

Barry's Bay Drinking Water System

2017 Annual Water Report

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



Prepared For: The Madawaska Valley Township

Prepared By:



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

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Report Availability

This system does not serve more than 10,000 residence and the annual reports will be available to residents at the Madawaska Valley Township Municipal Office. Notification will be at the Municipal Office and copies provided free of charge if requested. The Madawaska Valley Township is located at, 85 Bay Street in the Village of Barry’s Bay.

There are no additional drinking water systems that receive water from this facility.

Compliance Report Card

Drinking Water System Number:	210000942
System Owner:	Township of Madawaska Valley
Operating Authority:	Ontario Clean Water Agency
Drinking Water System Category:	Large Municipal Residential
Reporting Period:	January 1, 2017 – December 31, 2017

Compliance Event	# of Events	Details
Ministry of Environment Inspections	0	There were no MOE inspections during the reporting period
Ministry of Labour Inspections	0	
QEMS External Audit	0	No Non-Conformances identified
AWQI’s	0	
Non-Compliance	0	
Community Complaints	1	1 related to aesthetics.
Spills	0	

Quality Control Measures

The Madawaska Valley Township facilities are part of OCWA's operational Eastern Regional Hub. The facilities are supported by hub, regional and corporate resources. Operational Services are delivered by OCWA staff who live and work in the community.

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 Madawaska Valley Township 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 Management (PDM) 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) that tracks and reports maintenance activities, and creates predictive and preventative reports.
 - Wonderware 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
- 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 Barry’s Bay Drinking Water System is Kamaniskeg Lake. The water is drawn from the lake using low lift pumps.



Treatment

The Barry’s Bay Water Treatment Plant is a direct filtration plant. The plant utilized the coagulation, flocculation and filtration processes.



Alum is added to assist coagulation and soda ash for pH adjustment. Filter effluent is disinfected using chlorine gas before entering the clearwell.



This facility has the ability to add polymer to aid flocculation and to add ammonia sulphate for chloramination but does not utilize these processes at this time.



Treatment Chemicals used during the reporting year:

Chemical Name	Use	Supplier
Alum	Coagulant	Kemira
Soda Ash	pH Adjustment	Quadra
Chlorine Gas	Disinfection	Brenntag

Summary of Non-Compliance

Adverse Water Quality Incidents

Date	AWQI #	Location	Problem	Details	Legislation	Corrective Action Taken
There was no adverse water quality incidents reported during the reporting period.						

Non-Compliance

Legislation	requirement(s) system failed to meet	duration of the failure (i.e. date(s))	Corrective Action	Status
There was no non-compliance issues reported during the reporting period.				

Non-Compliance Identified in a Ministry Inspection:

Legislation	requirement(s) system failed to meet	duration of the failure (i.e. date(s))	Corrective Action	Status
There was no inspection during this period.				

