

**Creemore Wastewater Treatment Plant
2017 Annual Compliance Report**

Table of Contents

1.0	General	4
2.0	Facility Description	5
3.0	Process Description.....	5
3.1	Inlet Pumping Station	5
3.2	Equalization Tank	5
3.3	Screening.....	6
3.4	Flow Distribution	6
3.5	Biological Treatment	6
3.6	Membrane Filtration	6
3.7	Chemical Systems	6
3.8	Membrane Cleaning.....	6
3.9	Disinfection	6
3.10	Sludge Stabilization	6
3.11	Sludge Holding Tank.....	7
3.12	Air Blower Room	7
3.13	Standby Power.....	7
4.0	Annual Average Performance Assessment	8
5.0	Capacity Assessment	10
6.0	Sludge (Biosolids) Management.....	10
7.0	Bypass Occurrences	11
8.0	Maintenance.....	11
9.0	Complaints	11
10.0	Comments.....	11
Appendix A	Sampling/Process Control.....	11
Appendix B	Monthly Flow and Process Quality Data.....	13
Appendix C	Sludge Management.....	17
Appendix D	Process Schematic	19
Appendix E	Calibration Report	20
Appendix F	By-Pass Occurrence Documents	25

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

1.0 General

Plant Reporting: Creemore WWTP

MOECC Works Number: 120002683

Plant Location: 83 Mary Street
Creemore, Ontario
L0M 1G0
Tel. (705) 466-2741

Plant Classification: II

Plant Owner: The Corporation of the Township of Clearview
217 Gideon Street, P.O. Box 200
Stayner, Ontario L0M 1S0
Tel. (705) 428-6230 Fax. (705) 428-0288

Plant Operating Authority: Town of Collingwood
P.O. Box 157
97 Hurontario St.
Collingwood, Ontario L9Y 3Z5
Tel. (705) 445-1581 Fax. (705) 445-1286

Operating Authority Personnel:

Name	WWT Classification	Licence No.	Expiry Date
Glenn Price	3	74063	December 31, 2020
Paul Clark	4	11003	August 31, 2020
Jennifer Bell Adams	3	11169	August 31, 2019
Mark Service	4	17111	January 31, 2021
Tyler Barrette	3	73068	January 31, 2021
Reg Plummer	2	55946	May 31, 2020
Jason MacNicol	1	95922	January 31, 2020
Cathy Card	2	83840	February 29, 2020
Name	WWC Classification	Licence No.	Expiry Date
Glenn Price	OIT	OT68560	December 31, 2019
Paul Clark	2	11004	November 30, 2020
Mark Service	1	64052	January 31, 2019
Tyler Barrette	1	73067	August 31, 2020
Cathy Card	OIT	OT65417	April 30, 2019

Plant Certificate of Approval & Amendments: See Appendix D

Certificate Number	Date	Description/Reason for Amendment
30589-99-006	23 July 1999	Construction approval
8-1149-99-006	03 December 1999	Air Approval
3-0589-99-006	09 September 1999	Amended to indicate compliance with Condition #5 of the Certificate of Approval with respect to construction.
8250-8AWHU7	28 January 2011	Amendment for equalization tank installation application submitted by RJ Burnside
8122-9M2JV5	30 July 2014	Amendment for blower upgrade application submitted by RJ Burnside

2.0 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. Additional capacity was incorporated into the design for a future 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 Zenon-Zeno-Gem membrane technology treatment process, UV disinfection, effluent re-aeration chamber and outfall to the Mad River.

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

Standby power is provided by a diesel driven generator.

3.0 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 sewage treatment plant building has an overall dimension of approximately 34m x 25m and contains the following:

3.1 Inlet Pumping Station

- Influent pumping station consisting of a 4.84m³ 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.

3.2 Equalization Tank

- One (1) pumping station consisting of a 4.84m³ wet-well equipped with two (2) submersible sewage pumps (duty/ standby) each rated at 16.2L/s at 12m TDH, with a 150mm diameter forcemain discharging to the equalization tank.

3.3 Screening

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

3.4 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.

3.5 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 fine 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 through the use of a fine bubble diffused air system.

3.6 Membrane Filtration

- Tank ZW-1 holds three (3) cassettes of 16-M modules (ZeeWeed) and one (1) cassette of 8,500A modules located in the aerobic zone of the tanks).
- Tank ZW-2 holds three (3) cassettes of 16-M modules (ZeeWeed) 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.

3.7 Chemical Systems

Phosphorus Removal by alum addition:

- 1 - 25,000 L bulk storage tank - buried
- 1 - 1400 L day tank
- 2 - Chemical addition metering pumps

3.8 Membrane Cleaning

Sodium hypochlorite system consisting of:

- 100 gal. Storage tank (12% hypo)
- 4 - Metering pumps

Citric Acid System consisting of:

- 1 - 100 gal. Storage tank with mixer
- 2 - Citric acid metering pumps

3.9 Disinfection

- Ultra Violet (UV) disinfection consisting of two (2) banks 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 E-coli/100 ml. (monthly geometric mean density). A serpentine weir placed at the end of the channel maintains liquid level within the channel.

3.10 Sludge Stabilization

Aerobic Digestion

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

Sludge Thickener

- A sludge thickener consisting of a 500A 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.

3.11 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.

3.12 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.

3.13 Standby Power

- 1 - 375 kW diesel generator set to provide stand-by capability.

A process schematic of the existing treatment facilities is shown in Appendix E for reference.

Table 1 lists major unit process data.

