February 6, 2019

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 - 2018

Please find attached, the 2018 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, 2018 to December 31, 2018.

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
2018 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, 2018 to December 31, 2018.

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	5	11	0.27	231,458	37.3	82.1	2.0
February	6	12	0.29	176,909	37.9	75.8	1.8
March	6	16	0.26	176,057	34.1	90.9	1.5
April	11	16	0.32	256,053	93.9	136.6	2.7
May	3	12	0.26	267,050	25.8	103.4	2.2
June	4	11	0.33	168,600	22.5	61.8	1.9
July	2	9	0.28	166,449	10.7	48.3	1.5
August	4	6	0.17	154,067	19.7	29.8	0.8
September	4	9	0.46	151,633	20.2	45.5	2.3
October	2	15	0.43	248,177	16.0	120.1	3.4
November	4	10	0.44	210,825	28.1	70.3	3.1
December	4	11	0.40	204,463	26.4	72.6	2.6
Annual Average	**4.6**	**12**	**0.33**	**200,978**	**31.1**	**78.1**	**2.2**

The total flow for the facility for the 2018 operating year was 2,411,741 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:

- On March 12th 2018, the bar screen rake broke away from the rack and jammed in the influent channel. The influent had to be diverted around the mechanical bar screen and waste was to be manually removed until repaired. The rack and rake were removed and welded together until a new one was ordered. The bar screen was repaired and back in service on March 15th 2018. There were no compliance issues or concerns.

- On August 4th 2018, the upper bearing on #2 screw pump failed causing damage to the housing and seat. City maintenance mechanics repaired the seat and installed a new bearing. There were no compliance issues or concerns regarding this matter.

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 on August 7th and 8th 2018.
- Calibration of instrumentation and analytical devices was tested and inspected by a HACH technician.
- The second alum tank that was out of commission was refurbished for approximately $35,000. This will allow for additional chemical to be stored and available for use.

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	371.3	4.1
June	697.1	4.2
July	286	3.1
August	483.6	3.0
September	284.2	8.8
October	545.7	1.5

The E-Coli results for August, September and October 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	278	0	0	9.6
February	464	2257	0	9.2
March	386	0	0	11.7
April	464	0	0	11
May	417	527	0	11.8
June	386	0	0	10.2
July	464	533	0	10.8
August	355	900	0	12.2
September	324.5	302	0	10.8
October	510	166.4	0	12.2
November	371	177.6	0	10.8
December	216	0	0	11.8
Annual Total	**4,635.5**	**4863**	**0**	**132.1**

All waste sludge is hauled under contract from the wastewater treatment facility to Waste Disposal Site No. A560812. The current sludge haulage contractor is Four Seasons Septic 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 May 28th 2018, an inlet pipe had been blocked and sewage from surrounding area had overflowed from a catch basin. Four Seasons Septic had been called to draw down the catch basin while the line was unplugged. The Algoma Health Unit had been informed and requested that we sample beach areas at varying depths and distances from entry. Additionally, the beach was closed and signage and radio announcements were put out to inform the public. Approximately 277 m^3 of sewage spilled.

- On September 9th, 2018 a power outage occurred. The call centre notified Operations staff of a high level. This was reported to Spills Action along with the Algoma Health Unit. The approximate volume of sewage spilled was 3.25 m^3.

- On November 11th, 2018 a clamp broke on a discharge pipe at North Lift Station. An overflow of approximately 13 m^3 occurred at the station. Spills Action and the Algoma Health Unit were notified.