

Optional Annual Report Template

Drinking-Water System Number:	210000684
Drinking-Water System Name:	Bradford / Bondhead Drinking Water System
Drinking-Water System Owner:	The Corporation of the Town of Bradford West Gwillimbury
Drinking-Water System Category:	Water Distribution and Supply Subsystem Class 3, Large Municipal Residential System
Period being reported:	January 1 to December 31, 2021

<p><i>Complete if your Category is Large Municipal Residential or Small Municipal Residential</i></p> <p>Does your Drinking-Water System serve more than 10,000 people? Yes [X] No []</p> <p>Is your annual report available to the public at no charge on a web site on the Internet? Yes [X] No []</p> <p>Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> Town of Bradford West Gwillimbury Community Services 3541 Line 11 Bradford, ON P.O. Box 160 L3Z 2A8 </div>	<p><i>Complete for all other Categories.</i></p> <p>Number of Designated Facilities served:</p> <div style="border: 1px solid black; width: 100px; height: 20px; margin: 5px 0;"></div> <p>Did you provide a copy of your annual report to all Designated Facilities you serve? Yes [] No []</p> <p>Number of Interested Authorities you report to:</p> <div style="border: 1px solid black; width: 100px; height: 20px; margin: 5px 0;"></div> <p>Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility? Yes [] No []</p>
--	--

List all Drinking-Water Systems (if any), which receive all of their drinking water from your system:

Drinking Water System Name	Drinking Water System Number
None	N/A

Did you provide a copy of your annual report to all Drinking-Water System owners that are connected to you and to whom you provide all of its drinking water? Yes [] No []

Indicate how you notified system users that your annual report is available, and is free of charge.

- Public access/notice via the web**
- Public access/notice via Government Office**
- Public access/notice via a newspaper**
- Public access/notice via Public Request**
- Public access/notice via a Public Library**
- Public access/notice via other method**

Describe your Drinking-Water System

The Bradford/Bondhead drinking water system is categorized as a large municipal residential system. The system is classified as a Water Distribution and Supply Subsystem Class 3 and is operated under Drinking Water Works Permit No. 116-201 issued June 13, 2021, Municipal Drinking Water License No. 116-101 issued June 13, 2021 and a Permit to Take Water No. 2672-9G3PFY issued April 1, 2014. Additionally, the Drinking Water System conforms to and is accredited by the Drinking Water Quality Management Standard (DWQMS).

The Town's drinking water supply is provided by two (2) municipal wells, Church Well No.1 and Church Well No.2, and treated surface water provided by the Innisfil Lake Simcoe Water Filtration Plant (ILS WTP) located in the Town of Innisfil.

The distribution system is approximately 186.3 Kilometers in length. There are two (2) Standpipes positioned within the footprint of the Town. Each Standpipe has a booster pumping station and re-chlorination system. In addition to the standpipes, there is one (1) monitoring station located at the furthest point within the distribution system, one (1) Water Tower also equipped with a re-chlorination system and one (1) grade level reservoir that receives treated surface water from the ILS WTP. The Town is split up between two (2) Zones, Zone No.1 which is comprised of groundwater and Zone No. 2 which is mainly surface water supplied by the ILS WTP.

The Town's Supervisor Control and Data Acquisition (SCADA) system allows for remote access to the water facilities located across the Town. This provides operations personnel with the opportunity to monitor, control, historically trend, report, log totals and archive all available field parameters within the system.

The 2021 annual water consumption totaled 3,527,738 m³. The groundwater supply provided 1,140,758 m³, 32% of the total water usage; and the surface water supply accounted for the remaining 68%, totaling 2,386,981 m³. There were zero (0) reported water interference complaints registered with the Town during the reporting period.

The reported year-end serviced population for the drinking water system totaled approximately 35,118 which included both residential, and industrial, commercial, and institutional consumers.

List all water treatment chemicals used over this reporting period

Sodium Hypochlorite (as total litres)

WELLS:

Church Well No. 1 used a total of 15,009.27 litres (L).

Church Well No. 2 used a total of 52,014.27 litres (L).

DISTRIBUTION:

Standpipe No.1 Roy Storey Booster Station used a total of 2,522.85 litres (L).

