Ontario Clean Water Agency
Agence Ontarienne Des Eaux

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February 24 2017

Mayor Renald Beaulieu and Council
The Corporation of the Municipality of Greenstone
P.O. Box 70
GERALDTON, Ontario
P0T 1M0

Re: O. Regulation 170 - 2016 Section 11 Annual Reports for the:

- **Beardmore Drinking-Water System**
- **Caramat Drinking-Water System**
- **Geraldton Drinking-Water System**
- **Longlac Drinking-Water System**
- **Nakina Drinking-Water System**

Ontario's Drinking-Water Systems Regulation (O.Reg. 170/03), made under the Safe Drinking Water Act, 2002, requires that the owner of a drinking water system prepare an annual report on the operation of the system and the quality of its water.

The annual report must cover the period of January 1st to December 31st in a year and *must be prepared not later than February 28th* of the following year. Pursuant to the legislative requirements, enclosed for your records are the *2016 Annual Reports* for the Municipality of Greenstone's Drinking-Water Systems.

Pursuant to the legislative requirements, Section 11 (6): the annual report must:

(a) contain a brief description of the drinking-water system, including a list of water treatment chemicals used by the system during the period covered by the report;

(b) summarize any reports made to the Ministry under subsection 18 (1) of the Act or section 16-4 of Schedule 16 during the period covered by the report;

(c) summarize the results of tests required under this Regulation, or an approval or order, including an OWRA order, during the period covered by the report and, if tests required under this Regulation in respect of a parameter were not required during that period, summarize the most recent results of tests of that parameter;

(d) describe any corrective actions taken under Schedule 17 or 18 during the period covered by the report;

(e) describe any major expenses incurred during the period covered by the report to install, repair or replace required equipment; and

(f) in the case of a large municipal residential system or a small municipal residential system, include a statement of where a report prepared under Schedule 22 will be available for inspection under subsection 12 (4). O. Reg. 170/03, s. 11 (6)

In addition, Section 11 (7) gives the direction that a copy of an annual report for the system is given, without charge, to every person who requests a copy and be made available for inspection by any member of the public during normal business hours. The reports should be made available at the office of the municipality, or at a location that is accessible to the users of the water system.

Yours truly,

Bradley McMahon
Senior Operations Manager
Northwestern Ontario Hub

Copy to: Mark Wright - CAO
Brian Aaltonen – Director of Public Services
Operations Staff – Beardmore WTP
Operations Staff – Caramat WTP
Operations Staff – Geraldton WTP
Operations Staff – Longlac WTP
Operations Staff – Nakina Well Supply

2016 Section 11 Annual Report

Geraldton Drinking-Water System

February 2017

Prepared by the

Ontario Clean Water Agency
Agence Ontarienne Des Eaux

Section 11 ANNUAL REPORT

Drinking-Water System Number:	210000292
Drinking-Water System Name:	Geraldton Water Treatment Plant
Drinking-Water System Owner:	The Corporation of the Municipality of Greenstone
Drinking-Water System Category:	Large Municipal Residential Drinking Water-System
Period being reported:	January 1 – December 31, 2016

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.

Geraldton Ward Office (Administration)
1800 Main Street
Geraldton, ON
P0T 1M0

Complete for all other Categories.

Number of Designated Facilities served:

N/A

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

Number of Interested Authorities you report to: N/A

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

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 [ ]

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

[X] Public access/notice via the web
[X] Public access/notice via Government Office (Municipal)
[X] 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

Cecile Lake is the sole source of supply for the Geraldton water system. The surface water is conveyed by gravity through two (2) coarse screens to the intake well and low lift pumping chamber.

Prior to entering the treatment plant, Alum (aluminum sulphate) and polymer are added for coagulation. Potassium permanganate is added to the raw water for manganese removal as required.

The raw water passes through stages of mixing, flocculation, sedimentation with the aid of tube settlers and passes through a filter of mixed media consisting of anthracite, sand and gravel.

Disinfection is provided by injecting chlorine gas into the filtered water before it enters the storage reservoirs.

Three high lift pumps deliver water to the distribution system.

List all water treatment chemicals used over this reporting period

- Aluminum Sulphate A-10
- Magnafloc LT-20 polymer
- Potassium Permanganate
- Chlorine Gas

Were any significant expenses incurred to?

