



South Huron Distribution System

## Inspection Report

**Ministry ID Number:** 220001520  
**Inspection Start Date:** 02/22/2022  
**Inspection End Date:** 03/31/2023  
**Inspection By:** Paul TerSteege

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(signature)

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## Summary of Action Items

Where a concern regarding a legislative requirement or a best management practice (BMP) recommended by the Ministry has yet to be resolved, the Officer has included one or more action items. These may include a request to satisfy a requirement and/or a recommendation as to steps which could be taken to prevent or mitigate the concern.

Additional details may be found within the related inspection observations included within this report.

Please respond by the date indicated to confirm the required actions have been taken and/or that recommendations have been considered.

Should you have any questions regarding what is expected, please do not hesitate to contact the Officer who conducted the inspection.

The following bullets have been used to distinguish between requests related to legislative requirement and BMPs. Related observations are similarly marked in this report.

- Items related to a legislative requirement are marked with a solid bullet and dark yellow shading.
- Items related to a recommended BMP are marked with a hollow bullet and light yellow shading.

### Security

- **Are all storage facilities completely covered and secure?**

**Action Item(s)**

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It is recommended that the Municipality follows the recommendations of identified by GM BluePlan Engineering, and plan to conduct remedial work during the next major shutdown.

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## Inspection Background

**Name:** South Huron Distribution System  
**ID Number:** 220001520  
**Entity Inspected:** South Huron  
**Local Ministry Office:** Sarnia  
**Local Supervisor:** Marc Bechard  
**Date Inspected:** 2/22/2022  
**Review Period:** January 1, 2022 to January 31, 2023

## Facility Description

The South Huron Distribution System obtains its drinking water supply via 5 connections to the donor's system – the Lake Huron Primary Water Supply System (LHPWSS). The donor's water treatment plant is located within South Huron, as are over 40 km of trunk mains, a secondary reservoir and booster pumping station, and a number of chambers housing valves and other appurtenances. Note: The donor's infrastructure is subject to separate inspections.

The South Huron Distribution System supplies water to approximately 8,200 residents. Further, the system supplies some of Bluewater's residents along the Municipality's northern boundary. Some consumers along the Municipality's southern boundary are supplied by the North Middlesex Distribution System (which also obtains its drinking water from the LHPWSS).

The system consists of ~200 km of distribution watermains ranging in size from 50mm to 400mm diameter. The 50mm mains are polyethylene (PE); the 100mm to 300mm mains are polyvinylchloride (PVC) and the larger mains are mix of cast iron, ductile iron, and steel reinforced concrete pressure pipe.

There are several pressure zones within the South Huron Distribution System. (The Municipality's Annual Drinking Water Reports typically contain a detailed description of the zones, the connections between them, and the supply of zones during normal and emergency feed situations.)

## Inspection Observations

### Introduction

- **The primary focus of this inspection is to confirm compliance with Ministry of the Environment, Conservation and Parks (MECP) legislation as well as evaluating conformance with ministry drinking water policies and guidelines during the inspection period. The ministry utilizes a comprehensive, multi-barrier approach in the inspection of water systems that focuses on the source, treatment, and distribution components as well as management practices. This drinking water system is subject to the legislative requirements of the Safe Drinking Water Act, 2002 (SDWA) and regulations made therein, including Ontario Regulation 170/03, "Drinking Water Systems" (O. Reg. 170/03). This inspection has been conducted pursuant to Section 81 of the SDWA. This inspection report does not suggest that all applicable legislation and regulations were evaluated. It remains the responsibility of the owner to ensure compliance with all applicable legislative and regulatory requirements.**

The Officer's reviews typically focus on operational records since the previous inspection, along with a select set of older records, e.g., Ministry approvals, historical laboratory results, etc. The inspection included a brief meeting with the Manager of Environmental Services and Environmental Services Foreman, and a tour of the South Huron's infrastructure on February 22, 2022.

### Flow/Capacity Assessment

- **There was sufficient monitoring of flow as required by the Municipal Drinking Water Licence or Drinking Water Works Permit issued under Part V of the SDWA.**

In the absence of a raw water source, the Licence for this system does not require monitoring of flows related to a primary treatment system. However, as this system includes flow monitoring equipment for operational purposes, the Officer would like to use this question to acknowledge the provision of data related to those flows.

Note: Per previous inspections there are two tags associated with flows from the Huron Park Tower (i.e., "flow\_hpark\_discharge" and "hpark\_effflow"). The first is not in service, and all the results are reported as zeros. Further, while one of the pumps at the MacNaughton Reservoir and Pumping Station can be called upon to help supplement flow to North Exeter, this zone is fed almost exclusively from the Exeter-Hensall Pumping Station (i.e., "lhps\_nflow\_m3"). As such, the tag "flow\_main\_north" infrequently records flow.

- **The flow measuring devices were calibrated or verified in accordance with the requirements of the MDWL issued under Part V of the SWDA.**

While not explicitly required by Section 3 in Schedule C of the Municipal Drinking Water Licence, operators provided records confirming flow meters that were assessed by a contractor in June 2022.

