



Ontario Clean Water Agency
Agence Ontarienne Des Eaux

WIARTON
DRINKING WATER SYSTEM

Large Municipal Residential

SCHEDULE 22
SUMMARY REPORT

For the period of
JANUARY 1, 2017 TO DECEMBER 31, 2017

Prepared by the Ontario Clean Water Agency
For The Corporation of the Town of South Bruce Peninsula

Summary

This report is a summary of water quality and quantity information submitted in accordance with Schedule 22 of Ontario’s Drinking Water System Regulation for the reporting period of January 1, 2017 to December 31, 2017 for the Wiarton Drinking Water System located in the Town of South Bruce Peninsula. The summary includes the following information:

- Any requirements of the Act and Regulation, Orders or System Approval(s) that the system failed to meet during the reporting period and the measures taken to correct each failure.
- A summary of the quantities and flow rates of water supplied during the reporting period, including monthly averages and maximum daily flows.
- A comparison of the average and monthly maximum daily flows to the approved capacity specified in the System Approval.

Issues of Non-Compliance

An MOECC Drinking Water System Inspection was performed on January 30, 2017. On April 5, 2017 the report for this inspection was issued, the Wiarton Drinking Water System received an inspection rating of 100%.

The following is a summary of the requirements of the Act, the regulations, the system’s approval, drinking water works permit, municipal drinking water license, and any orders applicable to the system that were not met at any time during the period covered by the report; as well as the duration of the failure and the measures that were taken to correct the failure:

| Non-Compliance(s) | Duration | Required Actions & Corrective Actions |
|--|--|--|
| <p>Weekly Treated Water (TW) heterotrophic plate count (HPC) sample date did not meet the requirements of a weekly sample as it was not taken at least five days after the previous weekly sample</p> <ul style="list-style-type: none"> • Laboratory equipment failure on Monday’s samples required operators to resample (Thursday). Operators took the next samples on Monday (4 days later, not meeting the regulation of a weekly sample 5 to 10 days) | <p>March 27, 2017 Weekly TW Sample</p> | <p>Corrective Actions:</p> <ul style="list-style-type: none"> • Reviewed the requirements as per O.Reg 170/03 for frequency and sampling and equipment checks with Operations Staff at the next staff meeting. • Reviewed with staff where the most recent copy of O.Reg 170/03 can be found (a copy is on the Shared Drive and can be found online). • Reviewed the summary of the frequency and sampling and equipment checks which is provided on the sampling schedule. |

Refer to the Section 11 Annual Report for a summary of any Adverse Water Quality Incident(s) which occurred during the reporting period.

Assessment of Flowrates and Quantity of Water Supplied

The following tables summarize the quantities (Table 1) and flow rates (Table 2) of the water supplied during the period covered by the report, including monthly average and maximum daily flows as well as a comparison of the summary to the rated capacity and flow rates approved in the system’s approval, drinking water works permit or municipal drinking water license.

As per Municipal Drinking Water License (MDWL) 094-202 (Issue Number: 2, expires March 17, 2020), the maximum daily volume of treated water that flows from the treatment subsystem to the distribution system shall not exceed a rated capacity of 5,400 m³/day. There is no maximum allowable limit listed in the MDWL for the flowrate of water that flows into a treatment subsystem, however, raw water flowrate has been included in this report (Table 3).

Table 1. Treated Water Monthly Average and Maximum Daily Flows and Comparison to Rated Capacity for 2017

| 2017 | Treated Water Flow | | | |
|-----------|------------------------------------|---------------------------|------------------------------------|---------------------------|
| | Average Flow (m ³ /day) | Percent of Rated Capacity | Maximum Flow (m ³ /day) | Percent of Rated Capacity |
| January | 1,229.83 | 22.77% | 1,558.86 | 28.87% |
| February | 1,264.66 | 23.42% | 2,267.22 | 41.99% |
| March | 1,279.01 | 23.69% | 1,571.48 | 29.10% |
| April | 1,283.25 | 23.76% | 2,480.60 | 45.94% |
| May | 1,329.00 | 24.61% | 1,602.20 | 29.67% |
| June | 1,401.85 | 25.96% | 1,730.12 | 32.04% |
| July | 1,511.09 | 27.98% | 1,903.70 | 35.25% |
| August | 1,435.41 | 26.58% | 1,820.73 | 33.72% |
| September | 1,255 | 23.24% | 1,654.12 | 30.63% |
| October | 1,068.09 | 19.78% | 1,410.64 | 26.12% |
| November | 971.49 | 17.99% | 1,338.99 | 24.80% |
| December | 908.05 | 16.82% | 1,302.94 | 24.13% |

