2018 Annual Drinking Water System (DWS) Quality Report for Ansnorveldt DWS

Prepared by The Regional Municipality of York pursuant to Section 11 of O.Reg. 170/03

Drinking Water System Number: 260002213
Drinking Water System Name: Ansnorveldt DWS
Drinking Water System Owner: The Regional Municipality of York
DWS Category: Large Municipal Residential
Drinking Water System Classification: Water Distribution and Supply II
Reporting period: Jan 1, 2018 - Dec 31, 2018

The Ansnorveldt DWS serves approximately 118 people
(Population is a year-end forecasted estimate based on Statscan census data, and building permits)

This annual report is available to the public at no charge on the Region's website (york.ca/drinkingwater) and upon request. Accessible formats or communication supports are also available upon request. Please contact AccessYork@york.ca or call 1-877-464-9675.

Summary report required under O.Reg. 170/03 Schedule 22 will be available for inspection at:

The Regional Municipality of York
Administrative Centre
Environmental Services Department
17250 Yonge Street, Newmarket ON
and online, at york.ca/drinkingwater

List all Drinking Water Systems which receive their drinking water from the Ansnorveldt DWS:
Ansnorveldt Distribution System (260034372)

A copy of York Region's annual report was provided to all Drinking Water System owners that are connected to and receive drinking water from York Region.
System users were notified that York Region's annual report is available free of charge by public access and notice through:

- Media (internet, social media)
- Public Requests at any time

Description of the Ansnorveldt DWS

Introduction
Ansnorveldt is located in King Township. The residential community served by the Ansnorveldt Drinking Water System is centred on Dufferin Street, north of Highway 9. Local groundwater is naturally high in minerals. York Region operates the water supply, while the Township of King maintains water quality and distributes it to users. The Province governs the Region's operations with Acts and Regulations, a Permit to Take Water, a Municipal Drinking Water License and an operating Permit.

Raw water source
Groundwater

Profile of water in distribution system
Groundwater

Water treatment description
Two wells share one pumphouse. Water is disinfected with chlorine. No other treatment chemicals are used. Raw water test results show the good health of the aquifer and help staff confirm optimal treatment. Water is stored and kept fresh on site for high demand times. Operators test the water and inspect the process regularly. Online analyzers continuously monitor treatment and water flow. When analyzers detect an issue, the system pauses operation until an operator takes action.

List of water treatment chemicals used in this system
Chlorine (Sodium Hypochlorite)

Brief description and breakdown of monetary expenses incurred
$12,404 for general maintenance and repair.

Notices submitted under Section 18(1) of the Safe Drinking Water Act or Section 16-4 of O.Reg. 170/03 and reported to MECP Spills Action Centre

Not Applicable

There were no reported adverse water quality incidents or observations of improper disinfection that occured in the Ansnorveldt DWS during 2018

Microbiological testing completed under Schedule 10 of O.Reg. 170/03

*For additional distribution samples collected under Schedule 10, refer to the local municipality

Test Parameter	Sample Source	Count Of Samples	Count Of Presence
E. coli	Raw	102	0
	Treated	54	0
Heterotrophic Plate Count	Treated	54	10
Total Coliforms	Raw	102	0
	Treated	54	0

Operational testing completed under Schedule 7 of Regulation 170/03 during this reporting period

*8,760 is used as the number of samples for continuous analyzers

Test Parameter	Test Units	Continuous Sample Count	Average	Minimum	Maximum
Free Chlorine	mg/L	8,760	1.62	0.78	2.72
Turbidity (Treated)	NTU	8,760	0.15	0.00	5.00

Summary of testing pursuant to Schedule 13 of O. Reg. 170/03 and sampling carried out in accordance with the requirement of an approval, order or other legal instrument

Values with a less than sign ("<") indicate that the test result is below the method detection limit from the accredited laboratory (i.e. non-detect). Average results include values which were returned as non-detect and are rounded to three decimals. For a complete set of results, see the open dataset available at york.ca/drinkingwater

Test Parameter	Test Units	No. of Samples	Average	Minimum	Maximum
Fluoride	mg/L	4	0.248	0.24	0.25
Haloacetic Acids	mg/L	5	0.013	0.01	<0.02
Nitrate	mg/L	4	0.500	<0.5	<0.5
Nitrite	mg/L	4	0.050	<0.05	<0.05
Sodium	mg/L	1	42.500	42.5	42.5
Trihalomethanes	mg/L	5	0.048	0.0407	0.0532

*Lead testing under Schedule 15.1 is conducted by the Local Municipality - refer to Local Municipality reports for results. York Region occasionally collects samples tested for lead for non-regulatory research purposes

Organic and inorganic parameter(s) that exceeded half the standard prescribed in Schedule 2 of O.Reg. 169/03 Ontario Drinking Water Quality Standards

Test Parameter	Sample Facility	Sample Date	Test Units	Test Result	ODWS Limit
Trihalomethanes	Ansnorveldt Well 2,3 Treated	08-Jan-18	mg/L	0.0501	0.100
		08-Oct-18	mg/L	0.0532	0.100

Summary of inorganic parameters tested pursuant to Schedule 23 of O.Reg. 170/03

Values with a less than sign ("<") indicate that the test result is below the method detection limit from the accredited laboratory (i.e. non-detect). Average results include values which were returned as non-detect and are rounded to five decimals. For a complete set of results, see the open dataset available at york.ca/drinkingwater

Test Parameter	No. of Samples	Test Units	Average	Minimum	Maximum	ODWS Limit
Antimony	1	mg/L	0.00050	<0.0005	<0.0005	0.006
Arsenic	1	mg/L	0.00050	<0.0005	<0.0005	0.01
Barium	1	mg/L	0.13100	0.131	0.131	1
Boron	1	mg/L	0.14700	0.147	0.147	5
Cadmium	1	mg/L	0.00050	<0.0005	<0.0005	0.005
Chromium	1	mg/L	0.00050	<0.0005	<0.0005	0.05
Mercury	1	mg/L	0.00005	<0.00005	<0.00005	0.001
Selenium	1	mg/L	0.00050	<0.0005	<0.0005	0.05
Uranium	1	mg/L	0.00050	<0.0005	<0.0005	0.02

Summary of organic parameters tested pursuant to Schedule 24 of O.Reg. 170/03

Values with a less than sign ("<") indicate that the test result is below the method detection limit from the accredited laboratory (i.e. non-detect). Average results include values which were returned as non-detect and are rounded to four decimals. For a complete set of results, see the open dataset available at york.ca/drinkingwater

Test Parameter	No. of Samples	Test Units	Average	Minimum	Maximum	ODWS Limit
1,1-dichloroethylene (vinylidene chloride)	1	mg/L	0.0003	<0.0003	<0.0003	0.014
1,2-(o-dcb) Dichlorobenzene	1	mg/L	0.0001	<0.0001	<0.0001	0.2
1,2-Dichloroethane	1	mg/L	0.0001	<0.0001	<0.0001	0.005
1,4-(p-dcb) Dichlorobenzene	1	mg/L	0.0001	<0.0001	<0.0001	0.005
2-methyl-4-chlorophenoxyacetic acid	1	mg/L	0.0050	<0.005	<0.005	0.1
2,3,4,6-Tetrachlorophenol	1	mg/L	0.0005	<0.0005	<0.0005	0.1
2,4-Dichlorophenol	1	mg/L	0.0007	<0.0007	<0.0007	0.9
2,4-dichlorophenoxyacetic acid (2,4-D)	1	mg/L	0.0008	<0.0008	<0.0008	0.1
2,4,6-Trichlorophenol	1	mg/L	0.0005	<0.0005	<0.0005	0.005
Alachlor	1	mg/L	0.0004	<0.0004	<0.0004	0.005
Atrazine + N-dealkylated metabolites	1	mg/L	0.0002	<0.0002	<0.0002	0.005
Azinphos-methyl	1	mg/L	0.0003	<0.0003	<0.0003	0.02
Benzene	1	mg/L	0.0001	<0.0001	<0.0001	0.005
Benzo(a)pyrene	1	mg/L	0.0000	<0.00001	<0.00001	0.00001
Bromoxynil	1	mg/L	0.0004	<0.0004	<0.0004	0.005
Carbaryl	1	mg/L	0.0030	<0.003	<0.003	0.09
Carbofuran	1	mg/L	0.0030	<0.003	<0.003	0.09
Carbon Tetrachloride	1	mg/L	0.0002	<0.0002	<0.0002	0.005
Chlorpyrifos	1	mg/L	0.0002	<0.0002	<0.0002	0.09
Diazinon	1	mg/L	0.0002	<0.0002	<0.0002	0.02
Dicamba	1	mg/L	0.0004	<0.0004	<0.0004	0.12
Dichloromethane	1	mg/L	0.0010	<0.001	<0.001	0.05
Diclofop-methyl	1	mg/L	0.0004	<0.0004	<0.0004	0.009
Dimethoate	1	mg/L	0.0003	<0.0003	<0.0003	0.02
Diquat	1	mg/L	0.0010	<0.001	<0.001	0.07
Diuron	1	mg/L	0.0030	<0.003	<0.003	0.15
Glyphosate	1	mg/L	0.0250	<0.025	<0.025	0.28
Malathion	1	mg/L	0.0002	<0.0002	<0.0002	0.19
Metolachlor	1	mg/L	0.0002	<0.0002	<0.0002	0.05
Metribuzin	1	mg/L	0.0003	<0.0003	<0.0003	0.08
Monochlorobenzene	1	mg/L	0.0001	<0.0001	<0.0001	0.08
Paraquat	1	mg/L	0.0010	<0.001	<0.001	0.01
Pentachlorophenol	1	mg/L	0.0004	<0.0004	<0.0004	0.06
Phorate	1	mg/L	0.0002	<0.0002	<0.0002	0.002
Picloram	1	mg/L	0.0007	<0.0007	<0.0007	0.19
Polychlorinated Biphenyls (PCBs)	1	mg/L	0.0000	<0.00002	<0.00002	0.003
Prometryne	1	mg/L	0.0002	<0.0002	<0.0002	0.001
Simazine	1	mg/L	0.0002	<0.0002	<0.0002	0.01
Terbufos	1	mg/L	0.0002	<0.0002	<0.0002	0.001
Tetrachloroethylene (perchloroethylene)	1	mg/L	0.0003	<0.0003	<0.0003	0.01
Triallate	1	mg/L	0.0040	<0.004	<0.004	0.23
Trichloroethylene	1	mg/L	0.0001	<0.0001	<0.0001	0.005
Trifluralin	1	mg/L	0.0000	<0.000006	<0.000006	0.045
Vinyl Chloride	1	mg/L	0.0002	<0.0002	<0.0002	0.001

2018 Annual Drinking Water System (DWS) Quality Report for Aurora DWS

Prepared by The Regional Municipality of York pursuant to Section 11 of O.Reg. 170/03

Drinking Water System Number: 220002440
Drinking Water System Name: Aurora DWS
Drinking Water System Owner: The Regional Municipality of York
DWS Category: Large Municipal Residential
Drinking Water System Classification: Water Distribution and Supply III
Reporting period: Jan 1, 2018 - Dec 31, 2018

The Aurora DWS serves approximately 62409 people
(Population is a year-end forecasted estimate based on Statscan census data, and building permits)

This annual report is available to the public at no charge on the Region's website (york.ca/drinkingwater) and upon request. Accessible formats or communication supports are also available upon request. Please contact AccessYork@york.ca or call 1-877-464-9675.

Summary report required under O.Reg. 170/03 Schedule 22 will be available for inspection at:

The Regional Municipality of York
Administrative Centre
Environmental Services Department
17250 Yonge Street, Newmarket ON
and online, at york.ca/drinkingwater

List all Drinking Water Systems which receive their drinking water from the Aurora DWS:
Town of Aurora Distribution System (260003227); Newmarket Distribution System (260003188)

A copy of York Region's annual report was provided to all Drinking Water System owners that are connected to and receive drinking water from York Region.
System users were notified that York Region's annual report is available free of charge by public access and notice through:

- Media (internet, social media)
- Public Requests at any time

Description of the Aurora DWS

Introduction
The Town of Aurora is located in the centre of York Region. Local groundwater is naturally high in minerals, and is blended with Lake Ontario water from the York DWS. York Region operates the water supply, while the Town of Aurora maintains water quality and distributes it to users. The Province governs the Region's operations with Acts and Regulations, a Permit to Take Water, a Municipal Drinking Water License and an operating Permit. Lake Ontario water is purchased with supply agreements.

Raw water source
Groundwater

Profile of water in distribution system
Blended - Lake and Groundwater

Water treatment description
Aurora DWS includes six wells, six storage facilities, and three booster pumping stations. Chlorine provides disinfection, and chloramine provides a secondary residual. Two facilities also re-chloraminate to boost the residual. Sodium silicate is added to sequester naturally occurring iron and manganese. Storage facilities hold treated water and help booster stations maintain pressure. Operators test the water and inspect the process. Online analyzers continuously monitor the facilities. When a significant process or water quality issue is detected, the system automatically pauses operation until an operator takes action.

List of water treatment chemicals used in this system
Chlorine Gas; Ammonia solution (Ammonium Sulphate); Sodium Silicate

Brief description and breakdown of monetary expenses incurred
$2,187,288 for general maintenance and repair, groundwater treatment, pumping station and reservoir upgrade and distribution system maintenance.

Notices submitted under Section 18(1) of the Safe Drinking Water Act or Section 16-4 of O.Reg. 170/03 and reported to MECP Spills Action Centre

Adverse Parameter	Incident Date	Adverse Test Result Units	Adverse Test Results	Corrective Action	Corrective Action Date
Chlorine Residual	03-Jan-18	mg/L	4.11	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	03-Jan-18
	10-Mar-18	mg/L	4.55	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	10-Mar-18
	01-May-18	mg/L	4.86	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	01-May-18
	04-May-18	mg/L	4.89	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	04-May-18
	04-May-18	mg/L	5.00	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	04-May-18
	04-May-18	mg/L	0.00	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	05-May-18
	04-May-18	mg/L	4.26	Reported as due diligence. Operator attended site. Facility returned to normal operation. Compliant grab sample taken.	05-May-18
	22-May-18	mg/L	4.01	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	22-May-18
	09-Jun-18	mg/L	0.00	Reported as due diligence. Operator attended site. Facility returned to normal operation. Compliant grab sample taken.	09-Jun-18
	25-Nov-18	mg/L	0.00	Reported as due diligence. Operator attended site. Facility returned to normal operation. Compliant grab sample taken.	25-Nov-18
	23-Dec-18	mg/L	4.10	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	23-Dec-18
System Pressure	23-Nov-18	Unitless	Possible Contamination	Reported as due diligence. Operator attended site. Facility returned to normal operation. Compliant grab sample taken.	23-Nov-18

Microbiological testing completed under Schedule 10 of O.Reg. 170/03

*For additional distribution samples collected under Schedule 10, refer to the local municipality

Test Parameter	Sample Source	Count Of Samples	Count Of Presence
E. coli	Raw	287	0
	Treated	80	0
Heterotrophic Plate Count	Treated	80	9
Total Coliforms	Raw	287	0
	Treated	80	0

Operational testing completed under Schedule 7 of Regulation 170/03 during this reporting period

*8,760 is used as the number of samples for continuous analyzers

Test Parameter	Test Units	Continuous Sample Count	Average	Minimum	Maximum
Combined Chlorine	mg/L	8,760	2.62	0.00	5.00
Turbidity (Treated)	NTU	8,760	0.08	0.02	5.00

Summary of testing pursuant to Schedule 13 of O. Reg. 170/03 and sampling carried out in accordance with the requirement of an approval, order or other legal instrument

Values with a less than sign ("<") indicate that the test result is below the method detection limit from the accredited laboratory (i.e. non-detect). Average results include values which were returned as non-detect and are rounded to three decimals. For a complete set of results, see the open dataset available at york.ca/drinkingwater

Test Parameter	Test Units	No. of Samples	Average	Minimum	Maximum
Fluoride	mg/L	84	0.359	0.14	0.67
Haloacetic Acids	mg/L	24	0.011	<0.008	<0.02
Nitrate	mg/L	84	0.501	<0.5	<0.5
Nitrite	mg/L	84	0.050	<0.05	<0.05
Sodium	mg/L	8	16.567	13.4	21.4
Trihalomethanes	mg/L	26	0.012	0.0032	0.024

*Lead testing under Schedule 15.1 is conducted by the Local Municipality - refer to Local Municipality reports for results. York Region occasionally collects samples tested for lead for non-regulatory research purposes

Organic and inorganic parameter(s) that exceeded half the standard prescribed in Schedule 2 of O.Reg. 169/03 Ontario Drinking Water Quality Standards

Not Applicable

There were no parameters that exceeded half the standard indicated above for the Aurora DWS during 2018

Summary of inorganic parameters tested pursuant to Schedule 23 of O.Reg. 170/03

Values with a less than sign ("<") indicate that the test result is below the method detection limit from the accredited laboratory (i.e. non-detect). Average results include values which were returned as non-detect and are rounded to five decimals. For a complete set of results, see the open dataset available at york.ca/drinkingwater

Test Parameter	No. of Samples	Test Units	Average	Minimum	Maximum	ODWS Limit
Antimony	8	mg/L	0.00056	<0.0005	0.0005	0.006
Arsenic	8	mg/L	0.00079	<0.0005	0.0009	0.01
Barium	8	mg/L	0.04180	0.0234	0.101	1
Boron	8	mg/L	0.03005	0.0276	0.0364	5
Cadmium	8	mg/L	0.00056	<0.0005	<0.001	0.005
Chromium	8	mg/L	0.00056	<0.0005	<0.001	0.05
Mercury	8	mg/L	0.00005	<0.00005	<0.00005	0.001
Selenium	8	mg/L	0.00056	<0.0005	<0.001	0.05
Uranium	8	mg/L	0.00056	<0.0005	<0.001	0.02

Summary of organic parameters tested pursuant to Schedule 24 of O.Reg. 170/03

Values with a less than sign (”<”) indicate that the test result is below the method detection limit from the accredited laboratory (i.e. non-detect). Average results include values which were returned as non-detect and are rounded to four decimals. For a complete set of results, see the open dataset available at york.ca/drinkingwater

