Township of Centre Wellington

Annual Water Report

Centre Wellington Drinking Water System - 20000086

Prepared:

February 2021

Annual Water Report

For the period of January 1, 2020 – December 31, 2020

Centre Wellington Drinking Water System – 220000086

Annual Report Introduction:

As per the Safe Drinking Water Act, 2002 Ontario Regulation 170/03 Section 11, an Annual Report must be prepared for the period from January 1 to December 31 and must be completed not later than February 28 of the following year.

The Annual Report must include:

- a brief description of the drinking water system;
- a list of water treatment chemicals used;
- a summary of the most recent water test results required under O. Regulation 170/03 or an approval, Municipal Drinking Water Licence or an order;
- a summary of adverse test results and other issues reported to the Ministry of Environment, Conservation and Parks (MECP) including corrective actions taken;
- a description of major expenses incurred to install, repair or replace required equipment;
- the locations where this report is available for inspection.

A copy of the report is available for viewing at:

- Infrastructure Services Office, 7444 County Road 21, Elora
- Municipal Civic Centre, 1 MacDonald Square, Elora
- Online at www.centrewellington.ca

Drinking Water System Description

The Centre Wellington Drinking Water System is a large municipal residential system and is supplied by nine groundwater well sources. One source well is off line and does not contribute to the system at this time (Fergus Well 2).

The distribution system covers the village of Elora and the town of Fergus and is connected by a booster station. It serves a population of approximately 21,000 people and it is comprised of the following infrastructure:

- 121 km of buried watermain;
- 4 elevated storage towers; and
- Watermain valves, service valves, fire hydrants, and water meters.

Water Treatment Chemicals

The raw water is treated with chlorine gas at all production well sites and if needed, re-chlorination using sodium hypochlorite at the booster station and two tower locations.

Drinking Water Test Results

From January 1 to December 31, 2020, all regulatory microbiological and chemical quality samples were collected throughout the drinking water system by certified operators and tests were performed by an accredited, licensed laboratory.

1) Adverse Test Results reported under the Safe Drinking Water Act, 18(1) or O. Regulation 170/03, Schedule 16-4.
   a) Adverse Water Quality Incidents (AWQI) refers to any unusual test result that does not meet a provincial water quality standard or a situation where the disinfection of the drinking water may be compromised.

Table 1: Adverse Water Quality Incidents

Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
Sept 3, 2020	Total Coliform	14	MPN/100 mL	Resampled as required. Sample results were clear.	Sept 8, 2020

2) Microbiological Testing completed under O. Regulation 170/03, Schedule 10.
   a) The Owner of the drinking water system must ensure water samples are taken at least once every week from the raw water supply, before any treatment has been applied to the water. Raw water samples are taken at all well sites and are tested for Total Coliform and Escherichia coli (E.coli).
   b) The owner of the drinking water system must ensure water samples are taken at least once every week from the treated water supply. Treated water samples are taken at all well sites and are tested for Total Coliform, Heterotrophic Plate Count (HPC) and E.coli.

c) The owner of the drinking water system must ensure water samples are taken from the distribution system once every week and the number of samples is based on population served. Distribution water samples are tested for Total Coliform, Heterotrophic Plate Count (HPC) and E.coli.

Table 2: Microbiological Test Results

Type of Sample	Number of Samples	Range (minimum – maximum)	Unit of Measure
Raw – Total Coliform	379	0 – 0	MPN/100 mL
Raw – E.coli	379	0 – 0	MPN/100 mL
Treated – Total Coliform	377	0 – 14	MPN/100 mL
Treated – E.coli	377	0 – 0	MPN/100 mL
Treated – HPC	377	0 – 18	cfu/mL
Distribution – Total Coliform	515	0 – 0	MPN/100 mL
Distribution – E.coli	515	0 – 0	MPN/100 mL
Distribution – HPC	515	0 – 227	cfu/ mL

3) Operational Checks completed under O. Regulation 170/03, Schedule 7
   a) The owner of a drinking water system that provides chlorination for primary disinfection must ensure that sampling and testing for free chlorine residual is carried out by continuous monitoring equipment. The number of samples taken for continuous monitoring is considered to be 8,760.
   b) The owner of a drinking water system must ensure that a water sample is taken at least once per month, from a location that is before raw water enters the treatment system, and is tested for turbidity. If the system obtains water from a raw water supply that is groundwater, then a sample must be taken from each well that is supplying water to the system.

Table 3: Chlorine and Turbidity Results

Parameter	Number of Samples	Range (minimum – maximum)	Unit of measure
Chlorine	8,760	0.20 – 3.06	mg/L
Turbidity	377	0.08 – 1.61	NTU

4) Treated Water Quality Results under O. Regulation 170/03, Schedule 13-6 and 13-7
   a) The owner of a drinking water system that provides chlorination must ensure that at least one distribution sample is taken in each calendar quarter, and tested for trihalomethanes (THMs). The sample must be taken at a point in the system that is likely to have an elevated potential for the formation of THMs. The annual report value is based on a running annual average (RAA) of quarterly THMs results.
   b) The owner of a drinking water system that provides chlorination must ensure that at least one distribution sample is taken in each calendar quarter, and tested for haloacetic acids (HAAs). The sample must be taken at a point in the system that is likely to have an elevated potential for the formation of HAAs. The annual report value is based on a running annual average (RAA) of quarterly HAAs results.

c) The owner of a drinking water system must ensure that at least one water sample is taken every three months and tested for nitrate and nitrite. Samples were taken at every well site that is supplying water to the system.
d) The Drinking Water Standard (STND) for the parameters are listed as per O. Regulation 169/03 Schedule 2.

