



2022 Annual Drinking Water System (DWS) Report Newmarket Drinking Water Distribution Subsystem

Prepared by the Town of Newmarket pursuant to Section 11 of O.Reg. 170/03

- **Drinking Water System Number:** 260003188
- **Drinking Water System Name:** Newmarket Drinking Water Distribution System
- **Drinking Water System Owner:** Town of Newmarket
- **System Category:** Large Municipal Residential
- **System Classification:** Water Distribution Class I
- **Reporting Period:** January 1st, 2022 – December 31st, 2022

The Newmarket Drinking Water Distribution System serves approximately 78,201 people

The Annual Report required under Section 11 of O.Reg. 170/03 is available for public review on or before February 28, 2023, on the Town's website at newmarket.ca/waterqualityreports and is also available upon request at the Newmarket Municipal Offices (395 Mulock Drive), and at the Robert N. Shelton Operations Centre (1275 Maple Hill Court).

Summary report required under O.Reg. 170/03 – Schedule 22, will be available for public review on or before March 31st, 2023, on the Town's website at newmarket.ca/waterqualityreports also available upon request at:

Town of Newmarket
Municipal Offices, Office of the Clerk (Legislative Services)
395 Mulock Drive, Newmarket, Ontario
L3Y 4Y9

and at

Town of Newmarket
Robert N. Shelton Operations Centre
1275 Maple Hill Court, Newmarket, Ontario
L3Y 9E8

List of Drinking Water Systems which receive some or all of their Drinking Water from the Newmarket Drinking Water Distribution System:

DWS #	DWS Name	Relationship to Newmarket DWS	Owner and Operating Authority
260001747	Holland Landing / Queensville / Sharon Distribution System	Receives water continuously from Newmarket Distribution System	Town of East Gwillimbury
260087685	Yonge-Green Lane Distribution System	Receives water continuously from Newmarket Distribution System	Town of East Gwillimbury

Description of the Newmarket Drinking Water Distribution System:

The Newmarket Drinking Water Distribution System is a Class I Water Distribution Subsystem and is a second-tier subsystem in the Regional Municipality of York’s two (2) tier Drinking Water Treatment / Distribution system, where the Region treats the raw water, and the individual Municipalities distribute the treated water.

The Town of Newmarket purchases water from York Region, who in turn purchases its water from the City of Toronto and Peel Region. York Region also operates and maintains groundwater wells located in the Yonge Street Aquifer that service the Town of Newmarket. The “integrated system” includes Newmarket’s local distribution watermains and York Region’s transmission watermains, pumping stations, storage facilities and groundwater treatment facilities. Treated water from the Region supply network is monitored by York Region staff through the Regional SCADA (Supervisory Control and Data Acquisition) system.

York Region is also responsible for producing annual drinking water quality reports. These can be viewed online on [York Region’s website](#).

The Newmarket Drinking Water Distribution System, which serves approximately 78,201 people is comprised of:

- 26,969 metered water services
- 2,758 mainline valves
- 2,285 municipally owned fire hydrants
- 318km municipally owned watermain
- 29 sample stations
- 5 permanent auto-flushers
- 1 permanent intelligent auto-flusher
- 6 anti-stagnation valves
- 6 air relief/vacuum relief combination valves
- 5 air release valves

- 4 pressure zones

List of all water treatment chemicals used over this reporting period;

Water treatment, and thus the addition of chemical treatment to the drinking water is the responsibility of York Region. Chlorine (Cl₂) is added to provide a burst of powerful primary disinfection, and Chloramines (NH₂Cl) are added to provide a secondary, weaker, yet much longer lasting bacterial disinfectant residual in the distribution system. Sodium Silicate (Na₂SiO₃) is added to sequester naturally occurring iron and manganese in the groundwater supplies associated with the York Region drinking water system(s).

