



**The Corporation of the City of Belleville,
Environmental Services Department**

2020 Summary and Annual Reports for Belleville and Point Anne Hamlet Drinking Water Systems

January 1st, 2020 to December 31st, 2020



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2020 Summary Report – Belleville

Drinking Water System Number: 220001628

Drinking Water System Name: Belleville Drinking Water System

Drinking Water System Owner: The Corporation of the City of Belleville

Drinking Water System Category: Large Municipal Residential

Ontario's Safe Drinking Water Act sets the framework for safe drinking water in the Province of Ontario. Further, Ontario Regulation 170 / 03 (O. Reg. 170 / 03) sets requirements for public waterworks for sampling and testing, levels of treatment, licensing of staff, and notification of authorities and the public about water quality.

This summary report has been prepared in accordance with Schedule 22 of Ontario Regulation 170 / 03. Free copies are available on our website and in person at the Water Operations Centre. We will post notice of availability on our website and / or through the local newspapers.

For further information about provincial drinking water requirements visit the Ministry of Environment [Conservation and Parks website](#) and select "Drinking Water".

Ontario Regulation 170 / 03, Schedule 22 – Summary Reports for Municipalities

This section outlines the requirements of Schedule 22 and how we are achieving them.

- **Section 22-1** states that this Schedule applies to both large and small municipal residential systems.
 - The Belleville Drinking Water System is a large municipal residential system and as such we will complete and submit a summary report. This summary report is prepared in accordance with Schedule 22 of O. Reg. 170 / 03.
- **Section 22-2 (1)** requires that we complete a Summary Report by March 31st of each year and submit it to council members.
 - Each year we prepare a Summary Report to fulfill this requirement. This report covers January 1st to December 31st, 2020 and was submitted to council prior to March 31st, 2021.
- **Section 22-2 (2) (a) and (b)** requires that we provide a list of any requirements that we did not meet at any time during the period covered by the annual report.
 - The Belleville Drinking Water System met all requirements for the period of January 1st to December 31st, 2020.
 - O. Reg 170 / 03, Section 11 (6) (b) and (d) requires that we prepare any details about adverse water quality incidents and share this with the public. Details about adverse water quality incidents are included as part of every annual report.
- **Section 22-2 (3)** requires us to submit flow summaries and comparisons in relation to the rated flow capacities stated in the system approvals.
 - This report includes the flow summary and flow rate comparisons, found on page 10.
- **Section 22-2 (4)** requires us to provide a copy of this summary report to any municipality that the drinking water system supplies water to.

- The Belleville Drinking Water System supplies water to the Rossmore / Fenwood Gardens Distribution System (WW# 260005008) and we will provide a copy of this summary report to them.
- **Section 22-3** states that we do not have to submit a compliance report for any drinking water systems that comply with Section 22-2.
 - We are compliant with Section 22-2 and therefore, we have not submitted a compliance report.

Quantities and Flow Rates of Water Taken and Supplied

Table 1: Raw Water

Values in Mega Litres (M.L), unless otherwise noted

Month	Total Monthly Volume	Average Daily Volume	Maximum Daily Value	Minimum Daily Value	Peak Instantaneous Flow Rate (M.L per day)	Peak Instantaneous Flow Rate (Litres per minute)
January	721.950	23.289	26.300	20.990	47.850	33229
February	677.350	23.357	24.770	21.110	40.950	28438
March	717.700	23.152	25.360	21.110	41.860	29069
April	661.720	22.057	23.300	21.120	43.760	30389
May	743.460	23.983	28.560	21.440	42.410	29451
June	819.410	27.314	32.090	22.230	43.760	30389
July	917.360	29.592	33.310	24.160	48.820	33903
August	776.230	25.040	28.880	21.110	47.650	33090
September	725.890	24.196	26.110	21.790	46.040	31972

Month	Total Monthly Volume	Average Daily Volume	Maximum Daily Value	Minimum Daily Value	Peak Instantaneous Flow Rate (M.L per day)	Peak Instantaneous Flow Rate (Litres per minute)
October	684.950	22.095	24.300	19.760	44.930	31201
November	647.060	21.569	22.990	20.150	45.250	31424
December	702.600	22.665	25.120	17.760	44.240	30722

Annual Totals:

- Total Annual Volume = 8795.680 (total sum of January to December values)
- Average Daily Volume overall = 24.026 (total sum of January to December values divided by 12)
- Maximum Daily Value reached = 33.310 (July)
- Minimum Daily Value reached = 17.760 (December)
- Highest Peak Instantaneous Flow Rate (M.L per day) reached = 48.820 (July)
- Highest Peak Instantaneous Flow Rate (Litres per minute) = 33903 (July)

Table 2: Treated Water

Values in Mega Litres

Month	Total Monthly Volume	Average Daily Volume	Maximum Daily Value	Minimum Daily Value
January	644.070	20.776	23.010	19.080
February	612.070	21.106	22.390	18.940
March	647.710	20.894	22.830	18.870
April	595.670	19.856	21.000	19.060
May	667.490	21.532	25.620	18.970
June	705.470	23.516	27.380	19.680
July	777.700	25.087	29.170	19.010
August	679.220	21.910	25.640	18.030
September	629.540	20.985	22.880	18.680
October	589.990	19.032	20.690	16.860
November	563.090	18.770	19.670	17.170
December	589.280	19.009	20.710	15.760

Annual Totals:

- Total Annual Volume = 7701.300 (total sum of January to December values)
- Average Daily Volume overall = 21.039 (total sum of January to December values divided by 12)
- Maximum Daily Value reached = 29.170 (July)
- Minimum Daily Value reached = 15.760 (December)

Water Flow Comparisons

Raw Water Comparisons

- Maximum daily volume allowed under the current Permit to Take Water (6883-9KRK5R) = **72.640 Mega Litres**
- Peak instantaneous flow rate allowed under the current Permit to Take Water (6883-9KRK5R) = **50.444 Litres per minute**

The Belleville Drinking Water System Actuals for the Year 2020:

- Maximum daily volume = **33.310 Mega Litres**
- Peak instantaneous flow rate = **33903 Litres per minute**

The Belleville Drinking Water System did not exceed the approved maximum daily volume or peak instantaneous flow rate stipulated in the current Permit to Take Water.

Treated Water Comparisons

- Maximum allowable daily volume entering the distribution system under Municipal Drinking Water License 151-101 = **72.700 Mega Litres**

The Belleville Drinking Water System Actuals for the Year 2020:

- Maximum daily volume = **29.170 Mega Litres**

The Belleville Drinking Water System did not exceed the maximum daily plant volume stipulated in the Municipal Drinking Water License.

Belleville Drinking Water System 2020 Annual Report

Waterworks number 220001628, January 1st, 2020 to December 31st, 2020

This report is prepared in accordance with Section 11 of Ontario Regulation 170 / 03. O. Reg. 170 / 03 sets requirements for public waterworks with regards to sampling and testing, levels of treatment, licensing of staff, and notification of authorities and the public about water quality.

The Belleville Drinking Water System also supplies drinking water to the Rossmore / Fenwood Gardens Distribution System. In accordance with Section 11 (2.1) a copy of this report is provided to the Rossmore / Fenwood Gardens Operating Authority.

Ontario Regulation 170/03, Section 11 – Annual Reports

This section outlines the requirements of Section 11 and how we are achieving them.

