

136 Main Street East Shelburne, Ontario Canada 19v 3K5 TEL: 1 866 214 6987 TEL: 519 925 1938 FAX: 519 925 0322

WWW.OCWA.COM

February 22, 2019

Mr. Manny Baron CAO Clerk Township of Mapleton P.O. Box 160 Drayton, ON NOG 1PO

Re: Section 11 Reports of Ontario Regulation 170/03

Mr. Baron;

Please find attached the 2018 Annual Reports for the Drayton Water System, Waterworks # 220004046 and the Moorefield Water System, Waterworks # 220069732. The reports have been prepared as per Section 11 of O.Reg. 170/03 by the Ontario Clean Water Agency on behalf of the Township of Mapleton. These reports no longer have to be submitted to the Ministry of the Environment and Climate Change.

As per O.Reg. 170/03; Section 12 (4); these reports must be made available to any member of the public during normal business hours without charge at the office of the owner. If the office of the owner is not reasonably convenient to users of water from the system, the reports must be made available at a location that is reasonably convenient to those users.

Should you have any further questions regarding the attached report, please contact the undersigned at (519) 925-1938.

Sincerely,

Don Invine

Senior Operations Manager

Highlands Hub

DI/mc

cc: Melissa Cortes, PCT

Drinking-Water Systems Regulation O. Reg. 170/03 Section 11 Annual Report: January 1, 2018 to December 31, 2018

Township of Mapleton: Drayton Drinking Water System

**Drinking-Water System Number: Drinking-Water System Name: Drinking-Water System Owner: Drinking-Water System Category:** 

Period being reported:

| 220004064                                   |
|---|
| Drayton Drinking Water System               |
| The Corporation of the Township of Mapleton |

Large Municipal Residential

January 1, 2018 - December 31, 2018

| Complete if your Category is Large Municipal Residential or Small Municipal Residential | Complete for all other Categories.                      |
|---|---|
| Does your Drinking-Water System serve more than 10,000 people?  Yes [ ] No [X]          | Number of Designated Facilities served: Not applicable. |
| res [ ] NO [A]  | Did you provide a copy of your annual repo              |
| Is your annual report available to the public at no                                     | all Designated Facilities you serve?                    |
| charge on a web site on the Internet?   | Not applicable.   |
| Yes [X] No [ ]  |   |
|   | Number of Interested Authorities you repo               |

**Location where Summary Report required under** O. Reg. 170/03 Schedule 22 will be available for inspection.

Office of Township of Mapleton 7275 Sideroad 16 Drayton Ontario, NOG 1P0

er of Interested Authorities you report to: Not applicable.

annual report to

Did you provide a copy of your annual report to all Interested Authorities you report to for each **Designated Facility?** 

Not applicable.

Note: For the following tables below, additional rows or columns may be added or an appendix may be attached to the report

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

| Drinking Water System Name | Drinking Water System Number |
|----------------------------|------------------------------|
| Not Applicable.            | Not Applicable.              |

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

Not applicable.

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

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

Drinking-Water Systems Regulation O. Reg. 170/03 Section 11 Annual Report: January 1, 2018 to December 31, 2018 Township of Mapleton: Drayton Drinking Water System

#### **Describe your Drinking-Water System**

The Drayton Water Supply System is a ground water supply, treatment and storage system, serving the Village of Drayton in the Township of Mapleton. There are two wells, Well #1 is 66.29 m deep bedrock and Well #2 is 67.05 m deep bedrock within the same aquifer. Both wells are located within the pumphouse and are approved to supply water at a maximum flow rate of 1,364 L/min and a maximum daily flow of 3,928 m<sup>3</sup>/day from the system.

Before entering the distribution system from these wells, the raw water is treated by adding a disinfectant to protect against microbial contaminants. The water is disinfected with sodium hypochlorite solution (chlorine) and iron sequestering (sodium silicate), prior to entering the in-ground reservoir. Residual chlorine levels are maintained in the distribution system to effectively provide disinfection throughout the entire system.

The treated water in the pumphouse is pumped into a four-celled in ground reservoir with a total storage capacity of approximately 405m<sup>3</sup>. The treated water in the reservoir is distributed by high pumps through 9.88 kilometers of watermain.

# List all water treatment chemicals used over this reporting period

- Sodium Hypochlorite 12% Solution NSF, Disinfection
- Sodium Silicate, Iron Sequestering, NSF

# Were any significant expenses incurred to?

- X Install required equipment
- X | Repair required equipment
- X Replace required equipment
  - No significant expenses were incurred

#### Please provide a brief description of any significant expenses incurred

- Flowmetrix on site for annual flow meter calibrations no issues found
- Sommers Generators Annual load testing
- JJ McLellan Plumbing annual backflow preventer inspections
- SAI Global 12 month Reaccreditation Audit
- Belwood Electric Replaced chlorine and turbidity analyzer and UPS as well as pressure gage and mercury switch on high lift 4
- OCWA Conveyance Group annual hydrant flushing and flow testing
- Belwood Electric Replaced lighting inside building
- Brights Water Service & Flowmetrix replaced faulty distribution flow meter while Brights Water supplied water and pressure to distribution

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

| Incident Date<br>(yyyy/mm/dd) | Parameter | Result | Unit of Measure | Corrective Action | Corrective Action Date (yyyy/mm/dd) |
|-------------------------------|-----------|--------|-----------------|-------------------|-------------------------------------|
| n/a                           | n/a       | n/a    | n/a             | n/a               | n/a                                 |

Drinking-Water Systems Regulation O. Reg. 170/03 Section 11 Annual Report: January 1, 2018 to December 31, 2018 Township of Mapleton: Drayton Drinking Water System