Test Parameter	No. of Samples	Test Units	Average	Minimum	Maximum	ODWS Limit
1,1-dichloroethylene (vinylidene chloride)	2	mg/L	0.0003	<0.0003	<0.0003	0.014
1,2-(o-dcb) Dichlorobenzene	2	mg/L	0.0001	<0.0001	<0.0001	0.2
1,2-Dichloroethane	2	mg/L	0.0001	<0.0001	<0.0001	0.005
1,4-(p-dcb) Dichlorobenzene	2	mg/L	0.0001	<0.0001	<0.0001	0.005
2-methyl-4-chlorophenoxyacetic acid	2	mg/L	0.0050	<0.005	<0.005	0.1
2,3,4,6-Tetrachlorophenol	2	mg/L	0.0005	<0.0005	<0.0005	0.1
2,4-Dichlorophenol	2	mg/L	0.0007	<0.0007	<0.0007	0.9
2,4-dichlorophenoxyacetic acid (2,4-D)	2	mg/L	0.0008	<0.0008	<0.0008	0.1
2,4,6-Trichlorophenol	2	mg/L	0.0005	<0.0005	<0.0005	0.005
Alachlor	2	mg/L	0.0004	<0.0004	<0.0004	0.005
Atrazine + N-dealkylated metabolites	2	mg/L	0.0002	<0.0002	<0.0002	0.005
Azinphos-methyl	2	mg/L	0.0003	<0.0003	<0.0003	0.02
Benzene	2	mg/L	0.0001	<0.0001	<0.0001	0.005
Benzo(a)pyrene	2	mg/L	0.0000	<0.00001	<0.00001	0.00001
Bromoxynil	2	mg/L	0.0004	<0.0004	<0.0004	0.005
Carbaryl	2	mg/L	0.0030	<0.003	<0.003	0.09
Carbofuran	2	mg/L	0.0030	<0.003	<0.003	0.09
Carbon Tetrachloride	2	mg/L	0.0002	<0.0002	<0.0002	0.005
Chlorpyrifos	2	mg/L	0.0002	<0.0002	<0.0002	0.09
Diazinon	2	mg/L	0.0002	<0.0002	<0.0002	0.02
Dicamba	2	mg/L	0.0004	<0.0004	<0.0004	0.12
Dichloromethane	2	mg/L	0.0010	<0.001	<0.001	0.05
Diclofop-methyl	2	mg/L	0.0004	<0.0004	<0.0004	0.009
Dimethoate	2	mg/L	0.0003	<0.0003	<0.0003	0.02
Diquat	2	mg/L	0.0010	<0.001	<0.001	0.07
Diuron	2	mg/L	0.0030	<0.003	<0.003	0.15
Glyphosate	2	mg/L	0.0250	<0.025	<0.025	0.28
Malathion	2	mg/L	0.0002	<0.0002	<0.0002	0.19
Metolachlor	2	mg/L	0.0002	<0.0002	<0.0002	0.05
Metribuzin	2	mg/L	0.0003	<0.0003	<0.0003	0.08
Monochlorobenzene	2	mg/L	0.0001	<0.0001	<0.0001	0.08
Paraquat	2	mg/L	0.0010	<0.001	<0.001	0.01
Pentachlorophenol	2	mg/L	0.0004	<0.0004	<0.0004	0.06
Phorate	2	mg/L	0.0002	<0.0002	<0.0002	0.002
Picloram	2	mg/L	0.0007	<0.0007	<0.0007	0.19
Polychlorinated Biphenyls (PCBs)	2	mg/L	0.0000	<0.00002	<0.00002	0.003
Prometryne	2	mg/L	0.0002	<0.00019	<0.00019	0.001
Simazine	2	mg/L	0.0002	<0.0002	<0.0002	0.01
Terbufos	2	mg/L	0.0002	<0.0002	<0.0002	0.001
Tetrachloroethylene (perchloroethylene)	2	mg/L	0.0003	<0.0003	<0.0003	0.01
Triallate	2	mg/L	0.0040	<0.004	<0.004	0.23
Trichloroethylene	2	mg/L	0.0001	<0.0001	<0.0001	0.005
Trifluralin	2	mg/L	0.0000	<0.000006	<0.000006	0.045
Vinyl Chloride	2	mg/L	0.0002	<0.0002	<0.0002	0.001

2018 Annual Drinking Water System (DWS) Quality Report for Ballantrae/Musselman's Lake DWS

Prepared by The Regional Municipality of York pursuant to Section 11 of O.Reg. 170/03

Drinking Water System Number: 220008658
Drinking Water System Name: Ballantrae/Musselman's Lake DWS
Drinking Water System Owner: The Regional Municipality of York
DWS Category: Large Municipal Residential
Drinking Water System Classification: Water Distribution and Supply II
Reporting period: Jan 1, 2018 - Dec 31, 2018

The Ballantrae/Musselman's Lake DWS serves approximately 5038 people
(Population is a year-end forecasted estimate based on Statscan census data, and building permits)

This annual report is available to the public at no charge on the Region's website (york.ca/drinkingwater) and upon request. Accessible formats or communication supports are also available upon request. Please contact AccessYork@york.ca or call 1-877-464-9675.

Summary report required under O.Reg. 170/03 Schedule 22 will be available for inspection at:

The Regional Municipality of York
Administrative Centre
Environmental Services Department
17250 Yonge Street, Newmarket ON
and online, at york.ca/drinkingwater

List all Drinking Water Systems which receive their drinking water from the Ballantrae/Musselman's Lake DWS:
Ballantrae-Musselman's Lake Distribution System (260006737)

A copy of York Region's annual report was provided to all Drinking Water System owners that are connected to and receive drinking water from York Region.
System users were notified that York Region's annual report is available free of charge by public access and notice through:

- Media (internet, social media)
- Public Requests at any time

Description of the Ballantrae/Musselman's Lake DWS

Introduction
The communities of Ballantrae and Musselman's Lake are centered on Aurora Road and Highway 48 in Whitchurch-Stouffville. Local groundwater is naturally high in minerals. York Region operates the water supply, while the Town of Whitchurch-Stouffville maintains water quality and distributes it to users. The Province governs the Region's operations with Acts and Regulations, a Permit to Take Water, a Municipal Drinking Water License and an operating Permit.

Raw water source
Groundwater

Profile of water in distribution system
Groundwater

Water treatment description
Ballantrae-Musselman's Lake system includes three wells and one storage facility. Chlorine provides disinfection and maintains a secondary residual. Sodium silicate is added to sequester naturally occurring iron and manganese. The storage facility holds treated water and maintains pressure. Tests confirm good ground water quality. Operators test the water and inspect the process. Online analyzers continuously monitor treatment and water flow. When a significant process or water quality issue is detected, the system automatically pauses operation until an operator takes action.

List of water treatment chemicals used in this system
Chlorine (Gas, Sodium Hypochlorite); Sodium Silicate

Brief description and breakdown of monetary expenses incurred
$47,341 for general maintenance and repair.

Notices submitted under Section 18(1) of the Safe Drinking Water Act or Section 16-4 of O.Reg. 170/03 and reported to MECP Spills Action Centre

Adverse Parameter	Incident Date	Adverse Test Result Units	Adverse Test Results	Corrective Action	Corrective Action Date
Chlorine Residual	12-Jan-18	mg/L	0.00	Reported as due diligence. Operator attended site. Facility returned to normal operation. Compliant grab sample taken.	12-Jan-18
	04-May-18	mg/L	0.00	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	04-May-18
	18-Nov-18	mg/L	0.00	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	18-Nov-18

Microbiological testing completed under Schedule 10 of O.Reg. 170/03

*For additional distribution samples collected under Schedule 10, refer to the local municipality

Test Parameter	Sample Source	Count Of Samples	Count Of Presence
E. coli	Raw	156	0
	Treated	104	0
Heterotrophic Plate Count	Treated	104	15
Total Coliforms	Raw	156	0
	Treated	104	0

Operational testing completed under Schedule 7 of Regulation 170/03 during this reporting period

*8,760 is used as the number of samples for continuous analyzers

Test Parameter	Test Units	Continuous Sample Count	Average	Minimum	Maximum
Free Chlorine	mg/L	8,760	1.32	0.00	3.78
Turbidity (Treated)	NTU	8,760	0.08	0.00	5.24

Summary of testing pursuant to Schedule 13 of O. Reg. 170/03 and sampling carried out in accordance with the requirement of an approval, order or other legal instrument

Values with a less than sign ("<") indicate that the test result is below the method detection limit from the accredited laboratory (i.e. non-detect). Average results include values which were returned as non-detect and are rounded to three decimals. For a complete set of results, see the open dataset available at york.ca/drinkingwater

Test Parameter	Test Units	No. of Samples	Average	Minimum	Maximum
Fluoride	mg/L	12	0.081	0.07	0.12
Haloacetic Acids	mg/L	4	0.016	<0.008	<0.02
Nitrate	mg/L	12	0.500	<0.5	<0.5
Nitrite	mg/L	12	0.050	<0.05	<0.05
Sodium	mg/L	3	10.700	10.3	11.4
Trihalomethanes	mg/L	6	0.013	0.0052	0.0308

*Lead testing under Schedule 15.1 is conducted by the Local Municipality - refer to Local Municipality reports for results. York Region occasionally collects samples tested for lead for non-regulatory research purposes

Organic and inorganic parameter(s) that exceeded half the standard prescribed in Schedule 2 of O.Reg. 169/03 Ontario Drinking Water Quality Standards

Not Applicable

There were no parameters that exceeded half the standard indicated above for the Ballantrae/Musselman's Lake DWS during 2018

Summary of inorganic parameters tested pursuant to Schedule 23 of O.Reg. 170/03

Values with a less than sign ("<") indicate that the test result is below the method detection limit from the accredited laboratory (i.e. non-detect). Average results include values which were returned as non-detect and are rounded to five decimals. For a complete set of results, see the open dataset available at york.ca/drinkingwater

Test Parameter	No. of Samples	Test Units	Average	Minimum	Maximum	ODWS Limit
Antimony	3	mg/L	0.00050	<0.0005	<0.0005	0.006
Arsenic	3	mg/L	0.00057	<0.0005	0.0007	0.01
Barium	3	mg/L	0.07567	0.0569	0.0979	1
Boron	3	mg/L	0.01540	0.006	0.0224	5
Cadmium	3	mg/L	0.00050	<0.0005	<0.0005	0.005
Chromium	3	mg/L	0.00050	<0.0005	<0.0005	0.05
Mercury	3	mg/L	0.00005	<0.00005	<0.00005	0.001
Selenium	3	mg/L	0.00050	<0.0005	<0.0005	0.05
Uranium	3	mg/L	0.00050	<0.0005	<0.0005	0.02

Summary of organic parameters tested pursuant to Schedule 24 of O.Reg. 170/03

Values with a less than sign ("<") indicate that the test result is below the method detection limit from the accredited laboratory (i.e. non-detect). Average results include values which were returned as non-detect and are rounded to four decimals. For a complete set of results, see the open dataset available at york.ca/drinkingwater

Test Parameter	No. of Samples	Test Units	Average	Minimum	Maximum	ODWS Limit
1,1-dichloroethylene (vinylidene chloride)	2	mg/L	0.0003	<0.0003	<0.0003	0.014
1,2-(o-dcb) Dichlorobenzene	2	mg/L	0.0001	<0.0001	<0.0001	0.2
1,2-Dichloroethane	2	mg/L	0.0001	<0.0001	<0.0001	0.005
1,4-(p-dcb) Dichlorobenzene	2	mg/L	0.0001	<0.0001	<0.0001	0.005
2-methyl-4-chlorophenoxyacetic acid	2	mg/L	0.0050	<0.005	<0.005	0.1
2,3,4,6-Tetrachlorophenol	2	mg/L	0.0005	<0.0005	<0.0005	0.1
2,4-Dichlorophenol	2	mg/L	0.0007	<0.0007	<0.0007	0.9
2,4-dichlorophenoxyacetic acid (2,4-D)	2	mg/L	0.0008	<0.0008	<0.0008	0.1
2,4,6-Trichlorophenol	2	mg/L	0.0005	<0.0005	<0.0005	0.005
Alachlor	2	mg/L	0.0004	<0.0004	<0.0004	0.005
Atrazine + N-dealkylated metabolites	2	mg/L	0.0002	<0.0002	<0.0002	0.005
Azinphos-methyl	2	mg/L	0.0003	<0.0003	<0.0003	0.02
Benzene	2	mg/L	0.0001	<0.0001	<0.0001	0.005
Benzo(a)pyrene	2	mg/L	0.0000	<0.00001	<0.00001	0.00001
Bromoxynil	2	mg/L	0.0004	<0.0004	<0.0004	0.005
Carbaryl	2	mg/L	0.0030	<0.003	<0.003	0.09
Carbofuran	2	mg/L	0.0030	<0.003	<0.003	0.09
Carbon Tetrachloride	2	mg/L	0.0002	<0.0002	<0.0002	0.005
Chlorpyrifos	2	mg/L	0.0002	<0.0002	<0.0002	0.09
Diazinon	2	mg/L	0.0002	<0.0002	<0.0002	0.02
Dicamba	2	mg/L	0.0004	<0.0004	<0.0004	0.12
Dichloromethane	2	mg/L	0.0010	<0.001	<0.001	0.05
Diclofop-methyl	2	mg/L	0.0004	<0.0004	<0.0004	0.009
Dimethoate	2	mg/L	0.0003	<0.0003	<0.0003	0.02
Diquat	2	mg/L	0.0010	<0.001	<0.001	0.07
Diuron	2	mg/L	0.0030	<0.003	<0.003	0.15
Glyphosate	2	mg/L	0.0250	<0.025	<0.025	0.28
Malathion	2	mg/L	0.0002	<0.0002	<0.0002	0.19
Metolachlor	2	mg/L	0.0002	<0.0002	<0.0002	0.05
Metribuzin	2	mg/L	0.0003	<0.0003	<0.0003	0.08
Monochlorobenzene	2	mg/L	0.0001	<0.0001	<0.0001	0.08
Paraquat	2	mg/L	0.0010	<0.001	<0.001	0.01
Pentachlorophenol	2	mg/L	0.0004	<0.0004	<0.0004	0.06
Phorate	2	mg/L	0.0002	<0.0002	<0.0002	0.002
Picloram	2	mg/L	0.0007	<0.0007	<0.0007	0.19
Polychlorinated Biphenyls (PCBs)	2	mg/L	0.0000	<0.00002	<0.00002	0.003
Prometryne	2	mg/L	0.0002	<0.0002	<0.0002	0.001
Simazine	2	mg/L	0.0002	<0.0002	<0.0002	0.01
Terbufos	2	mg/L	0.0002	<0.0002	<0.0002	0.001
Tetrachloroethylene (perchloroethylene)	2	mg/L	0.0003	<0.0003	<0.0003	0.01
Triallate	2	mg/L	0.0040	<0.004	<0.004	0.23
Trichloroethylene	2	mg/L	0.0001	<0.0001	<0.0001	0.005
Trifluralin	2	mg/L	0.0000	<0.000006	<0.000006	0.045
Vinyl Chloride	2	mg/L	0.0002	<0.0002	<0.0002	0.001

2018 Annual Drinking Water System (DWS) Quality Report for Georgina DWS

Prepared by The Regional Municipality of York pursuant to Section 11 of O.Reg. 170/03

Drinking Water System Number: 260026156
Drinking Water System Name: Georgina DWS
Drinking Water System Owner: The Regional Municipality of York
DWS Category: Large Municipal Residential
Drinking Water System Classification: Water Treatment III
Reporting period: Jan 1, 2018 - Dec 31, 2018

The Georgina DWS serves approximately 8224 people
(Population is a year-end forecasted estimate based on Statscan census data, and building permits)

This annual report is available to the public at no charge on the Region's website (york.ca/drinkingwater) and upon request. Accessible formats or communication supports are also available upon request. Please contact AccessYork@york.ca or call 1-877-464-9675.

Summary report required under O.Reg. 170/03 Schedule 22 will be available for inspection at:

The Regional Municipality of York
Administrative Centre
Environmental Services Department
17250 Yonge Street, Newmarket ON
and online, at york.ca/drinkingwater

List all Drinking Water Systems which receive their drinking water from the Georgina DWS:
Keswick-Sutton Distribution System (260062686)

A copy of York Region's annual report was provided to all Drinking Water System owners that are connected to and receive drinking water from York Region.
System users were notified that York Region's annual report is available free of charge by public access and notice through:

- Media (internet, social media)
- Public Requests at any time

Description of the Georgina DWS

Introduction
The communities of Keswick and Sutton, and other lakeshore communities are located on the south shore of Lake Simcoe. Surface water from Lake Simcoe supplies these communities. The Keswick sub-system supplies the other half of this larger system. Algae in the lake can add a harmless but musty taste. York Region operates the water supply, while the Town of Georgina maintains water quality and distributes it to users. The Province governs the Region's operations with Acts and Regulations, a Permit to Take Water, a Municipal Drinking Water License and an operating Permit.

Raw water source
Lake Simcoe

Profile of water in distribution system
Lake Simcoe

Water treatment description
The Georgina DWS includes one water treatment plant and one storage facility. Incoming water is screened and chlorine addition prevents mussel growth. Membrane filtration removes particles. Granular activated carbon improves taste and controls odour. UV light and chlorine are used for disinfection. Fluoride is added at levels recommended by Ontario's Chief Medical Officer of Health. Operators test the water and inspect the process. Online analyzers continuously monitor treatment and water flow. When a significant process or water quality issue is detected, the system automatically pauses operation until an operator takes action.

List of water treatment chemicals used in this system
Chlorine gas (for disinfection); Granular activated carbon; Non water treatment chemical: Hydrofluosilicic Acid applied; Filtration membranes cleaned with sodium hypochlorite, citric acid, sodium hydroxide, sodium bisulfite; Dechlorination of membrane filter and GAC washwater with sulphur dioxide.

Brief description and breakdown of monetary expenses incurred
$153,506 for general maintenance and repair and watermain replacement.

Notices submitted under Section 18(1) of the Safe Drinking Water Act or Section 16-4 of O.Reg. 170/03 and reported to MECP Spills Action Centre

Adverse Parameter	Incident Date	Adverse Test Result Units	Adverse Test Results	Corrective Action	Corrective Action Date
Chlorine Residual	23-Jun-18	mg/L	0.01	Reported as due diligence. Operator attended site. Facility returned to normal operation. Compliant grab sample taken.	23-Jun-18
	24-Oct-18	mg/L	0.00	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	24-Oct-18
Fluoride as F	17-Feb-18	mg/L	1.69	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	17-Feb-18
	26-Jul-18	mg/L	1.69	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	26-Jul-18

Microbiological testing completed under Schedule 10 of O.Reg. 170/03

*For additional distribution samples collected under Schedule 10, refer to the local municipality

Test Parameter	Sample Source	Count Of Samples	Count Of Presence
E. coli	Raw	53	1
	Treated	53	0
Heterotrophic Plate Count	Treated	53	5
Total Coliforms	Raw	53	12
	Treated	53	0

Operational testing completed under Schedule 7 of Regulation 170/03 during this reporting period

*8,760 is used as the number of samples for continuous analyzers

Test Parameter	Test Units	Continuous Sample Count	Average	Minimum	Maximum
Fluoride	mg/L	8,760	0.63	0.20	1.71
Free Chlorine	mg/L	8,760	1.62	0.00	2.54
Turbidity (Raw)	NTU	8,760	0.36	0.00	10.00
Turbidity (Treated)	NTU	8,760	0.04	0.00	5.00

Summary of testing pursuant to Schedule 13 of O. Reg. 170/03 and sampling carried out in accordance with the requirement of an approval, order or other legal instrument

Values with a less than sign ("<") indicate that the test result is below the method detection limit from the accredited laboratory (i.e. non-detect). Average results include values which were returned as non-detect and are rounded to three decimals. For a complete set of results, see the open dataset available at york.ca/drinkingwater

Test Parameter	Test Units	No. of Samples	Average	Minimum	Maximum
Free Chlorine Backwash	mg/L	8,760	0.001	0	4.998
Haloacetic Acids	mg/L	4	0.024	0.018	0.03
Nitrate	mg/L	8	0.500	<0.5	<0.5
Nitrite	mg/L	8	0.050	<0.05	<0.05
Sodium	mg/L	2	31.700	31.5	31.9
Total Suspended Solids Backwash	NTU	8,760	0.742	0	200
Trihalomethanes	mg/L	25	0.035	0.0193	0.0595

*Lead testing under Schedule 15.1 is conducted by the Local Municipality - refer to Local Municipality reports for results. York Region occasionally collects samples tested for lead for non-regulatory research purposes

Organic and inorganic parameter(s) that exceeded half the standard prescribed in Schedule 2 of O.Reg. 169/03 Ontario Drinking Water Quality Standards

Test Parameter	Sample Facility	Sample Date	Test Units	Test Result	ODWS Limit
Trihalomethanes	Georgina WTP	02-Jul-18	mg/L	0.052	0.100
	Sutton ET	03-Sep-18	mg/L	0.0595	0.100

Summary of inorganic parameters tested pursuant to Schedule 23 of O.Reg. 170/03

Values with a less than sign (”<”) indicate that the test result is below the method detection limit from the accredited laboratory (i.e. non-detect). Average results include values which were returned as non-detect and are rounded to five decimals. For a complete set of results, see the open dataset available at york.ca/drinkingwater

