Mississippi Mills Wastewater System

2019 Annual Report

January 1, 2019 – December 31, 2019

Prepared By

Ontario Clean Water Agency
Agence Ontarienne Des Eaux

This report has been prepared to meet the requirements set out in the facility Certificate of Approval #1637-AC8NT7 dated August 8, 2016.

Contents

Compliance Report Card

Compliance Event	# of Events	Details
Ministry of Environment Inspections	0	There were no Inspections during the reporting period
Ministry of Labour Inspections	0	There were no Inspections during the reporting period
Effluent Parameter Exceedances	2	There were 2 parameter exceedances during the reporting period. See Non-Compliance section for details
Bypass/Overflows	3	Filtrate Tank 2019-03-31 Gemmill's Bay SPS • 2019-03-31 • 2019-04-16
Community Complaints	0	There were no Community Complaints during the reporting period
Spills	0	There were no spills during the reporting period

System/Process Description

Primary Treatment
Flow enters the treatment and passes through screen channels which contain fine screens that lead to a screw compactor. Grit is removed using circular vortex grit removal, air lift and grit classifier system units.

Chemical Addition
Chemicals are added to the process for phosphorus control.

Secondary Treatment
The Mississippi Mills WWTP supports a two (2) treatment train system using the extended aeration activated sludge process. Each train is equipped with aeration tanks, anoxic tanks and a secondary clarifier.

Tertiary Treatment
Five (5) filter trains with three (3) filtration cells in each. Disinfection is provided using Ultraviolet (UV) lights. There is ability for chlorine disinfection in the event the UV units fail.

Solids Handling
Solids from the biological process are transferred from the waste tank to a rotary disk thickener. From there the solids are processed through autothermic thermophilic aerobic digesters. The solids are then pressed to a cake form.

Septage Receiving
The Mississippi Mills WWTP also consists of a septage receiving station consisting of a storage tank, two (one duty and one standby) dry-pit pumps, and a grinder on the inlet piping

Proposed Alterations, Extensions, or Replacement to Works

There are no proposed alterations, extensions or replacements that would affect the Certificate of Approval.

Effluent Quality Assurance or Control Measures

The Municipality of Mississippi Mills facilities are part of OCWA's operational Mississippi Cluster. The facilities are supported by regional and corporate resources. Operational Services are delivered by OCWA staff that live and work in the community.

OCWA operates facilities in compliance with applicable regulations. The facility has comprehensive manuals detailing operations, maintenance, instrumentation, and emergency procedures. All procedures are treated as active documents, with annual reviews.

OCWA has additional "Value Added" and operational support services that the Municipality of Mississippi Mills benefits from including:

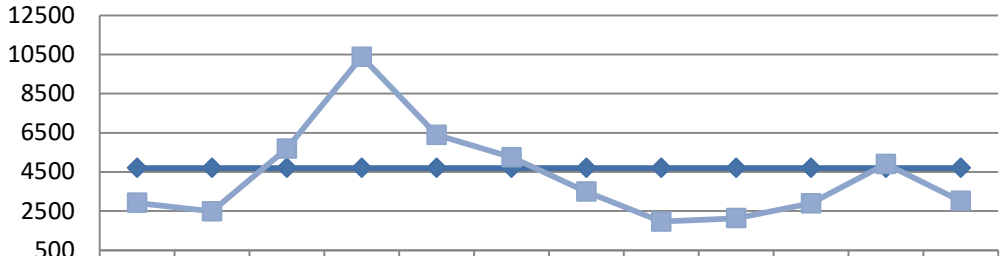
- Access to a network of operational compliance and support experts at the regional and corporate level, as well as affiliated programs that include the following:
    - Quality & Environmental Management System, Occupational Health & Safety System and an internal compliance audit system
    - Process Data Management (PDM) facility operating information repository, which consolidates field data, online instrumentation, and electronic receipt of lab test results for reporting, tracking and analysis
    - Work Management System (WMS) that tracks and reports maintenance activity, and creates predictive and preventative reports
    - Outpost 5 wide-area SCADA system allows for process optimization and data logging, process trending, remote alarming and optimization of staff time
- Client reporting which includes operational data, equipment inventory, financial statements, maintenance work orders, and capital status reports
- Site-Specific Contingency Plans and Standard Operating Procedures
- Use of accredited laboratories
- Additional support in response to unusual circumstances, and extra support in an emergency.
- Use of sampling schedules for external laboratory sampling

Treatment Flows

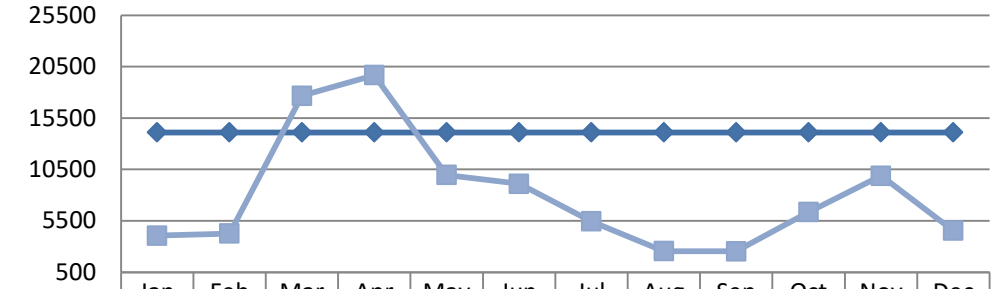
Raw Flow (m³/d)

Annual average flow for 2019 = 4293.1 m³/d

Flow spikes are associated to wet weather events such as rain and seasonal changes such as the spring snow melt.

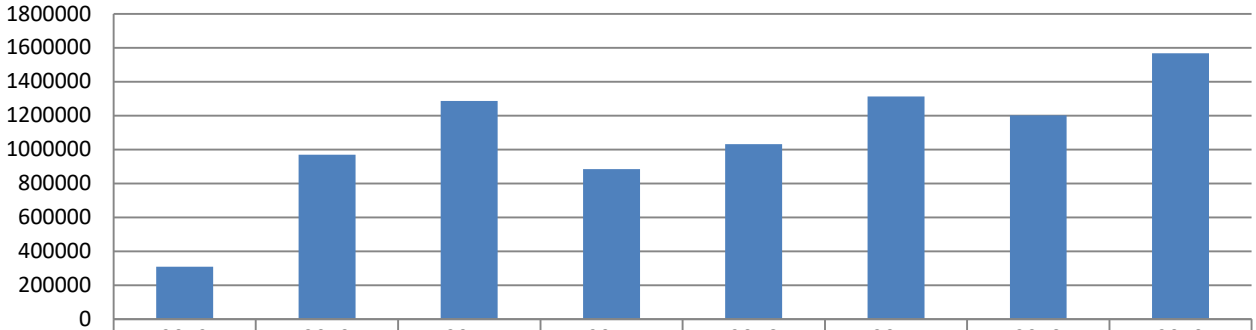


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Design Average (m³/d)	4700	4700	4700	4700	4700	4700	4700	4700	4700	4700	4700	4700
Average Daily Flow (m³/d)	2922	2486	5689	10376	6395	5245	3489	1962	2137	2897	4903	3018



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Peak Capacity (m³/d)	14100	14100	14100	14100	14100	14100	14100	14100	14100	14100	14100	14100
Maximum Daily Flow (m³/d)	4056	4266	17665	19665	9950	9105	5437	2549	2531	6338	9881	4543

Annual Comparison (m³)

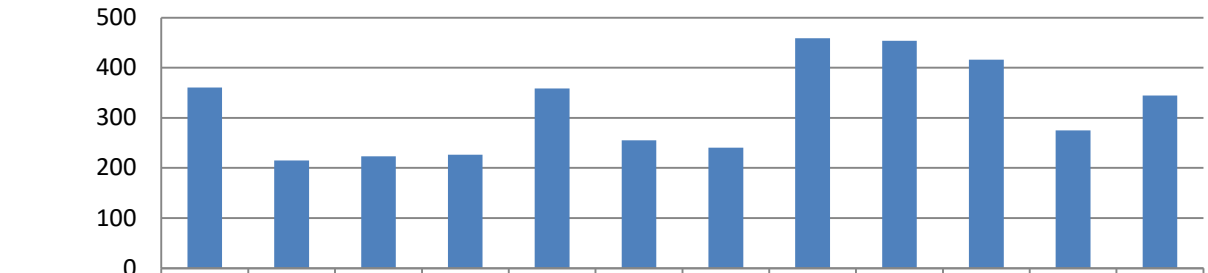


	2012	2013	2014	2015	2016	2017	2018	2019
Total Annual Flow	308093	969878	1285551	884055	1031585	1312674	1201247	1566983

Septage Volumes

Average daily flow for 2019 = 10.5 m³/d
Total Flow for 2019 = 3827.143 m³

Total Monthly Volume Received

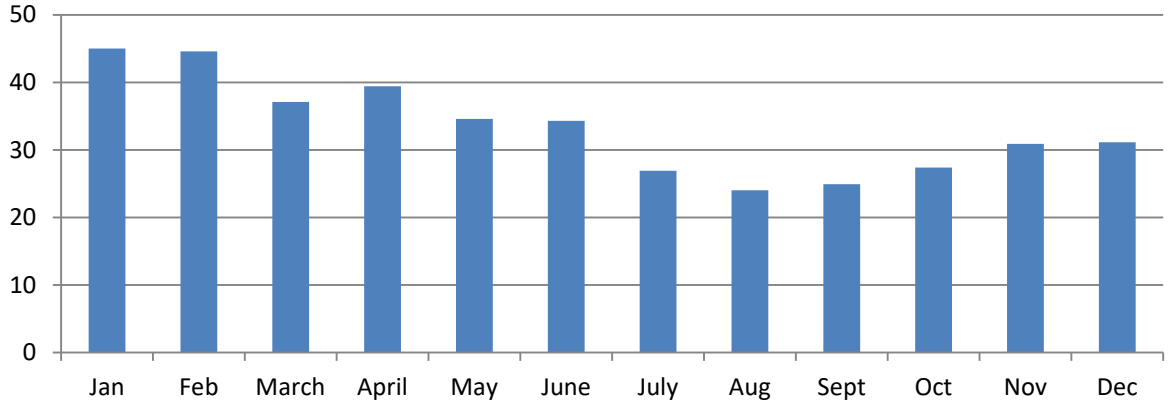


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Volume (m³)	360	215	223	227	359	255	240	459	454	416	275	344

- Average Flow (m³/d) is the total sum of the volume of the loads received for the month which is then divided by the days in the month.
- Design Average (m³/d) sets the capacity limit based on the total sum of the volume of the loads received for the month which is then divided by the days in the month.
- Maximum Flow (m³/d) indicates largest single day volume received in the month

Septage Capacity Utilization

Septage Capacity (%) is based on Average Flow (m³/d) over Design Average (m³/d)



Raw Sewage Quality

Results of raw sewage concentrations and loadings are available in the Facility Performance Assessment Report in Appendix A.

Effluent Quality

The limits are based on current requirements in the facilities Environmental Compliance Approval. Laboratory samples are submitted to an accredited laboratory for regulatory analysis.

The Federal Government also regulates certain sewage effluent parameters under the Federal Fisheries Act. The results are submitted to Environment and Climate Change Canada's Effluent Regulatory and Reporting Information System (ERRIS) on a quarterly basis.

Effluent Exceedance Summary

Date	Parameter	Exceedance	Limit	Value	Corrective Action
August 2019	Total Suspended Solids	Monthly Average Concentration	15.0	15.5	Plant and sampling review
September 2019	Total Suspended Solids	Monthly Average Concentration	15.0	17.5	Plant and sampling review

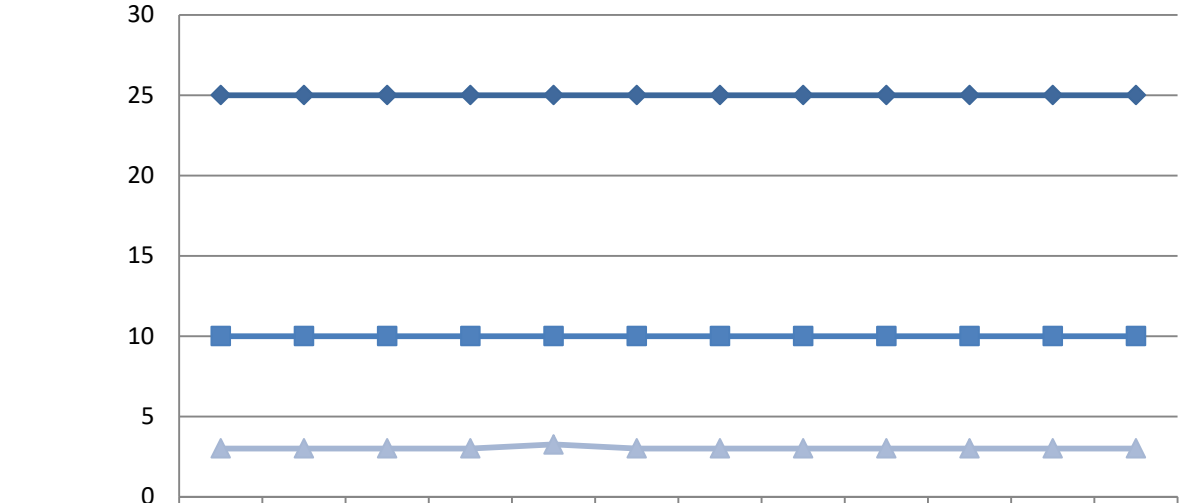
Other Effluent Sampling Issues

Sample	Legislation	Date	Details	Response
TC/E.Coli	ECA 1637-AC8NT7	Week of June 24-28 2019	Sample was sent to lab but not removed from cooler for testing	Reviewed the sampling standard operating procedure and implement any required enhancements. Staff communicated with the courier the importance of sample pickup and delivery

Effluent Parameter Summary

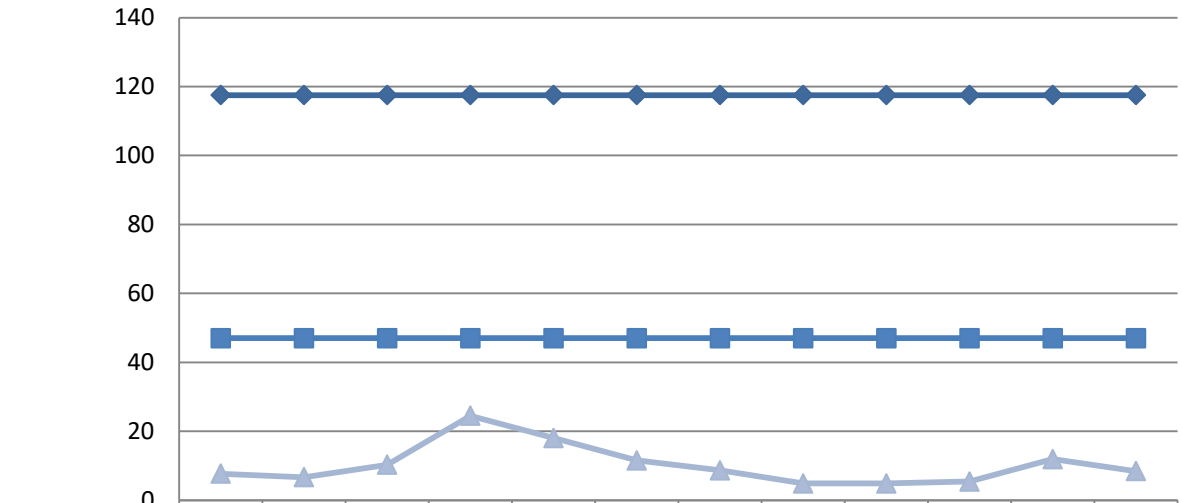
CBOD5

Concentration (mg/L)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Limit	25	25	25	25	25	25	25	25	25	25	25	25
Objective	10	10	10	10	10	10	10	10	10	10	10	10
Average	3	3	3	3	3.25	3	3	3	3	3	3	3

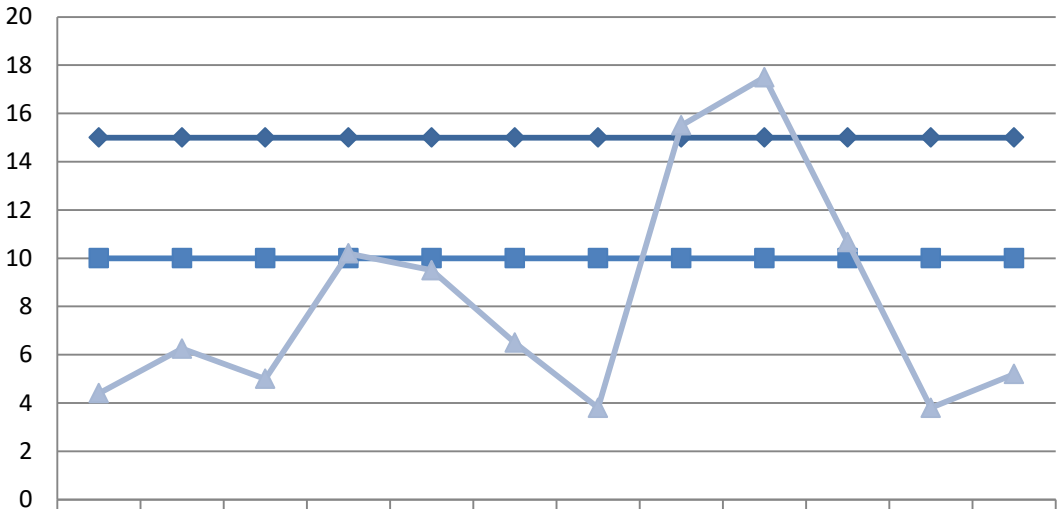
Loading (kg/d)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Limit	117.5	117.5	117.5	117.5	117.5	117.5	117.5	117.5	117.5	117.5	117.5	117.5
Objective	47	47	47	47	47	47	47	47	47	47	47	47
Average	7.7	6.7	10.3	24.5	18.0	11.6	8.7	4.9	4.9	5.4	11.9	8.4

