

ANNUAL REPORT

Drinking-Water System Number: 220002752
Drinking-Water System Name: Paris Drinking Water System
Drinking-Water System Owner: County of Brant
Drinking-Water System Category: Large Municipal - Residential
Period being reported: January 1, 2018 to December 31, 2018

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 in water bill.

Describe your Drinking-Water System

The Paris Drinking Water System consists of 3 wellfields called Gilbert, Telfer, and Bethel located at 319 Grand River Street North, 166 West River Road, and 97 Bethel Road respectively. The Gilbert system is the primary water supply with Telfer used as a back-up during periods of high demand or system maintenance. The Bethel Wellfield primarily supplies water to the Brant 403 Business Park and the south end of Paris.

In addition to the 2,266 m³ of storage at Gilbert, storage in the distribution system is provided via the 2,000 m³ North elevated storage tank located at 67 Woodslee Ave, the Sharpe Reservoir in-ground storage located at 11 Chapel St., consisting of two cells each with an operating capacity of 2,700 m³, and the 3,700m³ Oak Park elevated storage tank located at 557 Paris Road.

There are approximately 4,686 residential and 307 industrial/commercial/institutional connections to the Paris water system.

GILBERT WATER SUPPLY FACILITIES

The Gilbert Water Supply Facility consists of:

- a) Eight drilled wells. Two wells (P28 & P29) are completed in the bedrock and are equipped with submersible pumps capable of pumping 37.9 l/s each. The other six wells (P210, P211, P212, P213, P214 & P215) are completed in the overburden and are equipped with submersible pumps with a total overburden well capacity of 50 l/s. (PTTW limits production to 35 l/s on a 7 day running average.);
- b) Two ultra violet reactors (1 duty and 1 standby) for primary disinfection;
- c) A sodium hypochlorite dosing system to provide primary and secondary disinfection via chlorination;
- d) A hydrofluorosilicic acid dosing system to provide fluoridation;
- e) One 880 m³ and one 1,386 m³ in-ground baffled storage reservoirs and two 124 m³ clear wells;
- f) Three 85.4 l/s high lift booster pumps (two duty and one standby) that pump the water to the distribution system; and
- g) A maximum rated capacity of 10,870 m³/day

Emergency standby power capable of powering full capacity of the facility is provided by a 600 kw diesel motor driven generator.

The wellfield is in a rural location surrounded by green space and agricultural lands. There are some institutional, commercial, residential and light industrial land uses nearby and an aggregate mine immediately east of the farm field east of the water plant area.

List all water treatment chemicals used over this reporting period

12 % sodium hypochlorite solution used for disinfection
25 % hydrofluorosilicic acid solution used for fluoridation

Were any significant expenses incurred to?

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

Brief description and a breakdown of monetary expenses incurred:

Install security gate	\$33k
Maintenance work of P29	\$45k
Replace two chlorine pumps	\$10k

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 the 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 P28	52	0-0	0-0	0-0	52	<10-50
Raw Well P29	48	0-0	0-0	0-2	48	<10-140
Raw Well P210	52	0-0	0-3	0-37	52	<10-10
Raw Well P211	52	0-0	0-5	0-9	52	<10-40
Raw Well P212*	2	0-0	0-0	0-400	2	20-40
Raw Well P213	52	0-0	0-17	0-62	52	<10-20
Raw Well P214	52	0-0	0-1	0-0	52	<10-10
Raw Well P215	52	0-0	0-1	0-0	52	<10-10
Treated	52	0-0	0-0	0-0	52	<10-10

*P212 removed from service August 14, 2017 due to high levels and frequencies of bacterial hits despite well rehab efforts.

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 P28	12	0.04NTU-0.17NTU
Turbidity –Raw Manual Well P29	12	0.04NTU-0.15NTU
Turbidity –Raw Manual Well P210	12	0.03NTU-0.15NTU
Turbidity –Raw Manual Well P211	12	0.03NTU-0.15NTU
Turbidity –Raw Manual Well P212*	N/A	N/A*
Turbidity –Raw Manual Well P213	12	0.04NTU-0.17NTU
Turbidity –Raw Manual Well P214	12	0.02NTU-0.14NTU
Turbidity –Raw Manual Well P215	12	0.03NTU-0.10NTU

	Number of Grab Samples	Range of Results
Free Chlorine – Treated Online	8760	0.70-1.31
Fluoride (If the DWS provides fluoridation)	8760	0.57-1.11

*P212 removed from service August 14, 2017 due to high levels and frequencies of bacterial hits despite well rehab efforts.

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

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 (Gilbert POE)

Parameter	Sample Date (mm/dd/yy)	Result Value	Unit of Measure	Exceedance
Antimony	01/02/18	<0.00050	mg/l	No
Arsenic	01/02/18	<0.0010	mg/l	No
Barium	01/02/18	0.047	mg/l	No
Boron	01/02/18	0.023	mg/l	No
Cadmium	01/02/18	<0.00010	mg/l	No
Chromium	01/02/18	<0.0050	mg/l	No
Mercury	01/02/18	<0.0001	mg/l	No
Selenium	01/02/18	<0.0020	mg/l	No
Uranium	01/02/18	0.00047	mg/l	No
Fluoride	01/02/18	0.38	mg/l	No
Nitrite	02/05/18	<0.010	mg/l	No
	05/10/18	<0.010	mg/l	No
	08/07/18	<0.010	mg/l	No
	11/01/18	<0.010	mg/l	No
Nitrate	02/05/18	4.41	mg/l	No
	05/10/18	2.96	mg/l	No

Parameter	Sample Date (mm/dd/yy)	Result Value	Unit of Measure	Exceedance
	08/07/18	2.85	mg/l	No
	11/01/18	3.57	mg/l	No
Nitrate plus Nitrite	02/05/18	4.41	mg/l	No
	05/10/18	2.96	mg/l	No
	08/07/18	2.85	mg/l	No
	11/01/18	3.57	mg/l	No
Sodium	01/02/18	19	mg/l	No

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

Parameter	Sample Date (mm/dd/yy)	Result Value	Unit of Measure	Exceedance
1,1-Dichloroethylene	01/02/18	<0.10	µg/l	No
1,2-Dichlorobenzene	01/02/18	<0.20	µg/l	No
1,2-Dichloroethane	01/02/18	<0.20	µg/l	No
1,4-Dichlorobenzene	01/02/18	<0.20	µg/l	No
2,3,4,6-Tetrachlorophenol	01/02/18	<0.50	µg/l	No
2,4,6-Trichlorophenol	01/02/18	<0.50	µg/l	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	01/02/18	<1.0	µg/l	No
2-4 Dichlorophenol	01/02/18	<0.25	µg/l	No
Alachlor	01/02/18	<0.50	µg/l	No
Aroclor 1016	01/02/18	<0.05	µg/l	No
Aroclor 1221	01/02/18	<0.05	µg/l	No
Aroclor 1232	01/02/18	<0.05	µg/l	No
Aroclor 1242	01/02/18	<0.05	µg/l	No
Aroclor 1248	01/02/18	<0.05	µg/l	No
Aroclor 1254	01/02/18	<0.05	µg/l	No
Aroclor 1260	01/02/18	<0.05	µg/l	No
Atrazine	01/02/18	<0.50	µg/l	No
Atrazine + Desethyl atrazine	01/02/18	<1.0	µg/l	No
Benzene	01/02/18	<0.10	µg/l	No

