

Toronto Water Supply

Drinking Water Systems

Annual Report

for January 1, 2003 to December 31, 2003



Part III Form 2
Section 11. ANNUAL REPORT.
Drinking-Water System Number:

 R. C. Harris – 220002262;
 R. L. Clark – 220002253;
 F. J. Horgan – 220004536; Island - 220002244

Drinking-Water System Name:

Toronto Water Supply

Drinking-Water System Owner:

City of Toronto

Drinking-Water System Category:

Large Municipal Residential

Period being reported:

January 1, 2003 to December 31, 2003

Complete if your Category is Large Municipal Residential or Small Municipal Residential

Does your Drinking-Water System serve more than 10,000 people? Yes [x] No []

Is your annual report available to the public at no charge on a web site on the Internet? Yes [x] No []

Location where Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.

 Metro Hall, 18th Floor
 55 John Street
 Toronto, Ontario
 M5V 3C6

Complete for all other Categories.
NOT APPLICABLE

Number of Designated Facilities served:

Did you provide a copy of your annual report to all Designated Facilities you serve? Yes [] No []

Number of Interested Authorities you report to:

Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility? Yes [x] No []

List Drinking-Water Systems, which receive all of their drinking water from your system:

Region of York – receives some of their water from Toronto

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 filtration plants, 18 pumping stations, 10 major underground storage reservoirs, four elevated storage tanks and approximately 510 kilometers of trunk watermains and 5,015 kilometers of distribution watermains. The four filtration plants are as follows:

- **R.C. Harris Filtration Plant (capacity 950 ML/d) located at 2701 Queens Street East, Toronto;**
- **R.L. Clark Filtration Plant (capacity 615 ML/d) located at 45 Twenty Third Street, Etobicoke;**
- **F.J. Horgan Filtration Plant (capacity 570 ML/d) located at 201 Copperfield Road, West Hill; and**
- **Island Filtration Plant (capacity 410 ML/d) located on Centre Island, Toronto**

List all water treatment chemicals used over this reporting period

Alum, chlorine, sulphur dioxide, hydrofluosilicic acid, aqua ammonia were used at all plants. Polyaluminum chloride and Magnafloc LT 7996 polymer was used at Horgan Plant only.

Were any significant expenses incurred to?

- Install required equipment
- Repair required equipment
- Replace required equipment

Describe

Installation of Process Control Systems at all four plants	- \$33.6 M
Winterization of the Island Filtration Plant	- \$4.9 M
Trunk watermain Warden (Danforth to St. Clair)	- \$570 K
Distribution System Improvements	
- Watermain Cleaning/Lining/Rehab/ Replacement	- \$46.6 M
- New watermains	- \$ 7.1 M

