2024
Annual Wastewater Report

Lancaster Sewage Treatment

Version 2.0

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February 18, 2025
Date

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February 18, 2025
Date

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Revision History

Date	Description	Revision	Author
February 4, 2025	Initial Issue for Council Receipt	1.0	D. Seguin
February 18, 2025	Issued for Council Acceptance	2.0	D. Seguin

Lancaster Sewage Treatment Plant

In accordance with the Certificate of Approval, Number 8124-4L9KB9, Issue date July 17, 2000 the Water Pollution Control Plant (WPCP) is required to prepare an annual performance report. This document covers the reporting year January 01 to December 31, 2024; the facility performance report summarizes important information regarding the quality of the effluent wastewater, analytical test results, maintenance operations, and relevant activities of the WPCP.

1. Description of the Works

Capacity of Works	1,490 m^3/day (average daily flow)
Service Area	Village of Lancaster & South Lancaster
Service Population	Approximately 1,190
Effluent Receiver	Lake St. Francis
Major Process	Facultative Lagoon treatment facility complete with a phosphorus removal system

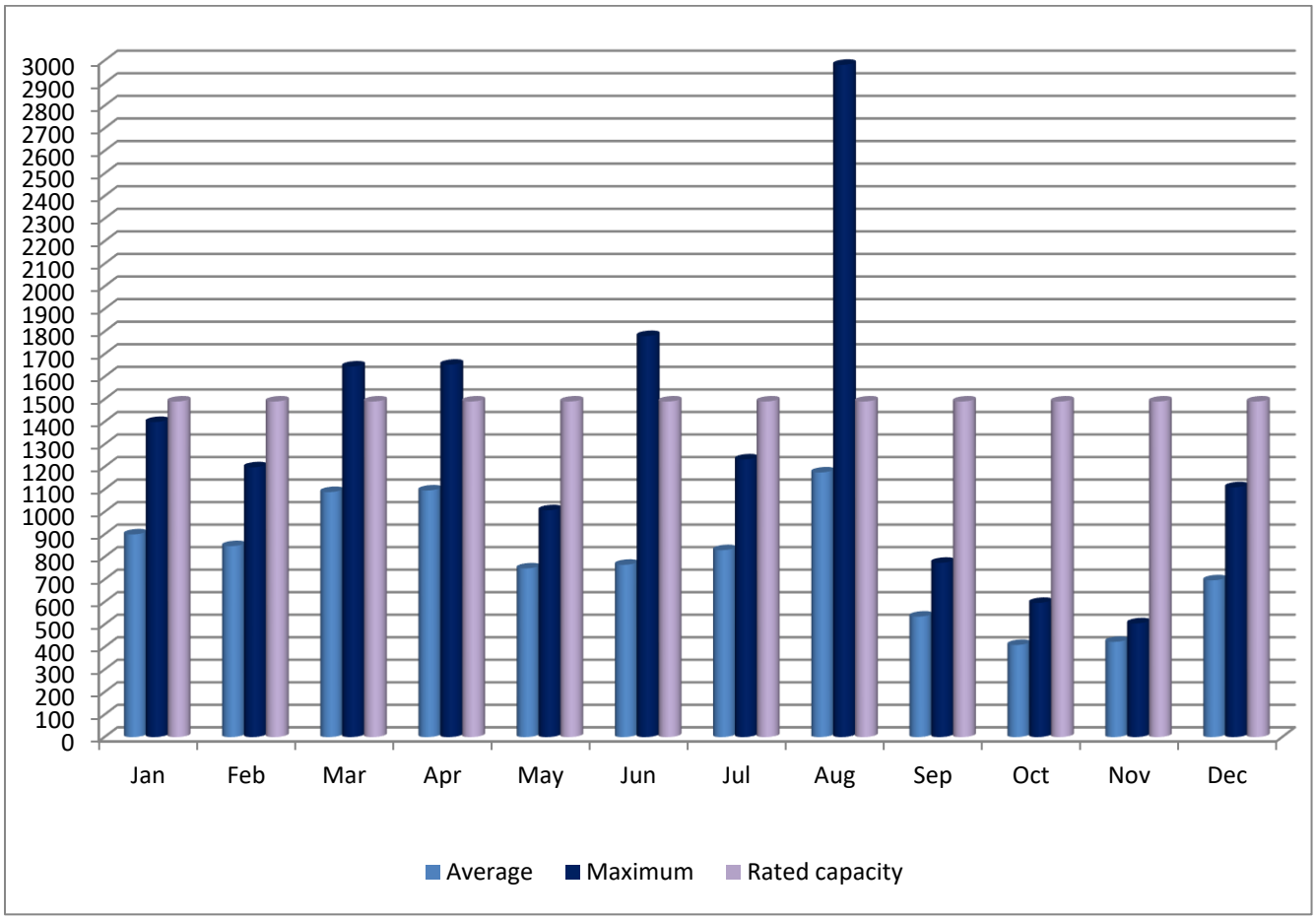
The Lancaster WPCP received and operates its operation under *Certificates of Approval (now referred to as Environmental Compliance Approval [ECA]) Number 8124-4L9KB9,* in accordance with Section 53 of the Ontario Water Resources Act. The Certificate of Approval outlines the terms and conditions, and the report captures these terms and conditions in the following sections.