## Treatment Processes

- **This Drinking Water System provides for only secondary disinfection and distribution of water. Primary disinfection is undertaken by another regulated Drinking Water System which provides treated water to this Drinking Water System.**

Water supplied to this stand-alone distribution system receives primary disinfection at the Lake Huron Primary Water Supply System's treatment facilities in Grand Bend. (Both this and the donor's system include a reservoir and pumping station where booster chlorination is performed. Further, chlorination equipment is located at the Huron Park Water Tower.)

- **The owner had ensured that all equipment was installed in accordance with Schedule A and Schedule C of the Drinking Water Works Permit.**

Outside of minor alterations, the Ministry expects the equipment described in Schedule A of the Owner's Permit, as may be amended by alterations identified in Schedule C, to be (and to remain) installed.

The Municipality provided a listing of completed and proposed alterations. As in previous years, some alterations were made as part of required maintenance or continuous improvements the system.

With respect to facilities (versus watermains) included within the system, completed alterations included,

- The 2021 installation of a control chamber at Highway 21 and Gore Road;
- The 2021 installation of re-chlorination system and chlorine analyser at the MacNaughton Reservoir;
- The 2022 installation of a replacement chemical feed pump at the Huron Park Water Tower;
- The 2022 relocation of a chlorine analyser from the operations centre to the neighbouring water tower; and
- The 2022 installation of replacement of a transducer and milltronics at McNaughton Booster Pumping Station.

Alterations proposed for 2023 include,

- Engineering for recoating the interior of the Exeter water tower; and
- SCADA system upgrades.

- **Up-to-date plans for the drinking water system were kept in a place, or made available in such a manner, that they could be readily viewed by all persons responsible for all or part of the operation of the drinking water system in accordance with the DWWP and MDWL issued under Part V of the SDWA.**

With regards to drawings of the treatment system, operators reported that in keeping with Section 15 in Schedule B of the Municipal Drinking Water Licence, the drawings have been prepared to reflect alterations identified to the Ministry. Many of the print drawings can be found at the operations centre. Further, electronic copies of numerous drawings are reported to be available online to operators.

## Treatment Processes

- **Where a potential bypass of primary or secondary treatment equipment existed, measures were taken to ensure that raw or partially treated water was not directed to the distribution system.**

This water system does not provide primary disinfection. The system includes a secondary disinfection system at the Huron Park Water Tower to boost the chlorine residual in the southeastern extremity of the system. Short of bypassing the tower, there is no bypass per se.

- **The owner/operating authority was in compliance with the requirement to prepare Form 1 documents as required by their Drinking Water Works Permit during the inspection period.**

While not specific to treatment processes, the Ministry directs Officers to use this opportunity to discuss any alterations to the distribution system. Section 3.0 in Schedule B of Permits allows for watermain additions, modifications, replacements, and extensions - providing owners retain a completed “Form 1 – Record of Watermains Authorized as a Future Alteration” verifying they have met the requirements listed in Conditions 3.1.1 through 3.1.6.

The listing of alterations provided by operators included a listing of projects involving the replacement and installation of watermains (including projects proposed in 2023). Completed projects included,

- The 2021 watermain replacements on Gravelle, Eva, Kingsmere and Holmes Way;
- The 2021 watermain replacements in Sunnyside and Maple Grove;
- The 2022 watermain replacement on Huron Street;
- The 2022 watermain replacement on Waterloo Street;
- The 2022 installation of watermains in Buckingham Estates Phase 2; and
- The 2022 installation of watermains in Southpoint Subdivision Phase 2.

Completed Form 1 documents were provided by operators for the watermain replacement projects.

- **The owner/operating authority was in compliance with the requirement to prepare Form 2 documents as required by their Drinking Water Works Permit during the inspection period.**

Section 4.0 in Schedule B of Permits allows for minor modifications to drinking water systems - providing owners complete and retain a “Form 2 – Record of Minor Modifications or Replacements to the Drinking Water System” verifying they have met the requirements listed in Condition 4.3.

Operators provided three Form 2 related to alterations. The completed forms were related to,

- The installation of a control chamber at Highway 21 and Gore Road;
- The various alterations at the MacNaughton Reservoir and Booster Pumping Station; and
- The relocation of a chlorine analyser from the operations centre to the neighbouring water tower.

## Treatment Processes

- **The owner had evidence that all required Director Notifications under Condition 2.4 of Schedule B of the Drinking Water Works Permit were made during the inspection period.**

Not every alteration that is proposed is completed. Therefore, to ensure that Permits accurately reflect components in drinking water systems, Condition 2.4 in Schedule B requires the submission of a notification when alterations are placed into service. This includes any alterations that have been pre-authorized per Schedule B (via a Form 2 and/or Form 3), or per Schedule C.

Operators provided copies of three notifications that had been submitted but not loaded onto the Ministry's Water Licensing Information System. Given the age of these documents, the Officer resubmitted the forms to the Ministry's email address for the Municipal Drinking Water Licensing Program (i.e., MDWLP@ontario.ca).

- **All parts of the drinking water system were disinfected in accordance with a procedure listed in Schedule B of the Drinking Water Works Permit.**

Various components of water systems can be subject to contamination during alterations. Schedule B of the Permit requires components which may be subject to contamination to be disinfected according to the applicable procedure or AWWA standard.

Operators provided an example of a form used to document new installations. With respect to the 2022 installation of watermains in Buckingham Estates, the form documented details related to disinfection and microbiological test results, along with details regarding pressure testing and the final connection of the watermains.

