



# DRINKING WATER SYSTEM



Annual  
Report  
**2018**



## CITY OF TORONTO DRINKING WATER SYSTEM ANNUAL REPORT

<b>Drinking-Water System Number:</b>	220002262
<b>Drinking-Water System Name:</b>	City of Toronto Drinking Water System (R. C. Harris)
<b>Drinking-Water System Owner:</b>	City of Toronto
<b>Drinking-Water System Category:</b>	Large Municipal Residential
<b>Period being reported:</b>	January 1, 2018 to December 31, 2018

<p><b><u>Complete if your Category is Large Municipal Residential or Small Municipal Residential</u></b></p> <p>Does your Drinking-Water System serve more than 10,000 people? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>Is your annual report available to the public at no charge on a web site on the Internet? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></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><b><u>Complete for all other Categories.</u></b></p> <p>Number of Designated Facilities served:  <div style="border: 1px solid black; height: 20px; width: 100%;"></div> </p> <p>Did you provide a copy of your annual report to all Designated Facilities you serve? Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p>Number of Interested Authorities you report to:  <div style="border: 1px solid black; height: 20px; width: 100%;"></div> </p> <p>Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility? Yes <input type="checkbox"/> No <input type="checkbox"/></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 ☒ No ☐

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**

Toronto Water Supply System consists of four water treatment plants, 18 pumping stations, 10 major underground storage reservoirs, four elevated storage tanks and approximately 520 kilometers of trunk watermains and 5,525 kilometers of distribution watermains.

The R.C. Harris Water Treatment Plant is a conventional water treatment plant, has a rated capacity of 950,000 m<sup>3</sup>/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 m<sup>3</sup>/day) and is located at 45 Twenty Third Street, Toronto
- F.J. Horgan Water Treatment Plant (Rated Capacity of 800,000 m<sup>3</sup>/day) and is located at 201 Copperfield Road, Toronto
- Island Water Treatment Plant (Rated Capacity of 410,000 m<sup>3</sup>/day) and is located on Centre Island, Toronto

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

Alum (Aluminum sulphate)  
Chlorine  
Sulphur dioxide  
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 2018 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.	Settling Basin Rehabilitation	Rehabilitation of 6 settling basins, west filter drain gates and high lift cone valves	\$4,411,000
2.	Control Room Relocation	Relocation and modernization of the plant control room	\$118,000
3.	Liquid Chemical Systems upgrade	Replacement of SBS and ammonia tanks, process de-chlorination automation and ammonia scrubber installation	\$1,885,000
4.	Emergency Standby Power	Emergency standby power for critical loads	\$119,000

**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 MOECC-SAC. "Corrective action date" is the date the location was resampled.

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
NONE REPORTED	--	--	--	--	--

**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	365	0 - 4	0 - 39	365	0 - 216
Treated	1451	1451 A (100%A)	1451 A (100%A)	1435	0 - 12

**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	0.02 - 0.18	NTU
Chlorine	8760	1.29 - 2.97	mg/L
*Fluoride (If the DWS provides fluoridation)	358	0.50 – 0.73	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.**

<b>Date Of Legal Instrument Issued</b>	<b>Parameter</b>	<b>Date Sampled</b>	<b>Result (Annual Average)</b>	<b>Unit of Measure</b>
May 18, 2018 Municipal Drinking Water Licence	Total Suspended Solids (Residue Management)	Jan 01-Dec 31, 2018	7.08	mg/L
	Total Chlorine (Residue Management)	Jan 01-Dec 31, 2018	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**

<b>Parameter</b>	<b>Sample Date</b>	<b>Result Value (min.) - (max.)</b>	<b>Unit of Measure</b>	<b>Exceedance</b>
Antimony	Jan – Dec 2018	0.0002 – 0.0002	mg/L	No
Arsenic	Jan – Dec 2018	0.0005 – 0.0008	mg/L	No
Barium	Jan – Dec 2018	0.0210 – 0.0233	mg/L	No
Boron	Jan – Dec 2018	0.0234– 0.0252	mg/L	No
Cadmium	Jan – Dec 2018	0 – 0	mg/L	No
Chromium	Jan – Dec 2018	0.0004 – 0.0008	mg/L	No
Lead	Jan – Dec 2018	0 – 0	mg/L	No
Mercury	Jan – Dec 2018	0 – 0	mg/L	No
Selenium	Jan – Dec 2018	0 – 0.0005	mg/L	No
Sodium	Jan – Dec 2018	12.9 – 16.2	mg/L	No
Uranium	Jan – Dec 2018	0.0003 – 0.0004	mg/L	No
Nitrite	Jan – Dec 2018	0 – 0.0040	mg/L	No
Nitrate	Jan – Dec 2018	0.1500– 0.4200	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**

