



Ontario

Ministry of the Environment and Climate Change

TWEED DRINKING WATER SYSTEM

Inspection Report

Site Number:	220001557
Inspection Number:	1-CNKGG
Date of Inspection:	Sep 16, 2016
Inspected By:	Monica Howlett

**Table of Contents: Tweed Drinking Water System
 Inspection Report 1-CNKGG**

OWNER INFORMATION	2
CONTACT INFORMATION	2
INSPECTION DETAILS	2
DWS COMPONENTS DESCRIPTION	3
INSPECTION SUMMARY	5
Introduction	5
Source	5
Capacity Assessment	6
Treatment Processes	7
Treatment Process Monitoring	8
Operations Manuals	9
Logbooks	9
Security	9
Certification and Training	9
Water Quality Monitoring	9
Water Quality Assessment	11
Reporting & Corrective Actions	11
NON-COMPLIANCE W/REGULATORY REQUIREMENTS AND ACTIONS REQUIRED	12
SUMMARY OF RECOMMENDATIONS AND BEST PRACTICE ISSUES	13
SIGNATURES	14
APPENDIX A – Stakeholder Appendix	✓
APPENDIX B – DWS Inspection Summary Rating Record	✓

OWNER INFORMATION:

Company Name:	TWEED, THE CORPORATION OF THE MUNICIPALITY OF	Unit Identifier:	
Street Number:	255		
Street Name:	METCALF St		
City:	TWEED		
Province:	ON	Postal Code:	K0K 3J0

CONTACT INFORMATION

Type:	Owner	Name:	Betty Gallagher
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Title:	CAO/Clerk (A)		

Type:	Owner	Name:	Allan Broek
Phone:	(613) 478-2535	Fax:	(613) 478-6457
Email:	pubwks@twp.tweed.on.ca		
Title:	PW - Supervisor		

Type:	Operating Authority	Name:	Amber Bevan
Phone:	(613) 472-2131	Fax:	(613) 472-6045
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Title:	(A) Cluster Manager, Trent Valley Hub, OCWA		

Type:	Other - specify	Name:	Derek Chapman
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Title:	Duty operator for the Tweed Well Supply		

Type:	Medical Officer of Health	Name:	Dr Richard Schabas
Phone:	(613) 966-5513	Fax:	(613) 966-4418
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Title:	Manager Quinte Conservation Authority		

INSPECTION DETAILS:

Site Name:	TWEED DRINKING WATER SYSTEM
Site Address:	430 RIVER ST W TWEED K0K 3J0
County/District:	Tweed

MOECC District/Area Office:	Belleville Area Office
Health Unit:	HASTINGS AND PRINCE EDWARD COUNTIES HEALTH UNIT
Conservation Authority:	
MNR Office:	
Category:	Large Municipal Residential
Site Number:	220001557
Inspection Type:	Unannounced
Inspection Number:	1-CNKGG
Date of Inspection:	Sep 16, 2016
Date of Previous Inspection:	Jul 21, 2015

COMPONENTS DESCRIPTION

Site (Name): MOE DWS Mapping
Type: DWS Mapping Point

Sub Type:

Site (Name): WELL 3 (Crookston)
Type: Source

Sub Type: Ground

Comments:

The Crookston well is located at 430 River Street West. The well was constructed in 1995 to enhance the water supply availability of the municipal system. The 122.2 m deep well penetrates the 10.1 m of glaciofluvial (esker) sand and gravel deposits and 112.1 m of Precambrian granite. The 250 mm diameter well is cased to bedrock for 11 m and equipped with a submersible pump having a rated capacity of 18.9 L/s at a TDH of 110 m. This is the production well that is normally used to supply raw water to the community. The well has a permitted capacity of 1633 cu m/day and an average withdrawal of 619 cu m/day. Significant water-producing fractures were encountered at a depth of 15.5 and 47.2 m.

The raw water quality has a history of elevated nitrate concentrations (approximately 6 mg/L in 2001 and 2002) but at levels less than 10 mg/L the Ontario Drinking Water Quality Standard (ODWQS). Coliform bacteria have also been detected in the raw water exceeding the ODWQS. Uranium concentrations in the raw water have in the past approached the ODWQS of 0.020 mg/L.