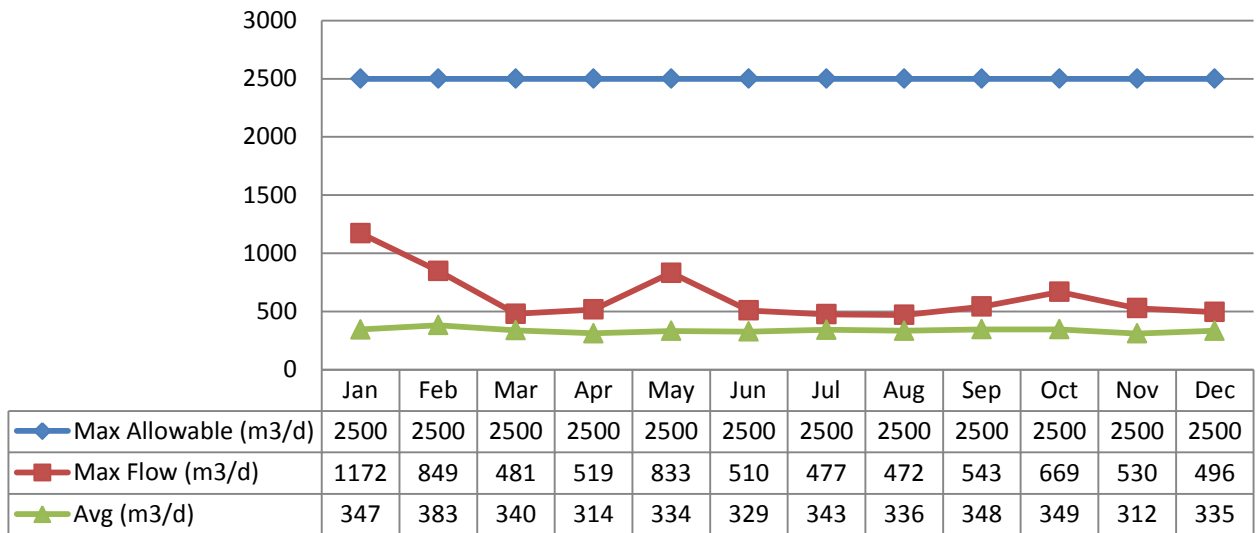
Flows

The Barry’s Bay Drinking Water System is operating on average under half the rated capacity.

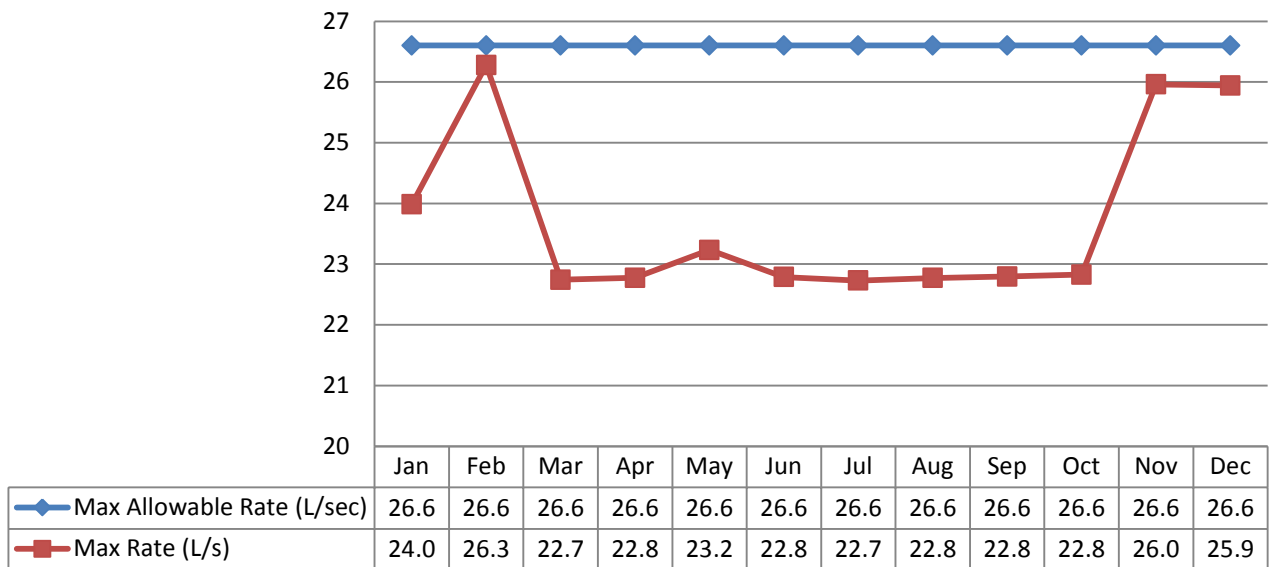
Raw Water Flows

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

Total Monthly Flows (m3/d)