Table 2. Treated Water Monthly Average and Maximum Flowrates for 2017

| 2017 | Treated Water | |
|-----------|------------------------|------------------------|
| | Average Flowrate (l/s) | Maximum Flowrate (l/s) |
| January | 64.39 | 92.59 |
| February | 66.85 | 77.03 |
| March | 66.85 | 75.07 |
| April | 64.39 | 92.59 |
| May | 66.81 | 92.59 |
| June | 67.00 | 78.27 |
| July | 66.68 | 78.48 |
| August | 66.88 | 77.70 |
| September | 66.86 | 77.03 |
| October | 66.50 | 78.18 |
| November | 66.51 | 74.55 |
| December | 66.18 | 75.97 |

Table 3. Raw Water Monthly Average and Maximum Flowrates for 2017

| 2017 | Raw Water | |
|-----------|------------------------|------------------------|
| | Average Flowrate (l/s) | Maximum Flowrate (l/s) |
| January | 49.02 | 54.85 |
| February | 49.16 | 54.57 |
| March | 49.17 | 55.20 |
| April | 46.09 | 92.59 |
| May | 48.90 | 92.59 |
| June | 41.86 | 55.96 |
| July | 29.23 | 92.59 |
| August | 49.27 | 56.45 |
| September | 49.46 | 56.28 |
| October | 49.41 | 56.21 |
| November | 49.72 | 56.04 |
| December | 49.46 | 56.31 |



Ontario Clean Water Agency
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WIARTON
DRINKING WATER SYSTEM

Large Municipal Residential

SECTION 11
ANNUAL REPORT

For the period of
JANUARY 1, 2017 TO DECEMBER 31, 2017

Prepared by the Ontario Clean Water Agency
For The Town of South Bruce Peninsula

| | |
|--|--------------------------------------|
| Drinking Water System Number: | 220002681 |
| Drinking Water System Name: | Warton Drinking Water System |
| Drinking Water System Owner: | Town of South Bruce Peninsula |
| Drinking Water System Category: | Large Municipal Residential |
| Reporting Period: | January 1, 2017 to December 31, 2017 |

Does the 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 the Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection:

Town of South Bruce Peninsula
 315 George Street
 Wiarton, Ontario
 N0H 2T0

Drinking-Water Systems (if any), which receive all of their drinking water from your system:

- Oxenden Distribution System (260004215)
- Oliphant Drinking Water System (220007695)

Did you provide a copy of the annual report to all Drinking-Water System owners that are connected to you and to whom you provide all of its drinking water?

Yes

How system users are notified that the annual report is available, and is free of charge:

- Public access/notice via the web
- Public access/notice via Government Office
- 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: _____

Description of Drinking Water System:

The Wiarton Drinking Water System (DWS) is a Class III Treatment and Class II Distribution System.

The Wiarton Water Treatment Plant is supplied by Colpoy's Bay (Georgian Bay). The treatment system consists of the following:

- Travelling screens and a standby bar screen (at the low lift station)
- Sodium hypochlorite (pre-chlorination for zebra mussel control and chlorination after filtration)
- Coagulation and Flocculation
- Filtration (dual media gravity filters)
- Waste Residual Management (filter backwash wastewater sedimentation tank with sludge withdrawal. Sludge is discharged to the sanitary sewer and the supernatant is dechlorinated and then discharged to Colpoy's Bay)
- Polymer system (for enhancing settling in the wastewater sedimentation tank)
- Sodium Bisulphate feed system (prior to flocculation or to raw water well for dechlorination/pH)

