Ontario Clean Water Agency
Agence Ontarienne Des Eaux

901 Main Street
P.O. Box 728
Geraldton, Ontario. P0T 1M0
Fax: 807 854-0483

February 2021

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

Re: O. Regulation 170 - 2020 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 *2020 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,

Patti O'Handley
Senior Operations Manager
Northwestern Ontario Regional Hub
807-853-2356

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

2020 Section 11 Annual Report

Beardmore Drinking Water System

February 2021

Prepared by the

Ontario Clean Water Agency
Agence Ontarienne Des Eaux

Section 11 ANNUAL REPORT

Drinking-Water System Number:	**210001264**
Drinking-Water System Name:	Beardmore 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, 2020

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
Beardmore Ward Office
285 Main Street
Beardmore, ON P0T 1G0

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

The raw water is pumped from the Blackwater River by the low lift pumps into the packaged treatment plant tank, which is a Graver monoplant treatment unit; a type of solids contact clarifier. The flocculation, sedimentation, and filtration processes are all contained within the packaged plant. Aluminum sulfate is added to the raw water as a coagulant after the low lift pumps and prior to the treatment unit. Two polymers are used to assist with flocculation depending on seasonal conditions. These are injected into the raw water immediately before the treatment unit.

The floc settles onto the tube settlers in the clarifier. The water then passes through a two-compartment dual media (sand and anthracite) filter. Once through the filters, the water is chlorinated with sodium hypochlorite. Carus 8500 Ortho-polyphosphate is used for corrosion control and caustic soda is used for pH adjustment. These three chemicals are injected into the piping between the filter and reservoir. The reservoir is located beneath the process floor and is divided into two compartments having a combined capacity of 682 m3.

Two high lift pumps deliver the finished water to the distribution system and a third high lift pump delivers water under fire flow conditions.
A 160-kW-diesel generator provides standby power to the WTP.

List all water treatment chemicals used over this reporting period

- Caustic Soda (Sodium Hydroxide)
- Sodium Hypochlorite
- Nalco-2 (Sodium Aluminate)
- Nalco 8170 polymer

- Aluminum Sulphate
- Carus 8500

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	N/A	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	51	0 – 46	>18 – >2420	N/A	N/A
Treated	51	0 – 0	0 – 0	51	0 – 1
Distribution	94	0 – 0	0 – 0	27	0 – 6

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

	Number of	Range of Results

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

** Turbidity & chlorine Min/Max (lows/highs) are due to planned maintenance and*

	Grab Samples	(min #)-(max #)
Turbidity*		
Raw (before filter)	8760	0.0 – 9.99 NTU
Treated	8760	0.0 – 1.99 NTU
Chlorine*		
Treated	8760	0.00 – 4.99
Distribution	366	0.40 – 2.72
Fluoride (If the DWS provides fluoridation)	N/A	N/A

***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	N/A	N/A	N/A	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	13-Jan-2020	<0.6	µg/L	No
Arsenic	13-Jan-2020	<1.0	µg/L	No
Barium	13-Jan-2020	10.0	µg/L	No
Boron	13-Jan-2020	<50.0	µg/L	No
Cadmium	13-Jan-2020	<0.1	µg/L	No
Chromium	13-Jan-2020	<1.0	µg/L	No
***Lead**	Refer to Summary Table Below			
Mercury	13-Jan-2020	<0.1	µg/L	No
Selenium	13-Jan-2020	<1.0	µg/L	No
Sodium	22-Jul-2019	17.3	mg/L	No
Uranium	13-Jan-2020	<2.0	µg/L	No
Fluoride	22-Jul-2019	<0.02	mg/L	No
Nitrite	13-Jan-2020	<0.010	mg/L	No
	20-Apr-2020	<0.010	mg/L	No
	06-Jul-2020	<0.010	mg/L	No