Brief description and breakdown of monetary expenses incurred during this reporting period:

Project Type	Associated Costs
Water System Capital Improvements	\$1,000,000
Emergency Repairs	\$786,865.54
Cathodic Protection	\$300,308.80
Swabbing/Unidirectional Flushing	\$216,367.88
Hydrant Inspections	\$59,387.68

Notices submitted under Section 18(1) – Duty to Report Adverse Test Result, of the Safe Drinking Water Act (SDWA) or Schedule 16-4 of O.Reg. 170/03 and reported to the Spills Action Centre (SAC):

Incident Date	Parameter	Result (Present or Absent)	AWQI #	Corrective Action*	Resolution Date
04-Jan-22	Chlorine	0.07mg/L	157511	*Corrective actions for each incident listed, as performed by Town of Newmarket Water Operations Staff were performed fully in accordance with the regulatory requirements of the SDWA and its Regulations, including primarily O.Reg. 170/03 – Drinking Water Systems and O.Reg. 169/03 –	04-Jan-22
07-Feb-22	Chlorine	0.23mg/L	157775		07-Feb-22
22-Feb-22	Chlorine	0.23mg/L	157867		22-Feb-22
16-May-22	Chlorine	0.24mg/L	158378		16-May-22
24-May-22	Chlorine	0.21mg/L	158447		24-May-22
30-May-22	Chlorine	0.15mg/L	158513		30-May-22
06-Jun-22	Chlorine	0.18mg/L	158597		06-Jun-22
08-Jun-22	Chlorine	0.24mg/L	158620		08-Jun-22
13-Jun-22	Chlorine	0.23mg/L	158667		13-Jun-22
20-Jun-22	Chlorine	0.16mg/L	158752		20-Jun-22
22-Jun-22	Chlorine	0.21mg/L	158790		22-Jun-22
27-Jun-22	Chlorine	0.20mg/L	158866		27-Jun-22
28-Jun-22	Chlorine	0.20mg/L	158893		28-Jun-22
27-Jun-22	Total Coliform	Present	158900		01-Jul-22
04-Jul-22	Chlorine	0.22mg/L	158992		04-Jul-22
11-Jul-22	Chlorine	0.23mg/L	159081		11-Jul-22
18-Jul-22	Chlorine	0.21mg/L	159182		18-Jul-22

19-Jul-22	Chlorine	0.19mg/L	159190	Ontario Drinking Water Quality Standards.	19-Jul-22
19-Jul-22	Chlorine	0.13mg/L	159191		19-Jul-22
25-Jul-22	Chlorine	0.20mg/L	159261		25-Jul-22
27-Jul-22	Chlorine	0.07mg/L	159305		27-Jul-22
28-Jul-22	Chlorine	0.07mg/L	159329		28-Jul-22
02-Aug-22	Chlorine	0.17mg/L	159382		02-Aug-22
03-Aug-22	Chlorine	0.17mg/L	159399		03-Aug-22
04-Aug-22	Chlorine	0.09mg/L	159421		04-Aug-22
16-Aug-22	Chlorine	0.13mg/L	159563		16-Aug-22
18-Aug-22	Chlorine	0.23mg/L	159597		08-Aug-22
23-Aug-22	Chlorine	0.19mg/L	159670		23-Aug-22
25-Aug-22	Chlorine	0.16mg/L	159715		25-Aug-22
29-Aug-22	Chlorine	0.19mg/L	159754		29-Aug-22
29-Aug-22	Chlorine	0.17mg/L	159767		29-Aug-22
14-Sep-22	Chlorine	0.18mg/L	159974		14-Sep-22
14-Sep-22	Chlorine	0.21mg/L	159975		14-Sep-22
15-Sep-22	Chlorine	0.21mg/L	159988		15-Sep-22
19-Sep-22	Chlorine	0.22mg/L	160040		19-Sep-22
20-Sep-22	Chlorine	0.14mg/L	160051		20-Sep-22
27-Sep-22	Chlorine	0.21mg/L	160141		27-Sep-22
11-Oct-22	Chlorine	0.21mg/L	160288		11-Oct-22
13-Oct-22	Chlorine	0.22mg/L	160305		13-Oct-22
18-Oct-22	Chlorine	0.23mg/L	160349		18-Oct-22
26-Oct-22	Chlorine	0.12mg/L	160444		26-Oct-22
02-Nov-22	Chlorine	0.11mg/L	160530		02-Nov-22
09-Nov-22	Chlorine	0.17mg/L	160607		09-Nov-22
14-Nov-22	Chlorine	0.17mg/L	160652		14-Nov-22
14-Nov-22	Chlorine	0.22mg/L	160653		14-Nov-22
16-Nov-22	Chlorine	0.16mg/L	160676		16-Nov-22
21-Nov-22	Chlorine	0.18mg/L	160736		21-Nov-22
22-Nov-22	Chlorine	0.18mg/L	160761		22-Nov-22
24-Nov-22	Chlorine	0.16mg/L	160782		24-Nov-22
29-Nov-22	Chlorine	0.24mg/L	160828		29-Nov-22
06-Dec-22	Chlorine	0.22mg/L	160901		06-Dec-22
12-Dec-22	Chlorine	0.17mg/L	160942		12-Dec-22
13-Dec-22	Chlorine	0.19mg/L	160956		13-Dec-22
15-Dec-22	Chlorine	0.24mg/L	160981		15-Dec-22
19-Dec-22	Chlorine	0.24mg/L	161002		19-Dec-22
20-Dec-22	Chlorine	0.22mg/L	161010		20-Dec-22