Table 4: Trihalomethanes Running Annual Average (RAA)

Location	Date	THMs RAA	THMs STND	Unit of Measure
Distribution	2020 Sampling	10.8	100	ug/L

Table 5: Haloacetic Acids Running Annual Average (RAA)

Location	Date	HAAs RAA	HAAs STND	Unit of Measure
Distribution	2020 Sampling	2.6	80	ug/L

Table 6: Nitrate and Nitrite Results (4th sampling round in 2020; 3rd sampling round for F7)

Location	Date	Nitrate (as Nitrogen)	Nitrate STND	Nitrite (as Nitrogen)	Nitrite STND	Unit of Measure
Fergus Well 1	November 9, 2020	0.910	10	<0.010	1.0	mg/L
Fergus Well 4	November 9, 2020	0.164	10	<0.010	1.0	mg/L
Fergus Well 5	November 16, 2020	0.271	10	<0.010	1.0	mg/L
Fergus Well 6	November 9, 2020	<0.020	10	<0.010	1.0	mg/L
Fergus Well 7	August 11, 2020	<0.020	10	<0.010	1.0	mg/L
Elora Well 1	November 9, 2020	<0.020	10	<0.010	1.0	mg/L
Elora Well 3	November 9, 2020	0.090	10	<0.010	1.0	mg/L
Elora Well 4	November 9, 2020	<0.020	10	<0.010	1.0	mg/L

Fergus Well 7 has been off line since September 4, 2020 due to well packer failure. As a result, 4th quarter samples could not be obtained.

5) Treated Water Quality Results under O. Regulation 170/03, Schedule 13-2
   a) The owner of a drinking water system must ensure that at least one water sample is taken every 36 months and tested for Schedule 23, Inorganics. Samples were taken at every well site that is supplying water to the system.
   b) The Drinking Water Standards (STND) for the parameters are listed as per O. Regulation 169/03 Schedule 2.

Table 7: Fergus Well 1 Schedule 23 Inorganic Results

Parameter	Sample Date	Result	STND	Unit of Measure
Antimony	Jan 17, 2018	<0.60	6	ug/L
Arsenic	Jan 17, 2018	<1.0	10	ug/L
Barium	Jan 17, 2018	53	1,000	ug/L
Boron	Jan 17, 2018	<50	5,000	ug/L
Cadmium	Jan 17, 2018	<0.10	5	ug/L
Chromium	Jan 17, 2018	<1.0	50	ug/L
Mercury	Jan 17, 2018	<0.10	1	ug/L
Selenium	Jan 17, 2018	<5.0	50	ug/L
Uranium	Jan 17, 2018	<5.0	20	ug/L

Table 8: Fergus Well 4 Schedule 23 Inorganic Results

Parameter	Sample Date	Result	STND	Unit of Measure
Antimony	Jan 17, 2018	<0.60	6	ug/L
Arsenic	Jan 17, 2018	<1.0	10	ug/L
Barium	Jan 17, 2018	31	1,000	ug/L
Boron	Jan 17, 2018	67	5,000	ug/L
Cadmium	Jan 17, 2018	<0.10	5	ug/L
Chromium	Jan 17, 2018	<1.0	50	ug/L
Mercury	Jan 17, 2018	<0.10	1	ug/L
Selenium	Jan 17, 2018	<5.0	50	ug/L
Uranium	Jan 17, 2018	<5.0	20	ug/L

Table 9: Fergus Well 5 Schedule 23 Inorganic Results

Parameter	Sample Date	Result	STND	Unit of Measure
Antimony	Jan 17, 2018	<0.60	6	ug/L
Arsenic	Jan 17, 2018	<1.0	10	ug/L
Barium	Jan 17, 2018	46	1,000	ug/L
Boron	Jan 17, 2018	<50	5,000	ug/L
Cadmium	Jan 17, 2018	<0.10	5	ug/L
Chromium	Jan 17, 2018	<1.0	50	ug/L
Mercury	Jan 17, 2018	<0.10	1	ug/L
Selenium	Jan 17, 2018	<5.0	50	ug/L
Uranium	Jan 17, 2018	<5.0	20	ug/L

Table 10: Fergus Well 6 Schedule 23 Inorganic Results

Parameter	Sample Date	Result	STND	Unit of Measure
Antimony	Jan 17, 2018	<0.60	6	ug/L
Arsenic	Jan 17, 2018	<1.0	10	ug/L
Barium	Jan 17, 2018	21	1,000	ug/L
Boron	Jan 17, 2018	90	5,000	ug/L
Cadmium	Jan 17, 2018	<0.10	5	ug/L
Chromium	Jan 17, 2018	<1.0	50	ug/L
Mercury	Jan 17, 2018	<0.10	1	ug/L
Selenium	Jan 17, 2018	<5.0	50	ug/L
Uranium	Jan 17, 2018	<5.0	20	ug/L

Table 11: Fergus Well 7 Schedule 23 Inorganic Results

Parameter	Sample Date	Result	STND	Unit of Measure
Antimony	Jan 17, 2018	<0.60	6	ug/L
Arsenic	Jan 17, 2018	2.4	10	ug/L
Barium	Jan 17, 2018	23	1,000	ug/L
Boron	Jan 17, 2018	59	5,000	ug/L
Cadmium	Jan 17, 2018	<0.10	5	ug/L
Chromium	Jan 17, 2018	<1.0	50	ug/L
Mercury	Jan 17, 2018	<0.10	1	ug/L

Parameter	Sample Date	Result	STND	Unit of Measure
Selenium	Jan 17, 2018	<5.0	50	ug/L
Uranium	Jan 17, 2018	<5.0	20	ug/L

Table 12: Elora Well 1 Schedule 23 Inorganic Results

Parameter	Sample Date	Result	STND	Unit of Measure
Antimony	Jan 17, 2018	<0.60	6	ug/L
Arsenic	Jan 17, 2018	<1.0	10	ug/L
Barium	Jan 17, 2018	26	1,000	ug/L
Boron	Jan 17, 2018	<50	5,000	ug/L
Cadmium	Jan 17, 2018	<0.10	5	ug/L
Chromium	Jan 17, 2018	<1.0	50	ug/L
Mercury	Jan 17, 2018	<0.10	1	ug/L
Selenium	Jan 17, 2018	<5.0	50	ug/L
Uranium	Jan 17, 2018	<5.0	20	ug/L