- **Section 11 (1):** the owner of a drinking water system must ensure that an annual report is prepared in accordance with this section.
 - This annual report fulfils the requirements of Section 11.
- **Section 11 (2):** the owner of a drinking water system, other than a large municipal residential system or a small municipal residential system
 - The Belleville Drinking Water System is a large municipal residential system and therefore section 11 (2) does not apply to us.
- **Section 11 (2.1):** if a drinking water system is connected to and receives all of its water from another drinking water system, the owner of the system from which the water is obtained shall ensure

that, when the annual report for the system is prepared, a copy of the report is given to the owner of the system that obtains the water.

- The Belleville Drinking Water System supplies water to the Rossmore / Fenwood Gardens Distribution System (WW# 260005008). A copy of this annual report will be provided to them.
- **Section 11 (3):** as a large municipal residential drinking water system, our annual report must cover the period from January 1 to December 31 and be prepared not later than February 28 of the following year.
 - This annual report covers the period from January 1st – December 31st, 2020 and was prepared prior to February 28th, 2021.
- **Section 11 (4):** Applies to non-municipal seasonal residential systems and large non-municipal non-residential systems.
 - The Belleville Drinking Water System is classified as a large municipal residential system and therefore this subsection does not apply.
- **Section 11 (5):** Applies to small non-municipal non-residential systems
 - The Belleville Drinking Water System is classified as a large municipal residential system and therefore this subsection does not apply.
- **Section 11 (6)(a):** Our annual report must contain a brief description of the drinking water system, including a list of water treatment chemicals the system uses during the period covered by the report.
 - A description of the Belleville Drinking Water System can be found in this report beginning on page 16.
- **Section 11 (6)(b):** Our annual report must summarize any reports made to the Ministry under Section 18 (1) of the Act or Section 16-4 of Schedule 16 during the period covered by the report.
 - A chart showing all Adverse Water Quality Incidents and corrective actions can be found on page 21 of this report.

- **Section 11 (6)(c):** Our annual report must summarize the results of the tests required under this Regulation, an approval, or a municipal drinking water license or order (including an OWRA order) during the period covered by the report. If tests regularly required under this Regulation were not required during the current reporting period, summarize the most recent results of those tests.
 - Test results for the Belleville Drinking Water System can be found in this report beginning on page 22.
- **Section 11 (6)(d):** Our annual report must describe any corrective actions taken under Schedule 17 or 18 during the period covered by the report.
 - All corrective actions taken by the Belleville Drinking Water System under Schedule 17 can be found in the chart located on page 21.
- **Section 11 (6)(e):** Our annual report must describe any major expenses incurred during the period covered by the report to install, repair, or replace equipment.
 - A description of major expenses incurred during the period of this report can be found on page 32.
- **Section 11 (6)(f):** Our annual report must include a statement of where a report prepared under Schedule 22 will be available for inspection under Subsection 12 (4).
 - The Belleville Drinking Water System Summary Report, prepared under Schedule 22, can be found on-line at www.belleville.ca and at the Water Operations Centre.
- **Section 11 (7):** The owner of a drinking water system shall ensure that a copy of an annual report for the system is given, without charge, to every person who requests a copy.
 - Copies of the Belleville Drinking Water System annual report are available to the public, upon request and free of charge, at the Water Operations Centre.
- **Section 11 (8):** If a drinking water system is connected to and receives all of its drinking water from another drinking water system, the owner of the system that obtains the water shall ensure that a copy

of an annual report for the system from which the water is obtained is given, without charge, to every person who requests a copy.

- The Rossmore / Fenwood Gardens Distribution System (WW# 260005008) obtains water from the Belleville Drinking Water System and as such is responsible for this subsection. A copy of the City of Belleville's report is provided to Prince Edward County in accordance with section 11 (2.1).
- **Section 11 (9): Subsections (7) and (8) do not apply to an annual report that is more than two years old.**
 - Annual reports dating back to 2008 for the Belleville Drinking Water System are available to the public, upon request and free of charge, by contacting the Water Operations Centre.
- **Section 11 (9.1):** Every time that an annual report is prepared for a drinking water system, the owner of the system shall ensure that effective steps are taken to advise the users of water from the system that copies are available, without charge, and how a copy may be obtained.
 - The Belleville Drinking Water System utilizes both, the local newspaper and the City of Belleville website (www.belleville.ca) to inform the public when the annual report is available.
- **Section 11 (10):** If a large municipal residential system serves more than 10,000 people, the owner of the system shall ensure that a copy of every report prepared under this section is available to the public at no charge on a website on the Internet.
 - The Belleville Drinking Water System Annual and Summary Reports are available on-line at www.belleville.ca.
- **Section 11 (11):** Applies to designated facilities under subsection (2)
 - Subsection (2) does not apply to the Belleville Drinking Water System and therefore Section 11 (11) is also not applicable.
- **Section 11 (12) to (17) have been revoked.**

- **Section 11 (18):** If section 12 of Ontario Regulation 459/00 and Section 15 of Ontario Regulation 505/01 did not apply to the owner of a system to which Subsection (5) applies, no report is required to be prepared under Subsection (5) until May 31, 2006 and, despite that subsection, the report required to be prepared not later than May 31, 2006 shall cover the period from June 1, 2005 to March 31, 2006.
 - Subsection (5) does not apply to the Belleville Drinking Water System and therefore this section does not apply.
- **Section 11 (19) has been revoked.**

Belleville Plant Description and Water Treatment Process

Raw Water Intake Facilities

The source of water for the City of Belleville is the Bay of Quinte south of Sidney Street. A 750mm diameter intake pipe extends 430 meters into the Bay, to a depth of 5.5 meters. A 900mm diameter intake pipe also extends 490 meters into the Bay, to a depth of 5.5 meters. Potassium permanganate is added in the intake for taste and odor control, and as a deterrent to Zebra mussels.

Low Lift Pumping Station

The raw water flows through the intake pipes to the traveling intake screen (10mm mesh) located in the raw water well. This removes large debris such as fish, weeds, and shells. Four low lift pumps (rated for 290 L/s) lift the water from the Bay level to the rapid mix tanks. From the rapid mix tanks, the water will flow by gravity through the various plant processes.

Pre-Treatment Facility

The coagulant is mixed with the raw water flowing through the two trains of two-cell up-flow rapid mix tanks, each with a volume of 245 m³ and a 5.6 kW propeller type mixer. From the rapid mix tanks, the water will flow by gravity to the coagulation / flocculation process. The pre-treatment process consists of 2 parallel trains.

Coagulation

Aluminum sulphate (alum) is added at the rapid mix tanks, as a coagulant to form a 'floc'. This floc is made up of alum and suspended particles (dirt, color, organics) which are found in raw water. This is the first stage of the coagulation/flocculation process.

The coagulated water/alum solution gently flows by gravity to the three-stage spiral up-flow flocculation tanks, each cell having a volume of 184 m³, to a common discharge channel. This water, with floc forming in it, flows by gravity to either the dissolved air flotation process (spring, summer, fall) or the sedimentation process (winter). The flocculation process consists of 3 parallel trains.

