January 22, 2020

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 - 2019

Please find attached, the 2019 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, 2019 to December 31, 2019.

Please direct any questions or concerns to the undersigned.

Yours truly,

Daryl Halloch
Director of Public Works
City of Elliot Lake

Elliot Lake Wastewater Treatment Plant
2019 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, 2019 to December 31, 2019.

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	11	0.41	194,623	56.5	69.1	2.6
February	8	11	0.53	218,362	62.4	85.8	4.1
March	4	16	0.48	230,290	29.7	118.9	3.7
April	12	14	0.32	472,722	189.1	220.6	5.0
May	3	17	0.45	321,568	31.1	176.3	4.7
June	4	19	0.52	222,439	29.7	140.9	3.9
July	8	17	0.47	223,535	57.7	122.6	3.4
August	7	16	0.64	169,936	38.4	87.7	3.5
September	2	7	0.42	189,845	12.7	44.3	2.7
October	5	10	0.44	294,050	47.4	94.9	4.2
November	15	21	0.72	257,017	128.5	179.9	6.2
December	19	20	0.83	263,375	161.4	169.9	7.1
Annual Average	**8**	**15**	**0.52**	**254,814**	**70.4**	**125.9**	**4.3**

The total flow for the facility for the 2019 operating year was 3,057,762 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 2019.
- Calibration of instrumentation and analytical devices was tested and inspected by a HACH technician.
- The influent screw pumps along with the return screw pumps were removed for rehabilitation. This involved removing each screw and install new sealed upper and lower bearings and relining of the screw trough and parging of the walls. This increase the efficiency of the pumps by 50%. The work started in May and was completed by October.

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_5 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	18,190.1	158.6
June	1,664.7	4.1
July	3,279.4	10.4
August	11,717.2	28
September	3,097	9.3
October	34,988.3	155.6

The E-Coli results for June and July included zero (0) values. With respect to the geometric mean formula, these 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	325	0	0	8.9
February	139	0	0	8.44
March	263	0	0	8.15
April	108.2	0	0	9.03
May	200.9	0	0	8.74
June	185.5	0	0	7.85
July	293.6	0	0	9.23
August	278.2	0	0	8.29
September	185.5	0	0	4.86
October	386.4	0	0	8.44
November	139.1	0	0	7.6
December	185.5	0	0	10.11
Annual Total	**2,689.9**	**0**	**0**	**99.64**

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 three abnormal discharge events within the city sewage works and all of them involved equipment failure.

- On Monday April 29th 2019 there was an Overflow discovered behind 127 Spruce. The Overflow was coming out of a manhole due to a blockage in the sewer pipe. The spill was discovered at 14:55 and was chlorinated at 15:00. Barricades were also set up around the spill area and a contractor was phoned to remove the blockage. Spills Action Centre and the Algoma Health Unit were notified (Reference Number: 6533-BBPRPJ) at approximately 16:18. The Health Unit requested that two sets of samples be taken at the beach since this is where the overflow was entering. They requested that four samples be taken for each set at 10 feet left of point of entry, 10 feet right of point of entry, 100 feet left of point of entry and 100 feet right of point of entry. The blockage was removed at 20:40 and 4 Seasons Septic Services cleaned up the spill area the following day at 09:00. The samples were obtained on Tuesday April 30th 2019 and Wednesday May 1st 2019 and when the results returned they were relayed to the Algoma Health Unit who gave the all clear to reopen the beach for use on Monday May 6th 2019. The spill was estimated to be a total of 54.4 m^3.