



DRINKING WATER SYSTEM



Annual Report 2022



CITY OF TORONTO DRINKING WATER SYSTEM ANNUAL REPORT

Drinking-Water System Number:	220002262
Drinking-Water System Name:	City of Toronto Drinking Water System (R. C. Harris)
Drinking-Water System Owner:	City of Toronto
Drinking-Water System Category:	Large Municipal Residential
Period being reported:	January 1, 2022 to December 31, 2022

<p><u>Complete if your Category is Large Municipal Residential or Small Municipal Residential</u></p> <p>Does your Drinking-Water System serve more than 10,000 people? Yes [X] No []</p> <p>Is your annual report available to the public at no charge on a web site on the Internet? Yes [X] No []</p> <p>Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.</p> <div style="border: 1px solid black; padding: 5px;"> Metro Hall 55 John Street Toronto, Ontario M5V 3C6 </div>	<p><u>Complete for all other Categories.</u></p> <p>Number of Designated Facilities served:</p> <div style="border: 1px solid black; height: 20px; width: 100%;"></div> <p>Did you provide a copy of your annual report to all Designated Facilities you serve? Yes [] No []</p> <p>Number of Interested Authorities you report to:</p> <div style="border: 1px solid black; height: 20px; width: 100%;"></div> <p>Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility? Yes [] No []</p>
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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
Region of York - receives some of their water from Toronto	260001929

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 [X] No []

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

[X] Public access/notice via the web

[X] 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

Toronto Water Supply System consists of four water treatment plants, 18 pumping stations, 11 major underground storage reservoirs, four elevated storage tanks and approximately 510 kilometers of trunk watermains and 5,583 kilometers of distribution watermains.

The R.C. Harris Water Treatment Plant is a conventional water treatment plant, has a rated capacity of 950,000 m³/day and is located at 2701 Queen Street East, Toronto.

The other three (3) Toronto Water Treatment plants are as follows:

- R.L. Clark Water Treatment Plant (Rated Capacity of 615,000 m³/day) and is located at 45 Twenty Third Street, Toronto
- F.J. Horgan Water Treatment Plant (Rated Capacity of 800,000 m³/day) and is located at 201 Copperfield Road, Toronto
- Island Water Treatment Plant (Rated Capacity of 440,000 m³/day) and is located on Centre Island, Toronto

List all water treatment chemicals used over this reporting period

Alum (Aluminum sulphate)
Chlorine
Sodium bisulphite
Hydrofluosilicic acid
Aqueous Ammonia
Phosphoric Acid

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

Capital Projects - The following amounts relate to various projects during 2022 and do not represent the total project costs. These numbers do not include the normal operating and maintenance costs.

No.	Project Name	Description	Monetary Expense
1.	HVAC Rehabilitation	Rehabilitation of plant heating, ventilation and cooling equipment, and installation of a Building Automation System	\$3,100,000
2.	Filter and Reservoir Rehabilitation	Rehabilitation of four filters, backwash tanks and plant reservoir	\$100,000
3	Rehabilitation of Major Process Equipment	Rehabilitation of motors and electrical equipment	\$465,000

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

NOTE: "Incident date" is the date adverse result was reported to MECP-SAC. "Corrective action date" is the date the location was resampled.

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
14-Mar-2022	Sodium	20.5	mg/L	Re-sample, result 13.8 mg/L (<20)	21-Mar-2022

Microbiological testing done under the Schedule 10, 11 or 12 of 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	364	0 - 7	0 - 39	364	0 - 194
Treated	1456	1456A (100%A)	1456A (100%A)	1453	0 – 38

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

Parameter	Number of Grab Samples	Range of Results (min.) - (max.)	Unit of Measure
Turbidity	8760	0.03-0.22	NTU
Chlorine	8760	1.19-2.67	mg/L
*Fluoride (If the DWS provides fluoridation)	358	0.24 – 0.69	mg/L

NOTE: For Continuous Monitoring (zero days offline):

Number of Grab Samples = 24 samples/day x 365 days/year (or 366 days/leap year) = 8760 (or 8784)

*Fluoride Grab Sample numbers and range of results are reported using data from days when fluoridation was in service

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 (Annual Average)	Unit of Measure
Nov 09, 2020 Municipal Drinking Water Licence	Total Suspended Solids (Residue Management)	Jan 01-Dec 31, 2022	5.75	mg/L
	Total Chlorine (Residue Management)	Jan 01-Dec 31, 2022	0	mg/L

NOTE: A result of zero indicates that the result obtained was below the method detection/reporting limit

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

Parameter	Sample Date	Result Value (min.) - (max.)	Unit of Measure	Exceedance
Antimony	Jan – Dec 2022	0	mg/L	No
Arsenic	Jan – Dec 2022	0.0004 – 0.0007	mg/L	No
Barium	Jan – Dec 2022	0.0206 – 0.0216	mg/L	No
Boron	Jan – Dec 2022	0.0221 – 0.0228	mg/L	No
Cadmium	Jan – Dec 2022	0	mg/L	No
Chromium	Jan – Dec 2022	0.0003 – 0.0003	mg/L	No
Lead	Jan – Dec 2022	0	mg/L	No
Mercury	Jan – Dec 2022	0	mg/L	No
Selenium	Jan – Dec 2022	0	mg/L	No
Sodium	Jan – Dec 2022	11.9 – 20.5	mg/L	Yes
Uranium	Jan – Dec 2022	0.00029 – 0.00032	mg/L	No
Nitrite	Jan – Dec 2022	0 – 0.003	mg/L	No
Nitrate	Jan – Dec 2022	0.19 – 0.59	mg/L	No

NOTE: A result of zero indicates that the result obtained was below the method detection/reporting limit.

Summary of Lead (Pb) testing under Schedule 15.1 during this reporting period

Location Type	Number of Samples	Range of Lead Results (min.) - (max.)	Unit of Measure	Number of Exceedances
*Plumbing	*	*	*	*
*Distribution	*	*	*	*

***NOTE:** Refer to Toronto DS (Distribution System) Annual Report for Lead (Pb) testing data

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

Parameter	Sample Date	Result Value (min.) - (max.)	Unit of Measure	Exceedance
Alachlor	Jan – Dec 2022	0	µg/L	No
Atrazine + N-dealkylated metabolites	Jan – Dec 2022	0.003 – 0.1170	µg/L	No
Azinphos-methyl	Jan – Dec 2022	0	µg/L	No
Benzene	Jan – Dec 2022	0	µg/L	No
Benzo(a)pyrene	Jan – Dec 2022	0	µg/L	No
Bromoxynil	Jan – Dec 2022	0	µg/L	No
Carbaryl	Jan – Dec 2022	0	µg/L	No
Carbofuran	Jan – Dec 2022	0	µg/L	No
Carbon Tetrachloride	Jan – Dec 2022	0	µg/L	No
Chlorpyrifos	Jan – Dec 2022	0	µg/L	No
Diazinon	Jan – Dec 2022	0	µg/L	No
Dicamba	Jan – Dec 2022	0	µg/L	No
1,2-Dichlorobenzene	Jan – Dec 2022	0	µg/L	No
1,4-Dichlorobenzene	Jan – Dec 2022	0	µg/L	No
1,2-Dichloroethane	Jan – Dec 2022	0	µg/L	No
1,1-Dichloroethylene (vinylidene chloride)	Jan – Dec 2022	0	µg/L	No
Dichloromethane	Jan – Dec 2022	0	µg/L	No
2,4-Dichlorophenol	Jan – Dec 2022	0	µg/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	Jan – Dec 2022	0	µg/L	No
Diclofop-methyl	Jan – Dec 2022	0	µg/L	No
Dimethoate	Jan – Dec 2022	0	µg/L	No
Diquat	Jan – Dec 2022	0	µg/L	No
Diuron	Jan – Dec 2022	0	µg/L	No
Glyphosate	Jan – Dec 2022	0	µg/L	No
Malathion	Jan – Dec 2022	0	µg/L	No
Metolachlor	Jan – Dec 2022	0.0064 – 0.0099	µg/L	No
Metribuzin	Jan – Dec 2022	0	µg/L	No
Monochlorobenzene	Jan – Dec 2022	0	µg/L	No
Paraquat	Jan – Dec 2022	0	µg/L	No
Pentachlorophenol	Jan – Dec 2022	0	µg/L	No
Phorate	Jan – Dec 2022	0	µg/L	No
Picloram	Jan – Dec 2022	0	µg/L	No
Polychlorinated Biphenyls(PCB)	Jan – Dec 2022	0	µg/L	No
Prometryne	Jan – Dec 2022	0	µg/L	No
Simazine	Jan – Dec 2022	0 – 0.0042	µg/L	No
THM (Note: Show latest annual average)	Jan – Dec 2022	10.1	µg/L	No



