2019 Annual Drinking Water System 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
Drinking Water System Category: Large Municipal Residential
Drinking Water System Classification: Water Distribution and Supply II
Reporting period: Jan 1, 2019 - Dec 31, 2019

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

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

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.

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

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

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
$3,428 for general maintenance and repairs.

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 2019

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	106	0
	Treated	53	0
Heterotrophic Plate Count	Treated	53	7
Total Coliforms	Raw	106	0
	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 (group)	Test Units	No. of Samples	Average	Minimum	Maximum
Free Chlorine	mg/L	8,760	1.55	0.42	2.47
Turbidity (Treated)	NTU	8,760	0.25	0.12	4.28

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	0.258	0.25	0.28
Haloacetic Acids	mg/L	4	0.012	0.011	0.012
Nitrate	mg/L	4	0.500	<0.5	<0.5
Nitrite	mg/L	4	0.050	<0.05	<0.05
Sodium	mg/L	1	41.000	41.0	41.0
Trihalomethanes	mg/L	5	0.047	0.0439	0.0493

*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 Ansnorveldt DWS during 2019

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	0.00070	0.0007	0.0007	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	0.16400	0.164	0.164	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
1,1-dichloroethylene (vinylidene chloride)	1	mg/L	0.0003	<0.0003	<0.0003
1,2-(o-dcb) Dichlorobenzene	1	mg/L	0.0001	<0.0001	<0.0001
1,2-Dichloroethane	1	mg/L	0.0001	<0.0001	<0.0001
1,4-(p-dcb) Dichlorobenzene	1	mg/L	0.0001	<0.0001	<0.0001
2-methyl-4-chlorophenoxyacetic acid	1	mg/L	0.0050	<0.005	<0.005
2,3,4,6-Tetrachlorophenol	1	mg/L	0.0005	<0.0005	<0.0005
2,4-Dichlorophenol	1	mg/L	0.0007	<0.0007	<0.0007
2,4-dichlorophenoxyacetic acid (2,4-D)	1	mg/L	0.0008	<0.0008	<0.0008
2,4,6-Trichlorophenol	1	mg/L	0.0005	<0.0005	<0.0005
Alachlor	1	mg/L	0.0004	<0.0004	<0.0004
Atrazine + N-dealkylated metabolites	1	mg/L	0.0002	<0.0002	<0.0002
Azinphos-methyl	1	mg/L	0.0003	<0.0003	<0.0003
Benzene	1	mg/L	0.0001	<0.0001	<0.0001
Benzo(a)pyrene	1	mg/L	0.0000	<0.00001	<0.00001
Bromoxynil	1	mg/L	0.0004	<0.0004	<0.0004
Carbaryl	1	mg/L	0.0030	<0.003	<0.003
Carbofuran	1	mg/L	0.0030	<0.003	<0.003
Carbon Tetrachloride	1	mg/L	0.0002	<0.0002	<0.0002
Chlorpyrifos	1	mg/L	0.0002	<0.0002	<0.0002
Diazinon	1	mg/L	0.0002	<0.0002	<0.0002
Dicamba	1	mg/L	0.0004	<0.0004	<0.0004
Dichloromethane	1	mg/L	0.0020	<0.002	<0.002
Diclofop-methyl	1	mg/L	0.0004	<0.0004	<0.0004
Dimethoate	1	mg/L	0.0003	<0.0003	<0.0003
Diquat	1	mg/L	0.0010	<0.001	<0.001
Diuron	1	mg/L	0.0030	<0.003	<0.003
Glyphosate	1	mg/L	0.0250	<0.025	<0.025
Malathion	1	mg/L	0.0002	<0.0002	<0.0002
Metolachlor	1	mg/L	0.0002	<0.0002	<0.0002
Metribuzin	1	mg/L	0.0003	<0.0003	<0.0003
Monochlorobenzene	1	mg/L	0.0001	<0.0001	<0.0001
Paraquat	1	mg/L	0.0010	<0.001	<0.001
Pentachlorophenol	1	mg/L	0.0004	<0.0004	<0.0004
Phorate	1	mg/L	0.0002	<0.0002	<0.0002
Picloram	1	mg/L	0.0007	<0.0007	<0.0007
Polychlorinated Biphenyls (PCBs)	1	mg/L	0.0000	<0.00002	<0.00002
Prometryne	1	mg/L	0.0002	<0.00019	<0.00019
Simazine	1	mg/L	0.0002	<0.0002	<0.0002
Terbufos	1	mg/L	0.0002	<0.0002	<0.0002
Tetrachloroethylene (perchloroethylene)	1	mg/L	0.0003	<0.0003	<0.0003
Triallate	1	mg/L	0.0040	<0.004	<0.004
Trichloroethylene	1	mg/L	0.0001	<0.0001	<0.0001
Trifluralin	1	mg/L	0.0000	<0.000006	<0.000006
Vinyl Chloride	1	mg/L	0.0002	<0.0002	<0.0002

2019 Annual Drinking Water System 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
Drinking Water System Category: Large Municipal Residential
Drinking Water System Classification: Water Distribution and Supply III
Reporting period: Jan 1, 2019 - Dec 31, 2019

The Aurora DWS serves approximately 62,409 people
(Population is a year-end forecasted estimate based on Statistics Canada census data, and building permits)

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

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.

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

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

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
$357,314 for groundwater management works, well rehabilitation and pump maintenance, pumping station repairs, general maintenance and repairs.

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	Corrective Action	Corrective Action Date
Chlorine Residual	06-Apr-19	5.00 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	06-Apr-19
	16-May-19	4.10 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	16-May-19
	20-May-19	4.22 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	20-May-19
	31-May-19	5.00 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	31-May-19
	21-Oct-19	9.99 mg/L	Reported as due diligence. Operator attended site. Facility returned to normal operation. Compliant grab sample taken.	21-Oct-19
Sodium	17-Apr-19	23.0 mg/L	Operator attended site. Resample taken.	24-Apr-19

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	282	0
	Treated	106	0
Heterotrophic Plate Count	Treated	106	18
Total Coliforms	Raw	282	0
	Treated	106	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 (group)	Test Units	No. of Samples	Average	Minimum	Maximum
Combined Chlorine	mg/L	8,760	2.54	0.00	5.00
Turbidity (Treated)	NTU	8,760	0.06	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

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Test Parameter	Test Units	No. of Samples	Average	Minimum	Maximum
Fluoride	mg/L	83	0.372	0.13	0.7
Haloacetic Acids	mg/L	23	0.008	<0.008	0.011
Nitrate	mg/L	83	0.502	<0.5	0.6
Nitrite	mg/L	83	0.050	<0.05	<0.05
Sodium	mg/L	9	17.686	12.4	23.0
Trihalomethanes	mg/L	25	0.013	0.0036	0.0291

*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 2019

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	0.00071	<0.0005	0.0008	0.006
Arsenic	8	mg/L	0.00066	<0.0005	0.0008	0.01
Barium	8	mg/L	0.03868	0.0211	0.0964	1
Boron	8	mg/L	0.02704	0.0247	0.033	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
1,1-dichloroethylene (vinylidene chloride)	2	mg/L	0.0003	<0.0003	<0.0003
1,2-(o-dcb) Dichlorobenzene	2	mg/L	0.0001	<0.0001	<0.0001
1,2-Dichloroethane	2	mg/L	0.0001	<0.0001	<0.0001
1,4-(p-dcb) Dichlorobenzene	2	mg/L	0.0001	<0.0001	<0.0001
2-methyl-4-chlorophenoxyacetic acid	2	mg/L	0.0050	<0.005	<0.005
2,3,4,6-Tetrachlorophenol	2	mg/L	0.0005	<0.0005	<0.0005
2,4-Dichlorophenol	2	mg/L	0.0007	<0.0007	<0.0007
2,4-dichlorophenoxyacetic acid (2,4-D)	2	mg/L	0.0008	<0.0008	<0.0008
2,4,6-Trichlorophenol	2	mg/L	0.0005	<0.0005	<0.0005
Alachlor	2	mg/L	0.0004	<0.0004	<0.0004
Atrazine + N-dealkylated metabolites	2	mg/L	0.0002	<0.0002	<0.0002
Azinphos-methyl	2	mg/L	0.0003	<0.0003	<0.0003
Benzene	2	mg/L	0.0001	<0.0001	<0.0001
Benzo(a)pyrene	2	mg/L	0.0000	<0.00001	<0.00001
Bromoxynil	2	mg/L	0.0004	<0.0004	<0.0004
Carbaryl	2	mg/L	0.0030	<0.003	<0.003
Carbofuran	2	mg/L	0.0030	<0.003	<0.003
Carbon Tetrachloride	2	mg/L	0.0002	<0.0002	<0.0002
Chlorpyrifos	2	mg/L	0.0002	<0.0002	<0.0002
Diazinon	2	mg/L	0.0002	<0.0002	<0.0002
Dicamba	2	mg/L	0.0004	<0.0004	<0.0004
Dichloromethane	2	mg/L	0.0020	<0.002	<0.002
Diclofop-methyl	2	mg/L	0.0004	<0.0004	<0.0004
Dimethoate	2	mg/L	0.0003	<0.0003	<0.0003
Diquat	2	mg/L	0.0010	<0.001	<0.001
Diuron	2	mg/L	0.0030	<0.003	<0.003
Glyphosate	2	mg/L	0.0250	<0.025	<0.025
Malathion	2	mg/L	0.0002	<0.0002	<0.0002
Metolachlor	2	mg/L	0.0002	<0.0002	<0.0002
Metribuzin	2	mg/L	0.0003	<0.0003	<0.0003
Monochlorobenzene	2	mg/L	0.0001	<0.0001	<0.0001
Paraquat	2	mg/L	0.0010	<0.001	<0.001
Pentachlorophenol	2	mg/L	0.0004	<0.0004	<0.0004
Phorate	2	mg/L	0.0002	<0.0002	<0.0002
Picloram	2	mg/L	0.0007	<0.0007	<0.0007
Polychlorinated Biphenyls (PCBs)	2	mg/L	0.0000	<0.00002	<0.00002
Prometryne	2	mg/L	0.0002	<0.0002	<0.0002
Simazine	2	mg/L	0.0002	<0.0002	<0.0002
Terbufos	2	mg/L	0.0002	<0.0002	<0.0002
Tetrachloroethylene (perchloroethylene)	2	mg/L	0.0003	<0.0003	<0.0003
Triallate	2	mg/L	0.0040	<0.004	<0.004
Trichloroethylene	2	mg/L	0.0001	<0.0001	<0.0001
Trifluralin	2	mg/L	0.0000	<0.000006	<0.000006
Vinyl Chloride	2	mg/L	0.0002	<0.0002	<0.0002