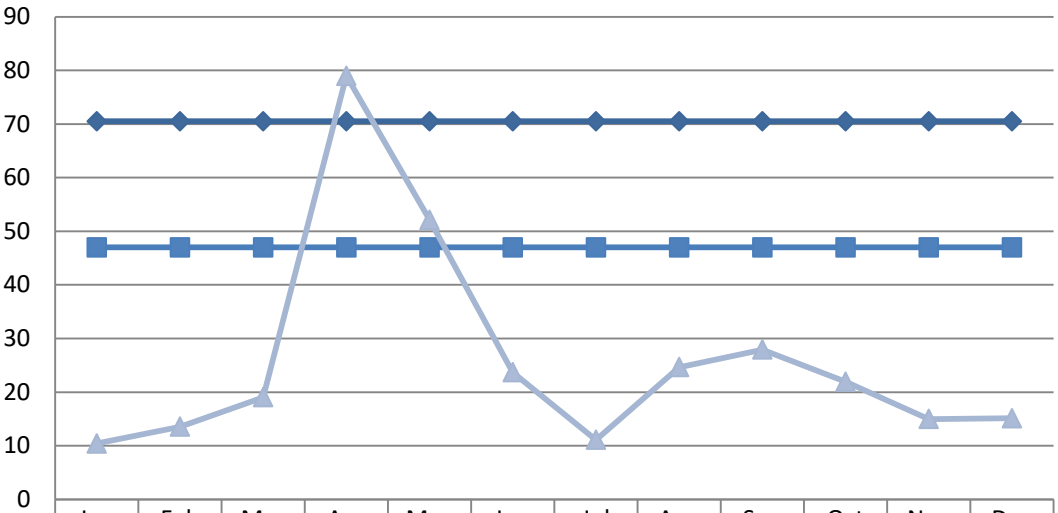
Total Suspended Solids

Concentration (mg/L)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Limit	15	15	15	15	15	15	15	15	15	15	15	15
Objective	10	10	10	10	10	10	10	10	10	10	10	10
Average	4.4	6.3	5	10.2	9.5	6.5	3.8	15.5	17.5	10.7	3.8	5.2

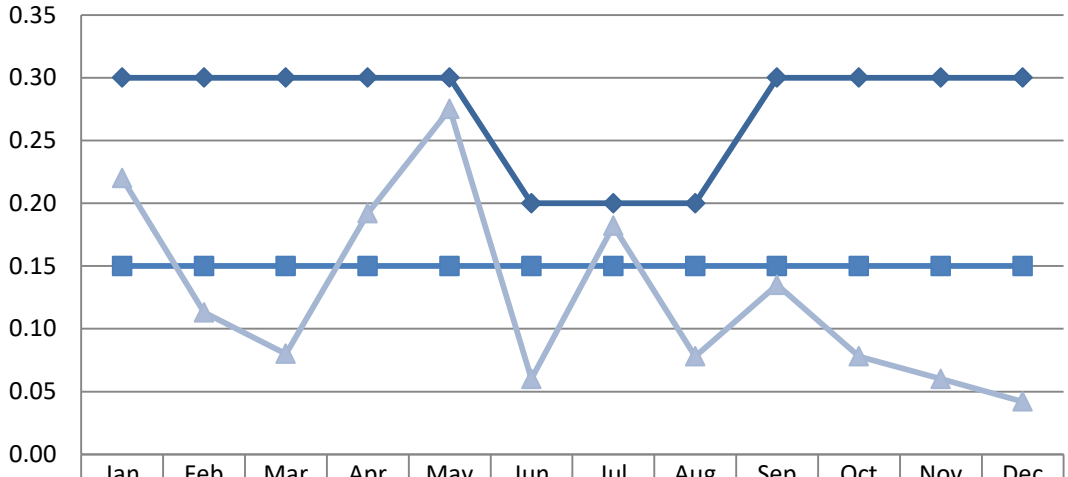
Loading (kg/d)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Limit	70.5	70.5	70.5	70.5	70.5	70.5	70.5	70.5	70.5	70.5	70.5	70.5
Objective	47	47	47	47	47	47	47	47	47	47	47	47
Average	10.4	13.5	19.0	79.0	52.1	23.7	11.1	24.6	27.9	21.9	15.0	15.1

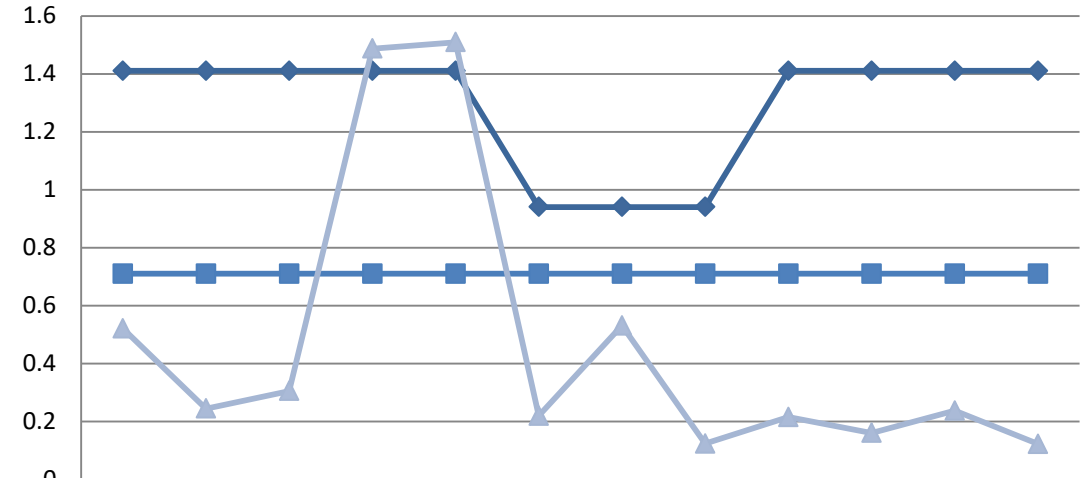
Total Phosphorus

Concentration (mg/L)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Limit	0.30	0.30	0.30	0.30	0.30	0.20	0.20	0.20	0.30	0.30	0.30	0.30
Objective	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
Average	0.2	0.1	0.1	0.2	0.3	0.1	0.2	0.1	0.1	0.1	0.1	0.0

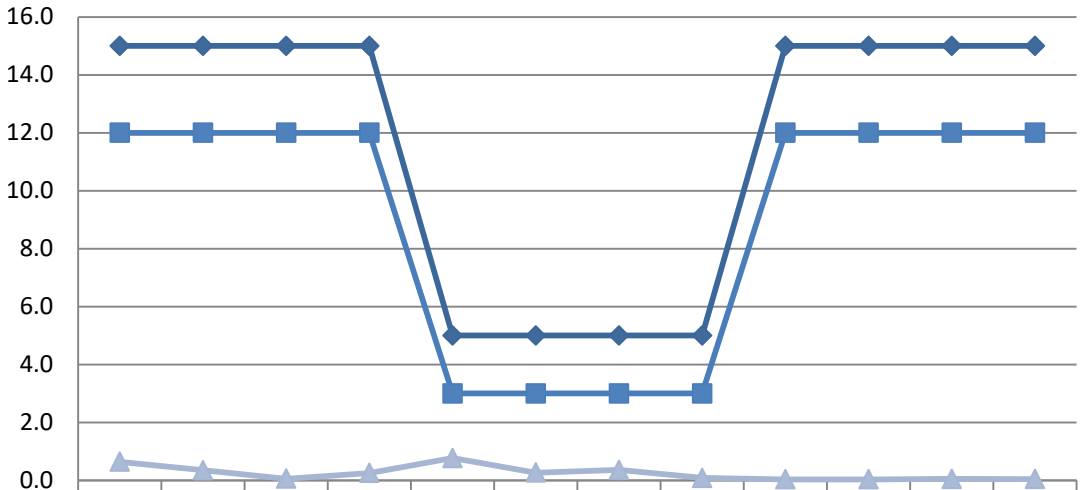
Loading (kg/d)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Limit	1.41	1.41	1.41	1.41	1.41	0.94	0.94	0.94	1.41	1.41	1.41	1.41
Objective	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
Average	0.521	0.244	0.305	1.487	1.509	0.219	0.531	0.123	0.215	0.16	0.237	0.122

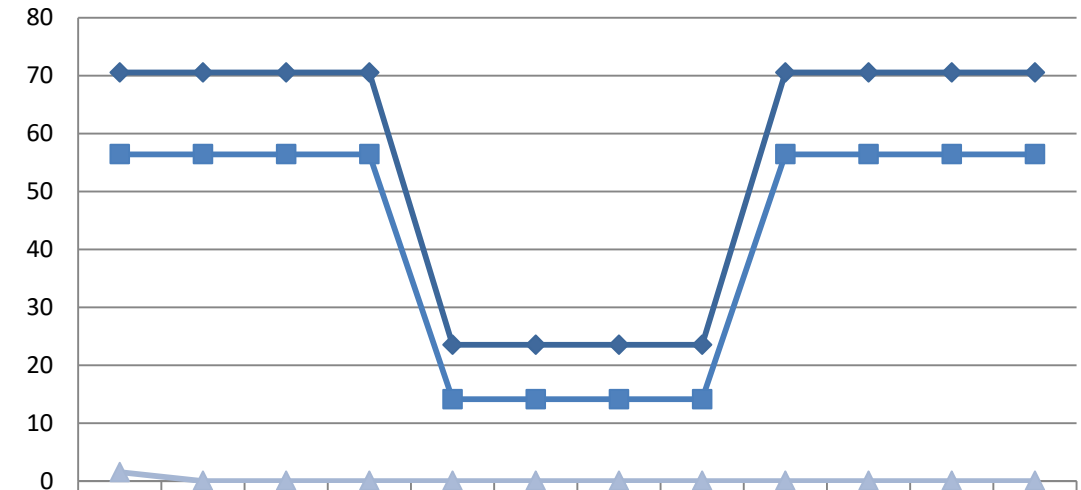
Total Ammonia Nitrogen

Concentration (mg/L)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Limit	15.0	15.0	15.0	15.0	5.0	5.0	5.0	5.0	15.0	15.0	15.0	15.0
Objective	12.0	12.0	12.0	12.0	3.0	3.0	3.0	3.0	12.0	12.0	12.0	12.0
Average	0.64	0.35	0.05	0.25	0.77	0.27	0.36	0.08	0.04	0.03	0.05	0.04

Loading (kg/d)

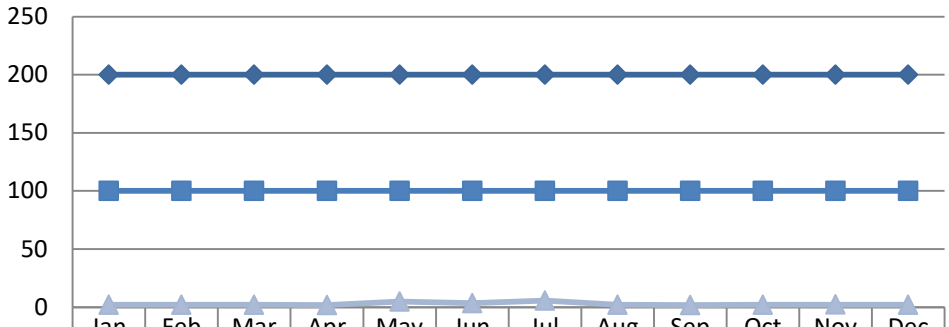


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Limit	70.5	70.5	70.5	70.5	23.5	23.5	23.5	23.5	70.5	70.5	70.5	70.5
Objective	56.4	56.4	56.4	56.4	14.1	14.1	14.1	14.1	56.4	56.4	56.4	56.4
Average	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

E-coli

Geometric Mean Average

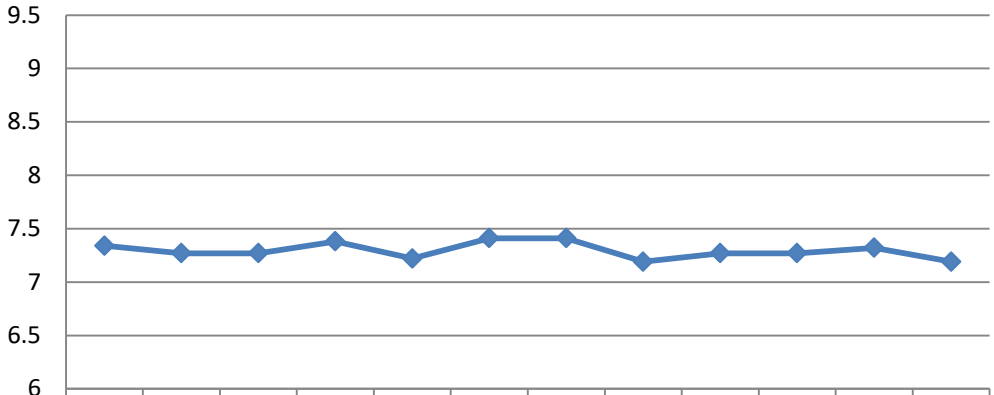
All individual sample results were lower than the reportable value of <2.



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Limit	200	200	200	200	200	200	200	200	200	200	200	200
Objective	100	100	100	100	100	100	100	100	100	100	100	100
Geometric Mean Avg	2	2	2	1.7	4.8	3.4	5.7	2	1.7	2	2.2	2

pH

This parameter is tested in-house.



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Min Monthly pH	7.34	7.27	7.27	7.38	7.22	7.41	7.41	7.19	7.27	7.27	7.32	7.19

Acute Lethality

There were four (4) samples collected in 2019 and tested for acute lethality (Rainbow Trout and Daphnia Magna). Results are displayed as % mortality.

Quarter	Rainbow Trout	Daphnia Magna
1st Quarter	0%	0%
2nd Quarter	0%	0%
3rd Quarter	0%	0%
4th Quarter	0%	0%

Septage Quality

Septage was tested when received. A summary of the results are attached in Appendix B. Grab samples are collected from each load.

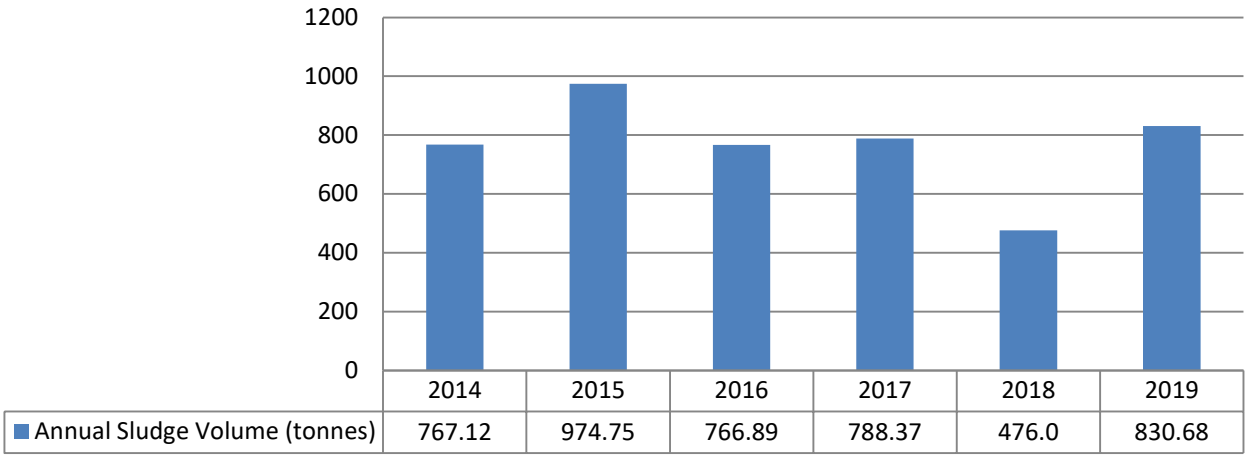
Biosolids

Sludge generated from the treatment plant was spread on agricultural land during the spreading season as per the Nutrient Management Act O.Reg 267/03. This facility dewaters and biosolids are handled as cake. During the winter cake is stored on-site until certified sites are ready for spreading.

Biosolids Disposal Summary

Date	Site	NASM Plan number	Volume (MT)
June 7th 2019	Cochran – Steele	23782	463.78
September 25th 2019	Cochran - Lingerlane Home	23090	366.9
	Total		830.68

Annual Comparison



Quality

The biosolids sampling results are summarized in Appendix C. All results met the established guidelines.

Summary of Complaints

The following community complaints were received related to the operations of the Mississippi Mills WWTP.

Date	Location	Details
There were no community complaints for the reporting period.		

Summary of Bypass/Overflows

Event	Details of Events
Gemmill's Bay SPS March 31 2019	A heavy rain and snow melt caused high flows at Gemmill's Bay sewage pumping station. Both pumps were running at full speed could not keep up with the flow. This resulted in an overflow of raw sewage.
Mississippi Mills WWTP Filtrate Tank March 31 2019	A period where the entire plant was experiencing elevated flows due to heavy rain this system was hydraulically overloaded. The overflow water from the filtrate tank was directed to the effluent channel through the overflow pipe, as designed, from the tank to upstream of U.V. disinfection.
Gemmill's Bay SPS April 16 2019	A heavy rain event caused high flows at Gemmill's Bay sewage pumping station. Both pumps were running at full speed could not keep up with the flow. This resulted in an overflow of raw sewage.

Summary of Spills/Abnormal Discharges

There were no spills or abnormal discharges reported in 2019.

