

2015  
Annual Drinking Water Report

For:

Hamilton Drive Drinking Water System

Rockwood Drinking Water System

-And-

Gazer Mooney Subdivision Distribution System

Prepared by:



# I. Introduction

## Purpose

The purpose of this report is to provide information to stakeholders and to satisfy the regulatory requirements of the Safe Drinking Water Act (SDWA) including the Drinking Water Quality Management Standard (DWQMS), and regulatory reporting required under O.Reg. 170/03 (Section 11 and Schedule 22). The report is a compilation of information that helps to demonstrate the ongoing provision of safe, consistent supply of high quality drinking water to customers located within the Rockwood, Hamilton Drive and the Gazer Mooney Subdivision.

The scope of this report represents January 1 to December 31, 2015 for Rockwood, Hamilton Drive and Gazer Mooney Drinking Water Systems.

## Scope

This Annual & Summary Water Services Report includes information for Rockwood, Hamilton Drive and the Gazer Mooney Subdivision Distribution System for the period of Jan.1 to Dec. 31, 2015

This report satisfies the requirements of both the Safe Drinking Water Act (SDWA) and Ontario Regulation 170/03:

- Section 11, Annual Reports which includes:
  - a brief description of the drinking water systems;
  - a list of water treatment chemicals used;
  - a summary of the most recent water test results required under O. Reg. 170/03 or an approval, Municipal Drinking Water Licence (MDWL) or order;
  - a summary of adverse test results and other issues reported to the Ministry including corrective actions taken;
  - a description of major expenses incurred to install, repair or replace required equipment;
  - the locations where this report is available for inspection.

And;

- Schedule 22, Summary Report which includes:
  - list the requirements of the Safe Drinking Water Act, the regulations, the system's approval, Drinking Water Works Permit (DWWP), Municipal Drinking Water Licence (MDWL), and any orders applicable to the system that were not met at any time during the period covered by the report;
  - for each requirement that was not met, the duration of the failure and the measures that were taken to correct the failure;

- a summary of the quantities and flow rates of the water supplied during the period covered by the report, including monthly average and maximum daily flows; and
- a comparison of this information to the rated capacity and flow rates approved in the system's approval, DWWP and/or MDWL.

A copy of this report is available for viewing at the Township of Guelph/Eramosa, 8348 Wellington Rd. 124, Rockwood and Online at [www.get.on.ca](http://www.get.on.ca)

*As per the Accessibility for Ontarians with Disabilities Act (AODA), this document is available in an alternate format by e-mailing the Township Clerk [mried@get.on.ca](mailto:mried@get.on.ca) or by calling 519-856-9596*

## Table of Contents

<b>1.0 Systems Overview</b> .....	<b>1</b>
<b>2.0 Summary Water Services Report</b> .....	<b>3</b>
a) Incidents of Regulatory Non-Compliance .....	3
b) Adverse Water Quality Incidents .....	3
c) Deviations from Critical Control Point (CCP) Limits and Response Actions .....	5
d) The Effectiveness of the Risk Assessment Process.....	5
e) Internal and Third-Party Audit Results.....	6
f) Results of Emergency Response Testing.....	6
g) Operational Performance and Statistics .....	7
h) Raw and Treated Water Quality – Rockwood, Hamilton Drive and Gazer Mooney Drinking Water System .....	12
i) Follow up on Action Items from previous management reviews.....	20
j) Status of Ongoing and Emerging Water Quality, Supply and Distribution Initiatives .....	20
k) Expected Future Changes That Could Affect the DWS or the QMS.....	21
l) Consumer Feedback .....	22
m) The Resources Needed to Maintain the QMS .....	22
n) The Results of Infrastructure Review.....	22
p) Staff Suggestions .....	23
<b>3.0 Next Steps</b> .....	<b>23</b>
<b>4.0 Legal and other Requirements update</b> .....	<b>24</b>

## List of Tables

Table 1: Summary of Rockwood and Hamilton Drive Water System Adverse Water Quality Incidents .....	4
Table 2: Summary of Gazer Mooney Subdivision Distribution System Adverse Water Quality Incidents .....	4
Table 3: Summary of Raw Water Flows – Rockwood and Hamilton Drive .....	7
Table 4: Rockwood Expenses .....	12
Table 5: Hamilton Drive Expenses.....	12
Table 6: Operational testing done under Schedule 8 of O. Reg.170/03 Rockwood.....	13

Table 7: Operational testing done under Schedule 8 of O. Reg.170/03 Hamilton Drive ..... 13

Table 8: O. Reg. 170/03 Schedule 10 - Rockwood / Hamilton Drive Microbiological testing ..... 14

Table 9: O. Reg. 170/03 Schedule 13 – Rockwood / Hamilton Drive Summary of Inorganic parameters tested  
..... 14

Table 10: O. Reg. 170/03 Schedule 13-3 – Rockwood / Hamilton Drive Summary of Organic parameters ..... 15

Table 11: O. Reg. 170/03 Schedule 13-6, 13-7 Rockwood and Hamilton Drive Quarterly Results ..... 18

Table 12: O. Reg. 170/03 Schedule 15.1 Rockwood/Hamilton Lead Testing Summary 2015 ..... 18

Table 13: O. Reg. 170/03 Schedule 7-2, Gazer Mooney - Distribution Manual Free Chlorine Residual Summary  
..... 19

Table 14: O. Reg. 170/03 Schedule 10-2, Gazer Mooney Treated Bacteriological Sampling Summary ..... 19

Table 15: O. Reg. 170/03 Schedule 13-7, Gazer Mooney - Quarterly Sampling Results Summary ..... 19

Table 16: Gazer Mooney General Chemistry Results Summary .....20

## **1.0 Systems Overview**

### **1.1 Rockwood Drinking Water System**

The Rockwood (RWD) Water Supply System is a Class I Water Treatment Subsystem and a Class II Water Distribution Subsystem consisting of three municipal groundwater wells, a water tower and distribution system. Wells #1 and #2 are located at the Station Street Pumphouse and supply water directly to Zone 1 distribution system. Well #3 at the Bernardi Pumphouse supply water to Zone 1 of the distribution system and to the in-distribution standpipe. When the well pumps are running, they deliver water to meet the demand in Zone 1 of the distribution system and any excess water produced is directed to the standpipe and stored there. The water level in the standpipe maintains pressure in Zone 1. A Supervisory Control and Data Acquisition / Programmable Logic Controller (SCADA/PLC) system monitors and controls the operation of the Station Street well pumps and the Bernardi high lift pumps (HLPs) based on the water level in the standpipe.

The booster pumping station draws water from the standpipe and pumps to Zone 2 of the distribution system. The station uses variable frequency drive booster pumps that allow each pump to provide a range of flow rates depending on the system demand. The booster pumps are controlled by the SCADA/PLC to maintain constant pressures in this zone. When the demand for water in Zone 2 rises, the system immediately senses the associated drop in pressure and calls the pump(s) to ramp up to meet the demand. Likewise, when the demand falls, the system senses the associated rise in pressure and calls the pumps to ramp down. At least one pump must run at all times to ensure pressures are maintained in Zone 2. Any excess pressure sensed at the booster pumping station is re-circulated back into the standpipe.

Station Street primary disinfection is achieved using a UV disinfection unit. Secondary disinfection is provided by the addition of sodium hypochlorite solution. The UV disinfection unit and the chemical feed pump that injects sodium hypochlorite solution are activated whenever a well pump is running.

Bernardi Pumphouse primary disinfection is achieved by the addition of sodium hypochlorite and provision of chlorine contact time in the grade-level reservoir. Sodium hypochlorite is injected after the flow control valve and prior to the water meter. Chlorine residual concentrations are maintained in the water leaving the pumphouse, providing secondary disinfection. The facility has duty and standby chemical feed pumps for chlorine dosing. The chemical pump is energized when the well pump is activated.

### **1.2 Hamilton Drive Drinking Water System**

The Hamilton Drive Water Supply System is a Class II Water Distribution and Supply Subsystem located in the Township of Guelph/Eramosa. The system services a residential area bounded by

Victoria Road to the east, Conservation Road to the north, Highway 6 to the west and the Speed River to the south. The Hamilton Drive (HD) system obtains its entire water supply from two groundwater wells (Huntington and Cross Creek) each with its own Pumphouse and grade-level reservoir.

The raw water from each well is chlorinated to protect against microbial contaminants prior to discharge into the reservoir. The raw water is disinfected with a sodium hypochlorite solution (chlorine) for primary and secondary disinfection requirements. The water level in the reservoir starts and stops the well pumps.

The Huntington and Cross Creek Pumphouses supply treated water directly to the distribution system and to the in-distribution standpipe. As the water level in the standpipe drops, the system calls the pumps at the Huntington or Cross Creek Pumphouse to start pumping water into the distribution system. The system alternates successive pump starts between the Huntington and Cross Creek facilities. When the water demand exceeds the capacity being supplied by the Pumphouse, the supply is supplemented with water from the standpipe. When the demand is less than the amount being supplied from the Pumphouse, the excess flow is used to replenish the depleted standpipe reserves.

Water pressures are maintained throughout the distribution system by the water level in the standpipe. This system is a demand/storage system; once the standpipe is full, the high lift pumps shut down until the water level drops in the tower and the pumps are required again.

### **1.3 Gazer Mooney Subdivision Distribution System**

The Gazer Mooney Subdivision Distribution System is a Class 1 Distribution Subsystem that serves approximately 200 people, is owned by the Township of Guelph/Eramosa. The system is operated by the City of Guelph Water Services by a legal agreement that was last signed by representatives of the City of Guelph and the Township of Guelph/Eramosa on July 30, 2009. The terms of the agreement apply until May 31, 2019. All of the water for the Gazer Mooney Subdivision Distribution System is supplied from the Guelph Drinking Water System. All water is treated to provincial standards in the Guelph Drinking Water System and no further treatment chemicals are added to the Gazer Mooney Subdivision Distribution System.

## 2.0 Summary Water Services Report

### a) Incidents of Regulatory Non-Compliance

This section describes all incidents of non-compliance (excluding those defined as “Adverse Water Quality Incidents” (AWQI) reported in Section b) of this report). AWQI’s are required to be reported to the Ministry of the Environment and Climate Change (MOECC) with respect to the following Acts and related regulations: Ontario Water Resources Act (OWRA), Safe Drinking Water Act (SDWA), the Environmental Protection Act (EPA), and the Municipal Drinking Water Licences (MDWL) and Drinking Water Works Permits (DWWP).

#### **Rockwood and Hamilton Drive**

There were no incidents of non-compliance associated with Hamilton Drive or Rockwood Drinking Water Systems.

The most recent Ministry of Environment and Climate Change (MOECC) Annual Inspections in both Rockwood and Hamilton Drive Drinking Water systems resulted in an assessment score of 100 per cent (compliance). The MOECC’s Annual Inspection covered from December 10<sup>th</sup>, 2013 to October 31, 2014 for Hamilton Drive Water System with the Rockwood DW System covering up to December 15, 2014. During the preparation of this report annual inspections are currently underway for both Rockwood and Hamilton Drive. The inspection period is from November 2014 to December 31, 2015.

#### **Gazer Mooney Subdivision Distribution System**

There were no incidents of non-compliance associated with the Gazer Mooney Subdivision Distribution System in 2015 (Jan. 01 to Dec. 31).

The most recent assessment of compliance for the Gazer Mooney Subdivision Distribution System as determined by the Ministry of Environment and Climate Change (MOECC) during the 2013-14 Annual Inspection (for the period of June 2012 to Feb. 2014) resulted in an assessment score of 100 per cent (compliance).

During the preparation of this report Gazer Mooney Subdivision is undergoing an annual inspection for the period from November 2014 to December 31, 2015.

### b) Adverse Water Quality Incidents

This section describes all “Adverse Water Quality Incidents” (AWQI). This term refers to any unusual test result from treated water that does not meet a provincial water quality standard, or situation



where disinfection of the water may be compromised. An adverse water quality incident indicates that on at least one occasion, a water quality standard was not met.

The process of water quality sampling and testing can result in false positive results for contaminants; these results can be caused by contaminated sampling containers and equipment, sampling technique, sample handling and transportation, and sample analysis. In almost all cases, mandatory follow-up sampling and analysis confirms that contaminants are not present in the water provided to customers.

**Rockwood & Hamilton Drive Drinking Water Systems**

**Table 1: Summary of Rockwood and Hamilton Drive Water System Adverse Water Quality Incidents**

(Jan. 01 to Dec. 31, 2015)

Incident Date	AWQI #	Location	Parameter / Unit of measure	Corrective Action
<p>There were no incidents of non-compliance associated with the Rockwood Drinking Water System or Hamilton Drive Drinking Water System in 2015</p>				

**Gazer Mooney Subdivision Distribution System**

**Table 2: Summary of Gazer Mooney Subdivision Distribution System Adverse Water Quality Incidents**

(Jan. 01 to Dec. 31, 2015)

Incident Date	AWQI #	Location	Parameter / Unit of measure	Corrective Action
<p>There were no incidents of non-compliance associated with the Gazer Mooney Subdivision Distribution System in 2015</p>				

### **c) Deviations from Critical Control Point (CCP) Limits and Response Actions**

This section describes any deviation from essential steps or points in the drinking water system at which control can be applied to prevent or eliminate a drinking water hazard or to reduce it to an acceptable level. These essential steps or points in the system are known as critical control points (CCP). The CCPs are used to identify control measures that are in place to address hazards and hazardous events. Critical Control Limits (CCLs) are self-imposed limits and are typically more stringent than Ministry of Environment and Climate Change Drinking Water Standards or Municipal Drinking Water licence requirements.

There were no critical control limit deviations over the period of this report.

### **d) The Effectiveness of the Risk Assessment Process**

A risk assessment must be conducted for all municipal residential drinking water systems, as part of the operational plans for those systems. These operational plans form the basis upon which third party auditors assess conformance to the Drinking Water Quality Management Standard.

This section confirms the occurrence of reviews and re-assessments of the risk assessment process to determine the effectiveness of the process in identifying and appropriately assessing the risk of hazardous events and hazards, and in identifying the appropriate control measures, critical control points (CCPs) and related critical control limits (CCLs).

In November of 2015 Guelph/Eramosa Water Staff conducted our 36 month re-assessment of risks associated with our Municipal Drinking Water Systems. During this same timeline the Ministry of Environment and Climate Change posted a guidance document entitled "Potential Hazardous Events for Municipal Residential Drinking Water Systems to Consider in the DWQMS Risk Assessment". In order to fully consider and assess applicable hazards listed within the guidance document we invited the Wellington County Risk Management Official to assist by providing his expertise for risks associated with source water.

As a result the following additional response procedure was identified and noted within Critical Control Points and their limits.

- Rural Wells - Well Failure / Transport Pathway for Contaminates

This Critical Control Limit notes Guelph/Eramosa Municipal Bylaw 10-2002 – 7(9) as a potential response procedure. Additionally, monitoring processes are in place through the Source Water Protection Program, MOECC Regulation 903 and the Rural Well Water Quality Program.

## **e) Internal and Third-Party Audit Results**

This section describes any of the audit outcomes identified to date that require follow-up actions.

Internal auditing and third-party auditing is performed to fulfill the mandatory requirements of the Drinking Water Quality Management Standard (DWQMS). The internal audit is completed using trained auditors. The purpose of audits is to evaluate the level of conformance to the DWQMS. Audits identify both conformance and non-conformance with the Standard as well as opportunities for improvement.

Two internal audits were scheduled for 2015 but due to time constraints only one internal audit was performed in 2015. Management Review was conducted in August of 2015 and covered the Internal Audit conducted on April 21, 22, 2015.

No nonconformities were identified during the internal audit. Various opportunities for improvement (OFI) suggested by the trained auditors are noted within the internal audit report. These OFIs are discussed during the internal audit closing meeting and are tracked as “action items” to be addressed during Management Review. Action items, if possible, are closed or are pending closure by the next scheduled internal audit.

Third party audit (external audits) is performed annually in June by NSF International Inc.

Two Corrective Actions were identified during the 2015 external audit related to Management Review (QMS 20) and Measurement & Recording Equipment, Calibration & Maintenance (QMS 17). The corrective action issued will be followed-up on by the auditor at the next on-site audit in June, 2016.

## **f) Results of Emergency Response Testing**

The Township of Guelph/Eramosa Municipal Emergency Control Group (MECG) conducted an exercise which included our Water/Wastewater team in October of 2015.

Results showed the interpretation of the instructions was well understood. Timeline for activating higher authority was appropriate. Applicable calls were made in a timely manner with the work schedule set once things were under control. Top Management and EOC control group was kept in the loop as required.

Opportunity for Improvement / Action Items which came from the emergency exercise were related to contacts for downstream notification in an emergency such as who to notify and how far downstream.

A Critical infrastructure table was created and provided to all of Wellington Counties Municipal Water Departments. The table notes the type, component, location, owner and contact information for

potential use of items. This list is kept current by annual circulation between Municipalities within Wellington County and the City of Guelph.

Annual training workshops with Wellington Municipalities continue. This year's training workshop took place on Oct. 29/15. Workshops offer networking opportunities with other Water/Wastewater Operators within Wellington County.

Topics covered in the October 29th/15 work shop were - Good Sampling Practices, Ontario's Watermain Disinfection Procedure Update, Frozen Services Sampling, Locate Staff Safety and Challenges, Overview of Source Water Protection.

Additionally, Emergency response testing procedures (SOPs) are randomly reviewed by operational staff during tailgate meetings and staff meetings.

### g) Operational Performance and Statistics

This section describes the various pieces of information that are used to gauge the performance of the Drinking Water System, including reasoning for changes or observations.

A 100 % rating for microbiological quality indicates that the treatment process effectively removed pathogens at all times. Chemical water quality test results indicate that all water quality meet with the provincial and federal standards for safe drinking water with the exception of Sodium levels which remain outside of the provincial standard.

#### Assessment of Flow Rates and Quantities of Water Supplied

The following five (5) tables list the quantities and flow rates of the water supplied during the reporting period covered by this report, including monthly average and maximum daily flows and a comparison to the rated capacity and flow rates specified in the system approval.

**Table 3: Summary of Raw Water Flows – Rockwood and Hamilton Drive**

#### Rockwood

Station St. Well TW# 1- 67 (Rated Capacity 1,964 m<sup>3</sup>/day) (Rated Daily Peak 1,360 L/min)

MONTH	Avg. Daily Volume	% Of Approved Volume	MAX Daily Volume	% Of Approved Volume	Peak Flow Rate L/min	% Of Approved Flow Rate
	m <sup>3</sup>		m <sup>3</sup> /d			
JANUARY	251.00	12.77	546.64	27.82	786.00	57.62%
FEBRUARY	292.83	14.90	777.64	39.57	774.00	56.74%

MONTH	Avg. Daily Volume	% Of Approved Volume	MAX Daily Volume	% Of Approved Volume	Peak Flow Rate L/min	% Of Approved Flow Rate
MARCH	274.65	13.98	787.80	40.09	816.00	59.82%
APRIL	287.54	14.63	810.13	41.23	798.00	58.50%
MAY	355.46	18.09	1,187.95	60.46	816.00	59.82%
JUNE	354.87	18.06	746.75	38.00	834.00	61.14%
JULY	430.73	21.92	1,164.02	59.24	852.00	62.46%
AUGUST	365.30	18.59	1,072.49	54.58	774.00	56.74%
SEPTEMBER	326.04	16.59	638.44	32.49	828.00	60.70%
OCTOBER	254.48	12.95	864.02	43.97	852.00	62.46%
NOVEMBER	266.41	13.56	752.85	38.31	882.00	64.66%
DECEMBER	309.79	15.77	861.77	43.86	792.00	58.06%

**Rockwood**

**Station St. Well TW# 1- 76 (Rated Capacity 1,964 m<sup>3</sup>/day) (Rated Daily Peak 1,360 L/min)**

MONTH	Avg. Daily Volume	% Of Approved Volume	MAX Daily Volume	% Of Approved Volume	Peak Flow Rate L/min	% Of Approved Flow Rate
	m <sup>3</sup>		m <sup>3</sup> /d			
JANUARY	354.09	18.02	856.92	43.61	1194.00	87.54%
FEBRUARY	307.47	15.65	628.26	31.97	1224.00	89.74%
MARCH	314.50	16.01	827.74	42.12	1182.00	86.66%
APRIL	329.13	16.75	722.43	36.76	1194.00	87.54%
MAY	421.81	21.47	1,254.48	63.84	1182.00	86.66%
JUNE	268.35	13.66	704.70	35.86	1194.00	87.54%
JULY	337.10	17.16	990.49	50.41	1194.00	87.54%

MONTH	Avg. Daily Volume	% Of Approved Volume	MAX Daily Volume	% Of Approved Volume	Peak Flow Rate L/min	% Of Approved Flow Rate
	m <sup>3</sup>		m <sup>3</sup> /d			
AUGUST	267.94	13.64	600.85	30.58	1194.00	87.54%
SEPTEMBER	326.53	16.62	997.30	50.75	1200.00	87.98%
OCTOBER	292.47	14.88	560.36	28.52	1218.00	89.30%
NOVEMBER	249.67	12.71	593.14	30.19	1182.00	86.66%
DECEMBER	358.23	18.23	809.63	41.20	1182.00	86.66%

**Rockwood  
Bernardi Well # 3 (Rated Capacity 1,310 m<sup>3</sup>/day) (Rated Daily Peak 910.0 L/min)**

MONTH	Avg. Daily Volume	% Of Approved Volume	MAX Daily Volume	% Of Approved Volume	Peak Flow Rate L/min	% Of Approved Flow Rate
	m <sup>3</sup>		m <sup>3</sup> /d			
JANUARY	350.89	26.79	880.62	67.22	786.00	71.45%
FEBRUARY	371.18	28.33	1,010.58	77.14	774.00	70.36%
MARCH	394.39	30.11	866.08	66.11	816.00	74.18%
APRIL	376.57	28.75	1,066.20	81.39	798.00	72.55%
MAY	345.92	26.41	787.17	60.09	816.00	74.18%
JUNE	353.40	26.98	957.91	73.12	834.00	75.82%
JULY	311.47	23.78	770.86	58.84	852.00	77.45%
AUGUST	417.85	31.90	971.20	74.14	774.00	70.36%
SEPTEMBER	320.77	24.49	753.71	57.54	828.00	75.27%
OCTOBER	386.76	29.52	827.02	63.13	852.00	77.45%
NOVEMBER	376.40	28.73	706.76	53.95	882.00	80.18%

<b>MONTH</b>	<b>Avg. Daily Volume m<sup>3</sup></b>	<b>% Of Approved Volume</b>	<b>MAX Daily Volume m<sup>3</sup>/d</b>	<b>% Of Approved Volume</b>	<b>Peak Flow Rate L/min</b>	<b>% Of Approved Flow Rate</b>
<b>DECEMBER</b>	360.86	27.55	1,028.94	78.55	792.00	72.00%

**Hamilton Drive  
Cross Creek Well # 1 (Rated Capacity 812 m<sup>3</sup>/24 hours) (Rated Daily Peak 725 L/min)**

<b>MONTH</b>	<b>Avg. Daily Volume m<sup>3</sup></b>	<b>% Of Approved Volume</b>	<b>MAX Daily Volume m<sup>3</sup>/d</b>	<b>% Of Approved Volume</b>	<b>Peak Flow Rate L/min</b>	<b>% Of Approved Flow Rate</b>
<b>JANUARY</b>	99.74	12.28	182.00	22.41	720.00	99.31%
<b>FEBRUARY</b>	71.91	8.86	125.94	15.51	660.00	91.03%
<b>MARCH</b>	68.48	8.43	118.00	14.53	426.00	58.76%
<b>APRIL</b>	90.19	11.11	128.00	15.76	660.00	91.03%
<b>MAY</b>	176.34	21.72	373.38	45.98	720.00	99.31%
<b>JUNE</b>	139.16	17.14	271.39	33.42	720.00	99.31%
<b>JULY</b>	163.53	20.14	238.00	29.31	660.00	91.03%
<b>AUGUST</b>	158.29	19.49	236.00	29.06	660.00	91.03%
<b>SEPTEMBER</b>	135.46	16.68	251.00	30.91	660.00	91.03%
<b>OCTOBER</b>	99.49	12.25	238.00	29.31	720.00	99.31%
<b>NOVEMBER</b>	72.16	8.89	126.50	15.58	720.00	99.31%
<b>DECEMBER</b>	30.89	3.80	109.00	13.42	720.00	99.31%

**Hamilton Drive  
Huntington Well # 2**

**(Rated Capacity 916 m<sup>3</sup>/day)**

**(Rated Daily Peak 452 L/min)**

MONTH	Avg. Daily Volume	% Of Approved Volume	MAX Daily Volume	% Of Approved Volume	Peak Flow Rate L/min	% Of Approved Flow Rate
	m <sup>3</sup>		m <sup>3</sup> /d			
<b>JANUARY</b>	79.30	8.66	150.00	16.38	630.00	99.06%
<b>FEBRUARY</b>	72.69	7.94	126.50	13.81	564.00	88.68%
<b>MARCH</b>	94.32	10.30	144.00	15.72	576.00	90.57%
<b>APRIL</b>	123.77	13.51	229.00	25.00	582.00	91.51%
<b>MAY</b>	137.55	15.02	378.76	41.35	594.00	93.40%
<b>JUNE</b>	135.12	14.75	258.24	28.19	582.00	91.51%
<b>JULY</b>	164.45	17.95	300.00	32.75	588.00	92.45%
<b>AUGUST</b>	115.61	12.62	274.00	29.91	576.00	90.57%
<b>SEPTEMBER</b>	176.73	19.29	266.00	29.04	570.00	89.62%
<b>OCTOBER</b>	97.02	10.59	217.00	23.69	612.00	96.23%
<b>NOVEMBER</b>	120.61	13.17	150.00	16.38	582.00	91.51%
<b>DECEMBER</b>	116.39	12.71	217.54	23.75	582.00	91.51%

**i. Water Production vs. Water Consumption**

Water Production vs. Water Consumption for 2015 shows an overall percentage loss of four (4) percent loss for Rockwood and zero (0) percent loss for Hamilton Drive. This is a marked improvement from 2014.

The water meter replacement program and replacement of electromagnetic flow meters which provide a higher degree of flow measurement have resulted in improvements in water loss percentages.

The Grand River Conservation Authority remains our highest consumer of water at an average rate of 15,663 22,160 L/day over their 7 month (April to October) operational season.



**ii. Other Operational Performance Data**

The following tables provide a brief description of expenses incurred within Rockwood (Table 4) and Hamilton Drive (Table 5).

**Table 4: Rockwood Expenses**

Activity Description	Activity Type	Approximate Expenditure
Supervisory Control and Data Acquisition upgrades	Replace	\$1,000 - < \$5000
Equipment Maintenance	Service / Replace	\$10,000 – \$20,000
Frozen water service	Service	\$10,001 - \$19,000
Water service repairs	Repair	\$5,001 - \$10,000
Distribution curb stops	Replace	\$1,001 - \$5,000
Water meter program	Replace	\$20,000 - < \$25,000
Distribution valve maintenance (including fire hydrants)	Repair/replace	\$5,001 - \$10,000

**Table 5: Hamilton Drive Expenses**

Activity Type	Activity Type	Approximate Expenditure
Supervisory Control and Data Acquisition upgrades	Replace	\$1,000 - < \$5000
Equipment Maintenance	Service / Replace	\$5,000 - \$10,000
Frozen water services	Service	\$1,001 - \$5,000
Water meter program	Replace	\$1,000 - < \$5,000
Distribution valve maintenance (including fire hydrants)	Repair/replace	\$5,001 - \$10,000

**h) Raw and Treated Water Quality – Rockwood, Hamilton Drive and Gazer Mooney Drinking Water System**

This section describes the water quality monitoring, both regulatory and operational, that has been completed in 2015 (Jan. 01 to Dec. 31).

Under the Safe Drinking Water Act (SDWA), municipalities are required to monitor both the raw and treated quality of the source water supplied. This monitoring is performed for both regulatory compliance and due diligence and is expected to identify any changes within the treated water as well as in raw source waters.

Both Rockwood and Hamilton Drive Drinking Water Systems use 12 per cent Sodium Hypochlorite (that is NSF 61 certified) for both primary and secondary disinfection at all facility locations with the exception of the Rockwood Station Street location. Here ultraviolet light is also applied as part of multi-barrier primary disinfection. Additionally, NSF 60-certified sodium silicate is used for aesthetic purposes to sequester dissolved iron and manganese.

**Table 6: Operational testing done under Schedule 8 of O. Reg.170/03 Rockwood**

Parameter	Number of Grab Samples	Range of Results (min #)-(max #)
<b>Raw Water</b>		
Turbidity (Station Street; Well 1-67)	24	0.07-0.66 NTU's
Turbidity (Station Street; Well 1-76)	24	0.14-0.78 NTU's
Turbidity (Bernardi)	24	0.12-0.56 NTU's
<b>Treated Water</b>		
Free Chlorine Residual (Station St)	8760	0.27-3.08 mg/L
Free Chlorine Residual (Bernardi)	8760	0.42-2.56 mg/L
<b>Distribution System</b>		
Free Chlorine Residual	1982	0.32-1.60 mg/L

**Table 7: Operational testing done under Schedule 8 of O. Reg.170/03 Hamilton Drive**

Parameter	Number of Grab Samples	Range of Results (min #)-(max #)
<b>Raw Water</b>		
Turbidity (Cross Creek Well 1)	24	0.12-0.70 NTU's
Turbidity (Huntington Well 2)	24	0.18-0.82 NTU's
<b>Treated Water</b>		
Free Chlorine Residual (Cross Creek)	8760	0.49-2.11 mg/L
Free Chlorine Residual (Huntington)	8760	0.68- 3.06 mg/L
<b>Distribution System</b>		
Free Chlorine Residual	1522	0.48-1.69 mg/L

**Table 8: O. Reg. 170/03 Schedule 10 - Rockwood / Hamilton Drive Microbiological testing**

(Jan. 01 to Dec. 31, 2015)

Drinking Water System	Parameter	# of Samples	E.Coli (min – max)	Total Coliform (min – max)	# of HPC Samples	HPC (min – max)
Rockwood	Raw	104	0-0	0-0	N/A	N/A
	Treated	104	0-0	0-0	104	0-2
	Distribution	156	0-0	0-0	156	0-1
Hamilton Drive	Raw	104	0-0	0-0	N/A	N/A
	Treated	104	0-0	0-0	104	0-2
	Distribution	153	0-0	0-0	153	0-92

**Table 9: O. Reg. 170/03 Schedule 13 – Rockwood / Hamilton Drive Summary of Inorganic parameters tested**

(during this reporting period or the most recent sample results)

Test Parameter	Units	MAC	RDL	Rockwood Station St.	Rockwood Bernardi	Hamilton Dr. Cross Creek	Hamilton Dr. Huntington
Antimony (Sb)	µg/L	6 (IMAC)	0.50	<0.50	0.75	< 0.50	< 0.51
Arsenic (As)	µg/L	25	1.0	<1.0	< 1.0	< 1.0	< 1.0
Barium (Ba)	µg/L	1000	2.0	87	41	37	43
Boron (B)	µg/L	5000	10	29	< 10	27	34
Cadmium (Cd)	µg/L	5	0.10	<0.10	< 0.1	< 0.10	< 0.10
Chromium (Cr)	µg/L	50	5.0	<5.0	< 5.0	< 5.0	< 5.0
Mercury (Hg)	µg/L	1	0.10	<0.10	< 0.10	< 0.10	< 0.10
Selenium (Se)	µg/L	10	2.0	<2.0	< 2.0	< 2.0	< 2.0
Uranium (U)	µg/L	20	0.00010	<2.0	0.25	< 0.10	< 0.10

Test Parameter	Units	MAC	RDL	Rockwood Station St.	Rockwood Bernardi	Hamilton Dr. Cross Creek	Hamilton Dr. Huntington
Sodium	mg/L	20	0.10	<b>120</b>	8.7	11.0	25.0
Fluoride (F)	mg/L	1.5	0.10	0.90	1.36	0.13	0.16

Table 10 summarizes Schedule 13-3 Hamilton Drive/Rockwood Summary of Organic parameters sampled during this reporting period or the most recent sample results (treated water).

**Table 10: O. Reg. 170/03 Schedule 13-3 – Rockwood / Hamilton Drive Summary of Organic parameters**

(during this reporting period or the most recent sample results)

Test Parameter	Units	MAC	RDL	Rockwood Station St.	Rockwood Bernardi	Hamilton Dr. Cross Creek	Hamilton Dr. Huntington
Alachlor	µg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Aldicarb	µg/L	9	< 5	< 5	< 5	< 5	< 5
Aldrin + Dieldrin	µg/L	0.7	< 0.006	< 0.006	< 0.01	< 0.01	< 0.01
Atrazine + N-dealkylated metabolites	µg/L	5	< 1	< 1	< 1	< 1	< 1
Azinphos-methyl	µg/L	20	< 2	< 2	< 2	< 2	< 2
Bendiocarb	µg/L	40	< 2	< 2	< 2	< 2	< 2
Benzene	µg/L	5	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(a)pyrene	µg/L	0.01	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009
Bromoxynil	µg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Carbaryl	µg/L	90	< 5	< 5	< 5	< 5	< 5
Carbofuran	µg/L	90	< 5	< 5	< 5	< 5	< 5
Carbon Tetrachloride	µg/L	5	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chlordane (Total)	µg/L	7	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

Test Parameter	Units	MAC	RDL	Rockwood Station St.	Rockwood Bernardi	Hamilton Dr. Cross Creek	Hamilton Dr. Huntington
Chlorpyrifos	µg/L	90	< 1	< 1	< 1	< 1	< 1
Cyanazine	µg/L	10	< 1	< 1	< 1	< 1	< 1
Diazinon	µg/L	20	< 1	< 1	< 1	< 1	< 1
Dicamba	µg/L	120	< 1	< 1	< 1	< 1	< 1
1,2-Dichlorobenzene	µg/L	200	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
1,4-Dichlorobenzene	µg/L	5	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
(DDT) + metabolites	µg/L	30	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
1,2-Dichloroethane	µg/L	5	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
1,1-Dichloroethylene	µg/L	14	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dichloromethane	µg/L	50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
2-4 Dichlorophenol	µg/L	900	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
2,4-Dichlorophenoxy acetic acid (2,4-D)	µg/L	100	< 1	< 1	< 1	< 1	< 1
Diclofop-methyl	µg/L	9	< 0.9	< 0.9	< 0.9	< 0.9	< 0.9
Dimethoate	µg/L	20	< 3	< 3	< 3	< 3	< 3
Dinoseb	µg/L	10	< 1	< 1	< 1	< 1	< 1
Diquat	µg/L	70	< 7	< 7	< 7	< 7	< 7
Diuron	µg/L	150	< 10	< 10	< 10	< 10	< 10
Glyphosate	µg/L	280	< 10	< 10	< 10	< 10	< 10
Heptachlor + Heptachlor Epoxide	µg/L	3	< 0.006	< 0.006	< 0.01	< 0.01	< 0.01
Lindane (Total)	µg/L	4	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006
Malathion	µg/L	190	< 5	< 5	< 5	< 5	< 5
Methoxychlor	µg/L	900	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Metolachlor	µg/L	50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5

Test Parameter	Units	MAC	RDL	Rockwood Station St.	Rockwood Bernardi	Hamilton Dr. Cross Creek	Hamilton Dr. Huntington
Metribuzin	µg/L	80	< 5	< 5	< 5	< 5	< 5
Monochlorobenzene	µg/L	80	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Paraquat	µg/L	10	< 1	< 1	< 1	< 1	< 1
Pentachlorophenol	µg/L	60	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Phorate	µg/L	2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Picloram	µg/L	190	< 5	< 5	< 5	< 5	< 5
Polychlorinated Biphenyls(PCB)	µg/L	3	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Prometryne	µg/L	1	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Simazine	µg/L	10	< 1	< 1	< 1	< 1	< 1
Temephos	µg/L	280	< 10	< 10	< 10	< 10	< 10
Terbufos	µg/L	1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethylene	µg/L	30	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,3,4,6-Tetrachlorophenol	µg/L	100	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Triallate	µg/L	230	< 1	< 1	< 1	< 1	< 1
Trichloroethylene	µg/L	5	< 0.12	< 0.12	< 0.12	< 0.12	< 0.12
2,4,6-Trichlorophenol	µg/L	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
2,4,5-Trichlorophenoxy acetic acid (2,4,5-T)	µg/L	280	< 1	< 1	< 1	< 1	< 1
Trifluralin	µg/L	45	< 1	< 1	< 1	< 1	< 1
Vinyl Chloride	µg/L	2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2

Table 11 summarizes Treated and Distribution Samples taken under Schedule 13-6 and 13-7 for the period of Jan. 01 to Dec. 31, 2015.

**Table 11: O. Reg. 170/03 Schedule 13-6, 13-7 Rockwood and Hamilton Drive Quarterly Results**

Test Parameter	Units	MAC	Rockwood Station St.	Rockwood Bernardi	Hamilton Dr. Cross Creek	Hamilton Dr. Huntington
Nitrite (NO <sub>2</sub> )	mg/L	1	<0.020	<0.020	<0.020	<0.020
			<0.010	<0.010	<0.010	<0.010
			<0.010	<0.010	<0.010	<0.010
			<0.010	<0.010	<0.010	<0.010
Nitrate (NO <sub>3</sub> )	mg/L	10	<0.20	<0.20	<0.20	<0.20
			<0.10	<0.10	<0.10	<0.10
			<0.10	<0.10	<0.10	<0.10
			<0.10	<0.10	<0.10	<0.10
Test Parameter	Units	MAC	Rockwood Zone 1 / Fire Station		Hamilton Drive Standpipe	
Trihalomethanes	mg/L	0.1	0.01407 / 0.0238		0.01384	

MAC: Maximum acceptable concentration for THM's is 0.1 mg/L. However, for this parameter the MAC uses a running annual average of quarterly samples

The following table presents summary results for lead sampling in the Rockwood and Hamilton Drive Drinking Water Systems as for the period of Jan. 1 to Dec. 31, 2015:

**Table 12: O. Reg. 170/03 Schedule 15.1 Rockwood/Hamilton Lead Testing Summary 2015**

Rockwood Drinking Water System	Parameter	# of Distribution Samples	MAC	RDL	Range of Results Min - Max	
			µg/L	µg/L	µg/L	
Rockwood	pH & alkalinity	6			0.290	0.330
	Lead	6	10	0.50	<0.50	<0.50
Hamilton Drive	pH & alkalinity	4			0.210	0.220
	Lead	4	10	0.50	<0.50	0.70

**Treated Water Quality Review– Gazer Mooney Subdivision Distribution System**

This section describes the Regulatory water quality monitoring that has been collected in the Gazer Mooney Subdivision Distribution System in 2015 (Jan. 01 to Dec. 31, 2015). For regulatory sampling schedules that do not occur in 2015 related to the Gazer Mooney System, the most recent historical data is listed.

The following section summarizes daily Distribution free chlorine residual test results required by O. Reg. 170/03 for the period of Jan. 01 to Dec. 31, 2015 are summarized in table 13. There was no instance of an adverse result in 2015 between Jan. 01 and Dec. 31:

**Table 13: O. Reg. 170/03 Schedule 7-2, Gazer Mooney - Distribution Manual Free Chlorine Residual Summary**

Parameter	Number of Grab Samples	ODWQS Range	Range of Results (min # - (max #))
Free Chlorine Residual	365	0.05 – 4.0 mg/L	0.48 - 1.16 mg/L

Table 14 summarizes bacteriological sampling and test results required by O. Reg. 170/03 Schedule 10 for the period of Jan. 01 to Dec. 31, 2015. There was no instance of an exceedance for a Regulatory microbiological parameter in 2015 between Jan. 01 and Dec. 31:

- Number of Distribution samples taken: 52
- Number of Distribution analyses: 573

**Table 14: O. Reg. 170/03 Schedule 10-2, Gazer Mooney Treated Bacteriological Sampling Summary**

Parameter	# of Samples	ODWQS Criteria	Range	Units
Distribution - E. coli	52	0	n/a	cfu/100 mL
Distribution - Total Coliform	52	0	n/a	cfu/100 mL
Distribution – HPC	52	0	0 - 5	cfu/mL
Distribution – Background	52	n/a	n/a	cfu/100 mL
Distribution– Free Chlorine Residual	365	0.05 – 4.0	0.48 – 1.16	mg/L

**Table 15: O. Reg. 170/03 Schedule 13-7, Gazer Mooney - Quarterly Sampling Results Summary**

Test Parameter	Units	MAC	Range of Results (min # - (max #))
Trihalomethanes	mg/L	0.1	0.0174 – 0.0419

MAC: Maximum acceptable concentration for THM's is 0.1 mg/L. However, for this parameter the MAC uses a running annual average of quarterly samples

### **Treated Water Quality Statistics – General Chemistry Results Summary**

In addition to the Regulatory sampling and analysis required for the operation of the Gazer Mooney Subdivision, the City of Guelph samples for parameters as listed in table 16 in order to gather additional data and answer common inquiries from the public.



**Table 16: Gazer Mooney General Chemistry Results Summary**

Parameter	MAC mg/L	ODWQS AO	$\frac{1}{2}$ MAC mg/L	Total Samples	Samples Above MDL	Total Above ODWQS Criteria	Min (mg/L)	Max (mg/L)	Average (mg/L)
Sodium	20	n/a	n/a	1	1	1	22	22	22
Chloride	n/a	250	n/a	1	1	0	39	39	39

**i) Follow up on Action Items from previous management reviews**

Identified and obtained emergency service levels initiated from a SCADA failure back in 2014. These providers are available 24/7 and are listed within our Emergency Contact Listing.

A Cross Connection Control Program (CCCP) protects drinking water systems from contamination that occurs due to backflow from industrial and commercial properties. It's important to control cross connection by installing and testing backflow preventers to maintain water quality and protect public health. Currently Guelph/Eramosa Township inspects Backflow devices (BFD) at confirmed locations within the Municipality but further investigation is required to identify all possible cross-connections where potential contamination of potable water may occur.

GIS mapping of Guelph/Eramosa infrastructure is planned to begin in the summer of 2016. Operational records related to identification of changes or discoveries within the distribution system and information obtained during the last water wastewater rate study will assist in mapping and locating the current infrastructure. Once completed this Geographic Information System technology will provide the ability to store and retrieve accurate location information and infrastructure characteristics such as type, size and condition.

**j) Status of Ongoing and Emerging Water Quality, Supply and Distribution Initiatives**

**Source Water Protection Plan**

The Province approved the Grand River Source Protection Plan Dec. 3, 2015. The effective date is July 1, 2016 and is the last Plan in the Province and for Wellington County to be approved. The Plan includes a number of proposed policies to manage significant drinking water threats (appendix B of the plan) for the County of Wellington.

The Source Water Protection working group (Risk Management Official and all eight Municipalities within Wellington County) continue to develop and roll out education and outreach materials through the newly developed website. Work is ongoing to better refine the actual number of properties with

threat activities that will require risk management previously identified within the County of Wellington Assessment Report (appendix B of the plan).

Future work for the program will include completion of threat activity verification, development review, continued administration of the septic inspection program, continued education and outreach, negotiation of risk management plans, reporting database set up and training, file sharing systems between all eight of the Municipalities within the Grand River Source Water Protection Area.

## **k) Expected Future Changes That Could Affect the DWS or the QMS**

**Ontario's GUDI (Groundwater Under the Direct Influence of Surface Water) Terms of Reference** are under review and may result in classification changes to source waters. The revised GUDI Terms of Reference are expected in 2016 and are anticipated to require disinfection system upgrades for the Station Street wells.

Seaton Well 4 has been developed and included as part of an amalgamated Permit To Take Water for all of the Rockwood Wells. The design for the new pump house has been fully initiated and construction will begin following the required Environmental Compliance Approval from the Ministry of Environment and Climate Change (MOECC).

### **Ontario's Watermain Disinfection Procedure**

Municipal operating authorities are required to use AWWA Standard C651 (Disinfecting Water Mains) for addition, replacement or repair of pipes forming the distribution system, as per condition 2.3.2 of Drinking Water Works Permits. Ontario's Watermain Disinfection Procedure outlines minimum requirements for compliance.

Requirements for disinfection will also apply to temporary watermains as well as service pipes of 100 mm diameter or greater. Operating authorities will be able to use their discretion to adopt more stringent standard operating procedures. Updates to applicable Standard Operating Procedures are underway.

### **Ontario's updated Drinking Water Quality Management Standard (DWQMS)**

In November, the MOECC posted the updated DWQMS on the Environmental Bill of Rights for comment, highlighting revisions included to clarify existing DWQMS requirements. Most significant revisions are:

- Throughout: added definition for "Calendar Year" and revised previous language of "once every year" and "once every 12 months" throughout the Standard to read "once every Calendar Year".

- **Element 7:** Addition of new PLAN a) that requires consideration of potential hazardous events and associated hazards identified by the ministry. These hazardous events are identified in the document titled “Potential Hazardous Events for Municipal Residential Drinking Water Systems.”
- **Element 12:** Revised PLAN c) to require that suppliers identified by an Operating Authority under PLAN a) of Element 13 should be considered in the procedure for communications.
- **Element 14:** Addition of new PLAN a) requiring the outcomes of the risk assessment documented under Element 8 to be considered in the procedure for reviewing the adequacy of the infrastructure necessary to operate and maintain the Subject System.
- **Element 15:** Addition of new PLAN b) requiring the inclusion of a long term forecast of major infrastructure maintenance, rehabilitation and renewal activities.
- **Element 21:** Addition of a PLAN requirement that includes:
  - A requirement to consider BMP's in the context of continual improvement;
  - A requirement to document a process for identification &
    - management of corrective actions;
    - Implementation of preventive actions.

## **I) Consumer Feedback**

There were almost no complaints related to water quality covering the audit period of 2015. This year frozen water services dominated consumer feedback. There were 33 frozen water services between Guelph/Eramosa Drinking Water Systems. Water quality calls were minimal, related to flushing watermains or pressure issues within private plumbing.

## **m) The Resources Needed to Maintain the QMS**

Guelph/Eramosa Public Works Water/Wastewater Department currently has one full-time Compliance Administrative Assistant who is also the Quality Management System Representative, Compliance coordinator and is responsible for the documentation and reporting requirements for the Quality Management System (QMS). Some of the challenges in maintaining the QMS are in providing resources to tackling the “action items” between reviews and creating and maintaining deficiency lists related to operations maintenance.

## **n) Infrastructure Review**

The 2015 review followed a different format and did not use the provided template referenced in the Operational Plan.

The Director of Public Works and the Operations Manager identified infrastructure maintenance and replacement needs while considering the requirements set out within element 14 of the Drinking Quality Management Standard. Updates to the Operational Plan are required to document this change in process.

### o) Staff Suggestions

Staff suggestions are discussed during staff and operational meetings and taken into account during annual budget processes.

## 3.0 Next Steps

An effective management system requires ongoing commitment by staff and management. A challenge will be to ensure the maintenance and improvement of the system continues to be a high priority of the Operating Authority. Next steps related to the DWQMS in 2016 include the following:

<b>Month</b>	<b>2016 Scheduled DWQMS</b>
March	<ul style="list-style-type: none"> <li>• Policy and Commitment Sign-off Top Management (Owner Representatives).</li> </ul>
March	<ul style="list-style-type: none"> <li>• Council update - Report to Owner</li> </ul>
April/May	<ul style="list-style-type: none"> <li>• Work on noted opportunities for improvement (OFIs) from various sources (e.g. internal audits, external audits, management reviews, meetings, etc.).</li> <li>• Update Operational Plan to reflect changes noted within opportunities for improvement</li> </ul>
June	<ul style="list-style-type: none"> <li>• NSF International Strategic Registrations on-site audit of the Drinking Water Quality Management System</li> </ul>
July/August	<ul style="list-style-type: none"> <li>• Ongoing continual improvement by verifying effectiveness of corrective and preventive actions taken to prevent occurrence and/or recurrence of non-conformities</li> </ul>
September	<ul style="list-style-type: none"> <li>• Infrastructure Review</li> </ul>
October	<ul style="list-style-type: none"> <li>• DWQMS internal audit/Management Review</li> </ul>
November	<ul style="list-style-type: none"> <li>• Risk Assessment Review</li> </ul>

## 4.0 Legal and other Requirements update

Date - 2015	Source of Posting / Reference	Title of Legal & Other Requirement Highlights of posting	Action and Status Update
Dec. 27, 2014	Canada Gazette	<p><b>Performance Indicators and National Targets for the Code of Practice for the Environmental Management of Road Salts in Canada</b> - The <u>Code of Practice for the Environmental Management of Road Salts</u> was developed in 2004 to assist municipal and provincial road authorities to better manage their use of road salts in a way that reduces the harm to the environment while maintaining roadway safety.</p> <p>The <u>Code</u> specifies road organizations that use over 500 t/year of salt or who have salt-vulnerable areas in their territory to review their existing winter maintenance operations to improve practices and reduce adverse impacts of salt releases in the environment.</p> <p>One of the program's improvement actions is to set <u>national targets</u> for the implementation of best practices against which performance of the road organizations and the success of the Code can be evaluated.</p>	No action required.
Jan. 5	MOECC E-mail	<p><b>Updated Watermain Disinfection Procedures - Draft for Comments</b> – Municipal operating authorities are required to use AWWA Standard C651 (Disinfecting Water Mains) for addition, replacement or repair of pipes forming the distribution system, as per condition 2.3.2 of Drinking Water Works Permits. The province has worked with stakeholders to clarify the requirements of C651, and to develop alternative procedures to be used during emergency repairs.</p> <p>The <u>Watermain Disinfection Procedure</u> will result in some changes to the procedures. The document outlines minimum requirements for compliance, and operating authorities will be able to use their discretion to adopt more stringent standard operating procedures. Requirements for disinfection will also apply to temporary watermains, as well as service pipes of 100 mm diameter or greater.</p>	Forwarded to all Water Operators for review.
Jan. 12	<u>Environmental Registry</u>	<b>The MOECC is seeking stakeholder input on the “Technical Discussion Paper on Proposed Ontario Drinking Water</b>	No action required.

