

January 11th, 2024

Ministry of the Environment
70 Foster Drive, Suite 110
Sault Ste. Marie, ON P6A 6V4



ATTENTION: Safe Drinking Water Branch

RE: Elliot Lake Wastewater Treatment Plant Annual Performance Report - 2023

Please find attached the 2023 Annual Report for the Elliot Lake Wastewater Treatment Plant. This report has been prepared in accordance to the guidelines set out in Condition 10₍₅₎ of Facility Certificate of Approval Number 5239-5GXSMK.

This report covers the period from January 1, 2023 to December 31, 2023.

Please direct any questions or concerns to the undersigned.

Yours truly,

A handwritten signature in black ink that reads "Bart Doyle". The signature is written in a cursive style.

Bart Doyle
Assistant Director of Public Works
City of Elliot Lake

Elliot Lake Wastewater Treatment Plant 2023 Annual Report

The purpose of this report is to provide performance and compliance records pertaining to the Elliot Lake wastewater treatment plant to the Ministry of the Environment. This report is prepared in accordance with Condition 10⁽⁵⁾ of the Certificate of Approval and covers the reporting period from January 1, 2023 to December 31, 2023.

This report contains the following information:

- a) 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*;
- b) a description of any operating problems encountered and corrective actions taken;
- c) a summary of all maintenance carried out on any major structure, equipment, apparatus, mechanism or thing forming part of the *Works*;
- d) a summary of any effluent quality assurance or control measures undertaken in the reporting period;
- e) a summary of the calibration and maintenance carried out on all effluent monitoring equipment;
- f) a description of efforts made and results achieved in meeting the Effluent Objectives of Condition 6;
- g) 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;
- h) a summary of any complaints received during the reporting period and any steps taken to address the complaints;
- i) a summary of all *By-pass*, spill or abnormal discharge events;

a) Effluent Limits – Condition 7:

Month	CBOD (25 mg/L)	Total Suspended Solids (25 mg/L)	Total Phosphorus (1.00 mg/L)	Total Flow	CBOD Loading	Total Suspended Solids Loading	Total Phosphorus Loading
	Monthly Average mg/l	Monthly Average mg/l	Monthly Average mg/l	Cubic Meters / month	Kilograms / day	Kilograms / day	Kilograms / day
January	3	12	0.37	169,638	16.4	65.7	2.0
February	6	17	0.50	152,923	32.8	92.8	2.7
March	5	19	0.64	181,326	29.2	111.1	3.7
April	2	19	0.68	322,620	21.5	204.3	7.1
May	4	17	0.55	256,713	33.1	140.8	4.6
June	4	16	0.59	161,900	21.6	86.3	3.2
July	2	14	0.49	150,615	9.7	68	2.4
August	4	19.7	0.80	145,722	18.8	92.6	3.8
September	2	21.9	0.86	128,018	8.5	93.5	3.7
October	4	21	0.83	163,284	21.1	110.6	4.4
November	4	19	0.79	149,048	19.9	94.4	3.9
December	4	15	0.41	148,160	19.1	71.7	2.0
Annual Average	3.67	17.55	0.63	177,497	20.98	102.7	3.63

The Total Effluent Flow for the facility during the 2023 operating year was 2,129,967 m³

b) Operating Problems or Issues Encountered:

Operating problems associated with the equipment and infrastructure of the facilities that occurred during this reporting period includes the following:

- There were no operating problems during this reporting period that affected the facilities.

c) Summary of Facility Maintenance:

The City of Elliot Lake Wastewater Treatment Plant has an annual maintenance program for the facility that is scheduled in excel format. The schedule is then followed up with a work order which is submitted to the department head for review and file. Licenced operators perform maintenance on pumps and alarm systems, all in accordance with the manufacturers' guidelines.

