

ANNUAL REPORT

Drinking-Water System Number: 220002734
Drinking-Water System Name: St. George Drinking Water System
Drinking-Water System Owner: County of Brant
Drinking-Water System Category: Large Municipal - Residential
Period being reported: January 1, 2021 to December 31, 2021

Complete if your Category is Large Municipal Residential or Small Municipal Residential:

Does your Drinking-Water System serve more than 10,000 people? Yes No

Is your annual report available to the public at no charge on a web site on the Internet? Yes No

Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection:
County of Brant Administration Office (26 Park Ave., Burford, ON).

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

None

Did you provide a copy of your annual report to all Drinking Water System owners that are connected to you and whom you provide all of its drinking water?

- Yes
 No
 Not applicable

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: Notice on water bill.

Describe your Drinking-Water System

The St. George Drinking Water System consists of:

- a) Three drilled wells completed in the overburden. Two wells are equipped with vertical turbine pumps capable of pumping 45.5 l/s each. The third well is equipped with a submersible pump capable of pumping 24.3 l/s. The total allowable water taking from the well field is not to exceed 9,961,920 l/day, but shall not exceed an annual daily average of 6,030,720 L/day;

- b) A sodium hypochlorite dosing system to provide disinfection via chlorination;
- c) Two 52.2 m³ chlorine contact chambers;
- d) A maximum rated capacity of 7,855 m³/day; and
- e) The distribution system that services approx. 1,797 residences and 158 commercial accounts and a bulk fill station at 245 Prospect St.

Emergency standby power for full capacity of the station is provided by a 120 kw diesel motor power generator.

The water production facilities are located at 20 Church Avenue. The land use in the general area includes residential, commercial and a park.

System storage is provided in the distribution system via a 437 m³ standpipe and 2,876 m³ elevated tank located at 54 Main St.

List all water treatment chemicals used over this reporting period

12 % sodium hypochlorite solution used for disinfection

Were any significant expenses incurred to?

- Install required equipment
- Repair required equipment
- Replace required equipment

Brief description and a breakdown of monetary expenses incurred:

Well 2 inspection, cleaning and repair – \$16K

Well 3 inspection, cleaning and repair – \$14K

Contact tank inspection, cleaning and repair – \$12K

Tower and standpipe inspection, cleaning and repair – \$100k

PLC Upgrade (shared cost between all Brant water systems) – \$100K

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	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
none					

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

	# of Samples	Range of E.Coli or Fecal Results (cfu/100ml)	Range of Total Coliform Results (cfu/100ml)	Range of BKG Results (cfu/100ml)	# of HPC Samples	Range of HPC Results (cfu/1ml)
Raw Well 1	52	0-0	0-0	0-1	52	0-20
Raw Well 2	48	0-0	0-0	0-0	48	0-NDOG
Raw Well 3	52	0-0	0-0	0-9	52	0-10
Treated	52	0-0	0-0	0-21	51*	0-NDCS
Distribution	209	0-0	0-0	0-2	206*	0-NDCS

***Note: HPC counts lower** than total number of samples because some results for HPC were reported as “**NDCS = No Data: Contamination Suspected. NDOG = Non-Determinate Overgrowth.**” Reference to contamination could be to lab error as HPC is a separate test and other tests from the same sample suggested no concerns. The results were not repeated on subsequent tests.

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
Turbidity – Raw Manual Well 1	14	0.05-0.18 NTU
Turbidity – Raw Manual Well 2*	11	0.06-0.08 NTU
Turbidity – Raw Manual Well 3	14	0.04-0.32 NTU
Free Chlorine – Treated Online	8760	0.40-1.23
Free Chlorine –Daily Distribution Grab & Flushing + Bacti sampling	795	0.41-1.01
Fluoride (If the DWS provides fluoridation)	Not applicable	Not applicable

NOTE: Record the unit of measure if it is not milligrams per litre.

For continuous monitors use 8760 as the number of samples.

