



# **O.Reg.170/03 - Section 11; 2023 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 1<sup>st</sup>, 2023 – December 31<sup>st</sup>, 2023

**The Newmarket Drinking Water Distribution System serves approximately 81,285 people**

**The Annual Report required under Section 11 of O.Reg. 170/03 is available for public review on or before February 29<sup>th</sup>, 2024, on the Town's website at: <https://www.newmarket.ca/waterqualityreports>, 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 31<sup>st</sup>, 2023, on the Town's website at: <https://www.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

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

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

### **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 at their website.](#)**

**The Newmarket Drinking Water Distribution System, which serves approximately 81,285 people is comprised of;**

- 27,095 metered water services
- 2,761 mainline valves
- 2,370 municipally owned fire hydrants
- 318km municipally owned watermain
- 30 sample stations
- 7 permanent auto-flushers
- 2 permanent intelligent auto-flusher
- 6 anti-stagnation valves
- 6 air relief/vacuum relief combination valves

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- 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 (Cl<sub>2</sub>) is added to provide a burst of powerful primary disinfection, and Chloramines (NH<sub>2</sub>Cl) are added to provide a secondary, weaker, yet much longer lasting bacterial disinfectant residual in the distribution system. Sodium Silicate (Na<sub>2</sub>SiO<sub>3</sub>) 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
<i>Water System Capital Improvements</i>	<i>\$5,100,000</i>
<i>Emergency Repairs</i>	<i>\$917,928.04</i>
<i>Swabbing/Unidirectional Flushing</i>	<i>\$182,336.80</i>
<i>Hydrant Inspections</i>	<i>\$53,577.92</i>

### 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
09-Jan-23	Chlorine	0.07mg/L	161114	<i>*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 – Ontario Drinking</i>	09-Jan-23
16-Jan-23	Chlorine	0.21mg/L	161165		16-Jan-23
24-Jan-23	Chlorine	0.20mg/L	161216		24-Jan-23
30-Jan-23	Chlorine	0.21mg/L	161251		30-Jan-23
02-Feb-23	Operational	W/M Break	161279		07-Feb-23
23-Feb-23	Chlorine	0.22mg/L	161378		23-Feb-23
02-Mar-23	Chlorine	0.16mg/L	161410		02-Mar-23
08-Mar-23	Chlorine	0.19mg/L	161449		08-Mar-23
09-Mar-23	Chlorine	0.19mg/L	161456		09-Mar-23
13-Mar-23	Chlorine	0.21mg/L	161473		13-Mar-23
14-Mar-23	Chlorine	0.23mg/L	161484		14-Mar-23
21-Mar-23	Chlorine	0.22mg/L	161546		21-Mar-23
21-Mar-23	Chlorine	0.17mg/L	161595		21-Mar-23
03-Apr-23	Chlorine	0.19mg/L	161658		03-Apr-23
04-Apr-23	Chlorine	0.17mg/L	161663		04-Apr-23
06-Apr-23	Chlorine	0.22mg/L	161688		06-Apr-23
24-Apr-23	Chlorine	0.20mg/L	161806		24-Apr-23
25-Apr-23	Chlorine	0.18mg/L	161827		25-Apr-23



