



Ontario Clean Water Agency
Agence Ontarienne Des Eaux

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March 31, 2021

Ministry of the Environment
3rd Flr. Suite 331B, 435 James St.
Thunder Bay, ON
P7E 6S7

Attention: Trina Rawn
Manager

Re: 2020 Performance Report for Manitouwadge Wastewater Treatment System

Dear Ms. Rawn:

Attached is the 2020 Performance Report for the **Manitouwadge Wastewater Treatment System** located in The Corporation of the Township of Manitouwadge. This report has been completed in accordance with Condition No. 9(6) cited in *Certificate of Approval Number 0031-86NKKK* dated 15th Octoberber 2010 and issued to the Township of Manitouwadge.

This report was prepared by the Ontario Clean Water Agency on behalf of the Township of Manitouwadge based on information kept on record at the Manitouwadge Water plant, and, the report covers the period from January 1, 2020 to December 31, 2020.

Should you have any questions or comments in regards to this annual report, please do not hesitate to contact David Hoffman at 807-854-7142.

Yours truly,

Patrick Albert

Patrick Albert
Senior Operations Manager
Ontario Clean Water Agency
Northwestern Ontario Hub

Copy to: Terry Bangs –Public Works Superintendent
Manitouwadge Wastewater Operators

2020 Annual Report

Manitouwadge Wastewater Treatment System

Prepared by the Ontario Clean Water Agency



Ontario Clean Water Agency
Agence Ontarienne Des Eaux

**The Corporation of the Township of Manitouwadge
Sewage Treatment System
2020 Annual Report**

INTRODUCTION

In accordance with the *Certificate of Approval Number 0031-86NKK* dated October 15, 2010, section 9 (6), the Corporation of the Township of Manitouwadge - Manitouwadge Sewage Treatment System is required to prepare an annual summary. The 2020 annual facility performance report summarizes important information regarding the treatment quality of the effluent wastewater, analytical test results, relevant activities and maintenance operations of the Works. Some of this information was submitted via the monthly sewage submissions of information, but is being presented again as part of the Annual Report based on the calendar year.

DESCRIPTION OF WORKS

Rated Capacity of Works	4100 m ³ /day
Service Area	Township of Manitouwadge, District of Thunder Bay
Service Population	1937
Effluent Receiver	Rudder Lake
Major Process	Aeration Facultative Lagoon

EFFLUENT MONITORING AND RECORDING

Analytical tests to monitor the influent and effluent water quality on a monthly basis are conducted by a laboratory audited by the Canadian Association for Environmental Analytical Laboratories (CAEAL) and accredited by the Standards Council of Canada (SCC). Accreditation ensures that the laboratory has acceptable laboratory protocols and test methods in place. It also requires the laboratory to provide evidence and assurances of the proficiency of the analysts performing the test methods. Weekly analysis is performed in-house in order to maintain the process. When these samples are split with the accredited laboratories, it confirms the procedure accuracy of the in-house testing.

SAMPLING REQUIREMENTS

Samples of raw sewage and final effluent from the WWTP shall be collected and analyzed for the following parameters at the indicated frequencies as per C of A section 8 (3).

Raw Sewage Monitoring – Samples to be collected at the lift station

Parameters	Sample Type	Frequency
<i>CBOD₅</i>	Grab	Twice monthly
Total Suspended Solids	Grab	Twice monthly
Total Phosphorus	Grab	Twice monthly
Temperature	Grab	Twice monthly
E-Coli	Grab	Twice monthly
pH	Grab	Twice monthly

Final Effluent Monitoring - Samples to be collected at the Parshall flume of the lagoon

Parameters	Sample Type	Frequency
CBOD ₅	Grab	Twice monthly
Total Suspended Solids	Grab	Twice monthly
Total Phosphorus	Grab	Twice monthly
Temperature	Grab	Twice monthly
E-Coli	Grab	Twice monthly
pH	Grab	Twice monthly

