

---

# **The 2018 Annual Drinking Water Quality Report:**

Burlington, Burloak and Oakville Water  
Treatment Plants and the South Halton Water  
Distribution System

February 2019



# Introduction

Halton is committed to providing safe drinking water to all of our customers. As mandated by the *Safe Drinking Water Act, 2002*, this annual Water Quality Report includes:

- a description of the water treatment process and chemicals used;
- any major expenses to install, repair or upgrade equipment in the system; and,
- the results of our water tests and how they compare to provincial regulatory standards.

In the Burlington, Burloak and Oakville Water Treatment Plants and in the South Halton Water Distribution System, all provincial regulatory monitoring requirements were met or surpassed in 2018.

## Burlington Water Treatment Plant

**Drinking Water System Number: 220001664**

The Burlington Water Treatment Plant (WTP), located at 3249 Lakeshore Road, Burlington, has a rated capacity to produce 263 ML/d (million litres per day) of treated drinking water. The raw water source is Lake Ontario.

The facility is a conventional filtration treatment plant with a process that consists of coagulation, flocculation and sedimentation using the Actiflo® process (microsand ballasted clarification), filtration, fluoridation, ozonation (disinfection and taste and odour control) and chlorination (disinfection). Seasonally, the water is chlorinated at the intake for mussel control. The treatment chemicals used in 2018 were:

- chlorine gas (disinfection and control of particle counts on filters and mussel formation at the intakes);
- hydrofluosilicic acid (fluoridation);
- polyaluminum chloride with provision to switch to aluminum sulphate (coagulation);
- polymer (coagulation aid);
- waste polymer (waste treatment aid);
- sodium bisulphite or calcium thiosulphate (dechlorination and ozone quenching);
- sodium metabisulphite (waste dechlorination);
- liquid oxygen (ozone generation).

The plant is controlled through a computerized Supervisory and Data Acquisition (SCADA) system that is monitored twenty-four hours per day, seven days per week. The treated drinking water is pumped into the South Halton distribution system which serves Burlington, Oakville and areas of Milton and Halton Hills.

## Burloak Water Treatment Plant

**Drinking Water System Number: 260085436**

The Burloak Water Treatment Plant (WTP), located at 3380 Rebecca Street, Oakville, has a rated capacity to produce 55 ML/d (million litres per day) of treated drinking water. The raw water source is Lake Ontario.

The facility is a membrane filtration treatment plant with a process that consists of flocculation, ultra-filtration (via membranes), ultra-violet irradiation, ozonation (disinfection and taste and odour control), fluoridation and chlorination (disinfection). Seasonally, the water is chlorinated at the intake for mussel control. The treatment chemicals used in 2018 were:

- chlorine gas (disinfection and mussel control);
- hydrofluosilicic acid (fluoridation);
- polyaluminum chloride (used as part of a trial);
- citric acid (clean membranes);
- sodium bisulphite (dechlorination and ozone quenching);
- liquid oxygen (ozone generation); and
- potassium hydroxide (pH adjustment on waste system).

The plant is controlled through a computerized Supervisory and Data Acquisition (SCADA) system that is monitored twenty-four hours per day, seven days per week. The treated drinking water is pumped into the South Halton distribution system which serves Burlington, Oakville and areas of Milton and Halton Hills.

## Oakville Water Treatment Plant

**Drinking Water System Number: 220001637**

The Oakville Water Treatment Plant (WTP), located at 21 Kerr Street, Oakville, has a rated capacity to produce 109 ML/d (million litres per day) of treated drinking water. The raw water source is Lake Ontario.

The facility is a conventional filtration treatment plant with a process that consists of coagulation, flocculation and sedimentation using the Actiflo® process (microsand ballasted clarification), filtration, fluoridation, ozonation (disinfection and taste and odour control) and chlorination (disinfection). Seasonally, the water is chlorinated at the intake for mussel control. The treatment chemicals used in 2018 were:

- chlorine gas (disinfection and mussel control);
- hydrofluosilicic acid (fluoridation);
- polyaluminum chloride with provision to switch to aluminum sulphate (coagulation);
- polymer - solid (coagulation aid);
- polymer - liquid (filtration and residue management aid);
- liquid oxygen (ozone generation);
- provision for hydrogen peroxide addition (taste and odour control); and
- calcium thiosulphate (dechlorination and ozone quenching).

The plant is controlled through a computerized Supervisory and Data Acquisition (SCADA) system that is monitored twenty-four hours per day, seven days per week. The treated drinking water is pumped into the South Halton Distribution System which serves Burlington, Oakville and areas of Milton and Halton Hills.