Test Parameter	No. of Samples	Test Units	Average	Minimum	Maximum	ODWS Limit
Antimony	2	mg/L	0.00050	<0.0005	<0.0005	0.006
Arsenic	2	mg/L	0.00050	0.0005	0.0005	0.01
Barium	2	mg/L	0.02295	0.0226	0.0233	1
Boron	2	mg/L	0.02025	0.02	0.0205	5
Cadmium	2	mg/L	0.00050	<0.0005	<0.0005	0.005
Chromium	2	mg/L	0.00050	<0.0005	<0.0005	0.05
Mercury	2	mg/L	0.00005	<0.00005	<0.00005	0.001
Selenium	2	mg/L	0.00050	<0.0005	<0.0005	0.05
Uranium	2	mg/L	0.00050	<0.0005	<0.0005	0.02

Summary of organic parameters tested pursuant to Schedule 24 of O.Reg. 170/03

Values with a less than sign ("<") indicate that the test result is below the method detection limit from the accredited laboratory (i.e. non-detect). Average results include values which were returned as non-detect and are rounded to four decimals. For a complete set of results, see the open dataset available at york.ca/drinkingwater

Test Parameter	No. of Samples	Test Units	Average	Minimum	Maximum	ODWS Limit
1,1-dichloroethylene (vinylidene chloride)	1	mg/L	0.0003	<0.0003	<0.0003	0.014
1,2-(o-dcb) Dichlorobenzene	1	mg/L	0.0001	<0.0001	<0.0001	0.2
1,2-Dichloroethane	1	mg/L	0.0001	<0.0001	<0.0001	0.005
1,4-(p-dcb) Dichlorobenzene	1	mg/L	0.0001	<0.0001	<0.0001	0.005
2-methyl-4-chlorophenoxyacetic acid	1	mg/L	0.0050	<0.005	<0.005	0.1
2,3,4,6-Tetrachlorophenol	1	mg/L	0.0005	<0.0005	<0.0005	0.1
2,4-Dichlorophenol	1	mg/L	0.0007	<0.0007	<0.0007	0.9
2,4-dichlorophenoxyacetic acid (2,4-D)	1	mg/L	0.0008	<0.0008	<0.0008	0.1
2,4,6-Trichlorophenol	1	mg/L	0.0005	<0.0005	<0.0005	0.005
Alachlor	1	mg/L	0.0004	<0.0004	<0.0004	0.005
Atrazine + N-dealkylated metabolites	1	mg/L	0.0002	<0.0002	<0.0002	0.005
Azinphos-methyl	1	mg/L	0.0003	<0.0003	<0.0003	0.02
Benzene	1	mg/L	0.0001	<0.0001	<0.0001	0.005
Benzo(a)pyrene	1	mg/L	0.0000	<0.00001	<0.00001	0.00001
Bromoxynil	1	mg/L	0.0004	<0.0004	<0.0004	0.005
Carbaryl	1	mg/L	0.0030	<0.003	<0.003	0.09
Carbofuran	1	mg/L	0.0030	<0.003	<0.003	0.09
Carbon Tetrachloride	1	mg/L	0.0002	<0.0002	<0.0002	0.005
Chlorpyrifos	1	mg/L	0.0002	<0.0002	<0.0002	0.09
Diazinon	1	mg/L	0.0002	<0.0002	<0.0002	0.02
Dicamba	1	mg/L	0.0004	<0.0004	<0.0004	0.12
Dichloromethane	1	mg/L	0.0010	<0.001	<0.001	0.05
Diclofop-methyl	1	mg/L	0.0004	<0.0004	<0.0004	0.009
Dimethoate	1	mg/L	0.0003	<0.0003	<0.0003	0.02
Diquat	1	mg/L	0.0010	<0.001	<0.001	0.07
Diuron	1	mg/L	0.0030	<0.003	<0.003	0.15
Glyphosate	1	mg/L	0.0250	<0.025	<0.025	0.28
Malathion	1	mg/L	0.0002	<0.0002	<0.0002	0.19
Metolachlor	1	mg/L	0.0002	<0.0002	<0.0002	0.05
Metribuzin	1	mg/L	0.0003	<0.0003	<0.0003	0.08
Monochlorobenzene	1	mg/L	0.0001	<0.0001	<0.0001	0.08
Paraquat	1	mg/L	0.0010	<0.001	<0.001	0.01
Pentachlorophenol	1	mg/L	0.0004	<0.0004	<0.0004	0.06
Phorate	1	mg/L	0.0002	<0.0002	<0.0002	0.002
Picloram	1	mg/L	0.0007	<0.0007	<0.0007	0.19
Polychlorinated Biphenyls (PCBs)	1	mg/L	0.0000	<0.00002	<0.00002	0.003
Prometryne	1	mg/L	0.0002	<0.0002	<0.0002	0.001
Simazine	1	mg/L	0.0002	<0.0002	<0.0002	0.01
Terbufos	1	mg/L	0.0002	<0.0002	<0.0002	0.001
Tetrachloroethylene (perchloroethylene)	1	mg/L	0.0003	<0.0003	<0.0003	0.01
Triallate	1	mg/L	0.0040	<0.004	<0.004	0.23
Trichloroethylene	1	mg/L	0.0001	<0.0001	<0.0001	0.005
Trifluralin	1	mg/L	0.0000	<0.000006	<0.000006	0.045
Vinyl Chloride	1	mg/L	0.0002	<0.0002	<0.0002	0.001

2018 Annual Drinking Water System (DWS) Quality Report for Holland Landing DWS

Prepared by The Regional Municipality of York pursuant to Section 11 of O.Reg. 170/03

Drinking Water System Number: 220004046
Drinking Water System Name: Holland Landing DWS
Drinking Water System Owner: The Regional Municipality of York
DWS Category: Large Municipal Residential
Drinking Water System Classification: Water Distribution and Supply III
Reporting period: Jan 1, 2018 - Dec 31, 2018

The Holland Landing DWS serves approximately 9740 people
(Population is a year-end forecasted estimate based on Statscan census data, and building permits)

This annual report is available to the public at no charge on the Region's website (york.ca/drinkingwater) and upon request. Accessible formats or communication supports are also available upon request. Please contact AccessYork@york.ca or call 1-877-464-9675.

Summary report required under O.Reg. 170/03 Schedule 22 will be available for inspection at:

The Regional Municipality of York
Administrative Centre
Environmental Services Department
17250 Yonge Street, Newmarket ON
and online, at york.ca/drinkingwater

List all Drinking Water Systems which receive their drinking water from the Holland Landing DWS:
Holland Landing/Queensville/Sharon Distribution System (260001747)

A copy of York Region's annual report was provided to all Drinking Water System owners that are connected to and receive drinking water from York Region.
System users were notified that York Region's annual report is available free of charge by public access and notice through:

- Media (internet, social media)
- Public Requests at any time

Description of the Holland Landing DWS

Introduction
Holland Landing is located in western East Gwillimbury. Local groundwater is naturally high in minerals, and is blended with Lake Ontario water and connected groundwater systems from the York DWS. York Region operates the water supply, and the Town of East Gwillimbury maintains water quality and distributes it to users. The Province governs the Region's operations with Acts and Regulations, a Permit to Take Water, a Municipal Drinking Water License and an operating Permit. Lake Ontario water is purchased with supply agreements.

Raw water source
Groundwater

Profile of water in distribution system
Groundwater

Water treatment description
Holland Landing DWS includes two wells, two storage facilities (elevated tanks), and one booster pumping station. Chlorine provides disinfection, and chloramine provides a secondary residual. Sodium silicate is added to sequester naturally occurring iron and manganese. Storage facilities hold treated water and help booster stations maintain pressure. Operators test the water and inspect the process. Online analyzers continuously monitor treatment and water flow. When analyzers detect a significant process or water quality issue, the system automatically pauses operation until an operator takes action.

List of water treatment chemicals used in this system
Chlorine gas; Ammonia solution; Sodium Silicate

Brief description and breakdown of monetary expenses incurred
$72,461 for general maintenance and repair and pumping station upgrades.

Notices submitted under Section 18(1) of the Safe Drinking Water Act or Section 16-4 of O.Reg. 170/03 and reported to MECP Spills Action Centre

Not Applicable

There were no reported adverse water quality incidents or observations of improper disinfection that occured in the Holland Landing DWS during 2018

Microbiological testing completed under Schedule 10 of O.Reg. 170/03

*For additional distribution samples collected under Schedule 10, refer to the local municipality

Test Parameter	Sample Source	Count Of Samples	Count Of Presence
E. coli	Raw	102	0
	Treated	98	0
Heterotrophic Plate Count	Treated	98	22
Total Coliforms	Raw	102	11
	Treated	98	0

Operational testing completed under Schedule 7 of Regulation 170/03 during this reporting period

*8,760 is used as the number of samples for continuous analyzers

Test Parameter	Test Units	Continuous Sample Count	Average	Minimum	Maximum
Combined Chlorine	mg/L	8,760	2.25	0.43	3.46
Turbidity (Treated)	NTU	8,760	0.08	0.01	5.00

Summary of testing pursuant to Schedule 13 of O. Reg. 170/03 and sampling carried out in accordance with the requirement of an approval, order or other legal instrument

Values with a less than sign ("<") indicate that the test result is below the method detection limit from the accredited laboratory (i.e. non-detect). Average results include values which were returned as non-detect and are rounded to three decimals. For a complete set of results, see the open dataset available at york.ca/drinkingwater

Test Parameter	Test Units	No. of Samples	Average	Minimum	Maximum
Fluoride	mg/L	12	0.207	0.19	0.22
Haloacetic Acids	mg/L	4	0.011	<0.008	<0.02
Nitrate	mg/L	12	0.500	<0.5	<0.5
Nitrite	mg/L	12	0.050	<0.05	<0.05
Sodium	mg/L	3	19.425	17.8	20.3
Trihalomethanes	mg/L	6	0.013	0.0074	0.0195

*Lead testing under Schedule 15.1 is conducted by the Local Municipality - refer to Local Municipality reports for results. York Region occasionally collects samples tested for lead for non-regulatory research purposes

Organic and inorganic parameter(s) that exceeded half the standard prescribed in Schedule 2 of O.Reg. 169/03 Ontario Drinking Water Quality Standards

Not Applicable

There were no parameters that exceeded half the standard indicated above for the Holland Landing DWS during 2018

Summary of inorganic parameters tested pursuant to Schedule 23 of O.Reg. 170/03

Values with a less than sign ("<") indicate that the test result is below the method detection limit from the accredited laboratory (i.e. non-detect). Average results include values which were returned as non-detect and are rounded to five decimals. For a complete set of results, see the open dataset available at york.ca/drinkingwater

Test Parameter	No. of Samples	Test Units	Average	Minimum	Maximum	ODWS Limit
Antimony	3	mg/L	0.00050	<0.0005	<0.0005	0.006
Arsenic	3	mg/L	0.00050	<0.0005	<0.0005	0.01
Barium	3	mg/L	0.16400	0.152	0.185	1
Boron	3	mg/L	0.05190	0.0508	0.0538	5
Cadmium	3	mg/L	0.00050	<0.0005	<0.0005	0.005
Chromium	3	mg/L	0.00050	<0.0005	<0.0005	0.05
Mercury	3	mg/L	0.00005	<0.00005	<0.00005	0.001
Selenium	3	mg/L	0.00050	<0.0005	<0.0005	0.05
Uranium	3	mg/L	0.00050	<0.0005	<0.0005	0.02

Summary of organic parameters tested pursuant to Schedule 24 of O.Reg. 170/03

Values with a less than sign ("<") indicate that the test result is below the method detection limit from the accredited laboratory (i.e. non-detect). Average results include values which were returned as non-detect and are rounded to four decimals. For a complete set of results, see the open dataset available at york.ca/drinkingwater

Test Parameter	No. of Samples	Test Units	Average	Minimum	Maximum	ODWS Limit
1,1-dichloroethylene (vinylidene chloride)	2	mg/L	0.0003	<0.0003	<0.0003	0.014
1,2-(o-dcb) Dichlorobenzene	2	mg/L	0.0001	<0.0001	<0.0001	0.2
1,2-Dichloroethane	2	mg/L	0.0001	<0.0001	<0.0001	0.005
1,4-(p-dcb) Dichlorobenzene	2	mg/L	0.0001	<0.0001	<0.0001	0.005
2-methyl-4-chlorophenoxyacetic acid	2	mg/L	0.0050	<0.005	<0.005	0.1
2,3,4,6-Tetrachlorophenol	2	mg/L	0.0005	<0.0005	<0.0005	0.1
2,4-Dichlorophenol	2	mg/L	0.0007	<0.0007	<0.0007	0.9
2,4-dichlorophenoxyacetic acid (2,4-D)	2	mg/L	0.0008	<0.0008	<0.0008	0.1
2,4,6-Trichlorophenol	2	mg/L	0.0005	<0.0005	<0.0005	0.005
Alachlor	2	mg/L	0.0004	<0.0004	<0.0004	0.005
Atrazine + N-dealkylated metabolites	2	mg/L	0.0002	<0.0002	<0.0002	0.005
Azinphos-methyl	2	mg/L	0.0003	<0.0003	<0.0003	0.02
Benzene	2	mg/L	0.0001	<0.0001	<0.0001	0.005
Benzo(a)pyrene	2	mg/L	0.0000	<0.00001	<0.00001	0.00001
Bromoxynil	2	mg/L	0.0004	<0.0004	<0.0004	0.005
Carbaryl	2	mg/L	0.0030	<0.003	<0.003	0.09
Carbofuran	2	mg/L	0.0030	<0.003	<0.003	0.09
Carbon Tetrachloride	2	mg/L	0.0002	<0.0002	<0.0002	0.005
Chlorpyrifos	2	mg/L	0.0002	<0.0002	<0.0002	0.09
Diazinon	2	mg/L	0.0002	<0.0002	<0.0002	0.02
Dicamba	2	mg/L	0.0004	<0.0004	<0.0004	0.12
Dichloromethane	2	mg/L	0.0010	<0.001	<0.001	0.05
Diclofop-methyl	2	mg/L	0.0004	<0.0004	<0.0004	0.009
Dimethoate	2	mg/L	0.0003	<0.0003	<0.0003	0.02
Diquat	2	mg/L	0.0010	<0.001	<0.001	0.07
Diuron	2	mg/L	0.0030	<0.003	<0.003	0.15
Glyphosate	2	mg/L	0.0250	<0.025	<0.025	0.28
Malathion	2	mg/L	0.0002	<0.0002	<0.0002	0.19
Metolachlor	2	mg/L	0.0002	<0.0002	<0.0002	0.05
Metribuzin	2	mg/L	0.0003	<0.0003	<0.0003	0.08
Monochlorobenzene	2	mg/L	0.0001	<0.0001	<0.0001	0.08
Paraquat	2	mg/L	0.0010	<0.001	<0.001	0.01
Pentachlorophenol	2	mg/L	0.0004	<0.0004	<0.0004	0.06
Phorate	2	mg/L	0.0002	<0.0002	<0.0002	0.002
Picloram	2	mg/L	0.0007	<0.0007	<0.0007	0.19
Polychlorinated Biphenyls (PCBs)	2	mg/L	0.0000	<0.00002	<0.00002	0.003
Prometryne	2	mg/L	0.0002	<0.0002	<0.0002	0.001
Simazine	2	mg/L	0.0002	<0.0002	<0.0002	0.01
Terbufos	2	mg/L	0.0002	<0.0002	<0.0002	0.001
Tetrachloroethylene (perchloroethylene)	2	mg/L	0.0003	<0.0003	<0.0003	0.01
Triallate	2	mg/L	0.0040	<0.004	<0.004	0.23
Trichloroethylene	2	mg/L	0.0001	<0.0001	<0.0001	0.005
Trifluralin	2	mg/L	0.0000	<0.000006	<0.000006	0.045
Vinyl Chloride	2	mg/L	0.0002	<0.0002	<0.0002	0.001

2018 Annual Drinking Water System (DWS) Quality Report for Georgina DWS (Keswick DW Sub-System)

Prepared by The Regional Municipality of York pursuant to Section 11 of O.Reg. 170/03

Drinking Water System Number: 210003280
Drinking Water System Name: Georgina DWS (Keswick DW Sub-System)
Drinking Water System Owner: The Regional Municipality of York
DWS Category: Large Municipal Residential
Drinking Water System Classification: Water Treatment III
Reporting period: Jan 1, 2018 - Dec 31, 2018

The Georgina DWS (Keswick DW Sub-System) serves approximately 32450 people
(Population is a year-end forecasted estimate based on Statscan census data, and building permits)

This annual report is available to the public at no charge on the Region's website (york.ca/drinkingwater) and upon request. Accessible formats or communication supports are also available upon request. Please contact AccessYork@york.ca or call 1-877-464-9675.

Summary report required under O.Reg. 170/03 Schedule 22 will be available for inspection at:

The Regional Municipality of York
Administrative Centre
Environmental Services Department
17250 Yonge Street, Newmarket ON
and online, at york.ca/drinkingwater

List all Drinking Water Systems which receive their drinking water from the Georgina DWS (Keswick DW Sub-System):
Keswick-Sutton Distribution System (260062686)

A copy of York Region's annual report was provided to all Drinking Water System owners that are connected to and receive drinking water from York Region.
System users were notified that York Region's annual report is available free of charge by public access and notice through:

- Media (internet, social media)
- Public Requests at any time

Description of the Georgina DWS (Keswick DW Sub-System)

Introduction
The community of Keswick is located on the east shore of Cook's Bay in the Town of Georgina. The Keswick sub-system is part of the larger Georgina DWS. Surface water from Lake Simcoe and Cook's Bay supplies this community. Algae in the lake can add a harmless but musty taste. York Region operates the water supply, and the Town of Georgina maintains water quality and distributes it to users. The Province governs the Region's operations with Acts and Regulations, a Permit to Take Water, a Municipal Drinking Water License and an operating Permit.

Raw water source
Lake Simcoe

Profile of water in distribution system
Lake Simcoe

Water treatment description
The Keswick DWS includes one Water Treatment Plant and three storage/rechlorination facilities. Lake water is screened and chlorine prevents mussel growth on the intake pipe. Filtration removes particles. Granular activated carbon improves water taste, and chlorine disinfects it. Fluoride is added at levels recommended by Ontario's Chief Medical Officer of Health. Operators test the water and inspect the process. Online analyzers continuously monitor the facilities and automatically pause operation if an issue is detected.

List of water treatment chemicals used in this system
Chlorine gas; Carbon Dioxide (pH control); Polyaluminum Chloride (coagulation); Granular activated carbon (filtration); Non water treatment chemical: Hydrofluosilicic Acid applied

Brief description and breakdown of monetary expenses incurred
$147,339 for general maintenance and repair and treatment plant upgrades.