Dissolved Air Flotation Facility

The Dissolved Air Flotation process is used when the Bay of Quinte is free of ice. Daily changing weather conditions, such as wind and rain, cause increases in raw water turbidity. Summer and fall weather promote organic growth, such as algae. The dissolved air flotation process handles these changing conditions very well, with minimal coagulant dose adjustment.

In this process, two separate two-cell dissolved air flotation tanks receive the water from the coagulation/flocculation process. Here, an aerated water solution is bubbled gently through this water, causing the floc to attach to air bubbles and rise to the surface. The cleaner water remains at the bottom of the tank. This cleaner water then flows, by gravity, to the filtration process. The 'float', or residual, is comprised of dirt, organics, some color, bacteria, viruses, and other particulate. It is removed on a scheduled basis and pumped to the on-site waste treatment facility.

The aerated solution is produced on-site by forcing compressed air into treated water, in two 13.5 m³ saturation tanks. The dissolved air flotation process consists of two parallel trains.

Sedimentation

Sedimentation is used as an alternate to the dissolved air flotation process when the Bay is covered with ice. With ice cover, the raw water quality is relatively constant, and the normal sedimentation process works well. It is also less energy intensive than the dissolved air flotation process.

During the winter months, the flocculated water flows, by gravity, from the coagulation/flocculation process directly to two separate inclined plate settlers, where the floc adheres to the plates, and

eventually becomes heavy enough to slide down the plates as the volume of settled material increases. The cleaner water rises to the top of the plate settler and flows by gravity to the filtration process.

The settled material contains dirt, organics, some color, bacteria, viruses, and other particulate. This waste material is slowly removed from the bottom by a vacuum and pumped to the on-site waste treatment facility.

The sedimentation process consists of two parallel trains.

Filtration

The filtration process consists of twelve (12) parallel granular activated carbon (GAC) gravity filters. These filters receive the water from the dissolved air flotation or sedimentation process. This water arrives on the top of the filter, and then settles through the GAC and sand media by gravity, and any remaining particulate is trapped in this media. The GAC also removes tastes and odors by adsorption. The water settles through the sand media, into the underdrains, and then falls to the chlorine contact chamber. The filters operate in a parallel design and can each filter 6 Mega Litres (ML) of water per day. The filters each have a surface area of 38.5 m² and contain a layer of GAC over a layer of sand, supported by stainless steel or clay tile underdrains. The filters are monitored for effluent turbidity, head loss and flow. The filters are cleaned by backwashing every 48 hours using treated city water.

Disinfection

Sodium hypochlorite (hypo) is used to post-disinfect the filtered water in the chlorine contact chamber. A very small amount of hypo is also added at the rapid mixers to maintain plant hygiene. Dosage varies based on the biological demand. This chlorinated water is held for a prescribed time to ensure thorough oxidation of any pathogens. The 'CT' free chlorine residual is monitored.

Fluoridation

After disinfection, fluoride is added to the water to provide dental health protection for consumers.

High Lift Pumping Station

At this point, the treatment process is complete, and the water is safe for consumer use.

Five vertical turbine-type high lift pumps, each rated at 240 L/s, pump the treated water to the consumer via the distribution system. Alternatively, two transfer pumps rate at 81 L/s can be used to pump treated water directly to the Water Treatment Plant Reservoir.

Waste Treatment Facility

The water used to backwash filters, the 'float' from the dissolved air flotation process and the sediment from the plate settles, is dewatered, and concentrated in the on-site waste treatment facility. The thickened sludge is pumped to the City sewage treatment plant for further treatment. The liquid residual, or supernatant, flows by gravity back to the Bay.

Computer/SCADA

Computer technology is used to monitor operations and record data. A Supervisory Control and Data Acquisition (SCADA) system provides communication with, and control of, all plant and reservoir/pumping station operations. Experienced, licensed water treatment operators use this technology to operate the Belleville Water Treatment facility.

Distribution

The treated water pumped into the distribution system from the High Lift pumping station may go directly to a consumer, or may go to the elevated storage, or one of three storage reservoirs (Water Treatment Reservoir, North Park Reservoir, or Pine Street Reservoir).

The Distribution System is comprised of approximately 224 kilometers of water main, 1264 hydrants, 13,794 service connections and 1,235 ICI customers.

The City of Belleville also supplies water to the County of Prince Edward for the Rossmore / Fenwood Gardens Distribution System (DWSN# 260005008).

Chemicals Used During This Reporting Period

- Sodium Hypochlorite
- Aluminum Sulphate
- Hydrofluorosilicic Acid
- Potassium Permanganate
- Sodium Bisulphite

O. Reg. 170 / 03 Compliance Tests and Reports - Belleville

Notifications and Corrective Actions – Belleville

In accordance with Schedule 16 and Schedule 17 (O. Reg 170 / 03).

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
February 5 th 2020 AWQI 149548	TC	1	cfu/100mL	Flushed and resampled site plus upstream and downstream (February 5 th 2020)	February 6 th 2020
July 1 st 2020 AWQI 150464	TC	1	cfu/100mL	Flushed and resampled site plus upstream and downstream (July 1 st 2020)	July 6 th 2020

Operational Testing – Belleville

In accordance with Schedule 7 (O. Reg. 170 / 03).

Notes:

- 8760 denotes results from continuous monitoring
- N.T.U refers to Nephelometric Turbidity Units
- mg/L represents milligrams per litre

Parameter	Number of Samples	Range of Results (minimum to maximum)	Unit of Measure
Turbidity	8760	0.02 to 2.00	N.T.U
Free Chlorine at CT Location	8760	1.79 to 3.61	mg/L
Free Chlorine in Distribution	8760	0.18 to 2.86	mg/L
Fluoride	8760	0.00 to 0.88	mg/L

Microbiological Testing – Belleville

In accordance with Schedules 10 and 17 (O. Reg. 170 / 03) and with the Belleville Municipal Drinking Water License.

Water Type	Number of Samples	Range of E. Coli or Fecal Results (minimum to maximum)	Range of Total Coliform Results (minimum to maximum)	Number of H.P.C Samples	Range of H.P.C Results (minimum to maximum)
Raw	52	0 to 22	0 to greater than 400	52	30 to greater than 2000
Treated	52	0 to 0	0 to 0	52	Less than 10 to 60
Distribution	797	0 to 0	0 to 1	452	Less than 10 to 70

Chemical Testing – Belleville

In accordance with Schedule 13 (O. Reg. 170 / 03). Sample results for Schedule 23 and Schedule 24 can be found on starting on page 26 of this report.

Notes:

- µg/L represents micrograms per litre
- mg/L represent milligrams per litre

Parameter	Number of Samples	Range of Results (minimum to maximum)	Unit of Measure
Trihalomethane	4	45 to 87	µg/L
Haloacetic Acids	4	34.5 to 58.1	µg/L
Nitrate and Nitrite	4	less than 0.1 to 0.5	mg/L
Sodium	4	11.8 to 15.0	mg/L

Lead Testing Summary – Belleville

In accordance with Schedule 15.1 (O. Reg. 170 / 03).

