

STAFF REPORT: ENGINEERING AND PUBLIC WORKS DEPARTMENT



REPORT TO: Infrastructure & Recreation Committee
MEETING DATE: November 22, 2011
REPORT NO.: EPW.11.094
SUBJECT: Water 2011 Ministry of the Environment Inspection Results
PREPARED BY: Meg Boyd, Compliance & Efficiency Coordinator

A. Recommendations

THAT Council receive Staff Report EPW.11.094 entitled “Water 2011 Ministry of the Environment Inspection Results” for their information.

B. Background

An inspection of the Thornbury Water Treatment Plant and associated distribution system was initiated on September 27, 2011 by Provincial Officer Matthew Shannon of the Ministry of the Environment (MOE). The inspection was conducted in order to confirm compliance with Ministry of the Environment legislation as well as evaluate conformance with Ministry drinking water related policies and guidelines.

Staff are pleased to report that there were no non-compliances or actions required resulting from this inspection

Findings:

Non-Compliance with Regulatory Requirements and Actions Required	Not Applicable
Summary of Best Practice Issues and Recommendations	Not Applicable

In order to measure individual drinking water systems inspection results, the Ministry established an inspection compliance risk framework based on the principles of the inspection.

The Inspection Report includes an Inspection Summary Rating Record which is designed to encourage drinking water systems to strive for continuous improvement. Based on the Ministry established rating methodology, The Blue Mountains’ Drinking Water System received a **100% rating** for the 2011 reporting period.

C. The Blue Mountains' Strategic Plan

This Report furthers the Town Strategic Plan Goal #6 "providing a strong well managed municipal government".

D. Environmental Impacts

None

E. Financial Impact

None

F. In Consultation With

Manager of Water and Wastewater Services

G. Attached

1. MOE Thornbury Drinking Water System Inspection Report

Respectfully submitted,

Meg Boyd
Meg Boyd
Compliance & Efficiency Coordinator

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Reg Russwurm
Reg Russwurm
Director, Engineering and Public
Works

**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



November 3, 2011

Town of the Blue Mountains
32 Mill Street
P.O. Box 310
Thornbury ON N0H 2P0

Attention: Troy Speck, Chief Administrative Officer

Re: Thornbury Drinking Water System Inspection Report

Please find attached the 2011-12 municipal water treatment plant inspection report for the above mentioned facility. The physical inspection was conducted on September 27, 2011 and reviews operations since the previous inspection completed on October 27, 2010.

The inspection process remains predominantly the same as last year. Consequently, the report looks similar to the report you received last year for this facility except for a few minor changes. The report continues to address the drinking water system source, capacity assessment, treatment processes, operations manuals, operator logbooks, contingency and emergency planning, security, operator certification and training, water quality monitoring, reporting, notification & corrective action, and compliance with regulatory requirements.

Should you or your staff have any questions or concerns regarding this inspection report, please feel free to contact me at (519) 376-3683.

Yours truly,

A handwritten signature in black ink, appearing to read "Matthew Shannon".

Matthew Shannon
Drinking Water Inspector
Safe Drinking Water Branch
Owen Sound Office

cc: Allison Kershaw, Drinking Water Inspections Program Supervisor, Ministry of the Environment
John Caswell, Manager of Water and Wastewater Services, Town of the Blue Mountains
Meghan Boyd, Water & Wastewater Compliance & Efficiency Coordinator, Town of the Blue Mountains
Darren Shilcock, Water Supervisor, Town of the Blue Mountains
Dr. Hazel Lynn, Medical Officer of Health, Grey-Bruce Health Unit



Ministry of the Environment

**THORN BURY DRINKING WATER SYSTEM
Drinking Water System Inspection Report**

DWS Number:	220001762
Inspection Number:	1-963M4
Date of Inspection:	Sep 27, 2011
Inspected By:	Matthew Shannon

OWNER INFORMATION:

Company Name: THE BLUE MOUNTAINS, CORPORATION OF THE TOWN OF
Street Number: 26 **Unit Identifier:**
Street Name: BRIDGE St
City: THORNBURY
Province: ON **Postal Code:** N0H 2P0

