



February 19, 2019

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

Re: O. Regulation 170 - 2018 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 *2018 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 Regional 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

2018 Section 11 Annual Report

Caramat Drinking-Water System

February 2019

Prepared by the



Ontario Clean Water Agency
Agence Ontarienne Des Eaux



Section 11 ANNUAL REPORT

Drinking-Water System Number:	220000184
Drinking-Water System Name:	Caramat Water Treatment Plant
Drinking-Water System Owner:	The Corporation of the Municipality of Greenstone
Drinking-Water System Category:	Small Municipal Residential Drinking Water-System
Period being reported:	January 1 – December 31, 2018

<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</p> <div style="border: 1px solid black; padding: 5px;"> <p>Geraldton Ward Office (Administration) 1800 Main Street Geraldton, ON POT 1M0</p> <p>Longlac Ward Office 105 Hamel Avenue Longlac, ON POT 2A0</p> </div>	<p><u>Complete for all other Categories.</u></p> <p>Number of Designated Facilities served: <input type="text" value="N/A"/></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: <input type="text" value="N/A"/></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	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.

Public access/notice via the web

Public access/notice via Government Office (Municipal)

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 treatment process generally consists of pre-ozonation, filtration through the multi-stage slow sand filter, primary chlorination, storage, and secondary chlorination.

The filtration system consists of a 75.2 m³/day pre-packaged, two-train, multi-stage filtration system designed and manufactured by MS Filter Inc. The two-train roughing filter, slow sand filter and granular activated carbon (GAC) contractor are all contained within one overall filter tank. The ozone generation and contactor equipment is separate from the filter tank.

Primary disinfection is achieved using a 12% sodium hypochlorite solution injected into the raw water, downstream of the filtration system, by means of two (duty/stand-by) chemical metering pumps. The necessary chlorine contact time is achieved within the two 57 m³ reservoirs. The reservoirs provide the necessary minimum contact time for adequate disinfection as well as equalization and emergency water storage as per MOE guidelines.

Two high lift pumps (duty and stand-by) draw treated water from the reservoirs to the distribution system.

One backwash pump also draws treated water from the reservoirs and is used to backwash the filtration system.

The free chlorine residual of the treated water is monitored continuously by an online analyzer, and recorded in the PLC.

A magnetic flow meter measures the treated water flow to the distribution system. This information is recorded in the PLC.

Secondary disinfection is achieved using a 12% sodium hypochlorite solution injected into the high lift pump discharge header by means of two (duty and stand-by) chemical metering pumps.

In November 2009, an oxygen concentrator system was installed and put into operation.

List all water treatment chemicals used over this reporting period

- Sodium Hypochlorite 12%
- Oxygen (generated on site)
- Ozone (generated on site)
- Granular activated carbon (GAC)

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

Install	Repair	Replace	Description	Expense
			N/A	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
N/A	N/A	N/A	N/A	N/A	N/A

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	N/A	N/A	N/A	N/A	N/A
Treated	N/A	N/A	N/A	N/A	N/A
Distribution	52	0 - 0	0 - 0	52	0 - 2

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	96	0.4 – 3.0 NTU
Filter #1	8760	0 – 0.748 NTU
Filter #2	8760	0 – 0.805 NTU
Chlorine*		
Treated	8760	0.500 – 2.229
Distribution	8760	0 – 1.999
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 (MDWL)#225-101	Nitrosodimethylamine (NDMA) Quarterly	02-Jan-2018	0.00076	µg/L
		12-Apr-2018	0.00073	µg/L
		03-Jul-2018	0.00102	µg/L
		09-Oct-2018	<0.0005	µg/L



July 4, 2011 Municipal Drinking Water Licence (MDWL)#225-101	Trihalomethanes (THM's) Monthly	02-Jan-2018	40.9	µg/L
		05-Feb-2018	53.4	µg/L
		05-Mar-2018	56.0	µg/L
		03-Apr-2018	70.8	µg/L
		01-May-2018	93.8	µg/L
		04-Jun-2018	106.0	µg/L
		03-Jul-2018	102.0	µg/L
		07-Aug-2018	111.0	µg/L
		04-Sept-2018	24.4	µg/L
		09-Oct-2018	7.7	µg/L
		05-Nov-2018	16.1	µg/L
		03-Dec-2018	26.7	µg/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	02-Jan-2018	<0.6	µg/L	No
Arsenic	02-Jan-2018	<1.0	µg/L	No
Barium	02-Jan-2018	14.0	µg/L	No
Boron	02-Jan-2018	<50.0	µg/L	No
Cadmium	02-Jan-2018	<0.1	µg/L	No
Chromium	02-Jan-2018	<1.0	µg/L	No
*Lead	Refer to Summary Table Below			
Mercury	02-Jan-2018	<0.1	µg/L	No
Selenium	02-Jan-2018	<1.0	µg/L	No
Sodium	06-Feb-2017	6.95	mg/L	No
Uranium	02-Jan-2018	<2.0	µg/L	No
Fluoride	06-Feb-2017	<0.02	mg/L	No
Nitrite	02-Jan-2018	<0.010	mg/L	No
	03-Apr-2018	<0.010	mg/L	No
	03-Jul-2018	<0.010	mg/L	No
	09-Oct-2018	<0.010	mg/L	No
Nitrate	02-Jan-2018	0.316	mg/L	No
	03-Apr-2018	0.291	mg/L	No
	03-Jul-2018	0.495	mg/L	No
	09-Oct-2018	0.227	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	N/A	N/A	N/A

