

Barry's Bay Drinking Water System

2013 Annual Water Report

Reporting period of January 1, 2013 – December 31, 2013



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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Appendix A – Annual Record of Water Taking

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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, 2013 – December 31, 2013

Compliance Event	# of Events	Details
Ministry of Environment Inspections	1	See Summary of Non-Compliance
Ministry of Labour Inspections	0	
QEMS External Audit	1	See QEMS Section
AWQI’s	0	
Non-Compliance	0	
Community Complaints	2	Colour complaints
Spills	0	

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 Collection (PDC) 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
- 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 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 2013						

Non-Compliance

Legislation	requirement(s) system failed to meet	duration of the failure (i.e. date(s))	Corrective Action	Status
There were no Non-Compliance Events reported in 2013				

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
Inspection Report received for December 4, 2012 Inspection on January 30, 2013 <ul style="list-style-type: none"> • Ministry of Environment Inspection Rating: 100% • No actions identified in the report 				
Inspection site visit completed November 13, 2013 <ul style="list-style-type: none"> • Waiting on report 				

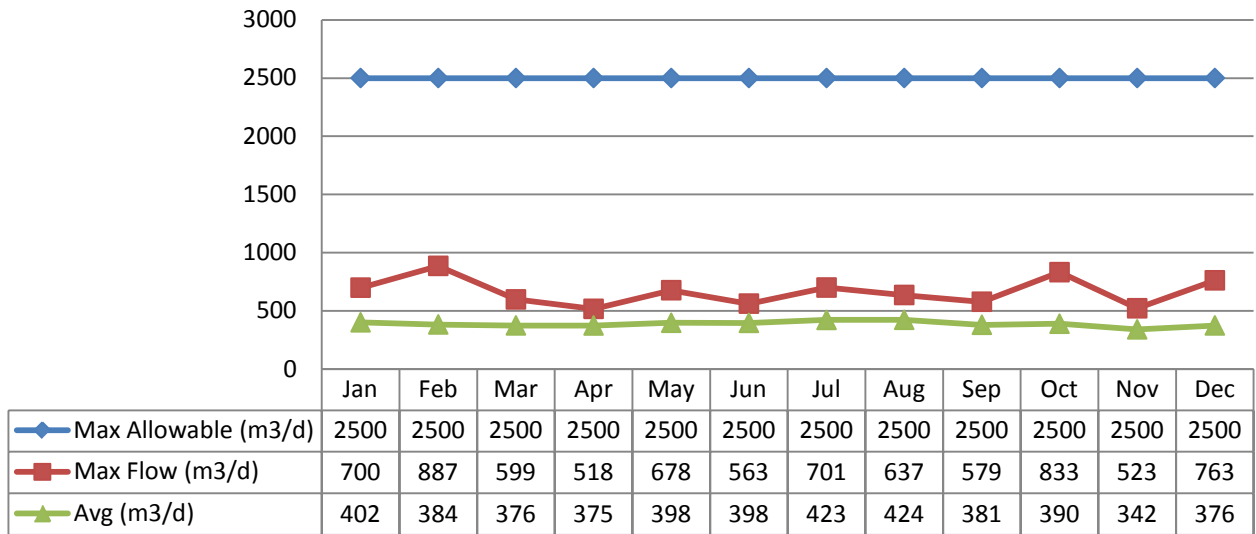
Flows

The Barry’s Bay Drinking Water System is operating on average under half the rated capacity. The Annual Record of Water Taking is available in Appendix A.

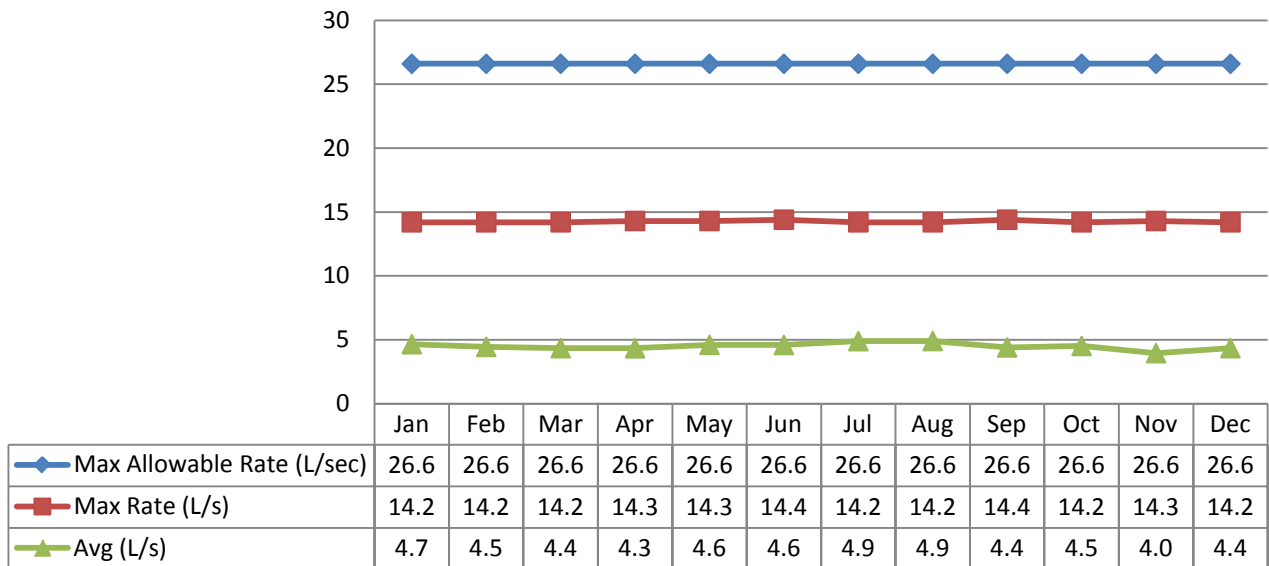
Raw Water Flows

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

Total Monthly Flows (m3/d)



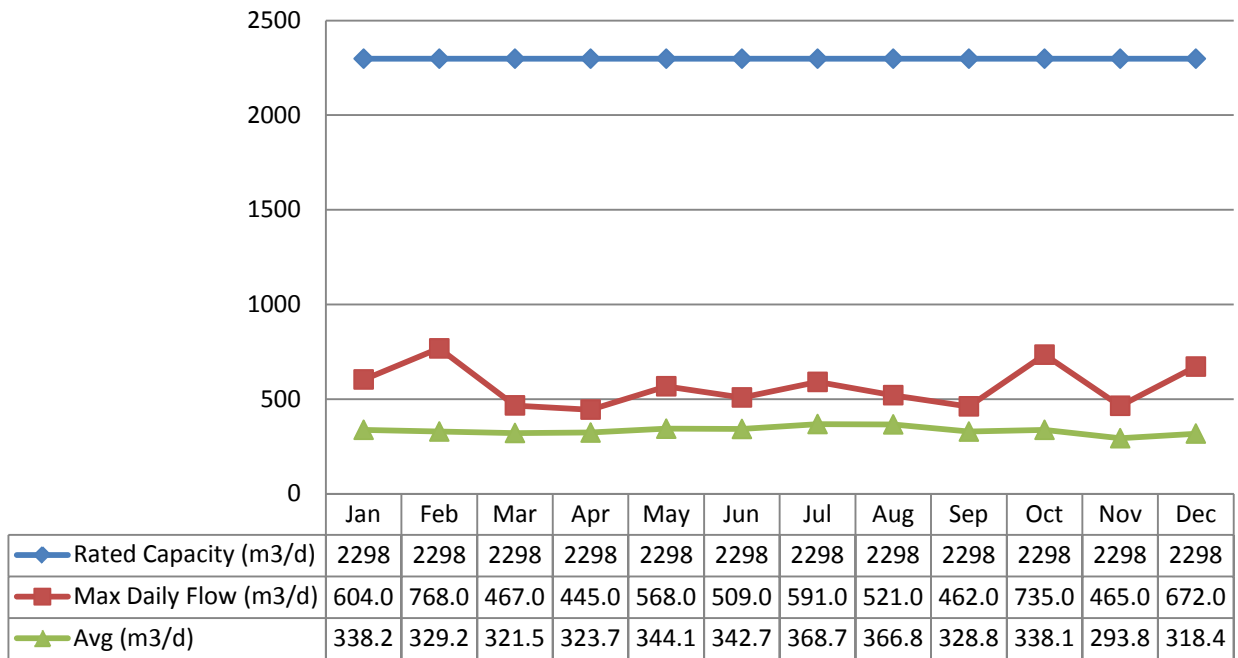
Monthly Rated Flows (L/s)



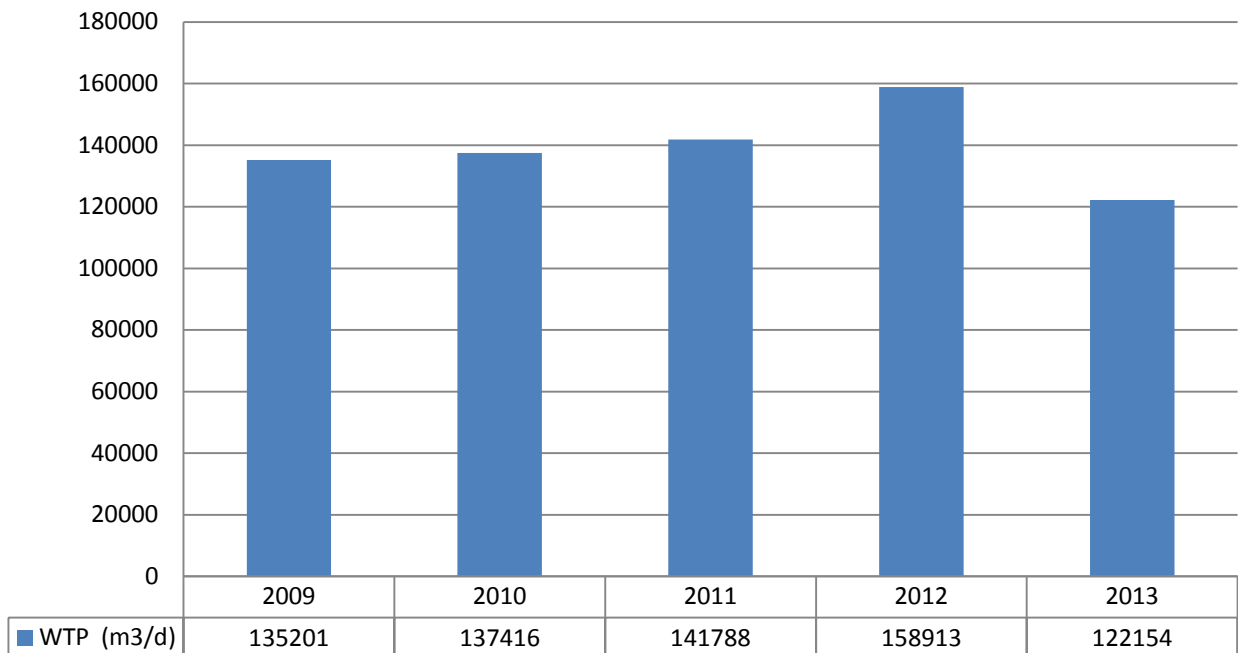
Treated Water Flows

The Treated Water flows are regulated under the Municipal Licence.

Monthly Rated Flows



Annual Total Flow Comparison



Regulatory Sample Results Summary

Microbiological Testing

Location	Number of Samples	E.coli Results (min) - (max)	Total Coliform Results (min) - (max)	Number of HPC Samples	HPC Results (min) - (max)
Raw - RW	53	0 - 4	0 - 100	N/A	N/A
Treated - TW	53	0 - 0	0 - 0	53	0 - 1
Distribution - DW	148	0 - 0	0 - 2	148	0 - 18

Operational Testing

On-Line

Parameter	Range of Results (min # - max #)
Filter #1 Turbidity	0.01-0.65 NTU
Filter #2 Turbidity	0.01-0.86 NTU
Filter #3 Turbidity	0.05-0.34 NTU
Treated Free Chlorine	0.49-2.41 mg/L
Treated Turbidity	0.13-1.03 NTU
Distribution Free Chlorine	0-1.8 mg/L
Fluoride	Fluoride is not added at this facility

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

In-House

Parameter	# of grab samples taken	Range of Results (min # - max #)
Treated Free Chlorine	249	1.14-2.1 mg/L
Treated Turbidity	249	0.09-0.21 NTU
Treated pH	249	6.42-7.22
Treated Colour	249	0-0 TCU
Treated Aluminum	249	0-0.01 mg/L
Distribution Free Chlorine	148	0.35-1.49 mg/L

Laboratory

Parameter	# of grab samples taken	Range of Results (min # - max #)
Fluoride	Fluoride is not used at this facility	
Treated Alkalinity	12	16-29 mg/L
Treated Colour	12	3-19 TCU
Treated Conductivity	12	116-218 uS/cm
Treated pH	12	6.85-7.62

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

Parameter	Sample Date	Result Value	MAC	MAC Exceedance	½ MAC Exceedance
Antimony: Sb (ug/L) - TW	2013/01/03	< 0.020	6	No	No
Arsenic: As (ug/L) - TW	2013/01/03	< 0.20	25	No	No
Barium: Ba (ug/L) - TW	2013/01/03	15.60	1000	No	No
Boron: B (ug/L) - TW	2013/01/03	8.50	5000	No	No
Cadmium: Cd (ug/L) - TW	2013/01/03	< 0.0030	5	No	No
Chromium: Cr (ug/L) - TW	2013/01/03	0.50	50	No	No
Mercury: Hg (ug/L) - TW	2013/01/03	< 0.010	1	No	No
Selenium: Se (ug/L) - TW	2013/01/03	< 1.00	10	No	No
Sodium: Na (mg/L) - TW	2009/01/08	23.00	20	Yes	Yes
Uranium: U (ug/L) - TW	2013/01/03	0.016	20	No	No
Fluoride Residual: Mean (mg/L) - TW	2013/01/03	< 0.060	1.5	No	No
Nitrite (mg/L) - TW	2013/01/02	< 0.0050	1	No	No
Nitrite (mg/L) - TW	2013/04/02	< 0.0030	1	No	No
Nitrite (mg/L) - TW	2013/07/02	< 0.0030	1	No	No
Nitrite (mg/L) - TW	2013/10/01	< 0.0030	1	No	No
Nitrate (mg/L) - TW	2013/01/02	0.075	10	No	No
Nitrate (mg/L) - TW	2013/04/02	0.14	10	No	No
Nitrate (mg/L) - TW	2013/07/02	0.12	10	No	No
Nitrate (mg/L) - TW	2013/10/01	0.15	10	No	No

Lead Sampling:

The Lead Sampling Program is required under O.Reg 170/03. This system is under reduced sampling. The next lead samples will be collected in 2015.

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

Parameter	Sample Date	Result Value	MAC	MAC Exceedance	½ MAC Exceedance
Alachlor (ug/L) - TW	2013/01/03	< 0.020	5	No	No
Aldicarb (ug/L) - TW	2013/01/03	< 0.010	9	No	No
Aldrin + Dieldrin (ug/L) - TW	2013/01/03	< 0.010	0.07	No	No
Atrazine + N-dealkylated metabolites (ug/L) - TW	2013/01/03	< 0.010	5	No	No
Azinphos-methyl (ug/L) - TW	2013/01/03	< 0.020	20	No	No
Bendiocarb (ug/L) - TW	2013/01/03	< 0.010	40	No	No
Benzene (ug/L) - TW	2013/01/03	< 0.32	5	No	No
Benzo(a)pyrene (ug/L) - TW	2013/01/03	< 0.0040	0.01	No	No
Bromoxynil (ug/L) - TW	2013/01/03	< 0.33	5	No	No
Carbaryl (ug/L) - TW	2013/01/03	< 0.010	90	No	No
Carbofuran (ug/L) - TW	2013/01/03	< 0.010	90	No	No
Carbon Tetrachloride (ug/L) - TW	2013/01/03	< 0.16	5	No	No
Chlordane:Total (ug/L) - TW	2013/01/03	< 0.010	7	No	No
Chlorpyrifos (ug/L) - TW	2013/01/03	< 0.020	90	No	No
Cyanazine (ug/L) - TW	2013/01/03	< 0.030	10	No	No
Diazinon (ug/L) - TW	2013/01/03	< 0.020	20	No	No
Dicamba (ug/L) - TW	2013/01/03	< 0.20	120	No	No
1,2-Dichlorobenzene (ug/L) - TW	2013/01/03	< 0.41	200	No	No
1,4-Dichlorobenzene (ug/L) - TW	2013/01/03	< 0.36	5	No	No
Dichlorodiphenyltrichloroethane(DDT) + metabolites (ug/L) - TW	2013/01/03	< 0.010	30	No	No
1,2-Dichloroethane (ug/L) - TW	2013/01/03	< 0.35	5	No	No
1,1-Dichloroethylene (ug/L) - TW	2013/01/03	< 0.33	14	No	No
Dichloromethane (ug/L) - TW	2013/01/03	< 0.35	50	No	No
2,4-Dichlorophenol (ug/L) - TW	2013/01/03	< 0.15	900	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW	2013/01/03	< 0.19	100	No	No
Diclofop-methyl (ug/L) - TW	2013/01/03	< 0.40	9	No	No
Dimethoate (ug/L) - TW	2013/01/03	< 0.030	20	No	No
Dinoseb (ug/L) - TW	2013/01/03	< 0.36	10	No	No
Diquat (ug/L) - TW	2013/01/03	< 1.00	70	No	No
Diuron (ug/L) - TW	2013/01/03	< 0.030	150	No	No
Glyphosate (ug/L) - TW	2013/01/03	< 6.00	280	No	No

Parameter	Sample Date	Result Value	MAC	MAC Exceedance	½ MAC Exceedance
Heptachlor+Hepachlor Epoxide (ug/L) - TW	2013/01/03	< 0.010	3	No	No
Lindane: (ug/L) - TW	2013/01/03	< 0.010	4	No	No
Malathion (ug/L) - TW	2013/01/03	< 0.020	190	No	No
Methoxychlor (ug/L) - TW	2013/01/03	< 0.010	900	No	No
Metolachlor (ug/L) - TW	2013/01/03	< 0.010	50	No	No
Metribuzin (ug/L) - TW	2013/01/03	< 0.020	80	No	No
Monochlorobenzene (ug/L) - TW	2013/01/03	< 0.30	80	No	No
Paraquat (ug/L) - TW	2013/01/03	< 1.00	10	No	No
Parathion (ug/L) - TW	2013/01/03	< 0.020	50	No	No
Pentachlorophenol (ug/L) - TW	2013/01/03	< 0.15	60	No	No
Phorate (ug/L) - TW	2013/01/03	< 0.010	2	No	No
Picloram (ug/L) - TW	2013/01/03	< 1.00	190	No	No
Polychlorinated Bichenysl(PCB) (ug/L) - TW	2013/01/03	< 0.040	3	No	No
Prometryne (ug/L) - TW	2013/01/03	< 0.030	1	No	No
Simazine (ug/L) - TW	2013/01/03	< 0.010	10	No	No
THM (ug/L) - DW	2013	38.50	100	No	No
Temephos (ug/L) - TW	2013/01/03	< 0.010	280	No	No
Terbufos (ug/L) - TW	2013/01/03	< 0.010	1	No	No
Tetrachloroethylene (ug/L) - TW	2013/01/03	< 0.35	30	No	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW	2013/01/03	< 0.14	100	No	No
Triallate (ug/L) - TW	2013/01/03	< 0.010	230	No	No
Trichloroethylene (ug/L) - TW	2013/01/03	< 0.44	5	No	No
2,4,6-Trichlorophenol (ug/L) - TW	2013/01/03	< 0.25	5	No	No
2,4,5-Trichlorophenoxy acetic acid (ug/L) - TW	2013/01/03	< 0.22	280	No	No
Trifluralin (ug/L) - TW	2013/01/03	< 0.020	45	No	No
Vinyl Chloride (ug/L) - TW	2013/01/03	< 0.17	2	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	238
Operational Maintenance Work Orders Completed	31
Weekly Maintenance Work Orders Completed	348
Corrective Maintenance Work Orders Completed	15

Maintenance Highlights

WO #	Comments
2921572	Replace gasket for Chlorine Gas Emergency Repair Kit.
2732453	2013 Small water system sampling for Madawaska Valley (Combermere Hall and Mission House Museum and Gallery) as per Section 4.11 of our services agreement.
2854185	DWQMS External Audit by SAI Group
2796383	Aspec on-site to make repairs to the facility SCADA system
2683625	Video Inspection of intake structure.

Watermain Breaks

Location	Date of Incident	Corrective Action Taken
Queen Street	19-Jan-2013	Do-All Construction on-site and made repairs to watermain
127 Dunn Street	21-Feb-2013	Eastway Construction on-site and made repairs to watermain
516 Queen Street	02-Mar-2013	Do-All Construction on-site and made repairs to watermain
Bay Street	10-Dec-2013	EMI on-site and made repairs to watermain

QEMS

The Ontario Clean Water Agency has received Full scope accreditation. There was a surveillance audit completed March 13, 2013. There were no non-conformances identified. The Internal Audit and Management Review were completed. Minutes from the Management Review were provided to the Township on September 25, 2013.

Water Taking and Transfer Data

2013 Data was submitted electronically on January 23, 2014 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. Below is a summary of the sample results.

Location	Number of Samples	E.coli Results (min) - (max)	Total Coliform Results (min) – (max)	Number of HPC Samples	HPC Results (min) - (max)
Combermere Community Hall	12	0 - 0	0 - 0	N/A	N/A
Mission House Museum & Gallery	9*	0 - 0	0 - 0	N/A	N/A

*samples were not collected in February, March and April because the piping in the building was frozen.

Appendix A

Annual Record of Water Taking Report

Personal information contained on this form is collected under the authority of the Ontario Water Resources Act, Section 20. The Purpose of the form is to record details and information about the taking of water annually. Questions should be directed to the respective hub office in your area.

Les renseignements personnels qui figurent dans le présent formulaire sont recueillis en vertu de l'article 20 de la Loi sur les ressources en eau de l'Ontario. Ce formulaire sert à dossiers les détails et les renseignements concernant la prise d'eau annuelle. Prière d'adresser toutes questions au personnel du bureau régional de votre secteur.

Year(Année): 2013 Permit No.(N° de permis): 87P4106 Source: Lake Kamanisgeg
 Location: RW - Raw Water

Name of Permittee: Town of Barry,s Bay Mailing Address: 117 Lakeshore Dr.
Nom du titulaire du permis Adresse postale

Location Of Taking: Twp. or Municipality: Concession: Lot:
Lieu de la prise d'eau Canton ou municipalité
 5 Trader Lane (Sherwood Township) Barry's Bay 5 28

	Jan/2013	Feb/2013	Mar/2013	Apr/2013	May/2013	Jun/2013	Jul/2013	Aug/2013	Sep/2013	Oct/2013	Nov/2013	Dec/2013	<-- Total -->	<-- Avg. -->	<-- Max. -->	<-- Criteria-->
Total Hours of Taking	246.8	213.0	232.2	222.5	245.1	236.3	260.0	260.8	226.6	242.0	203.7	231.4	2,820.4	235.03		
Avg Daily Taking(m3)	402.48	384.32	376.03	375.3	398.48	397.67	422.94	424.1	381.23	390.32	342.1	375.87		389.24		2,500.0
Total Amt of Taking(m3)	12,477.0	10,761.0	11,657.0	11,259.0	12,353.0	11,930.0	13,111.0	13,147.0	11,437.0	12,100.0	10,263.0	11,652.0	142,147.0			
Max Daily Flow(m3)	700.0	887.0	599.0	518.0	678.0	563.0	701.0	637.0	579.0	833.0	523.0	763.0			887.0	2,500.0
Avg Daily Rate of Taking(L/sec)	4.66	4.45	4.35	4.34	4.61	4.6	4.9	4.91	4.41	4.52	3.96	4.35		4.51		
Peak Daily Rate of Taking(L/sec)	14.2	14.2	14.2	14.3	14.3	14.4	14.2	14.2	14.4	14.2	14.3	14.2			14.4	34.5
Peak Daily Rate of Taking(L/min)	852.0	852.0	852.0	858.0	858.0	864.0	852.0	852.0	864.0	852.0	858.0	852.0			864.0	1,600.0

Appendix B

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 23, 2014 11:28 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 | 2014/01/23

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Annual Water Taking Report

For the Year 2013

Raw Flow: Sum (m3/d)

Municipality: Village of Barry's Bay	Year: 2013
Facility Name: [5972] - Barry's Bay Water Treatment Plant & Distribution System	Water Source: Lake Kamanisseg
Works: [210000942] - Barry's Bay Water Treatment Plant & Distribution System	Total Design Capacity (m3/day): 2,980.00
Classification: Class 1 Water Distribution, Class 2 Water Treatment	Population Served: 1,055