	05-Oct-2020	<0.010	mg/L	No
Nitrate	13-Jan-2020	0.078	mg/L	No
	20-Apr-2020	0.128	mg/L	No
	06-Jul-2020	0.049	mg/L	No
	05-Oct-2020	<0.02	mg/L	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 (min#) – (max #)	Number of Exceedances
Plumbing	Sampling not required as per Ont. Regulation 170	-	-
Distribution	2	1 – 1	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 (ug/L) - TW	13-Jan-2020	<0.1	µg/L	No
Atrazine	13-Jan-2020	<0.10	µg/L	No
Atrazine & Metabolites	13-Jan-2020	<0.20	µg/L	No
Azinphos-methyl (ug/L) - TW	13-Jan-2020	<0.1	µg/L	No
Benzene (ug/L) - TW	13-Jan-2020	<0.5	µg/L	No
Benzo(a)pyrene (ug/L) - TW	13-Jan-2020	<0.005	µg/L	No
Bromoxynil (ug/L) - TW	13-Jan-2020	<0.2	µg/L	No
Carbaryl (ug/L) - TW	13-Jan-2020	<0.2	µg/L	No
Carbofuran (ug/L) - TW	13-Jan-2020	<0.2	µg/L	No
Carbon Tetrachloride (ug/L) - TW	13-Jan-2020	<0.2	µg/L	No
Chlorpyrifos (ug/L) - TW	13-Jan-2020	<0.1	µg/L	No
Diazinon (ug/L) - TW	13-Jan-2020	<0.1	µg/L	No
Dicamba (ug/L) - TW	13-Jan-2020	<0.2	µg/L	No
1,2-Dichlorobenzene (ug/L) - TW	13-Jan-2020	<0.5	µg/L	No
1,4-Dichlorobenzene (ug/L) - TW	13-Jan-2020	<0.5	µg/L	No
1,2-Dichloroethane (ug/L) - TW	13-Jan-2020	<0.5	µg/L	No
1,1-Dichloroethylene (ug/L) - TW	13-Jan-2020	<0.5	µg/L	No
Dichloromethane (Methylene Chloride) (ug/L) - TW	13-Jan-2020	<5.0	µg/L	No
2,4-Dichlorophenol (ug/L) - TW	13-Jan-2020	<0.3	µg/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW	13-Jan-2020	<0.2	µg/L	No
Diclofop-methyl (ug/L) - TW	13-Jan-2020	<0.2	µg/L	No
Dimethoate (ug/L) - TW	13-Jan-2020	<0.1	µg/L	No
Diquat (ug/L) - TW	13-Jan-2020	<1.0	µg/L	No
Diuron (ug/L) - TW	13-Jan-2020	<1.0	µg/L	No

Glyphosate (ug/L) - TW	13-Jan-2020	<5.0	µg/L	No
Haloacetic acids (HAA)* (NOTE: show latest annual average)	05-Oct-2020 2020 Average	51.2 57.8	µg/L	No
Malathion (ug/L) - TW	13-Jan-2020	<0.1	µg/L	No
Metolachlor (ug/L) - TW	13-Jan-2020	<0.1	µg/L	No
Metribuzin (ug/L) - TW	13-Jan-2020	<0.1	µg/L	No
Monochlorobenzene (Chlorobenzene) (ug/L) - TW	13-Jan-2020	<0.5	µg/L	No
Paraquat (ug/L) - TW	13-Jan-2020	<1.0	µg/L	No
PCB (ug/L) - TW	13-Jan-2020	<0.035	µg/L	No
Pentachlorophenol (ug/L) - TW	13-Jan-2020	<0.5	µg/L	No
Phorate (ug/L) - TW	13-Jan-2020	<0.1	µg/L	No
Picloram (ug/L) - TW	13-Jan-2020	<0.2	µg/L	No
Prometryne (ug/L) - TW	13-Jan-2020	<0.1	µg/L	No
Simazine (ug/L) - TW	13-Jan-2020	<0.1	µg/L	No
THM (NOTE: show latest annual average)	05-Oct-2020 2020 Average	92.9 74.1	µg/L µg/L	No
Terbufos (ug/L) - TW	13-Jan-2020	<0.2	µg/L	No
Tetrachloroethylene (ug/L) - TW	13-Jan-2020	<0.5	µg/L	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW	13-Jan-2020	<0.5	µg/L	No
Triallate (ug/L) - TW	13-Jan-2020	<0.1	µg/L	No
Trichloroethylene (ug/L) - TW	13-Jan-2020	<0.5	µg/L	No
2,4,6-Trichlorophenol (ug/L) - TW	13-Jan-2020	<0.5	µg/L	No
Trifluralin (ug/L) - TW	13-Jan-2020	<0.1	µg/L	No
Vinyl Chloride (ug/L) - TW	13-Jan-2020	<0.2	µg/L	No
MCPA	13-Jan-2020	<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
2020 THM - Running Annual Average (RAA)	74.1	µg/L	N/A
2020 HAA – Running Annual Average (RAA)	57.8	µg/L	N/A

Parameter exceedance not reportable until 2020

2020 Section 11 Annual Report

Caramat Drinking Water System

February 2021

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, 2020

Complete if your Category is Large Municipal Residential or Small Municipal Residential	***Complete for all other Categories.***
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	**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.

