



Warren Lagoon Annual Report 2025



February 2025, Version 1.0

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Warren Wastewater Lagoon System Introduction

The City of Greater Sudbury has prepared this annual performance report to satisfy the reporting requirements of Ministry of Environment, Conservation and Parks (MECP) Certificate of Approval (C of A) as outlined in Section 10(6) covering the period of January 1, 2025, to December 31, 2025.

The Warren Lagoon is owned by the Municipality of Markstay-Warren. On April 1st, 2022, the City of Greater Sudbury became the approved Operating Authority.

Sewage Works Description

The Warren Wastewater works system consists of two ten-acre seasonal retention waste stabilization ponds with provision for phosphorus removal discharging to the Veuve River. The collection system has a total of approximately 1,128 m of existing forcemain, and two sewage pumping stations.

Compliance Reporting Requirement

Under the Certificate of Approval issued by the Ministry of Environment, Conservation & Parks (MECP) the City is required to annually report on the values/parameters indicated in the C of A and made available to the District Manager within ninety (90) days following the end of the period being reported upon. Specifically, the Warren Lagoon annual report is to include:

- a summary of all monitoring data, including an overview of the success and adequacy of the Works;
- a description of any operating problems encountered, and corrective actions taken;
- a summary of all maintenance carried out on any major structure, equipment, apparatus, mechanism, or thing forming part of the Works;
- a description of efforts made, and results achieved in meeting the Effluent Objectives of the Approval;
- a summary of any complaints received during the reporting period and any steps taken to address the complaints; and
- a summary of all bypasses, plant overflows, overflows, spills or abnormal discharge events.

To address these requirements, this report contains the following sections.

Lagoon Performance Report: Monthly results and parameters, including a graphical representation of flows through the plant.

Operating Issues & Corrective Actions: Measured values resulting in a non-compliance with respect to a parameter listed within an ECA and the corrective actions taken to resolve the issue.

Maintenance & Capital Improvements: All major maintenance, modifications and capital works completed at the lagoon within the reporting period. Details on the calibration and maintenance carried out on all effluent monitoring equipment.

Effluent Quality & Control Measures: A summary and interpretation of all monitoring data collected and a comparison to the parameters and limits given in the ECA for each facility.

Customer Complaints: Any complaints received regarding the Warren Lagoon through the City of greater Sudbury 311 system during the reporting period and any steps taken to address the complaints.

Plant Bypasses and Overflows: A listing of all bypasses, spills, and overflows at the lagoon during the reporting period.

Lagoon Performance Report

The Warren Lagoon is subject to semi-annual discharges. Discharging is done in the spring and fall as follows:

Spring: discharge commencing after the liquid surface in the lagoon has become free of ice cover, terminating within 60 days thereafter, and continuing for not less than 15 days for each lagoon cell released.

Pre-Discharge Sampling 2025								
Spring	Date	CBOD5 (mg/L)	TSS (mg/L)	TP (mg/L)	TAN (mg/L)	pH	H ₂ S (mg/L)	TKN (mg/L)
EAST CELL	Apr.28/25	12.7	38	0.813	4.5	NA	NA	7.4

Spring Effluent Discharge - East Cell #2						
Date	May.7/25	May.9/25	May.11/25	May.13/25	May.15/25	May.17/25
CBOD5 (mg/L)	17.0	25.0	12.3	16.0	15.0	5.0
TSS (mg/L)	36.00	14.30	32.00	59.00	44.00	33.00
TAN (mg/L)	2.08	3.55	1.47	1.53	0.25	1.06
TP (mg/L)	0.895	0.853	0.941	1.260	0.960	1.100
pH	8.6	8.8	8.9	9.8	10.3	9.2
E.Coli	14	16	8	14	2	4
BOD5	16	18	15	14	17.0	20.0
TKN	6.4	5.5	4.5	5	4.1	4.3
Nitrite as N	0.05	0.05	0.05	0.05	0.1	0.1
Nitrate as N	0.05	0.05	0.05	0.05	0.1	0.1

Spring Effluent Discharge - East Cell #2					
	May.19/25	May.21/25	May.23/25	May.25/26	Seasonal Average
CBOD5 (mg/L)	7.6	8.6	12.0	15.0	13.4
TSS (mg/L)	24.00	22.70	29.00	41.00	33.5
TAN (mg/L)	1.28	0.97	1.33	0.21	1.4
TP (mg/L)	1.160	1.130	0.810	1.230	1.034
pH	8.9	8.7	9.0	9.7	9.2
E.Coli	26	8	16	2	11.0
BOD5	8.2	11.7	16.0	18.0	15.4
TKN	3.5	3.9	3.9	4.0	4.5
Nitrite as N	0.1	0.1	0.1	0.1	0.1
Nitrate as N	0.1	0.1	0.1	0.1	0.1

Approx Spring Discharge Vol	36,788 m ³
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Fall: discharge commencing not earlier than October 15 and terminating not later than November 30 and continuing for not less than 15 days for each lagoon cell released.