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

Incident Date	Address	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
09-Jan-03	802 - ESSO Station 5470 Dundas St. W.	Background	240	CFU/100 mL	Flushed watermain and service. Resampled.	10-Jan-03
12-Jan-03	OUTPUT Horgan Plant 8:30 am	Total Coliform	1	CFU/100 mL	Reviewed treatment records. Resampled.	12-Feb-03
15-Jan-03	818 - COFFEE TIME, 2690 EGLINTON AVE EAST	Background	250	CFU/100 mL	Flushed watermain and service. Resampled.	17-Jan-03
27-Jan-03	1016 - FIRE Station, 3300 BAYVIEW AVE.	Background	2300	CFU/100 mL	Flushed watermain and service. Resampled.	28-Jan-03
12-Feb-03	550 Kipling Ave	Total Coliform	6	CFU/100 mL	Flushed watermain and service. Resampled.	13-Feb-03
13-Feb-03	720 - Fire Hall, 5318 LAWRENCE AVE. EAST	Background	220	CFU/100 mL	Flushed watermain and service. Resampled.	14-Feb-03
14-Feb-03	OUTPUT Horgan Plant 4:30 am	Total Coliform	1	CFU/100 mL	Reviewed treatment records. Resampled.	15-Feb-03
14-Feb-03	OUTPUT Horgan Plant 12:30 pm	Total Coliform	1	CFU/100 mL	Reviewed treatment records. Resampled.	15-Feb-03
19-Feb-03	911 - SHELL Station, 908 SHEPPARD AVE W.	Total Coliform	71	CFU/100 mL	Flushed watermain and service. Resampled.	20-Feb-03
27-Feb-03	704 - FIRE HALL, 615 Royal York Rd	Background	300	CFU/100 mL	Flushed watermain and service. Resampled.	28-Feb-03
02-Mar-03	OUTPUT Horgan Plant 8:30 pm	Total Coliform	1	CFU/100 mL	Reviewed treatment records. Resampled.	06-Mar-03
20-Mar-03	717 - PETROCANADA, 3100 ELLESMERE RD.	Total Coliform	1	CFU/100 mL	Flushed mains and service. Resampled.	21-Mar-03
07-May-03	815 - SHELL Station, 751 DON MILLS RD.	Background	500	CFU/100 mL	Flushed watermain and service. Resampled.	08-May-03
13-May-03	218 Yonge Street - Druxy's Restaurant	Total Coliform	29	CFU/100 mL	Flushed watermain and service. Resampled.	15-May-03
16-May-03	350 Garyray Drive	Total Coliform	16	CFU/100 mL	Flushed watermain and resampled.	17-May-03
22-May-03	218 Yonge Street - Druxy's Restaurant	Total Coliform	2	CFU/100 mL	Flushed watermain and resampled.	23-May-03
02-Jun-03	OUTPUT Horgan Plant 8:30 am	Total Coliform	1	CFU/100 mL	Reviewed treatment records. Resampled.	05-Jun-03
20-Jun-03	150 CARNFORTH RD - JEAN-LAJOIE FRENCH SCHOOL	Total Cl2	0.13	mg/L	Flushed and resampled.	20-Jun-03
23-Jun-03	150 Carnforth Rd.	HPC	1000	CFU/100 mL	Flushed and resampled.	24-Jun-03
02-Jul-03	815 - SHELL Station, 751 DON MILLS RD.	Background	310	CFU/100 mL	Flushed watermain and resampled.	04-Jul-03
11-Jul-03	OUTPUT R.L.CLARK F.P. 8:30 am	Total Coliform	1	CFU/100 mL	Reviewed treatment records. Resampled.	12-Jul-03
11-Jul-03	611 - 711 GAS STATION, 883 DUNDAS ST. WEST	Background	260	CFU/100 mL	Flushed and resampled.	12-Jul-03
13-Jul-03	OUTPUT R.L.CLARK F.P. 8:30 am	Total Coliform	1	CFU/100 mL	Reviewed treatment records. Resampled.	16-Jul-03
16-Jul-03	802 - ESSO STATION, 5470 Dundas St. W.	Background	230	CFU/100 mL	Flushed watermain and service. Resampled.	17-Jul-03
16-Jul-03	806 - COFFEE TIME DONUTS, 1255 WESTON RD.	Total Coliform	1	CFU/100 mL	Flushed watermain and service. Resampled.	17-Jul-03
16-Jul-03	809 - MR. LUBE, 793 SPADINA RD	Background	270	CFU/100 mL	Flushed watermain and service. Resampled.	17-Jul-03
23-Jul-03	818 - COFFEE TIME, 2690 EGLINTON AVE EAST	Background	260	CFU/100 mL	Flushed watermain and service. Resampled.	17-Jul-03
29-Jul-03	Humber River Regional Hospital, 2175 Keele St.	Total Coliform	1	CFU/100 mL	Service flushed. Resampled.	30-Jul-03
31-Jul-03	OUTPUT R.L.CLARK F.P. 8:30 pm	Total Coliform	1	CFU/100 mL	Reviewed treatment records.	01-Aug-03