2019 Annual Drinking Water System 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
Drinking Water System Category: Large Municipal Residential
Drinking Water System Classification: Water Distribution and Supply II
Reporting period: Jan 1, 2019 - Dec 31, 2019

The Ballantrae/Musselman's Lake DWS serves approximately 5,038 people
(Population is a year-end forecasted estimate based on Statistics Canada census data, and building permits)

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

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.

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

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

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
$48,464 for well rehabilitation and pump maintenance, general maintenance and repairs.

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 Ballantrae/Musselman's Lake DWS during 2019

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	145	0
	Treated	96	0
Heterotrophic Plate Count	Treated	96	19
Total Coliforms	Raw	145	2
	Treated	96	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 (group)	Test Units	No. of Samples	Average	Minimum	Maximum
Free Chlorine	mg/L	8,760	1.33	0.00	3.62
Turbidity (Treated)	NTU	8,760	0.13	0.00	10.00

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

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Test Parameter	Test Units	No. of Samples	Average	Minimum	Maximum
Fluoride	mg/L	12	0.077	0.05	0.12
Haloacetic Acids	mg/L	4	0.017	0.012	0.021
Nitrate	mg/L	12	0.500	<0.5	<0.5
Nitrite	mg/L	12	0.050	<0.05	<0.05
Sodium	mg/L	3	11.375	11.4	13.2
Trihalomethanes	mg/L	6	0.015	0.0048	0.0298

*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 2019

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	0.00053	<0.0005	0.0006	0.01
Barium	3	mg/L	0.07700	0.0571	0.0924	1
Boron	3	mg/L	0.01277	0.0059	0.023	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
1,1-dichloroethylene (vinylidene chloride)	2	mg/L	0.0003	<0.0003	<0.0003
1,2-(o-dcb) Dichlorobenzene	2	mg/L	0.0001	<0.0001	<0.0001
1,2-Dichloroethane	2	mg/L	0.0001	<0.0001	<0.0001
1,4-(p-dcb) Dichlorobenzene	2	mg/L	0.0001	<0.0001	<0.0001
2-methyl-4-chlorophenoxyacetic acid	2	mg/L	0.0050	<0.005	<0.005
2,3,4,6-Tetrachlorophenol	2	mg/L	0.0005	<0.0005	<0.0005
2,4-Dichlorophenol	2	mg/L	0.0007	<0.0007	<0.0007
2,4-dichlorophenoxyacetic acid (2,4-D)	2	mg/L	0.0008	<0.0008	<0.0008
2,4,6-Trichlorophenol	2	mg/L	0.0005	<0.0005	<0.0005
Alachlor	2	mg/L	0.0004	<0.0004	<0.0004
Atrazine + N-dealkylated metabolites	2	mg/L	0.0002	<0.0002	<0.0002
Azinphos-methyl	2	mg/L	0.0003	<0.0003	<0.0003
Benzene	2	mg/L	0.0001	<0.0001	<0.0001
Benzo(a)pyrene	2	mg/L	0.0000	<0.00001	<0.00001
Bromoxynil	2	mg/L	0.0004	<0.0004	<0.0004
Carbaryl	2	mg/L	0.0030	<0.003	<0.003
Carbofuran	2	mg/L	0.0030	<0.003	<0.003
Carbon Tetrachloride	2	mg/L	0.0002	<0.0002	<0.0002
Chlorpyrifos	2	mg/L	0.0002	<0.0002	<0.0002
Diazinon	2	mg/L	0.0002	<0.0002	<0.0002
Dicamba	2	mg/L	0.0004	<0.0004	<0.0004
Dichloromethane	2	mg/L	0.0020	<0.002	<0.002
Diclofop-methyl	2	mg/L	0.0004	<0.0004	<0.0004
Dimethoate	2	mg/L	0.0003	<0.0003	<0.0003
Diquat	2	mg/L	0.0010	<0.001	<0.001
Diuron	2	mg/L	0.0030	<0.003	<0.003
Glyphosate	2	mg/L	0.0250	<0.025	<0.025
Malathion	2	mg/L	0.0002	<0.0002	<0.0002
Metolachlor	2	mg/L	0.0002	<0.0002	<0.0002
Metribuzin	2	mg/L	0.0003	<0.0003	<0.0003
Monochlorobenzene	2	mg/L	0.0001	<0.0001	<0.0001
Paraquat	2	mg/L	0.0010	<0.001	<0.001
Pentachlorophenol	2	mg/L	0.0004	<0.0004	<0.0004
Phorate	2	mg/L	0.0002	<0.0002	<0.0002
Picloram	2	mg/L	0.0007	<0.0007	<0.0007
Polychlorinated Biphenyls (PCBs)	2	mg/L	0.0000	<0.00002	<0.00002
Prometryne	2	mg/L	0.0002	<0.00019	<0.00019
Simazine	2	mg/L	0.0002	<0.0002	<0.0002
Terbufos	2	mg/L	0.0002	<0.0002	<0.0002
Tetrachloroethylene (perchloroethylene)	2	mg/L	0.0003	<0.0003	<0.0003
Triallate	2	mg/L	0.0040	<0.004	<0.004
Trichloroethylene	2	mg/L	0.0001	<0.0001	<0.0001
Trifluralin	2	mg/L	0.0000	<0.000006	<0.000006
Vinyl Chloride	2	mg/L	0.0002	<0.0002	<0.0002

2019 Annual Drinking Water System 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
Drinking Water System Category: Large Municipal Residential
Drinking Water System Classification: Water Treatment III
Reporting period: Jan 1, 2019 - Dec 31, 2019

The Georgina DWS serves approximately 8,224 people
(Population is a year-end forecasted estimate based on Statistics Canada census data, and building permits)

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

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.

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

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

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. 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
$63,121 for general maintenance and repairs.

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	Corrective Action	Corrective Action Date
Fluoride	18-Mar-19	2.0 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	18-Mar-19
	20-Jun-19	2.0 mg/L	Reported as due diligence. Operator attended site. Facility returned to normal operation. Compliant grab sample taken.	20-Jun-19

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	52	1
	Treated	52	0
Heterotrophic Plate Count	Treated	52	8
Total Coliforms	Raw	52	11
	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 (group)	Test Units	No. of Samples	Average	Minimum	Maximum
Fluoride	mg/L	8,760	0.68	0.20	2.00
Free Chlorine	mg/L	8,760	1.61	0.00	2.89
Turbidity (Raw)	NTU	8,760	0.23	0.00	9.04
Turbidity (Treated)	NTU	8,760	0.03	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	0.003	0	0.111
Haloacetic Acids	mg/L	4	0.025	0.019	0.036
Nitrate	mg/L	8	0.500	<0.5	<0.5
Nitrite	mg/L	8	0.050	<0.05	<0.05
Sodium	mg/L	2	31.600	31.4	31.8
Total Suspended Solids Backwash	NTU	8,760	2.036	0	200
Trihalomethanes	mg/L	25	0.035	0.0212	0.0563