Maintenance

OCWA uses a risk-based preventative maintenance framework that ensures assets are maintained to manufacturer's and/or industry standards. Maintenance is completed using various tools and operational supports. The Ottawa Valley Hub has specialized certified staff such as Millwrights, Electricians and Instrumentation Specialists to name a few.

OCWA uses a Workplace Maintenance System (WMS). WMS is a maintenance tracking system that can generate work orders as well as give summaries of completed and scheduled work. During the year, the operating authority at the facility generates scheduled work orders on a weekly, monthly and annual basis. The service work is recorded in the work order history. This ensures routine and preventive maintenance is carried out. Emergency and capital repair maintenance is completed and added to the system.

Capital projects are listed and provided to the Municipality of Mississippi Mills in the form of a "Capital Forecast". This list is developed by facility staff and provides recommendations for facility components requiring upgrading or improvement.

Maintenance Highlights

WO #	Summary
1137594	Capital pump maintenance and rebuilds
1139493	Capital Sand Lift parts
1219239	Capital Septage Tank Inlet Flow meter
1339960	Capital replace foam sensor replacement
1378579	Capital UV Parts
1379225	Capital Mount davit bases
1379805	Capital Non Potable Water Headworks Line Leak
1379825	Capital HVAC inspection
1380514	Capital Lab Fridge/Freezer
1463132	Capital Fournier onsite maintenance and training
1499833	Capital Septage catch basin project
1499909	Capital Septage receiving website hosting & programming
1500542	Capital Grit conveyor gearbox
1534567	Capital Electrical service call
1535041	Capital Grinder parts & repair
1536236	Capital Heat trace septage pipe
1537081	Capital #2 Blanket Items under #200
506680	Capital Attenuation lid area cracking
1018451	Capital Leaking circulation pump
1018457	Capital Circulation pump motor
1101183	Capital Rebuild kits for Alum pumps
1102142	Capital Spare parts kit Alum pumps
1102189	Capital RAS pump 2 rebuild
1103379	Capital Boiler 1 leak
1103767	Capital MAU2 Flame out - off
1103776	Capital #1 Blanket Items under $200 MM
1103778	Capital #2 Blanket Items under $200 MM
1103937	Capital Thermaer sheave replacement
1104322	Capital Poly pump rebuild kits
1137543	Capital Drive pulley replacement
1137592	Capital Grinder disconnect mm
1139353	Capital Emergency stop switch
1175730	Capital Jib and bases
1177864	Capital Factory service transfer switch
1257408	Capital ATAD 2 foam level sensor repair
1257703	Capital Cell booster
1259858	Capital Polymer Pressure Switch
1298789	Capital Remove debris from septage holding tank
1298942	Capital Rock trap gate valve replacement
1300684	Capital Septage website
1301161	Capital New impeller boiler pump
1301382	Capital Clarifier drive sprocket and chain
1338909	Capital Motor for polymer pump

WO #	Summary
1339101	Capital Effluent pH probe tip
1341902	Capital Heat trace septage inlet pipe
1379181	Capital Change motor bearing EAU-2
1379840	Capital Solenoids for disk thickener
1380610	Capital Baffle for #2 Clarifier
1420017	Capital Bruce Mechanical site visit
1463115	Capital Trimmer with sweeper
1500082	Capital Septage receiving catch basin
1537112	Capiital Convert RAS pump 2 to ss shaft and seal
898771	Capital Replace rotor and stator

Calibration

The flow meters were calibrated on February 4, 2019. Records are attached in Appendix D. Analyzers are scheduled for maintenance in the WMS program. Work is completed and logged in the logbook and in the WMS.

Appendix A

Facility Assessment Report

Ontario Clean Water Agency
Performance Assessment Report Wastewater/Lagoon

From: **01/01/2019 to 31/12/2019**

Facility: **[5678] MISSISSIPPI MILLS WASTEWATER TREATMENT FACILITY**

Works: **[110000873]**

	01/2019	02/2019	03/2019	04/2019	05/2019	06/2019	07/2019	08/2019	09/2019	10/2019	11/2019	12/2019	<--Total-->	<--Avg.-->	<--Max.-->	<--Criteria-->
Flows:																
Raw Flow: Total - Raw Sewage (m^3)	90595.28	69594.74	176363.33	311286.57	198240.97	157350.13	108146.44	60831.62	64100.55	89822.19	147101.17	93550.28	1566983.27			
Raw Flow: Avg - Raw Sewage (m^3/d)	2922.43	2485.53	5689.14	10376.22	6394.87	5245.00	3488.59	1962.31	2136.69	2897.49	4903.37	3017.75		4293.28		
Raw Flow: Max - Raw Sewage (m^3/d)	4055.77	4266.33	17664.90	19664.73	9949.75	9104.82	5437.45	2548.57	2530.85	6338.31	9881.04	4543.49			19664.73	
Eff. Flow: Total - Final Effluent (m^3)	73374.02	60649.25	118034.12	232321.53	170105.67	109365.25	90469.47	49266.96	47852.67	63759.46	118327.60	90181.61	1223707.61			
Eff. Flow: Avg - Final Effluent (m^3/d)	2366.90	2166.04	3807.55	7744.05	5487.28	3645.51	2918.37	1589.26	1595.09	2056.76	3944.25	2909.08		3352.51		
Eff. Flow: Max - Final Effluent (m^3/d)	3205.41	3665.72	6912.91	10229.06	9575.89	4668.84	4538.70	1886.98	1928.28	3668.42	5334.90	4056.47			10229.06	
Carbonaceous Biochemical Oxygen Demand: CBOD:																
Raw: # of samples of cBOD5 - Raw Sewage (mg/L)	5	4	4	5	4	4	5	4	4	5	4	5	53			
Eff: Avg cBOD5 - Final Effluent (mg/L)	< 3.000	< 3.000	< 3.000	< 3.000	< 3.250	< 3.000	< 3.000	< 3.000	< 3.000	< 3.000	< 3.000	< 3.000		< 3.021	< 3.250	25.0
Eff: # of samples of cBOD5 - Final Effluent (mg/L)	5	4	4	5	4	4	5	4	4	5	5	5	54			
Loading: cBOD5 - Final Effluent (kg/d)	< 7.101	< 6.498	< 11.423	< 23.232	< 17.834	< 10.937	< 8.755	< 4.768	< 4.785	< 6.170	< 11.833	< 8.727		< 10.172	< 23.232	117.5
Percent Removal: cBOD5 - Raw Sewage (mg/L)	97.751	98.473	97.656	87.603	94.583	95.142	96.894	98.251	98.338	98.469	94.419	96.560			98.473	
Biochemical Oxygen Demand: BOD5:																
Raw: # of samples of BOD5 - Raw Sewage (mg/L)	5	4	4	5	4	4	5	4	4	5	4	5	53			
Eff: Avg BOD5 - Final Effluent (mg/L)	< 3.000	< 3.000	< 3.000	< 3.000	< 3.500	< 3.000	< 3.000	< 3.000	< 5.750	< 3.000	< 3.000	< 3.000		< 3.271	< 5.750	25.0
Loading: BOD5 - Final Effluent (kg/d)	< 7.101	< 6.498	< 11.423	< 23.232	< 19.205	< 10.937	< 8.755	< 4.768	< 9.172	< 6.170	< 11.833	< 8.727		< 10.652	< 23.232	
Percent Removal: BOD5 - Raw Sewage (mg/L)	98.387	98.804	97.846	93.902	95.238	95.588	97.159	98.389	96.917	98.978	96.931	98.049			98.978	
Total Suspended Solids: TSS:																
Raw: Avg TSS - Raw Sewage (mg/L)	354.000	387.500	308.750	113.000	60.000	142.500	118.000	315.000	332.500	403.000	209.250	254.000		249.792	403.000	
Raw: # of samples of TSS - Raw Sewage (mg/L)	5	4	4	5	4	4	5	4	4	5	4	5	53			
Eff: Avg TSS - Final Effluent (mg/L)	< 4.400	6.250	< 5.000	10.200	9.500	6.500	< 3.800	15.500	17.500	10.667	< 3.800	< 5.200		< 8.193	17.500	15.0
Eff: # of samples of TSS - Final Effluent (mg/L)	5	4	4	5	4	4	5	4	4	6	5	5	55			
Loading: TSS - Final Effluent (kg/d)	< 10.414	13.538	< 19.038	78.989	52.129	23.696	< 11.090	24.633	27.914	21.939	< 14.988	< 15.127		< 26.125	78.989	70.5
Percent Removal: TSS - Raw Sewage (mg/L)	98.757	98.387	98.381	90.973	84.167	95.439	96.780	95.079	94.737	97.353	98.184	97.953			98.757	
Total Phosphorus: TP:																
Raw: Avg TP - Raw Sewage (mg/L)	6.022	6.877	4.443	1.078	4.240	2.125	3.816	7.905	8.028	9.202	3.475	3.940		5.096	9.202	
Raw: # of samples of TP - Raw Sewage (mg/L)	5	4	4	5	4	4	5	4	4	5	4	5	53			
Eff: Avg TP - Final Effluent (mg/L)	0.220	0.113	0.080	0.192	0.275	0.060	0.182	0.078	0.135	0.078	0.060	0.042		0.126	0.275	0.2 - 0.3
Eff: # of samples of TP - Final Effluent (mg/L)	5	4	4	5	4	4	5	4	4	5	6	5	55			
Loading: TP - Final Effluent (kg/d)	0.521	0.244	0.305	1.487	1.509	0.219	0.531	0.123	0.215	0.160	0.237	0.122		0.473	1.509	1.41
Percent Removal: TP - Raw Sewage (mg/L)	96.347	98.364	98.199	82.189	93.514	97.176	95.231	99.020	98.318	99.152	98.273	98.934			99.152	
Nitrogen Series:																
Raw: Avg TKN - Raw Sewage (mg/L)	38.660	43.650	29.225	7.900	34.700	17.475	34.820	78.450	60.000	54.600	21.725	25.560		37.230	78.450	
Raw: # of samples of TKN - Raw Sewage (mg/L)	5	4	4	5	4	4	5	4	4	5	4	5	53			
Eff: Avg TAN - Final Effluent (mg/L)	0.638	0.345	0.053	0.252	0.765	0.265	0.360	0.080	0.035	0.034	0.050	0.044		0.243	0.765	5.0 - 15.0
Eff: # of samples of TAN - Final Effluent (mg/L)	5	4	4	5	4	4	5	4	4	5	5	5	54			
Loading: TAN - Final Effluent (kg/d)	1.510	0.747	0.200	1.952	4.198	0.966	1.051	0.127	0.056	0.070	0.197	0.128		0.933	4.198	70.5
Disinfection:																
Eff: GMD E. Coli - Final Effluent (cfu/100mL)	2.000	2.000	2.000	1.741	4.757	3.420	5.675	2.000	1.741	2.000	2.213	2.000		2.629	5.675	200.0
Eff: # of samples of E. Coli - Final Effluent (cfu/100mL)	5	4	4	5	4	3	5	4	5	5	4	5	53			

Appendix B

Septage Sample Data

Ontario Clean Water Agency
Time Series Info Report

From: 01/01/2019 to 31/12/2019

Facility Org Number: 5678
Facility Works Number: 110000873
Facility Name: MISSISSIPPI MILLS WASTEWATER TREATMENT FACILITY
Facility Owner: Municipality: Municipality of Mississippi Mills
Facility Classification: Class 3 Wastewater Treatment
Receiver: Mississippi River
Service Population:
Total Design Capacity: 14100.0 m3/day

	01/2019	02/2019	03/2019	04/2019	05/2019	06/2019	07/2019	08/2019	09/2019	10/2019	11/2019	12/2019	Total	Avg	Max	Min
Septage / Biochemical Oxygen Demand: BOD5 - mg/L																
Count Lab	10	12	10	8	22	12	14	19	15	13	12	14	161			
Max Lab	4010	4260	2280	4920	8170	4160	4200	4210	2410	5020	3600	4000			8170	
Mean Lab	1128.4	1557.417	873.9	1303.25	1745.773	1723	1019.5	1447.526	> 795.6	1247.231	1695.583	1456.857		> 1357.644		
Min Lab	84	306	88	39	55	251	120	87	> 61	84	144	150				> 39
Septage / Septage Received - m³																
Count IH	31	28	31	30	31	30	31	31	30	31	30	31	365			
Total IH	360.227	215.072	223.049	226.699	358.789	255.006	240.301	458.8	453.588	416.306	274.98	344.326	3827.143			
Max IH	40.775	41.5	40.5	38.439	50	47	37	42	42	42	38	42.5			50	
Mean IH	11.62	7.681	7.195	7.557	11.574	8.5	7.752	14.8	15.12	13.429	9.166	11.107		10.485		
Min IH	0	0	0	0	0	0	0	0	0	0	0	0				0
Septage / Total Kjeldahl Nitrogen: TKN - mg/L																
Count Lab	10	12	10	8	22	12	14	19	15	13	12	14	161			
Max Lab	2210	1690	1330	3860	1990	2110	1560	1580	2930	1960	3600	2070			3860	
Mean Lab	774.62	726	612.82	1209.163	812.273	786.725	484.679	717.589	782.113	681.054	1034.467	755.7		771.209		
Min Lab	29.4	1	55.6	61.9	59.7	0.7	57.1	51.2	36	94.7	37.6	33.7				0.7
Septage / Total Phosphorus: TP - mg/L																
Count Lab	10	12	10	8	22	12	14	19	15	13	12	14	161			
Max Lab	234	142	166	386	469	1020	131	468	318	352	497	191			1020	
Mean Lab	72.373	57.999	48.109	125.313	109.273	282.983	55.193	154.121	70.187	79.777	96.276	71.593		98.026		
Min Lab	3.51	6.29	7.09	10.5	6.9	24.1	8.6	7.6	7.8	15.4	0.51	5.6				0.51
Septage / Total Solids: TS - mg/L																
Count Lab	10	12	10	8	22	12	14	19	15	13	12	14	161			
Max Lab	17400	11400	10300	71100	28200	55400	12500	24900	12600	119000	25800	16900			119000	
Mean Lab	5474	6921.667	3759	14127.5	6774.545	13543.33	3420.714	9473.158	4066	14026.92	7108.333	5790		7619.453		
Min Lab	750	1680	440	680	690	820	520	600	470	600	1280	740				440
Septage / Total Suspended Solids: TSS - mg/L																
Count Lab	10	12	10	8	22	12	14	19	15	13	12	14	161			
Max Lab	13600	7300	8200	30300	28000	20000	13200	37000	9000	32000	6800	13400			37000	
Mean Lab	2390	2703.333	1573	6893.75	4890.909	6650	1977.857	8534.211	2121.333	5004.615	2540.833	3737.143		4183.133		
Min Lab	100	180	140	100	120	500	150	150	140	300	300	220				100
Septage / pH - ---																
Count Lab	10	12	10	7	22	12	14	19	15	13	12	14	160			
Max Lab	8.46	8.56	8.49	8.93	8.9	8.71	8.83	8.79	8.8	8.96	8.7	8.67			8.96	
Mean Lab	7.279	7.523	7.512	7.386	7.569	7.218	7.502	7.475	7.686	7.806	7.871	7.693		7.532		
Min Lab	6.25	5.84	6.15	6.54	6.33	6.37	6.33	6.53	6.26	6.73	6.65	6.9				5.84

Appendix C

Biosolids Quality

Ontario Clean Water Agency
Biosolids Quality Report - Liquid
Digestor Type: AEROBIC
Solids and Nutrients

Facility: MISSISSIPPI MILLS WASTEWATER TREATMENT FACILITY
Works: 5678
Period: 01/01/2019 to 12/01/2019

Facility Works Number: *1.10000873E8*
Facility Name: *MISSISSIPPI MILLS WASTEWATER TREATMENT FACILITY*
Facility Owner: *Municipality: Municipality of Mississippi Mills*
Facility Classification: *Class 3 Wastewater Treatment*
Receiver: *Mississippi River*
Service Population:
Total Design Capacity: *14100.0 m3/day*
Period Being Reported: 01/01/2019 12/01/2019

Note: all parameters in this report will be derived from the Bslq Station

Month	Total Sludge Hauled (m3)	Avg. Total Solids (mg/L)	Avg. Volatile Solids (mg/L)	Avg. Total Phosphorus (mg/L)	Ammonia (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)	TKN (mg/L)	Ammonia + Nitrate (mg/L)	Potassium (mg/L)
Site	**Site Name**									
Station	**Bslq Station only**									
Parameter Short Name	**HauledVol**	**TS**	**VS**	**TP**	**NH3p_NH4p_N**	**NO3-N**	**NO2-N**	**TKN**	**calculation in report - no T/S**	**K**
T/s	**IH Month.Total**	**Lab Published Month Mean**	**Lab Published Month Mean**	**Lab Published Month Mean**	**Lab Published Month Mean**	**Lab Published Month Mean**	**Lab Published Month Mean**	**Lab Published Month Mean**		**Lab Published Month Mean**
Jan		31,566.667	17,933.333	1,054.000	1.697	0.367	0.133	1,320.000	1.032	
Feb		34,200.000	19,400.000	902.000	2.670	0.200	0.100	1,110.000	1.435	
Mar		29,950.000	16,050.000	924.000	2.220	0.150	0.100	1,195.000	1.185	
Apr		28,850.000	16,100.000	804.000	2.480	0.100	0.100	1,175.000	1.290	
May		29,500.000	16,400.000	718.500	8.215	0.100	0.100	1,077.500	4.158	
Jun		39,900.000	16,200.000	721.500	14.350	0.100	0.100	1,165.000	7.225	
Jul		41,150.000	21,950.000	890.000	9.830	0.100	0.100	1,185.000	4.965	
Aug		43,650.000	21,650.000	906.500	9.535	6.300	0.300	1,186.000	7.918	

