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1.0 Purpose/Objectives/Plan

To generally describe; the systems owned by the Township of North Huron, to provide an overview and foster a basic understanding of the drinking water system and it' water source.

This document shall include:

The Operational Plan shall document, as applicable:

a) For the Subject System:

- i. the name of the Owner and Operating Authority,
- ii. If the system includes equipment that provides Primary Disinfection and/or Secondary Disinfection:

- A. a description of the system including all applicable Treatment System processes and Distribution System components,
- B. a Treatment System process flow chart,
- C. a description of the water source, including:
 - I. general characteristics of the raw water supply,
 - II. Common event-driven fluctuations, and
 - III. Any resulting operational challenges and threats.

iii. If the system does not include equipment that provides Primary Disinfection or Secondary Disinfection:

- A. a description of the system including all Distribution System components, and
- B. a description of any procedures that are in place to maintain disinfection residuals

b) if the Subject System is an Operational Subsystem, a summary description of the Municipal Residential Drinking Water System it is a part of including the name of the Operating Authority(ies) for the other Operational Subsystems.

c) if the Subject System is connected to one or more other Drinking Water Systems owned by different Owners, a summary description of those systems which:

- i. indicates whether the Subject System obtains water from or supplies water to those systems,
- ii. Names the Owner and Operating Authority (ies) of those systems, and
- iii. Identifies which, if any, of those systems that the Subject System obtains water from are relied upon to ensure the provision of safe drinking water.

2.0 Procedure

The water system is owned by the Township of North Huron while being Maintained and operated by Veolia Water Canada. The System consists of two standalone well supplies and distribution systems located in the Village of Blyth and the Town of Wingham and are not connected to any other water system. The operating authority shall ensure that the description of the drinking water system is kept current.

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For both the Wingham and Blyth Drinking Water systems operators are required to take a daily chlorine residual from the distribution system. The distribution residual results are to be entered immediately in the electronic spreadsheet (under “distribution residual” tab and then transferred to the appropriate system Distribution Sheets located at Well 4 for Wingham, Well 1&2 for Blyth. The Distribution Residual data is imported to a “MASTER” Spreadsheet which is to be reviewed daily by the on-call operator where it is to be confirmed all data has been recorded on the electronic spreadsheets for the day. On a monthly basis the operators will gather all the sheets and bring them to the Office to be stored in the corresponding binders.

2.1 The **Blyth** water supply system consists of three wells fitted with pumps capable of pumping the volume specified in the Permit to Take Water. At Wells 1 and 2, the raw water consistently has substantial hardness and relatively high iron content that requires sequestering to prevent discoloration in the distribution system. The raw water also has fluoride concentrations that hover at or just above the maximum allowable concentration in O.Reg 169/03. Chlorine and an iron sequestering agent are added to the raw water prior to entry into a baffled contact tank with a baffle factor of 0.7 that satisfies the chlorine contact time required with adequate chlorine residual to disinfect.

From the contact tank/reservoir the water flows to the high lift building that houses two electrically driven high lift pumps, as well as a diesel engine driven fire pump, that are capable of maintaining adequate system pressure. The water level in the reservoir is maintained by a level controller that starts and stops the well pumps. Also housed in the building is a standby emergency generator that allows operation of the equipment during extended power interruptions. The building contains cushion tanks that absorb hydraulic shocks and maintain pressure during brief power interruptions. The treated drinking water is monitored for chlorine residual and turbidity by on-line equipment connected to an auto dialer. The monitoring system will alert the on-call operator to respond if the set points are breached. The chlorine and turbidity analysis data levels are stored on a data logger. The raw water has abnormally high chlorine demand, coupled with sequestering agent and high background sodium levels that result in elevated sodium in the treated water just above the maximum allowable concentrations in O.Reg 169/03. The only event driven fluctuation is abnormally high flows when hydrants are used that temporarily raises turbidity due to unusual velocities in the system. There are no known challenges or threats with the up and downstream critical processes are maintenance of adequate chlorination and maintenance of system pressure.

