Ontario

Ministry of the Environment, Conservation and Parks

SOUTH HURON DISTRIBUTION SYSTEM

Inspection Report

Site Number:	220001520
Inspection Number:	1-ICSTQ
Date of Inspection:	Dec 14, 2018
Inspected By:	Paul Tersteege

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OWNER INFORMATION:

Company Name: SOUTH HURON, THE CORPORATION OF THE MUNICIPALITY
Street Number: 322
Street Name: MAIN St S
City: EXETER
Province: ON **Postal Code:** N0M 1S6

CONTACT INFORMATION

INSPECTION DETAILS:

Site Name: SOUTH HURON DISTRIBUTION SYSTEM
Site Address: 82 NELSON ST EXETER N0M 1S6
County/District: South Huron
MECP District/Area Office: Sarnia District
Health Unit: HURON COUNTY HEALTH UNIT
Conservation Authority:
MNR Office:
Category: Large Municipal Residential
Site Number: 220001520
Inspection Type: Announced
Inspection Number: 1-ICSTQ
Date of Inspection: Dec 14, 2018
Date of Previous Inspection: Dec 29, 2017

COMPONENTS DESCRIPTION

Site (Name): DISTRIBUTION

Comments:
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 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 ~180 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 seven 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.)

The distribution system includes two booster pumping stations, two reservoirs and two water towers. Continuous monitoring equipment, coupled with computerized Supervisory, Control and Data Acquisition Systems (SCADA) both monitor and control the operation of this distribution system.

INSPECTION SUMMARY:

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.**

  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 report is based on an inspection of a "stand alone connected distribution system". This type of system receives treated water from a separately owned "donor" system. This report contains the elements required to assess key compliance and conformance issues associated with a "receiver" system. This report does not contain items associated with the inspection of the donor system, such as source waters, intakes/wells and treatment facilities.

  This report is based on a "focused" inspection of the system. Although the inspection involved fewer activities than those normally undertaken in a detailed inspection, it contained critical elements required to assess key compliance issues. This system was chosen for a focused inspection because the system's performance met the ministry's criteria, most importantly that there were no deficiencies as identified in O.Reg. 172/03 over the past 3 years. The undertaking of a focused inspection at this drinking water system does not ensure that a similar type of inspection will be conducted at any point in the future.

  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 met with the Director of Operations and Infrastructure and the Water/Wastewater Foreman on December 14, 2018 to inspect the drinking water system. The inspection had regard for events since the date of the last inspection; however, within that review period, the scope and depth of the Officer's review varied based upon subject matter, and upon whether he identified indicators suggesting a need for a more detailed review.

Treatment Processes

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

  The Ministry expects all of the equipment described in Schedule A of the Owner's Drinking Water Works Permit, as may be amended by alterations identified in Schedule C, to be (and to remain) installed. At the end of 2017, the Municipality had been working to upgrade the Exeter Water Tower. This project included the installation of a mixing system and controls. Further, the Municipality installed a new control valve.

  The Municipality has not installed any additional equipment; however, it has continued to work to modify the movement of water through its system, particularly as it relates to filling the Exeter Tower. In doing so, there have been marked improvements in the regulation of chlorine residuals entering Exeter.

- **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 Drinking Water Works Permits allows for

Treatment Processes

watermain additions, modifications, replacements and extensions providing owners retain a completed "Form 1 – Record of Watermains Authorized as a Future Alteration" verifying each project has met the requirements listed in Conditions 3.1.1 through 3.1.6. The Municipality provided four Form 1 documents completed in 2018 for recent projects, i.e., for watermains on Dashwood Road and Shipka Line, Huron Street East, Hazelton Lane, and Huron Street and McTaggart Line.

- **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 O. Reg. 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 maintained at or above 0.05 mg/L. Results below 0.05 mg/L must be reported per Subsection 16-3 (1) of O. Reg. 170/03.

  Per the regulatory relief provided in Schedule D of the Municipality's Licence, these provisions do not apply to the northeastern extremity of the distribution system where the Municipality has opted to provide consumers point-of-entry ultraviolet disinfection systems. As indicated by their microbiological sampling, five locations continue to make use of UV systems.