Parameter	Sample Date	Result Value (min.) - (max.)	Unit of Measure	Exceedance
Terbufos	Jan – Dec 2022	0	µg/L	No
Tetrachloroethylene	Jan – Dec 2022	0	µg/L	No
2,3,4,6-Tetrachlorophenol	Jan – Dec 2022	0	µg/L	No
Triallate	Jan – Dec 2022	0	µg/L	No
Trichloroethylene	Jan – Dec 2022	0	µg/L	No
2,4,6-Trichlorophenol	Jan – Dec 2022	0	µg/L	No
Trifluralin	Jan – Dec 2022	0	µg/L	No
Vinyl Chloride	Jan – Dec 2022	0	µg/L	No

NOTE: A result of zero indicates that the result obtained was below the method detection/reporting limit.

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
NONE	NONE	NONE	NONE



CITY OF TORONTO DRINKING WATER SYSTEM ANNUAL REPORT

Drinking-Water System Number:	220002244
Drinking-Water System Name:	City of Toronto Drinking Water System (Island)
Drinking-Water System Owner:	City of Toronto
Drinking-Water System Category:	Large Municipal Residential
Period being reported:	January 1, 2022 to December 31, 2022

<p><u>Complete if your Category is Large Municipal Residential or Small Municipal Residential</u></p> <p>Does your Drinking-Water System serve more than 10,000 people? Yes [X] No []</p> <p>Is your annual report available to the public at no charge on a web site on the Internet? Yes [X] No []</p> <p>Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.</p> <div style="border: 1px solid black; padding: 5px;"> Metro Hall 55 John Street Toronto, Ontario M5V 3C6 </div>	<p><u>Complete for all other Categories.</u></p> <p>Number of Designated Facilities served:</p> <div style="border: 1px solid black; height: 20px; width: 100%;"></div> <p>Did you provide a copy of your annual report to all Designated Facilities you serve? Yes [] No []</p> <p>Number of Interested Authorities you report to:</p> <div style="border: 1px solid black; height: 20px; width: 100%;"></div> <p>Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility? Yes [] No []</p>
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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
Region of York - receives some of their water from Toronto	260001929

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 [X] No []

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

- [X] Public access/notice via the web
- [X] Public access/notice via Government Office
- [] Public access/notice via a newspaper
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Describe your Drinking-Water System

Toronto Water Supply System consists of four water treatment plants, 18 pumping stations, 11 major underground storage reservoirs, four elevated storage tanks and approximately 510 kilometers of trunk watermains and 5,583 kilometers of distribution watermains.

The Island Water Treatment Plant is a direct filtration water treatment plant, has a rated capacity of 440,000 m³/day and is located at Toronto Centre Island, Toronto.

The other three (3) Toronto Water Treatment plants are as follows:

- R.L. Clark Water Treatment Plant (Rated Capacity of 615,000 m³/day) and is located at 45 Twenty Third Street, Toronto
- R.C. Harris Water Treatment Plant (Rated Capacity of 950,000 m³/day) and is located at 2701 Queen Street East, Toronto
- F.J. Horgan Water Treatment Plant (Rated Capacity of 800,000 m³/day) and is located at 201 Copperfield Road, Toronto

List all water treatment chemicals used over this reporting period

Chlorine
Sulphur dioxide
Sodium bisulphite
Hydrofluosilicic acid
Aqua ammonia
Polyaluminum Chloride (PACL)
PAX-XL52 (PACL Coagulant)
Phosphoric Acid

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

Capital Projects - The following amounts relate to various projects during 2022 and do not represent the total project costs. These numbers do not include the normal operating and maintenance costs.

No.	Project Description	Monetary Expense
1.	Design & Construction of Plantwide HVAC Upgrades	\$1,743,000
2.	Design of UV Treatment, Residuals Dewatering, & Electrical Upgrades	\$1,013,000
3.	Design & Construction of Ammonia & Fluoride System Upgrades	\$430,000
4.	Design & Construction of Treated Water Tunnel Rehabilitation	\$172,000
5.	Design of Scrubber Upgrades	\$115,000

No.	Project Description	Monetary Expense
6.	Pre-selection of Residuals Thickening & Dewatering Equipment	\$59,000
7.	Design & Construction of Flood Mitigation Upgrades	\$44,000

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

NOTE: "Incident date" is the date adverse result was reported to MECP-SAC. "Corrective action date" is the date the location was resampled.

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
no incidents reported in 2022	N/A	N/A	N/A	N/A	N/A

Microbiological testing done under the Schedule 10, 11 or 12 of 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	334	0 - 3	0 - 52	333	0 - 245
Treated	1333	1333A (100%A)	1333A (100%A)	1333	0 - 17

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

Parameter	Number of Grab Samples	Range of Results (min.) - (max.)	Unit of Measure
Turbidity	8004*	0.04 – 0.22	NTU
Chlorine	8004*	1.58 – 2.46	mg/L
**Fluoride (If the DWS provides fluoridation)	325	0.24 – 0.75	mg/L

NOTE: For Continuous Monitoring (zero days offline):

Number of Grab Samples = 24 samples/day x 365 days/year (or 366 days/leap year) = 8760 (or 8784)

*Number of Grab Samples for Turbidity and Chlorine reflects the fact that the Plant was not in service the full calendar year

**Fluoride Grab Sample numbers and range of results are reported using data from days when fluoridation was in service

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 (Monthly Average)	Unit of Measure
November 9, 2020 Municipal Drinking Water Licence	Total Suspended Solids (Residue Management) *	Jan. 1, 2022 - Dec. 31, 2022	January = 5.9 February = 9.6 March = 5.4 April = 4.0 May = 4.9 June = 4.4 July = 3.7 August = 4.6 September = 6.2 October = 7.8 November = 4.6 December = 8.7	mg/L

Date of Legal Instrument Issued	Parameter	Date Sampled	Concentration Limit Condition A: single samples < 0.2 mg/L	Unit of Measure
November 9, 2020 Municipal Drinking Water Licence	Total Chlorine (Residue Management) **	Jan. 1, 2022 - Dec. 31, 2022	< 0.2 mg/L at all times	date & mg/L
Date of Legal Instrument Issued	Parameter	Date Sampled	Concentration Limit Condition B: 120-min average of all 5-min averaged samples < 0.02 mg/L	Unit of Measure
November 9, 2020 Municipal Drinking Water Licence	Total Chlorine (Residue Management) **	Jan. 1, 2022 - Dec. 31, 2022	120-min average of all 5-min averaged samples < 0.02 mg/L at all times	date & mg/L

NOTES:

* For RMF effluent, the Total Suspended Solids limit is a monthly average concentration.

** For RMF effluent, the Total Chlorine Residual limit is a maximum concentration of: i) Condition A, 0.2 mg/L (single 5-min averaged sample) or ii) Condition B, 0.02 mg/L (120-min average concentration of all 5-min averaged samples), as applicable.