Parameter	Sample Date (mm/dd/yy)	Result Value	Unit of Measure	Exceedance
Benzo(a)pyrene	01/02/18	<0.0090	µg/l	No
Bromoxynil	01/02/18	<0.50	µg/l	No
Carbaryl	01/02/18	<5.0	µg/l	No
Carbofuran	01/02/18	<5.0	µg/l	No
Carbon Tetrachloride	01/02/18	<0.10	µg/l	No
Chlorobenzene	01/02/18	<0.10	µg/l	No
Chlorpyrifos	01/02/18	<1.0	µg/l	No
Desethyl atrazine	01/02/18	<0.50	µg/l	No
Diazinon	01/02/18	<1.0	µg/l	No
Dicamba	01/02/18	<1.0	µg/l	No
Diclofop-methyl	01/02/18	<0.90	µg/l	No
Dimethoate	01/02/18	<2.5	µg/l	No
Diquat	01/02/18	<7.0	µg/l	No
Diuron	01/02/18	<10	µg/l	No
Glyphosate	01/02/18	<10	µg/l	No
Guthion	01/02/18	<2.0	µg/l	No
Malathion	01/02/18	<5.0	µg/l	No
MCPA	01/02/18	<10	µg/l	No
Methylene Chloride	01/02/18	<0.50	µg/l	No
Metolachlor	01/02/18	<0.50	µg/l	No
Metribuzin	01/02/18	<5.0	µg/l	No
Paraquat	01/02/18	<1.0	µg/l	No
Pentachlorophenol	01/02/18	<0.50	µg/l	No
Phorate	01/02/18	<0.50	µg/l	No
Picloram	01/02/18	<5.0	µg/l	No
Prometryne	01/02/18	<0.25	µg/l	No
Simazine	01/02/18	<1.0	µg/l	No
Terbufos	01/02/18	<0.50	µg/l	No
Tetrachloroethylene	01/02/18	<0.10	µg/l	No

Parameter	Sample Date (mm/dd/yy)	Result Value	Unit of Measure	Exceedance
Toluene	01/02/18	<0.20	µg/l	No
Total PCB	01/02/18	<0.05	µg/l	No
Triallate	01/02/18	<1.0	µg/l	No
Trichloroethylene	01/02/18	<0.10	µg/l	No
Trifluralin	01/02/18	<1.0	µg/l	No
Vinyl Chloride	01/02/18	<0.20	µg/l	No

Non regulatory RAW WATER samples were taken from Gilbert Wells P28, P29, P210, P211, P213, P214 and P215 to gain operational information and were analyzed for the parameters listed in the table below. Unless otherwise stated, results are reported in mg/l.

Parameter	Sample Date (mm/dd/yy)	P210	P211	P212	P213	P214	P215	P28	P29
Chloride	02/01/18	33	33	O/S*	36	43	44	33	O/S**
	02/28/18								18
	05/07/18	32	34		38	47	43	35	19
	08/01/18	34	34		37	45	42	36	18
	11/02/18	35	36		39	42	41	36	19
Nitrate	02/01/18	7.03	6.52	O/S*	6.83	6.92	6.27	<0.10	O/S**
	02/28/18								<0.10
	05/07/18	6.94	7.54		7.32	7.05	6.04	<0.10	<0.10
	08/01/18	8.57	8.38		8.31	7.73	7.38	<0.10	<0.10
	11/02/18	10.6	9.81		9.24	8.32	7.43	<0.10	<0.10
Sulphate	02/01/18	33	32	O/S*	30	26	23	330	O/S**
	02/28/18								530
	05/07/18	31	29		28	24	22	350	580
	08/01/18	31	29		27	24	23	350	570
	11/02/18	32	29		27	24	22	350	570

*P212 removed from service August 14, 2017 due to high levels and frequencies of bacterial hits despite well rehab efforts.

**P29 out of service due to inspection and disinfection. Sample taken after well put back into service.

List any Inorganic or Organic 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			

TELFER WATER SUPPLY FACILITY

The Telfer Water Supply Facility consists of:

- a) Two drilled wells. One well (P31) is completed in the overburden and one well (P32) is completed in the bedrock. Both wells are equipped with submersible pumps capable of pumping 39.7 l/s each;
- b) A sodium hypochlorite dosing system to provide primary and secondary disinfection via chlorination;
- c) A hydrofluorosilicic acid dosing system to provide fluoridation;
- d) Two 52.11 m³ chlorine contact tanks; and
- e) A maximum rated capacity of 6,550 m³/day.

Emergency standby power capable of powering full capacity of the facility is provided by a 350 kw diesel motor driven generator.

The wellfield is located in a rural setting. Surrounding land uses include agriculture and green space as well as a nearby aggregate mine.

List all water treatment chemicals used over this reporting period

12 % sodium hypochlorite solution used for disinfection
25 % hydrofluorosilicic acid solution used for fluoridation

Were any significant expenses incurred to?

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

Brief description and a breakdown of monetary expenses incurred:

Maintenance work of P31 \$33k

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
11/21/18	Total Coliform	1	CFU	Resamples results show no contamination	11/26/18

Microbiological testing done under the 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 P31	53	0-0	0-1	0-155	53	<10-20
Raw Well P32	52	0-0	0-4	0-24	52	<10-200
Treated	53	0-0	0-1	0-0	53	<10-10

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 P31	12	0.03NTU-0.12NTU
Turbidity-Raw Manual Well P32	12	0.05NTU-0.17NTU
Free Chlorine Treated Online	8760	0.47-1.26
Fluoride (If the DWS provides fluoridation)	8760	0.40-0.99

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

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 Schedule 23 (Telfer POE)

Parameter	Sample Date (mm/dd/yy)	Result Value	Unit of Measure
Antimony	01/02/18	<0.60	ug/l
Arsenic	01/02/18	<1.0	ug/l
Barium	01/02/18	76	ug/l
Boron	01/02/18	<50	ug/l

Parameter	Sample Date (mm/dd/yy)	Result Value	Unit of Measure
Cadmium	01/02/18	<0.10	ug/l
Chromium	01/02/18	<1.0	ug/l
Mercury	01/02/18	<0.10	ug/l
Selenium	01/02/18	<5.0	ug/l
Uranium	01/02/18	<5.0	ug/l

General Chemistry (Telfer POE)

Parameter	Sample Date (mm/dd/yy)	Result Value	Unit of Measure
Conductivity	01/02/18	719	umhos/cm
Computed Conductivity	01/02/18	754	uS/cm
Conductivity % Difference	01/02/18	4.7	%
pH	01/02/18	7.84	pH
Saturation pH	01/02/18	7.03	pH
Langelier Index	01/02/18	0.8	No unit
Fluoride (F)	01/02/18	0.354	mg/l
Hardness (as CaCO ₃)	01/02/18	402	mg/l
Total Suspended Solids (TSS)	01/02/18	<2.0	mg/l
Total Dissolved Solids	01/02/18	508	mg/l
TDS (Calculated)	01/02/18	473	mg/l
Total Alkalinity (as CaCO ₃)	01/02/18	244	mg/l
Unionized Ammonia	01/02/18	<0.00020	mg/l
Total Ammonia (as N)	01/02/18	<0.020	mg/l
Nitrate-N	01/02/18	6.94	mg/l
	02/05/18	6.15	mg/l
	05/10/18	6.62	mg/l
	08/07/18	4.62	mg/l
	11/01/18	5.49	mg/l
Nitrite-N	01/02/18	<0.010	mg/l
	02/05/18	<0.010	mg/l
	05/10/18	<0.010	mg/l

Parameter	Sample Date (mm/dd/yy)	Result Value	Unit of Measure
	08/07/18	<0.010	mg/l
	11/01/18	<0.010	mg/l
Nitrate & Nitrite (as N)	01/02/18	6.94	mg/l
	02/05/18	6.15	mg/l
	05/10/18	6.62	mg/l
	08/07/18	4.62	mg/l
	11/01/18	5.49	mg/l
Phosphate-P (ortho)	01/02/18	<0.0030	mg/l
Sulphate	01/02/18	118	mg/l
Anion Sum	01/02/18	7.69	me/l
Cation Sum	01/02/18	8.44	me/l
Ion Balance	01/02/18	110	%
Cation Anion Balance	01/02/18	4.7	%
Dissolved Organic Carbon	01/02/18	<1.0	mg/l
Total Organic Carbon	01/02/18	<1.0	mg/l
Turbidity	01/02/18	0.24	NTU

Dissolved Metals (Telfer POE)

Parameter	Sample Date (mm/dd/yy)	Result Value	Unit of Measure
Aluminium	01/02/18	<0.0050	mg/l
Beryllium	01/02/18	<0.00010	mg/l
Bismuth	01/02/18	<0.000050	mg/l
Calcium	01/02/18	116	mg/l
Cobalt	01/02/18	<0.00010	mg/l
Chloride	01/02/18	24.3	mg/l
Copper	01/02/18	0.00405	mg/l
Iron	01/02/18	0.012	mg/l
Lead	01/02/18	<0.000050	mg/l
Lithium	01/02/18	0.0042	mg/l
Magnesium	01/02/18	27.5	mg/l