Standpipe No. 2 Appi Sikkema Booster Station used a total of 1,394.10 kilograms (kg) of sodium hypochlorite.

John Fennell Reservoir & Re-chlorination Facility used a total of 312 kilograms (kg) of chlorine gas.

Were any significant expenses incurred to?

Install required equipment

Repair required equipment

Replace required equipment

Please provide a brief description and a breakdown of monetary expenses incurred.

Addition of a back-up generator at Church Wells	\$650,732
SCADA Upgrades	\$6,500
Replacement of chlorine analyzers at Bond Head water tower	\$12,000
Standpipe 2 interior coating	\$644,895
Gas Chlorination Upgrade John Fennell Reservoir	\$15,000
PLC Upgrade	\$30,248
Church well fence	\$29,319
Reservoir Hydro Service Upgrade	\$123,250

Provide details on the notices submitted in accordance with subsection 18(1) of the Safe Drinking-Water Act or section 16-4 of Schedule 16 of O.Reg.170/03 and reported to Spills Action Centre

Incident Date	AWQI No.	Location	Adverse Indicator	Corrective Action	Corrective Action Date	Cause of Adverse
March 31, 2021	153790	Church Well No. 2	Observation of Improperly disinfected water 0.12mg/L	-flushed, cleaned chlorine injector, confirmed residuals. -Notified SAC and MOH.	March 31, 2021	operational
September 22, 2021	155608	Bondhead Water Tower	Low distribution chlorine 0.03mg/L	-tower isolated, disinfection restored. -Notified SAC and MOH.	September 22, 2021	distribution chlorine
September 29, 2021	155739	Crossland Sample Station	Microbiological total coliform 24mg/L	-flushed, resampled upstream and downstream. -Notified SAC and MOH.	October 1, 2021	microbiological

Microbiological testing done under the Schedule 10, 11 or 12 of Regulation 170/03, during this reporting period.

Water Type	Number of Samples	Range of E.Coli or Fecal Results (min #)-(max #)	Range of Total Coliform Results (min #)-(max #) as cfu/100 ml	Number of HPC Samples (Background) as cfu/ml	Range of HPC Results (Background) (min #)-(max #)
Raw	102	0 to 1	0 to 48	Not applicable.	Not applicable.
Treated	101	0 to 0	0 to 0	101	0 to 10
Distribution	679	0 to 0	0 to 24	315	0 to 60

Operational testing done under Schedule 7, 8 or 9 of Regulation 170/03 during the period covered by this Annual Report.

	Number of Grab Samples	Range of Results (min #)-(max #)
Turbidity (NTU) Church Well 1 and Church Well 2	23	0.20 – 0.94
Chlorine residual in the Distribution System (mg/L)	8760	0.05 – 4.00
Fluoride (If the DWS provides fluoridation)	n/a	n/a

*NOTE: Record the unit of measure if it is not milligrams per litre.
 NOTE: For continuous monitors use 8760 as the number of samples.*

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 last Sampled	Result	Unit of Measure	Exceedance
Regulation 170/03 Schedule 15.1-5 reduced lead sampling program. Lead sampling to be completed every 36 months over two consecutive semi-annual periods. The system is exempt from lead sampling in plumbing.	Lead Standard: MAC 0.010	2021	0 to 0.00072	mg/L	NONE
		2009	<0.0006 to 0.0019	mg/L	NONE

RESIDENTIAL (64 samples) Distribution Alkalinity and pH every "winter" and "summer" period (December 15 to April 15 and June 15 to October 15).	Alkalinity aesthetic objective: 30 – 500 pH aesthetic objective: 6.5 – 8.5	2009	<0.0005 to 0.0079	mg/L	NONE
		February 18, 2020	110 to 140	mg/L	NONE
		Aug 19 2020	120 to 150	mg/L	NONE
		February 18, 2020	7.89 to 8.16	mg/L	NONE
		Aug 19 2020	7.12 to 8.23	mg/L	NONE

Summary of inorganic parameters tested during this reporting period or the most recent sample results