2. Rated Capacity

For the purposes of the ECA and the terms and conditions specified, the following definition applies: *"Rated Capacity"* means the *Average Daily Flow* for which the *Works* are approved to handle.

The rated capacity of the Lancaster WPCP is 1,490 cubic meters per day (m^3/day); that is raw influent (flow) into the lagoon for treatment. During the reporting year 2024, the Lancaster WPCP exceeded the rated capacity of 1,490 m3/day, thirty-five (35) days.

Monthly Average and Maximum Daily Flows for 2024 (Rated capacity 1,490 m^3/day)



High Flow Events

August 2024 – Heavy Rain Event

3. Effluent Objectives

The owner and/or operating authority shall use *best efforts* to design, construct and operate the *Works* with the objective that the concentrations and loadings of the materials named below (Table 1) as effluent parameters are not exceeded in the effluent from the *Works*.

Table 1. Effluent Best Efforts Limits as per ECA, condition 3.1

Effluent Parameter	**Average Concentration** (milligrams per litre unless otherwise indicated)	**Average Loading Objective** (kilograms per day unless otherwise indicated)
Column 1	Column 2	Column 3
$CBOD_5$	25	37.3
Total Suspended Solids	30	44.7
Total Phosphorus Summer – June 1 to November 30 Winter – December 1 to May 31	 0.4 0.8	 0.60 1.2
Total Ammonia Nitrogen: Summer – June 1 to November 30 Winter- December 1 to May 31	 11 18	 16.4 26.8
E. Coli – May 1 to September 31		-

4. Effluent Limits

The *Owner* shall operate and maintain the *Works* such that the concentrations and waste loadings of the materials named in Table 2 as effluent parameters are not exceeded in the effluent from the *Works*.

Table 2. Effluent Limits as per C of A, conditions 1.4

Effluent Parameter	**Average Concentration** (milligrams per litre unless otherwise indicated)	**Average Loading Objective** (kilograms per day unless otherwise indicated)
Column 1	Column 2	Column 3
$CBOD_5$	30	44.7
Total Suspended Solids	40	59.6
Total Phosphorus Summer – June 1 to November 30 Winter – December 1 to May 31	 0.5 1.0	 0.75 1.5
Total Ammonia Nitrogen: Summer – June 1 to November 30 Winter- December 1 to May 31	 13 20	 19.4 30.0
E. Coli – May 1 to September 31		-

5. Monitoring And Recording

The *Owner* shall, upon commencement of operation of the *Works*, carry out the following the monitoring program.

Effluent Monitoring - (samples to be collected at the outlet of the disinfection facilities or at the outfall sewer as close as possible at the treatment plant).

Parameters	Sample Type	Frequency
$CBOD_5$	24-hr composite	Bi-monthly
Total Suspended Solids	24-hr composite	Bi-monthly
Total Phosphorus	24-hr composite	Weekly
Total Ammonia Nitrogen	24-hr composite	Weekly
E. Coli	Grab	Weekly

6. Laboratory

Caduceon Environmental laboratories is contracted to conduct the required analytical tests of the influent (raw) and effluent samples, as per the ECA.