<b>Location Type</b>	<b>Number of Samples</b>	<b>Range of Lead Results (min.) - (max.)</b>	<b>Unit of Measure</b>	<b>Number of Exceedances</b>
*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 2018	0 – 0	µg/L	No
Atrazine + N-dealkylated metabolites	Jan – Dec 2018	0.1140 – 0.1180	µg/L	No
Azinphos-methyl	Jan – Dec 2018	0 – 0	µg/L	No
Benzene	Jan – Dec 2018	0 – 0	µg/L	No
Benzo(a)pyrene	Jan – Dec 2018	0 – 0	µg/L	No
Bromoxynil	Jan – Dec 2018	0 – 0	µg/L	No
Carbaryl	Jan – Dec 2018	0 – 0	µg/L	No
Carbofuran	Jan – Dec 2018	0 – 0	µg/L	No
Carbon Tetrachloride	Jan – Dec 2018	0 – 0	µg/L	No
Chlorpyrifos	Jan – Dec 2018	0 – 0	µg/L	No
Diazinon	Jan – Dec 2018	0 – 0	µg/L	No
Dicamba	Jan – Dec 2018	0 – 0	µg/L	No
1,2-Dichlorobenzene	Jan – Dec 2018	0 – 0	µg/L	No
1,4-Dichlorobenzene	Jan – Dec 2018	0 – 0	µg/L	No
1,2-Dichloroethane	Jan – Dec 2018	0 – 0	µg/L	No
1,1-Dichloroethylene (vinylidene chloride)	Jan – Dec 2018	0 – 0	µg/L	No
Dichloromethane	Jan – Dec 2018	0 – 0.4000	µg/L	No
2,4-Dichlorophenol	Jan – Dec 2018	0 – 0	µg/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	Jan – Dec 2018	0 – 0	µg/L	No
Diclofop-methyl	Jan – Dec 2018	0 – 0	µg/L	No
Dimethoate	Jan – Dec 2018	0 – 0	µg/L	No
Diquat	Jan – Dec 2018	0	µg/L	No
Diuron	Jan – Dec 2018	0 – 0	µg/L	No
Glyphosate	Jan – Dec 2018	0	µg/L	No
Malathion	Jan – Dec 2018	0 – 0	µg/L	No
Metolachlor	Jan – Dec 2018	0.0066 – 0.0078	µg/L	No
Metribuzin	Jan – Dec 2018	0 – 0	µg/L	No
Monochlorobenzene	Jan – Dec 2018	0 – 0	µg/L	No
Paraquat	Jan – Dec 2018	0	µg/L	No
Pentachlorophenol	Jan – Dec 2018	0 – 0	µg/L	No
Phorate	Jan – Dec 2018	0 – 0	µg/L	No
Picloram	Jan – Dec 2018	0 – 1.2200	µg/L	No
Polychlorinated Biphenyls(PCB)	Jan – Dec 2018	0 – 0	µg/L	No
Prometryne	Jan – Dec 2018	0 – 0	µg/L	No
Simazine	Jan – Dec 2018	0.0051 – 0.0052	µg/L	No
THM (Note: Show latest annual average)	Jan – Dec 2018	11.0	µg/L	No



Terbufos	Jan – Dec 2018	0 – 0	µg/L	No
Tetrachloroethylene	Jan – Dec 2018	0 – 0	µg/L	No
2,3,4,6-Tetrachlorophenol	Jan – Dec 2018	0 – 0	µg/L	No
Triallate	Jan – Dec 2018	0 – 0	µg/L	No
Trichloroethylene	Jan – Dec 2018	0 – 0	µg/L	No
2,4,6-Trichlorophenol	Jan – Dec 2018	0 – 0	µg/L	No
Trifluralin	Jan – Dec 2018	0 – 0	µg/L	No
Vinyl Chloride	Jan – Dec 2018	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

<b>Drinking-Water System Number:</b>	220002244
<b>Drinking-Water System Name:</b>	City of Toronto Drinking Water System (Island)
<b>Drinking-Water System Owner:</b>	City of Toronto
<b>Drinking-Water System Category:</b>	Large Municipal Residential
<b>Period being reported:</b>	January 1, 2018 to December 31, 2018

<p><b><u>Complete if your Category is Large Municipal Residential or Small Municipal Residential</u></b></p> <p>Does your Drinking-Water System serve more than 10,000 people? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>Is your annual report available to the public at no charge on a web site on the Internet? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></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><b><u>Complete for all other Categories.</u></b></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 <input type="checkbox"/> No <input type="checkbox"/></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 <input type="checkbox"/> No <input type="checkbox"/></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 ☒ No ☐

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

Toronto Water Supply System consists of four water treatment plants, 18 pumping stations, 10 major underground storage reservoirs, four elevated storage tanks and approximately 520 kilometers of trunk watermains and 5,525 kilometers of distribution watermains.

The Island Water Treatment Plant is a direct filtration water treatment plant, has a rated capacity of 410,000 m<sup>3</sup>/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 m<sup>3</sup>/day) and is located at 45 Twenty Third Street, Toronto
- R.C. Harris Water Treatment Plant (Rated Capacity of 950,000 m<sup>3</sup>/day) and is located at 2701 Queen Street East, Toronto
- F.J. Horgan Water Treatment Plant (Rated Capacity of 800,000 m<sup>3</sup>/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)  
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 2018 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 Marine Yard Rehabilitation	\$4,427,000
2.	Design-Build Intake Cleaning	\$2,858,000
3.	Design & Construction of Residuals Management System	\$2,428,000
4.	Inspection of Treated Water Tunnel	\$283,000
5.	Design of Ammonia & Fluoride System Upgrades	\$238,000

6.	Design of UV Treatment, Residuals Dewatering, & Electrical Upgrades	\$185,000
7.	Engineering Study of WTP Re-rating	\$76,300
8.	Design of Plant-wide HVAC Upgrades	\$52,000
9.	Design of Scrubber Upgrades	\$47,000
10.	Design & Construction of Cross Connection Upgrades	\$28,000
11.	Engineering Modelling of Filter Mounding	\$21,000

**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 MOECC-SAC. "Corrective action date" is the date the location was resampled.