[ ] Install required equipment
[X] Repair required equipment
[X] Replace required equipment

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

Install	Repair	Replace	Description	Expense
		x	Chemical Pump Upgrades	$ 5883
	X		Water Tower Inspection	$ 19003
		x	Back-up Generator	$ 75000
		x	Water Tower Mixer	$ 29879
		x	Insulate Water Process tanks	$ 12134

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
17-Feb-16	Other Observation - Low pressure due to water break repair Main St and Benner. 4 homes and 1 business			Repair, Flush, Collect 2 bacteriological samples	25-Feb-16
7-Mar-16	Other Observation - Low pressure due to water break repair Main St 1 business			Repair, Flush, Collect 2 bacteriological samples	14-Mar-16
31-Mar-16	Microbiological - TC present in Distribution sample - Dans General Store	Present		Flush and Resample	11-Apr-16
21-Apr-16	Other Observation - Low pressure due to water break repair 8 residences and 1 business			Repair, Flush, Collect 2 bacteriological samples	28-Apr-16

10-May-16	Other Observation - Low pressure due to water break repair 1 residence and 2 business			Repair, Flush, Collect 2 bacteriological samples	16-May-16
29-Jun-16	Other Observation - Low pressure due to water repair 3 residence and 3 business			Repair, Flush, Collect 2 bacteriological samples	12-Jul-16
10-Aug-16	Other Observation - Low pressure due to water repair 9 residence and Family Resource Center			Repair, Flush, Collect 2 bacteriological samples	18-Aug-16
16-Aug-16	Other Observation - Low pressure due to water repair 3 residence, I apparment building and Community Living Office			Repair, Flush, Collect 2 bacteriological samples	19-Aug-16
16-Sep-16	Other Observation - Low pressure due to water break repair 1 business and 4 apartments			Repair, Flush, Collect 2 bacteriological samples	25-Oct-16
16-Sep-16	Other Observation - Low pressure due to water main relining at 1 business. Business request temp untested conection.			, Collect 2 bacteriological samples	22-Sep-16

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	52	< 1 - 13	<1 - 152	N/A	N/A
Treated	52	0	0	52	0 – 2
Distribution	192	0	0-1	51	0 - 64

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*		
Raw	249	0.708 – 2.53 NTU
Filter #1	8760	0 – 2.999 NTU
Filter #2	8760	0 – 2.999 NTU
Chlorine*		
Treated	8760	0 – 4.999 mg/L
Distribution	416	0.25 – 1.74 mg/L
Fluoride (If the DWS provides fluoridation)	N/A	N/A

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

** Turbidity & chlorine Min/Max (lows/highs) are due to planned maintenance and not plant upset.*

*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
July 4, 2011 **Municipal Drinking Water Licence 225-104**	Suspended Solids (Composite) Frequency: Monthly Location: Point of Discharge to Yvonne Lake	16-May-2016 09-Jun-2016 12-Jul-2016 8-Aug-2016 8-Sep2016	<2.0* <2.0* <2.0* 7.1 <2.0*	mg/L mg/L mg/L mg/L mg/L
Note: Samples can only be collected when conditions permit. Winter conditions prevent sampling as the discharge location is frozen.		**Average Annual Concentration for 2016**	3.02 (*Used value of 2.0 to calculate average)	mg/L

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	18-Jan-2016	<0.6	µg/L	No
Arsenic	18-Jan-2016	<1.0	µg/L	No

Barium	18-Jan-2016	<10.0	µg/L	No
Boron	18-Jan-2016	<50.0	µg/L	No
Cadmium	18-Jan-2016	<0.1	µg/L	No
Chromium	18-Jan-2016	<1.0	µg/L	No
***Lead**	Refer to Summary Table Below			
Mercury	18-Jan-2016	<0.1	µg/L	No
Selenium	18-Jan-2016	<1.0	µg/L	No
Sodium	13-Jan-2014	17.8	mg/L	No
Uranium	18-Jan-2016	<2.0	µg/L	No
Fluoride	13-Jan-2014	<0.03	mg/L	No
Nitrite	18-Jan-2016	<0.010	mg/L	No
	18-May-2016	<0.010	mg/L	No
	02-Aug-2016	<0.010	mg/L	No
	17-Oct-2016	<0.010	mg/L	No
Nitrate	18-Jan-2016	0.076	mg/L	No
	18-May-2016	0.141	mg/L	No
	02-Aug-2016	<0.020	mg/L	No
	17-Oct-2016	<0.020	mg/L	No

*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	Sampling not required as per Ont. Regulation 170	-	-
Distribution	4	<1 – 1.5 ug/l	0