Table 1	
Major Unit Process Data	
Headworks	
a) 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
b) 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, and Zenon ZeeWeed 16-M
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	
	<ul style="list-style-type: none">• 2 - banks of UV lights (32 lamps), low pressure intensity rated at a peak flow of 3,140 m³/d effluent target of 100 E-coli / 100 mL (monthly geometric mean density)

Sludge Stabilization and Storage

- a) Aerobic Digester
 - Concrete tank utilizing a coarse bubble diffused air system.
 - Total volume - 272 m³ at liquid depth of 6.4 m
- b) Sludge Thickener
 - 1 - Zenon membrane 500A 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
- c) Sludge Holding Tank
 - 1 - 1400 m³ glass lined storage tank

Process and Membrane Air Supply

- a) Process Air
 - 3 - 15 hp Hibon blowers
- b) Membrane Air
 - 2 - 50 hp Hibon blowers
- c) Digester Air Supply
 - 2 - 30 hp Hibon blowers

Standby Power Supply

- 1 - 375 kw continuous rated diesel generator set

4.0 Annual Average Performance Assessment

Effluent Requirements

a) Effluent Objectives and Limits

Effluent Non Compliance Limits (concentrations and loadings) are prescribed under conditions #1.3, #1.5, and #1.6 of the Certificate of Approval and are summarized below in Table 2.

Table 2-Effluent Objectives & Effluent Concentration Limits		
Effluent Parameter	Monthly Average Concentration (Milligrams per litre unless otherwise indicated)	Monthly Average Loading
BOD 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
Ammonia + Ammonium Nitrogen		
May 1 to November 31	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 organisms/100mL Monthly geometric mean density	

Non –compliance for all parameters excepting pH and E.Coli bacteria is based on a monthly average concentration/loading.

Non –compliance for E.Coli is based on a monthly geometric mean density.

Condition #1.5 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)

- The monthly average effluent concentrations for CBOD₅, TSS, TP and Ammonia plus Ammonium Nitrogen fell within the applicable compliance limits.
- The monthly average effluent loadings for CBOD₅, TP, TSS and Ammonia plus Ammonium Nitrogen fell within the applicable compliance limits.
- The pH values have fallen within the 6.0 to 9.5 range permitted under the certificate.
- The monthly geometric mean densities of E-Coli bacteria in the final effluent met the 200 organisms / 100mL compliance limit.
- **All parameters met the required compliance limit for monthly average loading.**

Objectives

- The monthly average effluent concentrations for TSS fell within the applicable monthly average effluent concentration objective of 5.0 mg/L.
- The monthly average effluent concentration for TP fell within the applicable monthly average effluent concentration objective of 0.1 mg/L.
- The monthly average effluent concentration for CBOD₅ fell within the applicable monthly average objective of 5.0 mg/L.
- The monthly average effluent concentration for Ammonia plus Ammonium Nitrogen met the stated objective.
- The monthly geometric mean densities of E-Coli bacteria in the final effluent met the 100 organisms / 100mL objective.
- **All parameters met the required objectives for monthly average loading.**
- The Creemore monthly flow and process quality data is summarized in Appendix B.

b) Effluent Sampling Requirements, Monitoring and Recording

Compliance Testing and Analysis

- Monitoring requirements are specified under condition #2.1(b) of the Certificate of Approval. Twenty–four (24) hour composite samples of raw sewage are required to be collected monthly and analyzed for CBOD₅, TSS, TP and TKN. Twenty–four (24) hour composite samples of final effluent are required to be collected monthly and analyzed for CBOD₅, TSS. Twenty–four (24) hour composite samples of final effluent are required to be collected weekly for analysis for TP and total ammonia nitrogen. Grab samples of final effluent are required to be collected weekly for analysis for E-Coli bacteria, temperature and pH. 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 CBOD₅, 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.
- With the exception of the samples collected for pH and temperature testing, analysis for all compliance samples is carried out by our external contract laboratory, ALS Enviro Test Laboratory, located in Waterloo, Ontario.
- 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 R1 and R2 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

- 24-Hour composite samples are collected Monday thru Friday on influent, & final effluent. Grab samples are also obtained for other process streams as required for process control purposes. All samples are analysed 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

- Magmeters 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 condition 2.1(a) of the C of A.
- The calibration reports are attached as Appendix F.

5.0 Capacity Assessment

The Certificate of Approval condition #1.1 specifies that the plant cannot exceed an average daily flow of 860m³/day for stage 1 and 1400m³/day for Stage 2 of the works.

	Design	Current year
Maximum average daily flow in m ³ /d	860 Stage1 & 1,400 Stage 2	356 m ³ /d
% of capacity based on Average Daily Flow		25.4% 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.

6.0 Sludge (Biosolids) Management

- Waste activated sludge is aerobically digested at the Creemore WWTP. A ZeeWeed cassette is used to thicken the waste activated sludge to approximately 4.5%. Digested sludge is pumped to an outdoor sludge storage tank equipped with submersible mixers. Stabilized biosolids 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 biosolids utilization on land recommends municipalities provide six (6) months sludge storage facilities. The outdoor storage tank with a volume of 1400m³ achieves this guideline.
- 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 possesses 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 3,403.6m³ of biosolids was disposed of from the Creemore facility in 2017.
- Samples of aerobic sludge are collected twice monthly and sent for metals, E.Coli, and nutrient analysis to ALS, Enviro.Test located in Waterloo, Ontario.
- This sampling frequency more than satisfies the recommended sampling requirements for sludge as outlined under section 3 of the “Guidelines.”
- Appendix C provides a detailed summary report of sites utilized for sludge disposal in 2017 and those sites available for spreading in 2017. Original reporting analysis is available at the plant for viewing.