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

Parameter	Sample Date	Result Value (min.) - (max.)	Unit of Measure	Exceedance
Antimony	Jan – Dec 2022	0	mg/L	No
Arsenic	Jan – Dec 2022	0.0007 – 0.0009	mg/L	No
Barium	Jan – Dec 2022	0.0215 – 0.0230	mg/L	No
Boron	Jan – Dec 2022	0.0219 – 0.0231	mg/L	No
Cadmium	Jan – Dec 2022	0 – 0	mg/L	No
Chromium	Jan – Dec 2022	0.0003 – 0.0004	mg/L	No
Lead	Jan – Dec 2022	0	mg/L	No
Mercury	Jan – Dec 2022	0	mg/L	No
Selenium	Jan – Dec 2022	0	mg/L	No
Sodium	Jan – Dec 2022	11.8 – 15.2	mg/L	No
Uranium	Jan – Dec 2022	0.0003 – 0.0004	mg/L	No
Nitrite	Jan – Dec 2022	0 – 0.003	mg/L	No
Nitrate	Jan – Dec 2022	0.35 – 0.38	mg/L	No

NOTE: A result of zero indicates that the result obtained was below the method detection/reporting limit.

Summary of Lead (Pb) testing under Schedule 15.1 during this reporting period

Location Type	Number of Samples	Range of Lead Results (min.) - (max.)	Unit of Measure	Number of Exceedances
*Plumbing	*	*	*	*
*Distribution	*	*	*	*

***NOTE:** Refer to Toronto DS (Distribution System) Annual Report for Lead (Pb) testing data

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

Parameter	Sample Date	Result Value (min.) - (max.)	Unit of Measure	Exceedance
Alachlor	Jan – Dec 2022	0 – 0	µg/L	No
Atrazine + N-dealkylated metabolites	Jan – Dec 2022	0.0950 – 0.1120	µg/L	No
Azinphos-methyl	Jan – Dec 2022	0 – 0	µg/L	No
Benzene	Jan – Dec 2022	0 – 0	µg/L	No
Benzo(a)pyrene	Jan – Dec 2022	0 – 0	µg/L	No
Bromoxynil	Jan – Dec 2022	0 – 0	µg/L	No
Carbaryl	Jan – Dec 2022	0 – 0	µg/L	No
Carbofuran	Jan – Dec 2022	0 – 0	µg/L	No
Carbon Tetrachloride	Jan – Dec 2022	0 – 0	µg/L	No
Chlorpyrifos	Jan – Dec 2022	0 – 0	µg/L	No
Diazinon	Jan – Dec 2022	0 – 0	µg/L	No
Dicamba	Jan – Dec 2022	0 – 0	µg/L	No
1,2-Dichlorobenzene	Jan – Dec 2022	0 – 0	µg/L	No
1,4-Dichlorobenzene	Jan – Dec 2022	0 – 0	µg/L	No
1,2-Dichloroethane	Jan – Dec 2022	0 – 0	µg/L	No
1,1-Dichloroethylene (vinylidene chloride)	Jan – Dec 2022	0 – 0	µg/L	No
Dichloromethane	Jan – Dec 2022	0 – 0	µg/L	No
2,4-Dichlorophenol	Jan – Dec 2022	0 – 0	µg/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	Jan – Dec 2022	0 – 0	µg/L	No
Diclofop-methyl	Jan – Dec 2022	0 – 0	µg/L	No
Dimethoate	Jan – Dec 2022	0 – 0	µg/L	No
Diquat	Jan – Dec 2022	0 – 0	µg/L	No
Diuron	Jan – Dec 2022	0 – 0	µg/L	No
Glyphosate	Jan – Dec 2022	0 – 0	µg/L	No
Malathion	Jan – Dec 2022	0 – 0	µg/L	No
Metolachlor	Jan – Dec 2022	0.0062 – 0.0089	µg/L	No
Metribuzin	Jan – Dec 2022	0 – 0	µg/L	No
Monochlorobenzene	Jan – Dec 2022	0 – 0	µg/L	No
Paraquat	Jan – Dec 2022	0 – 0	µg/L	No
Pentachlorophenol	Jan – Dec 2022	0 – 0	µg/L	No
Phorate	Jan – Dec 2022	0 – 0	µg/L	No
Picloram	Jan – Dec 2022	0 – 0	µg/L	No
Polychlorinated Biphenyls (PCB)	Jan – Dec 2022	0 – 0	µg/L	No
Prometryne	Jan – Dec 2022	0 – 0	µg/L	No
Simazine	Jan – Dec 2022	0.0033 – 0.0044	µg/L	No
THM (Note: Show latest annual average)	Jan – Dec 2022	9.6	µg/L	No



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

Parameter	Sample Date	Result Value (min.) - (max.)	Unit of Measure	Exceedance
Terbufos	Jan – Dec 2022	0 – 0	µg/L	No
Tetrachloroethylene	Jan – Dec 2022	0 – 0	µg/L	No
2,3,4,6-Tetrachlorophenol	Jan – Dec 2022	0 – 0	µg/L	No
Triallate	Jan – Dec 2022	0 – 0	µg/L	No
Trichloroethylene	Jan – Dec 2022	0 – 0	µg/L	No
2,4,6-Trichlorophenol	Jan – Dec 2022	0 – 0	µg/L	No
Trifluralin	Jan – Dec 2022	0 – 0	µg/L	No
Vinyl Chloride	Jan – Dec 2022	0 – 0	µg/L	No

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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 (min.) - (max.)	Unit of Measure	Date of Sample
NONE	NONE	NONE	NONE

CITY OF TORONTO DRINKING WATER SYSTEM ANNUAL REPORT

Drinking-Water System Number:	220002253
Drinking-Water System Name:	City of Toronto Drinking Water System (R. L. Clark)
Drinking-Water System Owner:	City of Toronto
Drinking-Water System Category:	Large Municipal Residential
Period being reported:	January 1, 2022 to December 31, 2022

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The R.L. Clark Water Treatment Plant is a conventional water treatment plant, has a rated capacity of 615,000 m³/day and is located at 45 Twenty Third Street, Toronto.

The other three (3) Toronto Water Treatment plants are as follows:

- R.C. Harris Water Treatment Plant (Rated Capacity of 950,000 m³/day) and is located at 2701 Queen Street East, Toronto
- F.J. Horgan Water Treatment Plant (Rated Capacity of 800,000 m³/day) and is located at 201 Copperfield Road, Toronto
- Island Water Treatment Plant (Rated Capacity of 440,000 m³/day) and is located on Centre Island, Toronto

List all water treatment chemicals used over this reporting period

Alum (Aluminum Sulphate)
 Chlorine
 Sulphur Dioxide
 Hydrofluosilic Acid
 Aqua Ammonia
 Phosphoric Acid
 Cationic polymer was used for residuals treatment.

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

Capital Projects - The following amounts relate to various projects during 2022 and do not represent the total project costs. These numbers do not include the normal operating and maintenance costs.

No.	Project Name	Description	Monetary Expense
1.	Zebra Mussel Control System Replacement	System Construction	\$7,970,000
2.	Gaseous Systems Upgrade	System Engineering Design	\$120,000
3.	Standby Power	System Engineering Design	\$1,070,000

No.	Project Name	Description	Monetary Expense
4.	Misc. Plant Projects	Various plant equipment rehabilitation	\$380,000

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

NOTE: "Incident date" is the date adverse result was reported to MECP-SAC. "Corrective action date" is the date the location was resampled.

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
March 10, 2022	Sodium	24.1	mg/L	Resample	March 14, 2022

Microbiological testing done under the Schedule 10, 11 or 12 of 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	156	0 - 50	0 - NDOGT	156	0 - 1624
Treated	1458	1458 A (100%A)	1458 A (100%A)	1458	0 - 8

NDOGT = No Data – Overgrown with target organisms

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

Parameter	Number of Grab Samples	Range of Results (min.) - (max.)	Unit of Measure
Turbidity	8748*	0.04 – 0.15	NTU
Chlorine	8748*	1.78 – 2.31	mg/L
**Fluoride (If the DWS provides fluoridation)	364	0.54 – 0.74	mg/L

NOTE: For Continuous Monitoring (zero days offline):

Number of Grab Samples = 24 samples/day x 365 days/year (or 366 days/leap year) = 8760 (or 8784)

*The plant was not in service for one-half day during the year.

