Mississippi Mills Wastewater System

2017 Annual Report

January 1, 2017 – December 31, 2017

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 #42425-8DXR5U issued February 16, 2011 and Certificate of Approval #1637-AC8NT7.

Contents

Appendix

Compliance Report Card

Compliance Event	# of Events	Details
Ministry of Environment Inspections	0	
Ministry of Labour Inspections	0	
Effluent Parameter Exceedances	0	
Bypass/Overflows	5	• April 6 – Filtrate Bypass • April 10 – PLC Crash • May 1 – Filtrate Bypass • June 29 – Filtrate Bypass • October 30 – Filtrate Bypass
Community Complaints	0	
Spills	0	

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 WPCP 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

There are 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

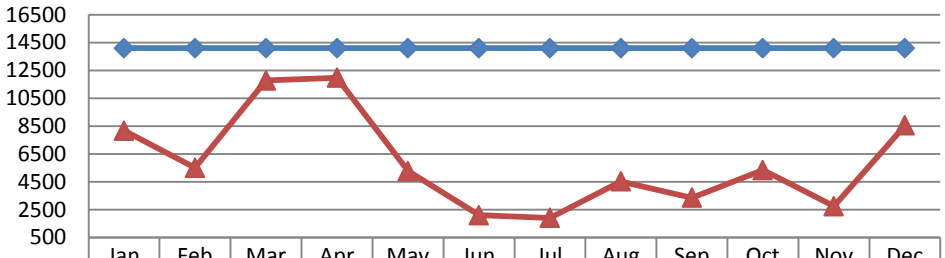
Treatment Flows

Raw Flow (m³/d)

Annual average flow for 2017 = 2816.59 m³/d

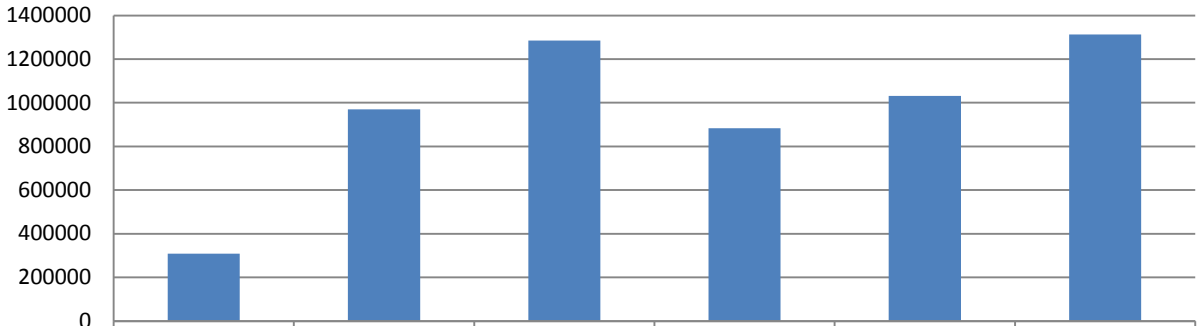
Flow spikes are associated to wet weather events such as rain and seasonal changes such as the spring snow melt.

	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)	2976	4029	4756	7484	8638	3798	7388	2230	2689	3072	8097	2611



	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)	8168	5512	11779	11971	5273	2112	1908	4536	3361	5342	2749	8555

Annual Comparison (m³)



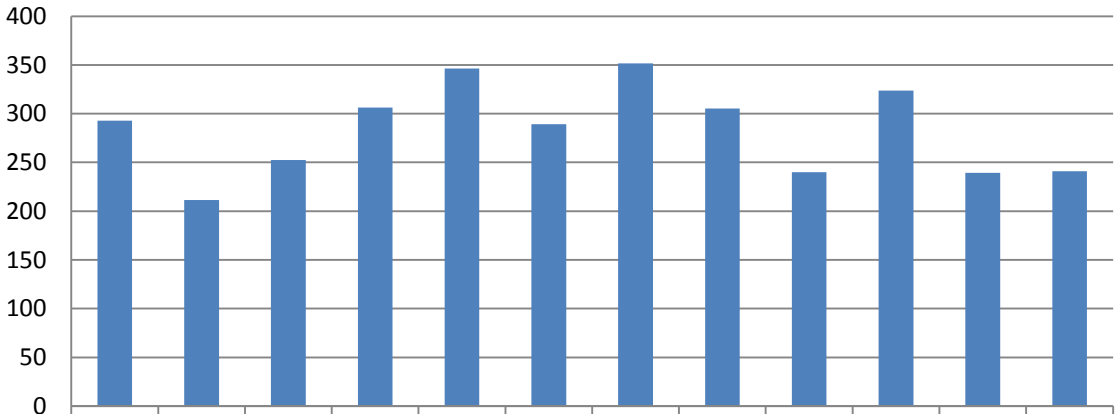
	2012	2013	2014	2015	2016	2017
Total Annual Flow	308093	969878	1285551	884055	1031585	1312674

Septage Volumes

Average daily flow for 2017 = 5.905m³/d

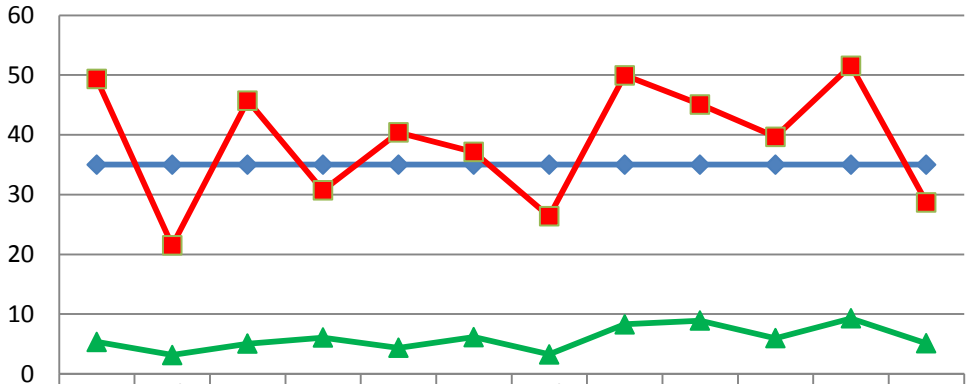
Total Flow for 2017 = 2161 m³

Total Monthly Volume Received



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Volume (m³)	293	211	253	306	346	289	351	305	240	324	239	241

Monthly Volumes Processed



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Average Flow(m³/d)	5	3	5	6	4	6	3	8	9	6	9	5
Design Average (m³/d)	35	35	35	35	35	35	35	35	35	35	35	35
Maximum Flow (m³/d)	49	22	46	31	40	37	26	50	45	40	52	29

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

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

Limit

Sample	Date	Parameter	Exceedance of	Limit	Value	Corrective Action
There were no effluent exceedances.						

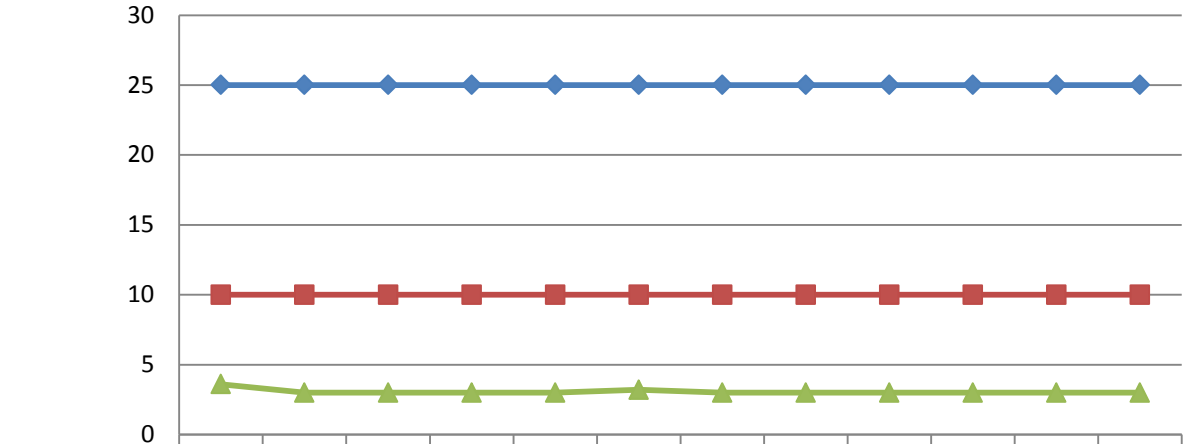
Other Effluent Sampling Issues

Sample	Legislation	Date	Details	Response
There were no other operational issues affecting effluent quality				