Parameter	Sample Date (mm/dd/yy)	Result Value	Unit of Measure
Manganese	01/02/18	<0.00050	mg/l
Molybdenum	01/02/18	0.00389	mg/l
Nickel	01/02/18	<0.00050	mg/l
Phosphorus	01/02/18	<0.050	mg/l
Potassium	01/02/18	1.23	mg/l
Silicon (total)	01/02/18	5200	ug/l
Silicon (dissolved)	01/02/18	5.26	mg/l
Silicon (as SiO ₂) dissolved	01/02/18	11.3	mg/l
Silver	01/02/18	<0.000050	mg/l
Sodium	01/02/18	8.70	mg/l
Strontium	01/02/18	1.49	mg/l
Thallium	01/02/18	<0.000010	mg/l
Tin	01/02/18	<0.00010	mg/l
Titanium	01/02/18	<0.00030	mg/l
Tungsten	01/02/18	<0.00010	mg/l
Vanadium	01/02/18	<0.00050	mg/l
Zinc	01/02/18	0.0014	mg/l
Zirconium	01/02/18	<0.00030	mg/l

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

Pesticides (Telfer POE)

Parameter	Sample Date (mm/dd/yy)	Result Value	Unit of Measure
Aldrin	01/02/18	<0.10	ug/L
alpha-BHC	01/02/18	<0.10	ug/L
beta-BHC	01/02/18	<0.10	ug/L
Lindane	01/02/18	<0.10	ug/L
delta-BHC	01/02/18	<0.10	ug/L
a-chlordane	01/02/18	<0.10	ug/L
g-chlordane	01/02/18	<0.10	ug/L

Parameter	Sample Date (mm/dd/yy)	Result Value	Unit of Measure
o,p-DDD	01/02/18	<0.10	ug/L
pp-DDD	01/02/18	<0.10	ug/L
o,p-DDE	01/02/18	<0.10	ug/L
pp-DDE	01/02/18	<0.10	ug/L
op-DDT	01/02/18	<0.10	ug/L
pp-DDT	01/02/18	<0.10	ug/L
Dieldrin	01/02/18	<0.10	ug/L
alpha-Endosulfan	01/02/18	<0.10	ug/L
beta-Endosulfan	01/02/18	<0.10	ug/L
Endosulfan Sulfate	01/02/18	<0.10	ug/L
Endrin	01/02/18	<0.10	ug/L
Endrin Aldehyde	01/02/18	<0.10	ug/L
Heptachlor	01/02/18	<0.10	ug/L
Heptachlor Epoxide	01/02/18	<0.10	ug/L
Hexachlorobenzene	01/02/18	<0.10	ug/L
Methoxychlor	01/02/18	<0.10	ug/L
Mirex	01/02/18	<0.10	ug/L
Oxychlorthane	01/02/18	<0.10	ug/L
2,4-DP	01/02/18	<0.50	ug/L
Dinoseb	01/02/18	<0.50	ug/L
2,4,5-T	01/02/18	<0.50	ug/L
2,4,5-TP	01/02/18	<0.50	ug/L
Atrazine	01/02/18	<0.10	ug/L
Bendiocarb	01/02/18	<0.50	ug/L
Cyanazine	01/02/18	<0.10	ug/L
Atrazine Desethyl	01/02/18	<0.10	ug/L
Parathion	01/02/18	<0.10	ug/L
Temephos	01/02/18	<1.0	ug/L

Schedule 24 (Telfer POE)

Parameter	Sample Date (mm/dd/yy)	Result Value	Unit of Measure
1,1-Dichloroethylene (vinylidene chloride)	01/02/18	<0.50	ug/L
1,2-Dichlorobenzene	01/02/18	<0.50	ug/L
1,2-Dichloroethane	01/02/18	<0.50	ug/L
1,4-Dichlorobenzene	01/02/18	<0.50	ug/L
2,3,4,6-Tetrachlorophenol	01/02/18	<0.50	ug/L
2,4,5-Trichlorophenoxy acetic acid (2,4,5-T)	01/02/18	<0.50	ug/L
2,4,6-Trichlorophenol	01/02/18	<0.50	ug/L
2,4-Dichlorophenoxy acetic acid (2,4-D)	01/02/18	<0.20	ug/L
2-4 Dichlorophenol	01/02/18	<0.30	ug/L
Alachlor	01/02/18	<0.10	ug/L
Aroclor 1242	01/02/18	<0.020	ug/L
Aroclor 1254	01/02/18	<0.020	ug/L
Aroclor 1260	01/02/18	<0.020	ug/L
Atrazine	01/02/18	<0.10	ug/L
Atrazine + N-dealkylated metabolites (Atrazine+Desethyl-atrazine)	01/02/18	<0.20	ug/L
Benzene	01/02/18	<0.50	ug/L
Benzo(a)pyrene	01/02/18	<0.010	ug/L
Bromoxynil	01/02/18	<0.20	ug/L
Carbaryl	01/02/18	<0.20	ug/L
Carbofuran	01/02/18	<0.20	ug/L
Carbon Tetrachloride	01/02/18	<0.20	ug/L
Chlorobenzene (Monochlorobenzene)	01/02/18	<0.50	ug/L
Chlorpyrifos	01/02/18	<0.10	ug/L
Diazinon	01/02/18	<0.10	ug/L
Desethyl-atrazine	01/02/18	<0.10	ug/L
Dicamba	01/02/18	<0.20	ug/L

Parameter	Sample Date (mm/dd/yy)	Result Value	Unit of Measure
Diclofop-methyl	01/02/18	<0.10	ug/L
Dimethoate	01/02/18	<0.10	ug/L
Diquat	01/02/18	<1.0	ug/L
Diuron	01/02/18	<1.0	ug/L
Ethylbenzene	01/02/18	<0.50	ug/L
Glyphosate	01/02/18	<5.0	ug/L
Guthion (Azinphos-methyl)	01/02/18	<0.10	ug/L
Malathion	01/02/18	<0.10	ug/L
MCPA	01/02/18	<0.20	ug/L
Methylene Chloride (Dichloromethane)	01/02/18	<5.0	ug/L
Metolachlor	01/02/18	<0.10	ug/L
Metribuzin	01/02/18	<0.10	ug/L
Paraquat	01/02/18	<1.0	ug/L
Pentachlorophenol	01/02/18	<0.50	ug/L
Phorate	01/02/18	<0.10	ug/L
Picloram	01/02/18	<0.20	ug/L
Polychlorinated Biphenyls (PCB) total	01/02/18	<0.035	ug/L
Prometryne	01/02/18	<0.10	ug/L
Simazine	01/02/18	<0.10	ug/L
Temephos	01/02/18	<1.0	ug/L
Terbufos	01/02/18	<0.10	ug/L
Tetrachloroethylene	01/02/18	<0.50	ug/L
Triallate	01/02/18	<0.10	ug/L
Trichloroethylene	01/02/18	<0.50	ug/L
Toluene	01/02/18	<0.50	ug/L
Trifluralin	01/02/18	<0.10	ug/L
Vinyl Chloride	01/02/18	<0.20	ug/L
m/p-xylene	01/02/18	<1.0	ug/L
o-xylene	01/02/18	<0.50	ug/L

Non regulatory RAW WATER samples were taken from wells P31 and P32. 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)	Results P31	Results P32	Unit of Measure
Chloride	02/01/18	23	23	mg/l
	05/07/18	23	24	mg/l
	08/01/18	25	25	mg/l
	11/02/18	22	25	mg/l
Nitrate	02/01/18	7.35	4.38	mg/l
	05/07/18	7.50	4.80	mg/l
	08/01/18	6.58	4.86	mg/l
	11/02/18	9.10	5.23	mg/l
Sulphate	02/01/18	46	230	mg/l
	05/07/18	42	210	mg/l
	08/01/18	150	350	mg/l
	08/13/18	130	350	mg/l
	11/02/18	28	250	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	Date of Sample (mm/dd/yy)	Result	Unit of Measure
Nitrate*	01/02/18	6.94	mg/l
	02/05/18	6.15	mg/l
	05/10/18	6.62	mg/l
	11/01/18	5.49	mg/l

*The Technical Support Document for Ontario Drinking Water Quality Standards, Objectives and Guidelines describes the following regarding nitrates:

"The maximum acceptable concentration of nitrates in drinking water is 10 mg/L as nitrogen. Nitrates are present in water (particularly ground water) as a result of decay of plant or animal material, the use of agricultural fertilizers, domestic sewage or treated wastewater contamination, or geological formations containing soluble nitrogen compounds. There is a risk that babies and small children may suffer blood related problems (methaemoglobinaemia) with excess nitrate intake. The nitrate ion is not directly responsible for this condition, but must first be reduced to the nitrite ion by intestinal bacteria. The nitrite reacts with the iron of the haemoglobin in red blood cells which are then prevented from carrying oxygen to the body tissues.

