Ontario Clean Water Agency
Agence Ontarienne Des Eaux

Annual Summary Report

Varna Drinking Water System

2019

Prepared for the Municipality of Bluewater

By the Ontario Clean Water Agency

Varna Drinking Water System - Annual Summary Report 2019

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SECTION 1

Statement of Compliance

This report is a summary of water quantity and quality information for the Varna Drinking Water System and published in accordance with Schedule 22 of Ontario's Safe Drinking Water Act, Ontario Regulation 170/03 for the reporting period of January 1, 2019 to December 31, 2019. The Varna Drinking Water System is categorized as a Small Municipal Residential Drinking Water System.

This report was prepared by the Ontario Clean Water Agency on behalf of the Municipality of Bluewater.

The Varna Drinking Water System was operated and maintained in such a manner that the water supplied to the consumers serviced by the system satisfied all the requirements in the Safe Drinking Water Act, the Regulations, the Drinking Water Works Permit Number: 045-206, Issue Number: 1, the Municipal Drinking Water Licence Number: 045-106, Issue Number 2 and the Permit to Take Water 0266-AE9NRG. The last Ministry of Environment, Conservation & Parks (MECP) inspection occurred on December 10, 2018; one (1) non-compliance issue was identified. MECP Inspection report number 1-lCT7G was received February 8, 2019; inspection rating was 98.64%. Details of this last MECP inspection were documented in the 2018 Annual Report submitted. No Ministry of Environment, Conservation & Parks inspection occurred in 2019.

SECTION 2

Details of the non-compliance issues as well as how and when any non-compliance issues were corrected

There was one (1) non-compliance event reported in 2019.

Non Compliance:
Free Residual Chlorine online measurement is required every 5 minutes; free chlorine residual data is missing for a period of 88 minutes. (October 2, 2019 between 11:32 and 13:00).

Action(s):
Operator discovered that the online chlorine analyzer was off line; the facility had utility power and no alarms were called out. The Operator cycled the power to the analyzer which restored the analyzer online monitoring and recording function. An electrician was called on site to troubleshoot.

Resolution:
Power was restored to the online chlorine analyzer on October 2, 2019. An electrician installed a UPS back up power unit for the chlorine analyzer at the Varna pump house to prevent this failure in the future.

Details of adverse water quality or potential issues reported as well as how and when any adverse water quality issues were corrected

There was one (1) incident of adverse water quality or potential issues reported in the 2019 reporting period.

AWQI # 145122

On April 4, 2019 Adverse Water Quality Incident # 145122 was issued; a treated water low chlorine event resulted in a failure to meet the system required CT. Chlorine injection was restored to meet the required CT; distribution system was flushed to ensure that the free residual chlorine was compliant.

There were zero (0) spill incidents reported in 2019.

SECTION 3

Summary and discussion of quantity of water supplied

In accordance with Schedule 22-2 (3) "the report must also include the following information for the purpose of enabling the owner of the system to assess the capability of the system to meet existing and planned uses of the system."

1. A summary of the quantities and totalized volume of water supplied during the period covered by this report including monthly averages, maximum daily and the annual total flow with respect to DWS # 260019630

The total flow for 2019 was 9,228 m³/ yr. The average monthly treated flow in 2019 was 769 m³ per month; the average daily treated flow was 25.28 m³/day. The maximum monthly flow for the reporting period was 1247 m³/ month recorded for July 2019. The maximum daily flow for 2019 was 55 m³/ day recorded on August 2, 2019.