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						Resampled.	
01-Aug-03	OUTPUT R.L.CLARK F.P. 12:30 am	Total Coliform	1	CFU/100 mL	Sample line backflushed.	Resampled.	02-Aug-03
06-Aug-03	917 – ESSO Station, 2500 DON MILLS RD	Total Coliform	1	CFU/100 mL	Flushed watermain and service.	Resampled.	07-Aug-03
12-Aug-03	RKL – KEELE, KEELE RESERVOIR	Background	330	CFU/100 mL		Resampled.	14-Aug-03
13-Aug-03	39 Lacewood Crescent	Total Coliform	1	CFU/100 mL	Sample from temporary by-pass main. Flushed main and resampled.		14-Aug-03
16-Aug-03	40 Lacewood Crescent	Total Coliform	2	CFU/100 mL	Flushing carried out daily until		19-Aug-03
25-Aug-03	911 – Shell Station, 908 SHEPPARD AVE W.	Background	300	CFU/100 mL	Flushed watermain and resampled.		26-Aug-03
27-Aug-03	1007 - KEELE P.S., KEELE ST	Total Coliform	6	CFU/100 mL	Resampled.		29-Aug-03
27-Aug-03	109B - Chimmenystack Rd. at Keele St.	Total Coliform	5	CFU/100 mL	Flushed watermain and service.	Resampled.	28-Aug-03
03-Sep-03	43 Sharron Dr.	Total Cl2	0.16	mg/L	Resampled. Flushed and resampled.		03-Sep-03
04-Sep-03	712 - FIRE HALL, 555 OAKWOOD AVE	Total Coliform	1	CFU/100 mL	Flushed watermain and resampled.		06-Sep-03
09-Sep-03	1003 - SUNOCO Station, 6199 Steeles Ave W	Background	270	CFU/100 mL	Local area flushed and resampled.		11-Sep-03
12-Sep-03	615 - ICG Station, 1201 DUNDAS ST. EAST	Background	450	CFU/100 mL	Flushed watermain and resampled.		13-Sep-03
23-Sep-03	802 - ESSO STATION, 5470 Dundas St. W.	Total Coliform	3	CFU/100 mL	Flushed watermain and service.	Resampled.	25-Sep-03
26-Sep-03	615 - ICG Station, 1201 DUNDAS ST. EAST	Background	2000	CFU/100 mL	Flushed watermain and service.	Resampled.	29-Sep-03
26-Aug-03	OUTPUT ISLAND F.P. 4:30 pm	Other - Fluoride Content Exceedance	2.41	mg/L	Process stopped. Reservoir isolated. Controller malfunction rectified. Safety features incorporated.		27-Aug-03
08-Oct-03	OUTPUT R.C.HARRIS F.P. 4:30 am	Total Coliform	1	CFU/100 mL	Reviewed treatment records. No indication of process upset.	Resampled.	09-Oct-03
21-Oct-03	OUTPUT Horgan Plant 12:30 pm	HPC	12000	CFU/100 mL	Reviewed treatment records.	Resampled.	22-Oct-03
22-Oct-03	OUTPUT Horgan Plant 12:30 am	HPC	5600	CFU/100 mL	Disinfectant residual increased from 1.5 to 2.0 mg/L.	Resampled.	27-Oct-03
22-Oct-03	OUTPUT Horgan Plant 8:30 am	HPC	2000	CFU/100 mL	Disinfectant residual increased from 1.5 to 2.0 mg/L.	Resampled.	27-Oct-03
24-Oct-03	611 - 711 Gas Station, 883 Dundas St. West	Background	700	CFU/100 mL	Flushed watermain and resampled.		27-Oct-03
02-Nov-03	OUTPUT R.C. HARRIS F.P. 12:30 pm	Total Coliform	1	CFU/100 mL	Reviewed treatment records.	Resampled.	05-Nov-03
03-Nov-03	1016 – FIRE STATION, 3300 BAYVIEW AVE.	Background	960	CFU/100 mL	Flushed watermain and resampled.		04-Nov-03
03-Nov-03	1019 – ESSO STATION, 4000 FINCH AVE.	Total Coliform	1	CFU/100 mL	Flushed watermain and resampled.		04-Nov-03
03-Nov-03	OUTPUT Horgan Plant 8:30 am	Other - NDMA	0.013	ug/L	Resample was clear. Issues raised about analytical accuracy of contracted labs.		
04-Nov-03	903 - ESSO STATION, 1455 Royal York Rd	Total Coliform	4	CFU/100 mL	Flushed watermain and service.	Resampled.	05-Nov-03
18-Nov-03	1001 – SUNOCO STATION, 288 Rexdale Blvd.	Total Coliform	1	CFU/100 mL	Flushed watermain and service.	Resampled.	19-Nov-03
18-Nov-03	109B – Chimmenystack Rd. at Keele St.	Total Coliform	8	CFU/100 mL	Flushed watermain and resampled.		19-Nov-03
25-Nov-03	1008 – Petrocan Station, 4650 JANE ST.	Total Coliform	4	CFU/100 mL	Flushed service and watermain.	Resampled.	27-Nov-03
01-Dec-03	1016 – Fire Station, 3300 BAYVIEW AVE.	Total Coliform	2	CFU/100 mL	Flushed watermain and service.	Resampled.	02-Dec-03