Effluent Parameter Summary

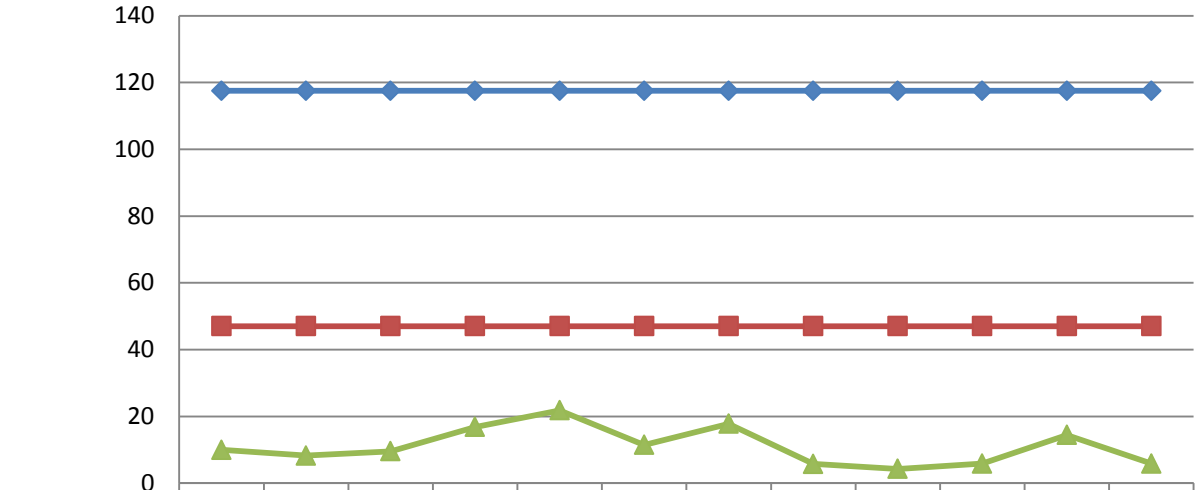
CBOD5

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	4	3	3	3	3	3	3	3	3	3	3	3

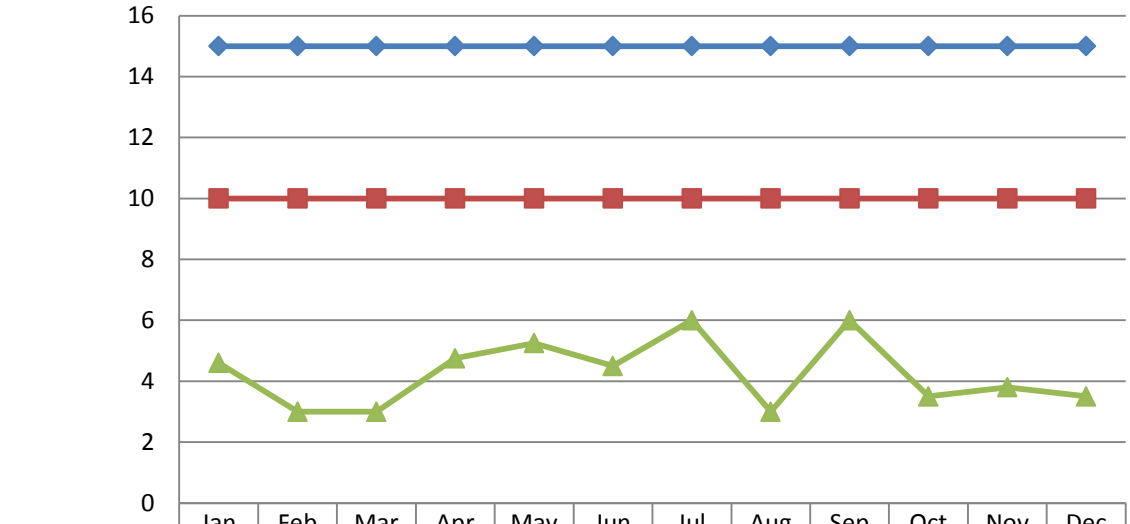
Loading (kg/d)



	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	10	8	10	17	22	11	18	6	4	6	14	6

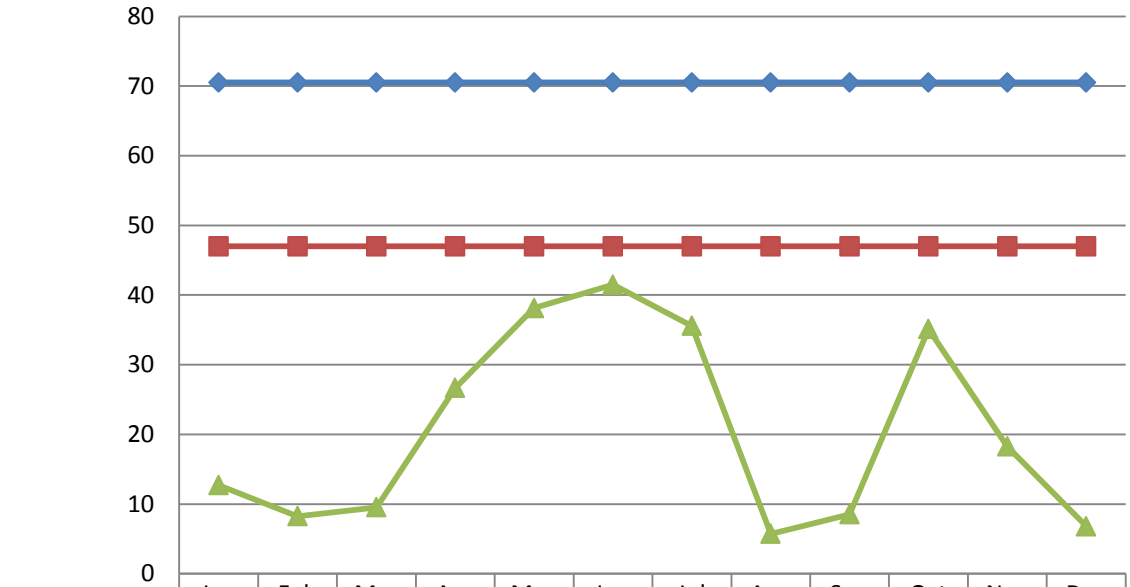
Total Suspended Solids

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	5	3	3	5	5	5	6	3	6	4	4	4

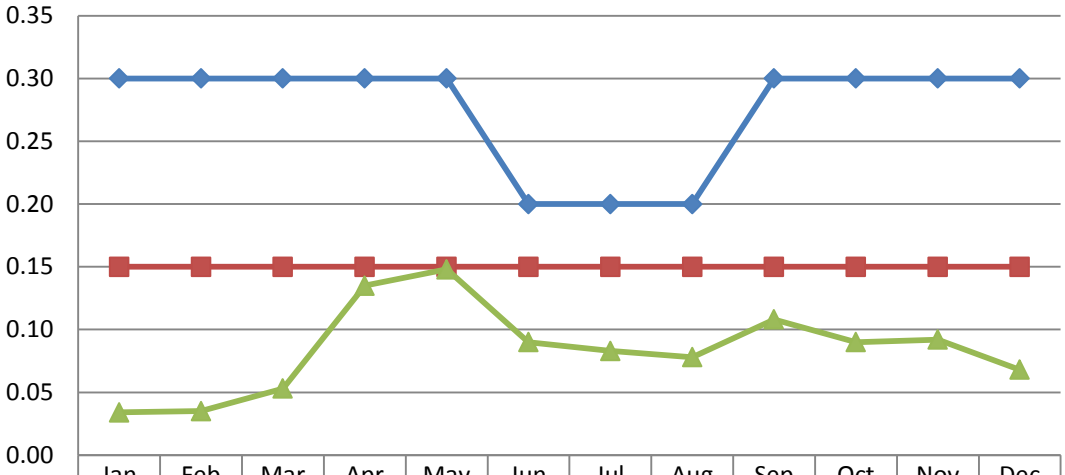
Loading (kg/d)



	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	13	8	10	27	38	41	36	6	9	35	18	7

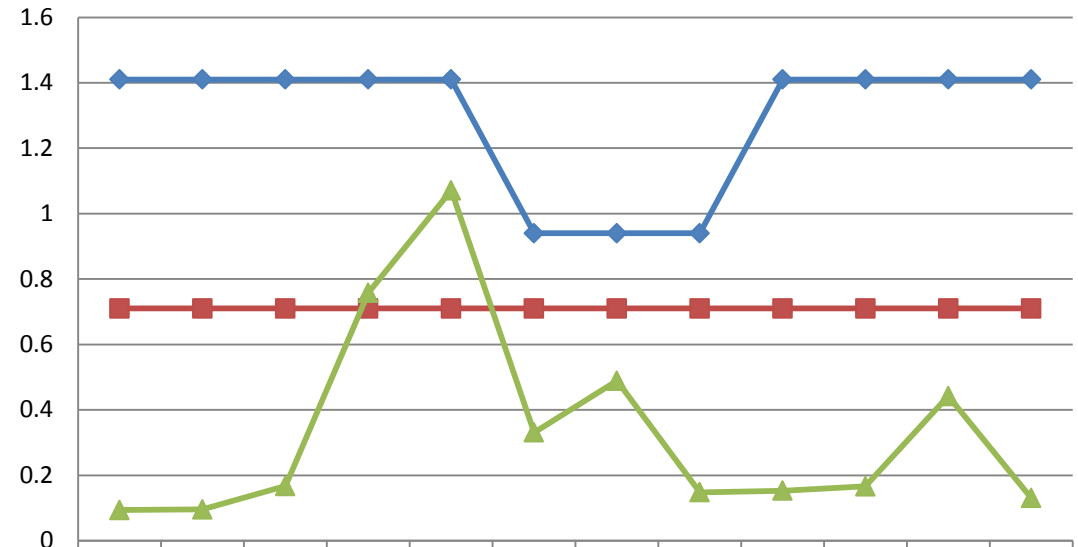
Total Phosphorus

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	0.03	0.04	0.05	0.14	0.15	0.09	0.08	0.08	0.11	0.09	0.09	0.07

