



**Ontario Clean Water Agency**  
**Agence Ontarienne Des Eaux**

**LION'S HEAD**  
**DRINKING WATER SYSTEM**

Large Municipal Residential

**SECTION 11**  
**ANNUAL REPORT**

**For the period of**  
**JANUARY 1, 2016 TO DECEMBER 31, 2016**

Prepared by the Ontario Clean Water Agency  
For The Municipality of Northern Bruce Peninsula

<b>Drinking Water System Number:</b>	220002672
<b>Drinking Water System Name:</b>	Lion's Head Water Supply and Distribution System
<b>Drinking Water System Owner:</b>	Municipality of Northern Bruce Peninsula
<b>Drinking Water System Category:</b>	Large Municipal Residential
<b>Reporting Period:</b>	January 1, 2016 to December 31, 2016

**Does the Drinking Water System serve more than 10,000 people?**

No.

**Is your annual report available to the public at no charge on a web site on the Internet?**

Yes.

**Location where the Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection:**

Municipality of Northern Bruce Peninsula  
 R.R. 2, 56 Lindsay Road #5  
 Lion's Head, Ontario  
 N0G 1W0  
 519-793-3522

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

n/a

**Did you provide a copy of the 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

**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

**How system users are notified that the 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: \_\_\_\_\_

**Description of Drinking Water System:**

The Lion's Head Drinking Water System (DWS) is a Class II Treatment and Class I Distribution System.

The treatment system is supplied by Isthmus Bay and consists of the following components:

- Chlorination System (for zebra mussel control, primary disinfection and secondary disinfection/trim chlorination)
- Membrane filtration
- Residuals Management (backwash wastewater tank, with supernatant transfer to the storm sewer)
- Chlorine Contact Tanks/ Baffled Reservoir (for storage and to achieve the required contact time)
- Standby diesel generator (one for the low lift pumping station and one for the treatment plant)
- Process control and monitoring equipment

The Lion's Head Distribution System consists of approximately 12 kilometers of distribution water mains.

**List of water treatment chemicals used during the reporting period:**

- Sodium Hypochlorite 12%

Significant expenses were incurred to:

- |                                     |                                       |
|-------------------------------------|---------------------------------------|
| <input type="checkbox"/>            | Install required equipment            |
| <input checked="" type="checkbox"/> | Repair required equipment             |
| <input checked="" type="checkbox"/> | Replace required equipment            |
| <input type="checkbox"/>            | No significant expenses were incurred |

**Description of expenses:**

- Replaced turbidity analyzer.
- Performed a major leak detection exercise. All leaks identified during this exercise (to date) were repaired. Repairs were performed on both services and water mains. Areas concentrated on were Mill St, Moore St., Helen St., Main St., McNeil St. and Ferndale Rd.
- Replace a sodium hypochlorite dosing pump at WTP
- Replaced clearwell chlorine analyzer probe

**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:**

Date of Incident	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
October 3, 2016	Total Coliforms	5	counts/100 mL	<p>October 5: Call from laboratory indicating adverse test results for total coliform. Call to MOH, SAC, MOECC. Confirmed with MOH that only 1 resample at original sample location was required, no flushing necessary. Completed &amp; Submitted Notice of Adverse Results, sent copy to client and OCWA top management, MOH, SAC and MOECC.</p> <p>October 6: An informal review of sampling and handling techniques was conducted and communicated with the operators. Re-sample at site, tap was flushed for &gt; 15 minutes. Samples tested for E.coli and total coliforms. Formal review of sampling &amp; handling techniques scheduled for October 18, 2016.</p> <p>October 11: Received resample results. E.coli = 0 cfu/100 mL and Total Coliform = 0 cfu/ 100 mL. Submit notice of resolution. The original total coliform adverse sample of 5 cfu/100 mL was mostly likely due to sampling error. Distribution water samples taken on the same day (Oct. 3) had E.coli = 0 cfu/100 mL and Total Coliforms = 0 cfu/100 mL.</p>	October 11, 2016

**Table 1. Microbiological testing done under Schedule 10, 11 or 12 of Regulation 170/03 during this reporting Period**

Location	Number of Samples	Range of E.coli Results		Range of Total Coliforms Results		Number of HPC Samples	Range of HPC Samples	
		Minimum	Maximum	Minimum	Maximum		Minimum	Maximum
Raw (RW)	52	0	3	0	15	n/a	n/a	n/a
Treated (TW)	53	0	0	0	5	52	0	1780
Distribution (DW)	110	0	0	0	0	52	0	84