Sep		46,700.000	22,750.000	474.000	7.480	0.800	0.100	652.000	4.140	
Oct		47,100.000	21,200.000	1,285.000	5.375	9.600	0.100	1,415.000	7.488	
Nov		50,200.000	24,600.000	1,455.000	6.700	24.250	0.100	1,785.000	15.475	
Dec		48,000.000	25,000.000	1,400.000	0.925	88.600	0.100	1,915.000	44.763	
Average		39,230.556	19,936.111	961.208	5.956	10.889	0.119	1,265.042	8.423	
Total	0.000	470,766.667	239,233.333	11,534.500	71.477	130.667	1.433	15,180.500	101.072	0.000

Ontario Clean Water Agency
Biosolids Quality Report - Liquid
Digestor Type: AEROBIC
Metals and Criteria

Facility: MISSISSIPPI MILLS WASTEWATER TREATMENT FACILITY
Works: 5678
Period: 01/01/2019 to 12/01/2019

Note: all parameters in this report will be derived from the Bslq Station

Month	Arsenic (mg/L)	Cadmium (mg/L)	Cobalt (mg/L)	Chromium (mg/L)	Copper (mg/L)	Mercury (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Lead (mg/L)	Selenium (mg/L)	Zinc (mg/L)
Site	**Site Name**										
Station	**Bslq Station only**										
Parameter Short Name	**As**	**Cd**	**Co**	**Cr**	**Cu**	**Hg**	**Mo**	**Ni**	**Pb**	**Se**	**Zn**
T/s	**Lab Published Month Mean**	**Lab Published Month Mean**	**Lab Published Month Mean**	**Lab Published Month Mean**	**Lab Published Month Mean**	**Lab Published Month Mean**	**Lab Published Month Mean**	**Lab Published Month Mean**	**Lab Published Month Mean**	**Lab Published Month Mean**	**Lab Published Month Mean**
Jan											
Feb											
Mar											
Apr											
May											
Jun											
Jul											
Aug											
Sep											
Oct											
Nov											
Dec											
Average											
Max. Permissible Metal Concentrations (mg/kg of Solids)	170.000	34.000	340.000	2,800.000	1,700.000	11.000	94.000	420.000	1,100.000	34.000	4,200.000
Metal Concentrations in Sludge (mg/kg)											

Ontario Clean Water Agency
Biosolids Quality Report - Liquid - Based on Last 4 Samples
Digestor Type: AEROBIC

Facility: MISSISSIPPI MILLS WASTEWATER TREATMENT FACILITY
Works: 5678
Period: 01/01/2019 to 12/01/2019

Note: all parameters in this report will be derived from the Bslq Station

Parameter Short Name	Time Series	11/06/2019	11/19/2019	12/04/2019	12/17/2019	Average	Metal Concentrations in Sludge (mg/kg):	Max. Permissible Metal Concentrations (mg/kg of Solids):
As (mg/L)	Lab Published							170
Cd (mg/L)	Lab Published							34
Co (mg/L)	Lab Published							340
Cr (mg/L)	Lab Published							2800
Cu (mg/L)	Lab Published							1700
Hg (mg/L)	Lab Published							11
Mo (mg/L)	Lab Published							94
Ni (mg/L)	Lab Published							420
Pb (mg/L)	Lab Published							1100
Se (mg/L)	Lab Published							34
Zn (mg/L)	Lab Published							4200
E. Coli: Dry Wt (cfu/g)	Lab Published						E.Coli average is the GMD	
TS (mg/L)	Lab Published	50,700.000	49,700.000	48,800.000	47,200.000	49,100.000		
VS (mg/L)	Lab Published	24,900.000	24,300.000	25,900.000	24,100.000	24,800.000		
TP (mg/L)	Lab Published	1,140.000	1,770.000	1,280.000	1,520.000	1,427.500		
NO2-N (mg/L)	Lab Published	0.100	0.100	0.100	0.100	0.100		
TKN (mg/L)	Lab Published	1,450.000	2,120.000	1,770.000	2,060.000	1,850.000		
K (mg/L)	Lab Published							
NH3p_NH4p_N (mg/L)	Lab Published	6.800	6.600	0.300	1.550	3.813		
NO3-N (mg/L)	Lab Published	12.900	35.600	94.600	82.600	56.425		

Appendix D

Calibration Records

CapitalControls
Electrical/Control Panels – PLC/SCADA Programming – Instrumentation Calibrations
10-830 Industrial Ottawa, ON K1G-4B8 Ph. 613 248-1999 Fax: 613 248-1997

The Town of Almonte

Waste Water
Calibration / Verification of Instrumentation

Report February 4, 2019

Calibration Date: January 25, 2019

Calibration Due: January 25, 2020

Verifications performed by Tim Stewart

Report prepared by Tim Stewart

CapitalControls
Electrical/Control Panels – PLC/SCADA Programming – Instrumentation Calibrations
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CapitalControls
Electrical/Control Panels – PLC/SCADA Programming – Instrumentation Calibrations
10-830 Industrial Ave. Ottawa, ON K1G-4B8 Ph. 613 248-1999 Fax: 613 248-1997

1 List of Verified Devices

This letter is to confirm that annual verification on the following devices has been completed. Results of the all verifications are listed below.

ID	Process	Make/Model	Results
FIT-310	Septage Inlet Grinder	E&H/ Promag 53W	Passed
FIT-351	Septage Tank	E&H/ Promag 53P	Passed
FIT-611	R.A.S.	E&H/ Promag 10P	Passed
FIT-612	W.A.S.	E&H/ Promag 10P	Passed
FIT-631	R.A.S.	E&H/ Promag 10P	Passed
FIT-621	R.A.S.	E&H/ Promag 10P	Passed
FIT-622	W.A.S.	E&H/ Promag 10P	Passed
FIT-632	W.A.S.	E&H/ Promag 10P	Passed
FIT-750	Filtrate Tank	E&H/ Promag 10P	Passed
FIT-1091	Service Water	E&H/ Promag 10P	Passed
FIT-405	Attenuation	E&H/ Promag 53P	Passed
FIT-946	Fournier Press #1 Polymer	E&H/ Promag 50P	Passed
FIT-940	Fournier Press#1 Sludge	E&H/ Promag 50W	Passed
FIT-956	Fournier Press #2 Polymer	E&H/ Promag 50P	Passed
FIT-950	Fournier Press#2 Sludge	E&H/ Promag 50W	Passed
FIT-470	Raw Sewage Vortex #1	Siemens/Multiranger200	Passed
FIT-480	Raw Sewage Vortex #1	Siemens/Multiranger200	Passed
FIT-01	White Tail Ridge	E&H/ Promag 10	Passed
FIT-700	Plant	Rosemount/871	
FIT-1180	Final Effluent	Siemens/OCM III	Passed

Signed by Field Technician:

Instruments used during verification are Traceable to NIST standards. See Appendix for Calibration Reports

2 Equipment Used

The following equipment was used to perform the calibrations:

Fluke 725 Multifunction Process Calibrator used to measure current and pressure.

Level Simulator for the Flume Flow Meters

Endress and Hauser FieldCheck for Magnetic Flow Meters

3 Procedures Used

To verify the equipment standard verification procedures developped by the Township were used and standard industry practice.

3.1 Flowmeter Verification

Verification, Magnetic Flow Meter:

The verification of Endress & Hauser Flow measuring devices (the device under test) are checked for the following characteristic values:

1. Functionality and deviation in flow measurement.

2. Deviation in the current and frequency outputs in reference to the flow rate data determined by the measuring device.

Measuring devices: The verification system consists of the FlowCheck flow simulator, the Simubox and the appropriate connection cables.

FieldCheck: The FieldCheck flow simulator generates the flow simulation signals and processes the measured values sent back from the transmitter.

Simubox: The Simubox ensures that the FieldCheck simulation signal are correctly converted in the transmitter, by comparing the measurements returned from the transmitter to data stored within the Simubox for various parameters (Electromagnetic Field vs. Flow, Flow vs. Current, and various other parameters important in verifying the proper functionally of the device under test.

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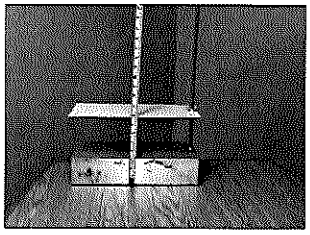
Verification of Flume Flow Meters:

By use of a mechanical level simulating tool installed in the Parshall Flume an exact level can be simulated causing the transmitter to display flow based on the simulator adjusted level.

Shown below is a picture of a simple level simulator used to simulate flows/levels in a Parshall Flume.



By adjusting the reflector upward from the bottom ridge of the base, which will sit on the floor of the flume directly under the level sensor, the flow meter will transmit and display the flow proportional to the simulated level. In this case a 24inch Parshall flume with the simulator set to 240mm can be verified against the chart on the next page. The flow on the transmitter should be comparable to 156.4 l/s.

CapitalControls
Electrical/Control Panels – PLC/SCADA Programming – Instrumentation Calibrations
10-830 Industrial Ave. Ottawa, ON K1G-4B8 Ph. 613 248-1999 Fax: 613 248-1997

FLOW CHART
GREYLINE INSTRUMENTS INC.
24" Parshall Flume

Formula: Q = KH^n
Where: Q = Flow in Liters per Second.
K = 0.031982
H = Head in Millimeters.
n = 1.5500
H maximum: 750.0 Millimeters
H increment: 5 Millimeters

mm	L/s	mm	L/s	mm	L/s	mm	L/s
5.000	0.3875	195.0	113.4	385.0	325.4	575.0	605.9
10.00	1.135	200.0	117.9	390.0	331.9	580.0	614.1
15.00	2.127	205.0	122.5	395.0	338.6	585.0	622.3
20.00	3.323	210.0	127.2	400.0	345.2	590.0	630.6
25.00	4.696	215.0	131.9	405.0	351.9	595.0	638.9
30.00	6.229	220.0	136.7	410.0	358.7	600.0	647.2
35.00	7.911	225.0	141.5	415.0	365.5	605.0	655.6
40.00	9.730	230.0	146.4	420.0	372.3	610.0	664.0
45.00	11.68	235.0	151.4	425.0	379.2	615.0	672.5
50.00	13.75	240.0	156.4	430.0	386.2	620.0	681.0
55.00	15.94	245.0	161.5	435.0	393.2	625.0	689.5
60.00	18.24	250.0	166.6	440.0	400.2	630.0	698.1
65.00	20.65	255.0	171.8	445.0	407.3	635.0	706.7
70.00	23.16	260.0	177.1	450.0	414.4	640.0	715.3
75.00	25.78	265.0	182.4	455.0	421.5	645.0	724.0
80.00	28.49	270.0	187.7	460.0	428.7	650.0	732.7
85.00	31.30	275.0	193.1	465.0	436.0	655.0	741.5
90.00	34.20	280.0	198.5	470.0	443.3	660.0	750.2
95.00	37.19	285.0	204.1	475.0	450.6	665.0	759.1
100.0	40.26	290.0	209.7	480.0	458.0	670.0	767.9
105.0	43.43	295.0	215.3	485.0	465.4	675.0	776.8
110.0	46.67	300.0	221.0	490.0	472.8	680.0	785.8
115.0	50.00	305.0	226.8	495.0	480.3	685.0	794.8
120.0	53.41	310.0	232.6	500.0	487.9	690.0	803.8
125.0	56.90	315.0	238.4	505.0	495.5	695.0	812.8
130.0	60.47	320.0	244.3	510.0	503.1	700.0	821.9
135.0	64.11	325.0	250.2	515.0	510.8	705.0	831.0
140.0	67.83	330.0	256.2	520.0	518.5	710.0	840.2
145.0	71.62	335.0	262.3	525.0	526.2	715.0	849.3
150.0	75.48	340.0	268.4	530.0	534.0	720.0	858.6
155.0	79.42	345.0	274.5	535.0	541.8	725.0	867.8
160.0	83.43	350.0	280.7	540.0	549.7	730.0	877.1
165.0	87.50	355.0	286.9	545.0	557.6	735.0	886.5
170.0	91.64	360.0	293.2	550.0	565.6	740.0	895.8
175.0	95.86	365.0	299.5	555.0	573.5	745.0	905.2
180.0	100.1	370.0	305.9	560.0	581.6	750.0	914.7
185.0	104.5	375.0	312.4	565.0	589.6		
190.0	108.9	380.0	318.8	570.0	597.7		

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4 Instrument Verification

See the following pages of reports for individual equipment.

4.1 FIT- 310 Septage Inlet Grinder

DTM Version: 3.29.00 Page 1/3

Flowmeter Verification Certificate Transmitter

Customer	Plant
Order code: PROMAG 53 W DN100	Tag Name: 1.2931 - 1.2931
Device type: E309B116000	K-Factor: 6
Serial number: V2.03.00	Zero point: V1.05.03
Software Version Transmitter: 01/24/2019	Software Version I/O-Module: 10:58 AM
Verification date	Verification time

Verification result Transmitter: Passed

Test item	Result	Applied Limits
Amplifier	Passed	Basis: 0.53 %
Current Output 1	Passed	0.05 mA
Pulse Output 1	Not tested	0 P
Test Sensor	Passed	

FieldCheck Details	Simubox Details
240223	8784351
Production number	Production number
1.07.08	1.00.01
Software Version	Software Version
06/2018	06/2018
Last Calibration Date	Last Calibration Date

Feb 4/19		
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.

Endress+Hauser

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FieldCheck - Result Tab Transmitter

Customer		Plant	
Order code		Tag Name	———
Device type	PROMAG 53 W DN100	K-Factor	1.2331 - 1.2331
Serial number	E309B116000	Zero point	6
Software Version Transmitter	V2.03.00	Software Version I/O-Module	V1.05.03
Verification date	01/24/2019	Verification time	10:58 AM

Verification Flow end value (100 %): 4633.180 m3/d
Flow speed 6.83 m/s

Passed / Failed	Test item	Simul. Signal	Limit Value	Deviation
	Test Transmitter			
✓	Amplifier	231.659 m3/d (5%)	1.09 %	-0.56 %
✓		463.318 m3/d (10.0%)	0.79 %	-0.15 %
✓		2316.590 m3/d (50.0%)	0.56 %	-0.08 %
✓		4633.180 m3/d (100%)	0.53 %	-0.08 %
✓	Current Output 1	4.000 mA (0%)	0.05 mA	-0.005 mA
✓		4.800 mA (5%)	0.05 mA	-0.005 mA
✓		5.600 mA (10.0%)	0.05 mA	-0.020 mA
✓		12.000 mA (50.0%)	0.05 mA	-0.003 mA
✓		20.000 mA (100%)	0.05 mA	0.009 mA
—	Pulse Output 1	—	—	—
		Start value	**Limits range**	**Measured value**
	Test Sensor			
✓	Coil Curr. Rise	5.000 ms	0.000..14.250 ms	7.909 ms
✓	Coil Curr. Stability		—	—
✓	Electrode Integrity	mV	0.0..300.000 mV	3.284 mV

Legend of symbols

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

Instruments used during verification are Traceable to NIST standards. See Appendix for Calibration Reports

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FieldCheck: Parameters Transmitter

Customer		Plant	
Order code		Tag Name	———
Device type	PROMAG 53 W DN100	K-Factor	1.2931 - 1.2931
Serial number	E309B116000	Zero point	6
Software Version Transmitter	V2.03.00	Software Version I/O-Module	V1.05.03
Verification date	01/24/2019	Verification time	10:58 AM

Curent Output	Assign	Current Range	Value 0 4mA	Value 20 mA		
Terminal 26/27	VOLUME FLOW	4-20 mA activ	0.0 m3/d	3270.60 m3/d		
Pulse Output	**Assign**	**Pulse Value**	**Output signal**	**Pulse width**		
Terminal 24/25	VOLUME FLOW	0.004 m3/P	Passive/Negative	20.00 ms		

Actual System Ident. 123.0

Instruments used during verification are Traceable to NIST standards. See Appendix for Calibration Reports

4.2 FIT- 351 Septage Tank

DTM Version: 3.29.00 Page 1/3

Flowmeter Verification Certificate Transmitter

Customer	Plant
	FIT350
Order code	Tag Name
PROMAG 53 P DN100	1.2918 - 1.2918
Device type	K-Factor
E60E6616000	2
Serial number	Zero point
V2.03.00	V1.05.03
Software Version Transmitter	Software Version I/O-Module
01/24/2019	11:11 AM
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	Not tested	0 P
Test Sensor	Passed	

FieldCheck Details	Simubox Details
240223	8784351
Production number	Production number
1.07.08	1.00.01
Software Version	Software Version
06/2018	06/2018
Last Calibration Date	Last Calibration Date

Feb 4/19

Date Operator's Sign Inspector's Sign

Overall results:
The achieved test results show that the instrumment 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.

