

Barry's Bay Drinking Water System

2015 Annual Water Report

Reporting period of January 1, 2015 – December 31, 2015



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, 2015 – December 31, 2015

Compliance Event	# of Events	Details
Ministry of Environment Inspections	1	Inspection completed on September 16, 2015. The report was received on November 24, 2015. There were no actions required.
Ministry of Labour Inspections	0	
QEMS External Audit	1	No Non-Conformances identified
AWQI’s	0	
Non-Compliance	1	-Replacement of watermain on Opeongo Line
Community Complaints	5	<ul style="list-style-type: none"> • Five (5) colour complaints • Fifteen (15) frozen water • Two (2) other
Spills	1	Tower Overflow

Quality Control Measures

The Madawaska Valley Township facilities are part of OCWA's operational Ottawa 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 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 were no Adverse Water Quality Incidents Reported in 2015						

Non-Compliance

Legislation	requirement(s) system failed to meet	duration of the failure (i.e. date(s))	Corrective Action	Status
170/03	No Service (Boil Water Advisory)	May 13, 2016 – May 22, 2016	Replacement of watermain on Opeongo Line from Dunn Street to Bay Street	Complete
EPA	Spill of potable water from water tower. Instrumentation was bumped during renovations to the Tower Pit causing the tower to overflow approx. 500m3	December 15, 2016 – December 16, 2016	Levels on SCADA were adjusted to stop the overflow. Instrumentation was returned to proper scaling and SCADA levels returned to normal operation.	Complete

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
<p>Inspection completed on September 16, 2015. The report was received on November 24, 2015.</p> <ul style="list-style-type: none"> Ministry of Environment Inspection Rating: 100% No actions identified in the report 				