Location Type	Number of Samples	Range of Results (minimum to maximum)	Number of Exceedances
Lead - Plumbing	0	Not Applicable	0
Lead - Distribution	0	Not Applicable	0
Alkalinity - Distribution	8	86 to 90	0
pH - Plumbing	0	Not Applicable	0
pH - Distribution	8	7.02 to 7.22	0

The Belleville Drinking Water System has reached exemption status regarding the Lead Sampling Program. Following the Winter Lead Sampling Period (December 2012 to April 2013) the Belleville Drinking Water System satisfied the requirements of Sections 15.1 to 15.5(9) of Ontario Regulation 170 / 03, and as such began sampling in accordance with Sections 15.1 to 15.5(10).

Inorganic Testing – Belleville

In accordance with Schedule 23 (O. Reg. 170 / 03)

Notes:

- µg/L represents micrograms per litre

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Antimony	June 2 nd 2020	less than 0.09	µg/L	No
Arsenic	June 2 nd 2020	0.2	µg/L	No
Barium	June 2 nd 2020	31.5	µg/L	No
Boron	June 2 nd 2020	10	µg/L	No
Cadmium	June 2 nd 2020	less than 0.003	µg/L	No
Chromium	June 2 nd 2020	0.16	µg/L	No
Mercury	June 2 nd 2020	less than 0.01	µg/L	No
Selenium	June 2 nd 2020	0.05	µg/L	No
Uranium	June 2 nd 2020	0.035	µg/L	No

Organic Testing – Belleville

In accordance with Schedule 24 (O. Reg. 170 / 03).

Notes:

- µg/L represents micrograms per litre
- mg/L represent milligrams per litre
- < represents “less than” the value that follows it

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Alachor	June 2 nd 2020	<0.02	µg/L	No
Atrazine + N-dealkylated metabolites	June 2 nd 2020	<0.01	µg/L	No
Azinphos-methyl	June 2 nd 2020	<0.05	µg/L	No
Benzene	June 2 nd 2020	<0.32	µg/L	No
Benzo(a)pyrene	June 2 nd 2020	<0.004	µg/L	No
Bromoxynil	June 2 nd 2020	<0.33	µg/L	No
Carbaryl	June 2 nd 2020	<0.05	µg/L	No
Carbofuran	June 2 nd 2020	<0.01	µg/L	No

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Carbon Tetrachloride	June 2 nd 2020	<0.17	µg/L	No
Chlorpyrifos	June 2 nd 2020	<0.02	µg/L	No
Diazinon	June 2 nd 2020	<0.02	µg/L	No
Dicamba	June 2 nd 2020	<0.20	µg/L	No
1,2-Dichlorobenzene	June 2 nd 2020	<0.41	µg/L	No
1,4-Dichlorobenzene	June 2 nd 2020	<0.36	µg/L	No
1,2-Dichloroethane	June 2 nd 2020	<0.35	µg/L	No
1,1-Dichloroethylene (vinylidene chloride)	June 2 nd 2020	<0.33	µg/L	No
Dichloromethane	June 2 nd 2020	<0.35	µg/L	No
2,4-Dichlorophenol	June 2 nd 2020	<0.15	µg/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	June 2 nd 2020	<0.19	µg/L	No
Diclofop-methyl	June 2 nd 2020	<0.40	µg/L	No
Dimethoate	June 2 nd 2020	<0.06	µg/L	No

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Diquat	June 2 nd 2020	<1	µg/L	No
Diuron	June 2 nd 2020	<0.03	µg/L	No
Glyphosate	June 2 nd 2020	<1	µg/L	No
Malathion	June 2 nd 2020	<0.02	µg/L	No
2-Methyl-4-chlorophenoxyacetic acid (MCPA)	June 2 nd 2020	<0.00012	mg/L	No
Metolachlor	June 2 nd 2020	<0.01	µg/L	No
Metribuzin	June 2 nd 2020	<0.02	µg/L	No
Monochlorobenzene	June 2 nd 2020	<0.3	µg/L	No
Paraquat	June 2 nd 2020	<1	µg/L	No
Pentachlorophenol	June 2 nd 2020	<0.15	µg/L	No
Phorate	June 2 nd 2020	<0.01	µg/L	No
Picloram	June 2 nd 2020	<1	µg/L	No
Polychlorinated Biphenyls (PCB)	June 2 nd 2020	<0.04	µg/L	No

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Prometryne	June 2 nd 2020	<0.03	µg/L	No
Simazine	June 2 nd 2020	<0.01	µg/L	No
Terbufos	June 2 nd 2020	<0.01	µg/L	No
Tetrachloroethylene	June 2 nd 2020	<0.35	µg/L	No
2,3,4,6-Tetrachlorophenol	June 2 nd 2020	<0.20	µg/L	No
Triallate	June 2 nd 2020	<0.01	µg/L	No
Trichloroethylene	June 2 nd 2020	<0.44	µg/L	No
2,4,6-Trichlorophenol	June 2 nd 2020	<0.25	µg/L	No
Trifluralin	June 2 nd 2020	<0.02	µg/L	No
Vinyl Chloride	June 2 nd 2020	<0.17	µg/L	No

Inorganic or Organic Parameters – Belleville

Inorganic or organic parameters that exceeded half the standard prescribed in Schedule 2 of the Ontario Drinking Water Quality Standards.

Based on quarterly samples taken January 13th, April 15th, July 21st, and October 19th 2020, our annual average concentration for Trihalomethane is 57.0 µg/L. This exceeds one-half of the Schedule 2 standard, but does not exceed the regulated limit of 100 µg/L.

Based on quarterly samples taken January 13th, April 15th, July 21st, and October 19th 2020, our annual average concentration for Haloacetic acids is 45.9 µg/L. This exceeds one-half of the Schedule 2 standard, but does not exceed the regulated limit of 80 µg/L.

Wastewater Sampling – Belleville

As per Municipal Drinking Water License 151-101.

Parameter	Number of Samples	Range of Results (minimum to maximum)	Unit of Measure	Average
Total Suspended Solids	12	less than 3 to 11	mg/L	5.75
BOD5	12	less than 3	mg/L	less than 3
Total Phosphorus	12	less than 0.01 to 0.03	mg/L	0.01

Monetary Expenses – Belleville

Significant monetary expenditures during 2020 include:

1. Replacement of GAC in 3 filters
2. Four plant valve actuator replacements
3. Generator maintenance
4. Intake inspection
5. Various online monitoring equipment chemical analyzers
6. Primary and Secondary Communication Circuits
7. Replaced Potassium permanganate line to 900 mm intake
8. Replaced air compressor for Saturator
9. Bus bar repair on transformer

W.D water main replacement projects (with our Engineering department):

- Moira St. (Ponton to Howard)

W.D subdivision water main installation projects (with our Engineering department):

- Potters Creek, phase 8

Site Plan Large water service installation projects (greater than 50 mm and water main extensions):

- 459 Sidney St. Police Station
- 405 Bell Blvd. (future car wash)
- 135 Station St. (Magnolia Apartments)
- Parkdale School water service upgrade
- Wendy's Restaurant (Bridge & Sidney)
- CN Rail Yard (service upgrade north side of tracks)
- 2 Dundas St W (Harbourview residential)

Water main relining

- Second St. to Sixth St.
- Smith Cres.
- Henry St. (Murney to Octavia)

2020 Summary Report – Point Anne

Drinking Water System Number: 220004359

Drinking Water System Name: Point Anne Hamlet Drinking Water System

Drinking Water System Owner: The Corporation of the City of Belleville

Drinking Water System Category: Small Municipal Residential

Ontario's Safe Drinking Water Act sets the framework for safe drinking water in the Province of Ontario. Further, Ontario Regulation 170 / 03 (O. Reg. 170 / 03) sets requirements for public waterworks for sampling and testing, levels of treatment, licensing of staff, and notification of authorities and the public about water quality.

