ANNUAL REPORT

MOUNT FOREST
WASTEWATER TREATMENT SYSTEM

FOR THE PERIOD:
JANUARY 1, 2020 – DECEMBER 31, 2020

Prepared for the Township of Wellington North
by the Ontario Clean Water Agency

ONTARIO CLEAN WATER AGENCY
AGENCE ONTARIENNE DES EAUX

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1. System Description

In November 2008, the Mount Forest Water Pollution Control Plant began operation. The plant consists of a raw water pumping station, which used to be the old sewage treatment plant. This flow now enters the new Influent Works building which contains a vertical bar screen, a washer screw compactor, a circular grit chamber complete with grit extraction equipment and blowers, and a grit dewatering screw all sized to accommodate the hydraulic peak flow rate of 15,000 m^3/d. This conventional wastewater plant uses diffused air supplied by two (2) duty aeration blowers and one (1) standby blower to supply its two (2) aeration tanks and supplements its phosphorous removal using alum. The plant applies its coagulant aid prior to its two square final clarifiers which are fitted with sludge removal scrapers.

Two final effluent single media filters including traveling backwash mechanism and return of backwash to the head of the aeration tanks follow the final clarifiers. The effluent then flows though the ultraviolet disinfection system which consists of two banks, one duty and one standby, with each bank sized for the Peak Flow Rate. The plant is designed to remove suspended solids, BOD_5, and phosphorus from the wastewater. Chlorination of bypasses which are metered is done though a manual sodium hypochlorite drip into the existing chlorine contact chamber at the Raw Sewage Pumping Station.

The sludge digestion and storage is located at the new site, and receives sludge from the Mount Forest WPCP and from the Arthur WPCP on an as need basis. Sludge treatment system consists of a five (5) tank aerobic sludge digestion system with a total storage volume of 3,951m^3, equipped with coarse bubble diffusers, submersible mixers and supernatant decanting.

An overview of Mount Forest Wastewater Treatment Plant can be found in Table 1:

Table 1. Mount Forest Wastewater Treatment Plant Overview

Facility Name	Mount Forest Wastewater Treatment Plant
Facility Type	Extended Air STP with Tertiary Treatment
Plant Classification	WWT II
Works Number	120001381
Design Capacity	2,818 m^3/day
Receiving Water	South Saugeen River
Certificate of Approval	6134-73FHHU

2. Monitoring Data and Comparison to Effluent Limits

As per Section 10.(5)(a) of C of A 6134-73FHHU, *a summary and interpretation of all monitoring data and a comparison to the effluent limits outlined in Condition 7, including an overview of the success and adequacy of the Works* is required.

2.1 Sampling Frequency

Both influent (raw sewage) and effluent are sampled on a regular basis. The sampling types and frequencies are summarized in Table 2 and Table 3. The sampling frequencies meet the requirements set out in Section 9 of C of A 6134-73FFHHU.

Table 2. Influent **(**Raw Sewage) Monitoring – Sampling Frequencies

Parameter	Sample Type	Frequency
BOD_5*	24-hour Composite	Weekly
Total Suspended Solids*	24-hour Composite	Weekly
Total Phosphorous*	24-hour Composite	Weekly
Total Kjeldahl Nitrogen*	24-hour Composite	Weekly

*Refer to Appendix A for monthly sample results.

Table 3. Effluent Sampling Monitoring – Sampling Frequencies

Parameters	Sample Type	Frequency
$CBOD_5$*	24-hour Composite	Weekly
Total Suspended Solids*	24-hour Composite	Weekly
Total Phosphorous*	24-hour Composite	Weekly
Total Ammonia Nitrogen*	24-hour Composite	Weekly
Nitrate Nitrogen*	24-hour Composite	Weekly
E. Coli*	Grab	Weekly
pH	Grab (on-site)	Weekly
Temperature	Grab (on-site)	Weekly

*Refer to Appendix A for monthly sample results.

2.2 Effluent Objectives and Effluent Limits

The effluent objectives as per Section 6 of C of A 6134-73FHHU for the Mount Forest Wastewater Treatment Plant are:

Table 4. Effluent Objectives as per Section 6 of C of A 6134-73FHHU

Effluent Parameter	Concentration Objective (mg/L)	Loading Objective (kg/day)
$CBOD_5$	6.0	17.0
Total Suspended Solids	10.0	17.0
Total Ammonia Nitrogen Dec 01 to Apr 30 May 01 to Nov 30	 4.0 1.5	 11.3 4.2
Total Phosphorous	0.3	0.85
Free Chlorine Residual	0	-
E.Coli	100 CFU/100mL (Monthly Geometric Mean Density)	-

The effluent limits that are to be met as per Section 7 of C of A 6134-73FHHU for the Mount Forest Wastewater Treatment Plant are found in Table 5. Any exceedance with the limits found in Table 5 constitutes a non-compliance with C of A 6134-73FHHU.

Table 5. Effluent Limits as per Section 7 of C of A 6134-73FHHU

Effluent Parameter	Concentration Limit (mg/L)	Loading Limit (kg/day)
$CBOD_5$	12.5	35
Total Suspended Solids	12.5	35
Total Ammonia Nitrogen Dec 01 to Apr 30 May 01 to Nov 30	 6.0 2.5	 17.0 7.0
Total Phosphorous	0.37	1.05
Free Chlorine Residual	0.02	-
E.Coli	200 CFU/100mL (Monthly Geometric Mean Density)	-
pH of the effluent to be maintained between 6.0 to 9.0, inclusive.		

2.3 Comparison of Data to Effluent Objectives and Effluent Limits

Analytical and monitoring data for the Mount Forest Wastewater Treatment Facility is stored in OCWA's data management system (WISKI). Annual and monthly averages for flows, $CBOD_5$, BOD_5, Total Suspended Solids, Total Phosphorous, Nitrogen-series and E.coli can be found in Appendix A. A comparison of analytical data from effluent samples to the effluent objectives and effluent limits are shown in the tables below:

Table 6.

	$CBOD_5$					
	Monthly Average Concentration (mg/L)	Within Objectives (6.00 mg/L)	Within Limits (12.50 mg/L)	Monthly Average Loading (kg/d)	Within Objectives (17.00 kg/d)	Within Limits (35.00 kg/d)
January	2.00	Yes	Yes	4.22	Yes	Yes
February	2.00	Yes	Yes	2.65	Yes	Yes
March	2.50	Yes	Yes	6.98	Yes	Yes
April	2.00	Yes	Yes	3.56	Yes	Yes
May	2.00	Yes	Yes	3.24	Yes	Yes
June	2.00	Yes	Yes	2.65	Yes	Yes
July	2.00	Yes	Yes	3.04	Yes	Yes
August	2.50	Yes	Yes	3.99	Yes	Yes
September	2.40	Yes	Yes	3.07	Yes	Yes
October	2.75	Yes	Yes	3.90	Yes	Yes
November	2.00	Yes	Yes	3.16	Yes	Yes
December	2.00	Yes	Yes	3.45	Yes	Yes

Table 7.

	Total Suspended Solids					
	Monthly Average Concentration (mg/L)	Within Objectives (10.00 mg/L)	Within Limits (12.50 mg/L)	Monthly Average Loading (kg/d)	Within Objectives (28.20 kg/d)	Within Limits (35.00 kg/d)
January	3.00	Yes	Yes	6.34	Yes	Yes
February	2.75	Yes	Yes	3.64	Yes	Yes
March	4.25	Yes	Yes	11.87	Yes	Yes
April	3.00	Yes	Yes	5.33	Yes	Yes
May	2.75	Yes	Yes	4.45	Yes	Yes
June	3.40	Yes	Yes	4.50	Yes	Yes
July	2.00	Yes	Yes	3.04	Yes	Yes
August	2.75	Yes	Yes	4.39	Yes	Yes
September	2.60	Yes	Yes	3.32	Yes	Yes
October	3.00	Yes	Yes	4.26	Yes	Yes
November	2.00	Yes	Yes	3.16	Yes	Yes
December	2.60	Yes	Yes	4.49	Yes	Yes

Table 8.

	Total Ammonia Nitrogen (Ammonia Nitrogen + Ammonium Nitrogen)									
	Monthly Average Concentration (mg/L)	Within Objectives (Dec 01-Apr 30 4.00 mg/L)	Within Objectives (May 01-Nov 30 1.50 mg/L)	Within Limits (Dec 01-Apr 30 6.00 mg/L)	Within Limits (May 01-Nov 30 2.50 mg/L)	Monthly Average Loading (kg/d)	Within Objectives (Dec 01-Apr 30 11.30 kg/d)	Within Objectives (May 01-Nov 30 4.20 kg/d)	Within Limits (Dec 01-Apr 30 17.00 kg/d)	Within Limits (May 01-Nov 30 7.00 kg/d)
January	0.10	Yes	n/a	Yes	n/a	0.21	Yes	n/a	Yes	n/a
February	0.10	Yes	n/a	Yes	n/a	0.13	Yes	n/a	Yes	n/a
March	0.58	Yes	n/a	Yes	n/a	1.61	Yes	n/a	Yes	n/a
April	0.10	Yes	n/a	Yes	n/a	0.18	Yes	n/a	Yes	n/a
May	0.13	n/a	Yes	n/a	Yes	0.20	n/a	Yes	n/a	Yes
June	0.14	n/a	Yes	n/a	Yes	0.19	n/a	Yes	n/a	Yes
July	0.10	n/a	Yes	n/a	Yes	0.15	n/a	Yes	n/a	Yes
August	0.10	n/a	Yes	n/a	Yes	0.16	n/a	Yes	n/a	Yes
September	0.10	n/a	Yes	n/a	Yes	0.13	n/a	Yes	n/a	Yes
October	0.10	n/a	Yes	n/a	Yes	0.14	n/a	Yes	n/a	Yes
November	0.10	n/a	Yes	n/a	Yes	0.16	n/a	Yes	n/a	Yes
December	0.10	Yes	n/a	Yes	n/a	0.17	Yes	n/a	Yes	n/a

Table 9.