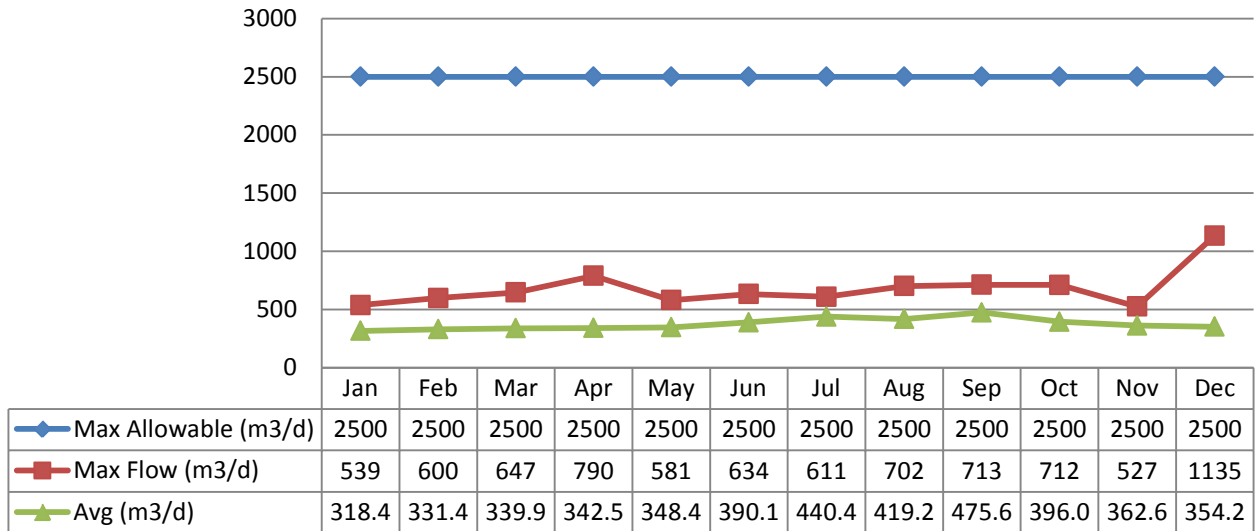
Flows

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

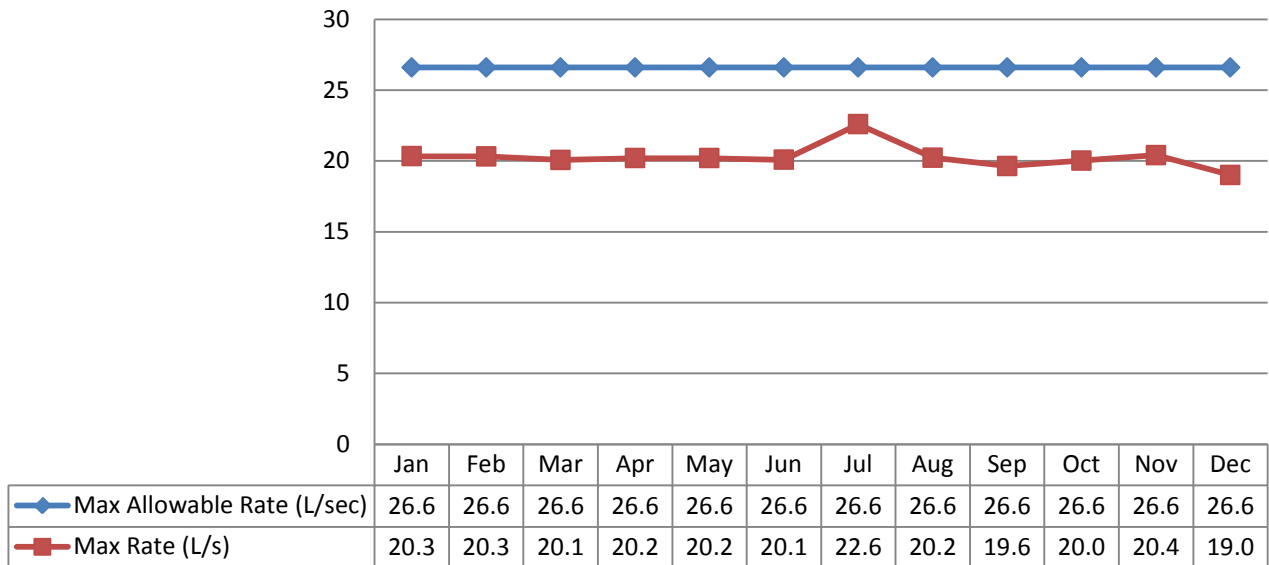
Raw Water Flows

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

Total Monthly Flows (m3/d)



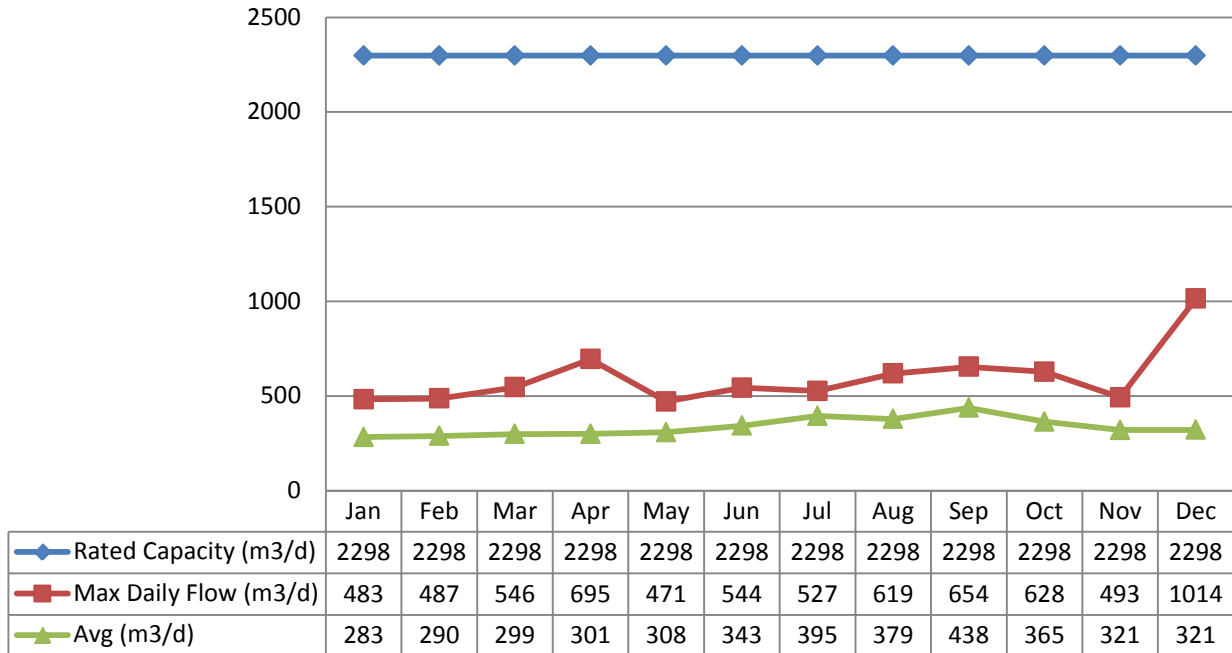
Monthly Rated Flows (L/s)



