

# Havelock Drinking Water System Annual Water Report

**Reporting period of January 1, 2017 – December 31, 2017**

Prepared For: The Township of Havelock-Belmont-Methuen

Prepared By:



This report has been prepared to satisfy the annual reporting requirements of the Provincial Regulations and Guidelines established by the Ministry of the Environment in the Province of Ontario including the section 11 and Schedule 22 reports identified in O.Reg 170/03, Drinking Water Systems Regulation and the Permit to Take Water Reports identified in O.Reg 387/04, Water Taking and Transfer Regulation.

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## Report Availability

|   |  |
|---|--|
| <b>Population Served:</b>   | < 10,000   |
| <b>Website where the annual report can be viewed by the public:</b>                                   | www.hbmtwp.ca  |
| <b>Alternate location where annual report will be available for inspection and is free of charge:</b> | Municipal Office   |
| <b>How are system users notified that the annual report is available and is free of charge?</b>       | Public access/notice via Township Website and Utility Bill |
| <b>Number of Designated Facilities served:</b>  | None   |
| <b>Has a copy of this report been provided to all Designated Facilities?</b>                          | N/A  |
| <b>Number of Interested Parties reported to:</b>  | N/A  |
| <b>Has a copy of this report been provided to all Interested Parties?</b>                             | N/A  |
| <b>The following Drinking-Water Systems receive drinking water from this system:</b>                  | N/A  |
| <b>Has a copy of this report been provided to connected owners?</b>                                   | N/A  |

## Compliance Report Card

|  |   |
|--|---|
| <b>Drinking Water System Number:</b>   | 210000595   |
| <b>System Owner:</b>                   | The Corporation of the Township of Havelock-Belmont-Methuen |
| <b>Operating Authority:</b>            | Ontario Clean Water Agency                                  |
| <b>Drinking Water System Category:</b> | Large Municipal Residential                                 |
| <b>Reporting Period:</b>               | January 1, 2017 – December 31, 2017                         |

| Event Summary                       | # of Events | Date         | Details  |
|-------------------------------------|-------------|--------------|--|
| Ministry of Environment Inspections | 0           |              |  |
| Ministry of Labour Inspections      | 0           |              |  |
| DWQMS Audits                        | 1           | May 2, 2017  | S.2 Surveillance Audit   |
| AWQI's                              | 0           |              |  |
| Non-Compliance                      | 1           | Oct 16, 2017 | Sample was not collected in accordance with O. Reg 170/03 15.1-5 (5) |
| Community Complaints                | 2           |              | Visual   |
| Spills                              | 0           |              |  |

## Quality Control Measures

The Township of Havelock-Belmont-Methuen facilities are part of OCWA’s operational Trent Valley Hub. The facilities are supported by hub, regional and corporate resources. Operational Services are delivered by OCWA staff who live and work in the surrounding area.

OCWA operates facilities in compliance with applicable regulations. The facility has comprehensive manuals detailing operations, maintenance, instrumentation, and emergency procedures. All procedures are treated as active documents, with annual reviews.

OCWA has additional “Value Added” and operational support services that the Township of Havelock-Belmont-Methuen benefits from including:

- Access to a network of operational compliance and support experts at the regional and corporate level, as well as affiliated programs that include the following:
  - Quality & Environmental Management System, Occupational Health & Safety System and an internal compliance audit system.
  - Process Data Collection (PDC) and PDM (WISKI) facility operating information repository, which consolidates field data, online instrumentation, and electronic receipt of lab test results for reporting, tracking and analysis.
  - Work Management System (WMS) and Maximo track and reports maintenance activities, and creates predictive and preventative reports.
  - Outpost 5 wide-area SCADA system allows for process optimization and data logging, process trending, remote alarming and optimization of staff time.
- Client reporting which includes operational data, equipment inventory, financial statements, maintenance work orders, and capital status reports
- Site-Specific Contingency Plans and Standard Operating Procedures
- Use of accredited laboratories
- Access to a network of operational compliance and support experts at the hub, region and corporate level
- Additional support in response to unusual circumstances, and extra support in an emergency.
- Use of sampling schedules for external laboratory sampling

## System Process Description

### Raw Source

Raw water source for the Havelock Drinking Water System are from three groundwater wells; Well 1, Well 3 and Well 4.

### Treatment

The Havelock Drinking Water System is operated with two treatment subsystems; Well #3 which is an independent subsystem and Wells 1&4 which are operated together. Well #3 is under the direct influence of surface water system. Treatment consists of chemically assisted dual media (GAC/sand) gravity filtration plus ultraviolet and sodium hypochlorite disinfection. Well #1 and Well #4 utilize ultraviolet disinfection and sodium hypochlorite for treatment. This water system has continuous, alarmed monitoring for treated water free chlorine residual, filter effluent turbidity and distribution free chlorine residual.

**Treatment Chemicals used during the reporting year:**

| Chemical Name             | Use                 | Supplier    |
|---------------------------|---------------------|-------------|
| SternPac                  | Primary Coagulation | Kemira      |
| Magnafloc                 | Coagulant aid       | BASF Canada |
| Granular Activated Carbon | Filter Media        | Nichem      |
| Sodium Hypochlorite – 12% | Disinfection        | Brenntag    |

**Summary of Non-Compliance**

**Adverse Water Quality Incidents**

| Date | AWQI # | Cause     |        |               | Corrective Action Taken |
|------|--------|-----------|--------|---------------|-------------------------|
|      |        | Parameter | Result | Exceedance of |                         |
| N/A  |        |           |        |               |                         |

**Non-Compliance**

| Legislation             | requirement(s) system failed to meet   | duration of the failure (i.e. date(s)) | Corrective Action  | Status   |
|-------------------------|--|--|--|----------|
| O.Reg 170/03 15.1-5 (5) | Collected the pH and alkalinity samples on Oct 16, 2017. Outside the required sampling period of June 15 to October 15 | 1 day                                  | Implemented online advanced notification. Full review on Section 15.1 Lead of O. Reg 170/03. | Resolved |