Operators also provided Certificates of Analysis for non-regulated samples associated with watermain alterations. The certificates include isolated "NDOGN" results indicating the total coliform plate was overgrown with non-target bacteria, along with subsequent testing results indicating the affected sample location was later found to be free of any bacteriological contamination.

- **The owner had evidence indicating that all chemicals and materials that come in contact with water within the drinking water system met the AWWA and ANSI standards in accordance with the Municipal Drinking Water Licence and Drinking Water Works Permit issued under Part V of the SDWA.**

Per Section 14 in Schedule B of the Licence, operators advised that as indicated on product labelling, disinfectant used in the system meets the applicable AWWA/ANSI standards, i.e., the sodium hypochlorite is obtained from Jutzi Water Technologies of Stratford, a certified vendor of drinking water chemicals.



## Treatment Processes

- **Records confirmed that the water treatment equipment which provides chlorination or chloramination for secondary disinfection purposes was operated so that at all times and all locations in the distribution system the chlorine residual was never less than 0.05 mg/l free or 0.25 mg/l combined.**

Regardless of whether owners provide secondary disinfection themselves, Section 1-5 in Ontario Regulation 170/03 requires them to ensure the provision of treatment capable of providing a free chlorine residual of 0.2 mg/L at all locations within the distribution system. Further, Section 1-2 requires the free chlorine residual to be  $\geq 0.05$  mg/L.

Note: This system is unique in that the Director granted an exemption at specific addresses identified in Schedule D of the Licence - provided point of entry UV systems are used instead.

No adverse results were noted amongst the continuous monitoring data, or the grab sample results.

## Treatment Process Monitoring

- **The secondary disinfectant residual was measured as required for the large municipal residential distribution system.**

Data provided for review indicated the disinfectant residual in the distribution system was conducted as required by Section 7-2(3) of O. Reg. 170/03 by means of several continuous analysers at key points in the distribution system. Further testing is also performed on grab samples.

- **Samples for chlorine residual analysis were tested using an acceptable portable device.**

The Hach colorimeters used by operators for chlorine residual testing comply with Section 6-7 (1) of Ontario Regulation 170/03.

- **Records confirmed that disinfectant residuals were routinely checked at the extremities and dead ends of the distribution system.**

To ensure an adequate disinfectant residual is being maintained throughout the distribution system, the Ministry recommends disinfectant residuals are routinely checked at the extremities and dead ends of the distribution system. In addition to checks during their routine sampling program, the Municipality provided records related to their dead end and hydrant flushing program.

- **Operators were examining continuous monitoring test results and they were examining the results within 72 hours of the test.**

Operators provided copies of their Daily Water Report forms. The date/time stamped forms include a statistical summary of various performance measures. During their reviews, operators provide notations regarding any anomalies. At the conclusion of their reviews, operators indicate the date and time, and initial the form.

## Treatment Process Monitoring

- **Continuous monitoring equipment that was being utilized to fulfill O. Reg. 170/03 requirements was performing tests for the parameters with at least the minimum frequency specified in the Table in Schedule 6 of O. Reg. 170/03 and recording data with the prescribed format.**

The SCADA system captures measurements at a frequency exceeding the minimum standard required by Subsection 6-5 (1). To facilitate a review of the system's performance, the Municipality provided a series of files containing 5-minute averages of chlorine residual, water level, flow, and pressure measurements.

- **All continuous monitoring equipment utilized for sampling and testing required by O. Reg.170/03, or Municipal Drinking Water Licence or Drinking Water Works Permit or order, were equipped with alarms or shut-off mechanisms that satisfy the standards described in Schedule 6.**

As with many municipal drinking water systems, alarms are used to safeguard both the system and consumers. Regardless of whether continuous monitoring equipment is being used for regulatory or operational monitoring, the presence of an alarm enables operators to take prompt and appropriate action to resolve concerns.

To assess the operators' responses to alarms, possible events were identified by comparing the data available for each parameter to the applicable alarm setpoint(s). Then these events were compared with logbook and worksheet entries.

- **All continuous analysers were calibrated, maintained, and operated, in accordance with the manufacturer's instructions or the regulation.**

Section 6-5 in Schedule 6 of Ontario Regulation 170/03 requires equipment used to continuously monitor chlorine residuals to be calibrated to ensure that test results are within acceptable margins of error.

Operators provided copies of internal and external calibrations. The Officer understands operators ensure the accuracy of their handheld units using gel standards. The handheld units are then used to assess the continuous analysers during checks and maintenance. An outside contractor performs annual assessments of the analysers.

- **Where required continuous monitoring equipment used for the monitoring of chlorine residual and/or turbidity triggered an alarm or an automatic shut-off, a qualified person responded in a timely manner and took appropriate actions.**

During inspections, the Officer queries available regulatory and operational data captured by the continuous monitoring equipment. Anomalies are cross-referenced with available log and worksheet entries to determine if there were any regulatory concerns or significant operational abnormalities.

Records related to anomalies examined by the Officer indicated operators were usually onsite at the onset of the event (i.e., as they were performing maintenance), or they appeared to have acted promptly and appropriately as outlined by Subsection 6-5 (1.1) in Schedule 6 of Ontario Regulation 170/03.