A 60-kW-diesel generator in a stand alone container provides standby power to the WTP.

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	N/A	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	49	0-3

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	0.06 – 2.7 NTU
Filter #1	8760	0.01 – 1.99 NTU
Filter #2	8760	0.00 – 1.99 NTU
Chlorine*		
Treated	8760	0.00 – 2.44
Distribution	109	0.50 – 1.88
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	07-Jan-2020 06-Apr-2020 06-Jul-2020 05-Oct-2020	0.00082 0.00117 0.00151 0.00081	µg/L µg/L µg/L µg/L

July 4, 2011 Municipal Drinking Water Licence (MDWL)#225-101	Trihalomethanes (THM's) Monthly	07-Jan-2020 03-Feb-2020 02-Mar-2020 06-Apr-2020 11-May-2020 01-Jun-2020 06-Jul-2020 04-Aug-2020 01-Sept-2020 05-Oct-2020 02-Nov-2020 01-Dec-2020	51.60 39.00 29.30 33.60 43.80 48.20 28.30 41.70 63.10 42.90 21.00 27.70	µg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L 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-2020	<0.6	µg/L	No
Arsenic	02-Jan-2020	<1.0	µg/L	No
Barium	02-Jan-2020	14.0	µg/L	No
Boron	02-Jan-2020	<50.0	µg/L	No
Cadmium	02-Jan-2020	<0.1	µg/L	No
Chromium	02-Jan-2020	<1.0	µg/L	No
***Lead**	Refer to Summary Table Below			
Mercury	02-Jan-2020	<0.1	µg/L	No
Selenium	02-Jan-2020	<1.0	µg/L	No
Sodium	06-Feb-2017	6.95	mg/L	No
Uranium	02-Jan-2020	<2.0	µg/L	No
Fluoride	06-Feb-2017	<0.02	mg/L	No
Nitrite	07-Jan-2020 06-Apr-2020 06-Jul-2020 05-Oct-2020	<0.010 <0.010 <0.010 <0.010	mg/L mg/L mg/L mg/L	No No No No
Nitrate	07-Jan-2020 06-Apr-2020 06-Jul-2020 05-Oct-2020	0.233 0.213 0.114 0.238	mg/L mg/L mg/L mg/L	No No No 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	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	02-Jan-2018	<0.1	µg/L	No
Atrazine + N-dealkylated metobolites	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**)**	05-Oct-2020 2020 Average	50.30 60.93	µg/L	No
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**)**	01-Dec-2020 2020 Average	27.70 39.18	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

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
2020 HAA – Running Annual Average (RAA)	60.93	µg/L	N/A

2020 Section 11 Annual Report

Geraldton Drinking Water System

February 2021

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, 2020

Complete if your Category is Large Municipal Residential or Small Municipal Residential	***Complete for all other Categories.***
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	**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

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.
A 200-kW-diesel generator provides standby power to the WTP.

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?

[X] Install required equipment
[ ] 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		X	3HP decant pump	$15,000
X		X	40HP high lift pump	$50,000
X		X	40HP low lift pump	$50,000

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
27-Feb-2020	Loss of pressure to three businesses and 25 homes. Call MOH spoke with Torsten Schulz. BWA issued to home owners and businesses.	-	-	Collect 1 bacteriological sample.	02-Mar-2020
04-Mar-2020	Loss of pressure to 20 homes in Olde Road area. Call MOH and spoke with Melissa Syrja. BWA issued to home owners.	-	-	Collect 1 bacteriological sample.	07-Mar-2020
26-Mar-2020	Loss of pressure to 15 homes and 1 business. Call MOH, BWA issued to affected area.	-	-	Collect 1 bacteriological sample.	30-Mar-2020
15-Apr-2020	Exceeded lead limit at hydrant.	13.3	ug/L	Flush hydrant and resample.	27-Apr-2020

