

South Huron Water Distribution System

2017 Annual Report to Council

March 5, 2018

TABLE OF CONTENTS

- I.** Description of South Huron Water Distribution System
- II.** MOECC Inspection, Orders and Compliance issues
- III.** Summary of Quantities & Flow Rates
- IV.** Summary of Bacteriological Sampling
- V.** Summary of Lead Sampling
- VI.** Summary of Watermain Breaks and Service leaks
- VII.** Summary of Frozen Water Services

APPENDICIES

- A.** Owner requirements under the Safe Drinking Water Act
- B.** Regulations pertaining to the operation of water system
- C.** Municipal Drinking Water Licence #051-101 (Issue Number 2)
- D.** Drinking Water Works Permit #054-201 (Issue Number 3)
- E.** DWQMS Certificate of Registration from NSF International
- F.** 2017 Annual Drinking Water System Compliance Report to MOECC

I. DESCRIPTION OF SOUTH HURON WATER DISTRIBUTION SYSTEM

System Overview

The South Huron water distribution system provides service to approximately 8,000 residents in Exeter, Stephen and a few customers in Usborne Ward, in the vicinity of the former Exeter well sites. The system consists of 209 km of distribution piping, booster pumping stations, reservoirs and water towers. The system is continuously monitored by online analyzers and a computerized Supervisory, Control and Data Acquisition System (SCADA). Source of supply is the Lake Huron Primary Water Supply System (LHPWSS). South Huron residents along our south boundary are serviced from the adjacent North Middlesex water system; who also obtain treated water from the LHPWSS. South Huron supplies customers in Municipality of Bluewater along our north boundary and in the village of Dashwood.

Water Source

The Municipality of South Huron obtains its drinking water supply from the Lake Huron Primary Water Supply System. The LHPWSS Joint Board of Management owns and governs the area water system using the City of London as the Administering Municipality. City of London, Regional Water Supply Division provides all administrative services on behalf of the Joint Board. The LHPWSS is operated by The Ontario Clean Water Agency (OCWA), under contract to the LHPWSS Joint Board of Management.

The LHPWSS water treatment plant is located in South Huron near the intersection of Highway #21 and County Road #83. The WTP has a treatment capacity of 340 million litres per day and supplies water to the City of London and several municipalities in our region. The South Huron connections to LHPWSS system are at the following locations:

- B-Line Connection - Gore Road and B-Line
- Shipka connection - Crediton Road, east of Shipka
- Dashwood connection - Huron Street and Bronson Line
- Exeter south connection - Huron Street and Airport Line
- Exeter north connection - Airport Line and Thames Road

Detailed System Description

Distribution System

The South Huron water distribution system is comprised of approximately 181km of watermains ranging in size from 50mm to 400mm diameter. The 50mm mains are polyethylene (PE); 100mm to 300mm mains are polyvinylchloride (PVC) and larger mains are also cast iron, ductile iron, steel and concrete pressure pipe.

The oldest water system in the municipality is in Exeter, where pipes were installed in 1900 as a street watering system. Between 1910 and 1915 the system expanded to provide water for the Grand Trunk Railway Yard, for

plumbing purposes and fire protection. The Exeter Public Utilities Commission was established in 1917; however, potable drinking water wasn't provided until 1936 with the development of the Springs well site and Main Pump House on MacNaughton Drive. Some of the early cast iron watermains are still in service; however, many of the older mains have been replaced and the majority now date from the mid 1960's.

The Huron Park distribution system was constructed in the early 1940's by the RCAF, as part of the Airforce Station Centralia. The Base closed in 1967 and the system transferred to the former Stephen Township in 1983. The entire water distribution system in the Huron Park residential area was replaced in 2006. In 2010 the watermains on Canada Avenue in the Industrial area were replaced and upgraded.

The Stephen distribution system dates to the mid to late 1960's. After the completion of the Lake Huron Water Treatment Plant in 1965, watermain systems started to be built in the lakeshore area of the former Stephen Township. Significant expansion of the Stephen system occurred in 1983 with systems being constructed in Crediton, Centralia and Dashwood. In 2010 a new 300mm watermain was constructed from Huron Park to Centralia (Airport Line & Canada Ave to Victoria Drive & Melbourne Street). This watermain, in combination with the new Huron Park water tower, provides improved fire protection to the village of Centralia.

Pressure Zones

- **Stephen Pressure Zone 1 (HGL 250m)** - A connection to the LHPWSS transmission main through a pressure reducing valve (PRV) and metering chamber located west of the intersection of B-Line and Gore Road, provides water supply to the Stephen Pressure Zone 1. It is through this connection that LHPWSS also provides water to the Hwy #21 corridor in the Municipality of Bluewater.

LHPWSS is responsible for maintaining the water supply to Bluewater, water quality and billings through a deduct meter at Waterworks Road and Hwy #21. This connection also provides an emergency backup water supply to the Municipality of Lambton Shores through a normally closed valve in an inter-connect chamber on Highway #21, at the boundary between Lambton Shores and South Huron.

Stephen Pressure Zone 1 is separated from Stephen Pressure Zone 2 by a pressure zone control chamber located on County Road #83, immediately west of Shipka Line. This chamber is equipped with a normally closed gate valve with a 19mm bleeder valve to maintain a minimum circulation of water at this location.

If the normal feed to Stephen Pressure Zone 1, from the LHPWSS transmission main connection on B-Line is disrupted, an emergency backup feed can be provided from the Lambton Shores distribution system. In an emergency the

normally closed gate valve in the inter-connect chamber, located on Highway #21 at the Lambton Shores/South Huron boundary, can be opened to feed Stephen Pressure Zone 1 through the 350mm watermain on Highway #21.

If the feed to Stephen Pressure Zone 1 from the LHPWSS Water Treatment Plant is disrupted; minimum flow and pressure at the LHPWSS B-Line connection can be sustained for approximately twelve (12) hours from the head pressure in the LHPWSS 1200mm pipeline.

- **Stephen Pressure Zone 2 (HGL 263m) (County Rd #10, west of village of Shipka)** - A connection to the LHPWSS transmission main through a pressure reducing valve (PRV) and metering chamber; then through a separate valve chamber, provides water supply to the Stephen pressure Zone 2 including the community of Shipka.

Stephen Pressure Zone 2 is separated from Stephen Pressure Zones 1, 3 and 4 by three pressure zone control chambers. The first chamber is located County Road #83, immediately west of Shipka Line; the second at Blackbush Line, north of Crediton Road; and the third on County Road #83 west of the village of Dashwood. The chambers located at County Road #83/Shipka Line and Blackbush Line/Crediton Road are equipped with a normally closed gate valve with a 19mm bleeder valve to maintain a minimum circulation of water at these locations.

The chamber located on County Road #83 west of the village of Dashwood is equipped with pressure sustaining valve that will sense a pressure drop in Stephen Pressure Zone 2 and automatically open to provide an emergency backup feed from Zone 4 to Stephen Pressure Zone 2.

- **Stephen Pressure Zone 3 (HGL 281m) (County Rd #10, east of village of Shipka)** - A connection to the LHPWSS transmission main through a pressure reducing valve (PRV) and metering chamber provides water supply to the Stephen Pressure Zone 2 between the village of Shipka and Crediton. Some rural areas north and south of this route also receive water directly from the County Road 10 feedermain. A portion of the feedermain along County Road 10 from Shipka to Goshen Line is twinned for additional capacity.

Stephen Pressure Zone 3 is separated from Stephen Pressure Zones 2, 3 and 4 by four pressure zone control chambers. The first chamber is located on Blackbush Line, north of Crediton Road; the second at Bronson Line & Huron Street; the third at Goshen Line & Huron Street; and the fourth at Babylon Line & Huron Street.

The chambers located at Blackbush Line/Crediton Road; Goshen Line/Huron Street; and Babylon Line/Huron Street are equipped with a normally closed gate valve with a 19mm bleeder valve to maintain a minimum circulation of water at these locations.

The chamber located on Bronson Line south of Huron Street is equipped with pressure sustaining valve that will sense a pressure drop in Stephen Pressure Zone 3 and automatically open to provide an emergency backup feed from Stephen Pressure Zone 4.

- **Stephen Pressure Zone 4 (HGL 293m) (Dashwood Connection)** - The connection to the LHPWSS Exeter-Hensall transmission main through a pressure reducing valve (PRV) and metering chamber at Bronson Line and Huron Street services the village of Dashwood and the surrounding pressure zone. A series of pressure control zone chambers are installed at the limits of the pressure zone.

Stephen Pressure Zone 4 is separated from Stephen Pressure Zones 2 and 3 by four pressure zone control chambers. The first chamber is located on County Road #83, east of the village of Dashwood; the second at Bronson Line & Huron Street; the third at Goshen Line & Huron Street; and the fourth at Babylon Line & Huron Street.

The chambers located at Goshen Line/Huron Street and Babylon Line/Huron Street are equipped with a normally closed gate valve with a 19mm bleeder valve to maintain a minimum circulation of water at these locations.

The chamber located on Bronson Line south of Huron Street is equipped with pressure sustaining valve that will sense a pressure drop in Stephen Pressure Zone 4 and automatically open to provide an emergency backup feed from Stephen Pressure Zone 3.

The chamber located on County Road #83 west of the village of Dashwood is also equipped with pressure sustaining valve that will sense a pressure drop in Stephen Pressure Zone 4 and automatically open to provide an emergency backup feed from Stephen Pressure Zone 2.

- **Stephen Pressure Zone 5 (HGL 307m) (County Rd #10, east of village of Crediton)** - A connection to the LHPWSS transmission main through a pressure reducing valve (PRV) and metering chamber at Shipka that provides water supply to the Stephen Pressure Zone 3, also supplies water to the Stephen Pressure Zone 5 and to Crediton, Huron Park and Centralia. Water is conveyed to Stephen Pressure Zone 5 via a watermain located along County Rd #10 from Shipka to Crediton; where an inline Booster Pumping Station, re-pumps the water on to the Stephen Pressure Zone 5 and to Crediton, Huron Park and Centralia.

Stephen Pressure Zone 5 is separated from Stephen Pressure Zone 3 by check valves located in the Crediton BPS. Stephen Pressure Zone 5 is separated from the Exeter South Pressure Zone by a control chamber located at Airport line and Huron Street. This chamber has a normally closed electrically operated valve that can be monitored and operated through the SCADA system. In an emergency the electrically operated valve in this chamber can be opened remotely to provide

an emergency backup feed from Exeter South Pressure Zone to Stephen Pressure Zone 5.

The Exeter Water Tower HGL is at the same elevation as the Huron Park Water Tower and can operate as a backup for the Huron Park Water Tower and Stephen Pressure Zone 5 and to varying degrees can provide an emergency backup feed to Stephen Pressure Zones 3, 4, 2 and 1.

- **Exeter North Pressure Zone (HGL 313m)** - Exeter is serviced by two connections; the north connection to the LHPWSS Exeter-Hensall transmission main is through a pressure reducing valve (PRV) and metering chamber at Thames Road West and Airport Line. This connection provides water to the Exeter north pressure zone, north of the Ausable River and is separated from the Exeter South pressure zone by a control zone chamber located at William and Church Street. The chamber has a control valve, check valve and by-pass piping to control the pressure zones and allow feed from the north pressure zone to the south pressure zone to facilitate and an emergency feed in either direction.

The normal operation of the Exeter north pressure zone is a direct feed and with constant pressure provided by the LHPWSS pipeline on Airport Line. System pressure is constantly monitored and controlled through an integrated SCADA system and a by pressure control at the PRV at the north connection point. The backup for the north pressure zone is provided by the reconfigured MacNaughton Drive Booster Pumping Station, controlled by a VFD and PRV control of the high lift and fire pump discharges. Additional back up for the north pressure zone is provided by the Exeter south pressure zone and the elevated water tower located within that zone.

- **Exeter South Pressure Zone (HGL 307m)** - Exeter is serviced by two connections; the south connection to the LHPWSS is through a connection at the LHPWSS Exeter-Hensall Booster Pumping Station located at Huron Street and Airport Line. This connection provides water to the Exeter south pressure zone, south of the Ausable River and is separated from the Exeter North pressure zone by a control zone chamber located at William and Church Street. This chamber has a control valve, check valve and by-pass piping to control the pressure zones and allow feed from the north pressure zone to the south pressure zone to facilitate and an emergency feed in either direction.

The normal day time operation of the Exeter south pressure zone is to fill and drain the elevated water tower as required during the day from the Exeter south LHPWSS connection at Huron Street and Airport Line. Water tower levels are constantly monitored and controlled by the South Huron SCADA system and requests for water are automatically sent to the LHPWSS SCADA system. During the night the in-ground reservoirs at MacNaughton Drive are slowly filled from the Exeter distribution system. Water enters the in-ground concrete storage reservoirs through an inlet control pipe in the MacNaughton Drive Booster Pumping Station. During the early morning hours, water is pumped from the reservoir cells, by pumps located in the MacNaughton Drive BPS, to fill the

elevated water tower, as required. This process continues until the reservoirs reach their low level setting and the system automatically switches over to the normal day time operation (ie. tower filled by the Exeter south LHPWSS connection).

