

We have since made the operators aware of decanting smaller quantities to see how the plant response to find a balance that will not cause an adverse affect and work towards preventing any future excessive loading issues.

If you have any questions, please let me know.

Thank you,

Tyler Barrette
Overall Responsible Operator
Town Of Collingwood
Cell 705-441-4219

August 11, 2022

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 Creemore WPCP final effluent results for Total ammonia Nitrogen for the month of July 2022.

The Compliance limit for the Final Effluent for Creemore WPCP for July is 4.0 mg/L and the average results for the month was 6.33mg/L

We believe that this non-compliance was directly caused from not allowing the digester enough retention time to de denitrify along with over decanting aerobic digested sludge.

The July 21st, 2022, Total ammonia Nitrogen was 21.6mg/L and the other final effluent samples results taken during the month of July (listed below) were below the monthly compliance limit:

Lab Results for Creemore WPCP Final Effluent

Date	Total Ammonia Nitrogen
July 7	0.07mg/L
July 14	3.48mg/L
July 21	21.6mg/L
July 28	0.18mg/L

We have since made the operators aware of the importance of retention time to ensure denitrification occurs and decanting smaller quantities of supernate. We will conduct internal sampling of supernate when we there is a concern before decanting to help prevent any future excessive loading issues.

If you have any questions, please let me know.

Thank you,

Tyler Barrette
Overall Responsible Operator
Town Of Collingwood
Cell 705-441-4219

August 29, 2023

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

April 26, 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 inform you that Creemore WWTP did not meet compliance for the month of March, 2022. The parameters that plant exceeded are as stated in the chart below.

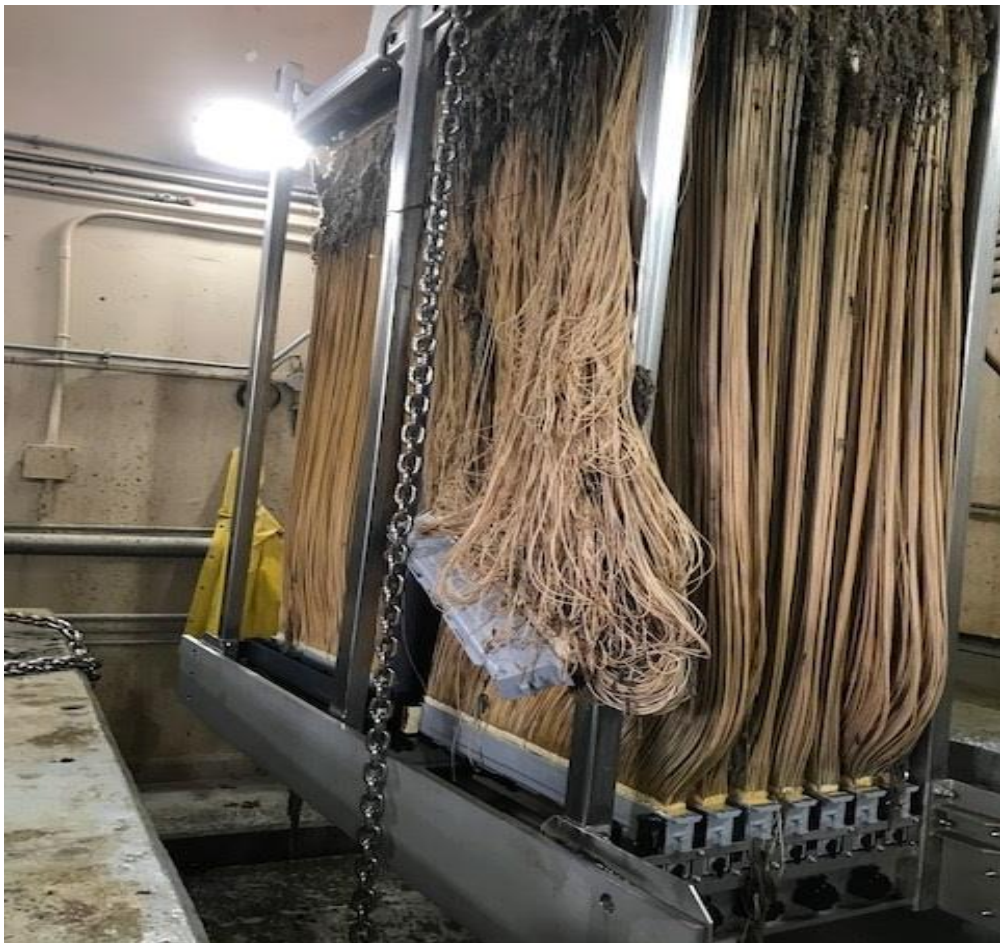
The operator Jonathan Huber who is responsible for operating Creemore's WWTP, worked diligently on troubleshooting these issues while dealing with supplier issues and parts shortages and was able to source the problem and found that broken membrane modules in the process tanks and make repairs to the modules as needed (pictures below). Jonathan removed the broken modules from the cassettes and replaced them with blank modules.