**Fluoride Grab Sample numbers and range of results are reported using data from days when fluoridation was in service.

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
November 9, 2020 Municipal Drinking Water Licence	Total Suspended Solids (Residue Management)	Jan 01-Dec 31, 2022	3.42	mg/L
	Total Chlorine (Residue Management)	Jan 01-Dec 31, 2022	0	mg/L

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

Parameter	Sample Date	Result Value (min.) - (max.)	Unit of Measure	Exceedance
Antimony	Jan – Dec 2022	0 - 0	mg/L	No
Arsenic	Jan – Dec 2022	0.0005 - 0.0009	mg/L	No
Barium	Jan – Dec 2022	0.0211 - 0.0225	mg/L	No
Boron	Jan – Dec 2022	0.0218 - 0.0239	mg/L	No
Cadmium	Jan – Dec 2022	0 - 0	mg/L	No
Chromium	Jan – Dec 2022	0.0003 - 0.0004	mg/L	No
Lead	Jan – Dec 2022	0 - 0	mg/L	No
Mercury	Jan – Dec 2022	0 - 0	mg/L	No
Selenium	Jan – Dec 2022	0 - 0	mg/L	No
Sodium	Jan – Dec 2022	12.3 - 24.1	mg/L	Yes
Uranium	Jan – Dec 2022	0.0003 - 0.0003	mg/L	No
Nitrite	Jan – Dec 2022	0 - 0.003	mg/L	No
Nitrate	Jan – Dec 2022	0.280 - 0.500	mg/L	No

NOTE: A result of zero indicates that the result obtained was below the method detection/reporting limit.

Summary of Lead (Pb) testing under Schedule 15.1 during this reporting period

Location Type	Number of Samples	Range of Lead Results (min.) - (max.)	Unit of Measure	Number of Exceedances
*Plumbing	*	*	*	*
*Distribution	*	*	*	*

***NOTE:** Refer to Toronto DS (Distribution System) Annual Report for Lead (Pb) testing data

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

Parameter	Sample Date	Result Value (min.) - (max.)	Unit of Measure	Exceedance
Alachlor	Jan – Dec 2022	0 - 0	µg/L	No
Atrazine + N-dealkylated metabolites	Jan – Dec 2022	0.0990 – 0.1210	µg/L	No
Azinphos-methyl	Jan – Dec 2022	0 - 0	µg/L	No
Benzene	Jan – Dec 2022	0 - 0	µg/L	No
Benzo(a)pyrene	Jan – Dec 2022	0 - 0	µg/L	No
Bromoxynil	Jan – Dec 2022	0 - 0	µg/L	No
Carbaryl	Jan – Dec 2022	0 - 0	µg/L	No
Carbofuran	Jan – Dec 2022	0 - 0	µg/L	No
Carbon Tetrachloride	Jan – Dec 2022	0 - 0	µg/L	No
Chlorpyrifos	Jan – Dec 2022	0 - 0	µg/L	No
Diazinon	Jan – Dec 2022	0 - 0	µg/L	No
Dicamba	Jan – Dec 2022	0 - 0	µg/L	No
1,2-Dichlorobenzene	Jan – Dec 2022	0 - 0	µg/L	No
1,4-Dichlorobenzene	Jan – Dec 2022	0 - 0	µg/L	No
1,2-Dichloroethane	Jan – Dec 2022	0 - 0	µg/L	No
1,1-Dichloroethylene (vinylidene chloride)	Jan – Dec 2022	0 - 0	µg/L	No
Dichloromethane	Jan – Dec 2022	0 - 0	µg/L	No
2,4-Dichlorophenol	Jan – Dec 2022	0 - 0	µg/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	Jan – Dec 2022	0 - 0	µg/L	No
Diclofop-methyl	Jan – Dec 2022	0 - 0	µg/L	No
Dimethoate	Jan – Dec 2022	0 - 0	µg/L	No
Diquat	Jan – Dec 2022	0 - 0	µg/L	No
Diuron	Jan – Dec 2022	0 - 0	µg/L	No
Glyphosate	Jan – Dec 2022	0 - 0	µg/L	No
Malathion	Jan – Dec 2022	0 - 0	µg/L	No
Metolachlor	Jan – Dec 2022	0.0061 – 0.0098	µg/L	No
Metribuzin	Jan – Dec 2022	0 - 0	µg/L	No
Monochlorobenzene	Jan – Dec 2022	0 - 0	µg/L	No
Paraquat	Jan – Dec 2022	0 - 0	µg/L	No
Pentachlorophenol	Jan – Dec 2022	0 - 0	µg/L	No
Phorate	Jan – Dec 2022	0 - 0	µg/L	No
Picloram	Jan – Dec 2022	0 - 0	µg/L	No
Polychlorinated Biphenyls (PCB)	Jan – Dec 2022	0 - 0	µg/L	No
Prometryne	Jan – Dec 2022	0 - 0	µg/L	No
Simazine	Jan – Dec 2022	0.0029 – 0.0045	µg/L	No
THM (Note: showing latest annual average)	Jan – Dec 2022	11.73	µg/L	No



Parameter	Sample Date	Result Value (min.) - (max.)	Unit of Measure	Exceedance
Terbufos	Jan – Dec 2022	0 - 0	µg/L	No
Tetrachloroethylene	Jan – Dec 2022	0 - 0	µg/L	No
2,3,4,6-Tetrachlorophenol	Jan – Dec 2022	0 - 0	µg/L	No
Triallate	Jan – Dec 2022	0 - 0	µg/L	No
Trichloroethylene	Jan – Dec 2022	0 - 0	µg/L	No
2,4,6-Trichlorophenol	Jan – Dec 2022	0 - 0	µg/L	No
Trifluralin	Jan – Dec 2022	0 - 0	µg/L	No
Vinyl Chloride	Jan – Dec 2022	0 - 0	µg/L	No

NOTE: A result of zero indicates that the result obtained was below the method detection/reporting limit.

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 (min.) - (max.)	Unit of Measure	Date of Sample
NONE	NONE	NONE	NONE

CITY OF TORONTO DRINKING WATER SYSTEM ANNUAL REPORT

Drinking-Water System Number:	220004536
Drinking-Water System Name:	City of Toronto Drinking Water System (F. J. Horgan)
Drinking-Water System Owner:	City of Toronto
Drinking-Water System Category:	Large Municipal Residential
Period being reported:	January 1, 2022 to December 31, 2022

<p><u>Complete if your Category is Large Municipal Residential or Small Municipal Residential</u></p> <p>Does your Drinking-Water System serve more than 10,000 people? Yes [X] No []</p> <p>Is your annual report available to the public at no charge on a web site on the Internet? Yes [X] No []</p> <p>Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.</p> <div style="border: 1px solid black; padding: 5px;"> Metro Hall 55 John Street Toronto, Ontario M5V 3C6 </div>	<p><u>Complete for all other Categories.</u></p> <p>Number of Designated Facilities served:</p> <div style="border: 1px solid black; height: 20px; width: 100%;"></div> <p>Did you provide a copy of your annual report to all Designated Facilities you serve? Yes [] No []</p> <p>Number of Interested Authorities you report to:</p> <div style="border: 1px solid black; height: 20px; width: 100%;"></div> <p>Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility? Yes [] No []</p>
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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
Region of York - receives some of their water from Toronto	260001929

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 [X] No []

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

- [X] Public access/notice via the web
- [X] 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

Toronto Water Supply System consists of four water treatment plants, 18 pumping stations, 11 major underground storage reservoirs, four elevated storage tanks and approximately 510 kilometers of trunk watermains and 5,583 kilometers of distribution watermains.