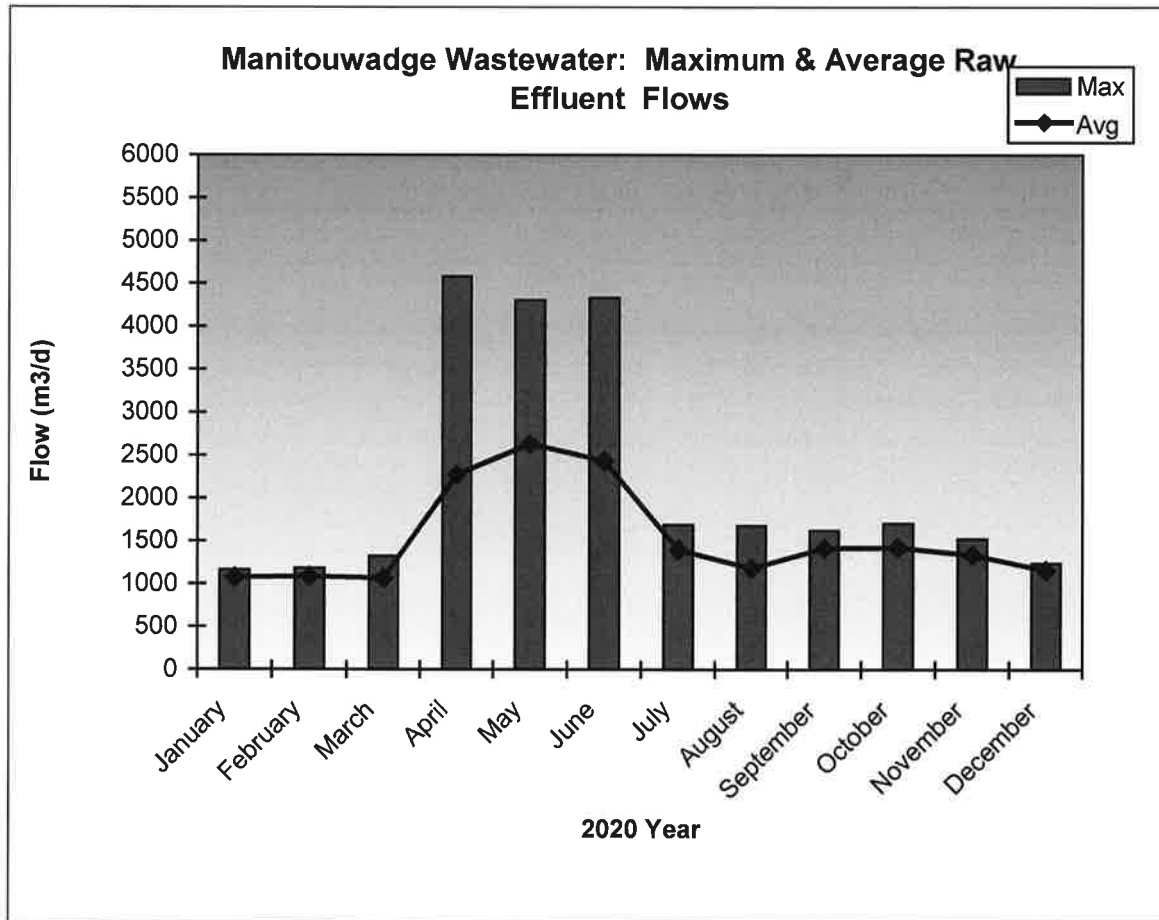
PLANT PERFORMANCE

Effluent Limits and Objectives as per C of A, condition 5 and 6

Effluent Parameter	Maximum Concentration Limit	Effluent Objectives
<i>CBOD₅</i>	25.0 mg/L	20.0 mg/L
Total Suspended Solids	30.0 mg/L	25.0 mg/L
pH	Between 6.0 – 9.5 at all times	

EFFLUENT FLOWS

In order to review, at a glance, the performance of the lagoons, a graph has been prepared showing the average and maximum monthly effluent flows for the year; January to December 2020. The total effluent flows for this timeframe report as 563517.64, with the lift station raw flow of 495114.70 m³.



EFFLUENT SAMPLING

In the reporting year 2020, *CBOD*₅ was analyzed and the average was 5.103 mg/L and maximum of 9.250 mg/l. This is within the effluent limits imposed by the *Certificate of Approval* condition 6 (1) of 25.0 mg/L. The objective of 20.0 mg/l as per 5 (1) was met in 2020.

The annual average suspended solids concentrations for the effluent in 2020 was 7.161 mg/L and maximum of 18.733 mg/l. This parameter is likewise within the compliance level of 30.0 mg/L and also the objective level of 25 mg/l.

The plant compliance criteria states; the pH of the effluent shall be maintained between 6.0 and 9.5, inclusive, at all times. The average pH during this period was 7.954, with a high of 8.38 and a low of 7.39.

MAINTENANCE

OCWA maintains a Work Management System (WMS), which is a comprehensive computer based maintenance program that is based on a proactive preventive approach. This includes running checks, weekly, monthly and annual maintenance, as required. A full report on all maintenance carried out by OCWA in 2020 is available upon request.

OPERATIONAL ISSUES

There was one operational issue noted during 2020 for the wastewater system.

