

# Havelock Drinking Water System Annual Water Report

Reporting period of January 1, 2022 – December 31, 2022

Prepared For:  
Prepared By:

The Township of Havelock-Belmont-Methuen



**Ontario Clean Water Agency**  
**Agence Ontarienne Des Eaux**

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, 2022 – December 31, 2022

Event Summary	# of Events	Date	Details
<b>Ministry of Environment Inspections</b>	1	December 15, 2022	Unannounced- Inspection not complete at time of issuance of this report.
<b>Ministry of Labour Inspections</b>	0		
<b>DWQMS Audits</b>	1	May 16, 2022	Surveillance System Audit
<b>AWQI's</b>	0		
<b>Non-Compliance</b>	0		
<b>Community Complaints</b>	1	Mar 18, 2022	OCWA Independently sampled a consumers tap upon complaint of water quality. Lab results were clear of any microbiological activity and consumers were notified.
<b>Spills</b>	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.
  - 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.
  - Wonderware 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
<b>SternPac</b>	Primary Coagulation	Kemira
<b>Magnafloc</b>	Coagulant aid	BASF Canada
<b>Granular Activated Carbon</b>	Filter Media	Calgon Carbon / Continental Carbon Group

<b>Sodium Hypochlorite - 12%</b>	Disinfection	Jutzi & Brenntag
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## 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
N/A				

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

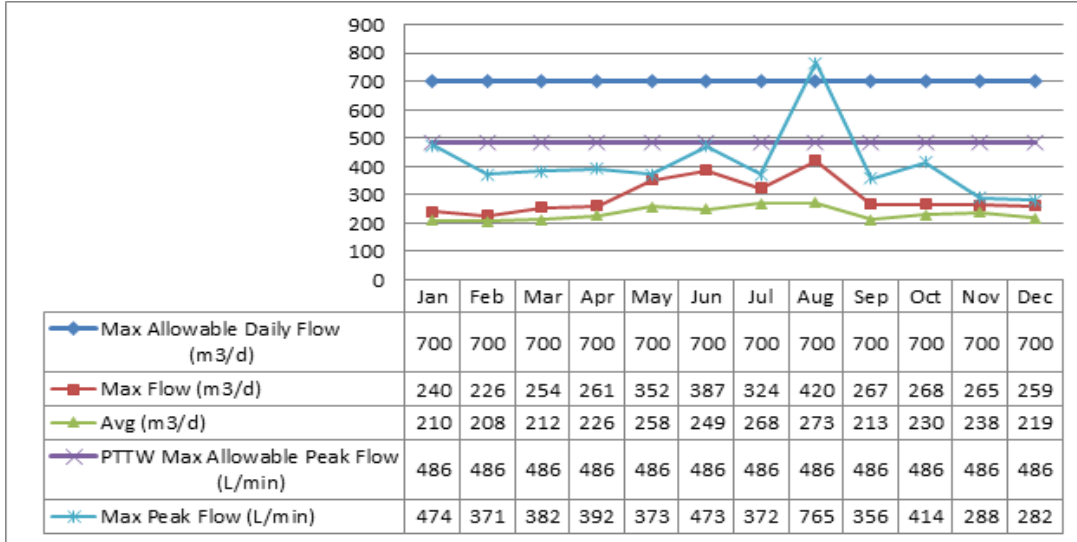
Ministry of Environment Inspection Rating: N/A