  Exclusive of the preceding locations, the results of grab sample collected by operators did not suggest concern. Similarly, the continuous monitoring data provided for review did not suggest a concern. While the data contained a number of outlies, it did not appear to indicate any adverse conditions. Rather, outliers appeared to reflect operational issues such as loss of communications, loss of flow to analysers, analyser breakdown and maintenance, etc.

Treatment Process Monitoring

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

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

  Where continuous monitoring equipment is used to fulfil chlorine or turbidity testing requirements, Section 6-5 in O. Reg. 170/03 requires an examination of results captured by continuous monitoring equipment within 72 hours of the tests. (That said, as those two parameters alone may be inadequate to determine whether a system has operated in accordance with the Ministry's Procedure for Disinfection of Drinking Water in Ontario, additional parameters should be considered if data is available.)

  The Municipality's SCADA system generates a Daily Report at the end of each day summarizing chlorine residual, pressure, flow, water level and equipment runtimes data. On weekday mornings, operators review the Daily Report(s) from the previous day (or weekend), at which time they manually enter the date/time of their review, and sign their initials. Further, they may make notations regarding any irregularities they identify on the Daily Report and/or in the calendar they use as a logbook.

  Lastly, the Municipality advised they have a protocol in place covering holidays in order to ensure the reviews occur within 72 hours. Typically, in the event of holiday Mondays, operators will perform checks on Sundays.

- **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.**

  Where continuous monitoring equipment is used to fulfil chlorine testing requirements, Subsections 6-5 (1) and 6-5

Treatment Process Monitoring

(1.1)1 in O. Reg. 170/03 requires the use of alarms or interlocks. In the event of a malfunction, loss of power, etc., the intent of these provisions is to enable operators to take prompt and appropriate action to resolve the concern, or to cause the flow of water to consumers to be stopped automatically.

The drinking water system has its continuous monitoring analysers equipped with alarms.

- **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.**

  Where continuous monitoring equipment is used to fulfil chlorine or turbidity testing requirements, Subsection 6-5 (1) in O. Reg. 170/03 prescribes minimum testing and recording intervals of 5 and 15 minutes respectively. Where monitoring equipment tests more frequently, the monitoring equipment may record the minimum, maximum, and the mean results for periods equal to the prescribed intervals. Data provided for review was aggregated in 4-minute intervals.

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

  Where continuous monitoring equipment is used to fulfil chlorine, Subsection 6-5 (1) in O. Reg. 170/03 requires owners to assess the accuracy of the equipment in accordance with the manufacturer's instructions, or if not indicated, as frequently as required to ensure the equipment remains within acceptable tolerances.

  The Municipality has an outside contractor as the accuracy of their handheld analysers annually. Each was "passed as found". Besides conducting field measurements, operators use the handheld equipment as reference analysers to assess the accuracy of the continuous analysers. Worksheets documenting monthly checks were provided for review.

  In such cases, inspectors are asked to assess whether the chlorine residuals displayed by the continuous analysers are within ±5% or ±0.05 mg/L (whichever is greater) of the residuals displayed on the reference analysers.

  While the Officer noted some outliers, he also noted one analyser had been replaced in 2018, and two others were anticipated being replaced in the following year. In light of this, the Officer is not overly concerned. However, as discussed with the Overall Responsible Operator, the Officer would suggest that where there is a significant discrepancy between the two sets of readings, operators should be directed to an additional round of testing later that same month.

Distribution System

- **Existing parts of the distribution system that are taken out of service for inspection, repair or other activities that may lead to contamination, and all new parts of the distribution system that come in contact with drinking water, were disinfected in accordance with Schedule B, Condition 2.3 of the Drinking Water Works Permit, or an equivalent procedure (i.e. the Watermain Disinfection Procedure).**

  The Municipality makes use of a worksheet for Category 1 and 2 breaks, and an additional worksheet for Category 2 breaks. While the form appears to encompass subjects referenced in Section 4.0 of the current Ministry procedure, the Officer noted he had been advised the Ministry intends to provide owners, operating authorities and other water professionals, draft revisions to the current Watermain Disinfection Procedure for their review and comment.

