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

CITY OF ELLIOT LAKE WATER TREATMENT PLANT 2023 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, 2023 - December 31, 2023

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://elliotlake.ca/en/our-community/water-and-wastewater.aspx**	**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 - *$3800*
Fluoride Analyzer - *$19500*
Annual Calibrations of Analyzers and Flow Meters - *$6200*
Backflow Preventers Inspection & Maintenance - *$5,200*
Maintaining the Distribution System Infrastructure (ie: Flushing & Repairs) - *$39,000*

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
October 21st 2019	Fluoride Analyzer Reading	Analyzer Reading 1.74	Mg/L	Handheld read 0.64 – Fluoride Shut Off	**Ongoing**
February 9th 2023	Watermain Repair	Pressure Loss	PSI	Boil Water Advisory – Flush and Two Sets of Samples	**February 16th 2023**
March 24th 2023	Watermain Repair	Pressure Loss	PSI	Boil Water Advisory – Flush and Two Sets of Samples	**March 30th 2023**
March 27th 2023	Service Line Repair	Pressure Loss	PSI	Boil Water Advisory – Flush and Two Sets of Samples	**March 31st 2023**
April 20th 2023	Watermain Repair	Pressure Loss	PSI	Boil Water Advisory – Flush and Two Sets of Samples	**April 27th 2023**
July 12th 2023	Watermain Repair	Pressure Loss	PSI	Boil Water Advisory – Flush and Two Sets of Samples	**July 20th 2023**

July 18th 2023	Service Line Repair	Pressure Loss	PSI	Boil Water Advisory – Flush and Two Sets of Samples	**July 27th 2023**
August 3rd 2023	Watermain Repair	Pressure Loss	PSI	Boil Water Advisory – Flush and Two Sets of Samples	**August 11th 2023**
September 15th 2023	Watermain Repair	Pressure Loss	PSI	Boil Water Advisory – Flush and Two Sets of Samples	**September 22nd 2023**
October 10th 2023	Watermain Repair	Pressure Loss	PSI	Boil Water Advisory – Flush and Two Sets of Samples	**October 17th 2023**
December 24th 2023	Watermain Repair	Pressure Loss	PSI	Boil Water Advisory – Flush and Two Sets of Samples	**January 3rd 2024**

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 - 13	0 - 38	N/A	N/A
Treated	52	N/D	N/D	52	0 - 49
Distribution	315	N/D	N/D	110	0 – 12

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**	**0.05 – 3.00**	**NTU**
Chlorine	**8760**	**0.50 – 2.02**	**mg/L**
Fluoride	**8760**	**0.00 – 2.00**	**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 March 25th, 2022	Clarifier Discharge Suspended Solids	January 12th, 2023	2	mg/L
		February 8th, 2023	4	mg/L
		March 6th, 2023	3	mg/L
		April 22nd, 2023	5	mg/L
		May 28th, 2023	4	mg/L
		June 24th, 2023	5	mg/L
		July 29th, 2023	5	mg/L
		August 3rd, 2023	17	mg/L
		September 17th, 2023	11	mg/L
		October 21st, 2023	14	mg/L
		November 17th, 2023	6	mg/L
		December 23rd, 2023	9	mg/L

The Annual Clarifier Discharge Suspended Solids average for 2023 is 7.1 mg/L

Date of legal instrument issued	Parameter	Date Sampled	Result	Unit of Measure
Municipal Drinking Water License 208-101 March 25th, 2022	Clarifier Discharge Total Chlorine Residual	January 12th, 2023	0.02	mg/L
		February 8th, 2023	0.02	mg/L
		March 6th, 2023	0.00	mg/L
		April 22nd, 2023	0.00	mg/L
		May 28th, 2023	0.00	mg/L
		June 24th, 2023	0.02	mg/L
		July 29th, 2023	0.02	mg/L
		August 3rd, 2023	0.00	mg/L
		September 17th, 2023	0.02	mg/L
		October 21st, 2023	0.02	mg/L
		November 17th, 2023	0.01	mg/L
		December 23rd, 2023	0.01	mg/L