Table 1. Microbiological testing done under the Schedule 10, 11 or 12 of Regulation 170/03, during this reporting period.

| Location           | Number<br>of | Range of E.coli<br>Results |      | Range of Total<br>Coliforms Results |      | Number<br>of       | Range of H | PC Samples |
|--------------------|--------------|----------------------------|------|-------------------------------------|------|--------------------|------------|------------|
|                    | Samples      | Min.                       | Max. | Min.                                | Max. | <b>HPC Samples</b> | Min.       | Max.       |
| Raw Water - Well 1 | 53           | 0                          | 0    | 0                                   | 0    | n/a                | n/a        | n/a        |
| Raw Water - Well 2 | 53           | 0                          | 0    | 0                                   | 0    | n/a                | n/a        | n/a        |
| Treated Water      | 53           | 0                          | 0    | 0                                   | 0    | 53                 | 0          | 1          |
| DW location        | 145          | 0                          | 0    | 0                                   | 0    | 90                 | 0          | 69         |

Table 2. Operational testing done under Schedule 7, 8 or 9 during the period covered by this Annual Report.

|                                   | Number of Grab | Range of Results |      |  |  |  |  |  |  |
|-----------------------------------|----------------|------------------|------|--|--|--|--|--|--|
|                                   | Samples        | Minimum Maximum  |      |  |  |  |  |  |  |
| Raw Water                         |                |                  |      |  |  |  |  |  |  |
| Turbidity, Well 1 (NTU)           | 12             | 0.11             | 0.21 |  |  |  |  |  |  |
| Turbidity, Well 2 (NTU)           | 12             | 0.13 0.22        |      |  |  |  |  |  |  |
| Treated Water                     |                |                  |      |  |  |  |  |  |  |
| Free Chlorine Residual, TW (mg/L) | 8760           | 1.03             | 1.75 |  |  |  |  |  |  |
| Distribution Water                |                |                  |      |  |  |  |  |  |  |
| Free Chlorine Residual, DW (mg/L) | 458            | 0.62             | 1.68 |  |  |  |  |  |  |

NOTE: For continuous monitors use 8760 as the number of sample.

Table 3. Summary of additional testing and sampling carried out in accordance with the requirement of an approval, order or other legal instrument.

| Date of legal instrument issued | Parameter | Date Sampled | Result | Unit of Measure |
|---------------------------------|-----------|--------------|--------|-----------------|
| n/a                             | n/a       | n/a          | n/a    | n/a             |

Table 4. Summary of Inorganic parameters tested during this reporting period or most recent sample results

|                          | Sample Date  |   |        | No. of Exceedances |         |  |
|--------------------------|--------------|---|--------|--------------------|---------|--|
| TREATED WATER            | (yyyy/mm/dd) | Sample Result   | MAC    | MAC                | 1/2 MAC |  |
| Antimony: Sb (ug/L) - TW | 2016/01/11   | <mdl 0.02<="" td=""><td>6.0</td><td>No</td><td>No</td></mdl>  | 6.0    | No                 | No      |  |
| Arsenic: As (ug/L) - TW  | 2016/01/11   | 3.4   | 10.0   | No                 | No      |  |
| Barium: Ba (ug/L) - TW   | 2016/01/11   | 194.0   | 1000.0 | No                 | No      |  |
| Boron: B (ug/L) - TW     | 2016/01/11   | 44.7  | 5000.0 | No                 | No      |  |
| Cadmium: Cd (ug/L) - TW  | 2016/01/11   | <mdl 0.003<="" td=""><td>5.0</td><td>No</td><td>No</td></mdl> | 5.0    | No                 | No      |  |
| Chromium: Cr (ug/L) - TW | 2016/01/11   | <mdl 0.03<="" td=""><td>50.0</td><td>No</td><td>No</td></mdl> | 50.0   | No                 | No      |  |
| Mercury: Hg (ug/L) - TW  | 2016/01/11   | <mdl 0.01<="" td=""><td>1.0</td><td>No</td><td>No</td></mdl>  | 1.0    | No                 | No      |  |
| Selenium: Se (ug/L) - TW | 2016/01/11   | <mdl 0.04<="" td=""><td>50.0</td><td>No</td><td>No</td></mdl> | 50.0   | No                 | No      |  |
| Uranium: U (ug/L) - TW   | 2016/01/11   | 0.067   | 20.0   | No                 | No      |  |
| Additional Inorganics    |              |   |        |                    |         |  |
| Fluoride (mg/L) - TW     | 2018/09/11   | 0.48  | 1.5    | No                 | No      |  |

Drinking-Water Systems Regulation O. Reg. 170/03 Section 11 Annual Report: January 1, 2018 to December 31, 2018 Township of Mapleton: Drayton Drinking Water System

| Nitrite (mg/L) - TW    | 2018/01/16 | <mdl 0.003<="" td=""><td>1.0</td><td>No</td><td>No</td></mdl>  | 1.0  | No | No  |
|------------------------|------------|--|------|----|-----|
| Nitrite (mg/L) - TW    | 2018/06/27 | <mdl 0.003<="" td=""><td>1.0</td><td>No</td><td>No</td></mdl>  | 1.0  | No | No  |
| Nitrite (mg/L) - TW    | 2018/04/17 | <mdl 0.003<="" td=""><td>1.0</td><td>No</td><td>No</td></mdl>  | 1.0  | No | No  |
| Nitrite (mg/L) - TW    | 2018/10/10 | <mdl 0.003<="" td=""><td>1.0</td><td>No</td><td>No</td></mdl>  | 1.0  | No | No  |
| Nitrate (mg/L) - TW    | 2018/01/16 | 0.006  | 10.0 | No | No  |
| Nitrate (mg/L) - TW    | 2018/06/27 | 0.008  | 10.0 | No | No  |
| Nitrate (mg/L) - TW    | 2018/04/17 | <mdl 0.006<="" td=""><td>10.0</td><td>No</td><td>No</td></mdl> | 10.0 | No | No  |
| Nitrate (mg/L) - TW    | 2018/10/10 | 0.006  | 10.0 | No | No  |
| Sodium: Na (mg/L) - TW | 2018/09/11 | 18.8   | 20*  | No | Yes |