Notices submitted under Section 18(1) of the Safe Drinking Water Act or Section 16-4 of O.Reg. 170/03 and reported to MECP Spills Action Centre

Adverse Parameter	Incident Date	Adverse Test Result Units	Adverse Test Results	Corrective Action	Corrective Action Date
Chlorine Residual	04-May-18	mg/L	0.00	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	04-May-18
Fluoride as F	06-Mar-18	mg/L	1.65	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	07-Mar-18
	04-Aug-18	mg/L	1.51	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	04-Aug-18

Microbiological testing completed under Schedule 10 of O.Reg. 170/03

*For additional distribution samples collected under Schedule 10, refer to the local municipality

Test Parameter	Sample Source	Count Of Samples	Count Of Presence
E. coli	Raw	53	3
	Treated	53	0
Heterotrophic Plate Count	Treated	53	8
Total Coliforms	Raw	53	38
	Treated	53	0

Operational testing completed under Schedule 7 of Regulation 170/03 during this reporting period

*8,760 is used as the number of samples for continuous analyzers

Test Parameter	Test Units	Continuous Sample Count	Average	Minimum	Maximum
Fluoride	mg/L	8,760	0.64	0.20	1.65
Free Chlorine	mg/L	8,760	1.24	0.00	3.25
Turbidity (Raw)	NTU	8,760	1.12	0.01	25.00
Turbidity (Treated)	NTU	8,760	0.08	0.04	3.00

Summary of testing pursuant to Schedule 13 of O. Reg. 170/03 and sampling carried out in accordance with the requirement of an approval, order or other legal instrument

Values with a less than sign ("<") indicate that the test result is below the method detection limit from the accredited laboratory (i.e. non-detect). Average results include values which were returned as non-detect and are rounded to three decimals. For a complete set of results, see the open dataset available at york.ca/drinkingwater

Test Parameter	Test Units	No. of Samples	Average	Minimum	Maximum
Haloacetic Acids	mg/L	8	0.033	0.02	0.056
Nitrate	mg/L	12	0.500	<0.5	<0.5
Nitrite	mg/L	12	0.050	<0.05	<0.05
Sodium	mg/L	3	32.250	31.6	32.6
Total Suspended Solids Backwash	mg/L	11	9.836	1.4	45.9
Trihalomethanes	mg/L	38	0.039	0.0175	0.0876

*Lead testing under Schedule 15.1 is conducted by the Local Municipality - refer to Local Municipality reports for results. York Region occasionally collects samples tested for lead for non-regulatory research purposes

Organic and inorganic parameter(s) that exceeded half the standard prescribed in Schedule 2 of O.Reg. 169/03 Ontario Drinking Water Quality Standards

Test Parameter	Sample Facility	Sample Date	Test Units	Test Result	ODWS Limit
Trihalomethanes	Keswick West Park Heights Reservoir	09-Apr-18	mg/L	0.0516	0.100
		07-May-18	mg/L	0.0545	0.100
		04-Jun-18	mg/L	0.0625	0.100
		09-Jul-18	mg/L	0.0502	0.100
		06-Aug-18	mg/L	0.0766	0.100
		03-Sep-18	mg/L	0.0876	0.100
		08-Oct-18	mg/L	0.0723	0.100
		05-Nov-18	mg/L	0.0568	0.100
	Keswick Woodbine Elevated Tank	06-Aug-18	mg/L	0.051	0.100
		03-Sep-18	mg/L	0.0683	0.100
		08-Oct-18	mg/L	0.0556	0.100

Summary of inorganic parameters tested pursuant to Schedule 23 of O.Reg. 170/03

Values with a less than sign ("<") indicate that the test result is below the method detection limit from the accredited laboratory (i.e. non-detect). Average results include values which were returned as non-detect and are rounded to five decimals. For a complete set of results, see the open dataset available at york.ca/drinkingwater

Test Parameter	No. of Samples	Test Units	Average	Minimum	Maximum	ODWS Limit
Antimony	3	mg/L	0.00050	<0.0005	<0.0005	0.006
Arsenic	3	mg/L	0.00050	<0.0005	<0.0005	0.01
Barium	3	mg/L	0.02507	0.0241	0.0262	1
Boron	3	mg/L	0.02137	0.0205	0.0218	5
Cadmium	3	mg/L	0.00050	<0.0005	<0.0005	0.005
Chromium	3	mg/L	0.00050	<0.0005	<0.0005	0.05
Mercury	3	mg/L	0.00005	<0.00005	<0.00005	0.001
Selenium	3	mg/L	0.00050	<0.0005	<0.0005	0.05
Uranium	3	mg/L	0.00050	<0.0005	<0.0005	0.02

Summary of organic parameters tested pursuant to Schedule 24 of O.Reg. 170/03

Values with a less than sign ("<") indicate that the test result is below the method detection limit from the accredited laboratory (i.e. non-detect). Average results include values which were returned as non-detect and are rounded to four decimals. For a complete set of results, see the open dataset available at york.ca/drinkingwater

Test Parameter	No. of Samples	Test Units	Average	Minimum	Maximum	ODWS Limit
1,1-dichloroethylene (vinylidene chloride)	1	mg/L	0.0003	<0.0003	<0.0003	0.014
1,2-(o-dcb) Dichlorobenzene	1	mg/L	0.0001	<0.0001	<0.0001	0.2
1,2-Dichloroethane	1	mg/L	0.0001	<0.0001	<0.0001	0.005
1,4-(p-dcb) Dichlorobenzene	1	mg/L	0.0001	<0.0001	<0.0001	0.005
2-methyl-4-chlorophenoxyacetic acid	1	mg/L	0.0050	<0.005	<0.005	0.1
2,3,4,6-Tetrachlorophenol	1	mg/L	0.0005	<0.0005	<0.0005	0.1
2,4-Dichlorophenol	1	mg/L	0.0007	<0.0007	<0.0007	0.9
2,4-dichlorophenoxyacetic acid (2,4-D)	1	mg/L	0.0008	<0.0008	<0.0008	0.1
2,4,6-Trichlorophenol	1	mg/L	0.0005	<0.0005	<0.0005	0.005
Alachlor	1	mg/L	0.0004	<0.0004	<0.0004	0.005
Atrazine + N-dealkylated metabolites	1	mg/L	0.0002	<0.0002	<0.0002	0.005
Azinphos-methyl	1	mg/L	0.0003	<0.0003	<0.0003	0.02
Benzene	1	mg/L	0.0001	<0.0001	<0.0001	0.005
Benzo(a)pyrene	1	mg/L	0.0000	<0.00001	<0.00001	0.00001
Bromoxynil	1	mg/L	0.0004	<0.0004	<0.0004	0.005
Carbaryl	1	mg/L	0.0030	<0.003	<0.003	0.09
Carbofuran	1	mg/L	0.0030	<0.003	<0.003	0.09
Carbon Tetrachloride	1	mg/L	0.0002	<0.0002	<0.0002	0.005
Chlorpyrifos	1	mg/L	0.0002	<0.0002	<0.0002	0.09
Diazinon	1	mg/L	0.0002	<0.0002	<0.0002	0.02
Dicamba	1	mg/L	0.0004	<0.0004	<0.0004	0.12
Dichloromethane	1	mg/L	0.0010	<0.001	<0.001	0.05
Diclofop-methyl	1	mg/L	0.0004	<0.0004	<0.0004	0.009
Dimethoate	1	mg/L	0.0003	<0.0003	<0.0003	0.02
Diquat	1	mg/L	0.0010	<0.001	<0.001	0.07
Diuron	1	mg/L	0.0030	<0.003	<0.003	0.15
Glyphosate	1	mg/L	0.0250	<0.025	<0.025	0.28
Malathion	1	mg/L	0.0002	<0.0002	<0.0002	0.19
Metolachlor	1	mg/L	0.0002	<0.0002	<0.0002	0.05
Metribuzin	1	mg/L	0.0003	<0.0003	<0.0003	0.08
Monochlorobenzene	1	mg/L	0.0001	<0.0001	<0.0001	0.08
Paraquat	1	mg/L	0.0010	<0.001	<0.001	0.01
Pentachlorophenol	1	mg/L	0.0004	<0.0004	<0.0004	0.06
Phorate	1	mg/L	0.0002	<0.0002	<0.0002	0.002
Picloram	1	mg/L	0.0007	<0.0007	<0.0007	0.19
Polychlorinated Biphenyls (PCBs)	1	mg/L	0.0000	<0.00002	<0.00002	0.003
Prometryne	1	mg/L	0.0002	<0.0002	<0.0002	0.001
Simazine	1	mg/L	0.0002	<0.0002	<0.0002	0.01
Terbufos	1	mg/L	0.0002	<0.0002	<0.0002	0.001
Tetrachloroethylene (perchloroethylene)	1	mg/L	0.0003	<0.0003	<0.0003	0.01
Triallate	1	mg/L	0.0040	<0.004	<0.004	0.23
Trichloroethylene	1	mg/L	0.0001	<0.0001	<0.0001	0.005
Trifluralin	1	mg/L	0.0000	<0.000006	<0.000006	0.045
Vinyl Chloride	1	mg/L	0.0002	<0.0002	<0.0002	0.001

2018 Annual Drinking Water System (DWS) Quality Report for Kleinburg DWS

Prepared by The Regional Municipality of York pursuant to Section 11 of O.Reg. 170/03

Drinking Water System Number: 220002360
Drinking Water System Name: Kleinburg DWS
Drinking Water System Owner: The Regional Municipality of York
DWS Category: Large Municipal Residential
Drinking Water System Classification: Water Distribution and Supply II
Reporting period: Jan 1, 2018 - Dec 31, 2018

The Kleinburg DWS serves approximately 7670 people
(Population is a year-end forecasted estimate based on Statscan census data, and building permits)

This annual report is available to the public at no charge on the Region's website (york.ca/drinkingwater) and upon request. Accessible formats or communication supports are also available upon request. Please contact AccessYork@york.ca or call 1-877-464-9675.

Summary report required under O.Reg. 170/03 Schedule 22 will be available for inspection at:

The Regional Municipality of York
Administrative Centre
Environmental Services Department
17250 Yonge Street, Newmarket ON
and online, at york.ca/drinkingwater

List all Drinking Water Systems which receive their drinking water from the Kleinburg DWS:
Vaughan Distribution System (260003097)

A copy of York Region's annual report was provided to all Drinking Water System owners that are connected to and receive drinking water from York Region.
System users were notified that York Region's annual report is available free of charge by public access and notice through:

- Media (internet, social media)
- Public Requests at any time

Description of the Kleinburg DWS

Introduction
Kleinburg is a village in the City of Vaughan. Kleinburg DWS provides water from Lake Ontario through the York DWS. Two wells are maintained as an emergency backup water source. York Region operates the water supply, and the City of Vaughan maintains and distributes water to users. The Province governs the Region's operations with Acts and Regulations, a Permit to Take Water, a Municipal Drinking Water License and an operating Permit. Lake Ontario water is purchased with supply agreements.

Raw water source
Groundwater

Profile of water in distribution system
Blended - Lake and Groundwater

Water treatment description
Kleinburg DWS includes two wells, one storage facility and two booster pumping stations. Chlorine provides disinfection, and chloramine provides a secondary residual. Sodium silicate is added to sequester naturally occurring iron and manganese. The storage facility holds treated water and helps the booster stations maintain pressure. Operators test the water and inspect the process. Online analyzers continuously monitor treatment and water flow. When analyzers detect a significant process or water quality issue, the system automatically pauses operation until an operator takes action.

List of water treatment chemicals used in this system
In 2018, water in Kleinburg came pre-treated from the York DWS. Well facilities were not run for supply, but can apply chlorine (gas) and ammonia solution for chloramination, and sodium silicate. Treatment systems and well performance are tested regularly in case they are ever needed for backup capacity.

Brief description and breakdown of monetary expenses incurred
$35,133 for general maintenance and repair, one elevated tank re-coating and well upgrades.

Notices submitted under Section 18(1) of the Safe Drinking Water Act or Section 16-4 of O.Reg. 170/03 and reported to MECP Spills Action Centre

Adverse Parameter	Incident Date	Adverse Test Result Units	Adverse Test Results	Corrective Action	Corrective Action Date
Chlorine Residual	11-Aug-18	mg/L	5.48	Reported as due diligence. Operator attended site. Facility returned to normal operation. Compliant grab sample taken.	11-Aug-18

Microbiological testing completed under Schedule 10 of O.Reg. 170/03

*For additional distribution samples collected under Schedule 10, refer to the local municipality

Test Parameter	Sample Source	Count Of Samples	Count Of Presence
E. coli	Raw	96	0
	Treated	2	0
Heterotrophic Plate Count	Treated	2	0
Total Coliforms	Raw	96	1
	Treated	2	0

Operational testing completed under Schedule 7 of Regulation 170/03 during this reporting period

*8,760 is used as the number of samples for continuous analyzers

Test Parameter	Test Units	Continuous Sample Count	Average	Minimum	Maximum
Combined Chlorine	mg/L	8,760	1.70	0.00	5.48
Turbidity (Treated)	NTU	8,760	0.05	0.00	5.00

Summary of testing pursuant to Schedule 13 of O. Reg. 170/03 and sampling carried out in accordance with the requirement of an approval, order or other legal instrument

Values with a less than sign ("<") indicate that the test result is below the method detection limit from the accredited laboratory (i.e. non-detect). Average results include values which were returned as non-detect and are rounded to three decimals. For a complete set of results, see the open dataset available at york.ca/drinkingwater

Test Parameter	Test Units	No. of Samples	Average	Minimum	Maximum
Fluoride	mg/L	5	0.365	0.17	0.6
Haloacetic Acids	mg/L	4	0.011	<0.008	<0.02
Nitrate	mg/L	5	0.500	<0.5	<0.5
Nitrite	mg/L	5	0.050	<0.05	<0.05
Sodium	mg/L	2	21.450	21.4	21.5
Trihalomethanes	mg/L	5	0.013	0.0046	0.0264

*Lead testing under Schedule 15.1 is conducted by the Local Municipality - refer to Local Municipality reports for results. York Region occasionally collects samples tested for lead for non-regulatory research purposes

Organic and inorganic parameter(s) that exceeded half the standard prescribed in Schedule 2 of O.Reg. 169/03 Ontario Drinking Water Quality Standards

Not Applicable

There were no parameters that exceeded half the standard indicated above for the Kleinburg DWS during 2018

Summary of inorganic parameters tested pursuant to Schedule 23 of O.Reg. 170/03

Values with a less than sign ("<") indicate that the test result is below the method detection limit from the accredited laboratory (i.e. non-detect). Average results include values which were returned as non-detect and are rounded to five decimals. For a complete set of results, see the open dataset available at york.ca/drinkingwater

Test Parameter	No. of Samples	Test Units	Average	Minimum	Maximum	ODWS Limit
Antimony	2	mg/L	0.00065	<0.0005	0.0008	0.006
Arsenic	2	mg/L	0.00065	0.0005	0.0008	0.01
Barium	2	mg/L	0.14570	0.0204	0.271	1
Boron	2	mg/L	0.06395	0.0259	0.102	5
Cadmium	2	mg/L	0.00050	<0.0005	<0.0005	0.005
Chromium	2	mg/L	0.00050	<0.0005	<0.0005	0.05
Mercury	2	mg/L	0.00005	<0.00005	<0.00005	0.001
Selenium	2	mg/L	0.00050	<0.0005	<0.0005	0.05
Uranium	2	mg/L	0.00050	<0.0005	<0.0005	0.02

Summary of organic parameters tested pursuant to Schedule 24 of O.Reg. 170/03

Values with a less than sign ("<") indicate that the test result is below the method detection limit from the accredited laboratory (i.e. non-detect). Average results include values which were returned as non-detect and are rounded to four decimals. For a complete set of results, see the open dataset available at york.ca/drinkingwater

Test Parameter	No. of Samples	Test Units	Average	Minimum	Maximum	ODWS Limit
1,1-dichloroethylene (vinylidene chloride)	1	mg/L	0.0003	<0.0003	<0.0003	0.014
1,2-(o-dcb) Dichlorobenzene	1	mg/L	0.0001	<0.0001	<0.0001	0.2
1,2-Dichloroethane	1	mg/L	0.0001	<0.0001	<0.0001	0.005
1,4-(p-dcb) Dichlorobenzene	1	mg/L	0.0001	<0.0001	<0.0001	0.005
2-methyl-4-chlorophenoxyacetic acid	1	mg/L	0.0050	<0.005	<0.005	0.1
2,3,4,6-Tetrachlorophenol	1	mg/L	0.0005	<0.0005	<0.0005	0.1
2,4-Dichlorophenol	1	mg/L	0.0007	<0.0007	<0.0007	0.9
2,4-dichlorophenoxyacetic acid (2,4-D)	1	mg/L	0.0008	<0.0008	<0.0008	0.1
2,4,6-Trichlorophenol	1	mg/L	0.0005	<0.0005	<0.0005	0.005
Alachlor	1	mg/L	0.0004	<0.0004	<0.0004	0.005
Atrazine + N-dealkylated metabolites	1	mg/L	0.0002	<0.0002	<0.0002	0.005
Azinphos-methyl	1	mg/L	0.0003	<0.0003	<0.0003	0.02
Benzene	1	mg/L	0.0001	<0.0001	<0.0001	0.005
Benzo(a)pyrene	1	mg/L	0.0000	<0.00001	<0.00001	0.00001
Bromoxynil	1	mg/L	0.0004	<0.0004	<0.0004	0.005
Carbaryl	1	mg/L	0.0030	<0.003	<0.003	0.09
Carbofuran	1	mg/L	0.0030	<0.003	<0.003	0.09
Carbon Tetrachloride	1	mg/L	0.0002	<0.0002	<0.0002	0.005
Chlorpyrifos	1	mg/L	0.0002	<0.0002	<0.0002	0.09
Diazinon	1	mg/L	0.0002	<0.0002	<0.0002	0.02
Dicamba	1	mg/L	0.0004	<0.0004	<0.0004	0.12
Dichloromethane	1	mg/L	0.0010	<0.001	<0.001	0.05
Diclofop-methyl	1	mg/L	0.0004	<0.0004	<0.0004	0.009
Dimethoate	1	mg/L	0.0003	<0.0003	<0.0003	0.02
Diquat	1	mg/L	0.0010	<0.001	<0.001	0.07
Diuron	1	mg/L	0.0030	<0.003	<0.003	0.15
Glyphosate	1	mg/L	0.0250	<0.025	<0.025	0.28
Malathion	1	mg/L	0.0002	<0.0002	<0.0002	0.19
Metolachlor	1	mg/L	0.0002	<0.0002	<0.0002	0.05
Metribuzin	1	mg/L	0.0003	<0.0003	<0.0003	0.08
Monochlorobenzene	1	mg/L	0.0001	<0.0001	<0.0001	0.08
Paraquat	1	mg/L	0.0010	<0.001	<0.001	0.01
Pentachlorophenol	1	mg/L	0.0004	<0.0004	<0.0004	0.06
Phorate	1	mg/L	0.0002	<0.0002	<0.0002	0.002
Picloram	1	mg/L	0.0007	<0.0007	<0.0007	0.19
Polychlorinated Biphenyls (PCBs)	1	mg/L	0.0000	<0.00002	<0.00002	0.003
Prometryne	1	mg/L	0.0002	<0.00019	<0.00019	0.001
Simazine	1	mg/L	0.0002	<0.0002	<0.0002	0.01
Terbufos	1	mg/L	0.0002	<0.0002	<0.0002	0.001
Tetrachloroethylene (perchloroethylene)	1	mg/L	0.0003	<0.0003	<0.0003	0.01
Triallate	1	mg/L	0.0040	<0.004	<0.004	0.23
Trichloroethylene	1	mg/L	0.0001	<0.0001	<0.0001	0.005
Trifluralin	1	mg/L	0.0000	<0.000006	<0.000006	0.045
Vinyl Chloride	1	mg/L	0.0002	<0.0002	<0.0002	0.001

2018 Annual Drinking Water System (DWS) Quality Report for King City DWS

Prepared by The Regional Municipality of York pursuant to Section 11 of O.Reg. 170/03

Drinking Water System Number: 220002299
Drinking Water System Name: King City DWS
Drinking Water System Owner: The Regional Municipality of York
DWS Category: Large Municipal Residential
Drinking Water System Classification: Water Distribution and Supply II
Reporting period: Jan 1, 2018 - Dec 31, 2018

The King City DWS serves approximately 7930 people
(Population is a year-end forecasted estimate based on Statscan census data, and building permits)

This annual report is available to the public at no charge on the Region's website (york.ca/drinkingwater) and upon request. Accessible formats or communication supports are also available upon request. Please contact AccessYork@york.ca or call 1-877-464-9675.