The F.J. Horgan Water Treatment Plant is a direct water treatment plant, has a rated capacity of 800,000 m³/day and is located at 201 Copperfield Road, Toronto.

The other three (3) Toronto Water Treatment plants are as follows:

- R.L. Clark Water Treatment Plant (Rated Capacity of 615,000 m³/day) and is located at 45 Twenty Third Street, Toronto
- R.C. Harris Water Treatment Plant (Rated Capacity of 950,000 m³/day) and is located at 2701 Queen Street East, Toronto
- Island Water Treatment Plant (Rated Capacity of 440,000 m³/day) and is located on Centre Island, Toronto

List all water treatment chemicals used over this reporting period

Polyaluminum Chloride (PACL – XL52)
Chlorine
Sulphur dioxide
Hydrofluosilicic acid
Aqua ammonia
Liquid Oxygen
Ozone
Sodium bisulphite (SBS)
Phosphoric acid
Polymer - Anionic (FLO AF340) for waste residuals treatment
Polymer - Cationic (Floquat MG FL 4620)

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

Capital Projects - The following amounts relate to various projects during 2022 and do not represent the total project costs. These numbers do not include the normal operating and maintenance costs.

No.	Project Description	Monetary Expense
1.	Facility and Process Upgrades	\$177,000
2.	Baffle Retrofit	\$297,000
3.	Zebra Mussel Control System Replacement	\$4,092,000



No.	Project Description	Monetary Expense
4.	Raw Water Valves Replacement	\$1,568,000
5.	Server Room	\$24,000
6.	Standby Power Optimization	\$35,000
7.	Gaseous System Upgrades	\$125,000
8.	WiFi Communications	\$50,000
9.	Ozone System Rehabilitation	\$317,000

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

NOTE: "Incident date" is the date adverse result was reported to MECP-SAC. "Corrective action date" is the date the location was resampled.

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
no incidents reported in 2022	N/A	N/A	N/A	N/A	N/A

Microbiological testing done under the Schedule 10, 11 or 12 of 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	316	0 - 18	0 - 28	316	0 - 233
Treated	1372	1372 A (100%A)	1372 A (100%A)	1362	0 – 23

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

Parameter	Number of Grab Samples	Range of Results (min.) - (max.)	Unit of Measure
Turbidity	8760	0.03 – 0.18	NTU
Chlorine	8760	1.65 – 2.54	mg/L
*Fluoride (If the DWS provides fluoridation)	355	0.16 – 0.71	mg/L

NOTE: For Continuous Monitoring (zero days offline):

Number of Grab Samples = 24 samples/day x 365 days/year (or 366 days/leap year) = 8760 (or 8784)

*Fluoride Grab Sample numbers and range of results are reported using data from days when fluoridation was in service.

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 (Annual Average)	Unit of Measure
November 9, 2020 Municipal Drinking Water Licence	Total Suspended Solids (Residue Management)	Jan. 1, 2022 - Dec. 31, 2022	8.38	mg/L

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

Parameter	Sample Date	Result Value (min.) - (max.)	Unit of Measure	Exceedance
Antimony	Jan – Dec 2022	0	mg/L	No
Arsenic	Jan – Dec 2022	0.0008 – 0.0009	mg/L	No
Barium	Jan – Dec 2022	0.0188 – 0.0258	mg/L	No
Boron	Jan – Dec 2022	0.0207 – 0.0228	mg/L	No
Cadmium	Jan – Dec 2022	0	mg/L	No
Chromium	Jan – Dec 2022	0.0003 – 0.0004	mg/L	No
Lead	Jan – Dec 2022	0	mg/L	No
Mercury	Jan – Dec 2022	0	mg/L	No
Selenium	Jan – Dec 2022	0	mg/L	No
Sodium	Jan – Dec 2022	12.2 – 15.9	mg/L	No
Uranium	Jan – Dec 2022	0.0003 – 0.0004	mg/L	No
Nitrite	Jan – Dec 2022	0 - 0.004	mg/L	No
Nitrate	Jan – Dec 2022	0.27 – 0.46	mg/L	No

NOTE: A result of zero indicates that the result obtained was below the method detection/reporting limit.

Summary of Lead (Pb) testing under Schedule 15.1 during this reporting period

Location Type	Number of Samples	Range of Lead Results (min.) - (max.)	Unit of Measure	Number of Exceedances
*Plumbing	*	*	*	*
*Distribution	*	*	*	*

***NOTE:** Refer to Toronto DS (Distribution System) Annual Report for Lead (Pb) testing data

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

Parameter	Sample Date	Result Value (min.) - (max.)	Unit of Measure	Exceedance
Alachlor0.02 -	Jan – Dec 2022	0	µg/L	No
Atrazine + N-dealkylated metabolites	Jan – Dec 2022	0.069 – 0.115	µg/L	No
Azinphos-methyl	Jan – Dec 2022	0	µg/L	No
Benzene	Jan – Dec 2022	0	µg/L	No
Benzo(a)pyrene	Jan – Dec 2022	0	µg/L	No
Bromoxynil	Jan – Dec 2022	0	µg/L	No
Carbaryl	Jan – Dec 2022	0	µg/L	No
Carbofuran	Jan – Dec 2022	0	µg/L	No
Carbon Tetrachloride	Jan – Dec 2022	0	µg/L	No
Chlorpyrifos	Jan – Dec 2022	0	µg/L	No
Diazinon	Jan – Dec 2022	0	µg/L	No
Dicamba	Jan – Dec 2022	0	µg/L	No
1,2-Dichlorobenzene	Jan – Dec 2022	0	µg/L	No
1,4-Dichlorobenzene	Jan – Dec 2022	0	µg/L	No
1,2-Dichloroethane	Jan – Dec 2022	0	µg/L	No
1,1-Dichloroethylene (vinylidene chloride)	Jan – Dec 2022	0	µg/L	No
Dichloromethane	Jan – Dec 2022	0	µg/L	No
2-4 Dichlorophenol	Jan – Dec 2022	0	µg/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	Jan – Dec 2022	0	µg/L	No
Diclofop-methyl	Jan – Dec 2022	0	µg/L	No
Dimethoate	Jan – Dec 2022	0	µg/L	No
Diquat	Jan – Dec 2022	0	µg/L	No
Diuron	Jan – Dec 2022	0	µg/L	No
Glyphosate	Jan – Dec 2022	0	µg/L	No
Malathion	Jan – Dec 2022	0	µg/L	No
Metolachlor	Jan – Dec 2022	0.0022 – 0.0029	µg/L	No
Metribuzin	Jan – Dec 2022	0	µg/L	No
Monochlorobenzene	Jan – Dec 2022	0	µg/L	No
Paraquat	Jan – Dec 2022	0	µg/L	No
Pentachlorophenol	Jan – Dec 2022	0	µg/L	No
Phorate	Jan – Dec 2022	0	µg/L	No
Picloram	Jan – Dec 2022	0	µg/L	No
Polychlorinated Biphenyls(PCB)	Jan – Dec 2022	0	µg/L	No
Prometryne	Jan – Dec 2022	0	µg/L	No
Simazine	Jan – Dec 2022	0.0016 – 0.002	µg/L	No
THM (Note: Show latest annual average)	Jan – Dec 2022	4.54	µg/L	No



Parameter	Sample Date	Result Value (min.) - (max.)	Unit of Measure	Exceedance
Terbufos	Jan – Dec 2022	0	µg/L	No
Tetrachloroethylene	Jan – Dec 2022	0	µg/L	No
2,3,4,6-Tetrachlorophenol	Jan – Dec 2022	0	µg/L	No
Triallate	Jan – Dec 2022	0	µg/L	No
Trichloroethylene	Jan – Dec 2022	0	µg/L	No
2,4,6-Trichlorophenol	Jan – Dec 2022	0	µg/L	No
Trifluralin	Jan – Dec 2022	0	µg/L	No
Vinyl Chloride	Jan – Dec 2022	0 – 0.1	µg/L	No

NOTE: A result of zero indicates that the result obtained was below the method detection/reporting limit.