<sup>\*</sup>There is no "MAC" for Sodium. The aesthetic objective for sodium in drinking water is 200 mg/L. The local Medical Officer of Health should be notified when the sodium concentration exceeds 20 mg/L so that this information may be communicated to local physicians for their use with patients on sodium restricted diets.

Table 5. Summary of lead testing under Schedule 15.1 during this reporting period (applicable to the following drinking water systems; large municipal residential systems, small municipal residential systems, and non-municipal year-round residential systems)

| Location Tune                      | Number of | Results | MAC     | Number of |             |
|------------------------------------|-----------|---------|---------|-----------|-------------|
| Location Type                      | Samples   | Minimum | Maximum |           | Exceedances |
| Distribution - Lead Results (μg/L) | 1         | 0.31    | 0.31    | 10        | 0           |
| Distribution - Alkalinity (mg/L)   | 4         | 214     | 230     | n/a       | n/a         |
| DW location - pH In-House          | 4         | 6.91    | 7.44    | n/a       | n/a         |

The Drayton Drinking Water Systems qualifies for plumbing exemption.

Table 6. Summary of Organic parameters sampled during this reporting period or the most recent sample results

| TREATED WATER                                    | Sample Date  | Sample Result   | MAC    |     | mber of<br>edances |
|--|--------------|---|--------|-----|--------------------|
|  | (yyyy/mm/dd) | •   |        | MAC | 1/2 MAC            |
| Alachlor (ug/L) - TW                             | 2016/01/11   | <mdl 0.02<="" td=""><td>5.00</td><td>No</td><td>No</td></mdl>   | 5.00   | No  | No                 |
| Atrazine + N-dealkylated metabolites (ug/L) - TW | 2016/01/11   | <mdl 0.01<="" td=""><td>5.00</td><td>No</td><td>No</td></mdl>   | 5.00   | No  | No                 |
| Azinphos-methyl (ug/L) - TW                      | 2016/01/11   | <mdl 0.05<="" td=""><td>20.00</td><td>No</td><td>No</td></mdl>  | 20.00  | No  | No                 |
| Benzene (ug/L) - TW                              | 2016/01/11   | <mdl 0.32<="" td=""><td>1.00</td><td>No</td><td>No</td></mdl>   | 1.00   | No  | No                 |
| Benzo(a)pyrene (ug/L) - TW                       | 2016/01/11   | <mdl 0.004<="" td=""><td>0.01</td><td>No</td><td>No</td></mdl>  | 0.01   | No  | No                 |
| Bromoxynil (ug/L) - TW                           | 2016/01/11   | <mdl 0.33<="" td=""><td>5.00</td><td>No</td><td>No</td></mdl>   | 5.00   | No  | No                 |
| Carbaryl (ug/L) - TW                             | 2016/01/11   | <mdl 0.05<="" td=""><td>90.00</td><td>No</td><td>No</td></mdl>  | 90.00  | No  | No                 |
| Carbofuran (ug/L) - TW                           | 2016/01/11   | <mdl 0.01<="" td=""><td>90.00</td><td>No</td><td>No</td></mdl>  | 90.00  | No  | No                 |
| Carbon Tetrachloride (ug/L) - TW                 | 2016/01/11   | <mdl 0.16<="" td=""><td>2.00</td><td>No</td><td>No</td></mdl>   | 2.00   | No  | No                 |
| Chlorpyrifos (ug/L) - TW                         | 2016/01/11   | <mdl 0.02<="" td=""><td>90.00</td><td>No</td><td>No</td></mdl>  | 90.00  | No  | No                 |
| Diazinon (ug/L) - TW                             | 2016/01/11   | <mdl 0.02<="" td=""><td>20.00</td><td>No</td><td>No</td></mdl>  | 20.00  | No  | No                 |
| Dicamba (ug/L) - TW                              | 2016/01/11   | <mdl 0.2<="" td=""><td>120.00</td><td>No</td><td>No</td></mdl>  | 120.00 | No  | No                 |
| 1,2-Dichlorobenzene (ug/L) - TW                  | 2016/01/11   | <mdl 0.41<="" td=""><td>200.00</td><td>No</td><td>No</td></mdl> | 200.00 | No  | No                 |