January	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
RW - Raw Water	502.000	261.000	261.000	301.000	301.000	301.000	499.000	336.000	440.000	379.000	315.000	315.000	315.000	533.000	289.000	
	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
RW - Raw Water	417.000	381.000	700.000	700.000	700.000	235.000	396.000	391.000	421.000	419.000	419.000	419.000	330.000	516.000	255.000	430.000
February	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
RW - Raw Water	296.000	296.000	296.000	510.000	292.000	462.000	278.000	318.000	318.000	318.000	474.000	306.000	407.000	239.000	509.000	
	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
RW - Raw Water	509.000	352.000	352.000	370.000	887.000	266.000	389.000	389.000	389.000	351.000	493.000	251.000	444.000			

Annual Water Taking Report For the Year 2013

March	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
RW - Raw Water	524.000	524.000	524.000	251.000	444.000	248.000	405.000	335.000	335.000	335.000	512.000	202.000	527.000	184.000	319.000	
	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
RW - Raw Water	319.000	319.000	599.000	141.000	459.000	254.000	396.000	396.000	396.000	380.000	277.000	571.000	360.000	360.000	360.000	401.000
April	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
RW - Raw Water	401.000	304.000	412.000	288.000	412.000	412.000	412.000	289.000	422.000	396.000	210.000	349.000	349.000	349.000	447.000	
	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
RW - Raw Water	323.000	398.000	373.000	362.000	362.000	362.000	463.000	321.000	425.000	436.000	416.000	416.000	416.000	518.000	216.000	
May	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
RW - Raw Water	526.000	392.000	480.000	480.000	480.000	228.000	503.000	362.000	368.000	320.000	320.000	320.000	598.000	367.000	260.000	
	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
RW - Raw Water	678.000	416.000	416.000	391.000	391.000	127.000	484.000	231.000	353.000	353.000	353.000	618.000	241.000	480.000	389.000	428.000
June	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
RW - Raw Water	428.000	428.000	390.000	390.000	372.000	392.000	435.000	435.000	435.000	229.000	416.000	302.000	512.000	348.000	348.000	

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	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
RW - Raw Water	348.000	410.000	366.000	382.000	372.000	451.000	451.000	451.000	349.000	300.000	563.000	294.000	444.000	444.000	445.000	
July	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
RW - Raw Water	445.000	159.000	632.000	342.000	468.000	468.000	468.000	193.000	624.000	237.000	701.000	460.000	460.000	460.000	279.000	
	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
RW - Raw Water	641.000	389.000	416.000	458.000	458.000	458.000	222.000	385.000	444.000	404.000	473.000	473.000	473.000	114.000	584.000	323.000
August	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
RW - Raw Water	406.000	449.000	449.000	449.000	449.000	224.000	431.000	393.000	457.000	457.000	457.000	78.000	626.000	219.000	609.000	
	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
RW - Raw Water	445.000	445.000	445.000	304.000	316.000	637.000	350.000	485.000	485.000	485.000	220.000	530.000	399.000	576.000	436.000	436.000
September	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
RW - Raw Water	436.000	436.000	151.000	474.000	369.000	428.000	428.000	428.000	357.000	323.000	506.000	354.000	382.000	382.000	382.000	
	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
RW - Raw Water	297.000	446.000	339.000	392.000	306.000	306.000	306.000	579.000	482.000	382.000	240.000	458.000	458.000	458.000	152.000	

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October	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
RW - Raw Water	833.000	399.000	411.000	379.000	379.000	379.000	436.000	355.000	381.000	437.000	353.000	353.000	353.000	353.000	443.000	
	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
RW - Raw Water	372.000	416.000	373.000	373.000	373.000	282.000	412.000	371.000	365.000	349.000	349.000	349.000	459.000	347.000	295.000	371.000
November	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
RW - Raw Water	412.000	412.000	412.000	326.000	326.000	181.000	431.000	415.000	415.000	359.000	359.000	50.000	521.000	323.000	273.000	
	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
RW - Raw Water	273.000	273.000	395.000	297.000	394.000	337.000	310.000	310.000	310.000	523.000	258.000	445.000	307.000	308.000	308.000	
December	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
RW - Raw Water	308.000	477.000	302.000	374.000	334.000	302.000	302.000	302.000	763.000	537.000	354.000	256.000	334.000	334.000	334.000	
	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
RW - Raw Water	522.000	309.000	394.000	243.000	374.000	374.000	374.000	658.000	328.000	328.000	328.000	301.000	301.000	301.000	587.000	317.000