  The Officer provided a copy of the presentation provided to him. He encouraged the Municipality to participate in this review, and noted the proposed changes would likely require modifications to their current procedures and/or worksheets.

Operations Manuals

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

  The Municipality advised there had been no major revisions to their manual; however, the Municipality has been working to optimize the control of its water system, and the Officer noted marked improvements resulting from changes made during the previous inspection period.

  The Municipality has been working with its consultant to update the control narrative for its drinking water system, and a copy of the draft narrative prepared at the end of November 2018 was provided. The narrative includes a number of schematics related to the operation of the system under various operational conditions. This is an important prerequisite to the pursuit of upgrades to their SCADA system.

  In light of the aforementioned considerations, and given previous discussions regarding the Department's exploration of tablets for recording observations and providing information to operators, the current manual was not subject to additional review.

  If the Department secures Council's approval, they hope to pursue the use of tablets in 2019. This would prompt the move from paper reference material and recordkeeping to electronic documentation.

  The Officer noted more municipalities have commenced adopting this technology. The availability of electronic records such as work orders, worksheets, etc., can prove to be of great assistance to operators, but also to the administration and Council (e.g., for asset management and infrastructure planning).

  The Officer encouraged the Department to network with peers in other municipalities with a view towards learning from their experiences, particularly as he has noted it may take a few years to develop the capacity to use electronic operational records and to provide operators reference materials via tablets.

- **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.**

Logbooks

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

  Section 27 of O. Reg. 128/04 requires the provision of logs and/or other record-keeping mechanisms to permit operators to document the operation of drinking water systems. In addition to requiring these records to be retained for a minimum of 5 years, Section 27 addresses the following with respect to content requirements, and the identification of operators.

  Identification of Operators – Logs should allow for the identification of
  - each operator making entries
  - all operators on duty
  - the date and time period covered by each shift/field visit

  Content
  - Logs should be chronological
  - Logs should identify any,
    - departures from normal procedures, and the name of the person directing those departures
    - unusual observations, resultant actions and/or conclusions
    - incidents where equipment,

Logbooks

- ceased operating
    - was removed from, or returned to, service
    - was subject to maintenance or repair

The available records appear to be addressing these two areas.

- **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 O. Reg. 170/03, only qualified personnel (e.g., certified operators or water quality analysts) perform operational tests.

Security

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

  The Ministry recommends owners adopt various measures to secure their water supply, treatment and storage facilities from intruders and potential sources of contamination.

  Security measures protecting the various components in the system include weekly inspections documented in six worksheets:
  - MacNaughton Booster Pumping Station Weekly Checks
  - Weekly Checks of Reservoirs
  - Exeter Water Tower Weekly Checks
  - Huron St. Chamber Weekly Checks
  - Crediton Booster Pumping Station Weekly Checks
  - Huron Park Water Tower Weekly Checks

  In addition to checks by operators, an outside contractor is brought in inspect the Municipality's water storage facilities. In addition to the status of the interior and exterior condition of the towers, these inspections also consider such things as the security of entrances, and the condition of access hatches and vents.

  The Municipality noted the properties are not fenced due to the belief/experience that fences tend to promote curiosity and provide a challenge to be overcome. The Municipality noted they had installed motion detectors at their Operations Centre at 82 Nelson Street in Exeter. However, they did not report any incidents or concerns suggesting a need for additional security measures.

Certification and Training

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

  O. Reg. 128/04 prescribes a means for classifying municipal residential drinking water subsystems, and for certifying operators who work at them. Further, Subsection 23 (1) requires owners or operating authorities to designate an operator as the "overall responsible operator" (ORO). To be an ORO, the operator must hold a certificate equal to or higher than the class of the drinking water system for which they are responsible.

  On February 19, 2016, a certificate was issued indicating this drinking water system was classified as a Class III water distribution system. The Municipality's Water/Wastewater Foreman normally serves as the ORO. He possesses a Class III Water Distribution Certificate - which is appropriate for this system.