## Treatment Process Monitoring

- **The owner and operating authority of the system had ensured that each point of entry treatment unit was checked at least once every twelve (12) months to confirm proper functioning and ensured that a record was made of the date, time, result, and individual who performed the check.**

While this is not a small municipal residential system, as indicated in Condition 1.2 in Schedule D of the Licence, the owner was authorized to install Point-of-Entry Ultraviolet (UV) Disinfection Systems at several locations in the eastern extremity of the system in exchange for relief from regulatory requirements (i.e., maintaining a minimum chlorine residual at the following locations:

Maintenance records confirm point of entry treatment are checked at least once annually. The records document checks of the systems, and cleaning and replacement activities related to the bulbs, the sleeves, and the filters.

## Distribution System

- **The owner had up-to-date documents describing the distribution components as required.**

The Officer understands GM BluePlan Engineering provides annual updates which reflect additions and alterations to the distribution system.

- **There was a backflow prevention program, policy and/or bylaw in place.**

By-Law #65-2021 addresses the subjects of cross connections and backflow prevention.

- **The owner was able to maintain proper pressures in the distribution system and pressure was monitored to alert the operator of conditions which may lead to loss of pressure below the value under which the system is designed to operate.**

The Ten State Standards call for systems to be designed such that pressure in distribution systems never drops below 20 psi. Pressure monitoring is conducted at various points in the system. As noted in previous inspections, it is not unusual for the inlet pressure at the Stephen/Crediton Booster Station to fall below 20 psi. As such, connection of additional services upstream of the Station would not be recommended.

## Distribution System

- **The owner had a program or maintained a schedule for routine cleanout, inspection and maintenance of reservoirs and elevated storage tanks within the distribution system.**

As recommended by the Ministry, the municipality has adopted a program for inspecting and maintaining its water storage facilities. Given the specialized nature of this work, outside contractors are typically retained to undertake inspections, and to provide recommendations with respect to maintenance and the timing of subsequent inspections.

### MacNaughton Reservoir

During rechlorination upgrades, the contractor inspected the condition of the reservoirs on October 22, 2021. The report prepared on April 14, 2022, included a summary of areas of repair and/or rehabilitation required for each Cell which would require attention during the next major reservoir shutdown. These included, but were not limited to, addressing spalling and corrosion of embedded rebar in the roof of Cell 1, and cracks in roof of Cell 2 during the next major shutdown of the reservoir.

### Exeter Elevated Tank

On April 6, 2020, the contractor who inspected the Tank indicated that overall, it was in fair to good condition. They recommended follow-up in 2023 to determine the rate of deterioration of the Tank's interior coating, and to provide a more accurate timeline to complete a re-coating operation. During the drinking water inspection, operators advised engineering related to recoating the interior was proposed for 2023.

### Huron Park Elevated Tank

On April 7, 2020, the contractor who inspected the Tank indicated it was generally in good condition, and that it should be re-inspected in 5 years.

- **The owner had implemented a program for the flushing of watermains as per industry standards.**

As recommended by the Ministry, a program has been adopted to flush watermains to remove sediment build-up which can affect disinfectant residuals and the flow, colour, odour, and taste of the water. Operators provided forms documenting their efforts in 2022 to flush blow offs, dead ends, and hydrants throughout the system.

- **There was a program in place for inspecting and exercising valves.**

As recommended by the Ministry, there is currently a program in place to exercise valves in the distribution system. Operators provided forms documenting their efforts to exercise valves in the distribution system.

- **There was a program in place for inspecting and operating hydrants.**

As recommended by the Ministry, there is currently a program in place to inspect and test hydrants in the distribution system. Operators provided forms documenting this activity.

## Distribution System

- **There was a by-law or policy in place limiting access to hydrants.**

As recommended by the Ministry, By-Law #66- 2019 was enacted to limit access to authorized personnel.

## Operations Manuals

- **Operators and maintenance personnel had ready access to operations and maintenance manuals.**

Pursuant to Section 28 of Ontario Regulation 128/04, operators have ready access to print and/or electronic plans, drawings, and process descriptions.

- **The operations and maintenance manuals contained plans, drawings and process descriptions sufficient for the safe and efficient operation of the system.**

In addition to being readily available, Section 28 of Ontario Regulation 128/04 manuals to be sufficient for the safe and efficient operation of the system.

With respect to treatment systems, the Ministry expects the availability of,

- process descriptions (related to both treatment and monitoring); and
- drawings that include,
  - treatment facilities and equipment/process units;
  - chemical application points; and
  - process monitoring / sampling points.

Note: In light of ongoing changes, the Officer did not review the document in detail. It was understood that updates will be forthcoming to reflect recent changes to the system, and changes anticipated in 2023.

## Operations Manuals

- **The operations and maintenance manuals met the requirements of the Drinking Water Works Permit and Municipal Drinking Water Licence issued under Part V of the SDWA.**

Ontario Regulation 128/04 focuses on the provision of plans, drawings, and process descriptions, whereas Municipal Drinking Water Licences impose requirements related to the provision of procedures. As several elements are addressed within other sections of this report, the Officer's scope was limited to ensuring the availability of the,

- Licence and Permit (and/or references to the requirements imposed by them); and
- Procedures related to the,
  - Monitoring of the system's performance;
  - Operation and maintenance of any monitoring equipment;
  - Maintenance and flushing of hydrants;
  - Exercising of valves; and
  - Expected responses to complaints and emergencies.