Nitrate poisoning, in terms of methaemoglobinaemia, from drinking water appears to be restricted to susceptible infants. Older children and adults drinking the same water are unaffected. Most water-related cases of methaemoglobinaemia have been associated with the use of water containing more than 10 mg/L nitrate as nitrogen. In Canada, no cases of the condition have been reported where the nitrate concentration

was consistently less than the maximum acceptable concentration. Where both nitrate and nitrite are present, the total nitrate plus nitrite-nitrogen concentration should not exceed 10 mg/L. In areas where the nitrate content of water is known to exceed the maximum acceptable concentration the public should be informed by the appropriate health authority of the potential dangers of using water for infants.”

Additional Non Regulatory Raw Water Sampling Performed During 2018 Calendar Year

Note: Testing reflects that imposed on Dufferin for the aggregate washing operation of their Paris Pit.

Schedule 23

Parameter	Sample Date (mm/dd/yy)	Result Value P31	Result Value P32	Unit of Measure
Antimony	05/07/18	<0.60	<0.60	ug/L
	08/01/18	<0.60	<0.60	ug/L
	12/03/18	<0.60	<0.60	ug/L
Arsenic	05/07/18	<1.0	<1.0	ug/L
	08/01/18	<1.0	<1.0	ug/L
	12/03/18	<1.0	<1.0	ug/L
Barium	05/07/18	120	38	ug/L
	08/01/18	119	37	ug/L
	12/03/18	103	38	ug/L
Boron	05/07/18	<50	<50	ug/L
	08/01/18	<50	<50	ug/L
	12/03/18	<50	<50	ug/L
Cadmium	05/07/18	<0.10	<0.10	ug/L
	08/01/18	<0.10	<0.10	ug/L
	12/03/18	<0.10	<0.10	ug/L
Chromium	05/07/18	<1.0	<1.0	ug/L
	08/01/18	<1.0	<1.0	ug/L
	12/03/18	<1.0	<1.0	ug/L
Mercury	05/07/18	<0.10	<0.10	ug/L
	08/01/18	<0.10	<0.10	ug/L
	12/03/18	<0.10	<0.10	ug/L
Selenium	05/07/18	<5.0	<5.0	ug/L
	08/01/18	<5.0	<5.0	ug/L
	12/03/18	<5.0	<5.0	ug/L
Uranium	05/07/18	<5.0	<5.0	ug/L
	08/01/18	<5.0	<5.0	ug/L
	12/03/18	<5.0	<5.0	ug/L

General Chemistry

Parameter	Sample Date (mm/dd/yy)	Result Value P31	Result Value P32	Unit of Measure
Conductivity	05/07/18	663	917	umhos/cm
	08/01/18	810	1090	umhos/cm
	12/03/18	674	1010	umhos/cm
Computed Conductivity	05/07/18	610	940	uScm
	08/01/18	827	1200	uScm
	12/03/18	675	1100	uScm
Conductivity % Difference	05/07/18	-8.3	2.5	%
	08/01/18	2.1	9.7	%
	12/03/18	0.1	8.3	%
pH	05/07/18	7.90	7.87	pH
	08/01/18	7.84	7.75	pH
	12/03/18	7.63	7.63	pH
Saturation pH	05/07/18	7.27	7.04	pH
	08/01/18	7.00	6.82	pH
	12/03/18	7.21	7.03	pH
Fluoride	05/07/18	0.106	0.257	mg/l
	08/01/18	0.116	0.312	mg/l
	12/03/18	0.110	0.273	mg/l
Hardness (as CaCO ₃)	05/07/18	337	498	mg/l
	08/01/18	453	665	mg/l
	12/03/18	355	572	mg/l
Total Suspended Solids (TSS)	05/07/18	<2.0	<2.0	mg/l
	08/01/18	<2.0	<2.0	mg/l
	12/03/18	<2.0	<2.0	mg/l
Total Dissolved Solids	05/07/18	387	619	mg/l
	08/01/18	566	812	mg/l
	12/03/18	466	792	mg/l
Total Alkalinity (as CaCO ₃)	05/07/18	235	253	mg/l
	08/01/18	246	248	mg/l
	12/03/18	268	260	mg/l
Unionized Ammonia	05/07/18	0.00108	0.00113	mg/l
	08/01/18	0.00116	0.00914	mg/l
	12/03/18	0.00173	0.00202	mg/l

Parameter	Sample Date (mm/dd/yy)	Result Value P31	Result Value P32	Unit of Measure
Total Ammonia (as N)	05/07/18	<0.061	0.068	mg/l
	08/01/18	0.082	0.791	mg/l
	12/03/18	0.196	0.228	mg/l
Nitrate-N	05/07/18	8.08	5.14	mg/l
	08/01/18	6.51	4.92	mg/l
	12/03/18	7.96	4.75	mg/l
Nitrite-N	05/07/18	<0.010	<0.010	mg/l
	08/01/18	<0.010	<0.010	mg/l
	12/03/18	<0.010	<0.010	mg/l
Nitrate & Nitrite (as N)	05/07/18	8.08	5.14	mg/l
	08/01/18	6.51	4.92	mg/l
	12/03/18	7.96	4.75	mg/l
Phosphate-P (ortho)	05/07/18	<0.0030	<0.0030	mg/l
	08/01/18	<0.0030	<0.0030	mg/l
	12/03/18	<0.0030	<0.0030	mg/l
Sulphate	05/07/18	47.0	208	mg/l
	08/01/18	144	330	mg/l
	12/03/18	70.6	291	mg/l
Anion Sum	05/07/18	6.09	9.57	me/l
	08/01/18	8.25	12.0	me/l
	12/03/18	7.12	11.4	me/l
Cation Sum	05/07/18	7.10	10.4	me/l
	08/01/18	9.50	13.8	me/l
	12/03/18	7.50	11.9	me/l
Ion Balance	05/07/18	116	108	%
	08/01/18	115	114	%
	12/03/18	105	104	%
Cation Anion Balance	05/07/18	7.6	4.0	%
	08/01/18	7.0	6.7	%
	12/03/18	2.6	2.1	%
Dissolved Organic Carbon	05/07/18	<1.0	<1.0	mg/l
	08/01/18	1.14	2.36	mg/l
	12/03/18	<0.50	0.80	mg/l
Total Organic Carbon	05/07/18	<1.0	<1.0	mg/l

Parameter	Sample Date (mm/dd/yy)	Result Value P31	Result Value P32	Unit of Measure
	08/01/18	1.44	1.74	mg/l
	12/03/18	0.70	0.80	mg/l
Langelier Index	05/07/18	0.6	0.8	n/a
	08/01/18	0.8	0.9	n/a
	12/03/18	0.4	0.6	n/a
Turbidity	05/07/18	0.06	0.08	NTU
	08/01/18	0.15	0.20	NTU
	12/03/18	0.08	0.07	NTU

Dissolved Metals

Parameter	Sample Date (mm/dd/yy)	Result Value P31	Result Value P32	Unit of Measure
Aluminium	05/07/18	<0.0050	<0.0050	mg/l
	08/01/18	<0.0050	<0.0050	mg/l
	12/03/18	<0.0050	<0.0050	mg/l
Beryllium	05/07/18	<0.00010	<0.00010	mg/l
	08/01/18	<0.00010	<0.00010	mg/l
	12/03/18	<0.00010	<0.00010	mg/l
Bismuth	05/07/18	<0.000050	<0.000050	mg/l
	08/01/18	<0.000050	<0.000050	mg/l
	12/03/18	<0.000050	<0.000050	mg/l
Calcium	05/07/18	91.6	149	mg/l
	08/01/18	125	210	mg/l
	12/03/18	98.7	176	mg/l
Cobalt	05/07/18	<0.00010	<0.00010	mg/l
	08/01/18	<0.00010	<0.00010	mg/l
	12/03/18	<0.00010	<0.00010	mg/l
Chloride	05/07/18	23.0	23.9	mg/l
	08/01/18	25.0	25.2	mg/l
	12/03/18	23.6	25.0	mg/l
Copper	05/07/18	0.00031	0.00039	mg/l
	08/01/18	0.00030	0.00057	mg/l
	12/03/18	0.00026	0.00024	mg/l
Iron	05/07/18	<0.010	<0.010	mg/l

