SECTION 11 ANNUAL REPORT

Drinking-Water System Number:	**210000194**
Drinking-Water System Name:	**Minden Hills DWS**
Drinking-Water System Owner:	**Township of Minden Hills**
Drinking-Water System Category:	**Large Municipal Residential**
Period being reported:	**January 1, 2015 – December 31, 2015**

Complete if your Category is Large Municipal Residential or Small Municipal Residential

Does your Drinking-Water System serve more than 10,000 people? Yes [ ] No [X]

Is your annual report available to the public at no charge on a web site on the Internet?
Yes [x] No [ ]

Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.

7 Milne Street
Minden, Ontario
K0M 2K0

Complete for all other Categories.

Number of Designated Facilities served:

0

Did you provide a copy of your annual report to all Designated Facilities you serve?
Yes [ ] No [X]

Number of Interested Authorities you report to:

0

Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility?
Yes [ ] No [X]

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
Not Applicable	

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 [X]

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

- **[x] Public access/notice via the web**
- **[ ] Public access/notice via Government Office**
- **[ ] Public access/notice via a newspaper**
- **[x] 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 Minden Well Supply drinking water system consists of a disinfection system that uses liquid sodium hypochlorite injected into the raw water. Continuous monitoring for free chlorine residual and turbidity is carried out prior to the treated water entering the distribution system. Iron and manganese sequestering is accomplished using sodium silicate. Raw flow rate is monitored on both wells using magnetic flow meters. Well two is for standby use only and is exercised weekly to refresh water quality and obtain regulatory samples. A 1500 cubic meter elevated water tower provides storage and augments pressure to the distribution. A backup generator is located at the pumphouse.

List all water treatment chemicals used over this reporting period

Sodium hypochlorite
Sodium silicate

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

n/a

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
2015/02/03	Chlorine	0.06	mg/L	Well pumps locked out, flushed contact pipe, restored chlorine residual.	2015/02/03
2015/02/03	Chlorine	0.04	mg/L	Well pumps locked out, flushed contact pipe, repaired chlorine pumps, restored chlorine residual.	2015/02/03
2015/03/05	Chlorine	0.18	mg/L	Well pumps locked out, flushed contact pipe, repaired chlorine pump, restored chlorine residual.	2015/03/05
2015/07/01	Total Coliforms in distribution	4	cfu/100 mL	Flushed distribution system, resampled.	2015/07/06
2015/12/14	Chlorine	0.03	mg/L	Well pumps locked out, flushed contact pipe, relieve air lock in chemical pump, restored chlorine residual.	2015/12/14
2015/12/21	Chlorine	0.03	mg/L	Well pumps locked out, flushed contact pipe, repaired chemical pump, restored chlorine residual.	2015/12/21
2015/12/30	Chlorine	0.08	mg/L	Well pumps locked out, flushed contact pipe, repaired chemical pump, restored chlorine residual, sampled distribution water.	2016/01/04

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

Location	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 - RW1	52	0 - 0	0 - 0	0	-
Raw - RW2	52	0 - 0	0 - 0	0	-
Treated - TW	54	0 - 0	0 - 0	54	0 – 4
Distribution - DW	160	0 - 0	0 - 4	160	0 - 32

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)
Turbidity Well 1	13	0.11-0.21 NTU
Turbidity Well 2	13	0.23-0.29 NTU
Chlorine (Free) – Treated Water	8760	0.00-4.85 mg/L
Chlorine (Free) - Distribution	7/week minimum	0.50-2.04 mg/L
Fluoride (If DWS provides fluoridation)	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
Reg. 170/03, SDWA 2002	Alkalinity	2015/04/09 2015/04/09 2015/09/28 2015/09/28	151 147 143 144	mg/L

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

Parameter	Sample Date	Result Value	Exceedance
See attached Annual Summary – Schedule 23 and Additional Inorganics	2014/01/20 2015 (quarterly nitrite & nitrate) 2013/01/02 F & Na	See attached Annual Summary – Schedule 23 and Additional Inorganics	No

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 (ug/L) (min)–(max)	Number of Exceedances
Plumbing	n/a		
Distribution	n/a		

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

Parameter	Sample Date	Result Value	Exceedance
See attached Annual Summary – Schedule 24	2014/01/13 2014/01/20	See attached Annual Summary – Schedule 24	No
THM - (ug/L)	2015 quarterly	Range 5.8 – 26 Running average 17	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			

The Ontario Clean Water Agency aims to strictly adhere to operational and compliance limits, however certain operational circumstances may cause results to be temporarily outside of the limits. Limits that are momentarily surpassed as a result of pump start-ups, power outages/generator tests, pump rotation, calibrations, alarm verification, etc are a normal part of operations and do not indicate a true exceedance. A true exceedance will be noted and documented within the report.