  The Environmental Services Department uses its personnel to operate both their water and wastewater infrastructure. At the top of the daily journal used as the Municipality's main log, operators record who is serving as

Certification and Training

the Overall Responsible Operator (ORO) and as Operators-in-Charge (OIC).

Should the Foreman be unavailable, the Municipality may call upon one of its three more experienced operators to serve in this capacity.
- One holds a Class I Water Treatment and a Class II Water Supply certificate.
- One holds a Class I Water Treatment, a Class III Water Supply and a Water Quality Analyst certificate.
- One holds a Class I Water Treatment and a Class II Water Distribution certificate.

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

  Subsection 25 (1) of O. Reg. 128/04 requires the appointment of one or more operators-in-charge (OIC) for each subsystem. Over the course of 2018, another operator has been permitted to serve as operator-in-charge.

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

  The Municipality advised that pursuant to Schedule 1 of O. Reg. 170/03, subsection 1-2(2)5, all individuals who are appropriately certified as Drinking-Water System Operators under O. Reg. 128/04, are permitted to make adjustments to the treatment equipment.

  The only treatment equipment in this system is the chlorination equipment at the Huron Park Water Tower. Operators make use of worksheets and facility logbooks to document readings and checks. The recorded adjustments were generally limited to changes to the operation and alarm setpoints when the Municipality was purposefully operating the Tower at a higher level, e.g., when the supply from Shipka was temporarily valved off.

Water Quality Monitoring

- **All microbiological water quality monitoring requirements for distribution samples were being met.**

  The Summary of Reported Laboratory Results appended to this inspection report is based upon information reported by the laboratories used to test samples collected from this drinking water system. The report is grouped into several summaries reflective of parameter groups considered by Ministry inspections. While the Officer reviewed several years of data, date filters were used to limit the length of some of the summaries (as indicated on the top right of the header for each).

  Reported microbiological results indicate operators usually operators collect 10 samples each week with all being tested for E. coli and total coliforms, and 3 being tested for general bacteria (i.e., heterotrophic plate count). Five of the weekly samples are collected from locations where the Municipality provides point of entry (i.e., UV treatment equipment). The remaining five are collected from elsewhere within the distribution system.

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

  Subsections 13-6.1 (1) and (2) in Schedule 13 of O. Reg. 170/03 require the collection of one set of samples every calendar quarter from a point in distribution system that is likely to have an elevated potential for the formation of haloacetic acids, i.e., usually at a point shortly after disinfection.

  The attached summary indicates operators have been collecting the samples at the requisite interval. Further, the results indicate operators are currently sampling from a point a short distance from a treatment point. In 2018, samples were collected from the outlet from the Huron Park Water Tower.

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

  Subsections 13-6 (1) and (2) in Schedule 13 of O. Reg. 170/03 require the collection of one set of samples every

Water Quality Monitoring

calendar quarter from a point in the distribution system that is likely to have an elevated potential for the formation of trihalomethanes. (Before January 1, 2016, O. Reg. 170/03 required the collection of samples at three-month intervals - with no more than 120 days, and no less than 60 days, between samples.)

Given the Municipality's drinking water system is supplied from various connections to the Lake Huron Primary Water Supply System, the Municipality has purposefully been testing the levels of trihalomethanes from various extremities throughout its distribution system.

In 2018, operators collected 4 sets of samples from "Oakwood Links" in Grand Bend. In 2017, operators collected 4 sets of samples from the Water and Sewer Department's building in Exeter. Other sampling locations include the Dashwood Fire Hall (which was last sampled in 2016).

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

  Sampling records indicate operators test the chlorine residual at the same time and location they are collecting microbiological samples, as prescribed by Subsection 6-3 (1) in O. Reg. 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 of the laboratory results, reported since the last inspection, were within the limits prescribed in the Ontario Drinking Water Quality Standards.

Reporting & Corrective Actions

- **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.**

  Where continuous chlorine residual monitoring equipment malfunctions, loses power or alarms, the Ministry requires prompt and appropriate action. However, it is important to note that Schedule 6 of O. Reg. 170/03 includes several considerations including whether the drinking water system is continuing to supply consumers.