Table 13: Elora Well 3 Schedule 23 Inorganic Results

Parameter	Sample Date	Result	STND	Unit of Measure
Antimony	Jan 17, 2018	<0.60	6	ug/L
Arsenic	Jan 17, 2018	<1.0	10	ug/L
Barium	Jan 17, 2018	30	1,000	ug/L
Boron	Jan 17, 2018	<50	5,000	ug/L
Cadmium	Jan 17, 2018	<0.10	5	ug/L
Chromium	Jan 17, 2018	<1.0	50	ug/L
Mercury	Jan 17, 2018	<0.10	1	ug/L
Selenium	Jan 17, 2018	<5.0	50	ug/L
Uranium	Jan 17, 2018	<5.0	20	ug/L

Table 14: Elora Well 4 Schedule 23 Inorganic Results

Parameter	Sample Date	Result	STND	Unit of Measure
Antimony	Jan 17, 2018	<0.60	6	ug/L
Arsenic	Jan 17, 2018	<1.0	10	ug/L
Barium	Jan 17, 2018	20	1,000	ug/L
Boron	Jan 17, 2018	<50	5,000	ug/L
Cadmium	Jan 17, 2018	<0.10	5	ug/L
Chromium	Jan 17, 2018	<1.0	50	ug/L
Mercury	Jan 17, 2018	<0.10	1	ug/L
Selenium	Jan 17, 2018	<5.0	50	ug/L
Uranium	Jan 17, 2018	<5.0	20	ug/L

6) Treated Water Quality Results under O. Regulation 170/03, Schedule 13-8 and 13-9
   a) The owner of a drinking water system must ensure that at least one water sample is taken every 60 months and tested for sodium. Samples were taken at every well site that is supplying water to the system.

b) The owner of a drinking water system must ensure that at least one water sample is taken every 60 months and tested for fluoride. Samples were taken at every well site that is supplying water to the system.
c) The Drinking Water Standards (STND) for the parameters are listed as per O. Regulation 169/03 Schedule 2.
d) The aesthetic objective (AO) for sodium in drinking water is 200 mg/L. The local Medical Officer of Health must be notified when the sodium concentration exceeds 20 mg/L.

Table 15: Sodium and Fluoride Results

Location	Sample Date	Sodium	Sodium AO	Fluoride	Fluoride STND	Unit of Measure
Fergus Well 1	Jan 19, 2016	63.6	200	0.40	1.5	mg/L
Fergus Well 4	Jan 19, 2016	25.4	200	0.90	1.5	mg/L
Fergus Well 5	Jan 19, 2016	9.59	200	0.12	1.5	mg/L
Fergus Well 6	Jan 19, 2016	35.7	200	0.34	1.5	mg/L
Fergus Well 7	Jan 19, 2016	21.5	200	0.37	1.5	mg/L
Elora Well 1	Jan 19, 2016	17.3	200	0.28	1.5	mg/L
Elora Well 3	Jan 19, 2016	10.3	200	<0.10	1.5	mg/L
Elora Well 4	Jan 19, 2016	14.3	200	0.25	1.5	mg/L

7) Treated Water Quality Results under O. Regulation 170/03, Schedule 13-4
a) The owner of a drinking water system must ensure that at least one water sample is taken every 36 months and tested for Schedule 24 parameters. Samples were taken at every well site that is supplying water to the system.
b) The Drinking Water Standards (STND) for the parameters are listed as per O. Regulation 169/03 Schedule 2.

Table 16: Fergus Well 1 Schedule 24 Organic Results

Parameter	Sample Date	Result	STND	Unit of Measure
Alachlor	Feb 26, 2018	<0.10	5	ug/L
Atrazine + N-dealkylated metobolites	Feb 26, 2018	<0.20	5	ug/L
Azinphos-methyl	Feb 26, 2018	<0.10	20	ug/L
Benzene	Feb 26, 2018	<0.50	1	ug/L
Benzo(a)pyrene	Feb 26, 2018	<0.010	0.01	ug/L
Bromoxynil	Feb 26, 2018	<0.20	5	ug/L
Carbaryl	Feb 26, 2018	<0.20	90	ug/L
Carbofuran	Feb 26, 2018	<0.20	90	ug/L
Carbon Tetrachloride	Feb 26, 2018	<0.20	2	ug/L
Chlorpyrifos	Feb 26, 2018	<0.10	90	ug/L
Diazinon	Feb 26, 2018	<0.10	20	ug/L
Dicamba	Feb 26, 2018	<0.20	120	ug/L
1,2-Dichlorobenzene	Feb 26, 2018	<0.50	200	ug/L
1,4-Dichlorobenzene	Feb 26, 2018	<0.50	5	ug/L
1,2-Dichloroethane	Feb 26, 2018	<0.50	5	ug/L
1,1-Dichloroethylene (vinylidene chloride)	Feb 26, 2018	<0.50	14	ug/L

Parameter	Sample Date	Result	STND	Unit of Measure
Dichloromethane	Feb 26, 2018	<5.0	50	ug/L
2-4 Dichlorophenol	Feb 26, 2018	<0.30	900	ug/L
2,4-Dichlorophenoxy acetic acid (2,4-D)	Feb 26, 2018	<0.20	100	ug/L
Diclofop-methyl	Feb 26, 2018	<0.20	9	ug/L
Dimethoate	Feb 26, 2018	<0.10	20	ug/L
Diquat	Feb 26, 2018	<1.0	70	ug/L
Diuron	Feb 26, 2018	<1.0	150	ug/L
Glyphosate	Feb 26, 2018	<5.0	280	ug/L
Malathion	Feb 26, 2018	<0.10	190	ug/L
2 Methyl-4-chlorophenoxyacetic acid	Feb 26, 2018	<0.20	100	ug/L
Metolachlor	Feb 26, 2018	<0.10	50	ug/L
Metribuzin	Feb 26, 2018	<0.10	80	ug/L
Monochlorobenzene	Feb 26, 2018	<0.50	80	ug/L
Paraquat	Feb 26, 2018	<1.0	10	ug/L
Pentachlorophenol	Feb 26, 2018	<0.50	60	ug/L
Phorate	Feb 26, 2018	<0.10	2	ug/L
Picloram	Feb 26, 2018	<0.60	190	ug/L
Polychlorinated Biphenyls (PCB)	Feb 26, 2018	<0.035	3	ug/L
Prometryne	Feb 26, 2018	<0.10	1	ug/L
Simazine	Feb 26, 2018	<0.10	10	ug/L
Terbufos	Feb 26, 2018	<0.20	1	ug/L
Tetrachloroethylene	Feb 26, 2018	<0.50	30	ug/L
2,3,4,6-Tetrachlorophenol	Feb 26, 2018	<0.50	100	ug/L
Triallate	Feb 26, 2018	<0.10	230	ug/L
Trichloroethylene	Feb 26, 2018	<0.50	5	ug/L
2,4,6-Trichlorophenol	Feb 26, 2018	<0.50	5	ug/L
Trifluralin	Feb 26, 2018	<0.10	45	ug/L
Vinyl Chloride	Feb 26, 2018	<0.20	1	ug/L