Attachments

Ontario Clean Water Agency
Performance Assessment Report Water

From: **01/01/2015 to 31/12/2015**

Facility: **[5838] MINDEN DRINKING WATER SYSTEM**

	01/2015	02/2015	03/2015	04/2015	05/2015	06/2015	07/2015	08/2015	09/2015	10/2015	11/2015	12/2015	<--Total-->	<--Avg.-->	<--Max.-->	<--Min.-->	<--Criteria-->
Flows:																	
Raw Flow: Monthly Total - Well1 (m^3/d)	10304.00	10076.00	11457.00	10201.00	11826.00	11446.00	13393.00	13359.38	12350.00	10770.00	9953.00	9848.41	134983.79				
Raw Flow: Monthly Total - Well2 (m^3/d)	26.13	26.74	24.79	21.46	27.26	19.74	19.39	32.69	20.44	25.00	33.00	23.52	300.16				
Raw Flow: Monthly Avg - Well1 (m^3/d)	332.39	359.86	369.58	340.03	381.48	381.53	432.03	430.95	411.67	347.42	331.77	317.69		369.70			
Raw Flow: Monthly Avg - Well2 (m^3/d)	0.84	0.96	0.80	0.72	0.88	0.66	0.63	1.05	0.68	0.81	1.10	0.76		0.82			
Raw Flow: Monthly Max - Well1 (m^3/d)	464.00	492.00	432.00	439.00	723.00	487.00	540.00	650.00	538.00	437.00	535.00	424.00			723.00		1970.00
Raw Flow: Monthly Max - Well2 (m^3/d)	9.64	9.58	5.81	5.90	8.35	6.11	8.02	8.05	5.94	7.00	10.00	8.00			10.00		657.00
Turbidity:																	
Raw: Max Turbidity - Well1 (NTU)	0.18	0.18	0.21	0.18	0.20	0.19	0.19	0.19	0.18	0.18	0.19	0.18			0.21		
Raw: Max Turbidity - Well2 (NTU)	0.24	0.24	0.26	0.26	0.24	0.26	0.25	0.29	0.23	0.24	0.24	0.24			0.29		
Chemical Parameters:																	
Treated: Max Nitrite - TW (mg/L)	< 0.003			< 0.003			< 0.003			< 0.003					< 0.003		1
Treated: Max Nitrate - TW (mg/L)	< 0.006			< 0.006			< 0.006			< 0.006					< 0.006		10
Distribution: Max THM - DW (µg/l)	14			5.8			26			21				16.7	26		100
Chlorine Residuals:																	
Treated: Min Free Cl2 Resid - TW (mg/L)	0.04	0.04	0.17	0.00	0.74	0.33	0.43	0.88	0.94	0.78	0.73	0.00				0.00	0.26
Treated: Max Free Cl2 Resid - TW (mg/L)	2.00	2.00	2.00	2.00	2.00	4.57	4.85	3.92	3.76	3.45	3.57	3.89			4.85		
Dist: Min Free Cl2 Resid - DW (mg/L)	1.07	1.02	1.04	1.01	1.15	1.11	0.50	0.60	0.93	0.58	0.74	0.71				0.50	0.05
Dist: Max Free Cl2 Resid - DW (mg/L)	1.82	1.82	1.87	1.95	2.04	1.86	1.67	1.79	1.74	1.62	1.77	1.77			2.04		
Bacti Samples Collected:																	
Raw Bacti: # of samples - Well1	4	4	5	4	4	5	4	5	4	4	5	4	52				
Raw Bacti: # of samples - Well2	4	4	5	4	4	5	4	5	4	4	5	4	52				
Treated Bacti: # of samples - TW	4	4	5	4	4	5	5	5	4	4	5	5	54				
Dist Bacti: # of samples - DW	12	12	15	12	12	15	15	15	12	12	15	13	160				
Treated Bacti: # of TC exceedances - TW	0	0	0	0	0	0	0	0	0	0	0	0	0				
Treated Bacti: # of EC exceedances - TW	0	0	0	0	0	0	0	0	0	0	0	0	0				0
Dist Bacti: # of TC exceedances - DW	0	0	0	0	0	0	1	0	0	0	0	0	1				0
Dist Bacti: # of EC exceedances - DW	0	0	0	0	0	0	0	0	0	0	0	0	0				0