*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	Sutton ET	10-Jul-19	mg/L	0.0563	0.100
		06-Aug-19	mg/L	0.0545	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	0.00060	0.0006	0.0006	0.01
Barium	2	mg/L	0.02455	0.0245	0.0246	1
Boron	2	mg/L	0.02160	0.0216	0.0216	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
1,1-dichloroethylene (vinylidene chloride)	1	mg/L	0.0003	<0.0003	<0.0003
1,2-(o-dcb) Dichlorobenzene	1	mg/L	0.0001	<0.0001	<0.0001
1,2-Dichloroethane	1	mg/L	0.0001	<0.0001	<0.0001
1,4-(p-dcb) Dichlorobenzene	1	mg/L	0.0001	<0.0001	<0.0001
2-methyl-4-chlorophenoxyacetic acid	1	mg/L	0.0050	<0.005	<0.005
2,3,4,6-Tetrachlorophenol	1	mg/L	0.0005	<0.0005	<0.0005
2,4-Dichlorophenol	1	mg/L	0.0007	<0.0007	<0.0007
2,4-dichlorophenoxyacetic acid (2,4-D)	1	mg/L	0.0008	<0.0008	<0.0008
2,4,6-Trichlorophenol	1	mg/L	0.0005	<0.0005	<0.0005
Alachlor	1	mg/L	0.0004	<0.0004	<0.0004
Atrazine + N-dealkylated metabolites	1	mg/L	0.0002	<0.0002	<0.0002
Azinphos-methyl	1	mg/L	0.0003	<0.0003	<0.0003
Benzene	1	mg/L	0.0001	<0.0001	<0.0001
Benzo(a)pyrene	1	mg/L	0.0000	<0.00001	<0.00001
Bromoxynil	1	mg/L	0.0004	<0.0004	<0.0004
Carbaryl	1	mg/L	0.0030	<0.003	<0.003
Carbofuran	1	mg/L	0.0030	<0.003	<0.003
Carbon Tetrachloride	1	mg/L	0.0002	<0.0002	<0.0002
Chlorpyrifos	1	mg/L	0.0002	<0.0002	<0.0002
Diazinon	1	mg/L	0.0002	<0.0002	<0.0002
Dicamba	1	mg/L	0.0004	<0.0004	<0.0004
Dichloromethane	1	mg/L	0.0020	<0.002	<0.002
Diclofop-methyl	1	mg/L	0.0004	<0.0004	<0.0004
Dimethoate	1	mg/L	0.0003	<0.0003	<0.0003
Diquat	1	mg/L	0.0010	<0.001	<0.001
Diuron	1	mg/L	0.0030	<0.003	<0.003
Glyphosate	1	mg/L	0.0250	<0.025	<0.025
Malathion	1	mg/L	0.0002	<0.0002	<0.0002
Metolachlor	1	mg/L	0.0002	<0.0002	<0.0002
Metribuzin	1	mg/L	0.0003	<0.0003	<0.0003
Monochlorobenzene	1	mg/L	0.0001	<0.0001	<0.0001
Paraquat	1	mg/L	0.0010	<0.001	<0.001
Pentachlorophenol	1	mg/L	0.0004	<0.0004	<0.0004
Phorate	1	mg/L	0.0002	<0.0002	<0.0002
Picloram	1	mg/L	0.0007	<0.0007	<0.0007
Polychlorinated Biphenyls (PCBs)	1	mg/L	0.0000	<0.00002	<0.00002
Prometryne	1	mg/L	0.0002	<0.0002	<0.0002
Simazine	1	mg/L	0.0002	<0.0002	<0.0002
Terbufos	1	mg/L	0.0002	<0.0002	<0.0002
Tetrachloroethylene (perchloroethylene)	1	mg/L	0.0003	<0.0003	<0.0003
Triallate	1	mg/L	0.0040	<0.004	<0.004
Trichloroethylene	1	mg/L	0.0001	<0.0001	<0.0001
Trifluralin	1	mg/L	0.0000	<0.000006	<0.000006
Vinyl Chloride	1	mg/L	0.0002	<0.0002	<0.0002

2019 Annual Drinking Water System 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
Drinking Water System Category: Large Municipal Residential
Drinking Water System Classification: Water Distribution and Supply III
Reporting period: Jan 1, 2019 - Dec 31, 2019

The Holland Landing DWS serves approximately 9,740 people
(Population is a year-end forecasted estimate based on Statistics Canada census data, and building permits)

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

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.

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

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

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
Blended - Lake and 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
$106,048 for well rehabilitation and pump maintenance, pumping station upgrades, general maintenance and repairs.

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	Corrective Action	Corrective Action Date
Chlorine Residual	23-Jul-19	6.36 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	23-Jul-19
Total coliform	05-Jun-19	Present Unitless	Operator attended site. Resample taken. Resample result non-detectable for total coliform.	07-Jun-19
	26-Jun-19	Present Unitless	Operator attended site. Resample taken. Resample result non-detectable for total coliform.	28-Jun-19

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	107	0
	Treated	106	0
Heterotrophic Plate Count	Treated	106	11
Total Coliforms	Raw	107	4
	Treated	106	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 (group)	Test Units	No. of Samples	Average	Minimum	Maximum
Combined Chlorine	mg/L	8,760	2.37	0.29	4.86
Turbidity (Treated)	NTU	8,760	0.05	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	0.209	0.18	0.23
Haloacetic Acids	mg/L	4	0.009	0.0081	0.0098
Nitrate	mg/L	12	0.395	<0.08	<0.5
Nitrite	mg/L	12	0.038	<0.003	<0.05
Sodium	mg/L	4	20.850	19.5	21.9
Trihalomethanes	mg/L	6	0.012	0.0068	0.0183

*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 2019

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	4	mg/L	0.00060	<0.0005	0.0007	0.006
Arsenic	4	mg/L	0.00050	<0.0005	<0.0005	0.01
Barium	4	mg/L	0.16300	0.141	0.182	1
Boron	4	mg/L	0.05440	0.0505	0.0595	5
Cadmium	4	mg/L	0.00050	<0.0005	<0.0005	0.005
Chromium	4	mg/L	0.00053	<0.0005	0.0006	0.05
Mercury	4	mg/L	0.00005	<0.00005	<0.00005	0.001
Selenium	4	mg/L	0.00050	<0.0005	<0.0005	0.05
Uranium	4	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
1,1-dichloroethylene (vinylidene chloride)	2	mg/L	0.0003	<0.0003	<0.0003
1,2-(o-dcb) Dichlorobenzene	2	mg/L	0.0001	<0.0001	<0.0001
1,2-Dichloroethane	2	mg/L	0.0001	<0.0001	<0.0001
1,4-(p-dcb) Dichlorobenzene	2	mg/L	0.0001	<0.0001	<0.0001
2-methyl-4-chlorophenoxyacetic acid	2	mg/L	0.0050	<0.005	<0.005
2,3,4,6-Tetrachlorophenol	2	mg/L	0.0005	<0.0005	<0.0005
2,4-Dichlorophenol	2	mg/L	0.0007	<0.0007	<0.0007
2,4-dichlorophenoxyacetic acid (2,4-D)	2	mg/L	0.0008	<0.0008	<0.0008
2,4,6-Trichlorophenol	2	mg/L	0.0005	<0.0005	<0.0005
Alachlor	2	mg/L	0.0004	<0.0004	<0.0004
Atrazine + N-dealkylated metabolites	2	mg/L	0.0002	<0.0002	<0.0002
Azinphos-methyl	2	mg/L	0.0003	<0.0003	<0.0003
Benzene	2	mg/L	0.0001	<0.0001	<0.0001
Benzo(a)pyrene	2	mg/L	0.0000	<0.00001	<0.00001
Bromoxynil	2	mg/L	0.0004	<0.0004	<0.0004
Carbaryl	2	mg/L	0.0030	<0.003	<0.003
Carbofuran	2	mg/L	0.0030	<0.003	<0.003
Carbon Tetrachloride	2	mg/L	0.0002	<0.0002	<0.0002
Chlorpyrifos	2	mg/L	0.0002	<0.0002	<0.0002
Diazinon	2	mg/L	0.0002	<0.0002	<0.0002
Dicamba	2	mg/L	0.0004	<0.0004	<0.0004
Dichloromethane	2	mg/L	0.0020	<0.002	<0.002
Diclofop-methyl	2	mg/L	0.0004	<0.0004	<0.0004
Dimethoate	2	mg/L	0.0003	<0.0003	<0.0003
Diquat	2	mg/L	0.0010	<0.001	<0.001
Diuron	2	mg/L	0.0030	<0.003	<0.003
Glyphosate	2	mg/L	0.0250	<0.025	<0.025
Malathion	2	mg/L	0.0002	<0.0002	<0.0002
Metolachlor	2	mg/L	0.0002	<0.0002	<0.0002
Metribuzin	2	mg/L	0.0003	<0.0003	<0.0003
Monochlorobenzene	2	mg/L	0.0001	<0.0001	<0.0001
Paraquat	2	mg/L	0.0010	<0.001	<0.001
Pentachlorophenol	2	mg/L	0.0004	<0.0004	<0.0004
Phorate	2	mg/L	0.0002	<0.0002	<0.0002
Picloram	2	mg/L	0.0007	<0.0007	<0.0007
Polychlorinated Biphenyls (PCBs)	2	mg/L	0.0000	<0.00002	<0.00002
Prometryne	2	mg/L	0.0002	<0.00019	<0.00019
Simazine	2	mg/L	0.0002	<0.0002	<0.0002
Terbufos	2	mg/L	0.0002	<0.0002	<0.0002
Tetrachloroethylene (perchloroethylene)	2	mg/L	0.0003	<0.0003	<0.0003
Triallate	2	mg/L	0.0040	<0.004	<0.004
Trichloroethylene	2	mg/L	0.0001	<0.0001	<0.0001
Trifluralin	2	mg/L	0.0000	<0.000006	<0.000006
Vinyl Chloride	2	mg/L	0.0002	<0.0002	<0.0002

2019 Annual Drinking Water System Quality Report for Keswick DWS

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: Keswick DWS
Drinking Water System Owner: The Regional Municipality of York
Drinking Water System Category: Large Municipal Residential
Drinking Water System Classification: Water Treatment III
Reporting period: Jan 1, 2019 - Dec 31, 2019

The Keswick DWS serves approximately 32,450 people
(Population is a year-end forecasted estimate based on Statistics Canada census data, and building permits)

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

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.