- correction and to the wastewater residual management system for dechlorination)
- UV Disinfection System
 - Activated carbon feed system for taste and odour control, currently is not being used)
 - Clearwell (for storage and to achieve required contact time)
 - SCADA System (for monitoring and control)
 - Diesel generator set (for emergency back-up power)
- The distribution system consist of the following:
- Wiarton Standpipe and Booster Station.
 - Approximately 23.5 kilometers of distribution water mains

List of water treatment chemicals used during the reporting period:

- Sodium Hypochlorite 12%
- PAX-XL1900 Coagulation
- LIPQIPAM A-307PG Flocculation
- Sodium Metabisulfite

Significant expenses were incurred to:

- Install required equipment
- Repair required equipment
- Replace required equipment
- No significant expenses were incurred

Description of expenses:

- Replaced on-line Treated Water turbidity analyzer at Wiarton WTP.
- Replaced Wiarton WTP service double-check valve assembly (backflow preventer),
- Installed new SC200 receiver on filter turbidity analyzers.
- Replaced filter #2 underdrain and filter media.
- Replaced chlorine panel and chlorine lines on pre chlorine pumps and pre chlorine tank.
- Repaired basement sump pump effluent line
- Replaced generator battery
- Replaced controller switch on transfer switch for generator.
- Replaced drive on alum pump #1.
- Replaced UV Lamp on UV system
- Replace UV transmittance seal
- Replaced fuse on sewage pump #2 controller/transformer
- Replace 4 PLC cards
- Repaired leak at 596 Berford St.
- Replaced three fire hydrants
- Setup remote monitoring system for Oxenden Flow Meter
- Installed new bulk water taking station.
- Repaired/replaced damaged/leaking curbstops.

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:

| Date of Incident | Parameter | Result | Unit of Measure | Corrective Action | Corrective Action Date |
|------------------|-----------|--------|-----------------|-------------------|------------------------|
| n/a | n/a | n/a | n/a | n/a | n/a |

Table 1. Microbiological testing done under Schedule 10, 11 or 12 of Regulation 170/03 during this reporting Period

| Location | Number of Samples | Range of E.coli Results | | Range of Total Coliforms Results | | Number of HPC Samples | Range of HPC Samples | |
|-------------------|-------------------|-------------------------|---------|----------------------------------|---------|-----------------------|----------------------|---------|
| | | Minimum | Maximum | Minimum | Maximum | | Minimum | Maximum |
| Raw (RW) | 52 | 0 | 20 | 0 | 61 | n/a | n/a | n/a |
| Treated (TW) | 53 | 0 | 0 | 0 | 0 | 53 | 0 | 1 |
| Distribution (DW) | 156 | 0 | 0 | 0 | 1 | 52 | 0 | 3 |

Table 2. Operational testing done under Schedule 7, 8 or 9 during the period covered by this Annual Report.

| | Number of Grab Samples | Range of Results | |
|--|------------------------|------------------|---------|
| | | Minimum | Maximum |
| Turbidity, On-Line (NTU) - Filt1 | 8760 | 0 | 5* |
| Turbidity, On-Line (NTU) - Filt2 | 8760 | 0 | 5* |
| Free Chlorine Residual, On-Line (mg/L) - TW | 8760 | 0.65** | 1.8688 |
| Free Chlorine Residual, In-House (mg/L) - DW | 729 | 0.75 | 1.43 |

NOTE: Record the unit of measure if it is not milligrams per litre.

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

*Turbidity was > 1 NTU for less than 1 minute. Not reportable, monthly filter efficiency was achieved.

**Occurred on August 12, 2017. Chlorine residual dropped on high lift start up and residual recovered in the next sample (samples grabbed every 3 minutes by online analyzer).

Table 3. Summary of additional testing and sampling carried out in accordance with the requirement of an approval, order or other legal instrument.

| Date of Order of MDWL | Parameter | Date Sampled | Result | MDWL Allowable Annual Average Concentration |
|-------------------------------------|---|------------------|-----------|---|
| March 19, 2015 094-102 (Issue 2) | Total Suspended Solids (Filter backwash - composite) | 2017 (Quarterly) | 9.75 mg/L | 25 mg/L |

NOTE: Quarterly samples are required as per MDWL 094-102, Issue 2.