Parameter	Sample Date (mm/dd/yy)	Result Value P31	Result Value P32	Unit of Measure
	08/01/18	<0.010	<0.010	mg/l
	12/03/18	<0.010	<0.010	mg/l
Lead	05/07/18	<0.000050	<0.000050	mg/l
	08/01/18	<0.000050	<0.000050	mg/l
	12/03/18	<0.000050	<0.000050	mg/l
Lithium	05/07/18	0.0035	0.0054	mg/l
	08/01/18	0.0034	0.0049	mg/l
	12/03/18	0.0039	0.0064	mg/l
Magnesium	05/07/18	26.2	30.4	mg/l
	08/01/18	34.0	34.1	mg/l
	12/03/18	26.4	32.4	mg/l
Manganese	05/07/18	<0.00050	<0.00050	mg/l
	08/01/18	<0.00050	<0.00050	mg/l
	12/03/18	<0.00050	<0.00050	mg/l
Molybdenum	05/07/18	0.00129	0.00677	mg/l
	08/01/18	0.00135	0.00604	mg/l
	12/03/18	0.00112	0.00602	mg/l
Nickel	05/07/18	<0.00050	<0.00050	mg/l
	08/01/18	<0.00050	0.00062	mg/l
	12/03/18	<0.00050	0.00056	mg/l
Phosphorus	05/07/18	<0.050	<0.050	mg/l
	08/01/18	<0.050	<0.050	mg/l
	12/03/18	<0.050	<0.050	mg/l
Potassium	05/07/18	1.15	1.46	mg/l
	08/01/18	1.26	1.64	mg/l
	12/03/18	1.24	1.64	mg/l
Silicon (total)	05/07/18	5400	5100	ug/L
	08/01/18	5000	4700	ug/L
	12/03/18	5200	5000	ug/L
Silicon (dissolved)	05/07/18	5.81	5.20	mg/l
	08/01/18	5.38	5.00	mg/l
	12/03/18	5.39	5.10	mg/l
Silicon (as SiO ₂)-Dissolved	05/07/18	12.4	11.1	mg/l
	08/01/18	11.5	10.7	mg/l

Parameter	Sample Date (mm/dd/yy)	Result Value P31	Result Value P32	Unit of Measure
	12/03/18	11.5	10.9	mg/l
Silver	05/07/18	<0.000050	<0.000050	mg/l
	08/01/18	<0.000050	<0.000050	mg/l
	12/03/18	<0.000050	<0.000050	mg/l
Sodium	05/07/18	7.66	8.56	mg/l
	08/01/18	9.35	9.80	mg/l
	12/03/18	8.17	8.85	mg/l
Strontium	05/07/18	0.920	2.29	mg/l
	08/01/18	1.40	2.99	mg/l
	12/03/18	1.03	2.79	mg/l
Thallium	05/07/18	<0.000010	0.000024	mg/l
	08/01/18	<0.000010	0.000023	mg/l
	12/03/18	<0.000010	0.000018	mg/l
Tin	05/07/18	<0.00010	<0.00010	mg/l
	08/01/18	<0.00010	<0.00010	mg/l
	12/03/18	<0.00010	<0.00010	mg/l
Titanium	05/07/18	<0.00030	<0.00030	mg/l
	08/01/18	<0.00030	<0.00030	mg/l
	12/03/18	<0.00030	<0.00030	mg/l
Tungsten	05/07/18	<0.00010	<0.00010	mg/l
	08/01/18	<0.00010	<0.00010	mg/l
	12/03/18	<0.00010	<0.00010	mg/l
Vanadium	05/07/18	<0.00050	<0.00050	mg/l
	08/01/18	<0.00050	<0.00050	mg/l
	12/03/18	<0.00050	<0.00050	mg/l
Zinc	05/07/18	0.0019	0.0018	mg/l
	08/01/18	0.0021	0.0021	mg/l
	12/03/18	0.0020	0.0022	mg/l
Zirconium	05/07/18	<0.00030	<0.00030	mg/l
	08/01/18	<0.00030	<0.00030	mg/l
	12/03/18	<0.00030	<0.00030	mg/l

Pesticides

Parameter	Sample Date (mm/dd/yy)	Result Value P31	Result Value P32	Unit of Measure
Aldrin	05/07/18	<0.10	<0.10	ug/L
	08/01/18	<0.10	<0.10	ug/L
	12/03/18	<0.10	<0.10	ug/L
alpha-BHC	05/07/18	<0.10	<0.10	ug/L
	08/01/18	<0.10	<0.10	ug/L
	12/03/18	<0.10	<0.10	ug/L
beta-BHC	05/07/18	<0.10	<0.10	ug/L
	08/01/18	<0.10	<0.10	ug/L
	12/03/18	<0.10	<0.10	ug/L
Lindane	05/07/18	<0.10	<0.10	ug/L
	08/01/18	<0.10	<0.10	ug/L
	12/03/18	<0.10	<0.10	ug/L
delta-BHC	05/07/18	<0.10	<0.10	ug/L
	08/01/18	<0.10	<0.10	ug/L
	12/03/18	<0.10	<0.10	ug/L
a-chlordane	05/07/18	<0.10	<0.10	ug/L
	08/01/18	<0.10	<0.10	ug/L
	12/03/18	<0.10	<0.10	ug/L
g-chlordane	05/07/18	<0.10	<0.10	ug/L
	08/01/18	<0.10	<0.10	ug/L
	12/03/18	<0.10	<0.10	ug/L
o,p-DDD	05/07/18	<0.10	<0.10	ug/L
	08/01/18	<0.10	<0.10	ug/L
	12/03/18	<0.10	<0.10	ug/L
pp-DDD	05/07/18	<0.10	<0.10	ug/L
	08/01/18	<0.10	<0.10	ug/L
	12/03/18	<0.10	<0.10	ug/L
o,p-DDE	05/07/18	<0.10	<0.10	ug/L
	08/01/18	<0.10	<0.10	ug/L
	12/03/18	<0.10	<0.10	ug/L
pp-DDE	05/07/18	<0.10	<0.10	ug/L
	08/01/18	<0.10	<0.10	ug/L
	12/03/18	<0.10	<0.10	ug/L

Parameter	Sample Date (mm/dd/yy)	Result Value P31	Result Value P32	Unit of Measure
op-DDT	05/07/18	<0.10	<0.10	ug/L
	08/01/18	<0.10	<0.10	ug/L
	12/03/18	<0.10	<0.10	ug/L
pp-DDT	05/07/18	<0.10	<0.10	ug/L
	08/01/18	<0.10	<0.10	ug/L
	12/03/18	<0.10	<0.10	ug/L
Dieldrin	05/07/18	<0.10	<0.10	ug/L
	08/01/18	<0.10	<0.10	ug/L
	12/03/18	<0.10	<0.10	ug/L
alpha-Endosulfan	05/07/18	<0.10	<0.10	ug/L
	08/01/18	<0.10	<0.10	ug/L
	12/03/18	<0.10	<0.10	ug/L
beta-Endosulfan	05/07/18	<0.10	<0.10	ug/L
	08/01/18	<0.10	<0.10	ug/L
	12/03/18	<0.10	<0.10	ug/L
Endosulfan Sulfate	05/07/18	<0.10	<0.10	ug/L
	08/01/18	<0.10	<0.10	ug/L
	12/03/18	<0.10	<0.10	ug/L
Endrin	05/07/18	<0.10	<0.10	ug/L
	08/01/18	<0.10	<0.10	ug/L
	12/03/18	<0.10	<0.10	ug/L
Endrin Aldehyde	05/07/18	<0.10	<0.10	ug/L
	08/01/18	<0.10	<0.10	ug/L
	12/03/18	<0.10	<0.10	ug/L
Heptachlor	05/07/18	<0.10	<0.10	ug/L
	08/01/18	<0.10	<0.10	ug/L
	12/03/18	<0.10	<0.10	ug/L
Heptachlor Epoxide	05/07/18	<0.10	<0.10	ug/L
	08/01/18	<0.10	<0.10	ug/L
	12/03/18	<0.10	<0.10	ug/L
Hexachlorobenzene	05/07/18	<0.10	<0.10	ug/L
	08/01/18	<0.10	<0.10	ug/L
	12/03/18	<0.10	<0.10	ug/L
Methoxychlor	05/07/18	<0.10	<0.10	ug/L