	Total Phosphorus					
	Monthly Average Concentration (mg/L)	Within Objectives (0.300 mg/L)	Within Limits (0.370 mg/L)	Monthly Average Loading (kg/d)	Within Objectives (0.85 kg/d)	Within Limits (1.05 kg/d)
January	0.055	Yes	Yes	0.116	Yes	Yes
February	0.083	Yes	Yes	0.109	Yes	Yes
March	0.130	Yes	Yes	0.363	Yes	Yes
April	0.068	Yes	Yes	0.121	Yes	Yes
May	0.090	Yes	Yes	0.146	Yes	Yes
June	0.112	Yes	Yes	0.148	Yes	Yes
July	0.103	Yes	Yes	0.156	Yes	Yes
August	0.125	Yes	Yes	0.199	Yes	Yes
September	0.290	Yes	Yes	0.371	Yes	Yes
October	0.070	Yes	Yes	0.099	Yes	Yes
November	0.068	Yes	Yes	0.107	Yes	Yes
December	0.066	Yes	Yes	0.114	Yes	Yes

Table 10.

	E.coli		
	Monthly Geometric Mean Density (CFU/100mL)	Within Objectives (100 CFU/100mL)	Within Limits (200 CFU/100mL)
January	2.83	Yes	Yes
February	9.04	Yes	Yes
March	14.92	Yes	Yes
April	2.00	Yes	Yes
May	9.46	Yes	Yes
June	6.92	Yes	Yes
July	15.49	Yes	Yes
August	6.79	Yes	Yes
September	3.60	Yes	Yes
October	1.68	Yes	Yes
November	8.46	Yes	Yes
December	2.64	Yes	Yes

Table 11. Annual Effluent Results Summary, 2020

Parameters	Average	Minimum	Maximum	Average Annual Loading
$CBOD_5$	2.18	2.00	5.00	3.66
Total Suspended Solids	2.84	2.00	10.00	4.90
Total Phosphorus	0.105	0.03	0.47	0.171
Total Ammonia Nitrogen	0.15	0.10	2.00	0.29
E.Coli	6.99	0	6200	-
pH	7.47	7.28	7.79	-
Temperature	7.54	5.20	17.1	-

2.4 Additional Monitoring Parameters

The following parameters in Table 12 do not have limits or objectives but are monitored on a regular basis (see Section 2.1 for sampling frequency) as required by C of A 6134-73FHHU. Table 12 summarizes the monitoring data for the reporting period.

Raw Sewage Quality:

Table 12. Raw Sewage Monitoring Parameters as required by C of A 6134-73FHHU for Mount Forest Wastewater Treatment Plant, 2020

Parameter	Average	Minimum	Maximum
BOD_5* (mg/L)	79.24	43.00	123.75
Total Suspended Solids* (mg/L)	69.50	27.75	116.00
Total Phosphorous* (mg/L)	2.21	1.07	4.14
Total Kjeldahl Nitrogen* (mg/L)	21.77	11.10	36.20

* Refer to the Appendix A PAR for monthly sample results.

2.5 Overview of Success and Adequacy of the Works

The annual average effluent TSS concentration was 2.84 mg/L with an average removal efficiency of >84.69%. The annual average effluent Total Phosphorus concentration was 0.105 mg/L with an average removal efficiency of >87.72%.

The bacteriological quality of the effluent complied with the certificate of approval requirement of <200 CFU per 100 mL sample. The annual geometric mean density of organisms for 2020 was 6.99 CFU per 100 mL, indicating extremely effective effluent disinfection.

The total raw sewage volume of wastewater treated in 2020 was 710,213.60 m^3. The annual average daily flow of raw sewage was 1,936.84 m^3/day was 68.73 % of the design flow (2,818 m^3/day). The maximum peak flow of 8,704.70 m^3/day occurred during March due to higher seasonal temperatures which resulted in rapid snow melt as well as heavy precipitation. This represents a peak flow of 308.90% of the rated capacity. The wastewater treatment plant operated within the rated capacity 91% of the time (332 out of 365 days of the year)

The sewage treatment operations for 2020 provided effluent quality that met all of the effluent requirements of the CofA and demonstrates average percentage of removal efficiency (>86%) for key parameters. The effluent for 2020 was within all effluent limits and all effluent objectives set out in the CofA. Based on this evidence, the current sewage treatment program is deemed adequate. OCWA will continue to stay within effluent limits and will continue to aim to meet effluent objectives during each reporting period.

3. Operating Problems and Corrective Actions

As per Section 10.(5)(b) of C of A 6134-73FHHU, *a description of any operating problems encountered and corrective actions taken* is required.

There were no operating problems encountered or corrective actions required at the Mount Forest Water Pollution Control Plant during 2020 that affected the quality of the effluent leaving the plant. All repairs/maintenance can be found in Section 4.

4. Major Maintenance Activities

As per 10.(5)(c) of C of A 6134-73FHHU, *a summary of all maintenance carried out on any major structure, equipment, apparatus, mechanisms or thing forming part of the works* is required.

Plant maintenance, including non-scheduled maintenance is monitored using Maximo Workplace Management System. All routine and preventative maintenance was conducted as scheduled in 2020.

For 2020, major maintenance activities that occurred include:

Plant:

- Hour meter replacement
- Filter bridge #1 rewiring
- Septage receiving tank cleanout
- Grindex pump repairs
- Influent building septage receiving tank cleanout
- New distribution valves in digester
- New gas detection equipment
- New sump pump installed in scum chamber
- New PLC/SCADA installed
- Influent flow meter repair
- New pump installation at Perth St.
- Flow Meter calibrations
- Gas Meter calibrations
- Scum Pit and Clarifier cleaning
- UV Unit servicing

Cork St. Pumping Station:

- Pump #2 cleaning and repair
- Pump inspection/maintenance
- Generator load test
- Cooling fan installation

Durham St. Pumping Station:

- Pump inspection/maintenance
- Generator load test
- Cooling fan installation

North Water St. Pumping Station:

- Wet Well cleanout
- Generator load test
- Pump #1 repair
- Pump inspection/maintenance

5. Effluent Quality Assurance and Control

As per 10.(5)(d) of C of A 6134-73FHHU, *a summary of any effluent quality assurance or control measures undertaken in the reporting period* is required:

All laboratory analyzed raw sewage and effluent samples (Section 2.1) are analyzed by SGS Canada Inc., which is an ISO 17025 accredited laboratory. In-house tests are conducted for monitoring purposes by licensed operators using standardized methods. The results from in-house tests are used to determine treatment efficiency and to effectively maintain process control. Calibrations and preventative maintenance are performed on facility equipment and monitoring equipment, see Section 4 for more details. In addition to sample analysis, preventative maintenance is scheduled for equipment at the sewage treatment plant and pumping stations at regular frequency (frequency depends on the equipment and type of maintenance). Maintenance activities are scheduled in the work management system Maximo.

The sewage system is operated and maintained by licensed Operators. The mandatory licensing program for operators of sewage treatment facilities in Ontario is regulated under the Ontario Water Resources Act (OWRA) Ontario Regulation 129/04. A licensed individual meets the education and experience requirements and has successfully passed the licensing examination.

The following are certified operators who operated this facility during 2020 with current certified classification, certificate numbers and certificate expiry dates.

TABLE 13.

Operator	Level	Certificate #	Expiry Date
Dwight Hallahan	WWT 2 WWC 1	15499 16002	Apr 30, 2022 Oct 31, 2022
Dan Yake	WWT 2 WWC 1	57390 69121	Jul 31, 2022 Jan 31, 2023
Steve Miller	WWT 4 WWC 2	15422 17899	Jan 31, 2022 Jan 31, 2022
Jenna Porter	WWT 4 WWC 2	61948 108856	Mar 31, 2023 Jan 31, 2023

6. Calibration and Maintenance Procedures

As per 10.(5)(e) of C of A 6134-73FHHU, *a summary of the calibration and maintenance carried out on all effluent monitoring equipment* is required.

All in-house monitoring equipment is calibrated/verified as per manufacturer's recommendations. Monitoring and metering equipment is also calibrated by a third party on an annual basis. Preventative maintenance is scheduled for all equipment at the sewage treatment plant and pumping stations at regular frequency (frequency depends on the equipment and type of maintenance). Maintenance activities are scheduled within the work management system Maximo, upon completion, Operators set the work order to complete. On a monthly basis, preventative work orders are reviewed for completion.

Indus Control was contracted to calibrate flow measuring equipment on August 31, 2020. Copies of these calibration reports can be found in Appendix C of this report.

7. Efforts and Results Achieved in Meeting Effluent Objectives

As per 10.(5)(f) of C of A 6134-FHHU, a description of efforts made and results achieved in meeting the Effluent Objectives of Condition 6 is required.

Condition 6 is imposed "to establish non-enforceable effluent quality objectives which the Owner is obligated to use best efforts to strive towards on an ongoing basis. These objectives are to be used as a mechanism to trigger corrective action proactively and voluntarily before environmental impairment occurs and before the compliances limits of Condition 7 are exceeded."

OCWA as the Operating Authority (on behalf of the Owner) has made best efforts to stay within the Effluent Objectives in the CofA. These efforts are supported through:

- Continuous monitoring equipment
- Regular plant inspections/checks
- In-house sampling and testing
- Laboratory (3rd party) analysis of influent and effluent samples
- Data review
- Process optimization and adjustments (as required)
- Scheduled/preventative maintenance
- Repairs as necessary

A summary of the effluent quality in comparison to the effluent objectives can be found in Tables 6-10 of section 2.3 of this report. These results show that sewage treatment operations for 2020 provided effluent quality that was within all effluent objectives outlined in the CofA and minimized environmental impairment.