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

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

Description of the Keswick DWS

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. 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
$78,187 for general maintenance and repairs.

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	Corrective Action	Corrective Action Date
Fluoride	24-Jan-19	1.6 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	24-Jan-19
	13-Feb-19	1.65 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	13-Feb-19
	05-Dec-19	1.51 mg/L	Reported as due diligence. Operator attended site. Facility returned to normal operation. Compliant grab sample taken.	05-Dec-19

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	54	2
	Treated	52	0
Heterotrophic Plate Count	Treated	52	9
Total Coliforms	Raw	54	22
	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 (group)	Test Units	No. of Samples	Average	Minimum	Maximum
Fluoride	mg/L	8,760	0.68	0.20	1.65
Free Chlorine	mg/L	8,760	1.43	0.00	5.00
Turbidity (Raw)	NTU	8,760	0.53	0.10	25.00
Turbidity (Treated)	NTU	8,760	0.06	0.02	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	0.041	0.024	0.063
Nitrate	mg/L	12	0.500	<0.5	<0.5
Nitrite	mg/L	12	0.050	<0.05	<0.05
Sodium	mg/L	3	34.475	32.3	36.4
Total Suspended Solids Backwash	mg/L	12	14.708	1.2	87.8
Trihalomethanes	mg/L	37	0.045	0.0189	0.0886

*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	07-Jan-19	mg/L	0.0518	0.100
		04-Feb-19	mg/L	0.0508	0.100
		08-Apr-19	mg/L	0.0559	0.100
		06-May-19	mg/L	0.0579	0.100
		05-Jun-19	mg/L	0.068	0.100
		10-Jul-19	mg/L	0.0727	0.100
		05-Aug-19	mg/L	0.0762	0.100
		02-Sep-19	mg/L	0.0804	0.100
		07-Oct-19	mg/L	0.0886	0.100
		06-Nov-19	mg/L	0.0666	0.100
		04-Dec-19	mg/L	0.0614	0.100
	Keswick Woodbine Elevated Tank	05-Jun-19	mg/L	0.0522	0.100
		10-Jul-19	mg/L	0.0584	0.100
		05-Aug-19	mg/L	0.0591	0.100
		02-Sep-19	mg/L	0.0614	0.100
		07-Oct-19	mg/L	0.0661	0.100
		06-Nov-19	mg/L	0.0512	0.100
	Keswick WTP Clearwell	01-Apr-19	mg/L	0.0578	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	0.00053	<0.0005	0.0006	0.01
Barium	3	mg/L	0.02680	0.0254	0.0293	1
Boron	3	mg/L	0.02290	0.0219	0.0245	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
1,1-dichloroethylene (vinylidene chloride)	1	mg/L	0.0003	<0.0003	<0.0003
1,2-(o-dcb) Dichlorobenzene	1	mg/L	0.0001	<0.0001	<0.0001
1,2-Dichloroethane	1	mg/L	0.0001	<0.0001	<0.0001
1,4-(p-dcb) Dichlorobenzene	1	mg/L	0.0001	<0.0001	<0.0001
2-methyl-4-chlorophenoxyacetic acid	1	mg/L	0.0050	<0.005	<0.005
2,3,4,6-Tetrachlorophenol	1	mg/L	0.0005	<0.0005	<0.0005
2,4-Dichlorophenol	1	mg/L	0.0007	<0.0007	<0.0007
2,4-dichlorophenoxyacetic acid (2,4-D)	1	mg/L	0.0008	<0.0008	<0.0008
2,4,6-Trichlorophenol	1	mg/L	0.0005	<0.0005	<0.0005
Alachlor	1	mg/L	0.0004	<0.0004	<0.0004
Atrazine + N-dealkylated metabolites	1	mg/L	0.0002	<0.0002	<0.0002
Azinphos-methyl	1	mg/L	0.0003	<0.0003	<0.0003
Benzene	1	mg/L	0.0001	<0.0001	<0.0001
Benzo(a)pyrene	1	mg/L	0.0000	<0.00001	<0.00001
Bromoxynil	1	mg/L	0.0004	<0.0004	<0.0004
Carbaryl	1	mg/L	0.0030	<0.003	<0.003
Carbofuran	1	mg/L	0.0030	<0.003	<0.003
Carbon Tetrachloride	1	mg/L	0.0002	<0.0002	<0.0002
Chlorpyrifos	1	mg/L	0.0002	<0.0002	<0.0002
Diazinon	1	mg/L	0.0002	<0.0002	<0.0002
Dicamba	1	mg/L	0.0004	<0.0004	<0.0004
Dichloromethane	1	mg/L	0.0020	<0.002	<0.002
Diclofop-methyl	1	mg/L	0.0004	<0.0004	<0.0004
Dimethoate	1	mg/L	0.0003	<0.0003	<0.0003
Diquat	1	mg/L	0.0010	<0.001	<0.001
Diuron	1	mg/L	0.0030	<0.003	<0.003
Glyphosate	1	mg/L	0.0250	<0.025	<0.025
Malathion	1	mg/L	0.0002	<0.0002	<0.0002
Metolachlor	1	mg/L	0.0002	<0.0002	<0.0002
Metribuzin	1	mg/L	0.0003	<0.0003	<0.0003
Monochlorobenzene	1	mg/L	0.0001	<0.0001	<0.0001
Paraquat	1	mg/L	0.0010	<0.001	<0.001
Pentachlorophenol	1	mg/L	0.0004	<0.0004	<0.0004
Phorate	1	mg/L	0.0002	<0.0002	<0.0002
Picloram	1	mg/L	0.0007	<0.0007	<0.0007
Polychlorinated Biphenyls (PCBs)	1	mg/L	0.0000	<0.00002	<0.00002
Prometryne	1	mg/L	0.0002	<0.00019	<0.00019
Simazine	1	mg/L	0.0002	<0.0002	<0.0002
Terbufos	1	mg/L	0.0002	<0.0002	<0.0002
Tetrachloroethylene (perchloroethylene)	1	mg/L	0.0003	<0.0003	<0.0003
Triallate	1	mg/L	0.0040	<0.004	<0.004
Trichloroethylene	1	mg/L	0.0001	<0.0001	<0.0001
Trifluralin	1	mg/L	0.0000	<0.000006	<0.000006
Vinyl Chloride	1	mg/L	0.0002	<0.0002	<0.0002

2019 Annual Drinking Water System 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
Drinking Water System Category: Large Municipal Residential
Drinking Water System Classification: Water Distribution and Supply II
Reporting period: Jan 1, 2019 - Dec 31, 2019

The King City DWS serves approximately 7,930 people
(Population is a year-end forecasted estimate based on Statistics Canada census data, and building permits)

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

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.

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

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

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, one pumping station, 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 2019, 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
$242,487 for elevated tank repairs and upgrades, control panel replacement, general maintenance and repairs.

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	Corrective Action	Corrective Action Date
Sodium	03-Apr-19	26.7 mg/L	Operator attended site. Resample taken.	08-Apr-19

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	106	0
Total Coliforms	Raw	106	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 (group)	Test Units	No. of Samples	Average	Minimum	Maximum
Combined Chlorine	mg/L	8,760	1.92	0.00	2.81
Turbidity (Raw)	NTU	8,760	0.11	0.04	4.35

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	0.596	0.51	0.7
Haloacetic Acids	mg/L	8	0.009	<0.008	0.011
Nitrate	mg/L	8	0.520	<0.5	0.58
Nitrite	mg/L	8	0.050	<0.05	<0.05
Sodium	mg/L	3	24.967	22.0	26.7
Trihalomethanes	mg/L	8	0.021	0.0132	0.0291

*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 2019

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	0.00095	0.0009	0.001	0.006
Arsenic	2	mg/L	0.00080	0.0008	0.0008	0.01
Barium	2	mg/L	0.02355	0.0235	0.0236	1
Boron	2	mg/L	0.02785	0.0278	0.0279	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.

2019 Annual Drinking Water System 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
Drinking Water System Category: Large Municipal Residential
Drinking Water System Classification: Water Distribution and Supply II
Reporting period: Jan 1, 2019 - Dec 31, 2019

The Kleinburg DWS serves approximately 7,670 people
(Population is a year-end forecasted estimate based on Statistics Canada census data, and building permits)

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

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.

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

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

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 2019, 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
$23,005 for general maintenance and repairs.