The backup for the south pressure zone is provided by the reconfigured MacNaughton Drive Booster Pumping Station, controlled by a VFD and PRV control of the high lift and fire pump discharges. Additional redundancy for the south pressure zone is provided by the Exeter north pressure zone.

Booster Pumping Stations

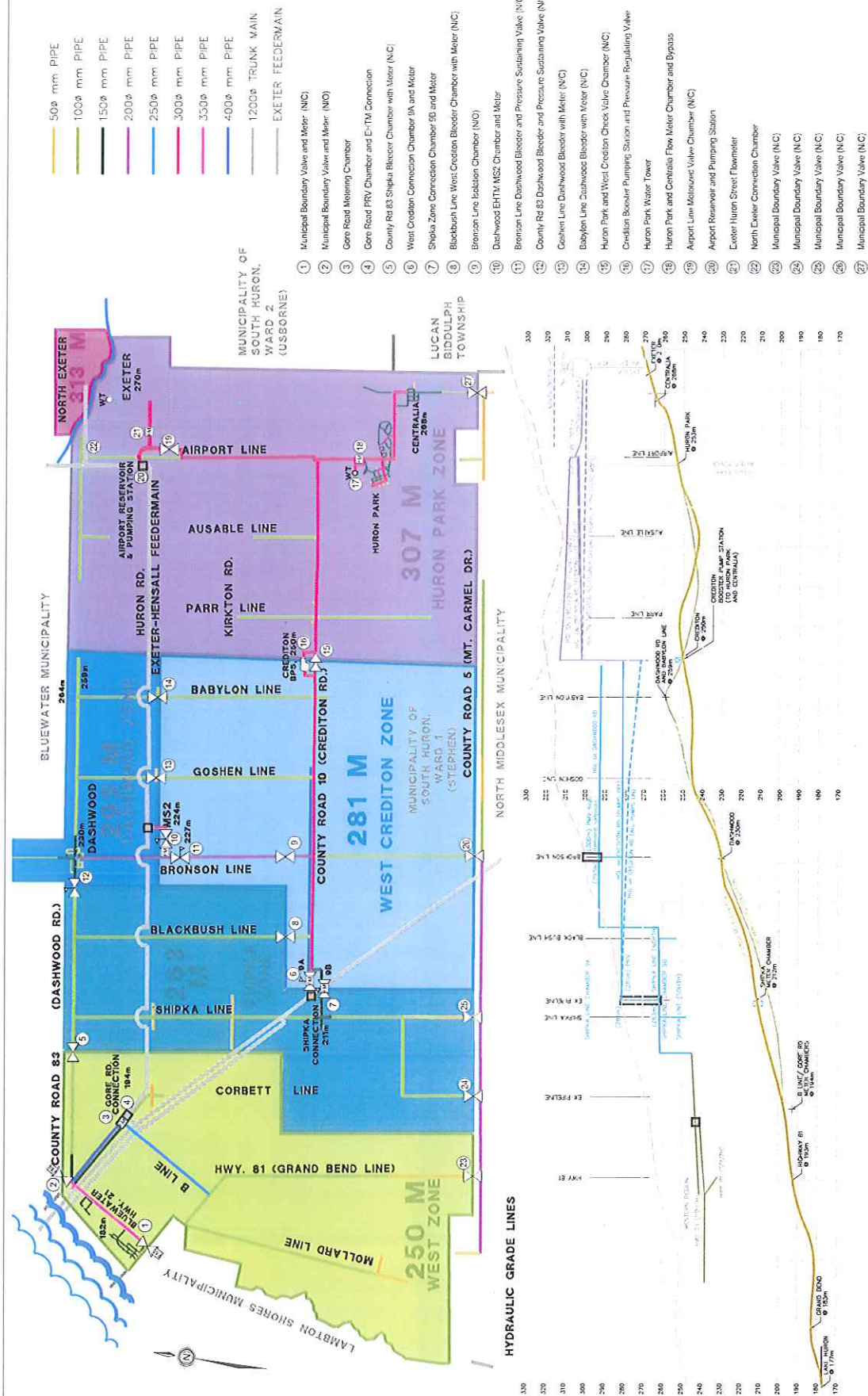
- **Crediton Booster Pumping Station** – An in-line booster pumping station (BPS) located at the west end of Crediton supplies water to the Stephen Pressure Zone 5, including Crediton, Huron Park and Centralia by pumping water along County Rd #10 and Airport Line to the new Huron Park Water Tower. The Crediton BPS has three pumps with VFD's; control valves; and is also equipped with a diesel powered backup emergency generator. The normal mode of operation of the BPS is that it is controlled by the Huron Park Water Tower levels. When the Huron Park Water Tower is taken out of service, the Crediton BPS is configured so that it can by-pass the Huron Park Water Tower and directly supply the water distribution system in the entire Stephen Pressure Zone 5 by using the VFD's.

The Crediton BPS and the pipeline on Airport Line is configured so that it can be used as an emergency backup supply to Exeter, by opening up a normally closed valve in a chamber at Airport Line and Huron Street. The Crediton BPS is also equipped with a control valve that can be opened in an emergency to back feed the Stephen Pressure Zone 3.

- **MacNaughton Drive Booster Pumping Station** - A booster pumping station (BPS) is located at 62B MacNaughton Drive, Exeter that supplies water to the Exeter North and the Exeter South Pressure Zones, including the Exeter Water Tower, when either pressure zone is not being supplied by the LHPWSS Exeter-Hensall pipeline connection.

The MacNaughton Drive BPS has three vertical turbine pumps with VFD's, including one that is a fire pump; control valves; and is also equipped with a diesel powered backup emergency generator located in the adjacent Generator Building at 62A MacNaughton Drive. One pump and the fire pump are dedicated to the Exeter North Pressure Zone; one pump is dedicated to the Exeter South Pressure Zone.

The BPS is controlled by the SCADA system and it's normal mode of operation is to fill and drain the MacNaughton Drive in-ground reservoirs; and to provide a backup for the Exeter North and Exeter South Pressure Zones. See section 6.4.1 "Exeter North Pressure Zone" and "Exeter South Pressure Zones" for description of normal mode of operation related to the MacNaughton Drive BPS.



Municipality of South Huron, Stephen Ward, Revised July 2014

Upgraded System Hydraulic Grade Lines



Storage Facilities

- **Huron Park Elevated Water Tower** - Elevated water tower consists of a 2,700 m³ elevated tank located at 69751 Airport Line. The elevated tank provides “floating storage” and pressure regulation for the water distribution system in Stephen Pressure Zone 5, including CREDITON, Huron Park and Centralia. Water level in this tank is used to control the pumps at the Crediton Booster Pumping Station. The Water tower is also equipped with a stand-alone natural gas powered backup emergency generator, located adjacent to the tower. Chlorine residual is continuously monitored at this location by an on-line analyzer in the mechanical room in the base of the water tower and chlorine gas can be injected into the water at this location to supplement any diminishing chlorine residual from the LHPWSS source water.

The Huron Park Water Tower HGL is at the same elevation as the Exeter Water Tower and the distribution system is configured so that it can operate as a backup for the Exeter Water Tower and associated pressure zones.

- **Exeter Water Tower** - Elevated water tower consists of a 1,515 m³ elevated tank located at 66 Nelson Street. The elevated tank provides storage and pressure regulation for the Exeter South Pressure Zone and can be used in an emergency, as a backup for the Exeter North Pressure Zone at reduced pressure. Water level in this tank is used to control the source of supply for the Exeter South connection to the LHPWSS at the Exeter-Hensall Booster Pumping Station.

The Exeter Water Tower HGL is at the same as the Huron Park Water Tower and the distribution system is configured so that it can operate as a backup for the Huron Park Water Tower and associated pressure zones.

- **MacNaughton Drive Reservoirs** – Additional storage capacity for Exeter North and Exeter South Pressure Zones is provided by three in-ground concrete reservoir cells. The original 1,140 m³ single cell in-ground reservoir (with a pump well) is located adjacent to the MacNaughton Drive Booster Pumping Station (BPS) and the 2,490 m³ single cell in-ground reservoir is located in MacNaughton Park, south of the MacNaughton BPS. Both reservoirs normally operate in series as a single reservoir. Additional storage for the Exeter North and Exeter South Pressure Zones is provided by the LHPWSS 8,000 m³ two cell in-ground concrete reservoir, located adjacent to the LHPWSS BPS at Huron Street and Airport Line. The LHPWSS BPS and reservoir is equipped with a stand-alone diesel powered backup emergency generator.

Control System

The South Huron Water Distribution system is controlled by a PLC based Supervisory, Control and Data Acquisition system (SCADA) located at the Water/Sewer Operations Centre, 82 Nelson Street, Exeter. Remote processing units (RPUs) are situated at the MacNaughton Drive Booster Pumping Station,

Crediton Booster Pumping Station, Exeter Water Tower, new Huron Park Water Tower, the monitoring chamber on Huron Street and the control zone chamber at Church & William Street. The PLC's communicate with the central SCADA computer at the Water/Sewer Operations Centre and this allows monitoring of all operational parameters, monitoring, annunciating, and forwarding of alarms, control of set points, duty sequences, and other operating parameters, and recording and print out of alarms and data collected from the remote sites.

II. MOECC INSPECTION, ORDERS AND COMPLIANCE ISSUES

Ministry of Environment and Climate Change Annual Inspection

There was no Ministry inspection of the South Huron Water Distribution System in 2017.

Non-compliance issues, Adverse Reports and Orders

There were no non-compliance issues, MOECC Orders, or Adverse Reports for the South Huron Water Distribution System in 2017.

III SUMMARY OF QUANTITIES AND FLOW RATES

Flow data is an indicator of the performance of the system and demonstrates seasonal variations in water consumption. An analysis of the Exeter flow data indicates that the Exeter-Hensall pipeline feeds are operating at approximately half of the design capacity, with significant capacity for growth and development.

In Stephen Ward the Crediton Booster Pumping Station rarely exceeds 50% of its design capacity. The fill and drain rates for the Huron Park Water Tower are very moderate and the water tower comfortably services the surrounding area, including Huron Park and Centralia.

STEPHEN 2017 MAX DAY- DATE AND AVERAGE DAY FLOWS (m ³)									
	CREDITON BOOSTER PUMPING STATION			HURON PARK WATER TOWER			HURON PARK /CENTRALIA		
MONTH	MAX	DATE	AVG	MAX	DATE	AVG	MAX	DATE	AVG
JAN	874	30 th	512	782	26 th	495	214	10 th	192
FEB	1,141	18 th	541	1,069	17 th	549	214	27 th	191
MAR	1,491	17 th	578	1,130	17 th	537	297	2 nd	203
APR	952	10 th	586	643	3 rd	526	480	10 th	219
MAY	965	31 st	614	596	1 st	358	258	25 th	200
JUN	1,262	3 rd	797	536	3 rd	396	313	13 th	259
JUL	1,083	21 st	723	477	27 th	369	282	4 th	247
AUG	1,478	15 th	752	576	25 th	363	406	25 th	227
SEP	1,294	26 th	805	578	26 th	409	452	26 th	270
OCT	1,392	26 th	662	1,347	26 th	366	249	4 th	210
NOV	2,047	27 th	747	503	23 rd	325	294	13 th	213
DEC	1,922	10 th	1,296	581	22 nd	297	264	20 th	230

2017 Annual Water Distribution System Report to Council

EXETER 2017 MAX DAY- DATE AVERAGE DAY FLOWS (m ³)									
	LHPWSS- EXETER NORTH			LHPWSS- EXETER SOUTH			HURON ST MONITORING CHAMBER		
MONTH	MAX	DATE	AVG	MAX	DATE	AVG	MAX	DATE	AVG
JAN	778	5 th	498	1,122	26 th	744	1,333	3rd	744
FEB	1,528	18 th	652	956	15 th	587	1,706	18th	824
MAR	963	24 th	682	987	10 th	542	1,179	28th	713
APR	1,136	25 th	860	974	21 st	537	1,179	21	732
MAY	1,237	19 th	888	1,128	25 th	615	1,334	25	787
JUN	1,335	4 th	1,097	1,433	11 th	779	1,653	4	968
JUL	1,393	27 th	1,106	2,143	26 th	820	2,244	26	983
AUG	2,108	25 th	1,148	1,395	14 th	806	1,592	14	956
SEP	1,302	27 th	1,036	1,341	25 th	617	1,534	25	791
OCT	1,002	1 st	759	1,598	26 th	661	1,437	10	742
NOV	1,474	24 th	650	1,263	20 th	332	1,399	20	595
DEC	470	6 th	302	N/A	N/A	N/A	1,534	22	853

Note: LHPWSS – EXETER SOUTH “N/A” due to errors in SCADA software. Data is not available.