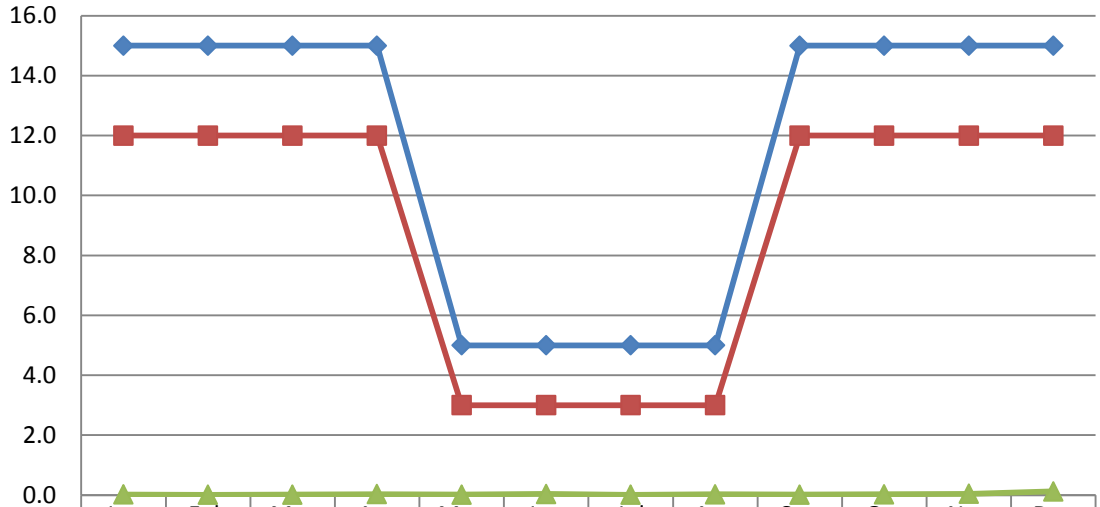
Loading (kg/d)



	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	0.09	0.10	0.17	0.76	1.07	0.33	0.49	0.15	0.15	0.17	0.44	0.13

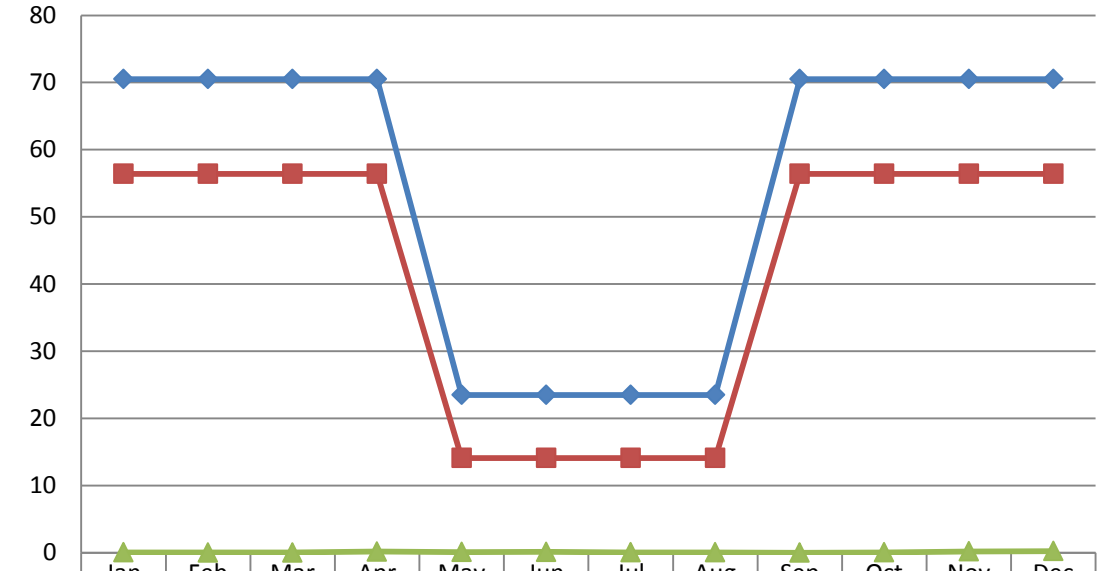
Total Ammonia Nitrogen

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	0.02	0.01	0.01	0.03	0.02	0.04	0.01	0.02	0.01	0.03	0.04	0.12

Loading (kg/d)

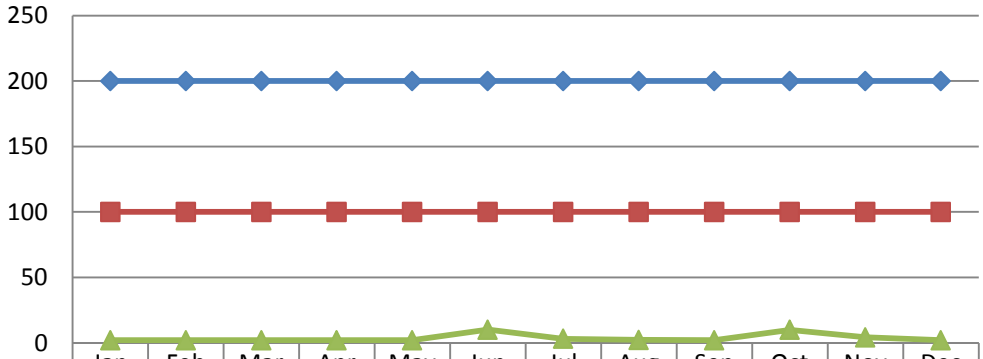


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Limit	70.5	70.5	70.5	70.5	23.5	23.5	23.5	23.5	70.5	70.5	70.5	70.5
Objective	56.4	56.4	56.4	56.4	14.1	14.1	14.1	14.1	56.4	56.4	56.4	56.4
Average	0.1	0.0	0.0	0.2	0.1	0.1	0.1	0.0	0.0	0.1	0.2	0.2

E-coli

Geometric Mean Average

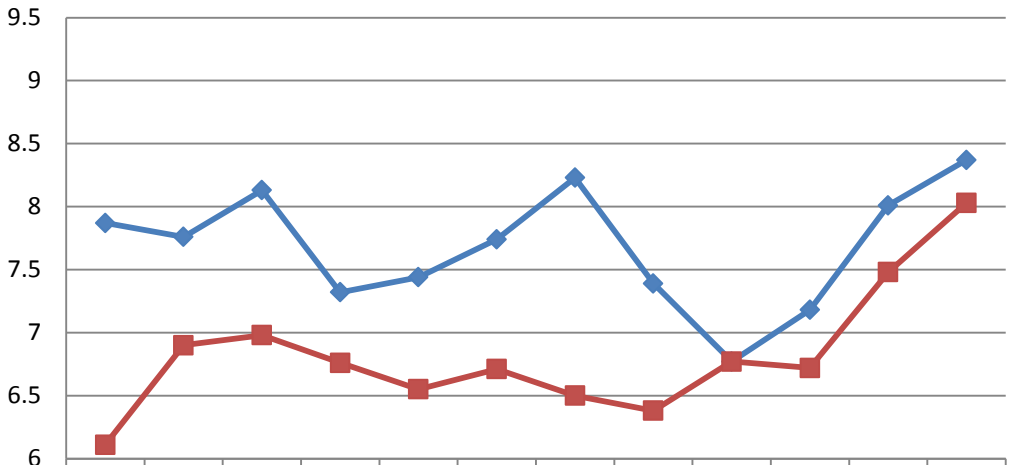
All individual sample results were lower than the reportable value of <2.



	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	2	2	10	3	2	2	10	4	2

pH

This parameter is tested in-house.



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Max Monthly pH	7.87	7.76	8.13	7.32	7.44	7.74	8.23	7.39	6.77	7.18	8.01	8.37
Min Monthly pH	6.11	6.9	6.98	6.76	6.55	6.71	6.5	6.38	6.77	6.72	7.48	8.03

Acute Lethality

There were four (4) samples collected in 2017 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

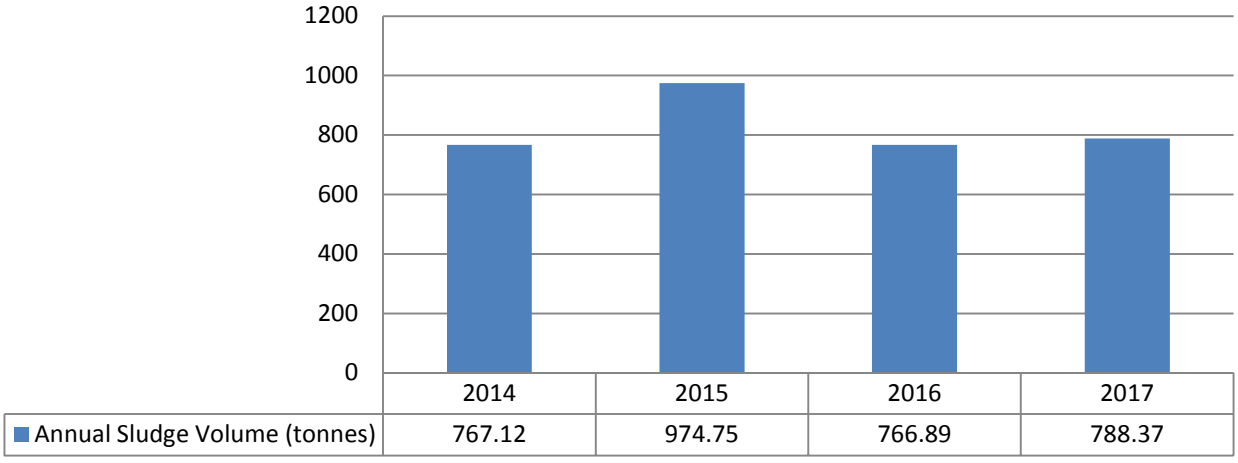
Sludge generated from the treatment plant was spread on agricultural land during the spreading season as per the Nutrient Management Act O.Reg 267/03. This facility dewaters and biosolids are handled as cake. During the winter cake is stored on-site until certified sites are ready for spreading.