Parameter	Sample Date (mm/dd/yy)	Result Value P31	Result Value P32	Unit of Measure
	08/01/18	<0.10	<0.10	ug/L
	12/03/18	<0.10	<0.10	ug/L
Mirex	05/07/18	<0.10	<0.10	ug/L
	08/01/18	<0.10	<0.10	ug/L
	12/03/18	<0.10	<0.10	ug/L
Oxychlorane	05/07/18	<0.10	<0.10	ug/L
	08/01/18	<0.10	<0.10	ug/L
	12/03/18	<0.10	<0.10	ug/L
2,4-DP	05/07/18	<0.50	<0.50	ug/L
	08/01/18	<0.50	<0.50	ug/L
	12/03/18	<0.50	<0.50	ug/L
Dinoseb	05/07/18	<0.50	<0.50	ug/L
	08/01/18	<0.50	<0.50	ug/L
	12/03/18	<0.50	<0.50	ug/L
Mecoprop	05/07/18	<0.50	<0.50	ug/L
	08/01/18	<0.50	<0.50	ug/L
	12/03/18	<0.50	<0.50	ug/L
2,4,5-T	05/07/18	<0.50	<0.50	ug/L
	08/01/18	<0.50	<0.50	ug/L
	12/03/18	0.81	<0.50	ug/L
2,4,5-TP	05/07/18	<0.50	<0.50	ug/L
	08/01/18	<0.50	<0.50	ug/L
	12/03/18	<0.50	<0.50	ug/L
Ametryn	05/07/18	<0.10	<0.10	ug/L
	08/01/18	<0.10	<0.10	ug/L
	12/03/18	<0.10	<0.10	ug/L
Atrazine	05/07/18	<0.10	<0.10	ug/L
	08/01/18	<0.10	<0.10	ug/L
	12/03/18	<0.10	<0.10	ug/L
Atrazine & Metabolites	05/07/18	<0.20	<0.20	ug/L
	08/01/18	<0.20	<0.20	ug/L
	12/03/18	<0.20	<0.20	ug/L
Bendiocarb	05/07/18	<0.50	<0.50	ug/L
	08/01/18	<0.50	<0.50	ug/L
	12/03/18	<0.50	<0.50	ug/L

Parameter	Sample Date (mm/dd/yy)	Result Value P31	Result Value P32	Unit of Measure
Cyanazine	05/07/18	<0.10	<0.10	ug/L
	08/01/18	<0.10	<0.10	ug/L
	12/03/18	<0.10	<0.10	ug/L
Atrazine Desethyl	05/07/18	<0.10	<0.10	ug/L
	08/01/18	<0.10	<0.10	ug/L
	12/03/18	<0.10	<0.10	ug/L
Parathion	05/07/18	<0.10	<0.10	ug/L
	08/01/18	<0.10	<0.10	ug/L
	12/03/18	<0.10	<0.10	ug/L
Methyl Parathion	05/07/18	<0.10	<0.10	ug/L
	08/01/18	<0.10	<0.10	ug/L
	12/03/18	<0.10	<0.10	ug/L
Prometon	05/07/18	<0.10	<0.10	ug/L
	08/01/18	<0.10	<0.10	ug/L
	12/03/18	<0.10	<0.10	ug/L
Propazine	05/07/18	<0.10	<0.10	ug/L
	08/01/18	<0.10	<0.10	ug/L
	12/03/18	<0.10	<0.10	ug/L
Temephos	05/07/18	<1.0	<1.0	ug/L
	08/01/18	<1.0	<1.0	ug/L
	12/03/18	<1.0	<1.0	ug/L
Terbutryn	05/07/18	<0.10	<0.10	ug/L
	08/01/18	<0.10	<0.10	ug/L
	12/03/18	<0.10	<0.10	ug/L

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Parameter	Sample Date (mm/dd/yy)	Result Value P31	Result Value P32	Unit of Measure
1,1-Dichloroethylene (vinylidene chloride)	05/07/18	<0.50	<0.50	ug/L
	08/01/18	<0.50	<0.50	ug/L
	12/03/18	<0.50	<0.50	ug/L
1,2-Dichlorobenzene	05/07/18	<0.50	<0.50	ug/L
	08/01/18	<0.50	<0.50	ug/L
	12/03/18	<0.50	<0.50	ug/L

Parameter	Sample Date (mm/dd/yy)	Result Value P31	Result Value P32	Unit of Measure
1,2-Dichloroethane	05/07/18	<0.50	<0.50	ug/L
	08/01/18	<0.50	<0.50	ug/L
	12/03/18	<0.50	<0.50	ug/L
1,4-Dichlorobenzene	05/07/18	<0.50	<0.50	ug/L
	08/01/18	<0.50	<0.50	ug/L
	12/03/18	<0.50	<0.50	ug/L
2,3,4,6-Tetrachlorophenol	05/07/18	<0.50	<0.50	ug/L
	08/01/18	<0.50	<0.50	ug/L
	12/03/18	<0.50	<0.50	ug/L
2,4,5-Trichlorophenoxy acetic acid (2,4,5-T)	05/07/18	<0.50	<0.50	ug/L
	08/01/18	<0.50	<0.50	ug/L
	12/03/18	<0.50	<0.50	ug/L
2,4,6-Trichlorophenol	05/07/18	<0.50	<0.50	ug/L
	08/01/18	<0.50	<0.50	ug/L
	12/03/18	<0.50	<0.50	ug/L
2,4-Dichlorophenoxy acetic acid (2,4-D)	05/07/18	<0.20	<0.20	ug/L
	08/01/18	<0.20	<0.20	ug/L
	12/03/18	<0.20	<0.20	ug/L
2-4 Dichlorophenol	05/07/18	<0.30	<0.30	ug/L
	08/01/18	<0.30	<0.30	ug/L
	12/03/18	<0.30	<0.30	ug/L
Alachlor	05/07/18	<0.10	<0.10	ug/L
	08/01/18	<0.10	<0.10	ug/L
	12/03/18	<0.10	<0.10	ug/L
Aroclor 1242	05/07/18	<0.020	<0.020	ug/L
	08/01/18	<0.020	<0.020	ug/L
	12/03/18	<0.020	<0.020	ug/L
Aroclor 1254	05/07/18	<0.020	<0.020	ug/L
	08/01/18	<0.020	<0.020	ug/L
	12/03/18	<0.020	<0.020	ug/L
Aroclor 1260	05/07/18	<0.020	<0.020	ug/L
	08/01/18	<0.020	<0.020	ug/L
	12/03/18	<0.020	<0.020	ug/L
Atrazine	05/07/18	<0.10	<0.10	ug/L