7.0 Bypass Occurrences

- There were no bypass events in 2017.

8.0 Maintenance

- Routine preventative maintenance was performed throughout the year in accordance with the recommendations of the O.E.M. (original equipment manufacturer).
- In 2015 the Town continued with the Continuous Service Program with Ainsworth Electric Co. This program utilizes such tools as thermography, voltage, load and harmonic checking, vibration analysis etc. and has been designed using predictive and preventative maintenance to increase safety, reduce down time, reduce maintenance cost, protect asset value and extend equipment life.
- Influent wet well was cleaned and pumps and piping were inspected.
- 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 flow metering equipment and the report of these calibrations has been attached as Appendix F.

9.0 Complaints

- In 2017 there were no complaints.

10.0 Comments

The plant continues to receive high strength wastewater (in terms of soluble BOD₅, SS, & TP) from the Creemore Springs Brewery. The Township is in the process of implementing a sewer use/strength bylaw for the village. Creemore Springs Brewery has started an expansion which will require some upgrades at the WWTP. That work is being undertaken by the Townships consultant R.J. Burnside.

Appendix A Sampling/Process Control

Composite samples are taken on both the influent and final effluent flow. BOD₅ tests are only done Wednesday, Thursday and Friday and completed Monday, Tuesday and Wednesday, as there is only staff on hand during the weekdays.

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	Grab	pH, TSS, TP, NH ₃	Daily M-F
		BOD ₅	W.T.F
Aeration (i) mixed liquor	Grab	pH, TSS, DO	Daily M-F
(ii) RAS	Grab	TSS	As required
(iii) WAS	Grab	TSS	As required
Sludge Stabilization (i) Thickened sludge	Grab	TS & VS	As required
(ii) Digested sludge	Grab	TS & VS	As required
Final Effluent	Grab	TSS, pH, DO, Temp TP, NH ₃	Daily M-F
		BOD ₅	W.T.F

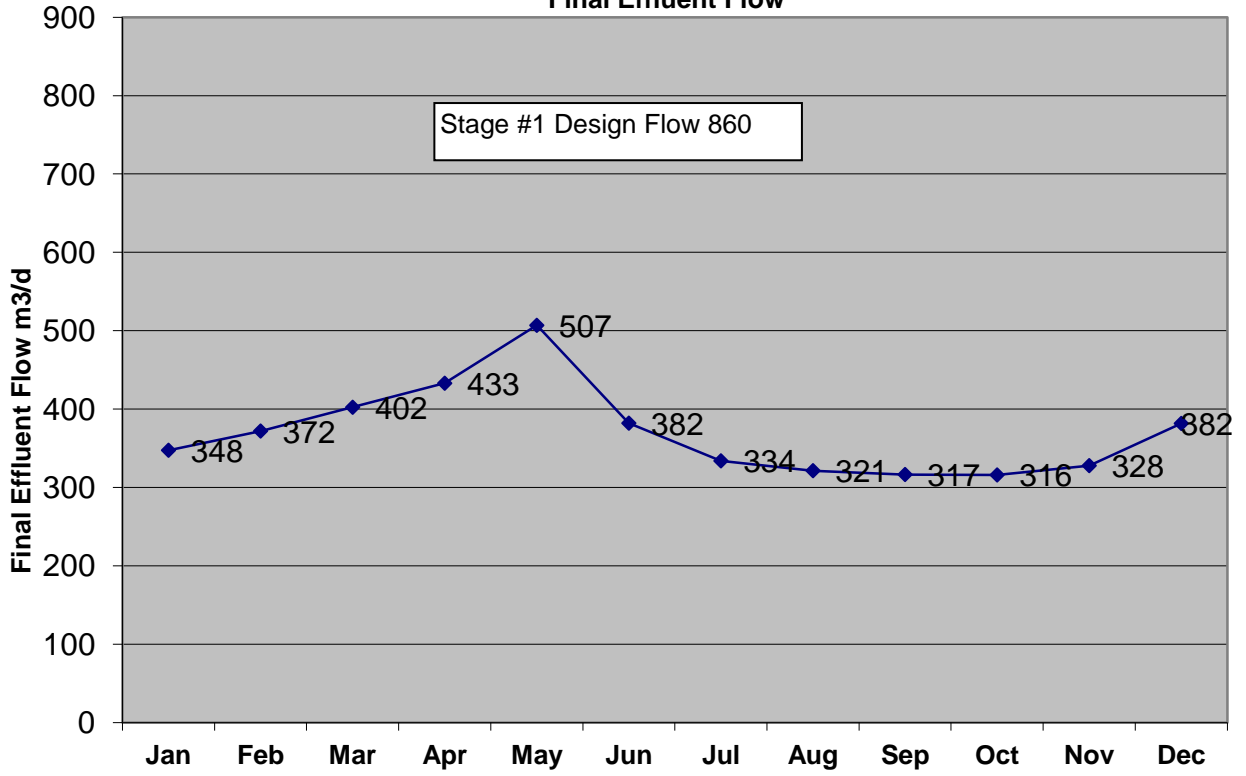
External Lab Analysis			
Unit Process	Type Sample	Parameters Tested	Frequency
Influent	Composite	TP, TSS, CBOD ₅ , TAN TKN, NO ₃ , NO ₂	Weekly
Effluent	Composite	TSS, CBOD ₅ , TP, TAN NO ₃ , NO ₂ , TKN	Weekly
	Grab	E-Coli	Weekly
Biosolids (Aerobic Sludge)	Grab	TS, VS, ICAP, TP, NH ₃ , TKN, anions, E-Coli	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.