  The Officer screened electronic records for low results. When required, operators appear to have acted promptly and appropriately. What appeared to be the events of the greatest duration were generally limited periods equipment was offline. Some analysers were reaching the end of their service life. One was replaced in 2018. Another is likely to be replaced in 2019.

  The Officer also screened the results for data gaps and repeated series of values. Both of these conditions can suggest communications faults. Generally, these events did not elicit an immediate response (due to the breakdown in communication) and/or took longer to resolve as they sometimes necessitated the assistance of an instrumentation and control consultant.

- **All changes to the system registration information were provided within ten (10) days of the change.**

  After drinking water systems were registered, Section 10.1 of O. Reg. 170/03 required owners to notify the Director of any changes to the profile information within 10 days. The Officer provided the attached Drinking Water System Dossier, and asked about any recent changes.

  While the phone number for the Water/Wastewater Foreman is still active, it is no longer being monitored. Telephone calls should now be directed to the Municipality's general phone number so that they can route inquiries

Reporting & Corrective Actions

appropriately.

The Officer relayed this information to the Ministry's Drinking Water Registration Team, who in turn updated the Ministry's database.

NON-COMPLIANCE WITH REGULATORY REQUIREMENTS AND ACTIONS REQUIRED

This section provides a summary of all non-compliance with regulatory requirements identified during the inspection period, as well as actions required to address these issues. Further details pertaining to these items can be found in the body of the inspection report.

Not Applicable

SUMMARY OF RECOMMENDATIONS AND BEST PRACTICE ISSUES

This section provides a summary of all recommendations and best practice issues identified during the inspection period. Details pertaining to these items can be found in the body of the inspection report. In the interest of continuous improvement in the interim, it is recommended that owners and operators develop an awareness of the following issues and consider measures to address them.

Not Applicable

SIGNATURES

Inspected By:

Paul Tersteege

Signature: (Provincial Officer)

Reviewed & Approved By:

Marc Bechard

Signature: (Supervisor)

2019.01.10 15:24:24 -05'00'

Review & Approval Date:

Note: This inspection does not in any way suggest that there is or has been compliance with applicable legislation and regulations as they apply or may apply to this facility. It is, and remains, the responsibility of the owner and/or operating authority to ensure compliance with all applicable legislative and regulatory requirements.

Appendix 1 - Inspection Summary Rating Record

Ministry of the Environment - Inspection Summary Rating Record (Reporting Year - 2018-2019)

DWS Name:	SOUTH HURON DISTRIBUTION SYSTEM
DWS Number:	220001520
DWS Owner:	South Huron, The Corporation Of The Municipality
Municipal Location:	South Huron
Regulation:	O.REG 170/03
Category:	Large Municipal Residential System
Type Of Inspection:	Adhoc
Inspection Date:	December 14, 2018
Ministry Office:	Sarnia District

Maximum Question Rating: 301

Inspection Module	Non-Compliance Rating
Treatment Processes	0 / 39
Distribution System	0 / 21
Operations Manuals	0 / 28
Logbooks	0 / 18
Certification and Training	0 / 28
Water Quality Monitoring	0 / 51
Reporting & Corrective Actions	0 / 25
Treatment Process Monitoring	0 / 91
TOTAL	**0 / 301**

Inspection Risk Rating	**0.00%**

FINAL INSPECTION RATING:	**100.00%**

Inspection Rating Record Generated On 10-JAN-19 (Inspection ID: 1-ICSTQ).