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 (min.) - (max.)	Unit of Measure	Date of Sample
NONE	NONE	NONE	NONE



CITY OF TORONTO DRINKING WATER SYSTEM ANNUAL REPORT

Drinking-Water System Number:	260090363
Drinking-Water System Name:	City of Toronto Drinking Water System – Toronto DS
Drinking-Water System Owner:	City of Toronto
Drinking-Water System Category:	Large Municipal Residential
Period being reported:	January 1, 2022 to December 31, 2022

<p><u>Complete if your Category is Large Municipal Residential or Small Municipal Residential</u></p> <p>Does your Drinking-Water System serve more than 10,000 people? Yes [X] No []</p> <p>Is your annual report available to the public at no charge on a web site on the Internet? Yes [X] No []</p> <p>Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.</p> <div style="border: 1px solid black; padding: 5px;"> Metro Hall 55 John Street Toronto, Ontario M5V 3C6 </div>	<p><u>Complete for all other Categories.</u></p> <p>Number of Designated Facilities served:</p> <div style="border: 1px solid black; height: 20px; width: 100%;"></div> <p>Did you provide a copy of your annual report to all Designated Facilities you serve? Yes [] No []</p> <p>Number of Interested Authorities you report to:</p> <div style="border: 1px solid black; height: 20px; width: 100%;"></div> <p>Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility? Yes [] No []</p>
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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
Region of York – receives some of their water from Toronto	260001929

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 [X] No []

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

[X] Public access/notice via the web

[X] 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

Toronto Water Supply System consists of four water treatment plants, 18 pumping stations, 11 major underground storage reservoirs, four elevated storage tanks and approximately 510 kilometers of trunk watermains and 5,583 kilometers of distribution watermains.

Working from eight facilities across the city, Distribution & Collection staff inspects, operate and maintain the existing water distribution and wastewater collection systems as well as stormwater management facilities.

There are four (4) Toronto Water Treatment plants:

- R.L. Clark Water Treatment Plant (Rated Capacity of 615,000 m³/day) and is located at 45 Twenty Third Street, Toronto
- R.C. Harris Water Treatment Plant (Rated Capacity of 950,000 m³/day) and is located at 2701 Queen Street East, Toronto
- F.J. Horgan Water Treatment Plant (Rated Capacity of 800,000 m³/day) and is located at 201 Copperfield Road, Toronto
- Island Water Treatment Plant (Rated Capacity of 410,000 m³/day) and is located on Centre Island, Toronto

List all water treatment chemicals used over this reporting period

N/A

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

Please note that the following amounts relate to various projects during 2022 and do not represent the total project costs. These numbers do not include normal operating and maintenance costs.

Distribution System:

Watermain Replacement	\$ 96,142,432
Water Service Replacement	\$ 37,639,972
Watermain Rehabilitation	\$ 65,789,248

Water Supply:

Facility Rehab and Standby Power	\$ 22,595,392
Transmission Main Rehab	\$ 642,785
New Transmission Main	\$ 3,664,279
Valve Automation	\$ 886,049

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

NOTE: "Incident date" is the date adverse result was reported to MECP-SAC. "Corrective action date" is the date the location was resampled.

AWQI Number	Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action/ Resample Date
157509	01-Jan-22	Total Coliform	Presence	Result in 100 mL sample	Flushed watermain. Resampled. Results acceptable.	01-Jan-22
157533	08-Jan-22	Total Coliform	Presence	Result in 100 mL sample	Flushed watermain. Resampled. Results acceptable.	11-Jan-22
157534	08-Jan-22	Total Coliform	Presence	Result in 100 mL sample	Flushed watermain. Resampled. Results acceptable.	11-Jan-22
157977	10-Mar-22	Total Chlorine	<0.25	mg/L	Flushed watermain. Resampled. Results acceptable.	10-Mar-22
158546	01-Jun-22	Total Coliform	Presence	Result in 100 mL sample	Flushed watermain. Resampled. Results acceptable.	1-Jun-22
158704	15-Jun-22	Total Coliform	Presence	Result in 100 mL sample	Flushed watermain. Resampled. Results acceptable.	16-Jun-22
158855	25-Jun-22	Total Coliform	Presence	Result in 100 mL sample	Flushed watermain. Resampled. Results acceptable.	27-Jun-22
158918	29-Jun-22	Total Coliform	Presence	Result in 100 mL sample	Flushed watermain. Resampled. Results acceptable.	29-Jun-22



AWQI Number	Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action/ Resample Date
158966	01-Jul-22	Total Coliform	Presence	Result in 100 mL sample	Flushed watermain. Resampled. Results acceptable.	04-Jul-22
158989	03-Jul-22	Total Coliform	Presence	Result in 100 mL sample	Flushed watermain. Resampled.	04-Jul-22
159016	06-Jul-22	Total Coliform	NDOGT	Result in 100 mL sample	Flushed watermain. Resampled.	06-Jul-22
159021	06-Jul-22	E. coli and Total Coliform	NDOGN	Result in 100 mL sample	Flushed watermain. Resampled.	06-Jul-22
159068	08-Jul-22	Total Coliform	NDOGT	Result in 100 mL sample	Flushed watermain. Resampled.	07-Jul-22
159069	08-Jul-22	E. coli and Total Coliform	NDOGN	Result in 100 mL sample	Flushed watermain. Resampled. Results acceptable.	07-Jul-22
159314	27-Jul-22	Total Coliform	Presence	Result in 100 mL sample	Flushed watermain. Resampled.	27-Jul-22
159345	29-Jul-22	E. coli and Total Coliform	1 EC, 1TC	CFU/100 mL	Flushed watermain. Resampled. Results acceptable	29-Jul-22
159352	29-Jul-22	Total Coliform	Presence	Result in 100 mL sample	Flushed watermain. Resampled. Results acceptable	29-Jul-22
159354	30-Jul-22	Total Coliform	Presence	Result in 100 mL sample	Flushed watermain. Resampled. Results acceptable	30-Jul-22
159355	30-Jul-22	Total Coliform	Presence	Result in 100 mL sample	Flushed watermain. Resampled. Results acceptable	30-Jul-22



AWQI Number	Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action/ Resample Date
159496	10-Aug-22	Total Coliform	Presence	Result in 100 mL sample	Flushed watermain. Resampled. Results acceptable	11-Aug-22
159589	17-Aug-22	Total Coliform	Presence	Result in 100 mL sample	Flushed watermain. Resampled. Results acceptable	18-Aug-22
159611	18-Aug-22	Total Coliform	Presence	Result in 100 mL sample	Flushed watermain. Resampled. Results acceptable	18-Aug-22
159640	19-Aug-22	Total Coliform	Presence	Result in 100 mL sample	Flushed watermain. Resampled. Results acceptable	20-Aug-22
159654	21-Aug-22	Total Coliform	Presence	Result in 100 mL sample	Flushed watermain. Resampled. Results acceptable	22-Aug-22
159729	27-Aug-22	Total Coliform	Presence	Result in 100 mL sample	Flushed watermain. Resampled.	27-Aug-22
159752	29-Aug-22	Total Coliform	NDOGT	Result in 100 mL sample	Flushed watermain. Resampled. Results Acceptable	29-Aug-22
159811	01-Sep-22	Total Coliform	Presence	Result in 100 mL sample	Flushed watermain. Resampled. Results acceptable	02-Sep-22
159828	02-Sep-22	Total Coliform	Presence	Result in 100 mL sample	Flushed watermain. Resampled. Results acceptable	02-Sep-22
159888	08-Sep-22	Total Coliform	Presence	Result in 100 mL sample	Flushed watermain. Resampled.	09-Sep-22