Microbiological testing done under section 8 (2) during this reporting period

	Number of Samples	Range of E.Coli or Fecal Results (#-#)	Range of Total Coliform Results (#-#)	Number of HPC Samples	Range of HPC Results (#-#)
Raw	3635	140-0	3000-0	3635	6000-0
Treated	6742	0-0	1-0	6742	12000-0
Distribution	5196	0-0	71-0	5196	280-0

Operational testing done under Schedule 7, 8 or 9 during the period covered by this Annual Report.

	Number of Grab Samples	Range of Results (#-#)
Turbidity (Plants)	8760	0.02 – 0.37 NTU
Chlorine (Plants)	8760	0.37 – 1.98
Chlorine (Distribution System)	5236	0.25 – 1.48
Fluoride (If the DWS provides fluoridation) (Plant output spot samples)	6742	0.11 – 2.4

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

*NOTE: Record the unit of measure if it is **not** milligrams per litre.*

Summary of additional testing and sampling carried out in accordance with the requirement of an approval or order.

Date of order or C of A	Parameter	Date Sampled	Result (average)	Unit of Measure
R.C. Harris Filtration Plant – C of A #6492-5ANL4K dated July 12, 2002				
Filter Backwash	BOD	1/1-12/30	4.6	mg/L
	Suspended Solids	1/1-12/30	237	mg/L
	Phosphorus	1/1-12/30	0.73	mg/L
	Chlorine Residual	1/1-12/30	0.65	mg/L
	Aluminum	1/1-12/30	48	mg/L
Settling Tank Effluent Dewatering	BOD	4/28-10/22	2.1	mg/L
	Suspended Solids	4/28-10/22	3	mg/L
	Phosphorus	4/28-10/22	0.04	mg/L
	Chlorine Residual	4/28-10/22	<i>note</i> ⁽¹⁾	mg/L
	Aluminum	4/28-10/22	0.7	mg/L
Settling Tank Sludge	BOD	4/28-10/23	187	mg/L
	Suspended Solids	4/28-10/23	26040	mg/L
	Phosphorus	4/28-10/23	51	mg/L
	Chlorine Residual	4/28-10/23	<i>note</i> ⁽¹⁾	mg/L
	Aluminum	4/28-10/23	3132	mg/L