Jonathan and the Township of Clearview have a discussed the issues with delay in supplies/parts and have a plan to order spares to help prevent issues in the future and getting new membrane modules.

Parameter	Compliance	Lab Results
CBOD	10ppm	290.2ppm
Suspended Solids	10ppm	18.6ppm
Phosphorus	0.2ppm	1.29ppm
CBOD daily loading	14.0 Kg/day	68.7 Kg/day
Total Phosphorus	0.28 Kg/day	0.32 Kg/day

Thank you,

Tyler Barrette



December 16, 2023

Hi Mark,

It has come to my attention that when I Reported the non compliance that happened in Creemore last March 2022 that I missed reporting the E-Coli exceedance.

I am not sure how this got missed and I am sorry about that and I will try to make sure that all items are reported in the future.

The Monthly average limit for E-Coli for Creemore is 200cfy and the monthly average for the month of March 2022 was 611cfu

An updated table has been provided below with all the samples results and the monthly average in yellow.

Again, I am sorry for missing the E-coli results on the non-compliance report.

Tyler Barrette

FINAL EFFLUENT PARAMETERS (mg/L)							
CBOD ₅	SS	TP	TKN	TAN	NO ₃ -N	NO ₂ -N	E-COLI
650.0	16.0	0.28	7.30	2.82	1.53	0.05	100
320.0	12.0	0.94	4.00	0.15	0.56	0.05	1700
9.2	8.0	2.33	4.20	0.18	1.67	0.05	1000
22.0	29.0	1.68	10.60	0.82	0.23	0.05	5000
450.0	28.0	1.23	5.70	2.41	0.15	0.05	100
290.2	18.6	1.29	6.36	1.28	0.83	0.1	611

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 Creemore 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 6.15ppm

We believe that this non-compliance was directly caused from an electrical issue that we were experiencing with an older breaker in the main hallway that feeds the plant's blowers and air compressors. A new breaker has been ordered and in the meantime the electrician was able to bypass the hallway breaker and they were able to bypass this breaker and rely on the secondary breaker located in the blower/air compressor room MCC panel.

If you have any questions, please let me know.

Thank you,

Tyler Barrette

Overall Responsible Operator

Town Of Collingwood

Cell 705-441-4219

From: Tyler Barrette

Sent: January 16, 2023 11:23 AM

To: Mattson, Aaron (MOECC) <aaron.mattson@ontario.ca>; Jennifer Adams <jadams@collingwood.ca>; Jonathan Huber <jhuber@collingwood.ca>; Marie Richardson <mrichardson@collingwood.ca>

Subject: Creemore Non Compliance December 2022

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 Creemore WPCP final effluent results for December 2022.

The Ammonia limit for the month of June is 4.0ppm and our average we obtained from the lab was 6.15ppm

We believe that this non-compliance was directly caused from an electrical issue that we were experiencing with an older breaker in the main hallway that feeds the plant's blowers and air compressors. A new breaker has been ordered and in the meantime the electrician was able to bypass the hallway breaker and they were able to bypass this breaker and rely on the secondary breaker located in the blower/air compressor room MCC panel.

If you have any questions, please let me know.

Thank you,

Tyler Barrette
Overall Responsible Operator
Town Of Collingwood
Cell 705-441-4219