8. Sludge Generation

As per 10.(5)(g) of C of A 6134-FHHU, *a tabulation of the volume of sludge generated in the reporting period, an outline of anticipated volumes to be generated in the next reporting period and a summary of the locations to where the sludge was disposed* is required.

Digested sludge produced at the Mount Forest Wastewater Treatment Plant is land-applied in accordance with the Nutrient Management Act 2002 and Ontario Regulation 267/03.

Grab samples of digested (aerobic) sludge are collected and tested as per these guidelines. In 2020, sludge sample analyses was carried out by SGS Lakefield Research Limited. A summary of sludge sample results is provided in Appendix B.

A total volume of 816 m^3 was hauled from the Arthur WWTP to the Mount Forest Sludge Storage Facility in 2020.

Wessuc Environmental Services Inc. was contracted to haul and spread sludge from the Mount Forest plant in 2020. (Certificate of Approval - Waste Management System #1603-4LGJBN)

Based on the design flow, average wastewater quality, and a linear regression with an R^2 value of 77.03%, the anticipated volume to be generated in the next reporting period is approximately 4,350 m^3.

The following certified sites were utilized in 2020

Table 14. Volume of Sludge Generated from Mount Forest Wastewater Treatment Plant in 2020

Site	Site Location	Volume of Biosolids (m^3)	Hauler
NASM Submission ID: 23730	W1007	1021.00	Wessuc
NASM Submission ID: 23002	W1001	606.00	Wessuc
NASM Submission ID: 24433	W1004	2737.50	Wessuc

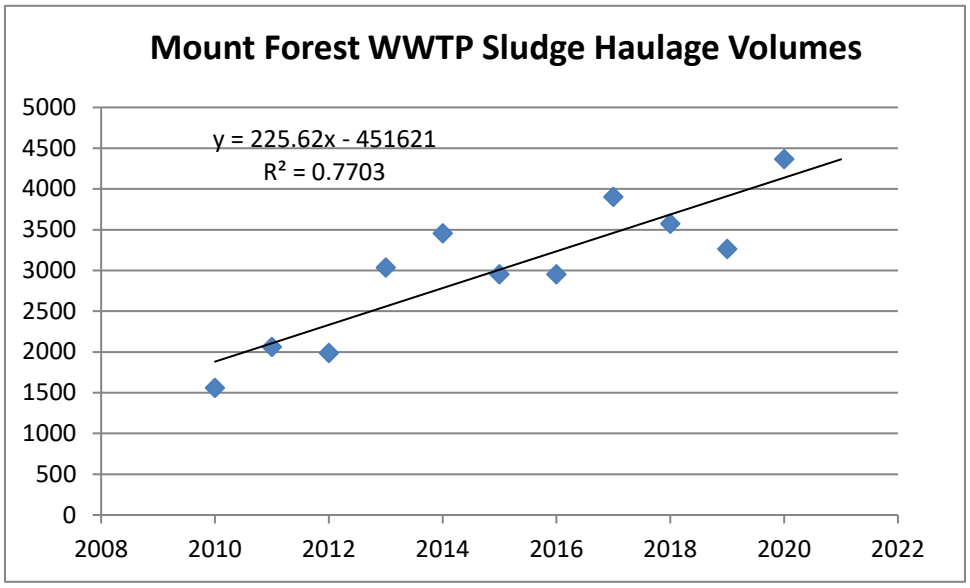

Figure 1. Mount Forest Wastewater Treatment Plant Haulage Volumes (2010 to 2020)

9. Complaints

As per 10.(5)(h) of C of A 6134-73FHHU, *a summary of any complaints received during the reporting period and any steps taken to address the complaints* is required.

A standard operating procedure (SOP) is in place for addressing complaints received from the community. All complaints are addressed and documented in the facility logbook. Community complaint information is entered in OCWA's WMS database system "Maximo". This system contains all the required information and history of all complaints.

There were no complaints registered during the reporting period.

10. By-pass, Spill or Abnormal Discharge Events

As per 10.(5)(i) of C of A 6134-73FHHU, *a summary of all By-pass, spill or abnormal discharge events* is required.

There was one bypass event and one overflow event that occurred during the reporting period. Incident reports for these events are recorded in OCWA's database "OPEX" and are provided in Appendix E.

11. Additional Information

As per 10.(5)(j) of C of A 6134-73FHHU, *any other information the Direct Manager requires from time to time* is required.

There were no requests from the District Manager for any other information during the reporting period.

2020 Annual Performance Report
Mount Forest Wastewater Treatment Plant
Certificate of Approval No. 6134-73F3FHHU

Appendix A

Performance Assessment Report

2020

Ontario Clean Water Agency
Performance Assessment Report Wastewater/Lagoon

Report extracted 02/12/2021 13:36 **From: 01/01/2020 to 31/12/2020**

Facility: [5541] MOUNT FOREST WASTEWATER TREATMENT FACILITY

Works: [120001381]

	01/2020	02/2020	03/2020	04/2020	05/2020	06/2020	07/2020	08/2020	09/2020	10/2020	11/2020	12/2020	<--Total-->	<--Avg.-->	<--Max.-->	<--Criteria-->
Flows:																
Raw Flow: Total - Raw Sewage (m³)	77179.50	49656.50	101508.30	65652.80	60053.00	45586.80	48224.40	51629.20	38293.20	50892.60	56436.70	65100.60	710213.60			
Raw Flow: Avg - Raw Sewage (m³/d)	2489.66	1712.29	3274.46	2188.43	1937.19	1519.56	1555.63	1665.46	1276.44	1641.70	1881.22	2100.02		1936.84		2818.0000000000005
Raw Flow: Max - Raw Sewage (m³/d)	7351.40	2084.60	8704.70	3267.40	2951.90	1970.30	2965.50	3193.30	1785.30	2473.20	2260.40	3501.30			8704.70	
Eff. Flow: Total - Final Effluent (m³)	65471.10	38354.80	86544.10	53339.40	50182.70	39711.80	47154.10	49430.50	38354.20	43986.50	47461.60	53495.60	613486.40			
Eff. Flow: Avg - Final Effluent (m³/d)	2111.97	1322.58	2791.75	1777.98	1618.80	1323.73	1521.10	1594.53	1278.47	1418.92	1582.05	1725.66		1672.30		
Eff. Flow: Max - Final Effluent (m³/d)	7002.00	1695.80	7994.60	2742.70	2499.80	1821.50	2805.90	2941.70	1793.80	2208.00	1927.60	3067.90			7994.60	
Carbonaceous Biochemical Oxygen Demand: CBOD:																
Eff: Avg cBOD5 - Final Effluent (mg/L)	< 2.000	< 2.000	< 2.500	< 2.000	< 2.000	< 2.000	< 2.000	< 2.500	< 2.400	< 2.750	< 2.000	< 2.000		< 2.179	< 2.750	12.5
Eff: # of samples of cBOD5 - Final Effluent (mg/L)	4	4	4	5	4	5	4	4	5	4	4	5	52			
Loading: cBOD5 - Final Effluent (kg/d)	< 4.224	< 2.645	< 6.979	< 3.556	< 3.238	< 2.647	< 3.042	< 3.986	< 3.068	< 3.902	< 3.164	< 3.451		< 3.659	< 6.979	
Biochemical Oxygen Demand: BOD5:																
Raw: Avg BOD5 - Raw Sewage (mg/L)	99.000	72.750	43.000	57.800	50.500	61.800	57.500	113.000	105.000	74.000	123.750	92.800		79.242	123.750	
Raw: # of samples of BOD5 - Raw Sewage (mg/L)	4	4	4	5	4	5	4	4	5	4	4	5	52			
Total Suspended Solids: TSS:																
Raw: Avg TSS - Raw Sewage (mg/L)	103.000	52.500	27.750	45.000	48.000	45.600	47.000	107.250	107.000	67.500	116.000	67.400		69.500	116.000	
Raw: # of samples of TSS - Raw Sewage (mg/L)	4	4	4	5	4	5	4	4	5	4	4	5	52			
Eff: Avg TSS - Final Effluent (mg/L)	< 3.000	2.750	< 4.250	< 3.000	2.750	< 3.400	< 2.000	< 2.750	< 2.600	< 3.000	< 2.000	< 2.600		< 2.842	4.250	12.5
Eff: # of samples of TSS - Final Effluent (mg/L)	4	4	4	5	4	5	4	4	5	4	4	5	52			
Loading: TSS - Final Effluent (kg/d)	< 6.336	3.637	< 11.865	< 5.334	4.452	< 4.501	< 3.042	< 4.385	< 3.324	< 4.257	< 3.164	< 4.487		< 4.899	11.865	
Percent Removal: TSS - Final Effluent (mg/L)	97.087	94.762	84.685	93.333	94.271	92.544	95.745	97.436	97.570	95.556	98.276	96.142			98.276	
Total Phosphorus: TP:																
Raw: Avg TP - Raw Sewage (mg/L)	4.137	2.120	1.073	1.672	1.605	1.838	2.098	2.015	2.362	2.398	2.935	2.250		2.209	4.137	
Raw: # of samples of TP - Raw Sewage (mg/L)	4	4	4	5	4	5	4	4	5	4	4	5	52			
Eff: Avg TP - Final Effluent (mg/L)	0.055	0.083	0.130	0.068	0.090	0.112	0.103	0.125	0.290	0.070	0.068	0.066		0.105	0.290	0.37
Eff: # of samples of TP - Final Effluent (mg/L)	4	4	4	5	4	5	4	4	5	4	4	5	52			
Loading: TP - Final Effluent (kg/d)	0.116	0.109	0.363	0.121	0.146	0.148	0.156	0.199	0.371	0.099	0.107	0.114		0.171	0.371	
Percent Removal: TP - Final Effluent (mg/L)	98.671	96.108	87.879	95.933	94.393	93.906	95.113	93.797	87.722	97.080	97.700	97.067			98.671	
Nitrogen Series:																
Raw: Avg TKN - Raw Sewage (mg/L)	18.175	20.900	11.100	19.020	18.575	20.980	21.375	19.075	26.320	27.250	36.200	22.260		21.769	36.200	
Raw: # of samples of TKN - Raw Sewage (mg/L)	4	4	4	5	4	5	4	4	5	4	4	5	52			
Eff: Avg TAN - Final Effluent (mg/L)	< 0.100	< 0.100	< 0.575	< 0.100	< 0.125	< 0.140	< 0.100	< 0.100	< 0.100	< 0.100	< 0.100	< 0.100		< 0.145	< 0.575	- 2.5 - 2.5 - 2.5 - 2.5 - 2.5 - 2.5 - 2.5
Eff: # of samples of TAN - Final Effluent (mg/L)	4	4	4	5	4	5	4	4	5	4	4	5	52			
Loading: TAN - Final Effluent (kg/d)	< 0.211	< 0.132	< 1.605	< 0.178	< 0.202	< 0.185	< 0.152	< 0.159	< 0.128	< 0.142	< 0.158	< 0.173		< 0.286	< 1.605	
Eff: Avg NO3-N - Final Effluent (mg/L)	15.873	22.000	14.453	16.760	19.725	23.480	23.600	22.600	28.060	28.950	22.900	20.040		21.537	28.950	
Eff: # of samples of NO3-N - Final Effluent (mg/L)	4	4	4	5	4	5	4	4	5	4	4	5	52			
Eff: Avg NO2-N - Final Effluent (mg/L)	< 0.030	< 0.030	< 0.098	< 0.036	< 0.030	< 0.040	< 0.035	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030		< 0.037	< 0.098	
Eff: # of samples of NO2-N - Final Effluent (mg/L)	4	4	4	5	4	5	4	4	5	4	4	5	52			
Disinfection:																
Eff: GMD E. Coli - Final Effluent (cfu/100mL)	2.828	9.043	14.923	2.000	9.455	6.918	15.492	6.792	3.604	1.682	8.459	2.639		6.986	15.492	200.0
Eff: # of samples of E. Coli - Final Effluent (cfu/100mL)	4	4	4	5	4	5	4	4	5	4	4	5	52			