Table 17: Fergus Well 4 Schedule 24 Organic Results

Parameter	Sample Date	Result	STND	Unit of Measure
Alachlor	Feb 26, 2018	<0.10	5	ug/L
Atrazine + N-dealkylated metobolites	Feb 26, 2018	<0.20	5	ug/L
Azinphos-methyl	Feb 26, 2018	<0.10	20	ug/L
Benzene	Feb 26, 2018	<0.50	1	ug/L
Benzo(a)pyrene	Feb 26, 2018	<0.010	0.01	ug/L
Bromoxynil	Feb 26, 2018	<0.20	5	ug/L
Carbaryl	Feb 26, 2018	<0.20	90	ug/L
Carbofuran	Feb 26, 2018	<0.20	90	ug/L
Carbon Tetrachloride	Feb 26, 2018	<0.20	2	ug/L
Chlorpyrifos	Feb 26, 2018	<0.10	90	ug/L
Diazinon	Feb 26, 2018	<0.10	20	ug/L
Dicamba	Feb 26, 2018	<0.20	120	ug/L
1,2-Dichlorobenzene	Feb 26, 2018	<0.50	200	ug/L

Parameter	Sample Date	Result	STND	Unit of Measure
1,4-Dichlorobenzene	Feb 26, 2018	<0.50	5	ug/L
1,2-Dichloroethane	Feb 26, 2018	<0.50	5	ug/L
1,1-Dichloroethylene (vinylidene chloride)	Feb 26, 2018	<0.50	14	ug/L
Dichloromethane	Feb 26, 2018	<5.0	50	ug/L
2-4 Dichlorophenol	Feb 26, 2018	<0.30	900	ug/L
2,4-Dichlorophenoxy acetic acid (2,4-D)	Feb 26, 2018	<0.20	100	ug/L
Diclofop-methyl	Feb 26, 2018	<0.20	9	ug/L
Dimethoate	Feb 26, 2018	<0.10	20	ug/L
Diquat	Feb 26, 2018	<1.0	70	ug/L
Diuron	Feb 26, 2018	<1.0	150	ug/L
Glyphosate	Feb 26, 2018	<5.0	280	ug/L
Malathion	Feb 26, 2018	<0.10	190	ug/L
2 Methyl-4-chlorophenoxyacetic acid	Feb 26, 2018	<0.20	100	ug/L
Metolachlor	Feb 26, 2018	<0.10	50	ug/L
Metribuzin	Feb 26, 2018	<0.10	80	ug/L
Monochlorobenzene	Feb 26, 2018	<0.50	80	ug/L
Paraquat	Feb 26, 2018	<1.0	10	ug/L
Pentachlorophenol	Feb 26, 2018	<0.50	60	ug/L
Phorate	Feb 26, 2018	<0.10	2	ug/L
Picloram	Feb 26, 2018	<0.60	190	ug/L
Polychlorinated Biphenyls(PCB)	Feb 26, 2018	<0.035	3	ug/L
Prometryne	Feb 26, 2018	<0.10	1	ug/L
Simazine	Feb 26, 2018	<0.10	10	ug/L
Terbufos	Feb 26, 2018	<0.20	1	ug/L
Tetrachloroethylene	Feb 26, 2018	<0.50	30	ug/L
2,3,4,6-Tetrachlorophenol	Feb 26, 2018	<0.50	100	ug/L
Triallate	Feb 26, 2018	<0.10	230	ug/L
Trichloroethylene	Feb 26, 2018	<0.50	5	ug/L
2,4,6-Trichlorophenol	Feb 26, 2018	<0.50	5	ug/L
Trifluralin	Feb 26, 2018	<0.10	45	ug/L
Vinyl Chloride	Feb 26, 2018	<0.20	1	ug/L

Table 18: Fergus Well 5 Schedule 24 Organic Results

Parameter	Sample Date	Result	STND	Unit of Measure
Alachlor	Feb 26, 2018	<0.10	5	ug/L
Atrazine + N-dealkylated metobolites	Feb 26, 2018	<0.20	5	ug/L
Azinphos-methyl	Feb 26, 2018	<0.10	20	ug/L
Benzene	Feb 26, 2018	<0.50	1	ug/L
Benzo(a)pyrene	Feb 26, 2018	<0.010	0.01	ug/L
Bromoxynil	Feb 26, 2018	<0.20	5	ug/L
Carbaryl	Feb 26, 2018	<0.20	90	ug/L
Carbofuran	Feb 26, 2018	<0.20	90	ug/L
Carbon Tetrachloride	Feb 26, 2018	<0.20	2	ug/L