Planned and scheduled large maintenance projects performed during this reporting period include:

- Backflow preventers throughout sewage system were tested and inspected by OCWA in August of 2023.
- Calibration of instrumentation and analytical devices was tested and inspected by a Cleartech Technician.
- Replacement of influent bearings and seals at waste water plant
- Replacement of return screw pump bearings
- Replaced transfer switch at Washington Lift Station
- Annual diesel load test
- Rebuild of pumps at Porridge Lift station
- Replaced effluent pump at waste water plant

d) Quality Assurance, Quality Control Measures:

The majority of the process analysis for the facility is done in house by the Operations staff using standardized and accepted laboratory techniques. All results are recorded and compared to historical data. In the event that a deviation is detected, repeat analysis is performed to verify the results. Samples such as BOD₅ and CBOD₅ are sent to an accredited laboratory for analysis. Plant process is further tracked through the use of an on-line turbidity analyzer which is monitored daily.

e) Calibration and Maintenance of Effluent Monitoring Equipment:

Calibration of the flow meters, lab equipment and analyzers were conducted as per regular annual maintenance. Cleaning of effluent monitoring equipment is performed on a regular routine basis. Accuracy of effluent monitoring equipment operation was confirmed by onsite lab effluent samples analysis and offsite third-party accredited laboratory analysis.

f) Effluent Objectives:

As noted in Section a) of this report, the Effluent Objectives for Suspended Solids, CBOD and for Total Phosphorus are being met by the facility.

Plant chlorination values are sent to the Medical Officer of Health with copies sent to various other stakeholders on a monthly basis. The four sample locations reported for the dechlorination project are as follows:

- Location One – Esten Lake at a point near the diversion channel;
- Location Two – Diversion Channel taken at the point where Nordic Creek is introduced to the wastewater effluent stream;
- Location Three – Depot Lake farthest area of lake after diversion channel stream is introduced;

- Final Effluent – last accessible sample point in plant. Note that residuals at this location vary as a result of partial mixing and contact time this is due to location of chlorine injection in relation to the sample port;

Final Effluent Results

Month	Geometric Mean - Total Coliform	Geometric Mean - E.Coli	Average Total Chlorine Residual
May	157.5	11.2	0.14 mg/L
June	26.7	3.6	0.14 mg/L
July	152.4	37.6	0.11 mg/L
August	2621.6	251.5	0.08 mg/L
September	2597.9	112.5	0.12 mg/L
October	348.7	60.3	0.08 mg/L

August 29th 2023 there was no effluent sample collected. The MECP and APHU were notified.

Copies of the monthly reports entitled “Esten Lake Dechlorination Project” are appended to this report.

g) – Sludge Haulage

Month	Digested Sludge Hauled	Methane Produced	Methane Wasted	Aluminum Sulphate Used
	Cubic Meters	Cubic Meters	Cubic Meters	Tonnes
January	92.7	0	0	9.4
February	30.9	0	0	8.3
March	123.6	0	0	8.4
April	46.4	0	0	7.0
May	231.8	0	0	7.6
June	200.9	0	0	7.9
July	247.3	0	0	10.2
August	278.2	0	0	10.6
September	309.1	0	0	10.6
October	216.4	0	0	10.5
November	448.2	0	0	12.4
December	370.9	0	0	10.8
Annual Total	2596.4	0	0	113.7

All waste sludge is hauled under contract from the Wastewater Treatment facility to Waste Disposal Site No. A560812. The current sludge haulage contractor is GFL Environmental based out of Blind River, Ontario.

The City of Elliot Lake has retained the services of Pinchin Ltd in order to comply with Conditions 22 and 24 of Environmental Compliance Approval No. A560812.

The volumes of sludge generated as well as the disposal areas over the next reporting period are not expected to change.

h) - Complaints:

There were no noted complaints with regard to the operation of the wastewater treatment facility in this reporting year.

i) – Bypasses, Spills, or Abnormal Discharge Events:

There was one abnormal discharge event within the City of Elliot Lake Sewage Works for the 2023 reporting period.

- On January 5th 2023 there was a forcemain break at 20 Colwill Drive. Porridge Lift Station was shut down in order to slow down the flow in the forcemain for repairs and a vacuum truck was phoned in. The spill began at 08:00 and ended at 15:30 on January 6th 2023. A clamp was installed at 05:00 on January 6th but there was still a slight leak of roughly 1 L/min, the Lift Station was brought back online at this time. Parts arrived and installed at 15:30 on January 6th and was no longer leaking. The flowrate was estimated to be 0.36 m³/minute from 08:00 January 5th until 05:00 January 6th and from 05:00 until 15:30 was 0.001 m³/min. Chlorination of the spill began at 08:15. Grab samples were collected and tested for the parameters of CBOD⁵, Total Suspended Solids and Total Phosphorous. The Algoma Health Unit, MECP and Spills Action Centre were all notified of the spill. The spill volume was estimated to be a total of 454.2 m³ and the spill overflowed into Nordic Creek. The Spill Reference Number for this incident is 1-2FXXJ5.