This summary report has been prepared in accordance with Schedule 22 of Ontario Regulation 170 / 03. Free copies are available on our website and in person at the Water Operations Centre. We will post notice of availability on our website and / or through the local newspapers.

For further information about provincial drinking water requirements visit the Ministry of Environment, [Conservation and Parks website](#) And select "Drinking Water".

Ontario Regulation 170/03, Schedule 22 – Summary Reports for Municipalities

This section outlines the requirements of Schedule 22 and how we are achieving them.

- **Section 22-1** states that this Schedule applies to both large and small municipal residential systems.
 - The Point Anne Hamlet Drinking Water System is a small municipal residential system and as such we will complete and submit a summary report. This summary report is prepared in accordance with Schedule 22 of O. Reg. 170 / 03.
- **Section 22-2 (1)** requires a Summary Report to be completed by March 31st of each year and given to members of council.
 - This summary report covers the period from January 1st to December 31st, 2020 and was prepared and submitted to council prior to March 31st, 2021.
- **Section 22-2 (2) (a) and (b)** requires us to provide a list of any requirements that we did not meet any time during the period covered by this report.
 - The Point Anne Hamlet Drinking Water System met all requirements for the period of January 1st to December 31st, 2020.
 - As per O. Reg 170 / 03 Section 11(6) (b) and (d), details on adverse water quality incidents can be found in the Point Anne Hamlet Drinking Water System Annual Report.
- **Section 22-2 (3)** requires that we submit a flow summaries and comparisons of flow to rated capacities stated in system approvals.
 - The required flow information can be found beginning on page 37 of this report.
 - The comparison of flow rates versus approved rated capacities can be found on page 42.
- **Section 22-2 (4)** requires that a copy of this summary report be given to any municipality that the Drinking Water System supplies water.

- The Point Anne Hamlet Drinking Water System does not supply water to any other system.
- **Section 22-3** states that compliance reports are not required for drinking water systems that comply with Section 22-2.
 - We are compliant with Section 22-2 and therefore, we have not submitted a compliance report.

Quantities and Flow Rates of Water Taken and Supplied

Table 1: Raw Water

Values in Cubic Metres (C.M), unless otherwise noted

Month	Total Monthly Volume	Average Daily Volume	Maximum Daily Value	Minimum Daily Value	Peak Instantaneous Flow Rate (C.M per day)	Peak Instantaneous Flow Rate (Litres per minute)
January	469.54	15.15	18.96	13.16	34.56	24.00
February	442.02	15.24	17.35	12.99	28.32	19.67
March	444.01	14.32	17.00	12.04	28.32	19.67
April	464.93	15.50	18.03	12.79	28.08	19.50
May	479.66	15.47	17.33	11.19	27.12	18.83
June	559.17	23.92	18.64	14.86	42.72	29.67
July	720.45	23.24	27.83	16.66	32.64	22.67
August	754.60	24.34	30.25	18.40	33.12	23.00
September	720.98	24.03	28.95	18.99	32.40	22.50

Month	Total Monthly Volume	Average Daily Volume	Maximum Daily Value	Minimum Daily Value	Peak Instantaneous Flow Rate (C.M per day)	Peak Instantaneous Flow Rate (Litres per minute)
October	752.03	24.26	30.16	20.00	48.48	33.67
November	688.74	22.96	26.15	19.76	32.64	22.67
December	674.64	21.76	28.16	14.56	45.60	31.67

Annual Totals:

- Total Annual Volume = 7170.77 (total sum of January to December values)
- Average Daily Volume overall = 20.02 (total sum of January to December values divided by 12)
- Maximum Daily Value reached = 30.25 (August)
- Minimum Daily Value reached = 11.19 (May)
- Highest Peak Instantaneous Flow Rate (M.L per day) reached = 48.48 (October)
- Highest Peak Instantaneous Flow Rate (Litres per minute) = 33.67 (October)

Table 2: Filtered Water

Values in Cubic Metres (C.M), unless otherwise noted

Month	Total Monthly Volume	Average Daily Volume	Maximum Daily Value	Minimum Daily Value	Peak Instantaneous Flow Rate (C.M per day)	Peak Instantaneous Flow Rate (Litres per minute)
January	438.50	14.15	18.17	12.57	30.96	21.50
February	408.35	14.08	16.35	11.94	27.12	18.83
March	421.62	13.60	15.60	11.61	26.64	18.50
April	439.69	14.66	17.06	11.95	27.12	18.83
May	455.67	14.71	16.72	10.42	26.88	18.67
June	467.68	15.59	18.78	12.51	27.36	19.00
July	557.60	17.99	22.11	13.36	27.60	19.17
August	578.23	18.65	23.14	14.31	32.88	22.83
September	543.56	18.12	21.53	14.87	27.36	19.00
October	588.21	18.97	24.11	15.93	29.04	20.17

Month	Total Monthly Volume	Average Daily Volume	Maximum Daily Value	Minimum Daily Value	Peak Instantaneous Flow Rate (C.M per day)	Peak Instantaneous Flow Rate (Litres per minute)
November	574.06	19.14	21.73	16.49	28.08	19.50
December	567.82	18.32	23.55	12.11	21.20	14.72

Annual Totals:

- Total Annual Volume = 6041.19 (total sum of January to December values)
- Average Daily Volume overall = 16.50 (total sum of January to December values divided by 12)
- Maximum Daily Value reached = 24.11 (October)
- Minimum Daily Value reached = 10.42 (May)
- Highest Peak Instantaneous Flow Rate (M.L per day) reached = 32.88 (August)
- Highest Peak Instantaneous Flow Rate (Litres per minute) = 22.83 (August)

Table 3: Treated Water

All values in Cubic Metres

Month	Total Monthly Volume	Average Daily Volume	Maximum Daily Value	Minimum Daily Value
January	248.65	8.02	11.28	6.75
February	230.67	7.95	9.82	6.26
March	233.39	7.53	8.75	6.49
April	250.09	8.34	10.26	7.04
May	255.66	8.25	10.33	5.78
June	255.87	12.37	8.53	6.81
July	326.47	10.53	14.19	8.08
August	312.01	10.06	13.16	7.45
September	272.37	9.08	11.33	7.22
October	323.93	10.45	12.14	8.77
November	342.41	11.41	13.40	9.74
December	359.56	11.28	17.49	6.11

Annual Totals:

- Total Annual Volume = 3411.08 (total sum of January to December values)
- Average Daily Volume overall = 9.61 (total sum of January to December values divided by 12)
- Maximum Daily Value reached = 17.49 (December)
- Minimum Daily Value reached = 5.78 (May)

Water Flow Comparisons

Raw Water Comparisons

- Maximum daily volume allowed under the current Permit to Take Water (6206-AVJR89) = **108.00 Cubic Metres**
- Peak instantaneous flow rate allowed under the current Permit to Take Water (6206-AVJR89) = **91.00 Litres per minute**

The Point Anne Hamlet Drinking Water System Actuals for the Year 2020:

- Maximum daily volume = **30.25 Cubic Metres**
- Peak instantaneous flow rate = **33.67 Litres per minute**

The Point Anne Hamlet Drinking Water System did not exceed the approved maximum daily volume or peak instantaneous flow rate stipulated in the current Permit to Take Water.

