Ontario **Drinking-Water Systems Regulation O. Reg. 170/03**

## CITY OF ELLIOT LAKE WATER TREATMENT PLANT 2021 ANNUAL REPORT

| | |
|---|---|
| **Drinking-Water System Number:** | **220002789** |
| **Drinking-Water System Name:** | Elliot Lake Water Treatment Plant |
| **Drinking-Water System Owner:** | Corporation of the City of Elliot Lake |
| **Drinking-Water System Category:** | Water Treatment Subsystem Class 2 |
| **Period being reported:** | January 01, 2021 - December 31, 2021 |

| ***Complete if your Category is Large Municipal Residential or Small Municipal Residential*** | ***Complete for all other Categories.*** |
|---|---|
| **Does your Drinking-Water System serve more than 10,000 people? Yes [✓] No [ ]** | **Number of Designated Facilities served:** [ ] |
| **Is your annual report available to the public at no charge on a web site on the Internet? Yes [✓] No [ ]** | **Did you provide a copy of your annual report to all Designated Facilities you serve? Yes [ ] No [ ]** |
| **Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.** The summary report is available at City Hall, the Water Treatment Plant and is posted on the City's website at: **http://cityofelliotlake.com/en/cityhall/operationsreports.asp** | **Number of Interested Authorities you report to:** [ ] **Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility? Yes [ ] No [ ]** |

**Note: For the following tables below, additional rows or columns may be added or an appendix may be attached to the report**

**List all Drinking-Water Systems (if any), which receive all of their drinking water from your system:**

| Drinking Water System Name | Drinking Water System Number |
|---|---|
| Not applicable | |

**Did you provide a copy of your annual report to all Drinking-Water System owners that are connected to you and to whom you provide all of its drinking water?**

**Yes [ ] No [ ] not applicable [x]**

**Indicate how you notified system users that your annual report is available, and is free of charge.**

- **[✓] Public access/notice via the web**
- **[ ] Public access/notice via Government Office**
- **[✓] Public access/notice via a newspaper**
- **[ ] Public access/notice via Public Request**
- **[ ] Public access/notice via a Public Library**
- **[ ] Public access/notice via other method _____**

**Describe your Drinking-Water System**

The City of Elliot Lake Water Treatment Plant is classified as a Class 2 direct filtration plant.

Water is drawn from the lake through an intake structure, located in approximately 12.2 m (40 ft) of water and is gravity fed through a 295 m long marine pipeline to the low lift pumping station wet well. The water is then pumped to the main facility at 200 Spine Road.

The raw water then passes through a raw water flow meter and into reactor/mixing tanks. At this point Polyaluminum Chloride (PAC) is added to the process to aid in the production of floc (particulate matter of sufficient size to be removed by the filters).

The water then continues into the hydraulic spiral flow flocculation tanks and afterwards passes through three rectangular filters with dual media (anthracite/sand). The filtered water is collected in an underdrain system and enters a 2,300 $m^3$ Clearwell (storage reservoir) on site.

Chlorine is added to the treated water as it leaves the filters to achieve required disinfection.

Fluoride is also added at this point. Fluoride does not play a role in the treatment process, but rather acts as an agent in the prevention of tooth decay in young children.

High Lift pumps pump the now treated water from the Clearwell through a flow meter and into the distribution system. This treated water makes its way to consumers' homes, either directly or from the standpipe storage facilities.

Lime is added to the water as it leaves the plant to aid in the prevention of corrosion in the distribution system. The lime is also used for pH and alkalinity adjustment.