2020 Annual Performance Report
Mount Forest Wastewater Treatment Plant
Certificate of Approval No. 6134-73F3FHHU

Appendix B

Sludge Haulage Summary & Sludge Quality Analysis

2020

Mount Forest WWTP - Daily Haulage Summary			
Date	**Site**	**NASM #**	**Sludge Hauled (m^3)**
May			
05/12/20	W1007	23730	1021.00
05/22/20	W1001	23002	606.00
October			
10/14/20	W1004	24433	727.00
10/15/20	W1004	24433	309.00
10/30/20	W1004	24433	1208.50
10/31/20	W1004	24433	493.00
		Total	4364.50

MOUNT FOREST WASTEWATER TREATMENT PLANT
SLUDGE QUALITY DATA

2020

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVERAGE
Nutrients														
TS	(mg/L)	15800	16500	20100	14700	21700	23200	11550	13100	16700	14300	18800	21300	17313
Ammonia+Ammonium	(mg/L)	48.8	21.3	26.4	6.5	5.6	60.4	173.2	25.4	1.4	1.0	88.3	23.9	40.2
Nitrate	(mg/L)	0.30	0.30	0.30	0.40	42.00	0.30	0.75	0.30	0.30	86.00	41.00	0.30	14.35
Ammonia + Nitrate	(mg/L)	49.1	21.6	26.7	6.9	47.6	60.7	173.9	25.7	1.7	87.0	129.3	24.2	54.5
TKN	(mg/L)	940	889	1110	876	760	1340	667	560	388	1440	856	1150	915
Phosphorus	(mg/L)	1300	690	940	420	470	790	760	220	780	600	590	450	668
Metal Concentrations														
Arsenic	(mg/L)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Cadmium	(mg/L)	0.005	0.008	0.006	0.005	0.008	0.023	0.005	0.005	0.015	0.009	0.012	0.007	0.01
Cobalt	(mg/L)	0.02	0.02	0.03	0.02	0.030	0.03	0.02	0.02	0.03	0.01	0.04	0.03	0.02
Chromium	(mg/L)	0.20	0.25	0.29	0.20	0.34	0.34	0.16	0.20	0.65	0.35	0.47	0.39	0.32
Copper	(mg/L)	6.10	7.30	8.50	6.20	9.50	8.90	4.55	5.50	11.00	8.50	12.00	7.10	7.93
Mercury	(mg/L)	0.013	0.022	0.020	0.011	0.0250	0.0250	0.021	0.011	0.0050	0.012	0.028	0.018	0.018
Potassium	(mg/L)	53	61.0	66.0	52.0	72.0	72.0	43.5	39.0	60.0	65.0	58.0	63.0	59
Molybdenum	(mg/L)	0.10	0.11	0.13	0.09	0.14	0.16	0.08	0.10	0.17	0.16	0.20	0.10	0.13
Nickel	(mg/L)	0.27	0.32	0.35	0.27	0.41	0.43	0.19	0.19	0.35	0.32	0.47	0.24	0.32
Lead	(mg/L)	0.20	0.20	0.20	0.10	0.30	0.30	0.10	0.10	0.20	0.20	0.30	0.30	0.21
Selenium	(mg/L)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Zinc	(mg/L)	4.90	6.00	7.00	5.00	9.00	8.00	4.00	5.00	9.00	8.00	11.00	8.00	7.08
Bacti														
E. coli (cfu/1g dried wgt)		392,405	448,485	159,204	40,136	13,825	11,638	16,535	167,939	18,563	26,573	11,702	300,469	133,956
E. coli (cfu/100mL)		620,000	740,000	320,000	59,000	30,000	27,000	220,000	220,000	3,100	38,000	22,000	640,000	244,925
Metal/Solids Concentration														
Arsenic [170]	(mg/kg)	6	6	5	7	5	4	9	8	6	7	5	5	6
Cadmium [34]	(mg/kg)	0	0	0	0	0	1	0	0	1	1	1	0	1
Cobalt [340]	(mg/kg)	1	1	1	1	1	1	1	2	2	1	2	1	1
Chromium [2800]	(mg/kg)	13	15	14	14	16	15	14	15	39	24	25	18	18
Copper [1700]	(mg/kg)	386	442	423	422	438	384	394	420	659	594	638	333	461
Mercury [11]	(mg/kg)	1	1	1	1	1	1	2	1	0	1	1	1	1
Molybdenum [94]	(mg/kg)	6	7	6	6	6	7	7	8	10	11	11	5	8
Nickel [420]	(mg/kg)	17	19	17	18	19	19	16	15	21	22	25	11	18
Lead [1100]	(mg/kg)	13	12	10	7	14	13	9	8	12	14	16	14	12
Selenium [34]	(mg/kg)	6	6	5	7	5	4	9	8	6	7	5	5	6
Zinc [4200]	(mg/kg)	310	364	348	340	415	345	346	382	539	559	585	376	409

2020 Annual Performance Report
Mount Forest Wastewater Treatment Plant
Certificate of Approval No. 6134-73F3FHHU

Appendix C

Calibration Reports

2020

151 Superior Blvd, Unit #13
Mississauga, ON, L5T 2L1.
www.Indus-Control.com

VERIFICATION REPORT - **KHRONE**
ELECTRO-MAGNETIC FLOW MEASUREMENT

Customer Name:	Georgian Highlands Region
Plant Name:	Mount Forest WWTP
Site/Plant Address:	650 cork street, Mount Forest, ON N0G2L3

Device Information	
Make:	Khrone
Model:	IFC 010D
Order Code:	NA
Serial No.:	C080284
Tag:	FIT101
Job Location:	RAS Pump 1 Flow
Asset ID:	205520

Service Information	
Date:	August 31, 2020
Report No:	CO1150-2009-01
Job No:	CO1150-2009

Sensor Details	
Line size:	4"
GKL:	5.5354
Mounting:	Remote

Flow Details	
Unit:	l/sec
Flow Range:	0-50
Current Output:	4-20 mA
4 mA Set Point	0
20 mA Set Point	50

Inst. Reading	AS FOUND	AS LEFT
TOTALIZER (m3)	2794586	2794587
FLOW (l/sec)	4.9	4.5

Maintenance Checklist			Remarks
Visual Inspection:	☑ OK	☐ NOT OK	
Electrical Inspection:	☑ OK	☐ NOT OK	
Sensor Installation:	☑ OK	☐ NOT OK	
Transmitter Installation:	☑ OK	☐ NOT OK	

Instrument Test Information and Results

Set-Point as Per Calibration KIT	Calculated Flow (l/sec)	Calculated O/P (mA)	UUT Display (l/sec)	UUT Measured Output (mA)	Deviation (l/sec)
0	0.00	4.00	0.03	3.99	-0.03
A	3.31	5.06	3.25	5.06	0.06
B	6.63	6.12	6.56	6.07	0.07
C	13.25	8.24	13.56	8.15	-0.31
D	33.13	14.60	33.08	14.28	0.05

Information of Tools used for Verification of the Instruments

Details	Tool/Kit 1	Tool/Kit 2	Tool/Kit 3
Device Description:	Calibrator	Electrical Multimeter	N/A
Manufacturer:	Khrone	Fluke	N/A
Model No:	GS8B	179	N/A

* Refer Calibration Tools Certificates submittal for more Information

Verification Test Result:	☑ Passed	☐ Fail	☐ Not Verified

Overall Remarks:	Measurement Works within Specification.

