2017 Section 11 Annual Report

Caramat Drinking-Water System

February 2018

Prepared by the

Ontario Clean Water Agency
Agence Ontarienne Des Eaux

Ontario **Drinking-Water Systems Regulation O. Reg. 170/03**

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, 2017

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

Geraldton Ward Office (Administration)
1800 Main Street
Geraldton, ON P0T 1M0
Longlac Ward Office
105 Hamel Avenue
Longlac, ON P0T 2A0

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	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

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 m^3/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 m^3 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?

[X] 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	High and low lift pump	$9,808
x			Lowlift pump	$3,421
x			Turbidimeter	$2,747
	x		Compressor parts and service	$2,344

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
30-Aug-17	Other Observation – Loss of data from distribution chlorine analyzer on August 25th from 17:31-20:08.	-	-	OCWA service desk was contacted to retrieve missing data. Missing data could not be retrieved. No further action given by MOH/MOE.	30-Aug-17

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	51	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	103	0.1 – 2.9 NTU
Filter #1	8760	0 – 1.995 NTU
Filter #2	8760	0 – 1.996 NTU
Chlorine*		
Treated	8760	0.000 – 2.892
Distribution	8760	0.012 – 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	16-Jan-2017 3-Apr-2017 4-Jul-2017 10-Oct-2017	0.00056 0.00099 0.00141 0.00137	µg/L µg/L µg/L µg/L

July 4, 2011 Municipal Drinking Water Licence (MDWL)#225-101	Trihalomethanes (THM's) Monthly	9-Jan-2017	59.70	µg/L
		6-Feb-2017	73.00	µg/L
		6-Mar-2017	58.10	µg/L
		3-Apr-2017	74.10	µg/L
		-	-	µg/L
		5-Jun-2017	90.80	µg/L
		4-Jul-2017	100.00	µg/L
		1-Aug-2017	67.80	µg/L
		5-Sep-2017	12.50	µg/L
		10-Oct-2017	18.60	µg/L
		6-Nov-2017	24.90	µg/L
		4-Dec-2017	31.10	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	9-Jan-2013	<0.6	µg/L	No
Arsenic	9-Jan-2013	<1.0	µg/L	No
Barium	9-Jan-2013	20.0	µg/L	No
Boron	9-Jan-2013	<50.0	µg/L	No
Cadmium	9-Jan-2013	<0.1	µg/L	No
Chromium	9-Jan-2013	<1.0	µg/L	No
*Lead	Refer to Summary Table Below			
Mercury	9-Jan-2013	<0.1	µg/L	No
Selenium	9-Jan-2013	<1.0	µg/L	No
Sodium	6-Feb-2017	6.95	mg/L	No
Uranium	9-Jan-2013	<2.0	µg/L	No
Fluoride	6-Feb-2017	<0.02	mg/L	No
Nitrite	16-Jan-2017	<0.010	mg/L	No
	3-Mar-2017	<0.010	mg/L	No
	4-Jul-2017	<0.010	mg/L	No
	10-Oct-2017	<0.010	mg/L	No
Nitrate	16-Jan-2017	0.413	mg/L	No
	3-Mar-2017	0.501	mg/L	No
	4-Jul-2017	0.466	mg/L	No
	10-Oct-2017	0.381	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	2	1 – 1 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	9-Jan-2013	<0.1	µg/L	No
Atrazine + N-dealkylated metobolites	9-Jan-2013	<0.2	µg/L	No
Azinphos-methyl	9-Jan-2013	<0.1	µg/L	No
Benzene	9-Jan-2013	<0.5	µg/L	No
Benzo(a)pyrene	9-Jan-2013	<0.01	µg/L	No
Bromoxynil	9-Jan-2013	<0.2	µg/L	No
Carbaryl	9-Jan-2013	<0.2	µg/L	No
Carbofuran	9-Jan-2013	<0.2	µg/L	No
Carbon Tetrachloride	9-Jan-2013	<0.5	µg/L	No
Chlorpyrifos	9-Jan-2013	<0.1	µg/L	No
Diazinon	9-Jan-2013	<0.1	µg/L	No
Dicamba	9-Jan-2013	<0.2	µg/L	No
1,2-Dichlorobenzene	9-Jan-2013	<0.5	µg/L	No
1,4-Dichlorobenzene	9-Jan-2013	<0.5	µg/L	No
1,2-Dichloroethane	9-Jan-2013	<0.5	µg/L	No
1,1-Dichloroethylene (vinylidene chloride)	9-Jan-2013	<0.5	µg/L	No
Dichloromethane	9-Jan-2013	<0.5	µg/L	No
2-4 Dichlorophenol	9-Jan-2013	<0.3	µg/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	9-Jan-2013	<0.2	µg/L	No
Diclofop-methyl	9-Jan-2013	<0.2	µg/L	No
Dimethoate	9-Jan-2013	<0.1	µg/L	No
Diquat	9-Jan-2013	<1.0	µg/L	No
Diuron	9-Jan-2013	<1.0	µg/L	No
Glyphosate	9-Jan-2013	<5.0	µg/L	No

Haloacetic acids (HAA)* (NOTE: show latest annual average)	10-Oct-2017 2017 Average	38.5 131.6	µg/L	Yes
Malathion	9-Jan-2013	<0.1	µg/L	No
Metolachlor	9-Jan-2013	<0.1	µg/L	No
Metribuzin	9-Jan-2013	<0.1	µg/L	No
Monochlorobenzene	9-Jan-2013	<0.5	µg/L	No
Paraquat	9-Jan-2013	<1.0	µg/L	No
Pentachlorophenol	9-Jan-2013	<0.5	µg/L	No
Phorate	9-Jan-2013	<0.1	µg/L	No
Picloram	9-Jan-2013	<0.2	µg/L	No
Polychlorinated Biphenyls(PCB)	9-Jan-2013	<0.035	µg/L	No
Prometryne	9-Jan-2013	<0.1	µg/L	No
Simazine	9-Jan-2013	<0.1	µg/L	No
THM (NOTE: show latest annual average)	10-Oct-2017 2017 Average	18.6 66.4	µg/L µg/L	No No
Terbufos	9-Jan-2013	<0.2	µg/L	No
Tetrachloroethylene	9-Jan-2013	<0.5	µg/L	No
2,3,4,6-Tetrachlorophenol	9-Jan-2013	<0.5	µg/L	No
Triallate	9-Jan-2013	<0.1	µg/L	No
Trichloroethylene	9-Jan-2013	<0.5	µg/L	No
2,4,6-Trichlorophenol	9-Jan-2013	<0.5	µg/L	No
Trifluralin	9-Jan-2013	<0.1	µg/L	No
Vinyl Chloride	9-Jan-2013	<0.5	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
2017 THM - Running Annual Average (RAA) (includes all MDWL and Reg. 170 THM samples)	66.4	µg/L	N/A
2017 HAA – Running Annual Average (RAA)*	131.6	µg/L	N/A

***Parameter exceedance not reportable until 2020**