**List all water treatment chemicals used over this reporting period**

Chlorine, Polyaluminum Chloride (PAC), Lime

**Were any significant expenses incurred to?**

**[ ]** Install required equipment
**[✓]** Repair required equipment
**[✓]** Replace required equipment

**Please provide a brief description and a breakdown of monetary expenses incurred**

1 Rotork Actuator - *$8,000*
Annual Diesel Load Test - *$5,000*
Fluoride Analyzer - *$5,900*
Annual Calibrations of Analyzers and Flow Meters - *$7,948*
Backflow Preventers Inspection & Maintenance - *$4,800*
Maintaining the Distribution System Infrastructure (ie: Flushing & Repairs) - *$18,000*
Pine & Poplar Watermain Replacement - *$185,000*

**Provide details on the notices submitted in accordance with subsection 18(1) of the Safe Drinking-Water Act or section 16-4 of Schedule 16 of O.Reg.170/03 and reported to Spills Action Centre**

| INCIDENT DATE | PARAMETER | RESULTS | UNIT OF MEASURE | CORRECTIVE ACTION | CORRECTIVE ACTION DATE |
|---|---|---|---|---|---|
| Oct-21-19 | Fluoride Analyzer Reading | Analyzer Reading 1.74 | Mg/L | Handheld read 0.64 – Fluoride Shut Off | Ongoing |
| October 5th 2020 | Low Free Chlorine Residual | 0.00 | mg/L | Boil Water Advisory – Residual Restored and Two Sets of Samples | May 21st 2021 |
| January 4th 2021 | Watermain Repair | Pressure Loss | PSI | Boil Water Advisory – Flush and Two Sets of Samples | January 8th 2021 |
| January 5th 2021 | Watermain Repair | Pressure Loss | PSI | Boil Water Advisory – Flush and Two Sets of Samples | January 11th 2021 |
| February 4th 2021 | Watermain Repair | Pressure Loss | PSI | Boil Water Advisory – Flush and Two Sets of Samples | February 11th 2021 |

| | | | | | |
|---|---|---|---|---|---|
| February 7th 2021 | Watermain Repair | Pressure Loss | PSI | Boil Water Advisory – Flush and Two Sets of Samples | February 11th 2021 |
| February 25th 2021 | Watermain Repair | Pressure Loss | PSI | Boil Water Advisory – Flush and Two Sets of Samples | March 4th 2021 |
| March 8th 2021 | Watermain Repair | Pressure Loss | PSI | Boil Water Advisory – Flush and Two Sets of Samples | March 12th 2021 |
| March 15th 2021 | Watermain Repair | Pressure Loss | PSI | Boil Water Advisory – Flush and Two Sets of Samples | March 19th 2021 |
| April 21st 2021 | Sample Result - Microbiological | 2 Total Coliform | CFU/100 mL | Resample | April 23rd 2021 |
| April 22nd 2021 | Watermain Repair | Pressure Loss | PSI | Boil Water Advisory – Flush and Two Sets of Samples | April 29th 2021 |
| May 10th 2021 | Connection of temporary water supply | Pressure Loss | PSI | Boil Water Advisory – Flush and Two Sets of Samples | May 17th 2021 |
| May 11th 2021 | Watermain Installation | Pressure Loss | PSI | Boil Water Advisory – Flush and Two Sets of Samples | May 17th 2021 |
| June 2nd 2021 | Hydrant Replacement | Pressure Loss | PSI | Boil Water Advisory – Flush and Two Sets of Samples | June 10th 2021 |
| June 8th 2021 | Watermain Installation | Pressure Loss | PSI | Boil Water Advisory – Flush and Two Sets of Samples | June 14th 2021 |
| June 16th 2021 | Watermain Repair | Pressure Loss | PSI | Boil Water Advisory – Flush and Two Sets of Samples | June 21st 2021 |
| June 23rd 2021 | Auto Flusher Installation | Pressure Loss | PSI | Boil Water Advisory – Flush and Two Sets of Samples | July 5th 2021 |
| August 13th 2021 | Watermain Installation | Pressure Loss | PSI | Boil Water Advisory- Flush and Two Sets of Samples | August 20th 2021 |
| August 16th 2021 | Watermain Installation | Pressure Loss | PSI | Boil Water Advisory – Flush and Two Sets of Samples | August 20th 2021 |
| August 20th 2021 | Service Line Repair | Pressure Loss | PSI | Boil Water Advisory – Flush and Two Sets of Samples | August 30th 2021 |
| August 31st 2021 | Watermain Repair | Pressure Loss | PSI | Boil Water Advisory – Flush and Two Sets of Samples | September 8th 2021 |
| October 13th 2021 | Watermain Repair | Pressure Loss | PSI | Boil Water Advisory – Flush and Two Sets of Samples | October 18th 2021 |
| October 19th 2021 | Watermain Repair | Pressure Loss | PSI | Boil Water Advisory – Flush and Two Sets of Samples | October 29th 2021 |
| October 23rd 2021 | Sample Result - Microbiological | 9 Total Coliform | CFU/100 mL | Boil Water Advisory –Two Sets of Samples | October 29th 2021 |