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
10-Sep-18	N-Nitrosodi-methylamine- (NDMA)	>0.000009	mg/L	Resample and test. Result acceptable.	14-Sep-18

**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	331	0 - 46	0 - 99	331	0 - 183
Treated	1320	1320 A (100%A)	1320 A (100%A)	1312	0 - 7

**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	7941	0.04 – 0.16	NTU
Chlorine	7941	1.56 – 2.25	mg/L
*Fluoride (If the DWS provides fluoridation)	327	0.48 – 0.78	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
28 August 2017 & 18-May 2018 Municipal Drinking Water Licence	Total Suspended Solids (Residue Management)	Jan. 1, 2018 - Dec. 31, 2018	3.2	mg/L
	Total Chlorine (Residue Management)	Jan. 1, 2018 - Dec. 31, 2018	0.0014	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 2018	0.0002 – 0.0002	mg/L	No
Arsenic	Jan – Dec 2018	0.0008 – 0.0011	mg/L	No
Barium	Jan – Dec 2018	0.0220 – 0.0244	mg/L	No
Boron	Jan – Dec 2018	0.0227– 0.0249	mg/L	No
Cadmium	Jan – Dec 2018	0 – 0	mg/L	No
Chromium	Jan – Dec 2018	0.0003 – 0.0008	mg/L	No
Lead	Jan – Dec 2018	0 – 0.0002	mg/L	No
Mercury	Jan – Dec 2018	0 – 0	mg/L	No
Selenium	Jan – Dec 2018	0 – 0.0005	mg/L	No
Sodium	Jan – Dec 2018	12.4 – 15.6	mg/L	No
Uranium	Jan – Dec 2018	0.0003 – 0.0004	mg/L	No
Nitrite	Jan – Dec 2018	0 – 0.0040	mg/L	No
Nitrate	Jan – Dec 2018	0.3600– 0.4500	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**

<b>Parameter</b>	<b>Sample Date</b>	<b>Result Value (min.) - (max.)</b>	<b>Unit of Measure</b>	<b>Exceedance</b>
Alachlor	Jan – Dec 2018	0 – 0	µg/L	No
Atrazine + N-dealkylated metabolites	Jan – Dec 2018	0.1130 – 0.1220	µg/L	No
Azinphos-methyl	Jan – Dec 2018	0 – 0	µg/L	No
Benzene	Jan – Dec 2018	0 – 0	µg/L	No
Benzo(a)pyrene	Jan – Dec 2018	0 – 0	µg/L	No
Bromoxynil	Jan – Dec 2018	0 – 0	µg/L	No
Carbaryl	Jan – Dec 2018	0 – 0	µg/L	No
Carbofuran	Jan – Dec 2018	0 – 0	µg/L	No
Carbon Tetrachloride	Jan – Dec 2018	0 – 0	µg/L	No
Chlorpyrifos	Jan – Dec 2018	0 – 0	µg/L	No
Diazinon	Jan – Dec 2018	0 – 0	µg/L	No
Dicamba	Jan – Dec 2018	0 – 0	µg/L	No
1,2-Dichlorobenzene	Jan – Dec 2018	0 – 0	µg/L	No
1,4-Dichlorobenzene	Jan – Dec 2018	0 – 0	µg/L	No
1,2-Dichloroethane	Jan – Dec 2018	0 – 0	µg/L	No
1,1-Dichloroethylene (vinylidene chloride)	Jan – Dec 2018	0 – 0	µg/L	No
Dichloromethane	Jan – Dec 2018	0 – 1.0000	µg/L	No
2,4-Dichlorophenol	Jan – Dec 2018	0 – 0	µg/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	Jan – Dec 2018	0 – 0	µg/L	No
Diclofop-methyl	Jan – Dec 2018	0 – 0	µg/L	No
Dimethoate	Jan – Dec 2018	0 – 0	µg/L	No
Diquat	Jan – Dec 2018	0	µg/L	No
Diuron	Jan – Dec 2018	0 – 0	µg/L	No
Glyphosate	Jan – Dec 2018	0	µg/L	No
Malathion	Jan – Dec 2018	0 – 0	µg/L	No
Metolachlor	Jan – Dec 2018	0.0068 – 0.0075	µg/L	No
Metribuzin	Jan – Dec 2018	0 – 0	µg/L	No
Monochlorobenzene	Jan – Dec 2018	0 – 0	µg/L	No
Paraquat	Jan – Dec 2018	0	µg/L	No
Pentachlorophenol	Jan – Dec 2018	0 – 0	µg/L	No
Phorate	Jan – Dec 2018	0 – 0	µg/L	No
Picloram	Jan – Dec 2018	0 – 1.1700	µg/L	No
Polychlorinated Biphenyls (PCB)	Jan – Dec 2018	0 – 0	µg/L	No
Prometryne	Jan – Dec 2018	0 – 0	µg/L	No
Simazine	Jan – Dec 2018	0.0050 – 0.0056	µg/L	No
THM (Note: Show latest annual average)	Jan – Dec 2018	8.93	µg/L	No



Terbufos	Jan – Dec 2018	0 – 0	µg/L	No
Tetrachloroethylene	Jan – Dec 2018	0 – 0	µg/L	No
2,3,4,6-Tetrachlorophenol	Jan – Dec 2018	0 – 0	µg/L	No
Triallate	Jan – Dec 2018	0 – 0	µg/L	No
Trichloroethylene	Jan – Dec 2018	0 – 0	µg/L	No
2,4,6-Trichlorophenol	Jan – Dec 2018	0 – 0	µg/L	No
Trifluralin	Jan – Dec 2018	0 – 0	µg/L	No
Vinyl Chloride	Jan – Dec 2018	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

<b>Drinking-Water System Number:</b>	220002253
<b>Drinking-Water System Name:</b>	City of Toronto Drinking Water System (R. L. Clark)
<b>Drinking-Water System Owner:</b>	City of Toronto
<b>Drinking-Water System Category:</b>	Large Municipal Residential
<b>Period being reported:</b>	January 1, 2018 to December 31, 2018

<p><b><u>Complete if your Category is Large Municipal Residential or Small Municipal Residential</u></b></p> <p>Does your Drinking-Water System serve more than 10,000 people? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>Is your annual report available to the public at no charge on a web site on the Internet? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></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><b><u>Complete for all other Categories.</u></b></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 <input type="checkbox"/> No <input type="checkbox"/></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 <input type="checkbox"/> No <input type="checkbox"/></p>
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Region of York - receives some of their water from Toronto	260001929

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Yes ☒ No ☐

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**Describe your Drinking-Water System**

Toronto Water Supply System consists of four water treatment plants, 18 pumping stations, 10 major underground storage reservoirs, four elevated storage tanks and approximately 520 kilometers of trunk watermains and 5,525 kilometers of distribution watermains.