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
<i>ND=Not Detectable</i>				
Antimony WELLS:	Standard -	IMAC 0.006	mg/L	
Church 1	Nov 4, 21	ND	mg/L	NONE
Church 2	Nov 4, 21	ND	mg/L	
Arsenic WELLS:	Standard -	IMAC 0.01	mg/L	
Church 1	Nov 4, 21	ND	mg/L	NONE
Church 2	Nov 4, 21	ND	mg/L	
Barium WELLS:	Standard -	MAC 1	mg/L	
Church 1	Nov 4, 21	0.11	mg/L	NONE
Church 2	Nov 4, 21	0.13	mg/L	
Boron WELLS:	Standard -	IMAC 5	mg/L	
Church 1	Nov 4, 21	0.15	mg/L	NONE

Drinking-Water Systems Regulation O. Reg. 170/03

Church 2	Nov 4, 21	0.17	mg/L	
Cadmium WELLS:	Standard -	MAC 0.005	mg/L	
Church 1	Nov 4, 21	ND	mg/L	NONE
Church 2	Nov 4, 21	ND	mg/L	
Chromium WELLS:	Standard -	MAC 0.05	mg/L	
Church 1	Nov 4, 21	ND	mg/L	NONE
Church 2	Nov 4, 21	ND	mg/L	
Lead WELLS:	Standard -	MAC 0.010	mg/L	
Church 1	Feb 27, 13	ND	mg/L	NONE
Church 2	Feb 27, 13	ND	mg/L	
Mercury WELLS:	Standard -	MAC 0.001	mg/L	
Church 1	Nov 4, 21	ND	mg/L	NONE
Church 2	Nov 4, 21	ND	mg/L	
Selenium WELLS:	Standard -	MAC 0.01	mg/L	
Church 1	Nov 4, 21	ND	mg/L	NONE
Church 2	Nov 4, 21	ND	mg/L	
Sodium WELLS:	Standard -	20 AO 200	mg/L mg/L	
Church 1	Nov 4, 21	45	mg/L	NONE
Church 2	Nov 4, 21	46	mg/L	
Uranium WELLS:	Standard	MAC 0.02	mg/L	
Church 1	Nov 4, 21	ND	mg/L	NONE
Church 2	Nov 4, 21	ND	mg/L	
Fluoride WELLS:	Standard	MAC 1.5	mg/L	
Church 1	May 23,18	0.24	mg/L	NONE
Church 2	May 23,18	0.24	mg/L	
Nitrite	Standard	MAC 1.0	mg/L	

WELLS:				
Church 1	Nov 4, 21	ND	mg/L	NONE
Church 2	Nov 4, 21	ND	mg/L	
Nitrate WELLS:	Standard	MAC 1.0	mg/L	
Church 1	Nov 4, 21	ND	mg/L	NONE
Church 2	Nov 4, 21	ND	mg/L	

Summary of Organic parameters sampled during this reporting period or the most recent sample results.

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Benzene WELLS:	Standard -	MAC 0.001	mg/L	
Church 1	Nov 4, 21	ND	mg/L	NONE
Church 2	Nov 4, 21	ND	mg/L	
Benzo(a)pyrene WELLS:	Standard -	MAC 0.00001	mg/L	
Church 1	Nov 4, 21	ND	mg/L	NONE
Church 2	Nov 4, 21	ND	mg/L	
Bromoxynil WELLS:	Standard -	IMAC 0.005	mg/L	
Church 1	Nov 4, 21	ND	mg/L	NONE
Church 2	Nov 4, 21	ND	mg/L	
Carbaryl WELLS:	Standard -	MAC 0.090	mg/L	
Church 1	Nov 4, 21	ND	mg/L	NONE
Church 2	Nov 4, 21	ND	mg/L	
Carbofuran WELLS:	Standard -	MAC 0.090	mg/L	
Church 1	Nov 4, 21	ND	mg/L	NONE
Church 2	Nov 4, 21	ND	mg/L	
Carbon Tetrachloride WELLS:	Standard -	MAC 0.002	mg/L	

