

March 15th, 2021

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 - 2020

Please find attached, the 2020 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, 2020 to December 31, 2020.

Please direct any questions or concerns to the undersigned.

Yours truly,

A handwritten signature in black ink, appearing to read "Daryl Halloch".

Daryl Halloch
Director of Public Works
City of Elliot Lake

Elliot Lake Wastewater Treatment Plant 2020 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, 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	9	18	0.61	211,710	61.5	122.9	4.2
February	16	15	0.54	201,285	111.1	104.1	3.7
March	2	20	0.64	290,724	18.8	187.6	6
April	12	15	0.80	379,260	151.7	189.6	10.1
May	14	13	0.85	267,754	120.9	112.3	7.3
June	9	18	0.85	207,707	62.3	124.6	5.9
July	2	10	0.51	220,091	14.2	71	3.6
August	3	8	0.39	199,126	19.3	51.4	2.5
September	2	8	0.47	231,303	15.4	61.7	3.6
October	11	10	0.71	266,755	94.7	86.1	6.1
November	16	21	0.45	270,338	144.2	189.2	4.1
December	9	20	0.86	208,613	60.6	134.6	5.8
Annual Average	9	15	0.64	246,222	72.9	119.6	5.2

The total flow for the facility for the 2020 operating year was 2,954,666 cubic meters

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:

- During the months of April and May, the Waste Water Plant received higher than normal flow due to snow melt and heavy precipitation. This affected the process as the operations staff adjusted wasting times and pumping volumes. The volume of water was double the normal flow rate which in turn caused the process to become diluted. There were no adverse conditions caused by this event.

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 maintenance performed during this reporting period include:

- Backflow preventers throughout sewage system were tested and inspected by OCWA in July of 2020.
- Calibration of instrumentation and analytical devices was tested and inspected by a HACH technician.
- The mechanical Bar Screen was replaced in March with a smaller configuration of the rakes. It is part of the primary filtration and typically is the first level of filtration being installed at the influent to a wastewater treatment plant. \$12,000
- A new Flyght mixer was installed at the Washington Lift Station. Cost of \$4500
- Horne lift station received new 12 inch wedge gate effluent valves. Cost was \$3500
- After the refurbishment of the influent screw pumps, staff installed new motors, bearings and couplings on the drive end of the screw. Cost of \$17,000

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 CBOD are sent to an accredited laboratory for analysis. Plant process is further tracked through the use of an on-line turbidity analyser which is monitored daily.

e) – Calibration and Maintenance of Effluent Monitoring Equipment:

The effluent turbidity analyzer and the analytical equipment used in the lab are tested and verified monthly by the Operations staff. The analytical equipment in the laboratory is calibrated annually. Calibration reports are attached.

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;

Month	Geometric Mean - Total Coliform	Geometric Mean - E-Coli
May	3,274.7	45.2
June	11,184.5	26
July	2,030.6	11.6
August	4,655.8	86.8
September	291.5	1.9
October	1,332.2	13.9

The E-Coli results for September included a zero (0) value. With respect to the geometric mean formula, the zero (0) values were replaced with a one (1) for calculation purposes. This is a Ministry of Environment and Climate Change approved method.

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	247.3	0	0	11.34
February	262.7	0	0	10.3
March	231.8	0	0	11.68
April	324.5	0	0	10.06
May	340	0	0	8.69
June	401.8	0	0	8.49
July	370.9	0	0	8.34
August	262.7	0	0	7.12
September	340	0	0	4.86
October	309.1	0	0	2.90
November	123.6	0	0	5.69
December	432.7	0	0	9.23
Annual Total	3,647.1	0	0	98.7

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 were ten abnormal discharge events within the city sewage works.