*Well 2 out of service the week of April 14th, 2021

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

Date of legal instrument issued	Parameter	Date Sampled	Result	Unit of Measure
None				

Summary of Inorganic parameters tested during this reporting period or the most recent sample results (POE)

Parameter	Sample Date (mm/dd/yy)	Result Value	Unit of Measure	MAC	A/O	Exceedance
Antimony	01/07/21	<0.00050	mg/l	0.006	-	No
Arsenic	01/07/21	<0.0010	mg/l	0.01	-	No
Barium	01/07/21	0.076	mg/l	1.0	-	No
Boron	01/07/21	0.013	mg/l	5.0	-	No
Cadmium	01/07/21	<0.000090	mg/l	0.005	-	No
Chromium	01/07/21	<0.0050	mg/l	0.05	-	No
Mercury	01/07/21	<0.00010	mg/l	0.001	-	No
Selenium	01/07/21	<0.0020	mg/l	0.05	-	No
Uranium	01/07/21	0.0011	mg/l	0.02	-	No
Fluoride	01/07/21	0.16	mg/l	1.5	-	No
Sodium	01/07/21	10	mg/l	20	200	No
Nitrite	02/11/21	<0.010	mg/l	1.0	-	No
	05/05/21	<0.010	mg/l	1.0	-	No
	08/04/21	<0.010	mg/l	1.0	-	No
	11/02/21	<0.010	mg/l	1.0	-	No
Nitrate	02/11/21	4.56	mg/l	10.0	-	No
	05/05/21	4.12	mg/l	10.0	-	No
	08/04/21	3.64	mg/l	10.0	-	No
	11/02/21	4.15	mg/l	10.0	-	No
Nitrate+ Nitrite	02/11/21	4.56	mg/l	10.0	-	No
	05/05/21	4.12	mg/l	10.0	-	No
	08/04/21	3.64	mg/l	10.0	-	No
	11/02/21	4.15	mg/l	10.0	-	No

Summary of lead testing under Schedule 15.1 during this reporting period

(Applicable to the following drinking-water systems; large municipal residential systems, small municipal residential systems, and non-municipal year-round residential systems)

Location Type	Date (mm/dd/yy)	Number of Samples	Range of Lead Results (min#) – (max#)	Number of Exceedances
Plumbing	Not Required			
Distribution	Not Required			

Summary of Organic parameters sampled during this reporting period or the most recent sample results (POE)

Parameter	Sample Date (mm/dd/yy)	Result Value	Unit of Measure	MAC	A/O	Exceedance
1,1-Dichloroethylene	01/07/21	<0.10	µg/l	14	-	No
1,2-Dichlorobenzene	01/07/21	<0.20	µg/l	200	-	No
1,2-Dichloroethane	01/07/21	<0.20	µg/l	5	-	No
1,4-Dichlorobenzene	01/07/21	<0.20	µg/l	5	-	No
2,3,4,6-Tetrachlorophenol	01/07/21	<0.50	µg/l	100	-	No
2,4,6-Trichlorophenol	01/07/21	<0.50	µg/l	5	-	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	01/07/21	<1.0	µg/l	100	-	No
2,4-Dichlorophenol	01/07/21	<0.25	µg/l	900	-	No
Alachlor	01/07/21	<0.50	µg/l	5	-	No
Aroclor 1016	01/07/21	<0.05	µg/l	-	-	No
Aroclor 1221	01/07/21	<0.05	µg/l	-	-	No
Aroclor 1232	01/07/21	<0.05	µg/l	-	-	No
Aroclor 1242	01/07/21	<0.05	µg/l	-	-	No
Aroclor 1248	01/07/21	<0.05	µg/l	-	-	No
Aroclor 1254	01/07/21	<0.05	µg/l	-	-	No
Aroclor 1260	01/07/21	<0.05	µg/l	-	-	No
Atrazine	01/07/21	<0.50	µg/l	-	-	No
Atrazine + N-dealkylated metabolites (Atrazine+Desethyl-atrazine)	01/07/21	<1.0	µg/l	5	-	No