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## Logbooks

- **Logbooks were properly maintained and contained the required information.**

Pursuant to Subsection 27 (1) of Ontario Regulation 128/04, logs and other record-keeping mechanisms are available for use by operators to document the operations. Separate logbooks have been created for various components of the system.

Pursuant to Subsection 27 (5), operators appear to be documenting information regarding the system's operation including the date and time of their entries, the names of the operators on duty, and details regarding equipment problems, unusual events and/or departures from normal operating procedures.

## Logbooks

- **Records or other record keeping mechanisms confirmed that operational testing not performed by continuous monitoring equipment was being done by a certified operator, water quality analyst, or person who suffices the requirements of O. Reg. 170/03 7-5.**

Pursuant to Section 7-5 in Schedule 7 of Ontario Regulation 170/03, only qualified personnel (e.g., certified operators or water quality analysts) appear to be performing operational tests.

- **For every required operational test and every required sample, a record was made of the date, time, location, name of the person conducting the test and result of the test.**

Worksheets, logs, and sample submission forms screened during the inspection indicate operators are identifying themselves, and recording the sample date and time, sample location and field tests results where and when required by Subsection 6-10 (1) in Schedule 6 of Ontario Regulation 170/03.

- **The operator-in-charge ensured that records were maintained of all adjustments made to the processes within his or her responsibility.**

To ensure process adjustments are recorded pursuant to Subsection 26 (2) (c) of Ontario Regulation 128/04, operators are prescribed the use of worksheets and logs. With regards to secondary disinfection, treatment process adjustments are infrequent. E.g., most of the adjustments recorded in the Huron Park Tower logbook are specific to keeping the continuous analysers operating within acceptable tolerances.

- **Logs or other record keeping mechanisms were available for at least five (5) years.**

Pursuant to Subsection 27 (6) of Ontario Regulation 128/04, a commitment has been made to retain logs and related records as required. Details are included in the Records Control procedure regarding the minimum retention periods within O. Reg. 170/03. The minimum retention times for all other records is governed internally by By-law #61-2015.

## Contingency/Emergency Planning

- **Spill containment was provided for process chemicals and/or standby power generator fuel.**
- **Clean-up equipment and materials were in place for the clean up of spills.**
- **Standby power generators were tested under normal load conditions.**

Given the importance placed on ensuring their generators will function when required, the generators are subject to both internal and external inspections. The latter includes simulated power outages.

## Security

- **All storage facilities were not completely covered and secure.**

The Ministry expects water storage facilities to be covered and secure to prevent the ingress of contaminants. During work on the MacNaughton Reservoir, a potential concern was flagged with respect to cracks in Cell #2. Section 3 of the report prepared by GM BluePlan Engineering recommended that this and other remedial work be conducted during the next major shutdown.

- **Air vents and overflows associated with reservoirs and elevated storage structures were equipped with screens.**

Vents and overflows are equipped with screens, and they are periodically subject to inspection and maintenance by outside contractors.

- **The owner had provided security measures to protect components of the drinking water system.**

The Ministry recommends owners secure components of their drinking water system from intruders and potential sources of contamination. Doors to the various facilities in the distribution system are kept locked, and operators did not report any incidents or concerns suggesting a need for additional security measures.

- **The owner and/or operating authority undertook efforts to promote water conservation and reduce water losses in their system.**

The Ministry encourages water conservation – particularly if a system encounters any capacity issues. A wide range of measures may be considered including periodic calculations of water losses; periodic leak detection programs; encouraging the use of water efficient fixtures and practices; and imposing water usage restrictions (bylaws).

Outside watering restrictions are in place from May to October pursuant to Part 8 of By-Law #66- 2019. Further, to mitigate water losses in the northwestern corner of the distribution system, a new pressure zone has been created to reduce pressure in the area.

## Certification

- **The overall responsible operator had been designated for each subsystem.**

Ontario Regulation 128/04 prescribes systems for classifying water systems, and for certifying personnel who operate them. Subsection 23 requires an operator, who holds the appropriate type and level of certification, to be designated as the Overall Responsible Operator (ORO).

The Municipality appointed their Environmental Services Foreman as their Overall Responsible Operator on July 18, 2022, following the departure of their former Manager of Environmental Services. The foreman, along with other qualified operators, had previously served as backups while the Overall Responsible Operator was unavailable.



## Certification

- **An adequately licenced operator was designated to act in place of the overall responsible operator when the overall responsible operator was unable to act.**

To address Subsection 23 (4) of Ontario Regulation 128/04, which speaks to situations where the designated ORO is unable to act, the role of ORO is served by one primary operator; however, other suitably qualified operators have been identified whom can backfill as required.

- **Operators-in-charge had been designated for all subsystems which comprise the drinking water system.**

Several operators have been appointed to serve as operator-in-charge per Subsection 25 (1) of Ontario Regulation 128/04. While they report to their foreman and manager, given the distribution of infrastructure within the system, qualified operators typically work relatively independently with assigned areas. As indicated in the logs, while working in this capacity, each is identified as the “operator-in-charge”.