There were fifty-five (55) adverse or potentially adverse water quality incidents in 2022. This is a significant decrease from the ninety-one (91) adverse or potentially adverse water quality incidents from the year prior in 2021.

One (1) AWQI was related to the presence of Total Coliform bacteria. The remedial action taken by Water Operations Staff included flushing and resampling the affected

area. The re-samples taken were returned negative for the presence of Total Coliforms by the York-Durham Regional Environmental Laboratory, indicating the initial positive result was that of secondary contamination.

Microbiological testing completed under Schedule 10 – Microbiological Sampling and Testing (Large Municipal Residential) of O.Reg. 170/03:

	# of Samples	Range of E.Coli or Fecal Results (min#) to (max#)	Range of Total Coliform (TC) Results (min#) to (max#)	# of HPC (Heterotrophic Plate Count) Samples	Range of HPC Results (min#) to (max#)
Raw	N/A	N/A	N/A	N/A	N/A
Treated	N/A	N/A	N/A	N/A	N/A
Distribution	1382	0 “Present” samples	1 “Present” sample	690	0 CFU – 15 CFU

Operational testing completed under Schedule 7 – Operational Checks of O.Reg. 170/03 during the period covered by this annual report:

	# of Grab Samples	Range of Results (min#) to (max#)	Unit of Measure
Chlorine	4353	0.07 to 3.30	mg/L

Summary of additional testing and sampling carried out in accordance with the requirement of an approval, order, or other legal instrument:

Date of Legal Instrument Issued	Parameter	Date Sampled	Result	Unit of Measure
N/A	N/A	N/A	N/A	N/A

Summary of testing pursuant to Schedule 13 – Chemical Sampling of O.Reg. 170/03 during this reporting period:

	Date of Sample(s)	Running Annual Average (µg/L)	Ontario Drinking Water Quality Standard (ODWS) Regulatory Limit	Exceedance
Organics				

	Date of Sample(s)	Running Annual Average (µg/L)	Ontario Drinking Water Quality Standard (ODWS) Regulatory Limit	Exceedance
Trihalomethanes (THM's)	24-Jan-2023 25-Apr-2023 25-Jul-2023 24-Oct-2023 <i>*Four (4) samples are taken per quarter, therefore 16 THM samples taken in 2022</i>	Q4 RAA 14.8 µg/L	100 µg/L	N/A
Haloacetic Acids (HAA's)	21-Mar-2023 13-Jun-2023 12-Sep-2023 05-Dec-2023 <i>*Four (4) samples are taken per quarter, therefore 16 HAA samples taken in 2022</i>	Q4 RAA 8.1 µg/L	80 µg/L	N/A
Inorganics				
Nitrate * (NO ₃ ⁻) as N	-	-	10 mg/L	-
Nitrite * (NO ₂ ⁻) as N	367* <i>*The Town sampled for Nitrites 367 times through 2022</i>	Q4 RAA 0.015 mg/L	1 mg/L	N/A
Sodium (Na)	Laboratory Samples: 29	Range 14.0 – 26.5 mg/L	20 mg/L	Yes* <i>*Non reportable</i>

	Date of Sample(s)	Running Annual Average (µg/L)	Ontario Drinking Water Quality Standard (ODWS) Regulatory Limit	Exceedance
				<i>under S.18 SDWA, six (6) exceedances</i>
Fluoride (F)	Laboratory Samples: 29 Enhanced Local Distribution: 189	Range 0.033 – 0.729 mg/L	1.5 mg/L	N/A
	<p><i>*Refer to Regional Municipality of York Annual Report</i></p> <p><i>O.Reg. 170/03 requires these parameters be tested at the point where water enters the distribution system. As a second tier municipality in a two tier system, the Town of Newmarket relies on the “upper tier” Region of York to undertake this sampling and testing protocol as the water leaves the Regional Treatment Plants. As part of the Towns due diligence, these parameters can also be sampled and tested by the Town, and thus each sample taken for Nitrites, Sodium and Fluoride is taken over and above the regulatory requirements.</i></p>			