Parameter	Sample Date (mm/dd/yy)	Result Value	Unit of Measure	MAC	A/O	Exceedance
Benzene	01/07/21	<0.10	µg/l	1	-	No
Benzo(a)pyrene	01/07/21	<0.0050	µg/l	0.01	-	No
Bromoxynil	01/07/21	<0.50	µg/l	5	-	No
Carbaryl	01/07/21	<5.0	µg/l	90	-	No
Carbofuran	01/07/21	<5.0	µg/l	90	-	No
Carbon Tetrachloride	01/07/21	<0.10	µg/l	2	-	No
Chlorobenzene	01/07/21	<0.10	µg/l	80	-	No
Chlorpyrifos	01/07/21	<1.0	µg/l	90	-	No
Desethyl-atrazine	01/07/21	>0.50	µg/l	-	-	No
Diazinon	01/07/21	<1.0	µg/l	20	-	No
Dicamba	01/07/21	<1.0	µg/l	120	-	No
Diclofop-methyl	01/07/21	<0.90	µg/l	9	-	No
Dimethoate	01/07/21	<2.5	µg/l	20	-	No
Diquat	01/07/21	<7.0	µg/l	70	-	No
Diuron	01/07/21	<10	µg/l	150	-	No
Ethylbenzene	01/07/21	<0.10	µg/l	140	2.4	No
Glyphosate	01/07/21	<10	µg/l	280	-	No
Guthion	01/07/21	<2.0	µg/l	20	-	No
Malathion	01/07/21	<5.0	µg/l	190	-	No
MCPA	01/07/21	<10	µg/l	100	-	No
Methylene Chloride	01/07/21	<0.50	µg/l	50	-	No
Metolachlor	01/07/21	<0.50	µg/l	50	-	No
Metribuzin	01/07/21	<5.0	µg/l	80	-	No
Paraquat	01/07/21	<1.0	µg/l	10	-	No
Pentachlorophenol	01/07/21	<5.0	µg/l	60	-	No
Phorate	01/07/21	<5.0	µg/l	2	-	No
Picloram	01/07/21	<5.0	µg/l	190	-	No

Parameter	Sample Date (mm/dd/yy)	Result Value	Unit of Measure	MAC	A/O	Exceedance
Total PCB	01/07/21	<0.05	µg/l	3	-	No
Prometryne	01/07/21	<0.25	µg/l	1	-	No
Simazine	01/07/21	<1.0	µg/l	10	-	No
Terbufos	01/07/21	<0.50	µg/l	1	-	No
Tetrachloroethylene	01/07/21	<0.10	µg/l	10	-	No
THM Total (distribution)						
312 German School Rd.	02/11/21	3.27	µg/l	100	-	No
245 Prospect St.	05/06/21	2.01	µg/l	100	-	No
Willits Sample STN.	08/04/21	4.15	µg/l	100	-	No
HYD 1-055 St. George Rd	11/02/21	4.92	µg/l	100	-	No
Total HAA (distribution)						
312 German School Rd.	02/11/21	<5.0	µg/l	80	-	No
245 Prospect St.	05/06/21	<5.0	µg/l	80	-	No
Willits Sample STN.	08/04/21	<5.0	µg/l	80	-	No
HYD 1-055 St. George Rd	11/02/21	<5.0	µg/l	80	-	No
Toluene	01/07/21	<0.20	µg/l	60	24	No
Triallate	01/07/21	<1.0	µg/l	230	-	No
Trichloroethylene	01/07/21	<0.10	µg/l	5	-	No
Trifluralin	01/07/21	<1.0	µg/l	45	-	No
Vinyl Chloride	01/07/21	<0.20	µg/l	1	-	No
o-Xylene	01/07/21	<0.10	µg/l	-	-	No
p+m-Xylene	01/07/21	<0.10	µg/l	-	-	No

There is known to be soil contaminated with gasoline and diesel oil products located in the vicinity of the St. George Municipal Well Supply. As part of the monitoring program the County of Brant has undertaken to sample the raw water supply for the municipal drinking water system to monitor the situation. Sampling is carried out twice per year on a rotating basis as the wells are drilled within 5 meters of each other and are also of similar depth. Below is a table of the sampling results.