**Non-Compliance Identified in a Ministry Inspection:**

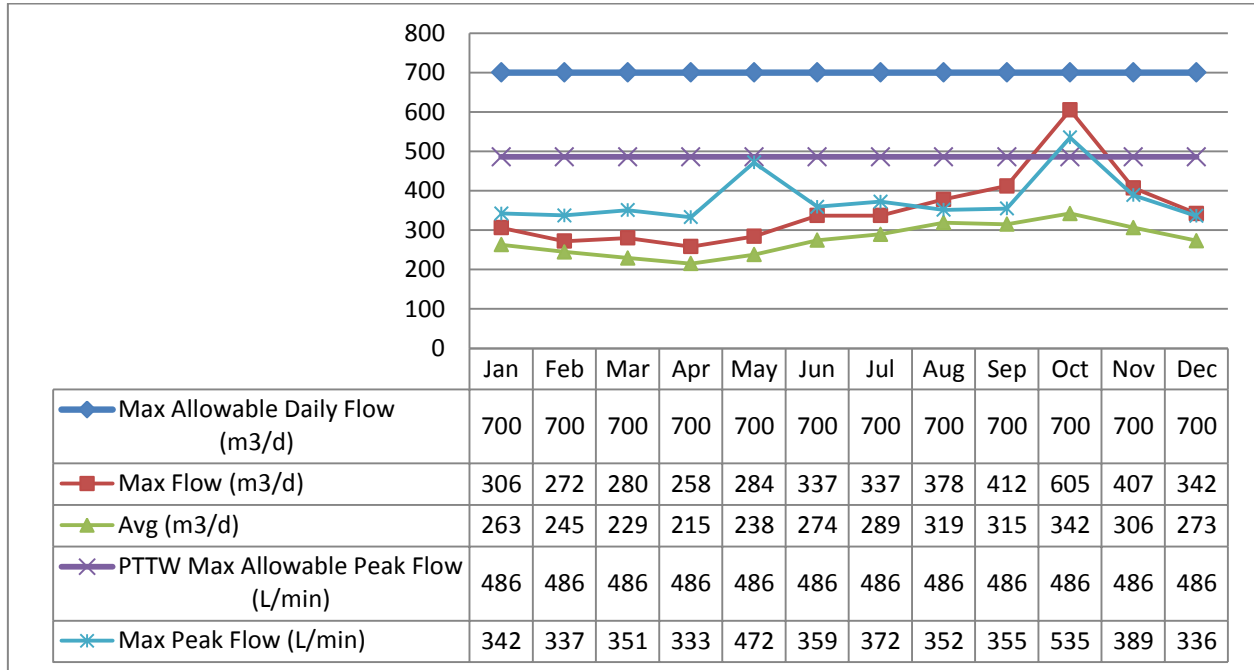
Ministry of Environment Inspection Rating: N/A

| Legislation | requirement(s) system failed to meet | duration of the failure (i.e. date(s)) | Corrective Action | Status |
|-------------|--------------------------------------|--|-------------------|--------|
| N/A         |                                      |  |                   |        |

## Raw Water Flows

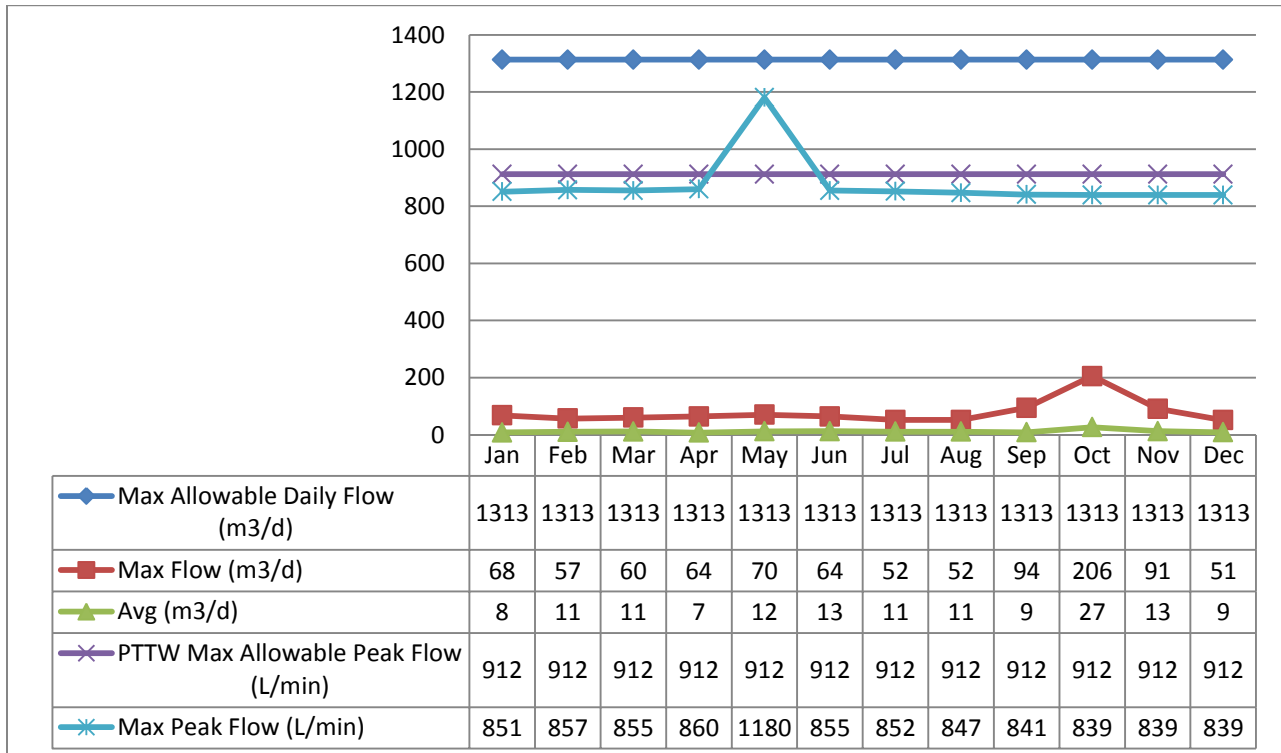
The Raw Water flows are regulated under the Permit to Take Water.

### Raw Water Volume Taken- Raw Well 1:



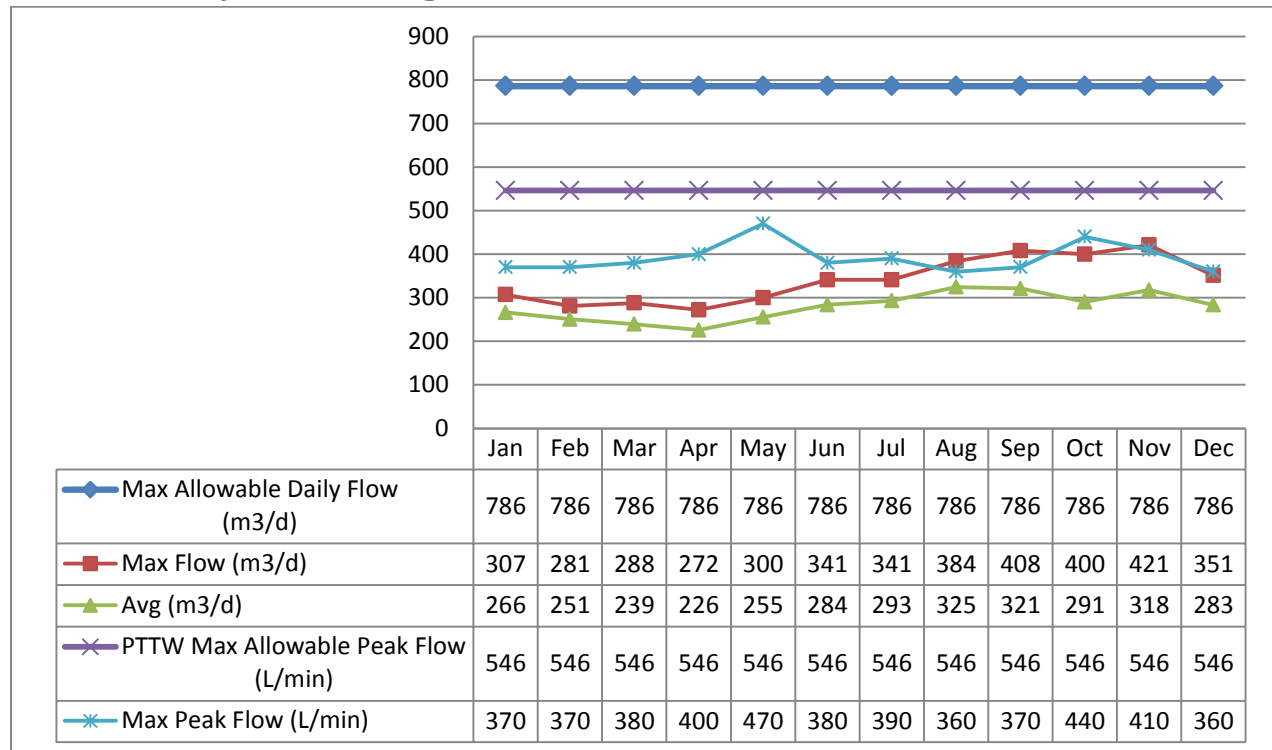
The Peak flow rate was exceeded in October 2017 due to hydrant flushing maintenance.

### Raw Water Daily Rate of Taking Raw Well 3:



The Peak Flow rate was exceeded in May 2017 during scheduled flow meter calibrations.

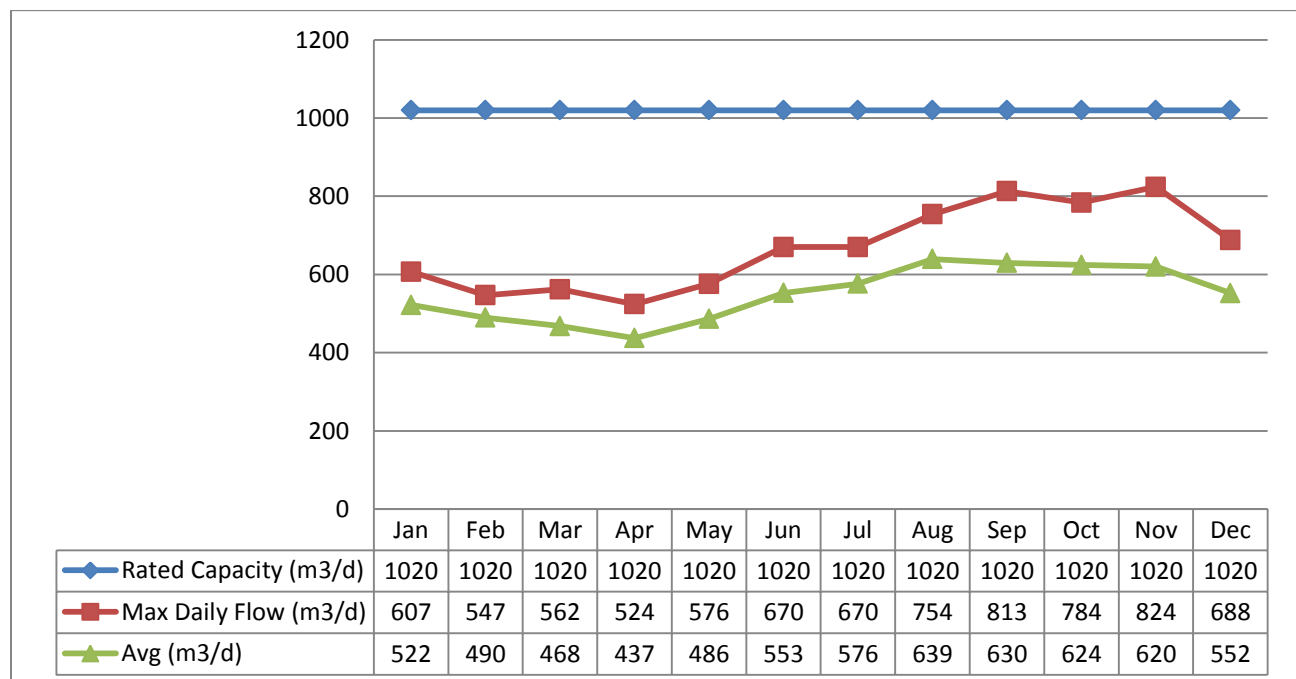
### Raw Water Daily Rate of Taking Raw Well 4:



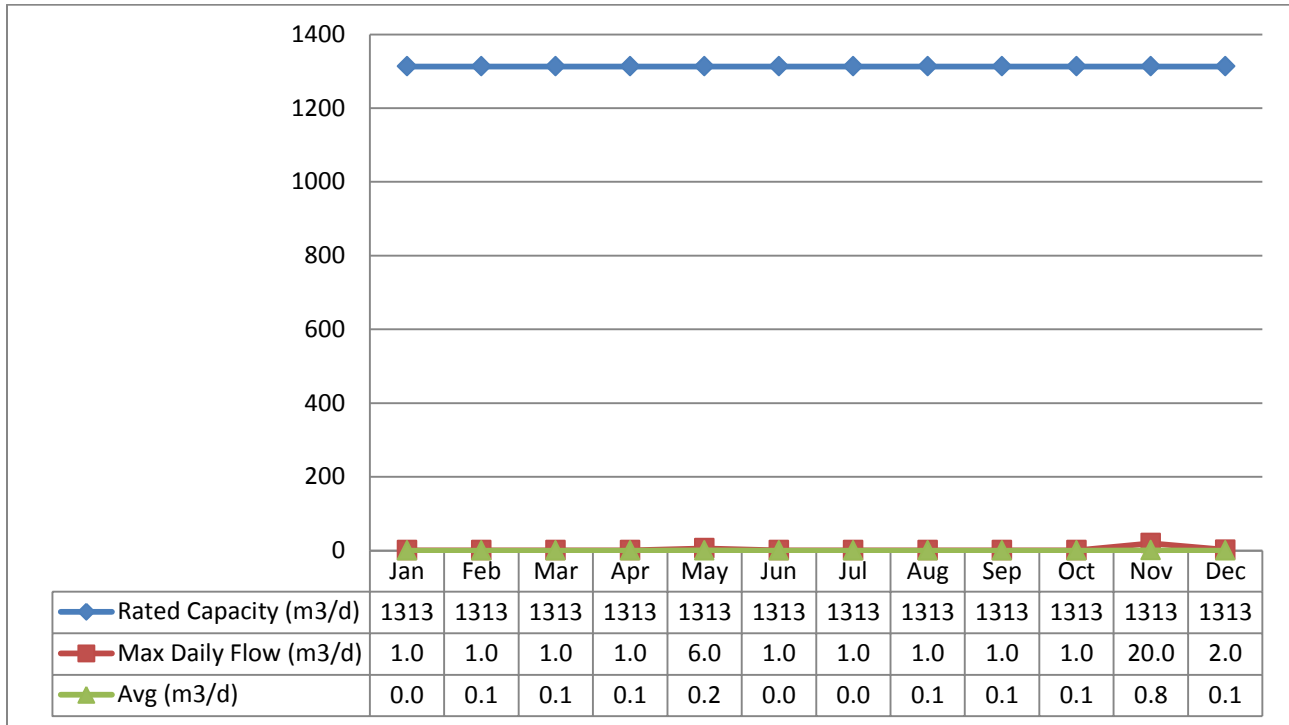
### Treated Water Flows

The Treated Water flows are regulated under the Municipal Drinking Water License. The Havelock Drinking Water System has a rated capacity of 1020m<sup>3</sup>/day for Well 1&4 and 1313m<sup>3</sup>/day for Well 3. Additional flow data can be found under the Water Taking and Transfer Data section.

### Treated Water Well 1 & 4:



**Treated Water Well 3:**



**Regulatory Sample Results Summary**

- RW1 = Raw Water Well 1
- RW3 = Raw Water Well 3
- RW4 = Raw Water Well 4
- TW3 = Treated Water Well 3
- TWC = Treated Water Well 1&4 Combined
- DW = Distribution Water

**Microbiological Testing**

| Location                      | Number of Samples | E. Coli Results (min) - (max) | Total Coliform Results (min) – (max) | Number of HPC Samples | HPC Results (min) - (max) |
|-------------------------------|-------------------|-------------------------------|--------------------------------------|-----------------------|---------------------------|
| Raw, Well 1                   | 52                | 0 – 0                         | 0 – 5                                | ~                     | ~                         |
| Raw, Well 3                   | 52                | 0 - 20                        | 0 – 100                              | ~                     | ~                         |
| Raw, Well 4                   | 52                | 0 – 0                         | 0 – 4                                | ~                     | ~                         |
| Treated, Well 3               | 53                | 0 – 0                         | 0 - 0                                | 53                    | 0 – 29                    |
| Treated – Well 1 & 4 Combined | 52                | 0 - 0                         | 0 - 0                                | 52                    | 0 – 5                     |
| Distribution - DW             | 154               | 0 - 0                         | 0 - 0                                | 154                   | 0 – 420                   |



## Operational Testing

### On-Line

| Parameter                            | Range of Results<br>(min # - max #)    |
|--------------------------------------|--|
| Filter #1 Effluent Turbidity, Well 3 | 0.00 - 4.57 NTU*                       |
| Filter #2 Effluent Turbidity, Well 3 | 0.00 – 3.63 NTU*                       |
| Treated Water Free Chlorine, Well 3  | 0.79 – 2.73 mg/L*                      |
| Turbidity, Well 1                    | 0.00 – 5.00 NTU*                       |
| Turbidity, Well 4                    | 0.00 – 5.00 NTU*                       |
| Treated Water Free Chlorine, TWc     | 1.22 – 3.03 mg/L                       |
| Distribution Free Chlorine           | 0.91 – 2.52 mg/L                       |
| Treated Water Fluoride               | Fluoride is not added at this facility |

\* Instrument spikes and dips recorded by on-line instrumentation were a result of air bubbles and various maintenance and calibration activities. Power interruptions may also cause an instrument reading to drop to zero. All events are reviewed for compliance with O. Reg. 170/03 and if warranted, are reported to the Ministry of Environment as Adverse Water Quality Incidents.

### In-House

| Parameter                             | # of grab samples<br>taken | Range of Results<br>(min # - max #) |
|---------------------------------------|----------------------------|-------------------------------------|
| Raw Water Turbidity, Well 1           | 12                         | 0.00 – 4.42 NTU*                    |
| Raw Water Turbidity, Well 4           | 12                         | 0.12 – 0.21 NTU                     |
| Treated Water Free Chlorine, Well 1&4 | 53                         | 1.22 – 3.03 mg/L                    |
| Treated Water Free Chlorine, Well 3   | 53                         | 0.79 – 2.73 mg/L*                   |
| Distribution Free Chlorine            | 167                        | 0.91 – 2.52 mg/L                    |

\* Instrument spikes and dips recorded by on-line instrumentation were a result of air bubbles and various maintenance and calibration activities. Power interruptions may also cause an instrument reading to drop to zero. All events are reviewed for compliance with O. Reg. 170/03 and if warranted, are reported to the Ministry of Environment as Adverse Water Quality Incidents.

### Laboratory

| Parameter                       | # of grab samples<br>taken            | Range of Results<br>(min # - max #) |
|---------------------------------|---------------------------------------|-------------------------------------|
| Treated Water Fluoride          | Fluoride is not used at this facility |                                     |
| Raw Water Iron, Well 3          | 12                                    | 151.0 – 24,000.0 ug/L               |
| Raw Water Manganese, Well 3     | 12                                    | 135.0 – 1,930.0 ug/L                |
| Treated Water Iron, Well 3      | 12                                    | 21 – 113.0 ug/L                     |
| Treated Water Manganese, Well 3 | 12                                    | 5.0 – 39.0 ug/L                     |

### Additional Legislated Samples

| Legal Document    | Date of<br>Issuance | Parameter        | # of grab<br>samples taken | Range of Results<br>(min # - max #) |
|-------------------|---------------------|------------------|----------------------------|-------------------------------------|
| Municipal Licence | June 29, 2016       | Suspended Solids | 12                         | <2.0 – 2.0 mg/L                     |

### Inorganic Parameters

- MAC = Maximum Allowable Concentration as per O. Reg 169/03
- BDL = Below the laboratory detection level
- Note: Fluoride and Sodium are only required to be tested every 60 months.

| Parameter                 | Sample Date | Result Value | MAC    | Exceedance |       |
|---------------------------|-------------|--------------|--------|------------|-------|
|                           |             |              |        | MAC        | ½ MAC |
| Antimony: Sb (ug/L) - TWc | 2017/03/06  | 0.07         | 6.0    | No         | No    |
| Antimony: Sb (ug/L) - TW3 | 2017/03/06  | 0.09         | 6.0    | No         | No    |
| Arsenic: As (ug/L) - TWc  | 2017/03/06  | <MDL 0.2     | 25.0   | No         | No    |
| Arsenic: As (ug/L) - TW3  | 2017/03/06  | 0.2          | 25.0   | No         | No    |
| Barium: Ba (ug/L) - TWc   | 2017/03/06  | 135.0        | 1000.0 | No         | No    |
| Barium: Ba (ug/L) - TW3   | 2017/03/06  | 58.4         | 1000.0 | No         | No    |
| Boron: B (ug/L) - TWc     | 2017/03/06  | 38.0         | 5000.0 | No         | No    |
| Boron: B (ug/L) - TW3     | 2017/03/06  | 15.0         | 5000.0 | No         | No    |
| Cadmium: Cd (ug/L) - TWc  | 2017/03/06  | 0.004        | 5.0    | No         | No    |
| Cadmium: Cd (ug/L) - TW3  | 2017/03/06  | <MDL 0.003   | 5.0    | No         | No    |
| Chromium: Cr (ug/L) - TWc | 2017/03/06  | 1.03         | 50.0   | No         | No    |
| Chromium: Cr (ug/L) - TW3 | 2017/03/06  | 1.57         | 50.0   | No         | No    |
| Mercury: Hg (ug/L) - TWc  | 2017/03/06  | <MDL 0.01    | 1.0    | No         | No    |
| Mercury: Hg (ug/L) - TW3  | 2017/03/06  | 0.02         | 1.0    | No         | No    |
| Selenium: Se (ug/L) - TWc | 2017/03/06  | 0.94         | 10.0   | No         | No    |
| Selenium: Se (ug/L) - TW3 | 2017/03/06  | 0.16         | 10.0   | No         | No    |
| Uranium: U (ug/L) - TWc   | 2017/03/06  | 0.187        | 20.0   | No         | No    |
| Uranium: U (ug/L) - TW3   | 2017/03/06  | 0.035        | 20.0   | No         | No    |
| Nitrite (mg/L) - TWc      | 2017/01/09  | <MDL 0.003   | 1.0    | No         | No    |
| Nitrite (mg/L) - TWc      | 2017/04/10  | <MDL 0.003   | 1.0    | No         | No    |
| Nitrite (mg/L) - TWc      | 2017/07/10  | <MDL 0.003   | 1.0    | No         | No    |
| Nitrite (mg/L) - TWc      | 2017/10/10  | <MDL 0.003   | 1.0    | No         | No    |
| Nitrite (mg/L) - TW3      | 2017/01/09  | <MDL 0.003   | 1.0    | No         | No    |
| Nitrite (mg/L) - TW3      | 2017/04/10  | <MDL 0.003   | 1.0    | No         | No    |
| Nitrite (mg/L) - TW3      | 2017/07/10  | <MDL 0.003   | 1.0    | No         | No    |
| Nitrite (mg/L) - TW3      | 2017/10/10  | <MDL 0.003   | 1.0    | No         | No    |
| Nitrate (mg/L) - TWc      | 2017/01/09  | 1.96         | 10.0   | No         | No    |
| Nitrate (mg/L) - TWc      | 2017/04/10  | 2.11         | 10.0   | No         | No    |
| Nitrate (mg/L) - TWc      | 2017/07/10  | 2.69         | 10.0   | No         | No    |
| Nitrate (mg/L) - TWc      | 2017/10/10  | 2.42         | 10.0   | No         | No    |
| Nitrate (mg/L) - TW3      | 2017/01/09  | 0.139        | 10.0   | No         | No    |
| Nitrate (mg/L) - TW3      | 2017/04/10  | 0.179        | 10.0   | No         | No    |
| Nitrate (mg/L) - TW3      | 2017/07/10  | 0.338        | 10.0   | No         | No    |
| Nitrate (mg/L) - TW3      | 2017/10/10  | 0.177        | 10.0   | No         | No    |

### Organic Parameters

- MAC = Maximum Allowable Concentration as per O.Reg 169/03
- BDL = Below the laboratory detection level

| TREATED WATER                                     | Sample Date | Sample Result | MAC  | Number of Exceedances |         |
|---|-------------|---------------|------|-----------------------|---------|
|   |             |               |      | MAC                   | 1/2 MAC |
| Alachlor (ug/L) - TWc                             | 2017/03/06  | <MDL 0.02     | 5    | No                    | No      |
| Alachlor (ug/L) - TW3                             | 2017/03/06  | <MDL 0.02     | 5    | No                    | No      |
| Atrazine + N-dealkylated metabolites (ug/L) - TWc | 2017/03/06  | <MDL 0.01     | 5    | No                    | No      |
| Atrazine + N-dealkylated metabolites (ug/L) - TW3 | 2017/03/06  | <MDL 0.01     | 5    | No                    | No      |
| Azinphos-methyl (ug/L) - TWc                      | 2017/03/06  | <MDL 0.05     | 20   | No                    | No      |
| Azinphos-methyl (ug/L) - TW3                      | 2017/03/06  | <MDL 0.05     | 20   | No                    | No      |
| Benzene (ug/L) - TWc                              | 2017/03/06  | <MDL 0.32     | 5    | No                    | No      |
| Benzene (ug/L) - TW3                              | 2017/03/06  | <MDL 0.32     | 5    | No                    | No      |
| Benzo(a)pyrene (ug/L) - TWc                       | 2017/03/06  | <MDL 0.004    | 0.01 | No                    | No      |
| Benzo(a)pyrene (ug/L) - TW3                       | 2017/03/06  | <MDL 0.004    | 0.01 | No                    | No      |
| Bromoxynil (ug/L) - TWc                           | 2017/03/06  | <MDL 0.33     | 5    | No                    | No      |
| Bromoxynil (ug/L) - TW3                           | 2017/03/06  | <MDL 0.33     | 5    | No                    | No      |
| Carbaryl (ug/L) - TWc                             | 2017/03/06  | <MDL 0.05     | 90   | No                    | No      |
| Carbaryl (ug/L) - TW3                             | 2017/03/06  | <MDL 0.05     | 90   | No                    | No      |
| Carbofuran (ug/L) - TWc                           | 2017/03/06  | <MDL 0.01     | 90   | No                    | No      |
| Carbofuran (ug/L) - TW3                           | 2017/03/06  | <MDL 0.01     | 90   | No                    | No      |
| Carbon Tetrachloride (ug/L) - TWc                 | 2017/03/06  | <MDL 0.16     | 5    | No                    | No      |
| Carbon Tetrachloride (ug/L) - TW3                 | 2017/03/06  | <MDL 0.16     | 5    | No                    | No      |
| Chlorpyrifos (ug/L) - TWc                         | 2017/03/06  | <MDL 0.02     | 90   | No                    | No      |
| Chlorpyrifos (ug/L) - TW3                         | 2017/03/06  | <MDL 0.02     | 90   | No                    | No      |
| Diazinon (ug/L) - TWc                             | 2017/03/06  | <MDL 0.02     | 20   | No                    | No      |
| Diazinon (ug/L) - TW3                             | 2017/03/06  | <MDL 0.02     | 20   | No                    | No      |
| Dicamba (ug/L) - TWc                              | 2017/03/06  | <MDL 0.2      | 120  | No                    | No      |
| Dicamba (ug/L) - TW3                              | 2017/03/06  | <MDL 0.2      | 120  | No                    | No      |
| 1,2-Dichlorobenzene (ug/L) - TWc                  | 2017/03/06  | <MDL 0.41     | 200  | No                    | No      |
| 1,2-Dichlorobenzene (ug/L) - TW3                  | 2017/03/06  | <MDL 0.41     | 200  | No                    | No      |
| 1,4-Dichlorobenzene (ug/L) - TWc                  | 2017/03/06  | <MDL 0.36     | 5    | No                    | No      |
| 1,4-Dichlorobenzene (ug/L) - TW3                  | 2017/03/06  | <MDL 0.36     | 5    | No                    | No      |
| 1,2-Dichloroethane (ug/L) - TWc                   | 2017/03/06  | <MDL 0.35     | 5    | No                    | No      |
| 1,2-Dichloroethane (ug/L) - TW3                   | 2017/03/06  | <MDL 0.35     | 5    | No                    | No      |
| 1,1-Dichloroethylene (ug/L) - TWc                 | 2017/03/06  | <MDL 0.33     | 14   | No                    | No      |
| 1,1-Dichloroethylene (ug/L) - TW3                 | 2017/03/06  | <MDL 0.33     | 14   | No                    | No      |
| Dichloromethane (Methylene Chloride) (ug/L) - TWc | 2017/03/06  | <MDL 0.35     | 50   | No                    | No      |
| Dichloromethane (Methylene Chloride) (ug/L) - TW3 | 2017/03/06  | <MDL 0.35     | 50   | No                    | No      |
| 2,4-Dichlorophenol (ug/L) - TWc                   | 2017/03/06  | <MDL 0.15     | 900  | No                    | No      |
| 2,4-Dichlorophenol (ug/L) - TW3                   | 2017/03/06  | <MDL 0.15     | 900  | No                    | No      |

|  |            |              |     |    |    |
|--|------------|--------------|-----|----|----|
| 2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TWc | 2017/03/06 | <MDL 0.19    | 100 | No | No |
| 2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW3 | 2017/03/06 | <MDL 0.19    | 100 | No | No |
| Diclofop-methyl (ug/L) - TWc                         | 2017/03/06 | <MDL 0.4     | 9   | No | No |
| Diclofop-methyl (ug/L) - TW3                         | 2017/03/06 | <MDL 0.4     | 9   | No | No |
| Dimethoate (ug/L) - TWc                              | 2017/03/06 | <MDL 0.03    | 20  | No | No |
| Dimethoate (ug/L) - TW3                              | 2017/03/06 | <MDL 0.03    | 20  | No | No |
| Diquat (ug/L) - TWc                                  | 2017/03/06 | <MDL 1.0     | 70  | No | No |
| Diquat (ug/L) - TW3                                  | 2017/03/06 | <MDL 1.0     | 70  | No | No |
| Diuron (ug/L) - TWc                                  | 2017/03/06 | <MDL 0.03    | 150 | No | No |
| Diuron (ug/L) - TW3                                  | 2017/03/06 | <MDL 0.03    | 150 | No | No |
| Glyphosate (ug/L) - TWc                              | 2017/03/06 | <MDL 1.0     | 280 | No | No |
| Glyphosate (ug/L) - TW3                              | 2017/03/06 | <MDL 1.0     | 280 | No | No |
| Malathion (ug/L) - TWc                               | 2017/03/06 | <MDL 0.02    | 190 | No | No |
| Malathion (ug/L) - TW3                               | 2017/03/06 | <MDL 0.02    | 190 | No | No |
| Metolachlor (ug/L) - TWc                             | 2017/03/06 | <MDL 0.01    | 50  | No | No |
| Metolachlor (ug/L) - TW3                             | 2017/03/06 | <MDL 0.01    | 50  | No | No |
| Metribuzin (ug/L) - TWc                              | 2017/03/06 | <MDL 0.02    | 80  | No | No |
| Metribuzin (ug/L) - TW3                              | 2017/03/06 | <MDL 0.02    | 80  | No | No |
| MCPA (mg/L) - TW3                                    | 2017/03/06 | <MDL 0.00012 | -   | -  | -  |
| MCPA (mg/L) - TWc                                    | 2017/03/06 | <MDL 0.00012 | -   | -  | -  |
| Monochlorobenzene (Chlorobenzene) (ug/L) - TWc       | 2017/03/06 | <MDL 0.3     | 80  | No | No |
| Monochlorobenzene (Chlorobenzene) (ug/L) - TW3       | 2017/03/06 | <MDL 0.3     | 80  | No | No |
| Paraquat (ug/L) - TWc                                | 2017/03/06 | <MDL 1.0     | 10  | No | No |
| Paraquat (ug/L) - TW3                                | 2017/03/06 | <MDL 1.0     | 10  | No | No |
| PCB (ug/L) - TWc                                     | 2017/03/06 | <MDL 0.04    | 3   | No | No |
| PCB (ug/L) - TW3                                     | 2017/03/06 | <MDL 0.04    | 3   | No | No |
| Pentachlorophenol (ug/L) - TWc                       | 2017/03/06 | <MDL 0.15    | 60  | No | No |
| Pentachlorophenol (ug/L) - TW3                       | 2017/03/06 | <MDL 0.15    | 60  | No | No |
| Phorate (ug/L) - TWc                                 | 2017/03/06 | <MDL 0.01    | 2   | No | No |
| Picloram (ug/L) - TWc                                | 2017/03/06 | <MDL 1.0     | 190 | No | No |
| Prometryne (ug/L) - TWc                              | 2017/03/06 | <MDL 0.03    | 1   | No | No |
| Prometryne (ug/L) - TW3                              | 2017/03/06 | <MDL 0.03    | 1   | No | No |
| Simazine (ug/L) - TWc                                | 2017/03/06 | <MDL 0.01    | 10  | No | No |
| Simazine (ug/L) - TW3                                | 2017/03/06 | <MDL 0.01    | 10  | No | No |
| Terbufos (ug/L) - TWc                                | 2017/03/06 | <MDL 0.01    | 1   | No | No |
| Terbufos (ug/L) - TW3                                | 2017/03/06 | <MDL 0.01    | 1   | No | No |
| Tetrachloroethylene (ug/L) - TWc                     | 2017/03/06 | <MDL 0.35    | 30  | No | No |
| Tetrachloroethylene (ug/L) - TW3                     | 2017/03/06 | <MDL 0.35    | 30  | No | No |
| 2,3,4,6-Tetrachlorophenol (ug/L) - TWc               | 2017/03/06 | <MDL 0.2     | 100 | No | No |
| 2,3,4,6-Tetrachlorophenol (ug/L) - TW3               | 2017/03/06 | <MDL 0.2     | 100 | No | No |
| Triallate (ug/L) - TWc                               | 2017/03/06 | <MDL 0.01    | 230 | No | No |
| Triallate (ug/L) - TW3                               | 2017/03/06 | <MDL 0.01    | 230 | No | No |

|  |            |           |     |    |    |
|--|------------|-----------|-----|----|----|
| Trichloroethylene (ug/L) - TWc                   | 2017/03/06 | <MDL 0.44 | 50  | No | No |
| Trichloroethylene (ug/L) - TW3                   | 2017/03/06 | <MDL 0.44 | 50  | No | No |
| 2,4,6-Trichlorophenol (ug/L) - TWc               | 2017/03/06 | <MDL 0.25 | 5   | No | No |
| 2,4,6-Trichlorophenol (ug/L) - TW3               | 2017/03/06 | <MDL 0.25 | 5   | No | No |
| Trifluralin (ug/L) - TWc                         | 2017/03/06 | <MDL 0.02 | 45  | No | No |
| Trifluralin (ug/L) - TW3                         | 2017/03/06 | <MDL 0.02 | 45  | No | No |
| Vinyl Chloride (ug/L) - TWc                      | 2017/03/06 | <MDL 0.17 | 2   | No | No |
| Vinyl Chloride (ug/L) - TW3                      | 2017/03/06 | <MDL 0.17 | 2   | No | No |
| <b>DISTRIBUTION WATER</b>                        |            |           |     |    |    |
| Trihalomethane: Total (ug/L) Annual Average - DW | 2017       | 33.75     | 100 | No | No |
| HAA: Total (ug/L) Annual Average – DW            | 2017       | 8.75      | N/A | No | No |

### Lead Sampling

The Lead Sampling Program is required under O.Reg 170/03. This system qualified for the plumbing exemption.

| Location    | Date      | Lead (mg/L) | pH   | Alkalinity (mg/L) as CaCO <sub>3</sub> |
|-------------|-----------|-------------|------|--|
| Hydrant #47 | 05-Apr-17 | n/a         | 8.06 | 265                                    |
| Hydrant #68 | 05-Apr-17 | n/a         | 8.06 | 274                                    |
| Hydrant #47 | 16-Oct-17 | n/a         | 7.85 | 284                                    |
| Hydrant #68 | 16-Oct-17 | n/a         | 7.52 | 280                                    |

### Maintenance Summary

OCWA uses a risk-based preventative maintenance framework that ensures assets are maintained to manufacturer’s and/or industry standards. Maintenance is completed using various tools and operational supports.

OCWA uses a Workplace Maintenance System (WMS). WMS is a maintenance tracking system that can generate work orders as well as give summaries of completed and scheduled work. During the year, the operating authority at the facility generates scheduled work orders on a weekly, monthly and annual basis. The service work is recorded in the work order history. This ensures routine and preventive maintenance is carried out. Emergency and capital repair maintenance is completed and added to the system.

|  |     |
|--|-----|
| Preventative Maintenance Work Orders Completed | 276 |
| Operational Maintenance Work Orders Completed  | 3   |
| Capital Maintenance Work Orders Completed      | 1   |
| Weekly Maintenance Work Orders Completed       | 427 |

Capital projects are listed and provided to the The Township of Havelock-Belmont-Methuen in the form of a “Capital Forecast”. This list is developed by facility staff and provides recommendations for facility components requiring upgrading or improvement.

## QEMS

A S2 Surveillance Audit was conducted by QMI-SAI Canada Limited on May 2, 2017. The Township of Havelock-Belmont-Methuen’s Quality Management System conforms to the Standard.

## Maintenance Highlights: major expenses incurred to install, repair or replace required equipment

### Well 1 & 4:

- Chlorine system parts and probe
- Trojan UV Parts & Maintenance

### Well 3:

- Hallet UV Parts
- Iron and Manganese Laboratory Analysis

## Water Taking and Transfer Data

Data for the reporting period of January 1, 2017 - December 31, 2017 was submitted electronically to the Ministry of the Environment on Jan 24, 2018 under Permit to Take Water PTTW 3448-9LMT5K

The screenshot displays the WTRS web interface. At the top, there are logos for Ontario, environet, and WTRS, along with the text 'Ministry of the Environment and Climate Change'. A navigation bar includes links for 'WT DATA', 'USER PROFILE', 'CONTACT US', 'HELP', 'HOME', and 'LOGOUT'. The current location is 'WTRS / WT DATA / Input WT Record' with the ID 'WTR5-WT-008'. A green-bordered box contains the message 'Water Taking Data submitted successfully.' Below this, a 'Confirmation:' section thanks the user and provides details: Permit Number: 3448-9LMT5K, Permit Holder: THE CORPORATION OF THE TOWNSHIP OF HAVELOCK-BELMONT-METHUEN, and Received on: Jan 24, 2018 1:34 PM. A disclaimer states that the confirmation indicates data receipt but does not constitute acceptance. Two buttons, 'Print Confirmation' and 'Return to Main Page', are located at the bottom of the confirmation section. The footer includes 'ONTARIO CLEAN WATER AGENCY | 2018/01/24', version 'v4.5.0.8 (build#: 18)', last modified '2018/01/11', and copyright information for Queen's Printer for Ontario.