Appendix 2 - Summaries of Reported Sample Results

Summaries of Results Reported for a Regulated Drinking Water System

Ontario

Name	South Huron Distribution System
Municipality	South Huron
Health Unit	Huron County
MOECC office	Sarnia

ID number	220001520
Regulation	O.REG 170/03
Category	LMRS

Microbiological Summaries

Number of Microbiological Results Reported – Grouped by Month

Collected between Jan 1, 2018 and Nov 20, 2018

		Raw Water		Treated Water			Distributed Water		
Year	**Month**	**EC**	**TC**	**EC**	**TC**	**HPC**	**EC**	**TC**	**HPC**
2018	Jan						50	50	15
	Feb						40	40	12
	Mar						40	40	12
	Apr						40	40	12
	May						52	52	17
	Jun						40	40	12
	Jul						53	53	18
	Aug						40	40	12
	Sep						40	40	12
	Oct						50	50	15
	Nov						30	30	9

All Microbiological Results on Dates with an Exceedance

Collected between Jan 1, 2012 and Nov 20, 2018

Sampled	Sample Type	Parameter	Sample Result
08-Oct-2013	Distributed Drinking Water	Total Coliform	23 cfu/100mL
12-May-2015	Distributed Drinking Water	Total Coliform	1 cfu/100mL

Chemical Summaries

Total Trihalomethanes

Collected between Jan 1, 2014 and Nov 20, 2018

Year	Quarter	Sampling Date	Result
2014	1	Feb 11	11.9 ug/L
	2	May 13	21.7 ug/L
	3	Aug 12	20.3 ug/L
	4	Nov 10	15.5 ug/L
	Annual Average		**17.4 ug/L**
2015	1	Feb 10	24.4 ug/L
	2	May 12	31.2 ug/L
	3	Aug 11	49.9 ug/L
	4	Nov 10	33.4 ug/L
	Annual Average		**34.7 ug/L**
2016	1	Feb 9	13.2 ug/L
	2	May 10	23.0 ug/L
	3	Aug 16	23.9 ug/L
	4	Nov 15	17.0 ug/L
	Annual Average		**19.3 ug/L**
2017	1	Feb 7	24.0 ug/L
	2	May 16	33.0 ug/L
	3	Aug 15	47.0 ug/L
	4	Nov 14	37.0 ug/L
	Annual Average		**35.3 ug/L**
2018	1	Feb 13	18.0 ug/L
	2	May 8	22.0 ug/L
	3	Aug 7	23.0 ug/L
	4	Nov 13	19.0 ug/L
	Annual Average		**20.5 ug/L**

Note: Where reported results suggest a possible concern, compliance with the applicable limit for trihalomethanes should be based upon a running average of results collected in the current quarter (A) and the three preceding quarters (B through D). Where one sample is collected each quarter, the running average for the current quarter equals [A + B + C + D] ÷ 4

Where multiple samples are collected each quarter, the running average for the current quarter equals [Avg(A_1..A_x) + Avg(B_1..B_x) + Avg(C_1..C_x) + Avg(D_1..D_x)] ÷ 4

Total Haloacetic Acids

Collected between Jan 1, 2012 and Nov 20, 2018

Year	Quarter	Sampling Date	Result
2018	1	Feb 13	27.4 ug/L
	2	May 8	21.8 ug/L
	3	Aug 7	16.2 ug/L
	4	Nov 13	16.5 ug/L
	Annual Average		**20.5 ug/L**

Lead Summaries

Lead and Alkalinity

Collected between Dec 15, 2011 and Nov 20, 2018

Sampling Period		Lead - Distribution Results			Lead - Plumbing Results*			Alkalinity - Distribution Results		
Start	End	Num of Results	Avg (ug/L)	Max (ug/L)	Num of Results	Avg (ug/L)	Max (ug/L)	Num of Results	Avg mg/L as CaCO3	Max mg/L as CaCO3
15-Dec-11	15-Apr-12									
15-Jun-12	15-Oct-12	1	0.45	0.45						
15-Dec-12	15-Apr-13	3	0.14	0.25	44	1.07	9.90			
15-Jun-13	15-Oct-13	3	0.23	0.45	44	0.50	1.94	3	77.00	79.00
15-Dec-13	15-Apr-14	1	0.61	0.61						
15-Jun-14	15-Oct-14							3	81.67	85.00
15-Dec-14	15-Apr-15							3	93.67	97.00
15-Jun-15	15-Oct-15							3	79.00	80.00
15-Dec-15	15-Apr-16	4	0.77	1.99	44	0.42	2.26	4	96.75	111.00
15-Jun-16	15-Oct-16	4	0.13	0.23	44	0.54	2.66	4	76.50	82.00
16-Oct-16	14-Dec-16				4	0.22	0.53			
15-Dec-16	15-Apr-17							3	94.33	97.00
15-Jun-17	15-Oct-17							3	77.67	81.00
15-Dec-17	15-Apr-18							3	80.00	82.00
15-Jun-18	15-Oct-18							3	80.33	81.00