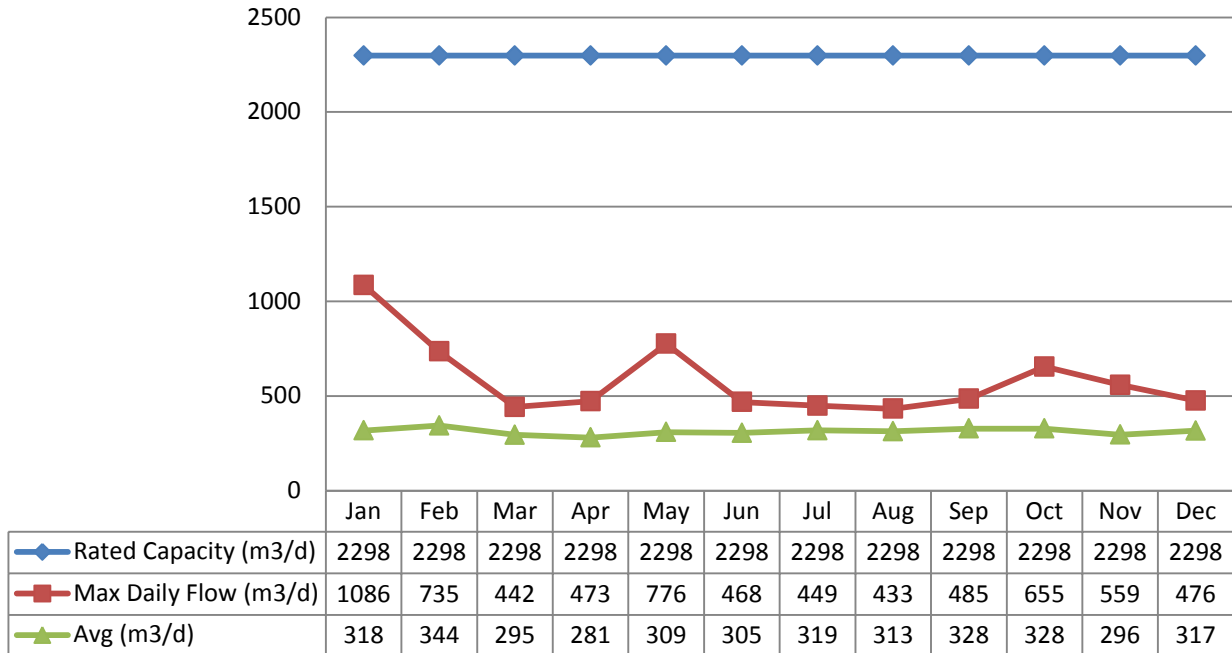
Monthly Rated Flows (L/s)



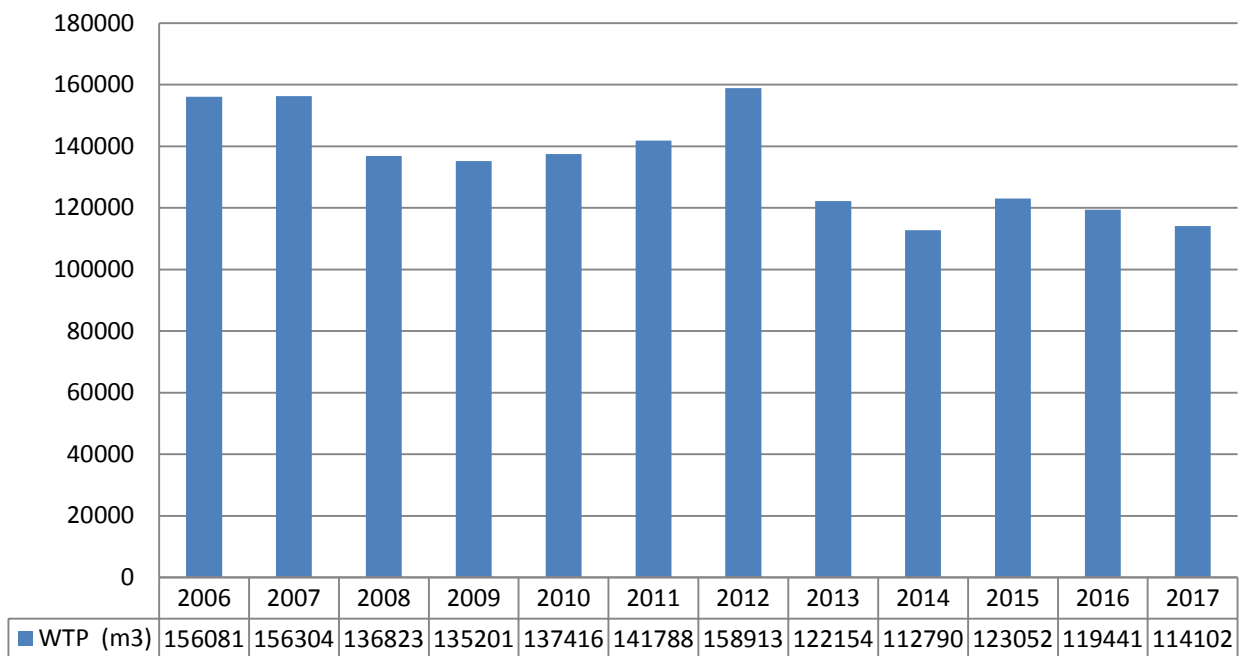
Treated Water Flows

The Treated Water flows are regulated under the Municipal Licence.