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FieldCheck - Result Tab Transmitter

Customer		Plant	
Order code		Tag Name	FIT350
Device type	PROMAG 53 P DN100	K-Factor	1.2918 - 1.2918
Serial number	E60E6616000	Zero point	2
Software Version Transmitter	V2.03.00	Software Version I/O-Module	V1.05.03
Verification date	01/24/2019	Verification time	11:11 AM

Verification Flow end value (100 %): 2714.336 m3/d
Flow speed 4.00 m/s

Passed / Failed	Test item	Simul. Signal	Limit Value	Deviation
	Test Transmitter			
✓	Amplifier	135.717 m3/d (5%)	1.50 %	-0.48 %
✓		271.434 m3/d (10.0%)	1.00 %	-0.45 %
✓		1357.168 m3/d (50.0%)	0.60 %	-0.04 %
✓		2714.336 m3/d (100%)	0.55 %	0.01 %
✓	Current Output 1	4.000 mA (0%)	0.05 mA	-0.006 mA
✓		4.800 mA (5%)	0.05 mA	-0.005 mA
✓		5.600 mA (10.0%)	0.05 mA	-0.018 mA
✓		12.000 mA (50.0%)	0.05 mA	0.000 mA
✓		20.000 mA (100%)	0.05 mA	0.015 mA
—	Pulse Output 1	—	—	—
		Start value	Limits range	Measured value
	Test Sensor			
✓	Coil Curr. Rise	5.000 ms	0.000..14.250 ms	6.262 ms
✓	Coil Curr. Stability		—	—
✓	Electrode Integrity	mV	0.0..300.000 mV	0.000 mV

Legend of symbols

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

Instruments used during verification are Traceable to NIST standards. See Appendix for Calibration Reports

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FieldCheck: Parameters Transmitter

Customer		Plant	
Order code		Tag Name	FIT350
Device type	PROMAG 53 P DN100	K-Factor	1.2918 - 1.2918
Serial number	E60E6616000	Zero point	2
Software Version Transmitter	V2.03.00	Software Version I/O-Module	V1.05.03
Verification date	01/24/2019	Verification time	11:11 AM

Curent Output	Assign	Current Range	Value 0 4mA	Value 20 mA		
Terminal 26/27	VOLUME FLOW	4-20 mA activ	0.0 m3/d	4320.00 m3/d		
Pulse Output	**Assign**	**Pulse Value**	**Output signal**	**Pulse width**		
Terminal 24/25	VOLUME FLOW	0.008 m3/P	Passive/Positive	100.00 ms		

Actual System Ident. 121.0

Instruments used during verification are Traceable to NIST standards. See Appendix for Calibration Reports
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4.3 FIT- 611 R.A.S.

DTM Version: 3.29.00 Page 1/3

Flowmeter Verification Certificate Transmitter

Customer	Plant
	FIT-611
Order code	Tag Name
PROMAG 10 P DN150	1.0042 - 1.0042
Device type	K-Factor
E6085316000	0
Serial number	Zero point
V1.03.00	
Software Version Transmitter	Software Version I/O-Module
01/24/2019	12:30 PM
Verification date	Verification time

Verification result Transmitter: Passed

Test item	Result	Applied Limits
Amplifier	Passed	Basis: 0.65 %
Current Output 1	Passed	0.05 mA
Pulse Output 1	Not tested	0 P
Test Sensor	Passed	

FieldCheck Details	Simubox Details
240223	8784351
Production number	Production number
1.07.08	1.00.01
Software Version	Software Version
06/2018	06/2018
Last Calibration Date	Last Calibration Date

FEB 4/19

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.

Endress+Hauser

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FieldCheck - Result Tab Transmitter

Customer		Plant	
Order code		Tag Name	FIT-611
Device type	PROMAG 10 P DN150	K-Factor	1.0042 - 1.0042
Serial number	E60853160000	Zero point	0
Software Version Transmitter	V1.03.00	Software Version I/O-Module	
Verification date	01/24/2019	Verification time	12:30 PM

Verification Flow end value (100 %): 6107.256 m3/d
Flow speed 4.00 m/s

Passed / Failed	Test item	Simul. Signal	Limit Value	Deviation
	Test Transmitter			
✓	Amplifier	305.363 m3/d (5%)	1.60 %	-0.12 %
✓		610.725 m3/d (10.0%)	1.10 %	0.33 %
✓		3053.628 m3/d (50.0%)	0.70 %	-0.13 %
✓		6107.256 m3/d (100%)	0.55 %	-0.07 %
✓	Current Output 1	4.000 mA (0%)	0.05 mA	0.004 mA
✓		4.800 mA (5%)	0.05 mA	0.004 mA
✓		5.600 mA (10.0%)	0.05 mA	0.005 mA
✓		12.000 mA (50.0%)	0.05 mA	0.007 mA
✓		20.000 mA (100%)	0.05 mA	0.015 mA
—	Pulse Output 1	—	—	—
		Start value	Limits range	Measured value
	Test Sensor			
✓	Coil Curr. Rise	83.300 ms	20.000..83.300 ms	66.477 ms
✓	Coil Curr. Stability		—	—

Legend of symbols

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

Instruments used during verification are Traceable to NIST standards. See Appendix for Calibration Reports
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FieldCheck: Parameters Transmitter

Customer		Plant	
Order code		Tag Name	FIT-611
Device type	PROMAG 10 P DN150	K-Factor	1.0042 - 1.0042
Serial number	E6065316000	Zero point	0
Software Version Transmitter	V1.03.00	Software Version I/O-Module	
Verification date	01/24/2019	Verification time	12:30 PM

Curent Output	Assign	Current Range	Value 0 4mA	Value 20 mA		
Terminal 26/27	VOLUME FLOW	4-20 mA activ	0.0 m3/d	3456.00 m3/d		
Pulse Output	**Assign**	**Pulse Value**	**Output signal**	**Pulse width**		
Terminal 24/25	VOLUME FLOW	0.025 m3/P	Passive/Positive	100.00 ms		

Actual System Ident. 133.0

Instruments used during verification are Traceable to NIST standards. See Appendix for Calibration Reports

4.4 FIT- 612 W.A.S.

DTM Version: 3.29.00 Page 1/3

Flowmeter Verification Certificate Transmitter

Customer	Plant: FIT-612
Order code: PROMAG 10 P DN80	Tag Name: 1.0337 - 1.0337
Device type: E6086D16000	K-Factor: 0
Serial number: V1.03.00	Zero point
Software Version Transmitter: 01/24/2019	Software Version I/O-Module: 01:19 PM
Verification date	Verification time

Verification result Transmitter: Passed

Test item	Result	Applied Limits
Amplifier	Passed	Basis: 0.63 %
Current Output 1	Passed	0.05 mA
Pulse Output 1	Not tested	0 P
Test Sensor	Passed	

FieldCheck Details	Simubox Details
240223	8784351
Production number	Production number
1.07.08	1.00.01
Software Version	Software Version
06/2018	06/2018
Last Calibration Date	Last Calibration Date

Feb 4/19 — 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.

Endress+Hauser

FieldCheck - Result Tab Transmitter

Customer		Plant	
Order code		Tag Name	FIT-612
Device type	PROMAG 10 P DN80	K-Factor	1.0337 - 1.0337
Serial number	E608SD16000	Zero point	0
Software Version Transmitter	V1.03.00	Software Version I/O-Module	
Verification date	01/24/2019	Verification time	01:19 PM

Verification Flow end value (100 %): 2856.000 m3/d
Flow speed 6.58 m/s

Passed / Failed	Test item	Simul. Signal	Limit Value	Deviation
✓	Test Transmitter			
✓	Amplifier	142.800 m3/d (5%)	1.21 %	-0.34 %
✓		285.600 m3/d (10.0%)	0.90 %	-0.11 %
✓		1428.000 m3/d (50.0%)	0.56 %	-0.01 %
✓		2856.000 m3/d (100%)	0.53 %	0.01 %
✓	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	-0.001 mA
✓		12.000 mA (50.0%)	0.05 mA	-0.002 mA
✓		20.000 mA (100%)	0.05 mA	0.004 mA
—	Pulse Output 1	—	—	—
		Start value	Limits range	Measured value
	Test Sensor			
✓	Coil Curr. Rise	50.000 ms	13.340..50.000 ms	43.203 ms
✓	Coil Curr. Stability		—	—

Legend of symbols

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

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FieldCheck: Parameters Transmitter

Customer		Plant	
Order code		Tag Name	FIT-612
Device type	PROMAG 10 P DN80	K-Factor	1.0337 - 1.0337
Serial number	E608SD16090	Zero point	0
Software Version Transmitter	V1.03.00	Software Version I/O-Module	
Verification date	01/24/2019	Verification time	01:19 PM

Curent Output	Assign	Current Range	Value 0 4mA	Value 20 mA		
Terminal 26/27	VOLUME FLOW	4-20 mA activ	0.0 m3/d	864.00 m3/d		
Pulse Output	**Assign**	**Pulse Value**	**Output signal**	**Pulse width**		
Terminal 24/25	VOLUME FLOW	0.005 m3/P	Passive/Positive	100.00 ms		

Actual System Ident. 128.0

Instruments used during verification are Traceable to NIST standards. See Appendix for Calibration Reports

4.5 FIT- 631 R.A.S.

DTM Version: 3.29.00 Page 1/3

Flowmeter Verification Certificate Transmitter

Customer	Plant: FIT-631
Order code: PROMAG 10 P DN150	Tag Name: 1.016 - 1.016
Device type: E608FE16000	K-Factor: 0
Serial number: V1.03.00	Zero point
Software Version Transmitter: 01/24/2019	Software Version I/O-Module: 01:34 PM
Verification date	Verification time

Verification result Transmitter: Passed

Test item	Result	Applied Limits
Amplifier	Passed	Basis: 0.65 %
Current Output 1	Passed	0.05 mA
Pulse Output 1	Not tested	0 P
Test Sensor	Passed	

FieldCheck Details	Simubox Details
240223	8784351
Production number: 1.07.08	Production number: 1.00.01
Software Version: 06/2018	Software Version: 06/2018
Last Calibration Date	Last Calibration Date

Feb 4/19

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.

Endress+Hauser

Instruments used during verification are Traceable to NIST standards. See Appendix for Calibration Reports

FieldCheck - Result Tab Transmitter

Customer		Plant	
Order code		Tag Name	FIT-631
Device type	PROMAG 10 P DN150	K-Factor	1.016 - 1.016
Serial number	E608FE16000	Zero point	0
Software Version Transmitter	V1.03.00	Software Version I/O-Module	
Verification date	01/24/2019	Verification time	01:34 PM

Verification Flow end value (100 %): 6107.256 m3/d
Flow speed 4.00 m/s

Passed / Failed	Test item	Simul. Signal	Limit Value	Deviation
	Test Transmitter			
✓	Amplifier	305.363 m3/d (5%)	1.50 %	-0.64 %
✓		610.726 m3/d (10.0%)	1.10 %	0.09 %
✓		3053.628 m3/d (50.0%)	0.70 %	-0.07 %
✓		6107.256 m3/d (100%)	0.55 %	-0.03 %
✓	Current Output 1	4.000 mA (0%)	0.05 mA	0.006 mA
✓		4.800 mA (5%)	0.05 mA	-0.003 mA
✓		5.600 mA (10.0%)	0.05 mA	-0.003 mA
✓		12.000 mA (50.0%)	0.05 mA	-0.006 mA
✓		20.000 mA (100%)	0.05 mA	0.002 mA
—	Pulse Output 1	—	—	—
		Start value	Limits range	Measured value
	Test Sensor			
✓	Coil Curr. Rise	83.300 ms	20.000..83.300 ms	66.790 ms
✓	Coil Curr. Stability		—	—

Legend of symbols

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

FieldCheck: Parameters Transmitter

Customer		Plant	
Order code		Tag Name	FIT-GS1
Device type	PROMAG 10 P DN150	K-Factor	1.016 - 1.016
Serial number	E608FE16000	Zero point	0
Software Version Transmitter	V1.03.00	Software Version I/O-Module	
Verification date	01/24/2019	Verification time	01:34 PM

Curent Output	Assign	Current Range	Value 0 4mA	Value 20 mA		
Terminal 26/27	VOLUME FLOW	4-20 mA activ	0.0 m3/d	3456.00 m3/d		
Pulse Output	**Assign**	**Pulse Value**	**Output signal**	**Pulse width**		
Terminal 24/25	VOLUME FLOW	0.025 m3/P	Passive/Positive	100.00 ms		

Actual System Ident. 129.0

4.6 FIT- 621 R.A.S.

DTM Version: 3.29.00 Page 1/3

Flowmeter Verification Certificate Transmitter

Customer	Plant: FIT-621
Order code: PROMAG 10 P DN150	Tag Name: 1.0176 - 1.0176
Device type: E6087E16000	K-Factor: 0
Serial number: V1.03.00	Zero point
Software Version Transmitter: 01/24/2019	Software Version I/O-Module: 01:44 PM
Verification date	Verification time

Verification result Transmitter: Passed

Test item	Result	Applied Limits
Amplifier	Passed	Basis: 0.65 %
Current Output 1	Passed	0.05 mA
Pulse Output 1	Not tested	0 P
Test Sensor	Passed	

FieldCheck Details	Simubox Details
240223	8784351
Production number	Production number
1.07.08	1.00.01
Software Version	Software Version
06/2018	06/2018
Last Calibration Date	Last Calibration Date

Feb 4/19

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.

Endress+Hauser

Instruments used during verification are Traceable to NIST standards. See Appendix for Calibration Reports

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FieldCheck - Result Tab Transmitter

Customer		Plant	
Order code		Tag Name	FIT-622
Device type	PROMAG 10 P DN80	K-Factor	1.0288 - 1.0288
Serial number	E608FC16000	Zero point	0
Software Version Transmitter	V1.03.00	Software Version I/O-Module	
Verification date	01/24/2019	Verification time	01:54 PM

Verification Flow end value (100 %): 1737.175 m3/d
Flow speed 4.00 m/s

Passed / Failed	Test item	Simul. Signal	Limit Value	Deviation
	Test Transmitter			
✓	Amplifier	86.859 m3/d (5%)	1.60 %	-0.71 %
✓		173.717 m3/d (10.0%)	1.10 %	-0.20 %
✓		868.588 m3/d (50.0%)	0.70 %	-0.04 %
✓		1737.175 m3/d (100%)	0.65 %	-0.04 %
✓	Current Output 1	4.000 mA (0%)	0.05 mA	0.006 mA
✓		4.800 mA (5%)	0.05 mA	0.000 mA
✓		5.600 mA (10.0%)	0.05 mA	0.002 mA
✓		12.000 mA (50.0%)	0.05 mA	0.004 mA
✓		20.000 mA (100%)	0.05 mA	0.019 mA
–	Pulse Output 1	–	–	–
		Start value	**Limits range**	**Measured value**
	Test Sensor			
✓	Coil Curr. Rise	50.000 ms	13.340..50.000 ms	43.099 ms
✓	Coil Curr. Stability		–	–

Legend of symbols

✓	X	–	?	!
Passed	Failed	not tested	not testable	Attention

Instruments used during verification are Traceable to NIST standards. See Appendix for Calibration Reports
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FieldCheck: Parameters Transmitter

Customer		Plant	
Order code		Tag Name	FIT-621
Device type	PROMAG 10 P DN150	K-Factor	1.0176 - 1.0176
Serial number	E6087E1G000	Zero point	0
Software Version Transmitter	V1.03.00	Software Version I/O-Module	
Verification date	01/24/2015	Verification time	01:44 PM

Curent Output	Assign	Current Range	Value 0 4mA	Value 20 mA		
Terminal 26/27	VOLUME FLOW	4-20 mA activ	0.0 m3/d	3456.00 m3/d		
Pulse Output	**Assign**	**Pulse Value**	**Output signal**	**Pulse width**		
Terminal 24/25	VOLUME FLOW	0.025 m3/P	Passive/Positive	100.00 ms		

Actual System Ident. 127.0

Instruments used during verification are Traceable to NIST standards. See Appendix for Calibration Reports
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4.7 FIT- 622 W.A.S.

DTM Version: 3.29.00 Page 1/3

Flowmeter Verification Certificate Transmitter

Customer	Plant: FIT-622
Order code: PROMAG 10 P DN80	Tag Name: 1.0288 - 1.0288
Device type: E608FC18000	K-Factor: 0
Serial number: V1.03.00	Zero point
Software Version Transmitter: 01/24/2019	Software Version I/O-Module: 01:54 PM
Verification date	Verification time

Verification result Transmitter: Passed

Test item	Result	Applied Limits
Amplifier	Passed	Basis: 0.65 %
Current Output 1	Passed	0.05 mA
Pulse Output 1	Not tested	0 P
Test Sensor	Passed	

FieldCheck Details	Simubox Details
Production number: 240223	Production number: 8784351
Software Version: 1.07.08	Software Version: 1.00.01
Last Calibration Date: 06/2018	Last Calibration Date: 06/2018

Feb 4/19 — 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.

Endress+Hauser

FieldCheck - Result Tab Transmitter

Customer		Plant	
Order code		Tag Name	FIT-622
Device type	PROMAG 10 P DN80	K-Factor	1.0288 - 1.0288
Serial number	E608FC16900	Zero point	0
Software Version Transmitter	V1.03.00	Software Version I/O-Module	
Verification date	01/24/2019	Verification time	01:54 PM

Verification Flow end value (100 %): 1737.175 m3/d
Flow speed 4.00 m/s

Passed / Failed	Test item	Simul. Signal	Limit Value	Deviation
	Test Transmitter			
✓	Amplifier	86.859 m3/d (5%)	1.60 %	-0.71 %
✓		173.717 m3/d (10.0%)	1.10 %	-0.20 %
✓		868.588 m3/d (50.0%)	0.70 %	-0.04 %
✓		1737.175 m3/d (100%)	0.65 %	-0.04 %
✓	Current Output 1	4.000 mA (0%)	0.05 mA	0.006 mA
✓		4.800 mA (5%)	0.05 mA	0.000 mA
✓		5.600 mA (10.0%)	0.05 mA	0.002 mA
✓		12.000 mA (50.0%)	0.05 mA	0.004 mA
✓		20.000 mA (100%)	0.05 mA	0.019 mA
—	Pulse Output 1	—	—	—
		Start value	Limits range	Measured value
	Test Sensor			
✓	Coil Curr. Rise	50.000 ms	13.340..50.000 ms	43.099 ms
✓	Coil Curr. Stability		—	—

Legend of symbols

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

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FieldCheck: Parameters Transmitter

Customer		Plant	
Order code		Tag Name	FIT-622
Device type	PROMAG 10 P DN80	K-Factor	1.0268 - 1.0268
Serial number	E608FC16000	Zero point	0
Software Version Transmitter	V1.03.00	Software Version I/O-Module	
Verification date	01/24/2019	Verification time	01:54 PM

Curent Output	Assign	Current Range	Value 0 4mA	Value 20 mA		
Terminal 26/27	VOLUME FLOW	4-20 mA activ	0.0 m3/d	864.00 m3/d		
Pulse Output	**Assign**	**Pulse Value**	**Output signal**	**Pulse width**		
Terminal 24/25	VOLUME FLOW	0.005 m3/P	Passive/Positive	100.00 ms		

Actual System Ident. 127.0

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4.8 FIT- 632 W.A.S.