Parameter	Sample Date (mm/dd/yy)	Result Value P31	Result Value P32	Unit of Measure
	08/01/18	<0.10	<0.10	ug/L
	12/03/18	<0.10	<0.10	ug/L
Atrazine + N-dealkylated metabolites (Atrazine+Desethyl-atrazine)	05/07/18	<0.20	<0.20	ug/L
	08/01/18	<0.20	<0.20	ug/L
	12/03/18	<0.20	<0.20	ug/L
Benzene	05/07/18	<0.50	<0.50	ug/L
	08/01/18	<0.50	<0.50	ug/L
	12/03/18	<0.50	<0.50	ug/L
Benzo(a)pyrene	05/07/18	<0.010	<0.010	ug/L
	08/01/18	<0.010	<0.010	ug/L
	12/03/18	<0.010	<0.010	ug/L
Bromoxynil	05/07/18	<0.20	<0.20	ug/L
	08/01/18	<0.20	<0.20	ug/L
	12/03/18	<0.20	<0.20	ug/L
Carbaryl	05/07/18	<0.20	<0.20	ug/L
	08/01/18	<0.20	<0.20	ug/L
	12/03/18	<0.20	<0.20	ug/L
Carbofuran	05/07/18	<0.20	<0.20	ug/L
	08/01/18	<0.20	<0.20	ug/L
	12/03/18	<0.20	<0.20	ug/L
Carbon Tetrachloride	05/07/18	<0.20	<0.20	ug/L
	08/01/18	<0.20	<0.20	ug/L
	12/03/18	<0.20	<0.20	ug/L
Chlorobenzene (Monochlorobenzene)	05/07/18	<0.50	<0.50	ug/L
	08/01/18	<0.50	<0.50	ug/L
	12/03/18	<0.50	<0.50	ug/L
Chlorpyrifos	05/07/18	<0.10	<0.10	ug/L
	08/01/18	<0.10	<0.10	ug/L
	12/03/18	<0.10	<0.10	ug/L
Diazinon	05/07/18	<0.10	<0.10	ug/L
	08/01/18	<0.10	<0.10	ug/L
	12/03/18	<0.10	<0.10	ug/L
Desethyl-atrazine	05/07/18	<0.10	<0.10	ug/L
	08/01/18	<0.10	<0.10	ug/L
	12/03/18	<0.10	<0.10	ug/L

Parameter	Sample Date (mm/dd/yy)	Result Value P31	Result Value P32	Unit of Measure
Dicamba	05/07/18	<0.20	<0.20	ug/L
	08/01/18	<0.20	<0.20	ug/L
	12/03/18	<0.20	<0.20	ug/L
Diclofop-methyl	05/07/18	<0.10	<0.10	ug/L
	08/01/18	<0.10	<0.10	ug/L
	12/03/18	<0.10	<0.10	ug/L
Dimethoate	05/07/18	<0.10	<0.10	ug/L
	08/01/18	<0.10	<0.10	ug/L
	12/03/18	<0.10	<0.10	ug/L
Diquat	05/07/18	<1.0	<1.0	ug/L
	08/01/18	<1.0	<1.0	ug/L
	12/03/18	<1.0	<1.0	ug/L
Diuron	05/07/18	<1.0	<1.0	ug/L
	08/01/18	<1.0	<1.0	ug/L
	12/03/18	<1.0	<1.0	ug/L
Ethylbenzene	05/07/18	<0.50	<0.50	ug/L
	08/01/18	<0.50	<0.50	ug/L
	12/03/18	<0.50	<0.50	ug/L
Glyphosate	05/07/18	<5.0	<5.0	ug/L
	08/01/18	<5.0	<5.0	ug/L
	12/03/18	<5.0	<5.0	ug/L
Guthion (Azinphos-methyl)	05/07/18	<0.10	<0.10	ug/L
	08/01/18	<0.10	<0.10	ug/L
	12/03/18	<0.10	<0.10	ug/L
Malathion	05/07/18	<0.10	<0.10	ug/L
	08/01/18	<0.10	<0.10	ug/L
	12/03/18	<0.10	<0.10	ug/L
MCPA	05/07/18	<0.20	<0.20	ug/L
	08/01/18	<0.20	<0.20	ug/L
	12/03/18	<0.20	<0.20	ug/L
Methylene Chloride (Dichloromethane)	05/07/18	<5.0	<5.0	ug/L
	08/01/18	<5.0	<5.0	ug/L
	12/03/18	<5.0	<5.0	ug/L
Metolachlor	05/07/18	<0.10	<0.10	ug/L

Parameter	Sample Date (mm/dd/yy)	Result Value P31	Result Value P32	Unit of Measure
	08/01/18	<0.10	<0.10	ug/L
	12/03/18	<0.10	<0.10	ug/L
Metribuzin	05/07/18	<0.10	<0.10	ug/L
	08/01/18	<0.10	<0.10	ug/L
	12/03/18	<0.10	<0.10	ug/L
Paraquat	05/07/18	<1.0	<1.0	ug/L
	08/01/18	1.5	1.2	ug/L
	12/03/18	<1.0	<1.0	ug/L
Pentachlorophenol	05/07/18	<0.50	<0.50	ug/L
	08/01/18	<0.50	<0.50	ug/L
	12/03/18	<0.50	<0.50	ug/L
Phorate	05/07/18	<0.10	<0.10	ug/L
	08/01/18	<0.10	<0.10	ug/L
	12/03/18	<0.10	<0.10	ug/L
Picloram	05/07/18	<0.20	<0.20	ug/L
	08/01/18	<0.20	<0.20	ug/L
	12/03/18	<0.20	<0.20	ug/L
Polychlorinated Biphenyls (PCB) total	05/07/18	<0.035	<0.035	ug/L
	08/01/18	<0.035	<0.035	ug/L
	12/03/18	<0.035	<0.035	ug/L
Prometryne	05/07/18	<0.10	<0.10	ug/L
	08/01/18	<0.10	<0.10	ug/L
	12/03/18	<0.10	<0.10	ug/L
Simazine	05/07/18	<0.10	<0.10	ug/L
	08/01/18	<0.10	<0.10	ug/L
	12/03/18	<0.10	<0.10	ug/L
Temephos	05/07/18	<1.0	<1.0	ug/L
	08/01/18	<1.0	<1.0	ug/L
	12/03/18	<1.0	<1.0	ug/L
Terbufos	05/07/18	<0.10	<0.10	ug/L
	08/01/18	<0.10	<0.10	ug/L
	12/03/18	<0.10	<0.10	ug/L
Tetrachloroethylene	05/07/18	<0.50	<0.50	ug/L
	08/01/18	<0.50	<0.50	ug/L
	12/03/18	<0.50	<0.50	ug/L

Parameter	Sample Date (mm/dd/yy)	Result Value P31	Result Value P32	Unit of Measure
Toluene	05/07/18	<0.50	<0.50	ug/L
	08/01/18	<0.50	<0.50	ug/L
	12/03/18	<0.50	<0.50	ug/L
Triallate	05/07/18	<0.10	<0.10	ug/L
	08/01/18	<0.10	<0.10	ug/L
	12/03/18	<0.10	<0.10	ug/L
Trichloroethylene	05/07/18	<0.50	<0.50	ug/L
	08/01/18	<0.50	<0.50	ug/L
	12/03/18	<0.50	<0.50	ug/L
Trifluralin	05/07/18	<0.10	<0.10	ug/L
	08/01/18	<0.10	<0.10	ug/L
	12/03/18	<0.10	<0.10	ug/L
Vinyl Chloride	05/07/18	<0.20	<0.20	ug/L
	08/01/18	<0.20	<0.20	ug/L
	12/03/18	<0.20	<0.20	ug/L
o-xylene	05/07/18	<0.50	<0.50	ug/L
	08/01/18	<0.50	<0.50	ug/L
	12/03/18	<0.50	<0.50	ug/L
m/p-xylene	05/07/18	<1.0	<1.0	ug/L
	08/01/18	<1.0	<1.0	ug/L
	12/03/18	<1.0	<1.0	ug/L

BETHEL WATER SUPPLY FACILITY

The Bethel Water Supply Facility consists of:

- a) Four drilled wells completed in the overburden, each are equipped with submersible pumps capable of pumping 15 l/s each except for P52 which has an 11 l/s pump;
- b) Three ion exchange vessels (2 duty and 1 standby) for nitrate removal (These are currently off-line due to significant reduction of nitrate concentration in the groundwater.);
- c) Two ultra violet reactors (1 duty and 1 standby) for primary disinfection;
- d) A sodium hypochlorite dosing system to provide primary and secondary disinfection via chlorination;
- e) A hydrofluorosilicic acid dosing system to provide fluoridation;
- f) Two chlorine contact tanks with a total volume of 293m³;
- g) Three 25L/s (two duty and one standby) high lift booster pumps that pump the water to the distribution system; and
- h) A maximum rated capacity of 4,320 m³/day.

Emergency stand-by power capable of powering full capacity of the facility is provided by a 250 kw diesel motor driven generator.