Parameter	Sample Date	Result	STND	Unit of Measure
Chlorpyrifos	Feb 26, 2018	<0.10	90	ug/L
Diazinon	Feb 26, 2018	<0.10	20	ug/L
Dicamba	Feb 26, 2018	<0.20	120	ug/L
1,2-Dichlorobenzene	Feb 26, 2018	<0.50	200	ug/L
1,4-Dichlorobenzene	Feb 26, 2018	<0.50	5	ug/L
1,2-Dichloroethane	Feb 26, 2018	<0.50	5	ug/L
1,1-Dichloroethylene (vinylidene chloride)	Feb 26, 2018	<0.50	14	ug/L
Dichloromethane	Feb 26, 2018	<5.0	50	ug/L
2-4 Dichlorophenol	Feb 26, 2018	<0.30	900	ug/L
2,4-Dichlorophenoxy acetic acid (2,4-D)	Feb 26, 2018	<0.20	100	ug/L
Diclofop-methyl	Feb 26, 2018	<0.20	9	ug/L
Dimethoate	Feb 26, 2018	<0.10	20	ug/L
Diquat	Feb 26, 2018	<1.0	70	ug/L
Diuron	Feb 26, 2018	<1.0	150	ug/L
Glyphosate	Feb 26, 2018	<5.0	280	ug/L
Malathion	Feb 26, 2018	<0.10	190	ug/L
2 Methyl-4-chlorophenoxyacetic acid	Feb 26, 2018	<0.20	100	ug/L
Metolachlor	Feb 26, 2018	<0.10	50	ug/L
Metribuzin	Feb 26, 2018	<0.10	80	ug/L
Monochlorobenzene	Feb 26, 2018	<0.50	80	ug/L
Paraquat	Feb 26, 2018	<1.0	10	ug/L
Pentachlorophenol	Feb 26, 2018	<0.50	60	ug/L
Phorate	Feb 26, 2018	<0.10	2	ug/L
Picloram	Feb 26, 2018	<0.60	190	ug/L
Polychlorinated Biphenyls(PCB)	Feb 26, 2018	<0.035	3	ug/L
Prometryne	Feb 26, 2018	<0.10	1	ug/L
Simazine	Feb 26, 2018	<0.10	10	ug/L
Terbufos	Feb 26, 2018	<0.20	1	ug/L
Tetrachloroethylene	Feb 26, 2018	<0.50	30	ug/L
2,3,4,6-Tetrachlorophenol	Feb 26, 2018	<0.50	100	ug/L
Triallate	Feb 26, 2018	<0.10	230	ug/L
Trichloroethylene	Feb 26, 2018	<0.50	5	ug/L
2,4,6-Trichlorophenol	Feb 26, 2018	<0.50	5	ug/L
Trifluralin	Feb 26, 2018	<0.10	45	ug/L
Vinyl Chloride	Feb 26, 2018	<0.20	1	ug/L

Table 19: Fergus Well 6 Schedule 24 Organic Results

Parameter	Sample Date	Result	STND	Unit of Measure
Alachlor	Feb 26, 2018	<0.10	5	ug/L
Atrazine + N-dealkylated metobolites	Feb 26, 2018	<0.20	5	ug/L
Azinphos-methyl	Feb 26, 2018	<0.10	20	ug/L
Benzene	Feb 26, 2018	<0.50	1	ug/L
Benzo(a)pyrene	Feb 26, 2018	<0.010	0.01	ug/L

Parameter	Sample Date	Result	STND	Unit of Measure
Bromoxynil	Feb 26, 2018	<0.20	5	ug/L
Carbaryl	Feb 26, 2018	<0.20	90	ug/L
Carbofuran	Feb 26, 2018	<0.20	90	ug/L
Carbon Tetrachloride	Feb 26, 2018	<0.20	2	ug/L
Chlorpyrifos	Feb 26, 2018	<0.10	90	ug/L
Diazinon	Feb 26, 2018	<0.10	20	ug/L
Dicamba	Feb 26, 2018	<0.20	120	ug/L
1,2-Dichlorobenzene	Feb 26, 2018	<0.50	200	ug/L
1,4-Dichlorobenzene	Feb 26, 2018	<0.50	5	ug/L
1,2-Dichloroethane	Feb 26, 2018	<0.50	5	ug/L
1,1-Dichloroethylene (vinylidene chloride)	Feb 26, 2018	<0.50	14	ug/L
Dichloromethane	Feb 26, 2018	<5.0	50	ug/L
2-4 Dichlorophenol	Feb 26, 2018	<0.30	900	ug/L
2,4-Dichlorophenoxy acetic acid (2,4-D)	Feb 26, 2018	<0.20	100	ug/L
Diclofop-methyl	Feb 26, 2018	<0.20	9	ug/L
Dimethoate	Feb 26, 2018	<0.10	20	ug/L
Diquat	Feb 26, 2018	<1.0	70	ug/L
Diuron	Feb 26, 2018	<1.0	150	ug/L
Glyphosate	Feb 26, 2018	<5.0	280	ug/L
Malathion	Feb 26, 2018	<0.10	190	ug/L
2 Methyl-4-chlorophenoxyacetic acid	Feb 26, 2018	<0.20	100	ug/L
Metolachlor	Feb 26, 2018	<0.10	50	ug/L
Metribuzin	Feb 26, 2018	<0.10	80	ug/L
Monochlorobenzene	Feb 26, 2018	<0.50	80	ug/L
Paraquat	Feb 26, 2018	<1.0	10	ug/L
Pentachlorophenol	Feb 26, 2018	<0.50	60	ug/L
Phorate	Feb 26, 2018	<0.10	2	ug/L
Picloram	Feb 26, 2018	<0.60	190	ug/L
Polychlorinated Biphenyls(PCB)	Feb 26, 2018	<0.035	3	ug/L
Prometryne	Feb 26, 2018	<0.10	1	ug/L
Simazine	Feb 26, 2018	<0.10	10	ug/L
Terbufos	Feb 26, 2018	<0.20	1	ug/L
Tetrachloroethylene	Feb 26, 2018	<0.50	30	ug/L
2,3,4,6-Tetrachlorophenol	Feb 26, 2018	<0.50	100	ug/L
Triallate	Feb 26, 2018	<0.10	230	ug/L
Trichloroethylene	Feb 26, 2018	<0.50	5	ug/L
2,4,6-Trichlorophenol	Feb 26, 2018	<0.50	5	ug/L
Trifluralin	Feb 26, 2018	<0.10	45	ug/L
Vinyl Chloride	Feb 26, 2018	<0.20	1	ug/L

Table 20: Fergus Well 7 Schedule 24 Organic Results

Parameter	Sample Date	Result	STND	Unit of Measure
Alachlor	Feb 26, 2018	<0.10	5	ug/L