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At Well 5, the raw water also has substantial hardness and relatively high iron content that requires sequestering to prevent discoloration in the distribution system. The raw water has fluoride concentrations that are below the maximum allowable concentration in O.Reg 169/03. Chlorine and an iron sequestering agent are added to the raw water prior to entry into a contact loop with a baffle factor of 1.0 that satisfies the chlorine contact time required with adequate chlorine residual to disinfect. Chlorine residuals are monitored with on line chlorine analysers. System pressure is maintained through a variable frequency drive on the well pump at pressure setpoints. The monitoring system will alert the on-call operator to respond if the set points are breached. There are no known challenges or threats with the up and downstream critical processes are maintenance of adequate chlorination and maintenance of system pressure.

The distribution system has no elevated storage and relies on the pumps and cushion tanks to maintain pressure. Well 1/2 are fitted with an online turbidity analyzer. Well ½ and 5 well supplies are fitted with online chlorine residual monitors that will issue an alarm for the on-call operator to respond when set points are breached. In the event that the well needs to be run during analyzer maintenance/malfunction, Cl2 residuals must be recorded at least every 5 minutes as per O.Reg 170. This is to be recorded in “Element 17: OP-E17-4 Minimum Five Minute Cl2 Analyzer Check”.

The raw water has slightly lower chlorine demand than Wells 1 and 2, coupled with lower background sodium levels that meet the maximum allowable concentrations in O.Reg 169/03.

For plant schematics see “Element 6: OP-E6-1 Well Supply Schematics”

2.2 The Wingham water supply system consists of two wells fitted with pumps capable of pumping the volume specified in the respective Permits to Take Water. The raw water has consistent substantial hardness and relatively high iron content that requires sequestering to prevent discoloration in the distribution system. Chlorine and iron sequestering agent is added to the raw water prior to entry into baffled chlorine contact tanks with a baffle factor of 0.7 that satisfies the time required with adequate chlorine residual to disinfect.

At well #4, treated water is pumped from the contact tank/reservoir to the distribution system by three electrically driven high lift pumps and the reservoir/contact tank water level is maintained by a level controller. Emergency power is supplied by an automatic standby diesel generator.

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Well #3 pumps directly through the pressurized contact tank to the distribution system. At well #3 emergency power is supplied by an automatic standby diesel generator.

The distribution system has no elevated storage and relies on the well pumps and highlifts to maintain system pressure. Well 4 is fitted with an online turbidity analyzer, and both well supplies are fitted with on line chlorine residual monitors that will issue an alarm for the on-call operator to respond when set points are breached. In the event that the well needs to be run during analyzer maintenance/malfunction, Cl₂ residuals must be recorded at least every 5 minutes as per O.Reg 170. This is to be recorded in “Element 17: OP-E17-4 Minimum Five Minute Cl₂ Analyzer Check”.

Both wells supply consistent quality water with low chlorine demand with adequate chlorination being the only current critical process to ensure safe water. The SCADA system is located at the Well #4 high lift pump building and generates alarms to the auto-dialer for chlorine residuals, turbidities, pump failure, and pressure. The SCADA and auto-dialer systems are equipped with an Uninterruptible Power Supply (UPS).

For plant schematics see “Element 6: OP-E6-1 Well Supply Schematics”

3.0 Associated Forms, Procedures or Records

QMS Overview

Element 2: OP-E2-1 Policy Statement

Blyth PTTW

Wingham PTTW

O.Reg. 169

O.Reg 170

4.0 Associated Documents

Element 6: OP-E6-1 Well Supply Schematics

Element 17: OP-E17-2 Distribution Residual Wingham

Element 17: OP-E17-3 Distribution Residual Blyth

Element 17: OP-E17-4 Minimum Five Minute Cl₂ Analyzer Check

Google-Drive:

MASTER Spreadsheet (in google drive)

Daily site spreadsheet (in google drive)

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Revision History

New Revision	Date of Revision	Summary of Changes	Revised by
13	July 31, 2026	Removed OP-E17-4 "Operator field residual reading" - all being enter electronically. Has not been used in 2 years. Updated well 3 generator, not longer portable but automatic. Updated how pressure is maintained in WIngham, not longer have elevated storage. Added 5 minute cl2 analyzer malfuction check. Changed all "appendix" to reflect new names of documents. Changed "4.0 Appendices" to "4.0 Associated Documents" Added revision history.	Chloë Godfrey