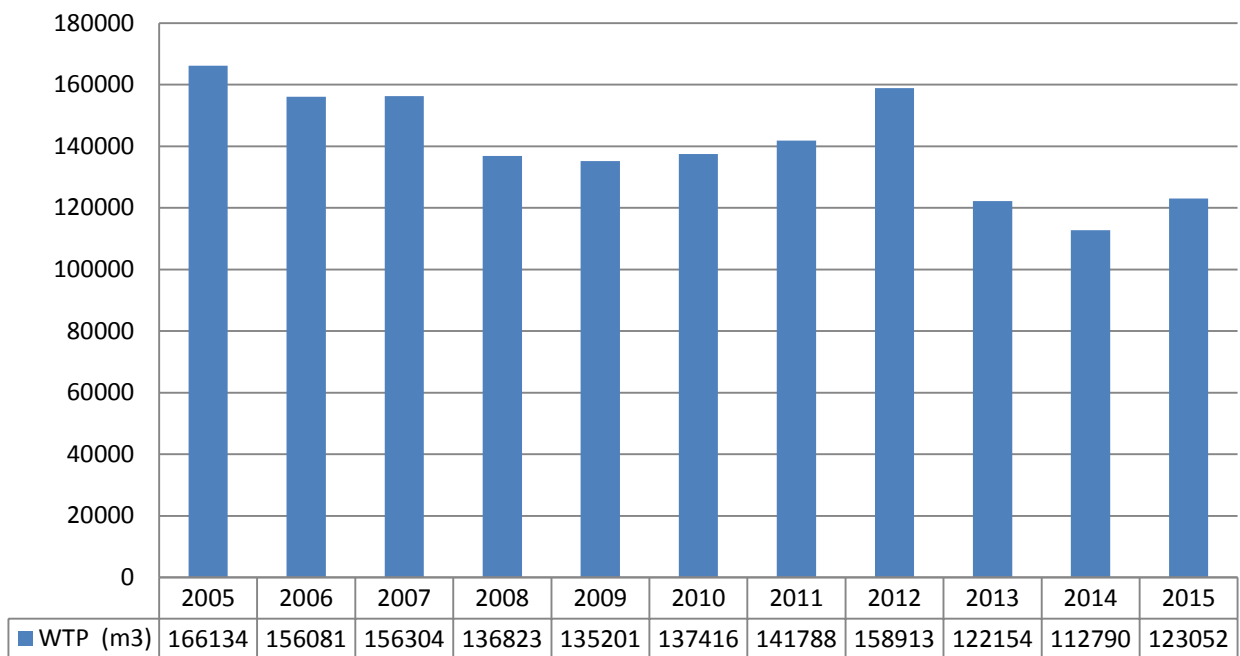
Treated Water Flows

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		Range of Total Coliform Results		Range of HPC Results	
		MIN	MAX	MIN	MAX	MIN	MAX
Raw Water	52	0	22	0	121		
Treated Water	52	0	0	0	0	0	3
Distribution Water	146	0	0	0	0	0	1

Operational Testing

	No. of Samples Collected for period being reported	Range of Results	
		MIN	MAX
Turbidity, In-House (NTU) - RW	249	0.47	6.1
Turbidity, On-Line (NTU) - TW	8760	0	2.014
Turbidity, In-House (NTU) - TW	249	0.1	0.49
Turbidity, On-Line (NTU) - Filt1	8760	0	0.6
Turbidity, On-Line (NTU) - Filt2	8760	0	0.69
Turbidity, On-Line (NTU) - Filt3	8760	0	0.96
Free Chlorine Residual, On-Line (mg/L) - TW	8760	0.634	2.234
Free Chlorine Residual, In-House (mg/L) - TW	249	0.92	2.02
Free Chlorine Residual, On-Line (mg/L) - DW	8760	0.4466	1.749
Free Chlorine Residual, DW Field (mg/L) Lab Upload - DW	129	0.29	1.63

