



February 14, 2022

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 - 2021**

Please find attached the 2021 Annual Report for the Elliot Lake Wastewater Treatment Plant. This report has been prepared in accordance to the guidelines set out in Condition 10<sub>(5)</sub> of Facility Certificate of Approval Number 5239-5GXSMK.

This report covers the period from January 1, 2021 to December 31, 2021.

Please direct any questions or concerns to the undersigned.

Yours truly,

A handwritten signature in black ink, appearing to read "Daryl Halloch", is written over a large, faint watermark of the City of Elliot Lake logo.

Daryl Halloch  
*Director of Public Works*  
City of Elliot Lake

# Elliot Lake Wastewater Treatment Plant 2021 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<sub>(5)</sub> of the Certificate of Approval and covers the reporting period from January 1, 2020 to December 31, 2020.

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	Total Suspended Solids	Total Phosphorus	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	6	15	0.67	173,051	33.5	83.7	3.7
February	12	18	0.64	175,641	75.3	112.9	4.0
March	15	14	0.49	223,974	108.4	101.1	3.5
April	11	19	0.68	215,711	79.1	136.6	4.9
May	8	10	0.61	210,789	54.4	70	4.1
June	3	7	0.52	179,938	18	42	3.1
July	2	5	0.39	191,166	12.3	30.8	2.4
August	2	10	0.40	211,911	13.7	68.4	2.7
September	2	9	0.49	172,162	11.5	51.6	2.8
October	5	9	0.53	181,684	29.3	52.7	3.1
November	5	10	0.55	164,774	27.5	54.9	3.0
December	4	10	0.51	197,045	25.4	63.6	3.2
Annual Average	6.25	11.33	0.54	191,487	40.7	72.4	3.38

The Total Effluent Flow for the facility during the 2021 operating year was 2,297,846 m<sup>3</sup>

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 July of 2021.
- Calibration of instrumentation and analytical devices was tested and inspected by a Cleartech Technician.
- Spare pump for Horne Lift Station \$48,000.
- Annual boiler inspection \$11,000
- Annual diesel load test \$3500

### **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 BOD<sub>5</sub> and CBOD<sub>5</sub> 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	2924.4	39.6	0.05 mg/L
June	28988.3	3588.7	0.09 mg/L
July	33083	631.6	0.04 mg/L
August	17739.4	67	0.05 mg/L
September	15010	54.8	0.04 mg/L
October	8875.6	69.7	0.04 mg/L

The week of June 29<sup>th</sup> 2021 there was no Final Effluent sample collected. The MECP was notified of this incident.

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	216.4	0	0	6.87
February	370.9	0	0	7.36
March	340	0	0	10.11
April	324.5	0	0	8.83
May	309.1	0	0	7.61
June	432.7	16.4	0	7.85
July	355.5	35.9	1.6	6.97
August	386.4	0	0	9.52
September	386.4	0	0	7.66
October	417.3	1467.6	0.4	7.51
November	370.9	2.2	0	6.18
December	401.8	411.5	0	8.83
<b>Annual Total</b>	<b>4311.9</b>	<b>1933.6</b>	<b>2</b>	<b>95.30</b>

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 were six abnormal discharge events within the City of Elliot Lake Sewage Works for the 2021 reporting period.

- On June 1<sup>st</sup> 2021 there was a loss of power at the Horne Lift Station. This was due to the replacement of the backup diesel generator transfer switch. The spill began at 10:20 and there was a vacuum truck on site to assist but it could not keep up to the inflow. The flowrate was estimated to be roughly 1.8m<sup>3</sup>/min. Chlorination of the spill began at 10:20, grab samples were collected and tested for the parameters of CBOD<sup>5</sup>, Total Suspended Solids and Total Phosphorous. The Algoma Health Unit, MECP and Spills Action Centre were all notified of the spill. The new transfer switch was installed at 11:40 and the spill ended at 11:50. The spill volume was estimated to be a total of 162m<sup>3</sup> and the spill overflowed into Horne Lake. The Spill Reference Number for this incident is 1-H67G8.
- On June 16<sup>th</sup> 2021 there was an overflow at the Lakeview Lift Station. This occurred due to flushing of a watermain after repairing a break. The spill began at 17:15 and ended at 17:30 once the Distribution System Operator discontinued the watermain flushing. The flowrate was estimated to be roughly 0.08m<sup>3</sup>/min. Chlorination of the spill began at 17:15 as there were already pucks in place. Grab samples were not collected and tested for the parameters of CBOD<sup>5</sup>, Total Suspended Solids and Total Phosphorous due to the brief duration of the spill, although the free chlorine residual of the water entering the system from flushing was 0.43mg/L. 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 1.2m<sup>3</sup> and the spill overflowed into Elliot Lake. The Spill Reference Number for this incident is 1-IKR2W.
- On July 11<sup>th</sup> 2021 there was an overflow detected from a manhole located in front of 290 Hillside Drive South. This occurred due to a blockage. The spill began at 22:40 and ended at roughly 23:00 which is when the Operator arrived onsite and it was no longer overflowing. Chlorination of the spill began at 23:15. Grab samples were not collected and tested for the parameters of CBOD<sup>5</sup>, Total Suspended Solids and Total Phosphorous due to the brief duration of the spill and the lack of volume present in order to collect samples. 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 15L and the spill overflowed onto the road. The blockage was removed on July 12<sup>th</sup> 2021. The Spill Reference Number for this incident is 1-IKR2W.
- On August 12<sup>th</sup> 2021 there was a loss of power at the Porridge Lift Station and the backup diesel generator failed to start. The spill began at 19:00 and ended at 22:05 when the backup diesel generator was operational again. The flowrate was estimated to be roughly 0.36m<sup>3</sup>/min. Chlorination of the spill began at 20:00, grab samples were collected and tested for the parameters of CBOD<sup>5</sup>, 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 66.6m<sup>3</sup> and the spill overflowed into a swamp which flows into Nordic Lake. The Spill Reference Number for this incident is 1-134BVD.

- On August 12<sup>th</sup> 2021 there was a loss of power at the No Frills Lift Station. The spill began at 19:00 and ended at 22:05 when Hydro was restored. There was a vacuum truck onsite and the Lift Station flowrate was estimated to be roughly 0.22m<sup>3</sup>/min. Chlorination of the spill began at 19:00, grab samples were collected and tested for the parameters of CBOD<sup>5</sup>, 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 10.7m<sup>3</sup> as the vacuum truck removed 30m<sup>3</sup>. The spill overflowed into the old Lift Station beside No Frills which flows into a swamp/creek behind No Frills. The Spill Reference Number for this incident is 1-135226.
- On August 12<sup>th</sup> 2021 there was a loss of power at the Lakeview Lift Station. The spill began at 19:20 and ended at 21:25 when Hydro was restored. The flowrate was estimated to be roughly 0.07m<sup>3</sup>/min. Chlorination of the spill began at 19:20, grab samples were collected and tested for the parameters of CBOD<sup>5</sup>, 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 8.75m<sup>3</sup>. The spill overflowed into Elliot Lake. The Spill Reference Number for this incident is 1-13921F.