## South Halton Water Distribution System

**Drinking Water System Number: 260085462**

The South Halton Distribution System is registered separately from the three water treatment plants; Burlington, Burloak and Oakville WTPs which provide the drinking water. The South Halton Distribution System serves Burlington, Oakville and areas of Milton and Halton Hills.

## What Improvements Are We Making?

In 2018, over \$10,581,000 was spent on capital upgrades to the Burlington, Burloak and Oakville treatment facilities and South Halton outlying stations. Projects included:

- upgrades at Burlington WTP - Replacement of high lift and low lift pumps and installation of variable-frequency drives (VFD);
- reservoir and pumping station infrastructure repairs, upgrades and expansion at Appleby Line Pumping Station (PS), Bailie Booster PS, Beaufort Reservoir and Washburn PS and Reservoir; and

Approximately \$96,020,000 was spent on water main projects in Oakville, Burlington and Milton (lake based) which are all connected to the South Halton Distribution System. In addition to capital upgrades, Halton continued to support the production and delivery of high quality, safe drinking water through water sampling and monitoring above the provincial requirements, ongoing upgrades to the SCADA monitoring and infrastructure management systems, oversight of cross-connection control, an update of the Water Master Plan, water efficiency programs and optimization of water treatment processes. Work also continued on the Drinking Water Quality Management System, a provincial requirement to support the licensing of municipal drinking water systems which came into effect for Halton in January 2009.

# Water Quality Testing

A large number of water quality tests are performed each and every day, in accordance with the *Safe Drinking Water Act, 2002* and regulations. The following sections provide a summary of the test results.

## Terms

CFU/100 mL	Colony-forming units per 100 millilitres of water
µg/L	micrograms per litre
mg/L	milligrams per litre
Standard	Ontario Drinking Water Quality Standard, O.Reg. 169/03

## Microbiological Testing

	Number of Samples	<i>E. coli</i> Results (min - max)	Total Coliform Results (min - max)	Number of Heterotrophic Plate Count* Samples	Heterotrophic Plate Count Results (min - max)
Raw Water Burlington	52	0 – 200	0 – 810	N/A	N/A
Treated Water Burlington	52	0 – Absent	0 – Absent	52	0 - 6
Raw Water Oakville	53	0 – 300	0 - 2780	N/A	N/A
Treated Water Oakville	52	0 – Absent	0 – Absent	52	0 - 2
Raw Water Burloak	52	0 - 6	0 – 262	N/A	N/A
Treated Water Burloak	52	0 – Absent	0 – Absent	52	0 - 5
Distribution	3047	0 – Absent	0 - 16	2267	0 - 264

### Microbiological standards for treated and distributed water:

<i>E.coli</i>	not detected
Total Coliforms	not detected
HPC	Heterotrophic Plate Counts are conducted on some treated and distribution system samples. The HPC test is used as a tool to monitor overall quality, but the results are not indicators of water safety. There is no Drinking Water Quality Standard for HPC.

## Operational Testing

At all three WTPs, continuous analyzers measure and record the results of chlorine residual, turbidity and fluoride residual throughout the treatment process and in the treated water several times per minute, twenty-four hours per day, seven days per week. All of the readings are validated by an operator and are also reviewed by the Ministry of the Environment, Conservation and Parks (MECP) Inspector. As well, Halton operators measure the chlorine in the distributed water. 'Adverse' test results must be reported if there is an indication that primary inactivation (disinfection) may not have been achieved, if the turbidity of filtered water is >1.0 NTU, if the fluoride residual is >1.5 mg/L or if a free chlorine residual in the distribution system is <0.05 mg/L. In 2018, all validated readings and test results for these parameters were within the ranges required by regulation.

## Chemical Testing

### Inorganic Parameters – Treated Water (unless otherwise noted)

Parameter	Sample Date	Unit of Measure	Burlington Result	Oakville Result	Burloak Result	Standard	Exceedance of Standard
Antimony	04/23/18	mg/L	0.0005	0.0006	0.0006	0.006	No
Arsenic	04/23/18	mg/L	<0.001	<0.001	0.001	0.01	No
Barium	04/23/18	mg/L	0.025	0.026	0.027	1.0	No
Boron	04/23/18	mg/L	0.021	0.022	0.022	5.0	No
Bromate (latest running annual average)	12/10/18	mg/L	0.003	0.003	0.003	0.01 (running annual average)	No
Cadmium	04/23/18	mg/L	<0.0005	<0.0005	<0.0005	0.005	No
Chromium	04/23/18	mg/L	<0.001	<0.001	<0.001	0.05	No
Mercury	04/23/18	mg/L	<0.00005	<0.00005	<0.00005	0.001	No
Selenium	04/23/18	mg/L	<0.001	<0.001	<0.001	0.05	No
Sodium	12/17/18	mg/L	17.7	18.5	18.4	20	No
Uranium	04/23/18	mg/L	<0.001	<0.001	<0.001	0.02	No
Fluoride	12/17/18	mg/L	0.70	0.59	0.69	1.5	No
Nitrite	11/05/18	mg/L	<0.02	<0.02	<0.02	1.0	No
Nitrate	11/05/18	mg/L	0.36	0.34	0.34	10.0	No