| | | | | | |
|---|---|---|---|---|---|
| November 2nd 2021 | Valve Replacement | Pressure Loss | PSI | Boil Water Advisory – Flush and Two Sets of Samples | November 8th 2021 |
| November 24th 2021 | Low Free Chlorine Residual | 0.00 | mg/L | Boil Water Advisory – Residual Restored and Two Sets of Samples | December 2rd 2021 |
| November 29th 2021 | Watermain Repair | Pressure Loss | PSI | Boil Water Advisory – Flush and Two Sets of Samples | December 3rd 2021 |
| November 30th 2021 | Watermain Repair | Pressure Loss | PSI | Boil Water Advisory – Flush and Two Sets of Samples | December 10th 2021 |
| December 3rd 2021 | Sample Result - Microbiological | 20 Total Coliform | CFU/100 mL | Boil Water Advisory –Two Sets of Samples | December 10th 2021 |
| December 14th 2021 | Watermain Repair | Pressure Loss | PSI | Boil Water Advisory – Flush and Two Sets of Samples | December 20th 2021 |

**Microbiological testing done under Schedule 10, 11 or 12 of the Regulation 170/03, during this reporting period.**

| | Number of Samples | Range of E.Coli Or Fecal Results (min #)-(max #) | Range of Total Coliform Results (min #)-(max #) | Number of HPC Samples | Range of HPC Results (min #)-(max #) |
|---|---|---|---|---|---|
| **Raw** | 52 | 0 – 3 | 0 - 19 | N/A | N/A |
| **Treated** | 52 | N/D | N/D | 52 | 0 - 1 |
| **Distribution** | 311 | N/D | 0 - 1 | 112 | 0 - 287 |

**Operational testing done under Schedule 7, 8 or 9 of Regulation 170/03 during the period covered by this Annual Report.**

| | Number of Grab Samples | Range of Results (min #)-(max #) | Unit of Measure |
|---|---|---|---|
| **Turbidity** | **8760** | **0.02 – 3.00** | **NTU** |
| **Chlorine** | **8760** | **0.82 – 1.88** | **mg/L** |
| **Fluoride** | **8760** | **0.00 – 1.43** | **mg/L** |

***NOTE**: For continuous monitors use 8760 as the number of samples.*

**Note: The Fluoride has been offline since October 21st 2019.**

**Summary of additional testing and sampling carried out in accordance with the requirement of an approval, order or other legal instrument.**

| Date of legal instrument issued | Parameter | Date Sampled | Result | Unit of Measure |
|---|---|---|---|---|
| Municipal Drinking Water License 208-101 23 August 2011 | Clarifier Overflow Suspended Solids | January 23rd 2021 | 11 | mg/L |
| | | February 6th 2021 | 12 | mg/L |
| | | March 7th 2021 | 10 | mg/L |
| | | April 29th 2021 | 10 | mg/L |
| | | May 30th 2021 | 16 | mg/L |
| | | June 27th 2021 | 18 | mg/L |
| | | July 30th 2021 | 6 | mg/L |
| | | August 30th 2021 | 4 | mg/L |
| | | September 27th 2021 | 15 | mg/L |
| | | October 20th 2021 | 5 | mg/L |
| | | November 30th 2021 | 7 | mg/L |
| | | December 19th 2021 | 8 | mg/L |