The wellfield is in a rural location surrounded by mostly agricultural lands. A new business park is being developed immediately north of the facility. A new aggregate mine is being developed immediately south of the facility.

List all water treatment chemicals used over this reporting period

12 % sodium hypochlorite solution used for disinfection

25 % hydrofluorosilicic acid solution used for fluoridation

Were any significant expenses incurred to?

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

Brief description and a breakdown of monetary expenses incurred:

None

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 the 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)
P51 (PW 1/12)	52	0-0	0-2	0-3	52	<10-260
P52 (TW 1/05)	52	0-0	0-280	0-380	52	<10-70
P53 (PW 2/12)	52	0-0	0-0	0-8	52	<10-60
P54 (PW4/12)	52	0-0	0-0	0-7	52	<10-10
Treated	52	0-0	0-0	0-1	52	<10-NDOGHPC*

*NDOGHPC means non-determinate overgrowth of HPC. HPC was not present in next sampling event.

Parameter	Sample Date (mm/dd/yy)	Result Value	Unit of Measure	Exceedance
Sodium	01/02/18	61*	mg/l	Yes

*Adverse sodium was reported in 2016 and only needs to be reported every 57 months.

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

Parameter	Sample Date (mm/dd/yy)	Result Value	Unit of Measure	Exceedance
1,1-Dichloroethylene	01/02/18	<0.10	µg/l	No
1,2-Dichlorobenzene	01/02/18	<0.20	µg/l	No
1,2-Dichloroethane	01/02/18	<0.20	µg/l	No
1,4-Dichlorobenzene	01/02/18	<0.20	µg/l	No
2,3,4,6-Tetrachlorophenol	01/02/18	<0.50	µg/l	No
2,4,6-Trichlorophenol	01/02/18	<0.50	µg/l	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	01/02/18	<1.0	µg/l	No
2-4 Dichlorophenol	01/02/18	<0.25	µg/l	No
Alachlor	01/02/18	<0.50	µg/l	No
Aroclor 1016	01/02/18	<0.05	µg/l	No
Aroclor 1221	01/02/18	<0.05	µg/l	No
Aroclor 1232	01/02/18	<0.05	µg/l	No
Aroclor 1242	01/02/18	<0.05	µg/l	No
Aroclor 1248	01/02/18	<0.05	µg/l	No
Aroclor 1254	01/02/18	<0.05	µg/l	No
Aroclor 1260	01/02/18	<0.05	µg/l	No
Atrazine	01/02/18	<0.50	µg/l	No
Atrazine + Desethyl atrazine	01/02/18	<1.0	µg/l	No
Benzene	01/02/18	<0.10	µg/l	No
Benzo(a)pyrene	01/02/18	<0.0090	µg/l	No
Bromoxynil	01/02/18	<0.50	µg/l	No
Carbaryl	01/02/18	<5.0	µg/l	No
Carbofuran	01/02/18	<5.0	µg/l	No

Parameter	Sample Date (mm/dd/yy)	Result Value	Unit of Measure	Exceedance
Carbon Tetrachloride	01/02/18	<0.10	µg/l	No
Chlorobenzene	01/02/18	<0.10	µg/l	No
Chlorpyrifos	01/02/18	<1.0	µg/l	No
Desethyl atrazine	01/02/18	<0.50	µg/l	No
Diazinon	01/02/18	<1.0	µg/l	No
Dicamba	01/02/18	<1.0	µg/l	No
Diclofop-methyl	01/02/18	<0.90	µg/l	No
Dimethoate	01/02/18	<2.5	µg/l	No
Diquat	01/02/18	<7.0	µg/l	No
Diuron	01/02/18	<10	µg/l	No
Glyphosate	01/02/18	<10	µg/l	No
Guthion	01/02/18	<2.0	µg/l	No
Malathion	01/02/18	<5.0	µg/l	No
Methylene Chloride	01/02/18	<0.50	µg/l	No
MCPA	01/02/18	<10	µg/l	No
Metolachlor	01/02/18	<0.50	µg/l	No
Metribuzin	01/02/18	<5.0	µg/l	No
Paraquat	01/02/18	<1.0	µg/l	No
Pentachlorophenol	01/02/18	<0.50	µg/l	No
Phorate	01/02/18	<0.50	µg/l	No
Picloram	01/02/18	<5.0	µg/l	No
Prometryne	01/02/18	<0.25	µg/l	No
Simazine	01/02/18	<1.0	µg/l	No
Terbufos	01/02/18	<0.50	µg/l	No
Tetrachloroethylene	01/02/18	<0.10	µg/l	No
Toluene	01/02/18	<0.20	µg/l	No
Total PCB	01/02/18	<0.05	µg/l	No
Triallate	01/02/18	<1.0	µg/l	No

Parameter	Sample Date (mm/dd/yy)	Result Value	Unit of Measure	Exceedance
Trichloroethylene	01/02/18	<0.10	µg/l	No
Trifluralin	01/02/18	<1.0	µg/l	No
Vinyl Chloride	01/02/18	<0.20	µg/l	No

Non regulatory RAW WATER samples were taken from Bethel Wells. 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)	P51 (PW 1/12)	P52 (TW 1/05)	P53 (PW 2/12)	P54 (PW 4/12)	Unit of Measure
Chloride	02/01/18	130	120	130	110	mg/l
	05/07/18	130	140	110	100	mg/l
	08/01/18	110	140	91	99	mg/l
	11/02/18	100	120	130	140	mg/l
Nitrate	02/01/18	0.70	0.34	1.03	0.49	mg/l
	05/07/18	0.72	0.27	0.99	0.56	mg/l
	08/01/18	0.76	0.29	0.89	0.44	mg/l
	11/02/18	0.57	0.32	0.85	0.41	mg/l
Sulphate	02/01/18	17	19	20	14	mg/l
	05/07/18	18	18	19	13	mg/l
	08/01/18	19	19	17	13	mg/l
	11/02/18	14	16	17	12	mg/l
Sodium	02/01/18	53	43	62	60	mg/l
	05/07/18	58	51	63	63	mg/l
	08/01/18	60	60	60	60	mg/l
	11/02/18	52	59	57	55	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			

DISTRIBUTION SYSTEM

Microbiological testing done under Section 8(2) 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)
Distribution	382	0-0	0-0	0-300	382	<10-NDOGHPC*

*NDOGHPC means non-determinate overgrowth of HPC. HPC was not present in next sampling event.

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
Free Chlorine Grab Daily Distribution Grab & Flushing + Bacti sampling	1164	0.40-1.25
Sharpe Reservoir Outlet – online chlorine	8760	0.60-0.92
Sharpe Reservoir Inlet – online chlorine	8760	0.58-1.10

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

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			

Were any significant expenses incurred to?

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

Brief description and a breakdown of monetary expenses incurred:

Cleaning and inspection of Sharpe Reservoir \$7.5k

Parameter	Date Sampled (mm/dd/yy)	Unit of Measure	11 Chapel St.	57 Schuyler St.	557 Paris Rd.	HYD PRS90308 (Adi Dassler Way)
THM	02/05/18	µg/l	7.20		8.20	10.6
	05/10/18	µg/l				
	08/13/18	µg/l	8.67			
	11/01/18	µg/l				

Parameter	Date Sampled (mm/dd/yy)	Unit of Measure	HYD 1-001 Scott St.	HYD 1-014 North Tower
Total Haloacetic Acids Gilbert distribution	02/05/18	µg/l	<5.0	<5.0
	05/10/18	µg/l	<5.0	
	08/07/18	µg/l	<5.0	
	11/01/18	µg/l	<5.0	

Parameter	Date Sampled (mm/dd/yy)	Unit of Measure	HYD 1-173 West River Rd.
Total Haloacetic Acids Telfer distribution	02/05/18	µg/l	<5.0
	05/10/18	µg/l	<5.0
	08/07/18	µg/l	<5.0
	11/01/18	µg/l	<5.0

Parameter	Date Sampled (mm/dd/yy)	Unit of Measure	HYD @ 31 Folstetter
Total Haloacetic Acids Bethel distribution	02/05/18	µg/l	<5.0
	05/10/18	µg/l	<5.0
	08/07/18	µg/l	<5.0
	11/01/18	µg/l	<5.0

List any Inorganic or Organic (Distribution 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			