IV. SUMMARY OF BACTERIOLOGICAL SAMPLING

The number of bacteriological samples taken in the South Huron water system are in accordance with *Schedule 10 of O. Reg. 170/03 - Ontario Drinking Water Quality Standards* made under the *Safe Drinking Water Act*. Bacteriological samples are also required weekly, at each POE UV location listed in Schedule C – “System Specific Conditions” in the South Huron Drinking Water Licence Number: 054-101. Throughout the year additional bacteriological samples are taken in response to customer water concerns, after watermain break repairs or other incidents of potential contamination.

524 bacteriological samples were taken in 2017, including 159 that were tested for HPC (Heterotrophic Plate Counts). All the samples were within the regulatory limits.

2017 BACTERIOLOGICAL TESTING					
Month	Number of Samples		Sample Results		Range of Results
	Distribution	HPC	E.Coli	Total Coliform	
JAN	50	15	0	0	<10
FEB	40	12	0	0	<10
MAR	40	12	0	0	<10-130
APR	40	12	0	0	<10-20
MAY	51	15	0	0	<10-30
JUN	40	12	0	0	<10-10
JUL	40	12	0	0	<10-270
AUG	50	15	0	0	<10-20
SEP	41	14	0	0	<10-10
OCT	50	15	0	0	<10-40
NOV	42	13	0	0	<10-530
DEC	40	12	0	0	<10
TOTAL	524	159	0	0	

Notes:

1. Heterotrophic Plate Counts (HPC) results are used to measure the overall bacteriological quality of drinking water and are not an indicator of pathogens in drinking water.
2. Escherichia coli (E.Coli) is a type of fecal coliform that can cause intestinal illness. One strain is E. coli O157: H7 and is found in the digestive tract of cattle.
3. Total Coliform bacteria are a colony of relatively harmless microorganisms that live in the intestines of humans and animals. Fecal coliform by themselves are usually not pathogenic. However, they are indicator organisms that may indicate the presence of other pathogenic bacteria.
4. The presence of fecal contamination is an indicator that a potential health risk exists in water. Examples of waterborne pathogenic diseases include typhoid fever, viral and bacterial gastroenteritis and hepatitis A.

V. SUMMARY LEAD SAMPLING

Lead sampling requirements for the South Huron water distribution system is set out in the *Safe Drinking Water Act* under *Schedule 15.1* of O. Reg. 170/03 - Ontario Drinking Water Quality Standards.

Based on historical lead sampling results, the South Huron water system is exempt from Community Lead Testing and annual samples are no longer required to be taken from plumbing and tested for lead. Exempt status still requires lead samples to be taken every three (3) years in every "winter" and "summer" period. Results must remain below the regulatory limit in order to maintain the exempt status.

The previous lead samples were taken in 2016 and a full regiment of lead samples are required to be taken in 2019. The following are the sampling results for 2017:

2017 LEAD SAMPLES						
FREQUENCY	RESIDENTIAL	EXCEEDANCES	NON-RESIDENTIAL	EXCEEDANCES	DISTRIBUTION	EXCEEDANCES
WINTER	0	0	0	0	0	0
SUMMER	0	0	0	0	0	0

pH AND ALKALINITY TESTING IN DISTRIBUTION

SEASON	DISTRIBUTION	ALKALINITY	pH
WINTER	3	97	7.01
March 28, 2017		95	7.15
		91	7.03
SUMMER	3	76	7.95
Sept 12, 2017		76	8.00
		81	8.27

The lead risk is relatively low in the South Huron drinking water system. The former Exeter PUC had removed the remaining lead water services within the road allowance in the early 1990's and the majority of the Stephen water system was originally constructed with PVC and PE pipe. Additional protection was provided 2008 when a corrosion control system was installed at the LHPWSS water treatment plant to adjust the pH of treated water in order to mitigate elevated levels of lead in the City of London drinking water system. To further assist our customers, a subsidy program is available annually on street reconstruction projects, to remove lead services on private property.

VI. SUMMARY of WATERMAIN MAIN BREAKS and SERVICE LEAKS

Watermain breaks and service leaks are an indicator of the overall condition and performance of the water distribution system. Historical main breaks and service leak data is also used to develop priority rankings for future watermain replacements in the Asset Management Plan.

There were an average number of watermain breaks in 2017. The Exeter distribution system continues to have relatively few watermain breaks and service leaks. This is a result of the high standards for materials/workmanship and life cycle replacement program of the former Exeter PUC. The only watermain failure of concern is the main break on the 350mm ductile iron watermain on Main Street near James Street. This will be reviewed in greater detail in 2018 to determine the extent the issue and to develop a remediation or replacement plan, as required.

The Stephen distribution system continues to experience a relatively high number of watermain breaks and service leaks. This due to higher system pressures, lower grade material and substandard construction practices used in the original installation.

2017 WATERMAIN MAIN BREAKS and SERVICE LEAKS		
DATE	Size/Type of Failure	LOCATION
<u>EXETER</u>		
Jan 6	150mm Cast Iron - Ring Break	56 Victoria St West
March 26	150mm Cast Iron - Ring Break	Victoria St / Main St
April 21	150mm Cast Iron - Ring Break	236 Carling St
Aug 29	350mm Ductile Iron - Corrosion	Main St at James St
Nov 18	350mm Ductile Iron - Corrosion	Main St between James and John St
<u>STEPHEN</u>		
Jan 31	300mm Ductile Iron - Blow out	37200 Crediton Rd (Blackbush Line and Bronson Line)
Feb 22	150mm PVC - Joint	Oakwood - Lakeshore and Oakwood Ave
March 13	19mm PE - Split pipe	36312 Huron St West
April 10	100mm Cast Iron - Ring Break	Quebec Ave Huron Park
July 10	150mm PVC - Service saddle leak	Oakwood - Indian Rd and Oakwood Ave
July 12	25mm PE - Split pipe	70696 Shipka Line
Sept 15	100mm PVC - Service saddle leak	36935 Dashwood Rd
Sept 20	19mm PE - Split pipe	70829 Corbett Line
Nov 1	25mm PE - Split pipe	69721 Shipka Line
Nov 22	19mm PE - Split pipe	Dashwood - 124 Philp Street
Nov 29	100mm PVC - Hit by contractor	36501 Dashwood Rd
Dec 7	19mm PE - Split pipe	70032 Shipka Line
Dec 7	50mm PVC - Hit by contractor	70335 Mollard Line

VII. SUMMARY of FROZEN WATER SERVICES

For twenty years prior to 2014 there were very few recorded frozen water service in Exeter and no records of frozen services could be found for Stephen Township. During the winter of 2014 (January to March) there were eight frozen services, four of which could not be thawed and were back-fed from an adjacent property for the duration of the winter. During the winter of 2015 (January to March) there were eleven frozen services, three of which could not be thawed and were back-fed for the duration of the winter.

As a result of recent history of frozen water services, a plan was implemented to lower services that froze to mitigate the problem in the future. Over the last couple of years water services that froze under the road allowance were lowered or replaced. During the winter of 2017 (January to March) there were no frozen water services.

APPENDIX “A”

APPENDIX “A”

OWNER REQUIREMENTS UNDER THE SAFE DRINKING WATER ACT

Safe Drinking Water Act, 2002

S.O. 2002, CHAPTER 32

Consolidation Period: From March 22, 2017 to the [e-Laws currency date](#) of February 12, 2018.

Last amendment: 2017, c. 2, Sched. 11, s. 6.

PART III GENERAL REQUIREMENTS

Potable water

[10.](#) Despite any other Act, a requirement that water be “potable” in any Act, regulation, order or other document issued under the authority of any Act or in a municipal by-law shall be deemed to be a requirement to meet, at a minimum, the requirements of the prescribed drinking water quality standards. 2002, c. 32, s. 10.

Duties of owners and operating authorities

[11. \(1\)](#) Every owner of a municipal drinking water system or a regulated non-municipal drinking water system and, if an operating authority is responsible for the operation of the system, the operating authority for the system shall ensure the following:

1. That all water provided by the system to the point where the system is connected to a user’s plumbing system meets the requirements of the prescribed drinking water quality standards.
2. That, at all times in which it is in service, the drinking water system,
 - i. is operated in accordance with the requirements under this Act,
 - ii. is maintained in a fit state of repair, and
 - iii. satisfies the requirements of the standards prescribed for the system or the class of systems to which the system belongs.
3. That the drinking water system is operated by persons having the training or expertise for their operating functions that is required by the regulations and the licence or approval issued or granted for the system under this Act.
4. That all sampling, testing and monitoring requirements under this Act that relate to the drinking water system are complied with.
5. That personnel at the drinking water system are under the supervision of persons having the prescribed qualifications.

6. That the persons who carry out functions in relation to the drinking water system comply with such reporting requirements as may be prescribed or that are required by the conditions in the licence or approval issued or granted for the system under this Act. 2002, c. 32, s. 11 (1).

Duty of owner to report to public

(2) If an owner of a municipal drinking water system or regulated non-municipal drinking water system is required by the regulations to report on any matter to the public, the owner shall report in accordance with the regulations. 2002, c. 32, s. 11 (2).

Out-of-province drinking water testing service

(3) No owner or operating authority of a municipal drinking water system or regulated non-municipal drinking water system shall obtain a drinking water testing service from a person who is not licensed under Part VII to offer or provide the service unless,

- (a) the laboratory at which the testing is to be conducted is located outside Ontario and is an eligible laboratory in respect of the particular tests to be conducted;
- (b) the person agrees in writing to comply with section 18 and any prescribed requirements; and
- (c) the owner or operating authority provides to the Director appointed for the purposes of Part VII,
 - (i) written notice of the use of the testing service,
 - (ii) a copy of the accreditation referred to in clause (4) (a), if applicable, and
 - (iii) a copy of the agreement referred to in clause (b). 2002, c. 32, s. 11 (3).

Eligible laboratory

(4) For the purposes of this section, a laboratory located outside Ontario is an eligible laboratory in respect of a particular test if the laboratory is on a list maintained by the Director appointed for the purposes of Part VII and,

- (a) the laboratory is accredited for the conduct of the test and, in the Director's opinion, the accreditation is equivalent to the accreditation standard of an accreditation body for drinking water testing under Part VII; or
- (b) in the Director's opinion,
 - (i) it is desirable for the purposes of this Act that the test be available,
 - (ii) there is no laboratory, or there are insufficient laboratories, in the area for the conduct of the test under a licence issued under Part VII, and
 - (iii) the person who is to provide the drinking water testing service will be capable of conducting the test at the laboratory, or causing the test to be conducted there. 2002, c. 32, s. 11 (4).

List of out-of-province laboratories

(5) For the purposes of subsection (4), a laboratory may be added to the list maintained by the Director, and may be retained on the list, only if,

- (a) any fee required under this Act has been paid in respect of the laboratory; and
- (b) the laboratory complies with the prescribed requirements. 2002, c. 32, s. 11 (5).

Director's direction

(6) The Director may issue a direction to one or more owners or operating authorities prohibiting them from obtaining drinking water testing services from a laboratory located outside Ontario if the Director has reason to believe that the laboratory has ceased to be an eligible laboratory or has failed to comply with section 18 or a prescribed requirement. 2002, c. 32, s. 11 (6).

Same

(7) Every person who receives a direction under subsection (6) shall comply with the direction and advise the Director in writing of the alternative laboratory from which the person will obtain drinking water testing services. 2002, c. 32, s. 11 (7).

Revocation of direction

(8) The Director may revoke a direction issued under subsection (6) if he or she is of the opinion that the reasons for issuing the direction no longer exist. 2002, c. 32, s. 11 (8).

Operator's certificate

12. (1) No person shall operate a municipal drinking water system or a regulated non-municipal drinking water system unless the person holds a valid operator's certificate issued in accordance with the regulations. 2002, c. 32, s. 12 (1).

Transitional

(2) For the purposes of subsection (1), a valid operator's licence issued under section 6 of Ontario Regulation 435/93 under the *Ontario Water Resources Act* shall be deemed to be an operator's certificate until the day the operator's licence expires or is cancelled or suspended. 2002, c. 32, s. 12 (2).

Same

(3) For the purposes of subsection (1), a valid operator's licence issued under section 7 or 8 of Ontario Regulation 435/93 under the *Ontario Water Resources Act* shall be deemed to be an operator's certificate until the earlier of,

- (a) the day the operator's licence is cancelled or suspended; and
- (b) the day that is the second anniversary of the day of filing of a regulation made under this Act governing the application and issue of operator's certificates. 2002, c. 32, s. 12 (3).