**Table 2. Operational testing done under Schedule 7, 8 or 9 during the period covered by this Annual Report.**

	Number of Grab Samples	Range of Results	
		Minimum	Maximum
Turbidity, On-Line (NTU) – Filter A	8760	0.001	0.3878
Turbidity, On-Line (NTU) – Filter B	8760	0.001	1.0318
Free Chlorine Residual, On-Line (mg/L) - TW	8760	0	1.6573
Free Chlorine Residual, In-House (mg/L) - DW	401	0.68	1.4

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

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

**Table 3. Summary of additional testing and sampling carried out in accordance with the requirement of an approval, order or other legal instrument.**

Date of Order of MDWL	Parameter	Sample Frequency	Number of Samples	Annual Average	MDWL Allowable Annual Average Concentration
January 18, 2016 MDWL #250-101 (Issue 3)	Filter Backwash Suspended Solids (composite)	Monthly	12	2.5 mg/L	n/a
January 18, 2016 MDWL #250-101 (Issue 3)	Filter Backwash Free* Chlorine Residual	Monthly	9*	<0.03* mg/L	n/a

\*As per MDWL 250-101 (Issue 3), filter backwash free chlorine residual is to be sampled monthly (i.e 12 times a year). For the reporting period, free chlorine residual was not sampled; but total chlorine residual was sampled. Given that **total chlorine = free chlorine + combined chlorine**, although the exact annual average for free chlorine residual is not known, it is known that it will be less than the annual average for total chlorine residual. This non-compliance has been reported to the MOECC and will be included in the Schedule 22 Summary Report for 2016. In addition, for the reporting period, only 9 total chlorine residual samples were taken (January, February and August were missed).

**Table 4. Summary of Inorganic parameters tested during this reporting period or most recent sample results**

Parameter	Sample Date	Sample Result	Exceedance
Antimony: Sb (ug/L) - TW	2016/01/05	0.1	No
Arsenic: As (ug/L) - TW	2016/01/05	0.4	No
Barium: Ba (ug/L) - TW	2016/01/05	13.9	No
Boron: B (ug/L) - TW	2016/01/05	13.5	No
Cadmium: Cd (ug/L) - TW	2016/01/05	0.008	No
Chromium: Cr (ug/L) - TW	2016/01/05	0.11	No
Mercury: Hg (ug/L) - TW	2016/01/05	<MDL 0.01	No
Selenium: Se (ug/L) - TW	2016/01/05	0.16	No
Uranium: U (ug/L) - TW	2016/01/05	0.191	No
Fluoride (mg/L) - TW	2013/01/07	0.1	No
Nitrite (mg/L) - TW	2016/01/05	<MDL 0.003	No
Nitrite (mg/L) - TW	2016/04/04	<MDL 0.003	No
Nitrite (mg/L) - TW	2016/07/04	<MDL 0.003	No
Nitrite (mg/L) - TW	2016/10/03	<MDL 0.003	No
Nitrate (mg/L) - TW	2016/01/05	0.269	No
Nitrate (mg/L) - TW	2016/04/04	0.278	No
Nitrate (mg/L) - TW	2016/07/04	0.255	No
Nitrate (mg/L) - TW	2016/10/03	0.234	No
Sodium: Na (mg/L) - TW	2013/01/07	6.21	No

NOTE: There is no "MAC" for Sodium. The aesthetic objective for sodium in drinking water is 200 mg/L. The local Medical Officer of Health should be notified when the sodium concentration exceeds 20 mg/L so that this information may be communicated to local physicians for their use with patients on sodium restricted diets.

NOTE: Sodium and Fluoride are sampled every 60 months. The most current sample for Sodium was taken on January 7, 2013. The next scheduled sampling for Sodium will be in January 2018. The most current sample for Fluoride was taken on January 7, 2013. The next scheduled sampling for Fluoride will be in January 2018.

**Table 5. Summary of lead testing under Schedule 15.1 during this reporting period.**

Location Type	Number of Samples	Range of Lead Results		Number of Exceedances
		Minimum	Maximum	
Plumbing	n/a	n/a	n/a	n/a
Distribution (ug/L)	-	-	-	-

NOTE: This system now qualifies for the plumbing exemption as per Ontario Regulation 170/03 Schedule 15.1-5 (9) (10). Four (4) distribution lead samples are only taken every 36 months. The most current samples were taken in 2015. The next set of lead samples are to be taken in 2018.