Parameter	Sample Date	Result	STND	Unit of Measure
Atrazine + N-dealkylated metobolites	Feb 26, 2018	<0.20	5	ug/L
Azinphos-methyl	Feb 26, 2018	<0.10	20	ug/L
Benzene	Feb 26, 2018	<0.50	1	ug/L
Benzo(a)pyrene	Feb 26, 2018	<0.010	0.01	ug/L
Bromoxynil	Feb 26, 2018	<0.20	5	ug/L
Carbaryl	Feb 26, 2018	<0.20	90	ug/L
Carbofuran	Feb 26, 2018	<0.20	90	ug/L
Carbon Tetrachloride	Feb 26, 2018	<0.20	2	ug/L
Chlorpyrifos	Feb 26, 2018	<0.10	90	ug/L
Diazinon	Feb 26, 2018	<0.10	20	ug/L
Dicamba	Feb 26, 2018	<0.20	120	ug/L
1,2-Dichlorobenzene	Feb 26, 2018	<0.50	200	ug/L
1,4-Dichlorobenzene	Feb 26, 2018	<0.50	5	ug/L
1,2-Dichloroethane	Feb 26, 2018	<0.50	5	ug/L
1,1-Dichloroethylene (vinylidene chloride)	Feb 26, 2018	<0.50	14	ug/L
Dichloromethane	Feb 26, 2018	<5.0	50	ug/L
2-4 Dichlorophenol	Feb 26, 2018	<0.30	900	ug/L
2,4-Dichlorophenoxy acetic acid (2,4-D)	Feb 26, 2018	<0.20	100	ug/L
Diclofop-methyl	Feb 26, 2018	<0.20	9	ug/L
Dimethoate	Feb 26, 2018	<0.10	20	ug/L
Diquat	Feb 26, 2018	<1.0	70	ug/L
Diuron	Feb 26, 2018	<1.0	150	ug/L
Glyphosate	Feb 26, 2018	<5.0	280	ug/L
Malathion	Feb 26, 2018	<0.10	190	ug/L
2 Methyl-4-chlorophenoxyacetic acid	Feb 26, 2018	<0.20	100	ug/L
Metolachlor	Feb 26, 2018	<0.10	50	ug/L
Metribuzin	Feb 26, 2018	<0.10	80	ug/L
Monochlorobenzene	Feb 26, 2018	<0.50	80	ug/L
Paraquat	Feb 26, 2018	<1.0	10	ug/L
Pentachlorophenol	Feb 26, 2018	<0.50	60	ug/L
Phorate	Feb 26, 2018	<0.10	2	ug/L
Picloram	Feb 26, 2018	<0.60	190	ug/L
Polychlorinated Biphenyls(PCB)	Feb 26, 2018	<0.035	3	ug/L
Prometryne	Feb 26, 2018	<0.10	1	ug/L
Simazine	Feb 26, 2018	<0.10	10	ug/L
Terbufos	Feb 26, 2018	<0.20	1	ug/L
Tetrachloroethylene	Feb 26, 2018	<0.50	30	ug/L
2,3,4,6-Tetrachlorophenol	Feb 26, 2018	<0.50	100	ug/L
Triallate	Feb 26, 2018	<0.10	230	ug/L
Trichloroethylene	Feb 26, 2018	<0.50	5	ug/L
2,4,6-Trichlorophenol	Feb 26, 2018	<0.50	5	ug/L
Trifluralin	Feb 26, 2018	<0.10	45	ug/L
Vinyl Chloride	Feb 26, 2018	<0.20	1	ug/L

Table 21: Elora Well 1 Schedule 24 Organic Results

Parameter	Sample Date	Result	STND	Unit of Measure
Alachlor	Feb 26, 2018	<0.10	5	ug/L
Atrazine + N-dealkylated metobolites	Feb 26, 2018	<0.20	5	ug/L
Azinphos-methyl	Feb 26, 2018	<0.10	20	ug/L
Benzene	Feb 26, 2018	<0.50	1	ug/L
Benzo(a)pyrene	Feb 26, 2018	<0.010	0.01	ug/L
Bromoxynil	Feb 26, 2018	<0.20	5	ug/L
Carbaryl	Feb 26, 2018	<0.20	90	ug/L
Carbofuran	Feb 26, 2018	<0.20	90	ug/L
Carbon Tetrachloride	Feb 26, 2018	<0.20	2	ug/L
Chlorpyrifos	Feb 26, 2018	<0.10	90	ug/L
Diazinon	Feb 26, 2018	<0.10	20	ug/L
Dicamba	Feb 26, 2018	<0.20	120	ug/L
1,2-Dichlorobenzene	Feb 26, 2018	<0.50	200	ug/L
1,4-Dichlorobenzene	Feb 26, 2018	<0.50	5	ug/L
1,2-Dichloroethane	Feb 26, 2018	<0.50	5	ug/L
1,1-Dichloroethylene (vinylidene chloride)	Feb 26, 2018	<0.50	14	ug/L
Dichloromethane	Feb 26, 2018	<5.0	50	ug/L
2-4 Dichlorophenol	Feb 26, 2018	<0.30	900	ug/L
2,4-Dichlorophenoxy acetic acid (2,4-D)	Feb 26, 2018	<0.20	100	ug/L
Diclofop-methyl	Feb 26, 2018	<0.20	9	ug/L
Dimethoate	Feb 26, 2018	<0.10	20	ug/L
Diquat	Feb 26, 2018	<1.0	70	ug/L
Diuron	Feb 26, 2018	<1.0	150	ug/L
Glyphosate	Feb 26, 2018	<5.0	280	ug/L
Malathion	Feb 26, 2018	<0.10	190	ug/L
2 Methyl-4-chlorophenoxyacetic acid	Feb 26, 2018	<0.20	100	ug/L
Metolachlor	Feb 26, 2018	<0.10	50	ug/L
Metribuzin	Feb 26, 2018	<0.10	80	ug/L
Monochlorobenzene	Feb 26, 2018	<0.50	80	ug/L
Paraquat	Feb 26, 2018	<1.0	10	ug/L
Pentachlorophenol	Feb 26, 2018	<0.50	60	ug/L
Phorate	Feb 26, 2018	<0.10	2	ug/L
Picloram	Feb 26, 2018	<0.60	190	ug/L
Polychlorinated Biphenyls(PCB)	Feb 26, 2018	<0.035	3	ug/L
Prometryne	Feb 26, 2018	<0.10	1	ug/L
Simazine	Feb 26, 2018	<0.10	10	ug/L
Terbufos	Feb 26, 2018	<0.20	1	ug/L
Tetrachloroethylene	Feb 26, 2018	<0.50	30	ug/L
2,3,4,6-Tetrachlorophenol	Feb 26, 2018	<0.50	100	ug/L
Triallate	Feb 26, 2018	<0.10	230	ug/L
Trichloroethylene	Feb 26, 2018	<0.50	5	ug/L
2,4,6-Trichlorophenol	Feb 26, 2018	<0.50	5	ug/L
Trifluralin	Feb 26, 2018	<0.10	45	ug/L
Vinyl Chloride	Feb 26, 2018	<0.20	1	ug/L