Treated Water Comparisons

- Maximum allowable daily volume entering the distribution system under Municipal Drinking Water License 151-102 = **108 Cubic Metres**

The Point Anne Hamlet Drinking Water System Actuals for the Year 2020:

- Maximum daily volume = **17.49 Cubic Metres**

The Point Anne Hamlet Drinking Water System did not exceed the maximum daily volume stipulated in the Municipal Drinking Water License.

Filtered Water Comparisons

- Maximum allowable flow rate entering the Package Treatment Plant Subsystem Component under Municipal Drinking Water License 151-102 = **75.00 Litres per Minute**
- Maximum allowable flow rate entering the Cartridge Filters Subsystem Component under Municipal Drinking Water License 151-102 = **24.30 Litres per Minute**

The Point Anne Hamlet Drinking Water System Actuals for the Year 2020:

- Package Treatment Plant Maximum Flow Rate = **22.83 Litres per Minute**
- Cartridge Filters Maximum Flow Rate = **21.50 Litres per Minutes**

The Point Anne Hamlet Drinking Water System did not exceed the maximum flow rates stipulated in the Municipal Drinking Water License.

Point Anne Hamlet Drinking Water System 2020 Annual Report

Waterworks number 220004359, January 1st, 2020 to December 31st, 2020

This report has been prepared in accordance with Section 11 of Ontario Regulation 170 / 03. Regulation 170 / 03 sets requirements for public waterworks with regards to sampling and testing, levels of treatment, licensing of staff, and notification of authorities and the public about water quality.

Ontario Regulation 170 / 03, Section 11 – Annual Reports

This section outlines the requirements of Section 11 and how we are achieving them.

- **Section 11 (1)** requires the owner of a drinking water system to prepare an annual report in accordance with this section.
 - This annual report fulfils the requirements of Section 11.
- **Section 11 (2):** “The owner of a drinking water system, other than a large municipal residential system or a small municipal residential system . . .”
 - The Point Anne Hamlet Drinking Water System is a small municipal residential system and therefore Section 11 (2) does not apply.
- **Section 11 (2.1)** states that if a drinking water system is connected to and receives all of its water from another drinking water system, the owner of the system from which the water is obtained shall ensure that, when the annual report for the system is prepared, a copy of the report is given to the owner of the system that obtains the water.
 - There are no drinking water systems connected to the Point Anne Hamlet Drinking Water System.

- **Section 11 (3)** as a small municipal residential drinking water system, our annual report must cover the period from January 1 to December 31 and be prepared not later than February 28 of the following year.
 - This annual report covers the period from January 1st – December 31st, 2020 and was prepared prior to February 28th, 2021
- **Section 11 (4)** : “In the case of non-municipal seasonal residential systems and large non-municipal non-residential systems . . . ”
 - The Point Anne Hamlet Drinking Water System is classified as a small municipal residential system and therefore this section does not apply.
- **Section 11 (5)**: “In the case of small non-municipal non-residential systems . . . ”
 - The Point Anne Hamlet Drinking Water System is classified as a small municipal residential system and therefore this section does not apply.
- **Section 11 (6)(a)** requires our annual report to contain a brief description of the drinking water system, including a list of water treatment chemicals the system uses during the period covered by the report.
 - A description of the Point Anne Hamlet Drinking Water System can be found in this report beginning on page 5.
- **Section 11 (6)(b)** requires our annual report to include summaries of any reports we made to the Ministry under Section 18 (1) of the Act or Section 16 (4) of Schedule 16 during the period covered by the report.
 - A chart showing all Adverse Water Quality Incidents and corrective actions can be found on page 54 of this report.
- **Section 11 (6)(c)** requires our annual report to include summaries of the test results that are required under this Regulation, an approval, or a municipal drinking water licence or order (including

an OWRA order) during the period covered by the report. If tests required under this Regulation were not required during the reporting period, we must summarize the most recent results of tests of that parameter.

- Required test results for the Point Anne Hamlet Drinking Water System can be found in this report beginning on page 55.
- **Section 11 (6)(d)** states that our annual report must describe any corrective actions taken under Schedule 17 or 18 during the period covered by the report.
 - All corrective actions taken by the Point Anne Hamlet Drinking Water System under Schedule 18 can be found in the chart located on page 54.
- **Section 11 (6)(e)** states that our annual report must describe any major expenses incurred during the period covered by the report to install, repair, or replace equipment.
 - A description of major expenses incurred during the period of this report can be found on page 66.
- **Section 11 (6)(f)** requires that, in the case of a large or small municipal residential system, the annual report must include a statement of where a report prepared under Schedule 22 will be available for inspection under Subsection 12(4).
 - The Point Anne Hamlet Drinking Water System Summary Report, prepared under Schedule 22, is available on our website or at the Water Operations Centre.
- **Section 11 (7)** requires the owner of a drinking water system to ensure that a copy of an annual report for the system is given, without charge, to every person who requests a copy.
 - Copies of the Point Anne Hamlet Drinking Water System annual report are available to the public, upon request and free of charge, at the Water Operations Centre.
- **Section 11 (8)** states that if a drinking water system is connected to and receives all of its drinking water from another drinking water system, the owner of the system that obtains the water shall ensure

that a copy of an annual report for the system from which the water is obtained is given, without charge, to every person who requests a copy.

- There are no drinking water systems connected to the Point Anne Hamlet Drinking Water System.
- **Section 11 (9)** states that Subsections (7) and (8) do not apply to an annual report that is more than two years old.
 - Annual Reports dating back to 2008 for the Point Anne Hamlet Drinking Water System are available to the public by contacting the Water Operations Centre.
- **Section 11 (9.1)** states that every time an annual report is prepared for a drinking water system, the owner of the system shall ensure that effective steps are taken to advise users of water from that system that copies are available, without charge, and how a copy may be obtained.
 - The Point Anne Hamlet Drinking Water System utilizes both the local newspaper and the City of Belleville website (www.belleville.ca) to inform the public of Annual Report availability.
- **Section 11 (10)** states that if a large municipal residential system serves more than 10,000 people, the owner of the system shall ensure that a copy of every report prepared under this section is available to the public at no charge on a website on the Internet.
 - Although the Point Anne Hamlet Drinking Water System serves less than 10,000 people, our Annual and Summary Reports are available on our website.
- **Section 11 (11)** “The obligation to ensure that a report be given to the interested authority for a designated facility under Subsection (2) . . .”
 - Subsection (2) does not apply to the Point Anne Hamlet Drinking Water System and therefore Section 11 (11) does not apply.
- **Section 11 (12) to (17) have been revoked.**
- **Section 11 (18)** states that if Section 12 of Ontario Regulation 459 / 00 and Section 15 of Ontario Regulation 505 / 01 did not apply to the owner of a system to which Subsection (5) applies, no report

is required under Subsection (5) until May 31, 2006. Further, despite Subsection (5), the report required not later than May 31, 2006 shall cover the period from June 1, 2005 to March 31, 2006.

- Subsection (5) does not apply to the Point Anne Hamlet Drinking Water System and therefore this section does not apply.