| 1,4-Dichlorobenzene (ug/L) - TW                        | 2016/01/11 | <mdl 0.36<="" th=""><th>5.00</th><th>No</th><th>No</th></mdl>   | 5.00   | No  | No  |
|--|------------|---|--------|-----|-----|
| 1,2-Dichloroethane (ug/L) - TW                         | 2016/01/11 | <mdl 0.35<="" td=""><td>5.00</td><td>No</td><td>No</td></mdl>   | 5.00   | No  | No  |
| 1,1-Dichloroethylene (ug/L) - TW                       | 2016/01/11 | <mdl 0.33<="" td=""><td>14.00</td><td>No</td><td>No</td></mdl>  | 14.00  | No  | No  |
| Dichloromethane (Methylene Chloride) (ug/L) - TW       | 2016/01/11 | <mdl 0.35<="" td=""><td>50.00</td><td>No</td><td>No</td></mdl>  | 50.00  | No  | No  |
| 2,4-Dichlorophenol (ug/L) - TW                         | 2016/01/11 | <mdl 0.15<="" td=""><td>900.00</td><td>No</td><td>No</td></mdl> | 900.00 | No  | No  |
| 2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW    | 2016/01/11 | <mdl 0.19<="" td=""><td>100.00</td><td>No</td><td>No</td></mdl> | 100.00 | No  | No  |
| Diclofop-methyl (ug/L) - TW                            | 2016/01/11 | <mdl 0.4<="" td=""><td>9.00</td><td>No</td><td>No</td></mdl>    | 9.00   | No  | No  |
| Dimethoate (ug/L) - TW                                 | 2016/01/11 | <mdl 0.03<="" td=""><td>20.00</td><td>No</td><td>No</td></mdl>  | 20.00  | No  | No  |
| Diquat (ug/L) - TW                                     | 2016/01/11 | <mdl 1.0<="" td=""><td>70.00</td><td>No</td><td>No</td></mdl>   | 70.00  | No  | No  |
| Diuron (ug/L) - TW                                     | 2016/01/11 | <mdl 0.03<="" td=""><td>150.00</td><td>No</td><td>No</td></mdl> | 150.00 | No  | No  |
| Glyphosate (ug/L) - TW                                 | 2016/01/11 | <mdl 1.0<="" td=""><td>280.00</td><td>No</td><td>No</td></mdl>  | 280.00 | No  | No  |
| Malathion (ug/L) - TW                                  | 2016/01/11 | <mdl 0.02<="" td=""><td>190.00</td><td>No</td><td>No</td></mdl> | 190.00 | No  | No  |
| Metolachlor (ug/L) - TW                                | 2016/01/11 | <mdl 0.01<="" td=""><td>50.00</td><td>No</td><td>No</td></mdl>  | 50.00  | No  | No  |
| Metribuzin (ug/L) - TW                                 | 2016/01/11 | <mdl 0.02<="" td=""><td>80.00</td><td>No</td><td>No</td></mdl>  | 80.00  | No  | No  |
| Monochlorobenzene (Chlorobenzene) (ug/L) - TW          | 2016/01/11 | <mdl 0.3<="" td=""><td>80.00</td><td>No</td><td>No</td></mdl>   | 80.00  | No  | No  |
| Paraquat (ug/L) - TW                                   | 2016/01/11 | <mdl 1.0<="" td=""><td>10.00</td><td>No</td><td>No</td></mdl>   | 10.00  | No  | No  |
| PCB (ug/L) - TW  | 2016/01/11 | <mdl 0.04<="" td=""><td>3.00</td><td>No</td><td>No</td></mdl>   | 3.00   | No  | No  |
| Pentachlorophenol (ug/L) - TW                          | 2016/01/11 | <mdl 0.15<="" td=""><td>60.00</td><td>No</td><td>No</td></mdl>  | 60.00  | No  | No  |
| Phorate (ug/L) - TW                                    | 2016/01/11 | <mdl 0.01<="" td=""><td>2.00</td><td>No</td><td>No</td></mdl>   | 2.00   | No  | No  |
| Picloram (ug/L) - TW                                   | 2016/01/11 | <mdl 1.0<="" td=""><td>190.00</td><td>No</td><td>No</td></mdl>  | 190.00 | No  | No  |
| Prometryne (ug/L) - TW                                 | 2016/01/11 | <mdl 0.03<="" td=""><td>1.00</td><td>No</td><td>No</td></mdl>   | 1.00   | No  | No  |
| Simazine (ug/L) - TW                                   | 2016/01/11 | <mdl 0.01<="" td=""><td>10.00</td><td>No</td><td>No</td></mdl>  | 10.00  | No  | No  |
| Terbufos (ug/L) - TW                                   | 2016/01/11 | <mdl 0.01<="" td=""><td>1.00</td><td>No</td><td>No</td></mdl>   | 1.00   | No  | No  |
| Tetrachloroethylene (ug/L) - TW                        | 2016/01/11 | <mdl 0.35<="" td=""><td>10.00</td><td>No</td><td>No</td></mdl>  | 10.00  | No  | No  |
| 2,3,4,6-Tetrachlorophenol (ug/L) - TW                  | 2016/01/11 | <mdl 0.2<="" td=""><td>100.00</td><td>No</td><td>No</td></mdl>  | 100.00 | No  | No  |
| Triallate (ug/L) - TW                                  | 2016/01/11 | <mdl 0.01<="" td=""><td>230.00</td><td>No</td><td>No</td></mdl> | 230.00 | No  | No  |
| Trichloroethylene (ug/L) - TW                          | 2016/01/11 | <mdl 0.44<="" td=""><td>5.00</td><td>No</td><td>No</td></mdl>   | 5.00   | No  | No  |
| 2,4,6-Trichlorophenol (ug/L) - TW                      | 2016/01/11 | <mdl 0.25<="" td=""><td>5.00</td><td>No</td><td>No</td></mdl>   | 5.00   | No  | No  |
| 2-methyl-4-chlorophenoxyacetic acid (MCPA) (ug/L) - TW | 2016/01/11 | <mdl 0.12<="" td=""><td>100.00</td><td>No</td><td>No</td></mdl> | 100.00 | No  | No  |
| Trifluralin (ug/L) - TW                                | 2016/01/11 | <mdl 0.02<="" td=""><td>45.00</td><td>No</td><td>No</td></mdl>  | 45.00  | No  | No  |
| Vinyl Chloride (ug/L) - TW                             | 2016/01/11 | <mdl 0.17<="" td=""><td>1.00</td><td>No</td><td>No</td></mdl>   | 1.00   | No  | No  |
| DISTRIBUTION WATER                                     |            |   |        |     |     |
| Trihalomethane: Total (ug/L) Annual Average - DW       | 2018/01/01 | 14.5  | 100.00 | No  | No  |
| HAA Total (ug/L) Annual Average - DW                   | 2018/01/01 | 5.3   |        | N/A | N/A |