Schedule 23 and Additional Inorganics

Drinking-Water System Number: *210000194*
Drinking-Water System Name: *MINDEN DRINKING WATER SYSTEM*
Drinking-Water System Owner: *Title Holder: Municipality*
Drinking-Water System Category: *Large Municipal Residential*
Period being reported: *01/2015* *12/2015*

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

TREATED WATER	Sample Date (mm/dd/yyyy)	Sample Result	MAC	No. of Exceedances	
				MAC	1/2 MAC
Antimony: Sb (ug/L) - TW	1/20/2014	< 0.02	6.0	No	No
Arsenic: As (ug/L) - TW	1/20/2014	< 0.2	25.0	No	No
Barium: Ba (ug/L) - TW	1/20/2014	148	1000.0	No	No
Boron: B (ug/L) - TW	1/20/2014	28	5000.0	No	No
Cadmium: Cd (ug/L) - TW	1/20/2014	0.007	5.0	No	No
Chromium: Cr (ug/L) - TW	1/20/2014	1.5	50.0	No	No
Mercury: Hg (ug/L) - TW	1/20/2014	< 0.01	1.0	No	No
Selenium: Se (ug/L) - TW	1/20/2014	< 1.0	10.0	No	No
Uranium: U (ug/L) - TW	1/20/2014	0.93	20.0	No	No
Additional Inorganics					
Fluoride (mg/L) - TW	1/2/2013	0.2	1.5	No	No
Nitrite (mg/L) - TW	1/13/2015	< 0.003	1.0	No	No
Nitrite (mg/L) - TW	4/13/2015	< 0.003	1.0	No	No
Nitrite (mg/L) - TW	7/16/2015	< 0.003	1.0	No	No
Nitrite (mg/L) - TW	10/27/2015	< 0.003	1.0	No	No
Nitrate (mg/L) - TW	1/13/2015	< 0.006	10.0	No	No
Nitrate (mg/L) - TW	4/13/2015	< 0.006	10.0	No	No
Nitrate (mg/L) - TW	7/16/2015	< 0.006	10.0	No	No
Nitrate (mg/L) - TW	10/27/2015	< 0.006	10.0	No	No
Sodium: Na (mg/L) - TW	1/2/2013	16.3	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 24

Drinking-Water System Number: *210000194*
Drinking-Water System Name: *MINDEN DRINKING WATER SYSTEM*
Drinking-Water System Owner: *Title Holder: Municipality*
Drinking-Water System Category: *Large Municipal Residential*
Period being reported: *01/2015* *12/2015*