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	02-Jan-2018	<0.1	µg/L	No
Atrazine + N-dealkylated metabolites	02-Jan-2018	<0.2	µg/L	No
Azinphos-methyl	02-Jan-2018	<0.1	µg/L	No
Benzene	02-Jan-2018	<0.5	µg/L	No
Benzo(a)pyrene	02-Jan-2018	<0.01	µg/L	No
Bromoxynil	02-Jan-2018	<0.2	µg/L	No
Carbaryl	02-Jan-2018	<0.2	µg/L	No
Carbofuran	02-Jan-2018	<0.2	µg/L	No
Carbon Tetrachloride	02-Jan-2018	<0.2	µg/L	No
Chlorpyrifos	02-Jan-2018	<0.1	µg/L	No
Diazinon	02-Jan-2018	<0.1	µg/L	No
Dicamba	02-Jan-2018	<0.2	µg/L	No
1,2-Dichlorobenzene	02-Jan-2018	<0.5	µg/L	No
1,4-Dichlorobenzene	02-Jan-2018	<0.5	µg/L	No
1,2-Dichloroethane	02-Jan-2018	<0.5	µg/L	No
1,1-Dichloroethylene (vinylidene chloride)	02-Jan-2018	<0.5	µg/L	No
Dichloromethane (methylene chloride)	02-Jan-2018	<5.0	µg/L	No
2-4 Dichlorophenol	02-Jan-2018	<0.3	µg/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	02-Jan-2018	<0.2	µg/L	No
Diclofop-methyl	02-Jan-2018	<0.2	µg/L	No
Dimethoate	02-Jan-2018	<0.1	µg/L	No
Diquat	02-Jan-2018	<1.0	µg/L	No
Diuron	02-Jan-2018	<1.0	µg/L	No
Glyphosate	02-Jan-2018	<5.0	µg/L	No



Haloacetic acids (HAA)* (NOTE: show latest annual average)	09-Oct-2018 2018 Average	9.8 110.3	µg/L	Yes
Malathion	02-Jan-2018	<0.1	µg/L	No
Metolachlor	02-Jan-2018	<0.1	µg/L	No
Metribuzin	02-Jan-2018	<0.1	µg/L	No
Monochlorobenzene	02-Jan-2018	<0.5	µg/L	No
Paraquat	02-Jan-2018	<1.0	µg/L	No
Pentachlorophenol	02-Jan-2018	<0.5	µg/L	No
Phorate	02-Jan-2018	<0.1	µg/L	No
Picloram	02-Jan-2018	<0.2	µg/L	No
Polychlorinated Biphenyls(PCB)	02-Jan-2018	<0.035	µg/L	No
Prometryne	02-Jan-2018	<0.1	µg/L	No
Simazine	02-Jan-2018	<0.1	µg/L	No
THM (NOTE: show latest annual average)	09-Oct-2018 2018 Average	7.7 59.1	µg/L µg/L	No No
Terbufos	02-Jan-2018	<0.2	µg/L	No
Tetrachloroethylene	02-Jan-2018	<0.5	µg/L	No
2,3,4,6-Tetrachlorophenol	02-Jan-2018	<0.5	µg/L	No
Triallate	02-Jan-2018	<0.1	µg/L	No
Trichloroethylene	02-Jan-2018	<0.5	µg/L	No
2,4,6-Trichlorophenol	02-Jan-2018	<0.5	µg/L	No
Trifluralin	02-Jan-2018	<0.1	µg/L	No
Vinyl Chloride	02-Jan-2018	<0.2	µg/L	No

*Parameter exceedance not reportable until 2020

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
2018 THM - Running Annual Average (RAA) (includes all MDWL and Reg. 170 THM samples)	59.1	µg/L	N/A
2018 HAA – Running Annual Average (RAA)*	110.3	µg/L	N/A

*Parameter exceedance not reportable until 2020