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Incident Date	Parameter	Result (Present or Absent)	AWQI #	Corrective Action*	Resolution Date
01-May-23	Chlorine	0.23mg/L	161868	<i>Water Quality Standards.</i>	01-May-23
03-May-23	Chlorine	0.21mg/L	161883		03-May-23
08-May-23	Chlorine	0.19mg/L	161909		08-May-23
24-May-23	Chlorine	0.20mg/L	162001		24-May-23
29-May-23	Chlorine	0.20mg/L	162025		29-May-23
30-May-23	Chlorine	0.17mg/L	162037		30-May-23
09-Jun-23	Chlorine	0.23mg/L	162152		09-Jun-23
12-Jun-23	Chlorine	0.14mg/L	162175		12-Jun-23
12-Jun-23	TC + EC	Presence	162206		12-Jun-23
15-Jun-23	Chlorine	0.16mg/L	162209		15-Jun-23
20-Jun-23	Chlorine	0.23mg/L	162239		20-Jun-23
20-Jun-23	Chlorine	0.10mg/L	162248		20-Jun-23
26-Jun-23	Chlorine	0.13mg/L	162309		26-Jun-23
26-Jun-23	Chlorine	0.15mg/L	162310		26-Jun-23
29-Jun-23	Chlorine	0.22mg/L	162356		29-Jun-23
04-Jul-23	Chlorine	0.15mg/L	162400		04-Jul-23
04-Jul-23	TC	Presence	162423		08-Jul-23
10-Jul-23	Chlorine	0.15mg/L	162499		10-Jul-23
10-Jul-23	Chlorine	0.17mg/L	162500		10-Jul-23
10-Jul-23	Chlorine	0.24mg/L	162504		10-Jul-23
13-Jul-23	Chlorine	0.21mg/L	162563		13-Jul-23
17-Jul-23	Chlorine	0.21mg/L	162607		17-Jul-23
17-Jul-23	Chlorine	0.23mg/L	162608		17-Jul-23
24-Jul-23	Chlorine	0.20mg/L	162741		24-Jul-23
25-Jul-23	Chlorine	0.12mg/L	162754		25-Jul-23
25-Jul-23	TC	Presence	162779		29-Jul-23
25-Jul-23	TC	Presence	162783		27-Jul-23
26-Jul-23	TC	Presence	162819		28-Jul-23
31-Jul-23	Chlorine	0.19mg/L	162846		31-Jul-23
31-Jul-23	Chlorine	0.17mg/L	162847		31-Jul-23
08-Aug-23	Chlorine	0.15mg/L	162953		08-Aug-23
08-Aug-23	Chlorine	0.19mg/L	162954		08-Aug-23
14-Aug-23	Chlorine	0.19mg/L	163017		14-Aug-23
21-Aug-23	Chlorine	0.22mg/L	163107		21-Aug-23
22-Aug-23	Chlorine	0.16mg/L	163128		22-Aug-23
23-Aug-23	Chlorine	0.19mg/L	163138		23-Aug-23
05-Sep-23	Chlorine	0.13mg/L	163292		05-Sep-23
11-Sep-23	Chlorine	0.17mg/L	163365		11-Sep-23
19-Sep-23	Chlorine	0.20mg/L	163514		19-Sep-23
20-Sep-23	Chlorine	0.14mg/L	163524		20-Sep-23
26-Sep-23	Chlorine	0.15mg/L	163611	26-Sep-23	

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Incident Date	Parameter	Result (Present or Absent)	AWQI #	Corrective Action*	Resolution Date
06-Oct-23	Chlorine	0.14mg/L	163733		06-Oct-23
10-Oct-23	Chlorine	0.16mg/L	163756		10-Oct-23
16-Oct-23	Chlorine	0.19mg/L	163806		16-Oct-23
23-Oct-23	Chlorine	0.23mg/L	163857		23-Oct-23
24-Oct-23	Chlorine	0.08mg/L	163869		24-Oct-23
30-Oct-23	Chlorine	0.16mg/L	163917		30-Oct-23
07-Nov-23	Chlorine	0.21mg/L	163986		07-Nov-23
20-Nov-23	Chlorine	0.23mg/L	164056		20-Nov-23
22-Nov-23	T.C	Presence	164074		27-Nov-23

There were sixty eight (68) adverse or potentially adverse water quality incidents in 2023. This is a small increase from the fifty five (55) adverse or potentially adverse water quality incidents from the year prior in 2022.