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	9-17 mg/L
Raw Colour	12	12-19 TCU
Raw pH	12	6.90-7.73
Treated Alkalinity	12	21-29 mg/L
Treated Colour	12	3-10 TCU
Treated Total Dissolved Solids	12	60-114 mg/L
Treated Total Hardness	12	15.1-28.2 mg/L
Treated pH	12	6.99-7.6
Distribution Alkalinity	16	22-29 mg/L
Distribution Colour	12	<3-6 TCU
Distribution Total Dissolved Solids	12	51-126 mg/L
Distribution Total Hardness	12	15.3-27.3 mg/L

Parameter	# of grab samples taken	Range of Results (min # - max #)
Distribution pH	13	7.02-7.64

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 (mm/dd/yyyy)	Sample Result	MAC	No. of Exceedances	
				MAC	1/2 MAC
Antimony: Sb (ug/L) - TW	1/6/2015	0.08	6.0	No	No
Arsenic: As (ug/L) - TW	1/6/2015	<MDL 0.2	25.0	No	No
Barium: Ba (ug/L) - TW	1/6/2015	19.8	1000.0	No	No
Boron: B (ug/L) - TW	1/6/2015	19.5	5000.0	No	No
Cadmium: Cd (ug/L) - TW	1/6/2015	0.005	5.0	No	No
Chromium: Cr (ug/L) - TW	1/6/2015	<MDL 0.03	50.0	No	No
Mercury: Hg (ug/L) - TW	1/6/2015	<MDL 0.01	1.0	No	No
Selenium: Se (ug/L) - TW	1/6/2015	<MDL 1.0	10.0	No	No
Uranium: U (ug/L) - TW	1/6/2015	0.018	20.0	No	No
Additional Inorganics					
Fluoride (mg/L) - TW	1/3/2013	< 0.06	1.5	No	No
Nitrite (mg/L) - TW	1/6/2015	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	4/7/2015	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	7/7/2015	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	10/6/2015	<MDL 0.003	1.0	No	No
Nitrate (mg/L) - TW	1/6/2015	0.107	10.0	No	No
Nitrate (mg/L) - TW	4/7/2015	0.221	10.0	No	No
Nitrate (mg/L) - TW	7/7/2015	0.138	10.0	No	No
Nitrate (mg/L) - TW	10/6/2015	0.168	10.0	No	No
Sodium: Na (mg/L) - TW	1/8/2014	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.

Lead Sampling:

The Lead Sampling Program is required under O.Reg 170/03. This system is under reduced sampling.

Location Type	Number of Samples	Range of Results		MAC (ug/L)	Number of Exceedances
		MIN	MAX		
Distribution Water - Lead Results (ug/L)	4	0.13	0.72	10	0
Distribution Water - Alkalinity (mg/L)	16	22	29		
Distribution Water - pH Lab	12	7.02	7.64		

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.