Varna Drinking Water System
2019 Water Flows - Cubic Meters

Month	Total Raw Flow m³	Total Treated Flow m³	Monthly Treated Average m³/day	Maximum Daily Treated Flow m³/day	Rated Capacity approved in MDWL (m³/d)
January	567	567	18.29	23	144
February	499	499	17.82	19	144
March	560	560	18.06	21	144
April	564	564	18.8	26	144
May	733	733	23.64	33.6	144
June	875	875	29.17	32	144
July	1247	1247	40.23	51	144
August	1191	1191	38.42	55	144
September	1023	1023	34.1	46	144
October	739	739	23.84	35	144
November	602	602	20.07	25	144
December	628	628	20.26	25	144
Total	9228	9228	-	-	-
Average	-	-	25.28	-	-

There were no exceedances of the rated capacity. The maximum daily flow for 2019 of 55 m³/ day recorded on August 2, 2019 is 38.1 % of the rated capacity of the plant. The plant average daily flow in 2019 was 25.28 m³ /d; this is 17.55 % of the rated capacity of the plant.

Note: Facility has only one flow meter, raw and treated flows are one and the same.

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

ANNUAL REPORT

Drinking-Water System Number:	260019630
Drinking-Water System Name:	Varna Drinking Water System
Drinking-Water System Owner:	Municipality of Bluewater
Drinking-Water System Category:	Small Municipal Residential System
Period being reported:	January 01, 2019 – December 31, 2019

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? No **Is your annual report available to the public at no charge on a web site on the Internet?** Yes **Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.** Corporation of the Municipality of Bluewater 14 Mill Ave., Zurich, Ontario N0M 2T0	**Number of Designated Facilities served:** Not applicable **Did you provide a copy of your annual report to all Designated Facilities you serve?** Not applicable **Number of Interested Authorities you report to:** Not applicable **Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility?** Not applicable

List all Drinking-Water Systems (if any), which receive all of their drinking water from your system:
Not applicable

Did you provide a copy of your annual report to all Drinking-Water System owners that are connected to you and to whom you provide all of its drinking water?
Not applicable

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-Water Department Office
[ ] Public access/notice via a newspaper
[X] Public access/notice via Public Request
[ ] Public access/notice via a Public Library
[ ] Public access/notice via other method _____

Describe your Drinking-Water System

The Varna Water Supply and Distribution System serves the community of Varna located in the Municipality of Bluewater; approximate population served is 100.

Water is sourced from a 73 m deep well; the well has a 15.2 cm diameter casing installed to a depth of 57.3 m and extends above grade approximately 33 cm. The well has a 100 mm diameter sleeve installed

from 57.3 m to 73 m. The well is equipped with a 1.6 L/s, 3 HP/1Ph/ 230V Franklin, 10E14 model submersible pump. The well pump was installed at a depth of 65.8 m with 32 mm diameter galvanized steel discharge piping.

There are 3 - 450 L chlorine contact tanks in the existing pump house. A 12 kW Briggs and Stratton standby propane generator was installed in 2007. Other existing equipment includes: 3 - WR260 Well Rite pressure tanks, a 60 L chlorine storage tank, a Stenner 45-MHP2 chlorine pump, and various other pressure gauges, meters, and sample taps.

The normal operating pressure in the system is set by the pressure switch in the well house to between 275 and 415 kPa; typical operating pressures in this system are in the range of 250 to 450 kPa.

All 50 mm diameter watermain is Series 200 conforming to CSA B137.1 and AWWA C901; fittings meet AWWA C906.

Flushing devices (50 mm dia. blow-offs) are provided at each dead-end.

The Varna Drinking Water System contains no fire hydrants.
There are no air and/or vacuum relief valves.

List all water treatment chemicals used over this reporting period

Sodium Hypochlorite

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

System, repairs, replacements and upgrades include;

- Raising and installing a new Pump House roof
- Installing a new standard height locked entrance door on the Pump House
- Installing new Pump House building exterior cladding
- Replenish system equipment maintenance and repair parts

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
AWQI # 145122 Issued April 4, 2019	Primary Disinfection	0.3	CT	A treated water low chlorine event resulted in a failure to meet the system required CT. Chlorine injection was restored to meet required CT; distribution system was flushed to ensure FRC compliant	April 4, 2019

