

Madoc Wastewater Lagoon

Annual Report

Reporting period of January 1, 2017 – December 31, 2017

Prepared For: Corporation of the Municipality of Centre Hastings

Prepared By:



Ontario Clean Water Agency
Agence Ontarienne Des Eaux

Facility Introduction

The Ontario Clean Water Agency (OCWA) operates and maintains the Madoc Wastewater Treatment Plant (Madoc Lagoons) on behalf of the Municipality of Centre Hastings.

The facility is a Class 1 Wastewater Treatment Plant.

The facility's design flow is 1008m³/day. The average day raw flow for the year 2017 was 931.0m³/day.

The Madoc Wastewater Treatment Plant complies with all requirements of the regulating authorities and operates under:

- Certificate of Approval (CofA) #1-0017-66-700366 dated Aug 6, 1970, for the construction of the sewage treatment facility to serve the Village of Madoc
- Certificate of Approval #3-0144-86-006 dated Dec 2, 1986, for the construction of an effluent pumping station

Discharge Requirements

The Madoc Lagoons operate on seasonal retention and seasonal discharge cycle with continuous alum feed for phosphorous removal, discharging in Spring and Fall.

Discharge periods are defined in C of A #3-0144-86-006 as follows:

- Spring discharge commencing not earlier than March 15 and terminating not later than April 30
- Fall discharge commencing not earlier than November 1 and terminating not later than December 7

Discharge shall normally take place over a minimum of 21 days.

2017 Spring Lagoon Discharge

The 2017 spring discharge commenced on March 21st and was terminated on April 27th. The Ministry of the Environment was notified verbally prior to commencement of the discharge and on the day the discharge ended. A total effluent volume of 160,418m³ was discharged during the 30 day discharge period.

All analytical effluent concentration results were below the maximum concentrations as specified in the facility Certificate of Approval. A summary of the discharge data is provided in a table below.

Effluent Parameter	CofA Average Effluent Seasonal Concentration Limit (mg/L)	CofA Semi-Annual Waste Loading Limit (kg)	Sample Location	2017 Average Effluent Seasonal Concentration (mg/L)	2017 Semi-Annual Waste Loadings (kg)
BOD ₅ (mg/L)	30	5520	Upstream	5.00	
			Effluent	8.33	1336
			Downstream	4.00	
Total Suspended Solids (mg/L)	30	5520	Upstream	2.16	
			Effluent	7.33	1176
			Downstream	2.00	
Total Phosphorus (mg/L)	0.5	184	Upstream	0.03	
			Effluent	0.11	17.6
			Downstream	0.03	
Fecal Coliform (cfu/100ml)	N/A		Upstream	16.3	
			Effluent	417	
			Downstream	22.0	

2017 Fall Lagoon Discharge

The 2017 fall discharge commenced on November 1st and was terminated on December 6th. The Ministry of the Environment was notified verbally prior to commencement of the discharge and on the day the discharge ended. A total effluent volume of 188,160 m³ was discharged during the 30 day discharge period. All analytical effluent concentration results were below the maximum concentrations as specified in the facility Certificate of Approval. A summary of the discharge data is provided in a table below.

Effluent Parameter	CofA Average Effluent Seasonal Concentration Limit (mg/L)	CofA Semi-Annual Waste Loading Limit (kg)	Sample Location	2017 Average Effluent Seasonal Concentration (mg/L)	2017 Semi-Annual Waste Loadings (kg)
BOD ₅ (mg/L)	30	5520	Upstream	3.66	
			Effluent	3.66	689
			Downstream	4.00	
Total Suspended Solids (mg/L)	30	5520	Upstream	2.00	
			Effluent	2.17	408
			Downstream	2.00	
Total Phosphorus (mg/L)	0.5	184	Upstream	0.03	
			Effluent	0.05	9.41
			Downstream	0.05	
Fecal Coliform (cfu/100ml)			Upstream	32.4	
			Effluent	185	
			Downstream	31.2	

Sampling Requirements

A summary of the monitoring data collected at the Madoc Lagoons during the reporting period is attached. The Annual Summary attached to this report provides flow data, raw sewage and final effluent analytical results.

Another sampling requirement defined in the facility CofA is the requirement to collect a minimum of four (4) effluent samples during the discharge period. A total of six (6) effluent samples were collected during both the spring and fall discharge period.

Wastewater System Effluent Regulations

The Wastewater Systems Effluent Regulations (WSER) is a federal wastewater regulation under the Fisheries Act that was released in July 2012 but was not in effect until January 1, 2013.

These regulations apply to a wastewater system that:

- Is designed to collect an average daily volume (ADV) of 100m³ or more of influent, or
- Collects an average daily volume (ADV) of 100m³ or more of influent during any calendar year.

An owner or operator must calculate, for each calendar year, the Average Daily Volume of effluent deposited via the system's final discharge point according to the following formula:

$$\text{Sum of daily effluent volumes deposited (m}^3\text{)} \div \text{number of days in that calendar year (365 days)}$$

Note: The formula uses the number of days in the calendar year not the number of days discharging.

Sampling and reporting requirements are dependent on the system type and its annual average daily volume of effluent. In 2017 The Madoc Wastewater Treatment Lagoon deposited approximately 613.0m³ of daily effluent volumes.

The Annual Monitoring Report (due by February 14 each year) was submitted to Environment Canada in February 2018. The Madoc Lagoon met all of the quality standards in 2017.

<u>Monitoring Report</u>			
Effluent Monitoring Data:		<u>Madoc Wastewater Treatment Lagoon</u>	
System Type: Intermittent	Reporting Period: Annually	Avg Daily Effluent: 613.0	
Averaging Period: Annually	Reporting Period: January - December	Reporting Year: 2017	
Was effluent deposited in this reporting period? Yes			
For each month indicated, was effluent deposited?			
January:	No	February:	No
April:	Yes	May:	No
July:	No	August:	No
October:	No	November:	Yes
		March:	Yes
		June:	No
		September:	No
		December:	Yes
# of days effluent was deposited? (days)	Total Volume of Effluent deposited? (m³)	Average CBOD (mg/L)	Average SS (mg/L)
		Limits	
		25	25
74	348578	6.1	4.1