



February 1, 2017

The Corporation of the Municipality of Huron East
72 Main St. S
P.O. Box 610
Seaforth, ON
N0K 1W0

Attention: Brad Knight, Administrator, Clerk-Treasurer

**RE: Seaforth Well Supply System
2016 Annual Report**

Dear Brad,

Please find attached the 2016 Annual Operations Report for the Seaforth Water System, in accordance with Section 11(1) of O. Reg. 170/03. This report covers the period from January 1 to December 31 and meets the requirement of being prepared by February 28 of this year.

Please ensure that a copy of this report is given, without charge, to every person who requests a copy. In addition, please make certain that effective steps are taken to advise residents that copies of the report are available, and of how a copy can be obtained.

As per Schedule 22 of O. Reg. 170/03, please ensure that at least a copy of the Summary Report is given to the members of municipal council no later than March 31, 2017.

Finally, please ensure that a letter is sent to OMI Canada Inc verifying that this report has been received and accepted by Council.

If you have any questions regarding the report, we would be pleased to address them and you should contact the undersigned accordingly.

Sincerely,

OMI Canada Inc.

A handwritten signature in black ink, appearing to read 'Joe Arnold'.

Joe Arnold
Project Manager
Huron East
Project
519 490 5586

cc. B. Mills, Municipality of Huron East;

2016 ANNUAL REPORT FOR WATER SYSTEMS

Part 1 – ANNUAL REPORT (as required by O. Reg. 170/03, Section 11)

Drinking-Water System Number:	220001511
Drinking-Water System Name:	Seaforth Well Supply System
Drinking-Water System Owner:	The Corporation of the Municipality of Huron East
Drinking-Water System Category:	Large Municipal Residential
Period being reported:	January 1-December 31, 2016

Complete if your Category is Large Municipal Residential or Small Municipal Residential	Complete for all other Categories
Does your Drinking-Water System serve more than 10,000 people? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Number of Designated Facilities served:
Is your annual report available to the public at no charge on a web site on the Internet? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Did you provide a copy of your annual report to all Designated Facilities you serve? <input type="checkbox"/> Yes <input type="checkbox"/> No
Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection. Town Office 72 Main St. S. Seaforth, ON	Number of Designated Facilities served: Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility? <input type="checkbox"/> Yes <input type="checkbox"/> No

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?

n/a

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

<input checked="" type="checkbox"/> Public access/notice via the web	<input checked="" type="checkbox"/> Public access/notice via Government Office	<input type="checkbox"/> Public access/notice via a newspaper
<input type="checkbox"/> Public access/notice via Public Request	<input type="checkbox"/> Public access/notice via a Public Library	<input type="checkbox"/> Public access/notice via a Public Library

Describe your Drinking Water System

As of mid-April 2009, the town of Seaforth draws its water supply from three groundwater wells. All wells are located at 40 Welsh St. The Welsh Street facility consists of an above ground pump house with three groundwater wells each located north of the pump house. TW1 (Test Well #1; but is to be considered to be a production well) is a 150mm diameter, 85m deep groundwater well located at 48m north of the new pump house. It is equipped with a submersible turbine pump rated

at 6.4L/s. PW1 (Production Well #1) is a 300mm diameter, 105m deep drilled groundwater well located 43m north of the pump house. It is equipped with a variable speed submersible turbine pump rated at 35/Ls. PW2 has the same dimensions as PW1 and is located 18m north of the pump house. It contains a variable speed submersible turbine pump rated at 40/Ls. Three vertical turbine high lift pumps (one rated at 26L/s and two rated at 44L/s at 48m TDH) convey the water to the distribution system.

Treatment for the Welsh St. well consists of a chlorination system that includes two sodium hypochlorite metering pumps (one main and one backup) and one 200 L day tank for sodium hypochlorite. Sodium Silicate is also added to the system (three pumps available, 1 dedicated to each well) as well as a 200L day tank. A continuous online chlorine analyzer equipped with alarms monitor the chlorine residual in treated water just prior to the point of entry into the distribution system.

Water in excess of demand in the distribution system is pumped to the elevated storage tank. When a predetermined level in the tower is reached, the distribution pump(s) shut down.

The 1930 m³ elevated storage tank was constructed in 1998 and is located at 85 Daly Street. The elevated tank water level cycles based on demand and provides emergency storage, fire protection and peak demand storage for the Seaforth water supply system.