Table 22: Elora Well 3 Schedule 24 Organic Results

Parameter	Sample Date	Result	STND	Unit of Measure
Alachlor	Feb 26, 2018	<0.10	5	ug/L
Atrazine + N-dealkylated metobolites	Feb 26, 2018	<0.20	5	ug/L
Azinphos-methyl	Feb 26, 2018	<0.10	20	ug/L
Benzene	Feb 26, 2018	<0.50	1	ug/L
Benzo(a)pyrene	Feb 26, 2018	<0.010	0.01	ug/L
Bromoxynil	Feb 26, 2018	<0.20	5	ug/L
Carbaryl	Feb 26, 2018	<0.20	90	ug/L
Carbofuran	Feb 26, 2018	<0.20	90	ug/L
Carbon Tetrachloride	Feb 26, 2018	<0.20	2	ug/L
Chlorpyrifos	Feb 26, 2018	<0.10	90	ug/L
Diazinon	Feb 26, 2018	<0.10	20	ug/L
Dicamba	Feb 26, 2018	<0.20	120	ug/L
1,2-Dichlorobenzene	Feb 26, 2018	<0.50	200	ug/L
1,4-Dichlorobenzene	Feb 26, 2018	<0.50	5	ug/L
1,2-Dichloroethane	Feb 26, 2018	<0.50	5	ug/L
1,1-Dichloroethylene (vinylidene chloride)	Feb 26, 2018	<0.50	14	ug/L
Dichloromethane	Feb 26, 2018	<5.0	50	ug/L
2-4 Dichlorophenol	Feb 26, 2018	<0.30	900	ug/L
2,4-Dichlorophenoxy acetic acid (2,4-D)	Feb 26, 2018	<0.20	100	ug/L
Diclofop-methyl	Feb 26, 2018	<0.20	9	ug/L
Dimethoate	Feb 26, 2018	<0.10	20	ug/L
Diquat	Feb 26, 2018	<1.0	70	ug/L
Diuron	Feb 26, 2018	<1.0	150	ug/L
Glyphosate	Feb 26, 2018	<5.0	280	ug/L
Malathion	Feb 26, 2018	<0.10	190	ug/L
2 Methyl-4-chlorophenoxyacetic acid	Feb 26, 2018	<0.20	100	ug/L
Metolachlor	Feb 26, 2018	<0.10	50	ug/L
Metribuzin	Feb 26, 2018	<0.10	80	ug/L
Monochlorobenzene	Feb 26, 2018	<0.50	80	ug/L
Paraquat	Feb 26, 2018	<1.0	10	ug/L
Pentachlorophenol	Feb 26, 2018	<0.50	60	ug/L
Phorate	Feb 26, 2018	<0.10	2	ug/L
Picloram	Feb 26, 2018	<0.60	190	ug/L
Polychlorinated Biphenyls(PCB)	Feb 26, 2018	<0.035	3	ug/L
Prometryne	Feb 26, 2018	<0.10	1	ug/L
Simazine	Feb 26, 2018	<0.10	10	ug/L
Terbufos	Feb 26, 2018	<0.20	1	ug/L
Tetrachloroethylene	Feb 26, 2018	<0.50	30	ug/L
2,3,4,6-Tetrachlorophenol	Feb 26, 2018	<0.50	100	ug/L
Triallate	Feb 26, 2018	<0.10	230	ug/L
Trichloroethylene	Feb 26, 2018	<0.50	5	ug/L
2,4,6-Trichlorophenol	Feb 26, 2018	<0.50	5	ug/L
Trifluralin	Feb 26, 2018	<0.10	45	ug/L

Parameter	Sample Date	Result	STND	Unit of Measure
Vinyl Chloride	Feb 26, 2018	<0.20	1	ug/L

Table 23: Elora Well 4 Schedule 24 Organic Results

Parameter	Sample Date	Result	STND	Unit of Measure
Alachlor	March 6, 2018	<0.10	5	ug/L
Atrazine + N-dealkylated metobolites	March 6, 2018	<0.20	5	ug/L
Azinphos-methyl	March 6, 2018	<0.10	20	ug/L
Benzene	March 6, 2018	<0.50	1	ug/L
Benzo(a)pyrene	March 6, 2018	<0.010	0.01	ug/L
Bromoxynil	March 6, 2018	<0.20	5	ug/L
Carbaryl	March 6, 2018	<0.20	90	ug/L
Carbofuran	March 6, 2018	<0.20	90	ug/L
Carbon Tetrachloride	March 6, 2018	<0.20	2	ug/L
Chlorpyrifos	March 6, 2018	<0.10	90	ug/L
Diazinon	March 6, 2018	<0.10	20	ug/L
Dicamba	March 6, 2018	<0.20	120	ug/L
1,2-Dichlorobenzene	March 6, 2018	<0.50	200	ug/L
1,4-Dichlorobenzene	March 6, 2018	<0.50	5	ug/L
1,2-Dichloroethane	March 6, 2018	<0.50	5	ug/L
1,1-Dichloroethylene (vinylidene chloride)	March 6, 2018	<0.50	14	ug/L
Dichloromethane	March 6, 2018	<5.0	50	ug/L
2-4 Dichlorophenol	March 6, 2018	<0.30	900	ug/L
2,4-Dichlorophenoxy acetic acid (2,4-D)	March 6, 2018	<0.20	100	ug/L
Diclofop-methyl	March 6, 2018	<0.20	9	ug/L
Dimethoate	March 6, 2018	<0.10	20	ug/L
Diquat	March 6, 2018	<1.0	70	ug/L
Diuron	March 6, 2018	<1.0	150	ug/L
Glyphosate	March 6, 2018	<5.0	280	ug/L
Malathion	March 6, 2018	<0.10	190	ug/L
2 Methyl-4-chlorophenoxyacetic acid	March 6, 2018	<0.20	100	ug/L
Metolachlor	March 6, 2018	<0.10	50	ug/L
Metribuzin	March 6, 2018	<0.10	80	ug/L
Monochlorobenzene	March 6, 2018	<0.50	80	ug/L
Paraquat	March 6, 2018	<1.0	10	ug/L
Pentachlorophenol	March 6, 2018	<0.50	60	ug/L
Phorate	March 6, 2018	<0.10	2	ug/L
Picloram	March 6, 2018	<0.20	190	ug/L
Polychlorinated Biphenyls(PCB)	March 6, 2018	<0.035	3	ug/L
Prometryne	March 6, 2018	<0.10	1	ug/L
Simazine	March 6, 2018	<0.10	10	ug/L