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

## Raw Water Flows

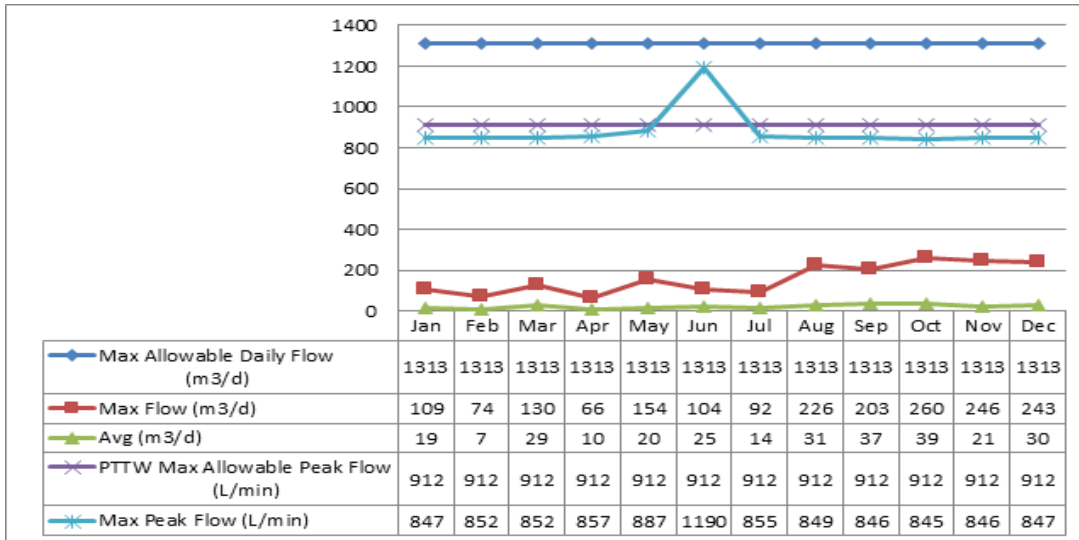
The Raw Water flows are regulated under the Permit to Take Water.

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



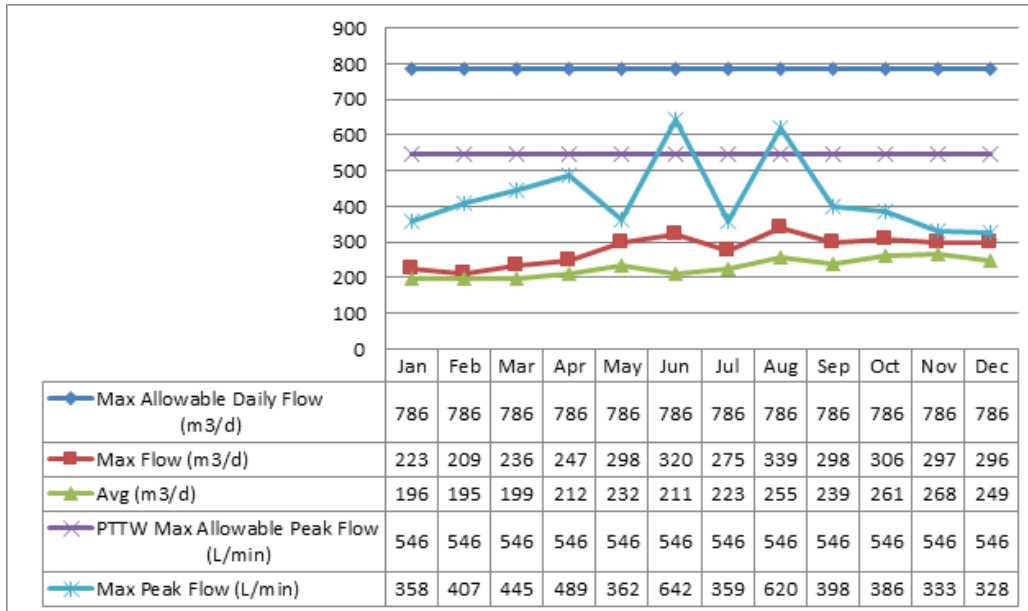
The Peak Flow rate was exceeded in August due to maintenance.

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



The Peak Flow rate was increased in June 2022 during scheduled flow meter calibrations.