The R.L. Clark Water Treatment Plant is a conventional water treatment plant, has a rated capacity of 615,000 m<sup>3</sup>/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 m<sup>3</sup>/day) and is located at 2701 Queen Street East, Toronto
- F.J. Horgan Water Treatment Plant (Rated Capacity of 800,000 m<sup>3</sup>/day) and is located at 201 Copperfield Road, Toronto
- Island Water Treatment Plant (Rated Capacity of 410,000 m<sup>3</sup>/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 2018 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.	Filters Upgrade	Filter Rehabilitation Project	\$1,260,000
2.	RMF Modification and Optimization	Residue Management Facility Upgrades	\$3,630,000



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

3.	Architectural and Security Upgrades	Building Envelope Rehabilitation	\$11,710,000
4.	Zebra Mussel Control System Replacement	System Engineering Design	\$48,000
5.	Gaseous Systems Upgrade	System Engineering Design	\$47,000
6.	Misc. Plant Projects	Various plant equipment rehabilitation	\$283,000

**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 MOECC-SAC. "Corrective action date" is the date the location was resampled.

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
02-Sep-18	NDMA	>0.000009	mg/L	Resampled. Results acceptable	28-Sep-18

**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	153	0 - 40	0 - 100	153	0 - >5700
Treated	1426	1426 A (100%A)	1426 A 100%A)	1418	0 - 112

**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	8585	0.04 – 0.25	NTU
Chlorine	8585	1.81 – 2.39	mg/L
*Fluoride (If the DWS provides fluoridation)	334	0.5 – 1.05	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.

Note: The R. L. Clark WTP was out of service for routine maintenance from 04:30 on Nov. 19, 2018 to 12:00 on Nov. 26, 2018.

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
Not Applicable	N/A	N/A	N/A	N/A

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 2018	0.0002 – 0.0002	mg/L	No
Arsenic	Jan – Dec 2018	0.0005 – 0.0010	mg/L	No
Barium	Jan – Dec 2018	0.0206 – 0.0233	mg/L	No
Boron	Jan – Dec 2018	0.0242– 0.0250	mg/L	No
Cadmium	Jan – Dec 2018	0 – 0	mg/L	No
Chromium	Jan – Dec 2018	0.0003 – 0.0008	mg/L	No
Lead	Jan – Dec 2018	0 – 0.0001	mg/L	No
Mercury	Jan – Dec 2018	0 – 0	mg/L	No
Selenium	Jan – Dec 2018	0 – 0	mg/L	No
Sodium	Jan – Dec 2018	13.3 – 27.3	mg/L	No
Uranium	Jan – Dec 2018	0.0003 – 0.0004	mg/L	No
Nitrite	Jan – Dec 2018	0 – 0.0040	mg/L	No
Nitrate	Jan – Dec 2018	0.1700– 0.4800	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 2018	0 – 0	µg/L	No
Atrazine + N-dealkylated metabolites	Jan – Dec 2018	0.1160 – 0.1320	µg/L	No
Azinphos-methyl	Jan – Dec 2018	0 – 0	µg/L	No
Benzene	Jan – Dec 2018	0 – 0	µg/L	No
Benzo(a)pyrene	Jan – Dec 2018	0 – 0	µg/L	No



Bromoxynil	Jan – Dec 2018		µg/L	
Carbaryl	Jan – Dec 2018	0 – 0	µg/L	No
Carbofuran	Jan – Dec 2018	0 – 0	µg/L	No
Carbon Tetrachloride	Jan – Dec 2018	0 – 0	µg/L	No
Chlorpyrifos	Jan – Dec 2018	0 – 0	µg/L	No
Diazinon	Jan – Dec 2018	0 – 0	µg/L	No
Dicamba	Jan – Dec 2018	0 – 0	µg/L	No
1,2-Dichlorobenzene	Jan – Dec 2018	0 – 0	µg/L	No
1,4-Dichlorobenzene	Jan – Dec 2018	0 – 0	µg/L	No
1,2-Dichloroethane	Jan – Dec 2018	0 – 0	µg/L	No
1,1-Dichloroethylene (vinylidene chloride)	Jan – Dec 2018	0 – 0	µg/L	No
Dichloromethane	Jan – Dec 2018	0 – 0	µg/L	No
2-4 Dichlorophenol	Jan – Dec 2018	0 – 0	µg/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	Jan – Dec 2018	0 – 0	µg/L	No
Diclofop-methyl	Jan – Dec 2018	0 – 0	µg/L	No
Dimethoate	Jan – Dec 2018	0 – 0	µg/L	No
Diquat	Jan – Dec 2018	0	µg/L	No
Diuron	Jan – Dec 2018	0 – 0	µg/L	No
Glyphosate	Jan – Dec 2018	0	µg/L	No
Malathion	Jan – Dec 2018	0 – 0	µg/L	No
Metolachlor	Jan – Dec 2018	0.0070 – 0.0090	µg/L	No
Metribuzin	Jan – Dec 2018	0 – 0	µg/L	No
Monochlorobenzene	Jan – Dec 2018	0 – 0	µg/L	No
Paraquat	Jan – Dec 2018	0	µg/L	No
Pentachlorophenol	Jan – Dec 2018	0 – 0	µg/L	No
Phorate	Jan – Dec 2018	0 – 0	µg/L	No
Picloram	Jan – Dec 2018	0 – 1.220	µg/L	No
Polychlorinated Biphenyls (PCB)	Jan – Dec 2018	0 – 0	µg/L	No
Prometryne	Jan – Dec 2018	0 – 0	µg/L	No
Simazine	Jan – Dec 2018	0.005 – 0.0057	µg/L	No
THM (Note: showing latest annual average)	Jan – Dec 2018	11.1	µg/L	No
Terbufos	Jan – Dec 2018	0 – 0	µg/L	No
Tetrachloroethylene	Jan – Dec 2018	0 – 0	µg/L	No
2,3,4,6-Tetrachlorophenol	Jan – Dec 2018	0 – 0	µg/L	No
Triallate	Jan – Dec 2018	0 – 0	µg/L	No
Trichloroethylene	Jan – Dec 2018	0 – 0	µg/L	No
2,4,6-Trichlorophenol	Jan – Dec 2018	0 – 0	µg/L	No
Trifluralin	Jan – Dec 2018	0 – 0	µg/L	No
Vinyl Chloride	Jan – Dec 2018	0 – 0	µg/L	No