Parameter	Sample Frequency	Sample Date (mm/dd/yy)	Well 1 (PW1)	Well 2 (PW2)	Well 3 (TW1-68)
Benzene	Minimum twice per year from aquifer	05/03/21 10/01/21	<0.20		<0.20

Parameter	Sample Frequency	Sample Date (mm/dd/yy)	Well 1 (PW1)	Well 2 (PW2)	Well 3 (TW1-68)
Ethylbenzene	Minimum twice per year from aquifer	05/03/21 10/01/21	<0.20		<0.20
p+m- Xylene	Minimum twice per year from aquifer	05/03/21 10/01/21	<0.40		<0.40
o- Xylene	Minimum twice per year from aquifer	05/03/21 10/01/21	<0.20		<0.20
Toluene	Minimum twice per year from aquifer	05/03/21 10/01/21	<0.20		<0.20
Xylene (total)	Minimum twice per year from aquifer	05/03/21 10/01/21	<0.20		<0.40
F1 (C6-C10)	Minimum twice per year from aquifer	05/03/21 10/01/21	<25		<25
F1 (C6-C10) - BTEX	Minimum twice per year from aquifer	05/03/21 10/01/21	<25		<25
F2 (C10 – C16 Hydrocarbons)	Minimum twice per year from aquifer	05/03/21 10/01/21	<100		<100
F3 (C16 – C34 Hydrocarbons)	Minimum twice per year from aquifer	05/03/21 10/01/21	<200		<200
F4 (C34 – C50 Hydrocarbons)	Minimum twice per year from aquifer	05/03/21 10/01/21	<200		<200
Diesel (C10-C24)	Minimum twice per year from aquifer	05/03/21 10/01/21	<200		<200
Diesel (C11-C32)	Minimum twice per year from aquifer	05/03/21 10/01/21	<200		<200
Total Animal/Vegetable Oil and Grease (mg/l)	Minimum twice per year from aquifer	05/17/21 10/13/21	<0.50		<0.50
Total Oil & Grease Mineral/Synthetic (mg/l)	Minimum twice per year from aquifer	05/17/21 10/13/21	<0.50		<0.50
Total Oil & Grease (mg/l)	Minimum twice per year from aquifer	05/17/21 10/13/21	<0.50		<0.50

Non regulatory RAW WATER samples were taken from Wells 1, 2 and 3. The samples were taken to gain operational information and were analyzed for the parameters listed in the table below:

Parameter	Sample Date (mm/dd/yy)	Result Well 1	Result Well 2	Result Well 3	Unit of Measure
Chloride	02/01/21	23	23	24	mg/l
	05/03/21	24	23	22	mg/l
	08/03/21	23	22	22	mg/l
	11/01/21	22	21	22	mg/l
Nitrate	02/01/21	4.75	4.64	4.92	mg/l
	05/03/21	4.79	4.46	4.72	mg/l
	08/03/21	4.38	4.26	4.46	mg/l
	11/01/21	4.36	4.25	4.59	mg/l
Sulphate	02/01/21	45	46	44	mg/l
	05/03/21	45	46	46	mg/l
	08/03/21	50	51	49	mg/l
	11/01/21	49	49	46	mg/l
pH	02/01/21	7.66	7.63	7.67	pH
	05/03/21	7.58	7.56	7.62	pH
	08/03/21	7.53	7.39	7.23	pH
	11/01/21	7.54	7.55	7.55	pH
Hardness (CaCO ₃)	02/01/21	350	350	340	mg/l
	05/03/21	340	340	340	mg/l
	08/03/21	330	330	330	mg/l
	11/01/21	340	340	340	mg/l
Calcium	02/01/21	86	86	85	mg/l
	05/03/21	82	82	81	mg/l
	08/03/21	79	79	79	mg/l
	11/01/21	83	81	81	mg/l
Magnesium	02/01/21	32	33	32	mg/l
	05/03/21	33	33	33	mg/l
	08/03/21	32	32	32	mg/l
	11/01/21	33	33	33	mg/l

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

Parameter	Result Value	Unit of Measure	Date of Sample (mm/dd/yy)
None			