Same

(4) If an operator's licence mentioned in subsection (3) expires before the day described in clause (3) (b) and is not renewed, the licence ceases to be deemed to be an operator's certificate on the day it expires. 2002, c. 32, s. 12 (4).

Duty to have accredited operating authority

13. (1) Every owner of a municipal drinking water system shall ensure that an accredited operating authority is in charge of the system at all times on and after the day specified in the regulations for the municipality, the system or the owner of the system. 2002, c. 32, s. 13 (1).

Same

(2) If the Minister makes a regulation requiring an accredited operating authority to be in charge of a non-municipal drinking water system, the owner of the system shall ensure that an accredited operating authority is in charge of the system at all times. 2002, c. 32, s. 13 (2).

Agreement with accredited operating authority

14. (1) If an accredited operating authority is in charge of a drinking water system and it is not the owner of the system, the accredited operating authority and the owner of the system shall enter into an agreement that contains the following:

1. A description of the system or the parts of the system for which the operating authority is responsible.
2. A description of the respective responsibilities of the owner and the operating authority to ensure that the operation, maintenance, management and alteration of the system comply with this Act, the regulations, any order under this Act and the conditions in,
 - i. the drinking water works permit and the municipal drinking water licence for the system, in the case of a municipal drinking water system, or
 - ii. the approval for the system, in the case of a non-municipal drinking water system.
3. A description of the respective responsibilities of the owner and the accredited operating authority in the event a deficiency is determined to exist or an emergency occurs.
4. A description of the respective responsibilities of the owner and the accredited operating authority to ensure that the operational plans for the system are reviewed and revised appropriately and that both parties are informed of all revisions.
5. Any other provisions required by the regulations. 2002, c. 32, s. 14 (1).

Delegation of duty

(2) If an owner of a drinking water system enters into an agreement with an accredited operating authority, the owner may, in the agreement, delegate a duty imposed on the owner under this Act to the accredited operating authority. 2002, c. 32, s. 14 (2).

Exception

(3) A delegation referred to in subsection (2) shall not relieve the owner of the drinking water system from the duty to comply with section 19 or the duty,

- (a) to ensure that the accredited operating authority carries out its duties under this Act and the agreement in a competent and diligent manner while it is in charge of the system; and
- (b) upon discovery that the accredited operating authority is failing to act in accordance with clause (a), to take all reasonable steps to ensure that the operation of the system complies with the requirements under this Act. 2002, c. 32, s. 14 (3).

Agreement to be made public

(4) The contents of every agreement referred to in subsection (1) between an owner of a drinking water system and an accredited operating authority shall be made public by the owner of the system in accordance with the requirements prescribed by the Minister. 2002, c. 32, s. 14 (4).

Directions, operational plans

15. (1) The Director shall, on or before the prescribed date, issue directions governing the preparation and content of operational plans for municipal drinking water systems and may issue

such additional directions as the Director considers necessary for the purposes of this section. 2002, c. 32, s. 15 (1).

Same

(2) If the Minister makes a regulation requiring a non-municipal drinking water system or a class of non-municipal drinking water systems to have operational plans, the Director shall, on or before the date prescribed by the Minister, issue directions governing the preparation and content of operational plans for the system or systems. 2002, c. 32, s. 15 (2).

Same

(3) The Director may amend, revoke or replace a direction issued under this section. 2002, c. 32, s. 15 (3).

Content of direction

(4) The direction shall include,

- (a) minimum content requirements for operational plans;
- (b) rules respecting the retention of copies of versions of operational plans;
- (c) rules respecting the public disclosure of the contents of operational plans; and
- (d) such other requirements as the Director considers necessary for the purposes of this Act and the regulations. 2002, c. 32, s. 15 (4).

Same

(5) A direction issued under this section may,

- (a) be general or limited in its application;
- (b) apply in respect of any class of drinking water systems;
- (c) require the preparation of operational plans for a treatment system, a distribution system or any part of either or both of them. 2002, c. 32, s. 15 (5).

Publication

(6) A direction, amendment to a direction or revocation of a direction takes effect when a notice of the direction, amendment or revocation, as the case may be, is given in the Registry. 2002, c. 32, s. 15 (6).

Legislation Act, 2006, Part III

(7) Part III (Regulations) of the *Legislation Act, 2006* does not apply to a direction issued under this section. 2002, c. 32, s. 15 (7); 2006, c. 21, Sched. F, s. 132 (1).

Operational plans

16. (1) If operational plans are required for a drinking water system under this Act, every owner and accredited operational authority of the system shall,

- (a) ensure that the plans comply with such directions issued under section 15 that apply in respect of the system; and
- (b) make public the contents of the operating plans in accordance with the Director's directions. 2002, c. 32, s. 16 (1).

Submission of plans, municipal drinking water system

(2) Every owner of a municipal drinking water system shall provide a copy of all operational plans for the system to the Director on or before the day prescribed by the regulations for the municipality, the system or the owner of the system. 2002, c. 32, s. 16 (2).

Review of plans

(3) The Director shall review the operational plans for the municipal drinking water system and shall issue a notice,

- (a) accepting the plans if the Director is satisfied that the plans satisfy the directions; or
- (b) rejecting the plans for the reasons set out in the notice, if the Director is not satisfied that the plans satisfy the directions. 2002, c. 32, s. 16 (3).

Resubmission of plans

(4) The owner of a municipal drinking water system whose operational plans are rejected by the Director shall revise and resubmit the revised plans to the Director in accordance with the directions specified in the notice. 2002, c. 32, s. 16 (4).

Ownership of operational plans

17. (1) All operational plans for a drinking water system remain the property of the owner of the system, irrespective of who prepares or revises the plans. 2002, c. 32, s. 17 (1).

Retention of plans

(2) Every accredited operating authority of a drinking water system for which operational plans are required under this Act shall retain copies of the operational plans for the system in accordance with the Director's directions under section 15. 2002, c. 32, s. 17 (2).

Same

(3) Upon termination of an agreement between the owner and the accredited operating authority of a system, the accredited operating authority shall ensure that the owner has copies of the most recently prepared and revised operational plans for the system. 2002, c. 32, s. 17 (3).

Duty to report adverse test result

18. (1) Each of the following persons shall report every prescribed adverse result of a drinking water test conducted on any waters from a municipal drinking water system or a regulated non-municipal drinking water system to the Ministry and the medical officer of health immediately after the adverse result is obtained:

1. The operating authority responsible for the system or, if there is no operating authority responsible for the system, the owner of the system.
2. The person operating the laboratory at which the adverse result was obtained. 2002, c. 32, s. 18 (1); 2007, c. 10, Sched. D, s. 3 (6).

Same

(2) A report under subsection (1) shall be made in accordance with the regulations. 2002, c. 32, s. 18 (2).

Duty to report to the owner

(3) If an operating authority is required to report an adverse test result under subsection (1), the operating authority shall also immediately report the adverse test result to the owner of the system for which the operating authority is responsible. 2007, c. 10, Sched. D, s. 3 (7).

Duty of laboratory to report

(4) Every person operating a laboratory who is required to report an adverse test result under subsection (1) shall also notify the operating authority responsible for the system or, if there is no operating authority responsible for the system, the owner of the system, of every adverse test result relating to the system, immediately after the adverse result is obtained. 2007, c. 10, Sched. D, s. 3 (7).

Duty to report adverse test result

18.1 (1) The person operating the laboratory at which an adverse result was obtained shall report every prescribed adverse result of a drinking water test conducted on any waters from a small drinking water system within the meaning of the *Health Protection and Promotion Act* to the Ministry of Health and Long-Term Care and the medical officer of health immediately after the adverse result is obtained. 2007, c. 10, Sched. D, s. 3 (8).

Same

(2) A report under subsection (1) shall be made in accordance with the regulations. 2007, c. 10, Sched. D, s. 3 (8).

Duty of laboratory to report

(3) Every person operating a laboratory who is required to report an adverse test result under subsection (1) shall also notify the operator responsible for the system or, if there is no operator responsible for the system, the owner of the system, of every adverse test result relating to the system, immediately after the adverse result is obtained. 2007, c. 10, Sched. D, s. 3 (8).

Standard of care, municipal drinking water system

19. (1) Each of the persons listed in subsection (2) shall,

- (a) exercise the level of care, diligence and skill in respect of a municipal drinking water system that a reasonably prudent person would be expected to exercise in a similar situation; and
- (b) act honestly, competently and with integrity, with a view to ensuring the protection and safety of the users of the municipal drinking water system. 2002, c. 32, s. 19 (1).

Same

(2) The following are the persons listed for the purposes of subsection (1):

- 1. The owner of the municipal drinking water system.
- 2. If the municipal drinking water system is owned by a corporation other than a municipality, every officer and director of the corporation.
- 3. If the system is owned by a municipality, every person who, on behalf of the municipality, oversees the accredited operating authority of the system or exercises decision-making authority over the system. 2002, c. 32, s. 19 (2).

Offence

(3) Every person under a duty described in subsection (1) who fails to carry out that duty is guilty of an offence. 2002, c. 32, s. 19 (3).

Same

(4) A person may be convicted of an offence under this section in respect of a municipal drinking water system whether or not the owner of the system is prosecuted or convicted. 2002, c. 32, s. 19 (4).

Reliance on experts

(5) A person shall not be considered to have failed to carry out a duty described in subsection (1) in any circumstance in which the person relies in good faith on a report of an engineer, lawyer, accountant or other person whose professional qualifications lend credibility to the report. 2002, c. 32, s. 19 (5).

Prohibition

20. (1) No person shall cause or permit any thing to enter a drinking water system if it could result in,

- (a) a drinking water health hazard;
- (b) a contravention of a prescribed standard; or
- (c) interference with the normal operation of the system. 2002, c. 32, s. 20 (1).

Exception

(2) Subsection (1) does not apply to prohibit activities that are carried out,

- (a) in the course of the proper operation, maintenance, repair or alteration of a drinking water system; or
- (b) under a statutory authority or for the purposes of complying with a statutory requirement. 2002, c. 32, s. 20 (2).

Dilution no defence

(3) For the purposes of prosecuting the offence of contravening subsection (1), it is not necessary to prove that the thing, if it was diluted when or after it entered the system, continued to result in or could have resulted in a drinking water health hazard. 2002, c. 32, s. 20 (3).

APPENDIX “B”

APPENDIX “B”

DRINKING-WATER-RELATED ACTS AND REGULATIONS

Bill 66 Great Lakes Protection Act, 2015	
Clean Water Act, 2006, S.O. 2006, CHAPTER 22	<ul style="list-style-type: none"> ✓ O. Reg. 287/07 - General ✓ O. Reg. 231/07 - Service of Documents ✓ O. Reg. 284/07 - Source Protection Areas and Regions ✓ O. Reg. 288/07 - Source Protection Committees
Safe Drinking Water Act, 2002, S.O. 2002, CHAPTER 32	<ul style="list-style-type: none"> ✓ O. Reg. 128/04 - Certification Of Drinking Water System Operators And Water Quality Analysts ✓ O. Reg. 242/05 - Compliance And Enforcement ✓ O. Reg. 172/03 - Definitions Of “Deficiency” and “Municipal Drinking Water System” ✓ O. Reg. 171/03 - Definitions Of Words And Expressions Used In The Act ✓ O. Reg. 170/03 - Drinking Water Systems ✓ O. Reg. 248/03 - Drinking Water Testing Services ✓ O. Reg. 453/07 - Financial Plans ✓ O. Reg. 188/07 - Licensing Of Municipal Drinking Water Systems ✓ O. Reg. 169/03 - Ontario Drinking Water Quality Standards ✓ O. Reg. 243/07 - Schools, Private Schools And Day Nurseries ✓ O. Reg. 229/07 - Service Of Documents
Ontario Water Resources Act, R.S.O. 1990, CHAPTER O.40	<ul style="list-style-type: none"> ✓ O. Reg. 525/98 - Approval Exemptions ✓ O. Reg. 450/07 - Charges for Industrial and Commercial Water Users ✓ O. Reg. 129/04 - Licensing of Sewage Works Operators ✓ O. Reg. 387/04 - Water Taking ✓ R.R.O. 1990, Reg. 903 - Wells
Water Opportunities and Water Conservation Act, 2010 S.O. 2010, CHAPTER 19 Schedule 1	<ul style="list-style-type: none"> ✓ O. Reg. 40/11 – Water Technology Acceleration Project
Environmental Bill of Rights, 1993 S.O. 1993, CHAPTER 28	<ul style="list-style-type: none"> ✓ O. Reg. 73/94 - General ✓ O. Reg. 681/94 – Classification of Proposal for

2017 Annual Water Distribution System Report to Council

	Instruments
Environmental Protection Act, R.S.O. 1990, CHAPTER E.19	✓ O. Reg. 524/98 - Environmental Compliance Approvals — Exemptions From Section 9 of the Act
Health Protection and Promotion Act (Ministry of Health and Long- Term Care)	✓ O. Reg. 318/08 - Transitional – Small Drinking Water Systems ✓ O. Reg. 319/08 - Small Drinking Water Systems
Development Corporations Act, R.S.O. 1990, CHAPTER D.10	✓ O. Reg. 304/04 – The Walkerton Clean Water Centre

www.ene.gov.on.ca
Last Modified: 02/13/2018

APPENDIX “C”



MUNICIPAL DRINKING WATER LICENCE

Licence Number: 054-101

Issue Number: 2

Pursuant to the *Safe Drinking Water Act*, 2002, S.O. 2002, c. 32, and the regulations made thereunder and subject to the limitations thereof, this municipal drinking water licence is issued under Part V of the *Safe Drinking Water Act*, 2002, S.O. 2002, c. 32 to:

The Corporation of the Municipality of South Huron

**322 Main Street South
P.O. Box 759
Exeter ON, N0M1S6**

For the following municipal residential drinking water system:

South Huron Distribution System

This municipal drinking water licence includes the following:

Schedule	Description
Schedule A	Drinking Water System Information
Schedule B	General Conditions
Schedule C	System-Specific Conditions
Schedule D	Conditions for Relief from Regulatory Requirements

DATED at TORONTO this 19th day of May, 2016

Signature

A handwritten signature in black ink, appearing to read "I. Prashad", written over a horizontal line.