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



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

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

<b>Drinking-Water System Number:</b>	<b>220004536</b>
<b>Drinking-Water System Name:</b>	City of Toronto Drinking Water System (F. J. Horgan)
<b>Drinking-Water System Owner:</b>	City of Toronto
<b>Drinking-Water System Category:</b>	Large Municipal Residential
<b>Period being reported:</b>	January 1, 2018 to December 31, 2018

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

<b>Drinking Water System Name</b>	<b>Drinking Water System Number</b>
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.**

- ☒ **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

Toronto Water Supply System consists of four water treatment plants, 18 pumping stations, 10 major underground storage reservoirs, four elevated storage tanks and approximately 520 kilometers of trunk watermains and 5,525 kilometers of distribution watermains.

The F.J. Horgan Water Treatment Plant is a direct water treatment plant, has a rated capacity of 800,000 m<sup>3</sup>/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 m<sup>3</sup>/day) and is located at 45 Twenty Third Street, Toronto
- R.C. Harris Water Treatment Plant (Rated Capacity of 950,000 m<sup>3</sup>/day) and is located at 2701 Queen Street East, Toronto
- Island Water Treatment Plant (Rated Capacity of 410,000 m<sup>3</sup>/day) and is located on Centre Island, Toronto

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

Alum (Aluminum sulphate)  
Polyaluminum Chloride (PACL - SternPAC)  
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 (Magnaflow LT 7996)

## 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 2018 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	\$307,000
2.	Replacement of MCCs	\$849,000
3.	Standby Power Optimization	\$456,000

**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 MOECC-SAC. "Corrective action date" is the date the location was resampled.

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
06-Dec-18	NDMA	>0.000009	mg/L	Resampled. Results acceptable	08-Dec-18

**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	365	0 - 6	0 - 55	365	0 - 840
Treated	1454	1454 A (100%A)	1454 A (100%A)	1438	0 - 240

**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	0.04 - 08	NTU
Chlorine	8760	1.76 - 2.38	mg/L
*Fluoride (If the DWS provides fluoridation)	359	0.24 – 0.80	mg/L
<b>NOTE:</b> 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
11-Feb-2015 & 7-June 2016 Municipal Drinking Water Licence	Total Suspended Solids (Residue Management)	Jan. 1, 2018 - Dec. 31, 2018	5.15	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 2018	0.0002 – 0.0002	mg/L	No
Arsenic	Jan – Dec 2018	0.0006 – 0.0011	mg/L	No
Barium	Jan – Dec 2018	0.0170 – 0.0227	mg/L	No
Boron	Jan – Dec 2018	0.0225 – 0.0252	mg/L	No
Cadmium	Jan – Dec 2018	0 – 0	mg/L	No
Chromium	Jan – Dec 2018	0.0004 – 0.0008	mg/L	No
Lead	Jan – Dec 2018	0 – 0.0001	mg/L	No
Mercury	Jan – Dec 2018	0 – 0	mg/L	No
Selenium	Jan – Dec 2018	0 – 0.0006	mg/L	No
Sodium	Jan – Dec 2018	13.2 – 18.6	mg/L	No
Uranium	Jan – Dec 2018	0.0003 – 0.0004	mg/L	No
Nitrite	Jan – Dec 2018	0 – 0.0020	mg/L	No
Nitrate	Jan – Dec 2018	0.2100 – 0.5100	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