### Organic Parameters – Treated Water (unless otherwise noted)

Parameter	Sample Date	Unit of Measure	Burlington Result	Oakville Result	Burloak Result	Standard	Exceedance of Standard
Alachlor	04/23/18	µg/L	<0.50	<0.50	<0.50	5	No
Atrazine + N-dealkylated metabolites	04/23/18	µg/L	<1.0	<1.0	<1.0	5	No
Azinphos-methyl	04/23/18	µg/L	<2.0	<2.0	<2.0	20	No
Benzene	04/23/18	µg/L	<0.10	<0.10	<0.10	1	No
Benzo(a)pyrene	04/23/18	µg/L	<0.0090	<0.0090	<0.0090	0.01	No
Bromoxynil	04/23/18	µg/L	<0.50	<0.50	<0.50	5	No
Carbaryl	04/23/18	µg/L	<5.0	<5.0	<5.0	90	No
Carbofuran	04/23/18	µg/L	<5.0	<5.0	<5.0	90	No
Carbon Tetrachloride	04/23/18	µg/L	<0.10	<0.10	<0.10	2	No
Chlorpyrifos	04/23/18	µg/L	<1.0	<1.0	<1.0	90	No
Diazinon	04/23/18	µg/L	<1.0	<1.0	<1.0	20	No
Dicamba	04/23/18	µg/L	<1.0	<1.0	<1.0	120	No
1,2-Dichlorobenzene	04/23/18	µg/L	<0.20	<0.20	<0.20	200	No
1,4-Dichlorobenzene	04/23/18	µg/L	<0.20	<0.20	<0.20	5	No
1,2-Dichloroethane	04/23/18	µg/L	<0.20	<0.20	<0.20	5	No
1,1-Dichloroethylene (vinylidene chloride)	04/23/18	µg/L	<0.10	<0.10	<0.10	14	No

Parameter	Sample Date	Unit of Measure	Burlington Result	Oakville Result	Burloak Result	Standard	Exceedance of Standard
Dichloromethane	04/23/18	µg/L	<0.50	<0.50	<0.50	50	No
2-4 Dichlorophenol	04/23/18	µg/L	<0.25	<0.25	<0.25	900	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	04/23/18	µg/L	<1.0	<1.0	<1.0	100	No
Diclofop-methyl	04/23/18	µg/L	<0.90	<0.90	<0.90	9	No
Dimethoate	04/23/18	µg/L	<2.5	<2.5	<2.5	20	No
Diquat	04/23/18	µg/L	<7.0	<7.0	<7.0	70	No
Diuron	04/23/18	µg/L	<10	<10	<10	150	No
Glyphosate	04/23/18	µg/L	<10	<10	<10	280	No
HAA (latest running annual average)	11/05/18	µg/L	<5.0	<5.0	6.9	N/A	N/A
2-Methyl-4-chlorophenoxyacetic acid	04/23/18	µg/L	<10	<10	<10	100	No
Malathion	04/23/18	µg/L	<5.0	<5.0	<5.0	190	No
Metolachlor	04/23/18	µg/L	<0.50	<0.50	<0.50	50	No
Metribuzin	04/23/18	µg/L	<5.0	<5.0	<5.0	80	No
Monochlorobenzene	04/23/18	µg/L	<0.10	<0.10	<0.10	80	No
Paraquat	04/23/18	µg/L	<1.0	<1.0	<1.0	10	No
Pentachlorophenol	04/23/18	µg/L	<0.50	<0.50	<0.50	60	No
Phorate	04/23/18	µg/L	<0.50	<0.50	<0.50	2	No
Picloram	04/23/18	µg/L	<5.0	<5.0	<5.0	190	No
Polychlorinated Biphenyls(PCB)	04/23/18	µg/L	<0.05	<0.05	<0.05	3	No
Prometryne	04/23/18	µg/L	<0.25	<0.25	<0.25	1	No
Simazine	04/23/18	µg/L	<1.0	<1.0	<1.0	10	No
THM - Distribution (latest running annual average)	11/05/18	µg/L	29.8	29.8	29.8	100 (running annual average)	No
Terbufos	04/23/18	µg/L	<0.50	<0.50	<0.50	1	No
Tetrachloroethylene	04/23/18	µg/L	<0.10	<0.10	<0.10	10	No
2,3,4,6-Tetrachlorophenol	04/23/18	µg/L	<0.50	<0.50	<0.50	100	No
Triallate	04/23/18	µg/L	<1.0	<1.0	<1.0	230	No
Trichloroethylene	04/23/18	µg/L	<0.10	<0.10	<0.10	5	No
2,4,6-Trichlorophenol	04/23/18	µg/L	<0.50	<0.50	<0.50	5	No
Trifluralin	04/23/18	µg/L	<1.0	<1.0	<1.0	45	No
Vinyl Chloride	04/23/18	µg/L	<0.20	<0.20	<0.20	1	No