Indra R. Prashad, P.Eng.
Director
Part V, *Safe Drinking Water Act*, 2002

Schedule A: Drinking Water System Information

System Owner	The Corporation of the Municipality of South Huron
Licence Number	054-101
Drinking Water System Name	South Huron Distribution System
Schedule A Issue Date	May 19th, 2016

The following information is applicable to the above drinking water system and forms part of this licence:

Licence

Licence Issue Date	May 19th, 2016
Licence Expiry Date	May 18th, 2021
Application for Licence Renewal Date	November 18th, 2020

Drinking Water Works Permit

Drinking Water System Name	Permit Number	Issue Date
South Huron Distribution System	054-201	May 19th, 2016

Permit To Take Water

Water Taking Locations	Permit Number	Issue Date
Not Applicable	Not Applicable	Not Applicable

Financial Plans

The Financial Plan Number for the Financial Plan required to be developed for this drinking water system in accordance with O. Reg. 453/07 shall be:	054-301
Alternately, if one Financial Plan is developed for all drinking water systems owned by the owner, the Financial Plan Number shall be:	054-301A

Accredited Operating Authority

Drinking Water System or Operational Subsystems	Accredited Operating Authority	Operational Plan No.	Operating Authority No.
South Huron Water Distribution System	Municipality of South Huron	054-401	054-OA1

Schedule B: General Conditions

System Owner	The Corporation of the Municipality of South Huron
Licence Number	054-101
Drinking Water System Name	South Huron Distribution System
Schedule B Issue Date	May 19th, 2016

1.0 Definitions

1.1 Words and phrases not defined in this licence and the associated drinking water works permit shall be given the same meaning as those set out in the SDWA and any regulations made in accordance with that act, unless the context requires otherwise.

1.2 In this licence and the associated drinking water works permit:

"adverse effect", "contaminant" and "natural environment" shall have the same meanings as in the EPA;

"alteration" may include the following in respect of this drinking water system:

- (a) An addition to the system,
- (b) A modification of the system,
- (c) A replacement of part of the system, and
- (d) An extension of the system;

"compound of concern" means a contaminant that, based on generally available information, may be emitted from a component of the drinking water system to the atmosphere in a quantity that is significant either in comparison to the relevant point of impingement limit or if a point of impingement limit is not available for the compound, then based on generally available toxicological information, the compound has the potential to cause an adverse effect as defined by the EPA at a point of impingement;

"Director" means a Director appointed pursuant to section 6 of the SDWA for the purposes of Part V of the SDWA;

"drinking water works permit" means the drinking water works permit for the drinking water system, as identified in Schedule A of this licence and as amended from time to time;

"emission summary table" means the table that was prepared by a Professional Engineer in accordance with O. Reg. 419/05 and the procedure document listing the appropriate point of impingement concentrations of each compound of concern emitted from a component of the drinking water system and providing comparison to the corresponding point of impingement limit;

"EPA" means the *Environmental Protection Act*, R.S.O. 1990, c. E.19;

"financial plan" means the financial plan required by O. Reg. 453/07;

"licence" means this municipal drinking water licence for the municipal drinking water system identified in Schedule A of this licence;

"operational plan" means an operational plan developed in accordance with the Director's Directions – Minimum Requirements for Operational Plans made under the authority of subsection 15(1) of the SDWA;

"owner" means the owner of the drinking water system as identified in Schedule A of this licence;

"permit to take water" means the permit to take water that is associated with the taking of water for purposes of the operation of the drinking water system, as identified in Schedule A of this licence and as amended from time to time;

"point of impingement" means any point in the natural environment that is not on the same property as the source of the contaminant and as defined by section 2 of O. Reg. 419/05;

"point of impingement limit" means the appropriate standard from Schedule 1, 2 or 3 of O. Reg. 419/05 and if a standard is not provided for a compound of concern, the appropriate criteria listed in the Ministry of the Environment and Climate Change publication titled "Summary of Standards and Guidelines to support Ontario Regulation 419: Air Pollution – Local Air Quality (including Schedule 6 of O. Reg. 419 on Upper Risk Thresholds)", dated February 2008, as amended;

"procedure document" means the Ministry of the Environment and Climate Change procedure titled "Procedure for Preparing an Emission Summary and Dispersion Modelling Report" dated July 2005, as amended;

"Professional Engineer" means a Professional Engineer who has been licensed to practice in the Province of Ontario;

"provincial officer" means a provincial officer appointed pursuant to section 8 of the SDWA;

"publication NPC-300" means the Ministry of the Environment and Climate Change publication titled "Environmental Noise Guideline: Stationary and Transportation Sources – Approval and Planning" dated August 2013, as amended;

"SDWA" means the *Safe Drinking Water Act*, 2002, S.O. 2002, c. 32;

"sensitive populations" means any one or a combination of the following locations where the health effects of nitrogen oxides emissions from emergency generators shall be considered using the point of impingement limit instead of the Ministry of the Environment and Climate Change screening level for emergency generators:

- (a) health care units (e.g., hospitals and nursing homes),
- (b) primary/junior public schools,
- (c) day-care facilities, and
- (d) playgrounds;

"subsystem" has the same meaning as in Ontario Regulation 128/04 (Certification of Drinking Water System Operators and Water Quality Analysts);

"surface water" means water bodies (lakes, wetlands, ponds - including dug-outs), water courses (rivers, streams, water-filled drainage ditches), infiltration trenches, and areas of seasonal wetlands;

2.0 Applicability

- 2.1 In addition to any other requirements, the drinking water system identified above shall be established, altered and operated in accordance with the conditions of the drinking water works permit and this licence.

3.0 Licence Expiry

- 3.1 This licence expires on the date identified as the licence expiry date in Schedule A of this licence.

4.0 Licence Renewal

- 4.1 Any application to renew this licence shall be made on or before the date identified as the application for licence renewal date set out in Schedule A of this licence.

5.0 Compliance

- 5.1 The owner and operating authority shall ensure that any person authorized to carry out work on or to operate any aspect of the drinking water system has been informed of the SDWA, all applicable regulations made in accordance with that act, the drinking water works permit and this licence and shall take all reasonable measures to ensure any such person complies with the same.

6.0 Licence and Drinking Water Works Permit Availability

- 6.1 At least one copy of this licence and the drinking water works permit shall be stored in such a manner that they are readily viewable by all persons involved in the operation of the drinking water system.

7.0 Drinking Water Works Permit

- 7.1 A drinking water works permit identified in Schedule A of this licence is the applicable permit on the date identified as the Schedule A Issue Date.

8.0 Financial Plan

- 8.1 For every financial plan prepared in accordance with subsections 2(1) and 3(1) of O. Reg. 453/07, the owner of the drinking water system shall:
- 8.1.1 Ensure that the financial plan contains on the front page of the financial plan, the appropriate financial plan number as set out in Schedule A of this licence; and
 - 8.1.2 Submit a copy of the financial plan to the Ministry of Municipal Affairs and Housing within three (3) months of receiving approval by a resolution of municipal council or the governing body of the owner.

9.0 Interpretation

- 9.1 Where there is a conflict between the provisions of this licence and any other document, the following hierarchy shall be used to determine the provision that takes precedence:
- 9.1.1 The SDWA;
 - 9.1.2 A condition imposed in this licence that explicitly overrides a prescribed regulatory requirement;
 - 9.1.3 A condition imposed in the drinking water works permit that explicitly overrides a prescribed regulatory requirement;
 - 9.1.4 Any regulation made under the SDWA;
 - 9.1.5 Any provision of this licence that does not explicitly override a prescribed regulatory requirement;
 - 9.1.6 Any provision of the drinking water works permit that does not explicitly override a prescribed regulatory requirement;
 - 9.1.7 Any application documents listed in this licence, or the drinking water works permit from the most recent to the earliest; and
 - 9.1.8 All other documents listed in this licence, or the drinking water works permit from the most recent to the earliest.
- 9.2 If any requirement of this licence or the drinking water works permit is found to be invalid by a court of competent jurisdiction, the remaining requirements of this licence and the drinking water works permit shall continue to apply.

- 9.3 The issuance of and compliance with the conditions of this licence and the drinking water works permit does not:
- 9.3.1 Relieve any person of any obligation to comply with any provision of any applicable statute, regulation or other legal requirement, including the *Environmental Assessment Act*, R.S.O. 1990, c. E.18; and
 - 9.3.2 Limit in any way the authority of the appointed Directors and provincial officers of the Ministry of the Environment and Climate Change to require certain steps be taken or to require the owner to furnish any further information related to compliance with the conditions of this licence or the drinking water works permit.
- 9.4 For greater certainty, nothing in this licence or the drinking water works permit shall be read to provide relief from regulatory requirements in accordance with section 46 of the SDWA, except as expressly provided in the licence or the drinking water works permit.

10.0 Adverse Effects

- 10.1 Nothing in this licence or the drinking water works permit shall be read as to permit:
- 10.1.1 The discharge of a contaminant into the natural environment that causes or is likely to cause an adverse effect; or
 - 10.1.2 The discharge of any material of any kind into or in any waters or on any shore or bank thereof or into or in any place that may impair the quality of the water of any waters.
- 10.2 All reasonable steps shall be taken to minimize and ameliorate any adverse effect on the natural environment or impairment of the quality of water of any waters resulting from the operation of the drinking water system including such accelerated or additional monitoring as may be necessary to determine the nature and extent of the effect or impairment.
- 10.3 Fulfillment of one or more conditions imposed by this licence or the drinking water works permit does not eliminate the requirement to fulfill any other condition of this licence or the drinking water works permit.

11.0 Change of Owner or Operating Authority

- 11.1 This licence is not transferable without the prior written consent of the Director.
- 11.2 The owner shall notify the Director in writing at least 30 days prior to a change of any operating authority identified in Schedule A of this licence.
- 11.2.1 Where the change of operating authority is the result of an emergency situation, the owner shall notify the Director in writing of the change as soon as practicable.

12.0 Information to be Provided

- 12.1 Any information requested by a Director or a provincial officer concerning the drinking water system and its operation, including but not limited to any records required to be kept by this licence or the drinking water works permit, shall be provided upon request.

13.0 Records Retention

- 13.1 Except as otherwise required in this licence or the drinking water works permit, any records required by or created in accordance with this licence or the drinking water works permit, other than the records specifically referenced in section 12 of O. Reg. 170/03, shall be retained for at least 5 years and made available for inspection by a provincial officer, upon request.

14.0 Chemicals and Materials

- 14.1 All chemicals and materials used in the alteration or operation of the drinking water system that come into contact with water within the system shall meet all applicable standards set by both the American Water Works Association ("AWWA") and the American National Standards Institute ("ANSI") safety criteria standards NSF/60, NSF/61 and NSF 372.
- 14.1.1 In the event that the standards are updated, the owner may request authorization from the Director to use any on hand chemicals and materials that previously met the applicable standards.
- 14.1.2 The requirement for the owner to comply with NSF 372 shall come into force no later than August 2, 2018.
- 14.2 The most current chemical and material product registration documentation from a testing institution accredited by either the Standards Council of Canada or by the American National Standards Institution ("ANSI") shall be available at all times for each chemical and material used in the operation of the drinking water system that comes into contact with water within the system.
- 14.3 Conditions 14.1 and 14.2 do not apply in the case of the following:
- 14.3.1 Water pipe and pipe fittings meeting AWWA specifications made from ductile iron, cast iron, PVC, fibre and/or steel wire reinforced cement pipe or high density polyethylene (HDPE);
- 14.3.2 Articles made from stainless steel, glass, HDPE or Teflon®;
- 14.3.3 Cement mortar for watermain lining and for water contacting surfaces of concrete structures made from washed aggregates and Portland cement;
- 14.3.4 Gaskets that are made from NSF approved materials;
- 14.3.5 Food grade oils and lubricants, food grade anti-freeze, and other food grade chemicals and materials that are compatible for drinking water use; or

- 14.3.6 Any particular chemical or material where the owner has written documentation signed by the Director that indicates that the Ministry of the Environment and Climate Change is satisfied that the chemical or material is acceptable for use within the drinking water system and the chemical or material is only used as permitted by the documentation.