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

**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 2018	0 – 0	µg/L	No
Atrazine + N-dealkylated metabolites	Jan – Dec 2018	0.0640 – 0.0850	µg/L	No
Azinphos-methyl	Jan – Dec 2018	0 – 0	µg/L	No
Benzene	Jan – Dec 2018	0 – 0	µg/L	No
Benzo(a)pyrene	Jan – Dec 2018	0 – 0	µg/L	No
Bromoxynil	Jan – Dec 2018	0 – 0	µg/L	No
Carbaryl	Jan – Dec 2018	0 – 0	µg/L	No
Carbofuran	Jan – Dec 2018	0 – 0	µg/L	No
Carbon Tetrachloride	Jan – Dec 2018	0 – 0	µg/L	No
Chlorpyrifos	Jan – Dec 2018	0 – 0	µg/L	No
Diazinon	Jan – Dec 2018	0 – 0	µg/L	No
Dicamba	Jan – Dec 2018	0 – 0	µg/L	No
1,2-Dichlorobenzene	Jan – Dec 2018	0 – 0	µg/L	No
1,4-Dichlorobenzene	Jan – Dec 2018	0 – 0	µg/L	No
1,2-Dichloroethane	Jan – Dec 2018	0 – 0	µg/L	No
1,1-Dichloroethylene (vinylidene chloride)	Jan – Dec 2018	0 – 0	µg/L	No
Dichloromethane	Jan – Dec 2018	0 – 0	µg/L	No
2,4-Dichlorophenol	Jan – Dec 2018	0 – 0	µg/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	Jan – Dec 2018	0 – 0	µg/L	No
Diclofop-methyl	Jan – Dec 2018	0 – 0	µg/L	No
Dimethoate	Jan – Dec 2018	0 – 0	µg/L	No
Diquat	Jan – Dec 2018	0	µg/L	No
Diuron	Jan – Dec 2018	0 – 0	µg/L	No
Glyphosate	Jan – Dec 2018	0	µg/L	No
Malathion	Jan – Dec 2018	0 – 0	µg/L	No
Metolachlor	Jan – Dec 2018	0.0024 – 0.0038	µg/L	No
Metribuzin	Jan – Dec 2018	0 – 0	µg/L	No
Monochlorobenzene	Jan – Dec 2018	0 – 0	µg/L	No
Paraquat	Jan – Dec 2018	0	µg/L	No
Pentachlorophenol	Jan – Dec 2018	0 – 0	µg/L	No
Phorate	Jan – Dec 2018	0 – 0	µg/L	No
Picloram	Jan – Dec 2018	0 – 0.9718	µg/L	No
Polychlorinated Biphenyls(PCB)	Jan – Dec 2018	0 – 0	µg/L	No
Prometryne	Jan – Dec 2018	0 – 0	µg/L	No
Simazine	Jan – Dec 2018	0.0018 – 0.0020	µg/L	No
THM (Note: Show latest annual average)	Jan – Dec 2018	6.05	µg/L	No



Terbufos	Jan – Dec 2018	0 – 0	µg/L	No
Tetrachloroethylene	Jan – Dec 2018	0 – 0	µg/L	No
2,3,4,6-Tetrachlorophenol	Jan – Dec 2018	0 – 0	µg/L	No
Triallate	Jan – Dec 2018	0 – 0	µg/L	No
Trichloroethylene	Jan – Dec 2018	0 – 0	µg/L	No
2,4,6-Trichlorophenol	Jan – Dec 2018	0 – 0	µg/L	No
Trifluralin	Jan – Dec 2018	0 – 0	µg/L	No
Vinyl Chloride	Jan – Dec 2018	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



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

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

<b>Drinking-Water System Number:</b>	260090363
<b>Drinking-Water System Name:</b>	City of Toronto Drinking Water System – Toronto DS
<b>Drinking-Water System Owner:</b>	City of Toronto
<b>Drinking-Water System Category:</b>	Large Municipal Residential
<b>Period being reported:</b>	January 1, 2018 to December 31, 2018

<p><b><u>Complete if your Category is Large Municipal Residential or Small Municipal Residential</u></b></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><b><u>Complete for all other Categories.</u></b></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 Drinking Water Supply System consists of four water treatment plants, 18 pumping stations, 10 major underground storage reservoirs, four elevated storage tanks and approximately 540 kilometers of trunk watermains and 5,525 kilometers of distribution watermains.

Working from multiple facilities across the city, Distribution & Supply staff inspect, operate and maintain the existing water distribution and supply systems.

There are four (4) Toronto Water Treatment plants:

- R.L. Clark Water Treatment Plant (Rated Capacity of 615,000 m<sup>3</sup>/day) and is located at 45 Twenty Third Street, Toronto
- R.C. Harris Water Treatment Plant (Rated Capacity of 950,000 m<sup>3</sup>/day) and is located at 2701 Queen Street East, Toronto
- F.J. Horgan Water Treatment Plant (Rated Capacity of 800,000 m<sup>3</sup>/day) and is located at 201 Copperfield Road, Toronto
- Island Water Treatment Plant (Rated Capacity of 410,000 m<sup>3</sup>/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 2018 and do not represent the total project costs. These numbers do not include normal operating and maintenance costs.

### Distribution System:

Watermain Replacement	\$ 52.7 million
Water Service Replacement	\$ 18.5 million
Watermain Rehabilitation	\$ 44.1 million

### Water Supply:

Cast Iron Trunk Main Relining	\$ 8.7 million
Transmission Facility Rehabilitation	\$ 28.9 million
Transmission Main Rehabilitation	\$ 7.2 million

**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 MOECC-SAC. "Corrective action date" is the date the location was resampled.

