



February 25, 2019

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: Brucefield Well Supply System  
2018 Annual Report**

Dear Brad,

Please find attached the 2018 Annual Operations Report for the Brucefield 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, 2019.

Finally, please ensure that a letter is sent to Jacobs 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,

Jacobs (OMI Canada Inc.)

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

Lucas Egli

Project Manager  
Huron East Project  
519 955 2746

cc. B. Mills, Municipality of Huron East;

## 2018 ANNUAL REPORT FOR WATER

### SYSTEMS Part 1 – ANNUAL REPORT (as required by O. Reg. 170/03,

#### Section 11)

<b>Drinking-Water System Number:</b>	220007604
<b>Drinking-Water System Name:</b>	Brucefield Water System
<b>Drinking-Water System Owner:</b>	The Corporation of the Municipality of Huron East
<b>Drinking-Water System Category:</b>	Small Municipal Residential
<b>Period being reported:</b>	January 1-December 31, 2018

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. <b>Town Office 72 Main St. S. Seaforth, ON</b>	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
N/A	N/A

**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**

**Limited Groundwater Subsystem**

Well located at the intersection of Highway 4 and County Road 3 is 88.3 m deep and a 200 mm diameter steel casing and a submersible pump rated for 318 L/minute. The pump house contains four 455 L bladder type pressure tanks. Primary disinfection is supplied by ultraviolet reactors, secondary disinfection by sodium hypochlorite injection.

**List all water treatment chemicals used over this reporting period**

12% Sodium hypochlorite solution

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

None during this reporting period

**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 during this reporting period					

**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 #)
<b>Raw</b>	12	0	0	n/a	n/a
<b>Treated</b>	n/a	n/a	n/a	n/a	n/a
<b>Distribution</b>	52	0	0	52	<10-1000

**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
<b>Turbidity</b>	12	0.16-0.52	NTU
<b>Chlorine</b>	8760	0.21- 2.30	mg/L
<b>Fluoride</b> (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**

None during this reporting period				
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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	Apr 18/16	0.10	Ug/L	No
Arsenic	Apr 18/16	0.3	Ug/L	No
Barium	Apr 18/16	209	Ug/L	No
Boron	Apr 18/16	15	Ug/L	No
Cadmium	Apr 18/16	0.008	Ug/L	No
Chromium	Apr 18/16	0.27	Ug/L	No
Lead-sampling conducted by the Municipality of Huron East; see summary below				
Mercury	Apr 18/16	0.01	Ug/L	No
Selenium	Apr 18/16	0.61	Ug/L	No
Sodium	Oct 2/18	9.07	mg/L	No
Uranium	Apr 18/16	1.83	mg/L	No
Fluoride	Oct 2/18	1.08	mg/L	No
Nitrite	Jan 9/18	0.003	mg/L	No
Nitrate	Jan 9/18	0.631	mg/L	No
Nitrite	Apr 16/18	0.003	mg/L	No
Nitrate	Apr 16/18	0.597	mg/L	No
Nitrite	July 10/18	0.003	mg/L	No
Nitrate	July 10/18	0.664	mg/L	No
Nitrite	Oct 2/18	0.003	mg/L	No
Nitrate	Oct 2/18	0.664	mg/L	No

Summary of Lead Results*				
Sampling Period	Range of Results (µg/L)	Non-residential	Distribution	Adverse Incidents?
Dec-15-17-Apr 15-18	0.15	N/A	1	No
Jun-15-18-Oct-15-18	0.21	N/A	1	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	Apr 18/16	.02	Ug/L	No
Atrazine + N-dealkylated metabolites	Apr 18/16	0.01	Ug/L	No
Azinphos-methyl	Apr 18/16	0.02	Ug/L	No
Benzene	Apr 18/16	0.32	Ug/L	No
Benzo(a)pyrene	Apr 18/16	.004	Ug/L	No
Bromoxynil	Apr 18/16	0.33	Ug/L	No
Carbaryl	Apr 18/16	0.01	Ug/L	No
Carbofuran	Apr 18/16	0.01	Ug/L	No
Carbon Tetrachloride	Apr 18/16	0.16	Ug/L	No
Chlorpyrifos	Apr 18/16	0.02	Ug/L	No