Table 7. List any Inorganic or Organic parameter(s) that exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards. (Only if DWS category is large municipal residential, small municipal residential, large municipal non-residential, non-municipal year round residential, large non municipal non-residential)

Refer to Table 4 and Table 5 for any Inorganic or Organic parameter(s) that exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards.

Drinking-Water Systems Regulation O. Reg. 170/03 Section 11 Annual Report: January 1, 2018 to December 31, 2018 Township of Mapleton: Moorefield Drinking Water System

Drinking-Water System Number:
Drinking-Water System Name:
Drinking-Water System Owner:
Drinking-Water System Category:

Period being reported:

260069732
Moorefield Drinking Water System
The Corporation of the Township of Mapleton
Large Municipal Residential
January 1, 2018 – December 31, 2018

| Complete if your Category is Large Municipal |
|--|
| Residential or Small Municipal Residential   |
|  |

Does your Drinking-Water System serve more than 10,000 people?

Yes [] No [X]

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

Yes [X] No [ ]

Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.

Office of Township of Mapleton 7275 Sideroad 16 Drayton Ontario, NOG 1P0

#### Complete for all other Categories.

**Number of Designated Facilities served:** Not applicable.

Did you provide a copy of your annual report to all Designated Facilities you serve?

Not applicable.

Number of Interested Authorities you report to:

Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility?

Not applicable.

Not applicable.

Note: For the following tables below, additional rows or columns may be added or an appendix may be attached to the report

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

| Drinking Water System Name | Drinking Water System Number |  |  |  |
|----------------------------|------------------------------|--|--|--|
| Not Applicable.            | Not Applicable.              |  |  |  |

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

Not applicable.

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

| d |   | , , ,                                      |
|---|---|--|
|   | Χ | Public access/notice via the web           |
|   | Χ | Public access/notice via Government Office |
|   |   | Public access/notice via a newspaper       |
|   | Χ | Public access/notice via Public Request    |
|   |   | Public access/notice via a Public Library  |
|   |   | Public access/notice via other method:     |

Drinking-Water Systems Regulation O. Reg. 170/03 Section 11 Annual Report: January 1, 2018 to December 31, 2018 Township of Mapleton: Moorefield Drinking Water System

### **Describe your Drinking-Water System**

The Moorefield Water Supply System is a ground water supply, treatment and storage system, serving the Hamlet of Moorefield in the Township of Mapleton. There are two wells, one at 119 and one at 73.2 meters deep, in bedrock within the same aquifer. Both wells are located outdoors, approximately 55 meters east of the pumphouse and are approved to supply water at a maximum flow rate of 660 L/min and 420 L/min from the system.

Before entering the distribution system from these wells, the raw water is treated by adding a disinfectant to protect against microbial contaminants. The water is disinfected with sodium hypochlorite solution (chlorine). Treated water is then pumped from the pumphouse to the water storage standpipe providing a total storage capacity of approximately 387 m³ for equalization and emergency storage and chlorine contact requirements. The treated water, in the water storage standpipe, is distributed by four high lift pumps through approximately 4.0 kilometers of watermain. Residual chlorine levels are maintained in the distribution system to effectively provide disinfection throughout the entire system.

#### List all water treatment chemicals used over this reporting period

Sodium Hypochlorite 12% Solution NSF, Disinfection

| Were  | anv  | significant | expenses  | incurred | to? |
|-------|------|-------------|-----------|----------|-----|
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- X Install required equipment
- X Repair required equipment
- X Replace required equipment
  - No significant expenses were incurred

#### Please provide a brief description of any significant expenses incurred

- Caldecott Millwrights Replaced all tubing and valves for chlorine pumps on skids 1 and 2
- SAI Global 12 month Reaccreditation Audit
- JJ McLellan Plumbing annual backflow preventer inspections
- Belwood Electric Replaced lighting inside building
- Sommers Generators Annual load testing
- Flowmetrix on site for annual flow meter calibrations no issues found
- Syntec Solutions High Lift 2 singer valve inspection and parts replaced

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

| Incident Date<br>(yyyy/mm/dd) | Parameter |     | Unit of Measure | Corrective Action | Corrective Action Date |  |
|-------------------------------|-----------|-----|-----------------|-------------------|------------------------|--|
|                               |           |     |                 |                   | (yyyy/mm/dd)           |  |
| n/a                           | n/a       | n/a | n/a             | n/a               | n/a                    |  |

Table 1. Microbiological testing done under the Schedule 10, 11 or 12 of Regulation 170/03, during this reporting period.

| Location           | Number<br>of | •    | of E.coli<br>ults | Range o |      | Number<br>of       | Range of H | PC Samples |
|--------------------|--------------|------|-------------------|---------|------|--------------------|------------|------------|
|                    | Samples      | Min. | Max.              | Min.    | Max. | <b>HPC Samples</b> | Min.       | Max.       |
| Raw Water - Well 1 | 52           | 0    | 0                 | 0       | 2    | n/a                | n/a        | n/a        |
| Raw Water - Well 2 | 52           | 0    | 0                 | 0       | 0    | n/a                | n/a        | n/a        |
| Treated Water      | 52           | 0    | 0                 | 0       | 0    | 52                 | 0          | 2          |
| DW location        | 129          | 0    | 0                 | 0       | 0    | 81                 | 0          | 10         |