Site (Name): WELL 1 (Hungerford)
Type: Source

Sub Type: Ground

Comments:

The Main Well is located at 404 Hungerford Road. It was drilled in June, 1954 and was the primary source of drinking water for Tweed for over 40 years until the Crookston well was constructed in 1995. The Main Well is currently not in service and the water system control documentation stipulates that this well will be used only in an emergency. The well is 200 mm in diameter, 132 m deep, cased to bedrock and equipped with a submersible pump with a rated capacity of 15.1 L/s at a TDH of 87.9 m.

The top 12.5 m of the well penetrates a sand and gravel esker deposit. A major water producing feature was intercepted at 130.5 metres. Testing conducted at the time of drilling indicated that the well was capable of producing 755L/min. The well has a permitted capacity of 950 cu m/day and an average withdrawal of 307 cu m/day. The raw water quality from the main well has had a history of elevated uranium and fluoride concentrations. The source of these chemical parameters is considered to be natural to the aquifer formation. Uranium has been detected at concentrations ranging from the ~0.100 to the ~0.350 mg/L range which exceeds the Ontario Drinking Water Quality Standards (ODWQS) of 0.020 mg/L (Note: the ODWQS were lowered to 0.020 mg/L from 0.100 mg/L in June, 2002). Similarly, fluoride has been historically detected at concentrations ranging from 1.3 to 1.7mg/L which exceeds the Ontario Drinking Water Quality Standards of 1.5 mg/L.

Site (Name): DISTRIBUTION (WATER INSPECTIONS)

Type: Other

Sub Type:

Comments:

The distribution system supplies water to approximately 1,500 persons. The distribution system consists of an elevated storage tank, valves, piping, hydrants and associated appurtenances.

The Tweed distribution system pipe material consists of cast iron, ductile iron and PVC. The total length of the distribution system is approximately 18.2 km.

INSPECTION SUMMARY:

Introduction

- The primary focus of this inspection is to confirm compliance with Ministry of the Environment and Climate Change (MOECC) legislation as well as evaluating conformance with ministry drinking water related policies and guidelines during the inspection period. The ministry utilizes a comprehensive, multi-barrier approach in the inspection of water systems that focuses on the source, treatment and distribution components 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 the system. Although the inspection involved fewer activities than those normally undertaken in a detailed inspection, it contained critical elements required to assess key compliance issues. This system was chosen for a focused inspection because the system's performance met the ministry's criteria, most importantly that there were no deficiencies as identified in O.Reg. 172/03 over the past 3 years. The undertaking of a focused inspection at this drinking water system does not ensure that a similar type of inspection will be conducted at any point in the future.

This inspection report does not suggest that all applicable legislation and regulations were evaluated. It remains the responsibility of the owner to ensure compliance with all applicable legislative and regulatory requirements.

On September 16, 2016, Water Inspector Monica Howlett was on-site at the Tweed Drinking Water System (DWS) to conduct an unannounced "focused" drinking water compliance inspection. The Ontario Clean Water Agency (OCWA) is designated as the operating authority for the drinking water system. Both Amber Bevan, Operations Manager (OCWA) and Derek Chapman (OCWA) designated as Operator in Charge (OIC) were on-site for the inspection.

The inspection included the physical inspection of the works including the water treatment plant, the production and stand-by wells, the elevated storage tank and documentation on-site was reviewed. The inspection period covered by this report is July 1, 2015 to August 31, 2016.

Documents reviewed in association with this report included, but were not limited to:

1. Ministry of the Environment and Climate Change Municipal Drinking Water Licence (MDWL), number 168-101(Issue Number 2) dated June 7, 2016.
2. Ministry of the Environment and Climate Change Drinking Water Works Permit (DWWP), number 168-201(Issue Number 2) dated May 19, 2016.
3. Ministry of the Environment and Climate Change Permit to Take Water (PTTW), number 1674-8WAL9T issued on September 27, 2012 and number 4464-A9NRHH dated May 10, 2016.

Under Ontario Regulation (O. Reg.) 170/03, a large municipal residential system, is a drinking water system that serves more than 100 private residences. A major residential development is defined in the Safe Drinking Water Act, 2002 (SDWA), as a development of six or more private residences of one or more properties. The Tweed Drinking Water System serves approximately 1500 persons and therefore the system is considered a Large Municipal Drinking Water System (DWS) under O. Reg. 170/03.

Source

- The owner was maintaining the production well(s) in a manner sufficient to prevent entry into the well of surface water and other foreign materials.

As part of the field inspection Well #3 was visually assessed. Well #3 is designated as the production well for the

Source

drinking water system as stated in condition 3.3 of Permit to Take Water number 4464-A9NRHH. The production well was found to have a vermin proof cap with an intact vent screen and no surface water ponding was found in the vicinity. A well tag was not fixed to the well, it appeared to have been detached from the well as previous inspection reports for the drinking water system stated that a well tag was fixed to the casing. As part of the annual inspection of the above grade components of the well as stated in OCWA's SOP #22 issued July 28, 2016, section 5.4 the inspection shall verify that the MOECC well tag is attached to the well casing. Well #1 (back-up well) is located in a pumphouse beside the Tweed elevated storage tank. Well #1 was not required to be used during the inspection period. During the field inspection Well #1 was observed to have no surface water pooling around the casing.

- **Measures were in place to protect the groundwater and/or GUDI source in accordance with any the Municipal Drinking Water Licence and Drinking Water Works Permit issued under Part V of the SDWA.**
OCWA has implemented two Standard Operating Procedures (SOPs) for inspecting well components at the Tweed Drinking Water System, these are SOP #22 Above Grade Well Inspection and SOP #23 Below Grade Well Inspection both issued July 28, 2016.
As per SOP #22 above grade components are inspected annually with the last inspection of Well #3 occurring on September 20, 2016 and Well #1 on October 11, 2016. Below grade well inspections are covered in SOP #23 and state that the need for a below grade inspection is based on operational and/or mechanical needs or analytical results that may indicate potential water quality/quantity issues. Various conditions are used to assess if a below grade inspection is required such as changes in the appearance or physical quality of the raw water, failure or signs of wear of the well equipment and decrease in well efficiency. It is still recommended that below grade components of the wells be assessed at least every ten years to identify any potential issues before they become problematic. Records were provided by the Municipality of Tweed that indicated that during the inspection period, the two monitoring wells in the distribution numbered TW 05-01 and TW 05-02 were inspected (above grade components and surrounding area).

Capacity Assessment

- **There was sufficient monitoring of flow as required by the Municipal Drinking Water Licence or Drinking Water Works Permit issued under Part V of the SDWA.**
At the time of inspection, it was observed that raw water flow was being monitored separately for Wells 1 and 3 when entering the treatment subsystem by magnetic flow meters manufactured by Endress & Hauser and flow was also monitored post the ion exchange unit by a magnetic flow meter manufactured by Danfloss. At the time of inspection, it was stated that 100% of the raw water was being treated by the ion exchange unit for uranium removal due to operational problems with the raw water valving. Under normal operations only a portion of the raw water is directed through the ion exchange unit due to its high operational costs while still meeting the Ontario Drinking Water Quality Standard (ODWQS) for uranium.
It was observed that treated water flow was monitored using a magnetic flow meter manufactured by Danfloss.
- **The owner was in compliance with the conditions associated with maximum flow rate or the rated capacity conditions in the Municipal Drinking Water Licence issued under Part V of the SDWA.**
The MDWL allows a maximum daily volume of treated water from the treated subsystem to the distribution system as a rated capacity of 1633 m³/day. During the inspection period treated water flow records reviewed indicate the maximum daily flow to the distribution system ranged from 494 m³/day (November 2015) to 1196 m³/day (August 2015). Average daily flows ranged from 400 m³/day to 850 m³/day.
PTTW # 4464-A9NRHH issued May 10, 2016 allows a maximum water taken per minute as 1,134 L/min and maximum water taking per day as 1,633,000 L/d (1633 m³/day) for well #3. During the inspection period raw water flow records reviewed indicate the withdrawal rates ranged from 1153 L/min to 1800 L/min. These exceedances were instantaneous due to pump start-up and pump to waste. The maximum water taking was 1196 m³/day in August 2015.

Treatment Processes

- The owner had ensured that all equipment was installed in accordance with Schedule A and Schedule C of the Drinking Water Works Permit.
- The owner/operating authority was in compliance with the requirement to prepare Form 2 documents as required by their Drinking Water Works Permit during the inspection period.

A Form 2 - Record of Minor Modifications or Replacements to the Drinking Water System was prepared on October 29, 2015 for the replacement of a hydrant and the addition of a shut off valve on Colbourne Street.

