



**2016 ANNUAL REPORT**

<b>Drinking-Water System Number:</b>	<b>220001799</b>
<b>Drinking-Water System Name:</b>	Owen Sound Drinking Water System
<b>Drinking-Water System Owner:</b>	City of Owen Sound
<b>Drinking-Water System Category:</b>	Large Municipal Residential
<b>Period being reported:</b>	January 1, 2016 – December 31, 2016

<p><b><u>Complete if your Category is Large Municipal Residential or Small Municipal Residential</u></b></p> <p><b>Does your Drinking-Water System serve more than 10,000 people? Yes [ X ] No [ ]</b></p> <p><b>Is your annual report available to the public at no charge on a web site on the Internet? Yes [ X ] No [ ]</b></p> <p><b>Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.</b></p> <div style="border: 1px solid black; padding: 5px;"> <ul style="list-style-type: none"> <li>• Owen Sound City Website <a href="http://www.owensound.ca">http://www.owensound.ca</a></li> <li>• City Clerk’s Office, City Hall</li> <li>• Public Works Office</li> <li>• Water Treatment Plant</li> <li>• Library</li> </ul> </div>	<p><b><u>Complete for all other Categories.</u></b></p> <p><b>Number of Designated Facilities served:</b></p> <div style="border: 1px solid black; padding: 2px; width: fit-content; margin-left: 20px;">n/a</div> <p><b>Did you provide a copy of your annual report to all Designated Facilities you serve? Yes [ ] No [ X ]</b></p> <p><b>Number of Interested Authorities you report to:</b></p> <div style="border: 1px solid black; padding: 2px; width: fit-content; margin-left: 20px;">n/a</div> <p><b>Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility? Yes [ ] No [ X ]</b></p>
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**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:**

<b>Drinking Water System Name</b>	<b>Drinking Water System Number</b>
Leith Water Distribution System	260065312

**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 [X] No [ ]**



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 \_\_\_\_\_

**Describe your Drinking-Water System**

The Richard H. Neath Water Purification plant is a direct filtration surface water treatment plant that draws its water from Georgian Bay. This plant serves a population of 22,000 people.

The Water Treatment Plant comprises of the following processes; raw water screening (removal of larger debris, fish, sticks, etc.), prechlorination (initial application of chlorine to the raw water), zebra mussel control (chlorination at Intake during warmer months only, temperature above 10 degrees C), flash mixing (initial addition of coagulant to the raw water through a rapid mixer), coagulation/flocculation (slower mixing of coagulant in larger tanks), UV disinfection (done just prior to water entering treated water wells), post chlorination (adding of additional chlorine for the purpose of meeting CT requirements and having enough chlorine for water in the distribution system), Fluoridation (added in the two main treated water wells), and a residue management tank for treating backwash water.

The City has a 22,000 m<sup>3</sup> reservoir, 6 pressure zones, 150 km of water mains, various pressure reducing valve chambers, with two booster stations that provides addition pressure in the Southeast and southwest portions of the City and outskirts.

The City also has an additional agreement with the Municipality of Meaford to provide potable water to Leith from our 36<sup>th</sup> Street East and East Bayshore Rd boundary point.

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

1. Chlorine Gas (68 kg cylinders)
2. Hydrofluorosilicic Acid (HFS), Liquid Fluoride
3. PAX XL-6 (coagulant used for pretreatment to filters to remove particulates)
4. PAX-XL1900 (coagulant used for pretreatment to filters to remove particulates)
5. Sodium Bisulphite (dechlorination chemical used after filter backwashes and used during the ripening stage when filters are brought back online after a backwash)
6. Polymer addition - Alcomer 120L is used to settle particulates after a backwash



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**

- Replaced - Hydraulic Dock at Water Plant (\$14,500)
- Purchased - Lone Worker equipment – (\$5,500)
- Purchased – Fluoride peristaltic pumps – (\$10,100)
- Replaced – Raw Water Particle Counter – (\$8,500)
- Repair – (2) Industrial Pump/Motor Service – (\$46,000)
- Install – 10 new Level Control Modules – (\$3,800)
- Replace – (5) Rotork electric Actuators – (\$33,800)
- Replace – (3) Transit Time Flow Meters – (\$22,500)

**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

**Please see Appendix “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 Or Fecal Results (min #)-(max #)	Range of Total Coliform Results (min #)-(max #)	Number of HPC Samples	Range of HPC Results (min #)-(max #)
<b>Raw</b>	52	0-140	0-3100	n/a	n/a
<b>Treated</b>	54	0-0	0-0	54	<10-30
<b>Distribution</b>	455	0-0	0-0	109	<10->2000