Table 2. Operational testing done under Schedule 7, 8 or 9 during the period covered by this Annual Report.

|                                   | Number of Grab | Range of I | Results |  |  |  |
|-----------------------------------|----------------|------------|---------|--|--|--|
|                                   | Samples        | Minimum    | Maximum |  |  |  |
|                                   | Raw Wa         | nter       |         |  |  |  |
| Turbidity, Well 1 (NTU)           | 12             | 0.07       | 0.15    |  |  |  |
| Turbidity, Well 2 (NTU)           | 12             | 0.05       | 0.13    |  |  |  |
|                                   | Treated V      | Vater      |         |  |  |  |
| Free Chlorine Residual, TW (mg/L) | 8760           | 0.63       | 1.77    |  |  |  |
| Distribution Water                |                |            |         |  |  |  |
| Free Chlorine Residual, DW (mg/L) | 468            | 0.35       | 1.58    |  |  |  |

NOTE: For continuous monitors use 8760 as the number of sample.

Table 3. Summary of additional testing and sampling carried out in accordance with the requirement of an approval, order or other legal instrument.

| Date of legal instrument issued | Parameter | Date Sampled | Result | Unit of Measure |
|---------------------------------|-----------|--------------|--------|-----------------|
| n/a                             | n/a       | n/a          | n/a    | n/a             |

Table 4. Summary of Inorganic parameters tested during this reporting period or most recent sample results

| T054T50 W4T50            | Sample Date  | 0 1 5 1   |        | No. of | Exceedances |
|--------------------------|--------------|---|--------|--------|-------------|
| TREATED WATER            | (yyyy/mm/dd) | Sample Result   | MAC    | MAC    | 1/2 MAC     |
| Antimony: Sb (ug/L) - TW | 2018/07/26   | <mdl 0.02<="" td=""><td>6.0</td><td>No</td><td>No</td></mdl>  | 6.0    | No     | No          |
| Arsenic: As (ug/L) - TW  | 2018/07/26   | <mdl 0.2<="" td=""><td>10.0</td><td>No</td><td>No</td></mdl>  | 10.0   | No     | No          |
| Barium: Ba (ug/L) - TW   | 2018/07/26   | 208.0   | 1000.0 | No     | No          |
| Boron: B (ug/L) - TW     | 2018/07/26   | 28.0  | 5000.0 | No     | No          |
| Cadmium: Cd (ug/L) - TW  | 2018/07/26   | <mdl 0.003<="" td=""><td>5.0</td><td>No</td><td>No</td></mdl> | 5.0    | No     | No          |
| Chromium: Cr (ug/L) - TW | 2018/07/26   | 0.1   | 50.0   | No     | No          |
| Mercury: Hg (ug/L) - TW  | 2018/07/26   | <mdl 0.01<="" td=""><td>1.0</td><td>No</td><td>No</td></mdl>  | 1.0    | No     | No          |
| Selenium: Se (ug/L) - TW | 2018/07/26   | <mdl 0.04<="" td=""><td>50.0</td><td>No</td><td>No</td></mdl> | 50.0   | No     | No          |
| Uranium: U (ug/L) - TW   | 2018/07/26   | 0.028   | 20.0   | No     | No          |
| Additional Inorganics    |              |   |        |        |             |
| Fluoride (mg/L) - TW     | 2016/07/18   | 0.8   | 1.5    | No     | Yes         |
| Nitrite (mg/L) - TW      | 2018/01/15   | <mdl 0.003<="" td=""><td>1.0</td><td>No</td><td>No</td></mdl> | 1.0    | No     | No          |

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| Nitrite (mg/L) - TW    | 2018/06/25 | <mdl 0.003<="" th=""><th>1.0</th><th>No</th><th>No</th></mdl>  | 1.0  | No | No  |
|------------------------|------------|--|------|----|-----|
| Nitrite (mg/L) - TW    | 2018/04/17 | <mdl 0.003<="" td=""><td>1.0</td><td>No</td><td>No</td></mdl>  | 1.0  | No | No  |
| Nitrite (mg/L) - TW    | 2018/10/09 | <mdl 0.003<="" td=""><td>1.0</td><td>No</td><td>No</td></mdl>  | 1.0  | No | No  |
| Nitrate (mg/L) - TW    | 2018/01/15 | 0.011  | 10.0 | No | No  |
| Nitrate (mg/L) - TW    | 2018/06/25 | 0.006  | 10.0 | No | No  |
| Nitrate (mg/L) - TW    | 2018/04/17 | <mdl 0.006<="" td=""><td>10.0</td><td>No</td><td>No</td></mdl> | 10.0 | No | No  |
| Nitrate (mg/L) - TW    | 2018/10/09 | <mdl 0.006<="" td=""><td>10.0</td><td>No</td><td>No</td></mdl> | 10.0 | No | No  |
| Sodium: Na (mg/L) - TW | 2016/07/18 | 14.6   | 20*  | No | Yes |

<sup>\*</sup>There is no "MAC" for Sodium. The aesthetic objective for sodium in drinking water is 200 mg/L. The local Medical Officer of Health should be notified when the sodium concentration exceeds 20 mg/L so that this information may be communicated to local physicians for their use with patients on sodium restricted diets.