Service Technician :	Sagar Patel	Stamp/Signature	
Printed Date:	August 31, 2020		

End of Report

Version: 19-12

151 Superior Blvd, Unit #13
Mississauga, ON, L5T 2L1.
www.Indus-Control.com

VERIFICATION REPORT - **KHRONE**
ELECTRO-MAGNETIC FLOW MEASUREMENT

Customer Name:	Georgian Highlands Region
Plant Name:	Mount Forest WWTP
Site/Plant Address:	650 cork street Mount Forest, ON N0G2L3

Device Information	
Make:	Khrone
Model:	IFC 010D
Order Code:	NA
Serial No.:	C080272
Tag:	FIT102
Job Location:	RAS Pump 2 Flow
Asset ID:	205521

Sensor Details	
Line size:	4"
GKL:	5.4975
Mounting:	Remote

Service Information	
Date:	August 31, 2020
Report No:	CO1150-2009-02
Job No:	CO1150-2009

Flow Details	
Unit:	l/sec
Flow Range:	0-50
Current Output:	4-20 mA
4 mA Set Point	0
20 mA Set Point	50

Inst. Reading	AS FOUND	AS LEFT
TOTALIZER (m3)	3315740	3315741
FLOW (l/sec)	7.13	7..14

Maintenance Checklist			Remarks
Visual Inspection:	☑ OK	☐ NOT OK	
Electrical Inspection:	☑ OK	☐ NOT OK	
Sensor Installation:	☑ OK	☐ NOT OK	
Transmitter Installation:	☑ OK	☐ NOT OK	

Instrument Test Information and Results

Set-Point as Per Calibration KIT	Calculated Flow (l/sec)	Calculated O/P (mA)	UUT Display (l/sec)	UUT Measured Output (mA)	Deviation (l/sec)
0	0.00	4.00	0.02	4.00	-0.02
A	3.29	5.05	3.21	5.04	0.08
B	6.58	6.11	6.58	6.08	0.00
C	13.16	8.21	13.54	8.16	-0.38
D	32.90	14.53	32.59	14.89	0.31

Information of Tools used for Verification of the Instruments

Details	Tool/Kit 1	Tool/Kit 2	Tool/Kit 3
Device Description:	Calibrator	Electrical Multimeter	N/A
Manufacturer:	Khrone	Fluke	N/A
Model No:	GS8B	179	N/A

* Refer Calibration Tools Certificates submittal for more Information

Verification Test Result:	☑ Passed	☐ Fail	☐ Not Verified

Overall Remarks:	Measurement Works within Specification.

Service Technician :	Sagar Patel	Stamp/Signature	
Printed Date:	August 31, 2020		

End of Report

Version: 19-12

151 Superior Blvd, Unit #13
Mississauga, ON, L5T 2L1.
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VERIFICATION REPORT - **KHRONE**
ELECTRO-MAGNETIC FLOW MEASUREMENT

Customer Name:	Georgian Highlands Region	Site/Plant Address:	650 cork street,
Plant Name:	Mount Forest WWTP		Mount Forest, ON N0G2L3

Device Information		Service Information	
Make:	Khrone	Date:	August 31, 2020
Model:	IFC 010D	Report No:	CO1150-2009-03
Order Code:	NA	Job No:	CO1150-2009
Serial No.:	C080308		
Tag:	FIT102	**Flow Details**	
Job Location:	WAS/SCUM Flow	Unit:	l/sec
Asset ID:	205522	Flow Range:	0-30
		Current Output:	4-20 mA
Sensor Details		4 mA Set Point	0
Line size:	3"	20 mA Set Point	30
GKL:	5.3725		
Mounting:	Remote		

Inst. Reading	AS FOUND	AS LEFT
TOTALIZER (m3)	144171	144172
FLOW (l/sec)	0.013	0.016

Maintenance Checklist			Remarks
Visual Inspection:	☑ OK	☐ NOT OK	
Electrical Inspection:	☑ OK	☐ NOT OK	
Sensor Installation:	☑ OK	☐ NOT OK	
Transmitter Installation:	☑ OK	☐ NOT OK	

Instrument Test Information and Results

Set-Point as Per Calibration KIT	Calculated Flow (l/sec)	Calculated O/P (mA)	UUT Display (l/sec)	UUT Measured Output (mA)	Deviation (l/sec)
0	0.00	4.00	0.02	3.98	-0.02
A	2.06	5.10	2.01	5.06	0.05
B	4.12	6.19	4.06	6.14	0.06
C	8.23	8.39	8.16	8.25	0.07
D	20.58	14.97	20.51	14.91	0.07

Information of Tools used for Verification of the Instruments

Details	Tool/Kit 1	Tool/Kit 2	Tool/Kit 3
Device Description:	Calibrator	Electrical Multimeter	N/A
Manufacturer:	Khrone	Fluke	N/A
Model No:	GS8B	179	N/A

* Refer Calibration Tools Certificates submittal for more Information

Verification Test Result:	☑ Passed	☐ Fail	☐ Not Verified

Overall Remarks:	Measurement Works within Specification.

Service Technician :	Sagar Patel	Stamp/Signature	
Printed Date:	August 31, 2020		

End of Report

Version: 19-12

INDUS CONTROL
151 Superior Blvd, Unit #13
Mississauga, ON, L5T 2L1.
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VERIFICATION REPORT - **KHRONE** ELECTRO-MAGNETIC FLOW MEASUREMENT

Customer Name:	Georgian Highlands Region	Site/Plant Address:	650 cork street,
Plant Name:	Mount Forest WWTP		Mount Forest, ON N0G2L3

Device Information		Service Information	
Make:	Khrone	Date:	August 31, 2020
Model:	IFC 010D	Report No:	CO1150-2009-04
Order Code:	NA	Job No:	CO1150-2009
Serial No.:	C081357		
Tag:	NA		
Job Location:	Septage receiving		
Asset ID:	205514		

Sensor Details		Flow Details	
Line size:	4"	Unit:	l/sec
GK:	2.7538	Flow Range:	0-40
Mounting:	Remote	Current Output:	4-20 mA
		4 mA Set Point	0
		20 mA Set Point	40

Inst. Reading	AS FOUND	AS LEFT
TOTALIZER (m3)	51346639	51346640
FLOW (l/sec)	0.05	0.1

Maintenance Checklist			Remarks
Visual Inspection:	☑ OK	☐ NOT OK	
Electrical Inspection:	☑ OK	☐ NOT OK	
Sensor Installation:	☑ OK	☐ NOT OK	
Transmitter Installation:	☑ OK	☐ NOT OK	

Instrument Test Information and Results

Set-Point as Per Calibration KIT	Calculated Flow (l/sec)	Calculated O/P (mA)	UUT Display (l/sec)	UUT Measured Output (mA)	Deviation (l/sec)
0	0.00	4.00	0.02	3.98	-0.02
A	1.65	4.66	1.59	4.65	0.06
B	3.30	5.32	3.24	5.31	0.06
C	6.59	6.64	6.54	6.56	0.05
D	16.48	10.59	16.51	10.54	-0.03
E	32.96	17.18	32.89	17.11	0.07

Information of Tools used for Verification of the Instruments

Details	Tool/Kit 1	Tool/Kit 2	Tool/Kit 3
Device Description:	Calibrator	Electrical Multimeter	N/A
Manufacturer:	Khrone	Fluke	N/A
Model No:	GS8B	179	N/A

* Refer Calibration Tools Certificates submittal for more Information

Verification Test Result:	☑ Passed	☐ Fail	☐ Not Verified

Overall Remarks: Measurement Works within Specification.

Service Technician : Sagar Patel

Printed Date: August 31, 2020

Stamp/Signature

End of Report

INDUS CONTROL
151 Superior Blvd, Unit #13
Mississauga, ON, L5T 2L1.
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VERIFICATION REPORT - **KHRONE**
ELECTRO-MAGNETIC FLOW MEASUREMENT

Customer Name:	Georgian Highlands Region	Site/Plant Address:	650 cork street,
Plant Name:	Mount Forest WWTP		Mount Forest, ON N0G2L3

Device Information		Service Information	
Make:	Khrone	Date:	August 31, 2020
Model:	IFC 020D	Report No:	CO1150-2009-05
Order Code:	NA	Job No:	CO1150-2009
Serial No.:	0429/03		
Tag:	NA		
Job Location:	Sludge Receiving flow		
Asset ID:	205524		

Sensor Details		Flow Details	
Line size:	6"	Unit:	l/sec
GK:	3.24	Flow Range:	0-100
Mounting:	Compact	Current Output:	4-20 mA
		4 mA Set Point	0
		20 mA Set Point	100

Inst. Reading	AS FOUND	AS LEFT
TOTALIZER (m3)	51346639	51346640
FLOW (l/sec)	0.05	0.1

Maintenance Checklist			Remarks
Visual Inspection:	☑ OK	☐ NOT OK	
Electrical Inspection:	☑ OK	☐ NOT OK	
Sensor Installation:	☑ OK	☐ NOT OK	
Transmitter Installation:	☑ OK	☐ NOT OK	

Instrument Test Information and Results

Set-Point as Per Calibration KIT	Calculated Flow (l/sec)	Calculated O/P (mA)	UUT Display (l/sec)	UUT Measured Output (mA)	Deviation (l/sec)
0	0.00	4.00	0.02	3.99	-0.02
A	8.73	5.40	8.75	5.38	-0.02
B	17.45	6.79	17.38	6.71	0.07
C	34.90	9.58	34.56	9.52	0.34
D	87.26	17.96	87.21	17.91	0.05

Information of Tools used for Verification of the Instruments

Details	Tool/Kit 1	Tool/Kit 2	Tool/Kit 3
Device Description:	Calibrator	Electrical Multimeter	N/A
Manufacturer:	Khrone	Fluke	N/A
Model No:	GS8B	179	N/A

* Refer Calibration Tools Certificates submittal for more Information

Verification Test Result:	☑ Passed	☐ Fail	☐ Not Verified

Overall Remarks:	Measurement Works within Specification.