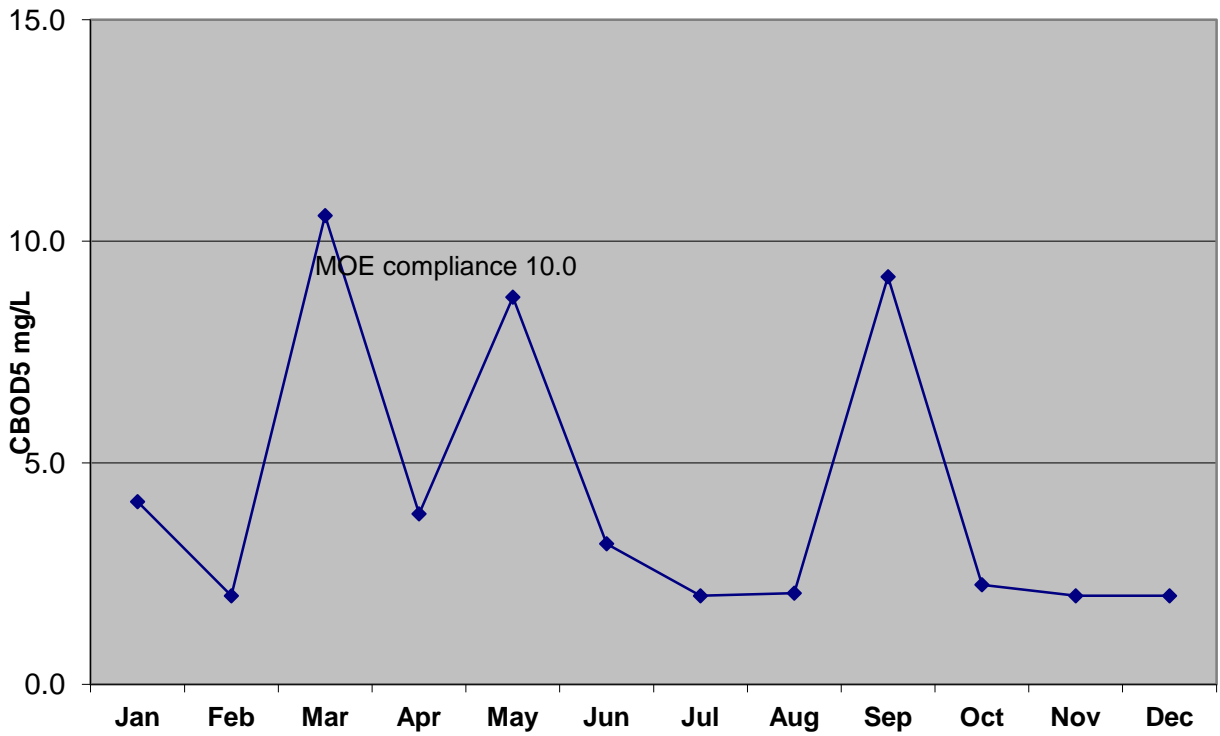
Appendix B Monthly Flow and Process Quality Data

2017	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean	C of A Criteria
FLOWS (m³/d)														
Influent														
ADF	339	368	359	446	509	371	343	322	305	249	325	334	356	
Total	10,494	10,301	11,144	13,366	15,776	11,126	10,630	9,970	9,136	7,726	9,764	10,345	129,779	
Max Day	399	555	431	647	1061	425	430	384	376	360	377	406		
Min Day	281	285	272	298	338	292	264	239	240	0	275	253		
Final Effluent														
ADF	348	372	402	433	507	382	334	321	317	316	328	382	369	
Total	10,773	10,417	12,473	12,990	15,714	11,462	10,354	9,965	9,498	9,796	9,838	11,833	135,113	
Max Day	454	554	592	750	1011	455	436	469	501	409	466	529		
Min Day	286	294	197	238	337	309	219	224	230	205	243	284		
BOD5 (mg/L)														
Influent	1537	1115	1434	1206	999	1438	1257	1217	1426	1628	904	1254	1284	
Effluent	4.1	2.0	10.6	3.9	8.7	3.2	2.0	2.1	9.2	2.3	2.0	2.0	4.3	10.0 mg/L
BOD5 (kg/d)														
Effluent average loading	1.17	0.56	4.81	1.82	3.65	0.96	0.78	0.76	2.93	0.51	0.56	0.41		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	237	247	395	302	258	192	279	518	231	380	205	253	291	
Effluent	3.0	2.1	2.6	2.0	6.2	3.7	2.4	2.3	4.9	3.9	5.0	3.9	3.5	10.0 mg/L
SS (kg/d)														
Effluent average loading	0.93	0.60	1.16	0.99	2.79	1.10	0.94	0.85	1.48	0.84	1.39	0.80		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	18.8	17.8	21.5	19.0	13.3	15.4	20.2	24.0	18.3	19.5	12.6	17.7	18	
Effluent	0.06	0.04	0.05	0.06	0.09	0.06	0.07	0.06	0.08	0.28	0.06	0.06	0.08	0.2 mg/L
TP (kg/d)														
Effluent average loading	0.017	0.011	0.021	0.026	0.041	0.018	0.027	0.012	0.023	0.062	0.017	0.013		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														
NH3-N (mg/L)														
Influent	22.4	21.5	22.6	18.0	18.3	36.4	25.6	22.8	24.5	27.1	20.9	28.7	24	
Effluent	0.14	0.71	0.05	0.06	0.13	0.07	0.19	0.17	0.18	0.51	0.12	0.54	0.24	
NH3-N (kg/d)														
Effluent average loading	0.04	0.22	0.02	0.03	0.06	0.02	0.07	0.07	0.06	0.14	0.03	0.10		
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	6.5	6.5	6.1	6.3	6.0	5.6	5.3	5.6	6.7	0.2	6.8	7.7		
Feff max value	6.7	6.5	7.1	6.6	6.6	5.8	5.4	5.9	7.1	6.0	7.5	8.9		>4.0 mg/L
Compliance means maintaining a minimum dissolved oxygen concentration of 4.0 mg/L in the final effluent														
E-Coli (MPN/100mL)														
Effluent	11	4	2	209	0	0	0	0	0	0	0	0		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	7.1	7.0	7.1	7.2	7.0	7.6	7.2	7.5	6.5	7.1	7.2	7.2		>, = 6.0
Feff max value	8.6	7.4	7.8	8.1	7.8	7.8	7.8	8.2	7.6	7.8	8.1	7.7		<, = 9.5
Compliance means maintaining the the pH of the final effluent w ithin the limits 6.0 to 9.5														