DTM Version: 3.29.00 Page 1/3

Flowmeter Verification Certificate Transmitter

Customer	Plant: FIT-632
Order code: PROMAG 10 P DN80	Tag Name: 1.055 - 1.055
Device type: E6088416000	K-Factor: 0
Serial number: V1.03.00	Zero point
Software Version Transmitter: 01/24/2019	Software Version I/O-Module: 02:10 PM
Verification date	Verification time

Verification result Transmitter: Passed

Test item	Result	Applied Limits
Amplifier	Passed	Basis: 0.65 %
Current Output 1	Passed	0.05 mA
Pulse Output 1	Not tested	0 P
Test Sensor	Passed	

FieldCheck Details	Simubox Details
240223	8784351
Production number: 1.07.08	Production number: 1.00.01
Software Version: 06/2018	Software Version: 06/2018
Last Calibration Date	Last Calibration Date

Feb 4/19 — Date | Operator's Sign | Inspector's Sign

Overall results:
The achieved test results show that the instrumment 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.

Endress+Hauser

Instruments used during verification are Traceable to NIST standards. See Appendix for Calibration Reports

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FieldCheck - Result Tab Transmitter

Customer		Plant	
Order code		Tag Name	FIT-632
Device type	PROMAG 10 P DN80	K-Factor	1.055 - 1.055
Serial number	E608841C000	Zero point	0
Software Version Transmitter	V1.03.00	Software Version I/O-Module	
Verification date	01/24/2019	Verification time	02:10 PM

Verification Flow end value (100 %): 1737.175 m3/d
Flow speed 4.00 m/s

Passed / Failed	Test item	Simul. Signal	Limit Value	Deviation
	Test Transmitter			
✓	Amplifier	86.859 m3/d (5%)	1.60 %	-0.28 %
✓		173.717 m3/d (10.0%)	1.10 %	-0.72 %
✓		868.588 m3/d (50.0%)	0.70 %	-0.18 %
✓		1737.175 m3/d (100%)	0.55 %	-0.05 %
✓	Current Output 1	4.000 mA (0%)	0.05 mA	-0.001 mA
✓		4.800 mA (5%)	0.05 mA	-0.003 mA
✓		5.600 mA (10.0%)	0.05 mA	0.000 mA
✓		12.000 mA (50.0%)	0.05 mA	0.003 mA
✓		20.000 mA (100%)	0.05 mA	0.019 mA
—	Pulse Output 1	—	—	—
		Start value	Limits range	Measured value
	Test Sensor			
✓	Coil Curr. Rise	50.000 ms	13.340..50.000 ms	43.307 ms
✓	Coil Curr. Stability		—	—

Legend of symbols

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

Instruments used during verification are Traceable to NIST standards. See Appendix for Calibration Reports
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FieldCheck: Parameters Transmitter

Customer		Plant	
Order code		Tag Name	FIT-632
Device type	PROMAG 10 P DN80	K-Factor	1.055 - 1.055
Serial number	E6088416000	Zero point	0
Software Version Transmitter	V1.03.00	Software Version I/O-Module	
Verification date	01/24/2019	Verification time	02:10 PM

Curent Output	Assign	Current Range	Value 0 4mA	Value 20 mA		
Terminal 26/27	VOLUME FLOW	4-20 mA activ	0.0 m3/d	864.00 m3/d		
Pulse Output	**Assign**	**Pulse Value**	**Output signal**	**Pulse width**		
Terminal 24/25	VOLUME FLOW	0.005 m3/P	Passive/Positive	100.00 ms		

Actual System Ident. 125.0

Instruments used during verification are Traceable to NIST standards. See Appendix for Calibration Reports
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4.9 FIT- 750 Filtrate Tank

DTM Version: 3.29.00 Page 1/3

Flowmeter Verification Certificate Transmitter

Customer	Plant: FIT-750
Order code: PROMAG 10 P DN80	Tag Name: 1.1234 - 1.1234
Device type: E6086E16000	K-Factor: 0
Serial number: V1.03.00	Zero point
Software Version Transmitter: 01/24/2019	Software Version I/O-Module: 02:20 PM
Verification date	Verification time

Verification result Transmitter: Passed

Test item	Result	Applied Limits
Amplifier	Passed	Basis: 0.65 %
Current Output 1	Passed	0.05 mA
Pulse Output 1	Not tested	0 P
Test Sensor	Passed	

FieldCheck Details	Simubox Details
240223	8784351
Production number: 1.07.08	Production number: 1.00.01
Software Version: 06/2018	Software Version: 06/2018
Last Calibration Date	Last Calibration Date

Date: 2/4/19 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.

Endress+Hauser

Instruments used during verification are Traceable to NIST standards. See Appendix for Calibration Reports

FieldCheck - Result Tab Transmitter

Customer		Plant	
Order code		Tag Name	FIT-750
Device type	PROMAG 10 P DN80	K-Factor	1.1234 - 1.1234
Serial number	EG086E16000	Zero point	0
Software Version Transmitter	V1.03.00	Software Version I/O-Module	
Verification date	01/24/2019	Verification time	02:20 PM

Verification Flow end value (100 %): 1737.175 m3/d
Flow speed 4.00 m/s

Passed / Failed	Test item	Simul. Signal	Limit Value	Deviation
	Test Transmitter			
✓	Amplifier	86.859 m3/d (5%)	1.60 %	-0.29 %
✓		173.717 m3/d (10.0%)	1.10 %	-0.59 %
✓		868.588 m3/d (50.0%)	0.70 %	-0.01 %
✓		1737.175 m3/d (100%)	0.55 %	-0.03 %
✓	Current Output 1	4.000 mA (0%)	0.05 mA	0.000 mA
✓		4.800 mA (5%)	0.05 mA	-0.001 mA
✓		5.600 mA (10.0%)	0.05 mA	0.000 mA
✓		12.000 mA (50.0%)	0.05 mA	0.004 mA
✓		20.000 mA (100%)	0.05 mA	0.021 mA
—	Pulse Output 1	—	—	—
		Start value	**Limits range**	**Measured value**
	Test Sensor			
✓	Coil Curr. Rise	50.000 ms	13.340..50.000 ms	43.802 ms
✓	Coil Curr. Stability		—	—

Legend of symbols

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

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FieldCheck: Parameters Transmitter

Customer		Plant	
Order code		Tag Name	FIT-750
Device type	PROMAG 10 P DN80	K-Factor	1.1234 - 1.1234
Serial number	E606GE16000	Zero point	0
Software Version Transmitter	V1.03.00	Software Version I/O-Module	
Verification date	01/24/2019	Verification time	02:20 PM

Curent Output	Assign	Current Range	Value 0 4mA	Value 20 mA		
Terminal 26/27	VOLUME FLOW	4-20 mA activ	0.0 m3/d	4320.00 m3/d		
Pulse Output	**Assign**	**Pulse Value**	**Output signal**	**Pulse width**		
Terminal 24/25	VOLUME FLOW	0.005 m3/P	Passive/Positive	100.00 ms		

Actual System Ident. 125.0

Instruments used during verification are Traceable to NIST standards. See Appendix for Calibration Reports
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4.10 FIT- 1091 Service Water

DTM Version: 3.29.00 Page 1/3

Flowmeter Verification Certificate Transmitter

Customer	Plant: FIT-1091
Order code: PROMAG 10 P DN150	Tag Name: 1.0062 - 1.0062
Device type: E608FD16000	K-Factor: 0
Serial number: V1.03.00	Zero point
Software Version Transmitter: 01/24/2019	Software Version I/O-Module: 02:32 PM
Verification date	Verification time

Verification result Transmitter: Passed

Test item	Result	Applied Limits
Amplifier	Passed	Basis: 0.65 %
Current Output 1	Passed	0.05 mA
Pulse Output 1	Not tested	0 P
Test Sensor	Passed	

FieldCheck Details	Simubox Details
240223	8784351
Production number	Production number
1.07.08	1.00.01
Software Version	Software Version
06/2018	06/2018
Last Calibration Date	Last Calibration Date

Feb 4/19

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.

Endress+Hauser

Instruments used during verification are Traceable to NIST standards. See Appendix for Calibration Reports

FieldCheck - Result Tab Transmitter

Customer		Plant	
Order code		Tag Name	FIT-1091
Device type	PROMAG 10 P DN150	K-Factor	1.0062 - 1.0062
Serial number	E608FD16000	Zero point	0
Software Version Transmitter	V1.03.00	Software Version I/O-Module	
Verification date	01/24/2019	Verification time	02:32 PM

Verification Flow end value (100 %): 70.686 l/s
Flow speed 4.00 m/s

Passed / Failed	Test item	Simul. Signal	Limit Value	Deviation
	Test Transmitter			
✓	Amplifier	3.534 l/s (5%)	1.60 %	-0.45 %
✓		7.069 l/s (10.0%)	1.10 %	-0.20 %
✓		35.343 l/s (50.0%)	0.70 %	-0.04 %
✓		70.686 l/s (100%)	0.65 %	0.01 %
✓	Current Output 1	4.000 mA (0%)	0.05 mA	-0.003 mA
✓		4.800 mA (5%)	0.05 mA	-0.002 mA
✓		5.600 mA (10.0%)	0.05 mA	-0.001 mA
✓		12.000 mA (50.0%)	0.05 mA	0.004 mA
✓		20.000 mA (100%)	0.05 mA	0.019 mA
—	Pulse Output 1	—	—	—
		Start value	Limits range	Measured value
	Test Sensor			
✓	Coil Curr. Rise	83.300 ms	20.000..83.300 ms	66.529 ms
✓	Coil Curr. Stability		—	—

Legend of symbols

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

FieldCheck: Parameters Transmitter

Customer		Plant	
Order code		Tag Name	FIT-1091
Device type	PROMAG 10 P DN150	K-Factor	1.0062 - 1.0062
Serial number	E60BFD16000	Zero point	0
Software Version Transmitter	V1.03.00	Software Version I/O-Module	
Verification date	01/24/2019	Verification time	02:32 PM

Curent Output	Assign	Current Range	Value 0 4mA	Value 20 mA		
Terminal 26/27	VOLUME FLOW	4-20 mA activ	0.0 l/s	50.00 l/s		
Pulse Output	**Assign**	**Pulse Value**	**Output signal**	**Pulse width**		
Terminal 24/25	VOLUME FLOW	0.025 m3/P	Passive/Positive	100.00 ms		

Actual System Ident. 125.0

4.11 FIT- 405 Attenuation

DTM Version: 3.29.00 Page 1/3

Flowmeter Verification Certificate Transmitter

Customer	Plant
	FIT-405
Order code	Tag Name
PROMAG 53 P DN200	1.0223 - 1.0223
Device type	K-Factor
E6088316000	11
Serial number	Zero point
V2.03.00	V1.05.03
Software Version Transmitter	Software Version I/O-Module
01/24/2019	02:48 PM
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	Not tested	0 P
Test Sensor	Passed	

FieldCheck Details	**Simubox Details**
240223	8784351
Production number	Production number
1.07.08	1.00.01
Software Version	Software Version
06/2018	06/2018
Last Calibration Date	Last Calibration Date

Feb 4/19

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.

Endress+Hauser

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FieldCheck - Result Tab Transmitter

Customer		Plant	
Order code		Tag Name	FIT-405
Device type	PROMAG 53 P DN200	K-Factor	1.0223 - 1.0223
Serial number	E608831G000	Zero point	11
Software Version Transmitter	V2.03.00	Software Version I/O-Module	V1.05.03
Verification date	01/24/2019	Verification time	02:48 PM

Verification Flow end value (100 %): 125.664 l/s
Flow speed 4.00 m/s

Passed / Failed	Test item	Simul. Signal	Limit Value	Deviation
	Test Transmitter			
✓	Amplifier	6.283 l/s (5%)	1.50 %	-0.43 %
✓		12.566 l/s (10.0%)	1.00 %	-0.02 %
✓		62.832 l/s (50.0%)	0.60 %	-0.06 %
✓		125.664 l/s (100%)	0.55 %	0.00 %
✓	Current Output 1	4.000 mA (0%)	0.05 mA	-0.006 mA
✓		4.800 mA (5%)	0.05 mA	-0.006 mA
✓		5.600 mA (10.0%)	0.05 mA	-0.016 mA
✓		12.000 mA (50.0%)	0.05 mA	-0.002 mA
✓		20.000 mA (100%)	0.05 mA	0.013 mA
—	Pulse Output 1	—	—	—
		Start value	**Limits range**	**Measured value**
	Test Sensor			
✓	Coil Curr. Rise	13.300 ms	0.000...27.625 ms	18.318 ms
✓	Coil Curr. Stability		—	—
✓	Electrode Integrity	mV	0.0...300.000 mV	0.000 mV

Legend of symbols

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

Instruments used during verification are Traceable to NIST standards. See Appendix for Calibration Reports

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FieldCheck: Parameters Transmitter

Customer	
Order code	
Device type	PROMAG 55 P DN200
Serial number	E608831G000
Software Version Transmitter	V2.03.00
Verification date	01/24/2019

Plant	
Tag Name	FIT-405
K-Factor	1.0223 - 1.0223
Zero point	11
Software Version I/O-Module	V1.05.03
Verification time	02:48 PM

Curent Output	Assign	Current Range	Value 0 4mA	Value 20 mA		
Terminal 26/27	VOLUME FLOW	4-20 mA activ	0.0 l/s	150.00 l/s		
Pulse Output	**Assign**	**Pulse Value**	**Output signal**	**Pulse width**		
Terminal 24/25	VOLUME FLOW	37.854 l/P	Passive/Positiv e	100.00 ms		

Actual System Ident. 123.0

Instruments used during verification are Traceable to NIST standards. See Appendix for Calibration Reports

4.12 FIT- 946 Fournier Press #1 Polymer Flow

DTM Version: 3.29.00 Page 1/3

Flowmeter Verification Certificate Transmitter

Customer	Plant
Order code: PROMAG 50 P DN25	Tag Name: 0.8218 - 0.8218
Device type: DA084316000	K-Factor: 7
Serial number: V2.03.00	Zero point: V1.04.02
Software Version Transmitter: 01/25/2019	Software Version I/O-Module: 09:24 AM
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	Not tested	0 P
Test Sensor	Passed	

FieldCheck Details	Simubox Details
Production number: 240223	Production number: 8784351
Software Version: 1.07.08	Software Version: 1.00.01
Last Calibration Date: 06/2018	Last Calibration Date: 06/2018

Feb 4/19 — Date | Operator's Sign | Inspector's Sign

Overall results:
The achieved test results show that the instrumment 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.

Endress+Hauser

FieldCheck - Result Tab Transmitter

Customer		Plant	
Order code		Tag Name	——
Device type	PROMAG 50 P DN25	K-Factor	0.8218 - 0.8218
Serial number	DA084316900	Zero point	7
Software Version Transmitter	V2.03.00	Software Version I/O-Module	V1.04.02
Verification date	01/25/2019	Verification time	09:24 AM

Verification Flow end value (100 %): 7068.583 l/h
Flow speed 4.00 m/s

Passed / Failed	Test item	Simul. Signal	Limit Value	Deviation
	Test Transmitter			
✓	Amplifier	353.429 l/h (5%)	1.50 %	-0.45 %
✓		706.858 l/h (10.0%)	1.00 %	-0.07 %
✓		3534.292 l/h (50.0%)	0.60 %	-0.01 %
✓		7068.583 l/h (100%)	0.55 %	0.00 %
✓	Current Output 1	4.000 mA (0%)	0.05 mA	-0.018 mA
✓		4.800 mA (5%)	0.05 mA	-0.018 mA
✓		5.600 mA (10.0%)	0.05 mA	-0.026 mA
✓		12.000 mA (50.0%)	0.05 mA	-0.002 mA
✓		20.000 mA (100%)	0.05 mA	0.039 mA
—	Pulse Output 1	—	—	—
		Start value	Limits range	Measured value
	Test Sensor			
✓	Coil Curr. Rise	2.400 ms	0.000..8.750 ms	3.587 ms
✓	Coil Curr. Stability		—	—
✓	Electrode Integrity	mV	0.0..300.000 mV	3.268 mV

Legend of symbols

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

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FieldCheck: Parameters Transmitter

Customer		Plant		
Order code		Tag Name	------	
Device type	PROMAG 50 P DN25	K-Factor	0.8218 - 0.8218	
Serial number	DA084316900	Zero point	7	
Software Version Transmitter	V2.03.00	Software Version I/O-Module	V1.04.02	
Verification date	01/25/2019	Verification time	09:24 AM	

Curent Output	Assign	Current Range	Value 0 4mA	Value 20 mA		
Terminal 26/27	VOLUME FLOW	4-20 mA activ	0.0 l/h	4088.24 l/h		
Pulse Output	**Assign**	**Pulse Value**	**Output signal**	**Pulse width**		
Terminal 24/25	VOLUME FLOW	0.757 l/P	Passive/Positive	100.00 ms		

Actual System Ident. 103.0

Instruments used during verification are Traceable to NIST standards. See Appendix for Calibration Reports

4.13 FIT- 940 Fournier Press #1 Sludge Flow

DTM Version: 3.29.00 Page 1/3

Flowmeter Verification Certificate Transmitter

Customer	Plant
Order code	Tag Name
PROMAG 50 W DN80	0.9282 - 0.9282
Device type	K-Factor
D2012116000	4
Serial number	Zero point
V2.03.00	V1.04.01
Software Version Transmitter	Software Version I/O-Module
01/25/2019	09:35 AM
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	Not tested	0 P
Test Sensor	Passed	

FieldCheck Details	Simubox Details
240223	8784351
Production number	Production number
1.07.08	1.00.01
Software Version	Software Version
06/2018	06/2018
Last Calibration Date	Last Calibration Date

Feb 4/19 — 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.