A Form 2 - Record of Minor Modifications or Replacements to the Drinking Water System was prepared on November 18, 2015 for the replacement of a 6" watermain shut off valve at the intersection of Jamieson and Spring Streets.

A Form 2 - Record of Minor Modifications or Replacements to the Drinking Water System was prepared on September 30, 2016 for the installation of a Variable Frequency Drive on the 40 HP high lift pumps in the water treatment plant.

- Records indicated that the treatment equipment was operated in a manner that achieved the design capabilities required under Ontario Regulation 170/03 or a Drinking Water Works Permit and/or Municipal Drinking Water Licence issued under Part V of the SDWA at all times that water was being supplied to consumers.

The raw water source for the Tweed Drinking Water System consists of two ground water wells. Well #1 which is a stand-by well is considered ground water, where as the production well, Well #3 is deemed ground water under the direct influence of surface water (GUDI) with effective in-situ filtration. During the inspection period Well #3 was used exclusively, as such the more stringent treatment requirements of the GUDI apply to the drinking water system. The minimum required treatment that GUDI systems must achieve is a 2-log removal or inactivation of Cryptosporidium oocysts, 3-log removal or inactivation of Giardia cysts and 4-log removal or inactivation of viruses. Primary disinfection at the drinking water system is achieved using two Trojan Small Community ultraviolet units with one duty and one stand-by that alternate on plant start-up. Each unit has a rated capacity of 18.9 L/s and minimum dose of 40 mJ/cm². UV intensity is continually monitored and will lock-out the plant if the intensity falls below 46.1 W/m². Schedule E of the MDWL for the drinking water system credits a 2-log removal or inactivation of Cryptosporidium oocysts, 3-log removal or inactivation of Giardia cysts and 2-log removal or inactivation of viruses to the UV disinfection. A greater than 2-log credit for virus removal is given to disinfection provided by chlorination using sodium hypochlorite.

Data reviewed for the inspection period indicated that the minimum intensity was 46.97 W/m² (UV #2) in August 2016 and minimum treated chlorine residual was 1.07 mg/l in September 2015. CT calculations were conducted by the undersigned for disinfection based on chlorination alone using the following parameters: volume of contact chamber - 17 m³, max flow rate for Well #3 - 18.9 L/s, baffle factor - 1, temp - 10 degrees Celsius, pH- 8 and chlorine 1.07 mg/L (September 2015). A 4-log removal of viruses was calculated to require a CT of 6 mg.min/L and CT achieved was 16.04 mg.min/L.

- 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.

Chlorine residual in the distribution system is monitored at the Tweed elevated water storage tank using both a chart recorder and an on-line continuous distribution free chlorine analyser. At the time of the inspection the analyser was reading 1.87 mg/L. Records reviewed for the inspection period indicated that the minimum chlorine residual in the distribution was 0.60 mg/L in August 2016 (due to a fire in town). Average free chlorine residual readings in the distribution ranged from 1.52 mg/L to 1.86 mg/L during the inspection period.

- 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.

Treatment Processes

The Tweed drinking water system utilizes two Trojan UV Swift Small Community ultraviolet (UV) units model B-08, with one unit as duty and the other as standby each rated at 18.9 L/s. The units are continuously monitored, are equipped with visual alarms and will lock-out the plant if the intensity falls below 46.1 W/m². The units alternate as duty at plant start-up and should one unit fail, the second unit would automatically be switched over to resume treatment operations.

Treatment Process Monitoring

- **Primary disinfection chlorine monitoring was conducted at a location approved by Municipal Drinking Water Licence and/or Drinking Water Works Permit issued under Part V of the SDWA, or at/near a location where the intended CT has just been achieved.**

Chlorine contact time is achieved in the water treatment plant using a 17 m³ capacity (750 mm diameter) chlorine contact pipe located prior to the distribution system. A continuous free chlorine residual analyser reads and records the chlorine residual after the treated water leaves the chlorine contact pipe. A secondary free chlorine online analyzer is located prior to the contact pipe. Both units have alarm set points of 1.00 mg/L. If the free chlorine residual leaving the chlorine contact pipe falls below the allotted set point, the well pump locks out and the operator is paged.

- **The secondary disinfectant residual was measured as required for the distribution system.**

There is an on-line continuous monitored distribution free chlorine analyser with chart recorder located in the elevated water storage tank for the Tweed drinking water system.

- **Operators were examining continuous monitoring test results and they were examining the results within 72 hours of the test.**

Operators at the Tweed drinking water system utilize an Excel workbook entitled 'O. Reg. 170/03 - Schedule 6 - Operational Checks - 72 Hour Review Form' in which the operator records the daily min, max and mean values for the post free chlorine residual and distribution free chlorine residual continuous monitoring. The date and time along with the operators initials of who completed the 72 hour review are recorded for each day of data reviewed. Comments are also included to explain any anomalous data.

- **All continuous monitoring equipment utilized for sampling and testing required by O. Reg.170/03, or Municipal Drinking Water Licence or Drinking Water Works Permit or order, were equipped with alarms or shut-off mechanisms that satisfy the standards described in Schedule 6.**

The Tweed DWS has low and high level alarms for their continuous monitoring equipment for free chlorine residual. The pre-free chlorine set point is 1.00 mg/L that will lock-out the well pump after a sixty second delay. The low level alarm for the post free chlorine analyser is set at 1.00 mg/L (minimum chlorine residual for CT is 0.8 mg/L) and the high level alarm is set to 4.00 mg/L. Both Trojan UV Swift SC UV units are equipped with lock out devices that would activate if the intensity were less than 46.1 W/m² which would then activate the standby unit.

A continuous turbidity analyser monitors turbidity of treated water prior to entering the distribution and is set with high alarm that activates when turbidity is greater than 1 Nephelometric Turbidity Units (NTU) for a period of ten minutes.

The continuous free chlorine analyser at the elevated storage tank is set with a low level alarm at 0.5 mg/L and a high level alarm of 4.0 mg/L.

- **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 and recording data with the prescribed format.**

The polling frequency for the SCADA system is approximately every two minutes for treated and distribution water free chlorine residual, turbidity and UV data.

Treatment Process Monitoring

- All continuous analysers were calibrated, maintained, and operated, in accordance with the manufacturer's instructions or the regulation.

During the inspection period workorders were created by operators for monthly verification/calibration of the continuous analysers for pre, post and distribution free chlorine monitoring and treated water turbidity monitoring.

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 for the Tweed drinking water system consist of several binders available to operating staff in the water treatment plant and electronically. Manuals include Standard Operating Procedures, Facility Emergency Plan, Contingency Plan, equipment manuals, Sampling Binder, Safety Binder, Safety Data Sheets, regulations, DWWP, MDWL and PTTW.

- The operations and maintenance manuals met the requirements of the Drinking Water Works Permit and Municipal Drinking Water Licence 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.

Security

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

The water treatment plant is fenced with a locked gate at the water treatment plant and a gate is present from the drive way to River St. Intrusion alarms are in place with sensors on the exterior doors that activate if opened at the water treatment plant, Well #1 pumphouse and the elevated storage tank. No trespassing signage is in place around the water treatment plant along with emergency phone numbers and a phone number for the security company. Signage with an emergency phone number is in place at the elevated storage tank.

Certification and Training

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

Jim Rodgers is designated as the Overall Responsible Operator for the water treatment plant and the distribution system. He is appropriately certified.

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

Derek Chapman is the designated Operator In Charge (OIC) for the Tweed drinking water system. Tim Cassidy is the designated OIC for the distribution system. Other operators who filled in as OIC during the inspection period were appropriately certified.

- Only certified operators made adjustments to the treatment equipment.

Water Quality Monitoring

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

During the inspection period two to three (2 - 3) distribution samples were collected per week and submitted for E.

Water Quality Monitoring

coli, total coliforms and Heterotrophic Plate Count (HPC) analysis. The Tweed drinking water system serves approximately 1500 residents. As per O. Reg. 170/03, Schedule 10-2, the Tweed drinking water system is required to sample the distribution system and take at least nine (9) samples per month with at least one sample taken per week. Samples are to be submitted for analysis for E. coli, total coliforms and 25% of samples are required to be submitted for HPC.

