

# O.Reg 170 SECTION 11 ANNUAL REPORT

<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>Period being reported:</b>	January 1 to December 31, 2011

<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 [ ] No [X]</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; margin-top: 5px;"> <p>Municipality of Northern Bruce Peninsula R.R. 2, 56 Lindsay Road #5 Lion's Head, Ontario N0G 1W0 519-793-3522</p> </div>	<p><b><u>Complete for all other Categories.</u></b></p> <p><b>Number of Designated Facilities served:</b>  <div style="border: 1px solid black; width: 100px; height: 20px; margin: 5px 0;"></div> </p> <p><b>Did you provide a copy of your annual report to all Designated Facilities you serve? Yes [ ] No [ ]</b></p> <p><b>Number of Interested Authorities you report to:</b> <div style="border: 1px solid black; width: 100px; height: 20px; margin: 5px 0;"></div></p> <p><b>Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility? Yes [ ] No [ ]</b></p>
---	---

**List Drinking-Water Systems, which receive all of their drinking water from your system:**

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? Yes [ ] No [ ] N/A [X]**

- 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** \_\_\_\_\_

# O.Reg 170 SECTION 11 ANNUAL REPORT

## Describe your Drinking-Water System

WT II      WDI

This facility was commissioned in May 19, 2005 under an Ontario Ministry of the Environment C of A approval (4272-5YAK6U). The official open house occurred on July 22, 2005.

The new plant, with an approximate footprint of 18 x 23m, is located at the intersection of Ida and Helen Streets in the Village of Lion's Head. It contains a combined 150 mm diameter of raw water header hydraulically connected to two membrane filtration package systems (in parallel), with a total design capacity of 15.63 L/s. Each package system consists of a set of rack-mounted 10 hollow-fiber filter modules (with room for expansion to 12), one filter feed pump, one filter backwash pump with a rated capacity of 14.2 L/s, one turbidity analyzer and one particle counter, located on the effluent side of the membrane filters using a chemical wash. A compressed air system is used for air scrubbing of the membrane filters. There are two concrete chlorine contact tanks (in parallel), located below the filters, each tank 96 cubic meters in size and with an overflow weir allowing water to flow to baffled reservoir tanks. The concrete reservoir tanks have a storage capacity of 576 cubic meters. Water flows from the water reservoirs to a common high-lift well header container, 384 cubic meters in size. Five variable speed vertical turbine high lift pumps draw water out of the well header, each discharging to a combined 150 mm diameter treated water header connected to the distributions system.

A target distribution pressure of around 560 kPa (80 psi) is maintained by the continuous monitoring and operation of the variable speed pumps. No storage reservoirs are used in the distribution system. Online instrumentation includes continuous free chlorine residual, turbidity, pH, and flow measurement located on the treated water header.

The treatment process includes a sodium hypochlorite feed system consisting of four chemical feed pumps, each with a rated capacity of at least 680 L/hr, with two pumps (duty, standby) for injection at the backwash supply to each membrane filter and the other two pumps (duty, standby) for injection at the filtered discharge of each filter and two 200 L day tanks, spill containment, piping, appurtenances, and associated controls, an acid feed system complete with two metering pumps each with a rated capacity of at least 680 L/hr, one 200 L day tank, spill containment, piping, appurtenances, and associated controls, a caustic feed system complete with two metering pumps each with a rated capacity of at least 680 L/hr, one 200 L day tank, spill containment, piping, appurtenances, and associated controls, one 250 kVA standby diesel generator set, complete with fuel containment, and associated controls, backwash/wastewater handling facilities consisting of a 120 cubic meter backwash settling tank and two supernatant pumps each rated at 2.63 L/s at 6.1 m TDH, transferring supernatant to the storm sewer, all other controls, electrical equipment, instrumentation, piping, and appurtenances essential for the proper operation of the above-noted works.

A dedicated back-up power supply is used to maintain the necessary electrical supply to operate the filtration plant during power outages.