Service Technician :	Sagar Patel	Stamp/Signature	
Printed Date:	August 31, 2020		

End of Report

INDUS CONTROL

151 Superior Blvd, Unit #13
Mississauga, ON, L5T 2L1.
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VERIFICATION REPORT - **KHRONE** ELECTRO-MAGNETIC FLOW MEASUREMENT

Customer Name:	Georgian Highlands Region	Site/Plant Address:	650 cork street,
Plant Name:	Mount Forest WWTP		Mount Forest, ON N0G2L3

Device Information		Service Information	
Make:	Khrone	Date:	August 31, 2020
Model:	IFC 020D	Report No:	CO1150-2009-06
Order Code:	NA	Job No:	CO1150-2009
Serial No.:	42T/03		
Tag:	NA		
Job Location:	Sludge Loading flow		
Asset ID:	NA		

Sensor Details		Flow Details	
Line size:	4"	Unit:	l/sec
GK:	2.587	Flow Range:	0-90
Mounting:	Compact	Current Output:	4-20 mA
		4 mA Set Point	0
		20 mA Set Point	90

Inst. Reading	AS FOUND	AS LEFT
TOTALIZER (m3)	278228	278228
FLOW (l/sec)	0.05	0.1

Maintenance Checklist			Remarks
Visual Inspection:	☑ OK	☐ NOT OK	
Electrical Inspection:	☑ OK	☐ NOT OK	
Sensor Installation:	☑ OK	☐ NOT OK	
Transmitter Installation:	☑ OK	☐ NOT OK	

Instrument Test Information and Results

Set-Point as Per Calibration KIT	Calculated Flow (l/sec)	Calculated O/P (mA)	UUT Display (l/sec)	UUT Measured Output (mA)	Deviation (l/sec)
0	0.00	4.00	0.01	4.01	-0.01
A	3.10	4.55	3.02	4.53	0.08
B	6.19	5.10	6.12	5.03	0.07
C	12.39	6.20	12.36	6.18	0.03
D	30.97	9.50	30.92	9.14	0.05
E	61.93	15.01	61.89	15.06	0.04

Information of Tools used for Verification of the Instruments

Details	Tool/Kit 1	Tool/Kit 2	Tool/Kit 3
Device Description:	Calibrator	Electrical Multimeter	N/A
Manufacturer:	Khrone	Fluke	N/A
Model No:	GS8B	179	N/A

* Refer Calibration Tools Certificates submittal for more Information

Verification Test Result:	☑ Passed	☐ Fail	☐ Not Verified

Overall Remarks: Measurement Works within Specification.

Service Technician : Sagar Patel

Printed Date: August 31, 2020

Stamp/Signature

End of Report

Version: 19-12

151 Superior Blvd, Unit #13
Mississauga, ON, L5T 2L1.
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VERIFICATION REPORT- **MULTIRANGER 200** OPEN CHANNEL FLOW MEASUREMENT

Customer Name:	Georgian Highlands Region	Site/Plant Address:	650 cork street,
Plant Name:	Mount Forest WWTP		Mount Forest, ON N0G2L3

Device Information		Service Information	
Make:	Siemens	Date:	August 31, 2020
Model:	Multiranger 200	Report No:	CO1150-2009-08
Order Code:	NA	Job No:	CO1150-2009
Serial No.:	PBD/V7100076		
Tag:	LIT-201		
Job Location:	Final effluent		

Inst. Reading	AS FOUND	AS LEFT
TOTALIZER (m3)	375811.72	375815.69
FLOW (L/S)	14.27	14.56

Flow Details	
Unit:	l/sec
Flow Range:	0-245
Current Output:	4-20 mA
4 mA Set Point	0
20 mA Set Point	245

Maintenance Checklist			Remarks
Visual Inspection:	☑ OK	☐ NOT OK	
Electrical Inspection:	☑ OK	☐ NOT OK	

Programming Parameter of Instrument

Parameter	Discription	Value	Parameter	Discription	Value
P001	Operation	6.00000	P601	Flow Exponent	1.53
P002	Material	1.000	P602	PMD Dimension	NA
P004	Transducer	112(XRS-5)	P603	Maximum Head	4670 mm
P005	Units	3(mm)	P604	Maximum Flow	245 l/s
P006	Empty	1600	P605	Zero Head	0 mm
P007	Span	1260mm	P608	Flow rate Units	0(Ratiometric)
P620	Low Flow cuttoff	234 mm	P210	4mA Setpoint	0 mm
P600	Primary Mea. Device	0	P211	20mA Setpoint	5000 mm

Instrument Test Information and Results

Input (%)	Calculated Flow(l/sec)	Calculated Input (mA)	Flow on Scada (l/sec)	UUT Measured Output (mA)	Deviation (l/sec)
0	0.00	4.00	0.02	3.99	-0.02
25	61.25	8.00	61.00	7.99	0.25
50	122.50	12.00	122.50	11.99	0.00
75	183.75	16.00	182.65	15.99	1.10
100	245.00	20.00	244.56	19.99	0.44

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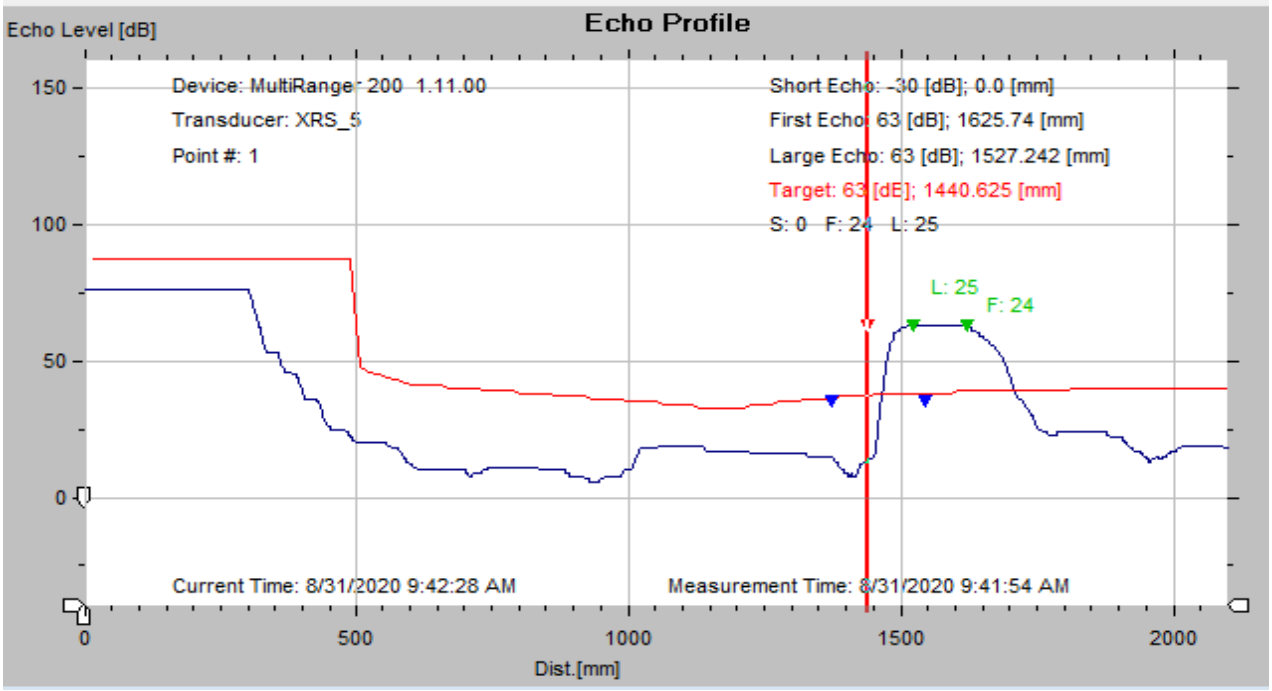
VERIFICATION REPORT- **MULTIRANGER 200**
OPEN CHANNEL FLOW MEASUREMENT

Eco Profile



Information of Tools used for Verification of the Instruments

Device Description:	Manufacturer	Model	Serial No:
Electrical Multimeter	Fluke	179	As per provided

Verification Test Result:	☑ Passed	☐ Fail	☐ Not Verified

Overall Remarks:	Program parameters verified

Service Technician : Dhaval Patel

Printed Date: August 31, 2020

Stamp/Signature

End of Report

Version: 19-12

DTM Version: 3.25.00

Flowmeter Verification Certificate Transmitter

Georgian Highlands Region	Cork ST PS
Customer	Plant

Order code	Tag Name
PROMAG 50 W DN200	1.0427 - 1.0427
Device type	K-Factor
D6020C16000	-3
Serial number	Zero point
V2.03.00	V1.04.01
Software Version Transmitter	Software Version I/O-Module
31.08.2020	11:19
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**
551032	8714684
Production number	Production number
1.07.10	1.00.01
Software Version	Software Version
08/2020	08/2020
Last Calibration Date	Last Calibration Date

31.08.2020

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	**Georgian Highland Region**	Plant	**CORK ST. PS**
Order code		Tag Name	**--------**
Device type	**PROMAG 50 W DN200**	K-Factor	**1.0427 - 1.0427**
Serial number	**D6020C16000**	Zero point	**-3**
Software Version Transmitter	**V2.03.00**	Software Version I/O-Module	**V1.04.01**
Verification date	**31.08.2020**	Verification time	**11:19**

