

January 9, 2014

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



ATTENTION: Mayor and Member of Council

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

Your Worship Mayor Hamilton and Members of Council:

Please find attached, the 2013 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, 2013 to December 31, 2013.

Please direct any questions or concerns to the undersigned.

Yours truly,

A handwritten signature in black ink, appearing to be "Sean McGhee". The signature is fluid and somewhat abstract, with a long horizontal stroke extending to the right.

Sean McGhee
Manager of Environmental Services

Elliot Lake Water Treatment Plant 2013 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, 2013 to December 31, 2013.

This report contains the following information:

- A summary of the quantities and flow rates of the water supplied including 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 license.
- A listing of all requirements of the Act or any regulatory requirement 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.

Annual Quantities and Flow Rates:

MONTH	Minimum Flow / Day	Maximum Flow / Day	Average Flow / Day	Total Flow	Instantaneous Peak flow
	(m ³)	(m ³)	(m ³)	(m ³)	(m ³)
JANUARY	7,385	9,002	8,296	265,042	20,660
FEBRUARY	8,005	10,279	8,277	238,445	20,683
MARCH	7,988	9,685	8,521	270,137	19,704
APRIL	7,692	8,922	8,220	252,484	13,683
MAY	7,268	9,252	8,114	259,651	20,660
JUNE	6,562	9,580	7,156	220,384	15,342
JULY	5,381	12,941	7,954	252,992	20,683
AUGUST	4,934	8,120	6,284	199,273	12,029
SEPTEMBER	4,964	6,074	5,447	167,215	11,846
OCTOBER	4,669	5,945	5,270	167,837	20,658
NOVEMBER	4,718	6,067	5,414	166,719	11,833
DECEMBER	5,303	6,536	5,978	189,704	12,338
TOTAL				2,649,883	

NOTE: The maximum rated capacity of **28,400** m³/day as specified in the facility's Municipal Drinking Water License was not exceeded for the period of this report.

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.

An adverse test result constitutes a parameter failing to meet, at a minimum, the requirements of the prescribed drinking water standards established for that parameter, under the Ontario Drinking Water Standards. 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 are also 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 16 instances in 2013 where reports were made to the Spills Action Centre in accordance with Section 18 of the Safe Drinking Water Act.

Adverse Water Quality Incidents:

INCIDENT DATE	PARAMETER	RESULTS	UNIT OF MEASURE	CORRECTIVE ACTION	CORRECTIVE ACTION DATE
02-Jan-13	Watermain Repair	Pressure Loss	p.s.i.	Boil Water Advisory - flush - resample	02-Jan-13
08-Jan-13	Watermain Repair	Pressure Loss	p.s.i.	Boil Water Advisory - flush - resample	08-Jan-13
18-Jan-13	Watermain Repair	Pressure Loss	p.s.i.	Boil Water Advisory - flush - resample	18-Jan-13
23-Jan-13	Total Coliform	1	cfu/100ml	Resample	24-Jan-13
13-Feb-13	Total Coliform	129	cfu/100ml	Boil Water Advisory - flush - resample	14-Feb-13
28-Feb-13	Chlorine Residual	< 0.05	mg/l	Boil Water Advisory - flush - resample	28-Feb-13
23-Mar-13	Filter Turbidity Analyzer	Equipment Failure	no reading	Filter off-line, repair unit	23-Mar-13
08-Apr-13	Chlorine Residual	< 0.05	mg/l	Boil Water Advisory - flush - resample	08-Apr-13
31-May-13	Total Coliform	1	cfu/100ml	Boil Water Advisory - flush - resample	31-May-13
04-Jun-13	Watermain Repair	Pressure Loss	p.s.i.	Boil Water Advisory - flush - resample	04-Jun-13
17-Jul-13	Total Coliform	1	cfu/100ml	Boil Water Advisory - flush - resample	17-Jul-13
19-Aug-13	Chlorine Residual	< 0.05	mg/l	Boil Water Advisory - flush - resample	20-Aug-13
04-Sep-13	Chlorine Residual	< 0.05	mg/l	Boil Water Advisory - flush - resample	04-Sep-13
07-Oct-13	Chlorine Residual	< 0.05	mg/l	Boil Water Advisory - install autoflusher	31-Oct-13
30-Oct-13	Watermain Repair	Pressure Loss	p.s.i.	Boil Water Advisory - flush - resample	30-Oct-13
18-Dec-13	Total Coliform	18	cfu/100ml	Boil Water Advisory - resample	18-Dec-13

Corrective Action:

When a sample tests positive for coliform bacteria, the source is immediately re-sampled. Coliform counts in the distribution system can be an indicator of problems with the water system or can be attributed to cross contamination. Chlorine residuals are monitored concurrently when bacteriological samples are taken. The level of chlorine in all cases was adequate, as per the regulation; otherwise, the chlorine level would have triggered an adverse incident. In all instances where coliform bacteria were identified, the repeat sample did not produce any bacterial colonies.

In the case of the filter turbidity analyzer failure, the affected filter train was taken off line immediately upon discovery of the loss of trending by operational staff. The monitoring unit was repaired after which turbidity levels before and after the failure were reviewed and verified as well within standards. The Algoma Health unit was satisfied that the system was not compromised at any point and deemed the issue resolved with no further action.

Random samples of the distribution system are conducted to ensure that adequate residual of chlorine is maintained in the system for disinfection purposes. Low chlorine levels typically indicate a lack of water flow in an area of the system. Flushing restores adequate level within the affected area. Whenever possible, redirection of flow through distribution system valving is utilized to address low chlorine issues. Areas found to have low chlorine residuals are monitored. In some cases auto-flush units are installed to promote continuous flow.

In all cases when repair or maintenance carried out on the distribution system requires 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. This is, without exception, treated as an adverse incident by the Algoma Health Unit, and a boil water advisory is issued in order to protect the consumer from potential risk. After the repair, flushing is completed to restore quality, and two consecutive sets of bacteriological tests are taken, after which, if all is clear, the advisory is lifted.

Regulatory Inspection

The Ministry of the Environment carried out a facility inspection on August 21st, 2013. The inspection noted instances relating to loss of chlorine residual in the distribution system. In all cases, the corrective action taken by plant staff was deemed as appropriate and acceptable. No orders were issued and no additional action was required. The final inspection rating for the system was 96.06%.

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 no exceedances and an average of 12 mg/l which is well 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 where necessary.

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 NSF quality criteria for drinking water.

Process Parameters:

The following are the chemicals used and dosage rates:

- Polyaluminum Chloride - 19.71 mg/l
- Hydrofluorosilicic Acid – 0.455 mg/l *
- Chlorine – 2.44 mg/l
- Hydrated Lime – 5.07 mg/l **

*Hydrofluorosilicic Acid dosage calculated using solution strength of 25% and expressed as Fluoride Ion;

**Hydrated Lime dosage calculated based on titrated slurry solution strength of 21,000 mg/l;

Documentation:

Contingency plans, the Facility Operations Manual, Standard Operating Procedures and the Drinking Water Quality Management Standard documents which provide guidance in the event of emergencies, upset conditions and breakdowns are located in the Operational Control Room. Detailed drawings of the facility are centrally located in the Operational Control Room.