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

TREATED WATER	Sample Date (mm/dd/yyyy)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
Alachlor (ug/L) - TW	1/13/2014	< 0.02	5.00	No	No
Aldicarb (ug/L) - TW	1/13/2014	< 0.01	9.00	No	No
Aldrin+Dieldrin (ug/L) - TW	1/13/2014	< 0.01	0.70	No	No
Atrazine + N-dealkylated metabolites (ug/L) - TW	1/13/2014	< 0.01	5.00	No	No
Azinphos-methyl (ug/L) - TW	1/13/2014	< 0.02	20.00	No	No
Bendiocarb (ug/L) - TW	1/13/2014	< 0.01	40.00	No	No
Benzene (ug/L) - TW	1/20/2014	< 0.32	5.00	No	No
Benzo(a)pyrene (ug/L) - TW	1/13/2014	< 0.004	0.01	No	No
Bromoxynil (ug/L) - TW	1/13/2014	< 0.33	5.00	No	No
Carbaryl (ug/L) - TW	1/13/2014	< 0.01	90.00	No	No
Carbofuran (ug/L) - TW	1/13/2014	< 0.01	90.00	No	No
Carbon Tetrachloride (ug/L) - TW	1/20/2014	< 0.16	5.00	No	No
Chlordane: Total (ug/L) - TW	1/13/2014	< 0.01	7.00	No	No
Chlorpyrifos (ug/L) - TW	1/13/2014	< 0.02	90.00	No	No
Cyanazine (ug/L) - TW	1/13/2014	< 0.03	10.00	No	No
Diazinon (ug/L) - TW	1/13/2014	< 0.02	20.00	No	No
Dicamba (ug/L) - TW	1/13/2014	< 0.2	120.00	No	No
1,2-Dichlorobenzene (ug/L) - TW	1/20/2014	< 0.41	200.00	No	No
1,4-Dichlorobenzene (ug/L) - TW	1/20/2014	< 0.36	5.00	No	No
DDT + metabolites (ug/L) - TW	1/13/2014	< 0.01	30.00	No	No
1,2-Dichloroethane (ug/L) - TW	1/20/2014	< 0.35	5.00	No	No
1,1-Dichloroethylene (ug/L) - TW	1/20/2014	< 0.33	14.00	No	No
Dichloromethane (Methylene Chloride) (ug/L) - TW	1/20/2014	< 0.35	50.00	No	No
2,4-Dichlorophenol (ug/L) - TW	1/13/2014	< 0.15	900.00	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW	1/13/2014	< 0.19	100.00	No	No
Diclofop-methyl (ug/L) - TW	1/13/2014	< 0.4	9.00	No	No
Dimethoate (ug/L) - TW	1/13/2014	< 0.03	20.00	No	No
Dinoseb (ug/L) - TW	1/13/2014	< 0.36	10.00	No	No
Diquat (ug/L) - TW	1/20/2014	< 1.0	70.00	No	No
Diuron (ug/L) - TW	1/13/2014	< 0.03	150.00	No	No
Glyphosate (ug/L) - TW	1/20/2014	< 1.0	280.00	No	No
Heptachlor+hepachlor epoxide (ug/L) - TW	1/13/2014	< 0.01	3.00	No	No
Lindane (ug/L) - TW	1/13/2014	< 0.01	4.00	No	No
Malathion (ug/L) - TW	1/13/2014	< 0.02	190.00	No	No
Methoxychlor (ug/L) - TW	1/13/2014	< 0.01	900.00	No	No
Metolachlor (ug/L) - TW	1/13/2014	< 0.01	50.00	No	No
Metribuzin (ug/L) - TW	1/13/2014	< 0.02	80.00	No	No
Monochlorobenzene (Chlorobenzene) (ug/L) - TW	1/20/2014	< 0.3	80.00	No	No
Paraquat (ug/L) - TW	1/20/2014	< 1.0	10.00	No	No
Parathion (ug/L) - TW	1/13/2014	< 0.02	50.00	No	No
PCB (ug/L) - TW	1/13/2014	< 0.04	3.00	No	No
Pentachlorophenol (ug/L) - TW	1/13/2014	< 0.15	60.00	No	No
Phorate (ug/L) - TW	1/13/2014	< 0.01	2.00	No	No
Picloram (ug/L) - TW	1/13/2014	< 1.0	190.00	No	No
Prometryne (ug/L) - TW	1/13/2014	< 0.03	1.00	No	No
Simazine (ug/L) - TW	1/13/2014	< 0.01	10.00	No	No
Temephos (ug/L) - TW	1/13/2014	< 0.01	280.00	No	No
Terbufos (ug/L) - TW	1/13/2014	< 0.01	1.00	No	No
Tetrachloroethylene (ug/L) - TW	1/20/2014	< 0.35	30.00	No	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW	1/13/2014	< 0.14	100.00	No	No
Triallate (ug/L) - TW	1/13/2014	< 0.01	230.00	No	No
Trichloroethylene (ug/L) - TW	1/20/2014	< 0.44	50.00	No	No
2,4,6-Trichlorophenol (ug/L) - TW	1/13/2014	< 0.25	5.00	No	No
2,4,5-T (ug/L) - TW	1/13/2014	< 0.22	280.00	No	No
Trifluralin (ug/L) - TW	1/13/2014	< 0.02	45.00	No	No
Vinyl Chloride (ug/L) - TW	1/20/2014	< 0.17	2.00	No	No
DISTRIBUTION WATER					
Trihalomethane: Total (ug/L) Annual Average - DW	1/1/2015	16.7	100.00	No	No