15.0 Drawings

- 15.1 All drawings and diagrams in the possession of the owner that show any treatment subsystem as constructed shall be retained by the owner unless the drawings and diagrams are replaced by a revised or updated version showing the subsystem as constructed subsequent to the alteration.
- 15.2 Any alteration to any treatment subsystem shall be incorporated into process flow diagrams, process and instrumentation diagrams, and record drawings and diagrams within one year of the substantial completion of the alteration.
- 15.3 Process flow diagrams and process and instrumentation diagrams for any treatment subsystem shall be kept in a place, or made available in such a manner, that they may be readily viewed by all persons responsible for all or part of the operation of the drinking water system.

16.0 Operations and Maintenance Manual

- 16.1 An up-to-date operations and maintenance manual or manuals shall be maintained and applicable parts of the manual or manuals shall be made available for reference by all persons responsible for all or part of the operation or maintenance of the drinking water system.
- 16.2 The operations and maintenance manual or manuals, shall include at a minimum:
- 16.2.1 The requirements of this licence and associated procedures;
 - 16.2.2 The requirements of the drinking water works permit for the drinking water system;
 - 16.2.3 A description of the processes used to maintain secondary disinfection within the drinking water system.
 - 16.2.4 Procedures for monitoring and recording the in-process parameters necessary for the control of any treatment subsystem and for assessing the performance of the drinking water system;
 - 16.2.5 Procedures for the operation and maintenance of monitoring equipment;
 - 16.2.6 Contingency plans and procedures for the provision of adequate equipment and material to deal with emergencies, upset conditions and equipment breakdown;
 - 16.2.7 Procedures for dealing with complaints related to the drinking water system, including the recording of the nature of the complaint and any investigation and corrective action taken in respect of the complaint;

- 16.3 Procedures necessary for the operation and maintenance of any alterations to the drinking water system shall be incorporated into the operations and maintenance manual or manuals prior to those alterations coming into operation.

Schedule C: System-Specific Conditions

System Owner	The Corporation of the Municipality of South Huron
Licence Number	054-101
Drinking Water System Name	South Huron Distribution System
Schedule C Issue Date	May 19th, 2016

1.0 Additional Sampling, Testing and Monitoring

Drinking Water Health and Non-Health Related Parameters

- 1.1 For a drinking water system or drinking water subsystem identified in column 1 of Tables 1 and 2 and in addition to any other sampling, testing and monitoring that may be required, sampling, testing and monitoring shall be undertaken for a test parameter listed in column 2 at the sampling frequency listed in column 3 and at the monitoring location listed in column 4 of the same row.

Table 1: Drinking Water Health Related Parameters

Column 1 Drinking Water System or Drinking Water Subsystem Name	Column 2 Test Parameter	Column 3 Sampling Frequency	Column 4 Monitoring Location
Not Applicable	Not Applicable	Not Applicable	Not Applicable

Table 2: Drinking Water Non-Health Related Parameters

Column 1 Drinking Water System or Drinking Water Subsystem Name	Column 2 Test Parameter	Column 3 Sampling Frequency	Column 4 Monitoring Location
Not Applicable	Not Applicable	Not Applicable	Not Applicable

Environmental Discharge Parameters

- 1.2 Pursuant to Condition 10 of Schedule B of this licence, the owner may undertake the following environmental discharges associated with the maintenance and/or repair of the drinking water system:

1.2.1 The discharge of potable water from a watermain to a road or storm sewer;

1.2.2 The discharge of potable water from a water storage facility or pumping station:

1.2.2.1 To a road or storm sewer; or

- 1.2.2.2 To a watercourse where the discharge has been dechlorinated and if necessary, sediment and erosion control measures have been implemented.
- 1.2.3 The discharge of dechlorinated non-potable water from a watermain, water storage facility or pumping station to a road or storm sewer; and
- 1.2.4 The discharge of potable water or non-potable water from a treatment subsystem to the environment where if necessary, the discharge has been dechlorinated and sediment and erosion control measures have been implemented.

2.0 Studies Required

- 2.1 Not Applicable

3.0 Source Protection

- 3.1 Not Applicable

Schedule D: Conditions for Relief from Regulatory Requirements

System Owner	The Corporation of the Municipality of South Huron
Licence Number	054-101
Drinking Water System Name	South Huron Distribution System
Schedule D Issue Date	May 19th, 2016

1.0 Lead Regulatory Relief

- 1.1 Any relief from regulatory requirements previously authorized by the Director in respect of the drinking water system under section 38 of the SDWA in relation to the sampling, testing or monitoring requirements contained in Schedule 15.1 of O. Reg. 170/03 shall remain in force until such time as Schedule 15.1 of O. Reg. 170/03 is amended after June 1, 2009.

2.0 Other Regulatory Relief

- 2.1 Subject to condition 2.2 below, the following provisions of O.Reg 170/03 do not apply to the Exeter water supply system with respect to maintaining minimum free chlorine residual in the distribution system at the locations noted in condition 2.2:

Schedule 16-3(4) & (5) - Reporting Adverse Test Results - secondary disinfection

- 2.2 Conditions in exchange for relief from regulatory requirements:

Point-of-Entry Ultraviolet (UV) Disinfection Systems:

Individual UV disinfection systems at the locations noted below within the Municipality of South Huron:

- 40610 MacDonald Road
- 70623 McTaggart Line
- 71642 McTaggart Line
- 71890 McTaggart Line
- 40507 Huron Street
- 40526 Huron Street
- 40769 Huron Street

APPENDIX “D”



DRINKING WATER WORKS PERMIT

Permit Number: 054-201

Issue Number: 3

Pursuant to the *Safe Drinking Water Act*, 2002, S.O. 2002, c. 32, and the regulations made thereunder and subject to the limitations thereof, this drinking water works permit is issued under Part V of the *Safe Drinking Water Act*, 2002, S.O. 2002, c. 32 to:

The Corporation of the Municipality of South Huron

**322 Main Street South
P.O. Box 759
Exeter ON, N0M1S6**

For the following municipal residential drinking water system:

South Huron Distribution System

This drinking water works permit includes the following:

Schedule	Description
Schedule A	Drinking Water System Description
Schedule B	General
Schedule C	All documents issued as Schedule C to this drinking water works permit which authorize alterations to the drinking water system

DATED at TORONTO this 1st day of December, 2016

Signature

A handwritten signature in black ink that reads "A. Ahmed". The signature is written in a cursive style with a horizontal line underneath.

Aziz Ahmed, P.Eng.
Director
Part V, *Safe Drinking Water Act*, 2002

Schedule A: Drinking Water System Description

System Owner	The Corporation of the Municipality of South Huron
Permit Number	054-201
Drinking Water System Name	South Huron Distribution System
Schedule A Issue Date	December 1st, 2016

1.0 System Description

- 1.1 The following is a summary description of the works comprising the above drinking water system:

Overview

The Municipality of South Huron obtains its drinking water supply from the Lake Huron Primary Water Supply System (LHPWSS). The LHPWSS Joint Board of Management owns and governs the area water system using the City of London as the Administering Municipality.

The **South Huron Distribution System** services the areas of Exeter, Stephen Ward, Crediton, Centralia, Dashwood and Huron Park and consists of two (2) pumping stations, two (2) storage reservoirs, two (2) elevated storage tanks and approximately 181 kilometers of distribution watermains.

Pumping Stations

Crediton Booster Pumping Station

Location	100 Victoria Avenue West, Crediton, ON
UTM Coordinates	NAD 83, Zone 17: 454631 m E, 4794076 m N
Equipment	Pump No. 1 – Vertical Turbine pump rated 27 L/s at 60.7 m TDH
	Pump No. 2 – Vertical Turbine pump rated 27 L/s at 60.7 m TDH
	Pump No. 3 – Vertical Turbine pump rated 27 L/s at 60.7 TDH
	One (1) online continuous chlorine analyzer
	Surge anticipating relief valve, pressure relief valve, pressure indicating transmitters, check valves, gate valves, butterfly valves and associated appurtenances
Standby Power	Stationary Diesel Generator with a rating of 100kW
Notes	All pumps equipped with variable frequency drives

Storage Reservoirs and Pumping Stations

MacNaughton Drive Reservoirs and Booster Pumping Station

Location	62 MacNaughton Drive, Exeter, ON
UTM Coordinates	NAD 83, Zone 17: 461093 m E, 4800459 m N
Description	Two single-cell in ground reservoirs and a pumphouse to provide storage and pressure regulation for Exeter
Reservoir Dimensions	Reservoir # 1 – 18.3 m x 18.3 m x 4.1 m with a total Volume of 1136 m ³
	Reservoir # 2 – 24.2 m x 24.2 m x 4.55 m with a total Volume of 2490 m ³
Equipment	Pump No. 1 – Vertical Turbine Pump rated 69 L/s at 49.4 m TDH
	Pump No. 2 – Vertical Turbine Pump rated at 18 L/s at 65 m TDH
	Pump No. 3 – Vertical turbine pump rated at 175 L/s at 65 m TDH
	Flow meters, pressure transmitters, level transducers, hydraulically actuated control valves, check valves, gate valves and associated appurtenances
Standby Power	Stationary Diesel Generator with a rating of 350 kW
Notes	All pumps equipped with variable frequency drives

Elevated Storage Tanks

Exeter Water Tower

Location	66 Nelson Street, Exeter, ON
UTM Coordinates	NAD 83, Zone 17: 460749 m E, 4800219 m N
Description	Elevated Storage
Total Volume	1515 m ³
Equipment	One (1) online continuous chlorine residual analyzer and pressure transmitter
Standby Power	Stationary natural gas generator with a rating of 20 kW
Notes	Chlorine Residual Analyzer and standby generator located at adjacent water/sewer operations centre, 82 Nelson Street

Huron Park Water Tower

Location	69751 Airport Line, Huron Park, ON
UTM Coordinates	NAD 83, Zone 17: 459750 m E, 4793446 m N
Description	Elevated Storage
Total Volume	2700 m ³
Equipment	Three (3) online continuous chlorine residual analyzers (Pre, Post, Out) Mixing system with circulation pumps, gate valves, check valves, pressure transmitter and associated appurtenances
Re-chlorination	Chlorine gas system including two (2) 150 lb tanks on dual weigh scales, automatic closure system, vacuum regulator, automatic switch over unit (3 way valve), chlorine gas detector (air), chlorine gas controller and ejector
Standby Power	Stationary natural gas generator with a rating of 60 kW

Other Subsystem Components

Exeter Pressure Control Zone Chamber

Location	30 William Street, Exeter, ON
UTM Coordinates	NAD 83, Zone 17: 460791 m E, 4800468 m N
Description	Valve chamber houses pressure reducing valve, check valve pressure transmitter and associated appurtenances
Notes	

Huron Street Monitoring Chamber

Location	Huron Street West, Exeter, ON
UTM Coordinates	NAD 83, Zone 17: 460063 m E, 4798921 m N
Description	Monitoring chamber houses flow meter, chlorine residual analyzer, pressure transducer and associated appurtenances
Notes	

Airport Line Flow Monitoring Chamber

Location	69751 Airport Line, Huron Park, ON
UTM Coordinates	NAD 83, Zone 17: 459816 m E, 4793449 m N
Description	Chamber houses flow meter, gate valves and associated appurtenances

Airport Line and Huron Street Control Chamber

Location	Airport Line, South of Huron Street
UTM Coordinates	NAD 83, Zone 17: 459076 m E, 4798758 m N
Description	Chamber houses electrically operated monitored valve and associated appurtenances

Dashwood Area Control Zone Chamber "A"

Location	Bronson Line, South of Huron Street
UTM Coordinates	NAD 83, Zone 17: 448827 m E, 4797289 m N
Description	Chamber houses N/C 200mm gate valve, pressure reducing sustaining valve on 50 mm bypass piping and associated appurtenances

Dashwood Area Control Zone Chamber "B"

Location	37337 Dashwood Road, west of Village of Dashwood
UTM Coordinates	NAD 83, Zone 17: 447165 m E, 4799237 m N
Description	Chamber houses N/C 100mm gate valve, pressure reducing sustaining valve on 50 mm bypass piping and associated appurtenances

Dashwood Area Control Zone Chamber "C"

Location	Goshen Line, South of Huron Street
UTM Coordinates	NAD 83, Zone 17: 450874 m E, 4797628 m N
Description	Chamber houses N/C 100mm gate valve, 19 mm bleeder bypass piping with flow meter and associated appurtenances

Dashwood Area Control Zone Chamber "D"

Location	Babylon Line, South of Huron Street
UTM Coordinates	NAD 83, Zone 17: 452932 m E, 4797873 m N
Description	Chamber houses N/C 100mm gate valve, pressure reducing sustaining valve on 50mm bypass piping and associated appurtenances

Dashwood Area Control Zone Chamber "E"

Location	Dashwood Road, West of Shipka Line
UTM Coordinates	NAD 83, Zone 17: 444098 m E, 4798813 m N
Description	Chamber houses N/C 100mm gate valve, 19mm bleeder bypass piping with flow meter and associated appurtenances

Dashwood Area Control Zone Chamber "F"

Location	Blackbush Line, North of Crediton Road
UTM Coordinates	NAD 83, Zone 17: 447344 m E, 4793187 m N
Description	Chamber houses N/C 100mm gate valve, 19mm bleeder bypass piping with flow meter and associated appurtenances

Watermains**1.2** Watermains within the distribution system comprise:**1.2.1** Watermains that have been set out in each document or file identified in column 1 of Table 1.