<b>Incident Date</b>	<b>Parameter</b>	<b>Result</b>	<b>Unit of Measure</b>	<b>Corrective Action</b>	<b>Corrective Action Date</b>
13-Jan-18	Total Coliform	Presence	Result in 100 mL sample	Resampled. Results Acceptable.	15-Jan-18
17-Feb-18	Total Coliform	Presence	Result in 100 mL sample	Reservoir isolated. Resampled	17-Feb-18
20-Feb-18	Total Coliform	1	cfu/100 mL	Reservoir isolated. Resampled	20-Feb-18
21-Feb-18	Total Coliform	3	cfu/100 mL	Reservoir isolated. Sample box cleaned. Resampled. Results acceptable	21-Feb-18
06-Mar-18	Total Chlorine	>3.0	mg/L	Chlorine analyzer repaired and calibrated. Results acceptable	07-Mar-18
08-Mar-18	Total Coliform	Presence	Result in 100 mL sample	Flushed Watermain. Resampled. Results Acceptable.	08-Mar-18
21-Mar-18	Total Coliform	Presence	Result in 100 mL sample	Flushed Watermain. Resampled. Results Acceptable.	22-Mar-18
03-May-18	Sodium	>20	mg/L	Flushed Watermain. Resampled. Results Acceptable.	03/May-18
03-May-18	Sodium	>20	mg/L	Flushed Watermain. Resampled. Results Acceptable.	03/May-18
31-May-18	Total Chlorine	<0.25	mg/L	Chlorine analyzer repaired and calibrated. Results acceptable	01-Jun-18
08-Jun-18	Total Coliform	Presence	Result in 100 mL sample	Flushed Watermain. Resampled. Results Acceptable.	08-Jun-18
08-Jun-18	Total Coliform	Presence	Result in 100 mL sample	Flushed Watermain. Resampled. Results Acceptable.	08-Jun-18
28-Jun-18	Total Coliform	Presence	Result in 100 mL sample	Flushed Watermain. Resampled. Results Acceptable.	28-Jun-18
06-Jul-18	Total Coliform	Presence	Result in 100 mL sample	Flushed Watermain. Resampled. Results Acceptable.	09-Jul-18
27-Jul-18	Total Coliform	Presence	Result in 100 mL sample	Flushed Watermain. Resampled. Results Acceptable.	27-Jul-18



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

04-Aug-18	Total Coliform	Presence	Result in 100 mL sample	Flushed Watermain. Resampled. Results Acceptable.	05-Aug-18
09-Aug-18	Total Chlorine	<0.25	mg/L	Flushed Watermain. Resampled. Results Acceptable.	10-Aug-18
11-Aug-18	Total Coliform	Presence	Result in 100 mL sample	Flushed Watermain. Resampled. Results Acceptable.	13-Aug-18
23-Aug-18	Total Coliform	Presence	Result in 100 mL sample	Flushed Watermain. Resampled. Results Acceptable.	23-Aug-18
06-Sep-18	Total Coliform	Presence	Result in 100 mL sample	Flushed Watermain. Resampled. Results Acceptable.	06-Sep-18
07-Sep-18	Total Coliform	Presence	Result in 100 mL sample	Flushed Watermain. Resampled. Results Acceptable.	06-Sep-18
08-Sep-18	Total Coliform	Presence	Result in 100 mL sample	Flushed Watermain. Resampled. Results Acceptable.	08-Sep-18
08-Sep-18	Total Coliform	Presence	Result in 100 mL sample	Flushed Watermain. Resampled. Results Acceptable.	08-Sep-18
09-Sep-18	Total Coliform	Presence	Result in 100 mL sample	Flushed Watermain. Resampled. Results Acceptable.	09-Sep-18
18-Sep-18	Total Coliform	Presence	Result in 100 mL sample	Flushed Watermain. Resampled. Results Acceptable.	18-Sep-18
18-Sep-18	Total Coliform	Presence	Result in 100 mL sample	Flushed Watermain. Resampled. Results Acceptable.	18-Sep-18
19-Sep-18	Total Coliform	Presence	Result in 100 mL sample	Flushed Watermain. Resampled. Results Acceptable.	19-Sep-18
20-Sep-18	Total Coliform	4	cfu/100 mL	Flushed Watermain. Resampled. Results Acceptable.	24-Sep-18
21-Sep-18	Total Coliform	1	cfu/100 mL	Flushed Watermain. Resampled. Results Acceptable.	23-Sep-18
21-Sep-18	Total Coliform	1	cfu/100 mL	Flushed Watermain. Resampled. Results Acceptable.	23-Sep-18
22-Sep-18	Total Coliform	Presence	Result in 100 mL sample	Flushed Watermain. Resampled. Results Acceptable.	24-Sep-18



25-Sep-18	Total Coliform	Presence	Result in 100 mL sample	Flushed Watermain. Resampled. Results Acceptable.	26-Sep-18
25-Sep-18	Total Coliform	1	cfu/100 mL	Flushed Watermain. Resampled. Results Acceptable.	23-Sep-18
25-Sep-18	Total Coliform	1	cfu/100 mL	Flushed Watermain. Resampled. Results Acceptable.	24-Sep-18
26-Sep-18	Total Coliform	2	cfu/100 mL	Flushed Watermain. Resampled. Results Acceptable.	25-Sep-18
26-Sep-18	Total Coliform	2	cfu/100 mL	Flushed Watermain. Resampled. Results Acceptable.	25-Sep-18
01-Oct-18	Total Coliform	Presence	Result in 100 mL sample	Flushed Watermain. Resampled. Results Acceptable.	02-Oct-18
05-Oct-18	Total Coliform	Presence	Result in 100 mL sample	Flushed Watermain. Resampled. Results Acceptable.	05-Oct-18
28-Oct-18	Total Coliform	Presence	Result in 100 mL sample	Flushed Watermain. Resampled. Results Acceptable.	29-Oct-18
01-Nov-18	Total Coliform	Presence	Result in 100 mL sample	Flushed Watermain. Resampled. Results Acceptable.	02-Nov-18
02-Nov-18	Total Coliform	Presence	Result in 100 mL sample	Flushed Watermain. Resampled. Results Acceptable.	02-Nov-18
05-Nov-18	Total Chlorine	<0.25	mg/L	Flushed Watermain. Resampled. Results Acceptable.	05-Nov-18
05-Nov-18	Total Chlorine	<0.25	mg/L	Flushed Watermain. Resampled. Results Acceptable.	05-Nov-18
07-Nov-18	Total Chlorine	<0.25	mg/L	Flushed Watermain. Resampled. Results Acceptable.	05-Nov-18
08-Nov-18	Total Chlorine	<0.25	mg/L	Flushed Watermain. Resampled. Results Acceptable.	08-Nov-18
11-Nov-18	Total Coliform	Presence	Result in 100 mL sample	Flushed Watermain. Resampled. Results Acceptable.	11-Nov-18
25-Nov-18	Total Coliform	Presence	Result in 100 mL sample	Flushed Watermain. Resampled. Results Acceptable.	26-Nov-18