- **All microbiological water quality monitoring requirements for treated samples were being met.**
During the inspection period, one treated water sample was collected weekly and submitted for total coliforms, E. coli and HPC analysis in accordance with Section 10-3 of Schedule 10 of O. Reg. 170/03.
- **All inorganic water quality monitoring requirements prescribed by legislation were conducted within the required frequency.**
The most recent treated water sample was taken on March 14, 2016 for analysis of Schedule 23 inorganic parameters.
- **All organic water quality monitoring requirements prescribed by legislation were conducted within the required frequency.**
The most recent treated water sample was taken on March 14, 2016 for analysis of Schedule 24 organic parameters.
- **All trihalomethanes water quality monitoring requirements prescribed by legislation were conducted within the required frequency.**
During the inspection period quarterly samples were taken and tested for trihalomethanes as required by legislation with the most recent running annual average calculated as 14.05 ug/L with an individual result of 27.0 ug/L from a sample taken on July 11, 2016.
- **All nitrate/nitrite water quality monitoring requirements prescribed by legislation were conducted within the required frequency for the DWS.**
During the inspection period quarterly samples were taken and analysed for nitrate/nitrite analysis as required by legislation. Nitrate results ranged from 2.58 mg/L to 4.53 mg/L (the limit for nitrate as per O. Reg. 169/03 ODWQS is 10 mg/L) and nitrite results were below the method detection limit for the laboratory 0.003 mg/L.
- **All sodium water quality monitoring requirements prescribed by legislation were conducted within the required frequency.**
A review the records for the inspection period indicated that the most recent result for sodium during the inspection period was taken on August 6, 2013 with a result of 24.0 mg/L. As per O. Reg. 170/03 Schedule 16 subsection 16-3 (1)8 this was an adverse result. The adverse test result was reported in adverse water quality incident (AWQI) 113365. A re-sample was collected on August 14, 2013 and provided a result of 26.0 mg/L. The local Health Unit prepared a notice about the elevated sodium levels and the Municipality posted this notice on their website and mailed it out with billing information.
- **All fluoride water quality monitoring requirements prescribed by legislation were conducted within the required frequency.**
Due to naturally occurring fluoride in the source water the Tweed drinking water system has elected to sample and test for fluoride quarterly above the regulatory requirement to sample every 60 months. During the inspection period test results ranged from 0.80 mg/L to 1.02 mg/L (O. Reg. 169/03 ODWQS is 1.5 mg/L).
- **All water quality monitoring requirements imposed by the Municipal Drinking Water Licence and Drinking Water Works Permit were being met.**

Water Quality Monitoring

MDWL # 168-101, Issue Number 2 Schedule C Section 1.6 "UV Disinfection Equipment Performance" Table 4 requires the drinking water system to monitor the flow rate, UV light intensity and lamp status and record data every four (4) hours for the UV units. UV light intensity is continuously monitored and as such it is understood that if intensity is produced then the UV lamp status is active. In addition, flow is monitored for water entering the water treatment plant and treated water leaving the plant by the use of magnetic flow meters.

Due to naturally occurring uranium in the source water MDWL # 168-101, Issue Number 2 Schedule C Section 4.0 "Additional Sampling, Testing and Monitoring", subsection 4.1 Table 5 requires that the drinking water system take a quarterly sample from the distribution for uranium analysis. Records reviewed for the inspection period showed that samples were taken quarterly and uranium results ranged from 0.084 ug/L to 0.197 ug/L well below the O. Reg. 169/03 ODWQS of 0.02 mg/L (20 ug/L).

Schedule E of MDWL # 168-101, Issue Number 2 also requires that the UV sensors be checked at least on a monthly basis against a reference UV sensor. Monthly sensor checks were performed from July 2016 as the license requirement was introduced in June 2016.

Condition 4 of PTTW # 4464-A9NRHH requires well water level monitoring from Well #3, Well #1, and monitoring wells TW 05-01, TW 05-02. Additional sampling is also required at domestic Well #3. The well water sample analysis information is to be provided to a practicing professional engineer or practicing professional geoscientist at two year intervals. Information for the calendar years 2014 and 2015 were submitted to hydrogeologist Mark Boone of Quinte Conservation and a report was prepared on June 16, 2016.

- Records confirmed that chlorine residual tests were being conducted at the same time and at the same location that microbiological samples were obtained.

Water Quality Assessment

- Records did not show that all water sample results taken during the inspection review period did not exceed the values of tables 1, 2 and 3 of the Ontario Drinking Water Quality Standards (O.Reg. 169/03).

Records reviewed for the inspection period showed that the water failed to meet the requirements of the prescribed Ontario Drinking Water Standards (O. Reg. 169/03) for a distribution sample taken November 18, 2015 with a result for total coliforms of 12 cfu/100ml. Re-samples taken for this adverse water quality incident gave results of zero (0) total coliforms and E. coli.

