



**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, 2021 TO DECEMBER 31, 2021**

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, 2021 to December 31, 2021

**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)
- 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 watermains.

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

- Sodium Hypochlorite 12%

Significant expenses were incurred to:

- |                                     |                                       |
|-------------------------------------|---------------------------------------|
| <input checked="" 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:**

- Replacement online chlorine analyzer at low lift
- Online instrument feed pumps repair/replacement
- Replacement cooling fan for Atlas Copco air compressor
- Water Distribution System Repair parts
- Replacement battery backup units for plant instrumentation
- Purchased fire hydrant for the Lion's Head Water Distribution System

**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
2021/11/13	Low pressure in the distribution system	n/a	n/a	Watermain Break causing loss of pressure. Watermain repaired, lines flushed and service restored. Precautionary Boil Water Notice issued November 13 and remained in effect until November 16 when results from samples taken received and it was established water was safe to drink. AWQI #156538.	2021/11/13

**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
<b>Raw (RW)</b>	52	0	0	0	7	n/a	n/a	n/a
<b>Treated (TW)</b>	52	0	0	0	0	52	0	5
<b>Distribution (DW)</b>	107	0	0	0	0	52	0	0

**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) – RW	8760	0.00	3.00
Turbidity, On-Line (NTU) – TW	8760	0.02	0.99
Turbidity, On-Line (NTU) – Filter A	8760	0.00	1.00*
Turbidity, On-Line (NTU) – Filter B	8760	0.00	1.00*
Free Chlorine Residual, On-Line (mg/L) – TW	8760	0.00**	2.12
Free Chlorine Residual, In-House (mg/L) – DW	364	0.74	1.89
Free Chlorine Residual, Field (mg/L) – DW	108	0.70	1.74

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

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

\*Filter turbidity spiked above 1.0 NTU for short durations of less than 2 minutes though greater than 99% filter efficiency was achieved. No adverse.

\*\*Low chlorine caused by maintenance on August 28 and August 30, 2021. Zero calibration and cycling off of analyzer. No adverse.

**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
December 20, 2020 MDWL #250-101 (Issue 4)	Filter Backwash Suspended Solids (manual composite)	Monthly	12	3.2 mg/L	n/a
December 20, 2020 MDWL #250-101 (Issue 4)	Filter Backwash Free Chlorine Residual (manual)	Monthly	12	0.00 mg/L	0.02 mg/L

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

Parameter	Sample Date	Sample Result	Maximum Allowable Concentration (MAC)	Exceedance	
				MAC	½ MAC
Antimony: Sb (µg/L) - TW	2021/01/04	<MDL 0.9	6.0	No	No
Arsenic: As (µg/L) - TW	2021/01/04	0.4	10.0	No	No
Barium: Ba (µg/L) - TW	2021/01/04	12.9	1000.0	No	No
Boron: B (µg/L) - TW	2021/01/04	14.0	5000.0	No	No
Cadmium: Cd (µg/L) - TW	2021/01/04	0.004	5.0	No	No
Chromium: Cr (µg/L) - TW	2021/01/04	0.23	50.0	No	No
Mercury: Hg (µg/L) - TW	2021/01/04	<MDL 0.01	1.0	No	No
Selenium: Se (µg/L) - TW	2021/01/04	0.10	50.0	No	No
Uranium: U (µg/L) - TW	2021/01/04	0.145	20.0	No	No
Fluoride (mg/L) - TW	2018/01/08	0.07	1.5	No	No
Nitrite (mg/L) - TW	2021/01/04	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2021/04/06	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2021/07/05	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2021/10/04	<MDL 0.003	1.0	No	No
Nitrate (mg/L) - TW	2021/01/04	0.276	10.0	No	No
Nitrate (mg/L) - TW	2021/04/06	0.274	10.0	No	No
Nitrate (mg/L) - TW	2021/07/05	0.256	10.0	No	No
Nitrate (mg/L) - TW	2021/10/04	0.239	10.0	No	No
Sodium: Na (mg/L) - TW	2018/01/08	6.72	20*	No	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 recent sample for Sodium and Fluoride was taken in January 2018. The next scheduled sampling for Sodium and Fluoride will be in January 2023.

**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 (µg/L)	5	0.03	0.21	0
Alkalinity (mg/L as CaCO <sub>3</sub> )	5	70	75	0
pH	4	8.07	8.29	n/a

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 taken every 36 months. The most recent set were taken in 2021 and the next set is scheduled for 2024.