## O.Reg 170 SECTION 11 ANNUAL REPORT

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

- Sodium Hypochlorite 12%
---------------------------

**Were any significant expenses incurred to?**

- Install required equipment
- Repair required equipment
- Replace required equipment

**Describe**

<ul style="list-style-type: none"> <li>- Repaired Atlas Copco Air compressor</li> <li>- Upgraded SCADA system, Service contract with PALL</li> <li>- Replaced Fiber Optic communication switches for Low Lift Pumping station to WTP communications and replaced CPU for Low Lift station Programmable Logic Controller (PLC).</li> </ul>
---

**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
N/A					

**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 or Fecal Results (min #) - (max #)	Range of Total Coliform Results (min #) - (max #)	Number of HPC Samples	Range of HPC Results (min #) - (max #)
Raw - RW	52	0 - 10	0 - 52		
Treated - TW	52	0 - 0	0 - 0	52	0 - 20
Distribution - DW	107	0 - 0	0 - 0	53	0 - 9

## O.Reg 170 SECTION 11 ANNUAL REPORT

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

	Number of Grab Samples	Range of Results (#-#)
<b>Turbidity (NTU)</b>	8760	#1-0.015 - 0.1 NTU #2-0.01 - 0.1 NTU
<b>Chlorine</b>	8760	0.52 – 2.0
<b>Chlorine Residual Distribution System</b>	364	0.41 - 1.6

*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 or order.**

Date of order or C of A	Parameter	Date Sampled	Result	C of A Limit	Unit of Measure
C of A #4272-5YAK6U	Suspended Solids	Monthly	Annual Average < 2.417	25	mg/L

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

Parameter	Sample Date	Sample Result	Exceedance
Antimony: Sb (ug/L) - TW	2011/01/11	0.050	No
Arsenic: As (ug/L) - TW	2011/01/11	0.50	No
Barium: Ba (ug/L) - TW	2011/01/11	13.50	No
Boron: B (ug/L) - TW	2011/01/11	13.00	No
Cadmium: Cd (ug/L) - TW	2011/01/11	< 0.0030	No
Chromium: Cr (ug/L) - TW	2011/01/11	< 0.50	No
Lead: Pb (ug/L) - DW	2011/01/11	0.46	No
Mercury: Hg (ug/L) - TW	2011/01/11	< 0.020	No
Selenium: Se (ug/L) - TW	2011/01/11	< 1.00	No
Sodium: Na (mg/L) - TW	2008/01/07	5.57	No
Uranium: U (ug/L) - TW	2011/01/11	0.178	No
Fluoride Residual: Mean (mg/L) - TW	2008/01/07	0.080	No
Nitrite (mg/L) - TW	2011/01/11	< 0.0050	No

## O.Reg 170 SECTION 11 ANNUAL REPORT

Nitrite (mg/L) - TW	2011/04/11	< 0.0050	No
Nitrite (mg/L) - TW	2011/07/11	< 0.0050	No
Nitrite (mg/L) - TW	2011/10/03	< 0.0050	No
Nitrate (mg/L) - TW	2011/01/11	0.289	No
Nitrate (mg/L) - TW	2011/04/11	0.290	No
Nitrate (mg/L) - TW	2011/07/11	0.251	No
Nitrate (mg/L) - TW	2011/10/03	0.255	No

### Summary of Organic parameters sampled during this reporting period or most recent

Parameter	Sample Date	Result Value	Exceedance
Alachlor (ug/L) - TW	2011/01/11	< 0.02	No
Aldicarb (ug/L) - TW	2011/01/11	< 0.01	No
Aldrin + Dieldrin (ug/L) - TW	2011/01/11	< 0.01	No
Atrazine + N-dealkylated metabolites (ug/L) - TW	2011/01/11	0.02	No
Azinphos-methyl (ug/L) - TW	2011/01/11	< 0.02	No
Bendiocarb (ug/L) - TW	2011/01/11	< 0.01	No
Benzene (ug/L) - TW	2011/01/11	< 0.32	No
Benzo(a)pyrene (ug/L) - TW	2011/01/11	< 0.004	No
Bromoxynil (ug/L) - TW	2011/01/11	< 0.33	No
Carbaryl (ug/L) - TW	2011/01/11	< 0.01	No
Carbofuran (ug/L) - TW	2011/01/11	< 0.01	No
Carbon Tetrachloride (ug/L) - TW	2011/01/11	< 0.16	No
Chlordane:Total (ug/L) - TW	2011/01/11	< 0.01	No
Chlorpyrifos (ug/L) - TW	2011/01/11	< 0.02	No
Cyanazine (ug/L) - TW	2011/01/11	< 0.03	No
Diazinon (ug/L) - TW	2011/01/11	< 0.02	No
Dicamba (ug/L) - TW	2011/01/11	< 0.20	No
1,2-Dichlorobenzene (ug/L) - TW	2011/01/11	< 0.41	No
1,4-Dichlorobenzene (ug/L) - TW	2011/01/11	< 0.36	No
Dichlorodiphenyltrichloroethane(DDT) + metabolites (ug/L) - TW	2011/01/11	< 0.01	No

