



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

**MOOREFIELD WATER SUPPLY SYSTEM
Large Municipal Residential Drinking Water System**

**SCHEDULE 22
SUMMARY REPORT**

For the period of

JANUARY 01, 2009 TO DECEMBER 31, 2009

**Prepared by the Ontario Clean Water Agency
For the Township of Mapleton**

February 23, 2010

SUMMARY

This report is a summary of water quality and quantity information submitted in accordance with schedule 22 of Ontario's Drinking Water System regulation for the reporting period of January 1st 2009 to December 31, 2009 for the Moorefield Water Supply System, located in the Township of Mapleton

The summary includes:

1. Any requirements of the Act and Regulation, Orders or System Approval (s) that the system failed to meet during the reporting period and the measures taken to correct each failure.
2. A summary of the quantities and flow rates of water supplied during the reporting period, including monthly averages and maximum daily flows.
3. A comparison of the average and monthly maximum daily flows to the approved capacity specified in the System Approval.

ISSUES OF NON-COMPLIANCE

The following tables list the requirements of the Act, Regulations, System Approval (s) and any Order that the system failed to meet during the reporting period and the measures taken to correct each failure:

Drinking Water Legislation	Requirement(s) the system failed to meet	Duration	Corrective Action(s)	Status
System Certificate of Approval # 6792-6QAHT3	The owner was not in compliance with the conditions associated with maximum flow rate or the rated capacity conditions in the Permit, Licence or Approval issued under Part V of the SDWA.	Aug 9/07 – Dec 3/08	By April 30, 2009, the Township of Mapleton shall forward to the Guelph District Office of the MOE, and Action Plan including milestone dates to address the integrity of data collection system located at the Moorefield Well Supply drinking water system, as required by Part 5 of Certificate of Approval 6792-6QAHT3.	Completed
Ontario Reg. 170/03	The owner was not maintaining the production well(s) in a manner sufficient to prevent entry into the well of surface water and other foreign materials.	Aug 9/07 – Dec 3/08	The Township of Mapleton is to ensure proper grading at the base of well PW1 to prevent the collection and ponding of surface water. A digital photograph of completed remedial works shall be forwarded to the Guelph Office of the MOE within 2 weeks of completion of the re-grading or not later than April 30, 2009.	Completed

	Measures were not in place to protect the water source in accordance with a Permit, Licence or Approval issued under Part V of the SDWA.	Aug 9/07 – Dec 3/08	The Township of Mapleton shall ensure that all municipally owned wells are inspected at a frequency clearly determined by the Township of Mapleton, as per item 6.5 (vii) of Certificate of Approval 6792-6QAHT3 and ensure documentation of all well inspections are readily available.	Completed
	Records of flows and any capacity exceedences were not made in accordance with the Permit, Licence or Approval issued under Part V of the SDWA.	Aug 9/07 – Dec 3/08	The Township of Mapleton shall ensure that all flow exceedences are documented in accordance with item 5.2 of Certificate of Approval 6792-6QAHT3.	Completed
	The Operator-In-Charge had not ensured that all equipment used in the processes was monitored, inspected, and evaluated.	Aug 9/07 – Dec 3/08	The Township of Mapleton shall immediately ensure that the Operator-in-Charge evaluates the results of the monitoring, inspecting and testing of the drinking water treatment equipment, as required by Section 26(2) of Ontario Regulation 128/04.	Completed
	Raw water samples were not being collected and analyzed at the appropriate frequency.	Aug 9/07 – Dec 3/08	The Township of Mapleton shall ensure that all required sampling occurs at the required frequencies by reviewing the sampling frequency with the operating authority.	Completed
	All microbiological water quality monitoring requirements for distribution samples were not being met.	Aug 9/07 – Dec 3/08	The Township of Mapleton shall ensure that all required sampling occurs at the required frequencies by reviewing the sampling frequency with the operating authority.	Completed
	All microbiological water quality monitoring requirements for treated samples were not being met.	Aug 9/07 – Dec 3/08	The Township of Mapleton shall ensure that all required sampling occurs at the required frequencies by reviewing the sampling frequency with the operating authority.	Completed
	All sampling requirements for lead prescribed by schedule 15.1 of O.Reg. 170/03 were not met.	Aug 9/07 – Dec 3/08	For all future sampling events required by Schedule 15.1 of O.Reg. 170/03, the Township of Mapleton shall ensure that documentation is created to illustrate compliance with Section 15.1-9(1) of Schedule 15.1, O.Reg 170/03; such records shall be made readily available.	Completed