- **Section 11 (19) has been revoked.**

Point Anne Hamlet Plant Description and Water Treatment Process

Raw Water Intake

The source of water for the Point Anne system is a combination of surface water and groundwater.

The surface water is taken from the Bay of Quinte south of the water treatment plant. A 100mm diameter pipe extends approximately 105m from the raw water intake well into the Bay of Quinte at a depth of approximately 2m below the water surface. Water flows by gravity from the Bay into the raw water intake well. Flow of surface water is controlled with a flow control valve on the intake pipe within the raw water intake well.

Groundwater is able to enter the raw well through an opening that is controlled by a 100mm flow control valve.

With these flow control valves, the source water may be groundwater, surface water or a combination of both. Groundwater may also infiltrate the raw well through uncontrolled cracks or joints.

Low Lift Pumping

Two submersible pumps (each rated at 1.26 L/s) located in the raw water intake well along with associated piping deliver water to either the Package Treatment Unit (Waterboy Unit) or the Cartridge Filter System. Back-up pumps are stored at the Belleville Water Treatment Plant.

Cartridge Filter System - Filtration

The cartridge filter system consists of three roughing filters and one finishing filter. All four filters operate in series. The first filter has a pore-size range of 20 to 1 micron rated for 90% removal. The next two filters have a pore-size range of 1.0 to 0.5 microns rated for 99% removal. The finishing filter is certified to NSF 53 and has an effective pore-size of 1.0 micron and a removal rating of 99.9%.

Pressure sensors and gauges are located on the influent and effluent lines for each cartridge canister. These are used to determine the pressure differential across the filter media allowing operators to monitor the life of the filters.

Water exiting the finishing filter can either go to waste or can go the chlorine contact tank. The effluent from this process is monitored for turbidity with alarms and controls set to divert to waste if turbidity climbs above operational set points.

The rated capacity for this process is 24.3 L/min.

Package Treatment Unit - Coagulation

A chemical feed system consisting of a 150L storage tank and two flow-paced metering pumps feed aluminum sulphate (alum) to the bottom of the rapid mixer tank. Here, the alum mixes with raw water, by means of a mechanical mixer, to begin the formation of floc.

This is the first of the 2-stage coagulation/flocculation process.

Package Treatment Unit - Flocculation

The coagulated water/alum solution flows through a notched weir into the slow mixer/flocculation tank. Here, a mechanical mixer stirs the water slowly to further the formation of the floc.

This floc consists of alum and suspended particles (dirt, color, organics) that are found in the raw water.

This is the second of the 2-stage coagulation/flocculation process.

Package Treatment Unit - Sedimentation

The flocculated water flows through piping to the bottom of inclined plate settlers. Here, the floc adheres to the plates, and eventually becomes heavy enough to slide down the plates, as the volume of settled

material increases. The cleaner water rises to the top of the plate settler and flows hydraulically to the filtration process. The settled material, containing dirt, organics, color, bacteria, viruses, and other particulate, is removed during filter backwashing.

Package Treatment - Filtration

The mixed media filter is used to further remove particulate from the water. The filter consists of sand and anthracite media and is equipped with an under drain system that is connected to two (2) pumps. The first pump is used to deliver water to the chlorine contact tank or to the waste stream. The effluent from this process is monitored for turbidity with alarms and controls set to divert to waste if turbidity climbs above operational set points. The second pump is used to backwash the filter.

Disinfection

Sodium hypochlorite is used to post-disinfect the filtered water in the chlorine contact tank.

The sodium hypochlorite chemical feed system consists of a 20L storage tank and two (2) flow-paced metering pumps, with automatic switch over, to feed hypochlorite to the filtered water as it enters the contact tank. Dosage varies based on the biological demand.

The chlorine contact tank consists of an inlet diffuser, baffles and an overflow effluent collector. The tank volume is 2.2 m³. Here, the chlorinated water is held for a prescribed time period to ensure inactivation of any pathogens. The initial and "CT" free chlorine residuals are monitored and recorded.

High Lift Storage

The high lift clear well is a finished water storage area and has a total volume of 23 m³. This well receives water from the chlorine contact tank and provides a flooded suction for the high lift pumps.

High Lift Pumping

At this point the treatment process is complete and the water is ready for consumer use.

Two (2) high lift pumps, each capable of delivering approximately 27m³/day, deliver water through a common header to the distribution system.

These pumps provide constant positive pressure to the distribution system with the use of controls and automatic starts that are based on pressure control setpoints.

Controls and measures are in place to provide power, such as UPS power, in the event of a power failure.

Computer/SCADA

Computer technology is used to monitor operations and record data. A Supervisory Control and Data Acquisition (SCADA) system provides communication among, and control of, all plant operations. The SCADA system also communicates with the Belleville Water Treatment Plant allowing experienced, licensed water treatment operators to monitor and control the Point Anne Water Treatment Plant.

Wastewater

The water used to backwash the filter and the sediment from the plate settlers is discharged overland through a 100mm diameter discharge pipe to a point approximately 15m from the Bay of Quinte shoreline.

Distribution System

The treated water is delivered directly to the consumer through the distribution system from the high lift pumps. The distribution system is comprised of approximately 208m of 100mm diameter water main. It is

a linear network with no looping. There are currently five (5) service connections to the network that supply twelve residential properties. There are no non-residential properties located on the system.

Chemicals used over this Reporting Period

- Sodium Hypochlorite
- Aluminum Sulphate

O. Reg. 170 / 03 Compliance Tests and Reports – Point Anne

Notifications and Corrective Actions – Point Anne

In accordance with Schedule 16 and Schedule 18 (O. Reg 170 / 03)

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
May 21 st 2020 AWQI 150026	Observation of improperly disinfected water	Observation	Not Applicable	Boil water advisory issued. Bacteriological samples taken May 22 nd 2020 to May 24 th , 2020. Boil water advisory lifted May 25 th 2020.	May 25 th , 2020

Operational Testing – Point Anne

In accordance with Schedule 7 (O. Reg 170 / 03).

Notes:

- 8760 denotes results from continuous monitoring
- NTU refers to Nephelometric Turbidity Units
- mg/L represent milligrams per litre

Parameter	Number of Samples	Range of Results (minimum to maximum)	Unit of Measure
Turbidity	8760	0.03 to 0.73	NTU
Free Chlorine at C.T Location	8760	0.98 to 2.92	mg/L
Free Chlorine in Distribution	234	0.95 to 1.85	mg/L
Fluoride	0	No fluoridation	Not Applicable

Microbiological Testing – Point Anne

In accordance with Schedule 11 (O. Reg 170 / 03)

Parameter	Number of Samples	Range of E. Coli or Fecal Results (minimum to maximum)	Range of Total Coliform Results (minimum to maximum)	Number of HPC Samples	Range of HPC Results (minimum to maximum)
Raw	52	0 to 76	Less than 10 to 1420	52	70 to greater than 2000
Treated	55	0 to 0	0 to 0	55	less than 10 to 20
Distribution	55	0 to 0	0 to 0	55	less than 10 to 210

Chemical Testing – Point Anne

In accordance with Schedule 13 (O. Reg 170 / 03). Sample results for Schedule 23 and Schedule 24 can be found starting on page 59 of this report.