- On January 7th 2020 there was a sewage pipe break discovered at 10:30 at the 3C Timber Road North Lift Station. The spill was coming out of the ground beside the Lift Station and ran across the parking lot and into Elliot Lake. The spill was chlorinated at 11:00 and the flowrate was estimated to be 0.01 m³/min. The Algoma Health Unit, MECP and Spills Action Centre were all notified of the spill. It was the 4 inch pipe on the outlet side of the Lift Station that was broken. On January 8th 2020 it was dug up and repaired by 17:00. The spill volume was estimated to be a total of 18 m³. The Spill Reference Number is 3045-BKLRYJ.
- On April 8th 2020 there was an Overflow at the No Frills Lift Station. The spill began at 19:45 and chlorination also began at 19:45. The Overflow was due to a Hydro Outage which began at 17:00. There was already a pumper truck onsite due to the Hydro Outage but it could not keep up to the higher than normal flow from snow melt. The chlorine pucks were already in place in case of an Overflow. The spill overflows to the old lift station beside No Frills and then to a catch basin which flows into a creek behind No Frills. The spill ended at 19:50 when Hydro was restored and the pumps were turned back on. The final spill volume was estimated to be a total of 2 m³. The Algoma Health Unit, MECP and Spills Action Centre were notified. The Spill Reference Number is 3505-BNH2PT.
- On April 20th 2020 at 19:03 there was a sewage spill on the corner of Poplar and Lakeview due to the sewage forcemain being struck during a watermain break dig. The pumps were shut off at the North Lift Station at 19:20 and the spill was contained within the hole. The spill volume was estimated to be 3.7 m³. A pumper truck was called in to pump the sewage out of the hole and at the North Lift Station. All the contaminated soil was brought to the Landfill. The sewage forcemain was repaired at 21:11 and grab samples were taken from the North Lift Station on April 21st 2020. The Algoma Health Unit, MECP and Spills Action Centre were notified. The Spill Reference Number is 1614-BNV3X7.
- On July 11th 2020 at 19:00 there was a spill discovered across from 42 Paris due to a broken sewage forcemain. The flowrate was roughly 0.01 m³/min and was running into a catch basin down the road. There was a small hole dug for chlorination to be put in place and chlorination began at 19:20. Barricades were set up around the spill. On July 13th 2020 the spill was dug up

and the sewage forcemain repairs were completed at 13:55. Grab samples were taken on July 13th 2020. The final spill volume was estimated to be a total of 25.8 m³. The Algoma Health Unit, MECP and Spills Action Centre were notified. The Spill Reference Number is 7751-BREW34.

- On August 12th 2020 at 14:00 there was a spill discovered on the corner on Hergott and Esten South. There was no flow, only a small puddle. This was assumed to be a possible sewage forcemain break. The spill was chlorinated at 14:20. The sewage forcemain was repaired on August 25th 2020 at 18:30 and caused a new spill (Spill Reference Number 5811-BSTLG4). The Algoma Health Unit, MECP and Spills Action Centre were notified. The Spill Reference Number is 0652-BSEQC8.
- On August 25th 2020 at 11:23 there was an overflow at Porridge Lift Station at 2 College Place. The pumps were shut off at the lift station so repairs could take place for the sewage forcemain break on Hergott. Chlorination of the spill began at 11:23 and the estimated volume of the spill was 0.1 m³/min. Two pumper trucks were onsite to pump down the wetwell and grab samples were taken. The pumps were turned back on once the sewage forcemain was repaired at 18:30 and the spill stopped overflowing at 18:55. The final spill volume was estimated to be a total of 45.2 m³. The Algoma Health Unit, MECP and Spills Action Centre were notified. The Spill Reference Number is 5811-BSTLG4.
- On August 27th 2020 at 08:30 there was an overflow at the Lakeview Lift Station at 53 Lakeview. The spill was chlorinated at 08:30, the estimated flowrate was 0.07 m³/min and was caused by a contractor pumping excess rain water into a manhole. The spill overflows into Elliot Lake. Grab samples were collected on August 27th 2020 and the spill ended at 09:10. The final spill volume was estimated to be a total of 2.8 m³. The Algoma Health Unit, MECP and Spills Action Centre were notified. The Spill Reference Number is 1750-BSVKDW.
- On October 7th 2020 at 09:45 there was a planned Bypass of Horne Lift Station. The bypass was required in order to replace the hydraulic check valve on #1 pump and written approval was obtained from the MECP. Chlorination of the spill began at 09:45 and the estimated flowrate was 1.7 m³/min. The spill overflows into Horne Lake. Grab samples were collected on October 7th 2020 and the spill ended at 14:00. The final spill volume was estimated to be a total of 433.5 m³. The Algoma Health Unit, MECP and Spills Action Centre were notified. The Spill Reference Number is 1270-BU6K7H.
- On October 23rd 2020 at 03:20 there was an overflow at Lakeview Lift Station. Chlorination of the spill began at 03:20; the estimated flowrate was 0.11 m³/min and was caused by heavy rainfall. The spill overflows into Elliot Lake. Grab samples were collected on October 23rd 2020 and the spill ended at 11:15. The final spill volume was estimated to be a total of 52.25 m³. The Algoma Health Unit, MECP and Spills Action Centre were notified. The Spill Reference Number is 904821.
- On October 23rd 2020 at 03:30 there was an overflow at Horne Lift Station. Chlorination of the spill began at 03:30; the estimated flowrate was 2.5 m³/min and was caused by heavy rainfall. The spill overflows into Horne Lake. Grab samples were collected on October 23rd 2020 and the spill ended at 11:15. The final spill volume was estimated to be a total of 1162.5 m³. The Algoma Health Unit, MECP and Spills Action Centre were notified. The Spill Reference Number is 904822.