Endress+Hauser

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FieldCheck - Result Tab Transmitter

Customer		Plant	
Order code		Tag Name	———
Device type	PROMAG 50 W DN80	K-Factor	0.9282 - 0.9282
Serial number	D2812116000	Zero point	4
Software Version Transmitter	V2.03.00	Software Version I/O-Module	V1.04.01
Verification date	01/25/2019	Verification time	09:35 AM

Verification Flow end value (100 %): 72.382 m3/h
Flow speed 4.00 m/s

Passed / Failed	Test item	Simul. Signal	Limit Value	Deviation
	Test Transmitter			
✓	Amplifier	3.619 m3/h (5%)	1.50 %	-0.47 %
✓		7.238 m3/h (10.0%)	1.00 %	-0.08 %
✓		36.191 m3/h (50.0%)	0.60 %	-0.04 %
✓		72.382 m3/h (100%)	0.55 %	0.01 %
✓	Current Output 1	4.000 mA (0%)	0.05 mA	-0.016 mA
✓		4.800 mA (5%)	0.05 mA	-0.014 mA
✓		5.600 mA (10.0%)	0.05 mA	-0.027 mA
✓		12.000 mA (50.0%)	0.05 mA	-0.002 mA
✓		20.000 mA (100%)	0.05 mA	0.032 mA
—	Pulse Output 1	—	—	—
		Start value	**Limits range**	**Measured value**
	Test Sensor			
✓	Coil Curr. Rise	4.200 ms	0.000..12.650 ms	5.342 ms
✓	Coil Curr. Stability		—	—
✓	Electrode Integrity	mV	0.0..300.000 mV	3.228 mV

Legend of symbols

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

Instruments used during verification are Traceable to NIST standards. See Appendix for Calibration Reports

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FieldCheck: Parameters Transmitter

Customer		Plant	
Order code		Tag Name	----------
Device type	PROMAG 50 W DN80	K-Factor	0.9282 - 0.9282
Serial number	D2912116000	Zero point	4
Software Version Transmitter	V2.03.00	Software Version I/O-Module	V1.04.01
Verification date	01/25/2019	Verification time	09:35 AM

Curent Output	Assign	Current Range	Value 0 4mA	Value 20 mA		
Terminal 26/27	VOLUME FLOW	4-20 mA activ	0.0 m3/h	45.42 m3/h		
Pulse Output	**Assign**	**Pulse Value**	**Output signal**	**Pulse width**		
Terminal 24/25	VOLUME FLOW	0.008 m3/P	Passive/Positive	100.00 ms		

Actual System Ident. 107.0

10-830 Industrial Ave. Ottawa, ON K1G-4B8 Ph. 613 248-1999 Fax: 613 248-1997

4.14 FIT- 956 Fournier Press # 2 Polymer Flow

DTM Version: 3.29.00 Page 1/3

Flowmeter Verification Certificate Transmitter

Customer	Plant
Order code: PROMAG 50 P DN25	Tag Name: 0.8082 - 0.8082
Device type: DA084616000	K-Factor: 16
Serial number: V2.03.00	Zero point: V1.04.02
Software Version Transmitter: 01/25/2019	Software Version I/O-Module: 09:45 AM
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	Not tested	0 P
Test Sensor	Passed	

FieldCheck Details	Simubox Details
240223	8784351
Production number	Production number
1.07.08	1.00.01
Software Version	Software Version
06/2018	06/2018
Last Calibration Date	Last Calibration Date

Feb 4/19 — Date | Operator's Sign | Inspector's Sign

Overall results:
The achieved test results show that the instrumment 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.

Endress+Hauser

Instruments used during verification are Traceable to NIST standards. See Appendix for Calibration Reports

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FieldCheck - Result Tab Transmitter

Customer		Plant	
Order code		Tag Name	----
Device type	PROMAG 50 P DN25	K-Factor	0.8082 - 0.8082
Serial number	DA084616000	Zero point	16
Software Version Transmitter	V2.03.00	Software Version I/O-Module	V1.04.02
Verification date	01/25/2019	Verification time	09:45 AM

Verification Flow end value (100 %): 7068.583 l/h
Flow speed 4.00 m/s

Passed / Failed	Test item	Simul. Signal	Limit Value	Deviation
	Test Transmitter			
✓	Amplifier	353.429 l/h (5%)	1.50 %	-0.49 %
✓		706.858 l/h (10.0%)	1.00 %	-0.02 %
✓		3534.292 l/h (50.0%)	0.60 %	0.02 %
✓		7068.583 l/h (100%)	0.55 %	0.02 %
✓	Current Output 1	4.000 mA (0%)	0.05 mA	-0.013 mA
✓		4.800 mA (5%)	0.05 mA	-0.014 mA
✓		5.600 mA (10.0%)	0.05 mA	-0.026 mA
✓		12.000 mA (50.0%)	0.05 mA	-0.001 mA
✓		20.000 mA (100%)	0.05 mA	0.033 mA
–	Pulse Output 1	—	—	—
		Start value	Limits range	Measured value
	Test Sensor			
✓	Coil Curr. Rise	2.400 ms	0.000..8.750 ms	3.649 ms
✓	Coil Curr. Stability		—	—
✓	Electrode Integrity	mV	0.0..300.000 mV	3.266 mV

Legend of symbols

✓	X	–	?	!
Passed	Failed	not tested	not testable	Attention

Instruments used during verification are Traceable to NIST standards. See Appendix for Calibration Reports
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FieldCheck: Parameters Transmitter

Customer		Plant		
Order code		Tag Name	------	
Device type	PROMAG 50 P DN25	K-Factor	0.8062 - 0.8062	
Serial number	DA084616900	Zero point	16	
Software Version Transmitter	V2.03.00	Software Version I/O-Module	V1.04.02	
Verification date	01/25/2019	Verification time	09:45 AM	

Curent Output	Assign	Current Range	Value 0 4mA	Value 20 mA		
Terminal 26/27	VOLUME FLOW	4-20 mA activ	0.0 l/h	4088.24 l/h		
Pulse Output	**Assign**	**Pulse Value**	**Output signal**	**Pulse width**		
Terminal 24/25	VOLUME FLOW	0.757 l/P	Passive/Positive	100.00 ms		

Actual System Ident. 109.0

Instruments used during verification are Traceable to NIST standards. See Appendix for Calibration Reports

4.15 FIT – 950 Fournier Press #2 Sludge Flow

DTM Version: 3.29.00 Page 1/3

Flowmeter Verification Certificate Transmitter

Customer	Plant
Order code: PROMAG 50 W DN80	Tag Name: 1.0487 - 1.0487
Device type: D4010116000	K-Factor: 0
Serial number: V2.03.00	Zero point: V1.04.01
Software Version Transmitter: 01/25/2019	Software Version I/O-Module: 09:54 AM
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	Not tested	0 P
Test Sensor	Passed	

FieldCheck Details	**Simubox Details**
Production number: 240223	Production number: 8784351
Software Version: 1.07.08	Software Version: 1.00.01
Last Calibration Date: 06/2018	Last Calibration Date: 06/2018

Feb 4/19 — 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.

Endress+Hauser

Instruments used during verification are Traceable to NIST standards. See Appendix for Calibration Reports

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FieldCheck - Result Tab Transmitter

Customer		Plant	
Order code		Tag Name	———
Device type	PROMAG 50 W DN80	K-Factor	1.0487 - 1.0487
Serial number	D4010116000	Zero point	0
Software Version Transmitter	V2.03.00	Software Version I/O-Module	V1.04.01
Verification date	01/25/2019	Verification time	09:54 AM

Verification Flow end value (100 %): 72.382 m3/h
Flow speed 4.00 m/s

Passed / Failed	Test item	Simul. Signal	Limit Value	Deviation
	Test Transmitter			
✓	Amplifier	3.619 m3/h (5%)	1.50 %	-0.45 %
✓		7.238 m3/h (10.0%)	1.00 %	-0.02 %
✓		36.191 m3/h (50.0%)	0.60 %	0.01 %
✓		72.382 m3/h (100%)	0.55 %	0.07 %
✓	Current Output 1	4.000 mA (0%)	0.05 mA	-0.012 mA
✓		4.800 mA (5%)	0.05 mA	-0.012 mA
✓		5.600 mA (10.0%)	0.05 mA	-0.023 mA
✓		12.000 mA (50.0%)	0.05 mA	-0.001 mA
✓		20.000 mA (100%)	0.05 mA	0.025 mA
—	Pulse Output 1	—	—	—
		Start value	**Limits range**	**Measured value**
	Test Sensor			
✓	Coil Curr. Rise	4.200 ms	0.000..12.650 ms	4.893 ms
✓	Coil Curr. Stability		—	—
✓	Electrode Integrity	mV	0.0..300.000 mV	3.268 mV

Legend of symbols

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

Instruments used during verification are Traceable to NIST standards. See Appendix for Calibration Reports

CapitalControls
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FieldCheck: Parameters Transmitter

Customer		Plant	
Order code		Tag Name	------
Device type	PROMAG 50 W DN80	K-Factor	1.0487 - 1.0487
Serial number	D401011G000	Zero point	0
Software Version Transmitter	V2.03.00	Software Version I/O-Module	V1.04.01
Verification date	01/25/2019	Verification time	09:54 AM

Curent Output	Assign	Current Range	Value 0 4mA	Value 20 mA		
Terminal 26/27	VOLUME FLOW	4-20 mA activ	0.0 m3/h	45.42 m3/h		
Pulse Output	**Assign**	**Pulse Value**	**Output signal**	**Pulse width**		
Terminal 24/25	VOLUME FLOW	0.008 m3/P	Passive/Positive	100.00 ms		

Actual System Ident. 111.0

Instruments used during verification are Traceable to NIST standards. See Appendix for Calibration Reports

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4.16 FIT 470 Raw Sewage Vortex #1

FIELD EQUIPMENT VERIFICATION / CALIBRATION

DATE: **January 25 / 2018**

DESCRIPTION : **Vortex #1**	MODEL: Multiranger 200	TAG:**FIT-470**
MANUFACTURER : **Siemens**	Serial # PBD/B5180380	

Client Name: **Almonte WWTP**

Device Output Signal : **4-20 mA**

INSTALLATION INSPECTION

	DESCRIPTION	FINDINGS				COMMENTS		
		OK	FIXED	N/A	FAULTY			
	GENERAL					12" Parshall flume		
1	TAGGING			X			Empty distance	Range
2						P 06	1.095 m	.765 m
	MECHANICAL							
3	MOUNTING: check for proper fastening, etc.	X				P 07	1.095 m	.765 m
4	ORIENTATION: check for proper angle, etc.)	X						
5	POSITION: relative position to other components (i.e. for proper flow, blanking distance), etc.	X						
6								
	ELECTRICAL							
7		X						
8	WIRE TAGGING: (exists and proper wire type)	X						
9	QUALITY OF CONNECTIONS:	X						
10	GROUNDING:	X						
11	SHIELDING: (check if grounded only at PLC end of wire)	X						
12	CERTIFICATION CSA, ULC:	X						
13								

SET-UP/CALIBRATION

	DIGITAL		ADJUSTMENT USING	VERIFIED USING	SETPOINT / RANGE
14	SETPOINT ADJUSTMENT	MECHANICAL TYPE		Measuring Tape	
		ELECTRONIC TYPE	Fluke 725 calibrator S/N 8759025		4 - 20 mA = 39984 m3/day

Configuration Parameters:

Calibration Data Test Tolerance: 5.00%

	Measured Level	Display	Calculated	% Error	Status	Notes
	0.034 m	358 m3/day	322.7 m3/day	0.09%	Passed	
	0.081 m	1291 m3/day	1238 m3/day	0.13%	Passed	
	0.104 m	1913 m3/day	1826 m3/day	0.21%	Passed	

Error (% Full Scale) = ((Displayed Output - Calculated Variable) / Full Scale) * 100
= ((358 m3/day – 322.7 m3/day) / 39984)*100
= 0.09 % of full scale

Checked By: *Tim Stewart*
Cell: 613-325-9213
Email: tim.stewart@capitalcontrols.ca

Instruments used during verification are Traceable to NIST standards. See Appendix for Calibration Reports

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4.17 FIT- 480 Raw sewage Vortex #2

FIELD EQUIPMENT VERIFICATION / CALIBRATION

DATE: **January 25 / 2018**

DESCRIPTION : **Vortex #2**	MODEL: Multiranger 200	TAG:**FIT-480**
MANUFACTURER : **Siemens**	Serial # PBD/B5180395	

Client Name: **Almonte WWTP** — Device Output Signal : **4-20 mA**

INSTALLATION INSPECTION

	DESCRIPTION	FINDINGS				COMMENTS		
		OK	FIXED	N/A	FAULTY			
	GENERAL					**12" Parshall flume**		
1	TAGGING			X			**Empty distance**	**Range**
2						**P 06**	**1.095 m**	**.765 m**
	MECHANICAL							
3	MOUNTING: check for proper fastening, etc.	X				**P 07**	**1.095 m**	**.765 m**
4	ORIENTATION: check for proper angle, etc.)	X						
5	POSITION: relative position to other components (i.e. for proper flow, blanking distance), etc.	X						
6								
	ELECTRICAL							
7		X						
8	WIRE TAGGING: (exists and proper wire type)	X						
9	QUALITY OF CONNECTIONS:	X						
10	GROUNDING:	X						
11	SHIELDING: (check if grounded only at PLC end of wire)	X						
12	CERTIFICATION CSA, ULC:	X						
13								

SET-UP/CALIBRATION

	DIGITAL		ADJUSTMENT USING	VERIFIED USING	SETPOINT / RANGE
14	SETPOINT ADJUSTMENT	MECHANICAL TYPE		**Measuring Tape**	
		ELECTRONIC TYPE	**Fluke 725 calibrator S/N 8759025**		**4 - 20 mA = 39984 m3/day**

Configuration Parameters:

Calibration Data Test **Tolerance: 5.00%**

	Measured Level	Display	Calculated	% Error	Status	Notes
	0.05 m	**715 m3/day**	**660.9 m3/day**	**0.13%**	**Passed**	
	0.13 m	**2648 m3/day**	**2579 m3/day**	**0.17%**	**Passed**	
	0.17 m	**4041 m3/day**	**4024 m3/day**	**0.04%**	**Passed**	

Error (% Full Scale) = ((Displayed Output - Calculated Variable) / Full Scale) * 100
= ((715 m3/day – 660.9 m3/day) / 39984)*100
= 0.13 % of full scale

Checked By: *Tim Stewart*
Cell: 613-325-9213
Email: tim.stewart@capitalcontrols.ca

Instruments used during verification are Traceable to NIST standards. See Appendix for Calibration Reports

4.18 FIT-01 White Tail Ridge Pumping Station

DTM Version: 3.29.00

Flowmeter Verification Certificate Transmitter

Customer	Plant
Order code: PROMAG 10	Tag Name: 0 - 0
Device type: 123456789XY	K-Factor: 0
Serial number	Zero point
Software Version Transmitter: 01/28/2019	Software Version I/O-Module: 09:22 AM
Verification date	Verification time

Verification result Transmitter: Passed

Test item	Result	Applied Limits
Amplifier	Passed	Basis: 0.65 %
Test Sensor	Passed	

FieldCheck Details	Simubox Details
1_944822	NO SER 01
Production number	Production number
1.07.08	
Software Version	Software Version
06/2008	-/-
Last Calibration Date	Last Calibration Date

Feb 4/19

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.