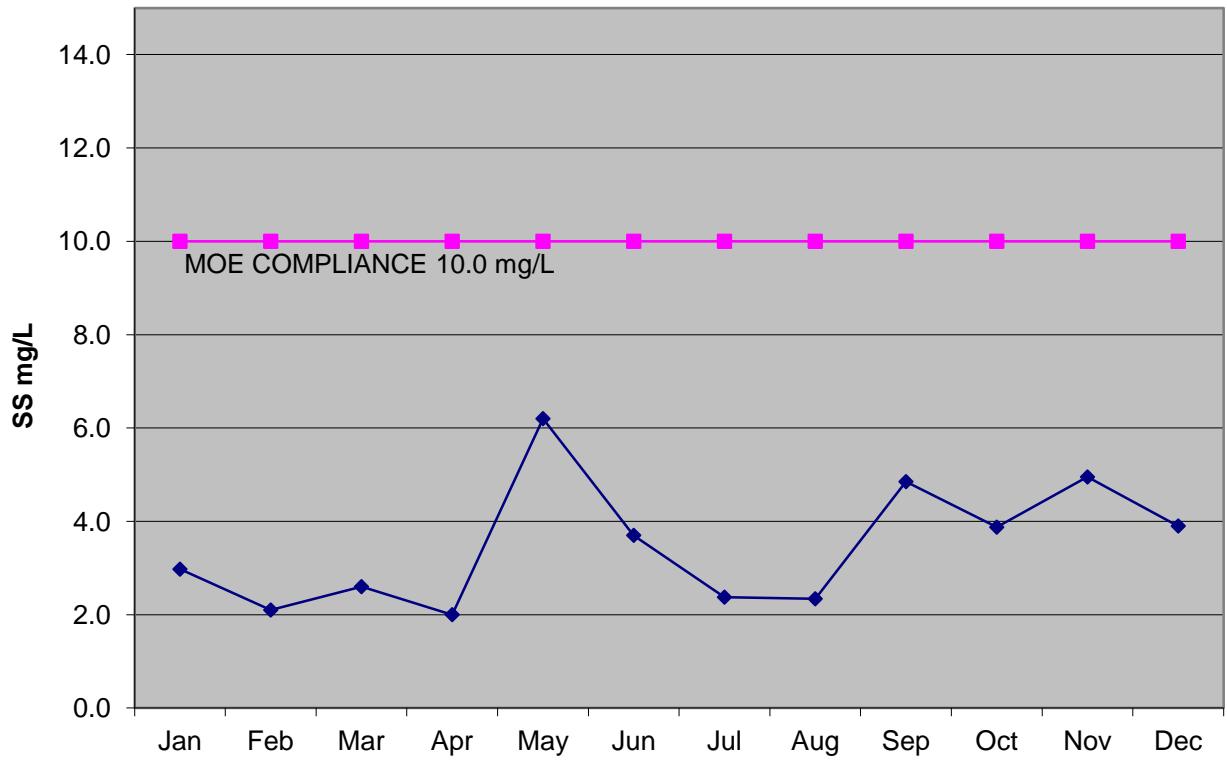
2017 Monthly Average
Final Effluent Flow