- **All operators possessed the required certification.**

Information posted by the Ontario Water and Wastewater Certification Office confirms each full-time operator held a drinking water certificate, or a conditional drinking water certificate, as required by Section 22 of Ontario Regulation 128/04.

Operator	Type	Class	Certificate	Role
90085556	WT	II	108840	Current Manager
90085556	WS	II	108841	Current Manager
90056428	WT	OIT	OT57123	Former Manager / Former primary ORO
90056428	WD	III	63005	Former Manager / Former primary ORO
90017239	WT	I	17967	Foreman / primary ORO
90017239	WS	III	15033	Foreman / primary ORO
90017239	WQA	--	13955	Foreman / primary ORO
90015360	WT	I	18089	Operator
90015360	WS	II	14393	Operator
90054049	WT	I	56621	Operator
90054049	WD	II	56565	Operator
90079488	WD	II	101673	Operator
90086076	WD	I	109255	Operator

- **Only certified operators made adjustments to the treatment equipment.**

Log entries reviewed by the Officer indicated that as required by Subsection 1-2 (2) in Schedule 1 of Ontario Regulation 170/03, only licensed operators are carrying out adjustments to the water treatment equipment.

## Water Quality Monitoring

- **All microbiological water quality monitoring requirements prescribed by legislation for distribution samples in a large municipal residential system were being met.**

Reported laboratory results indicate distributed water samples have been collected monthly for microbiological testing per Section 10-2 of Ontario Regulation 170/03. Depending upon the number of weeks in the month, operators collect 40 to 50 samples per month.

- **Records confirmed that chlorine residual tests were being conducted at the same time and at the same location that microbiological samples were obtained.**

Sample submission forms indicate that during the collection of samples for microbiological testing, operators tested the chlorine residual as required by Section 6-3 of Ontario Regulation 170/03.

- **All haloacetic acid water quality monitoring requirements prescribed by legislation were conducted within the required frequency and at the required location.**

Reported laboratory results indicate distributed water samples have been collected quarterly from one or more locations in the southeastern corner of the distribution system, an area operators believe would be likely to have an elevated potential for the formation of haloacetic acids – should this disinfection by-product be a concern.

- **All trihalomethane water quality monitoring requirements prescribed by legislation were conducted within the required frequency and at the required location.**

Reported laboratory results indicate quarterly sampling has been conducted. Sample locations have rotated through various points within the system. In 2022, samples were collected from the southeastern corner of the distribution system.

- **The owner ensured that water samples were taken at the prescribed location.**

Reported laboratory results indicate samples were collected at the appropriate locations as required by Section 6-2 of Ontario Regulation 170/03.

- **All sampling requirements for lead prescribed by schedule 15.1 of O. Reg. 170/03 were being met.**

The requirements in Schedule 15.1 of Ontario Regulation 170/03 are based on a drinking water system's service population and sampling history. Many systems which have not encountered problems with elevated lead results have been able to scale back their community lead testing program to the periodic collection of a few distributed water samples for testing lead, pH, and alkalinity.

In 2022, samples were collected from various points within the distribution system, plumbing serving private residences, and plumbing serving non-residential buildings.

## Water Quality Monitoring

- **The owner indicated that the required records are kept and will be kept for the required time period.**

Operators advised that the water quality monitoring records for this system have been, and will continue to be, stored for periods meeting or exceeding the applicable retention schedule in Section 13 of Ontario Regulation 170/03.

## Water Quality Assessment

- **Records showed that all water sample results taken during the inspection review period did not exceed the values of tables 1, 2 and 3 of the Ontario Drinking Water Quality Standards (O. Reg. 169/03).**

All the reported laboratory results met the applicable water quality standards (in Ontario Regulation 169/03).

## Reporting & Corrective Actions

- **The owner had evidence that required notifications to all legal owners associated with the Drinking Water System had been made during the inspection period.**

Operators confirmed that as part of their development process, the Municipality is notifying developers regarding the existence of the Licence and Permit, and of the requirements therein.

- **All reporting requirements for lead sampling were complied with as per schedule 15.1-9 of O. Reg. 170/03.**

The Officer understands occupants were notified of the results of samples collected from their homes. The Officer understands correspondence was prepared but not circulated immediately, an oversight which was later corrected by the Municipality.

- **The Annual Report containing the required information was prepared by February 28th of the following year.**

Pursuant to Section 11 (3) and (6), the most recent annual report was prepared February 7, and included,

- a brief description of the drinking water system and treatment chemicals used;
- a description of any major equipment expenses;
- a summary of test results for required sample parameters; and
- a summary of any adverse water quality incidents.

A copy of the report is available on the Municipality's website, i.e., <https://www.southhuron.ca/en/services/reports.aspx>.

## Reporting & Corrective Actions

- **Summary Reports for municipal council were completed on time, included the required content, and were distributed in accordance with the regulatory requirements.**

The summary report was prepared per Section 22-2 in Schedule 22 of Ontario Regulation 170/03.

- **The donor provided an Annual Report to the owner of this receiver drinking water system.**

In addition to annual reports circulated pursuant to Subsection 11 (2.1) of Ontario Regulation 170/03, the Donor also posts a copy of their annual reports on their website pursuant to Subsection 11 (10), i.e., <https://huronelginwater.ca/consumer-resources/consumer-reports>.