## Additional Testing Required by the Municipal Drinking Water Licence

Parameter	Date Sampled	Burlington Result	Oakville Result	Burloak Result	Exceedance of Specified Concentration
Suspended solids in the treated wastewater at point of discharge (composite or automatic sampler)	Monthly (January to December)	5.6 mg/L (average) Max. per MDWL = 15 mg/L	17 mg/L (average) Max. per MDWL = 25 mg/L	80 mg/L <sup>1</sup> (average) Max. per MDWL = 15 mg/L	Yes <sup>1</sup>

<sup>1</sup> The suspended solids limits for the water treatment plants are only applicable when the plants are discharging waste to the natural environment (i.e. storm sewer system). At the Burloak Water Treatment Plant, the waste discharges to the sanitary sewer system and the discharge to storm valve is normally closed, meaning that the limit of 15 mg/L is not applicable unless this operational practice changes.

## 'Adverse' Results Notifications

The following tables show the notices of 'adverse' water quality results submitted in accordance with the *Safe Drinking Water Act, 2002* to the MECP and the Medical Officer of Health.

### South Halton Distribution System

Date	Location	Adverse Condition	Corrective Action	Notice of Issue Resolution
January 15, 2018	Treatment	Sodium = 23.0 mg/L	Reportable every 57 months.	January 18, 2018
February 26, 2018 *February 28, 2018	Distribution	Sodium = 21.1 mg/L Sodium = 25.9 mg/L Sodium = 21.7 mg/L *Sodium = 43.8/43.6 mg/L (duplicate) *Sodium = 27.8 mg/L Sodium = 26.5/26.2 mg/L (duplicate) Sodium = 30.5/30.2 mg/L (duplicate) Sodium = 24.5 mg/L	Resamples collected Reportable every 57 months.	March 1, 2018
March 8, 2018	Distribution	Other Observation - Watermain break with evident or suspected contamination.	Water main isolated and MOH issued Boil Water Advisory, Watermain repaired, super chlorinated and flushed. Two sets of samples taken for Microbiological Analysis and all results within acceptable limits (i.e. non-detectable).	March 11, 2018
March 22, 2018	Distribution	Lead = 0.116 mg/L	Resamples collected and results within acceptable limits.	March 29, 2018
May 17, 2018	Distribution	Total Coliform = 2 CFU/100 mL	System flushed, resampled and results within acceptable limits (i.e. non-detectable).	May 19, 2018
July 6, 2018	Distribution	Total Coliform = 16 CFU/100 mL	System flushed, resampled and results within acceptable limits (i.e. non-detectable).	July 8, 2018
October 17, 2018	Distribution	Free chlorine = 0.03 mg/L	Flushed system until secondary chlorine residual restored. Resampled for chlorine residual and results within acceptable limits.	October 17, 2018

## Community-Wide Lead Sampling Program Results

Under the Community-Wide Lead Sampling Program, sixty-eight sets of samples were collected from locations throughout the South Halton Distribution System in 2018. One of the samples contained lead concentrations above the standard of 10 µg/L.

## Microcystin Sampling Results

Under the direction of the MECP, Microcystin samples were collected on a weekly basis from June to October 2018, from Oakville, Burlington and Burloak water treatment plants. None of the samples contained Microcystin concentrations at or above the standard of 1.5 µg/L. The results for all raw and treated samples were <0.1 µg/L for Total Microcystin.

## More Water Information

More information is available on our website: <https://www.halton.ca/For-Residents/Water-and-Environment>. The annual Flow Summary Report 2018 will be available for inspection after March 31, 2019 at:

Halton Region Citizens' Reference Library  
1151 Bronte Road  
Oakville, ON L6M 3L1

## Questions or Comments Welcome

We welcome your comments or questions. Please call us at the telephone numbers below.

1151 Bronte Road, Oakville, ON  
Phone: 905-825-6000  
Toll free: 1-866-4HALTON  
TTY: 905-827-9833