## O.Reg 170 SECTION 11 ANNUAL REPORT

1,2-Dichloroethane (ug/L) - TW	2011/01/11	< 0.35	No
1,1-Dichloroethylene (ug/L) - TW	2011/01/11	< 0.33	No
Dichloromethane (ug/L) - TW	2011/01/11	< 0.35	No
2,4-Dichlorophenol (ug/L) - TW	2011/01/11	< 0.15	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW	2011/01/11	< 0.19	No
Diclofop-methyl (ug/L) - TW	2011/01/11	< 0.40	No
Dimethoate (ug/L) - TW	2011/01/11	< 0.03	No
Dinoseb (ug/L) - TW	2011/01/11	< 0.36	No
Diquat (ug/L) - TW	2011/01/11	< 1.00	No
Diuron (ug/L) - TW	2011/01/11	< 0.03	No
Glyphosate (ug/L) - TW	2011/01/11	< 6.00	No
Heptachlor+Hepachlor Epoxide (ug/L) - TW	2011/01/11	< 0.01	No
Lindane: (ug/L) - TW	2011/01/11	< 0.01	No
Malathion (ug/L) - TW	2011/01/11	< 0.02	No
Methoxychlor (ug/L) - TW	2011/01/11	< 0.01	No
Metolachlor (ug/L) - TW	2011/01/11	< 0.01	No
Metribuzin (ug/L) - TW	2011/01/11	< 0.02	No
Monochlorobenzene (ug/L) - TW	2011/01/11	< 0.30	No
Paraquat (ug/L) - TW	2011/01/11	< 1.00	No
Parathion (ug/L) - TW	2011/01/11	< 0.02	No
Pentachlorophenol (ug/L) - TW	2011/01/11	< 0.15	No
Phorate (ug/L) - TW	2011/01/11	< 0.01	No
Picloram (ug/L) - TW	2011/01/11	< 0.25	No
Polychlorinated Bichenysl(PCB) (ug/L) - TW	2011/01/11	< 0.04	No
Prometryne (ug/L) - TW	2011/01/11	< 0.03	No
Simazine (ug/L) - TW	2011/01/11	< 0.01	No
***THM (ug/L) - DW	2011	34.5	No
Temephos (ug/L) - TW	2011/01/11	< 0.01	No
Terbufos (ug/L) - TW	2011/01/11	< 0.01	No
Tetrachloroethylene (ug/L) - TW	2011/01/11	< 0.35	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW	2011/01/11	< 0.14	No
Triallate (ug/L) - TW	2011/01/11	< 0.01	No

## O.Reg 170 SECTION 11 ANNUAL REPORT

Trichloroethylene (ug/L) - TW	2011/01/11	< 0.43	No
2,4,6-Trichlorophenol (ug/L) - TW	2011/01/11	< 0.25	No
2,4,5-Trichlorophenoxy acetic acid (ug/L) - TW	2011/01/11	< 0.22	No
Trifluralin (ug/L) - TW	2011/01/11	< 0.02	No
Vinyl Chloride (ug/L) - TW	2011/01/11	< 0.17	No

\*\*\* Annual average (THMs)

**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
Lead	18.6	ug/L	2011/04/12

(Only if DWS category is large municipal residential, small municipal residential, large municipal non residential, small municipal non residential, large non municipal non residential)

### 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	24	0.09 – 18.6	1
Distribution	4	0.09 – 4.29	0