

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

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

Drinking Water System Number: 220002440

Drinking Water System Name: Aurora DWS

Drinking Water System Owner: The Regional Municipality of York

DWS Category: Large Municipal Residential

Drinking Water System Classification: Water Distribution and Supply III

Reporting period: Jan 1, 2018 - Dec 31, 2018

The Aurora DWS serves approximately 62409 people

(Population is a year-end forecasted estimate based on Statscan census data, and building permits)

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

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

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

List all Drinking Water Systems which receive their drinking water from the Aurora DWS:

Town of Aurora Distribution System (260003227); Newmarket Distribution System (260003188)

A copy of York Region's annual report was provided to all Drinking Water System owners that are connected to and receive drinking water from York Region.

System users were notified that York Region's annual report is available free of charge by public access and notice through:

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

Description of the Aurora DWS

Introduction

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

Raw water source

Groundwater

Profile of water in distribution system

Blended - Lake and Groundwater

Water treatment description

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

List of water treatment chemicals used in this system

Chlorine Gas; Ammonia solution (Ammonium Sulphate); Sodium Silicate

Brief description and breakdown of monetary expenses incurred

\$2,187,288 for general maintenance and repair, groundwater treatment, pumping station and reservoir upgrade and distribution system maintenance.

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

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

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

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

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

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

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

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

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

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

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

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

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

Not Applicable
 There were no parameters that exceeded half the standard indicated above for the Aurora DWS during 2018

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

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

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

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

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

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