The Annual Clarifier Overflow Suspended Solids average for 2021 is 10.2 mg/L

**Summary of Inorganic parameters tested during this reporting period or the most recent sample results**

| Parameter | Sample Date | Result Value | Unit of Measure | Exceedance |
|---|---|---|---|---|
| **Antimony** | January 18th 2021 | 0.09 <MDL | µg/L | no |
| **Arsenic** | January 18th 2021 | 0.2 <MDL | µg/L | no |
| **Barium** | January 18th 2021 | 11.8 | µg/L | no |
| **Boron** | January 18th 2021 | 6 | µg/L | no |
| **Cadmium** | January 18th 2021 | 0.009 | µg/L | no |
| **Chromium** | January 18th 2021 | 0.15 | µg/L | no |
| ***Lead** | not applicable for this reporting period | | | |
| **Mercury** | January 18th 2021 | 0.01 <MDL | µg/L | no |
| **Selenium** | January 18th 2021 | 0.10 | µg/L | no |
| **Sodium** | 8 January 2020 | 9.91 | mg/L | no |
| **Uranium** | January 18th 2021 | 0.089 | µg/L | no |
| **Fluoride** | 8 January 2020 | 0.06 <MDL | mg/L | no |
| **Nitrite** | Annual Average | 0.003 <MDL | mg/L | no |
| **Nitrate** | Annual Average | 0.11 | mg/L | no |

*only for drinking water systems testing under Schedule 15.2; this includes large municipal non-residential systems, small municipal non-residential systems, non-municipal seasonal residential systems, large non-municipal non-residential systems, and small non-municipal non-residential systems

**Summary of lead testing under Schedule 15.1 during this reporting period**
(applicable to the following drinking water systems; large municipal residential systems, small municipal residential systems, and non-municipal year-round residential systems)

| Location Type | Number of Samples | Range of Lead Results (min#) – (max #) | Unit of Measure | Number of Exceedances |
|---|---|---|---|---|
| **Plumbing** | **not applicable for this reporting period** | | | |
| **Distribution** | 8 | 0.05 – 7.46 | µg/L | None |

**Summary of Organic parameters sampled during this reporting period or the most recent sample results**

| Parameter | Sample Date | Result Value | Unit of Measure | Exceedance |
|---|---|---|---|---|
| **Alachlor** | January 18th 2021 | 0.02 <MDL | µg/L | no |
| **Atrazine** | January 18th 2021 | 0.01 <MDL | µg/L | no |
| **Aldrin + Dieldrin** | 27 June 2018 | 0.01 <MDL | µg/L | no |
| **Atrazine + N-dealkylated metabolites** | January 18th 2021 | 0.01 <MDL | µg/L | no |
| **Azinphos-methyl** | January 18th 2021 | 0.05 <MDL | µg/L | no |
| **Bendiocarb** | 27 June 2018 | 0.01 <MDL | µg/L | no |
| **Benzene** | January 18th 2021 | 0.32 <MDL | µg/L | no |
| **Benzo(a)pyrene** | January 18th 2021 | 0.004 <MDL | µg/L | no |
| **Bromoxynil** | January 18th 2021 | 0.33 <MDL | µg/L | no |
| **Carbaryl** | January 18th 2021 | 0.05 <MDL | µg/L | no |
| **Carbofuran** | January 18th 2021 | 0.01 <MDL | µg/L | no |
| **Carbon Tetrachloride** | January 18th 2021 | 0.17 <MDL | µg/L | no |
| **Chlordane (Total)** | 27 June 2018 | 0.01 <MDL | µg/L | no |
| **Chlorpyrifos** | January 18th 2021 | 0.02 <MDL | µg/L | no |
| **Cyanazine** | 27 June 2018 | 0.03 <MDL | µg/L | no |
| **Diazinon** | January 18th 2021 | 0.02 <MDL | µg/L | no |
| **Dicamba** | January 18th 2021 | 0.20 <MDL | µg/L | no |
| **1,2-Dichlorobenzene** | January 18th 2021 | 0.41 <MDL | µg/L | no |
| **1,4-Dichlorobenzene** | January 18th 2021 | 0.36 <MDL | µg/L | no |
| **Dichlorodiphenyltrichloroethane (DDT) + metabolites** | 27 June 2018 | 0.01 < MDL | µg/L | no |
| **1,2-Dichloroethane** | January 18th 2021 | 0.35 <MDL | µg/L | no |
| **1,1-Dichloroethylene (vinylidene chloride)** | January 18th 2021 | 0.33 <MDL | µg/L | no |
| **Dichloromethane** | January 18th 2021 | 0.35 <MDL | µg/L | no |
| **2-4 Dichlorophenol** | January 18th 2021 | 0.15 <MDL | µg/L | no |
| **2,4-Dichlorophenoxyacetic acid (2,4-D)** | January 18th 2021 | 0.19 <MDL | µg/L | no |
| **Diclofop-methyl** | January 18th 2021 | 0.40 <MDL | µg/L | no |
| **Dimethoate** | January 18th 2021 | 0.06 <MDL | µg/L | no |