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
Oct. 2, 2019	Free Chlorine Residual Online Analyzer Measurement	88 minutes of data missing	Timed measurement; FRC online measurement required every 5 minutes	Equipment failure resulted in loss of FRC online monitoring for 88 minutes. Operator discovered the online chlorine analyzer was off line; the facility had utility power and no alarms were called out. Operator cycled the power to the analyzer which restored online monitoring and recording function. Free chlorine residual data was missing for 88 minutes (11:32 and 13:00).	October 2, 2019

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	12	0 – 0	0 – 1	-	-
Treated	44	0 – 0	0 – 0	44	<10 - 40
Distribution	97	0 – 0	0 – 0	97	<10 - 120

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
Raw Water Turbidity (NTU)	12	0.32 – 0.86
Treated Water Chlorine (mg/l)	*8760	0.17 – 1.97
Distribution Chlorine (mg/l)	187	0.58 – 1.90

* Continuous monitoring

Summary of additional testing and sampling carried out in accordance with the requirement of an approval, order or other legal instrument.

Not applicable

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

TREATED WATER	Sample Date (mm/dd/yyyy)	Sample Result	MAC	No. of Exceedances	
				MAC	1/2 MAC
Antimony: Sb (ug/L) - TW	10/23/2017	< 0.04	6.0	No	No
Arsenic: As (ug/L) - TW	10/23/2017	1.5	25.0	No	No
Barium: Ba (ug/L) - TW	10/23/2017	116	1000.0	No	No
Boron: B (ug/L) - TW	10/23/2017	68	5000.0	No	No
Cadmium: Cd (ug/L) - TW	10/23/2017	< 0.004	5.0	No	No
Chromium: Cr (ug/L) - TW	10/23/2017	0.63	50.0	No	No
Mercury: Hg (ug/L) - TW	10/23/2017	< 0.01	1.0	No	No
Selenium: Se (ug/L) - TW	10/23/2017	< 0.04	10.0	No	No
Uranium: U (ug/L) - TW	10/23/2017	1.08	20.0	No	No

TREATED WATER	Sample Date (mm/dd/yyyy)	Sample Result	MAC	No. of Exceedances	
				MAC	1/2 MAC
Additional Inorganics					
Fluoride (mg/L) - TW	10/23/2017	1.34	1.5	No	No
Nitrite (mg/L) - TW	01/07/2019	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	04/01/2019	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	07/02/2019	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	10/07/2019	<MDL 0.003	1.0	No	No
Nitrate (mg/L) - TW	01/07/2019	<MDL 0.006	10.0	No	No
Nitrate (mg/L) - TW	04/01/2019	<MDL 0.006	10.0	No	No
Nitrate (mg/L) - TW	07/02/2019	<MDL 0.006	10.0	No	No
Nitrate (mg/L) - TW	10/07/2019	0.011	10.0	No	No
Sodium: Na (mg/l) – TW	10/23/2017	9.56	20	No	No

Summary of lead testing under Schedule 15.1 during this reporting period

Location Type	Date Sampled	Number of Samples	Range of Lead Results ug/l (min–max)	Alkalinity mg/l (min–max)	pH (min–max)	Number of Exceedances
Distribution	April 01, 2019	2	0.18 – 0.18	235 - 248	7.1 – 7.1	0
Distribution	Sept. 12, 2019	2	0.06 – 0.54	223 - 229	7.03 – 7.11	0