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

	Sample Date (mm/dd/yyyy)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
Treated Water					
Alachlor (ug/L) - TW	1/6/2015	<MDL 0.02	5.00	No	No
Aldicarb (ug/L) - TW	1/6/2015	<MDL 0.01	9.00	No	No
Aldrin+Dieldrin (ug/L) - TW	1/6/2015	<MDL 0.01	0.70	No	No
Atrazine + N-dealkylated metabolites (ug/L) - TW	1/6/2015	<MDL 0.01	5.00	No	No
Azinphos-methyl (ug/L) - TW	1/6/2015	<MDL 0.02	20.00	No	No
Bendiocarb (ug/L) - TW	1/6/2015	<MDL 0.01	40.00	No	No
Benzene (ug/L) - TW	1/6/2015	<MDL 0.32	5.00	No	No
Benzo(a)pyrene (ug/L) - TW	1/6/2015	<MDL 0.004	0.01	No	No
Bromoxynil (ug/L) - TW	1/6/2015	<MDL 0.33	5.00	No	No
Carbaryl (ug/L) - TW	1/6/2015	<MDL 0.01	90.00	No	No
Carbofuran (ug/L) - TW	1/6/2015	<MDL 0.01	90.00	No	No
Carbon Tetrachloride (ug/L) - TW	1/6/2015	<MDL 0.16	5.00	No	No
Chlordane: Total (ug/L) - TW	1/6/2015	<MDL 0.01	7.00	No	No
Chlorpyrifos (ug/L) - TW	1/6/2015	<MDL 0.02	90.00	No	No
Cyanazine (ug/L) - TW	1/6/2015	<MDL 0.03	10.00	No	No
Diazinon (ug/L) - TW	1/6/2015	<MDL 0.02	20.00	No	No
Dicamba (ug/L) - TW	1/6/2015	<MDL 0.2	120.00	No	No
1,2-Dichlorobenzene (ug/L) - TW	1/6/2015	<MDL 0.41	200.00	No	No
1,4-Dichlorobenzene (ug/L) - TW	1/6/2015	<MDL 0.36	5.00	No	No
DDT + metabolites (ug/L) - TW	1/6/2015	<MDL 0.01	30.00	No	No
1,2-Dichloroethane (ug/L) - TW	1/6/2015	<MDL 0.35	5.00	No	No
1,1-Dichloroethylene (ug/L) - TW	1/6/2015	<MDL 0.33	14.00	No	No

	Sample Date (mm/dd/yyyy)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
Dichloromethane (Methylene Chloride) (ug/L) - TW	1/6/2015	<MDL 0.35	50.00	No	No
2,4-Dichlorophenol (ug/L) - TW	1/6/2015	<MDL 0.15	900.00	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW	1/6/2015	<MDL 0.19	100.00	No	No
Diclofop-methyl (ug/L) - TW	1/6/2015	<MDL 0.4	9.00	No	No
Dimethoate (ug/L) - TW	1/6/2015	<MDL 0.03	20.00	No	No
Dinoseb (ug/L) - TW	1/6/2015	<MDL 0.36	10.00	No	No
Diquat (ug/L) - TW	1/6/2015	<MDL 1.0	70.00	No	No
Diuron (ug/L) - TW	1/6/2015	<MDL 0.03	150.00	No	No
Glyphosate (ug/L) - TW	1/6/2015	<MDL 1.0	280.00	No	No
Heptachlor+hepachlor epoxide (ug/L) - TW	1/6/2015	<MDL 0.01	3.00	No	No
Lindane (ug/L) - TW	1/6/2015	<MDL 0.01	4.00	No	No
Malathion (ug/L) - TW	1/6/2015	<MDL 0.02	190.00	No	No
Methoxychlor (ug/L) - TW	1/6/2015	<MDL 0.01	900.00	No	No
Metolachlor (ug/L) - TW	1/6/2015	<MDL 0.01	50.00	No	No
Metribuzin (ug/L) - TW	1/6/2015	<MDL 0.02	80.00	No	No
Monochlorobenzene (Chlorobenzene) (ug/L) - TW	1/6/2015	<MDL 0.3	80.00	No	No
Paraquat (ug/L) - TW	1/6/2015	<MDL 1.0	10.00	No	No
Parathion (ug/L) - TW	1/6/2015	<MDL 0.02	50.00	No	No
PCB (ug/L) - TW	1/6/2015	<MDL 0.04	3.00	No	No
Pentachlorophenol (ug/L) - TW	1/6/2015	<MDL 0.15	60.00	No	No
Phorate (ug/L) - TW	1/6/2015	<MDL 0.01	2.00	No	No
Picloram (ug/L) - TW	1/6/2015	<MDL 1.0	190.00	No	No
Prometryne (ug/L) - TW	1/6/2015	<MDL 0.03	1.00	No	No
Simazine (ug/L) - TW	1/6/2015	<MDL 0.01	10.00	No	No
Temephos (ug/L) - TW	1/6/2015	<MDL 0.01	280.00	No	No
Terbufos (ug/L) - TW	1/6/2015	<MDL 0.01	1.00	No	No
Tetrachloroethylene (ug/L) - TW	1/6/2015	<MDL 0.35	30.00	No	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW	1/6/2015	<MDL 0.14	100.00	No	No
Triallate (ug/L) - TW	1/6/2015	<MDL 0.01	230.00	No	No
Trichloroethylene (ug/L) - TW	1/6/2015	<MDL 0.44	50.00	No	No
2,4,6-Trichlorophenol (ug/L) - TW	1/6/2015	<MDL 0.25	5.00	No	No
2,4,5-T (ug/L) - TW	1/6/2015	<MDL 0.22	280.00	No	No
Trifluralin (ug/L) - TW	1/6/2015	<MDL 0.02	45.00	No	No
Vinyl Chloride (ug/L) - TW	1/6/2015	<MDL 0.17	2.00	No	No
Distribution Water					
Trihalomethane: Total (ug/L) Annual Average - DW	1/1/2015	39.75	100.00	No	No