Church 1 Church 2	Nov 4, 21 Nov 4, 21	ND ND	mg/L mg/L	NONE
Chlorpyrifos WELLS:	Standard -	MAC 0.09	mg/L	
Church 1 Church 2	Nov 4, 21 Nov 4, 21	ND ND	mg/L mg/L	NONE
Diazinon WELLS:	Standard -	IMAC 0.010	mg/L	
Church 1 Church 2	Nov 4, 21 Nov 4, 21	ND ND	mg/L mg/L	NONE
Dicamba WELLS:	Standard -	IMAC 0.0120	mg/L	
Church 1 Church 2	Nov 4, 21 Nov 4, 21	ND ND	mg/L mg/L	NONE
Chlorpyrifos WELLS:	Standard -	MAC 0.09	mg/L	
Church 1 Church 2	Nov 4, 21 Nov 4, 21	ND ND	mg/L mg/L	NONE
Diazinon WELLS:	Standard -	IMAC 0.020	mg/L	
Church 1 Church 2	Nov 4, 21 Nov 4, 21	ND ND	mg/L mg/L	NONE
Dicamba WELLS:	Standard -	IMAC 0.0120	mg/L	
Church 1 Church 2	Nov 4, 21 Nov 4, 21	ND ND	mg/L mg/L	NONE
1,2-Dichlorobenzene WELLS:	Standard -	MAC 0.200	mg/L	
Church 1 Church 2	Nov 4, 21 Nov 4, 21	ND ND	mg/L mg/L	NONE
1,4-Dichlorobenzene WELLS:	Standard -	MAC 0.005	mg/L	
Church 1 Church 2	Nov 4, 2021 Nov 4, 2021	ND ND	mg/L mg/L	NONE

1,2-Dichloroethane WELLS:	Standard - Nov 4, 21 Nov 4, 21	IMAC 0.005	mg/L	
Church 1		ND	mg/L	NONE
Church 2		ND	mg/L	

1,1-Dichloroethylene (vinylidene chloride) WELLS:	Standard-	MAC 0.014	mg/L	
Church 1	Nov 4, 21	ND	mg/L	NONE
Church 2	Nov 4, 21	ND	mg/L	
Dichloromethane WELLS:	Standard -	MAC 0.050	mg/L	
Church 1	Nov 4, 21	ND	mg/L	NONE
Church 2	Nov 4, 21	ND	mg/L	
2-4 Dichlorophenol WELLS:	Standard -	MAC 0.900	mg/L	
Church 1	Nov 4, 21	ND	mg/L	NONE
Church 2	Nov 4, 21	ND	mg/L	
2,4-Dichlorophenoxy acetic acid (2,4-D) WELLS:	Standard -	IMAC 0.100	mg/L	
Church 1	Nov 4, 21	ND	mg/L	NONE
Church 2	Nov 4, 21	ND	mg/L	
Diclofop-methyl WELLS:	Standard -	MAC 0.009	mg/L	
Church 1	Nov 4, 21	ND	mg/L	NONE
Church 2	Nov 4, 21	ND	mg/L	
Dimethoate WELLS:	Standard -	IMAC 0.020	mg/L	
Church 1	Nov 4, 21	<0.003	mg/L	NONE
Church 2	Nov 4, 21	<0.003	mg/L	
Diquat WELLS:	Standard -	MAC 0.070	mg/L	
Church 1	Nov 4, 21	ND	mg/L	NONE
Church 2	Nov 4, 21	ND	mg/L	

Diuron WELLS:	Standard -	MAC 0.150	mg/L	
Church 1	Nov 4, 21	ND	mg/L	NONE
Church 2	Nov 4, 21	ND	mg/L	
Glyphosate WELLS:	Standard -	IMAC 0.280	mg/L	
Church 1	Nov 4, 21	ND	mg/L	NONE
Church 2	Nov 4, 21	ND	mg/L	
Malathion WELLS:	Standard -	MAC 0.190	mg/L	
Church 1	Nov 4, 21	ND	mg/L	NONE
Church 2	Nov 4, 21	ND	mg/L	
Metolachlor WELLS:	Standard -	IMAC 0.050	mg/L	
Church 1	Nov 4, 21	ND	mg/L	NONE
Church 2	Nov 4, 21	ND	mg/L	
Metribuzin WELLS:	Standard -	MAC 0.080	mg/L	
Church 1	Nov 4, 21	ND	mg/L	NONE
Church 2	Nov 4, 21	ND	mg/L	
Monochlorobenzene WELLS:	Standard -	MAC 0.080	mg/L	
Church 1	Nov 4, 21	ND	mg/L	NONE
Church 2	Nov 4, 21	ND	mg/L	
Paraquat WELLS:	Standard -	IMAC 0.010	mg/L	
Church 1	Nov 4, 21	ND	mg/L	NONE
Church 2	Nov 4, 21	ND	mg/L	
Pentachlorophenol WELLS:	Standard -	MAC 0.060	mg/L	
Church 1	Nov 4, 21	ND	mg/L	NONE
Church 2	Nov 4, 21	ND	mg/L	
Phorate WELLS:	Standard -	IMAC 0.002	mg/L	