| | | | | |
|---|---|---|---|---|
| **Desethyl atrazine** | January 18th 2021 | 0.01 <MDL | µg/L | no |
| **Diquat** | January 18th 2021 | 1 <MDL | µg/L | no |
| **Diuron** | January 18th 2021 | 0.03 <MDL | µg/L | no |
| **Glyphosate** | January 18th 2021 | 1 <MDL | µg/L | no |
| **Heptachlor + Heptachlor Epoxide** | 27 June 2018 | 0.01 < MDL | µg/L | no |
| **Lindane (Total)** | 27 June 2018 | 0.01 < MDL | µg/L | no |
| **Malathion** | January 18th 2021 | 0.02 <MDL | µg/L | no |
| **Methoxychlor** | 27 June 2018 | 0.01 < MDL | µg/L | no |
| **Metolachlor** | January 18th 2021 | 0.01 <MDL | µg/L | no |
| **Metribuzin** | January 18th 2021 | 0.02 <MDL | µg/L | no |
| **Monochlorobenzene** | January 18th 2021 | 0.3 <MDL | µg/L | no |
| **Paraquat** | January 18th 2021 | 1 <MDL | µg/L | no |
| **Parathion** | 27 June 2018 | 0.02 < MDL | µg/L | no |
| **Pentachlorophenol** | January 18th 2021 | 0.15 <MDL | µg/L | no |
| **Phorate** | January 18th 2021 | 0.01 <MDL | µg/L | no |
| **Picloram** | January 18th 2021 | 1 <MDL | µg/L | no |
| **Polychlorinated Biphenyls (PCB)** | January 18th 2021 | 0.04 <MDL | µg/L | no |
| **Prometryne** | January 18th 2021 | 0.03 <MDL | µg/L | no |
| **Simazine** | January 18th 2021 | 0.01 <MDL | µg/L | no |
| **THM** (Annual Average) | Annual Average | 44.8 | µg/L | no |
| **Total Haloacetic Acids (HAA5)** | Annual Average | 36.2 | µg/L | no |
| **MCPA** | January 18th 2021 | 0.00012 <MDL | µg/L | no |
| **Temephos** | 27 June 2018 | 0.01 < MDL | µg/L | no |
| **Terbufos** | January 18th 2021 | 0.01 <MDL | µg/L | no |
| **Tetrachloroethylene** | January 18th 2021 | 0.35 <MDL | µg/L | no |
| **2,3,4,6-Tetrachlorophenol** | January 18th 2021 | 0.20 <MDL | µg/L | no |
| **Triallate** | January 18th 2021 | 0.01 <MDL | µg/L | no |
| **Trichloroethylene** | January 18th 2021 | 0.44 <MDL | µg/L | no |
| **2,4,6-Trichlorophenol** | January 18th 2021 | 0.25 <MDL | µg/L | no |
| **2,4,5-Trichlorophenoxy acetic acid (2,4,5-T)** | 27 June 2018 | 0.22 < MDL | µg/L | no |
| **Trifluralin** | January 18th 2021 | 0.02 <MDL | µg/L | no |
| **Vinyl Chloride** | January 18th 2021 | 0.17 <MDL | µg/L | no |

**List any Inorganic or Organic parameter(s) that exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards.**

| Parameter | Result Value | Unit of Measure | Date of Sample |
|---|---|---|---|
| | | | N/A |