Table 5. Summary of lead testing under Schedule 15.1 during this reporting period (applicable to the following drinking water systems; large municipal residential systems, small municipal residential systems, and non-municipal year-round residential systems)

| Location Type                      | Number of<br>Samples | Range of Results |         | MAC | Number of   |  |
|------------------------------------|----------------------|------------------|---------|-----|-------------|--|
|                                    |                      | Minimum          | Maximum |     | Exceedances |  |
| Distribution - Lead Results (μg/L) | 1                    | 0.32             | 0.32    | 10  | 0           |  |
| Distribution - Alkalinity (mg/L)   | 4                    | 226              | 237     | n/a | n/a         |  |
| DW location - pH In-House          | 4                    | 6.57             | 7.63    | n/a | n/a         |  |

The Moorefield Drinking Water Systems qualifies for plumbing exemption.

Table 6. Summary of Organic parameters sampled during this reporting period or the most recent sample results

| TREATED WATER                                    | Sample Date  | Sample Result   | MAC    | Number of<br>Exceedances |         |
|--|--------------|---|--------|--------------------------|---------|
|  | (yyyy/mm/dd) |   |        | MAC                      | 1/2 MAC |
| Alachlor (ug/L) - TW                             | 2018/07/26   | <mdl 0.02<="" td=""><td>5.00</td><td>No</td><td>No</td></mdl>   | 5.00   | No                       | No      |
| Atrazine + N-dealkylated metabolites (ug/L) - TW | 2018/07/26   | <mdl 0.01<="" td=""><td>5.00</td><td>No</td><td>No</td></mdl>   | 5.00   | No                       | No      |
| Azinphos-methyl (ug/L) - TW                      | 2018/07/26   | <mdl 0.05<="" td=""><td>20.00</td><td>No</td><td>No</td></mdl>  | 20.00  | No                       | No      |
| Benzene (ug/L) - TW                              | 2018/07/26   | <mdl 0.32<="" td=""><td>1.00</td><td>No</td><td>No</td></mdl>   | 1.00   | No                       | No      |
| Benzo(a)pyrene (ug/L) - TW                       | 2018/07/26   | <mdl 0.004<="" td=""><td>0.01</td><td>No</td><td>No</td></mdl>  | 0.01   | No                       | No      |
| Bromoxynil (ug/L) - TW                           | 2018/07/26   | <mdl 0.33<="" td=""><td>5.00</td><td>No</td><td>No</td></mdl>   | 5.00   | No                       | No      |
| Carbaryl (ug/L) - TW                             | 2018/07/26   | <mdl 0.05<="" td=""><td>90.00</td><td>No</td><td>No</td></mdl>  | 90.00  | No                       | No      |
| Carbofuran (ug/L) - TW                           | 2018/07/26   | <mdl 0.01<="" td=""><td>90.00</td><td>No</td><td>No</td></mdl>  | 90.00  | No                       | No      |
| Carbon Tetrachloride (ug/L) - TW                 | 2018/07/26   | <mdl 0.16<="" td=""><td>2.00</td><td>No</td><td>No</td></mdl>   | 2.00   | No                       | No      |
| Chlorpyrifos (ug/L) - TW                         | 2018/07/26   | <mdl 0.02<="" td=""><td>90.00</td><td>No</td><td>No</td></mdl>  | 90.00  | No                       | No      |
| Diazinon (ug/L) - TW                             | 2018/07/26   | <mdl 0.02<="" td=""><td>20.00</td><td>No</td><td>No</td></mdl>  | 20.00  | No                       | No      |
| Dicamba (ug/L) - TW                              | 2018/07/26   | <mdl 0.2<="" td=""><td>120.00</td><td>No</td><td>No</td></mdl>  | 120.00 | No                       | No      |
| 1,2-Dichlorobenzene (ug/L) - TW                  | 2018/07/26   | <mdl 0.41<="" td=""><td>200.00</td><td>No</td><td>No</td></mdl> | 200.00 | No                       | No      |
| 1,4-Dichlorobenzene (ug/L) - TW                  | 2018/07/26   | <mdl 0.36<="" td=""><td>5.00</td><td>No</td><td>No</td></mdl>   | 5.00   | No                       | No      |