30-Apr-2020	Loss of pressure due to hydrant replacement/repair affecting 6 businesses. BWA issued for affected area.	-	-	Collect 1 bacteriological sample.	05-May-2020
15-Jul-2020	Loss of pressure to 18 homes. Installing new 2" line to the fire hall from the 12" main line.	-	-	Flush main, collect 1 bacteriological sample.	17-Jul-2020
25-Aug-2020	Loss of pressure due to hydrant relocation at school affecting 25 homes. BWA issued for affected area.	-	-	Flush main, collect 1 bacteriological sample.	28-Aug-2020
20-Oct-2020	Loss of pressure to 4 homes, 1 nurses residence and hospital. Located on 4th Ave SW between 4th St West and 5th St West. Installing new valve and hydrant for the Hospital.	-	-	Collect 1 bacteriological sample.	23-Oct-2020
18-Dec-2020	Loss of pressure to 1 home due to repair of a broken 6" water main and changing out a fire hydrant. Flushing after repair was done.	-	-	Collect 1 bacteriological sample.	30-Dec-2020

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	53	0 – 3	0 – 201	N/A	N/A
Treated	52	0 – 0	0 – 0	52	0 – 1
Distribution	157	0	0	46	0 – 7

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	250	0.09 – 5.37 NTU
Filter #1	8760	0.00 – 1.81 NTU
Filter #2	8760	0.00 – 3.00 NTU
Chlorine*		
Treated	8760	0.00 – 4.99
Distribution	403	0.10 – 2.06
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	08-Jun-2020 13-Jul-2020 11-Aug-2020 01-Sept-2020	4.8 <3.0 <3.0 <3.0	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 2020	3.45	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	13-Jan-2020	<0.6	µg/L	No
Arsenic	13-Jan-2020	<1.0	µg/L	No
Barium	13-Jan-2020	<10.0	µg/L	No
Boron	13-Jan-2020	<50.0	µg/L	No
Cadmium	13-Jan-2020	<0.1	µg/L	No
Chromium	13-Jan-2020	<1.0	µg/L	No
***Lead**	Refer to Summary Table Below			
Mercury	13-Jan-2020	<0.1	µg/L	No
Selenium	13-Jan-2020	<1.0	µg/L	No
Sodium	09-Jan-2019	17.2	mg/L	No
Uranium	13-Jan-2020	<2.0	µg/L	No
Fluoride	09-Jan-2019	<0.02	mg/L	No
Nitrite	13-Jan-2020	<0.010	mg/L	No
	07-Apr-2020	<0.010	mg/L	No
	13-Jul-2020	<0.010	mg/L	No
	05-Oct-2020	<0.010	mg/L	No
Nitrate	13-Jan-2020	0.037	mg/L	No
	07-Apr-2020	0.226	mg/L	No
	13-Jul-2020	0.055	mg/L	No
	05-Oct-2020	<0.02	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	5	1 – 13.3 µg/L	1

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	13-Jan-2020	<0.1	µg/L	No
Atrazine	13-Jan-2020	<0.2	µg/L	No
Atrazine & Metabolites	13-Jan-2020	<0.1	µg/L	No
Azinphos-methyl	13-Jan-2020	<0.1	µg/L	No
Benzene	13-Jan-2020	<0.5	µg/L	No
Benzo(a)pyrene	13-Jan-2020	<0.005	µg/L	No
Bromoxynil	13-Jan-2020	<0.2	µg/L	No
Carbaryl	13-Jan-2020	<0.2	µg/L	No
Carbofuran	13-Jan-2020	<0.2	µg/L	No
Carbon Tetrachloride	13-Jan-2020	<0.2	µg/L	No
Chlorpyrifos	13-Jan-2020	<0.1	µg/L	No
Diazinon	13-Jan-2020	<0.1	µg/L	No
Dicamba	13-Jan-2020	<0.2	µg/L	No
1,2-Dichlorobenzene	13-Jan-2020	<0.5	µg/L	No
1,4-Dichlorobenzene	13-Jan-2020	<0.5	µg/L	No
1,2-Dichloroethane	13-Jan-2020	<0.5	µg/L	No
1,1-Dichloroethylene (vinylidene chloride)	13-Jan-2020	<0.5	µg/L	No
Dichloromethane	13-Jan-2020	<5.0	µg/L	No
2-4 Dichlorophenol	13-Jan-2020	<0.3	µg/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	13-Jan-2020	<0.2	µg/L	No
Diclofop-methyl	13-Jan-2020	<0.2	µg/L	No
Dimethoate	13-Jan-2020	<0.1	µg/L	No
Diquat	13-Jan-2020	<1.0	µg/L	No
Diuron	13-Jan-2020	<1.0	µg/L	No
Glyphosate	13-Jan-2020	<5.0	µg/L	No
Haloacetic acids (HAA)* (NOTE: show latest annual average)	05-Oct-2020 2020 Average	45.3 27.6	µg/L	No
Malathion	13-Jan-2020	<0.1	µg/L	No
Metolachlor	13-Jan-2020	<0.1	µg/L	No
Metribuzin	13-Jan-2020	<0.1	µg/L	No
Monochlorobenzene	13-Jan-2020	<0.5	µg/L	No
Paraquat	13-Jan-2020	<1.0	µg/L	No
Pentachlorophenol	13-Jan-2020	<0.5	µg/L	No
Phorate	13-Jan-2020	<0.1	µg/L	No
Picloram	13-Jan-2020	<0.2	µg/L	No
Polychlorinated Biphenyls(PCB)	13-Jan-2020	<0.035	µg/L	No
Prometryne	13-Jan-2020	<0.1	µg/L	No
Simazine	13-Jan-2020	<0.1	µg/L	No
THM (NOTE: show latest annual average)	05-Oct-2020 2020 Average	66.5 44.4	µg/L µg/L	No No