Table 1: Watermains	
Column 1 Document or File Name	Column 2 Date
SouthHuron_MOE_Centralia_2015	October 15, 2015
SouthHuron_MOE_GrandBend_2015	October 15, 2015
SouthHuron_MOE_Stephentwp_2015	October 19, 2015
SouthHuron_MOE_Crediton_2015	November 23, 2015
SouthHuron_MOE_Dashwood_2015	November 23, 2015
SouthHuron_MOE_ExeterWater_2015	November 23, 2015
SouthHuron_MOE_HuronPark_2015	November 23, 2015

1.2.2 Watermains that have been added, modified, replaced or extended further to the provisions of Schedule C of this drinking water works permit on or after the date identified in column 2 of Table 1 for each document or file identified in column 1.**1.2.3** Watermains that have been added, modified, replaced or extended further to an authorization by the Director on or after the date identified in column 2 of Table 1 for each document or file identified in column 1.

Schedule B: General

System Owner	The Corporation of the Municipality of South Huron
Permit Number	054-201
Drinking Water System Name	South Huron Distribution System
Schedule B Issue Date	December 1st, 2016

1.0 Applicability

- 1.1 In addition to any other requirements, the drinking water system identified above shall be altered and operated in accordance with the conditions of this drinking water works permit and the licence.
- 1.2 The definitions and conditions of the licence shall also apply to this drinking water works permit.

2.0 Alterations to the Drinking Water System

- 2.1 Any document issued by the Director as a Schedule C to this drinking water works permit shall provide authority to alter the drinking water system in accordance, where applicable, with the conditions of this drinking water works permit and the licence.
- 2.2 All Schedule C documents issued by the Director for the drinking water system shall form part of this drinking water works permit.
- 2.3 All parts of the drinking water system in contact with drinking water which are:

2.3.1 Added, modified, replaced, extended; or

2.3.2 Taken out of service for inspection, repair or other activities that may lead to contamination,

shall be disinfected before being put into service in accordance with a procedure approved by the Director or in accordance with the applicable provisions of the following documents:

- a) The ministry's Watermain Disinfection Procedure, effective November 19, 2016;
- b) AWWA C652 – Standard for Disinfection of Water-Storage Facilities;
- c) AWWA C653 – Standard for Disinfection of Water Treatment Plants; and
- d) AWWA C654 – Standard for Disinfection of Wells.

- 2.4 The owner shall notify the Director within thirty (30) days of the placing into service or the completion of any addition, modification, replacement or extension of the drinking water system which had been authorized through:

2.4.1 Schedule B to this drinking water works permit which would require an alteration of the description of a drinking water system component described in Schedule A of this drinking water works permit;

- 2.4.2 Any Schedule C to this drinking water works permit respecting works other than watermain; or
- 2.4.3 Any approval issued prior to the issue date of the first drinking water works permit respecting works other than watermain which were not in service at the time of the issuance of the first drinking water works permit.
- 2.5 For greater certainty, the notification requirements set out in condition 2.4 do not apply to any addition, modification, replacement or extension in respect of the drinking water system which:
 - 2.5.1 Is exempt from subsection 31(1) of the SDWA by subsection 9.(2) of O. Reg. 170/03;
 - 2.5.2 Constitutes maintenance or repair of the drinking water system; or
 - 2.5.3 Is a watermain authorized by condition 3.1 of Schedule B of this drinking water works permit.
- 2.6 The owner shall notify the legal owner of any part of the drinking water system that is prescribed as a municipal drinking water system by section 2 of O. Reg. 172/03 of the requirements of the licence and this drinking water works permit as applicable to the prescribed system.
- 2.7 For greater certainty, any alteration to the drinking water system made in accordance with this drinking water works permit may only be carried out after other legal obligations have been complied with including those arising from the *Environmental Assessment Act*, *Niagara Escarpment Planning and Development Act*, *Oak Ridges Moraine Conservation Act, 2001* and *Greenbelt Act, 2005*.

3.0 Watermain Additions, Modifications, Replacements and Extensions

- 3.1 The drinking water system may be altered by adding, modifying, replacing or extending a watermain within the distribution system subject to the following conditions:
 - 3.1.1 The design of the watermain addition, modification, replacement or extension:
 - a) Has been prepared by a Professional Engineer;
 - b) Has been designed only to transmit water and has not been designed to treat water;
 - c) Satisfies the design criteria set out in the Ministry of the Environment and Climate Change publication "Watermain Design Criteria for Future Alterations Authorized under a Drinking Water Works Permit – June 2012", as amended from time to time; and
 - d) Is consistent with or otherwise addresses the design objectives contained within the Ministry of the Environment and Climate Change publication "Design Guidelines for Drinking Water Systems, 2008", as amended from time to time.

-
- 3.1.2 The maximum demand for water exerted by consumers who are serviced by the addition, modification, replacement or extension of the watermain will not result in an exceedance of the rated capacity of a treatment subsystem or the maximum flow rate for a treatment subsystem component as specified in the licence, or the creation of adverse conditions within the drinking water system.
 - 3.1.3 The watermain addition, modification, replacement or extension will not adversely affect the distribution system's ability to maintain a minimum pressure of 140 kPa at ground level at all points in the distribution system under maximum day demand plus fire flow conditions.
 - 3.1.4 Secondary disinfection will be provided to water within the added, modified, replaced or extended watermain to meet the requirements of O. Reg. 170/03.
 - 3.1.5 The watermain addition, modification, replacement or extension is wholly located within the municipal boundary over which the owner has jurisdiction.
 - 3.1.6 The owner of the drinking water system consents in writing to the watermain addition, modification, replacement or extension.
 - 3.1.7 A Professional Engineer has verified in writing that the watermain addition, modification, replacement or extension meets the requirements of condition 3.1.1.
 - 3.1.8 The owner of the drinking water system has verified in writing that the watermain addition, modification, replacement or extension meets the requirements of conditions 3.1.2 to 3.1.6.
- 3.2** The authorization for the addition, modification, replacement or extension of a watermain provided for in condition 3.1 does not include the addition, modification, replacement or extension of a watermain that:
- 3.2.1 Passes under or through a body of surface water, unless trenchless construction methods are used;
 - 3.2.2 Has a nominal diameter greater than 750 mm;
 - 3.2.3 Results in the fragmentation of the drinking water system; or
 - 3.2.4 Connects to another drinking water system, unless:
 - a) Prior to construction, the owner of the drinking water system seeking the connection obtains written consent from the owner or owner's delegate of the drinking water system being connected to; and
 - b) The owner of the drinking water system seeking the connection retains a copy of the written consent from the owner or owner's delegate of the drinking water system being connected to as part of the record that is recorded and retained under condition 3.3.

- 3.3 The verifications required in conditions 3.1.7 and 3.1.8 shall be:
- 3.3.1 Recorded on "Form 1 – Record of Watermains Authorized as a Future Alteration", as published by the Ministry of the Environment and Climate Change, prior to the watermain addition, modification, replacement or extension being placed into service; and
 - 3.3.2 Retained for a period of ten (10) years by the owner.
- 3.4 For greater certainty, the verification requirements set out in condition 3.3 do not apply to any addition, modification, replacement or extension in respect of the drinking water system which:
- 3.4.1 Is exempt from subsection 31(1) of the SDWA by subsection 9.(2) of O. Reg. 170/03; or
 - 3.4.2 Constitutes maintenance or repair of the drinking water system.
- 3.5 The document or file referenced in Column 1 of Table 1 of Schedule A of this drinking water works permit that sets out watermains shall be retained by the owner and shall be updated to include watermain additions, modifications, replacements and extensions within 12 months of the addition, modification, replacement or extension.
- 3.6 The updates required by condition 3.5 shall include watermain location relative to named streets or easements and watermain diameter.

4.0 Minor Modifications to the Drinking Water System

- 4.1 The drinking water system may be altered by adding, modifying or replacing the following components in the drinking water system:
- 4.1.1 Raw water pumps and treatment process pumps in the treatment system;
 - 4.1.2 Coagulant feed systems in the treatment system, including the location and number of dosing points;
 - 4.1.3 Valves;
 - 4.1.4 Instrumentation and controls, including SCADA systems, and software associated with these devices;
 - 4.1.5 Filter media, backwashing equipment and under-drains in the treatment system; or,
 - 4.1.6 Spill containment works.
- 4.2 The drinking water system may be altered by adding, modifying, replacing or removing the following components in the drinking water system:
- 4.2.1 Treated water pumps and associated equipment;
 - 4.2.2 Re-circulation devices within distribution system storage facilities;

- 4.2.3 In-line mixing equipment;
 - 4.2.4 Chemical metering pumps and chemical handling pumps;
 - 4.2.5 Chemical storage tanks (excluding fuel storage tanks) and associated equipment; or,
 - 4.2.6 Measuring and monitoring devices that are not required by regulation, by a condition in the Drinking Water Works Permit, or by a condition otherwise imposed by the Ministry of the Environment and Climate Change.
- 4.3 The drinking water system may be altered by replacing the following:
- 4.3.1 Raw water piping, treatment process piping or treated water piping within the treatment subsystem;
 - 4.3.2 Fuel storage tanks and spill containment works, and associated equipment; or
 - 4.3.3 Coagulants and pH adjustment chemicals, where the replacement chemicals perform the same function;
 - a) Prior to making any alteration to the drinking water system under condition 4.3.3, the owner shall undertake a review of the impacts that the alteration might have on corrosion control or other treatment processes; and
 - b) The owner shall notify the Director in writing within thirty (30) days of any alteration made under condition 4.3.3 and shall provide the Director with a copy of the review.
- 4.4 Any alteration of the drinking water system made under conditions 4.1, 4.2 or 4.3 shall not result in:
- 4.4.1 An exceedance of a treatment subsystem rated capacity or a treatment subsystem component maximum flow rate as specified in the licence;
 - 4.4.2 The bypassing of any unit process within a treatment subsystem;
 - 4.4.3 A deterioration in the quality of drinking water provided to consumers;
 - 4.4.4 A reduction in the reliability or redundancy of any component of the drinking water system;
 - 4.4.5 A negative impact on the ability to undertake compliance and other monitoring necessary for the operation of the drinking water system; or
 - 4.4.6 An adverse effect on the environment.
- 4.5 The owner shall verify in writing that any addition, modification, replacement or removal of drinking water system components in accordance with conditions 4.1, 4.2 or 4.3 has met the requirements of the conditions listed in condition 4.4.

- 4.6 The verifications and documentation required in condition 4.5 shall be:
- 4.6.1 Recorded on "Form 2 – Record of Minor Modifications or Replacements to the Drinking Water System", as published by the Ministry of the Environment and Climate Change, prior to the modified or replaced components being placed into service; and
 - 4.6.2 Retained for a period of ten (10) years by the owner.
- 4.7 For greater certainty, the verification requirements set out in conditions 4.5 and 4.6 do not apply to any addition, modification, replacement or removal in respect of the drinking water system which:
- 4.7.1 Is exempt from subsection 31(1) of the SDWA by subsection 9.(2) of O. Reg. 170/03; or
 - 4.7.2 Constitutes maintenance or repair of the drinking water system.
- 4.8 The owner shall update any drawings maintained for the drinking water system to reflect the modification or replacement of the works, where applicable.