Monthly Rated Flows



Annual Total Flow Comparison



Regulatory Sample Results Summary

Microbiological Testing

	No. of Samples Collected	Range of E.Coli Results		Range of Total Coliform Results		Range of HPC Results	
		Min	Max	Min	Max	Min	Max
Raw Water	52	0	20	0	420		
Treated Water	52	0	0	0	0	0	52
Distribution Water	148	0	0	0	0	0	148

Operational Testing

In-House

	No. of Samples Collected	Range of Results	
		Minimum	Maximum
Turbidity, In-House (NTU) - RW	247	0.48	2.37
Turbidity, On-Line (NTU) - TW	8760	0	2
Turbidity, In-House (NTU) - TW	247	0.12	0.26
Turbidity, On-Line (NTU) - Filt1	8760	0	0.412
Turbidity, On-Line (NTU) - Filt2	8760	0	0.727
Turbidity, On-Line (NTU) - Filt3	8760	0	0.287
Free Chlorine Residual, On-Line (mg/L) - TW	8760	0.70	3.09
Free Chlorine Residual, In-House (mg/L) - TW	247	0.71	2.20
Free Chlorine Residual, On-Line (mg/L) - DW	8760	0.15	2.34
Free Chlorine Residual, DW Field (mg/L) Lab Upload - DW	247	0.83	2.35

NOTE: spikes recorded by on-line instrumentation were a result of air bubbles and various maintenance/calibration activities. All spikes are reviewed for compliance with O.Reg 170/03

Laboratory

Parameter	# of grab samples taken	Range of Results (min # - max #)
Fluoride	Fluoride is not used at this facility	
Raw Alkalinity	12	9-29 mg/L
Raw Colour	12	11-29 TCU
Raw pH	12	6.69-7.17
Treated Alkalinity	12	20-26 mg/L
Treated Colour	12	3-3 TCU
Treated Total Dissolved Solids	12	51-180 mg/L
Treated Total Hardness	12	15.2-35.2 mg/L
Treated pH	12	7.17-7.54
Distribution Alkalinity	13	21-27 mg/L
Distribution Colour	12	<3-4 TCU

Parameter	# of grab samples taken	Range of Results (min # - max #)
Distribution Total Dissolved Solids	12	63-214 mg/L
Distribution Total Hardness	17	15.2-33.8 mg/L
Distribution pH	12	7.19-7.67

Additional Legislated Samples

There is no additional sampling required under the Municipal Licence.

Inorganic Parameters

These parameters are tested annually as a requirement under 170/03. Sodium and Fluoride are required to be tested every 5 years. Nitrates are tested quarterly as required under 170/03. In the event any of the parameters exceed half of the maximum allowable concentration the parameter is required to be sampled quarterly.

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

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	No. of Exceedances	
				MAC	1/2 MAC
Treated Water					
Antimony: Sb (ug/L) - TW	2017/01/04	0.04	6.0	No	No
Arsenic: As (ug/L) - TW	2017/01/04	<MDL 0.2	25.0	No	No
Barium: Ba (ug/L) - TW	2017/01/04	13.8	1000.0	No	No
Boron: B (ug/L) - TW	2017/01/04	5.0	5000.0	No	No
Cadmium: Cd (ug/L) - TW	2017/01/04	0.004	5.0	No	No
Chromium: Cr (ug/L) - TW	2017/01/04	0.66	50.0	No	No
Mercury: Hg (ug/L) - TW	2017/01/04	<MDL 0.01	1.0	No	No
Selenium: Se (ug/L) - TW	2017/01/04	0.06	50.0	No	No
Uranium: U (ug/L) - TW	2017/01/04	0.028	20.0	No	No
Additional Inorganics					
Fluoride (mg/L) - TW	2013/01/03	< 0.06	1.5	No	No
Nitrite (mg/L) - TW	2017/01/03	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2017/04/04	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2017/07/04	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2017/10/03	<MDL 0.003	1.0	No	No
Nitrate (mg/L) - TW	2017/01/03	0.081	10.0	No	No
Nitrate (mg/L) - TW	2017/04/04	0.131	10.0	No	No
Nitrate (mg/L) - TW	2017/07/04	0.094	10.0	No	No
Nitrate (mg/L) - TW	2017/10/03	0.135	10.0	No	No
Sodium: Na (mg/L) - TW	2014/01/08	19.5	20*	No	Yes

*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 mg/L 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.