Terbufos	13-Jan-2020	<0.2	µg/L	No
Tetrachloroethylene	13-Jan-2020	<0.5	µg/L	No
2,3,4,6-Tetrachlorophenol	13-Jan-2020	<0.5	µg/L	No
Triallate	13-Jan-2020	<0.1	µg/L	No
Trichloroethylene	13-Jan-2020	<0.5	µg/L	No
2,4,6-Trichlorophenol	13-Jan-2020	<0.5	µg/L	No
Trifluralin	13-Jan-2020	<0.1	µg/L	No
Vinyl Chloride	13-Jan-2020	<0.2	µg/L	No
MCPA	13-Jan-2020	<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
Lead on Hydrant	13.3	ug/L	06-Apr-2020

2020 Section 11 Annual Report

Longlac Drinking Water System

February 2021

Prepared by the

Ontario Clean Water Agency
Agence Ontarienne Des Eaux

Section 11 ANNUAL REPORT

Drinking-Water System Number:	**220000264**
Drinking-Water System Name:	Longlac 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, 2020

Complete if your Category is Large Municipal Residential or Small Municipal Residential	***Complete for all other Categories.***
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 **Longlac Ward Office** 105 Hamel Avenue Longlac, ON P0T 2A0	**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 Longlac Water Treatment Plant (WTP), located on Park Street, draws raw water from Long Lake. The WTP is a package plant, consisting of two Graver Reactors/Filters. Treatment includes coagulation, flocculation, and sedimentation with the aid of tube settlers, filtration, corrosion control and disinfection. This plant has a design capacity of 6,050 m^3/day. The WTP presently serves a population of approximately 1750 persons within the community and 500 persons within two First Nations. The WTP was designed with the anticipation that the community would experience growth.

Long Lake is the sole source of supply for the Longlac water system. A surface water intake with 245 m of 450 mm diameter intake piping through two course screens convey water by gravity to the intake well, and the low lift pumping chamber. Alum is the coagulant and the flocculation aid is Nalclear 8181 (polymer), they are added to the raw water between the low lift pumps and the treatment unit. The water is then pumped to the *Graver* Reactors/Filters Treatment Unit. The Reactivators are solids contact clarifiers combining coagulation, flocculation, and sedimentation in one unit. The water is flocculated, and the floc settled out using tube settlers in the solids contact clarifier and by maintaining a sludge blanket. The water then passes through a two-compartment dual media (sand and anthrafilt) filter.

Once through the filters the water is chlorinated with chlorine gas; and Carus 8500 orthophosphate is added for corrosion control. The water then enters a treated water reservoir. The reservoir, located beneath the process floor, is divided into three compartments with a total capacity of 705 m^3. Three high lift pumps deliver the finished water to the distribution system. The elevated storage tank with a capacity of 2273 m^3 provides emergency storage and fire flow. Pressure is controlled by a pilot operated Pressure Relief Valve.

Wastewater from the filter backwash and clarifier blowdown is collected in a wastewater storage tank, and then pumped to the municipal sanitary sewer system.

A 200-kW-diesel generator provides standby power to the entire WTP.

List all water treatment chemicals used over this reporting period

- Aluminum Sulphate
- Chlorine Gas
- Carus 8500
- Nalclear 8181 Polymer

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	N/A	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
20-May-2020	Loss of coagulation (alum) due to power failure. GFCI breaker tripped.	-	-	Restore power, operate in manual mode to waste to restore clarifier. Replace receptacle and rewired alum panel through UPS	21-May-2020

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	54	0 – 16	1 – 1200	N/A	N/A
Treated	54	0 – 0	0 – 0	53	0 – 2
Distribution	124	0 – 0	0 – 0	55	0 – 295

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	236	0.4 – 11.0 NTU
Filter #1	8760	0.0 – 2.99 NTU
Filter #2	8760	0.0 – 2.99 NTU
Chlorine*		
Treated	8760	0.0 – 4.99
Distribution	367	0.32 – 1.84
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
N/A	N/A	N/A	N/A	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	09-Jan-2020	<0.6	µg/L	No
Arsenic	09-Jan-2020	<1.0	µg/L	No
Barium	09-Jan-2020	11.0	µg/L	No
Boron	09-Jan-2020	<50.0	µg/L	No
Cadmium	09-Jan-2020	<0.1	µg/L	No
Chromium	09-Jan-2020	<1.0	µg/L	No
***Lead**	Refer to Summary Table Below			
Mercury	09-Jan-2020	<0.1	µg/L	No
Selenium	09-Jan-2020	<1.0	µg/L	No
Sodium	11-Jan-2017	3.7	mg/L	No
Uranium	09-Jan-2020	<2.0	µg/L	No
Fluoride	11-Jan-2017	<0.02	mg/L	No
Nitrite	07-Jan-2020 07-Apr-2020 07-Jul-2020 07-Oct-2020	<0.01 <0.01 <0.01 <0.01	mg/L mg/L mg/L mg/L	No No No No
Nitrate	07-Jan-2020 07-Apr-2020 07-Jul-2020 07-Oct-2020	0.079 0.104 0.042 0.034	mg/L mg/L mg/L mg/L	No No No 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 – 1.9 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	09-Jan-2020	<0.1	µg/L	No
Atrazine	09-Jan-2020	<0.2	µg/L	No
Atrazine & Metabloites	09-Jan-2020	<0.1	µg/L	No
Azinphos-methyl	09-Jan-2020	<0.1	µg/L	No
Benzene	09-Jan-2020	<0.5	µg/L	No
Benzo(a)pyrene	09-Jan-2020	<0.005	µg/L	No
Bromoxynil	09-Jan-2020	<0.2	µg/L	No
Carbaryl	09-Jan-2020	<0.2	µg/L	No
Carbofuran	09-Jan-2020	<0.2	µg/L	No
Carbon Tetrachloride	09-Jan-2020	<0.2	µg/L	No
Chlorpyrifos	09-Jan-2020	<0.1	µg/L	No
Diazinon	09-Jan-2020	<0.1	µg/L	No
Dicamba	09-Jan-2020	<0.2	µg/L	No
1,2-Dichlorobenzene	09-Jan-2020	<0.5	µg/L	No
1,4-Dichlorobenzene	09-Jan-2020	<0.5	µg/L	No
1,2-Dichloroethane	09-Jan-2020	<0.5	µg/L	No
1,1-Dichloroethylene (vinylidene chloride)	09-Jan-2020	<0.5	µg/L	No
Dichloromethane	09-Jan-2020	<5.0	µg/L	No
2-4 Dichlorophenol	09-Jan-2020	<0.3	µg/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	09-Jan-2020	<0.2	µg/L	No
Diclofop-methyl	09-Jan-2020	<0.2	µg/L	No
Dimethoate	09-Jan-2020	<0.1	µg/L	No
Diquat	09-Jan-2020	<1.0	µg/L	No
Diuron	09-Jan-2020	<1.0	µg/L	No
Glyphosate	09-Jan-2020	<5.0	µg/L	No