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 %	0.60 %
✓		12.566 l/s (10.0%)	1.00 %	0.15 %
✓		62.832 l/s (50.0%)	0.60 %	0.15 %
✓		125.665 l/s (100%)	0.55 %	0.08 %
✓	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	-0.010 mA
✓		12.000 mA (50.0%)	0.05 mA	-0.004 mA
✓		20.000 mA (100%)	0.05 mA	-0.017 mA
–	Pulse Output 1	---	---	---
		Start value	**Limits range**	**Measured value**
	Test Sensor			
✓	Coil Curr. Rise	13.300 ms	0.000..27.625 ms	18.680 ms
✓	Coil Curr. Stability		---	---
✓	Electrode Integrity	mV	0.0..300.001 mV	3.260 mV

Legend of symbols

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

FieldCheck: Parameters Transmitter

Customer	**Georgian Highland Region**	Plant	**CORK ST. PS**
Order code		Tag Name	**--------**
Device type	**PROMAG 50 W DN200**	K-Factor	**1.0427 - 1.0427**
Serial number	**D6020C16000**	Zero point	**-3**
Software Version Transmitter	**V2.03.00**	Software Version I/O-Module	**V1.04.01**
Verification date	**31.08.2020**	Verification time	**11:19**

Curent Output	**Assign**	**Current Range**	**Value 0_4mA**	**Value 20 mA**		
Terminal 26/27	VOLUME FLOW	4-20 mA activ	0.0 l/s	200.01 l/s		
Pulse Output	**Assign**	**Pulse Value**	**Output signal**	**Pulse width**		
Terminal 24/25	VOLUME FLOW	1.000 m3/P	Passive/Positive	100.01 ms		

Actual System Ident. 137.0

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VERIFICATION REPORT - **KHRONE**
ELECTRO-MAGNETIC FLOW MEASUREMENT

Customer Name:	Georgian Highlands Region	Site/Plant Address:	304 Foster st,
Plant Name:	Mount Forest WWTP		Mount Forest, ON N0G2L3

Device Information		Service Information	
Make:	Khrone	Date:	August 31, 2020
Model:	IFC 100W	Report No:	CO1150-2009-10
Order Code:	NA	Job No:	CO1150-2009
Serial No.:	C104591		
Tag:	FIT1		
Job Location:	Foster street PS Flow		
Asset ID:	205530		

Sensor Details		Flow Details	
Line size:	12"	Unit:	l/sec
GK:	7.9112	Flow Range:	0-250
Mounting:	Remote	Current Output:	4-20 mA
		4 mA Set Point	0
		20 mA Set Point	250

Inst. Reading	AS FOUND	AS LEFT
TOTALIZER (m3)	470495.65	470496
FLOW (l/sec)	0	0

Maintenance Checklist			Remarks
Visual Inspection:	☑ OK	☐ NOT OK	
Electrical Inspection:	☑ OK	☐ NOT OK	
Sensor Installation:	☑ OK	☐ NOT OK	
Transmitter Installation:	☑ OK	☐ NOT OK	

Instrument Test Information and Results

Set-Point as Per Calibration KIT	Calculated Flow (l/sec)	Calculated O/P (mA)	UUT Display (l/sec)	UUT Measured Output (mA)	Deviation (l/sec)
0	0.00	4.00	0.01	4.01	-0.01
A	42.61	6.73	43.19	6.59	-0.58
B	85.22	9.45	85.63	9.41	-0.41
C	170.45	14.91	171.85	14.82	-1.40

Information of Tools used for Verification of the Instruments

Details	Tool/Kit 1	Tool/Kit 2	Tool/Kit 3
Device Description:	Calibrator	Electrical Multimeter	N/A
Manufacturer:	Khrone	Fluke	N/A
Model No:	GS8B	179	N/A

* Refer Calibration Tools Certificates submittal for more Information

Verification Test Result:	☑ Passed	☐ Fail	☐ Not Verified

Overall Remarks:	Measurement Works within Specification.

Service Technician :	Sagar Patel	Stamp/Signature	
Printed Date:	August 31, 2020		

End of Report

Version: 19-12

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VERIFICATION REPORT- **SINTRANS LUT 400**
OPEN CHANNEL FLOW MEASUREMENT

Customer Name:	Town of Shelburne	Site/Plant Address:	650 cork street,
Plant Name:	Mount Forest WWTP		Mount Forest, ON N0G2L3

Device Information		Service Information	
Make:	Siemens	Date:	August 31, 2020
Model:	SINTRANS LUT440	Report No:	CO1150-2009-11
Order Code:	7ML50500CA111DA0	Job No:	CO1150-2009
Serial No.:	PBD/M2280284		

Inst. Reading	AS FOUND	AS LEFT
TOTALIZER (L)	0	0
FLOW (L/S)	0	0

Flow Details	
Unit:	L/S
Flow Range:	0-100
Current Output:	4-20 mA
4 mA Set Point	0
20 mA Set Point	100

Maintenance Checklist			Remarks
Visual Inspection:	☑ OK	☐ NOT OK	
Electrical Inspection:	☑ OK	☐ NOT OK	

Programming Parameter of Instrument

Parameter	Value	Parameter	Value
Sensor Mode	Level	4 mA Set Point	0.00
Transducer	XRS-5	20 mA Set Point	100
Unit	m	Flowrate Unit	L/S
Low Calibration Point	1.286 m	Method of Flow calculation	Ratio Metric
High Calibration Point	0.54 m	Low Flow Cutoff	0 m
Sensor Offset	0.498 m	Zero Head Offset	0.53 m
Maximum Head	0.6 m	Flow Exponent	2.50

Instrument Test Information and Results

Set-Point as Per Calibration KIT	Calculated Flow (l/sec)	Calculated O/P (mA)	UUT Display (l/sec)	UUT Measured Output (mA)	Deviation (l/sec)
0	0.00	4.00	0.02	3.99	-0.02
A	25.00	8.00	24.69	7.99	0.31
B	50.00	12.00	49.95	11.99	0.05
C	75.00	16.00	74.89	15.99	0.11
D	100.00	20.00	99.56	19.99	0.44

Information of Tools used for Verification of the Instruments

Device Description:	Manufacturer	Model	Serial No:
Electrical Multimeter	Fluke	179	As per provided

Verification Test Result:	☑ Passed	☐ Fail	☐ Not Verified
Overall Remarks:	Program parameters verified		

Service Technician :	Dhaval Patel	Stamp/Signature	
Printed Date:	August 31, 2020		

End of Report

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VERIFICATION REPORT - **KHRONE**
ELECTRO-MAGNETIC FLOW MEASUREMENT

Customer Name:	Georgian Highlands Region
Plant Name:	Mount Forest WWTP
Site/Plant Address:	650 cork street, Mount Forest, ON N0G2L3

Device Information	
Make:	Khrone
Model:	IFC 300W
Order Code:	NA
Serial No.:	C080273
Tag:	NA
Job Location:	Water street PS
Asset ID:	205535

Service Information	
Date:	August 31, 2020
Report No:	CO1150-2009-12
Job No:	CO1150-2009

Sensor Details	
Line size:	12"
GK:	3.6471
GKL:	7.295
Mounting:	Remote

Flow Details	
Unit:	l/sec
Flow Range:	0-300
Current Output:	4-20 mA
4 mA Set Point	0
20 mA Set Point	300

Inst. Reading	AS FOUND	AS LEFT
TOTALIZER (m3)	876198.38	8716205.87
FLOW (l/sec)	0	0

Maintenance Checklist			Remarks
Visual Inspection:	☑ OK	☐ NOT OK	
Electrical Inspection:	☑ OK	☐ NOT OK	
Sensor Installation:	☑ OK	☐ NOT OK	
Transmitter Installation:	☑ OK	☐ NOT OK	

Instrument Test Information and Results

Set-Point as Per Calibration KIT	Calculated Flow (l/sec)	Calculated O/P (mA)	UUT Display (l/sec)	UUT Measured Output (mA)	Deviation (l/sec)
0	0.00	4.00	0.36	3.99	-0.36
A	39.29	6.10	39.25	6.07	0.04
B	78.58	8.19	78.12	8.15	0.46
C	157.15	12.38	156.85	12.28	0.30

Information of Tools used for Verification of the Instruments

Details	Tool/Kit 1	Tool/Kit 2	Tool/Kit 3
Device Description:	Calibrator	Electrical Multimeter	N/A
Manufacturer:	Khrone	Fluke	N/A
Model No:	GS8B	179	N/A

* Refer Calibration Tools Certificates submittal for more Information

Verification Test Result:	☑ Passed	☐ Fail	☐ Not Verified

Overall Remarks:	Measurement Works within Specification.