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

	<b>Number of Grab Samples</b>	<b>Range of Results (min #)-(max #)</b>
<b>Filter 1 Turbidity</b>	<b>8760</b>	<b>0.05 – 2.02 NTU*</b> <b>High result occurred October 26<sup>th</sup> from routine maintenance. Spike was over 1 NTU for only 3 minutes.</b>
<b>Filter 2 Turbidity</b>	<b>8760</b>	<b>0.05 – 0.85 NTU</b>
<b>Filter 3 Turbidity</b>	<b>8760</b>	<b>0.05 – 0.59 NTU</b>
<b>Filter 4 Turbidity</b>	<b>8760</b>	<b>0.04 – 0.90 NTU</b>
<b>Post 1 Chlorine</b>	<b>8760</b>	<b>0.00*-3.71. * Low residual caused by equipment servicing.</b>
<b>Post 2 Chlorine</b>	<b>8760</b>	<b>0.00*-4.34. * Low residual caused by equipment servicing. High result caused by backwash, over 4 mg/L for only 4 minutes.</b>
<b>Municipal Chlorine</b>	<b>8760</b>	<b>0.82 – 2.18</b>
<b>Industrial Chlorine</b>	<b>8760</b>	<b>0.80 – 2.31</b>
<b>Municipal Fluoride</b>	<b>8760</b>	<b>0.20 – 1.38 * Low results caused by equipment issues.</b>
<b>Industrial Fluoride</b>	<b>8760</b>	<b>0.30 – 1.21</b>

***NOTE:** For continuous monitors use 8760 as the number of samples.*

***NOTE:** Record the unit of measure if it is **not** milligrams per litre.*

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
Municipal License # 092-101	Chlorine – Wastewater System	Jan 4	0.00	mg/L
Municipal License # 092-101	Aluminum	Jan 6	0.084	mg/L
Municipal License # 092-101	Chlorine – Wastewater System	Feb 1	0.00	mg/L
Municipal License # 092-101	Total Suspended Solids	Feb 5	13	mg/L
Municipal License # 092-101	Chlorine – Wastewater System	Mar 2	0.00	mg/L
Municipal License # 092-101	Chlorine – Wastewater System	April 2	0.00	mg/L
Municipal License # 092-101	Aluminum	Apr 5	0.077	mg/L
Municipal License # 092-101	Chlorine – Wastewater System	May 2	0.0	mg/L
Municipal License # 092-101	Total Suspended Solids	May 6	2	mg/L
Municipal License # 092-101	Chlorine – Wastewater System	June 3	0.00	mg/L
Municipal License # 092-101	Chlorine – Wastewater System	July 2	0.00	mg/L
Municipal License # 092-101	Aluminum	Jul 6	0.124	mg/L
Municipal License # 092-101	Total Suspended Solids	Aug 2	4	mg/L
Municipal License # 092-101	Chlorine – Wastewater System	Aug 2	0.00	mg/L

<b>Municipal License # 092-101</b>	<b>Chlorine – Wastewater System</b>	<b>Sep 4</b>	<b>0.00</b>	mg/L
<b>Municipal License # 092-101</b>	<b>Total Suspended Solids</b>	<b>Oct 3</b>	<b>0.00</b>	mg/L
<b>Municipal License # 092-101</b>	<b>Aluminum</b>	<b>Oct 5</b>	<b>0.149</b>	mg/L
<b>Municipal License # 092-101</b>	<b>Total Suspended Solids</b>	<b>Nov 2</b>	<b>11</b>	mg/L
<b>Municipal License # 092-101</b>	<b>Chlorine – Wastewater System</b>	<b>Nov 1</b>	<b>0.00</b>	mg/L
<b>Municipal License # 092-101</b>	<b>Chlorine – Wastewater System</b>	<b>Dec 3</b>	<b>0.00</b>	mg/L