R.L. Clark Filtration Plant – C of A #8574-5RAKQN dated October 30, 2003				
Filter Backwash	BOD	1/7-12/16	1.91	mg/L
	Suspended Solids	1/7-12/16	152.4	mg/L
	Phosphorus	1/7-12/16	0.33	mg/L
	Chlorine Residual	1/7-12/16	0.94	mg/L
	Aluminum	1/7-12/16	30.0	mg/L
Settling Tank Effluent Dewatering	BOD	5/12-10/27	30	mg/L
	Suspended Solids	5/12-10/27	2597	mg/L
	Phosphorus	5/12-10/27	2.88	mg/L
	Chlorine Residual	5/12-10/27	<i>note</i> ⁽²⁾	mg/L
	Aluminum	5/12-10/27	311	mg/L
Settling Tank Sludge	BOD	5/13-11/12	<i>note</i> ⁽³⁾	mg/L
	Suspended Solids	5/13-11/12	35050	mg/L
	Phosphorus	5/13-11/12	54.10	mg/L
	Chlorine Residual	5/13-11/12	<i>note</i> ⁽²⁾	mg/L
	Aluminum	5/13-11/12	240	mg/L
F.J. Horgan Filtration Plant – C of A #6811-59NQTM dated February 19, 2002				
Clarifier Effluent	Suspended Solids	1/ 2 –12/30	6.6	mg/L
	Aluminum	1/ 2 –12/30	0.69	mg/L
	Turbidity	1/ 2 –12/30	0.92	NTU
	pH	1/ 2 –12/30	7.8	
	Temperature	1/ 2 –12/30	8.2	°C
Island Filtration Plant – C of A #1123-5LVHHZ dated August 14, 2003				
Filter Backwash	Suspended Solids	7/15-9/10	158	mg/L
	Aluminum	7/15-9/10	18.75	mg/L
	BOD	7/15-9/10	6.83	mg/L
	Phosphorus	7/15-9/10	0.22	mg/L
	Chlorine Residual	7/15-9/10	0.30	mg/L
Wastewater Effluent	Suspended Solids	7/15-9/10	30	mg/L
	Aluminum	7/15-9/10	2.93	mg/L
	BOD	7/15-9/10	2.0	mg/L
	Phosphorus	7/15-9/10	0.09	mg/L
	Chlorine Residual	7/15-9/10	0.20	mg/L

Notes:

- (1) Chlorine residual values of settling tank dewatering effluent and settling tank sludge at R.C. Harris F.P. unavailable at time of reporting and will be forwarded following submission of this report.
- (2) Chlorine residual analyses of settling tank dewatering effluent and settling tank sludge at R.L. Clark F.P. not performed due to error in sample processing.
- (3) BOD analysis for settling tank sludge for samples from R.L. Clark F.P. not performed due to procedural error (delay) in sample processing.

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

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Antimony	1/06-11/25	0-0	mg/L	
Arsenic	1/06-11/25	0-0	mg/L	
Barium	1/06-11/25	0.025-0.020	mg/L	
Boron	1/06-11/25	0.029-0.020	mg/L	
Cadmium	1/06-11/25	0-0	mg/L	
Chromium	1/06-11/25	0-0	mg/L	
Lead	1/06-11/25	0-0	mg/L	
Mercury	1/06-11/25	0-0	mg/L	
Selenium	1/06-11/25	0-0	mg/L	
Uranium	1/06-11/25	0.0004-0.0003	mg/L	
Fluoride	1/1-12/31	2.4-0.11	mg/L	Aug. 26/03
Nitrite	1/6-12/9	0-0	mg/L	
Nitrate	1/6-12/9	0.75-0.32	mg/L	