The distribution system supplies water to the entire Town of Seaforth and the Village of Egmondville. The system is composed of cast iron, ductile iron and PVC pipe with 110 hydrants. One automatic blow-off and seven manual blow-offs are connected throughout the distribution system. The elevated storage tank and the underground reservoir are used as a supplementary supply for emergencies.

The Municipality of Huron East operates and maintains the distribution system with the exception of flushing, which is contracted to Operations Management International Canada Inc.

List all water treatment chemicals used over this reporting period

12% Sodium hypochlorite solution
Sodium silicate

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

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	Units	Corrective Action	Corrective Action Date
NONE					N/A
NONE					N/A

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 Results (min #) - (max #)	Range of Total Coliform Results (min #) - (max #)	Number of HPC Samples	Range of HPC Results (min #) - (max #)
Raw (TW1)	52	0	0	N/A	-
Raw (PW1)	50	0	0	N/A	-
Raw (PW2)	51	0	0	N/A	-
Treated (40 Welsh)	52	0	0	52	<10-40
Distribution	208	0	0	104	<10-20

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 #)	Units
Turbidity (TW1)	46	0.13-0.63	NTU
Turbidity (PW1)	44	0.17-0.51	NTU
Turbidity (PW2)	42	0.14-0.58	NTU
Chlorine (Tower)	8760	0.15-2.33	mg/L
Chlorine (40 Welsh)	8760	0.27-2.94	mg/L
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	April 13/15	0.28	ug/L	No
Arsenic	April 13/15	0.4	ug/L	No
Barium	April 13/15	25.2	ug/L	No
Boron	April 13/15	123	ug/L	No
Cadmium	April 13/15	0.025	ug/L	No
Chromium	April 13/15	0.19	ug/L	No
Lead-sampling conducted by the Municipality of Huron East; see summary below				
Mercury	April 13/15	0.02	ug/L	No
Selenium	April 13/15	<MDL	ug/L	No
Sodium	April 77/14	57.8	mg/L	Yes
Uranium	April 13/15	7.24	ug/L	No
Fluoride	April 7/14	1.69	mg/L	Yes
Nitrite	Jan 11/16	<0.003	mg/L	No
Nitrate	Jan 11 /16	0.012	mg/L	No
Nitrite	April 11/16	<0.003	mg/L	No
Nitrate	April 11/16	0.014	mg/L	No
Nitrite	July 11/16	<0.003	mg/L	No
Nitrate	July 11/16	0.015	mg/L	No
Nitrite	Oct 11/16	<0.003	mg/L	No
Nitrate	Oct 11/16	0.010	mg/L	No

Summary of Lead Results* Sampled by Municipal Staff				
Sampling Period	Range of Results (µg/L)	Non-residential	Distribution	Adverse Incidents?
Dec-15-15-Apr-15-16	0.06-0.08	N/A	2	No
Jun-15-16-Oct-15-16	0.08-0.11	N/A	2	No

Summary of Organic parameters tested during this reporting period or the most recent sample results				
Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Alachlor	April 13/15	<MDL	ug/L	No
Aldicarb *	April 13/15	<MDL	ug/L	No
Aldrin + Dieldrin *	April 13/15	<MDL	ug/L	No
Atrazine + N-dealkylated metabolites	April 13/15	<MDL	ug/L	No
Azinphos-methyl	April 13/15	<MDL	ug/L	No
Bendiocarb *	April 13/15	<MDL	ug/L	No
Benzene	April 13/15	<MDL	ug/L	No
Benzo(a)pyrene	April 13/15	<MDL	ug/L	No
Bromoxynil	April 13/15	<MDL	ug/L	No
Carbaryl	April 13/15	<MDL	ug/L	No
Carbofuran	April 13/15	<MDL	ug/L	No
Carbon Tetrachloride	April 13/15	<MDL	ug/L	No
Chlordane (Total) *	April 13/15	<MDL	ug/L	No
Ioppyrifos	April 13/15	<MDL	ug/L	No
Cyanazine *	April 13/15	<MDL	ug/L	No