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

<b>Parameter</b>	<b>Sample Date</b>	<b>Result Value</b>	<b>Unit of Measure</b>	<b>Exceedance</b>
<b>Antimony</b>	January 6	0.00005	mg/L	No
<b>Arsenic</b>	January 6	0.0003	mg/L	No
<b>Barium</b>	January 6	0.0139	mg/L	No
<b>Boron</b>	January 6	0.0165	mg/L	No
<b>Cadmium</b>	January 6	0.000005	mg/L	No
<b>Chromium</b>	January 6	0.00008	mg/L	No
<b>*Lead</b>	January 6		n/a	n/a
<b>Mercury</b>	January 6	<0.00001	mg/L	No
<b>Selenium</b>	January 6	0.00011	mg/L	No
<b>Sodium</b>	February 12, 2013	5.6	mg/L	No
<b>Uranium</b>	January 6	0.000096	mg/L	No
<b>Fluoride – Municipal</b>	December 31	0.57	mg/L	No
<b>Fluoride - Industrial</b>	December 31	0.58	mg/L	No
<b>Nitrite</b>	October 5	<0.003	mg/L	No
<b>Nitrate</b>	October 5	0.224	mg/L	No

\*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 #)	Number of Exceedances
Plumbing	n/a	n/a	n/a
Distribution	n/a	n/a	n/a

**No Lead Samples were collected during this time period.**

**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	January 6	<0.00002	mg/L	No
Atrazine + N-dealkylated metabolites	January 6	0.00001	mg/L	No
Azinphos-methyl	January 6	<0.00005	mg/L	No
Benzene	January 6	<0.00032	mg/L	No
Benzo(a)pyrene	January 6	<0.000004	mg/L	No
Bromoxynil	January 6	<0.00033	mg/L	No
Carbaryl	January 6	<0.00005	mg/L	No
Carbofuran	January 6	<0.00001	mg/L	No
Carbon Tetrachloride	January 6	<0.00016	mg/L	No
Chlorpyrifos	January 6	<0.00002	mg/L	No
Diazinon	January 6	<0.00002	mg/L	No
Dicamba	January 6	<0.0002	mg/L	No
1,2-Dichlorobenzene	January 6	<0.00041	mg/L	No
1,4-Dichlorobenzene	January 6	<0.00036	mg/L	No
1,2-Dichloroethane	January 6	<0.00035	mg/L	No
1,1-Dichloroethylene (vinylidene chloride)	January 6	<0.00033	mg/L	No
Dichloromethane	January 6	<0.00035	mg/L	No
2-4 Dichlorophenol	January 6	<0.00015	mg/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	January 6	<0.00019	mg/L	No
Diclofop-methyl	January 6	<0.0004	mg/L	No
Dimethoate	January 6	<0.00003	mg/L	No
Diquat	January 6	<0.001	mg/L	No
Diuron	January 6	<0.00003	mg/L	No
Glyphosate	January 6	<0.001	mg/L	No
Malathion	January 6	<0.00002	mg/L	No
MCPA	January 6	<0.00012	mg/L	No
Metolachlor	January 6	<0.00001	mg/L	No
Metribuzin	January 6	<0.00002	mg/L	No
Monochlorobenzene	January 6	<0.0003	mg/L	No
Paraquat	January 6	<0.001	mg/L	No
Pentachlorophenol	January 6	<0.00015	mg/L	No

Phorate	January 6	<0.00001	mg/L	No
Picloram	January 6	<0.0001	mg/L	No
Polychlorinated Biphenyls(PCB)	January 6	<0.00004	mg/L	No
Prometryne	January 6	<0.00003	mg/L	No
Simazine	January 6	<0.00001	mg/L	No
THM (NOTE: show latest annual average)	2016	0.040	mg/L	No
Terbufos	January 6	<0.00001	mg/L	No
Tetrachloroethylene	January 6	<0.00035	mg/L	No
2,3,4,6-Tetrachlorophenol	January 6	<0.0002	mg/L	No
Triallate	January 6	<0.00001	mg/L	No
Trichloroethylene	January 6	<0.00044	mg/L	No
2,4,6-Trichlorophenol	January 6	<0.00025	mg/L	No
Trifluralin	January 6	<0.00002	mg/L	No
Vinyl Chloride	January 6	<0.00017	mg/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	Result Value	Unit of Measure	Date of Sample
none			

#### APPENDIX "A"

#	Notification Date	AWQI #(s)	Adverse Location	Adverse Parameter	Adverse Result	Units	Remedial Action
1	15-Feb	128287	WTP - Coagulant pump failure	No coagulant	n/a	n/a	Started backup pump.
2	22-Aug	130884	142 5th Ave East flushing unit	Low Free Chlorine	0.04	mg/L	Flushed hydrant. Brought free chlorine residual up to 0.22 mg/L