Schedule 15 Sampling:

The Schedule 15 Sampling is required under O.Reg 170/03. This system is under reduced sampling.

Distribution System	Number of Samples	Range of Results		MAC (ug/L)	Number of Exceedances
		Minimum	Maximum		
Alkalinity (mg/L)	13	21	27	n/a	n/a
pH	12	7.19	7.67	n/a	n/a
Lead (ug/l)	5	0.27	5.51	10	0

Organic Parameters

These parameters are tested annually as a requirement under 170/03. In the event any of the parameters exceed half of the maximum allowable concentration the parameter is required to be sampled quarterly.

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
Treated Water					
Alachlor (ug/L) - TW	2017/01/04	<MDL 0.02	5.00	No	No
Atrazine + N-dealkylated metabolites (ug/L) - TW	2017/01/04	<MDL 0.01	5.00	No	No
Azinphos-methyl (ug/L) - TW	2017/01/04	<MDL 0.05	20.00	No	No
Benzene (ug/L) - TW	2017/01/04	<MDL 0.32	1.00	No	No
Benzo(a)pyrene (ug/L) - TW	2017/01/04	<MDL 0.004	0.01	No	No
Bromoxynil (ug/L) - TW	2017/01/04	<MDL 0.33	5.00	No	No
Carbaryl (ug/L) - TW	2017/01/04	<MDL 0.05	90.00	No	No
Carbofuran (ug/L) - TW	2017/01/04	<MDL 0.01	90.00	No	No
Carbon Tetrachloride (ug/L) - TW	2017/01/04	<MDL 0.16	2.00	No	No
Chlorpyrifos (ug/L) - TW	2017/01/04	<MDL 0.02	90.00	No	No
Diazinon (ug/L) - TW	2017/01/04	<MDL 0.02	20.00	No	No
Dicamba (ug/L) - TW	2017/01/04	<MDL 0.2	120.00	No	No
1,2-Dichlorobenzene (ug/L) - TW	2017/01/04	<MDL 0.41	200.00	No	No
1,4-Dichlorobenzene (ug/L) - TW	2017/01/04	<MDL 0.36	5.00	No	No
1,2-Dichloroethane (ug/L) - TW	2017/01/04	<MDL 0.35	5.00	No	No
1,1-Dichloroethylene (ug/L) - TW	2017/01/04	<MDL 0.33	14.00	No	No
Dichloromethane (Methylene Chloride) (ug/L) - TW	2017/01/04	<MDL 0.35	50.00	No	No
2,4-Dichlorophenol (ug/L) - TW	2017/01/04	<MDL 0.15	900.00	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW	2017/01/04	<MDL 0.19	100.00	No	No
Diclofop-methyl (ug/L) - TW	2017/01/04	<MDL 0.4	9.00	No	No