Notes:

- mg/L represent milligrams per litre
- µg/L represents micrograms per litre

Parameter	Number of Samples	Range of Results (minimum to maximum)	Unit of Measure
Trihalomethane	4	48 to 107	µg/L
Haloacetic Acids	4	41.2 to 110	µg/L
Nitrate and Nitrite	4	less than 0.1 to 2.0	mg/L
Sodium	4	13.7 to 20.6	mg/L
Fluoride	1 (June 13 th , 2016)	0.1	mg/L

Lead Testing Summary – Point Anne

In accordance with Schedule 15.1 (O. Reg 170 / 03)

Notes:

- mg/L represent milligrams per litre

Location Type	Number of Samples	Range of Results (minimum to maximum)	Unit of Measure	Number of Exceedances
Lead - Plumbing	0	Not Applicable	mg/L	0
Lead - Distribution	1	0.00258	mg/L	0
Alkalinity - Distribution	2	90 to 198	mg/L	Not Applicable
pH - Plumbing	0	Not Applicable	Not Applicable	0
pH - Distribution	2	7.40 to 7.61	Not Applicable	0

The Point Anne Hamlet Drinking Water System has reached exemption status in the Lead Sampling Program. Following the Winter Lead Sampling Period (December 2011 to April 2012), the Point Anne Hamlet Drinking Water System satisfied the requirements of Section 15.1-5 (9) of Ontario Regulation 170 / 03 and as such began sampling in accordance with Section 15.1-5 (10).

Inorganic Testing – Point Anne

In accordance with Schedule 23 (O. Reg 170 / 03)

Notes:

- mg/L represent milligrams per litre
- < indicates that the results was “less than” the value that follows it

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Antimony	June 13 th , 2016	< 0.0001	mg/L	No
Arsenic	June 13 th , 2016	0.0003	mg/L	No
Barium	June 13 th , 2016	0.033	mg/L	No
Boron	June 13 th , 2016	0.010	mg/L	No
Cadmium	June 13 th , 2016	< 0.00002	mg/L	No
Chromium	June 13 th , 2016	< 0.002	mg/L	No
Mercury	June 13 th , 2016	< 0.00002	mg/L	No
Selenium	June 13 th , 2016	< 0.001	mg/L	No
Uranium	June 13 th , 2016	< 0.00005	mg/L	No

As per Section 13-2 (3) of Ontario Regulation 170 / 03, small municipal residential systems are required to be sampled and tested for Schedule 23 parameters at least once every 60 months. As such, the next

sampling and testing for Schedule 23 parameters for the Point Anne Hamlet Drinking Water System will occur prior to June 13th, 2021.

Organic Testing – Point Anne

In accordance with Schedule 24 (O. Reg 170 / 03)

Notes:

- µg/L represents micrograms per litre
- < indicates that the results was “less than” the value that follows it

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Alachor	January 12, 2016	<0.02	µg/L	No
Atrazine + N-dealkylated metabolites	January 12, 2016	<0.01	µg/L	No
Azinphos-methyl	January 12, 2016	<0.05	µg/L	No
Benzene	January 12, 2016	<0.32	µg/L	No
Benzo(a)pyrene	January 12, 2016	<0.004	µg/L	No

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Bromoxynil	January 12, 2016	<0.33	µg/L	No
Carbaryl	January 12, 2016	<0.05	µg/L	No
Carbofuran	January 12, 2016	<0.01	µg/L	No
Carbon Tetrachloride	January 12, 2016	<0.16	µg/L	No
Chlorpyrifos	January 12, 2016	<0.02	µg/L	No
Diazinon	January 12, 2016	<0.02	µg/L	No
Dicamba	January 12, 2016	<0.20	µg/L	No
1,2-Dichlorobenzene	January 12, 2016	<0.41	µg/L	No
1,4-Dichlorobenzene	January 12, 2016	<0.36	µg/L	No
1,2-Dichloroethane	January 12, 2016	<0.35	µg/L	No

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
1,1-Dichloroethylene (vinylidene chloride)	January 12, 2016	<0.33	µg/L	No
Dichloromethane	January 12, 2016	<0.35	µg/L	No
2,4-Dichlorophenol	January 12, 2016	<0.15	µg/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	January 12, 2016	<0.19	µg/L	No
Diclofop-methyl	January 12, 2016	<0.40	µg/L	No
Dimethoate	January 12, 2016	<0.03	µg/L	No
Diquat	January 12, 2016	<1	µg/L	No
Diuron	January 12, 2016	<0.03	µg/L	No
Glyphosate	January 12, 2016	<1	µg/L	No

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Malathion	January 12, 2016	<0.02	µg/L	No
2-Methyl-4-chlorophenoxyacetic acid (MCPA)	January 12, 2016	<0.00012	mg/L	No
Metolachlor	January 12, 2016	<0.01	µg/L	No
Metribuzin	January 12, 2016	<0.02	µg/L	No
Monochlorbenzene	January 12, 2016	<0.3	µg/L	No
Paraquat	January 12, 2016	<1	µg/L	No
Pentachlorophenol	January 12, 2016	<0.15	µg/L	No
Phorate	January 12, 2016	<0.01	µg/L	No
Picloram	January 12, 2016	<1	µg/L	No

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Polychlorinated Biphenyls (PCB)	January 12, 2016	<0.04	µg/L	No
Prometryne	January 12, 2016	<0.03	µg/L	No
Simazine	January 12, 2016	<0.01	µg/L	No
Terbufos	January 12, 2016	<0.01	µg/L	No
Tetrachloroethylene	January 12, 2016	<0.35	µg/L	No
2,3,4,6-Tetrachlorophenol	January 12, 2016	<0.20	µg/L	No
Triallate	January 12, 2016	<0.01	µg/L	No
Trichloroethylene	January 12, 2016	<0.44	µg/L	No
2,4,6-Trichlorophenol	January 12, 2016	<0.25	µg/L	No

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Trifluralin	January 12, 2016	<0.02	µg/L	No
Vinyl Chloride	January 12, 2016	<0.17	µg/L	No

As per Section 13-4 (3) of Ontario Regulation 170 / 03, small municipal residential systems are required to be sampled and tested for Schedule 24 parameters at least once every 60 months. As such, the next sampling and testing for Schedule 24 parameters for the Point Anne Hamlet Drinking Water System will occur prior to January 12, 2021.

Inorganic or Organic Parameters – Point Anne

Inorganic or organic parameters that exceeded half the standard prescribed in Schedule 2 of the Ontario Drinking Water Quality Standards.

Based on quarterly samples taken January 13th, April 15th, July 21st, and October 19th 2020, our annual average concentration for Trihalomethane is 67.3 µg / L. This exceeds one-half of the Schedule 2 standard, but does not exceed the regulated limit of 100 µg / L.

Based on quarterly samples taken January 13th, April 15th, July 21st, and October 19th 2020, our annual average concentration for Haloacetic acids is 65.5 µg / L. This exceeds one-half of the Schedule 2 standard, but does not exceed the regulated limit of 80 µg / L.

Monetary Expenses – Point Anne

Relatively significant monetary expenditures during 2020 include

1. Intake inspections
 2. Intake cleaning
 3. Various online monitoring equipment chemical analyzers
 4. Replaced both High Lift pumps
- Each of these expenditures was included in approved operating or capital budgets.
 - No distribution monetary expenditures occurred in 2020.