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

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Alachlor	1/06-7/07	0-0	ug/L	
Aldicarb	1/06-7/07	0-0	ug/L	
Aldrin + Dieldrin	1/06-7/07	0-0	ug/L	
Atrazine + N-dealkylated metabolites	1/06-7/07	0.10-0.0	ug/L	
Azinphos-methyl	1/06-7/07	0-0	ug/L	
Bendiocarb	1/06-7/07	0-0	ug/L	
Benzene	1/06-12/01	0-0	ug/L	
Benzo(a)pyrene	1/06-11/03	0-0	ug/L	
Bromoxynil	1/06-7/07	0-0	ug/L	
Carbaryl	1/06-7/07	0-0	ug/L	
Carbofuran	1/06-7/07	0-0	ug/L	
Carbon Tetrachloride	1/06-12/01	0-0	ug/L	
Chlordane (Total)	1/06-7/07	0-0	ug/L	
Chlorpyrifos	1/06-7/07	0-0	ug/L	
Cyanazine	1/06-7/07	0-0	ug/L	
Diazinon	1/06-7/07	0-0	ug/L	
Dicamba	1/06-7/07	0-0	ug/L	
1,2-Dichlorobenzene	1/06-12/01	0-0	ug/L	
1,4-Dichlorobenzene	1/06-12/01	0-0	ug/L	
Dichlorodiphenyltrichloroethane (DDT) + metabolites	1/06-7/07	0-0	ug/L	
1,2-Dichloroethane	1/06-12/01	0-0	ug/L	
1,1-Dichloroethylene (vinylidene chloride)	1/06-12/01	0-0	ug/L	
Dichloromethane	1/06-12/01	0-0	ug/L	
2-4 Dichlorophenol	1/06-7/07	0-0	ug/L	
2,4-Dichlorophenoxy acetic acid (2,4-D)	1/06-7/07	0-0	ug/L	
Diclofop-methyl	1/06-7/07	0-0	ug/L	
Dimethoate	1/06-7/07	0-0	ug/L	
Dinoseb	1/06-7/07	0-0	ug/L	
Diquat	1/06-11/03	0-0	ug/L	
Diuron	1/06-7/07	0-0	ug/L	

Glyphosate	1/06-11/03	0-0	ug/L	
Heptachlor + Heptachlor Epoxide	1/06-7/07	0-0	ug/L	
Linadane (Total)	1/06-7/07	0-0	ug/L	
Malathion	1/06-7/07	0-0	ug/L	
Methoxychlor	1/06-7/07	0-0	ug/L	
Metolachlor	1/06-7/07	0-0	ug/L	
Metribuzin	1/06-7/07	0-0	ug/L	
Monochlorobenzene	1/06-12/01	0-0	ug/L	
Paraquat	1/06-11/03	0-0	ug/L	
Parathion	1/06-7/07	0-0	ug/L	
Pentachlorophenol	1/06-7/07	0-0	ug/L	
Phorate	1/06-7/07	0-0	ug/L	
Picloram	1/06-7/07	0-0	ug/L	
Polychlorinated Biphenyls(PCB)	1/06-7/07	0-0	ug/L	
Promethyne	1/06-7/07	0-0	ug/L	
Simazine	1/06-7/07	0-0	ug/L	
THM (NOTE: show latest quarterly average)	1/06-12/01	20.0-10.3	ug/L	
Temephos	1/06-7/07	0-0	ug/L	
Terbufos	1/06-7/07	0-0	ug/L	
Tetrachloroethylene	1/06-12/01	0-0	ug/L	
2,3,4,6-Tetrachlorophenol	1/06-7/07	0-0	ug/L	
Triallate	1/06-7/07	0-0	ug/L	
Trichloroethylene	1/06-12/01	0-0	ug/L	
2,4,6-Trichlorophenol	1/06-7/07	0-0	ug/L	
2,4,5-Trichlorophenoxy acetic acid (2,4,5-T)	1/06-7/07	0-0	ug/L	
Trifluralin	1/06-7/07	0-0	ug/L	
Vinyl Chloride	1/06-11/03	0-0	ug/L	

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
Fluoride	2.4	mg/L	Aug. 26/03
NDMA*	0.013	ug/L	Nov. 3/03

* Issues raised about analytical accuracy of contracted laboratories.

(Only if category is large municipal residential, small municipal residential, large municipal non residential, small municipal non residential, large non municipal non residential)