Pre-Discharge Sampling								
FALL	Date	CBOD5 (mg/L)	TSS (mg/L)	TP (mg/L)	TAN (mg/L)	pH	H ₂ S (mg/L)	TKN (mg/L)
West Cell	Oct 8/25	6.4	21.70	0.930	0.79	7.64	NA	2.5
	Oct 17/25	3.8	3.7	1.100	2.66	7.82	NA	2.9
	Oct 27/25	1.7	4.0	0.743	3.68	7.72	NA	4.1

2025 Fall Effluent Discharge - West Cell #1								
Date	Oct.30	Nov.2	Nov.4	Nov.6	Nov.8	Nov.10	Nov.12	Seasonal Average
CBOD5 (mg/L)	2.8	1.7	5.9	4.1	4.0	2.2	3.6	3.5
TSS (mg/L)	2.7	8.4	10.0	9.3	24	4.7	34.3	13.3
TAN (mg/L)	0.85	2.74	3.36	3.01	4.17	5.58	2.43	3.16
TP (mg/L)	0.161	0.320	0.243	0.258	0.275	0.067	0.091	0.202
pH	7.0	7.0	7.4	7.9	7.8	7.9	7.9	7.7
E.Coli	0	50	9	4	50	53	55	32
BOD5	2.6	1.0	15.0	3.5	3.4	2.10	2.1	4.2
TKN	2.5	2.9	4	3.4	4.7	5.3	3.7	3.8
Nitrite as N	0.05	0.05	0.05	0.10	0.05	0.05	0.05	0.06
Nitrate as N	0.05	0.05	0.05	0.10	0.05	0.05	0.05	0.06

Approx. Fall Discharge Vol	28,681 m3
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	Spring Seasonal Average	Fall Seasonal Average	C of A Limits Seasonally	Annual Avg
CBOD5 (mg/L)	13.4	3.5	30.0	8.4
TSS (mg/L)	33.5	13.3	40.0	23.4
TP (mg/L)	1.034	0.202	1.000	0.6

Month	Raw Flows (Act meter)		Raw			
	Total	Avg Day	CBOD5	TSS	TP	BOD
	m ³	m ³ /d	mg/L	mg/L	mg/L	mg/L
Nov-24	4293	143	160	114	3.6	97
Dec-24	5467	176	NA	104	6.0	160
January	5173	167	NA	114	3.9	170
February	3648	130	170	2240	6.4	69
March	8253	266	NA	117	3.6	62
April	9954	332	NA	43	2.7	98
May	6846	221	53	17.3	1.1	56
June	4593	153	NA	302	3.1	200
July	4988	161	NA	110	4.1	130
August	3672	118	59	116	4.7	200
September	3863	129	NA	95	4.4	54
October	4719	152	NA	88	6.0	250
November	4821	161	88	62	2.3	96
December	5060	163	NA	46	4.8	160
Total	65590		370	3350	47	1545
Average	5466	179	93	279.2	3.91	129
Q1 RAW	17074		170	823.7	4.6	100
Q2 RAW	21393		53	120.8	2.3	128
Q3 RAW	12523		59	107.0	4.4	128
Q4 RAW	14600		88	65.3	4.3	169
Spring Raw Flows	36788					
Fall Raw Flows	28681					

Operating Issues & Corrective Actions

Date	Non-Compliance	Root cause	Corrective Action Plan	Date Reported to Ministry
06-Jun-25	Total Phosphorus (TP)	Not chemically treated prior to discharge	Slowed down discharge	9-Jun-2025
06-Jun-25	Total Suspended Solids (TSS)	Bad Sample - Poor sample procedure	Slowed down discharge and removed growth	9-Jun-2025

Maintenance & Capital Improvements

The calibration of flow meters is conducted annually by an accredited third-party company in accordance with the requirements of the Warren Lagoon ECA. Records and certificates are kept electronically. Calibrations completed on monitoring equipment is summarized below.

Flow Meter	Date Calibrated	Certificate number
Flow Meter FIT 3401	June 9, 2025	CO1628-2506-50

The operating and maintenance staff for the Warren Lagoon and Lift station conducts scheduled and emergency maintenance of the equipment. The City of Greater Sudbury utilizes a database maintenance system known as Antero to issue work orders and maintain records for regular maintenance and emergency repair.

Corrective	Regular Scheduled Maintenance	Regulated Works Orders	
Install Signage	Anchor Point Inspections	Diesel Engine Annual routine	Electrical Inspection
Issue with drain valve	Flow meter Calibration	Exercise Valves	Lift Station inspection
Install Level Indicator	Lifting Devices	Workplace Inspection	Anchor Point Inspections
Influent gate valve repair			

Effluent Quality & Control Measures

The City of Greater Sudbury’s Supervisory Control and Data Acquisition (SCADA) system records influent flow from the Warren lift station. Samples are collected and sent to a third-party lab for analysis. Lagoon reports contain flow and lab results for supervisors to review. Data is then transferred to monthly and annual performance reports ensuring that all information is accounted for reviewed.

Twice a year, prior to seasonal discharge, lagoon samples are collected and tested for total phosphorus (TP). If TP levels are high, chemical addition is used to treat the lagoon before discharge. This reporting year only the fall discharge required chemical treatment.

Customer Complaints

The City of Greater Sudbury received no complaints in this year’s reporting.

Plant Bypasses and Overflows

There were no bypasses or overflows reported for the lagoon or lift station for this year.