Summary report required under O.Reg. 170/03 Schedule 22 will be available for inspection at:

The Regional Municipality of York
Administrative Centre
Environmental Services Department
17250 Yonge Street, Newmarket ON
and online, at york.ca/drinkingwater

List all Drinking Water Systems which receive their drinking water from the King City DWS:
King City Distribution System (260005138)

A copy of York Region's annual report was provided to all Drinking Water System owners that are connected to and receive drinking water from York Region.
System users were notified that York Region's annual report is available free of charge by public access and notice through:

- Media (internet, social media)
- Public Requests at any time

Description of the King City DWS

Introduction
King City is a community in south-eastern King Township. King City DWS provides water from Lake Ontario through the York DWS. Two wells are maintained as an emergency backup water source. York Region operates the water supply, and King Township maintains and distributes water to users. The Province governs the Region's operations with Acts and Regulations, a Permit to Take Water, a Municipal Drinking Water License and an operating Permit. Lake Ontario water is purchased with supply agreements.

Raw water source
Groundwater

Profile of water in distribution system
Blended - Lake and Groundwater

Water treatment description
King City DWS includes two wells and two storage facilities. If the wells are used for supply, chlorine provides disinfection, and chloramine provides a secondary residual. Sodium silicate is added to sequester naturally occurring iron and manganese. The backup wells and treatment are tested regularly to ensure safety and performance. Storage facilities hold treated water and maintain pressure. Operators test the water and inspect the process. Online analyzers continuously monitor treatment and water flow. When analyzers detect a significant process or water quality issue, the system automatically pauses operation until an operator takes action.

List of water treatment chemicals used in this system
In 2018, water in King City came pre-treated from the York DWS. Well facilities were not run for supply, but can apply chlorine (gas) and ammonia solution for chloramination, and sodium silicate. Treatment systems and well performance are tested regularly in case they are ever needed for backup capacity.

Brief description and breakdown of monetary expenses incurred
$268,339 for general maintenance and repair, new booster pumping station and elevated tank maintenance.

Notices submitted under Section 18(1) of the Safe Drinking Water Act or Section 16-4 of O.Reg. 170/03 and reported to MECP Spills Action Centre

Not Applicable

There were no reported adverse water quality incidents or observations of improper disinfection that occured in the King City DWS during 2018

Microbiological testing completed under Schedule 10 of O.Reg. 170/03

*For additional distribution samples collected under Schedule 10, refer to the local municipality

Test Parameter	Sample Source	Count Of Samples	Count Of Presence
E. coli	Raw	104	0
Total Coliforms	Raw	104	0

Operational testing completed under Schedule 7 of Regulation 170/03 during this reporting period

*8,760 is used as the number of samples for continuous analyzers

Test Parameter	Test Units	Continuous Sample Count	Average	Minimum	Maximum
Combined Chlorine	mg/L	8,760	1.71	0.00	3.14
Turbidity (Raw)	NTU	8,760	0.59	0.00	5.00

Summary of testing pursuant to Schedule 13 of O. Reg. 170/03 and sampling carried out in accordance with the requirement of an approval, order or other legal instrument

Values with a less than sign ("<") indicate that the test result is below the method detection limit from the accredited laboratory (i.e. non-detect). Average results include values which were returned as non-detect and are rounded to three decimals. For a complete set of results, see the open dataset available at york.ca/drinkingwater

Test Parameter	Test Units	No. of Samples	Average	Minimum	Maximum
Fluoride	mg/L	8	0.561	0.51	0.59
Haloacetic Acids	mg/L	8	0.011	<0.008	<0.02
Nitrate	mg/L	8	0.500	<0.5	<0.5
Nitrite	mg/L	8	0.050	<0.05	<0.05
Sodium	mg/L	2	20.050	19.9	20.2
Trihalomethanes	mg/L	8	0.022	0.0173	0.0268

*Lead testing under Schedule 15.1 is conducted by the Local Municipality - refer to Local Municipality reports for results. York Region occasionally collects samples tested for lead for non-regulatory research purposes

Organic and inorganic parameter(s) that exceeded half the standard prescribed in Schedule 2 of O.Reg. 169/03 Ontario Drinking Water Quality Standards

Not Applicable

There were no parameters that exceeded half the standard indicated above for the King City DWS during 2018

Summary of inorganic parameters tested pursuant to Schedule 23 of O.Reg. 170/03

Values with a less than sign ("<") indicate that the test result is below the method detection limit from the accredited laboratory (i.e. non-detect). Average results include values which were returned as non-detect and are rounded to five decimals. For a complete set of results, see the open dataset available at york.ca/drinkingwater

Test Parameter	No. of Samples	Test Units	Average	Minimum	Maximum	ODWS Limit
Antimony	2	mg/L	0.00050	0.0005	0.0005	0.006
Arsenic	2	mg/L	0.00080	0.0008	0.0008	0.01
Barium	2	mg/L	0.02165	0.0216	0.0217	1
Boron	2	mg/L	0.02780	0.0276	0.028	5
Cadmium	2	mg/L	0.00050	<0.0005	<0.0005	0.005
Chromium	2	mg/L	0.00050	<0.0005	<0.0005	0.05
Mercury	2	mg/L	0.00005	<0.00005	<0.00005	0.001
Selenium	2	mg/L	0.00050	<0.0005	<0.0005	0.05
Uranium	2	mg/L	0.00050	<0.0005	<0.0005	0.02

Summary of organic parameters tested pursuant to Schedule 24 of O.Reg. 170/03

Values with a less than sign ("<") indicate that the test result is below the method detection limit from the accredited laboratory (i.e. non-detect). Average results include values which were returned as non-detect and are rounded to four decimals. For a complete set of results, see the open dataset available at york.ca/drinkingwater

Not Applicable

No organic parameters were tested for the King City DWS as the wells are non-operational.

2018 Annual Drinking Water System (DWS) Quality Report for Mount Albert DWS

Prepared by The Regional Municipality of York pursuant to Section 11 of O.Reg. 170/03

Drinking Water System Number: 220006543
Drinking Water System Name: Mount Albert DWS
Drinking Water System Owner: The Regional Municipality of York
DWS Category: Large Municipal Residential
Drinking Water System Classification: Water Distribution and Supply II
Reporting period: Jan 1, 2018 - Dec 31, 2018

The Mount Albert DWS serves approximately 5532 people
(Population is a year-end forecasted estimate based on Statscan census data, and building permits)

This annual report is available to the public at no charge on the Region's website (york.ca/drinkingwater) and upon request. Accessible formats or communication supports are also available upon request. Please contact AccessYork@york.ca or call 1-877-464-9675.

Summary report required under O.Reg. 170/03 Schedule 22 will be available for inspection at:

The Regional Municipality of York
Administrative Centre
Environmental Services Department
17250 Yonge Street, Newmarket ON
and online, at york.ca/drinkingwater

List all Drinking Water Systems which receive their drinking water from the Mount Albert DWS:
Mount Albert Distribution System (260002265)

A copy of York Region's annual report was provided to all Drinking Water System owners that are connected to and receive drinking water from York Region.
System users were notified that York Region's annual report is available free of charge by public access and notice through:

- Media (internet, social media)
- Public Requests at any time

Description of the Mount Albert DWS

Introduction
The town of Mount Albert is located in the east side of Town of East Gwillimbury around Mount Albert Road, between Highway 48 and York Durham Line. Local groundwater is naturally high in minerals. York Region operates the water supply, while the Town of East Gwillimbury maintains water quality and distributes it to users. The Province governs the Region's operations with Acts and Regulations, a Permit to Take Water, a Municipal Drinking Water License and an operating Permit.

Raw water source
Groundwater

Profile of water in distribution system
Groundwater

Water treatment description
Mount Albert DWS includes three wells and two storage facilities. Chlorine provides disinfection and maintains a secondary residual. Sodium silicate is added to sequester naturally occurring iron and manganese. Storage facilities hold treated water and maintain pressure. Tests confirm good groundwater quality. Operators test the water and inspect the process. Online analyzers continuously monitor treatment and water flow. When analyzers detect a significant process or water quality issue, the system automatically pauses operation until an operator takes action.

List of water treatment chemicals used in this system
Chlorine (Sodium Hypochlorite and Chlorine Gas); Sodium Silicate

Brief description and breakdown of monetary expenses incurred
$147,358 for general maintenance and repair and new standby power generator.

Notices submitted under Section 18(1) of the Safe Drinking Water Act or Section 16-4 of O.Reg. 170/03 and reported to MECP Spills Action Centre

Adverse Parameter	Incident Date	Adverse Test Result Units	Adverse Test Results	Corrective Action	Corrective Action Date
Chlorine Residual	04-Dec-18	mg/L	0.00	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	04-Dec-18

Microbiological testing completed under Schedule 10 of O.Reg. 170/03

*For additional distribution samples collected under Schedule 10, refer to the local municipality

Test Parameter	Sample Source	Count Of Samples	Count Of Presence
E. coli	Raw	156	0
	Treated	104	0
Heterotrophic Plate Count	Treated	104	20
Total Coliforms	Raw	156	0
	Treated	104	0

Operational testing completed under Schedule 7 of Regulation 170/03 during this reporting period

*8,760 is used as the number of samples for continuous analyzers

Test Parameter	Test Units	Continuous Sample Count	Average	Minimum	Maximum
Free Chlorine	mg/L	8,760	1.41	0.00	5.00
Turbidity (Treated)	NTU	8,760	0.11	0.00	5.00

Summary of testing pursuant to Schedule 13 of O. Reg. 170/03 and sampling carried out in accordance with the requirement of an approval, order or other legal instrument

Values with a less than sign ("<") indicate that the test result is below the method detection limit from the accredited laboratory (i.e. non-detect). Average results include values which were returned as non-detect and are rounded to three decimals. For a complete set of results, see the open dataset available at york.ca/drinkingwater

Test Parameter	Test Units	No. of Samples	Average	Minimum	Maximum
Fluoride	mg/L	13	0.055	0.05	0.07
Haloacetic Acids	mg/L	4	0.011	<0.008	<0.02
Nitrate	mg/L	13	2.491	2.09	4.62
Nitrite	mg/L	13	0.050	<0.05	<0.05
Sodium	mg/L	3	10.018	9.05	9.31
Trihalomethanes	mg/L	6	0.012	0.0018	0.0202

*Lead testing under Schedule 15.1 is conducted by the Local Municipality - refer to Local Municipality reports for results. York Region occasionally collects samples tested for lead for non-regulatory research purposes

Organic and inorganic parameter(s) that exceeded half the standard prescribed in Schedule 2 of O.Reg. 169/03 Ontario Drinking Water Quality Standards

Not Applicable

There were no parameters that exceeded half the standard indicated above for the Mount Albert DWS during 2018

Summary of inorganic parameters tested pursuant to Schedule 23 of O.Reg. 170/03

Values with a less than sign ("<") indicate that the test result is below the method detection limit from the accredited laboratory (i.e. non-detect). Average results include values which were returned as non-detect and are rounded to five decimals. For a complete set of results, see the open dataset available at york.ca/drinkingwater

Test Parameter	No. of Samples	Test Units	Average	Minimum	Maximum	ODWS Limit
Antimony	3	mg/L	0.00050	<0.0005	<0.0005	0.006
Arsenic	3	mg/L	0.00050	<0.0005	<0.0005	0.01
Barium	3	mg/L	0.06183	0.0567	0.0678	1
Boron	3	mg/L	0.00753	0.0063	0.0083	5
Cadmium	3	mg/L	0.00050	<0.0005	<0.0005	0.005
Chromium	3	mg/L	0.00050	<0.0005	<0.0005	0.05
Mercury	3	mg/L	0.00005	<0.00005	<0.00005	0.001
Selenium	3	mg/L	0.00050	<0.0005	<0.0005	0.05
Uranium	3	mg/L	0.00410	<0.0005	0.0073	0.02

Summary of organic parameters tested pursuant to Schedule 24 of O.Reg. 170/03

Values with a less than sign ("<") indicate that the test result is below the method detection limit from the accredited laboratory (i.e. non-detect). Average results include values which were returned as non-detect and are rounded to four decimals. For a complete set of results, see the open dataset available at york.ca/drinkingwater

Test Parameter	No. of Samples	Test Units	Average	Minimum	Maximum	ODWS Limit
1,1-dichloroethylene (vinylidene chloride)	2	mg/L	0.0003	<0.0003	<0.0003	0.014
1,2-(o-dcb) Dichlorobenzene	2	mg/L	0.0001	<0.0001	<0.0001	0.2
1,2-Dichloroethane	2	mg/L	0.0001	<0.0001	<0.0001	0.005
1,4-(p-dcb) Dichlorobenzene	2	mg/L	0.0001	<0.0001	<0.0001	0.005
2-methyl-4-chlorophenoxyacetic acid	2	mg/L	0.0050	<0.005	<0.005	0.1
2,3,4,6-Tetrachlorophenol	2	mg/L	0.0005	<0.0005	<0.0005	0.1
2,4-Dichlorophenol	2	mg/L	0.0007	<0.0007	<0.0007	0.9
2,4-dichlorophenoxyacetic acid (2,4-D)	2	mg/L	0.0008	<0.0008	<0.0008	0.1
2,4,6-Trichlorophenol	2	mg/L	0.0005	<0.0005	<0.0005	0.005
Alachlor	2	mg/L	0.0004	<0.0004	<0.0004	0.005
Atrazine + N-dealkylated metabolites	2	mg/L	0.0002	<0.0002	<0.0002	0.005
Azinphos-methyl	2	mg/L	0.0003	<0.0003	<0.0003	0.02
Benzene	2	mg/L	0.0001	<0.0001	<0.0001	0.005
Benzo(a)pyrene	2	mg/L	0.0000	<0.00001	<0.00001	0.00001
Bromoxynil	2	mg/L	0.0004	<0.0004	<0.0004	0.005
Carbaryl	2	mg/L	0.0030	<0.003	<0.003	0.09
Carbofuran	2	mg/L	0.0030	<0.003	<0.003	0.09
Carbon Tetrachloride	2	mg/L	0.0002	<0.0002	<0.0002	0.005
Chlorpyrifos	2	mg/L	0.0002	<0.0002	<0.0002	0.09
Diazinon	2	mg/L	0.0002	<0.0002	<0.0002	0.02
Dicamba	2	mg/L	0.0004	<0.0004	<0.0004	0.12
Dichloromethane	2	mg/L	0.0010	<0.001	<0.001	0.05
Diclofop-methyl	2	mg/L	0.0004	<0.0004	<0.0004	0.009
Dimethoate	2	mg/L	0.0003	<0.0003	<0.0003	0.02
Diquat	2	mg/L	0.0010	<0.001	<0.001	0.07
Diuron	2	mg/L	0.0030	<0.003	<0.003	0.15
Glyphosate	2	mg/L	0.0250	<0.025	<0.025	0.28
Malathion	2	mg/L	0.0002	<0.0002	<0.0002	0.19
Metolachlor	2	mg/L	0.0002	<0.0002	<0.0002	0.05
Metribuzin	2	mg/L	0.0003	<0.0003	<0.0003	0.08
Monochlorobenzene	2	mg/L	0.0001	<0.0001	<0.0001	0.08
Paraquat	2	mg/L	0.0010	<0.001	<0.001	0.01
Pentachlorophenol	2	mg/L	0.0004	<0.0004	<0.0004	0.06
Phorate	2	mg/L	0.0002	<0.0002	<0.0002	0.002
Picloram	2	mg/L	0.0007	<0.0007	<0.0007	0.19
Polychlorinated Biphenyls (PCBs)	2	mg/L	0.0000	<0.00002	<0.00002	0.003
Prometryne	2	mg/L	0.0002	<0.0002	<0.0002	0.001
Simazine	2	mg/L	0.0002	<0.0002	<0.0002	0.01
Terbufos	2	mg/L	0.0002	<0.0002	<0.0002	0.001
Tetrachloroethylene (perchloroethylene)	2	mg/L	0.0003	<0.0003	<0.0003	0.01
Triallate	2	mg/L	0.0040	<0.004	<0.004	0.23
Trichloroethylene	2	mg/L	0.0001	<0.0001	<0.0001	0.005
Trifluralin	2	mg/L	0.0000	<0.000006	<0.000006	0.045
Vinyl Chloride	2	mg/L	0.0002	<0.0002	<0.0002	0.001

2018 Annual Drinking Water System (DWS) Quality Report for Newmarket DWS

Prepared by The Regional Municipality of York pursuant to Section 11 of O.Reg. 170/03

Drinking Water System Number: 220002413
Drinking Water System Name: Newmarket DWS
Drinking Water System Owner: The Regional Municipality of York
DWS Category: Large Municipal Residential
Drinking Water System Classification: Water Distribution and Supply III
Reporting period: Jan 1, 2018 - Dec 31, 2018

The Newmarket DWS serves approximately 96500 people
(Population is a year-end forecasted estimate based on Statscan census data, and building permits)

This annual report is available to the public at no charge on the Region's website (york.ca/drinkingwater) and upon request. Accessible formats or communication supports are also available upon request. Please contact AccessYork@york.ca or call 1-877-464-9675.

Summary report required under O.Reg. 170/03 Schedule 22 will be available for inspection at:

The Regional Municipality of York
Administrative Centre
Environmental Services Department
17250 Yonge Street, Newmarket ON
and online, at york.ca/drinkingwater

List all Drinking Water Systems which receive their drinking water from the Newmarket DWS:
Holland Landing/Queensville/Sharon Distribution System (260001747); Newmarket Distribution System (260003188); Town Of Aurora Distribution System (260003227); Yonge-Green Lane Distribution System (260087685)

A copy of York Region's annual report was provided to all Drinking Water System owners that are connected to and receive drinking water from York Region.
System users were notified that York Region's annual report is available free of charge by public access and notice through:

- Media (internet, social media)
- Public Requests at any time

Description of the Newmarket DWS

Introduction
The Town of Newmarket is located centrally in York Region. In 2018, some Newmarket wells were brought back online to protect the security of supply volume. This groundwater blends with water from Lake Ontario and groundwater from Aurora from the York DWS. York Region operates the water supply, and the Town of Newmarket maintains and distributes water to users. The Province governs the Region's operations with Acts and Regulations, a Permit to Take Water, a Municipal Drinking Water License and an operating Permit. Lake Ontario water is purchased with supply agreements.

Raw water source
Groundwater

Profile of water in distribution system
Blended - Lake and Groundwater

Water treatment description
Newmarket DWS includes six wells, six storage facilities, and two booster pumping stations. Chlorine provides disinfection, and chloramine provides a secondary residual. One of these facilities also re-chloraminates to boost the residual. Sodium silicate is added to sequester naturally occurring iron and manganese. Storage facilities hold treated water and help booster stations maintain pressure. Operators test the water and inspect the process. Online analyzers continuously monitor the facilities. When analyzers detect a significant process or water quality issue, the system automatically pauses operation until an operator takes action.

List of water treatment chemicals used in this system
Chlorine (gas, sodium hypochlorite); Ammonia solution; Sodium Silicate

Brief description and breakdown of monetary expenses incurred
$2,690,460 for general maintenance and repair, elevated tank re-coating and distribution system maintenance.