Haloacetic acids (HAA) **(**NOTE**:** show latest annual average**)**	07-Oct-2020 2020 Average	29.7 38.3	µg/L	No
Malathion	09-Jan-2020	<0.1	µg/L	No
Metolachlor	09-Jan-2020	<0.1	µg/L	No
Metribuzin	09-Jan-2020	<0.1	µg/L	No
Monochlorobenzene	09-Jan-2020	<0.5	µg/L	No
Paraquat	09-Jan-2020	<1.0	µg/L	No
Pentachlorophenol	09-Jan-2020	<0.5	µg/L	No
Phorate	09-Jan-2020	<0.1	µg/L	No
Picloram	09-Jan-2020	<0.2	µg/L	No
Polychlorinated Biphenyls(PCB)	09-Jan-2020	<0.035	µg/L	No
Prometryne	09-Jan-2020	<0.1	µg/L	No
Simazine	09-Jan-2020	<0.1	µg/L	No
THM **(**NOTE**:** show latest annual average**)**	07-Oct-2020 2020 Average	36.1 38.0	µg/L µg/L	No No
Terbufos	09-Jan-2020	<0.2	µg/L	No
Tetrachloroethylene	09-Jan-2020	<0.5	µg/L	No
2,3,4,6-Tetrachlorophenol	09-Jan-2020	<0.5	µg/L	No
Triallate	09-Jan-2020	<0.1	µg/L	No
Trichloroethylene	09-Jan-2020	<0.5	µg/L	No
2,4,6-Trichlorophenol	09-Jan-2020	<0.5	µg/L	No
Trifluralin	09-Jan-2020	<0.1	µg/L	No
Vinyl Chloride	09-Jan-2020	<0.2	µg/L	No
MCPA	09-Jan-2020	<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
N/A	N/A	N/A	N/A

2020 Section 11 Annual Report

Nakina Drinking Water System

February 2021

Prepared by the

Ontario Clean Water Agency
Agence Ontarienne Des Eaux

Section 11 ANNUAL REPORT

Drinking-Water System Number:	**220000200**
Drinking-Water System Name:	Nakina Well Supply
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, 2020

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
Nakina Ward Office
200 Centre Avenue
Nakina, ON P0T 2H0

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 Nakina Water Supply System is supplied by two (2) groundwater wells. The water supply aquifer utilized by the Corporation of the Municipality of Greenstone – Nakina Ward lies within an esker complex (significant sand and gravel deposit). These deposits are common throughout the area and the most extensive of these features trend southwesterly through the Township. Composed primarily of gravelly sand, this broad belt stretches approximately 4 km in width and 60 km in length. The two wells are located approximately 72 m from the southeastern shore of Rounds Lake.

The wells are housed within the same building, and a common header delivers water to the reservoir beneath the high lift pumping station. The water is chlorinated using sodium hypochlorite at the entry point to the reservoir. The high lift and fire pumps draw water from the reservoir for the delivery to the system.

Wells #1 & #2 are each capable of supplying 18.9 L/s, and were designed to be operated simultaneously for a total of 37.9 L/s. Fire flow and emergency storage is supplied from the reservoir. The facility presently serves a population of approximately 700 persons and was designed with the anticipation of growth within the community.

A 60 kW diesel generator provides standby power for the well pumps and a 200 kW diesel generator provides power for the chemical feed system and the high lift and fire pumps.

In a hydro geological study conducted by KGS Group, the wells were identified **as not** under the direct influence of surface water.

List all water treatment chemicals used over this reporting period

- Sodium Hypochlorite

Were any significant expenses incurred to?

[X] Install required equipment
[ ] 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			Low lift pump installation	$13,885.96

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
16-Apr-2020	Lead exceedance on hydrant	12.5	ug/L	Resample	28-Apr-2020

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					
Well 1	51	0 – 0	0 – 0	N/A	N/A
Well 2	51	0 – 0	0 – 0	N/A	N/A
Treated	52	0 – 0	0 – 0	51	0 – 1
Distribution	104	0 – 0	0 – 0	28	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 Well #1	72	0.16 – 0.38 NTU
Raw Well #2	166	0.027 – 0.82 NTU
Treated	8760	0.00 – 9.88 NTU
Chlorine*		
Treated	8760	0.00 – 3.81
Distribution	353	0.45 – 1.18
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
N/A	N/A	N/A	N/A	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	03-Jan-2020	<0.6	µg/L	No
Arsenic	03-Jan-2020	<1.0	µg/L	No
Barium	03-Jan-2020	14.0	µg/L	No
Boron	03-Jan-2020	<50.0	µg/L	No
Cadmium	03-Jan-2020	<0.1	µg/L	No
Chromium	03-Jan-2020	<1.0	µg/L	No
***Lead**	Refer to Summary Table Below			
Mercury	03-Jan-2020	<0.1	µg/L	No
Selenium	03-Jan-2020	<1.0	µg/L	No
Sodium	09-Dec-2019	12.5	mg/L	No
Uranium	03-Jan-2020	<2.0	µg/L	No
Fluoride	09-Dec-2019	0.051	mg/L	No
Nitrite	02-Mar-2020 04-May-2020 13-Jul-2020 05-Oct-2020	<0.01 <0.01 <0.01 <0.01	mg/L mg/L mg/L	No No No