AWQI Number	Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action/ Resample Date
					Results acceptable	
159889	08-Sep-22	Total Coliform	Presence	Result in 100 mL sample	Flushed watermain. Resampled. Results acceptable	09-Sep-22
159989	15-Sep-22	Total Coliform	Presence	Result in 100 mL sample	Flushed watermain. Resampled. Results acceptable	16-Sep-22
160006	16-Sep-22	Total Coliform	Presence	Result in 100 mL sample	Flushed watermain. Resampled. Results acceptable	16-Sep-22
160018	18-Sep-22	Total Coliform	Presence	Result in 100 mL sample	Flushed watermain. Resampled. Results acceptable	19-Sep-22
160019	18-Sep-22	Total Coliform	Presence	Result in 100 mL sample	Flushed watermain. Resampled. Results acceptable	19-Sep-22
160097	22-Sep-22	Total Coliform	Presence	Result in 100 mL sample	Flushed watermain. Resampled. Results acceptable	23-Sep-22
160122	25-Sep-22	Total Coliform	Presence	Result in 100 mL sample	Flushed watermain. Resampled. Results acceptable	26-Sep-22
160123	25-Sep-22	Total Coliform	Presence	Result in 100 mL sample	Flushed watermain. Resampled. Results acceptable	26-Sep-22
160166	28-Sep-22	Total Coliform	Presence	Result in 100 mL sample	Flushed watermain. Resampled. Results acceptable	28-Sep-22



AWQI Number	Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action/ Resample Date
160196	30-Sep-22	Total Coliform	Presence	Result in 100 mL sample	Flushed watermain. Resampled. Results acceptable	01-Oct-22
160198	30-Sep-22	Total Coliform	Presence	Result in 100 mL sample	Flushed watermain. Resampled. Results acceptable	01-Oct-22
160202	01-Oct-22	Total Coliform	Presence	Result in 100 mL sample	Flushed watermain. Resampled. Results acceptable	03-Oct-22
160208	02-Oct-22	Total Coliform	Presence	Result in 100 mL sample	Flushed watermain. Resampled. Results acceptable	03-Oct-22
160248	05-Oct-22	Total Coliform	Presence	Result in 100 mL sample	watermain. Decommissioned	06-Oct-22
160249	05-Oct-22	Total Coliform	Presence	Result in 100 mL sample	Flushed watermain. Resampled. Results acceptable	06-Oct-22
160250	05-Oct-22	Total Coliform	Presence	Result in 100 mL sample	Flushed watermain. Resampled. Results acceptable	12-Oct-22
160268	06-Oct-22	Total Coliform	Presence	Result in 100 mL sample	Flushed watermain. Resampled. Results acceptable	07-Oct-22
160320	14-Oct-22	Total Coliform	Presence	Result in 100 mL sample	Flushed watermain. Resampled. Results acceptable	17-Oct-22
160350	18-Oct-22	Total Coliform	Presence	Result in 100 mL sample	Flushed watermain. Resampled.	19-Oct-22



AWQI Number	Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action/ Resample Date
160376	20-Oct-22	Total Coliform	3	CFU/100 mL	Flushed watermain. Resampled.	20-Oct-22
160404	22-Oct-22	Total Coliform	2	CFU/100 mL	Flushed watermain. Resampled.	21-Oct-22
160405	22-Oct-22	Total Coliform	1	CFU/100 mL	Flushed watermain. Resampled. Results Acceptable	24-Oct-22
160406	22-Oct-22	Total Coliform	Presence	Result in 100 mL sample	Flushed watermain. Resampled. Results Acceptable	22-Oct-22
160413	23-Oct-22	Total Coliform	1	CFU/100 mL	Flushed watermain. Resampled.	24-Oct-22
160438	25-Oct-22	Total Coliform	6	CFU/100 mL	Flushed watermain. Resampled.	26-Oct-22
160464	27-Oct-22	Total Coliform	1	CFU/100 mL	Flushed watermain. Resampled.	29-Oct-22
160476	28-Oct-22	Total Coliform	Presence	Result in 100 mL sample	Flushed watermain. Resampled.	29-Oct-22
160481	29-Oct-22	Total Coliform	Presence	Result in 100 mL sample	Flushed watermain. Resampled. Results Acceptable	02-Nov-22
160484	30-Oct-22	Total Coliform	11	CFU/100 mL	Flushed watermain. Resampled.	02-Nov-22
160485	30-Oct-22	Total Coliform	1	CFU/100 mL	Flushed watermain. Resampled. Results Acceptable	02-Nov-22
160477	28-Oct-22	Total Coliform	Presence	Result in 100 mL sample	Flushed watermain. Resampled.	29-Oct-22
160486	30-Oct-22	Total Coliform	1	CFU/100 mL	Flushed watermain. Resampled.	02-Nov-22



AWQI Number	Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action/ Resample Date
					Results Acceptable	
160487	30-Oct-22	Total Coliform	1	CFU/100 mL	Flushed watermain. Resampled. Results Acceptable	02-Nov-22
160511	01-Nov-22	Total Coliform	7	CFU/100 mL	Flushed watermain. Resampled.	07-Nov-22
160521	01-Nov-22	Total Coliform	Presence	Result in 100 mL sample	Flushed watermain. Resampled. Results Acceptable	02-Nov-22
160533	02-Nov-22	Total Coliform	Presence	Result in 100 mL sample	Flushed watermain. Resampled. Results Acceptable	03-Nov-22
160544	03-Nov-22	Total Coliform	3	CFU/100 mL	Flushed watermain. Resampled.	07-Nov-22
160576	06-Nov-22	Total Coliform	Presence	Result in 100 mL sample	Flushed watermain. Resampled. Results Acceptable	07-Nov-22
160578	06-Nov-22	Total Coliform	Presence	Result in 100 mL sample	Flushed watermain. Resampled. Results Acceptable	07-Nov-22
160592	08-Nov-22	Total Coliform	2	CFU/100 mL	Flushed watermain. Resampled.	10-Nov-22
160627	11-Nov-22	Total Coliform	2	CFU/100 mL	Flushed watermain. Blow off and service replaced. Resampled. Results Acceptable.	15-Nov-22
160636	12-Nov-22	Total Coliform	Presence	Result in 100 mL sample	Flushed watermain. Resampled.	14-Nov-22



AWQI Number	Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action/ Resample Date
					Results Acceptable	
160629	11-Nov-22	Total Coliform	Presence	Result in 100 mL sample	Flushed watermain. Resampled.	12-Nov-22
160647	14-Nov-22	Total Coliform	NDOGT	CFU/100 mL	Flushed watermain. Resampled.	16-Nov-22
160649	14-Nov-22	Total Coliform	NDOGT	CFU/100 mL	Flushed watermain. Resampled.	16-Nov-22
160650	14-Nov-22	Total Coliform	NDOGT	CFU/100 mL	Flushed watermain. Resampled.	16-Nov-22
160679	16-Nov-22	Total Coliform	Presence	Result in 100 mL sample	Flushed watermain. Resampled. Results Acceptable	17-Nov-22
160711	18-Nov-22	Total Coliform	8	CFU/100 mL	Flushed watermain. Resampled.	18-Nov-22
160714	18-Nov-22	Total Coliform	Presence	Result in 100 mL sample	Flushed watermain. Resampled. Results Acceptable	20-Nov-22
160724	20-Nov-22	Total Coliform	NDOGT	CFU/100 mL	Flushed watermain. Resampled.	20-Nov-22
160725	20-Nov-22	Total Coliform	NDOGT	CFU/100 mL	Flushed watermain. Resampled.	20-Nov-22
160726	20-Nov-22	Total Coliform	2	CFU/100 mL	Flushed watermain. Resampled.	20-Nov-22
160734	21-Nov-22	Total Coliform	2	CFU/100 mL	Flushed watermain. Resampled.	21-Nov-22
160754	22-Nov-22	Total Coliform	1	CFU/100 mL	Flushed watermain. Resampled.	22-Nov-22
160755	22-Nov-22	Total Coliform	6	CFU/100 mL	Flushed watermain. Resampled.	22-Nov-22
160772	24-Nov-22	Total Coliform	NDOGT	CFU/100 mL	watermain. Taken out of	25-Nov-22