*** Note:** Two samples are to be collected for lead testing from each point of plumbing being assessed, i.e., per Section 15.1-7 of O. Reg. 170/03. Therefore, the number of points being tested should be half of the number of samples reported.

Laboratory Testing Summaries

Laboratories Providing Testing Services to the Drinking Water System
First and Last Sample Summarized by Parameter Group

Laboratory Name		All Parameters	O. Reg. 170/03 Parameters				Other Non-170 Parameters
			Micro-biological	Schedule 24 or 23	Lead + Alkalinity	Other 170 Parameters	
Sgs Environmental Services - London	First Sample	04-Jan-12	04-Jan-12				
	Last Sample	20-Nov-18	20-Nov-18				
	Results Reported	8,193	8,193				
Maxxam Analytics [2292] - Mississauga	First Sample	21-Feb-12				21-Feb-12	
	Last Sample	11-Feb-14				11-Feb-14	
	Results Reported	9				9	
Sgs Environmental Services - Lakefield	First Sample	14-Aug-12			14-Aug-12	15-Nov-16	03-Apr-18
	Last Sample	13-Nov-18			28-Aug-18	13-Nov-18	28-Aug-18
	Results Reported	247			228	13	6
Maxxam Analytics [2312] - Mississauga	First Sample	13-May-14				13-May-14	
	Last Sample	16-Aug-16				16-Aug-16	
	Results Reported	10				10	

Note: An italicized laboratory name indicates a valid license number is not associated with this name. This may be due to one of several reasons including a sale, a change in location, or the discontinuation of drinking water testing.

"Other Non-170 Parameters" may include parameters that are no longer prescribed by O. Reg. 170/03. They can also reflect a group of constituents upon which a total was based. For example, both trihalomethanes and haloacetic acids are groups of disinfection by-products. However, occasionally operators will have samples tests for parameters of potential concern which are not explicitly prescribed in O. Reg. 170/03.

Appendix 3 - Drinking Water System Dossier - Extracts

021 - Drinking Water System Dossier for 220001520

Drinking Water System Profile Information

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

DWS OPERATIONAL INFORMATION

Concession Plan Number	
Lot	
Geographic Township	
Population:	8,200
Number of Private Residences:	2,889
Number of Service Connections:	3,686
Rated Daily Capacity (L/S)	180.6
Number of DFs Served:	0
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

Owner Legal Name	South Huron, The Corporation Of The Municipality
Owner Business Name	South Huron, The Corporation Of The Municipality
Owner Address	322 Main St,Post Office Box Delivery ,759,Exeter,ON,N0M 1S6
Owner Contact	Don Giberson, Environmental Services Director
Owner Contact Info	p: (519)2350310 x226, f: (519)2353304, e: dgiberson@southhuron.ca
Owner Alternate Contact	Shawn Young, Water/Wastwater Foreperson
Owner Alternate Contact Info	p: (519)2350238, f: (519)2354244, e: s.young@southhuron.ca

DWS OPERATING AUTHORITY INFORMATION

Op. Authority Legal Name	South Huron, The Corporation Of The Municipality
Op. Authority Business Name	South Huron, The Corporation Of The Municipality
Op. Authority Address	322 Main St,Post Office Box Delivery ,759,Exeter,ON,N0M 1S6
Op. Authority Contact	Shawn Young, Water/ Wastewater Foreperson
Op. Authority Contact Info	p: (519)2350238, f: (519)2354244, e: s.young@southhuron.ca
Op. Authority Alternate Contact	
Op. Authority Alternate Contact Info	