Service Technician :	Sagar Patel	Stamp/Signature	
Printed Date:	August 31, 2020		

End of Report

Version: 19-12

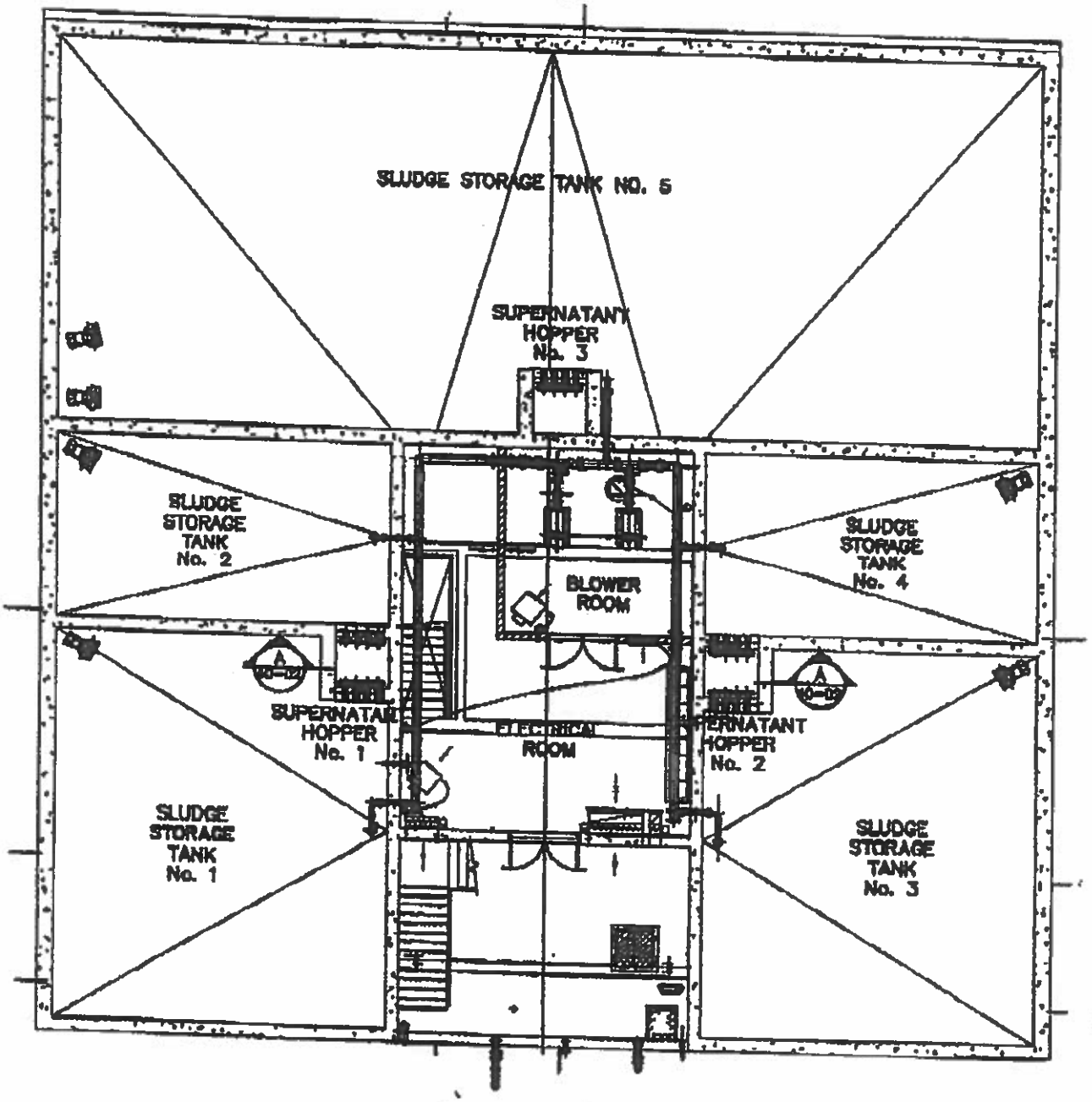
2020 Annual Performance Report
Mount Forest Wastewater Treatment Plant
Certificate of Approval No. 6134-73F3FHHU

Appendix D

Process Flow Schematic

2020

TOWNSHIP OF WELLINGTON NORTH
WASTE WATER TREATMENT PLANT
MOUNT FOREST
PROCESS FLOW SCHEMATIC



SECTIONAL PLAN

2020 Annual Performance Report
Mount Forest Wastewater Treatment Plant
Certificate of Approval No. 6134-73F3FHHU

Appendix E

Incident Reports – Overflow/Bypass

2020

Ontario Clean Water Agency
Environmental Incident Report

Facility ID: 5541 EIncidentReport

Facility Name: Mount Forest Wastewater Treatment Plant

Address: 400 North Water Street

City: Mount Forest

Province: Ontario

Postal Code: N0G 2K0

Date of Occurrence: 11/01/2020

Time of Occurrence: 07:50:50 AM

Nature of the Incident

● Level 1 Contingency ○ Level 2 Contingency ○ Level 3 Contingency *Click here To Show the Definitions*

Incident affected: ☐ Air ☒ Water ☐ Land ☐ Nothing

What was discharged or emitted?

☐ Chlorine
☐ Sodium Hypochlorite
☐ Calcium Chloride
☐ Aluminum Compounds (Specify in Other)
☐ Arsenic
☐ Fluoride
☐ Oil/Diesel/Gas
☒ Untreated or partly treated sewage
☐ Odours
☐ Water
☐ Iron Coagulants

Other: _____

If this was a discharge, spill or emission...

If a liquid, approximately what quantity was released?: 2553000 Litres

If a gas, approximately what quantity was released?: _____

If a solid, approximately what quantity was released?: _____ Kg

What was the source of release?:

Heavy rainfall exceeding the treatment capacity of the filters.

Where did the release go?:

South Saugeen River

If it entered a watercourse: ● Yes ○ No

If it went off site: ○ Yes ● No

Duration of the release?: 9 hours 45 minutes

Is the release now stopped?: ● Yes ○ No

Was there any damage? (i.e. property and/or environmental): ○ Yes ● No ○ N/A

If "Yes", describe below and fill out "Insurance Claim" report

Action(s) Taken

What actions were taken to control the incident?

Operator was on site after receiving a high flow alarm, found the sand filters were not able to handle the excessive flow. A decision was made to bypass the filters in order to allow the process to continue. Both UV banks were turned on to aid in disinfection. Operator closely monitored the plant and pump stations during the heavy rainfall to ensure pumps were running as needed.

What actions have been taken to remediate the incident?

Operator closely monitored the system throughout the heavy rainfall period, incident was resolved when the storm had passed. Normal Operation continued shortly after the weather event.

Was this a reportable spill or discharge?: ● Yes ○ No

If "Yes", at what time was it first reported to the MOE?

Wednesday January 15th, 2020

Was it reported to the MOE district office?: ● Yes ○ No

If "Yes", which office/location and who was the contact?: Rick Neubrand of the MECP Guelph District Office

Was it reported to MOE SAC?: ● Yes ○ No

If "Yes", at what time was it reported to MOE SAC?:

Wednesday January 15th, 2020

Was it reported to Municipality?: ● Yes ○ No

If "Yes", at what time was it reported to Municipality?:

Wednesday January 15th, 2020

External Assistance/Involvement

Was corporate or area office assistance requested?: ○ Yes ● No

If "Yes", was it received?: ○ Yes ○ No

Was external emergency assistance requested?: ○ Yes ● No

If "Yes", from who?: ☐ Fire Department ☐ Equipment Suppliers ☐ Canutec
☐ Ambulance or Hospital ☐ MOE ☐ Coast Guard
☐ Police ☐ Municipality

Other: _____

Was there any media involvment?: ○ Yes ● No

If "Yes", who?: _____

Was the public affected?: ○ Yes ● No

If "Yes", how?: _____

Updated By: David Jorge 24/01/2020 01:44:58 PM

Comments:

Ontario Clean Water Agency
Environmental Incident Report

Facility ID: 5541 EIncidentReport

Facility Name: Mount Forest Wastewater Treatment Plant

Address: 400 North Water Street

City: Mount Forest

Province: Ontario

Postal Code: N0G 2K0

Date of Occurrence: 11/01/2020

Time of Occurrence: 08:45:00 AM

Nature of the Incident

● Level 1 Contingency ○ Level 2 Contingency ○ Level 3 Contingency *Click here To Show the Definitions*

Incident affected: ☐ Air ☒ Water ☐ Land ☐ Nothing

What was discharged or emitted?

☐ Chlorine
☐ Sodium Hypochlorite
☐ Calcium Chloride
☐ Aluminum Compounds (Specify in Other)
☐ Arsenic
☐ Fluoride
☐ Oil/Diesel/Gas
☒ Untreated or partly treated sewage
☐ Odours
☐ Water
☐ Iron Coagulants

Other: _____

If this was a discharge, spill or emission...

If a liquid, approximately what quantity was released?: 461000 Litres

If a gas, approximately what quantity was released?: _____

If a solid, approximately what quantity was released?: _____ Kg

What was the source of release?:

Heavy rainfall exceeding the pump station capacity

Where did the release go?:

South Saugeen River

If it entered a watercourse: ● Yes ○ No

If it went off site: ● Yes ○ No

Duration of the release?: 24 hours 30 min

Is the release now stopped?: ● Yes ○ No

Was there any damage? (i.e. property and/or environmental): ○ Yes ● No ○ N/A

If "Yes", describe below and fill out "Insurance Claim" report

Action(s) Taken

What actions were taken to control the incident?

Operator used pail Bio Sanitizer Disinfection Tablets, Calcium Hypochlorite and dropped in the effluent channel. There were holes drilled in the pail to help with saturation.

What actions have been taken to remediate the incident?

Operator closely monitored the system throughout the heavy rainfall period, incident resolved itself when the storm had passed. Normal Operation continued shortly after the weather event.

Was this a reportable spill or discharge?: ● Yes ○ No

If "Yes", at what time was it first reported to the MOE?

Wednesday January 15th, 2020

Was it reported to the MOE district office?: ● Yes ○ No

If "Yes", which office/location and who was the contact?: Rick Neubrand of the MECP Guelph District Office

Was it reported to MOE SAC?: ● Yes ○ No

If "Yes", at what time was it reported to MOE SAC?:

Wednesday January 15th, 2020

Was it reported to Municipality?: ● Yes ○ No

If "Yes", at what time was it reported to Municipality?:

Wednesday January 15th, 2020

External Assistance/Involvement

Was corporate or area office assistance requested?: ○ Yes ● No

If "Yes", was it received?: ○ Yes ○ No

Was external emergency assistance requested?: ○ Yes ● No

If "Yes", from who?: ☐ Fire Department ☐ Equipment Suppliers ☐ Canutec
☐ Ambulance or Hospital ☐ MOE ☐ Coast Guard
☐ Police ☐ Municipality

Other: _____

Was there any media involvment?: ○ Yes ● No

If "Yes", who?: _____

Was the public affected?: ○ Yes ● No

If "Yes", how?: _____

Updated By: Donald Irvine 30/01/2020 01:30:30 PM

Comments: