

**Ministry of
the Environment**

Safe Drinking Water
Branch

101 17th St. E, 3rd Floor
Owen Sound ON N4K 0A5

**Ministère de
l'Environnement**

Direction du contrôle de la qualité de
l'eau potable

101, 17^e rue Est, 3^e étage
Owen Sound ON N4K 0A5



March 30, 2011

Bill Jones
Chief Administrative Officer
The Corporation of the Municipality of Northern Bruce Peninsula
56 Lindsay Rd.,
Lion's Head, ON N0H 1W0

Re: Lion's Head Water Treatment Plant Inspection Report

Please find attached the 2010/2011 municipal water treatment plant inspection report for the above mentioned facility. The physical inspection was conducted on **February 16, 2011**. The previous inspection was conducted on **September 9, 2009**.

Please take special attention to pages 10 through 12 of the inspection report where you will find Other Inspection Findings, and Non-Compliance with Actions Required. Administrative and best practice procedures are found in the Summary of Best Practice Issues and Recommendations section of the report and should be implemented to ensure your plant is operated within legislated requirements.

A written response is required within 30 days of receipt of the Inspection report addressing each Action Required and Recommended Action. This response has not been provided within the required timeframe following previous inspection reports and therefore, failure to provide a written response will result in the Ministry taking a mandatory abatement approach.

The Inspection Summary Rating Record is included as part of the inspection report. It has been included as Appendix B. If you have any questions or concerns regarding the rating please call John Ritchie at 519-371-2901.

Should you have any questions or comments in regards to this inspection, please contact me at (519) 371-5617.

Yours truly,

Ron Burrell
Provincial Officer
Safe Drinking Water Branch
Owen Sound District Office

Cc: Dr. Hazel Lynn, Medical Officer of Health, Grey-Bruce Public Health Unit
Cory McNeil, Cluster Manager, Ontario Clean Water Agency
John Bittorf, Water Resources Technician, Grey-Sauble Conservation Authority
Allison Kershaw, Drinking Water Inspections Program Supervisor, File - SI BR NB DO 540A



Ministry of the Environment

**LION'S HEAD DRINKING WATER SYSTEM
Drinking Water System Inspection Report**

DWS Number:	220002672
Inspection Number:	1-8D4HK
Date of Inspection:	Feb 16, 2011
Inspected By:	Ron Burrell

OWNER INFORMATION:

Company Name: NORTHERN BRUCE PENINSULA, THE CORPORATION OF THE MUNICIPALITY OF
Street Number: 56 **Unit Identifier:**
Street Name: LINDSAY Rd
City: LION'S HEAD
Province: ON **Postal Code:** N0H 1W0

CONTACT INFORMATION

Type: Owner **Name:** Bill Jones
Phone: (519) 793-3522 **Fax:** (519) 793-3823
Email: billjones.nbp@eastlink.ca
Title: Chief Administrative Officer

Type: Operating Authority **Name:** Cory McNeil
Phone: (519) 797-2561 **Fax:** (519) 797-3080
Email: cmcneil@ocwa.com
Title: Cluster Manager

Type: Operating Authority **Name:** Karl Rennick
Phone: (519) 534-1610 **Fax:** (519) 534-3526
Email:
Title: Overall Responsible Operator (ORO)

INSPECTION DETAILS:

DWS Name: LION'S HEAD DRINKING WATER SYSTEM
DWS Address: 56 LINDSAY 5 RD
County/District: Northern Bruce Peninsula
District/Area Office: Owen Sound Area Office
DWS Category: Large Municipal Residential
DWS Number: 220002672
Inspection Type: Unannounced
Inspection Number: 1-8D4HK
Date of Inspection: Feb 16, 2011
Date of Previous Inspection: Sep 09, 2009

DRINKING WATER SYSTEM COMPONENTS DESCRIPTION

Site (Name): Raw Water Intake
Type: Source **Sub Type:** Surface

Comments:

The raw water intake system includes a 300 mm diameter intake pipe extending approximately 165 metres from the pumping station and is located at a depth of approximately 8.4 metres of water in Isthmus Bay, an inlet of Georgian Bay. The location of the intake is far enough from shore that the potential of frazil ice affecting the intake is minimized.

Pre-chlorination for zebra mussels occurs year-round. Chlorine dosing is increased when water temperatures rise above 11-12 degrees Celsius. A 13 mm chlorine feed line, encased in a 50 mm pipe that extends to the end of the 165 metre intake is used and the chlorine is dispensed through a diffuser ring at the end of the intake. The pre-chlorinated water is gravity-fed into the wet well within the water treatment plant.

Site (Name): Low-Lift Pumping Station**Type:** Treated Water POE**Sub Type:** Pumphouse**Comments:**

The low-lift pumping station has undergone significant modifications. The station, once contained the complete treatment works, but now serves as a low-lift pumping station and a filling station for fire trucks.

Three low-lift variable speed centrifugal pumps (one 3 HP rated to deliver up to 5 L/s and two 5 HP rated to deliver up to 10 L/s) are located in the pumphouse. One of the 5 HP pumps operates continually to satisfy average and minimum demand requirements while the remaining pumps are started sequentially according to demand. A 25 HP pump is used for flushing the raw water line and for filling the fire pumper trucks at the low-lift station.

A float control was installed in the wet well to detect low water levels in the wet well, allowing an alarm to sound and also disable the low-lift pumps.

A standby diesel generator was permanently installed in the event of a power outage.

Site (Name): Membrane Filtration Plant**Type:** Treated Water POE**Sub Type:** Pumphouse**Comments:**

The new Lion's Head Water Treatment Plant (WTP) became operational on May 19, 2005. This WTP is categorized as a Class 2 Water Treatment Subsystem.

The new plant, with an approximate footprint of 18 x 23 m, is located at the intersection of Ida and Helen Streets in the Village of Lion's Head.

It contains a combined 150 mm diameter 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-fibre 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 each system. One common clean-in-place hot water system has the ability for periodic full cleaning 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 is 96 cubic metres 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 metres. Water flows from the water reservoirs to a common high-lift well header container, 384 cubic metres 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 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. 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 metre 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 (diesel generator) is used to maintain the necessary electrical supply to operate the filtration plant during power outages.

Site (Name): Wet Well (in Pumphouse)

Type: Treated Water POE

Sub Type: Pumphouse

Comments:

The wet well is 3.6 m in diameter, 6.1 m deep and has a water level around 2.75 m from the bottom. Raw water flows by gravity into the wet well which serves as the suction for the system pumps. An isolating valve is provided on the 300 mm diameter intake in the wet well to permit maintenance of the pump intake screens. Water flows through the intake and is discharged into the wet well through a 450 mm diameter perforated diffuser.

A chlorine solution is added to the wet well to maintain a primary disinfection residual of around 0.5 mg/L to minimize the growth of bacteria in the raw water feed line to the membrane plant.

Site (Name): Distribution System

Type: Other

Sub Type: Other

Comments:

The Lion's Head distribution system is reported to be approximately twelve (12) km in length. It is comprised of approximately 95% poly vinyl chloride piping, mainly six-inch diameter with some two and three inch diameter piping, as well. There is approximately 300 metres of two-inch diameter polyethylene.

A target distribution pressure of around 65 -80 psi is maintained by the continuous monitoring and operation of the variable speed pumps. There are no storage reservoirs in the distribution system.

The distribution system has approximately 319 service connections, 307 of them being for residential and seasonal users, and the remaining 12 are non-domestic commercial and institutional users. The distribution system includes thirty five (35) fire hydrants. The Lion's Head drinking water distribution system is categorized as a Class 1 Water Distribution Subsystem.

INSPECTION SUMMARY

INTRODUCTION

- * The primary focus of this inspection is to confirm compliance with Ministry of the Environment legislation and authorizing documents such as Orders and Certificates of Approval, as well as evaluating conformance with Ministry drinking water related policies and guidelines during the inspection period.

The Ministry is implementing a rigorous and comprehensive approach in the inspection of drinking water systems that keys on the source, treatment and distribution components of the system as well as management practices.

This report is based on a "focused" inspection of your system. Although the inspection involved fewer activities than those normally undertaken by a detailed inspection, it contained most of the elements required to assess key compliance issues.

Your system was chosen for a focused inspection during this inspection cycle because inspection findings over the past three years were such that the number of violations were minimal or non-existent, there were few or no orders issued to you that were of significance in the maintenance of water potability and there were no deficiencies as defined in O. Reg. 172/03. The undertaking of a focused inspection at your drinking water system during this year's inspection cycle does not ensure that a similar type of inspection will be conducted at any point in the future.

SOURCE

- * Measures were in place to protect the water source in accordance with a Permit, Licence or Approval issued under Part V of the SDWA.

Zebra mussel control is used when water temperature remains at or above 12 degrees Celsius for a period of one week. Zebra mussel control is done via chlorine dosing at the intake.

CAPACITY ASSESSMENT

- * There was sufficient monitoring of flow as required by the Permit, Licence or Approval issued under Part V of the SDWA.
- * The owner was in compliance with the conditions associated with maximum flow rate or the rated capacity conditions in the Permit, Licence or Approval issued under Part V of the SDWA.

TREATMENT PROCESSES

- * The owner had ensured that all equipment was installed in accordance with the Permit, Licence or Approval issued under Part V of the SDWA.
- * Records indicated that the treatment equipment was operated in a manner that achieved the design capabilities required under Ontario Regulation 170/03 or a Permit, Licence or Approval issued under Part V of the SDWA at all times that water was being supplied to consumers.

TREATMENT PROCESSES

- * Records confirmed that the water treatment equipment which provides chlorination or chloramination for secondary disinfection purposes was operated so that at all times and all locations in the distribution system the chlorine residual was never less than 0.05 mg/l free or 0.25 mg/l combined.

Records reviewed indicate that free chlorine residual levels in the distribution system are generally within a range of 0.75 mg/l to 1.00 mg/l with variations slightly above and below this range.

- * The primary disinfection equipment was equipped with alarms or shut-off mechanisms that satisfied the standards described in Section 1-6 (1) of Schedule 1 of Ontario Regulation 170/03.
- * The Operator-in-Charge had ensured that all equipment used in the processes was monitored, inspected, and evaluated.

DISTRIBUTION SYSTEM

- * Backflow preventers were installed at each service connection to Industrial/Commercial/Institutional and agricultural process that were considered high hazard facilities.

OPERATIONS MANUALS

- * The operations and maintenance manuals contained plans, drawings and process descriptions sufficient for the safe and efficient operation of the system.
- * The operations and maintenance manuals did meet the requirements of the Permit, Licence or Approval issued under Part V of the SDWA.

LOGBOOKS

- * Records or other record keeping mechanisms confirmed that operational testing not performed by continuous monitoring equipment was being done by a certified operator, water quality analyst, or person who suffices the requirements of O. Reg. 170/03 7-5.

CONTINGENCY/EMERGENCY PLANNING

- * The contingency/emergency plan was available for reference by all staff as required by the Permit, Licence or Approval issued under Part V of the SDWA.

SECURITY

- * The owner had provided security measures to protect components of the drinking-water system.

CERTIFICATION AND TRAINING

CERTIFICATION AND TRAINING

- * **The overall responsible operator had been designated for each subsystem.**

The overall responsible operator (ORO) designated for the Lion's Head drinking-water system is Karl Rennick. The designated back-up ORO is Stan McNeil.

- * **Operators in charge had been designated for all subsystems which comprised the drinking-water system.**

- * **Only certified operators made adjustments to the treatment equipment.**

WATER QUALITY MONITORING

- * **All microbiological water quality monitoring requirements for distribution samples were being met.**

The Lion's Head Water Treatment Plant is classified as a Large Municipal Residential Water System under Ontario Regulation 170/03. Review indicated that all microbiological water quality monitoring requirements prescribed by legislation for the distribution portion of the system were being met.

- * **All microbiological water quality monitoring requirements for treated samples were being met.**

The Lion's Head Water Treatment Plant is classified as a Large Municipal Residential Water System under Ontario Regulation 170/03. Review indicated that all microbiological water quality monitoring requirements prescribed by legislation for the treated samples representative of contact time and prior to the first consumer were being met.

- * **All inorganic water quality monitoring requirements prescribed by legislation were conducted within the required frequency.**

Records reviewed indicate inorganic sampling was conducted by the Operating Authority on January 11, 2010. Ontario Regulation 170/03 requires Schedule 23 sampling to be completed once every 12 months for surface water systems classed as large municipal.

- * **All organic water quality monitoring requirements prescribed by legislation were conducted within the required frequency.**

Records reviewed indicate organic sampling was conducted by the Operating Authority on January 11, 2010. Ontario Regulation 170/03 requires Schedule 24 sampling to be completed once every 12 months for surface water systems classed as large municipal.

- * **All trihalomethanes water quality monitoring requirements prescribed by legislation were conducted within the required frequency.**

Records reviewed indicate THM sampling occurred on January 11, April 12, July 6, October 5, 2010, and January 11, 2011.

- * **All nitrate/nitrite water quality monitoring requirements prescribed by legislation were conducted within the required frequency for the DWS.**

Records reviewed indicate Nitrate/Nitrite sampling occurred on January 11, April 12, July 6, October 5, 2010, and January 11, 2011.

- * **All sodium water quality monitoring requirements prescribed by legislation were conducted within the required frequency.**

WATER QUALITY MONITORING

- * **All fluoride water quality monitoring requirements prescribed by legislation were conducted within the required frequency.**

- * **All water quality monitoring requirements imposed by the Permit, Licence or Approval issued under Part V of the SDWA were being met.**

The former C of A and the new Municipal Drinking Water License require monthly Suspended Solids sampling for residue management. All sampling requirements have been met.

- * **All sampling requirements for lead prescribed by schedule 15.1 of O. Reg. 170/03 were being met.**
- * **All sampling requirements for alkalinity and pH prescribed by schedule 15.1 of O. Reg. 170/03 were being met.**
- * **All continuous monitoring equipment utilized for sampling and testing required by O.Reg.170/03, or approval or order, were equipped with alarms or shut-off mechanisms that satisfied the standards described in Schedule 6.**
- * **All continuous analysers were calibrated, maintained, and operated, in accordance with the manufacturer's instructions or the regulation.**
- * **Operators were examining continuous monitoring test results and they were examining the results within 72 hours of the test.**
- * **The secondary disinfectant residual was measured as required for the distribution system.**

Records reviewed indicate that seven (7) distribution chlorine residuals are taken each week, staggered on two separate sample days.
- * **Records confirmed that chlorine residual tests were being conducted at the same time and at the same location that microbiological samples were obtained.**
- * **Continuous monitoring equipment that was being utilized to fulfill O. Reg. 170/03 requirements was performing tests for the parameters with at least the minimum frequency specified in the Table in Schedule 6 of O. Reg. 170/03.**
- * **All continuous monitoring equipment that was being utilized to fulfill O. Reg. 170/03 requirements was not recording data with the prescribed format.**

The system itself remains fully functional with all alarms and shut offs working to ensure drinking water safety.

The operating authority reports a hard drive failure occurred sometime in 2007 following the start up of the new plant. The hard drive was replaced and a back up data logger was installed to ensure no data loss from the various online data monitoring processes. Most recently the operating authority has experienced minor glitches while trying to pull daily, weekly or monthly data reports from the Paal filtration system. If a monthly report is printed a particular day may be missing and when the same report is re-generated, the original missing day may be present with a different day of data missing. The operating authority reports that the filter data is still being logged and in the majority of the time data for a particular time segment can still be retrieved to ensure

WATER QUALITY MONITORING

compliance and in any cases where data can not be retrieved following an alarm, the operator will treat the incident as a non-compliance for reporting and corrective action purposes.

The computer has been recently shipped to Guelph where OCWA IT staff and a third party contractor are working on re formatting the hard drive. The back-up data logger is still retrieving and accumulating data, however it does not have the software program needed to generate data reports. OCWA staff anticipate the computer and report generating software will be back up and running within two weeks. By no later than May 18, 2011, The owner and/or operating authority shall provide to the Provincial Officer authoring this report, the following: 1) A chronological summary page of all alarms related to data acquisition for the period from September 9, 2009 until January 16, 2011. 2) A SCADA printout filtered by parameter and in chronological order for each alarm showing the parameter, value, date, time, duration and whether the parameter exceeded its regulatory limits. 3) Verification that the data acquisition and reporting system is fully functioning and a complete summary of the issue and the steps that were taken to resolve the inability for consistent data reports to be generated.

- * **Continuous monitoring of each filter effluent line was being performed for turbidity.**

- * **Testing for parameters required by legislation, Order, or a Permit, Licence or Approval issued under Part V of the SDWA was conducted by laboratories in Ontario licenced to test for that parameter, or by eligible laboratories outside Ontario.**

WATER QUALITY ASSESSMENT

- * **The inspector collected audit samples during the inspection.**

As per a new MOE directive, samples were taken from the distribution system only. Treated water point of entry samples were not taken during this inspection. Free chlorine residuals were also taken at each of the three (3) distribution sample points using a HACH Pocket Colorimeter II chlorine analyzer. A copy of the audit sample results analyzed by the Ontario Ministry of the Environment's Laboratory Services Branch is attached in the appendices.

- * **Records show that all water sample results taken during the review period met the Ontario Drinking Water Quality Standards (O.Reg. 169/03).**

See Appendix A

REPORTING & CORRECTIVE ACTIONS

- * **Corrective actions (as per Schedule 17) were taken to address adverse conditions, including any other steps that were directed by the Medical Officer of Health.**

One (1) AWQI was recorded during the inspection review period. AWQI No. 95943 was issued as a result of a sample with a Total Coliform of three (3) CFU/100mg. Corrective actions were followed and all re-sample results came back clear of bacteriological contamination.

- * **All required notifications of adverse water quality incidents were immediately provided as per O.Reg. 170/03 16-6.**

- * **Where required continuous monitoring equipment used for the monitoring of chlorine residual and/or turbidity triggered an alarm or an automatic shut-off, a qualified person responded in a timely manner and took appropriate actions.**

REPORTING & CORRECTIVE ACTIONS

- * When the primary disinfection equipment, other than that used for chlorination or chloramination, has failed causing an alarm to sound or an automatic shut-off to occur, a certified operator responded in a timely manner and took appropriate actions.

OTHER INSPECTION FINDINGS

- * The following issues were also noted during the inspection:

An information request document was provided to the operating authority at the time of the inspection specifically listing the information requested and a timeframe of one week was given. Most of the information was provided, however some information took up to three to four weeks to obtain and was not originally provided in the format requested.

It is recommended that the operating authority ensure inspection related data is provided within the timeframes specified and in the format requested for future inspections.

NON-COMPLIANCE WITH REGULATORY REQUIREMENTS AND ACTIONS REQUIRED

This section provides a summary of all non-compliance with regulatory requirements identified during the inspection period, as well as actions required to address these issues. Further details pertaining to these items can be found in the body of the inspection report.

1. All continuous monitoring equipment that was being utilized to fulfill O. Reg. 170/03 requirements was not recording data with the prescribed format.

Action(s) Required:

By no later than May 18, 2011, The owner and/or operating authority shall provide to the Provincial Officer authoring this report, the following: 1) A chronological summary page of all alarms related to data acquisition for the period from September 9, 2009 until January 16, 2011. 2) A SCADA printout filtered by parameter and in chronological order for each alarm showing the parameter, value, date, time, duration and whether the parameter exceeded its regulatory limits. 3) Verification that the data acquisition and reporting system is fully functioning and a complete summary of the issue and the steps that were taken to resolve the inability for consistent data reports to be generated.

SUMMARY OF BEST PRACTICE ISSUES AND RECOMMENDATIONS

This section provides a summary of all best practice issues identified during the inspection period. Details pertaining to these items can be found in the body of the inspection report. Best Management Practices are recommendations and not mandatory requirements, but may lead to safe drinking water for the consumer.

In the interest of continuous improvement in the interim, it is recommended that owners and operators develop an awareness of the following practices and consider measures to implement them so that all drinking water systems continuously improve their processes.

1. The following issues were also noted during the inspection:

Recommendation:

It is recommended that the operating authority ensure inspection related data is provided within the timeframes specified and in the format requested for future inspections.

SIGNATURES

Inspected By:

Ron Burrell

Signature: (Provincial Officer):

Reviewed & Approved By:

John Ritchie

Signature: (Supervisor):

Review & Approval Date:

Note: This inspection does not in any way suggest that there is or has been compliance with applicable legislation and regulations as they apply or may apply to this facility. It is, and remains, the responsibility of the owner and/or operating authority to ensure compliance with all applicable legislative and regulatory requirements.



Ministry of the Environment
Drinking Water Inspection Report

APPENDIX A

DRINKING WATER INSPECTION LABORATORY RESULTS

APPENDIX A
TABLE 3
LION'S HEAD DRINKING WATER SYSTEM
AUDIT SAMPLE RESULTS - 16-FEB-2011
SUMMARY OF MICROBIOLOGICAL PARAMETERS - HEALTH RELATED

Sample Legend:

Sample # 1 - 11 MAIN ST. DISTRIBUTION

Sample # 2 - 2 ALEXANDER ST. DISTRIBUTION

Sample # 3 - 24 MOORE ST. DISTRIBUTION

Parameter	Units	MC ¹	SAMPLE	SAMPLE	SAMPLE
			# 1	# 2	# 3
NT: ESCHERICHIA COLI	C/100ML	0	ABSENT	ABSENT	ABSENT
NT: TOTAL COLIFORMS	C/100ML	0	ABSENT	ABSENT	ABSENT

Notes:

- Escherichia coli is a more definitive indicator of fecal contamination than fecal coliforms or total coliforms.
- At elevated levels, the general bacterial population may interfere with the detection of coliforms. This general population can be estimated from either background colony counts on the total coliform membrane filters or heterotrophic plate counts (HPC).

Shortforms:

C/100mL - Count per 100 millilitre

C/mL - Count per millilitre

Footnotes:

- 1 Maximum Concentration as per O.Reg 169/03.
- 2 Aesthetic Objective.

APPENDIX A

TABLE 4

LION'S HEAD DRINKING WATER SYSTEM

AUDIT SAMPLE RESULTS - 16-FEB-2011

SUMMARY OF CHEMICAL / PHYSICAL PARAMETERS - HEALTH RELATED

Sample Legend:

Sample # 1 - 11 MAIN ST. DISTRIBUTION

Parameter	Units	MC ¹	SAMPLE	
			# 1	
1,1-DICHLOROETHENE	UG/L	14	.05	<=W
1,2-DICHLOROBENZENE	UG/L	200	.05	<=W
1,2-DICHLOROETHANE	UG/L	5	.05	<=W
1,4-DICHLOROBENZENE	UG/L	5	.05	<=W
BENZENE	UG/L	5	.05	<=W
CARBON TETRACHLORIDE	UG/L	5	.2	<=W
CHLOROBENZENE	UG/L	80	.05	<=W
CHLOROETHENE	UG/L	2	.05	<=W
DICHLOROMETHANE	UG/L	50	.2	<=W
LEAD	UG/L	10 c	.1	+/-0.16
TETRACHLOROETHENE	UG/L	30	.05	<=W
TRICHLOROETHENE	UG/L	5	.05	<=W
TRIHALOMETHANES; TOTAL	UG/L	100 e	20	

Shortforms:

- | | | | | | |
|-----|---|---|------|---|----------------------|
| <T | - | A measurable trace amount; interpret with caution | NA | - | Result not available |
| <W | - | No measurable response (zero) : < Reported value | NS | - | Not sampled |
| <=W | - | No measurable response (zero) : < Reported value | NG/L | - | Nanograms per litre |
| < | - | Actual result is less than reported value | UG/L | - | Micrograms per litre |
| ND | - | Not detected | MG/L | - | Milligrams per litre |
| !NP | - | No appropriate procedure available | | | |

Footnotes:

- 1 Maximum Concentration as per O.Reg 169/03.
 - 2 Aesthetic Objective.
 - 3 Operational Guideline.
 - 4 Includes *alpha*-chlordane, *gamma*-Chlordane and Oxychlordane.
 - 5 Includes *p,p'*-DDE, *o,p'*-DDT, *p,p'*-DDD and *p,p'*-DDT.
- a Total toxic equivalents when compared with 2,3,7,8,-TCDD (tetrachlorodibenzo-p-dioxin).
 - b Where fluoride is added to drinking water, it is recommended that the concentration be adjusted to 0.5 - 0.8 mg/L, the optimum level for control of tooth decay. Where supplies contain naturally occurring fluoride at levels higher than 1.5 mg/L but less than 2.4 mg/L the Ministry of Health and Long Term Care recommends an approach through local boards of health to raise public and professional awareness to control excessive exposure to fluoride from other sources.
 - c This standard applies to water at the point of consumption. Since lead is a component in some plumbing systems, first flush water may contain higher concentrations of lead than water that has been flushed for five minutes.
 - d Where both nitrate and nitrite are present, the total of the two should not exceed 10 mg/L (as nitrogen).
 - e The standard is expressed as a running annual average of quarterly samples measured at a point reflecting the maximum residence time in the distribution system.
 - f An aesthetic objective of 5 NTU for Turbidity has been set for all waters at the point of consumption.

ADVERSE RESULTS OF A DRINKING-WATER TEST UNDER O.REG. 170/03

According to section 16-3 of O.Reg. 170/03, the following are prescribed as adverse results of a drinking-water test for the purpose of section 18 of the Safe Drinking Water Act 2002:

1. A result that exceeds any of the standards prescribed by Schedule 1, 2 or 3 to the Ontario Drinking-Water Quality Standards, other than the standard for fluoride, if the result is from a sample of drinking water.
2. A result indicating the presence of *Aeromonas* spp., *Pseudomonas aeruginosa*, *Staphylococcus aureus*, *Clostridium* spp. or fecal streptococci (Group D streptococci) in a sample of drinking water.
3. A result indicating the presence of a pesticide not listed in Schedule 2 to the Ontario Drinking-Water Quality Standards in a sample of drinking water, at any concentration.
4. If the drinking-water system is required to provide secondary disinfection in accordance with section 1-5 of Schedule 1 or section 2-5 of Schedule 2, the system provides chlorination, the system does not provide chloramination and a report under subsection 18(1) of the Act has not been made in respect of free chlorine residual in the preceding 24 hours, a result indicating that the concentration of free chlorine residual in the preceding 24 hours, a result indicating that the concentration of free chlorine residual is less than 0.05 milligrams per litre in,
 - i. a distribution sample that is a grab sample, or
 - ii. two distribution samples that are tested by continuous monitoring equipment, if the two samples were taken 15 minutes or more apart and the later of the two samples was the first sample that was taken 15 minutes or more after the earlier sample.
5. If the drinking -water system is required to provide secondary disinfection in accordance with section 1-5 of Schedule 1 or section 2-5 of Schedule 2, the system provides chloramination and a report under subsection 18(1) of the Act has not been made in respect of combined chlorine residual in the preceding 24 hours, a result indicating that the concentration of combined chlorine residual is less than 0.25 milligrams per litre and the concentration of free chlorine residual is less than 0.05 milligrams per litre in,
 - i. a distribution sample that is a grab sample, or
 - ii. two distribution samples that are tested by continuous monitoring equipment, if the two samples were taken 15 minutes or more apart and the later of the two samples was the first sample that was taken 15 minutes or more after the earlier sample.
6. If the drinking-water system is required to provide filtration and a report under subsection 18 (1) of the Act has not been made in respect of turbidity in the preceding 24 hours, a result indicating that turbidity exceeds 1.0 Nephelometric Turbidity Units (NTU) in,
 - i. a grab sample of water taken from a filter effluent line, or
 - ii. two samples of water from a filter effluent line that are tested by continuous monitoring equipment, if,
 - A. two samples were taken 15 minutes or more apart and the later of the two samples was the first sample that was taken 15 minutes or more after the earlier sample, and
 - B. the filter effluent line is directing water to the next stage of the treatment process.
7. If an approval or order, including an OWRA order, identifies a parameter as a health-related parameter and establishes a maximum concentration for the parameter, a result indicating that the parameter exceeds the maximum concentration in a sample of drinking water.
8. A result indicating that the concentration of sodium exceeds 20 milligrams per litre in a sample of drinking water, if a report under subsection 18 (1) of the Act has not been made in respect of sodium in the preceding 60 months.
9. A result indicating that the concentration of fluoride exceeds 1.5 milligrams per litre in a sample of drinking water, if,
 - i. the drinking-water system provides fluoridation and a report under subsection 18 (1) of the Act has not been made in respect of fluoride in the preceding 24 hours, or
 - ii. the drinking-water system does not provide fluoridation and a report under subsection 18 (1) of the Act has not been made in respect of fluoride in the preceding 60 months.

APPENDIX A

TABLE 5

**LION'S HEAD DRINKING WATER SYSTEM
AUDIT SAMPLE RESULTS - 16-FEB-2011**

SUMMARY OF MICRO, CHEMICAL / PHYSICAL PARAMETERS - NOT HEALTH RELATED

Sample Legend:

Sample # 1 - 11 MAIN ST. DISTRIBUTION

Sample # 2 - 2 ALEXANDER ST. DISTRIBUTION

Sample # 3 - 24 MOORE ST. DISTRIBUTION

Parameter	Units	OBJECTIVE	TYPE OF OBJECTIVE	SAMPLE	SAMPLE	SAMPLE
				# 1	# 2	# 3
1,2-DICHLOROBENZENE	UG/L	3	AO	.05 <=W		
ETHYLBENZENE	UG/L	2.4	AO	.05 <=W		
M- AND P-XYLENE	UG/L	300	AO	.05 <=W		
NT: DETERIORATION INDICATORS	C/100ML	0	AO	NOT DETECTED	NOT DETECTED	NOT DETECTED
O-XYLENE	UG/L	300	AO	.05 <=W		
TOLUENE	UG/L	24	AO	.05 <=W		

Shortforms:

<T	- A measureable trace amount; interpret with caution	AO	- Aesthetic Objective
<W	- No measurable response (zero). <Reported value	OG	- Operational Guideline
<=W	- No measurable response (zero). <Reported value	FTU = NTU	- Nephelometric Turbidity Unit
<	- Actual result is less than reported value	TCU	- True Colour Units
ND	- Not detected	NG/L	- Nanograms per litre
NA	- Result not available	UG/L	- Micrograms per litre
NS	- Not sampled	MG/L	- Milligrams per litre
DEG	- Degree celsius		

Footnotes:

- a Organic Nitrogen = (Total Kjeldahl Nitrogen - (Ammonia + Ammonium))
- b 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.
- c When sulphate levels exceed 500 mg/L, water may have a laxative effect on some people.
- d Applicable for all water at the point of consumption.

APPENDIX A
TABLE 6
LION'S HEAD DRINKING WATER SYSTEM
AUDIT SAMPLE RESULTS - 16-FEB-2011
SUMMARY OF PARAMETERS WITH NO ODWQS

Sample Legend:

Sample # 1 - 11 MAIN ST. DISTRIBUTION

Parameter	Units	SAMPLE	
		# 1	
1,1,1-TRICHLOROETHANE	UG/L	.05	<=W
1,1,2,2-TETRACHLOROETHANE	UG/L	.2	<=W
1,1,2-TRICHLOROETHANE	UG/L	.1	<=W
1,1-DICHLOROETHANE	UG/L	.05	<=W
1,2-DIBROMOETHANE	UG/L	.1	<=W
1,2-DICHLOROPROPANE	UG/L	.05	<=W
1,3-DICHLOROBENZENE	UG/L	.05	<=W
BROMODICHLOROMETHANE	UG/L	6	
BROMOFORM	UG/L	.5	<=W
CHLOROFORM	UG/L	11.7	
CIS-1,2-DICHLOROETHENE	UG/L	.05	<=W
DIBROMOCHLOROMETHANE	UG/L	2.2	
DICHLOROACETONITRILE	UG/L	.5	<=W
DIISOPROPYLETHER	UG/L	.05	<=W
STYRENE	UG/L	.05	<=W
TERT-BUTYL METHYL ETHER	UG/L	.05	<=W
TRANS-1,2-DICHLOROETHENE	UG/L	.05	<=W

Shortforms:

<T - A measurable trace amount; interpret with caution
 <W - No measurable response (zero) : < Reported value
 <=W - No measurable response (zero) : < Reported value
 < - Actual result is less than reported value
 ND - Not detected
 !NP - No appropriate procedure available

NA - Result not available
 NS - Not sampled
 NG/L - Nanograms per litre
 UG/L - Micrograms per litre
 MG/L - Milligrams per litre

NO DATUM FOUND FOR THE FOLLOWING TABLE(S):

-TABLE 1 - SUMMARY OF PARAMETERS EXCEEDING ODWQS

-TABLE 2 - SUMMARY OF PARAMETERS EXCEEDING HALF OF THEIR HEALTH-RELATED ODWQS



APPENDIX B

INSPECTION SUMMARY RATING RECORD



Ministry of the Environment - Inspection Summary Rating Record (Reporting Year - 2010-2011)

DWS Name:	LION'S HEAD DRINKING WATER SYSTEM
DWS Number:	220002672
DWS Owner:	Northern Bruce Peninsula, The Corporation Of The Municipality Of
Municipal Location:	Northern Bruce Peninsula

Regulation: O.REG 170/03
Category: Large Municipal Residential System
Type Of Inspection: Focused
Inspection Date: February 16, 2011
Ministry Office: Owen Sound Area Office

Maximum Question Rating: 574

Inspection Module	Non-Compliance Rating
Source	0 / 14
Capacity Assessment	0 / 30
Treatment Processes	0 / 98
Operations Manuals	0 / 28
Logbooks	0 / 14
Contingency/Emergency Planning	0 / 7
Certification and Training	0 / 28
Water Quality Monitoring	14 / 268
Reporting & Corrective Actions	0 / 87
TOTAL	14 / 574

Inspection Risk Rating	2.44%
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FINAL INSPECTION RATING:	97.56%
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Ministry of the Environment - Detailed Inspection Rating Record (Reporting Year - 2010-2011)

DWS Name:	LION'S HEAD DRINKING WATER SYSTEM
DWS Number:	220002672
DWS Owner:	Northern Bruce Peninsula, The Corporation Of The Municipality Of
Municipal Location:	Northern Bruce Peninsula
Regulation:	O.REG 170/03
Category:	Large Municipal Residential System
Type Of Inspection:	Focused
Inspection Date:	February 16, 2011
Ministry Office:	Owen Sound Area Office

Non-compliant Question(s)	Question Rating
Water Quality Monitoring	
Is all continuous monitoring equipment that is being utilized to fulfill O. Reg. 170/03 requirements recording data with the prescribed format?	14
TOTAL QUESTION RATING	14

Maximum Question Rating: 574

Inspection Risk Rating	2.44%
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FINAL INSPECTION RATING:	97.56%
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