Parameter	Sample Date	Result	STND	Unit of Measure
Terbufos	March 6, 2018	<0.20	1	ug/L
Tetrachloroethylene	March 6, 2018	<0.50	30	ug/L
2,3,4,6-Tetrachlorophenol	March 6, 2018	<0.50	100	ug/L
Triallate	March 6, 2018	<0.10	230	ug/L
Trichloroethylene	March 6, 2018	<0.50	5	ug/L
2,4,6-Trichlorophenol	March 6, 2018	<0.50	5	ug/L
Trifluralin	March 6, 2018	<0.10	45	ug/L
Vinyl Chloride	March 6, 2018	<0.20	1	ug/L

8) Lead Results under O. Regulation 170/03, Schedule 15.1-5
   a) The owner of a drinking water system must ensure that the distribution system is sampled and tested for lead concentrations. For systems that continuously demonstrate good results, the regulation allows for reduced sampling as defined in the Reduced Sampling Table. As a result of continued good results, Center Wellington DWS qualifies for reduced sampling. The samples must be taken during the period of December 15 – April 15 (winter sampling) and during the period of June 15 – October 15 (summer sampling) every 3 years.
   b) The Drinking Water Standards (STND) for the parameters are listed as per O. Regulation 169/03 Schedule 2.
   c) The owner of a drinking water system must ensure that the distribution system is sampled and tested for pH and total alkalinity during each of the sampling periods (see 8 (a)) in every 12-month period.
   d) The Operational Guideline for pH is 6.5-8.5 and the Operational Guideline for alkalinity (as CaCO3) is 30-500 mg/L.

Table 24: Schedule 15.1 Lead Results

Location	Sample Date	Lead	Lead STND	Unit of Measure
Distribution Location 1	March 28, 2019	<1.0	10	ug/L
Distribution Location 2	March 28, 2019	<1.0	10	ug/L
Distribution Location 3	March 28, 2019	<1.0	10	ug/L
Distribution Location 4	March 28, 2019	<1.0	10	ug/L
Distribution Location 1	September 11, 2019	<1.0	10	ug/L
Distribution Location 2	September 11, 2019	<1.0	10	ug/L
Distribution Location 3	September 11, 2019	<1.0	10	ug/L
Distribution Location 4	September 11, 2019	<1.0	10	ug/L

Table 25: Schedule 15.1 pH and Alkalinity Results (Sampling Required Only)

Location	Sample Date	pH	Alkalinity (as CaCO3)	Alkalinity Unit of Measure
Distribution Location 1	March 25, 2020	7.53	222	mg/L
Distribution Location 2	March 25, 2020	7.48	246	mg/L
Distribution Location 3	March 25, 2020	7.58	217	mg/L

Location	Sample Date	pH	Alkalinity (as CaCO3)	Alkalinity Unit of Measure
Distribution Location 4	March 25, 2020	7.52	211	mg/L
Distribution Location 1	September 23, 2020	7.44	186	mg/L
Distribution Location 2	September 23, 2020	7.37	183	mg/L
Distribution Location 3	September 23, 2020	7.45	204	mg/L
Distribution Location 4	September 23, 2020	7.32	200	mg/L

9) Summary of Additional Testing and Sampling as required under the Township's Municipal Drinking Water Licence (MDWL), Schedule C, Section 4.1, Table 5
   a) The Township is required to complete quarterly raw water sampling for Trichloroethylene (TCE) at Fergus Well 1.
   b) The Drinking Water Standard (STND) for TCE is listed as per O. Regulation 169/03 Schedule 2.

Table 26: MDWL Trichloroethylene Results (Raw Water)

Location	Sample Date	TCE	TCE STND	Unit of Measure
Fergus Well 1	January 15, 2020	1.06	5	ug/L
Fergus Well 1	April 16, 2020	10.1	5	ug/L
Fergus Well 1	July 15, 2020	9.61	5	ug/L
Fergus Well 1	November 9, 2020	1.94	5	ug/L

10) Review of the Data
   a) The Annual Report must list any inorganic or organic parameter that exceeded half the standard (½ STND) prescribed in Schedule 2 of the Ontario Drinking Water Standards.
   b) The Drinking Water Standard (STND) was established for parameters which when present above a certain concentration, have known or suspected adverse health effects.
   c) The results of the organic parameter analysis are below the ½ STND for each parameter and the majority were under the laboratory's MDL (minimum detection limit).
   d) The results of the inorganic parameter analysis are below the ½ STND for each parameter with the following exception:

Table 27: Inorganic and Organic Parameters Exceeding ½ STND

Parameter	Location	Result	STND	½ STND	Units
Fluoride	Well F4	0.90	1.5	0.75	mg/L

11) The Annual Report must describe any major expenses incurred during the year to install, repair or replace required equipment.

Table 28: Equipment Major Expenses

Location	Description	Cost
Fergus Well 1	Highlift Pump Replacements	$6,768
Fergus Well 7	Riser Pipe Replacement	$40,365

Location	Description	Cost
SCADA	Server Upgrades	$17,740
SCADA	SCADA Updates	$34,607
Water Towers	OHSA Climbing Equipment	$12,187
Scotland Tower	Recoating and Repairs	$367,638