Endress+Hauser

Instruments used during verification are Traceable to NIST standards. See Appendix for Calibration Reports

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FieldCheck - Result Tab Transmitter

Customer		Plant	
Order code		Tag Name	
Device type	PROMAG 10	K-Factor	0 - 0
Serial number	123456789XY	Zero point	0
Software Version Transmitter		Software Version I/O-Module	
Verification date	01/28/2019	Verification time	09:22 AM

Verification Flow end value (100 %): 0.000 n/x
Flow speed 4.00 m/s

Passed / Failed	Test item	Simul. Signal	Limit Value	Deviation
	Test Transmitter			
✓	Amplifier	0.000 n/x (5%)	1.60 %	0.00 %
✓		0.000 n/x (10.0%)	1.10 %	0.00 %
✓		0.000 n/x (50.0%)	0.70 %	0.00 %
✓		0.000 n/x (100%)	0.65 %	0.00 %
		Start value	Limits range	Measured value
	Test Sensor			
✓	Coil Curr. Rise	50.000 ms	13.333..50.000 ms	43.099 ms
✓	Coil Curr. Stability		—	—

Legend of symbols

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

Instruments used during verification are Traceable to NIST standards. See Appendix for Calibration Reports

CapitalControls
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FieldCheck: Parameters Transmitter

Customer		Plant	
Order code		Tag Name	
Device type	PROMAG 10	K-Factor	0 - 0
Serial number	123456789XY	Zero point	0
Software Version Transmitter		Software Version I/O-Module	
Verification date	01/28/2019	Verification time	09:22 AM

Actual System Ident. 113.0

Instruments used during verification are Traceable to NIST standards. See Appendix for Calibration Reports

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4.19 FIT 700 Plant

FIELD EQUIPMENT VERIFICATION / CALIBRATION

DATE: **January 25 / 2018**

DESCRIPTION : **Flow**	MODEL: 8712ESR1A1N0NM4	TAG:**FIT-700**
MANUFACTURER : **Rosemount**	Serial # 0318926	

Client Name: **Almonte WWTP**

Device Output Signal : **4-20 mA**

INSTALLATION INSPECTION

	DESCRIPTION	FINDINGS				COMMENTS
		OK	FIXED	N/A	FAULTY	
	GENERAL					
1	TAGGING			X		Coil Resistance = 12.4 ohms
2						Resistance to ground = infinity
	MECHANICAL					
3	MOUNTING: check for proper fastening, etc.	X				
4	ORIENTATION: check for proper angle, etc.)	X				
5	POSITION: relative position to other components (i.e. for proper flow, blanking distance), etc.	X				
6						
	ELECTRICAL					
7		X				
8	WIRE TAGGING: (exists and proper wire type)	X				
9	QUALITY OF CONNECTIONS:	X				
10	GROUNDING:	X				
11	SHIELDING: (check if grounded only at PLC end of wire)	X				
12	CERTIFICATION CSA, ULC:	X				
13						

SET-UP/CALIBRATION

	DIGITAL		ADJUSTMENT USING	VERIFIED USING	SETPOINT / RANGE
14	SETPOINT ADJUSTMENT	MECHANICAL TYPE		Measuring Tape	
		ELECTRONIC TYPE	Fluke 725 calibrator S/N 8759025		4 - 20 mA = 2617 l/min

Configuration Parameters:

Calibration Data Test **Tolerance: 5.00%**

	Measured Current	Display	Calculated	% Error	Status	Notes
	4.01 mA	0 l/min	1.6 l/min	0.06%	Passed	
	5.24 mA	202 l/min	203.5 l/min	0.06%	Passed	
	5.25 mA	203 l/min	204.1 l/min	0.04%	Passed	

Error (% Full Scale) = ((Displayed Output - Calculated Variable) / Full Scale) * 100
= ((0 l/min – 1.6 l/min) / 2617)*100
= - 0.61 % of full scale

Checked By: *Tim Stewart*
Cell: 613-325-9213
Email: tim.stewart@capitalcontrols.ca

Instruments used during verification are Traceable to NIST standards. See Appendix for Calibration Reports

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4.20 FIT-01 Final Effluent

FIELD EQUIPMENT VERIFICATION / CALIBRATION

DATE: **January 25 / 2018**

DESCRIPTION : **Final Effluent**	MODEL: OCM III	TAG:**FIT-01**
MANUFACTURER : **Siemens**	Serial # PBD	

Client Name: **Almonte WWTP** — Device Output Signal : **4-20 mA**

INSTALLATION INSPECTION

	DESCRIPTION	FINDINGS				COMMENTS
		OK	FIXED	N/A	FAULTY	
	GENERAL					**12" Parshall flume**
1	TAGGING			X		**Flow at max height = 21554.5 m3/day**
2						**Max Height = 51.2 cm**
	MECHANICAL					**Ratiometric**
3	MOUNTING: check for proper fastening, etc.	X				**U0=1.522**
4	ORIENTATION: check for proper angle, etc.)	X				
5	POSITION: relative position to other components (i.e. for proper flow, blanking distance), etc.	X				
6						
	ELECTRICAL					
7		X				
8	WIRE TAGGING: (exists and proper wire type)	X				
9	QUALITY OF CONNECTIONS:	X				
10	GROUNDING:	X				
11	SHIELDING: (check if grounded only at PLC end of wire)	X				
12	CERTIFICATION CSA, ULC:	X				
13						

SET-UP/CALIBRATION

	DIGITAL		ADJUSTMENT USING	VERIFIED USING	SETPOINT / RANGE
14	SETPOINT ADJUSTMENT	MECHANICAL TYPE		**Measuring Tape**	
		ELECTRONIC TYPE	**Fluke 725 calibrator S/N 8759025**		**4 - 20 mA = 21554.5 m3/day**

Configuration Parameters:

Calibration Data Test **Tolerance: 5.00%**

	Measured Level	Display	Calculated	% Error	Status	Notes
	0.102 m	**2091 m3/day**	**1770 m3/day**	**1.49%**	**Passed**	
	0.128 m	**2682 m3/day**	**2518 m3/day**	**0.76%**	**Passed**	
	0.138 m	**2930 m3/day**	**2829 m3/day**	**0.47%**	**Passed**	

Error (% Full Scale) = ((Displayed Output - Calculated Variable) / Full Scale) * 100
= ((2091 m3/day – 1770 m3/day) / 21554.5)*100
= 1.49 % of full scale

Checked By: *Tim Stewart*
Cell: 613-325-9213
Email: tim.stewart@capitalcontrols.ca

Instruments used during verification are Traceable to NIST standards. See Appendix for Calibration Reports

Appendix A- Equipment Calibration Certificates

www.pylonelectronics.com

PYLON
Calibration Technologies

Pylon Electronics Inc.
147 Colonnade Road
Ottawa, ON K2E 7L9

Page [illegible] of [illegible]

CERTIFICATE OF CALIBRATION

Description	MULTI FUNCTION PROCESS	**Work Order**	H62249
Model Number	725	**Serial Number**	8759025
Instrument Id	N/A	**Cal Procedure**	SEE TEST DATA SHEET
Manufacturer	FLUKE	**Cal Date**	13 Jun 2018
Customer Name	CAPITAL CONTROLS	**Recall Cycle**	52 Weeks
Purchase Order	CC1625-P1	**Next Cal Date**	13 Jun 2019

Calibration Environment: Temperature 22.8°C Relative Humidity 45.4 %RH

Received Condition: Within Tolerance

Completed Condition: Within Tolerance

Standards Used to Establish Traceability

Instrument Type	Model	Asset #
MULTIMETER	5140A	10364
MULTI-PRODUCT CALIBRATOR	5500A	10437

Pylon certifies [illegible] the above [illegible] instrument meets or exceeds all of the specifications [illegible] on the Test Data Sheet (TDS) unless otherwise indicated. The Certificate received and completed [illegible] and the TDS specifications are based on the procedure(s) and/or specifications referenced on the TDS unless otherwise indicated. [illegible] statement of compliance [illegible] taking [illegible] measurement uncertainty into account and is based on the instrument's performance against the test limits documented on the test data sheet.

The above listed instrument has been calibrated using standards that are traceable to the International System of Units (SI) through a National Metrological Institute such as NRC or NIST. Pylon's quality system meets the requirements of ISO/IEC 17025:2005. Unless otherwise specified, Pylon maintains a minimum of 4:1 ratio between the equipment under test and the measurement system.

This report consists of two parts with separate page numbering schemes: the Certificate of Calibration and the Test Data Sheet (TDS). [illegible] of this report is owned by the issuing laboratory and may not be reproduced, except in full, except with the prior written permission of the issuing laboratory.

Test data As Found and As Left [illegible] results are the same unless reported otherwise. Certificate [illegible] identify if adjustments were performed.

Metrologist : 147 Quality Assurance : 381 Date of Issue: 14 Jun 2018 [illegible]

HALIFAX MONTREAL OTTAWA TORONTO

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PYLON

Calibration Test Data

Description:	MULTI FUNCTION PROCESS CALIBRATOR	Work order:	H82249
Model:	725	Serial:	8759025
Customer ID.:	N/A	Procedure:	667581
Manufacturer:	FLUKE	Proc. Rev.:	01-Apr-2014
Customer:	CAPITAL CONTROLS	Cal Date:	13-Jun-2018

TEST REF	TEST DESCRIPTION	RESULTS MIN	AS FOUND	FINAL	MAX
P. 26	UPPER DISPLAY VOLTAGE MEASUREMENT TESTS				
	APPLIED (V)	V	V		V
	0	-0.002	0.000		0.002
	15	14.996	15.000		15.005
	30	29.992	30.001		30.008
P. 26	LOWER DISPLAY mV/TC MEASUREMENT TESTS				
	APPLIED (V)	V	V	V	V
	0.00 m	-0.02 m	0.00 m		0.02 m
	45.00 m	44.97 m	44.98 m		45.03 m
	90.00 m	89.98 m	89.99 m		90.04 m
P. 27	LOWER DISPLAY VOLTAGE MEASUREMENT TESTS				
	APPLIED (V)	V	V	V	V
	0.000	-0.002	0.000		0.002
	10.000	9.996	9.999		10.004
	20.000	19.994	19.999		20.006
P. 28	UPPER DISPLAY mA MEASUREMENT TESTS				
	APPLIED (A)	A	A	A	A
	4.000 m	3.997 m	3.998 m		4.003 m
	12.000 m	11.995 m	11.999 m		12.005 m
	24.000 m	23.993 m	24.001 m		24.007 m

Instruments used during verification are Traceable to NIST standards. See Appendix for Calibration Reports
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Calibration Test Data

Description: MULTIFUNCTION PROCESS CALIBRATOR Work Order: H62249
Model: 725 Serial: 8759025

TEST REF	TEST DESCRIPTION	RESULTS MIN	AS FOUND	FINAL	MAX
P. 29	**LOWER DISPLAY mA MEASUREMENT TESTS**				
	APPLIED (A)	A	A	A	A
	4.000 m	3.997 m	3.999 m		4.003 m
	12.000 m	11.996 m	11.999 m		12.005 m
	24.000 m	23.993 m	23.995 m		24.007 m
P. 30	**LOWER DISPLAY FREQUENCY MEASUREMENT TESTS**				
	APPLIED FRQ (Hz)	Hz	Hz	Hz	Hz
	1 V P-P SQ 10 k	9.98 k	10.01 k		10.02 k
P. 31	**LOWER DISPLAY FREQUENCY SOURCE TEST**				
	TI OUTPUT (Hz)	Hz	Hz	Hz	Hz
	10 k	9.975 k	10.000 k		10.025 k
P. 32	**LOWER DISPLAY 4-W RESISTANCE MEASUREMENT TESTS**				
	APPLIED (Ω)	Ω	Ω	Ω	Ω
	15	14.90	14.97		15.10
	350	349.90	349.98		350.10
	500	499.5	499.5		500.5
	1500	1499.5	1500.0		1500.5
	3200	3199.0	3200.0		3201.0
P. 33	**LOWER DISPLAY 3-WIRE RTD MEASUREMENT TESTS**				
	APPLIED (Ω)	Ω	Ω	Ω	Ω
	350	349.80	349.88		350.20

PYLON

Calibration Test Data

Description: MULTI FUNCTION PROCESS CALIBRATOR Work order: H62249
Model: 725 Serial: 8759025

TEST REF.	TEST DESCRIPTION		RESULTS MIN	AS FOUND	FINAL	MAX
P. 34	LOWER DISPLAY T/C MEASUREMENT TESTS					
	APPLIED (°C)	(V)	°C	°C	°C	°C
	0	0.000 m	-0.7	0.0		0.7
P. 35	LOWER DISPLAY T/C SOURCE TEST					
	APPLIED (°C)		°C	°C	°C	°C
	0		-0.7	0.0		0.7
P. 36	LOWER DISPLAY mA SOURCE TESTS					
	OUTPUT (A)		A	A	A	A
	4 m		3.9972 m	4.0000 m		4.0028 m
	12 m		11.9956 m	12.0001 m		12.0044 m
	24 m		23.9902 m	23.9997 m		24.0060 m
P. 37	LOWER DISPLAY mV SOURCE TESTS					
	OUTPUT (V)		V	V	V	V
	0.00 m		-0.070 m	0.001 m		0.090 m
	45.00 m		44.970 m	45.002 m		45.030 m
	100.00 m		99.960 m	100.005 m		100.040 m
	LOWER DISPLAY VOLTAGE SOURCE TESTS					
	OUTPUT (V)		V	V	V	V
	0.000		-0.002	0.000		0.002
	5.000		4.9970	5.0001		5.0030
	10.000		9.9980	10.0004		10.0040

Instruments used during verification are Traceable to NIST standards. See Appendix for Calibration Reports

PYLON

Calibration Test Data

DESCRIPTION: MULTI FUNCTION PROCESS CALIBRATOR Work order: H62249
Model: 725 Serial: 8769025

	TEST DESCRIPTION	RESULTS MIN	AS FOUND	FINAL	MAX
P. 38	LOWER DISPLAY RESISTANCE SOURCE TESTS				
	OUTPUT (Ω)	Ω	Ω	Ω	Ω
	15	14.9	15.0		15.1
	350	350.0	350.1		350.1
	500	499.5	499.7		500.5
	1500	1499.5	1499.5		1500.5
	3200	3199.0	3199.7		3201.0
P. 39	PRESSURE MODULE INPUT				
	(WITH 700 SERIES PRESSURE MODULE):				
	11 DISPLAY SHOWS (PSI)	Pass / Fail	n/a		

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Calibration Certificate
Kalibrations-Zertifikat

FieldCheck

Page 1 of 2
Seite 1 of 2

Production Number Fabrikationsnummer	240223
Serial Number Seriennummer	990B1402000
Manufacturer Hersteller	Endress+Hauser Flowtec AG CH-4153 Reinach

Date Of Calibration Kalibrierdatum	06/21/2018
Location Ort	DG-Greenwood
Testing Instruction Prüfanweisung	CalCenter_2
Test Program Prüfprogramm	V1.01.10
Test Engineer Prüfer	Riley

Used Test-Calibration Interface Verwendete Prüf-Kalibrierschnittstelle	–
Used Test-Calibration Tools Verwendete Prüf-Kalibriermittel	Keithley DMM2700 due 07/2018 Yokogawa CAL100 due 08/2018
Max. Deviation (Specification) Max. Abweichung (Spezifikation)	
Current Source Stromquelle	0,01% of and value / des Endwertes (20mA) + 0,02% of signal / des Signals
Frequency Source Frequenzgeber	0,01% of signal / des Signals

Notes Bemerkungen	The above mentioned calibration tools are traceable to national standards / NIST Die oben genannten Kalibriermittel sind rückführbar auf nationale Normale

Date, Signature: 06/21/2018 Christopher Riley

Instruments used during verification are Traceable to NIST standards. See Appendix for Calibration Reports
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Calibration Certificate
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FieldCheck

Production Number / Fabrikationsnummer 240323
Serial Number / Seriennummer [illegible]

Measuring Data On Incoming Inspection Messdaten bei der Eingangsprüfung		Rated Value vorgegeben	Meas. Value Messwert	Limit Value +/- Grenzwert +/-	Pass / Fail Gutbefund
Current Input	mA	0.000	0.002	0.005	Pass/Gut
Strom-Eingang	mA	20.000	19.996	0.010	Pass/Gut
Frequency Input	Hz	0.0	0.0	0.0	Pass/Gut
Frequenz-Eingang	Hz	8000.0	7999.8	4.0	Pass/Gut

Measuring Data After Calibration Messdaten nach Kalibrierung		Rated Value vorgegeben	Meas. Value Messwert	Limit Value +/- Grenzwert +/-
Current Input	mA	0.000	0.001	0.002
Strom-Eingang	mA	10.000	9.999	0.004
	mA	20.000	20.001	0.005
Frequency Input	Hz	0.0	0.0	0.0
Frequenz-Eingang	Hz	1000.0	1000.1	1.0
	Hz	8000.0	7999.8	2.0

Functional Safety Check
Funktionaler Sicherheitscheck

This unit has passed the complete Functional Safety Check
All voltages and currents produced by this unit are within tolerances.

Dieses Gerät hat den vollständigen Funktionalen Sicherheitscheck bestanden.
Alle von diesem Gerät produzierten Spannungen und Ströme sind innerhalb der Toleranz.

Date Signature: 08/21-2018,

Instruments used during verification are Traceable to NIST standards. See Appendix for Calibration Reports
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Calibration Certificate
Kalibrations-Zertifikat

Simubox MID

Production Number Fabrikationsnummer	8784351
Serial Number Seriennummer	JA0FE402000
Manufacturer Hersteller	Endress+Hauser Flowtec AG CH-4153 Reinach

Date Of Calibration Kalibrierdatum	06/21/2016
Location Ort	DG-Greenwood
Testing Instruction Prüfanweisung	CalCenter_2
Test Program Prüfprogramm	V1.01.10
Test Engineer Prüfer	Riley

Used Test/Calibration Interface Verwendete Prüf-/Kalibrierschnittstelle	–
Used Test/Calibration Tools Verwendete Prüf-/Kalibriermittel	Keithley DMM2700 due 07/2016 Yokogawa CAL150 due 08/2016
Max. Deviation (Specification) Max. Abweichung (Spezifikation)	
Current Source Stromquelle	0,01% of end value / des Endwertes (20mA) + 0,02% of signal / des Signals
Frequency Source Frequenzquelle	0,01% of signal / des Signals

Notes Bemerkungen	The above mentioned calibration tools are traceable to national standards / NIST Die oben genannten Kalibriermittel sind rückführbar auf nationale Normale

Date, Signature 06/21/2016,

Instruments used during verification are Traceable to NIST standards. See Appendix for Calibration Reports
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Calibration Certificate
Kalibrations-Zertifikat

SimuBox MID

Production Number / Fabrikationsnummer: 8764351
Serial Number / Seriennummer: JAJFE402000

Measuring Data On Incoming Inspection Messdaten bei der Eingangsprüfung (Calculated Mean Values / Berechnete Mittelwerte)	Rated Value Vorgabewert [µV]	Meas. Value Messwert [µV]	Limit Value +/- Grenzwert +/- [µV]	Pass / Fail Gut/Fehlerhaft
Meas. Range 1	57.0	57.0	1.0	Pass/Gut
Meas. Range 2	334.0	332.8	2.0	Pass/Gut
Meas. Range 3	2064.0	2061.9	10.0	Pass/Gut
Meas. Range 4	11820.0	11921.3	20.0	Pass/Gut

Measuring Data After Calibration Messdaten nach Kalibrierung (Calculated Mean Values / Berechnete Mittelwerte)	Rated Value Vorgabewert [µV]	Meas. Value Messwert [µV]	Limit Value +/- Grenzwert +/- [µV]
Meas. Range 1	50.0	49.8	0.5
Meas. Range 2	300.0	299.9	1.0
Meas. Range 3	2000.0	1999.8	3.0
Meas. Range 4	10000.0	9999.5	5.0

Date, Signature: 06/21/2019,

Instruments used during verification are Traceable to NIST standards. See Appendix for Calibration Reports
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