Reporting & Corrective Actions

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

There was one reported adverse total coliforms result reported during the inspection period. The corrective actions as per O. Reg. 170/03 Schedule 17 were followed.

- 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.
- 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 RECOMMENDATIONS AND BEST PRACTICE ISSUES

This section provides a summary of all recommendations and best practice issues identified during the inspection period. Details pertaining to these items can be found in the body of the inspection report. In the interest of continuous improvement in the interim, it is recommended that owners and operators develop an awareness of the following issues and consider measures to address them.

Not Applicable

SIGNATURES

Inspected By:

Monica Howlett

Signature: (Provincial Officer)

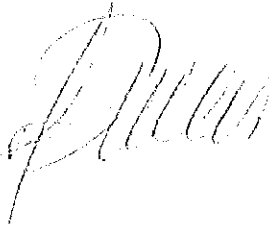


Reviewed & Approved By:

Jackie Fuller

Signature: (Supervisor)

Review & Approval Date:

 01/30/16

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.



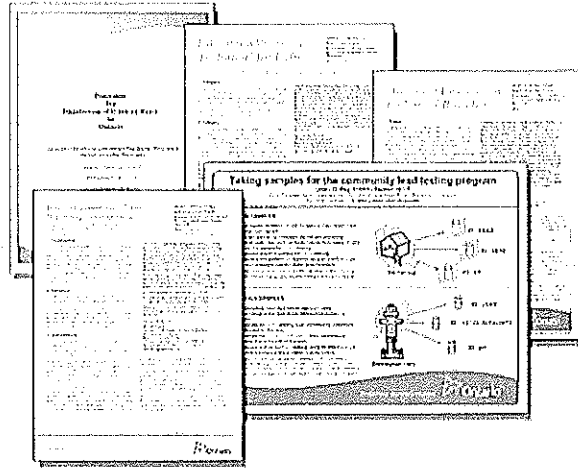
STAKEHOLDER APPENDIX

Key Reference and Guidance Material for Municipal Residential Drinking Water Systems

Many useful materials are available to help you operate your drinking water system. Below is a list of key materials owners and operators of municipal residential drinking water systems frequently use.

To access these materials online click on their titles in the table below or use your web browser to search for their titles. Contact the Public Information Centre if you need assistance or have questions at 1-800-565-4923/416-325-4000 or picemail.moe@ontario.ca.

For more information on Ontario's drinking water visit www.ontario.ca/drinkingwater and email drinking.water@ontario.ca to subscribe to drinking water news.



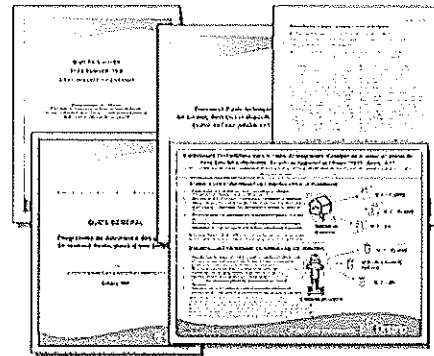
DOCUMENT/TITLE	SEARCH/STOR NUMBER
Taking Care of Your Drinking Water: A Guide for Members of Municipal Councils	7889e01
FORMS: Drinking Water System Profile Information, Laboratory Services Notification, Adverse Test Result Notification Form	7419e, 5387e, 4444e
Procedure for Disinfection of Drinking Water in Ontario	4448e01
Strategies for Minimizing the Disinfection Products Trihalomethanes and Haloacetic Acids	7152e
Total Trihalomethane (TTHM) Reporting Requirements Technical Bulletin (February 2011)	8215e
Filtration Processes Technical Bulletin	7467
Ultraviolet Disinfection Technical Bulletin	7685
Guide for Applying for Drinking Water Works Permit Amendments, Licence Amendments, Licence Renewals and New System Applications	7014e01
Certification Guide for Operators and Water Quality Analysts	
Guide to Drinking Water Operator Training Requirements	9802e
Taking Samples for the Community Lead Testing Program	6560e01
Community Sampling and Testing for Lead: Standard and Reduced Sampling and Eligibility for Exemption	7423e
Guide: Requesting Regulatory Relief from Lead Sampling Requirements	6610
Drinking Water System Contact List	7128e
Technical Support Document for Ontario Drinking Water Quality Standards	4449e01

ontario.ca/drinkingwater

Principaux guides et documents de référence sur les réseaux résidentiels municipaux d'eau potable

De nombreux documents utiles peuvent vous aider à exploiter votre réseau d'eau potable. Vous trouverez ci-après une liste de documents que les propriétaires et exploitants de réseaux résidentiels municipaux d'eau potable utilisent fréquemment.

Pour accéder à ces documents en ligne, cliquez sur leur titre dans le tableau ci-dessous ou faites une recherche à l'aide de votre navigateur Web. Communiquez avec le Centre d'information au public au 1 800 565-4923 ou au 416 325-4000, ou encore à picemail.moo@ontario.ca si vous avez des questions ou besoin d'aide.



Pour plus de renseignements sur l'eau potable en Ontario, consultez le site www.ontario.ca/eaupotable ou envoyez un courriel à drinking.water@ontario.ca pour suivre l'information sur l'eau potable.

Titre de l'article	Numéro de l'article
Prendre soin de votre eau potable – Un guide destiné aux membres des conseils municipaux	7889f01
Renseignements sur le profil du réseau d'eau potable, Avis de demande de services de laboratoire, Formulaire de communication de résultats d'analyse insatisfaisants et du règlement des problèmes	7419f, 5387f, 4444f
Marche à suivre pour désinfecter l'eau potable en Ontario	4448f01
Strategies for Minimizing the Disinfection Products Trihalomethanes and Haloacetic Acids (en anglais seulement)	7152e
Total Trihalomethane (TTHM) Reporting Requirements: Technical Bulletin (février 2011) (en anglais seulement)	8215e
Filtration Processes Technical Bulletin (en anglais seulement)	7467
Ultraviolet Disinfection Technical Bulletin (en anglais seulement)	7685
Guide de présentation d'une demande de modification du permis d'aménagement de station de production d'eau potable, de modification du permis de réseau municipal d'eau potable, de renouvellement du permis de réseau municipal d'eau potable et de permis pour un nouveau réseau	7014f01
Guide sur l'accréditation des exploitants de réseaux d'eau potable et des analystes de la qualité de l'eau de réseaux d'eau potable	
Guide sur les exigences relatives à la formation des exploitants de réseaux d'eau potable	9802f
Prélèvement d'échantillons dans le cadre du programme d'analyse de la teneur en plomb de l'eau dans les collectivités	6560f01
Échantillonnage et analyse du plomb dans les collectivités : échantillonnage normalisé ou réduit et admissibilité à l'exemption	7423f
Guide: Requesting Regulatory Relief from Lead Sampling Requirements (en anglais seulement)	6610
Liste des personnes-ressources du réseau d'eau potable	7128f
Document d'aide technique pour les normes, directives et objectifs associés à la qualité de l'eau potable en Ontario	4449f01

ontario.ca/eaupotable



DWS Inspection Summary Rating Record

Ministry of the Environment - Inspection Summary Rating Record (Reporting Year - 2016-2017)

DWS Name: TWEED DRINKING WATER SYSTEM DWS Number: 220001557 DWS Owner: Tweed, The Corporation Of The Municipality Of Municipal Location: Tweed

Regulation: O.REG 170/03
Category: Large Municipal Residential System
Type Of Inspection: Focused
Inspection Date: September 16, 2016
Ministry Office: Belleville Area Office

Maximum Question Rating: 524

Inspection Module	Non-Compliance Rating
Source	0 / 28
Capacity Assessment	0 / 30
Treatment Processes	0 / 81
Operations Manuals	0 / 28
Logbooks	0 / 14
Certification and Training	0 / 28
Water Quality Monitoring	0 / 116
Reporting & Corrective Actions	0 / 87
Treatment Process Monitoring	0 / 112
TOTAL	0 / 524

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 - 2016-2017)

DWS Name: TWEED DRINKING WATER SYSTEM
DWS Number: 220001557
DWS Owner: Tweed, The Corporation Of The Municipality Of
Municipal Location: Tweed

Regulation: O.REG 170/03
Category: Large Municipal Residential System
Type Of Inspection: Focused
Inspection Date: September 16, 2016
Ministry Office: Belleville Area Office

Maximum Question Rating: 524

Inspection Risk Rating 0.00%

FINAL INSPECTION RATING: 100.00%