Notices submitted under Section 18(1) of the Safe Drinking Water Act or Section 16-4 of O.Reg. 170/03 and reported to MECP Spills Action Centre

Adverse Parameter	Incident Date	Adverse Test Result Units	Adverse Test Results	Corrective Action	Corrective Action Date
Chlorine Residual	15-Apr-18	mg/L	0.22	Reported as due diligence. Operator attended site. Facility returned to normal operation. Compliant grab sample taken.	15-Apr-18
	17-Jul-18	mg/L	4.04	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	17-Jul-18
	12-Aug-18	mg/L	0.00	Reported as due diligence. Operator attended site. Facility returned to normal operation. Compliant grab sample taken.	12-Aug-18
	19-Aug-18	mg/L	4.00	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	19-Aug-18
	20-Aug-18	mg/L	4.10	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	20-Aug-18
	17-Nov-18	mg/L	4.00	Reported as due diligence. Operator attended site. Facility returned to normal operation. Compliant grab sample taken.	17-Nov-18
	11-Dec-18	mg/L	4.15	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	11-Dec-18
	21-Dec-18	mg/L	4.25	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	21-Dec-18
	22-Dec-18	mg/L	4.30	Reported as due diligence. Operator attended site. Facility returned to normal operation. Compliant grab sample taken.	22-Dec-18
	29-Dec-18	mg/L	4.12	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	29-Dec-18
Primary Disinfection	30-Jan-18	mg/L	0.04	Reported as due diligence. Operator attended site. Facility returned to normal operation. Compliant grab sample taken.	30-Jan-18
	17-Apr-18	mg/L	0.03	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	17-Apr-18
Sodium as Na	26-Apr-18	mg/L	29.7	Operator attended site. Resample taken.	26-Apr-18
			33.4	Operator attended site. Resample taken.	26-Apr-18

Microbiological testing completed under Schedule 10 of O.Reg. 170/03

*For additional distribution samples collected under Schedule 10, refer to the local municipality

Test Parameter	Sample Source	Count Of Samples	Count Of Presence
E. coli	Raw	265	0
	Treated	87	0
Heterotrophic Plate Count	Treated	86	15
Total Coliforms	Raw	265	4
	Treated	87	0

Operational testing completed under Schedule 7 of Regulation 170/03 during this reporting period

*8,760 is used as the number of samples for continuous analyzers

Test Parameter	Test Units	Continuous Sample Count	Average	Minimum	Maximum
Combined Chlorine	mg/L	8,760	2.03	0.00	4.30
Turbidity (Treated)	NTU	8,760	0.09	0.00	3.11

Summary of testing pursuant to Schedule 13 of O. Reg. 170/03 and sampling carried out in accordance with the requirement of an approval, order or other legal instrument

Values with a less than sign ("<") indicate that the test result is below the method detection limit from the accredited laboratory (i.e. non-detect). Average results include values which were returned as non-detect and are rounded to three decimals. For a complete set of results, see the open dataset available at york.ca/drinkingwater

Test Parameter	Test Units	No. of Samples	Average	Minimum	Maximum
Fluoride	mg/L	51	0.273	0.05	0.65
Haloacetic Acids	mg/L	15	0.011	<0.008	<0.02
Nitrate	mg/L	51	0.500	<0.5	<0.5
Nitrite	mg/L	51	0.050	<0.05	<0.05
Sodium	mg/L	10	20.956	16.2	34.7
Trihalomethanes	mg/L	19	0.013	0.0066	0.0331

*Lead testing under Schedule 15.1 is conducted by the Local Municipality - refer to Local Municipality reports for results. York Region occasionally collects samples tested for lead for non-regulatory research purposes

Organic and inorganic parameter(s) that exceeded half the standard prescribed in Schedule 2 of O.Reg. 169/03 Ontario Drinking Water Quality Standards

Not Applicable

There were no parameters that exceeded half the standard indicated above for the Newmarket DWS during 2018

Summary of inorganic parameters tested pursuant to Schedule 23 of O.Reg. 170/03

Values with a less than sign ("<") indicate that the test result is below the method detection limit from the accredited laboratory (i.e. non-detect). Average results include values which were returned as non-detect and are rounded to five decimals. For a complete set of results, see the open dataset available at york.ca/drinkingwater

Test Parameter	No. of Samples	Test Units	Average	Minimum	Maximum	ODWS Limit
Antimony	8	mg/L	0.00055	<0.0005	0.0009	0.006
Arsenic	8	mg/L	0.00056	<0.0005	0.0007	0.01
Barium	8	mg/L	0.08956	0.0247	0.185	1
Boron	8	mg/L	0.03399	0.0242	0.0468	5
Cadmium	8	mg/L	0.00050	<0.0005	<0.0005	0.005
Chromium	8	mg/L	0.00050	<0.0005	<0.0005	0.05
Mercury	8	mg/L	0.00005	<0.00005	<0.00005	0.001
Selenium	8	mg/L	0.00050	<0.0005	<0.0005	0.05
Uranium	8	mg/L	0.00050	<0.0005	<0.0005	0.02

Summary of organic parameters tested pursuant to Schedule 24 of O.Reg. 170/03

Values with a less than sign ("<") indicate that the test result is below the method detection limit from the accredited laboratory (i.e. non-detect). Average results include values which were returned as non-detect and are rounded to four decimals. For a complete set of results, see the open dataset available at york.ca/drinkingwater

Test Parameter	No. of Samples	Test Units	Average	Minimum	Maximum	ODWS Limit
1,1-dichloroethylene (vinylidene chloride)	2	mg/L	0.0003	<0.0003	<0.0003	0.014
1,2-(o-dcb) Dichlorobenzene	2	mg/L	0.0001	<0.0001	<0.0001	0.2
1,2-Dichloroethane	2	mg/L	0.0001	<0.0001	<0.0001	0.005
1,4-(p-dcb) Dichlorobenzene	2	mg/L	0.0001	<0.0001	<0.0001	0.005
2-methyl-4-chlorophenoxyacetic acid	2	mg/L	0.0050	<0.005	<0.005	0.1
2,3,4,6-Tetrachlorophenol	2	mg/L	0.0005	<0.0005	<0.0005	0.1
2,4-Dichlorophenol	2	mg/L	0.0007	<0.0007	<0.0007	0.9
2,4-dichlorophenoxyacetic acid (2,4-D)	2	mg/L	0.0008	<0.0008	<0.0008	0.1
2,4,6-Trichlorophenol	2	mg/L	0.0005	<0.0005	<0.0005	0.005
Alachlor	2	mg/L	0.0004	<0.0004	<0.0004	0.005
Atrazine + N-dealkylated metabolites	2	mg/L	0.0002	<0.0002	<0.0002	0.005
Azinphos-methyl	2	mg/L	0.0003	<0.0003	<0.0003	0.02
Benzene	2	mg/L	0.0001	<0.0001	<0.0001	0.005
Benzo(a)pyrene	2	mg/L	0.0000	<0.00001	<0.00001	0.00001
Bromoxynil	2	mg/L	0.0004	<0.0004	<0.0004	0.005
Carbaryl	2	mg/L	0.0030	<0.003	<0.003	0.09
Carbofuran	2	mg/L	0.0030	<0.003	<0.003	0.09
Carbon Tetrachloride	2	mg/L	0.0002	<0.0002	<0.0002	0.005
Chlorpyrifos	2	mg/L	0.0002	<0.0002	<0.0002	0.09
Diazinon	2	mg/L	0.0002	<0.0002	<0.0002	0.02
Dicamba	2	mg/L	0.0004	<0.0004	<0.0004	0.12
Dichloromethane	2	mg/L	0.0010	<0.001	<0.001	0.05
Diclofop-methyl	2	mg/L	0.0004	<0.0004	<0.0004	0.009
Dimethoate	2	mg/L	0.0003	<0.0003	<0.0003	0.02
Diquat	2	mg/L	0.0010	<0.001	<0.001	0.07
Diuron	2	mg/L	0.0030	<0.003	<0.003	0.15
Glyphosate	2	mg/L	0.0250	<0.025	<0.025	0.28
Malathion	2	mg/L	0.0002	<0.0002	<0.0002	0.19
Metolachlor	2	mg/L	0.0002	<0.0002	<0.0002	0.05
Metribuzin	2	mg/L	0.0003	<0.0003	<0.0003	0.08
Monochlorobenzene	2	mg/L	0.0001	<0.0001	<0.0001	0.08
Paraquat	2	mg/L	0.0010	<0.001	<0.001	0.01
Pentachlorophenol	2	mg/L	0.0004	<0.0004	<0.0004	0.06
Phorate	2	mg/L	0.0002	<0.0002	<0.0002	0.002
Picloram	2	mg/L	0.0007	<0.0007	<0.0007	0.19
Polychlorinated Biphenyls (PCBs)	2	mg/L	0.0000	<0.00002	<0.00002	0.003
Prometryne	2	mg/L	0.0002	<0.00019	<0.00019	0.001
Simazine	2	mg/L	0.0002	<0.0002	<0.0002	0.01
Terbufos	2	mg/L	0.0002	<0.0002	<0.0002	0.001
Tetrachloroethylene (perchloroethylene)	2	mg/L	0.0003	<0.0003	<0.0003	0.01
Triallate	2	mg/L	0.0040	<0.004	<0.004	0.23
Trichloroethylene	2	mg/L	0.0001	<0.0001	<0.0001	0.005
Trifluralin	2	mg/L	0.0000	<0.000006	<0.000006	0.045
Vinyl Chloride	2	mg/L	0.0002	<0.0002	<0.0002	0.001

2018 Annual Drinking Water System (DWS) Quality Report for Nobleton DWS

Prepared by The Regional Municipality of York pursuant to Section 11 of O.Reg. 170/03

Drinking Water System Number: 220002306
Drinking Water System Name: Nobleton DWS
Drinking Water System Owner: The Regional Municipality of York
DWS Category: Large Municipal Residential
Drinking Water System Classification: Water Distribution and Supply II
Reporting period: Jan 1, 2018 - Dec 31, 2018

The Nobleton DWS serves approximately 6030 people
(Population is a year-end forecasted estimate based on Statscan census data, and building permits)

This annual report is available to the public at no charge on the Region's website (york.ca/drinkingwater) and upon request. Accessible formats or communication supports are also available upon request. Please contact AccessYork@york.ca or call 1-877-464-9675.

Summary report required under O.Reg. 170/03 Schedule 22 will be available for inspection at:

The Regional Municipality of York
Administrative Centre
Environmental Services Department
17250 Yonge Street, Newmarket ON
and online, at york.ca/drinkingwater

List all Drinking Water Systems which receive their drinking water from the Nobleton DWS:
Nobleton Distribution System-260002577

A copy of York Region's annual report was provided to all Drinking Water System owners that are connected to and receive drinking water from York Region.
System users were notified that York Region's annual report is available free of charge by public access and notice through:

- Media (internet, social media)
- Public Requests at any time

Description of the Nobleton DWS

Introduction
Nobleton is located in King Township, and the municipal drinking water system is centered on King Road and Highway 27. Local groundwater is naturally high in minerals. Tests confirm ground water quality. York Region operates the water supply, while King Township maintains water quality and distributes it to users. The Province governs the Region's operations with Acts and Regulations, a Permit to Take Water, a Municipal Drinking Water License and an operating Permit.

Raw water source
Groundwater

Profile of water in distribution system
Groundwater

Water treatment description
Nobleton DWS includes three wells, two storage facilities, and one booster pumping station. Chlorine provides disinfection and maintains a secondary residual. Sodium silicate is added to sequester naturally occurring iron and manganese. Storage facilities hold treated water and help the booster station maintain pressure. Operators test the water and inspect the process. Online analyzers continuously monitor treatment and water flow. When analyzers detect a significant process or water quality issue, the system automatically pauses operation until an operator takes action.

List of water treatment chemicals used in this system
Chlorine (sodium hypochlorite and chlorine gas); Sodium Silicate

Brief description and breakdown of monetary expenses incurred
$373,942 for general maintenance and repair.

Notices submitted under Section 18(1) of the Safe Drinking Water Act or Section 16-4 of O.Reg. 170/03 and reported to MECP Spills Action Centre

Not Applicable

There were no reported adverse water quality incidents or observations of improper disinfection that occured in the Nobleton DWS during 2018

Microbiological testing completed under Schedule 10 of O.Reg. 170/03

*For additional distribution samples collected under Schedule 10, refer to the local municipality

Test Parameter	Sample Source	Count Of Samples	Count Of Presence
E. coli	Raw	157	0
	Treated	156	0
Heterotrophic Plate Count	Treated	156	35
Total Coliforms	Raw	157	1
	Treated	156	0

Operational testing completed under Schedule 7 of Regulation 170/03 during this reporting period

*8,760 is used as the number of samples for continuous analyzers

Test Parameter	Test Units	Continuous Sample Count	Average	Minimum	Maximum
Free Chlorine	mg/L	8,760	1.54	0.00	4.99
Turbidity (Treated)	NTU	8,760	0.11	0.00	5.00

Summary of testing pursuant to Schedule 13 of O. Reg. 170/03 and sampling carried out in accordance with the requirement of an approval, order or other legal instrument

Values with a less than sign ("<") indicate that the test result is below the method detection limit from the accredited laboratory (i.e. non-detect). Average results include values which were returned as non-detect and are rounded to three decimals. For a complete set of results, see the open dataset available at york.ca/drinkingwater

Test Parameter	Test Units	No. of Samples	Average	Minimum	Maximum
Fluoride	mg/L	20	0.118	0.11	0.13
Haloacetic Acids	mg/L	8	0.012	<0.008	<0.02
Nitrate	mg/L	20	0.500	<0.5	<0.5
Nitrite	mg/L	20	0.050	<0.05	<0.05
Sodium	mg/L	6	17.200	12.3	18.8
Trihalomethanes	mg/L	11	0.019	0.007	0.0428

*Lead testing under Schedule 15.1 is conducted by the Local Municipality - refer to Local Municipality reports for results. York Region occasionally collects samples tested for lead for non-regulatory research purposes

Organic and inorganic parameter(s) that exceeded half the standard prescribed in Schedule 2 of O.Reg. 169/03 Ontario Drinking Water Quality Standards

Not Applicable

There were no parameters that exceeded half the standard indicated above for the Nobleton DWS during 2018

Summary of inorganic parameters tested pursuant to Schedule 23 of O.Reg. 170/03

Values with a less than sign ("<") indicate that the test result is below the method detection limit from the accredited laboratory (i.e. non-detect). Average results include values which were returned as non-detect and are rounded to five decimals. For a complete set of results, see the open dataset available at york.ca/drinkingwater

Test Parameter	No. of Samples	Test Units	Average	Minimum	Maximum	ODWS Limit
Antimony	5	mg/L	0.00050	<0.0005	<0.0005	0.006
Arsenic	5	mg/L	0.00050	<0.0005	<0.0005	0.01
Barium	5	mg/L	0.21660	0.195	0.233	1
Boron	5	mg/L	0.04068	0.0324	0.0471	5
Cadmium	5	mg/L	0.00050	<0.0005	<0.0005	0.005
Chromium	5	mg/L	0.00050	<0.0005	<0.0005	0.05
Mercury	5	mg/L	0.00005	<0.00005	<0.00005	0.001
Selenium	5	mg/L	0.00050	<0.0005	<0.0005	0.05
Uranium	5	mg/L	0.00050	<0.0005	<0.0005	0.02

Summary of organic parameters tested pursuant to Schedule 24 of O.Reg. 170/03

Values with a less than sign ("<") indicate that the test result is below the method detection limit from the accredited laboratory (i.e. non-detect). Average results include values which were returned as non-detect and are rounded to four decimals. For a complete set of results, see the open dataset available at york.ca/drinkingwater

Test Parameter	No. of Samples	Test Units	Average	Minimum	Maximum	ODWS Limit
1,1-dichloroethylene (vinylidene chloride)	3	mg/L	0.0003	<0.0003	<0.0003	0.014
1,2-(o-dcb) Dichlorobenzene	3	mg/L	0.0001	<0.0001	<0.0001	0.2
1,2-Dichloroethane	3	mg/L	0.0001	<0.0001	<0.0001	0.005
1,4-(p-dcb) Dichlorobenzene	3	mg/L	0.0001	<0.0001	<0.0001	0.005
2-methyl-4-chlorophenoxyacetic acid	3	mg/L	0.0050	<0.005	<0.005	0.1
2,3,4,6-Tetrachlorophenol	3	mg/L	0.0005	<0.0005	<0.0005	0.1
2,4-Dichlorophenol	3	mg/L	0.0007	<0.0007	<0.0007	0.9
2,4-dichlorophenoxyacetic acid (2,4-D)	3	mg/L	0.0008	<0.0008	<0.0008	0.1
2,4,6-Trichlorophenol	3	mg/L	0.0005	<0.0005	<0.0005	0.005
Alachlor	3	mg/L	0.0004	<0.0004	<0.0004	0.005
Atrazine + N-dealkylated metabolites	3	mg/L	0.0002	<0.0002	<0.0002	0.005
Azinphos-methyl	3	mg/L	0.0003	<0.0003	<0.0003	0.02
Benzene	3	mg/L	0.0001	<0.0001	<0.0001	0.005
Benzo(a)pyrene	3	mg/L	0.0000	<0.00001	<0.00001	0.00001
Bromoxynil	3	mg/L	0.0004	<0.0004	<0.0004	0.005
Carbaryl	3	mg/L	0.0030	<0.003	<0.003	0.09
Carbofuran	3	mg/L	0.0030	<0.003	<0.003	0.09
Carbon Tetrachloride	3	mg/L	0.0002	<0.0002	<0.0002	0.005
Chlorpyrifos	3	mg/L	0.0002	<0.0002	<0.0002	0.09
Diazinon	3	mg/L	0.0002	<0.0002	<0.0002	0.02
Dicamba	3	mg/L	0.0004	<0.0004	<0.0004	0.12
Dichloromethane	3	mg/L	0.0010	<0.001	<0.001	0.05
Diclofop-methyl	3	mg/L	0.0004	<0.0004	<0.0004	0.009
Dimethoate	3	mg/L	0.0003	<0.0003	<0.0003	0.02
Diquat	3	mg/L	0.0010	<0.001	<0.001	0.07
Diuron	3	mg/L	0.0030	<0.003	<0.003	0.15
Glyphosate	3	mg/L	0.0250	<0.025	<0.025	0.28
Malathion	3	mg/L	0.0002	<0.0002	<0.0002	0.19
Metolachlor	3	mg/L	0.0002	<0.0002	<0.0002	0.05
Metribuzin	3	mg/L	0.0003	<0.0003	<0.0003	0.08
Monochlorobenzene	3	mg/L	0.0001	<0.0001	<0.0001	0.08
Paraquat	3	mg/L	0.0010	<0.001	<0.001	0.01
Pentachlorophenol	3	mg/L	0.0004	<0.0004	<0.0004	0.06
Phorate	3	mg/L	0.0002	<0.0002	<0.0002	0.002
Picloram	3	mg/L	0.0007	<0.0007	<0.0007	0.19
Polychlorinated Biphenyls (PCBs)	3	mg/L	0.0000	<0.00002	<0.00002	0.003
Prometryne	3	mg/L	0.0002	<0.0002	<0.0002	0.001
Simazine	3	mg/L	0.0002	<0.0002	<0.0002	0.01
Terbufos	3	mg/L	0.0002	<0.0002	<0.0002	0.001
Tetrachloroethylene (perchloroethylene)	3	mg/L	0.0003	<0.0003	<0.0003	0.01
Triallate	3	mg/L	0.0040	<0.004	<0.004	0.23
Trichloroethylene	3	mg/L	0.0001	<0.0001	<0.0001	0.005
Trifluralin	3	mg/L	0.0000	<0.000006	<0.000006	0.045
Vinyl Chloride	3	mg/L	0.0002	<0.0002	<0.0002	0.001

2018 Annual Drinking Water System (DWS) Quality Report for Schomberg DWS

Prepared by The Regional Municipality of York pursuant to Section 11 of O.Reg. 170/03

Drinking Water System Number: 220004901
Drinking Water System Name: Schomberg DWS
Drinking Water System Owner: The Regional Municipality of York
DWS Category: Large Municipal Residential
Drinking Water System Classification: Water Distribution and Supply II, Water Treatment II
Reporting period: Jan 1, 2018 - Dec 31, 2018

The Schomberg DWS serves approximately 2941 people
(Population is a year-end forecasted estimate based on Statscan census data, and building permits)

This annual report is available to the public at no charge on the Region's website (york.ca/drinkingwater) and upon request. Accessible formats or communication supports are also available upon request. Please contact AccessYork@york.ca or call 1-877-464-9675.