## Other Inspection Findings

- **The following items are noted as being relevant to the Drinking Water System:**

As mentioned earlier in this report, this system is unique in that the Director granted an exemption at specific addresses identified in Schedule D of the Licence - provided point of entry UV systems are used instead. Should the Municipality wish this exemption applied to new addresses in the area, it is recommended that they complete and submit,

- a Form 2 (Record of Minor Modifications or Replacements to the Drinking Water System) to indicate their intent; and
- a Director Notification once the equipment is installed.

This form of relief is atypical for large municipal systems; however, the Director previously granted an exemption given the unique development history of this portion of the system, i.e., the mains supplying this area were originally sized to supply water to the reservoir in Exeter.

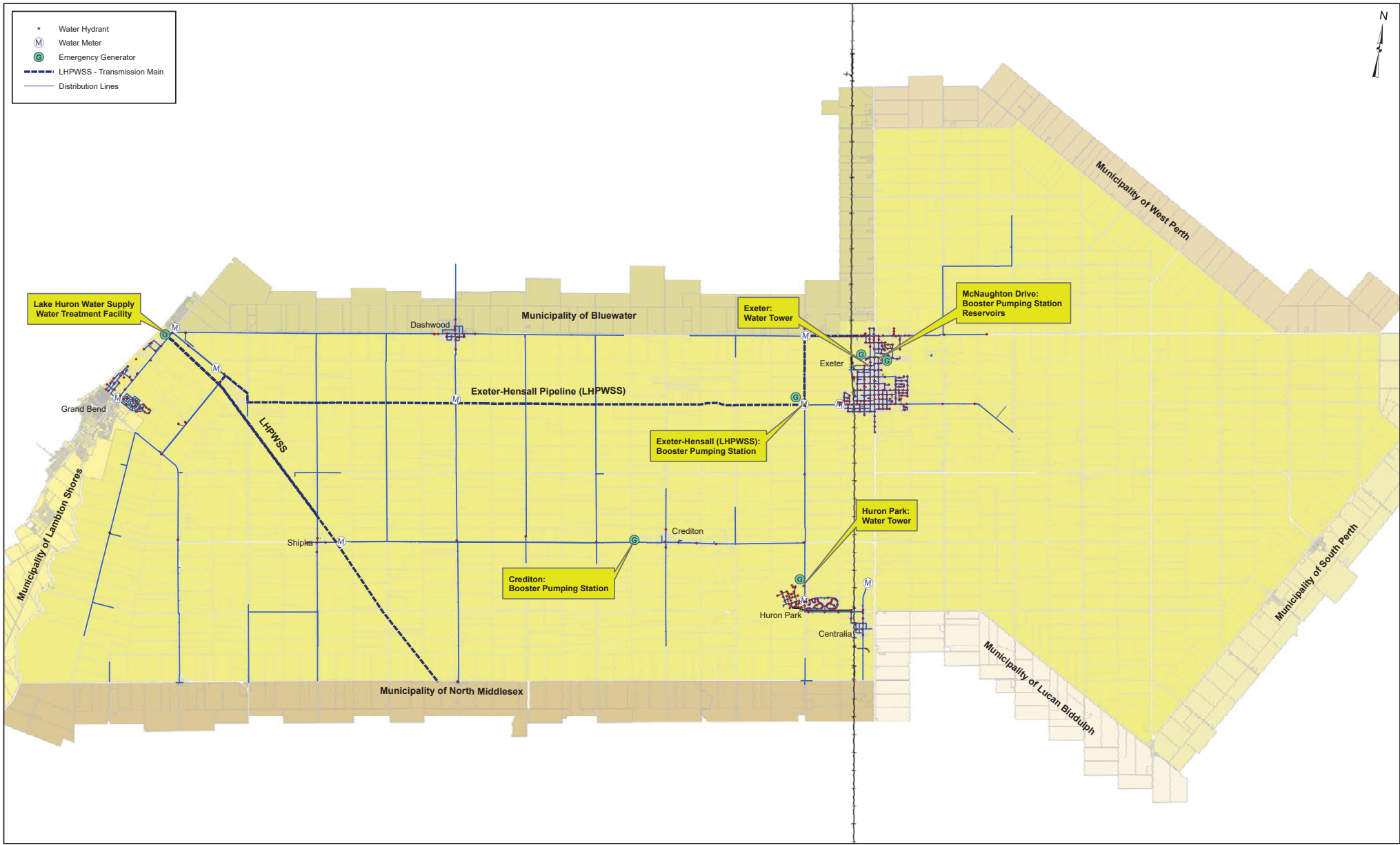
As an aid the review engineer, who may be unfamiliar with this system, it is recommended that the Form 2,

- reference the existing exemptions in Schedule D, and
- identify why this treatment option is being sought.