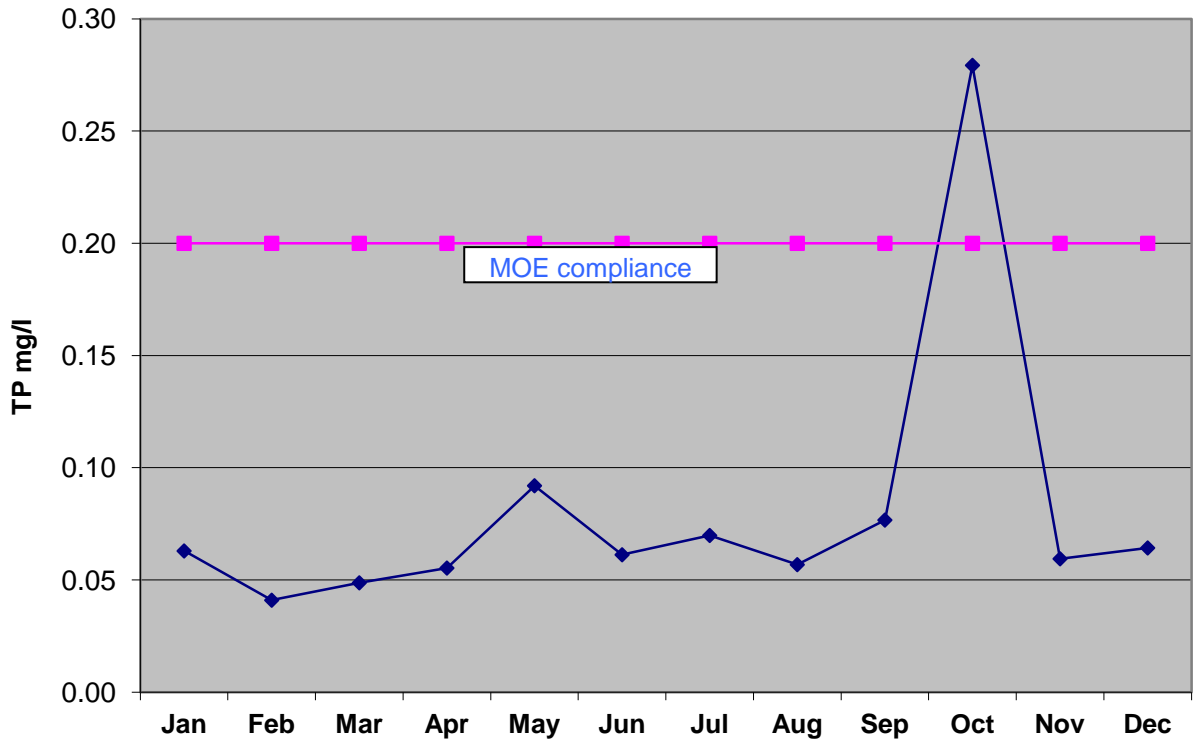
2017 Monthly Average
Final Effluent CBOD₅