Summary report required under O.Reg. 170/03 Schedule 22 will be available for inspection at:

The Regional Municipality of York
Administrative Centre
Environmental Services Department
17250 Yonge Street, Newmarket ON
and online, at york.ca/drinkingwater

List all Drinking Water Systems which receive their drinking water from the Schomberg DWS:
Schomberg Distribution System (260005151)

A copy of York Region's annual report was provided to all Drinking Water System owners that are connected to and receive drinking water from York Region.
System users were notified that York Region's annual report is available free of charge by public access and notice through:

- Media (internet, social media)
- Public Requests at any time

Description of the Schomberg DWS

Introduction
Schomberg is located within the Township of King around the intersections of Highway 27 and Highway 9, just south of the border with Simcoe County. Local groundwater is naturally high in minerals. Tests confirm ground water quality. York Region operates the water supply, while King Township maintains water quality and distributes it to users. The Province governs the Region's operations with Acts and Regulations, a Permit to Take Water, a Municipal Drinking Water License and an operating Permit.

Raw water source
Groundwater

Profile of water in distribution system
Groundwater

Water treatment description
Schomberg DWS includes one Water treatment Plant, three wells and one storage facility. Naturally occurring methane is removed through pre-oxidation with chlorine followed by air stripping. Potassium permanganate is added for iron and manganese removal using media filtration. Water is disinfected with UV light, followed by chlorine which combines with naturally occurring ammonia to form chloramines to provide a secondary residual. Operators test the water and inspect the process. Online analyzers continuously monitor the facilities. When analyzers detect a significant process or water quality issue, the system automatically pauses operation until an operator takes action.

List of water treatment chemicals used in this system
Potassium Permanganate; Chlorine gas (forms chloramine when it combines with naturally occurring ammonia)

Brief description and breakdown of monetary expenses incurred
$231,281 for general maintenance and repair and treatment plant upgrades.

Notices submitted under Section 18(1) of the Safe Drinking Water Act or Section 16-4 of O.Reg. 170/03 and reported to MECP Spills Action Centre

Not Applicable

There were no reported adverse water quality incidents or observations of improper disinfection that occured in the Schomberg DWS during 2018

Microbiological testing completed under Schedule 10 of O.Reg. 170/03

*For additional distribution samples collected under Schedule 10, refer to the local municipality

Test Parameter	Sample Source	Count Of Samples	Count Of Presence
E. coli	Raw	156	0
	Treated	52	0
Heterotrophic Plate Count	Treated	52	11
Total Coliforms	Raw	156	0
	Treated	52	0

Operational testing completed under Schedule 7 of Regulation 170/03 during this reporting period

*8,760 is used as the number of samples for continuous analyzers

Test Parameter	Test Units	Continuous Sample Count	Average	Minimum	Maximum
Combined Chlorine	mg/L	8,760	2.59	0.00	2.98
Turbidity (Treated)	NTU	8,760	0.16	0.00	5.00

Summary of testing pursuant to Schedule 13 of O. Reg. 170/03 and sampling carried out in accordance with the requirement of an approval, order or other legal instrument

Values with a less than sign ("<") indicate that the test result is below the method detection limit from the accredited laboratory (i.e. non-detect). Average results include values which were returned as non-detect and are rounded to three decimals. For a complete set of results, see the open dataset available at york.ca/drinkingwater

Test Parameter	Test Units	No. of Samples	Average	Minimum	Maximum
Fluoride	mg/L	4	0.153	0.15	0.16
Haloacetic Acids	mg/L	3	0.008	<0.008	0.009
Nitrate	mg/L	4	0.500	<0.5	<0.5
Nitrite	mg/L	4	0.120	0.06	0.21
Sodium	mg/L	1	19.700	19.7	19.7
Trihalomethanes	mg/L	4	0.004	0.0036	0.004

*Lead testing under Schedule 15.1 is conducted by the Local Municipality - refer to Local Municipality reports for results. York Region occasionally collects samples tested for lead for non-regulatory research purposes

Organic and inorganic parameter(s) that exceeded half the standard prescribed in Schedule 2 of O.Reg. 169/03 Ontario Drinking Water Quality Standards

Not Applicable

There were no parameters that exceeded half the standard indicated above for the Schomberg DWS during 2018

Summary of inorganic parameters tested pursuant to Schedule 23 of O.Reg. 170/03

Values with a less than sign ("<") indicate that the test result is below the method detection limit from the accredited laboratory (i.e. non-detect). Average results include values which were returned as non-detect and are rounded to five decimals. For a complete set of results, see the open dataset available at york.ca/drinkingwater

Test Parameter	No. of Samples	Test Units	Average	Minimum	Maximum	ODWS Limit
Antimony	1	mg/L	0.00050	<0.0005	<0.0005	0.006
Arsenic	1	mg/L	0.00070	0.0007	0.0007	0.01
Barium	1	mg/L	0.12800	0.128	0.128	1
Boron	1	mg/L	0.06190	0.0619	0.0619	5
Cadmium	1	mg/L	0.00050	<0.0005	<0.0005	0.005
Chromium	1	mg/L	0.00050	<0.0005	<0.0005	0.05
Mercury	1	mg/L	0.00005	<0.00005	<0.00005	0.001
Selenium	1	mg/L	0.00050	<0.0005	<0.0005	0.05
Uranium	1	mg/L	0.00050	<0.0005	<0.0005	0.02

Summary of organic parameters tested pursuant to Schedule 24 of O.Reg. 170/03

Values with a less than sign ("<") indicate that the test result is below the method detection limit from the accredited laboratory (i.e. non-detect). Average results include values which were returned as non-detect and are rounded to four decimals. For a complete set of results, see the open dataset available at york.ca/drinkingwater

Test Parameter	No. of Samples	Test Units	Average	Minimum	Maximum	ODWS Limit
1,1-dichloroethylene (vinylidene chloride)	1	mg/L	0.0003	<0.0003	<0.0003	0.014
1,2-(o-dcb) Dichlorobenzene	1	mg/L	0.0001	<0.0001	<0.0001	0.2
1,2-Dichloroethane	1	mg/L	0.0001	<0.0001	<0.0001	0.005
1,4-(p-dcb) Dichlorobenzene	1	mg/L	0.0001	<0.0001	<0.0001	0.005
2-methyl-4-chlorophenoxyacetic acid	1	mg/L	0.0050	<0.005	<0.005	0.1
2,3,4,6-Tetrachlorophenol	1	mg/L	0.0005	<0.0005	<0.0005	0.1
2,4-Dichlorophenol	1	mg/L	0.0007	<0.0007	<0.0007	0.9
2,4-dichlorophenoxyacetic acid (2,4-D)	1	mg/L	0.0008	<0.0008	<0.0008	0.1
2,4,6-Trichlorophenol	1	mg/L	0.0005	<0.0005	<0.0005	0.005
Alachlor	1	mg/L	0.0004	<0.0004	<0.0004	0.005
Atrazine + N-dealkylated metabolites	1	mg/L	0.0002	<0.0002	<0.0002	0.005
Azinphos-methyl	1	mg/L	0.0003	<0.0003	<0.0003	0.02
Benzene	1	mg/L	0.0001	<0.0001	<0.0001	0.005
Benzo(a)pyrene	1	mg/L	0.0000	<0.00001	<0.00001	0.00001
Bromoxynil	1	mg/L	0.0004	<0.0004	<0.0004	0.005
Carbaryl	1	mg/L	0.0030	<0.003	<0.003	0.09
Carbofuran	1	mg/L	0.0030	<0.003	<0.003	0.09
Carbon Tetrachloride	1	mg/L	0.0002	<0.0002	<0.0002	0.005
Chlorpyrifos	1	mg/L	0.0002	<0.0002	<0.0002	0.09
Diazinon	1	mg/L	0.0002	<0.0002	<0.0002	0.02
Dicamba	1	mg/L	0.0004	<0.0004	<0.0004	0.12
Dichloromethane	1	mg/L	0.0010	<0.001	<0.001	0.05
Diclofop-methyl	1	mg/L	0.0004	<0.0004	<0.0004	0.009
Dimethoate	1	mg/L	0.0003	<0.0003	<0.0003	0.02
Diquat	1	mg/L	0.0010	<0.001	<0.001	0.07
Diuron	1	mg/L	0.0030	<0.003	<0.003	0.15
Glyphosate	1	mg/L	0.0250	<0.025	<0.025	0.28
Malathion	1	mg/L	0.0002	<0.0002	<0.0002	0.19
Metolachlor	1	mg/L	0.0002	<0.0002	<0.0002	0.05
Metribuzin	1	mg/L	0.0003	<0.0003	<0.0003	0.08
Monochlorobenzene	1	mg/L	0.0001	<0.0001	<0.0001	0.08
Paraquat	1	mg/L	0.0010	<0.001	<0.001	0.01
Pentachlorophenol	1	mg/L	0.0004	<0.0004	<0.0004	0.06
Phorate	1	mg/L	0.0002	<0.0002	<0.0002	0.002
Picloram	1	mg/L	0.0007	<0.0007	<0.0007	0.19
Polychlorinated Biphenyls (PCBs)	1	mg/L	0.0000	<0.00002	<0.00002	0.003
Prometryne	1	mg/L	0.0002	<0.0002	<0.0002	0.001
Simazine	1	mg/L	0.0002	<0.0002	<0.0002	0.01
Terbufos	1	mg/L	0.0002	<0.0002	<0.0002	0.001
Tetrachloroethylene (perchloroethylene)	1	mg/L	0.0003	<0.0003	<0.0003	0.01
Triallate	1	mg/L	0.0040	<0.004	<0.004	0.23
Trichloroethylene	1	mg/L	0.0001	<0.0001	<0.0001	0.005
Trifluralin	1	mg/L	0.0000	<0.000006	<0.000006	0.045
Vinyl Chloride	1	mg/L	0.0002	<0.0002	<0.0002	0.001

2018 Annual Drinking Water System (DWS) Quality Report for Sharon/Queensville DWS

Prepared by The Regional Municipality of York pursuant to Section 11 of O.Reg. 170/03

Drinking Water System Number: 260001955
Drinking Water System Name: Sharon/Queensville DWS
Drinking Water System Owner: The Regional Municipality of York
DWS Category: Large Municipal Residential
Drinking Water System Classification: Water Distribution and Supply III
Reporting period: Jan 1, 2018 - Dec 31, 2018

The Sharon/Queensville DWS serves approximately 4700 people
(Population is a year-end forecasted estimate based on Statscan census data, and building permits)

This annual report is available to the public at no charge on the Region's website (york.ca/drinkingwater) and upon request. Accessible formats or communication supports are also available upon request. Please contact AccessYork@york.ca or call 1-877-464-9675.

Summary report required under O.Reg. 170/03 Schedule 22 will be available for inspection at:

The Regional Municipality of York
Administrative Centre
Environmental Services Department
17250 Yonge Street, Newmarket ON
and online, at york.ca/drinkingwater

List all Drinking Water Systems which receive their drinking water from the Sharon/Queensville DWS:
Holland Landing/Queensville/Sharon Distribution System (260001747); Newmarket Distribution System (260003188)

A copy of York Region's annual report was provided to all Drinking Water System owners that are connected to and receive drinking water from York Region.
System users were notified that York Region's annual report is available free of charge by public access and notice through:

- Media (internet, social media)
- Public Requests at any time

Description of the Sharon/Queensville DWS

Introduction
Queensville and Sharon are in the Town of East Gwillimbury. Local groundwater is naturally high in minerals, and is blended with Lake Ontario water from the York DWS. York Region operates the water supply, and the Town of East Gwillimbury maintains water quality and distributes it to users. The Province governs the Region's operations with Acts and Regulations, a Permit to Take Water, a Municipal Drinking Water License and an operating Permit. Lake Ontario water is purchased with supply agreements.

Raw water source
Groundwater

Profile of water in distribution system
Blended - Lake and Groundwater

Water treatment description
Sharon-Queensville DWS includes four wells and one storage facility (elevated tank). Chlorine provides disinfection, and chloramine provides a secondary residual. Sodium silicate is added to sequester naturally occurring iron and manganese. The storage facility holds treated water and helps to maintain pressure. Tests confirm good groundwater quality. Operators test the water and inspect the process. Online analyzers continuously monitor treatment and water flow. When analyzers detect a significant process or water quality issue, the system automatically pauses operation until an operator takes action.

List of water treatment chemicals used in this system
Chlorine gas; Ammonia solution; Sodium Silicate

Brief description and breakdown of monetary expenses incurred
$276,471 for general maintenance and repair.

Notices submitted under Section 18(1) of the Safe Drinking Water Act or Section 16-4 of O.Reg. 170/03 and reported to MECP Spills Action Centre

Adverse Parameter	Incident Date	Adverse Test Result Units	Adverse Test Results	Corrective Action	Corrective Action Date
Primary Disinfection	03-Jul-18	mg/L	< 0.18	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	03-Jul-18

Microbiological testing completed under Schedule 10 of O.Reg. 170/03

*For additional distribution samples collected under Schedule 10, refer to the local municipality

Test Parameter	Sample Source	Count Of Samples	Count Of Presence
E. coli	Raw	200	0
	Treated	104	0
Heterotrophic Plate Count	Treated	104	23
Total Coliforms	Raw	200	1
	Treated	104	0

Operational testing completed under Schedule 7 of Regulation 170/03 during this reporting period

*8,760 is used as the number of samples for continuous analyzers

Test Parameter	Test Units	Continuous Sample Count	Average	Minimum	Maximum
Combined Chlorine	mg/L	8,760	2.41	0.00	3.75
Turbidity (Treated)	NTU	8,760	0.06	0.00	3.83

Summary of testing pursuant to Schedule 13 of O. Reg. 170/03 and sampling carried out in accordance with the requirement of an approval, order or other legal instrument

Values with a less than sign ("<") indicate that the test result is below the method detection limit from the accredited laboratory (i.e. non-detect). Average results include values which were returned as non-detect and are rounded to three decimals. For a complete set of results, see the open dataset available at york.ca/drinkingwater

Test Parameter	Test Units	No. of Samples	Average	Minimum	Maximum
Fluoride	mg/L	12	0.200	0.19	0.22
Haloacetic Acids	mg/L	4	0.012	<0.008	<0.02
Nitrate	mg/L	12	0.500	<0.5	<0.5
Nitrite	mg/L	12	0.050	<0.05	<0.05
Sodium	mg/L	3	20.250	19.7	21.6
Trihalomethanes	mg/L	6	0.016	0.0137	0.0176

*Lead testing under Schedule 15.1 is conducted by the Local Municipality - refer to Local Municipality reports for results. York Region occasionally collects samples tested for lead for non-regulatory research purposes

Organic and inorganic parameter(s) that exceeded half the standard prescribed in Schedule 2 of O.Reg. 169/03 Ontario Drinking Water Quality Standards

Not Applicable

There were no parameters that exceeded half the standard indicated above for the Sharon/Queensville DWS during 2018

Summary of inorganic parameters tested pursuant to Schedule 23 of O.Reg. 170/03

Values with a less than sign ("<") indicate that the test result is below the method detection limit from the accredited laboratory (i.e. non-detect). Average results include values which were returned as non-detect and are rounded to five decimals. For a complete set of results, see the open dataset available at york.ca/drinkingwater

Test Parameter	No. of Samples	Test Units	Average	Minimum	Maximum	ODWS Limit
Antimony	3	mg/L	0.00050	<0.0005	<0.0005	0.006
Arsenic	3	mg/L	0.00057	<0.0005	0.0007	0.01
Barium	3	mg/L	0.15967	0.153	0.164	1
Boron	3	mg/L	0.04850	0.0453	0.0538	5
Cadmium	3	mg/L	0.00050	<0.0005	<0.0005	0.005
Chromium	3	mg/L	0.00050	<0.0005	<0.0005	0.05
Mercury	3	mg/L	0.00005	<0.00005	<0.00005	0.001
Selenium	3	mg/L	0.00050	<0.0005	<0.0005	0.05
Uranium	3	mg/L	0.00050	<0.0005	<0.0005	0.02

Summary of organic parameters tested pursuant to Schedule 24 of O.Reg. 170/03

Values with a less than sign ("<") indicate that the test result is below the method detection limit from the accredited laboratory (i.e. non-detect). Average results include values which were returned as non-detect and are rounded to four decimals. For a complete set of results, see the open dataset available at york.ca/drinkingwater

Test Parameter	No. of Samples	Test Units	Average	Minimum	Maximum	ODWS Limit
1,1-dichloroethylene (vinylidene chloride)	2	mg/L	0.0003	<0.0003	<0.0003	0.014
1,2-(o-dcb) Dichlorobenzene	2	mg/L	0.0001	<0.0001	<0.0001	0.2
1,2-Dichloroethane	2	mg/L	0.0001	<0.0001	<0.0001	0.005
1,4-(p-dcb) Dichlorobenzene	2	mg/L	0.0001	<0.0001	<0.0001	0.005
2-methyl-4-chlorophenoxyacetic acid	2	mg/L	0.0050	<0.005	<0.005	0.1
2,3,4,6-Tetrachlorophenol	2	mg/L	0.0005	<0.0005	<0.0005	0.1
2,4-Dichlorophenol	2	mg/L	0.0007	<0.0007	<0.0007	0.9
2,4-dichlorophenoxyacetic acid (2,4-D)	2	mg/L	0.0008	<0.0008	<0.0008	0.1
2,4,6-Trichlorophenol	2	mg/L	0.0005	<0.0005	<0.0005	0.005
Alachlor	2	mg/L	0.0004	<0.0004	<0.0004	0.005
Atrazine + N-dealkylated metabolites	2	mg/L	0.0002	<0.0002	<0.0002	0.005
Azinphos-methyl	2	mg/L	0.0003	<0.0003	<0.0003	0.02
Benzene	2	mg/L	0.0001	<0.0001	<0.0001	0.005
Benzo(a)pyrene	2	mg/L	0.0000	<0.00001	<0.00001	0.00001
Bromoxynil	2	mg/L	0.0004	<0.0004	<0.0004	0.005
Carbaryl	2	mg/L	0.0030	<0.003	<0.003	0.09
Carbofuran	2	mg/L	0.0030	<0.003	<0.003	0.09
Carbon Tetrachloride	2	mg/L	0.0002	<0.0002	<0.0002	0.005
Chlorpyrifos	2	mg/L	0.0002	<0.0002	<0.0002	0.09
Diazinon	2	mg/L	0.0002	<0.0002	<0.0002	0.02
Dicamba	2	mg/L	0.0004	<0.0004	<0.0004	0.12
Dichloromethane	2	mg/L	0.0010	<0.001	<0.001	0.05
Diclofop-methyl	2	mg/L	0.0004	<0.0004	<0.0004	0.009
Dimethoate	2	mg/L	0.0003	<0.0003	<0.0003	0.02
Diquat	2	mg/L	0.0010	<0.001	<0.001	0.07
Diuron	2	mg/L	0.0030	<0.003	<0.003	0.15
Glyphosate	2	mg/L	0.0250	<0.025	<0.025	0.28
Malathion	2	mg/L	0.0002	<0.0002	<0.0002	0.19
Metolachlor	2	mg/L	0.0002	<0.0002	<0.0002	0.05
Metribuzin	2	mg/L	0.0003	<0.0003	<0.0003	0.08
Monochlorobenzene	2	mg/L	0.0001	<0.0001	<0.0001	0.08
Paraquat	2	mg/L	0.0010	<0.001	<0.001	0.01
Pentachlorophenol	2	mg/L	0.0004	<0.0004	<0.0004	0.06
Phorate	2	mg/L	0.0002	<0.0002	<0.0002	0.002
Picloram	2	mg/L	0.0007	<0.0007	<0.0007	0.19
Polychlorinated Biphenyls (PCBs)	2	mg/L	0.0000	<0.00002	<0.00002	0.003
Prometryne	2	mg/L	0.0002	<0.0002	<0.0002	0.001
Simazine	2	mg/L	0.0002	<0.0002	<0.0002	0.01
Terbufos	2	mg/L	0.0002	<0.0002	<0.0002	0.001
Tetrachloroethylene (perchloroethylene)	2	mg/L	0.0003	<0.0003	<0.0003	0.01
Triallate	2	mg/L	0.0040	<0.004	<0.004	0.23
Trichloroethylene	2	mg/L	0.0001	<0.0001	<0.0001	0.005
Trifluralin	2	mg/L	0.0000	<0.000006	<0.000006	0.045
Vinyl Chloride	2	mg/L	0.0002	<0.0002	<0.0002	0.001

2018 Annual Drinking Water System (DWS) Quality Report for Stouffville DWS

Prepared by The Regional Municipality of York pursuant to Section 11 of O.Reg. 170/03

Drinking Water System Number: 220002333
Drinking Water System Name: Stouffville DWS
Drinking Water System Owner: The Regional Municipality of York
DWS Category: Large Municipal Residential
Drinking Water System Classification: Water Distribution and Supply III, Water Treatment I
Reporting period: Jan 1, 2018 - Dec 31, 2018

The Stouffville DWS serves approximately 30746 people
(Population is a year-end forecasted estimate based on Statscan census data, and building permits)

This annual report is available to the public at no charge on the Region's website (york.ca/drinkingwater) and upon request. Accessible formats or communication supports are also available upon request. Please contact AccessYork@york.ca or call 1-877-464-9675.