The Annual Clarifier Discharge Total Chlorine Residual average for 2023 is 0.01 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 3rd 2023	0.6 <MDL	µg/L	no
Arsenic	January 3rd 2023	0.2 <MDL	µg/L	no
Barium	January 3rd 2023	10.5	µg/L	no
Boron	January 3rd 2023	14	µg/L	no
Cadmium	January 3rd 2023	0.003	µg/L	no
Chromium	January 3rd 2023	0.12	µg/L	no
***Lead**	not applicable for this reporting period			
Mercury	January 3rd 2023	0.01 <MDL	µg/L	no
Selenium	January 3rd 2023	0.04 <MDL	µg/L	no
Sodium	January 8th 2020	9.91	mg/L	no
Uranium	January 3rd 2023	0.088	µg/L	no
Fluoride	January 8th 2020	0.06 <MDL	mg/L	no
Nitrite	Annual Average	0.003 <MDL	mg/L	no
Nitrate	Annual Average	0.09	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 – 0.24	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 3rd 2023	0.02 <MDL	µg/L	no
Atrazine	January 3rd 2023	0.01 <MDL	µg/L	no
Atrazine + N-dealkylated metabolites	January 3rd 2023	0.01 <MDL	µg/L	no
Azinphos-methyl	January 3rd 2023	0.05 <MDL	µg/L	no
Benzene	January 3rd 2023	0.32 <MDL	µg/L	no
Benzo(a)pyrene	January 3rd 2023	0.004 <MDL	µg/L	no
Bromoxynil	January 3rd 2023	0.33 <MDL	µg/L	no
Carbaryl	January 3rd 2023	0.05 <MDL	µg/L	no
Carbofuran	January 3rd 2023	0.01 <MDL	µg/L	no
Carbon Tetrachloride	January 3rd 2023	0.17 <MDL	µg/L	no
Chlorpyrifos	January 3rd 2023	0.02 <MDL	µg/L	no
Diazinon	January 3rd 2023	0.02 <MDL	µg/L	no
Dicamba	January 3rd 2023	0.20 <MDL	µg/L	no
1,2-Dichlorobenzene	January 3rd 2023	0.41 <MDL	µg/L	no
1,4-Dichlorobenzene	January 3rd 2023	0.36 <MDL	µg/L	no
1,2-Dichloroethane	January 3rd 2023	0.35 <MDL	µg/L	no
1,1-Dichloroethylene (vinylidene chloride)	January 3rd 2023	0.33 <MDL	µg/L	no
Dichloromethane	January 3rd 2023	0.35 <MDL	µg/L	no
2-4 Dichlorophenol	January 3rd 2023	0.15 <MDL	µg/L	no
2,4-Dichlorophenoxyacetic acid (2,4-D)	January 3rd 2023	0.19 <MDL	µg/L	no
Diclofop-methyl	January 3rd 2023	0.40 <MDL	µg/L	no
Dimethoate	January 3rd 2023	0.06 <MDL	µg/L	no
Desethyl atrazine	January 3rd 2023	0.01 <MDL	µg/L	no
Diquat	January 3rd 2023	1 <MDL	µg/L	no
Diuron	January 3rd 2023	0.03 <MDL	µg/L	no
Glyphosate	January 3rd 2023	1 <MDL	µg/L	no
Malathion	January 3rd 2023	0.02 <MDL	µg/L	no
Metolachlor	January 3rd 2023	0.01 <MDL	µg/L	no
Metribuzin	January 3rd 2023	0.02 <MDL	µg/L	no
Monochlorobenzene	January 3rd 2023	0.3 <MDL	µg/L	no
Paraquat	January 3rd 2023	1 <MDL	µg/L	no
Pentachlorophenol	January 3rd 2023	0.15 <MDL	µg/L	no
Phorate	January 3rd 2023	0.01 <MDL	µg/L	no
Picloram	January 3rd 2023	1 <MDL	µg/L	no
Polychlorinated Biphenyls (PCB)	January 3rd 2023	0.04 <MDL	µg/L	no
Prometryne	January 3rd 2023	0.03 <MDL	µg/L	no
Simazine	January 3rd 2023	0.01 <MDL	µg/L	no
THM (Annual Average)	Annual Average	41.2	µg/L	no
Total Haloacetic Acids (HAA5)	Annual Average	31.4	µg/L	no
MCPA	January 3rd 2023	0.00012 <MDL	µg/L	no
Terbufos	January 3rd 2023	0.01 <MDL	µg/L	no
Tetrachloroethylene	January 3rd 2023	0.35 <MDL	µg/L	no
2,3,4,6-Tetrachlorophenol	January 3rd 2023	0.20 <MDL	µg/L	no

Triallate	January 3rd 2023	0.01 <MDL	µg/L	no
Trichloroethylene	January 3rd 2023	0.44 <MDL	µg/L	no
2,4,6-Trichlorophenol	January 3rd 2023	0.25 <MDL	µg/L	no
Trifluralin	January 3rd 2023	0.02 <MDL	µg/L	no
Vinyl Chloride	January 3rd 2023	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	N/A	N/A	N/A