Table 4. Summary of Inorganic parameters tested during this reporting period or most recent sample results

| | Sample Date (yyyy/mm/dd) | Sample Result | Exceedance |
|--------------------------|-----------------------------|---------------|------------|
| Antimony: Sb (µg/L) - TW | 2017/01/03 | 0.11 | No |
| Arsenic: As (µg/L) - TW | 2017/01/03 | 0.3 | No |
| Barium: Ba (µg/L) - TW | 2017/01/03 | 14.5 | No |
| Boron: B (µg/L) - TW | 2017/01/03 | 11.0 | No |
| Cadmium: Cd (µg/L) - TW | 2017/01/03 | 0.008 | No |
| Chromium: Cr (µg/L) - TW | 2017/01/03 | 0.63 | No |
| Mercury: Hg (µg/L) - TW | 2017/01/03 | <MDL 0.01 | No |
| Selenium: Se (µg/L) - TW | 2017/01/03 | 0.13 | No |
| Uranium: U (µg/L) - TW | 2017/01/03 | 0.031 | No |
| Fluoride (mg/L) - TW | 2013/01/07 | 0.08 | No |
| Nitrite (mg/L) - TW | 2017/01/03 | <MDL 0.003 | No |
| Nitrite (mg/L) - TW | 2017/04/03 | <MDL 0.003 | No |
| Nitrite (mg/L) - TW | 2017/07/04 | <MDL 0.003 | No |
| Nitrite (mg/L) - TW | 2017/10/02 | <MDL 0.003 | No |
| Nitrate (mg/L) - TW | 2017/01/03 | 0.271 | No |
| Nitrate (mg/L) - TW | 2017/04/03 | 0.262 | No |
| Nitrate (mg/L) - TW | 2017/07/04 | 0.256 | No |
| Nitrate (mg/L) - TW | 2017/10/02 | 0.221 | No |
| Sodium: Na (mg/L) - TW | 2013/01/07 | 6.46 | No |

NOTE: There is no "MAC" for Sodium. The aesthetic objective for sodium in drinking water is 200 mg/L. The local Medical Officer of Health should be notified when the sodium concentration exceeds 20 mg/L so that this information may be communicated to local physicians for their use with patients on sodium restricted diets.

NOTE: Fluoride and Sodium are to be sampled every 60 months. The most recent samples for Sodium were taken on January 7, 2013. The next set of Sodium samples are to be taken in January 2018. The most recent samples for Fluoride were taken on January 7, 2013. The next set of Fluoride samples are to be taken in January 2018.

Table 5. Summary of lead testing under Schedule 15.1 during this reporting period.

| Location Type | Number of Samples | Range of Lead Results | | Number of Exceedances |
|---------------------|-------------------|-----------------------|---------|-----------------------|
| | | Minimum | Maximum | |
| Plumbing | n/a | n/a | n/a | n/a |
| Distribution (µg/L) | - | - | - | - |

NOTE: This system now qualifies for the plumbing exemption as per Ontario Regulation 170/03 Schedule 15.1-5 (9) (10). Four (4) distribution lead samples are only taken every 36 months. (i.e. 2 samples per period). The most recent set of samples was taken in 2015. The next set of lead samples will be taken in 2018.

Table 6. Summary of Organic parameters sampled during this reporting period or most recent sample results.