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

Diazinon	Apr 18/16	0.02	Ug/L	No
Dicamba	Apr 18/16	0.20	Ug/L	No
1,2-Dichlorobenzene	Apr 18/16	0.41	Ug/L	No
1,4-Dichlorobenzene	Apr 18/16	0.36	Ug/L	No
1,2-Dichloroethane	Apr 18/16	0.35	Ug/L	No
1,1-Dichloroethylene (vinylidene chloride)	Apr 18/16	0.33	Ug/L	No
Dichloromethane	Apr 18/16	0.35	Ug/L	No
2-4 Dichlorophenol	Apr 18/16	0.15	Ug/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	Apr 18/16	0.19	Ug/L	No
Diclofop-methyl	Apr 18/16	0.40	Ug/L	No
Dimethoate	Apr 18/16	0.03	Ug/L	No
Diquat	Apr 18/16	1	Ug/L	No
Diuron	Apr 18/16	0.03	Ug/L	No
Glyphosate	Apr 18/16	6	Ug/L	No
Malathion	Apr 18/16	0.02	Ug/L	No
Metolachlor	Apr 18/16	0.01	Ug/L	No
Metribuzin	Apr 18/16	0.02	Ug/L	No
Monochlorobenzene	Apr 18/16	0.03	Ug/L	No
MCPA	Apr 18/16	0.00012	Mg/L	No
Paraquat	Apr 18/16	1	Ug/L	No
Pentachlorophenol	Apr 18/16	0.15	Ug/L	No
Phorate	Apr 18/16	0.01	Ug/L	No
Picloram	Apr 18/16	0.25	Ug/L	No
Polychlorinated Biphenyls(PCB)	Apr 18/16	0.04	Ug/L	No
Prometryne	Apr 18/16	0.03	Ug/L	No
Simazine	Apr 18/16	0.01	Ug/L	No
THM (NOTE: show latest running annual average. Exempt for eight quarters. Next required sample: April 2019)	Q1-Q4 2017	2.9	Ug/L	No
Terbufos	Apr 18/16	0.01	Ug/L	No
Tetrachloroethylene	Apr 18/16	0.35	Ug/L	No
2,3,4,6-Tetrachlorophenol	Apr 18/16	0.14	Ug/L	No
Triallate	Apr 18/16	0.01	Ug/L	No
Trichloroethylene	Apr 18/16	0.43	Ug/L	No
2,4,6-Trichlorophenol	Apr 18/16	0.25	Ug/L	No
Trifluralin	Apr 18/16	0.02	Ug/L	No
Vinyl Chloride	Apr 18/16	0.17	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
N/A				

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
The Permit to Take Water (PTTW) for Brucefield requires that the water taking not to exceed 318 litres/minute.	One brief period on November 24 2017 and one on May 2 2018.	It was determined that both of these exceedances occurred during watermain flushing. No further action required.
Ultra-violet (UV) disinfection equipment were not equipped with shut off mechanisms that satisfied the standards in O. Reg 170.	During the inspection period.	A new Human Machine Interface (HMI) was installed in the Programmable Logic Controller (PLC) panel to have more control of UV functions.

System Capability Assessment		
Monthly Raw Water Taking (m <sup>3</sup> /d):		
Month	Average Flow	Maximum Flow
January	49	69
February	49	62
March	47	53
April	49	56
May	58	95
June	68	104
July	81	131
August	51	59
September	45	61
October	44	84
November	40	51
December	42	59
<b>AVERAGE</b>	<b>52</b>	<b>74</b>
<b>MAXIMUM</b>	<b>81</b>	<b>131</b>
<b>SYSTEM CAPACITY</b>	<b>458</b>	<b>458</b>
<b>% CAPACITY</b>	<b>11.4</b>	<b>16.2</b>
<b>Total Annual Flow: 19 003 m<sup>3</sup></b>		