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

Diazinon	April 13/15	<MDL	ug/L	No
Dicamba	April 13/15	<MDL	ug/L	No
1,2-Dichlorobenzene	April 13/15	<MDL	ug/L	No
1,4-Dichlorobenzene	April 13/15	<MDL	ug/L	No
Dichlorodiphenyltrichloroethane (DDT) + metabolites *	April 13/15	<MDL	ug/L	No
1,2-Dichloroethane	April 13/15	<MDL	ug/L	No
1,1-Dichloroethylene (vinylidene chloride)	April 13/15	<MDL	ug/L	No
Dichloromethane	April 13/15	<MDL	ug/L	No
2-4 Dichlorophenol	April 13/15	<MDL	ug/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	April 13/15	<MDL	ug/L	No
Diclofop-methyl	April 13/15	<MDL	ug/L	No
Dimethoate	April 13/15	<MDL	ug/L	No
Dinoseb *	April 13/15	<MDL	ug/L	No
Diquat	April 13/15	<MDL	ug/L	No
Diuron	April 13/15	<MDL	ug/L	No
Glyphosate	April 13/15	<MDL	ug/L	No
Heptachlor + Heptachlor Epoxide *	April 13/15	<MDL	ug/L	No
Lindane (Total) *	April 13/15	<MDL	ug/L	No
Malathion	April 13/15	<MDL	ug/L	No
Methoxychlor *	April 13/15	<MDL	ug/L	No
Metolachlor	April 13/15	<MDL	ug/L	No
Metribuzin	April 13/15	<MDL	ug/L	No
Monochlorobenzene	April 13/15	<MDL	ug/L	No
Paraquat	April 13/15	<MDL	ug/L	No
Parathion *	April 13/15	<MDL	ug/L	No
Pentachlorophenol	April 13/15	<MDL	ug/L	No
Phorate	April 13/15	<MDL	ug/L	No
Picloram	April 13/15	<MDL	ug/L	No
Polychlorinated Biphenyls(PCB)	April 13/15	<MDL	ug/L	No
Prometryne	April 13/15	<MDL	ug/L	No
Simazine	April 13/15	<MDL	ug/L	No
THM (NOTE: show latest annual average)	Q1-Q4 2016	18.5	µg/L	No
Temephos *	April 13/15	<MDL	ug/L	No
Terbufos	April 13/15	<MDL	ug/L	No
Tetrachloroethylene	April 13/15	<MDL	ug/L	No
2,3,4,6-Tetrachlorophenol	April 13/15	<MDL	ug/L	No
Triallate	April 13/15	<MDL	ug/L	No
Trichloroethylene	April 13/15	<MDL	ug/L	No
2,4,6-Trichlorophenol	April 13/15	<MDL	ug/L	No
2,4,5-Trichlorophenoxy acetic acid (2,4,5-T) *	April 13/15	<MDL	ug/L	No

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

Parameter	Sample Date	Result Value	Unit of Measure	ODWS Criteria
Fluoride	April 7/14	1.69	mg/L	1.5
Sodium	April 7/14	57.8	mg/L	20

Part 2 – SUMMARY REPORT (as required by O. Reg 170/03, Schedule 22)

Non – Compliance with Legislations, Regulations, Approvals & Orders

During this period, the Facility was operated in full compliance with the Act, the regulations and the Facility's approval, save and except for the following:

Requirement	Duration of Failure	Measures to Correct the Failure
None		

System Capability Assessment

Comparison of Flow Rates (m³/d):

Month	Avg. Flow TW1	Max. Flow TW1	Avg. Flow PW1	Max. Flow PW1	Avg. Flow PW2	Max. Flow PW2	Max Daily Total (PW1+PW2+TW1)
January	32	66	446	1256	452	1095	2398
February	32	66	443	922	443	661	1372
March	38	87	407	743	442	684	1056
April	47	158	505	1139	447	976	1655
May	58	299	602	1454	583	1508	2130
June	199	343	967	2089	6	129	1821
July	88	152	634	1421	560	875	1707
August	42	146	526	1428	617	1612	2047
September	72	229	302	754	697	1260	1573
October	35	109	385	707	561	1109	1521
November	33	75	367	751	530	943	1639
December	32	70	360	649	471	842	1114
AVERAGE	59	-	495	-	484	-	1669
MAXIMUM	199	343	967	2089	697	1612	2398
Total Rated CAPACITY	3456	3456	3456	3456	3456	3456	3456
%CAPACITY	1.7	10.8	14.3	60.4	14.0	46.6	69.4