| | Sample Date (yyyy/mm/dd) | Sample Result | Exceedance |
|---|-----------------------------|---------------|------------|
| Alachlor (µg/L) - TW | 2017/01/03 | <MDL 0.02 | No |
| Atrazine + N-dealkylated metabolites (µg/L) - TW | 2017/01/03 | 0.01 | No |
| Azinphos-methyl (µg/L) - TW | 2017/01/03 | <MDL 0.05 | No |
| Benzene (µg/L) - TW | 2017/01/03 | <MDL 0.32 | No |
| Benzo(a)pyrene (µg/L) - TW | 2017/01/03 | <MDL 0.004 | No |
| Bromoxynil (µg/L) - TW | 2017/01/03 | <MDL 0.33 | No |
| Carbaryl (µg/L) - TW | 2017/01/03 | <MDL 0.05 | No |
| Carbofuran (µg/L) - TW | 2017/01/03 | <MDL 0.01 | No |
| Carbon Tetrachloride (µg/L) - TW | 2017/01/03 | <MDL 0.16 | No |
| Chlorpyrifos (µg/L) - TW | 2017/01/03 | <MDL 0.02 | No |
| Diazinon (µg/L) - TW | 2017/01/03 | <MDL 0.02 | No |
| Dicamba (µg/L) - TW | 2017/01/03 | <MDL 0.2 | No |
| 1,2-Dichlorobenzene (µg/L) - TW | 2017/01/03 | <MDL 0.41 | No |
| 1,4-Dichlorobenzene (µg/L) - TW | 2017/01/03 | <MDL 0.36 | No |
| 1,2-Dichloroethane (µg/L) - TW | 2017/01/03 | <MDL 0.35 | No |
| 1,1-Dichloroethylene (µg/L) - TW | 2017/01/03 | <MDL 0.33 | No |
| Dichloromethane (Methylene Chloride) (µg/L) - TW | 2017/01/03 | <MDL 0.35 | No |
| 2,4-Dichlorophenol (µg/L) - TW | 2017/01/03 | <MDL 0.15 | No |
| 2,4-Dichlorophenoxy acetic acid (2,4-D) (µg/L) - TW | 2017/01/03 | <MDL 0.19 | No |
| Diclofop-methyl (µg/L) - TW | 2017/01/03 | <MDL 0.4 | No |
| Dimethoate (µg/L) - TW | 2017/01/03 | <MDL 0.03 | No |
| Diquat (µg/L) - TW | 2017/01/03 | <MDL 1.0 | No |
| Diuron (µg/L) - TW | 2017/01/03 | <MDL 0.03 | No |
| Glyphosate (µg/L) - TW | 2017/01/03 | <MDL 1.0 | No |
| Malathion (µg/L) - TW | 2017/01/03 | <MDL 0.02 | No |
| Metolachlor (µg/L) - TW | 2017/01/03 | <MDL 0.01 | No |
| Metribuzin (µg/L) - TW | 2017/01/03 | <MDL 0.02 | No |
| Monochlorobenzene (Chlorobenzene) (µg/L) - TW | 2017/01/03 | <MDL 0.3 | No |
| Paraquat (µg/L) - TW | 2017/01/03 | <MDL 1.0 | No |
| PCB (µg/L) - TW | 2017/01/03 | <MDL 0.04 | No |
| Pentachlorophenol (µg/L) - TW | 2017/01/03 | <MDL 0.15 | No |
| Phorate (µg/L) - TW | 2017/01/03 | <MDL 0.01 | No |
| Picloram (µg/L) - TW | 2017/01/03 | <MDL 1.0 | No |
| Prometryne (µg/L) - TW | 2017/01/03 | <MDL 0.03 | No |
| Simazine (µg/L) - TW | 2017/01/03 | <MDL 0.01 | No |
| Terbufos (µg/L) - TW | 2017/01/03 | <MDL 0.01 | No |
| Tetrachloroethylene (µg/L) - TW | 2017/01/03 | <MDL 0.35 | No |
| 2,3,4,6-Tetrachlorophenol (µg/L) - TW | 2017/01/03 | <MDL 0.2 | No |
| Triallate (µg/L) - TW | 2017/01/03 | <MDL 0.01 | No |
| Trichloroethylene (µg/L) - TW | 2017/01/03 | <MDL 0.44 | No |
| 2,4,6-Trichlorophenol (µg/L) - TW | 2017/01/03 | <MDL 0.25 | No |
| Trifluralin (µg/L) - TW | 2017/01/03 | <MDL 0.02 | No |
| Vinyl Chloride (µg/L) - TW | 2017/01/03 | <MDL 0.17 | No |
| Trihalomethane: Total (µg/L) Annual Average - DW | 2017 (Quarterly) | 32.25 | No |
| HAA Total (ug/L) Annual Average - DW | 2017 (Quarterly) | 12.2 | No |

Table 7. 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 |

NOTE: This is required only if DWS category is large municipal residential, small municipal residential, large municipal non-residential, small municipal non-residential, large non municipal non-residential)