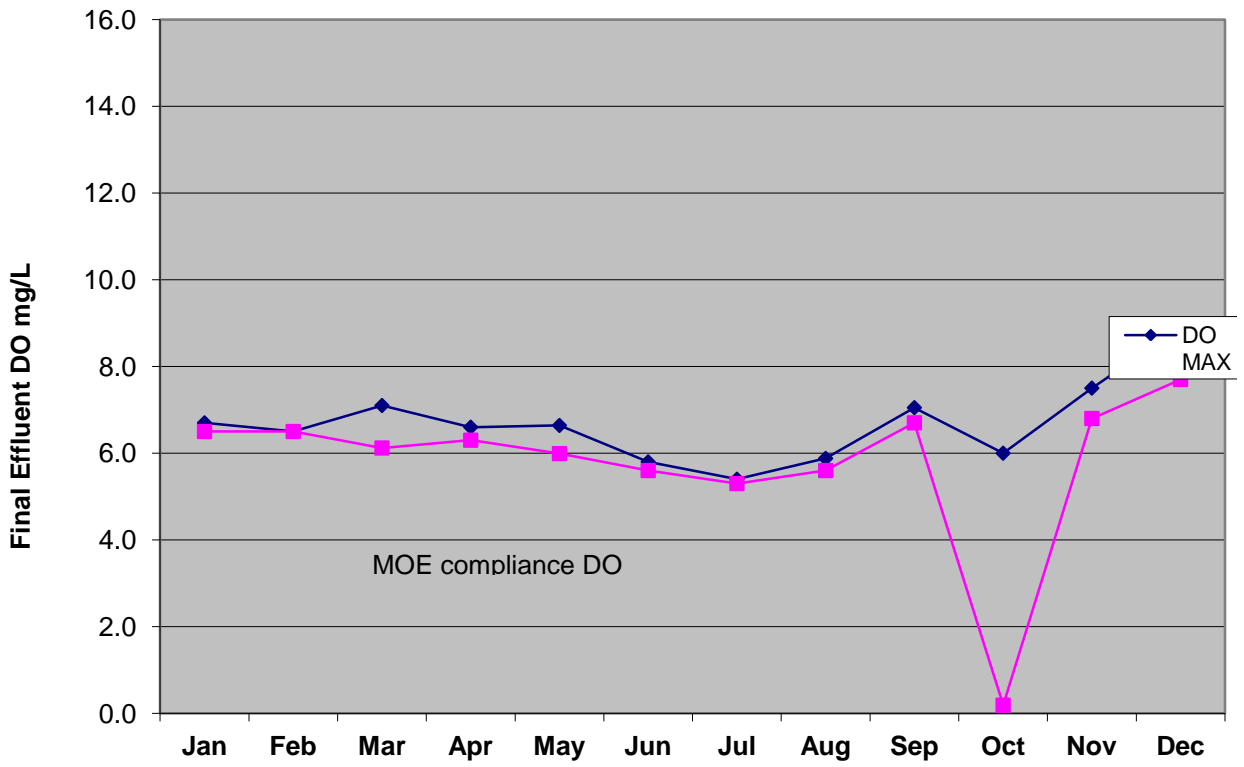
2017 Monthly Average
Final Effluent SS



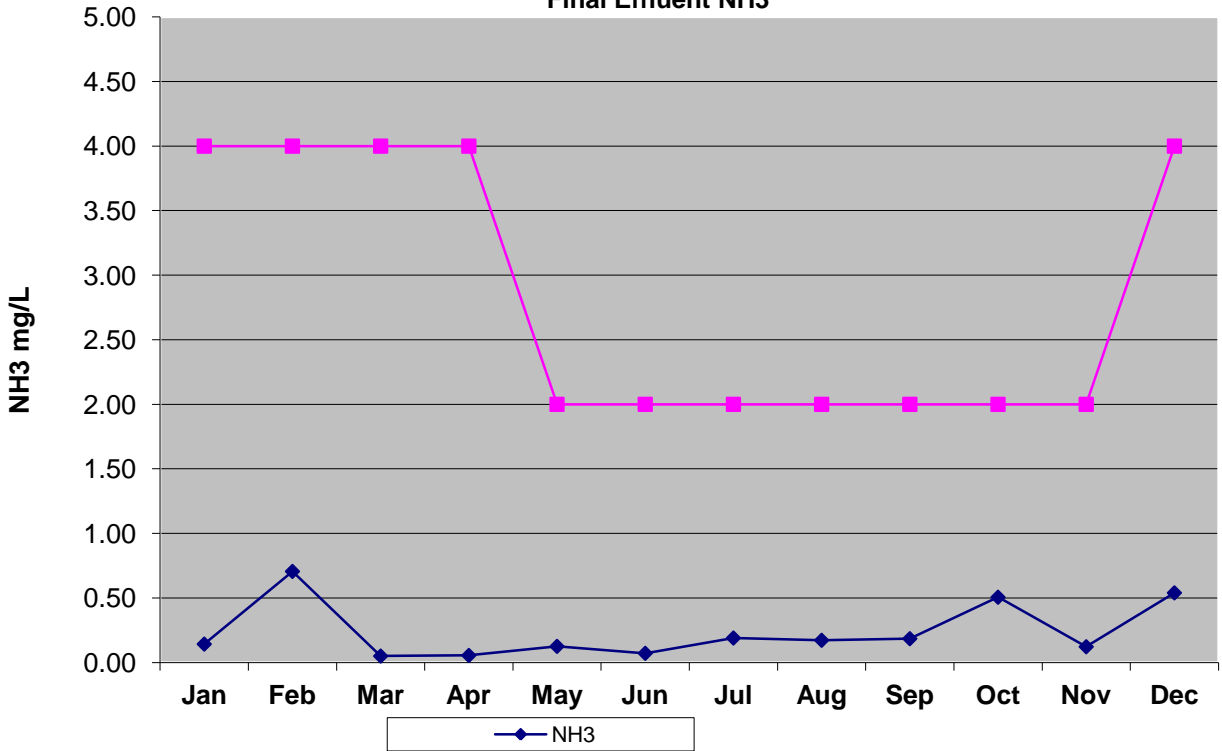
2017 Monthly Average
Final Effluent TP



2017 Monthly Average
Final Effluent DO



2017 Monthly Average
Final Effluent NH3



Appendix C Sludge Management



Creemore Waste Water Treatment Plant

Boisolds Spreading Report

2017

August, 2017

Field: F1

	Date	Origin	Vol [m ³]	NH ₃ [mg/L]	NH ₃ [kg]	TP [mg/L]	TP [kg]
22525	16-Aug-17	CRSL	324.8				
22525	17-Aug-17	CRSL	554.4				
22525	21-Aug-17	CRSL	472.0				
22525	22-Aug-17	CRSL	318.0				
Summary for F1 (4 detail records) - August, 2017							
	Sum		2,009.2				

Field: MF1

	Date	Origin	Vol [m ³]	NH ₃ [mg/L]	NH ₃ [kg]	TP [mg/L]	TP [kg]
22525	22-Aug-17	CRSL	371.6				
Summary for MF1 (1 detail record) - August, 2017							
	Sum		371.6				
Summary for August, 2017 (5 detail records)							
	Sum		2,380.8				

September, 2017

Field: F1

	Date	Origin	Vol [m ³]	NH ₃ [mg/L]	NH ₃ [kg]	TP [mg/L]	TP [kg]
NASM22003	05-Sep-17	CRSL	380.8				
Summary for F1 (1 detail record) - September, 2017							
	Sum		380.8				
Summary for September, 2017 (1 detail record)							
	Sum		380.8				

October, 2017

Field: PLT

	Date	Origin	Vol [m ³]	NH ₃ [mg/L]	NH ₃ [kg]	TP [mg/L]	TP [kg]
NASM22176	25-Oct-17	HSLP	492.0				
NASM22176	26-Oct-17	HSLP	150.0				
Summary for PLT (2 detail records) - October, 2017							
	Sum		642.0				
Summary for October, 2017 (2 detail records)							
	Sum		642.0				

Boisolds Spreading Report

Summary for 2017 (8 detail records)

Sum	3,403.6
-----	---------

Grand Total	3403.6
-------------	--------

Appendix E Calibration Report

Influent Flow FIT-7620

V.Nowik Instrumentation & Controls	Calibration Report for Creemore WWTP 2017	51 Fourth St. Angus, ON L0M 1B3 Tel: (705) 440-7331
--	--	--

Location: Creemore WWTP	Manufacturer: Krohne
Process: Influent Flow	Model: IFC090F/D/6
Calibration Date: May 24 2017	Serial #: 88306
Technician: V.Nowik	Tag: FIT-7620

Input			Signal	Flow		
Type:	GS8 B		Output	Range		
(X) Value	2.46		made	1/s		
(Y) Max	2.00		Min:	4.00		
DN (mm):	200		Max:	20.00		
GK=1 GKL=2	1			0.00		
GK:	2.343			55.10		
Constant:	4177.3					
			Before Calibration	After Calibration		
Input (Y pos)	Input %	Calc. Output	Output	%Error	Output	%Error
0.00	0.00%	4.00	4.00	0.00%	4.00	0.00%
0.50	20.38%	7.26	7.25	-0.06%	7.25	-0.06%
1.00	40.69%	10.51	10.47	-0.25%	10.47	-0.25%
2.00	81.44%	17.03	16.94	-0.56%	16.94	-0.56%