One (1) AWQI was related to the presence of Escherichia coli bacteria and Total Coliform bacteria. Five (5) AWQI were related to the presence of Total Coliform bacteria. The remedial action taken by Water Operations Staff included flushing and resampling the affected areas. The re-samples taken were returned negative for the presence of Escherichia coli and 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#)
<b>Raw</b>	N/A	N/A	N/A	N/A	N/A
<b>Treated</b>	N/A	N/A	N/A	N/A	N/A
<b>Distribution</b>	1386	1 "Present" sample	6 "Present" samples	318	0 CFU – 170 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
<b>Chlorine</b>	4138	0.05 to 3.72	mg/L

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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
<b>Organics</b>				
<b>Trihalomethanes (THM's)</b>	16-Jan-2023 17-Apr-2023 17-Jul-2023 16-Oct-2023  <i>*Four (4) samples are taken per quarter, therefore 16 THM samples taken in 2023</i>	<b>Q4 RAA</b> 14.33 µg/L	100 µg/L	<b>N/A</b>
<b>Haloacetic Acids (HAA's)</b>	16-Jan-2023 17-Apr-2023 17-Jul-2023 16-Oct-2023  <i>*Four (4) samples are taken per quarter, therefore 16 HAA samples taken in 2023</i>	<b>Q4 RAA</b> 8.05 µg/L	80 µg/L	<b>N/A</b>

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<b>Nitrosodimethylamine (NDMA)</b>	21-Mar-2023 12-Jun-2023 11-Sep-2023 11-Dec-2023  <i>*One (1) sample is taken per quarter, therefore 4 NDMA samples taken in 2023</i>	<b>Q4 RAA</b> <0.0008 µg/L	0.09 µg/L	<b>N/A</b>
<b>Inorganics</b>				
<b>Nitrate *</b> (NO <sub>3</sub> <sup>-</sup> ) as N	-	-	10 mg/L	-
<b>Nitrite *</b> (NO <sub>2</sub> <sup>-</sup> ) as N	<i>*The Town sampled for Nitrites 395 times through 2023</i>	<b>Q4 RAA</b> 0.0177 mg/L	1 mg/L	<b>N/A</b>
<b>Sodium (Na)</b>	Laboratory Samples: 39	<b>Range</b> 12.4 – 23.9 mg/L	20 mg/L	<b>Yes*</b>  <i>*Non reportable under S.18 SDWA, six (6) exceedances</i>
<b>Fluoride (F)</b>	<i>*Laboratory Samples: 66</i>  Enhanced Local Distribution: 105	<b>Range</b> 0.150 – 0.803 mg/L	1.5 mg/L	<b>N/A</b>
	<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. As part of the Towns</i>			



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	<i>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>
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**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
<b>Plumbing</b>	N/A	N/A	mg/L	N/A
<b>Distribution</b>	16*  *Eight (8) samples taken on 06-Mar-2023  Eight (8) samples taken on 05-Aug-2023	<0.0005 – 0.0011*  *All but one (1) lead sample testing results received in this reporting period were well below the York-Durham Regional Environmental Laboratory instruments detectable range	mg/L	N/A

**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.



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### 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>			
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 Bromoxynil Carbaryl Carbofuran Carbon Tetrachloride Chlordane (Total) Chlorpyrifos Cyanazine Diazinon Dicamba 1,2-Dichlorobenzene	<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>			

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<p>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 Triallate Trichloroethylene 2,4,6-Trichlorophenol 2,4,5-Trichlorophenoxy acetic acid (2,4,5-T) Trifluralin Vinyl Chloride</p>	
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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 exceed over ½ prescribed regulatory standard (ODWS)
<b>THM</b>	<b>N/A</b>  <i>*there were no parameters that exceeded ½ of the prescribed Max RAA</i>	100 µg/L	<b>No</b>
<b>HAA</b>	<b>N/A</b>  <i>*there were no parameters that exceeded ½ of the prescribed Max RAA</i>	80 µg/L	<b>No</b>