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

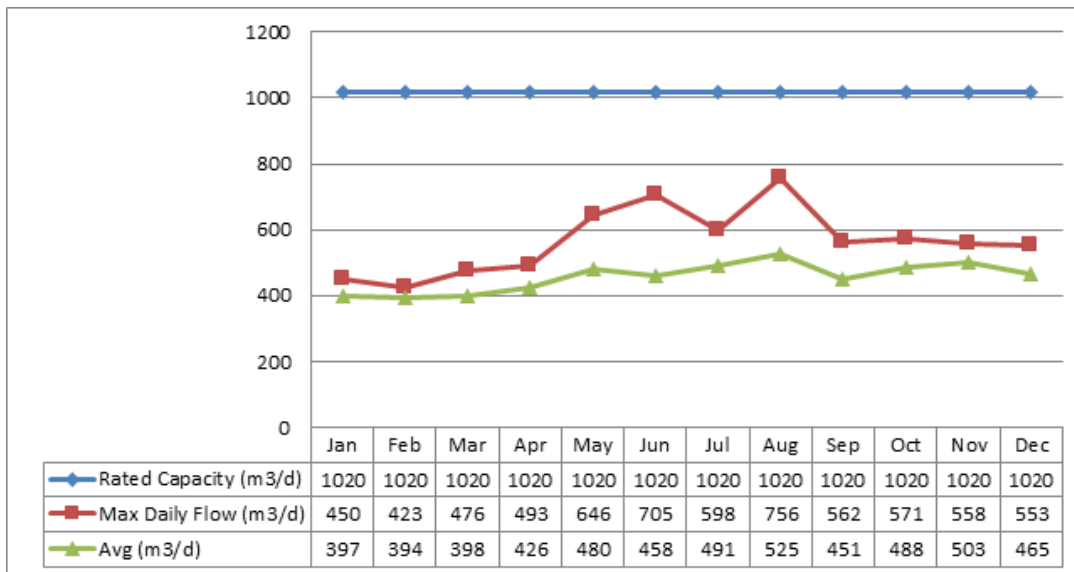


The Peak Flow rate was increased in June 2022 during scheduled flow meter calibrations and flows increased in August due to maintenance.

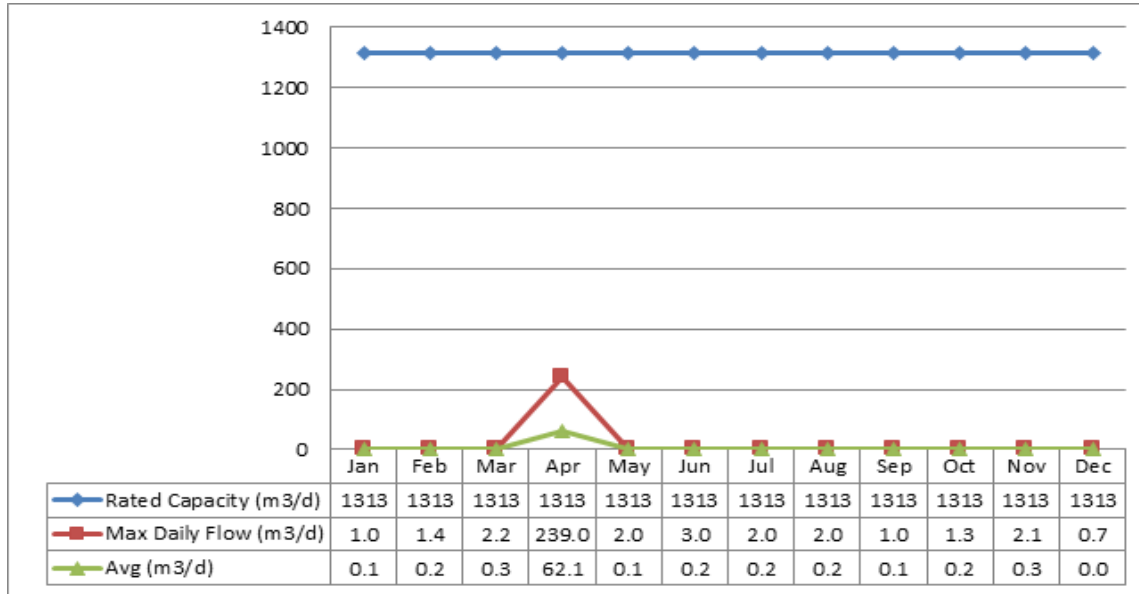
### Treated Water Flows

The Treated Water flows are regulated under the Municipal Drinking Water License. The Havelock Drinking Water System has a rated capacity of 1020m3/day for Well 1&4 and 1313m3/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 – 8	~	~
Raw, Well 3	55	0 - 20	0 – 40	~	~
Raw, Well 4	52	0 – 1	0 – 4	~	~
Treated, Well 3	55	0 – 0	0 - 0	52	0 – 2
Treated – Well 1 & 4 Combined	52	0 - 0	0 - 0	52	0 – 12
Distribution - DW	154	0 - 0	0 - 0	158	0 – 11



**On-Line**

Parameter	Range of Results (min # - max #)
Filter #1 Effluent Turbidity, Well 3	0.00 – 5.00 NTU*
Filter #2 Effluent Turbidity, Well 3	0.00 – 5.00 NTU*
Treated Water Free Chlorine, Well 3	1.17 – 2.75 mg/L*
Turbidity, Well 1	0.08 – 0.12 NTU*
Turbidity, Well 4	0.20 – 0.18 NTU*
Treated Water Free Chlorine, TWc	1.69– 2.5 mg/L
Distribution Free Chlorine	0.48– 2.78 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 taken	Range of Results (min # - max #)
Raw Water Turbidity, Well 1	12	0.08 – 0.12 NTU
Raw Water Turbidity, Well 4	12	0.02 – 0.18 NTU
Treated Water Free Chlorine, Well 1&4	53	1.69 – 2.50 mg/L
Treated Water Free Chlorine, Well 3	55	1.17– 2.75 mg/L
Distribution Free Chlorine	162	0.70 – 2.2 mg/L

**Laboratory**

Parameter	# of grab samples taken	Range of Results (min # - max #)
Treated Water Fluoride	Fluoride is not used at this facility	
Raw Water Iron, Well 3	12	290.0 – 32,800.0 ug/L
Raw Water Manganese, Well 3	12	10.0 – 2,630.0 ug/L
Treated Water Iron, Well 3	12	0.00 – 100.0 ug/L
Treated Water Manganese, Well 3	12	0.00 – 120.0 ug/L

**Additional Legislated Samples**

Legal Document	Date of Issuance	Parameter	# of grab samples taken	Annual Average Concentration	Annual Average Maximum Concentration
Municipal Licence	June 25, 2021	Suspended Solids	12	2.75 mg/L	25 mg/L
Municipal Licence	June 25, 2021	Total Chlorine Residual	12	0.013 mg/L	0.02 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	2022/03/07	<MDL 0.6	6.0	No	No
Antimony: Sb (ug/L) - TW3	2022/03/07	<MDL 0.6	6.0	No	No
Arsenic: As (ug/L) - TWc	2022/03/07	<MDL 0.2	25.0	No	No
Arsenic: As (ug/L) - TW3	2022/03/07	0.5	25.0	No	No
Barium: Ba (ug/L) - TWc	2022/03/07	133.0	1000.0	No	No
Barium: Ba (ug/L) - TW3	2022/03/07	57.3	1000.0	No	No
Boron: B (ug/L) - TWc	2022/03/07	40.0	5000.0	No	No
Boron: B (ug/L) - TW3	2022/03/07	4.0	5000.0	No	No
Cadmium: Cd (ug/L) - TWc	2022/03/07	0.004	5.0	No	No
Cadmium: Cd (ug/L) - TW3	2022/03/07	0.007	5.0	No	No
Chromium: Cr (ug/L) - TWc	2022/03/07	0.47	50.0	No	No
Chromium: Cr (ug/L) - TW3	2022/03/07	1.43	50.0	No	No
Mercury: Hg (ug/L) - TWc	2022/03/07	<MDL 0.01	1.0	No	No
Mercury: Hg (ug/L) - TW3	2022/03/07	<MDL 0.01	1.0	No	No
Selenium: Se (ug/L) - TWc	2022/03/07	0.76	10.0	No	No
Selenium: Se (ug/L) - TW3	2022/03/07	0.09	10.0	No	No
Uranium: U (ug/L) - TWc	2022/03/07	0.198	20.0	No	No
Uranium: U (ug/L) - TW3	2022/03/07	0.142	20.0	No	No
Nitrite (mg/L) - TWc	2022/01/27	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TWc	2022/03/07	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TWc	2022/04/04	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TWc	2022/07/04	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TWc	2022/10/03	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW3	2022/01/27	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW3	2022/03/07	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW3	2022/04/04	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW3	2022/07/04	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW3	2022/10/03	<MDL 0.003	1.0	No	No
Nitrate (mg/L) - TWc	2022/01/27	2.42	10.0	No	No
Nitrate (mg/L) - TWc	2022/03/07	2.26	10.0	No	No
Nitrate (mg/L) - TWc	2022/04/04	2.07	10.0	No	No
Nitrate (mg/L) - TWc	2022/07/04	2.44	10.0	No	No
Nitrate (mg/L) - TWc	2022/10/03	2.27	10.0	No	No
Nitrate (mg/L) - TW3	2022/01/27	2.39	10.0	No	No
Nitrate (mg/L) - TW3	2022/03/07	0.054	10.0	No	No
Nitrate (mg/L) - TW3	2022/04/04	0.043	10.0	No	No
Nitrate (mg/L) - TW3	2022/07/04	0.064	10.0	No	No
Nitrate (mg/L) - TW3	2022/10/03	0.024	10.0	No	No

<b>Sodium (mg/L) - TWc</b>	2018/06/25	123.0	20.0*	Yes	Yes
<b>Sodium (mg/L) - TW3</b>	2018/06/29	45.3	20.0*	Yes	Yes
<b>Fluoride (mg/L)- TWc</b>	2018/06/25	0.09	1.5	No	No
<b>Fluoride (mg/L)- TW3</b>	2018/06/25	0.06	1.5	No	No

\*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.

### 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
<b>Alachlor (ug/L) - TWc</b>	2022/03/07	<MDL 0.02	5	No	No
<b>Alachlor (ug/L) - TW3</b>	2022/03/07	<MDL 0.02	5	No	No
<b>Atrazine + N-dealkylated metabolites (ug/L) - TWc</b>	2022/03/07	<MDL 0.01	5	No	No
<b>Atrazine + N-dealkylated metabolites (ug/L) - TW3</b>	2022/03/07	<MDL 0.01	5	No	No
<b>Azinphos-methyl (ug/L) - TWc</b>	2022/03/07	<MDL 0.05	20	No	No
<b>Azinphos-methyl (ug/L) - TW3</b>	2022/03/07	<MDL 0.05	20	No	No
<b>Benzene (ug/L) - TWc</b>	2022/03/07	<MDL 0.32	5	No	No
<b>Benzene (ug/L) - TW3</b>	2022/03/07	<MDL 0.32	5	No	No
<b>Benzo(a)pyrene (ug/L) - TWc</b>	2022/03/07	<MDL 0.004	0.01	No	No
<b>Benzo(a)pyrene (ug/L) - TW3</b>	2022/03/07	<MDL 0.004	0.01	No	No
<b>Bromoxynil (ug/L) - TWc</b>	2022/03/07	<MDL 0.33	5	No	No
<b>Bromoxynil (ug/L) - TW3</b>	2022/03/07	<MDL 0.33	5	No	No
<b>Carbaryl (ug/L) - TWc</b>	2022/03/07	<MDL 0.05	90	No	No
<b>Carbaryl (ug/L) - TW3</b>	2022/03/07	<MDL 0.05	90	No	No
<b>Carbofuran (ug/L) - TWc</b>	2022/03/07	<MDL 0.01	90	No	No
<b>Carbofuran (ug/L) - TW3</b>	2022/03/07	<MDL 0.01	90	No	No
<b>Carbon Tetrachloride (ug/L) - TWc</b>	2022/03/07	<MDL 0.17	5	No	No
<b>Carbon Tetrachloride (ug/L) - TW3</b>	2022/03/07	<MDL 0.17	5	No	No
<b>Chlorpyrifos (ug/L) - TWc</b>	2022/03/07	<MDL 0.02	90	No	No
<b>Chlorpyrifos (ug/L) - TW3</b>	2022/03/07	<MDL 0.02	90	No	No
<b>Diazinon (ug/L) - TWc</b>	2022/03/07	<MDL 0.02	20	No	No
<b>Diazinon (ug/L) - TW3</b>	2022/03/07	<MDL 0.02	20	No	No
<b>Dicamba (ug/L) - TWc</b>	2022/03/07	<MDL 0.2	120	No	No
<b>Dicamba (ug/L) - TW3</b>	2022/03/07	<MDL 0.2	120	No	No
<b>1,2-Dichlorobenzene (ug/L) - TWc</b>	2022/03/07	<MDL 0.41	200	No	No
<b>1,2-Dichlorobenzene (ug/L) - TW3</b>	2022/03/07	<MDL 0.41	200	No	No
<b>1,4-Dichlorobenzene (ug/L) - TWc</b>	2022/03/07	<MDL 0.36	5	No	No
<b>1,4-Dichlorobenzene (ug/L) - TW3</b>	2022/03/07	<MDL 0.36	5	No	No
<b>1,2-Dichloroethane (ug/L) - TWc</b>	2022/03/07	<MDL 0.35	5	No	No

<b>1,2-Dichloroethane (ug/L) - TW3</b>	2022/03/07	<MDL 0.35	5	No	No
<b>1,1-Dichloroethylene (ug/L) - TWc</b>	2022/03/07	<MDL 0.33	14	No	No
<b>1,1-Dichloroethylene (ug/L) - TW3</b>	2022/03/07	<MDL 0.33	14	No	No
<b>Dichloromethane (Methylene Chloride) (ug/L) - TWc</b>	2022/03/07	<MDL 0.35	50	No	No
<b>Dichloromethane (Methylene Chloride) (ug/L) - TW3</b>	2022/03/07	<MDL 0.35	50	No	No
<b>2,4-Dichlorophenol (ug/L) - TWc</b>	2022/03/07	<MDL 0.15	900	No	No
<b>2,4-Dichlorophenol (ug/L) - TW3</b>	2022/03/07	<MDL 0.15	900	No	No
<b>2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TWc</b>	2022/03/07	<MDL 0.19	100	No	No
<b>2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW3</b>	2022/03/07	<MDL 0.19	100	No	No
<b>Diclofop-methyl (ug/L) - TWc</b>	2022/03/07	<MDL 0.4	9	No	No
<b>Diclofop-methyl (ug/L) - TW3</b>	2022/03/07	<MDL 0.4	9	No	No
<b>Dimethoate (ug/L) - TWc</b>	2022/03/07	<MDL 0.06	20	No	No
<b>Dimethoate (ug/L) - TW3</b>	2022/03/07	<MDL 0.06	20	No	No
<b>Diquat (ug/L) - TWc</b>	2022/03/07	<MDL 1.0	70	No	No
<b>Diquat (ug/L) - TW3</b>	2022/03/07	<MDL 1.0	70	No	No
<b>Diuron (ug/L) - TWc</b>	2022/03/07	<MDL 0.03	150	No	No
<b>Diuron (ug/L) - TW3</b>	2022/03/07	<MDL 0.03	150	No	No
<b>Glyphosate (ug/L) - TWc</b>	2022/03/07	<MDL 1.0	280	No	No
<b>Glyphosate (ug/L) - TW3</b>	2022/03/07	<MDL 1.0	280	No	No
<b>Malathion (ug/L) - TWc</b>	2022/03/07	<MDL 0.02	190	No	No
<b>Malathion (ug/L) - TW3</b>	2022/03/07	<MDL 0.02	190	No	No
<b>Metolachlor (ug/L) - TWc</b>	2022/03/07	<MDL 0.01	50	No	No
<b>Metolachlor (ug/L) - TW3</b>	2022/03/07	<MDL 0.01	50	No	No
<b>Metribuzin (ug/L) - TWc</b>	2022/03/07	<MDL 0.02	80	No	No
<b>Metribuzin (ug/L) - TW3</b>	2022/03/07	<MDL 0.02	80	No	No
<b>Monochlorobenzene (Chlorobenzene) (ug/L) - TWc</b>	2022/03/07	<MDL 0.3	80	No	No
<b>Monochlorobenzene (Chlorobenzene) (ug/L) - TW3</b>	2022/03/07	<MDL 0.3	80	No	No
<b>Paraquat (ug/L) - TWc</b>	2022/03/07	<MDL 1.0	80	No	No
<b>Paraquat (ug/L) - TW3</b>	2022/03/07	<MDL 1.0	80	No	No
<b>PCB (ug/L) - TWc</b>	2022/03/07	<MDL 0.04	10	No	No
<b>PCB (ug/L) - TW3</b>	2022/03/07	<MDL 0.04	10	No	No
<b>Pentachlorophenol (ug/L) - TWc</b>	2022/03/07	<MDL 0.15	3	No	No
<b>Pentachlorophenol (ug/L) - TW3</b>	2022/03/07	<MDL 0.15	3	No	No
<b>Phorate (ug/L) - TWc</b>	2022/03/07	<MDL 0.01	60	No	No
<b>Picloram (ug/L) - TWc</b>	2022/03/07	<MDL 1.0	60	No	No
<b>Prometryne (ug/L) - TWc</b>	2022/03/07	<MDL 0.03	2	No	No
<b>Prometryne (ug/L) - TW3</b>	2022/03/07	<MDL 0.03	190	No	No
<b>Simazine (ug/L) - TWc</b>	2022/03/07	<MDL 0.01	1	No	No
<b>Simazine (ug/L) - TW3</b>	2022/03/07	<MDL 0.01	1	No	No
<b>Terbufos (ug/L) - TWc</b>	2022/03/07	<MDL 0.01	10	No	No
<b>Terbufos (ug/L) - TW3</b>	2022/03/07	<MDL 0.01	10	No	No
<b>Tetrachloroethylene (ug/L) - TWc</b>	2022/03/07	<MDL 0.35	1	No	No

<b>Tetrachloroethylene (ug/L) - TW3</b>	2022/03/07	<MDL 0.35	1	No	No
<b>2,3,4,6-Tetrachlorophenol (ug/L) - TWc</b>	2022/03/07	<MDL 0.2	30	No	No
<b>2,3,4,6-Tetrachlorophenol (ug/L) - TW3</b>	2022/03/07	<MDL 0.2	30	No	No
<b>Triallate (ug/L) - TWc</b>	2022/03/07	<MDL 0.01	100	No	No
<b>Triallate (ug/L) - TW3</b>	2022/03/07	<MDL 0.01	100	No	No
<b>Trichloroethylene (ug/L) - TWc</b>	2022/03/07	<MDL 0.44	230	No	No
<b>Trichloroethylene (ug/L) - TW3</b>	2022/03/07	<MDL 0.44	230	No	No
<b>2,4,6-Trichlorophenol (ug/L) - TWc</b>	2022/03/07	<MDL 0.25	50	No	No
<b>2,4,6-Trichlorophenol (ug/L) - TW3</b>	2022/03/07	<MDL 0.25	50	No	No
<b>2-methyl-4-chlorophenoxyacetic acid (MCPA) (ug/L) - TWc</b>	2022/03/07	<MDL 0.12	5	No	No
<b>2-methyl-4-chlorophenoxyacetic acid (MCPA) (ug/L) - TW3</b>	2022/03/07	<MDL 0.12	5	No	No
<b>Trifluralin (ug/L) - TWc</b>	2022/03/07	<MDL 0.02	45	No	No
<b>Trifluralin (ug/L) - TW3</b>	2022/03/07	<MDL 0.02	45	No	No
<b>Vinyl Chloride (ug/L) - TWc</b>	2022/03/07	<MDL 0.17	2	No	No
<b>Vinyl Chloride (ug/L) - TW3</b>	2022/03/07	<MDL 0.17	2	No	No
<b>DISTRIBUTION WATER</b>					
<b>Trihalomethane: Total (ug/L) Annual Average - DW</b>	2022	22.80	100	No	No
<b>HAA Total (ug/L) Annual Average - DW</b>	2022	12.01	80	No	No

### Lead Sampling

The Lead Sampling Program is required under O.Reg 170/03. This system qualified for the plumbing exemption. This facility is on a reduced sampling schedule and lead is sampled every 36 months, the last samples were taken in 2021.

Location	Date	Lead (mg/L)	pH	Alkalinity (mg/L) as CaCO <sub>3</sub>
<b>Hydrant #47</b>	07-Mar-22	n/a	7.45	279
<b>Hydrant #68</b>	07-Mar-22	n/a	7.42	283
<b>Hydrant #47</b>	06-Sept-22	n/a	7.56	302
<b>Hydrant #68</b>	06-Sept-22	n/a	7.65	290

### 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	282
Operational Maintenance Work Orders Completed	26
Capital Maintenance Work Orders Completed	21

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

An S1 Surveillance Audit was conducted by QMI-SAI Canada Limited on May 16<sup>th</sup>, 2022. 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

Replacement Gate Valve - Well 1&4
PLC Parts – Well 3 and Well 1&4
Spare Turbidimeter
Water Tower Inspection
Well #3 Reference Censor Calibration

### Water Taking and Transfer Data

Data for the reporting period of January 1, 2022 - December 31, 2022 was submitted electronically to the Ministry of the Environment on January 27, 2023 under Permit to Take Water PTTW 3448-9LMT5K.

The screenshot shows the WTRS web interface. At the top, there are logos for Ontario, environet, and WTRS, along with the text "Ministry of the Environment, Conservation and Parks". 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 "WTRS-WT-008". A green banner at the top of the main content area reads "Water Taking Data submitted successfully." Below this, a "Confirmation:" section contains the following text: "Thank you for submitting your water taking data online. Permit Number: 3448-9LMT5K. Permit Holder: THE CORPORATION OF THE TOWNSHIP OF HAVELOCK-BELMONT-METHUEN. Received on: Jan 27, 2023 8:54 AM. This confirmation indicates that your data has been received by the Ministry, but should not be construed as acceptance of this data if it differs from that specified on the Permit Number, assigned to the Permit Holder stated above." At the bottom of the confirmation section are two buttons: "Print Confirmation" and "Return to Main Page". The footer of the page includes "ONTARIO CLEAN WATER AGENCY | 2023/01/27 version: v4.5.0.21 (build#: 22) Last modified: 2018/09/18" and "©2023 Queen's Printer for Ontario".