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
Dimethoate (ug/L) - TW	2017/01/04	<MDL 0.03	20.00	No	No
Diquat (ug/L) - TW	2017/01/04	<MDL 1.0	70.00	No	No
Diuron (ug/L) - TW	2017/01/04	<MDL 0.03	150.00	No	No
Glyphosate (ug/L) - TW	2017/01/04	<MDL 1.0	280.00	No	No
Malathion (ug/L) - TW	2017/01/04	<MDL 0.02	190.00	No	No
2-Methyl-4chlorophenoxyacetic Acid (MCPA)	2016/01/04	<MDL 0.00012	0.00012	No	No
Metolachlor (ug/L) - TW	2017/01/04	<MDL 0.01	50.00	No	No
Metribuzin (ug/L) - TW	2017/01/04	<MDL 0.02	80.00	No	No
Monochlorobenzene (Chlorobenzene) (ug/L) - TW	2017/01/04	<MDL 0.3	80.00	No	No
Paraquat (ug/L) - TW	2017/01/04	<MDL 1.0	10.00	No	No
PCB (ug/L) - TW	2017/01/04	<MDL 0.04	3.00	No	No
Pentachlorophenol (ug/L) - TW	2017/01/04	<MDL 0.15	60.00	No	No
Phorate (ug/L) - TW	2017/01/04	<MDL 0.01	2.00	No	No
Picloram (ug/L) - TW	2017/01/04	<MDL 1.0	190.00	No	No
Prometryne (ug/L) - TW	2017/01/04	<MDL 0.03	1.00	No	No
Simazine (ug/L) - TW	2017/01/04	<MDL 0.01	10.00	No	No
Terbufos (ug/L) - TW	2017/01/04	<MDL 0.01	1.00	No	No
Tetrachloroethylene (ug/L) - TW	2017/01/04	<MDL 0.35	10.00	No	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW	2017/01/04	<MDL 0.2	100.00	No	No
Triallate (ug/L) - TW	2017/01/04	<MDL 0.01	230.00	No	No
Trichloroethylene (ug/L) - TW	2017/01/04	<MDL 0.44	5.00	No	No
2,4,6-Trichlorophenol (ug/L) - TW	2017/01/04	<MDL 0.25	5.00	No	No
Trifluralin (ug/L) - TW	2017/01/04	<MDL 0.02	45.00	No	No
Vinyl Chloride (ug/L) - TW	2017/01/04	<MDL 0.17	1.00	No	No
Distribution Water					
Trihalomethane: Total (ug/L) Annual Average - DW	2017	43.75	100.00	No	No

MAC = Maximum Allowable Concentration as per O.Reg 169/03

BDL = Below the laboratory detection level

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. The Eastern Regional Hub has specialized certified staff such as Millwrights, Electricians and Instrumentation Specialists to name a few.

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.

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

Preventative Maintenance Work Orders Completed	225
Operational Maintenance Work Orders Completed	158
Corrective Maintenance Work Orders Completed	26

Maintenance Highlights

WO #	Comments
243032	Barry's Bay WTP water main/service repair parts
243669	Turbidity Analyzer Repair Barry's Bay WTP
314841	Barry's Bay WTP PLC repairs
345845	Barry's Bay WTP replacement watermain
377784	Replacement Sediment Filters for CO Hall
378443	DWQMS External Audit

Distribution Maintenance

		Location Reference	Details	Repair Class	Corrective Repair
28-Feb-2017	Repair	Queen St.	Category 1 Longitudinal break caused by defective pipe and improper bedding	1	Replaced 5.9m of piping
09-Jan-2017	Repair	Bay Street	Category 1 Longitudinal break caused by improper bedding	1	Replaced 6m of 8" watermain and service to 145 Bay Street

Complaints

Location	Date	Details	Corrective Action
132 Sandhill Dr.	22-Jan-2017	Customer called and said that they had air in their water	Operators went and flushed hydrants 67, 93 and 73 and did notice some air release at the hydrants.

QEMS

The Internal Audit and Management Review were completed in 2017. Minutes from the Management Review were provided to the Township.

Water Taking and Transfer Data

2017 Data was submitted electronically on February 7, 2018 under permit #6233-8MXPXP. The confirmation and a copy of the data that was submitted are attached in Appendix B.

Small System Sampling Summary

The Ontario Clean Water Agency samples at two small Ministry of Health regulated systems owned by the Township of Madawaska Valley.

Sampling Summary

Location	Number of Samples	E.coli Results (min) - (max)	Total Coliform Results (min) – (max)	HPC Results (min) - (max)
Combermere Community Hall	12	0-0	0-0	N/A
Mission House Museum & Gallery	2*	0-0	0-0	N/A

*samples were only collected in July and August when the building is open to the public.

Maintenance Highlights

- Sediment filters are replaced monthly
- UV unit maintenance as required

Appendix A

WTRS Data and Submission Confirmation

Location: [WTRS](#) / [WT DATA](#) / [Input WT Record](#)

WTRS-WT-008

Water Taking Data submitted successfully.**Confirmation:**

Thank you for submitting your water taking data online.

Permit Number: 6233-8MXPXP

Permit Holder: THE CORPORATION OF THE TOWNSHIP OF MADAWASKA VALLEY.

Received on: Feb 7, 2018 9:21 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.

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TOWNSHIP2 MADAWASKA VALLEY2 | 2018/02/07

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Appendix B

Raw Water Trends

