

Merrickville Drinking Water System

2015 Annual Water Report

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

Prepared For: The Village of Merrickville-Wolford

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

Report Availability

This system does not serve more than 10,000 residence and the annual reports will be available to residence at the Village of Merrickville-Wolford Municipal Office. Notification will be at the Municipal Office and copies provided free of charge if requested.

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

Drinking-Water System Number:	220001227
Drinking-Water System Name:	Merrickville Drinking Water System
Drinking-Water System Owner:	Village of Merrickville-Wolford
Drinking-Water System Category:	Large-Municipal Residential
Period being reported:	January 01 to December 31, 2015

System Process Description

Merrickville WSS has three municipal wells that pump groundwater into an underground reservoir.

Sodium Hypochlorite is added to the well discharge for maximum detention time.

The treated water is pumped to the 1000 residents through a distribution system by a continuously running duty high lift pump

Treatment Chemicals used during the reporting year:

Chemical Name	Use	Supplier
Sodium Hypochlorite	Disinfection	Brenntag

Summary of Non-Compliance

Adverse Water Quality Incidents

AWQI #	Date	Legislation	Problem	Details	Corrective Action Taken
There were no AWQI's 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 were no non-compliances identified for the reporting period.				

The following items were identified by the most recent Ministry of the Environment and Climate Change Inspection Report: 1-BZOTW

Drinking Water Legislation	List the requirement(s) the system failed to meet	Specify Compliance date(s)	Describe the measures taken to correct the failure	Status (complete or outstanding)
O. Reg. 170/03	All changes to the system registration information were not provided within ten (10) days of the change. Action(s) Required: No actions required. Mr. Trombley, PCT-OCWA submitted these changes to the ministry on December 10, 2015	N/A	No further actions required	Complete

Flows

The following table is a summary of the rated capacity flow rates and flow rates approved in the system’s Municipal Drinking Water Licence.

2015	Month Avg. Day Volume (m3/d)	Month Max. Day Volume (m3/d)	Rated Capacity (m3/d)	Month Max Day Volume (%)
January	491.52	526.0	1880	28.0
February	568.79	743.0	1880	39.5
March	840.87	969.0	1880	51.5
April	815.20	981.0	1880	52.2
May	625.00	671.0	1880	35.7
June	557.20	648.0	1880	34.5
July	521.03	563.0	1880	29.9
August	534.26	601.0	1880	32.0
September	576.53	683.0	1880	36.3
October	715.87	997.0	1880	53.0
November	619.33	786.0	1880	41.8
December	319.77	457.0	1880	24.3

Regulatory Sample Results Summary

Microbiological Testing

	No. of Samples Collected	Range of E.Coli		Range of Total Coliform Results		Number of HPC Samples	Range of HPC Results	
		MIN	MAX	MIN	MAX		MIN	MAX
Raw Well 1	52	0	0	0	0	28	10	210

	No. of Samples Collected	Range of E.Coli		Range of Total Coliform Results		Number of HPC Samples	Range of HPC Results	
		MIN	MAX	MIN	MAX		MIN	MAX
Raw Well 2	52	0	0	0	0	12	10	20
Raw Well 4	52	0	0	0	0	11	10	10
Treated Water	52	0	0	0	0	52	2	50
Distribution System	137	0	0	0	0	52	2	20

Operational Testing

	No. of Samples Collected	Range of Results	
		Minimum	Maximum
Turbidity, In-House (NTU) - RW1	13	0.43	0.77
Turbidity, In-House (NTU) - RW2	13	0.33	0.97
Turbidity, In-House (NTU) - RW4	13	0.29	0.77
Turbidity, On-Line (NTU) - TW	8760	0	1.9995
Turbidity, In-House (NTU) - TW	1	1.01	1.01
Free Chlorine Residual, On-Line (mg/L) - TW	8760	0	1.9952
Free Chlorine Residual, In-House (mg/L) - TW	147	0.69	1.12
Free Chlorine Residual, TW Field (mg/L) Lab Upload - TW	32	0.69	0.99
Free Chlorine Residual, On-Line (mg/L) - DW	8760	0	1.9995

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

Treated Water Parameter	Result Value Range (min – max)	Unit of Measure
Alkalinity	269 – 285	mg/L
Conductivity	631 – 741	umho/cm
Colour	< 2.0 – 2.0	TCU
Total Hardness	280 - 321	mg/L
pH	7.77 – 7.89	Not applicable

Additional Legislated Samples

Legal Document	Date of Issuance	Parameter	Date Sampled	Result	Unit of measure
There are no additional sampling requirements					

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

TREATED WATER	Sample Date (mm/dd/yyyy)	Sample Result	MAC	No. of Exceedances	
				MAC	1/2 MAC
Antimony: Sb (ug/L) - TW	28/01/2014	< 0.1	6.0	No	No
Arsenic: As (ug/L) - TW	28/01/2014	0.8	25.0	No	No
Barium: Ba (ug/L) - TW	28/01/2014	97	1000.0	No	No
Boron: B (ug/L) - TW	28/01/2014	129	5000.0	No	No
Cadmium: Cd (ug/L) - TW	28/01/2014	< 0.02	5.0	No	No
Chromium: Cr (ug/L) - TW	28/01/2014	< 2.0	50.0	No	No
Mercury: Hg (ug/L) - TW	28/01/2014	< 0.02	1.0	No	No
Selenium: Se (ug/L) - TW	28/01/2014	2	10.0	No	No
Uranium: U (ug/L) - TW	28/01/2014	0.99	20.0	No	No
Additional Inorganics					
Fluoride (mg/L) - TW	13/10/2015	0.4	1.5	No	No
Nitrite (mg/L) - TW	12/01/2015	<MDL 0.1	1.0	No	No
Nitrite (mg/L) - TW	07/04/2015	<MDL 0.1	1.0	No	No
Nitrite (mg/L) - TW	06/07/2015	<MDL 0.1	1.0	No	No
Nitrite (mg/L) - TW	13/10/2015	<MDL 0.1	1.0	No	No
Nitrate (mg/L) - TW	12/01/2015	0.1	10.0	No	No
Nitrate (mg/L) - TW	07/04/2015	0.1	10.0	No	No
Nitrate (mg/L) - TW	06/07/2015	0.1	10.0	No	No
Nitrate (mg/L) - TW	13/10/2015	<MDL 0.1	10.0	No	No
Sodium: Na (mg/L) - TW	20/01/2011	31.7	20*	Yes	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

This facility is sampling under the exemption requirements of O.Reg 170/03 sampling program.

Location Type	Number of Samples	Range of Results		MAC (ug/L)	Number of Exceedances
		MIN	MAX		
Distribution System - Lead Results (ug/L)	2	0.28	0.53	10	0
Distribution System - Alkalinity (mg/L)	2	271	272		

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

TREATED WATER	Sample Date (mm/dd/yyyy)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
Alachlor (ug/L) - TW	28/01/2014	< 0.3	5.00	No	No
Aldicarb (ug/L) - TW	28/01/2014	< 3.0	9.00	No	No
Aldrin+Dieldrin (ug/L) - TW	28/01/2014	< 0.02	0.70	No	No
Atrazine + N-dealkylated metabolites (ug/L) - TW	17/01/2011	< 0.5	5.00	No	No
Azinphos-methyl (ug/L) - TW	28/01/2014	< 1.0	20.00	No	No
Bendiocarb (ug/L) - TW	28/01/2014	< 3.0	40.00	No	No
Benzene (ug/L) - TW	03/02/2014	< 0.5	5.00	No	No
Benzo(a)pyrene (ug/L) - TW	28/01/2014	< 0.005	0.01	No	No
Bromoxynil (ug/L) - TW	28/01/2014	< 0.3	5.00	No	No
Carbaryl (ug/L) - TW	28/01/2014	< 3.0	90.00	No	No
Carbofuran (ug/L) - TW	28/01/2014	< 1.0	90.00	No	No
Carbon Tetrachloride (ug/L) - TW	03/02/2014	< 0.2	5.00	No	No
Chlordane: Total (ug/L) - TW	28/01/2014	< 0.04	7.00	No	No
Chlorpyrifos (ug/L) - TW	28/01/2014	< 0.5	90.00	No	No
Cyanazine (ug/L) - TW	28/01/2014	< 0.5	10.00	No	No
Diazinon (ug/L) - TW	28/01/2014	< 1.0	20.00	No	No
Dicamba (ug/L) - TW	28/01/2014	< 5.0	120.00	No	No
1,2-Dichlorobenzene (ug/L) - TW	03/02/2014	< 0.1	200.00	No	No
1,4-Dichlorobenzene (ug/L) - TW	03/02/2014	< 0.2	5.00	No	No
DDT + metabolites (ug/L) - TW	28/01/2014	< 0.01	30.00	No	No
1,2-Dichloroethane (ug/L) - TW	03/02/2014	< 0.1	5.00	No	No
1,1-Dichloroethylene (ug/L) - TW	17/01/2011	< 0.1	14.00	No	No
Dichloromethane (Methylene Chloride) (ug/L) - TW	03/02/2014	< 0.3	50.00	No	No
2,4-Dichlorophenol (ug/L) - TW	28/01/2014	< 0.1	900.00	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW	28/01/2014	< 5.0	100.00	No	No
Diclofop-methyl (ug/L) - TW	28/01/2014	< 0.5	9.00	No	No
Dimethoate (ug/L) - TW	28/01/2014	< 1.0	20.00	No	No
Dinoseb (ug/L) - TW	28/01/2014	< 0.5	10.00	No	No
Diquat (ug/L) - TW	28/01/2014	< 5.0	70.00	No	No
Diuron (ug/L) - TW	28/01/2014	< 5.0	150.00	No	No

TREATED WATER	Sample Date (mm/dd/yyyy)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
Glyphosate (ug/L) - TW	28/01/2014	< 25.0	280.00	No	No
Heptachlor+hepachlor epoxide (ug/L) - TW	28/01/2014	< 0.1	3.00	No	No
Lindane (ug/L) - TW	28/01/2014	< 0.1	4.00	No	No
Malathion (ug/L) - TW	28/01/2014	< 5.0	190.00	No	No
Methoxychlor (ug/L) - TW	28/01/2014	< 0.1	900.00	No	No
Metolachlor (ug/L) - TW	28/01/2014	< 3.0	50.00	No	No
Metribuzin (ug/L) - TW	28/01/2014	< 3.0	80.00	No	No
Monochlorobenzene (Chlorobenzene) (ug/L) - TW	03/02/2014	< 0.2	80.00	No	No
Paraquat (ug/L) - TW	28/01/2014	< 1.0	10.00	No	No
Parathion (ug/L) - TW	28/01/2014	< 3.0	50.00	No	No
PCB (ug/L) - TW	28/01/2014	< 0.05	3.00	No	No
Pentachlorophenol (ug/L) - TW	28/01/2014	< 0.1	60.00	No	No
Phorate (ug/L) - TW	28/01/2014	< 0.3	2.00	No	No
Picloram (ug/L) - TW	28/01/2014	< 5.0	190.00	No	No
Prometryne (ug/L) - TW	28/01/2014	< 0.1	1.00	No	No
Simazine (ug/L) - TW	28/01/2014	< 0.5	10.00	No	No
Temephos (ug/L) - TW	28/01/2014	< 10.0	280.00	No	No
Terbufos (ug/L) - TW	28/01/2014	< 0.3	1.00	No	No
Tetrachloroethylene (ug/L) - TW	03/02/2014	< 0.2	30.00	No	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW	28/01/2014	< 0.1	100.00	No	No
Triallate (ug/L) - TW	28/01/2014	< 10.0	230.00	No	No
Trichloroethylene (ug/L) - TW	03/02/2014	< 0.1	50.00	No	No
2,4,6-Trichlorophenol (ug/L) - TW	28/01/2014	< 0.1	5.00	No	No
2,4,5-T (ug/L) - TW	28/01/2014	< 10.0	280.00	No	No
Trifluralin (ug/L) - TW	28/01/2014	< 0.5	45.00	No	No
Vinyl Chloride (ug/L) - TW	03/02/2014	< 0.2	2.00	No	No
DISTRIBUTION WATER					
Trihalomethane: Total (ug/L) Annual Average - DW1	01/01/2015	13.775	100.00	No	No
Trihalomethane: Total (ug/L) Annual Average - DW2	01/01/2015	13.05	100.00	No	No

Maintenance Summary

WO#	Completion Date	Comments
3260010	12/17/2015	Distribution Tools and Supplies. Service Valve/Standpipe repaired.
3299608	07/07/2015	One 1 1/2" Curbstop and Two Couplers - Replaced

3335731	02/10/2015	Repair Water Service to 28 St John St, Dr. McGregor Medical Centre.
3437852	08/03/2015	Pocket Proreader – Purchased new unit, used for meter reads
3369902	09/24/2015	Fire pump controls-Repaired
3378994	09/01/2015	Restock Residential Meters & Supplies
3378993	09/01/2015	Alarm System Keypad replaced
3417769	10/06/2015	Unit Heater for the Main Water Plant- Replaced
3417768	01/05/2016	Village Office plumbing flushing system-Installed to improve water quality.
3444126	11/18/2015	Well #2 Pump - Refurbished