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	18-Jan-2016	<0.1	µg/L	No
Aldicarb	26-Jan-2015	<1.0	µg/L	No
Aldrin + Dieldrin	26-Jan-2015	<0.04	µg/L	No

Atrazine + N-dealkylated metobolites	18-Jan-2016	<0.2	µg/L	No
Azinphos-methyl	18-Jan-2016	<0.1	µg/L	No
Bendiocarb	26-Jan-2015	<0.2	µg/L	No
Benzene	18-Jan-2016	<0.5	µg/L	No
Benzo(a)pyrene	18-Jan-2016	<0.01	µg/L	No
Bromoxynil	18-Jan-2016	<0.2	µg/L	No
Carbaryl	18-Jan-2016	<0.2	µg/L	No
Carbofuran	18-Jan-2016	<0.2	µg/L	No
Carbon Tetrachloride	18-Jan-2016	<0.5	µg/L	No
Chlordane (Total)	26-Jan-2015	<0.3	µg/L	No
Chlorpyrifos	18-Jan-2016	<0.1	µg/L	No
Cyanazine	26-Jan-2015	<0.1	µg/L	No
Diazinon	18-Jan-2016	<0.1	µg/L	No
Dicamba	18-Jan-2016	<0.2	µg/L	No
1,2-Dichlorobenzene	18-Jan-2016	<0.5	µg/L	No
1,4-Dichlorobenzene	18-Jan-2016	<0.5	µg/L	No
Dichlorodiphenyltrichloroethane (DDT) + metabolites	26-Jan-2015	<0.4	µg/L	No
1,2-Dichloroethane	18-Jan-2016	<0.5	µg/L	No
1,1-Dichloroethylene (vinylidene chloride)	18-Jan-2016	<0.5	µg/L	No
Dichloromethane	18-Jan-2016	<5.0	µg/L	No
2-4 Dichlorophenol	18-Jan-2016	<0.3	µg/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	18-Jan-2016	<0.2	µg/L	No
Diclofop-methyl	18-Jan-2016	<0.2	µg/L	No
Dimethoate	18-Jan-2016	<0.1	µg/L	No
Dinoseb	26-Jan-2015	<0.2	µg/L	No
Diquat	18-Jan-2016	<1.0	µg/L	No
Diuron	18-Jan-2016	<1.0	µg/L	No
Glyphosate	18-Jan-2016	<5.0	µg/L	No
Heptachlor + Heptachlor Epoxide	26-Jan-2015	<0.2	µg/L	No
Lindane (Total)	26-Jan-2015	<0.1	µg/L	No
Malathion	26-Jan-2015	<0.1	µg/L	No
Methoxychlor	26-Jan-2015	<0.1	µg/L	No
Metolachlor	18-Jan-2016	<0.1	µg/L	No
Metribuzin	18-Jan-2016	<0.1	µg/L	No
Monochlorobenzene	18-Jan-2016	<0.5	µg/L	No
Paraquat	18-Jan-2016	<1.0	µg/L	No
Parathion	26-Jan-2015	<0.1	µg/L	No
Pentachlorophenol	18-Jan-2016	<0.5	µg/L	No
Phorate	18-Jan-2016	<0.1	µg/L	No
Picloram	18-Jan-2016	<0.2	µg/L	No
Polychlorinated Biphenyls(PCB)	18-Jan-2016	<0.035	µg/L	No
Prometryne	18-Jan-2016	<0.1	µg/L	No
Simazine	18-Jan-2016	<0.1	µg/L	No

THM (NOTE: show latest annual average)	17-Oct-2016 2016 Average	63.1 57.06	µg/L µg/L	No No
Temephos	26-Jan-2015	<0.1	µg/L	No
Terbufos	18-Jan-2016	<0.2	µg/L	No
Tetrachloroethylene	18-Jan-2016	<0.5	µg/L	No
2,3,4,6-Tetrachlorophenol	18-Jan-2016	<0.5	µg/L	No
Triallate	18-Jan-2016	<0.1	µg/L	No
Trichloroethylene	18-Jan-2016	<0.5	µg/L	No
2,4,6-Trichlorophenol	18-Jan-2016	<0.5	µg/L	No
2,4,5-Trichlorophenoxy acetic acid (2,4,5-T)	26-Jan-2015	<0.2	µg/L	No
Trifluralin	18-Jan-2016	<0.1	µg/L	No
Vinyl Chloride	18-Jan-2016	<0.2	µg/L	No
MCPA	18-Jan-2016	<0.2	µg/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
2016 THM – Running Annual Average (RAA)	57.06	µg/L	N/A