02-Dec-18	Total Coliform	Presence	Result in 100 mL sample	Flushed Watermain. Resampled. Results Acceptable.	03-Dec-18
06-Dec-18	Total Coliform	Presence	Result in 100 mL sample	Flushed Watermain. Resampled. Results Acceptable.	06-Dec-18
07-Dec-18	Total Coliform	Presence	Result in 100 mL sample	Flushed Watermain. Resampled. Results Acceptable.	08-Dec-18
11-Dec-18	Lead	>10	ug/L	Resident Contacted. Waiting for Response.	--
11-Dec-18	Lead	>10	ug/L	Resident Contacted. Waiting for Response.	--
13-Dec-18	Total Coliform	Presence	Result in 100 mL sample	Flushed Watermain. Resampled. Results Acceptable.	14-Dec-18
16-Dec-18	Total Coliform	Presence	Result in 100 mL sample	Flushed Watermain. Resampled. Results Acceptable.	17-Dec-18
30-Dec-18	Total Coliform	Presence	Result in 100 mL sample	Flushed Watermain. Resampled. Results Acceptable.	31-Dec-18
30-Dec-18	Total Coliform	Presence	Result in 100 mL sample	Flushed Watermain. Resampled. Results Acceptable.	31-Dec-18
30-Dec-18	Total Coliform	Presence	Result in 100 mL sample	Flushed Watermain. Resampled. Results Acceptable.	31-Dec-18

**NOTE:** Result of NDOGT means "No Data – Overgrown – Target identified"

**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	3912	3912A (100% A)	3910A (99.95% A)	3838	0 - 3900
Transmission	1219	1219A (100% A)	1217A (99.84% A)	1203	0 - 2400
Main Work	1154	1154A (100% A)	1122A (97.23% A)	1150	0 - 7300
Resample and vicinity	168	168A (100% A)	158A (94.05% A)	168	0 - 52

**\*NOTE:** "Distribution" includes samples submitted for Water Quality Inquiry as well as distribution samples.



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	3916	<0.1 – 2.39 NTU
Chlorine	3864	<0.25 – 2.48 mg/L

**For Transmission**

	Number of Grab Samples	Range of Results (min.) - (max.)
Turbidity	1224	<0.1 – 2.75 NTU
Chlorine	1219	<0.25 – 2.38 mg/L

**For Main Work**

	Number of Grab Samples	Range of Results (min.) - (max.)
Turbidity	1160	0.01 – 3.8 NTU
Chlorine	1160	0.51 – 2.20 mg/L

**For Resample/Vicinity**

	Number of Grab Samples	Range of Results (min.) - (max.)
Turbidity	167	<0.1 – 15.70 NTU
Chlorine	168	<0.25 – 2.18 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 2018	12.9 – 19.7	mg/L	No
Nitrite	Jan-Dec 2018	<0.002 – 0.004	mg/L	No
Nitrate	Jan-Dec 2018	0.16 – 0.55	mg/L	No

**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 2018	13.0 – 21.5	mg/L	Yes
Nitrite	Jan-Dec 2018	<0.002 – 0.002	mg/L	No
Nitrate	Jan-Dec 2018	0.39 – 0.47	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	116	<0.00005 – 0.0357	mg/L	2
Distribution	21	<0.00005 – 0.000927	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 2018	0 - 0	µg/L	No
Carbon Tetrachloride	Jan-Dec 2018	0 - 0	µg/L	No
1,2-Dichlorobenzene	Jan-Dec 2018	0 - 0	µg/L	No
1,4-Dichlorobenzene	Jan-Dec 2018	0 - 0	µg/L	No
1,2-Dichloroethane	Jan-Dec 2018	0 - 0	µg/L	No
1,1-Dichloroethylene (vinylidene chloride)	Jan-Dec 2018	0 - 0	µg/L	No
Dichloromethane	Jan-Dec 2018	0 – 2.4	µg/L	No
Monochlorobenzene	Jan-Dec 2018	0 - 0	µg/L	No
THM (Note: Show latest annual average)	Jan-Dec 2018	10.7	µg/L	No
Tetrachloroethylene	Jan-Dec 2018	0 - 0	µg/L	No
Trichloroethylene	Jan-Dec 2018	0 - 0	µg/L	No
Vinyl Chloride	Jan-Dec 2018	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 2018	0 - 0	µg/L	No
Carbon Tetrachloride	Jan-Dec 2018	0 - 0	µg/L	No
1,2-Dichlorobenzene	Jan-Dec 2018	0 - 0	µg/L	No
1,4-Dichlorobenzene	Jan-Dec 2018	0 - 0	µg/L	No
1,2-Dichloroethane	Jan-Dec 2018	0 - 0	µg/L	No
1,1-Dichloroethylene (vinylidene chloride)	Jan-Dec 2018	0 - 0	µg/L	No
Dichloromethane	Jan-Dec 2018	0 – 2.4	µg/L	No
Monochlorobenzene	Jan-Dec 2018	0 - 0	µg/L	No
THM (Note: Show latest annual average)	Jan-Dec 2018	10.9	µg/L	No
Tetrachloroethylene	Jan-Dec 2018	0 - 0	µg/L	No
Trichloroethylene	Jan-Dec 2018	0 - 0	µg/L	No
Vinyl Chloride	Jan-Dec 2018	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
Lead	0.00726	mg/L	04-Dec-18
Lead	0.0266	mg/L	06-Dec-18
Lead	0.0357	mg/L	06-Dec-18