During the spreading season the operating authority contracts cake haulage to Terratec Environmental. This company maintains a bank of available land for agricultrual disposal of biosolids. This information is included in Appendix C.

Biosolids Disposal Summary

The disposal summary is provided by Terratec (Waste Management #4400-4LBLXD) and is available in Appendix C.

Annual Comparison



It is anticipated that sludge volumes will remain constant based on the average treated volumes and past years history since the upgrades.

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	Corrective Action Taken
There were no complaints received at the treatment plant			

Summary of Bypass/Overflows

Event	Details of Events	Volume (m^3)	Duration (h)
April 6 – Filtrate Bypass	During a period where the entire plant was experiencing elevated flows due to heavy rain and snow melt 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.	Unknown	46 hr 20 min
April 10 – Filtrate Bypass	The main PLC for the Wastewater Treatment plant 'crashed' thus freezing data, trending, equipment run status and alarms. The pumps that maintain the filtrate tank level were unknowingly faulted due to this PLC failure and were not running thus causing the Filtrate Tank level to reach its engineered overflow pipe that discharges to the U.V. channel.	Unknown	8 hr 34 min
May 1 – Filtrate Bypass	During a period where the entire plant was experiencing elevated flows due to heavy rain and snow	Unknown	2 hr 16 min

	melt 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.		
June 29 – Filtrate Bypass	During a period where the entire plant was experiencing elevated flows due to heavy rain and snow melt 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.	Unknown	0.45
October 30 – Filtrate Bypass	During a period where the entire plant was experiencing elevated flows due to heavy rain and snow melt 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.	Unknown	5 hr 30 min

Summary of Spills/Abnormal Discharges

There were no spills or abnormal discharges reported in 2017.

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 Eastern Regional 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
375717	Headworks EAU repair
409513	RAS 621 Seal Fail
439768	Septage Hose Replacement
439772	UV Parts
541076	Filtrate Tank Clean Out
542710	Change room Roof Leak
577580	Foam Sensor Air Solenoid Valve
542028	Compressor and Scum pump integration
577311	Server Hard Drive Fail

Calibration

The flow meters were calibrated on January 13, 2017. Records are attached in Appendix D. Analyzers are scheduled for monthly 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

Report extracted 03/29/2018 09:08

From: 01/01/2017 to 31/12/2017

Facility: [5678] MISSISSIPPI MILLS WASTEWATER TREATMENT FACILITY

Works: [110000873]

	01/2017	02/2017	03/2017	04/2017	05/2017	06/2017	07/2017	08/2017	09/2017	10/2017	11/2017	12/2017	<--Total-->	<--Avg.-->	<--Max.-->
Flows:															
Raw Flow: Total - Raw Sewage (m^3)	92248.91	112801.08	147435.58	224530.50	267779.60	113949.20	229035.32	69136.20	80656.08	95229.63	242903.22	80938.75	1756644.07		
Raw Flow: Avg - Raw Sewage (m^3/d)	2975.77	4028.61	4755.99	7484.35	8638.05	3798.31	7388.24	2230.20	2688.54	3071.92	8096.77	2610.93		4813.97	
Raw Flow: Max - Raw Sewage (m^3/d)	4224.81	12873.25	12945.68	18708.00	17677.30	15308.90	14818.79	5000.96	21661.11	17945.04	15951.14	3230.95			21661.11
Eff. Flow: Total - Final Effluent (m^3)	85654.00	77046.45	98600.89	168367.51	225144.20	107273.56	183771.32	59259.08	42605.26	60492.10	144200.12	60259.45	1312673.94		
Eff. Flow: Avg - Final Effluent (m^3/d)	2763.03	2751.66	3180.67	5612.25	7262.72	3575.79	5928.11	1911.58	1420.18	1951.36	4806.67	1943.85		3592.32	
Eff. Flow: Max - Final Effluent (m^3/d)	3695.22	5309.79	5133.99	9591.00	10689.30	7039.15	8728.04	4940.24	2280.76	8691.77	7549.22	2663.34			10689.30
Carbonaceous Biochemical Oxygen Demand: CBOD:															
Raw: # of samples of cBOD5 - Raw Sewage (mg/L)	6	4	4	4	4	4	4	5	4	4	5	4	52		
Eff: Avg cBOD5 - Final Effluent (mg/L)	< 3.600	< 3.000	< 3.000	< 3.000	< 3.000	< 3.200	< 3.000	< 3.000	< 3.000	< 3.000	< 3.000	< 3.000		< 3.067	< 3.600
Eff: # of samples of cBOD5 - Final Effluent (mg/L)	5	4	4	4	4	5	4	5	3	5	5	4	52		
Loading: cBOD5 - Final Effluent (kg/d)	< 9.947	< 8.255	< 9.542	< 16.837	< 21.788	< 11.443	< 17.784	< 5.735	< 4.261	< 5.854	< 14.420	< 5.832		< 10.975	< 21.788
Percent Removal: cBOD5 - Raw Sewage (mg/L)	97.004	96.712	96.215	96.481	94.570	98.463	96.129	98.981	99.237	99.464	98.527	98.890			99.464
Biochemical Oxygen Demand: BOD5:															
Raw: # of samples of BOD5 - Raw Sewage (mg/L)	6	4	4	4	4	4	4	5	4	4	5	4	52		
Eff: Avg BOD5 - Final Effluent (mg/L)	< 3.000	< 3.000	< 3.000	< 3.000	< 3.000	< 4.000	< 3.000	< 3.200	< 3.000	< 4.600	< 3.400	< 3.000		< 3.267	< 4.600
Loading: BOD5 - Final Effluent (kg/d)	< 8.289	< 8.255	< 9.542	< 16.837	< 21.788	< 14.303	< 17.784	< 6.117	< 4.261	< 8.976	< 16.343	< 5.832		< 11.527	< 21.788
Percent Removal: BOD5 - Raw Sewage (mg/L)	98.228	97.136	96.685	97.861	97.706	98.366	96.800	99.162	99.404	99.243	98.708	98.991			99.404
Total Suspended Solids: TSS:															
Raw: Avg TSS - Raw Sewage (mg/L)	202.667	136.250	108.750	206.500	91.000	273.000	129.000	527.600	684.000	589.000	415.200	485.000		320.664	684.000
Raw: # of samples of TSS - Raw Sewage (mg/L)	6	4	4	4	4	4	4	5	4	4	5	4	52		
Eff: Avg TSS - Final Effluent (mg/L)	< 4.600	< 3.000	< 3.000	4.750	< 5.250	< 11.600	< 6.000	< 3.000	< 6.000	< 18.000	< 3.800	< 3.500		< 6.042	18.000
Eff: # of samples of TSS - Final Effluent (mg/L)	5	4	4	4	4	5	4	5	4	5	5	4	53		
Loading: TSS - Final Effluent (kg/d)	< 12.710	< 8.255	< 9.542	26.658	< 38.129	< 41.479	< 35.569	< 5.735	< 8.521	< 35.124	< 18.265	< 6.803		< 20.566	41.479
Percent Removal: TSS - Raw Sewage (mg/L)	97.730	97.798	97.241	97.700	94.231	95.751	95.349	99.431	99.123	96.944	99.085	99.278			99.431
Total Phosphorus: TP:															
Raw: Avg TP - Raw Sewage (mg/L)	4.553	2.715	2.418	3.703	2.048	4.365	1.695	7.200	12.015	8.890	5.832	8.013		5.287	12.015
Raw: # of samples of TP - Raw Sewage (mg/L)	6	4	4	4	4	4	4	5	4	4	5	4	52		
Eff: Avg TP - Final Effluent (mg/L)	0.034	0.035	0.053	0.135	0.148	0.093	0.083	0.078	0.108	0.085	0.092	0.068		0.084	0.148
Eff: # of samples of TP - Final Effluent (mg/L)	5	4	4	4	4	4	4	4	4	4	5	4	50		
Loading: TP - Final Effluent (kg/d)	0.094	0.096	0.167	0.758	1.071	0.331	0.489	0.148	0.153	0.166	0.442	0.131		0.337	1.071
Percent Removal: TP - Raw Sewage (mg/L)	99.253	98.711	97.828	96.354	92.796	97.881	95.133	98.924	99.105	99.044	98.422	99.158			99.253
Nitrogen Series:															
Raw: Avg TKN - Raw Sewage (mg/L)	28.457	23.072	20.375	24.425	13.438	26.175	10.558	47.180	52.000	60.750	30.200	46.525		31.930	60.750
Raw: # of samples of TKN - Raw Sewage (mg/L)	6	4	4	4	4	4	4	5	4	4	5	4	52		
Eff: Avg TAN - Final Effluent (mg/L)	< 0.018	< 0.010	< 0.013	< 0.030	< 0.015	< 0.038	< 0.010	< 0.024	< 0.013	< 0.028	< 0.040	0.123		< 0.030	0.123
Eff: # of samples of TAN - Final Effluent (mg/L)	5	4	4	4	4	5	4	5	4	5	5	4	53		
Loading: TAN - Final Effluent (kg/d)	< 0.050	< 0.028	< 0.040	< 0.168	< 0.109	< 0.136	< 0.059	< 0.046	< 0.018	< 0.055	< 0.192	0.238		< 0.095	0.238
Disinfection:															
Eff: GMD E. Coli - Final Effluent (cfu/100mL)	2.000	2.000	2.000	2.000	2.000	3.798	3.130	2.297	2.000	2.378	4.224	2.000		2.486	4.224
Eff: # of samples of E. Coli - Final Effluent (cfu/100mL)	5	4	4	4	5	5	4	5	4	5	5	4	54		