CONTACT INFORMATION

Type: Compliance **Name:** Meghan Boyd
Phone: (519) 599-5287 **Fax:** (519) 599-6251
Email: mboyd@thebluemountains.ca
Title: WD OIT, WT OIT Compliance & Efficiency Coordinator

Type: Operator **Name:** Darren Shilvock
Phone: (519) 599-5287 **Fax:** (519) 599-6251
Email:
Title: WD3, WT3 Operator, ORO, Supervisor

Type: Operator **Name:** D. Scott Hill
Phone: (519) 599-5287 **Fax:** (519) 599-6251
Email:
Title: WD3, WT3 Operator, ORO

Type: Owner **Name:** John Caswell
Phone: (519) 599-3131 x226 **Fax:** (519) 599-3664
Email:
Title: Manager of Water & Wastewater Services

INSPECTION DETAILS:

DWS Name: THORNBURY DRINKING WATER SYSTEM
DWS Address: 230 PEEL ST THORNBURY ON N0H 2P0
County/District: The Blue Mountains
MOE District/Area Office: Owen Sound Area Office
Health Unit: GREY BRUCE HEALTH UNIT
Conservation Authority: Grey Sauble Conservation Authority
MNR Office: Owen Sound Regional Office
DWS Category: Large Municipal Residential
DWS Number: 220001762
Inspection Type: Announced
Inspection Number: 1-963M4
Date of Inspection: Sep 27, 2011
Date of Previous Inspection: Oct 27, 2010

DRINKING WATER SYSTEM COMPONENTS DESCRIPTION

Site (Name): GEORGIAN BAY RAW WATER INTAKE
Type: Source **Sub Type:** Surface Water

Comments:

The community of The Blue Mountains is serviced with water from Georgian Bay. The raw water is drawn from Georgian Bay via an intake extending approximately 430 m into Georgian Bay. The intake piping splits just prior to the WTP into two separate pipes feeding the raw water clear well. The intake capacity is 20,000 m³/day. There is zebra mussel control capabilities. A raw water sample line inside the water intake allows for the collection of raw water samples.

Site (Name): TREATED WATER
Type: Treated Water POE **Sub Type:** Treatment Facility

Comments:

The treatment process consists of prechlorination, two raw water strainers with automatic backflushing, three trains of microfiltration units, each with 80 individual modules, gas chlorination and ultraviolet disinfection system.

Backwash water from the microfilters is filtered through the old adsorption filter and dechlorinated and discharged to the Little Beaver Creek. The Little Beaver Creek drains into Georgian Bay.

Backwash wastewater from the adsorption filters is sent to a waste tank and directed to the Thornbury sanitary system.

Site (Name): DISTRIBUTION SYSTEM
Type: Other **Sub Type:** Booster Station

Comments:

The Thornbury Water Treatment plant services a population of approximately 17,463 residents, including commercial, industrial, institutional and resort facilities.

The distribution system consists of the treated water storage facility known as Thornbury Storage, the existing elevated standpipe, Arrowhead Road Booster Station, Mountain Road Booster Station, Lora Bay Booster Station, Happy Valley Road Booster Station, Camperdown Booster Station and Reservoir, a small booster station at Camperdown Court and on Ward Road and several pressure reducing valves (PRVs). The Swiss Meadows subdivision was connected to The Blue Mountains Water Distribution System. This subdivision includes the Swiss Meadows Standpipe.

The booster station located on Arrowhead Road is equipped with three vertical turbine pumps to provide water up Arrowhead Road to the Craigeith area and to the reservoirs at Happy Valley Road. The main purpose of this station is to provide water to the easterly parts of the Town of the Blue Mountains. A by-pass, located at Arrowhead Booster Station, enables reverse flow from the Happy Valley reservoirs, supplied by Collingwood, into the Camperdown and Thornbury districts. The flow is controlled by the level in the Happy Valley reservoir and the Thornbury elevated storage tank. This facility also has disinfection capabilities and a standby diesel generator. This station is the SCADA hub for the Craigeith area. It receives data and alarms from the Arrowhead station, Happy Valley Reservoir and Booster Station, Swiss Meadows standpipe and the Mountain Road Booster Station. Mountain Road Booster Station is located at the intersection of Grey Road 19 and Grey Road 21. It is an in-ground water booster station housing two inline water booster pumps.

The Happy Valley Booster Station is independent to the reservoirs located at this station. The suction line for the booster station is on the fill line before the reservoirs. The Happy Valley Booster Station supplies water to the Swiss Meadows subdivision. This station supplies water to the Swiss Meadows standpipe and pumps are controlled by the standpipe level. This facility has 2 pumps and re-chlorination capabilities but no back-up power. The standpipe would have up to 3-4 days storage in the event of a power failure.

The Camperdown Reservoir and Booster Station is a pumphouse and re-chlorination facility. It serves two purposes; to provide storage for upper and lower zones of the distribution system and to act as a booster station for the upper zone of the system. It has one reservoir with two cells which feeds subdivisions and also feeds either Thornbury or the Arrowhead booster station. This facility also has two pumps, four hydropneumatic tanks, re-chlorination capabilities and a diesel generator for stand-by power.

The Lora Bay/10th Line booster pumping station pumps potable water to the Lora Bay service area, including Keeper's Cove. There is currently no reservoir here although one is proposed in the near future. The facility consists of five pumps, two hydropneumatic tanks, and a stand-by diesel generator for back up power. Rechlorination capabilities are also installed at this facility. This facility is designed to allow for bulk water haulers to access water. A backflow preventer is in place to ensure contamination from outside sources do not enter the municipal water supply. The distribution system varies in age, size and material. The water main type within the distribution system is primarily PVC, ductile iron, and some cast iron.

The overall distribution system is still undergoing expansion due to the continued growth in the Blue Mountain area. Ward Road Booster Station is designed to increase pressure on Upper Hidden Lake Road to James Street. This station is not equipped with telephone communications or re-chlorination equipment. This station has two pumps and two pressure tanks and has natural gas fired stand-by power.

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 drinking water system is subject to the legislative requirements of the Safe Drinking Water Act, 2002 (SDWA) and regulations made therein, including Ontario Regulation 170/03, "Drinking Water Systems" (O.Reg.170/03). This inspection has been conducted pursuant to Section 81 of the SDWA.

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.

On September 27, 2011, Provincial Officer Matthew Shannon inspected the Thornbury Drinking Water System. Assistance with the inspection was provided by Darren Shilvock, Overall Responsible Operator for the Town of the Blue Mountains and Meghan Boyd, Water and Wastewater Compliance & Efficiency Coordinator for the Town of the Blue Mountains.

CAPACITY ASSESSMENT

- * There was sufficient monitoring of flow as required by the Permit and 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 and 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 and Licence or Approval issued under Part V of the SDWA.

TREATMENT PROCESSES

- * 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.
- * 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.
- * 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 and 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 and Licence or Approval issued under Part V of the SDWA.

SECURITY

- * All storage facilities were completely covered and secure.

SECURITY

- * Air vents and overflows associated with reservoirs and elevated storage structures were equipped with screens.
- * The owner had provided security measures to protect components of the drinking-water system.

CERTIFICATION AND TRAINING

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

Scott Hill and Darren Shilvock are the designated Overall Responsible Operators (ORO).
- * 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.
- * All microbiological water quality monitoring requirements for treated samples were being met.
- * All inorganic water quality monitoring requirements prescribed by legislation were conducted within the required frequency.

Inorganic parameters listed in Schedule 23 of Ontario Regulation 170/03 were sampled March 30, 2011.
- * All organic water quality monitoring requirements prescribed by legislation were conducted within the required frequency.

Organic parameters listed in Schedule 24 of Ontario Regulation 170/03 were sampled March 30, 2011.
- * All trihalomethanes water quality monitoring requirements prescribed by legislation were conducted within the required frequency.
- * All nitrate/nitrite water quality monitoring requirements prescribed by legislation were conducted within the required frequency for the DWS.
- * All sodium water quality monitoring requirements prescribed by legislation were conducted within the required frequency.

Sodium was last collected and tested on April 7, 2008 with a result of 4.0 mg/L. The Maximum Allowable Concentration (MAC) for sodium is 20 mg/L.