On June 14, 2020 an Environmental incident was reported. A power outage caused a bypass event at the lift station. The overflow pump failed and overflowed to the creek. The creek was backing up into the lift station pump chamber due to a beaver dam on the creek. Sampling of the overflow showed no indication of sewage. The operators reported the incident at the time of discovery and the beaver dam was removed by the town.

In 2017, the lagoons were surveyed using acoustic sounding equipment to determine the levels of the sludge build-up in the lagoons. The calculations from the contractor performing the work indicate that the sludge level in Cell 1 is 35.78% and Cell 2 is 9.55%. The volume of sludge was calculated to be 4928.26 m³. Based on the lagoon and measured sludge volumes, the lagoons exceeded the minimum 12 day average flow retention specified in the ECA.

CALIBRATIONS

The owner shall maintain a continuous flow-measuring device to measure the flow rate within an accuracy of +/- 15% of actual rate of flow for the entire flow range of the measuring device.

In 2020, calibration of the Parshall flume was completed on June 16 2020. The calibration was within the allowable range.

SLUDGE HANDLING

In 2020, there was no sludge removed from the lagoon system.

COMPLAINTS/ENVIRONMENTAL INCIDENT

There were no complaints or environmental incidents in the Manitowadge Wastewater System in 2020.

BY-PASS REPORTS

The Manitowadge Sewage Treatment System had one bypass incident in 2020. On June 14, 2019 an Environmental incident was reported. A power outage caused a bypass event at the lift station. The overflow pump failed and overflowed to the creek. The creek was backing up into the lift station pump chamber due to a beaver dam on the creek. Sampling of the overflow showed no indication of sewage. The operators reported the incident at the time of discovery and the beaver dam was removed by the town.

All of the sample results were within the compliance levels as specified in the Certificate of Approval.

**Performance Assessment Report
1st January – December 31st 2020**

pH Monthly Process Data Report

Ontario Clean Water Agency
Time Series Info Report

Report extracted 03/11/2021 14:44

Facility Org Number: 1347
 Facility Works Number: 120001988
 Facility Name: MANITOUWADGE WASTEWATER TREATMENT LAGOONS
 Facility Owner:
 Facility Classification:
 Receiver:
 Service Population:
 Total Design Capacity:

From: 01/01/2020 to 31/12/2020

	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	Min
Effluent / pH - --																
Max Lab	7.85	7.89	7.79	7.83	8.38	8.2	8.19	8.19	8.2	8.13	8.14	8.14			8.38	
Mean Lab	7.865	7.81	7.59	7.6	8.157	7.99	8.05	8.065	8.14	8.05	8.065	7.965		7.954		7.99
Min Lab	7.65	7.73	7.39	7.57	7.78	7.78	7.91	7.94	8.08	7.97	7.99	7.79				
Raw / pH - --																
Max Lab	8	7.74	7.89	7.84	8.16	8.02	7.87	8	7.95	7.97	7.87	8.04			8.16	
Mean Lab	7.63	7.685	7.71	7.765	7.927	7.81	7.645	7.865	7.93	7.915	7.87	8.015		7.818		
Min Lab	7.26	7.63	7.53	7.69	7.73	7.8	7.42	7.73	7.91	7.66	7.67	7.99				7.26