	Operators were not examining continuous monitoring test results or they were not examining the results within 72 hours of the test.	Aug 9/07 – Dec 3/08	The Township of Mapleton shall ensure that test results are examined within 72 hours, in accordance with Section 6-5(1)(3) of Schedule 6, O.Reg. 170/03. It is also recommended that electronic data be downloaded from the PLC on a monthly basis to ensure the integrity of the data.	Completed
	All continuous monitoring equipment that was being utilized to fulfil O.Reg. 170/03 requirements was not recording data with the prescribed format.	Aug 9/07 – Dec 3/08	The Township of Mapleton shall forward to the MOE, and Action Plan complete with milestone dates by April 30, 2009. The Action Plan shall include measures to ensure compliance with Section 6-5(1)(1)&(2) of Schedule 6, O.Reg. 170/03.	Completed
	Annual reports did not include the required information.	Aug 9/07 – Dec 3/08	The Township of Mapleton shall ensure that the Annual Report is corrected to include all required information as per Section 11(6) of O.Reg. 170/03. A copy of the amended report shall be forwarded to the MOE by April 30, 2009.	Completed
	Summary Reports for municipal council were not completed on time, did not include the required content, and/or were not distributed in accordance with the regulatory requirements.	Aug 9/07 – Dec 3/08	The Township of Mapleton shall ensure that the 2007 Summary Report includes the correct information as required by Schedule 22 of O.Reg. 170/03. A copy of the amended report shall be forwarded to the MOE by April 30, 2009.	Completed
Safe Drinking Water Act	The requirements of the Safe Drinking Water Act were met during this reporting period.			
Provincial Officer's Order	There was a Provincial Officer's Order (1-7DS7V) issued during this reporting period.			

ASSESSMENT OF FLOW RATES AND QUANTITIES OF WATER SUPPLIED

The following table lists the quantities and flow rates of the water supplied during the reporting period covered by this report, including monthly average and maximum daily flows and a comparison to the rated capacity and flow rates specified in the system approval:

Summary of Raw Water Flows – Moorefield Pumphouse

Moorefield Well # 1 (Rated Capacity 950.4 m³/day) (Rated Daily Peak 660 L/min)

MONTH	Avg. Daily Volume m ³	% Of Approved Volume	MAX Daily Volume m ³ /d	% Of Approved Volume	Peak Flow Rate L/min	% Of Approved Flow Rate
JANUARY	71.63	7.54	76.49	8.05	636	96.36
FEBRUARY	71.39	7.51	66.46	6.99	636	96.36
MARCH	63.81	6.71	69.26	7.29	636	96.36
APRIL	63.84	6.72	64.17	6.75	636	96.36
MAY	63.84	6.72	64.50	6.79	636	96.36
JUNE	61.96	6.52	65.62	6.90	642	97.27
JULY	60.39	6.35	61.96	6.52	642	97.27
AUGUST	54.64	5.75	57.72	6.07	636	96.36
SEPTEMBER	56.42	5.94	63.23	6.65	636	96.36
OCTOBER	54.91	5.78	58.99	6.21	636	96.36
NOVEMBER	52.84	5.56	60.38	6.35	636	96.36
DECEMBER	56.04	5.90	65.75	6.92	630	95.45

Moorefield Well # 2 (Rated Capacity 604.8 m³/day) (Rated Daily Peak 420 L/min)

MONTH	Avg. Daily Volume m ³	% Of Approved Volume	MAX Daily Volume m ³ /d	% Of Approved Volume	Peak Flow Rate L/min	% Of Approved Flow Rate
JANUARY	76.49	12.65	103.05	17.04	408	97.14
FEBRUARY	66.46	10.99	109.57	18.12	408	97.14
MARCH	69.26	11.45	115.18	19.04	408	97.14
APRIL	64.17	10.61	93.18	15.41	408	97.14
MAY	64.50	10.66	99.62	16.47	408	97.14
JUNE	65.62	10.85	101.02	16.70	414	98.57
JULY	61.96	10.24	93.50	15.46	414	98.57
AUGUST	57.72	9.54	92.60	15.31	408	97.14
SEPTEMBER	63.23	10.45	118.05	19.52	414	98.57
OCTOBER	58.99	9.75	93.90	15.53	414	98.57
NOVEMBER	60.38	9.98	92.08	15.22	414	98.57
DECEMBER	65.75	10.87	98.21	16.24	414	98.57



February 22, 2010

Mr. Larry Lynch
Director of Public Works
Township of Mapleton
P.O. Box 160
Drayton, ON
N0G 1P0

Re: Section 11 Reports of Ontario Regulation 170/03

Dear Mr. Lynch;

Please find attached the 2009 Annual Report for the Moorefield Water System, water works # 220069732. The reports have been prepared as per Section 11 of O.Reg 170/03 by the Ontario Clean Water Agency on behalf of the Township of Mapleton. These reports no longer have to be submitted to the Ministry of the Environment.

As per O.Reg 170/03; Section 12 (4); these reports must be made available by any member of the public during normal business hours without charge at the office of the owner or, if the office of the owner is not reasonably convenient to users of water from the system, at a location that is reasonably convenient to those users.

Should you have any further questions regarding the attached report, please contact the undersigned at (519) 941-1938.

Sincerely,

Richard Laliberte
Operations Manager
West Highlands Hub

RL/lb

cc: Lisa Benoit, PCT



Drinking-Water System Number:	260069732	
Drinking-Water System Name:	Moorefield Water System	
Drinking-Water System Owner:	The Corporation of the Township of Mapleton	
Drinking-Water System Category:	Large Municipal Residential	
Period being reported:	January 1, 2009 – December 31, 2009	

<p><u>Complete if your Category is Large Municipal Residential or Small Municipal Residential</u></p> <p>Does your Drinking-Water System serve more than 10,000 people? Yes [] No [x]</p> <p>Is your annual report available to the public at no charge on a web site on the Internet? Yes [x] No []</p> <p>Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.</p> <div style="border: 1px solid black; padding: 5px;"> <p>Office of Township of Mapleton 7275 Sideroad #3, P.O. Box 160 Drayton ON N0G 1P0</p> </div>	<p><u>Complete for all other Categories.</u></p> <p>Number of Designated Facilities served: <div style="border: 1px solid black; padding: 2px; display: inline-block;">N/A</div> </p> <p>Did you provide a copy of your annual report to all Designated Facilities you serve? Yes [] No [] </p> <p>Number of Interested Authorities you report to: <div style="border: 1px solid black; padding: 2px; display: inline-block;">N/A</div> </p> <p>Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility? Yes [] No [] </p>
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Note: For the following tables below, additional rows or columns may be added or an appendix may be attached to the report

List all Drinking-Water Systems (if any), which receive all of their drinking water from your system:

Drinking Water System Name	Drinking Water System Number
N/A	

Did you provide a copy of your annual report to all Drinking-Water System owners that are connected to you and to whom you provide all of its drinking water?
 Yes [] No [] Not Applicable [X]



Indicate how you notified system users that your annual report is available, and is free of charge.

- Public access/notice via the web
- Public access/notice via Government Office
- Public access/notice via a newspaper
- Public access/notice via Public Request
- Public access/notice via a Public Library
- Public access/notice via other method _____

Describe your Drinking-Water System

The Moorefield Water Supply System is a ground water supply, treatment and storage system, serving the Hamlet of Moorefield in the Township of Mapleton. There are two wells, one at 119 and one at 73.2 meters deep, in bedrock within the same aquifer. Both wells are located outdoors, approximately 55 meters east of the pumphouse and are approved to supply water at a maximum flow rate of 660 L/min and 420 L/min from the system.

Before entering the distribution system from these wells, the raw water is treated by adding a disinfectant to protect against microbial contaminants. The water is disinfected with sodium hypochlorite solution (chlorine). Treated water is then pumped from the pumphouse to the water storage standpipe providing a total storage capacity of approximately 387 m³ for equalization and emergency storage and chlorine contact requirements. The treated water, in the water storage standpipe, is distributed by four high lift pumps through 10.16 kilometers of watermain. Residual chlorine levels are maintained in the distribution system to effectively provide disinfection throughout the entire system.

The water system commenced on June 13th 2006.

List all water treatment chemicals used over this reporting period

Sodium Hypochlorite (12% solution) – disinfection

Were any significant expenses incurred to?

- Install required equipment
- Repair required equipment
- Replace required equipment

Please provide a brief description and a breakdown of monetary expenses incurred

Provide details on the notices submitted in accordance with subsection 18(1) of the Safe Drinking-Water Act or section 16-4 of Schedule 16 of O.Reg.170/03 and reported to Spills Action Centre

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date



Microbiological testing done under the Schedule 10, 11 or 12 of Regulation 170/03, during this reporting period.

	Number of Samples	Range of E.Coli Or Fecal Results (min #)-(max #)	Range of Total Coliform Results (min #)-(max #)	Number of HPC Samples	Range of HPC Results (min #)-(max #)
Raw	104	0-0	0-0	N/A	N/A
Treated	52	0-0	0-0	52	0-1.0
Distribution	117	0-0	0-0	117	0-13.0

Operational testing done under Schedule 7, 8 or 9 of Regulation 170/03 during the period covered by this Annual Report.

	Number of Grab Samples	Range of Results (min #)-(max #)
Raw Water		
Turbidity Well #1	12	0.25-0.60 NTU's
Turbidity Well #2	12	0.25-0.67 NTU's
Treated Water		
Chlorine Residual (free)	8760	0-2.59 mg/L
Distribution System		
Chlorine Residual (free)	365	0.39-1.27 mg/L
Fluoride (If the DWS provides fluoridation)	N/A	N/A

NOTE: For continuous monitors use 8760 as the number of samples.

NOTE: Record the unit of measure if it is not milligrams per litre.

Summary of additional testing and sampling carried out in accordance with the requirement of an approval, order or other legal instrument.

Date of legal instrument issued	Parameter	Date Sampled	Result	Unit of Measure
N/A				

Summary of Inorganic parameters tested during this reporting period or the most recent sample results

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Antimony	Jul 15/09	<0.02	ug/l	No
Arsenic	Jul 15/09	0.4	ug/l	No
Barium	Jul 15/09	180	ug/l	No
Boron	Jul 15/09	32.9	ug/l	No
Cadmium	Jul 15/09	<0.003	ug/l	No
Chromium	Jul 15/09	<0.5	ug/l	No
Lead	Mar 16/09	0.36	ug/l	No
Distribution				
Mercury	Jul 15/09	<0.02	ug/l	No
Selenium	Jul 15/09	<1.0	ug/l	No



Sodium	Jul 11/06	12.0	mg/l	Yes
Uranium	Jul 15/09	0.037	ug/l	No
Fluoride	Jul 11/06	0.77	mg/l	No
Nitrite	Jan 26/09	0.005	mg/l	No
	Apr 14/09	0.005		
	Jul 13/09	0.005		
	Oct 19/09	0.005		
Nitrate	Jan 26/09	0.013	mg/l	No
	Apr 14/09	0.013		
	Jul 13/09	0.013		
	Oct 19/09	0.013		

*only for drinking water systems testing under Schedule 15.2; this includes large municipal non-residential systems, small municipal non-residential systems, non-municipal seasonal residential systems, large non-municipal non-residential systems, and small non-municipal non-residential systems

Summary of lead testing under Schedule 15.1 during this reporting period
 (applicable to the following drinking water systems; large municipal residential systems, small municipal residential systems, and non-municipal year-round residential systems)

Location Type	Number of Samples	Range of Lead Results (min#) – (max #)	Number of Exceedances
Plumbing			
Distribution			

Summary of Organic parameters sampled during this reporting period or the most recent sample results