WATER QUALITY MONITORING

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

A sample was collected and tested for Fluoride on March 29, 2010 with a result of 0.08 mg/L. The Maximum Allowable Concentration (MAC) is 1.5 mg/L.

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

Daily reports of continuous monitoring data are reviewed and signed off the following morning. Operators review trending data for any abnormal sample result such as a turbidity spike.
- * **The secondary disinfectant residual was measured as required for the distribution system.**
- * **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 recording data with the prescribed format.**
- * **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.

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

REPORTING & CORRECTIVE ACTIONS

- * All reporting requirements for lead sampling were complied with as per schedule 15.1-9 of O.Reg. 170/03.

- * 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.

- * 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.

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.

Not Applicable

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.

Not Applicable

SIGNATURES

Inspected By:

Matthew Shannon

Signature: (Provincial Officer):

Reviewed & Approved By:

Allison Kershaw

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
THORNBURY DRINKING WATER SYSTEM
AUDIT SAMPLE RESULTS - 27-SEP-2011
SUMMARY OF MICROBIOLOGICAL PARAMETERS - HEALTH RELATED

Sample Legend:

Sample # 1 - 001 EAST RIDGE SAMPLING STATION DISTRIBUTION

Sample # 2 - 011 MCCREA SAMPLING STATION DISTRIBUTION

Parameter	Units	MC ¹	SAMPLE	SAMPLE
			# 1	# 2
NT: ESCHERICHIA COLI	C/100ML	0	ABSENT	ABSENT
NT: TOTAL COLIFORMS	C/100ML	0	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
THORNBURY DRINKING WATER SYSTEM
AUDIT SAMPLE RESULTS - 27-SEP-2011
SUMMARY OF CHEMICAL / PHYSICAL PARAMETERS - HEALTH RELATED

Sample Legend:

Sample # 1 - 011 MCCREA SAMPLING STATION 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	61	

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

**THORNBURY DRINKING WATER SYSTEM
AUDIT SAMPLE RESULTS - 27-SEP-2011**

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

Sample Legend:

Sample # 1 - 001 EAST RIDGE SAMPLING STATION DISTRIBUTION

Sample # 2 - 011 MCCREA SAMPLING STATION DISTRIBUTION

Parameter	Units	OBJECTIVE	TYPE OF OBJECTIVE	SAMPLE	SAMPLE
				# 1	# 2
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
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
THORNBURY DRINKING WATER SYSTEM
AUDIT SAMPLE RESULTS - 27-SEP-2011
SUMMARY OF PARAMETERS WITH NO ODWQS

Sample Legend:

Sample # 1 - 011 MCCREA SAMPLING STATION 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	9.8	
BROMOFORM	UG/L	.5	<=W
CHLOROFORM	UG/L	47.9	
CIS-1,2-DICHLOROETHENE	UG/L	.05	<=W
DIBROMOCHLOROMETHANE	UG/L	3.2	
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 - 2011-2012)

DWS Name: THORNBURY DRINKING WATER SYSTEM
DWS Number: 220001762
DWS Owner: The Blue Mountains, Corporation Of The Town Of
Municipal Location: The Blue Mountains

Regulation: O.REG 170/03
Category: Large Municipal Residential System
Type Of Inspection: Focused
Inspection Date: September 27, 2011
Ministry Office: Owen Sound Area Office

Maximum Question Rating: 523

Inspection Module	Non-Compliance Rating
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	0 / 268
Reporting & Corrective Actions	0 / 50
TOTAL	0 / 523

Inspection Risk Rating	0.00%
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FINAL INSPECTION RATING:	100.00%
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Ministry of the Environment - Detailed Inspection Rating Record (Reporting Year - 2011-2012)

DWS Name: THORNBURY DRINKING WATER SYSTEM
DWS Number: 220001762
DWS Owner: The Blue Mountains, Corporation Of The Town Of
Municipal Location: The Blue Mountains

Regulation: O.REG 170/03
Category: Large Municipal Residential System
Type Of Inspection: Focused
Inspection Date: September 27, 2011
Ministry Office: Owen Sound Area Office

Maximum Question Rating: 523

Inspection Risk Rating | 0.00%

FINAL INSPECTION RATING: | 100.00%