| 1,2-Dichloroethane (ug/L) - TW                         | 2018/07/26 | <mdl 0.35<="" th=""><th>5.00</th><th>No</th><th>No</th></mdl>   | 5.00   | No  | No  |
|--|------------|---|--------|-----|-----|
| 1,1-Dichloroethylene (ug/L) - TW                       | 2018/07/26 | <mdl 0.33<="" td=""><td>14.00</td><td>No</td><td>No</td></mdl>  | 14.00  | No  | No  |
| Dichloromethane (Methylene Chloride) (ug/L) - TW       | 2018/07/26 | <mdl 0.35<="" td=""><td>50.00</td><td>No</td><td>No</td></mdl>  | 50.00  | No  | No  |
| 2,4-Dichlorophenol (ug/L) - TW                         | 2018/07/26 | <mdl 0.15<="" td=""><td>900.00</td><td>No</td><td>No</td></mdl> | 900.00 | No  | No  |
| 2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW    | 2018/07/26 | <mdl 0.19<="" td=""><td>100.00</td><td>No</td><td>No</td></mdl> | 100.00 | No  | No  |
| Diclofop-methyl (ug/L) - TW                            | 2018/07/26 | <mdl 0.4<="" td=""><td>9.00</td><td>No</td><td>No</td></mdl>    | 9.00   | No  | No  |
| Dimethoate (ug/L) - TW                                 | 2018/07/26 | <mdl 0.03<="" td=""><td>20.00</td><td>No</td><td>No</td></mdl>  | 20.00  | No  | No  |
| Diquat (ug/L) - TW                                     | 2018/07/26 | <mdl 1.0<="" td=""><td>70.00</td><td>No</td><td>No</td></mdl>   | 70.00  | No  | No  |
| Diuron (ug/L) - TW                                     | 2018/07/26 | <mdl 0.03<="" td=""><td>150.00</td><td>No</td><td>No</td></mdl> | 150.00 | No  | No  |
| Glyphosate (ug/L) - TW                                 | 2018/07/26 | <mdl 1.0<="" td=""><td>280.00</td><td>No</td><td>No</td></mdl>  | 280.00 | No  | No  |
| Malathion (ug/L) - TW                                  | 2018/07/26 | <mdl 0.02<="" td=""><td>190.00</td><td>No</td><td>No</td></mdl> | 190.00 | No  | No  |
| Metolachlor (ug/L) - TW                                | 2018/07/26 | <mdl 0.01<="" td=""><td>50.00</td><td>No</td><td>No</td></mdl>  | 50.00  | No  | No  |
| Metribuzin (ug/L) - TW                                 | 2018/07/26 | <mdl 0.02<="" td=""><td>80.00</td><td>No</td><td>No</td></mdl>  | 80.00  | No  | No  |
| Monochlorobenzene (Chlorobenzene) (ug/L) - TW          | 2018/07/26 | <mdl 0.3<="" td=""><td>80.00</td><td>No</td><td>No</td></mdl>   | 80.00  | No  | No  |
| Paraquat (ug/L) - TW                                   | 2018/07/26 | <mdl 1.0<="" td=""><td>10.00</td><td>No</td><td>No</td></mdl>   | 10.00  | No  | No  |
| PCB (ug/L) - TW  | 2018/07/26 | <mdl 0.04<="" td=""><td>3.00</td><td>No</td><td>No</td></mdl>   | 3.00   | No  | No  |
| Pentachlorophenol (ug/L) - TW                          | 2018/07/26 | <mdl 0.15<="" td=""><td>60.00</td><td>No</td><td>No</td></mdl>  | 60.00  | No  | No  |
| Phorate (ug/L) - TW                                    | 2018/07/26 | <mdl 0.01<="" td=""><td>2.00</td><td>No</td><td>No</td></mdl>   | 2.00   | No  | No  |
| Picloram (ug/L) - TW                                   | 2018/07/26 | <mdl 1.0<="" td=""><td>190.00</td><td>No</td><td>No</td></mdl>  | 190.00 | No  | No  |
| Prometryne (ug/L) - TW                                 | 2018/07/26 | <mdl 0.03<="" td=""><td>1.00</td><td>No</td><td>No</td></mdl>   | 1.00   | No  | No  |
| Simazine (ug/L) - TW                                   | 2018/07/26 | <mdl 0.01<="" td=""><td>10.00</td><td>No</td><td>No</td></mdl>  | 10.00  | No  | No  |
| Terbufos (ug/L) - TW                                   | 2018/07/26 | <mdl 0.01<="" td=""><td>1.00</td><td>No</td><td>No</td></mdl>   | 1.00   | No  | No  |
| Tetrachloroethylene (ug/L) - TW                        | 2018/07/26 | <mdl 0.35<="" td=""><td>10.00</td><td>No</td><td>No</td></mdl>  | 10.00  | No  | No  |
| 2,3,4,6-Tetrachlorophenol (ug/L) - TW                  | 2018/07/26 | <mdl 0.2<="" td=""><td>100.00</td><td>No</td><td>No</td></mdl>  | 100.00 | No  | No  |
| Triallate (ug/L) - TW                                  | 2018/07/26 | <mdl 0.01<="" td=""><td>230.00</td><td>No</td><td>No</td></mdl> | 230.00 | No  | No  |
| Trichloroethylene (ug/L) - TW                          | 2018/07/26 | <mdl 0.44<="" td=""><td>5.00</td><td>No</td><td>No</td></mdl>   | 5.00   | No  | No  |
| 2,4,6-Trichlorophenol (ug/L) - TW                      | 2018/07/26 | <mdl 0.25<="" td=""><td>5.00</td><td>No</td><td>No</td></mdl>   | 5.00   | No  | No  |
| 2-methyl-4-chlorophenoxyacetic acid (MCPA) (ug/L) - TW | 2018/07/26 | <mdl 0.12<="" td=""><td>100.00</td><td>No</td><td>No</td></mdl> | 100.00 | No  | No  |
| Trifluralin (ug/L) - TW                                | 2018/07/26 | <mdl 0.02<="" td=""><td>45.00</td><td>No</td><td>No</td></mdl>  | 45.00  | No  | No  |
| Vinyl Chloride (ug/L) - TW                             | 2018/07/26 | <mdl 0.17<="" td=""><td>1.00</td><td>No</td><td>No</td></mdl>   | 1.00   | No  | No  |
| DISTRIBUTION WATER                                     |            |   |        |     |     |
| Trihalomethane: Total (ug/L) Annual Average - DW       | 2018/01/01 | 16.25   | 100.00 | No  | No  |
| HAA Total (ug/L) Annual Average - DW                   | 2018/01/01 | 5.3   |        | N/A | N/A |

Table 7. List any Inorganic or Organic parameter(s) that exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards. (Only if DWS category is large municipal residential, small municipal residential, large municipal non-residential, non-municipal year round residential, large non municipal non-residential)

Refer to Table 4 and Table 5 for any Inorganic or Organic parameter(s) that exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards.