January 30, 2019

The Mayor and Members of Council
City of Elliot Lake
Municipal Office
45 Hillside Drive North
Elliot Lake, Ontario P5A 1X5

ATTENTION: Mayor and Members of Council

RE: ELLIOT LAKE WATER TREATMENT PLANT SUMMARY REPORT FOR MUNICIPALITIES: Municipal Large Residential

Your Worship Mayor Marchisella and Members of Council:

Please find attached, the 2018 Summary Report for the Elliot Lake Water Treatment Plant. This report has been prepared in accordance to the guidelines set out in Schedule 22 of the Safe Drinking Water Act, 2002 (Ontario Regulation 170/03).

The 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

Elliot Lake Water Treatment Plant
2018 Summary Report

The purpose of this report is to summarize water quality and quantity data pertaining to the Elliot Lake Water Treatment Plant.

This report is prepared in accordance with Schedule 22 of Regulation 170/03 of Ontario's Safe Drinking Water Act and covers the reporting period from January 1, 2018 to December 31, 2018.

The report contains the following information:

- A summary of the quantities and flow rates of the water supplied including a monthly average and maximum daily flows.

- A comparison of the peak flows and capacities to the rated capacities referenced in the drinking water works permit and municipal drinking water licence.

- A listing of all requirements of the Act, the Regulations, the systems Drinking Water Permit and Licence, and applicable system approvals that the system failed to meet during the period covered by the report. This includes any measures taken to mitigate the failure and the duration of the incident.

- Terms and conditions identified in the Act, relevant regulations, drinking water permit, and municipal drinking water licence.

Under the Regulation, this report must be provided to Members of Municipal Council not later than March 31st of each calendar year.

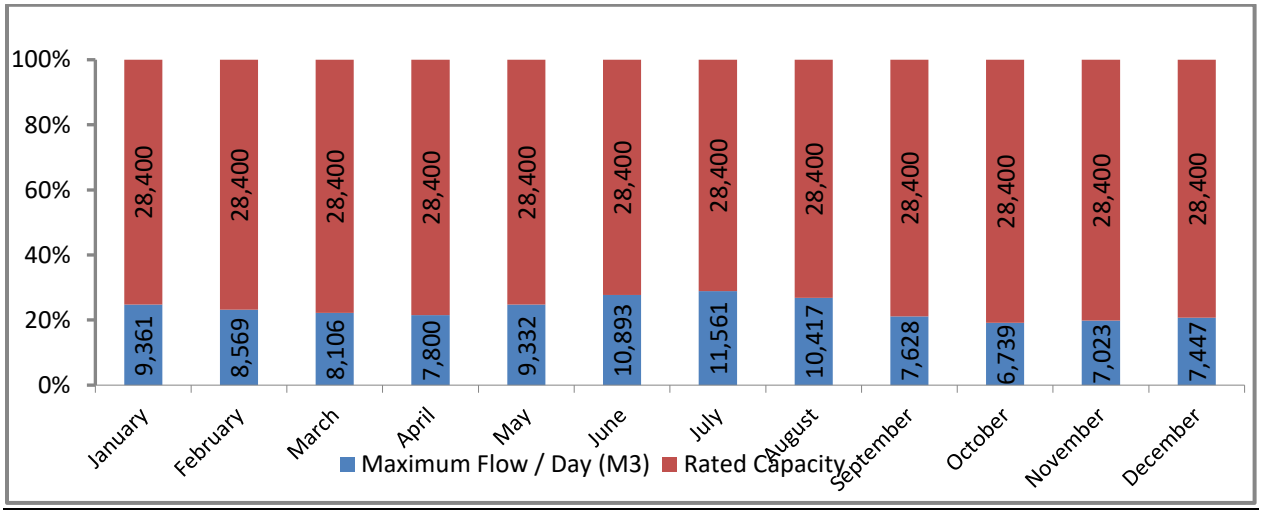
Upon approval by Council, the report is posted on the City of Elliot Lake website and can be found at the following link: *http://www.cityofelliotlake.com/en/cityhall/operationsreports.asp*

Annual Quantities and Flow Rates:

MONTH	Minimum Flow / Day (M^3)	Maximum Flow / Day (M^3)	Average Flow / Day (M^3)	Instantaneous Peak flow (l/s)	Total Flow (M^3)
January	5,862	9,361	7,699	176.32	251,632
February	6,459	8,569	7,216	178.35	213,139
March	5,617	8,106	6,767	180.48	221,809
April	4,975	7,800	6,467	177.25	206,231
May	4,269	9,332	6,470	186.32	211,669
June	4,900	10,893	7,405	174.86	233,467
July	5,398	11,561	8,294	162.81	273,073
August	4,642	10,417	7,111	149.10	233,477
September	4,163	7,628	5,920	166.18	188,085
October	4,809	6,739	5,741	199.21	187,793
November	4,736	7,023	6,098	164.94	192,428
December	5,332	7,447	6,587	166.83	213,972
Minimum	4,163	6,739	5,741	149.10	187,793
Maximum	6,459	11,561	8,294	199.21	273,073
Average	5,097	8,740	6,815	173.55	218,898
				Total Flow for 2018	**2,626,774**

Annual quantities and flow rates are outlined in the table above.

Comparison of Maximum Daily Flow to Rated Capacity 2018



As noted in the graph above, the maximum rated capacity of **28,400** m^3/day (as identified in the facility's Municipal Drinking Water Licence) was not exceeded for the period of this report.

Regulatory Inspection

The Ministry of Environment and Climate Change did not complete a facility inspection in 2018.

Compliance Report

Section 18 of the Safe Drinking Water Act requires the system operator to report adverse test results or conditions immediately after the result is obtained or situation identified.

A test result is considered adverse when the sample being tested fails to meet the prescribed drinking water standards. Limits for all parameters being tested under the Acts and Regulations are identified under the various Regulations associated with the Safe Drinking Water Act, 2002.

Adverse test results must be identified in the Summary Report.

Situations involving the depressurization of any portion of the distribution system for repair of a watermain can be deemed as an adverse event due to the potential for contamination through back siphonage or pressurized backflow. These incidents are included in the list of adverse events. They are indicated as evidence of best practice on the part of the Public Works Department.

There were 4 instances in 2018 where reports were made to the Health Unit and Spills Action Centre in accordance with Section 18 of the Safe Drinking Water Act.

Corrective Action:

When repairs or maintenance are carried out on the distribution system and they require complete depressurization of any part of the system, the Algoma Health Unit is notified. This scenario is considered to be a “failure of mechanical containment”, which can potentially lead to contamination through back siphonage or pressurized backflow.

These situations are treated as an adverse incident by the Algoma Health Unit, and either a Boil Water Advisory or Drinking Water Advisory is issued in order to protect the consumer from potential risks. Boil Water Advisories are issued when the risk to the system is deemed to be bacteriological in nature, whereas a Drinking Water Advisory is issued in situations where the Health Unit is concerned with physical, chemical, or organic contamination.

Following the repair, flushing is undertaken to restore water quality. Once flushing is completed, two consecutive sets of bacteriological tests are taken 24 hours apart. If the test results meet the required parameters, the advisory is lifted.

In situations where bacteriological counts are detected during sampling, the Algoma Health Unit and Spills Action Center are notified. Typically, a Boil Water Advisory is issued and remains in place until two consecutive sets of bacteriological tests are taken, at 24 hour intervals. If the test results meet the required parameters, the advisory is lifted.

Adverse Water Quality Incidents:

Incident Date	Parameter	Results	Unit of Measure	Corrective Action	Corrective Action Date
Feb-12-18	Water Main Repair	Pressure Loss	PSI	Boil Water Advisory Flush and sample	Feb-16-18
May-30-18	Sample result – Microbiological	1 Total Coliform	CFU/100 ml	Re-sample Residence	June-04-18
Nov-29-18	Sample result – Microbiological	Pressure Loss	PSI	Boil Water Advisory Flush and Sample	Dec-03-18
Dec-06-18	Sample result – Microbiological	2 Total Coliform	CFU/100 ml	Re-sample Residence	Dec-10-18

Identified Terms and Conditions

Performance:

The Elliot Lake Water Treatment Plant meets the requirement of the Ontario "Drinking Water Standards." Disinfection of treated water is achieved as per Ministry Procedure B13-3. Required CT was continuously monitored and met at all times ensuring appropriate levels of disinfection were attained.

Backwash water discharge suspended solids were monitored with an average of **14.2 mg/l** which is below the required **25 mg/l** annual average.

Monitoring and Recording:

Flow meters, chlorine analyzers and turbidimeters are calibrated per manufacturer's specifications. Third party certification is secured on an annual basis as a quality assurance and quality control measure.

Operations and Maintenance:

Maintenance of the water treatment plant is conducted, monitored, documented, and controlled through a preventive maintenance program. All operators are certified with at least one operator certified at the designated level of the facility. All treatment chemicals meet A.W.W.A. (American Water Works Association) and ANSI / NSF 60 quality criteria for drinking water.

Process Parameters:

The following are the chemicals used and dosage rates:

- Polyaluminum Chloride (PAC) => 31.53 mg/l
- Hydrofluorosilicic Acid => 3.18 mg/l
- Chlorine => 2.7 mg/l
- Hydrated Lime => 5.80 mg/l

Drinking Water Quality Management System

The Quality Management System (QMS) consists of an Operational Plan. The Operational Plan defines and documents various policies and procedures with respect to water quality management. These policies and procedures were established to meet the Province of Ontario's standards as identified within the Safe Drinking Water Act.

The Internal and Managerial Reviews along with a SAI-Global on-site Audit were all completed in 2018 as per the requirements outlined in the Operational Plan found in the Drinking Water Quality Management System.

Documentation:

Contingency plans, the Facility Operations Manual, Standard Operating Procedures and the Drinking Water Quality Management Standard are documents which will provide guidance in the event of an emergency, upset condition or breakdown. These documents are located in the office at the water treatment facility. Detailed drawings of the facility are centrally located in the Operational Control Room.