Church 1	Nov 4, 21	ND	mg/L	NONE
Church 2	Nov 4, 21	ND	mg/L	
Picloram WELLS:	Standard-	IMAC 0.190	mg/L	
Church 1	Nov 4, 21	ND	mg/L	NONE
Church 2	Nov 4, 21	ND	mg/L	
Polychlorinated Biphenyls (PCB) WELLS:	Standard -	IMAC 0.003	mg/L	
Church 1	Nov 4, 21	ND	mg/L	NONE
Church 2	Nov 4, 21	ND	mg/L	
Prometryne WELLS:	Standard -	IMAC 0.001	mg/L	
Church 1	Nov 4, 21	ND	mg/L	NONE
Church 2	Nov 4, 21	ND	mg/L	
Simazine WELLS:	Standard -	IMAC 0.010	mg/L	
Church 1	Nov 4, 21	ND	mg/L	NONE
Church 2	Nov 4, 21	ND	mg/L	
THM (NOTE: show latest annual average) DISTRIBUTION	Standard -	MAC 0.100	mg/L	
	Nov 4, 2021	0.0725	mg/L	NONE
Terbufos WELLS:	Standard -	IMAC 0.001	mg/L	
Church 1	Nov 4, 21	ND	mg/L	NONE
Church 2	Nov 4, 21	ND	mg/L	
Tetrachloroethylene WELLS:	Standard -	MAC 0.005	mg/L	
Church 1	Nov 4, 21	ND	mg/L	NONE
Church 2	Nov 4, 21	ND	mg/L	
2,3,4,6-Tetrachlorophenol WELLS:	Standard -	MAC 0.100	mg/L	
Church 1	Nov 4, 2021	ND	mg/L	NONE
Church 2	Nov 4, 2021	ND	mg/L	

Triallate WELLS:	Standard -	MAC 0.230	mg/L	
Church 1	Nov 4, 21	ND	mg/L	NONE
Church 2	Nov 4, 21	ND	mg/L	
Trichloroethylene WELLS:	Standard -	MAC 0.050	mg/L	
Church 1	Nov 4, 21	ND	mg/L	NONE
Church 2	Nov 4, 21	ND	mg/L	
2,4,6-Trichlorophenol WELLS:	Standard -	MAC 0.005	mg/L	
Church 1	Nov 4, 21	ND	mg/L	NONE
Church 2	Nov 4, 21	ND	mg/L	
Trifluralin WELLS:	Standard -	IMAC 0.045	mg/L	
Church 1	Nov 4, 21	ND	mg/L	NONE
Church 2	Nov 4, 21	ND	mg/L	
Vinyl Chloride WELLS:	Standard -	MAC 0.001	mg/L	
Church 1	Nov 4, 21	ND	mg/L	NONE
Church 2	Nov 4, 21	ND	mg/L	
Haloacetic Acids (HAA's) (NOTE: show latest annual average)		MAC 0.080	mg/L	
DISTRIBUTION	Nov 4, 21	0.0415	mg/L	NONE

List any Inorganic or Organic parameter(s) that exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards.

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
THM (NOTE: show latest annual average) DISTRIBUTION	Standard -	MAC 0.100	mg/L	
	Nov 4, 21	0.0725	mg/L	NONE
Haloacetic Acids (HAA's) (NOTE: show latest annual average) DISTRIBUTION	Standard -	MAC 0.080	mg/L	
	Nov 4, 21	0.0415	mg/L	NONE