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	Corrective Action	Corrective Action Date
Chlorine Residual	30-Sep-19	4.05 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	02-Oct-19

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	106	0
Total Coliforms	Raw	106	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 (group)	Test Units	No. of Samples	Average	Minimum	Maximum
Combined Chlorine	mg/L	8,760	1.81	0.05	3.94
Turbidity (Treated)	NTU	8,760	0.05	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	4	0.635	0.57	0.69
Haloacetic Acids	mg/L	4	0.008	<0.008	0.0098
Nitrate	mg/L	4	0.525	<0.5	0.6
Nitrite	mg/L	4	0.050	<0.05	<0.05
Sodium	mg/L	1	21.800	21.8	21.8
Trihalomethanes	mg/L	4	0.020	0.0149	0.0288

*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 2019

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	0.00070	0.0007	0.0007	0.006
Arsenic	1	mg/L	0.00050	<0.0005	<0.0005	0.01
Barium	1	mg/L	0.26500	0.265	0.265	1
Boron	1	mg/L	0.11500	0.115	0.115	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

Not Applicable

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

2019 Annual Drinking Water System 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
Drinking Water System Category: Large Municipal Residential
Drinking Water System Classification: Water Distribution and Supply II
Reporting period: Jan 1, 2019 - Dec 31, 2019

The Mount Albert DWS serves approximately 5,532 people
(Population is a year-end forecasted estimate based on Statistics Canada census data, and building permits)

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

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.

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

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

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
$1,047,968 for standby generator replacement and upgrades, general maintenance and repairs.

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	Corrective Action	Corrective Action Date
Chlorine Residual	10-Mar-19	0.00 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	10-Mar-19

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	106	0
Heterotrophic Plate Count	Treated	106	20
Total Coliforms	Raw	157	0
	Treated	106	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 (group)	Test Units	No. of Samples	Average	Minimum	Maximum
Free Chlorine	mg/L	8,760	1.49	0.00	5.00
Turbidity (Treated)	NTU	8,760	0.08	0.00	5.13

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	0.054	<0.05	0.06
Haloacetic Acids	mg/L	4	0.008	<0.008	<0.008
Nitrate	mg/L	12	2.471	2.17	4.28
Nitrite	mg/L	12	0.050	<0.05	<0.05
Sodium	mg/L	3	11.800	10.1	13.5
Trihalomethanes	mg/L	6	0.011	0.0012	0.0224

*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 2019

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	0.05693	0.0519	0.0632	1
Boron	3	mg/L	0.00830	0.0073	0.0093	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	0.00387	<0.0005	0.0071	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
1,1-dichloroethylene (vinylidene chloride)	2	mg/L	0.0003	<0.0003	<0.0003
1,2-(o-dcb) Dichlorobenzene	2	mg/L	0.0001	<0.0001	<0.0001
1,2-Dichloroethane	2	mg/L	0.0001	<0.0001	<0.0001
1,4-(p-dcb) Dichlorobenzene	2	mg/L	0.0001	<0.0001	<0.0001
2-methyl-4-chlorophenoxyacetic acid	2	mg/L	0.0050	<0.005	<0.005
2,3,4,6-Tetrachlorophenol	2	mg/L	0.0005	<0.0005	<0.0005
2,4-Dichlorophenol	2	mg/L	0.0007	<0.0007	<0.0007
2,4-dichlorophenoxyacetic acid (2,4-D)	2	mg/L	0.0008	<0.0008	<0.0008
2,4,6-Trichlorophenol	2	mg/L	0.0005	<0.0005	<0.0005
Alachlor	2	mg/L	0.0004	<0.0004	<0.0004
Atrazine + N-dealkylated metabolites	2	mg/L	0.0002	<0.0002	<0.0002
Azinphos-methyl	2	mg/L	0.0003	<0.0003	<0.0003
Benzene	2	mg/L	0.0001	<0.0001	<0.0001
Benzo(a)pyrene	2	mg/L	0.0000	<0.00001	<0.00001
Bromoxynil	2	mg/L	0.0004	<0.0004	<0.0004
Carbaryl	2	mg/L	0.0030	<0.003	<0.003
Carbofuran	2	mg/L	0.0030	<0.003	<0.003
Carbon Tetrachloride	2	mg/L	0.0002	<0.0002	<0.0002
Chlorpyrifos	2	mg/L	0.0002	<0.0002	<0.0002
Diazinon	2	mg/L	0.0002	<0.0002	<0.0002
Dicamba	2	mg/L	0.0004	<0.0004	<0.0004
Dichloromethane	2	mg/L	0.0020	<0.002	<0.002
Diclofop-methyl	2	mg/L	0.0004	<0.0004	<0.0004
Dimethoate	2	mg/L	0.0003	<0.0003	<0.0003
Diquat	2	mg/L	0.0010	<0.001	<0.001
Diuron	2	mg/L	0.0030	<0.003	<0.003
Glyphosate	2	mg/L	0.0250	<0.025	<0.025
Malathion	2	mg/L	0.0002	<0.0002	<0.0002
Metolachlor	2	mg/L	0.0002	<0.0002	<0.0002
Metribuzin	2	mg/L	0.0003	<0.0003	<0.0003
Monochlorobenzene	2	mg/L	0.0001	<0.0001	<0.0001
Paraquat	2	mg/L	0.0010	<0.001	<0.001
Pentachlorophenol	2	mg/L	0.0004	<0.0004	<0.0004
Phorate	2	mg/L	0.0002	<0.0002	<0.0002
Picloram	2	mg/L	0.0007	<0.0007	<0.0007
Polychlorinated Biphenyls (PCBs)	2	mg/L	0.0000	<0.00002	<0.00002
Prometryne	2	mg/L	0.0002	<0.00019	<0.00019
Simazine	2	mg/L	0.0002	<0.0002	<0.0002
Terbufos	2	mg/L	0.0002	<0.0002	<0.0002
Tetrachloroethylene (perchloroethylene)	2	mg/L	0.0003	<0.0003	<0.0003
Triallate	2	mg/L	0.0040	<0.004	<0.004
Trichloroethylene	2	mg/L	0.0001	<0.0001	<0.0001
Trifluralin	2	mg/L	0.0000	<0.000006	<0.000006
Vinyl Chloride	2	mg/L	0.0002	<0.0002	<0.0002

2019 Annual Drinking Water System 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
Drinking Water System Category: Large Municipal Residential
Drinking Water System Classification: Water Distribution and Supply III
Reporting period: Jan 1, 2019 - Dec 31, 2019

The Newmarket DWS serves approximately 96,500 people
(Population is a year-end forecasted estimate based on Statistics Canada census data, and building permits)

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)

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.

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

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

Description of the Newmarket DWS

Introduction
The Town of Newmarket is located centrally in York Region. Groundwater from the Newmarket wells is blended 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
$405,698 for well rehabilitation and pump maintenance, elevated tank repairs and upgrades, water meter chamber upgrades, general maintenance and repairs.

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	Corrective Action	Corrective Action Date
Chlorine Residual	25-Jan-19	4.37 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	25-Jan-19
	22-Feb-19	4.03 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	22-Feb-19
	24-Feb-19	4.30 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	24-Feb-19
	09-Oct-19	4.14 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	09-Oct-19
	19-Nov-19	4.62 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	19-Nov-19
Primary Disinfection	24-Jan-19	0.03 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	24-Jan-19
	26-Jan-19	0.07 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	26-Jan-19
	28-Jan-19	0.03 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	28-Jan-19
System Pressure	19-Sep-19	< 20 PSI	Watermain break was repaired, disinfected, and flushed. Microbiological samples confirmed no contamination.	19-Sep-19

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	240	0
	Treated	104	0
Heterotrophic Plate Count	Treated	104	17
Total Coliforms	Raw	240	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 (group)	Test Units	No. of Samples	Average	Minimum	Maximum
Combined Chlorine	mg/L	8,760	2.47	0.00	4.92
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	60	0.295	0.15	0.67
Haloacetic Acids	mg/L	16	0.009	<0.008	0.011
Nitrate	mg/L	60	0.501	<0.5	0.57
Nitrite	mg/L	60	0.050	<0.05	<0.05
Sodium	mg/L	6	18.963	16.3	23.5
Trihalomethanes	mg/L	18	0.012	0.0056	0.0289

*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 2019

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	6	mg/L	0.00072	0.0006	0.0009	0.006
Arsenic	6	mg/L	0.00060	<0.0005	0.0008	0.01
Barium	6	mg/L	0.09013	0.0242	0.174	1
Boron	6	mg/L	0.03513	0.0289	0.0419	5
Cadmium	6	mg/L	0.00050	<0.0005	<0.0005	0.005
Chromium	6	mg/L	0.00050	<0.0005	<0.0005	0.05
Mercury	6	mg/L	0.00005	<0.00005	<0.00005	0.001
Selenium	6	mg/L	0.00050	<0.0005	<0.0005	0.05
Uranium	6	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
1,1-dichloroethylene (vinylidene chloride)	2	mg/L	0.0003	<0.0003	<0.0003
1,2-(o-dcb) Dichlorobenzene	2	mg/L	0.0001	<0.0001	<0.0001
1,2-Dichloroethane	2	mg/L	0.0001	<0.0001	<0.0001
1,4-(p-dcb) Dichlorobenzene	2	mg/L	0.0001	<0.0001	<0.0001
2-methyl-4-chlorophenoxyacetic acid	2	mg/L	0.0050	<0.005	<0.005
2,3,4,6-Tetrachlorophenol	2	mg/L	0.0005	<0.0005	<0.0005
2,4-Dichlorophenol	2	mg/L	0.0007	<0.0007	<0.0007
2,4-dichlorophenoxyacetic acid (2,4-D)	2	mg/L	0.0008	<0.0008	<0.0008
2,4,6-Trichlorophenol	2	mg/L	0.0005	<0.0005	<0.0005
Alachlor	2	mg/L	0.0004	<0.0004	<0.0004
Atrazine + N-dealkylated metabolites	2	mg/L	0.0002	<0.0002	<0.0002
Azinphos-methyl	2	mg/L	0.0003	<0.0003	<0.0003
Benzene	2	mg/L	0.0001	<0.0001	<0.0001
Benzo(a)pyrene	2	mg/L	0.0000	<0.00001	<0.00001
Bromoxynil	2	mg/L	0.0004	<0.0004	<0.0004
Carbaryl	2	mg/L	0.0030	<0.003	<0.003
Carbofuran	2	mg/L	0.0030	<0.003	<0.003
Carbon Tetrachloride	2	mg/L	0.0002	<0.0002	<0.0002
Chlorpyrifos	2	mg/L	0.0002	<0.0002	<0.0002
Diazinon	2	mg/L	0.0002	<0.0002	<0.0002
Dicamba	2	mg/L	0.0004	<0.0004	<0.0004
Dichloromethane	2	mg/L	0.0020	<0.002	<0.002
Diclofop-methyl	2	mg/L	0.0004	<0.0004	<0.0004
Dimethoate	2	mg/L	0.0003	<0.0003	<0.0003
Diquat	2	mg/L	0.0010	<0.001	<0.001
Diuron	2	mg/L	0.0030	<0.003	<0.003
Glyphosate	2	mg/L	0.0250	<0.025	<0.025
Malathion	2	mg/L	0.0002	<0.0002	<0.0002
Metolachlor	2	mg/L	0.0002	<0.0002	<0.0002
Metribuzin	2	mg/L	0.0003	<0.0003	<0.0003
Monochlorobenzene	2	mg/L	0.0001	<0.0001	<0.0001
Paraquat	2	mg/L	0.0010	<0.001	<0.001
Pentachlorophenol	2	mg/L	0.0004	<0.0004	<0.0004
Phorate	2	mg/L	0.0002	<0.0002	<0.0002
Picloram	2	mg/L	0.0007	<0.0007	<0.0007
Polychlorinated Biphenyls (PCBs)	2	mg/L	0.0000	<0.00002	<0.00002
Prometryne	2	mg/L	0.0002	<0.0002	<0.0002
Simazine	2	mg/L	0.0002	<0.0002	<0.0002
Terbufos	2	mg/L	0.0002	<0.0002	<0.0002
Tetrachloroethylene (perchloroethylene)	2	mg/L	0.0003	<0.0003	<0.0003
Triallate	2	mg/L	0.0040	<0.004	<0.004
Trichloroethylene	2	mg/L	0.0001	<0.0001	<0.0001
Trifluralin	2	mg/L	0.0000	<0.000006	<0.000006
Vinyl Chloride	2	mg/L	0.0002	<0.0002	<0.0002

2019 Annual Drinking Water System 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
Drinking Water System Category: Large Municipal Residential
Drinking Water System Classification: Water Distribution and Supply II
Reporting period: Jan 1, 2019 - Dec 31, 2019

The Nobleton DWS serves approximately 6,030 people
(Population is a year-end forecasted estimate based on Statistics Canada census data, and building permits)

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

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.

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

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

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
$57,658 for well rehabilitation and pump maintenance, general maintenance and repairs.

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 2019

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	150	0
	Treated	149	0
Heterotrophic Plate Count	Treated	149	29
Total Coliforms	Raw	150	0
	Treated	149	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 (group)	Test Units	No. of Samples	Average	Minimum	Maximum
Free Chlorine	mg/L	8,760	1.56	0.00	3.53
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	0.1	0.13
Haloacetic Acids	mg/L	8	0.010	<0.008	0.014
Nitrate	mg/L	20	0.395	<0.08	<0.5
Nitrite	mg/L	20	0.038	<0.003	<0.05
Sodium	mg/L	5	16.083	12.2	20.6
Trihalomethanes	mg/L	11	0.019	0.0071	0.0354

*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 2019

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	0.00058	<0.0005	0.0006	0.006
Arsenic	5	mg/L	0.00050	<0.0005	<0.0005	0.01
Barium	5	mg/L	0.20740	0.189	0.229	1
Boron	5	mg/L	0.03852	0.0317	0.0469	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
1,1-dichloroethylene (vinylidene chloride)	3	mg/L	0.0003	<0.0003	<0.0003
1,2-(o-dcb) Dichlorobenzene	3	mg/L	0.0001	<0.0001	<0.0001
1,2-Dichloroethane	3	mg/L	0.0001	<0.0001	<0.0001
1,4-(p-dcb) Dichlorobenzene	3	mg/L	0.0001	<0.0001	<0.0001
2-methyl-4-chlorophenoxyacetic acid	3	mg/L	0.0050	<0.005	<0.005
2,3,4,6-Tetrachlorophenol	3	mg/L	0.0005	<0.0005	<0.0005
2,4-Dichlorophenol	3	mg/L	0.0007	<0.0007	<0.0007
2,4-dichlorophenoxyacetic acid (2,4-D)	3	mg/L	0.0008	<0.0008	<0.0008
2,4,6-Trichlorophenol	3	mg/L	0.0005	<0.0005	<0.0005
Alachlor	3	mg/L	0.0004	<0.0004	<0.0004
Atrazine + N-dealkylated metabolites	3	mg/L	0.0002	<0.0002	<0.0002
Azinphos-methyl	3	mg/L	0.0003	<0.0003	<0.0003
Benzene	3	mg/L	0.0001	<0.0001	<0.0001
Benzo(a)pyrene	3	mg/L	0.0000	<0.00001	<0.00001
Bromoxynil	3	mg/L	0.0004	<0.0004	<0.0004
Carbaryl	3	mg/L	0.0030	<0.003	<0.003
Carbofuran	3	mg/L	0.0030	<0.003	<0.003
Carbon Tetrachloride	3	mg/L	0.0002	<0.0002	<0.0002
Chlorpyrifos	3	mg/L	0.0002	<0.0002	<0.0002
Diazinon	3	mg/L	0.0002	<0.0002	<0.0002
Dicamba	3	mg/L	0.0004	<0.0004	<0.0004
Dichloromethane	3	mg/L	0.0020	<0.002	<0.002
Diclofop-methyl	3	mg/L	0.0004	<0.0004	<0.0004
Dimethoate	3	mg/L	0.0003	<0.0003	<0.0003
Diquat	3	mg/L	0.0010	<0.001	<0.001
Diuron	3	mg/L	0.0030	<0.003	<0.003
Glyphosate	3	mg/L	0.0250	<0.025	<0.025
Malathion	3	mg/L	0.0002	<0.0002	<0.0002
Metolachlor	3	mg/L	0.0002	<0.0002	<0.0002
Metribuzin	3	mg/L	0.0003	<0.0003	<0.0003
Monochlorobenzene	3	mg/L	0.0001	<0.0001	<0.0001
Paraquat	3	mg/L	0.0010	<0.001	<0.001
Pentachlorophenol	3	mg/L	0.0004	<0.0004	<0.0004
Phorate	3	mg/L	0.0002	<0.0002	<0.0002
Picloram	3	mg/L	0.0007	<0.0007	<0.0007
Polychlorinated Biphenyls (PCBs)	3	mg/L	0.0000	<0.00002	<0.00002
Prometryne	3	mg/L	0.0002	<0.00019	<0.00019
Simazine	3	mg/L	0.0002	<0.0002	<0.0002
Terbufos	3	mg/L	0.0002	<0.0002	<0.0002
Tetrachloroethylene (perchloroethylene)	3	mg/L	0.0003	<0.0003	<0.0003
Triallate	3	mg/L	0.0040	<0.004	<0.004
Trichloroethylene	3	mg/L	0.0001	<0.0001	<0.0001
Trifluralin	3	mg/L	0.0000	<0.000006	<0.000006
Vinyl Chloride	3	mg/L	0.0002	<0.0002	<0.0002

2019 Annual Drinking Water System 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
Drinking Water System Category: Large Municipal Residential
Drinking Water System Classification: Water Distribution and Supply II, Water Treatment II
Reporting period: Jan 1, 2019 - Dec 31, 2019

The Schomberg DWS serves approximately 2,941 people
(Population is a year-end forecasted estimate based on Statistics Canada census data, and building permits)

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

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.

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

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

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
$98,789 for well rehabilitation and pump maintenance, general maintenance and repairs.

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	Corrective Action	Corrective Action Date
Chlorine Residual	27-Feb-19	3.08 mg/L	Operator attended site, restored facility to normal operation	27-Feb-19
	11-May-19	3.02 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	11-May-19
	14-May-19	3.16 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	15-May-19
	25-Jul-19	3.06 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	25-Jul-19
	24-Aug-19	3.03 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	27-Aug-19
	05-Oct-19	3.07 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	05-Oct-19
	10-Oct-19	3.10 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	10-Oct-19
	20-Nov-19	3.06 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	20-Nov-19

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	159	0
	Treated	53	0
Heterotrophic Plate Count	Treated	53	13
Total Coliforms	Raw	159	0
	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 (group)	Test Units	No. of Samples	Average	Minimum	Maximum
Combined Chlorine	mg/L	8,760	2.30	0.00	5.00
Turbidity (Treated)	NTU	8,760	0.17	0.05	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	7	0.154	0.15	0.16
Haloacetic Acids	mg/L	5	0.008	<0.008	0.0084
Nitrate	mg/L	7	0.508	<0.5	0.55
Nitrite	mg/L	7	0.580	0.31	0.86
Sodium	mg/L	2	20.100	19.7	20.5
Trihalomethanes	mg/L	6	0.004	0.0037	0.005

*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
Nitrite	Schomberg ET	13-May-19	mg/L	0.72	1.000
		15-Jul-19	mg/L	0.74	1.000
		14-Oct-19	mg/L	0.86	1.000

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	0.00055	<0.0005	0.0006	0.006
Arsenic	2	mg/L	0.00070	0.0007	0.0007	0.01
Barium	2	mg/L	0.12000	0.114	0.126	1
Boron	2	mg/L	0.06910	0.0681	0.0701	5
Cadmium	2	mg/L	0.00050	<0.0005	<0.0005	0.005
Chromium	2	mg/L	0.00055	<0.0005	0.0006	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
1,1-dichloroethylene (vinylidene chloride)	1	mg/L	0.0003	<0.0003	<0.0003
1,2-(o-dcb) Dichlorobenzene	1	mg/L	0.0001	<0.0001	<0.0001
1,2-Dichloroethane	1	mg/L	0.0001	<0.0001	<0.0001
1,4-(p-dcb) Dichlorobenzene	1	mg/L	0.0001	<0.0001	<0.0001
2-methyl-4-chlorophenoxyacetic acid	1	mg/L	0.0050	<0.005	<0.005
2,3,4,6-Tetrachlorophenol	1	mg/L	0.0005	<0.0005	<0.0005
2,4-Dichlorophenol	1	mg/L	0.0007	<0.0007	<0.0007
2,4-dichlorophenoxyacetic acid (2,4-D)	1	mg/L	0.0008	<0.0008	<0.0008
2,4,6-Trichlorophenol	1	mg/L	0.0005	<0.0005	<0.0005
Alachlor	1	mg/L	0.0004	<0.0004	<0.0004
Atrazine + N-dealkylated metabolites	1	mg/L	0.0002	<0.0002	<0.0002
Azinphos-methyl	1	mg/L	0.0003	<0.0003	<0.0003
Benzene	1	mg/L	0.0001	<0.0001	<0.0001
Benzo(a)pyrene	1	mg/L	0.0000	<0.00001	<0.00001
Bromoxynil	1	mg/L	0.0004	<0.0004	<0.0004
Carbaryl	1	mg/L	0.0030	<0.003	<0.003
Carbofuran	1	mg/L	0.0030	<0.003	<0.003
Carbon Tetrachloride	1	mg/L	0.0002	<0.0002	<0.0002
Chlorpyrifos	1	mg/L	0.0002	<0.0002	<0.0002
Diazinon	1	mg/L	0.0002	<0.0002	<0.0002
Dicamba	1	mg/L	0.0004	<0.0004	<0.0004
Dichloromethane	1	mg/L	0.0020	<0.002	<0.002
Diclofop-methyl	1	mg/L	0.0004	<0.0004	<0.0004
Dimethoate	1	mg/L	0.0003	<0.0003	<0.0003
Diquat	1	mg/L	0.0010	<0.001	<0.001
Diuron	1	mg/L	0.0030	<0.003	<0.003
Glyphosate	1	mg/L	0.0250	<0.025	<0.025
Malathion	1	mg/L	0.0002	<0.0002	<0.0002
Metolachlor	1	mg/L	0.0002	<0.0002	<0.0002
Metribuzin	1	mg/L	0.0003	<0.0003	<0.0003
Monochlorobenzene	1	mg/L	0.0001	<0.0001	<0.0001
Paraquat	1	mg/L	0.0010	<0.001	<0.001
Pentachlorophenol	1	mg/L	0.0004	<0.0004	<0.0004
Phorate	1	mg/L	0.0002	<0.0002	<0.0002
Picloram	1	mg/L	0.0007	<0.0007	<0.0007
Polychlorinated Biphenyls (PCBs)	1	mg/L	0.0000	<0.00002	<0.00002
Prometryne	1	mg/L	0.0002	<0.0002	<0.0002
Simazine	1	mg/L	0.0002	<0.0002	<0.0002
Terbufos	1	mg/L	0.0002	<0.0002	<0.0002
Tetrachloroethylene (perchloroethylene)	1	mg/L	0.0003	<0.0003	<0.0003
Triallate	1	mg/L	0.0040	<0.004	<0.004
Trichloroethylene	1	mg/L	0.0001	<0.0001	<0.0001
Trifluralin	1	mg/L	0.0000	<0.000006	<0.000006
Vinyl Chloride	1	mg/L	0.0002	<0.0002	<0.0002

2019 Annual Drinking Water System 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
Drinking Water System Category: Large Municipal Residential
Drinking Water System Classification: Water Distribution and Supply III
Reporting period: Jan 1, 2019 - Dec 31, 2019

The Sharon/Queensville DWS serves approximately 4,700 people
(Population is a year-end forecasted estimate based on Statistics Canada census data, and building permits)

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)

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.

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

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

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
$8,081 for general maintenance and repairs.

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	Corrective Action	Corrective Action Date
Chlorine Residual	25-May-19	12.39 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	25-May-19

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	212	0
	Treated	106	0
Heterotrophic Plate Count	Treated	106	15
Total Coliforms	Raw	212	0
	Treated	106	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 (group)	Test Units	No. of Samples	Average	Minimum	Maximum
Combined Chlorine	mg/L	8,760	2.57	0.00	4.00
Turbidity (Treated)	NTU	8,760	0.07	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	12	0.200	0.18	0.22
Haloacetic Acids	mg/L	4	0.011	0.0092	0.012
Nitrate	mg/L	12	0.395	<0.08	<0.5
Nitrite	mg/L	12	0.038	<0.003	<0.05
Sodium	mg/L	3	19.800	19.1	21.8
Trihalomethanes	mg/L	6	0.016	0.0132	0.0184

*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 2019

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	0.00063	0.0006	0.0007	0.006
Arsenic	3	mg/L	0.00053	<0.0005	0.0006	0.01
Barium	3	mg/L	0.15033	0.144	0.155	1
Boron	3	mg/L	0.04783	0.0441	0.0535	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
1,1-dichloroethylene (vinylidene chloride)	2	mg/L	0.0003	<0.0003	<0.0003
1,2-(o-dcb) Dichlorobenzene	2	mg/L	0.0001	<0.0001	<0.0001
1,2-Dichloroethane	2	mg/L	0.0001	<0.0001	<0.0001
1,4-(p-dcb) Dichlorobenzene	2	mg/L	0.0001	<0.0001	<0.0001
2-methyl-4-chlorophenoxyacetic acid	2	mg/L	0.0050	<0.005	<0.005
2,3,4,6-Tetrachlorophenol	2	mg/L	0.0005	<0.0005	<0.0005
2,4-Dichlorophenol	2	mg/L	0.0007	<0.0007	<0.0007
2,4-dichlorophenoxyacetic acid (2,4-D)	2	mg/L	0.0008	<0.0008	<0.0008
2,4,6-Trichlorophenol	2	mg/L	0.0005	<0.0005	<0.0005
Alachlor	2	mg/L	0.0004	<0.0004	<0.0004
Atrazine + N-dealkylated metabolites	2	mg/L	0.0002	<0.0002	<0.0002
Azinphos-methyl	2	mg/L	0.0003	<0.0003	<0.0003
Benzene	2	mg/L	0.0001	<0.0001	<0.0001
Benzo(a)pyrene	2	mg/L	0.0000	<0.00001	<0.00001
Bromoxynil	2	mg/L	0.0004	<0.0004	<0.0004
Carbaryl	2	mg/L	0.0030	<0.003	<0.003
Carbofuran	2	mg/L	0.0030	<0.003	<0.003
Carbon Tetrachloride	2	mg/L	0.0002	<0.0002	<0.0002
Chlorpyrifos	2	mg/L	0.0002	<0.0002	<0.0002
Diazinon	2	mg/L	0.0002	<0.0002	<0.0002
Dicamba	2	mg/L	0.0004	<0.0004	<0.0004
Dichloromethane	2	mg/L	0.0020	<0.002	<0.002
Diclofop-methyl	2	mg/L	0.0004	<0.0004	<0.0004
Dimethoate	2	mg/L	0.0003	<0.0003	<0.0003
Diquat	2	mg/L	0.0010	<0.001	<0.001
Diuron	2	mg/L	0.0030	<0.003	<0.003
Glyphosate	2	mg/L	0.0250	<0.025	<0.025
Malathion	2	mg/L	0.0002	<0.0002	<0.0002
Metolachlor	2	mg/L	0.0002	<0.0002	<0.0002
Metribuzin	2	mg/L	0.0003	<0.0003	<0.0003
Monochlorobenzene	2	mg/L	0.0001	<0.0001	<0.0001
Paraquat	2	mg/L	0.0010	<0.001	<0.001
Pentachlorophenol	2	mg/L	0.0004	<0.0004	<0.0004
Phorate	2	mg/L	0.0002	<0.0002	<0.0002
Picloram	2	mg/L	0.0007	<0.0007	<0.0007
Polychlorinated Biphenyls (PCBs)	2	mg/L	0.0000	<0.00002	<0.00002
Prometryne	2	mg/L	0.0002	<0.00019	<0.00019
Simazine	2	mg/L	0.0002	<0.0002	<0.0002
Terbufos	2	mg/L	0.0002	<0.0002	<0.0002
Tetrachloroethylene (perchloroethylene)	2	mg/L	0.0003	<0.0003	<0.0003
Triallate	2	mg/L	0.0040	<0.004	<0.004
Trichloroethylene	2	mg/L	0.0001	<0.0001	<0.0001
Trifluralin	2	mg/L	0.0000	<0.000006	<0.000006
Vinyl Chloride	2	mg/L	0.0002	<0.0002	<0.0002