Analyzer Verification/Calibration Summary

Calibration Certificate 1662

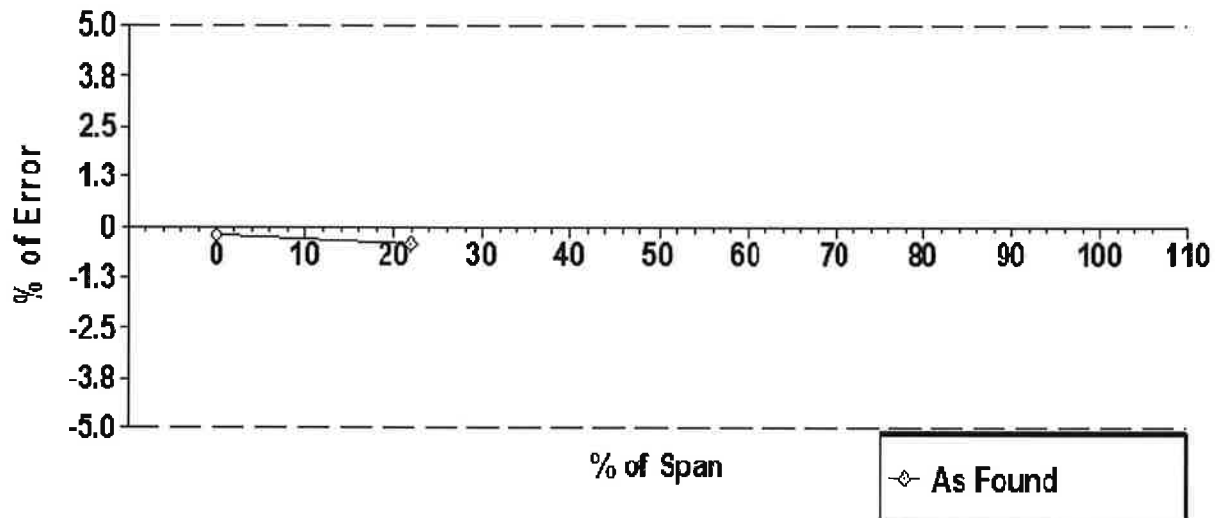
AMS Tag: M Final Effluent

Calibrated at: 2020-06-16 3:03:21 PM

Calibration Result: **PASSED**

Device Identification	
AMS Tag:	M Final Effluent
Device Tag:	Manitouwadge Final Effluent
Manufacturer:	Miltronics
Model Name:	OCM 3
Device Identifier:	296451

Device Calibration Data			
Date/Time Calibrated:	2020-06-16 3:03:21 PM	Max Error Limit:	5.00 % of Span
Technician:	LPC_MISS\cefoul	Notification Limit:	5.00 % of Span
User:	LPC_MISS\cefoul	Adjustment Limit:	4.00 % of Span
Ambient Temperature:	20.00 deg C	Calibration Interval:	12 Months
Temperature Standard:	ITS-90	Critical Service:	Yes
Work Order Number:		Input Range:	0.00 - 113.39 cm
Service Reason:	Yearly Calibration/Verification	Output Range:	0.00 - 113.39 cm
Service Notes: A distance measurement is taken from the sensor head to a fixed surface. That distance is then compared to the meter readout.			
Relationship: Linear			



Calibration Certificate 1662


AMS Tag: M Final Effluent

Test Equipment					
AMS Tag	Manufacturer	Model	Serial Number	Last Calibration	Calibration Interval:
Fluke Distance Meter	Fluke	416D	0682056623		12 Months
notused	not used	not used	notused	2014-09-01	12 Months
notused	not used	not used	notused	2014-09-01	12 Months
notused	not used	not used	notused	2014-09-01	12 Months

Errors (%)			
Error	Limit	Actual: As Found	Actual: As Left
Maximum	5.0000	-0.4145 (Pass)	(N/A)
Zero	(N/A)	(N/A)	(N/A)
Span	(N/A)	(N/A)	(N/A)
Linearity	(N/A)	(N/A)	(N/A)
Hysteresis	(N/A)	(N/A)	(N/A)

Calibration Results: As Found				
Test Point	Input	Output	Output Error	Output Error (%)
1	0.0000	-0.2200	-0.2200	-0.1940
2	24.7600	24.2900	-0.4700	-0.4145

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

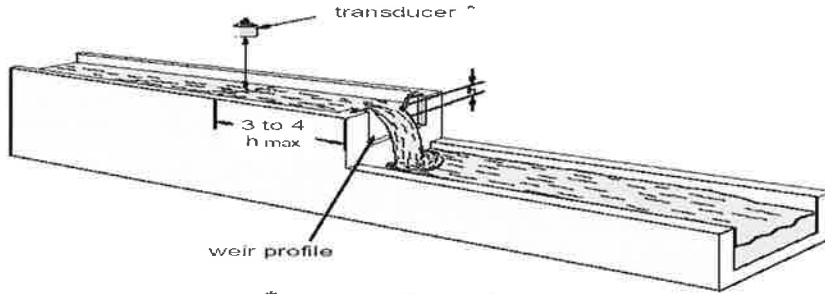
Authorization				
Title	Lakeside Process Controls - Asset Reliability Services			
Signature		Date	Jun 16/20	
Title				
Signature		Date		



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717B Hewitson St., Thunder Bay Ont

OPEN CHANNEL VERIFICATION CERTIFICATE



* The transducer must be above the maximum head by at least the blanking value, F-5.

Customer: OCWA/Manitouwadge
 Date of Calibration: Aug 07/19
 Location: Manitouwadge Lagoon
 Tag: Sewage Plant #2
 Performed by: Jose Marques

Meter Type: Open Channel
 Manufacturer: Milltronics
 Model #: OCM III

OCWA Tag #:

INSTALLATION DETAILS/REFERENCE METER

Units: Meter
 Mode: OCM

Analog Out: 4-20mA
 Profile: Parshall Flume

Test Results

	Meter Under Test	Reference	Error	% Error
Distance	0.78	0.81	-0.03	-3.70%
Head	0.32	0.31	0.01	3.23%
			Final Error	-0.24%
			Maximum Allowable Error	5%

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PASS