Appendix B

Septage Sample Data

Ontario Clean Water Agency
Time Series Info Report

Report extracted 03/29/2018 15:06

From: **01/01/2017 to 31/12/2017**

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**

	01/2017	02/2017	03/2017	04/2017	05/2017	06/2017	07/2017	08/2017	09/2017	10/2017	11/2017	12/2017	Total	Avg	Max	Min
Septage / Biochemical Oxygen Demand: BOD5 - mg/L																
Count Lab	22	14	25	21	23	15	22	15	14	15	14	13	213			
Max Lab	< 19100	9150	14200	11000	12900	17100	12300	5170	3870	< 9530	6530	6640			< 19100	
Mean Lab	< 4043.864	1876.786	2503.28	2771.095	2213.739	2354.067	2423.182	1831.267	1356.857	< 1717.467	1947.571	2574.769		< 2240.009		
Min Lab	< 50	65	77	114	65	73	128	81	118	< 3	62	327				< 3
Septage / Septage Processed - m³																
Total IH	323.94	211.34	276.52	308.82	350.76	289.05	342.08	321.5	247.73	333.8	230.66	237.91	3474.11			
Max IH	34.36	29.26	39.99	40.55	37.56	29.56	30.71	36.8	44.01	41.35	38.29	50.59			50.59	
Mean IH	10.45	7.548	8.92	10.294	11.315	9.635	11.035	10.371	8.258	10.768	7.689	7.675		9.518		
Septage / Septage Received - m³																
Total IH	292.93	211.41	252.58	306.22	346.26	289.29	351.47	305.17	240.06	323.68	239.45	241	3399.52			
Max IH	34.2	30.22	39.78	39.73	35.79	29.94	31.65	33.89	42.15	42.63	40.37	53.51			53.51	
Mean IH	9.449	7.55	8.148	10.207	11.17	9.643	11.338	9.844	8.002	10.789	7.982	7.774		9.339		
Septage / Total Kjeldahl Nitrogen: TKN - mg/L																
Count Lab	22	14	25	21	23	15	22	15	14	15	14	13	213			
Max Lab	1530	1420	1340	1580	1940	1970	1700	1280	1340	< 1520	1430	1670			< 1970	
Mean Lab	573.15	567.879	477.636	622.919	514.409	741.72	586.945	651.4	534.071	< 405.575	593.757	798.615		< 576.503		
Min Lab	31.2	48.6	17.9	50.8	37.7	39.5	30.3	106	37.4	< 0.1	44.3	124				< 0.1
Septage / Total Phosphorus: TP - mg/L																
Count Lab	22	14	25	21	23	15	22	15	14	15	14	13	213			
Max Lab	221	170	309	1180	170	160	779	603	173	158	181	259			1180	
Mean Lab	67.655	63.689	62.464	165.73	57.776	70.313	129.414	122.015	61.613	41.036	75.576	100.623		79.398		
Min Lab	5.87	6.14	4.08	6.29	4.24	4.4	3.95	9.92	5.33	0.05	2.92	8.2				0.05
Septage / Total Solids: TS - mg/L																
Count Lab	22	14	25	21	23	15	22	15	14	15	14	13	213			
Max Lab	55000	19000	28000	92800	58200	20500	41000	27400	15900	31000	19800	30400			92800	
Mean Lab	11446.82	6211.429	5946.4	13122.38	7496.087	4658	8372.727	7714	4967.857	6664	7040	7333.846		6845.851		
Min Lab	890	1530	1030	760	730	570	490	1220	500	370	420	920				370
Septage / Total Suspended Solids: TSS - mg/L																
Count Lab	22	14	25	21	23	15	22	15	14	15	14	13	213			
Max Lab	54600	21500	27900	49900	24000	37400	27100	24200	5650	9000	15400	30400			54600	
Mean Lab	9196.273	4107.071	4536.68	7545.667	3107.043	5351.333	4374.545	5040	1818.286	1424.8	4445.714	5433.846		4418.712		
Min Lab	76	264	170	104	130	120	60	120	176	3	40	400				3
Septage / pH - ---																
Count Lab	22	14	25	21	23	15	22	15	14	15	14	13	213			
Max Lab	9.23	9.41	8.93	8.92	8.87	8.96	8.63	8.57	8.72	8.91	8.42	9.2			9.41	
Mean Lab	7.718	8.004	7.691	7.572	7.507	7.869	7.364	7.6	7.68	7.532	7.345	7.733		7.659		
Min Lab	6.13	7.02	6.55	6.1	6.33	7.04	6.07	6.93	6.73	6.01	6.31	6.22				6.01

Appendix C

Biosolids Application Summary

Mississippi Mills - Sites Applied with Biosolids 2017

Date 2017	Farmer/ Landowner	NASM#	Lot	Con	Township	Field #	Application Method	Total Dry Tonnes (t)	Area Spread (ha)
June 12-13	Cochran - Lyle Reid	23008	4	7	Pakenham	1	Incorporated 6hrs	406.12	12.12
Nov 17-20						3W	Incorporated 6hrs	382.25	9.06
							TOTAL	788.37	21.18

52.3 ac

Town of Mississippi Mills Landbank

Farmer	NASM #	Farm Name	Lot	Con	Township	Area (ha)	Expiry Date
Cochran	23090	Home Farm	23	7	Ramsay	39.14	Dec 31 2021
	23008	Lyle Reid	4	7	Pakenham	20.18	Dec 31 2021
Sunol Farms	23120	19	21	12	Beckwith	52.11	Dec 31 2019
	22416	James	6	11	Ramsay	47.57	Dec 31 2020
					TOTAL	159	

393 ac

Twelve Month Average: January 2017 - December 2017
Mississippi Mills

Metals	Maximum Acceptable Concentration (mg/kg)	2017 Average
As	170	2.5
Cd	34	0.6
Co	340	2.1
Cr	2800	22.5
Cu	1700	435.6
Hg	11	0.37
Mo	94	2.9
Ni	420	13.9
Pb	1100	17.8
Se	34	2.8
Zn	4200	321.8
E. Coli	Maximum Acceptable Concentration (CFU/g)	
	2,000,000	<568
Total P (%)		2.54
Ammonia+Ammonium (ppm)		206
Nitrate+Nitrites (ppm)		392
TKN (%)		3.05
Potassium (%)		0.105
Solids (%)		18.4

Mississippi Mills - Monthly Haulage 2017

Month	dry tonnes (t)	% of Total Haulage
January	0	0.0
February	0	0.0
March	0	0.0
April	0	0.0
May	0	0.0
June	406.12	51.5
July	0	0.0
August	0	0.0
September	0	0.0
October	0	0.0
November	382.25	48.5
December	0	0.0
Total:	**788.37**	**100**

Appendix D

Calibration Records

MM STP
Grinder Meter

Flowmeter Verification Certificate Transmitter

Customer	Plant -------- FIT-310
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 01/17/2017	Software Version I/O-Module 14:48
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 Production number	8784351 Production number
1.07.07 Software Version	1.00.01 Software Version
09/2016 Last Calibration Date	09/2016 Last Calibration Date

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 witha high voltage test.

Endress+Hauser
People for Process Automation

FieldCheck - Result Tab Transmitter

Customer	
Order code	
Device type	**PROMAG 53 W DN100**
Serial number	**E309B116000**
Software Version Transmitter	**V2.03.00**
Verification date	**01/17/2017**

Plant	
Tag Name	--------
K-Factor	**1.2931 - 1.2931**
Zero point	**6**
Software Version I/O-Module	**V1.05.03**
Verification time	**14:48**

Verification Flow end value (100 %): 4633.344 m3/d
Flow speed 6.83 m/s

Passed / Failed	Test item	Simul. Signal	Limit Value	Deviation
	Test Transmitter			
✓	Amplifier	231.668 m3/d (5%)	1.09 %	0.51 %
✓		463.335 m3/d (10.0%)	0.79 %	0.04 %
✓		2316.673 m3/d (50.0%)	0.56 %	-0.06 %
✓		4633.345 m3/d (100%)	0.53 %	-0.05 %
✓	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	-0.018 mA
✓		12.000 mA (50.0%)	0.05 mA	-0.004 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	5.000 ms	0.000..14.250 ms	7.887 ms
✓	Coil Curr. Stability		---	---
✓	Electrode Integrity	mV	0.0..300.001 mV	0.000 mV

Legend of symbols

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

FieldCheck: Parameters Transmitter

Customer	
Order code	
Device type	**PROMAG 53 W DN100**
Serial number	**E309B116000**
Software Version Transmitter	**V2.03.00**
Verification date	**01/17/2017**

Plant	
Tag Name	**--------**
K-Factor	**1.2931 - 1.2931**
Zero point	**6**
Software Version I/O-Module	**V1.05.03**
Verification time	**14:48**

Curent Output	**Assign**	**Current Range**	**Value 0_4mA**	**Value 20 mA**		
Terminal 26/27	VOLUME FLOW	4-20 mA activ	0.0 m3/d	3270.61 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. 121.0

MM STP
Septage
Flow.

DTM Version: 3.13.00

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
02/07/2017	10:32
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
1.07.07	1.00.01
Software Version	Software Version
09/2016	09/2016
Last Calibration Date	Last Calibration Date

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

People for Process Automation

FieldCheck - Result Tab Transmitter

Customer	
Order code	
Device type	**PROMAG 53 P DN100**
Serial number	**E60E6616000**
Software Version Transmitter	**V2.03.00**
Verification date	**02/07/2017**

Plant	
Tag Name	**FIT350**
K-Factor	**1.2918 - 1.2918**
Zero point	**2**
Software Version I/O-Module	**V1.05.03**
Verification time	**10:32**

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	135.718 m3/d (5%)	1.50 %	0.58 %
✓		271.435 m3/d (10.0%)	1.00 %	0.58 %
✓		1357.169 m3/d (50.0%)	0.60 %	0.07 %
✓		2714.337 m3/d (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	-0.027 mA
✓		12.000 mA (50.0%)	0.05 mA	-0.005 mA
✓		20.000 mA (100%)	0.05 mA	0.027 mA
–	Pulse Output 1	---	---	---
		Start value	**Limits range**	**Measured value**
	Test Sensor			
✓	Coil Curr. Rise	5.000 ms	0.000..14.250 ms	6.252 ms
✓	Coil Curr. Stability		---	---
✓	Electrode Integrity	mV	0.0..300.001 mV	3.272 mV

Legend of symbols

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

FieldCheck: Parameters Transmitter

Customer	
Order code	
Device type	**PROMAG 53 P DN100**
Serial number	**E60E6616000**
Software Version Transmitter	**V2.03.00**
Verification date	**02/07/2017**

Plant	
Tag Name	**FIT350**
K-Factor	**1.2918 - 1.2918**
Zero point	**2**
Software Version I/O-Module	**V1.05.03**
Verification time	**10:32**

Curent Output	**Assign**	**Current Range**	**Value 0_4mA**	**Value 20 mA**		
Terminal 26/27	VOLUME FLOW	4-20 mA activ	0.0 m3/d	4320.01 m3/d		
Pulse Output	**Assign**	**Pulse Value**	**Output signal**	**Pulse width**		
Terminal 24/25	VOLUME FLOW	0.008 m3/P	Passive/Positive	100.01 ms		

Actual System Ident. 101.0

MM STP
Service Water

DTM Version: 3.13.00

Flowmeter Verification Certificate Transmitter

Customer	Plant
	FIT-1091
Order code	Tag Name
PROMAG 10 P DN150	1.0062 - 1.0062
Device type	K-Factor
E608FD16000	0
Serial number	Zero point
V1.03.00	
Software Version Transmitter	Software Version I/O-Module
01/16/2017	10:34
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
1.07.07	1.00.01
Software Version	Software Version
09/2016	09/2016
Last Calibration Date	Last Calibration Date

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 witha high voltage test.

Endress+Hauser

People for Process Automation

FieldCheck - Result Tab Transmitter

Customer	
Order code	
Device type	**PROMAG 10 P DN150**
Serial number	**E608FD16000**
Software Version Transmitter	**V1.03.00**
Verification date	**01/16/2017**

Plant	
Tag Name	**FIT-1091**
K-Factor	**1.0062 - 1.0062**
Zero point	**0**
Software Version I/O-Module	
Verification time	**10:34**

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 %	0.03 %
✓		7.069 l/s (10.0%)	1.10 %	0.20 %
✓		35.343 l/s (50.0%)	0.70 %	0.05 %
✓		70.686 l/s (100%)	0.65 %	-0.09 %
✓	Current Output 1	4.000 mA (0%)	0.05 mA	0.000 mA
✓		4.800 mA (5%)	0.05 mA	-0.000 mA
✓		5.600 mA (10.0%)	0.05 mA	0.000 mA
✓		12.000 mA (50.0%)	0.05 mA	0.001 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	66.555 ms
✓	Coil Curr. Stability		---	---

Legend of symbols

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

FieldCheck: Parameters Transmitter

Customer	
Order code	
Device type	**PROMAG 10 P DN150**
Serial number	**E608FD16000**
Software Version Transmitter	**V1.03.00**
Verification date	**01/16/2017**

Plant	
Tag Name	**FIT-1091**
K-Factor	**1.0062 - 1.0062**
Zero point	**0**
Software Version I/O-Module	
Verification time	**10:34**

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	100.01 ms		

Actual System Ident. 129.0

MM STP
Attenuation Flow

DTM Version: 3.13.00

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
02/07/2017	10:44
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
1.07.07	1.00.01
Software Version	Software Version
09/2016	09/2016
Last Calibration Date	Last Calibration Date

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	
Order code	
Device type	**PROMAG 53 P DN200**
Serial number	**E6088316000**
Software Version Transmitter	**V2.03.00**
Verification date	**02/07/2017**

Plant	
Tag Name	**FIT-405**
K-Factor	**1.0223 - 1.0223**
Zero point	**11**
Software Version I/O-Module	**V1.05.03**
Verification time	**10:44**

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 %	0.61 %
✓		12.566 l/s (10.0%)	1.00 %	0.14 %
✓		62.832 l/s (50.0%)	0.60 %	0.09 %
✓		125.665 l/s (100%)	0.55 %	-0.00 %
✓	Current Output 1	4.000 mA (0%)	0.05 mA	-0.016 mA
✓		4.800 mA (5%)	0.05 mA	-0.015 mA
✓		5.600 mA (10.0%)	0.05 mA	-0.026 mA
✓		12.000 mA (50.0%)	0.05 mA	-0.004 mA
✓		20.000 mA (100%)	0.05 mA	0.022 mA
–	Pulse Output 1	---	---	---
		Start value	**Limits range**	**Measured value**
	Test Sensor			
✓	Coil Curr. Rise	13.300 ms	0.000..27.625 ms	18.350 ms
✓	Coil Curr. Stability		---	---
✓	Electrode Integrity	mV	0.0..300.001 mV	19.615 mV

Legend of symbols

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

FieldCheck: Parameters Transmitter

Customer	
Order code	
Device type	**PROMAG 53 P DN200**
Serial number	**E6088316000**
Software Version Transmitter	**V2.03.00**
Verification date	**02/07/2017**

Plant	
Tag Name	**FIT-405**
K-Factor	**1.0223 - 1.0223**
Zero point	**11**
Software Version I/O-Module	**V1.05.03**
Verification time	**10:44**

Curent Output	**Assign**	**Current Range**	**Value 0_4mA**	**Value 20 mA**		
Terminal 26/27	VOLUME FLOW	4-20 mA activ	0.0 l/s	150.01 l/s		
Pulse Output	**Assign**	**Pulse Value**	**Output signal**	**Pulse width**		
Terminal 24/25	VOLUME FLOW	37.854 l/P	Passive/Positive	100.01 ms		

Actual System Ident. 105.0

MH STP
RAS #2

DTM Version: 3.13.00

Flowmeter Verification Certificate Transmitter

Customer	Plant
	FIT-621
Order code	Tag Name
PROMAG 10 P DN150	1.0176 - 1.0176
Device type	K-Factor
E6087E16000	0
Serial number	Zero point
V1.03.00	
Software Version Transmitter	Software Version I/O-Module
01/13/2017	14:02
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
1.07.07	1.00.01
Software Version	Software Version
09/2016	09/2016
Last Calibration Date	Last Calibration Date

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 witha high voltage test.

Endress+Hauser

People for Process Automation

FieldCheck - Result Tab Transmitter

Customer	
Order code	
Device type	**PROMAG 10 P DN150**
Serial number	**E6087E16000**
Software Version Transmitter	**V1.03.00**
Verification date	**01/13/2017**

Plant	
Tag Name	**FIT-621**
K-Factor	**1.0176 - 1.0176**
Zero point	**0**
Software Version I/O-Module	
Verification time	**14:02**

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	305.364 m3/d (5%)	1.60 %	-0.12 %
✓		610.727 m3/d (10.0%)	1.10 %	-0.63 %
✓		3053.629 m3/d (50.0%)	0.70 %	0.07 %
✓		6107.257 m3/d (100%)	0.65 %	0.00 %
✓	Current Output 1	4.000 mA (0%)	0.05 mA	0.005 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	-0.008 mA
✓		20.000 mA (100%)	0.05 mA	-0.005 mA
—	Pulse Output 1	---	---	---
		Start value	**Limits range**	**Measured value**
	Test Sensor			
✓	Coil Curr. Rise	83.300 ms	20.000..83.300 ms	66.581 ms
✓	Coil Curr. Stability		---	---

Legend of symbols

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

FieldCheck: Parameters Transmitter

Customer	
Order code	
Device type	**PROMAG 10 P DN150**
Serial number	**E6087E16000**
Software Version Transmitter	**V1.03.00**
Verification date	**01/13/2017**

Plant	
Tag Name	**FIT-621**
K-Factor	**1.0176 - 1.0176**
Zero point	**0**
Software Version I/O-Module	
Verification time	**14:02**

Curent Output	**Assign**	**Current Range**	**Value 0_4mA**	**Value 20 mA**		
Terminal 26/27	VOLUME FLOW	4-20 mA activ	0.0 m3/d	3456.01 m3/d		
Pulse Output	**Assign**	**Pulse Value**	**Output signal**	**Pulse width**		
Terminal 24/25	VOLUME FLOW	0.025 m3/P	Passive/Positive	100.01 ms		

Actual System Ident. 123.0

MM-STP
RAS #3

DTM Version: 3.13.00

Flowmeter Verification Certificate Transmitter

Customer	Plant
	FIT-631
Order code	Tag Name
PROMAG 10 P DN150	1.016 - 1.016
Device type	K-Factor
E608FE16000	0
Serial number	Zero point
V1.03.00	
Software Version Transmitter	Software Version I/O-Module
01/13/2017	13:53
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
1.07.07	1.00.01
Software Version	Software Version
09/2016	09/2016
Last Calibration Date	Last Calibration Date

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 witha high voltage test.

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People for Process Automation

FieldCheck - Result Tab Transmitter

Customer	
Order code	
Device type	**PROMAG 10 P DN150**
Serial number	**E608FE16000**
Software Version Transmitter	**V1.03.00**
Verification date	**01/13/2017**

Plant	
Tag Name	**FIT-631**
K-Factor	**1.016 - 1.016**
Zero point	**0**
Software Version I/O-Module	
Verification time	**13:53**

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	305.364 m3/d (5%)	1.60 %	0.47 %
✓		610.727 m3/d (10.0%)	1.10 %	0.07 %
✓		3053.629 m3/d (50.0%)	0.70 %	0.03 %
✓		6107.257 m3/d (100%)	0.65 %	-0.00 %
✓	Current Output 1	4.000 mA (0%)	0.05 mA	0.005 mA
✓		4.800 mA (5%)	0.05 mA	-0.003 mA
✓		5.600 mA (10.0%)	0.05 mA	-0.002 mA
✓		12.000 mA (50.0%)	0.05 mA	-0.006 mA
✓		20.000 mA (100%)	0.05 mA	-0.001 mA
–	Pulse Output 1	---	---	---
		Start value	**Limits range**	**Measured value**
	Test Sensor			
✓	Coil Curr. Rise	83.300 ms	20.000..83.300 ms	66.738 ms
✓	Coil Curr. Stability		---	---

Legend of symbols

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

FieldCheck: Parameters Transmitter

Customer	
Order code	
Device type	**PROMAG 10 P DN150**
Serial number	**E608FE16000**
Software Version Transmitter	**V1.03.00**
Verification date	**01/13/2017**

Plant	
Tag Name	**FIT-631**
K-Factor	**1.016 - 1.016**
Zero point	**0**
Software Version I/O-Module	
Verification time	**13:53**

Curent Output	**Assign**	**Current Range**	**Value 0_4mA**	**Value 20 mA**		
Terminal 26/27	VOLUME FLOW	4-20 mA activ	0.0 m3/d	3456.01 m3/d		
Pulse Output	**Assign**	**Pulse Value**	**Output signal**	**Pulse width**		
Terminal 24/25	VOLUME FLOW	0.025 m3/P	Passive/Positive	100.01 ms		

Actual System Ident. 123.0

MM STP
Filtrate Flow

DTM Version: 3.13.00

Flowmeter Verification Certificate Transmitter

Customer	Plant
	FIT-750
Order code	Tag Name
PROMAG 10 P DN80	1.1234 - 1.1234
Device type	K-Factor
E6086E16000	0
Serial number	Zero point
V1.03.00	
Software Version Transmitter	Software Version I/O-Module
01/16/2017	10:23
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
1.07.07	1.00.01
Software Version	Software Version
09/2016	09/2016
Last Calibration Date	Last Calibration Date

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)]

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

Endress+Hauser

People for Process Automation

FieldCheck - Result Tab Transmitter

Customer	
Order code	
Device type	**PROMAG 10 P DN80**
Serial number	**E6086E16000**
Software Version Transmitter	**V1.03.00**
Verification date	**01/16/2017**

Plant	
Tag Name	**FIT-750**
K-Factor	**1.1234 - 1.1234**
Zero point	**0**
Software Version I/O-Module	
Verification time	**10:23**

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 %	0.49 %
✓		173.718 m3/d (10.0%)	1.10 %	0.43 %
✓		868.589 m3/d (50.0%)	0.70 %	0.12 %
✓		1737.176 m3/d (100%)	0.65 %	-0.00 %
✓	Current Output 1	4.000 mA (0%)	0.05 mA	0.004 mA
✓		4.800 mA (5%)	0.05 mA	0.002 mA
✓		5.600 mA (10.0%)	0.05 mA	0.002 mA
✓		12.000 mA (50.0%)	0.05 mA	0.003 mA
✓		20.000 mA (100%)	0.05 mA	0.006 mA
–	Pulse Output 1	---	---	---
		Start value	**Limits range**	**Measured value**
	Test Sensor			
✓	Coil Curr. Rise	50.000 ms	13.340..50.000 ms	43.854 ms
✓	Coil Curr. Stability		---	---

Legend of symbols

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

FieldCheck: Parameters Transmitter

Customer	
Order code	
Device type	**PROMAG 10 P DN80**
Serial number	**E6086E16000**
Software Version Transmitter	**V1.03.00**
Verification date	**01/16/2017**

Plant	
Tag Name	**FIT-750**
K-Factor	**1.1234 - 1.1234**
Zero point	**0**
Software Version I/O-Module	
Verification time	**10:23**

Curent Output	**Assign**	**Current Range**	**Value 0_4mA**	**Value 20 mA**		
Terminal 26/27	VOLUME FLOW	4-20 mA activ	0.0 m3/d	4320.01 m3/d		
Pulse Output	**Assign**	**Pulse Value**	**Output signal**	**Pulse width**		
Terminal 24/25	VOLUME FLOW	0.005 m3/P	Passive/Positive	100.01 ms		

Actual System Ident. 129.0

Ontario Clean Water Agency
Agence Ontarienne Des Eaux

Ottawa Valley Hub
122 Patterson Crescent
Carleton Place, ON, K7C 4P3
Tel: 613 257 4990 Fax:613 257 5727

Calibration / Inspection Check

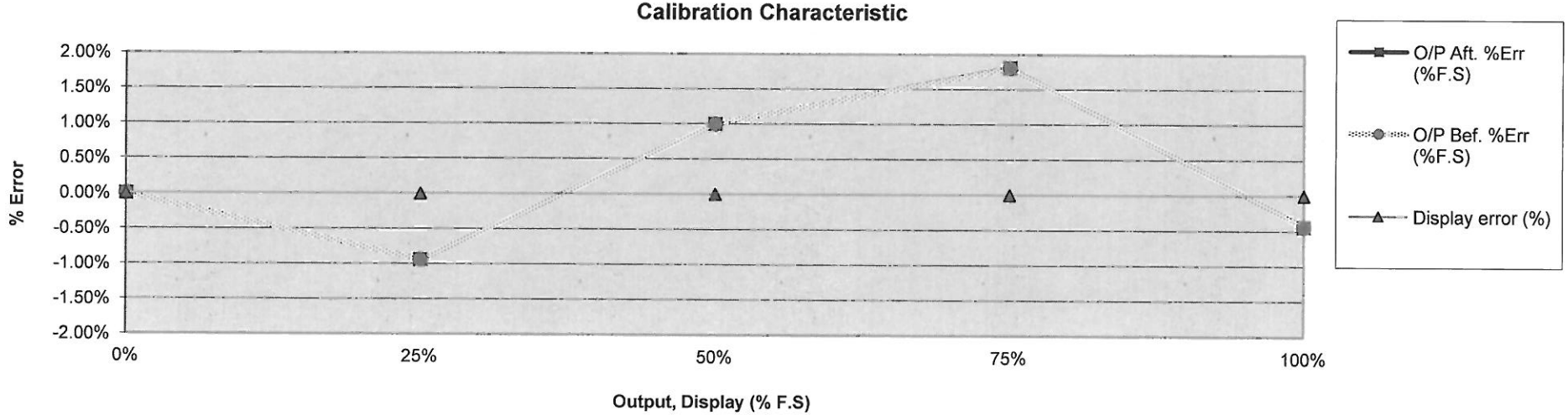
Project:	MISSISSIPPI MILLS WWTP	Description	METER FLOW LAGOON EFFLUENT
Equipment ID:	0000190024	Make:	MILL
Model# :	OCMIII	Type:	Parshall Flume
Serial# :	31955459	Project Org.:	5678
INT.DIA:	12 "	Work Order Ref.:	
Cal. FS:	_____ liter/s	Range:	0-21554.57 m^3/d
Customer FS:	_____ liter/s	Sensor Factors:	

Technician: Tom K.

Signature:

Date: 05/09/2017

No.	V. Setting (m/sec)	P(psi)	Head (cm)	Head (m/w.c)	Flow (m^3/D)	CAL. Standard	Display Before	Display After	Display error (%)	O/P. Theo (mAdc)	O/P. Before CAL.(mAdc)	O/P. After CAL.(mAdc)	O/P Bef. %Err (%F.S)	O/P Aft. %Err (%F.S)
1			0.00		0.00					4.00	4.00	4.00	0.00%	0.00%
2			20.92		5388					8.00	7.85	7.85	-0.94%	-0.94%
3			32.98		10777					12.00	12.16	12.16	1.00%	1.00%
4			43.05		16165					16.00	16.29	16.29	1.81%	1.81%
5			51.20		21554					20.00	19.93	19.93	-0.44%	-0.44%



Comments:

MM STP
~~RAS #2~~
WAS #1

DTM Version: 3.13.00

Flowmeter Verification Certificate Transmitter

Customer	Plant
	FIT-612
Order code	Tag Name
PROMAG 10 P DN80	1.0337 - 1.0337
Device type	K-Factor
E6086D16000	0
Serial number	Zero point
V1.03.00	
Software Version Transmitter	Software Version I/O-Module
01/13/2017	13:45
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
1.07.07	1.00.01
Software Version	Software Version
09/2016	09/2016
Last Calibration Date	Last Calibration Date

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 witha high voltage test.

Endress+Hauser

People for Process Automation

FieldCheck - Result Tab Transmitter

Customer	
Order code	
Device type	**PROMAG 10 P DN80**
Serial number	**E6086D16000**
Software Version Transmitter	**V1.03.00**
Verification date	**01/13/2017**

Plant	
Tag Name	**FIT-612**
K-Factor	**1.0337 - 1.0337**
Zero point	**0**
Software Version I/O-Module	
Verification time	**13:45**

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 %	0.68 %
✓		173.718 m3/d (10.0%)	1.10 %	-0.15 %
✓		868.589 m3/d (50.0%)	0.70 %	0.06 %
✓		1737.176 m3/d (100%)	0.65 %	0.00 %
✓	Current Output 1	4.000 mA (0%)	0.05 mA	-0.003 mA
✓		4.800 mA (5%)	0.05 mA	-0.004 mA
✓		5.600 mA (10.0%)	0.05 mA	-0.004 mA
✓		12.000 mA (50.0%)	0.05 mA	-0.001 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	43.281 ms
✓	Coil Curr. Stability		---	---

Legend of symbols

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

FieldCheck: Parameters Transmitter

Customer	
Order code	
Device type	**PROMAG 10 P DN80**
Serial number	**E6086D16000**
Software Version Transmitter	**V1.03.00**
Verification date	**01/13/2017**

Plant	
Tag Name	**FIT-612**
K-Factor	**1.0337 - 1.0337**
Zero point	**0**
Software Version I/O-Module	
Verification time	**13:45**

Curent Output	**Assign**	**Current Range**	**Value 0_4mA**	**Value 20 mA**		
Terminal 26/27	VOLUME FLOW	4-20 mA activ	0.0 m3/d	864.01 m3/d		
Pulse Output	**Assign**	**Pulse Value**	**Output signal**	**Pulse width**		
Terminal 24/25	VOLUME FLOW	0.005 m3/P	Passive/Positive	100.01 ms		

Actual System Ident. 123.0

MM STP
WAS #2

DTM Version: 3.13.00

Flowmeter Verification Certificate Transmitter

Customer	Plant
	FIT-622
Order code	Tag Name
PROMAG 10 P DN80	1.0288 - 1.0288
Device type	K-Factor
E608FC16000	0
Serial number	Zero point
V1.03.00	
Software Version Transmitter	Software Version I/O-Module
01/16/2017	10:00
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
1.07.07	1.00.01
Software Version	Software Version
09/2016	09/2016
Last Calibration Date	Last Calibration Date

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 witha high voltage test.

Endress+Hauser

People for Process Automation

FieldCheck - Result Tab Transmitter

Customer	
Order code	
Device type	**PROMAG 10 P DN80**
Serial number	**E608FC16000**
Software Version Transmitter	**V1.03.00**
Verification date	**01/16/2017**

Plant	
Tag Name	**FIT-622**
K-Factor	**1.0288 - 1.0288**
Zero point	**0**
Software Version I/O-Module	
Verification time	**10:00**

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 %	0.51 %
✓		173.718 m3/d (10.0%)	1.10 %	0.06 %
✓		868.589 m3/d (50.0%)	0.70 %	0.08 %
✓		1737.176 m3/d (100%)	0.65 %	-0.01 %
✓	Current Output 1	4.000 mA (0%)	0.05 mA	0.008 mA
✓		4.800 mA (5%)	0.05 mA	0.003 mA
✓		5.600 mA (10.0%)	0.05 mA	0.004 mA
✓		12.000 mA (50.0%)	0.05 mA	0.004 mA
✓		20.000 mA (100%)	0.05 mA	0.006 mA
–	Pulse Output 1	---	---	---
		Start value	**Limits range**	**Measured value**
	Test Sensor			
✓	Coil Curr. Rise	50.000 ms	13.340..50.000 ms	43.125 ms
✓	Coil Curr. Stability		---	---

Legend of symbols

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

FieldCheck: Parameters Transmitter

Customer	
Order code	
Device type	**PROMAG 10 P DN80**
Serial number	**E608FC16000**
Software Version Transmitter	**V1.03.00**
Verification date	**01/16/2017**

Plant	
Tag Name	**FIT-622**
K-Factor	**1.0288 - 1.0288**
Zero point	**0**
Software Version I/O-Module	
Verification time	**10:00**

Curent Output	**Assign**	**Current Range**	**Value 0_4mA**	**Value 20 mA**		
Terminal 26/27	VOLUME FLOW	4-20 mA activ	0.0 m3/d	864.01 m3/d		
Pulse Output	**Assign**	**Pulse Value**	**Output signal**	**Pulse width**		
Terminal 24/25	VOLUME FLOW	0.005 m3/P	Passive/Positive	100.01 ms		

Actual System Ident. 129.0

MM STP
WAS #3

Flowmeter Verification Certificate Transmitter

Customer	Plant
	FIT-632
Order code	Tag Name
PROMAG 10 P DN80	1.055 - 1.055
Device type	K-Factor
E6088416000	0
Serial number	Zero point
V1.03.00	
Software Version Transmitter	Software Version I/O-Module
01/16/2017	10:10
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
1.07.07	1.00.01
Software Version	Software Version
09/2016	09/2016
Last Calibration Date	Last Calibration Date

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 witha high voltage test.

Endress+Hauser

People for Process Automation

FieldCheck - Result Tab Transmitter

Customer	
Order code	
Device type	**PROMAG 10 P DN80**
Serial number	**E6088416000**
Software Version Transmitter	**V1.03.00**
Verification date	**01/16/2017**

Plant	
Tag Name	**FIT-632**
K-Factor	**1.055 - 1.055**
Zero point	**0**
Software Version I/O-Module	
Verification time	**10:10**

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 %	0.75 %
✓		173.718 m3/d (10.0%)	1.10 %	0.06 %
✓		868.589 m3/d (50.0%)	0.70 %	0.06 %
✓		1737.176 m3/d (100%)	0.65 %	-0.00 %
✓	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	0.001 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	50.000 ms	13.340..50.000 ms	43.307 ms
✓	Coil Curr. Stability		---	---

Legend of symbols

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

FieldCheck: Parameters Transmitter

Customer	
Order code	
Device type	**PROMAG 10 P DN80**
Serial number	**E6088416000**
Software Version Transmitter	**V1.03.00**
Verification date	**01/16/2017**

Plant	
Tag Name	**FIT-632**
K-Factor	**1.055 - 1.055**
Zero point	**0**
Software Version I/O-Module	
Verification time	**10:10**

Curent Output	**Assign**	**Current Range**	**Value 0_4mA**	**Value 20 mA**		
Terminal 26/27	VOLUME FLOW	4-20 mA activ	0.0 m3/d	864.01 m3/d		
Pulse Output	**Assign**	**Pulse Value**	**Output signal**	**Pulse width**		
Terminal 24/25	VOLUME FLOW	0.005 m3/P	Passive/Positive	100.01 ms		

Actual System Ident. 129.0

MH SJP
Ras #1

DTM Version: 3.13.00

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
01/13/2017	13:35
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
1.07.07	1.00.01
Software Version	Software Version
09/2016	09/2016
Last Calibration Date	Last Calibration Date

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 witha high voltage test.

Endress+Hauser

People for Process Automation

FieldCheck - Result Tab Transmitter

Customer	
Order code	
Device type	**PROMAG 10 P DN150**
Serial number	**E6085316000**
Software Version Transmitter	**V1.03.00**
Verification date	**01/13/2017**

Plant	
Tag Name	**FIT-611**
K-Factor	**1.0042 - 1.0042**
Zero point	**0**
Software Version I/O-Module	
Verification time	**13:35**

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	305.364 m3/d (5%)	1.60 %	1.24 %
✓		610.727 m3/d (10.0%)	1.10 %	0.20 %
✓		3053.629 m3/d (50.0%)	0.70 %	-0.05 %
✓		6107.257 m3/d (100%)	0.65 %	-0.06 %
✓	Current Output 1	4.000 mA (0%)	0.05 mA	-0.001 mA
✓		4.800 mA (5%)	0.05 mA	-0.000 mA
✓		5.600 mA (10.0%)	0.05 mA	0.000 mA
✓		12.000 mA (50.0%)	0.05 mA	0.009 mA
✓		20.000 mA (100%)	0.05 mA	0.024 mA
–	Pulse Output 1	---	---	---
		Start value	**Limits range**	**Measured value**
	Test Sensor			
✓	Coil Curr. Rise	83.300 ms	20.000..83.300 ms	66.685 ms
✓	Coil Curr. Stability		---	---

Legend of symbols

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

FieldCheck: Parameters Transmitter

Customer	
Order code	
Device type	**PROMAG 10 P DN150**
Serial number	**E6085316000**
Software Version Transmitter	**V1.03.00**
Verification date	**01/13/2017**

Plant	
Tag Name	**FIT-611**
K-Factor	**1.0042 - 1.0042**
Zero point	**0**
Software Version I/O-Module	
Verification time	**13:35**

Curent Output	**Assign**	**Current Range**	**Value 0_4mA**	**Value 20 mA**		
Terminal 26/27	VOLUME FLOW	4-20 mA activ	0.0 m3/d	3456.01 m3/d		
Pulse Output	**Assign**	**Pulse Value**	**Output signal**	**Pulse width**		
Terminal 24/25	VOLUME FLOW	0.025 m3/P	Passive/Positive	100.01 ms		

Actual System Ident. 121.0