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Alachlor	Jul 15/09	<0.11	ug/l	No
Aldicarb	Jul 15/09	<0.30	ug/l	No
Aldrin + Dieldrin	Jul 15/09	<0.067	ug/l	No
Atrazine + N-dealkylated metabolites	Jul 15/09	<0.12	ug/l	No
Azinphos-methyl	Jul 15/09	<0.21	ug/l	No
Bendiocarb	Jul 15/09	<0.13	ug/l	No
Benzene	Jul 15/09	<0.32	ug/l	No
Benzo(a)pyrene	Jul 15/09	<0.004	ug/l	No
Bromoxynil	Jul 15/09	<0.33	ug/l	No
Carbaryl	Jul 15/09	<0.16	ug/l	No
Carbofuran	Jul 15/09	<0.37	ug/l	No
Carbon Tetrachloride	Jul 15/09	<0.16	ug/l	No
Chlordane (Total)	Jul 15/09	<0.11	ug/l	No
Chlorpyrifos	Jul 15/09	<0.18	ug/l	No
Cyanazine	Jul 15/09	<0.18	ug/l	No
Diazinon	Jul 15/09	<0.081	ug/l	No
Dicamba	Jul 15/09	<0.20	ug/l	No
1,2-Dichlorobenzene	Jul 15/09	<0.41	ug/l	No
1,4-Dichlorobenzene	Jul 15/09	<0.36	ug/l	No



Dichlorodiphenyltrichloroethane (DDT) + metabolites	Jul 15/09	<0.14	ug/l	No
1,2-Dichloroethane	Jul 15/09	<0.35	ug/l	No
1,1-Dichloroethylene (vinylidene chloride)	Jul 15/09	<0.33	ug/l	No
Dichloromethane	Jul 15/09	<0.35	ug/l	No
2-4 Dichlorophenol	Jul 15/09	<0.15	ug/l	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	Jul 15/09	<0.19	ug/l	No
Diclofop-methyl	Jul 15/09	<0.40	ug/l	No
Dimethoate	Jul 15/09	<0.12	ug/l	No
Dinoseb	Jul 15/09	<0.36	ug/l	No
Diquat	Jul 15/09	<1.0	ug/l	No
Diuron	Jul 15/09	<0.087	ug/l	No
Glyphosate	Jul 15/09	<6.0	ug/l	No
Heptachlor + Heptachlor Epoxide	Jul 15/09	<0.11	ug/l	No
Lindane (Total)	Jul 15/09	<0.056	ug/l	No
Malathion	Jul 15/09	<0.091	ug/l	No
Methoxychlor	Jul 15/09	<0.14	ug/l	No
Metolachlor	Jul 15/09	<0.092	ug/l	No
Metribuzin Jul 15/09	Jul 15/09	<0.12	ug/l	No
Monochlorobenzene	Jul 15/09	<0.30	ug/l	No
Paraquat	Jul 15/09	<1.0	ug/l	No
Parathion Jul 15/09	Jul 15/09	<0.18	ug/l	No
Pentachlorophenol	Jul 15/09	<0.15	ug/l	No
Phorate	Jul 15/09	<0.11	ug/l	No
Picloram	Jul 15/09	<0.25	ug/l	No
Polychlorinated Biphenyls(PCB)	Jul 15/09	<0.04	ug/l	No
Prometryne	Jul 15/09	<0.23	ug/l	No
Simazine	Jul 15/09	<0.15	ug/l	No
THM – Distribution (NOTE: show latest annual average) average – 14.5 ug/L	Jan 26/09 Apr 14/09 Jul 13/09 Oct 19/09			
Temephos	Jul 15/09	<0.31	ug/l	No
Terbufos	Jul 15/09	<0.12	ug/l	No
Tetrachloroethylene	Jul 15/09	<0.35	ug/l	No
2,3,4,6-Tetrachlorophenol	Jul 15/09	<0.14	ug/l	No
Triallate	Jul 15/09	<0.10	ug/l	No
Trichloroethylene	Jul 15/09	<0.43	ug/l	No
2,4,6-Trichlorophenol	Jul 15/09	<0.25	ug/l	No
2,4,5-Trichlorophenoxy acetic acid (2,4,5-T)	Jul 15/09	<0.22	ug/l	No
Trifluralin	Jul 15/09	<0.12	ug/l	No
Vinyl Chloride	Jul 15/09	<0.17	ug/l	No



List any Inorganic or Organic parameter(s) that exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards.

Parameter	Result Value	Unit of Measure	Date of Sample
N/A			