			mg/L	No
Nitrate	02-Mar-2020 04-May-2020 13-Jul-2020 05-Oct-2020	0.122 0.161 0.245 0.16	mg/L mg/L mg/L mg/L	No No No 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	5	0 – 12.5 ug/L	1

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	03-Jan-2018	<0.1	µg/L	No
Atrazine + N-dealkylated metobolites	03-Jan-2018	<0.2	µg/L	No
Azinphos-methyl	03-Jan-2018	<0.1	µg/L	No
Benzene	03-Jan-2018	<0.5	µg/L	No
Benzo(a)pyrene	03-Jan-2018	<0.01	µg/L	No
Bromoxynil	03-Jan-2018	<0.2	µg/L	No
Carbaryl	03-Jan-2018	<0.2	µg/L	No
Carbofuran	03-Jan-2018	<0.2	µg/L	No
Carbon Tetrachloride	03-Jan-2018	<0.2	µg/L	No
Chlorpyrifos	03-Jan-2018	<0.1	µg/L	No
Diazinon	03-Jan-2018	<0.1	µg/L	No
Dicamba	03-Jan-2018	<0.2	µg/L	No
1,2-Dichlorobenzene	03-Jan-2018	<0.5	µg/L	No
1,4-Dichlorobenzene	03-Jan-2018	<0.5	µg/L	No
1,2-Dichloroethane	03-Jan-2018	<0.5	µg/L	No

1,1-Dichloroethylene (vinylidene chloride)	03-Jan-2018	<0.5	µg/L	No
Dichloromethane	03-Jan-2018	<0.5	µg/L	No
2-4 Dichlorophenol	03-Jan-2018	<0.3	µg/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	03-Jan-2018	<0.2	µg/L	No
Diclofop-methyl	03-Jan-2018	<0.2	µg/L	No
Dimethoate	03-Jan-2018	<0.1	µg/L	No
Diquat	03-Jan-2018	<1.0	µg/L	No
Diuron	03-Jan-2018	<1.0	µg/L	No
Glyphosate	03-Jan-2018	<5.0	µg/L	No
Haloacetic acids (HAA)* (NOTE: show latest annual average)	23-Oct-2019 2019 Average	9.6 7.7	µg/L	No
Malathion	03-Jan-2018	<0.1	µg/L	No
Metolachlor	03-Jan-2018	<0.1	µg/L	No
Metribuzin	03-Jan-2018	<0.1	µg/L	No
Monochlorobenzene	03-Jan-2018	<0.5	µg/L	No
Paraquat	03-Jan-2018	<1.0	µg/L	No
Pentachlorophenol	03-Jan-2018	<0.5	µg/L	No
Phorate	03-Jan-2018	<0.1	µg/L	No
Picloram	03-Jan-2018	<0.2	µg/L	No
Polychlorinated Biphenyls(PCB)	03-Jan-2018	<0.035	µg/L	No
Prometryne	03-Jan-2018	<0.1	µg/L	No
Simazine	03-Jan-2018	<0.1	µg/L	No
THM (NOTE: show latest annual average)	23-Oct-2019 2019 Average	12.8 12.1	µg/L µg/L	No No
Terbufos	03-Jan-2018	<0.2	µg/L	No
Tetrachloroethylene	03-Jan-2018	<0.5	µg/L	No
2,3,4,6-Tetrachlorophenol	03-Jan-2018	<0.5	µg/L	No
Triallate	03-Jan-2018	<0.1	µg/L	No
Trichloroethylene	03-Jan-2018	<0.5	µg/L	No
2,4,6-Trichlorophenol	03-Jan-2018	<0.5	µg/L	No
2-methyl-4-chlorophenoxyacetic acid (MCPA)	03-Jan-2018	<0.2	ug/L	No
Trifluralin	03-Jan-2018	<0.1	µg/L	No
Vinyl Chloride	03-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
Lead on Hydrant	12.5	ug/L	08-Apr-2020