Calibration Equipment			
Type:	Simulator	DMM	Calibration performed as per manufacturers recommended procedure. Calibration Passed <i>V. Nowik</i>
Manufacturer:	Krohne	Fluke Processmeter	
Model:	GS 8B	789	
Serial No.:	U72343907	25430033	
Last Cal. Date:	Dec. 28 2015	Dec. 21 2015	

Comments:

V.Nowik Instrumentation & Controls	Calibration Report for Creemore WWTP 2017	51 Fourth St. Angus, ON L0M 1B3 Tel: (705) 440-7331
--	--	--

Location	Creemore WWTP	Manufacturer	Endress & Hauser
Process	Final Effluent Flow	Model:	53W2H-ULOB1R,COB2AA
Calibration Date:	May 24 2017	Serial #	5B00D816000
Technician	V.Nowik	Tag:	FIT-7520

See Following pages for E&H Fieldcheck Verificator Report

Calibration Equipment			
Type:	FieldCheck	Simbox	Calibration performed as per manufacturers recommended procedure. Calibration Passed <i>V. Nowik</i>
Manufacturer:	Endress&Hauser	Endress&Hauser	
Model:	73991	8737370	
Serial No.:	V2.02.00	1.00.01	
Last Cal. Date:	June-01-14	June-01-14	

Comments:

Flowmeter Verification Certificate Transmitter

Collingwood WWTP	Creemore WWTP
Customer	Plant
	FIT7520
Order code	Tag Name
PROMAG 53 W DN200	1.063529 - 1.063529
Device type	K-Factor
5B00D816000	3
Serial number	Zero point
V1.06.00	V1.03.00
Software Version Transmitter	Software Version I/O-Module
24.05.2017	10:36
Verification date	Verification time

Verification result Transmitter: Passed

Test item	Result	Applied Limits
Amplifier	Passed	Basis: 0.55 %
Current Output 1	Passed	0.05 mA
Pulse Output 1	Passed	1 P
Test Sensor	Passed	

FieldCheck Details	Simubox Details
73991	8737370
Production number	Production number
1.07.02	1.00.01
Software Version	Software Version
06/2014	06/2014
Last Calibration Date	Last Calibration Date

..... Date Operator's Sign Inspector's Sign

Overall results:

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

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

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

FieldCheck: Parameters Transmitter

Customer	Collingwood WWTP	Plant	Creemore WWTP
Order code		Tag Name	FIT7520
Device type	PROMAG 53 W DN200	K-Factor	1.063529 - 1.063529
Serial number	5B00D816000	Zero point	3
Software Version Transmitter	V1.06.00	Software Version I/O-Module	V1.03.00
Verification date	24.05.2017	Verification time	10:36

Current Output	Assign	Current Range	Value 0_4mA	Value 20 mA		
Terminal 26/27	VOLUME FLOW	4-20 mA activ	0.0 m3/d	2000.01 m3/d		
Pulse Output	Assign	Pulse Value	Output signal	Pulse width		
Terminal 24/25	VOLUME FLOW	1.000 m3/P	Active/Positive	500.01 ms		

Actual System Ident.

121.0

FieldCheck - Result Tab Transmitter

Customer	Collingwood WWTP	Plant	Creemore WWTP
Order code		Tag Name	FIT7520
Device type	PROMAG 53 W DN200	K-Factor	1.063529 - 1.063529
Serial number	5B00D816000	Zero point	3
Software Version Transmitter	V1.06.00	Software Version I/O-Module	V1.03.00
Verification date	24.05.2017	Verification time	10:36

Verification Flow end value (100 %): 10857.344 m3/d
Flow speed 4.00 m/s

Passed / Failed	Test item	Simul. Signal	Limit Value	Deviation
	Test Transmitter			
✓	Amplifier	542.868 m3/d (5%)	1.50 %	-0.00 %
✓		1085.735 m3/d (10.0%)	1.00 %	-0.00 %
✓		5428.673 m3/d (50.0%)	0.60 %	0.08 %
✓		10857.345 m3/d (100%)	0.55 %	0.11 %
✓	Current Output 1	4.000 mA (0%)	0.05 mA	0.001 mA
✓		4.800 mA (5%)	0.05 mA	0.001 mA
✓		5.600 mA (10.0%)	0.05 mA	0.002 mA
✓		12.000 mA (50.0%)	0.05 mA	-0.010 mA
✓		20.000 mA (100%)	0.05 mA	0.006 mA
✓	Pulse Output 1	25 P	1 P	0 P
		Start value	Limits range	Measured value
✓	Test Sensor			
✓	Coil Curr. Rise	13.300 ms	0.000..27.625 ms	17.433 ms
✓	Coil Curr. Stability		—	—
✓	Electrode Integrity	mV	0.0..57.062 mV	4.409 mV

Legend of symbols

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

Appendix F By-Pass Occurrence Documents

The report below outlines any bypasses in 2015. The original document is held at the Collingwood WWTP and is available for review upon request.

Pumping Station And Plant Bypass Monthly Summary						
Month	Primary Bypass			Secondary Bypass		
	No. of days	Duration (hrs)	Volume (1,000 m ³)	No. of days	Duration (hrs)	Volume (1,000 m ³)
Jan	0			0		
Feb	0			0		
Mar	0			0		
Apr	0			0		
May	0			0		
Jun	0			0		
Jul	0			0		
Aug	0			0		
Sep	0			0		
Oct	0			0		
Nov	0			0		
Dec	0			0		
Total	0			0		
Volume of Bypass as a % of the average daily flow						