7. 2024 Annual Effluent Quality

In the reporting year 2024, the *Works* were operated and maintained such that the concentrations and waste loadings of the materials named in Table 2 as effluent parameters were not exceeded in the effluent from the *Works*; in compliance with the ECA requirements for the effluent limits parameters.

In addition, *best efforts* were achieved with the objective that the concentrations and loadings of the materials named above in **Table 1** as effluent parameters were not exceeded in the effluent from the *Works.*

Parameters	Average Concentration mg/L	Criteria Concentration mg/L	Average Loading kg/d	Loading Criteria kg/d
$CBOD_5$	3.39	30	3.19	44.7
Total Suspended Solids	6.48	40	6.70	59.6
Total Phosphorus: Summer – June 1 to Nov 30 Winter – Dec 1 to May 31	 0.05 0.20	 0.5 1.0	 0.08 0.20	 0.75 1.5
Total Ammonia Nitrogen: Summer – June 1 to Nov 30 Winter- Dec 1 to May 31	 4.70 12.74	 13 20	 3.45 13.18	 19.4 30.0
E. Coli			-	-

8. Inventory

Chemical	Annual Status	Units
Alum	48,875	Cubic meters

9. Maintenance

The Operators performed the routine operations and maintenance at the treatment plant and pumping stations in accordance with the preventative maintenance program (report on file at plant). The activities are highlighted as follows:

Monthly	• Checked Operations and Performance of Sewage Pumps.
Treatment Plant	• Changed Oil - Blower #1, #2 and #3
Quarterly	• N/A
Semi-Annually	• Cleaned Filters on Blower #1, #2 and #3.
Annually	• Annual Calibration of Monitoring Equipment • Annual Calibration of Flow Meters
Major Maintenance	• Flow Sensor Replaced (Jan) • Manta-ray Sent for Repair/Servicing (Feb) • Third Party Blower Inspections (Mar) • Effluent Inspection (May) • Splitter Box Flushing (Jun) • Lagoon Grass Cut (Jun) • Pump Station Cleaning x 2 Stations (Jul) • Install Overflow Pipe Between Cells (Sep) • Manhole Grouting (Sep) • CIPP Spot Repairs (Sep) • Grouting (Sep) • Steam Clean Alum Tank (Nov) • Replace Gasket on Alum Tank (Nov)

10. Operational Issues

There were no operational issues noted during 2024.

11. Biosolid (Sludge) Summary

The Glen Walter WPCP has a program in place for the removal of biosolids transferred from the Glen Walter W.P.C.P *Works to the Lancaster lagoons*; volume totaling 499 m^3 for the fiscal year 2024. Joseph Romeo René Goulet (Certificate of Approval Hauler # A 920463) is contracted and hauled/transported 499 m^3 to the Lancaster Lagoons for disposal.

The *Works* maintains haulage records for biosolids transferred from the Glen Walter WPCP to the Lancaster Lagoons; available upon request.

12. Complaints

No complaints reported during the 2024 operational year.

13. By-Pass Report(s)

By-passing occurrences: 1

Spill/Overflow 1

Date:	June 24th, 2024
Asset:	Lancaster Lagoon
Location:	Rail Side Road
Reference Number:	1-831V90
Cause:	Blockage/Wet Weather
Volume:	72m3
Duration:	2hours
Disinfection:	None
Adverse Impact:	None
Grab Samples:	Yes

On June 24th, 2024, the splitter box between the aeration cell and lagoon cell had clogged with debris (Cattails/Phragmites). Flow continued to pass through the splitter box at a lower rate than the incoming raw sewage, causing the aeration cell to overflow. A bypass channel was created between both cells to eliminate the overflow. Channel remained open until operators could fix the issue within the splitter box and put back into normal operation. A 10” sewer pipe has been installed at a higher elevation to eliminate future spills, while operating the site as designed.