Summary report required under O.Reg. 170/03 Schedule 22 will be available for inspection at:

The Regional Municipality of York
Administrative Centre
Environmental Services Department
17250 Yonge Street, Newmarket ON
and online, at york.ca/drinkingwater

List all Drinking Water Systems which receive their drinking water from the Stouffville DWS:
Stouffville Distribution System (260003162)

A copy of York Region's annual report was provided to all Drinking Water System owners that are connected to and receive drinking water from York Region.
System users were notified that York Region's annual report is available free of charge by public access and notice through:

- Media (internet, social media)
- Public Requests at any time

Description of the Stouffville DWS

Introduction
Stouffville is a community in the Town of Whitchurch-Stouffville. Local groundwater is naturally high in minerals, and blends with Lake Ontario water from the York DWS. York Region operates the water supply, while the Town maintains water quality and distributes it to users. The Province governs the Region's operations with Acts and Regulations, a Permit to Take Water, a Municipal Drinking Water License and an operating Permit. Lake Ontario water is purchased with supply agreements.

Raw water source
Groundwater

Profile of water in distribution system
Blended - Lake and Groundwater

Water treatment description
Stouffville DWS includes five wells, three storage facilities, and four booster pumping stations. Chlorine provides disinfection and maintains a secondary residual. UV light also disinfects at Wells 5 and 6. Chloramines from the York DWS are converted to free chlorine. Sodium silicate is added to sequester naturally occurring iron and manganese. Storage facilities hold treated water and help booster stations maintain pressure. Operators test the water and inspect the process. Online analyzers continuously monitor the facilities. When analyzers detect a significant process or water quality issue, the system automatically pauses operation until an operator takes action.

List of water treatment chemicals used in this system
Chlorine (gas and sodium hypochlorite); Sodium silicate

Brief description and breakdown of monetary expenses incurred
$2,432,369 for general maintenance and repair, distribution system maintenance and elevated tank re-coating.

Notices submitted under Section 18(1) of the Safe Drinking Water Act or Section 16-4 of O.Reg. 170/03 and reported to MECP Spills Action Centre

Adverse Parameter	Incident Date	Adverse Test Result Units	Adverse Test Results	Corrective Action	Corrective Action Date
Chlorine Residual	12-May-18	mg/L	0.00	Reported as due diligence. Operator attended site. Facility returned to normal operation. Compliant grab sample taken.	12-May-18
	22-Jun-18	mg/L	0.00	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	22-Jun-18
	12-Aug-18	mg/L	0.00	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	12-Aug-18
	14-Sep-18	mg/L	0.00	Reported as due diligence. Operator attended site. Facility returned to normal operation. Compliant grab sample taken.	14-Sep-18
Primary Disinfection	12-Aug-18	mg/L	0.00	Operator attended site, restored facility to normal operation	12-Aug-18

Microbiological testing completed under Schedule 10 of O.Reg. 170/03

*For additional distribution samples collected under Schedule 10, refer to the local municipality

Test Parameter	Sample Source	Count Of Samples	Count Of Presence
E. coli	Raw	258	0
	Treated	154	0
Heterotrophic Plate Count	Treated	154	27
Total Coliforms	Raw	258	1
	Treated	154	0

Operational testing completed under Schedule 7 of Regulation 170/03 during this reporting period

*8,760 is used as the number of samples for continuous analyzers

Test Parameter	Test Units	Continuous Sample Count	Average	Minimum	Maximum
Free Chlorine	mg/L	8,760	1.43	0.00	5.00
Turbidity (Treated)	NTU	8,760	0.06	0.01	5.00

Summary of testing pursuant to Schedule 13 of O. Reg. 170/03 and sampling carried out in accordance with the requirement of an approval, order or other legal instrument

Values with a less than sign ("<") indicate that the test result is below the method detection limit from the accredited laboratory (i.e. non-detect). Average results include values which were returned as non-detect and are rounded to three decimals. For a complete set of results, see the open dataset available at york.ca/drinkingwater

Test Parameter	Test Units	No. of Samples	Average	Minimum	Maximum
Fluoride	mg/L	30	0.099	<0.05	0.19
Haloacetic Acids	mg/L	10	0.012	<0.008	<0.02
Nitrate	mg/L	30	0.756	<0.5	<0.5
Nitrite	mg/L	30	0.050	<0.05	<0.05
Sodium	mg/L	5	41.300	23.1	60.2
Trihalomethanes	mg/L	13	0.015	0.0007	0.0286

*Lead testing under Schedule 15.1 is conducted by the Local Municipality - refer to Local Municipality reports for results. York Region occasionally collects samples tested for lead for non-regulatory research purposes

Organic and inorganic parameter(s) that exceeded half the standard prescribed in Schedule 2 of O.Reg. 169/03 Ontario Drinking Water Quality Standards

Not Applicable

There were no parameters that exceeded half the standard indicated above for the Stouffville DWS during 2018

Summary of inorganic parameters tested pursuant to Schedule 23 of O.Reg. 170/03

Values with a less than sign ("<") indicate that the test result is below the method detection limit from the accredited laboratory (i.e. non-detect). Average results include values which were returned as non-detect and are rounded to five decimals. For a complete set of results, see the open dataset available at york.ca/drinkingwater

Test Parameter	No. of Samples	Test Units	Average	Minimum	Maximum	ODWS Limit
Antimony	5	mg/L	0.00070	<0.0005	<0.001	0.006
Arsenic	5	mg/L	0.00070	<0.0005	<0.001	0.01
Barium	5	mg/L	0.13060	0.098	0.146	1
Boron	5	mg/L	0.02786	0.0134	0.0547	5
Cadmium	5	mg/L	0.00070	<0.0005	<0.001	0.005
Chromium	5	mg/L	0.00070	<0.0005	<0.001	0.05
Mercury	5	mg/L	0.00005	<0.00005	<0.00005	0.001
Selenium	5	mg/L	0.00070	<0.0005	<0.001	0.05
Uranium	5	mg/L	0.00210	<0.001	0.003	0.02

Summary of organic parameters tested pursuant to Schedule 24 of O.Reg. 170/03

Values with a less than sign ("<") indicate that the test result is below the method detection limit from the accredited laboratory (i.e. non-detect). Average results include values which were returned as non-detect and are rounded to four decimals. For a complete set of results, see the open dataset available at york.ca/drinkingwater

Test Parameter	No. of Samples	Test Units	Average	Minimum	Maximum	ODWS Limit
1,1-dichloroethylene (vinylidene chloride)	3	mg/L	0.0003	<0.0003	<0.0003	0.014
1,2-(o-dcb) Dichlorobenzene	3	mg/L	0.0001	<0.0001	<0.0001	0.2
1,2-Dichloroethane	3	mg/L	0.0001	<0.0001	<0.0001	0.005
1,4-(p-dcb) Dichlorobenzene	3	mg/L	0.0001	<0.0001	<0.0001	0.005
2-methyl-4-chlorophenoxyacetic acid	3	mg/L	0.0050	<0.005	<0.005	0.1
2,3,4,6-Tetrachlorophenol	3	mg/L	0.0005	<0.0005	<0.0005	0.1
2,4-Dichlorophenol	3	mg/L	0.0007	<0.0007	<0.0007	0.9
2,4-dichlorophenoxyacetic acid (2,4-D)	3	mg/L	0.0008	<0.0008	<0.0008	0.1
2,4,6-Trichlorophenol	3	mg/L	0.0005	<0.0005	<0.0005	0.005
Alachlor	3	mg/L	0.0004	<0.0004	<0.0004	0.005
Atrazine + N-dealkylated metabolites	3	mg/L	0.0002	<0.0002	<0.0002	0.005
Azinphos-methyl	3	mg/L	0.0003	<0.0003	<0.0003	0.02
Benzene	3	mg/L	0.0001	<0.0001	<0.0001	0.005
Benzo(a)pyrene	3	mg/L	0.0000	<0.00001	<0.00001	0.00001
Bromoxynil	3	mg/L	0.0004	<0.0004	<0.0004	0.005
Carbaryl	3	mg/L	0.0030	<0.003	<0.003	0.09
Carbofuran	3	mg/L	0.0030	<0.003	<0.003	0.09
Carbon Tetrachloride	3	mg/L	0.0002	<0.0002	<0.0002	0.005
Chlorpyrifos	3	mg/L	0.0002	<0.0002	<0.0002	0.09
Diazinon	3	mg/L	0.0002	<0.0002	<0.0002	0.02
Dicamba	3	mg/L	0.0004	<0.0004	<0.0004	0.12
Dichloromethane	3	mg/L	0.0010	<0.001	<0.001	0.05
Diclofop-methyl	3	mg/L	0.0004	<0.0004	<0.0004	0.009
Dimethoate	3	mg/L	0.0003	<0.0003	<0.0003	0.02
Diquat	3	mg/L	0.0010	<0.001	<0.001	0.07
Diuron	3	mg/L	0.0030	<0.003	<0.003	0.15
Glyphosate	3	mg/L	0.0250	<0.025	<0.025	0.28
Malathion	3	mg/L	0.0002	<0.0002	<0.0002	0.19
Metolachlor	3	mg/L	0.0002	<0.0002	<0.0002	0.05
Metribuzin	3	mg/L	0.0003	<0.0003	<0.0003	0.08
Monochlorobenzene	3	mg/L	0.0001	<0.0001	<0.0001	0.08
Paraquat	3	mg/L	0.0010	<0.001	<0.001	0.01
Pentachlorophenol	3	mg/L	0.0004	<0.0004	<0.0004	0.06
Phorate	3	mg/L	0.0002	<0.0002	<0.0002	0.002
Picloram	3	mg/L	0.0007	<0.0007	<0.0007	0.19
Polychlorinated Biphenyls (PCBs)	3	mg/L	0.0000	<0.00002	<0.00002	0.003
Prometryne	3	mg/L	0.0002	<0.0002	<0.0002	0.001
Simazine	3	mg/L	0.0002	<0.0002	<0.0002	0.01
Terbufos	3	mg/L	0.0002	<0.0002	<0.0002	0.001
Tetrachloroethylene (perchloroethylene)	3	mg/L	0.0003	<0.0003	<0.0003	0.01
Triallate	3	mg/L	0.0040	<0.004	<0.004	0.23
Trichloroethylene	3	mg/L	0.0001	<0.0001	<0.0001	0.005
Trifluralin	3	mg/L	0.0000	<0.000006	<0.000006	0.045
Vinyl Chloride	3	mg/L	0.0002	<0.0002	<0.0002	0.001

2018 Annual Drinking Water System (DWS) Quality Report for York DWS

Prepared by The Regional Municipality of York pursuant to Section 11 of O.Reg. 170/03

Drinking Water System Number: 260001929
Drinking Water System Name: York DWS
Drinking Water System Owner: The Regional Municipality of York
DWS Category: Large Municipal Residential
Drinking Water System Classification: Water Distribution IV
Reporting period: Jan 1, 2018 - Dec 31, 2018

The York DWS serves approximately 894230 people
(Population is a year-end forecasted estimate based on Statscan census data, and building permits)

This annual report is available to the public at no charge on the Region's website (york.ca/drinkingwater) and upon request. Accessible formats or communication supports are also available upon request. Please contact AccessYork@york.ca or call 1-877-464-9675.

Summary report required under O.Reg. 170/03 Schedule 22 will be available for inspection at:

The Regional Municipality of York
Administrative Centre
Environmental Services Department
17250 Yonge Street, Newmarket ON
and online, at york.ca/drinkingwater

List all Drinking Water Systems which receive their drinking water from the York DWS:
York DWS is the primary water source for: Markham Distribution System (220004162); Richmond Hill Distribution System (260001968); Vaughan Distribution System (260003097). The following systems are connected to or are sub-systems of the York DWS: York Drinking Water sub-system - Aurora (220002440); York Drinking Water sub-system - Holland Landing (220004046); King City Drinking Water System (220002299); Kleinburg Drinking Water System (220002360); York Drinking Water sub-system - Newmarket (220002413); York Drinking Water sub-system - Queensville (260001955); York Drinking Water sub-system - Stouffville (220002333); Town Of Aurora Distribution System (260003227); Town of Newmarket Distribution System (260003188)

A copy of York Region's annual report was provided to all Drinking Water System owners that are connected to and receive drinking water from York Region.
System users were notified that York Region's annual report is available free of charge by public access and notice through:

- Media (internet, social media)
- Public Requests at any time

Description of the York DWS

Introduction
The Town of Richmond Hill and the Cities of Vaughan and Markham form the southern border of York Region. These three municipalities receive all their water from Lake Ontario through the York Drinking Water System (York DWS). In these areas, initial treatment on the source water is done by Peel Region and the City of Toronto. Communities north of Vaughan, Richmond Hill and Markham that receive water from the York DWS, the supply is supplemented with groundwater from wells.

Raw water source
Lake Ontario

Profile of water in distribution system
Lake Ontario (some sub-systems supplemented with local groundwater)

Water treatment description
In Vaughan, Richmond Hill, and Markham, purchased water is pre-treated and disinfected by the City of Toronto and Peel Region. Twelve storage facilities hold water and help the nine booster stations maintain pressure. One of these facilities also provide re-chloramination to boost the chloramine residual, and another converts it to free chlorine for the Stouffville DWS. Regional Operators test the water and inspect the process, and test results from certified labs and equipment confirm good water quality. Online analyzers continuously monitor the facilities. When analyzers detect a significant process or water quality issue, the system automatically pauses operation until an operator takes action.

List of water treatment chemicals used in this system
York DWS water is purchased pre-treated from the City of Toronto and Peel Region. Re-chloramination chemicals: Chlorine Gas; Ammonia Solution (Ammonium Sulphate)

Brief description and breakdown of monetary expenses incurred
$17,645,771 for general maintenance and repair, watermain replacement, pumping station upgrades, distribution system maintenance and emergency maintenance.

Notices submitted under Section 18(1) of the Safe Drinking Water Act or Section 16-4 of O.Reg. 170/03 and reported to MECP Spills Action Centre

Adverse Parameter	Incident Date	Adverse Test Result Units	Adverse Test Results	Corrective Action	Corrective Action Date
Chlorine Residual	01-Jan-18	mg/L	9.94	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	01-Jan-18
	14-Jan-18	mg/L	3.07	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	14-Jan-18
	18-Jan-18	mg/L	5.82	Reported as due diligence. Operator attended site. Facility returned to normal operation. Compliant grab sample taken.	18-Jan-18
	29-Jan-18	mg/L	5.44	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	29-Jan-18
	05-May-18	mg/L	3.43	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	05-May-18
	23-Jun-18	mg/L	4.92	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	24-Jun-18
	29-Jul-18	mg/L	0.00	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	29-Jul-18
	26-Oct-18	mg/L	3.40	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	26-Oct-18
	11-Dec-18	mg/L	3.03	Reported as due diligence. Operator attended site. Facility returned to normal operation. Compliant grab sample taken.	11-Dec-18
	21-Dec-18	mg/L	3.06	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	22-Dec-18

Microbiological testing completed under Schedule 10 of O.Reg. 170/03

*For additional distribution samples collected under Schedule 10, refer to the local municipality

Not Applicable

York DWS does not have any raw water or treatment facilities, so there are no microbiological tests to report here. For more data, view the Open Dataset or refer to the local municipality

Operational testing completed under Schedule 7 of Regulation 170/03 during this reporting period

*8,760 is used as the number of samples for continuous analyzers

Test Parameter	Test Units	Continuous Sample Count	Average	Minimum	Maximum
Combined Chlorine	mg/L	8,760	1.71	0.00	9.94

Summary of testing pursuant to Schedule 13 of O. Reg. 170/03 and sampling carried out in accordance with the requirement of an approval, order or other legal instrument

Values with a less than sign ("<") indicate that the test result is below the method detection limit from the accredited laboratory (i.e. non-detect). Average results include values which were returned as non-detect and are rounded to three decimals. For a complete set of results, see the open dataset available at york.ca/drinkingwater

Test Parameter	Test Units	No. of Samples	Average	Minimum	Maximum
Fluoride	mg/L	48	0.607	0.1	0.69
Haloacetic Acids	mg/L	48	0.012	<0.008	<0.02
Nitrate	mg/L	48	0.500	<0.5	<0.5
Nitrite	mg/L	48	0.050	<0.05	<0.05
Sodium	mg/L	12	17.725	15.5	20.4
Trihalomethanes	mg/L	48	0.018	0.007	0.0352

*Lead testing under Schedule 15.1 is conducted by the Local Municipality - refer to Local Municipality reports for results. York Region occasionally collects samples tested for lead for non-regulatory research purposes

Organic and inorganic parameter(s) that exceeded half the standard prescribed in Schedule 2 of O.Reg. 169/03 Ontario Drinking Water Quality Standards

Not Applicable

There were no parameters that exceeded half the standard indicated above for the York DWS during 2018

Summary of inorganic parameters tested pursuant to Schedule 23 of O.Reg. 170/03

Values with a less than sign ("<") indicate that the test result is below the method detection limit from the accredited laboratory (i.e. non-detect). Average results include values which were returned as non-detect and are rounded to five decimals. For a complete set of results, see the open dataset available at york.ca/drinkingwater

Test Parameter	No. of Samples	Test Units	Average	Minimum	Maximum	ODWS Limit
Antimony	12	mg/L	0.00050	<0.0005	0.0005	0.006
Arsenic	12	mg/L	0.00075	0.0007	0.0008	0.01
Barium	12	mg/L	0.02157	0.0204	0.022	1
Boron	12	mg/L	0.02692	0.0261	0.0288	5
Cadmium	12	mg/L	0.00050	<0.0005	<0.0005	0.005
Chromium	12	mg/L	0.00050	<0.0005	<0.0005	0.05
Mercury	12	mg/L	0.00005	<0.00005	<0.00005	0.001
Selenium	12	mg/L	0.00050	<0.0005	<0.0005	0.05
Uranium	12	mg/L	0.00050	<0.0005	<0.0005	0.02

Summary of organic parameters tested pursuant to Schedule 24 of O.Reg. 170/03

Values with a less than sign ("<") indicate that the test result is below the method detection limit from the accredited laboratory (i.e. non-detect). Average results include values which were returned as non-detect and are rounded to four decimals. For a complete set of results, see the open dataset available at york.ca/drinkingwater

Not Applicable

No organic parameters were tested for the York DWS as it does not have any wells