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 Ottawa Valley 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	268
Operational Maintenance Work Orders Completed	46
Weekly Maintenance Work Orders Completed	348
Corrective Maintenance Work Orders Completed	24

Maintenance Highlights

WO #	Comments
3420806	High Lift Pump Variable frequency Drive Installation
3276295	Alum Pump replacement
3309744	SAI Global Audit
3352076	Watermain repair parts
3352164	Chlorine Gas Sensor
3368590	Robotic Tower and Clearwell Inspections
3428388	Filter # 3 Underdrain Repair
3464953	Lakeview Parkway Hydrant Repair

Watermain Breaks

Location	Date of Incident	Corrective Action Taken
Opeongo Line	May 10, 2015	Service leak at 19566 Opeongo Line.

QEMS

The Ontario Clean Water Agency was re-accredited in March 2015. There was an on-site audit completed March 19, 2015. There were no major or minor non-conformances identified. The Internal Audit and Management Review were completed. Minutes from the Management Review were provided to the Township on November 9, 2015.

Water Taking and Transfer Data

2015 Data was submitted electronically on January 7, 2016 under permit #6233-8MXPP. 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	9*	0-0	0-0	N/A

*samples were not collected February, March and April 2015 as the building was not open to the public and water frozen.

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: Jan 7, 2016 9:46 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 | 2016/01/07

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	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	January	375	222	222	222	393	427	330	316	275	275	275	535	193	409	323
16		17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
280		280	280	518	274	381	329	274	274	274	539	227	291	327	265	265
February	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	265	534	326	267	276	285	285	285	600	155	421	302	341	341	341	
	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
	341	253	354	326	280	280	280	540	273	416	319	296	296			
March	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	296	479	310	308	361	293	293	293	590	180	432	406	257	257	257	
	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
	647	117	422	304	297	297	297	469	284	301	363	424	424	424	203	253
April	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	387	345	345	345	345	345	178	390	299	273	273	273	558	247	385	
	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
	457	308	308	308	276	494	158	486	254	254	254	596	136	790	207	
May	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	286	286	286	567	172	404	314	471	471	471	186	354	256	387	435	
	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
	435	435	435	217	413	258	282	282	282	581	200	406	333	298	298	298
June	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	587	133	570	321	404	404	404	175	332	411	297	321	321	321	602	
	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
	158	627	471	337	337	337	515	339	634	221	376	376	376	518	478	

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	July	478	224	548	548	548	335	596	343	611	577	577	577	332	502	371
16		17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
430		460	460	460	194	510	431	318	445	445	445	122	480	355	429	501
August	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	501	434	434	311	349	346	509	509	509	304	288	539	330	481	481	
	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
	481	230	661	296	402	376	376	376	556	306	702	412	413	413	413	256
September	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	610	478	536	453	453	453	453	684	373	537	420	420	420	561	552	
	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
	430	570	459	459	459	340	296	713	367	495	495	495	241	668	377	
October	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	534	427	427	427	247	712	272	630	373	373	373	373	532	167	513	
	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
	357	357	357	248	411	288	243	369	369	369	503	399	276	552	399	399
November	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	399	272	519	409	527	353	353	353	203	391	391	160	429	429	429	
	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
	416	385	375	241	318	318	318	449	319	272	386	354	354	354	401	
December	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	311	297	366	343	343	343	236	455	253	372	341	341	341	1135	85	
	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
	375	354	397	397	397	160	322	474	279	279	279	468	468	146	329	295

Appendix B

Raw Water Trends

Barry's Bay Drinking Water System - RW Chems