**All by-pass/overflows for the collection system(s) have been moved to the Municipal sewer collection report for 2024 and ongoing. However, bypass/overflows may still occur for the wastewater system facility(s).*

14. Reports

- Appendix A – Lancaster Sewage Annual Performance Report 2024 (Attached)
- Caduceon Environmental Laboratories Analytical Reports - (on-file at plant)
- Lancaster Daily/Monthly Report Summary - (on-file at plant)
- Lancaster Bypass Incident Report – (on-file at plant)

Municipality: Township of South Glengarry
Project: Lancaster Lagoons

Annual Report Data
2024

Water Course: Lake St. Francis
Design Capacity: 1.490 x 1000 m3/D

Description: 2 Sewage Pumping Stations - 1 Aeration Cell - Facultative Treatment - Continuous Discharge

	Influent Flow			*Effluent*	*Biochemical Oxygen Demand*			*Suspended Solids - Total*			*Phosphorus*			*Ammonium*	*Waste Loadings*				*Alum*	Effluent Flow
	Total X 1000 m3	*Average X 1000 m3*	*Maximum Daily X 1000 m3*	*Flow - Total X 1000 m3/D*	*Average Influent mg/L*	*Average Effluent mg/L*	*Removal Percent*	*Average Influent mg/L*	*Average Effluent mg/L*	*Removal Percent*	*Average Influent mg/L*	*Average Effluent mg/L*	*Removal Percent*	*Average Effluent mg/L*	*BOD Kg/D*	*TSS Kg/D*	*TP Kg/D*	*N-NH3 Kg/D*	*m3 Used*	Average m3/D
January	*27.927*	*0.900*	*1.399*	*47.581*	*108.00*	*3.00*	*97.22*	*380.00*	*8.00*	*97.89*	*3.98*	*0.1*	*97.49*	*11.8*	*4.60*	*12.27*	*0.15*	*18.10*	*3.700*	*1.534*
February	*24.594*	*0.848*	*1.198*	*24.594*	*95.25*	*4.00*	*95.80*	*67.00*	*8.75*	*86.94*	*3.47*	*0.1*	*97.12*	*14.4*	*3.39*	*7.42*	*0.08*	*12.21*	*3.100*	*0.848*
March	*33.741*	*1.088*	*1.645*	*43.733*	*52.00*	*4.25*	*91.83*	*30.50*	*10.75*	*64.75*	*2.48*	*0.12*	*95.16*	*12.2*	*5.99*	*15.16*	*0.17*	*17.20*	*3.400*	*1.410*
April	*32.855*	*1.095*	*1.653*	*43.512*	*40.40*	*3.40*	*91.58*	*38.40*	*11.60*	*69.79*	*1.64*	*0.15*	*90.85*	*11.04*	*4.93*	*16.82*	*0.22*	*16.01*	*4.100*	*1.450*
May	*23.238*	*0.749*	*1.007*	*25.379*	*56.75*	*3.00*	*94.71*	*54.00*	*4.25*	*92.13*	*2.54*	*0.15*	*94.09*	*12.83*	*2.45*	*3.48*	*0.12*	*10.49*	*3.700*	*0.818*
June	*22.952*	*0.765*	*1.780*	*22.516*	*54.25*	*3.25*	*94.01*	*48.75*	*4.25*	*91.28*	*2.14*	*0.07*	*96.73*	*9.87*	*2.44*	*3.19*	*0.05*	*7.40*	*3.390*	*0.750*
July	*24.915*	*0.830*	*1.233*	*23.874*	*42.60*	*3.00*	*92.96*	*37.60*	*5.40*	*85.64*	*1.71*	*0.05*	*97.08*	*4.23*	*2.39*	*4.29*	*0.04*	*3.36*	*3.900*	*0.795*
August	*36.455*	*1.175*	*2.981*	*46.142*	*49.25*	*3.00*	*93.91*	*43.75*	*4.25*	*90.29*	*1.81*	*0.07*	*96.13*	*3.65*	*4.46*	*6.32*	*0.10*	*5.43*	*4.380*	*1.488*
September	*16.053*	*0.535*	*0.774*	*15.988*	*121.75*	*3.00*	*97.54*	*174.50*	*3.00*	*98.28*	*3.66*	*0.05*	*98.63*	*1.11*	*1.60*	*1.60*	*0.03*	*0.59*	*4.950*	*0.532*
October	*12.681*	*0.409*	*0.596*	*7.651*	*200.00*	*3.00*	*98.50*	*605.00*	*4.40*	*99.27*	*10.26*	*0.06*	*99.42*	*2.43*	*0.74*	*1.08*	*0.01*	*0.60*	*5.100*	*0.246*
November	*12.700*	*0.423*	*0.505*	*14.302*	*179.00*	*3.75*	*97.91*	*248.00*	*7.25*	*97.08*	*7.22*	*0.18*	*97.51*	*6.92*	*1.79*	*3.45*	*0.09*	*3.29*	*5.380*	*0.476*
December	*21.589*	*0.696*	*1.109*	*27.516*	*139.00*	*4.00*	*97.12*	*215.00*	*6.00*	*97.21*	*5.02*	*0.28*	*94.42*	*13.04*	*3.55*	*5.32*	*0.25*	*11.57*	*3.775*	*0.887*
Total	*289.6995*			*342.788*											*38.32*	*80.40*	*1.32*	*106.26*	*48.875*	*11.234*
Average	*24.142*	*0.793*	*1.323*	*28.566*	*94.85*	*3.39*	*95.26*	*161.88*	*6.49*	*89.21*	*3.83*	*0.12*	*96.22*	*8.63*	*3.19*	*6.70*	*0.11*	*8.86*		
Criteria		***1.49***				***30***			***40***			***S 0.5***		***S 13***	***44.7***	***59.6***	***S 0.75***	**S 19.4**		
												W 1.0		***W 20***			***W 1.5***	**W 30**		
Maximum		*1.175*				*3.39*			*6.49*								*0.11*	*8.9*		
Compliance		***Yes***				***Yes***			***Yes***			***Yes***		***Yes***	***Yes***	***Yes***	***Yes***	***Yes***		

Lagoon pH Samples 2024												
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Avg.	7.75	7.44	7.82	8.40	7.88	7.82	7.49	7.36	7.56	7.44	7.18	7.14
1		7.46			8.00					7.38		
2	7.10			8.50	7.53		7.41			7.45		7.10
3	7.80			8.50		7.90	7.57		7.15	7.80		7.03
4	8.10		7.32	8.50		8.10	7.33		7.80		7.46	6.97
5		7.33	7.37			8.10			7.69		7.29	
6			7.35		7.90	8.10		7.31			7.35	
7		7.49	7.38		7.80			7.47		7.43		
8	8.00	7.47		8.60	7.80		7.17	7.71		7.37		
9	8.00			8.50	7.80		7.13		7.60	7.32		7.21
10	8.00			8.50		8.90	7.10		7.86	7.23		7.06
11			7.5	8.50		8.00	7.34		7.83			7.10
12		7.47	7.7			8.00		7.36			7.35	
13		7.47	7.64		7.46	8.00		7.36			7.08	
14		7.49	7.9					7.77			7.05	
15	7.9			8.48			7.56			7.28		
16	8.00			8.50	7.90		7.71		7.73	7.52		7.02
17	7.54			8.40	7.90	7.90	7.26		7.44	7.28		7.00
18	7.90		7.95	8.40		7.20			7.48		7.15	6.85
19			8.00			7.30		7.41			7.16	
20		7.44	8.04			7.00		7.44			7.01	
21		7.55	8.20		7.90			7.19		7.30		
22	7.90	7.55		8.30	8.10		7.63			7.54		
23	7.40				8.00		7.59		7.36	7.37		7.80
24	7.56			8.30		7.49	8.11					7.64
25		7.51	8.30	8.20		7.80			7.36		7.08	
26		7.34	8.30			7.48		7.26	7.37			7.20
27		7.19	8.30		8.00			7.31			7.19	
28					7.90			6.74		7.53	7.03	
29	7.58			8.10	8.00		7.77			7.62		
30				8.10	8.10		7.47			7.65		6.87
31	7.44						7.75					