## Appendix 1

### **Distribution Schematic**





# Municipality of South Huron - Water Distribution System

Revision Date: September 13, 2017





## Appendix 2

### Drinking Water System Dossier - Excerpts



## 021 - Drinking Water System Dossier for 220001520

### Drinking Water System Profile Information

<b>DWS #</b>	220001520
<b>Registration Date (yyyy/mm/dd)</b>	2002/09/06
<b>DWS Status</b>	Active DWS
<b>DWS Expiry Date (yyyy/mm/dd)</b>	
<b>MOE Assigned Name</b>	South Huron Distribution System
<b>Category</b>	LMRS
<b>Regulation Short Name</b>	O.REG 170/03
<b>DWS Type</b>	Distribution System
<b>Source Type</b>	Distribution
<b>Address</b>	82 Nelson Street, Exeter, Ontario, N0M 1S6, Canada
<b>Region</b>	Southwestern Region
<b>District</b>	Sarnia District
<b>Municipality</b>	South Huron
<b>Public Health Unit</b>	Huron Perth Public Health

### DWS OPERATIONAL INFORMATION

<b>Concession Plan Number</b>	
<b>Lot</b>	
<b>Geographic Township</b>	
<b>Population:</b>	8,200
<b>Number of Private Residences:</b>	2,889
<b>Number of Service Connections:</b>	3,686
<b>Rated Daily Capacity (L/S)</b>	180.6

**LSN Compliance Status:** *Complete LSN*

**24/7 Contact** On Operator, Water/Wastewater Operator  
**24/7 Contact Info** p: (519)2350310, f: (519)2354244, e: - , c: - , pg: -

### DWS OWNER INFORMATION

<b>Owner Legal Name</b>	South Huron, The Corporation Of The Municipality
<b>Owner Business Name</b>	South Huron, The Corporation Of The Municipality
<b>Owner Address</b>	322 Main St,Post Office Box Delivery ,759,Exeter,ON,N0M 1S6
<b>Owner Contact</b>	Don Giberson, Director Of Infrastructure And Development
<b>Owner Contact Info</b>	p: (519)2350310 x226, f: (519)2353304, e: dgiberson@southhuron.ca
<b>Owner Alternate Contact</b>	Jason McBride, Environmental Services Foreman
<b>Owner Alternate Contact Info</b>	p: (519)4769594, f: - , e: jmcbride@southhuron.ca

### DWS OPERATING AUTHORITY INFORMATION

<b>Op. Authority Legal Name</b>	South Huron, The Corporation Of The Municipality
<b>Op. Authority Business Name</b>	South Huron, The Corporation Of The Municipality
<b>Op. Authority Address</b>	322 Main St,Post Office Box Delivery ,759,Exeter,ON,N0M 1S6
<b>Op. Authority Contact</b>	Jason McBride, Environmental Services Foreman
<b>Op. Authority Contact Info</b>	p: (519)4769594, f: - , e: jmcbride@southhuron.ca
<b>Op. Authority Alternate Contact</b>	
<b>Op. Authority Alternate Contact Info</b>	

## 021 - Drinking Water System Dossier for 220001520

### O. Reg 170 DWS that SUPPLY Water to THIS DWS

Supplying DWS #	Supplying DWS Name	Supplying DWS Category	How is Water Supplied?
210000791	Lake Huron Primary Water Supply System	LMRS	Continuously

### DWIS Components

#### ***Distribution System***

DWIS Component Name	GUDI Flag	Seasonal Flag	Treatment Process	Primary Treatment Flag	Secondary Treatment Flag
Distribution:South Huron Distribution System					

#### ***Plumbing***

DWIS Component Name	GUDI Flag	Seasonal Flag	Treatment Process	Primary Treatment Flag	Secondary Treatment Flag
Plumbing:South Huron Distribution System					

### System Classification and Certification

Subsystem Name	Decommissioned	Certificate Number	Certificate Type	Certificate Class	Status	Effective Date	Expiration Date
South Huron Water Distribution System	No	8206	Water Distribution	CLASS III	Active	2016/02/19	

## Appendix 3

### **Key Reference and Guidance Material**



# Key Reference and Guidance Material for Municipal Residential Drinking Water Systems

Many useful materials are available to help you operate your drinking water system. Below is a list of key materials owners and operators of municipal residential drinking water systems frequently use.

To access these materials online click on their titles in the table below or use your web browser to search for their titles. Contact the Ministry if you need assistance or have questions at 1-866-793-2588 or [waterforms@ontario.ca](mailto:waterforms@ontario.ca).

For more information on Ontario's drinking water visit [www.ontario.ca/drinkingwater](http://www.ontario.ca/drinkingwater)



PUBLICATION TITLE	PUBLICATION NUMBER
<b>FORMS:</b> Drinking Water System Profile Information Laboratory Services Notification Adverse Test Result Notification	012-2149E 012-2148E 012-4444E
Taking Care of Your Drinking Water: A Guide for Members of Municipal Councils	Website
Procedure for Disinfection of Drinking Water in Ontario	Website
Strategies for Minimizing the Disinfection Products Trihalomethanes and Haloacetic Acids	Website
Filtration Processes Technical Bulletin	Website
Ultraviolet Disinfection Technical Bulletin	Website
Guide for Applying for Drinking Water Works Permit Amendments, & License Amendments	Website
Certification Guide for Operators and Water Quality Analysts	Website
Guide to Drinking Water Operator Training Requirements	9802E
Community Sampling and Testing for Lead: Standard and Reduced Sampling and Eligibility for Exemption	Website
Drinking Water System Contact List	7128E01
Ontario's Drinking Water Quality Management Standard - Pocket Guide	Website
Watermain Disinfection Procedure	Website
List of Licensed Laboratories	Website