Summary of testing under Schedule 15.1 – Lead of O.Reg. 170/03 during this reporting period:

Location Type	# of Samples	Range of Lead Results (min#) to (max#)	Unit of Measure	# of Exceedances
Plumbing	N/A	N/A	mg/L	N/A
Distribution	18* *Nine (9) samples taken on 13-Mar-2023 Nine (9) samples taken	Not Detected - <0.0005* *All lead sample testing results received in this reporting period were well below the York-Durham Regional	mg/L	N/A

	on 08-Aug-2023	Environmental Laboratory instruments detectable range		
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Note: The Town of Newmarket possesses Lead Regulatory Relief under Schedule D of Municipal Drinking Water (MDWL) License 124-101; and is only required to sample eight (8) points in our respective distribution system during each of the sampling periods identified within O.Reg 170/03. All other lead sampling that is completed is above the requirements stipulated in the above referenced MDWL and is done at the sole discretion of the Town.

Summary of Inorganics tested under Schedule 23 – Inorganic Parameters of O.Reg. 170/03:

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Antimony Arsenic Barium Boron Cadmium Chromium Mercury Selenium Sodium Uranium Fluoride	<i>*Refer to Regional Municipality of York Annual Report</i>			
	<i>O.Reg. 170/03 requires these parameters be tested at the point where water enters the distribution system. As a second tier municipality in a two tier system, the Town of Newmarket relies on the “upper tier” Region of York to undertake this sampling and testing protocol as the water leaves the Regional Treatment Plants.</i>			
Lead	<i>*see above table; Summary of testing under Schedule 15.1 - Lead</i>			

Summary of Organics tested under Schedule 24 – Organic Parameters of O.Reg. 170/03:

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Alachlor Aldicarb Aldrin + Dieldrin Atrazine + N-dealkylated metabolites Azinphos-methyl Bendiocarb Benzene Benzo(a)pyrene	<i>*Refer to Regional Municipality of York Annual Report</i>			
	<i>O.Reg. 170/03 requires these parameters be tested at the point where water enters the distribution system. As a second tier municipality in a two tier system, the Town of Newmarket relies on the “upper tier”</i>			

Bromoxynil
Carbaryl
Carbofuran
Carbon Tetrachloride
Chlordane (Total)
Chlorpyrifos
Cyanazine
Diazinon
Dicamba
1,2-Dichlorobenzene
1,4-Dichlorobenzene
Dichlorodiphenyltrichloroethane
(DDT) + metab.
1,2-Dichloroethane
1,1-Dichloroethylene
(vinylidene chloride)
Dichloromethane
2,4 Dichlorophenol
2,4-Dichlorophenoxy acetic acid (2,4-D)
Diclofop-methyl
Dimethoate
Dinoseb
Diquat
Diuron
Glyphosate
Heptachlor + Heptachlor Epoxide
Lindane (Total)
Malathion
Methoxychlor
Metolachlor
Metribuzin
Monochlorobenzene
Paraquat
Parathion
Pentachlorophenol
Phorate
Picloram
Polychlorinated Biphenyls(PCB)
Prometryne
Simazine
THM
Temephos
Terbufos
Tetrachloroethylene
2,3,4,6-Tetrachlorophenol

Region of York to undertake this sampling and testing protocol as the water leaves the Regional Treatment Plants.

Triallate Trichloroethylene 2,4,6-Trichlorophenol 2,4,5-Trichlorophenoxy acetic acid (2,4,5-T) Trifluralin Vinyl Chloride	
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Organic and Inorganic parameters that exceeded half the standard prescribed in Schedule 2 – Chemical Standards of O.Reg. 169/03:

	Date of Sample	Running Annual Average (µg/L)	Value exceeds over ½ prescribed regulatory standard (ODWS)
THM	N/A <i>*There were no parameters that exceeded ½ of the prescribed Max RAA</i>	100 µg/L	No
HAA	N/A <i>*There were no parameters that exceeded ½ of the prescribed Max RAA</i>	80 µg/L	No