January 21st, 2025

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 - 2024

Please find attached the 2024 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, 2024 to December 31, 2024.

Please direct any questions or concerns to the undersigned.

Yours truly,

Bart Doyle
Assistant Director of Public Works
City of Elliot Lake

Elliot Lake Wastewater Treatment Plant
2024 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, 2024 to December 31, 2024.

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	5	10	0.25	155,910	25.15	50.3	1.26
February	4	7	0.22	141,942	19.58	34.3	1.08
March	5	8	0.24	192,964	31.12	49.8	1.49
April	4	8	0.27	258,427	34.46	68.9	2.33
May	5	12	0.37	190,267	30.69	73.7	2.27
June	4	8	0.23	149,589	19.94	39.9	1.15
July	4	4	0.19	136,457	17.61	17.6	0.84
August	4	11.2	0.34	133,546	17.23	48.3	1.46
September	4	7.6	0.30	120,353	16.05	30.5	1.20
October	7	9.2	0.53	145,183	32.78	43.1	2.48
November	5	17	0.61	165,610	27.60	93.8	3.37
December	8	16	0.51	182,116	47	94	3
Annual Average	**4.92**	**9.83**	**0.34**	**164,364**	**26.6**	**53.7**	**1.83**

The Total Effluent Flow for the facility during the 2024 operating year was 1,972,364 m^3

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:

- #1 Primary Clarifier inlet valve failed and was replaced on May 2nd. During the process, the main inlet valve for #1 and #2 Primary Clarifier became stuck in the closed position. This resulted in a required isolation of #1 and #2 Primary Clarifier and a need to bypass the flow from the Grit Tanks into #3 Primary Clarifier. The valve was repaired on May 8th and is now operational.

- On March 13th a layer of oil scum was detected within the two Sanitary Lift Stations of No Frills Lift Station and Porridge Lift Station. The oil contamination was contained within the two sanitary lift stations and Clean Harbours was retained for the cleanup. The two sanitary lift stations along with the sanitary lines were cleaned out and the product was stored in frac tanks with an estimated volume of 75m^3. The cleanup was completed on March 22nd 2024.

- On July 10th it was discovered that a manhole was overflowing on Esten Drive North at 09:15. A flushing truck and VAC truck were retained to attempt to clear out the blockage and pumps were setup to divert the flow to another manhole. Staff removed a massive blockage of rocks

and wood from the manhole on July 11th and the sanitary was flowing normal again by 21:15 on July 11th. The spill site was also cleaned up on July 16th.

- On October 10th there was a planned overflow at Horne Lift Station in order to replace the main outlet valve and a pump outlet valve. Ministry approval was obtained prior to this planned overflow. The overflow began at 05:22 and two VAC trucks were onsite in order to mitigate the amount of overflow. The equipment replacement was completed and the overflow stopped at 17:56.

- On July 31st it was discovered that the Primary Digester Heat Exchanger had a leak. The Heat Exchanger was isolated and removed from service. A new Heat Exchanger was purchased and has not yet arrived on site.

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 November of 2024.
- Calibration of instrumentation and analytical devices was tested and inspected by a Cleartech Technician in August of 2024 for a total cost of $2,479.
- Horne Lift Station pump outlet valve replacement for a total cost of $3,944.
- Horne Lift Station main outlet valve replacement for a total cost of $24,731.
- Porridge Lift Station surge valve was rebuilt for a total cost of $1,715.
- #1 Primary Clarifier inlet valve replacement for a total cost of $22,045.
- Valves were replaced for the Digester recirculation and transfer system for a total cost of $10,134.
- North Lift Station pump repair for a total cost of $15,968.
- Annual Diesel Load Test.
- Boiler replacement at the Wastewater Treatment Plant for a total cost of $247,912 plus installation cost of $ 63,535.
- A new heat exchanger was purchased for the Wastewater Treatment Plant for a total cost of $98,649.
- Secondary Digester cleanout for a total cost of $116,308.
- Oil contamination clean up at the No Frills and Porridge Lift Stations for a total cost of $181,487.

d) Quality Assurance, Quality Control Measures:

The majority of the process analysis for the facility is completed 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 BOD_5 and $CBOD_5$ 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	69.2	21.7	0.33 mg/L
June	13	5.3	0.24 mg/L
July	776.2	69.3	0.24 mg/L
August	35.9	6.3	0.10 mg/L
September	79.7	9.5	0.08 mg/L
October	3191.7	83.3	0.06 mg/L

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	463.6	0	0	8.5
February	370.9	0	0	6.9
March	370.9	0	0	8.2
April	370.9	0	0	10.6
May	432.7	0	0	9.5
June	343.9	0	0	8.7
July	463.6	0	0	10.4
August	309.1	0	0	8.7
September	884.5	0	0	8.6
October	154.5	0	0	11.0
November	401.8	0	0	10.1
December	293.6	0	0	11.1
Annual Total	**2596.4**	**0**	**0**	**112.3**

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 2024 reporting period.

- On March 13th 2024 a layer of oil scum was detected within the two Sanitary Lift Stations of No Frills Lift Station and Porridge Lift Station. The Algoma Public Health Unit, Spills Action Centre and MECP were notified. The oil contamination was contained within the two sanitary lift stations and Clean Harbours was retained for the cleanup. The two sanitary lift stations along with the sanitary lines were cleaned out and the product was stored in frac tanks with an estimated volume of 75m^3. The cleanup was completed on March 22nd 2024 and the Spill Reference Number for this incident is 1-4YNCO2.

- On July 9th 2024 the check valve failed on #2 pump at Horne Lift Station resulting in an overflow at the station. The pump was shut down and isolated in order for repairs to take place. The Algoma Public Health Unit, Spills Action Centre and MECP were notified. The duration of the spill was 5 minutes beginning at 18:45 and ending at 18:50 with an estimated volume of 8m^3. The spill was not chlorinated and grab samples were not collected due to the short duration of the spill. The Spill Reference Number for this incident is 1-8RM350

- On July 10th 2024 it was discovered that a manhole was overflowing on Esten Drive North at 09:15. Samples were collected and chlorination of the spill commenced within the hour of discovery. The Algoma Public Health Unit, Spills Action Centre and MECP were notified. A flushing truck and VAC truck were retained to attempt to clear out the blockage and pumps were setup to divert the flow to another manhole. Staff removed a massive blockage of rocks and wood from the manhole on July 11th 2024 and the sanitary was flowing normal again by 21:15 on July 11th 2024. The MECP attended the spill location the following day and a monitoring plan was put together regarding a vigorous sample plan for the following month. The spill site was also cleaned up on July 16th 2024. The estimated total volume of the spill was 5,673.6m^3 and the Spill Reference Number for this incident is 1-8SM3L4.

- On September 24th 2024 the hydraulic check valve failed on #1 pump at the Horne Lift Station. The station began overflowing at 09:00 and chlorination also began at this time. Grab samples were also collected at 09:27. The entire station had to be shut down in order for repairs to be made. The Algoma Public Health Unit, Spills Action Centre and MECP were notified. Repairs were completed and the station was back online at 11:50, resulting in a total spill duration of 170 minutes and a total volume estimated of 289m^3. The Spill Reference Number for this incident is 1-B9C1KY.

- On September 24th 2024 the manhole at 80 Hillside Drive North began overflowing at 15:00. Chlorination of the spill began at 15:25 and grab samples were collected at 17:20. A VAC truck was retained to mitigate the spill and a pump was setup to transfer the flow to another manhole. The Algoma Public Health Unit, Spills Action Centre and MECP were notified. The sanitary line had a blockage of roots and rocks that were removed. The total spill duration was 3 hours with a final volume estimated of 54m^3. The Spill Reference Number for this incident is 1-BAGHUV.

- On October 10th 2024 there was a planned overflow at Horne Lift Station in order to replace equipment. Ministry approval was obtained prior to this planned overflow. The overflow began at 05:22, chlorination began at 05:30 and grab samples were collected at 05:50. The Algoma Public Health Unit, Spills Action Centre and MECP were notified. Two VAC trucks

were onsite in order to mitigate the amount of overflow. The equipment replacement was completed and the overflow stopped at 17:56 resulting in a total spill duration of 12.5 hours with a final spill volume estimated of 940.85m^3.