AWQI Number	Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action/ Resample Date
					service Nov 25/22. Resampled as Non-Op- results acceptable	
160774	20-Nov-22	Total Coliform	NDOGT	CFU/100 mL	Flushed watermain. Resampled.	25-Nov-22
160794	25-Nov-22	Total Coliform	Presence	Result in 100 mL sample	Flushed watermain. Resampled. Results Acceptable	26-Nov-22
160800	26-Nov-22	Total Coliform	4	CFU/100 mL	Flushed watermain. Resampled.	26-Nov-22
160801	26-Nov-22	Total Coliform	2	CFU/100 mL	Flushed watermain. Resampled.	28-Nov-22
160829	26-Nov-22	Total Coliform	1	CFU/100 mL	Hydrant. Taken out of service Nov 28/22. Resampled as Non-Op- results acceptable	28-Nov-22
160833	29-Nov-22	Total Coliform	1	CFU/100 mL	Hydrant. Taken out of service Nov 30/22. Resampled as Non-Op- results acceptable.	30-Nov-22
160859	30-Nov-22	Total Coliform	Presence	Result in 100 mL sample	Flushed watermain. Resampled. Results Acceptable	01-Dec-22
160860	30-Nov-22	Total Coliform	Presence	Result in 100 mL sample	Flushed watermain. Resampled.	01-Dec-22
160882	02-Dec-22	Total Coliform	1	CFU/ 100 mL	Flushed watermain. Resampled.	02-Dec-22

AWQI Number	Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action/ Resample Date
					Results Acceptable	

NDOGT = No Data; plate overgrown with target organisms

NDOGN = No Data; plate overgrown with non-target organisms

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

	Number of Samples	Range of E. coli or Fecal Results (min.) - (max.) or P/A	Range of Total Coliform Results (min.) - (max.) or P/A	Number of HPC Samples	Range of HPC Results (min.) - (max.)
*Distribution	3160	3160A (100% A)	3159A (99.99% A)	3160	0 - >5700
Transmission	1863	1863A (100% A)	1863A (100% A)	1863	0 - 235
Main Work	1617	1617A (100% A)	1563A (96.7% A)	1617	0 - >5700
Resample and vicinity	243	242 (99.99% Compliance) (0) – (1)	209 (86.0% Compliance) (0) – (11)	243	0 - >5700

***NOTE:** "Distribution" includes samples submitted for Water Quality Inquiry as well as distribution samples. Resample and vicinity bacti samples are processed by Membrane filtration technique. The rest of the bacti samples are processed using the Presence/Absence technique.

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

For Distribution

	Number of Grab Samples	Range of Results (min.) - (max.)
Turbidity	3113	<0.1 – 6.85 NTU
Chlorine	3159	0.21 – 2.44 mg/L

For Transmission

	Number of Grab Samples	Range of Results (min.) - (max.)
Turbidity	1879	<0.1 – 2.35NTU
Chlorine	1880	0.62 – 2.50 mg/L

For Main Work

	Number of Grab Samples	Range of Results (min.) - (max.)
Turbidity	1622	<0.1 – 2.85 NTU
Chlorine	1622	0.26 -2.52 mg/L

For Resample/Vicinity

	Number of Grab Samples	Range of Results (min.) - (max.)
Turbidity	263	<0.1 – 4.94NTU
Chlorine	263	0.26 – 2.20 mg/L

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
NONE	NONE	NONE	NONE	NONE

Summary of Inorganic parameters tested during this reporting period or the most recent sample results for Transmission samples.

Parameter	Sample Date	Result Value (min.) - (max.)	Unit of Measure	Exceedance
Sodium*	Jan-Dec 2022	12.2 – 23.8	mg/L	Yes
Nitrite	Jan-Dec 2022	0 – 0.004	mg/L	No
Nitrate	Jan-Dec 2022	0.2 – 0.49	mg/L	No

*Sodium adverse for Keele Reservoir reported Feb 4, 2020; 23.8 mg/L result is within the 57-month reporting timeline and therefore it's not required to be reported to SAC.

Summary of Inorganic parameters tested during this reporting period or the most recent sample results for Distribution samples.

Parameter	Sample Date	Result Value (min.) - (max.)	Unit of Measure	Exceedance
Sodium	Jan-Dec 2022	13.3 – 13.5	mg/L	No
Nitrite	Jan-Dec 2022	<0.002 – 0.009	mg/L	No
Nitrate	Jan-Dec 2022	0.36 – 0.42	mg/L	No

Summary of Lead (Pb) testing under Schedule 15.1 during this reporting period

Location Type	Number of Samples	Range of Lead Results (min.) - (max.)	Unit of Measure	Number of Exceedances
Plumbing	122	<0.00005 – 0.00386	mg/L	None
Distribution	23	<0.00005 – 0.00082	mg/L	None

Summary of Organic parameters sampled during this reporting period or the most recent sample results for DISTRIBUTION samples

Parameter	Sample Date	Result Value (min.) - (max.)	Unit of Measure	Exceedance
Benzene	Jan-Dec 2022	0 - 0	µg/L	No
Carbon Tetrachloride	Jan-Dec 2022	0 - 0	µg/L	No
1,2-Dichlorobenzene	Jan-Dec 2022	0 - 0	µg/L	No
1,4-Dichlorobenzene	Jan-Dec 2022	0 - 0	µg/L	No
1,2-Dichloroethane	Jan-Dec 2022	0 - 0	µg/L	No
1,1-Dichloroethylene (vinylidene chloride)	Jan-Dec 2022	0 - 0	µg/L	No
Dichloromethane	Jan-Dec 2022	0 - 0	µg/L	No
Monochlorobenzene	Jan-Dec 2022	0 - 0	µg/L	No
THM (NOTE: show latest annual average)	Jan-Dec 2022	9.3	µg/L	No
Tetrachloroethylene	Jan-Dec 2022	0 - 0	µg/L	No
Trichloroethylene	Jan-Dec 2022	0 - 0	µg/L	No
Vinyl Chloride	Jan-Dec 2022	0 - 0	µg/L	No

NOTE: A result of zero indicates that the result obtained was below the method detection/reporting limit.

Summary of Organic parameters sampled during this reporting period or the most recent sample results for TRANSMISSION (SUPPLY) samples.

Parameter	Sample Date	Result Value (min.) - (max.)	Unit of Measure	Exceedance
Benzene	Jan-Dec 2022	0 - 0	µg/L	No
Carbon Tetrachloride	Jan-Dec 2022	0 - 0	µg/L	No
1,2-Dichlorobenzene	Jan-Dec 2022	0 - 0	µg/L	No
1,4-Dichlorobenzene	Jan-Dec 2022	0 - 0	µg/L	No
1,2-Dichloroethane	Jan-Dec 2022	0 - 0	µg/L	No
1,1-Dichloroethylene (vinylidene chloride)	Jan-Dec 2022	0 - 0	µg/L	No
Dichloromethane	Jan-Dec 2022	0 - 0	µg/L	No
Monochlorobenzene	Jan-Dec 2022	0 - 0	µg/L	No
THM (NOTE: show latest annual average)	Jan-Dec 2022	10.5	µg/L	No



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

Parameter	Sample Date	Result Value (min.) - (max.)	Unit of Measure	Exceedance
Tetrachloroethylene	Jan-Dec 2022	0 - 0	µg/L	No
Trichloroethylene	Jan-Dec 2022	0 - 0	µg/L	No
Vinyl Chloride	Jan-Dec 2022	0 - 0	µg/L	No

NOTE: A result of zero indicates that the result obtained was below the method detection/reporting limit.

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
NONE	N/A	N/A	N/A