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

Parameter	Sample Date	Sample Result	MAC	Exceedance	
				MAC	½ MAC
Alachlor (µg/L) - TW	2021/01/04	<MDL 0.02	5.0	No	No
Atrazine + N-dealkylated metabolites (µg/L) - TW	2021/01/04	<MDL 0.01	5.0	No	No
Azinphos-methyl (µg/L) - TW	2021/01/04	<MDL 0.05	20.0	No	No
Benzene (µg/L) - TW	2021/01/04	<MDL 0.32	1.0	No	No
Benzo(a)pyrene (µg/L) - TW	2021/01/04	<MDL 0.004	0.01	No	No
Bromoxynil (µg/L) - TW	2021/01/04	<MDL 0.33	5.0	No	No
Carbaryl (µg/L) - TW	2021/01/04	<MDL 0.05	90.0	No	No
Carbofuran (µg/L) - TW	2021/01/04	<MDL 0.01	90.0	No	No
Carbon Tetrachloride (µg/L) - TW	2021/01/04	<MDL 0.17	2.0	No	No
Chlorpyrifos (µg/L) - TW	2021/01/04	<MDL 0.02	90.0	No	No
Diazinon (µg/L) - TW	2021/01/04	<MDL 0.02	20.0	No	No
Dicamba (µg/L) - TW	2021/01/04	<MDL 0.2	120.0	No	No
1,2-Dichlorobenzene (µg/L) - TW	2021/01/04	<MDL 0.41	200.0	No	No
1,4-Dichlorobenzene (µg/L) - TW	2021/01/04	<MDL 0.36	5.0	No	No
1,2-Dichloroethane (µg/L) - TW	2021/01/04	<MDL 0.35	5.0	No	No
1,1-Dichloroethylene (µg/L) - TW	2021/01/04	<MDL 0.33	14.0	No	No
Dichloromethane (Methylene Chloride) (µg/L) - TW	2021/01/04	<MDL 0.35	50.0	No	No
2,4-Dichlorophenol (µg/L) - TW	2021/01/04	<MDL 0.15	900.0	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (µg/L) - TW	2021/01/04	<MDL 0.19	100.0	No	No
Diclofop-methyl (µg/L) - TW	2021/01/04	<MDL 0.4	9.0	No	No
Dimethoate (µg/L) - TW	2021/01/04	<MDL 0.06	20.0	No	No
Diquat (µg/L) - TW	2021/01/04	<MDL 1.0	70.0	No	No
Diuron (µg/L) - TW	2021/01/04	<MDL 0.03	150.0	No	No
Glyphosate (µg/L) - TW	2021/01/04	<MDL 1.0	280.0	No	No
Malathion (µg/L) - TW	2021/01/04	<MDL 0.02	190.0	No	No
Metolachlor (µg/L) - TW	2021/01/04	<MDL 0.01	50.0	No	No
Metribuzin (µg/L) - TW	2021/01/04	<MDL 0.02	80.0	No	No
Monochlorobenzene (Chlorobenzene) (µg/L) - TW	2021/01/04	<MDL 0.3	80.0	No	No
Paraquat (µg/L) - TW	2021/01/04	<MDL 1.0	10.0	No	No
PCB (µg/L) - TW	2021/01/04	<MDL 0.04	3.0	No	No
Pentachlorophenol (µg/L) - TW	2021/01/04	<MDL 0.15	60.0	No	No
Phorate (µg/L) - TW	2021/01/04	<MDL 0.01	2.0	No	No
Picloram (µg/L) - TW	2021/01/04	<MDL 1.0	190.0	No	No
Prometryne (µg/L) - TW	2021/01/04	<MDL 0.03	1.0	No	No
Simazine (µg/L) - TW	2021/01/04	<MDL 0.01	10.0	No	No
Terbufos (µg/L) - TW	2021/01/04	<MDL 0.01	1.0	No	No
Tetrachloroethylene (µg/L) - TW	2021/01/04	<MDL 0.35	10.0	No	No
2,3,4,6-Tetrachlorophenol (µg/L) - TW	2021/01/04	<MDL 0.2	100.0	No	No
Triallate (µg/L) - TW	2021/01/04	<MDL 0.01	230.0	No	No
Trichloroethylene (µg/L) - TW	2021/01/04	<MDL 0.44	5.0	No	No
2,4,6-Trichlorophenol (µg/L) - TW	2021/01/04	<MDL 0.25	5.0	No	No
Trifluralin (µg/L) - TW	2021/01/04	<MDL 0.02	45.0	No	No
Vinyl Chloride (µg/L) - TW	2021/01/04	<MDL 0.17	1.0	No	No
Trihalomethane: Total (µg/L) Running Annual Average - DW	2021 (Quarterly)	34.00	100.0	No	No
Haleoacetic Total (µg/L) Running Annual Average - DW	2021 (Quarterly)	14.18	80.0	No	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.**

<b>Parameter</b>	<b>Sample Result</b>	<b>Unit of Measure</b>	<b>Date of Sample</b>
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)*