5.0 Equipment with Emissions to the Air

- 5.1 The drinking water system may be altered by adding, modifying or replacing any of the following drinking water system components that may discharge or alter the rate or manner of a discharge of a compound of concern to the atmosphere:
- 5.1.1 Any equipment, apparatus, mechanism or thing that is used for the transfer of outdoor air into a building or structure that is not a cooling tower;
 - 5.1.2 Any equipment, apparatus, mechanism or thing that is used for the transfer of indoor air out of a space used for the production, processing, repair, maintenance or storage of goods or materials, including chemical storage;
 - 5.1.3 Laboratory fume hoods used for drinking water testing, quality control and quality assurance purposes;
 - 5.1.4 Low temperature handling of compounds with a vapor pressure of less than 1 kilopascal;
 - 5.1.5 Maintenance welding stations;
 - 5.1.6 Minor painting operations used for maintenance purposes;
 - 5.1.7 Parts washers for maintenance shops;
 - 5.1.8 Emergency chlorine and ammonia gas scrubbers and absorbers;
 - 5.1.9 Venting for activated carbon units for drinking water taste and odour control;
 - 5.1.10 Venting for a stripping unit for methane removal from a groundwater supply;

- 5.1.11 Venting for an ozone treatment unit;
- 5.1.12 Natural gas or propane fired boilers, water heaters, space heaters and make-up air units with a total facility-wide heat input rating of less than 20 million kilojoules per hour, and with an individual fuel energy input of less than or equal to 10.5 gigajoules per hour; or
- 5.1.13 Emergency generators that fire No. 2 fuel oil (diesel fuel) with a sulphur content of 0.5 per cent or less measured by weight, natural gas, propane, gasoline or biofuel, and that are used for emergency duty only with periodic testing.
- 5.2 The owner shall not add, modify or replace a drinking water system component set out in condition 5.1 for an activity that is not directly related to the treatment and/or distribution of drinking water.
- 5.3 The emergency generators identified in condition 5.1.13 shall not be used for non-emergency purposes including the generation of electricity for sale or for peak shaving purposes.
- 5.4 The owner shall prepare an emission summary table for nitrogen oxide emissions only, for each addition, modification or replacement of emergency generators identified in condition 5.1.13.

Performance Limits

- 5.5 The owner shall ensure that a drinking water system component identified in conditions 5.1.1 to 5.1.13 is operated at all times to comply with the following limits:
 - 5.5.1 For equipment other than emergency generators, the maximum concentration of any compound of concern at a point of impingement shall not exceed the corresponding point of impingement limit;
 - 5.5.2 For emergency generators, the maximum concentration of nitrogen oxides at sensitive populations shall not exceed the applicable point of impingement limit, and at non-sensitive populations shall not exceed the Ministry of the Environment and Climate Change half-hourly screening level of 1880 ug/m³ as amended; and
 - 5.5.3 The noise emissions comply at all times with the limits set out in publication NPC-300, as applicable.
- 5.6 The owner shall verify in writing that any addition, modification or replacement of works in accordance with condition 5.1 has met the requirements of the conditions listed in condition 5.5.
- 5.7 The owner shall document how compliance with the performance limits outlined in condition 5.5.3 is being achieved, through noise abatement equipment and/or operational procedures.

- 5.8 The verifications and documentation required in conditions 5.6 and 5.7 shall be:
- 5.8.1 Recorded on "Form 3 – Record of Addition, Modification or Replacement of Equipment Discharging a Contaminant of Concern to the Atmosphere", as published by the Ministry of the Environment and Climate Change, prior to the additional, modified or replacement equipment being placed into service; and
 - 5.8.2 Retained for a period of ten (10) years by the owner.
- 5.9 For greater certainty, the verification and documentation requirements set out in conditions 5.6 and 5.8 do not apply to any addition, modification or replacement in respect of the drinking water system which:
- 5.9.1 Is exempt from subsection 31(1) of the SDWA by subsection 9.(2) of O. Reg. 170/03; or
 - 5.9.2 Constitutes maintenance or repair of the drinking water system.
- 5.10 The owner shall update any drawings maintained for the works to reflect the addition, modification or replacement of the works, where applicable.

6.0 Previously Approved Works

- 6.1 The owner may add, modify, replace or extend, and operate part of a municipal drinking water system if:
- 6.1.1 An approval was issued after January 1, 2004 under section 36 of the SDWA in respect of the addition, modification, replacement or extension and operation of that part of the municipal drinking water system;
 - 6.1.2 The approval expired by virtue of subsection 36(4) of the SDWA; and
 - 6.1.3 The addition, modification, replacement or extension commenced within five years of the date that activity was approved by the expired approval.

7.0 System-Specific Conditions

- 7.1 Not Applicable

8.0 Source Protection

- 8.1 Not Applicable

APPENDIX “E”



Certificate of Registration

This certifies that the Quality Management System of

The Corporation Of The Municipality Of South Huron

322 Main Street South
P.O. Box 759
Exeter, Ontario, N0M 1S6, Canada

has been assessed by NSF-ISR and found to be in conformance to the following standard(s):

Ontario's Drinking Water Quality Management Standard

Scope of Registration:

South Huron Distribution System, 054-OA1, Entire Full Scope Accreditation



Certificate Number: C0122376-DWQ6
Certificate Issue Date: 03-NOV-2017
Registration Date: 26-OCT-2017
Expiration Date *: 25-OCT-2020

Carl Blazik,
Director, Technical
Operations & Business Units,
NSF-ISR, Ltd.

NSF International Strategic Registrations

789 North Dixboro Road, Ann Arbor, Michigan 48105 | (888) NSF-9000 | www.nsf-ISR.org

Authorized Registration and /or Accreditation Marks. This certificate is property of NSF-ISR and must be returned upon request.
*Company is audited for conformance at regular intervals. To verify registrations call (888) NSF-9000 or visit our web site at www.nsf-ISR.org

APPENDIX “F”

OPTIONAL ANNUAL REPORT TEMPLATE

Drinking-Water System Number:	220001520
Drinking-Water System Name:	SOUTH HURON DISTRIBUTION SYSTEM
Drinking-Water System Owner:	MUNICIPALITY OF SOUTH HURON
Drinking-Water System Category:	LARGE RESIDENTIAL
Period being reported:	2017/01/01 – 2017/12/31

<p><u>Complete if your Category is Large Municipal Residential or Small Municipal Residential</u></p> <p>Does your Drinking-Water System serve more than 10,000 people? Yes [] No [X]</p> <p>Is your annual report available to the public at no charge on a web site on the Internet? Yes [X] No []</p> <p>Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.</p> <div style="border: 1px solid black; padding: 5px; min-height: 100px;"> OFFICE INTERNET LIBRARY </div>	<p><u>Complete for all other Categories.</u></p> <p>Number of Designated Facilities served:</p> <div style="border: 1px solid black; width: 100px; height: 20px; margin: 5px 0;"></div> <p>Did you provide a copy of your annual report to all Designated Facilities you serve? Yes [] No []</p> <p>Number of Interested Authorities you report to: <div style="border: 1px solid black; width: 100px; height: 20px; margin: 5px 0;"></div></p> <p>Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility? Yes [] No []</p>
---	---

Note: For the following tables below, additional rows or columns may be added or an appendix may be attached to the report

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

Drinking Water System Name	Drinking Water System Number

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

Yes [] No [] NA [X]



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

Indicate how you notified system users that your annual report is available, and is free of charge.

- ☒ Public access/notice via the web
- ☒ Public access/notice via Government Office
- ☒ Public access/notice via a newspaper
- ☒ Public access/notice via Public Request
- ☒ Public access/notice via a Public Library
- ☒ Public access/notice via other method (Social Media, Facebook, Twitter)_____

Describe your Drinking-Water System

**LARGE MUNICIPAL RESIDENTIAL DISTRIBUTION CLASS III
SURFACE WATER SUPPLIED FROM LAKE HURON PRIMARY WATER
SUPPLY SYSTEM (LHPWSS)**

List all water treatment chemicals used over this reporting period

CHLORINE

Were any significant expenses incurred to?

- ☐ Install required equipment
- ☒ Repair required equipment
- ☒ Replace required equipment

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

1. John Street East (Main to Albert) watermain replacement - top asphalt: \$8,357
2. James Street East (Main to Albert) watermain replacement: \$143,187
3. Simcoe Street (Andrew to Main) watermain replacement: \$106,597
4. William Street (Anne to Huron) watermain replacement: \$161,173
5. Dashwood Road (Hwy#21-Shipka Line) watermain replacement: \$394,186
6. Exeter Water Tower upgrades (mixing system & controls): \$176,010
7. Exeter Water Tower Control Valve: \$45,371
8. Engineering for Huron Street East (Edward to Eastern) watermain replacement: \$9,977
9. Engineering for Dashwood Road (Shipka to Bronson) watermain replacement: \$22,178
10. Engineering for Shipka Line (South Rd to Kirkton) watermain replacement: \$19,399
11. Engineering for Huron Street and McTaggart Line watermain replacement: \$12,828
12. Replacement of Drive on pump #2 at Mc Naughton Reservoir : \$ 6,500
13. Preventive maintenance of critical control valves : \$ 6,300
14. New Fire Hydrant installation in Crediton : \$ 9,000

Provide details on the notices submitted in accordance with subsection 18(1) of the Safe Drinking-Water Act or section 16-4 of Schedule 16 of O.Reg.170/03 and reported to Spills Action Centre

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
---------------	-----------	--------	-----------------	-------------------	------------------------



Microbiological testing done under the Schedule 10, 11 or 12 of Regulation 170/03, during this reporting period.

	Number of Samples	Range of E.Coli Or Fecal Results (min #)-(max #)	Range of Total Coliform Results (min #)-(max #)	Number of HPC Samples	Range of HPC Results (min #)-(max #)
Raw	N/A				
Treated	N/A				
Distribution	524	0	0	159	<10-530

Operational testing done under Schedule 7, 8 or 9 of Regulation 170/03 during the period covered by this Annual Report.

	Number of Grab Samples	Range of Results (min #)-(max #)	Unit of Measure	NOTE: For continuous monitors use 8760 as the number of samples.
Turbidity	N/A			
Chlorine	8760	0.21 – 3.09	MG/L FREE	
Fluoride (If the DWS provides fluoridation)	N/A			

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

Date of legal instrument issued	Parameter	Date Sampled	Result	Unit of Measure

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

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Antimony				
Arsenic				
Barium				
Boron				
Cadmium				
Chromium				
*Lead				
Mercury				
Selenium				
Sodium				
Uranium				



Fluoride				
Nitrite				
Nitrate				

*only for drinking water systems testing under Schedule 15.2; this includes large municipal non-residential systems, small municipal non-residential systems, non-municipal seasonal residential systems, large non-municipal non-residential systems, and small non-municipal non-residential systems

Summary of lead testing under Schedule 15.1 during this reporting period

(applicable to the following drinking water systems; large municipal residential systems, small municipal residential systems, and non-municipal year-round residential systems)

Location Type	Number of Samples	Range of Lead Results (min#) – (max #)	Unit of Measure	Number of Exceedances
Plumbing			ug/L	0
Distribution			ug/L	0

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

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Alachlor				
Aldicarb				
Aldrin + Dieldrin				
Atrazine + N-dealkylated metabolites				
Azinphos-methyl				
Bendiocarb				
Benzene				
Benzo(a)pyrene				
Bromoxynil				
Carbaryl				
Carbofuran				
Carbon Tetrachloride				
Chlordane (Total)				
Chlorpyrifos				
Cyanazine				
Diazinon				
Dicamba				
1,2-Dichlorobenzene				
1,4-Dichlorobenzene				
Dichlorodiphenyltrichloroethane (DDT) + metabolites				
1,2-Dichloroethane				
1,1-Dichloroethylene (vinylidene chloride)				
Dichloromethane				
2,4-Dichlorophenol				
2,4-Dichlorophenoxy acetic acid (2,4-D)				



Diclofop-methyl				
Dimethoate				
Dinoseb				
Diquat				
Diuron				
Glyphosate				
Heptachlor + Heptachlor Epoxide				
Lindane (Total)				
Malathion				
Methoxychlor				
Metolachlor				
Metribuzin				
Monochlorobenzene				
Paraquat				
Parathion				
Pentachlorophenol				
Phorate				
Picloram				
Polychlorinated Biphenyls(PCB)				
Prometryne				
Simazine				
THM (NOTE: show latest annual average)	SEE NOTE	35.25	ug/L	
Temephos				
Terbufos				
Tetrachloroethylene				
2,3,4,6-Tetrachlorophenol				
Triallate				
Trichloroethylene				
2,4,6-Trichlorophenol				
2,4,5-Trichlorophenoxy acetic acid (2,4,5-T)				
Trifluralin				
Vinyl Chloride				

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

Parameter	Result Value	Unit of Measure	Date of Sample

NOTE: FEB 7 - 24
MAY 17 - 33
AUG 18 - 47
NOV 15 37
141 / 4 = 35.25 ug/L