**Table 6. Summary of Organic parameters sampled during this reporting period or most recent sample results.**

Parameter	Sample Date	Sample Result	Exceedance
Alachlor (ug/L) - TW	2016/01/05	<MDL 0.02	No
Atrazine + N-dealkylated metabolites (ug/L) - TW	2016/01/05	0.02	No
Azinphos-methyl (ug/L) - TW	2016/01/05	<MDL 0.05	No
Benzene (ug/L) - TW	2016/01/07	<MDL 0.32	No
Benzo(a)pyrene (ug/L) - TW	2016/01/05	<MDL 0.004	No
Bromoxynil (ug/L) - TW	2016/01/05	<MDL 0.33	No
Carbaryl (ug/L) - TW	2016/01/05	<MDL 0.05	No
Carbofuran (ug/L) - TW	2016/01/05	<MDL 0.01	No
Carbon Tetrachloride (ug/L) - TW	2016/01/07	<MDL 0.16	No
Chlorpyrifos (ug/L) - TW	2016/01/05	<MDL 0.02	No
Diazinon (ug/L) - TW	2016/01/05	<MDL 0.02	No
Dicamba (ug/L) - TW	2016/01/05	<MDL 0.2	No
1,2-Dichlorobenzene (ug/L) - TW	2016/01/07	<MDL 0.41	No
1,4-Dichlorobenzene (ug/L) - TW	2016/01/07	<MDL 0.36	No
1,2-Dichloroethane (ug/L) - TW	2016/01/07	<MDL 0.35	No
1,1-Dichloroethylene (ug/L) - TW	2016/01/07	<MDL 0.33	No
Dichloromethane (Methylene Chloride) (ug/L) - TW	2016/01/07	<MDL 0.35	No
2,4-Dichlorophenol (ug/L) - TW	2016/01/05	<MDL 0.15	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW	2016/01/05	<MDL 0.19	No
Diclofop-methyl (ug/L) - TW	2016/01/05	<MDL 0.4	No
Dimethoate (ug/L) - TW	2016/01/05	<MDL 0.03	No
Diquat (ug/L) - TW	2016/01/05	<MDL 1.0	No
Diuron (ug/L) - TW	2016/01/05	<MDL 0.03	No
Glyphosate (ug/L) - TW	2016/01/05	<MDL 1.0	No
Malathion (ug/L) - TW	2016/01/05	<MDL 0.02	No
Metolachlor (ug/L) - TW	2016/01/05	<MDL 0.01	No
Metribuzin (ug/L) - TW	2016/01/05	<MDL 0.02	No
Monochlorobenzene (Chlorobenzene) (ug/L) - TW	2016/01/07	<MDL 0.3	No
Paraquat (ug/L) - TW	2016/01/05	<MDL 1.0	No
PCB (ug/L) - TW	2016/01/05	<MDL 0.04	No
Pentachlorophenol (ug/L) - TW	2016/01/05	<MDL 0.15	No
Phorate (ug/L) - TW	2016/01/05	<MDL 0.01	No
Picloram (ug/L) - TW	2016/01/05	<MDL 1.0	No
Prometryne (ug/L) - TW	2016/01/05	<MDL 0.03	No
Simazine (ug/L) - TW	2016/01/05	<MDL 0.01	No
Terbufos (ug/L) - TW	2016/01/05	<MDL 0.01	No
Tetrachloroethylene (ug/L) - TW	2016/01/07	<MDL 0.35	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW	2016/01/05	<MDL 0.2	No
Triallate (ug/L) - TW	2016/01/05	<MDL 0.01	No
Trichloroethylene (ug/L) - TW	2016/01/07	<MDL 0.44	No
2,4,6-Trichlorophenol (ug/L) - TW	2016/01/05	<MDL 0.25	No
Trifluralin (ug/L) - TW	2016/01/05	<MDL 0.02	No
Vinyl Chloride (ug/L) - TW	2016/01/07	<MDL 0.17	No
Trihalomethane: Total (ug/L) Annual Average - DW	2016 (Quarterly)	26.25	No

**Table 7. List any Inorganic or Organic parameter(s) that exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards.**

Parameter	Sample Result	Unit of Measure	Date of Sample
n/a	n/a	n/a	n/a

*NOTE: This is required only if DWS category is large municipal residential, small municipal residential, large municipal non-residential, small municipal non-residential, large non municipal non-residential)*