2019 Annual Drinking Water System 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
Drinking Water System Category: Large Municipal Residential
Drinking Water System Classification: Water Distribution and Supply III, Water Treatment I
Reporting period: Jan 1, 2019 - Dec 31, 2019

The Stouffville DWS serves approximately 30,746 people
(Population is a year-end forecasted estimate based on Statistics Canada census data, and building permits)

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

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.

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

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

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 (one booster station borders with York DWS). 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
$661,149 for well rehabilitation and pump maintenance, elevated tank re-coating and upgrades, system valve replacements, general maintenance and repairs.

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	Corrective Action	Corrective Action Date
Chlorine Residual	16-Mar-19	0.05 mg/L	Reported as due diligence. Operator attended site. Facility returned to normal operation. Compliant grab sample taken.	16-Mar-19

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	257	0
	Treated	159	0
Heterotrophic Plate Count	Treated	159	25
Total Coliforms	Raw	257	3
	Treated	159	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 (group)	Test Units	No. of Samples	Average	Minimum	Maximum
Free Chlorine	mg/L	8,760	1.48	0.00	5.00
Turbidity (Treated)	NTU	8,760	0.07	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	38	0.101	0.07	0.32
Haloacetic Acids	mg/L	12	0.010	<0.008	0.017
Nitrate	mg/L	38	0.792	<0.5	2.31
Nitrite	mg/L	38	0.050	<0.05	<0.05
Sodium	mg/L	5	42.483	25.9	61.2
Trihalomethanes	mg/L	16	0.015	0.0013	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 Stouffville DWS during 2019

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	0.00058	<0.0005	0.0007	0.006
Arsenic	5	mg/L	0.00050	<0.0005	<0.0005	0.01
Barium	5	mg/L	0.12292	0.0946	0.135	1
Boron	5	mg/L	0.02608	0.0135	0.0501	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	0.00190	<0.0005	0.0029	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
1,1-dichloroethylene (vinylidene chloride)	3	mg/L	0.0003	<0.0003	<0.0003
1,2-(o-dcb) Dichlorobenzene	3	mg/L	0.0001	<0.0001	<0.0001
1,2-Dichloroethane	3	mg/L	0.0001	<0.0001	<0.0001
1,4-(p-dcb) Dichlorobenzene	3	mg/L	0.0001	<0.0001	<0.0001
2-methyl-4-chlorophenoxyacetic acid	3	mg/L	0.0050	<0.005	<0.005
2,3,4,6-Tetrachlorophenol	3	mg/L	0.0005	<0.0005	<0.0005
2,4-Dichlorophenol	3	mg/L	0.0007	<0.0007	<0.0007
2,4-dichlorophenoxyacetic acid (2,4-D)	3	mg/L	0.0008	<0.0008	<0.0008
2,4,6-Trichlorophenol	3	mg/L	0.0005	<0.0005	<0.0005
Alachlor	3	mg/L	0.0004	<0.0004	<0.0004
Atrazine + N-dealkylated metabolites	3	mg/L	0.0002	<0.0002	<0.0002
Azinphos-methyl	3	mg/L	0.0003	<0.0003	<0.0003
Benzene	3	mg/L	0.0001	<0.0001	<0.0001
Benzo(a)pyrene	3	mg/L	0.0000	<0.00001	<0.00001
Bromoxynil	3	mg/L	0.0004	<0.0004	<0.0004
Carbaryl	3	mg/L	0.0030	<0.003	<0.003
Carbofuran	3	mg/L	0.0030	<0.003	<0.003
Carbon Tetrachloride	3	mg/L	0.0002	<0.0002	<0.0002
Chlorpyrifos	3	mg/L	0.0002	<0.0002	<0.0002
Diazinon	3	mg/L	0.0002	<0.0002	<0.0002
Dicamba	3	mg/L	0.0004	<0.0004	<0.0004
Dichloromethane	3	mg/L	0.0020	<0.002	<0.002
Diclofop-methyl	3	mg/L	0.0004	<0.0004	<0.0004
Dimethoate	3	mg/L	0.0003	<0.0003	<0.0003
Diquat	3	mg/L	0.0010	<0.001	<0.001
Diuron	3	mg/L	0.0030	<0.003	<0.003
Glyphosate	3	mg/L	0.0250	<0.025	<0.025
Malathion	3	mg/L	0.0002	<0.0002	<0.0002
Metolachlor	3	mg/L	0.0002	<0.0002	<0.0002
Metribuzin	3	mg/L	0.0003	<0.0003	<0.0003
Monochlorobenzene	3	mg/L	0.0001	<0.0001	<0.0001
Paraquat	3	mg/L	0.0010	<0.001	<0.001
Pentachlorophenol	3	mg/L	0.0004	<0.0004	<0.0004
Phorate	3	mg/L	0.0002	<0.0002	<0.0002
Picloram	3	mg/L	0.0007	<0.0007	<0.0007
Polychlorinated Biphenyls (PCBs)	3	mg/L	0.0000	<0.00002	<0.00002
Prometryne	3	mg/L	0.0002	<0.00019	<0.0002
Simazine	3	mg/L	0.0002	<0.0002	<0.0002
Terbufos	3	mg/L	0.0002	<0.0002	<0.0002
Tetrachloroethylene (perchloroethylene)	3	mg/L	0.0003	<0.0003	<0.0003
Triallate	3	mg/L	0.0040	<0.004	<0.004
Trichloroethylene	3	mg/L	0.0001	<0.0001	<0.0001
Trifluralin	3	mg/L	0.0000	<0.000006	<0.000006
Vinyl Chloride	3	mg/L	0.0002	<0.0002	<0.0002

2019 Annual Drinking Water System 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
Drinking Water System Category: Large Municipal Residential
Drinking Water System Classification: Water Distribution IV
Reporting period: Jan 1, 2019 - Dec 31, 2019

The York DWS serves approximately 894,230 people
(Population is a year-end forecasted estimate based on Statistics Canada census data, and building permits)

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)

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.

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

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

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
$10,771,462 for pump maintenance, emergency standby power generator, watermain and valve chamber rehabilitation and replacement, new watermain and service connections, control panel replacement, general maintenance and repairs.

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	Corrective Action	Corrective Action Date
Chlorine Residual	01-Jun-19	4.26 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	01-Jun-19
	26-Oct-19	3.17 mg/L	Operator attended site, restored facility to normal operation. Compliant grab sample taken.	26-Oct-19

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 (group)	Test Units	No. of Samples	Average	Minimum	Maximum
Combined Chlorine	mg/L	8,760	1.69	0.00	3.39

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

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Test Parameter	Test Units	No. of Samples	Average	Minimum	Maximum
Fluoride	mg/L	48	0.645	0.51	0.71
Haloacetic Acids	mg/L	48	0.008	<0.008	0.011
Nitrate	mg/L	48	0.508	<0.5	0.59
Nitrite	mg/L	48	0.050	<0.05	<0.05
Sodium	mg/L	12	21.608	18.2	25.7
Trihalomethanes	mg/L	48	0.018	0.0108	0.0298

*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 2019

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	0.00084	0.0008	0.0009	0.006
Arsenic	12	mg/L	0.00073	0.0006	0.0008	0.01
Barium	12	mg/L	0.02281	0.0218	0.0238	1
Boron	12	mg/L	0.02770	0.0264	0.0289	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 treatment facilities