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

Treated Water	Sample Date (mm/dd/yyyy)	Sample Result	No. of Exceedances	
			MAC	MAC
Alachlor (ug/L) - TW	10/23/2017	< 0.02	5.00	No
Atrazine + N-dealkylated metabolites (ug/L) - TW	10/23/2017	< 0.01	5.00	No
Atrazine (ug/L) – TW	10/23/2017	<0.01		No
Azinphos-methyl (ug/L) - TW	10/23/2017	< 0.05	20.00	No
Benzene (ug/L) - TW	10/23/2017	< 0.32	1.00	No
Benzo(a)pyrene (ug/L) - TW	10/23/2017	< 0.004	0.01	No
Bromoxynil (ug/L) - TW	10/23/2017	< 0.33	5.00	No
Carbaryl (ug/L) - TW	10/23/2017	< 0.05	90.00	No
Carbofuran (ug/L) - TW	10/23/2017	< 0.01	90.00	No
Carbon Tetrachloride (ug/L) - TW	10/23/2017	< 0.16	2.00	No
Chlorpyrifos (ug/L) - TW	10/23/2017	< 0.02	90.00	No
Desethyl atrazine (ug/L) – TW	10/23/2017	<0.01		No
Diazinon (ug/L) - TW	10/23/2017	< 0.02	20.00	No
Dicamba (ug/L) - TW	10/23/2017	< 0.20	120.00	No
1,2-Dichlorobenzene (ug/L) - TW	10/23/2017	< 0.41	200.00	No
1,4-Dichlorobenzene (ug/L) - TW	10/23/2017	< 0.36	5.00	No
1,2-Dichloroethane (ug/L) - TW	10/23/2017	< 0.35	5.00	No
1,1-Dichloroethylene (ug/L) - TW	10/23/2017	< 0.33	14.00	No
Dichloromethane (Methylene Chloride) (ug/L) - TW	10/23/2017	< 0.35	50.00	No
2,4-Dichlorophenol (ug/L) - TW	10/23/2017	< 0.15	900.00	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW	10/23/2017	< 0.19	100.00	No
Diclofop-methyl (ug/L) - TW	10/23/2017	< 0.40	9.00	No
Dimethoate (ug/L) - TW	10/23/2017	< 0.03	20.00	No
Diquat (ug/L) - TW	10/23/2017	< 2.0	70.00	No
Diuron (ug/L) - TW	10/23/2017	< 0.03	150.00	No
Glyphosate (ug/L) - TW	10/23/2017	< 1.0	280.00	No
Malathion (ug/L) - TW	10/23/2017	< 0.02	190.00	No
Metolachlor (ug/L) - TW	10/23/2017	< 0.01	50.00	No
Metribuzin (ug/L) - TW	10/23/2017	< 0.02	80.00	No
MCPA (mg/L) – TW	10/23/2017	0.00012	0.1	No
Monochlorobenzene (Chlorobenzene) (ug/L) - TW	10/23/2017	< 0.3	80.00	No
Paraquat (ug/L) - TW	10/23/2017	< 2.0	10.00	No
PCB (ug/L) - TW	10/23/2017	< 0.04	3.00	No
Pentachlorophenol (ug/L) - TW	10/23/2017	< 0.15	60.00	No
Phorate (ug/L) - TW	10/23/2017	< 0.01	2.00	No
Picloram (ug/L) - TW	10/23/2017	< 1.0	190.00	No
Prometryne (ug/L) - TW	10/23/2017	< 0.03	1.00	No
Simazine (ug/L) - TW	10/23/2017	< 0.01	10.00	No
Terbufos (ug/L) - TW	10/23/2017	< 0.01	1.00	No
Tetrachloroethylene (ug/L) - TW	10/23/2017	< 0.35	30.00	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW	10/23/2017	< 0.20	100.00	No
Triallate (ug/L) - TW	10/23/2017	< 0.01	230.00	No
Trichloroethylene (ug/L) - TW	10/23/2017	< 0.44	5.00	No
2,4,6-Trichlorophenol (ug/L) - TW	10/23/2017	< 0.25	5.00	No
Trifluralin (ug/L) - TW	10/23/2017	< 0.02	45.00	No
Vinyl Chloride (ug/L) - TW	10/23/2017	< 0.17	1.00	No

DISTRIBUTION WATER		Sample Result	MAC	Exceedance
Trihalomethane: Total (ug/L):show the latest annual average	Running Average January 1st - Dec. 31st 2019	1.4	100.00	No
Total Haloacetic Acids: (ug/L): show the latest annual average	Running Average January 1st - Dec. 31st 2019	< 5.3	NA	N A

List any Inorganic or Organic parameter(s) that exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards.

Not applicable