Date - 2015	Source of Posting / Reference	Title of Legal & Other Requirement Highlights of posting	Action and Status Update
		<p><b>Quality Standards”</b> that proposes regulatory amendments to Schedule 2 of Ontario Regulation 169/03 to adopt new Ontario Drinking Water Quality Standards for chlorate, chlorite, 2-methyl-4-chlorophenoxyacetic acid (MCPA), and, haloacetic acids (HAAs) and to revise the existing Ontario Drinking Water Quality Standards for arsenic, benzene, carbon tetrachloride, and vinyl chloride. The Technical Discussion Paper on Proposed Ontario Drinking Water Quality Standards provides an overview of the process used by the ministry for the proposed changes for each contaminant and seeks stakeholder input for questions related to the proposed numerical value, benefits of adopting the proposed standard, impacts to municipalities and drinking water system owners, and the time-frame for implementation.</p>	
Jan. 16	UW – NSERC e- mail	<p><b>Over 200,000 residents on Montreal’s South Shore told not to drink their tap water-day 2</b> - The City of Longueuil, Quebec confirmed this morning that its drinking water advisory will remain in effect as officials continue to test the quality of the water after a diesel fuel spill earlier this week. For more details see:</p> <p>CBC news: <a href="#">Longueuil water consumption ban still in effect</a></p> <p>Global news: <a href="#">Longueuil water ban lifted: tap water safe to drink after diesel spill</a></p> <p>National Post: <a href="#">Longueuil can’t drink tap water after 28,000 litres of diesel spills into sewage system and St. Lawrence River</a></p>	No action required.
Jan. 27	<a href="#">OWWCO Website</a>	<p><b>NEW – Guide to Drinking Water Operator Training Requirements in O. Reg. 128/04</b> - The ministry has introduced a new <a href="#">Guide to Drinking Water Operator Training Requirements</a>. This guide explains the training requirements for renewal of Drinking Water Operator and Water Quality Analyst certificates under Ontario Regulation 128/04. It also provides information on the certificate renewal process.</p> <p>Please note this new guide replaces Guideline 4.1 Six Month Operator Certificate Renewal, Guideline 4.2 ‘Director Approved’</p>	No action required.

Date - 2015	Source of Posting / Reference	Title of Legal & Other Requirement Highlights of posting	Action and Status Update
		Continuing Education Training Requirements and Guideline 4.3 On-the-Job Practical Training Criteria.	
Feb. 1	AWWA	<b>ANSI/AWWA C651-14 – Disinfecting Water Mains</b> released Feb. 1, 2015. This standard describes methods of disinfecting newly constructed potable water mains, mains that have been removed from service for planned repairs or for maintenance that exposes them to contamination; mains that have undergone emergency repairs because of physical failure; and mains that, under normal operation, continue to show the presence of coliform organisms.	No action required...
Feb. 4	<a href="#">OWWCO website</a>	<b>Guidance on Drinking Water and Wastewater OITs Working Alone in a Subsystem/Facility</b> – The Ministry of Environment and Climate Change (MOECC) is seeking input into a new guideline to explain when it is appropriate for Drinking Water and Wastewater Operators-in-Training (OITs) to work alone.  Click the following link to download <a href="#">Discussion-Paper-on-OITs-Working-Alone</a>	No action required.
Feb. 4	<a href="#">OWWCO Website</a>	<b>NEW – Guideline 4.4: Director Approved Continuing Education Guide for Training Providers</b> – The Ministry of the Environment and Climate Change has released a new <a href="#">Director Approved Continuing Education Guide for Training Providers</a>  The new guide explains the criteria that continuing education training must meet in order to be considered Director Approved for the purpose of Drinking Water Operators and Water Quality Analysts meeting their training requirements under O. Reg. 128/04. The guideline also includes information for training providers on the process for having continuing education training assessed.  This guideline replaces the sections of Guideline 4.2 'Director Approved' Continuing Education Training Requirements regarding training providers and continuing education training	No action required.

Date - 2015	Source of Posting / Reference	Title of Legal & Other Requirement Highlights of posting	Action and Status Update
		approval.	
Feb. 10	<a href="#"><u>World Health Organization Boil Water Info</u></a>	<b>WHO Technical Brief on Boil Water-great information in 2 page document</b> – The WHO has just released a two page ‘Technical Brief on Boil Water’. They conclude that “...the process of heating water to a rolling boil, as recommended in the WHO Guidelines for Drinking-water Quality (WHO, 2011), is sufficient to inactivate pathogenic bacteria, viruses and protozoa.” What many people don’t realize is that temperatures above 70°C for 15 seconds or more provide a substantial level of protection. Table 1 on page 2 provides a summary of studies of thermal inactivation of bacteria, viruses and protozoa.	No action required.
Feb. 20	<a href="#"><u>World Health Organization</u></a>	<b>Province orders probe after Winnipeg's 48-hour boil-water advisory.</b> “The Manitoba government has ordered an investigation into the vulnerability of Winnipeg's drinking water after an <i>E. coli</i> test result prompted a boil-water advisory last month for the capital's 700,000 residents. City staff said Wednesday they were confident the water system was not contaminated with bacteria and that the result was a false positive. But Manitoba's office of drinking water was not convinced. "We have no evidence at all to suggest there was a false positive at this point," said office director Kim Philip in an interview. "This is an independent, accredited lab and we're confident in the results from the lab, so we are very concerned with the use of the term false positive."We certainly don't want the laboratory to be pinned with this as an analytical error when there's nothing that we've identified that would lead one to conclude that."  Hours earlier, Winnipeg's waste and water director Diane Sacher told a city council committee that a false <i>E. coli</i> result, either from a sampling or lab error, was to blame for the citywide boil-water advisory.	No action required.
Feb. 20	US EPA	The USEPA released its 6 <sup>th</sup> National Contaminant Occurrence Database of analytical results for its UCMR 3 which requires monitoring for 30 contaminants including 28 chemicals and 2	No action required.



Date - 2015	Source of Posting / Reference	Title of Legal & Other Requirement Highlights of posting	Action and Status Update
		<p>viruses. UCMR 3 samples are being collected at entry points to the distribution system (EPTDS). See pages 11 and 12 of the summary document for the latest data at this link: <a href="#">About Monitoring Unregulated Drinking Water Contaminants</a></p> <p>Chlorate (37.3%), 1,4-dioxane (6.8%), and strontium (5.3%) continue to be the most commonly detected in US public water supply systems based on values greater than their reference concentrations. UCMR 3 monitoring will continue through December 2015, and final data are expected to be reported to EPA in the summer of 2016.</p>	
Mar. 18	MOECC	<p><b>Issue 6 of the Municipal Drinking Water Licensing Program Bulletin</b> In this issue: Upcoming DWQMS Workshop in Orillia, Updated Watermain Disinfection Procedures, Air Release and Vacuum Relief Valves, Climate Change and your Quality Management System, New Schedule E for Municipal Drinking Water Licences.</p>	No action required.
Mar. 25	MOECC	<p><b>The updated <u>Your Septic System: Protecting Your Investment and the Environment</u> brochure</b> is now available as part of the Source Water Protection Education and Outreach Resource Catalogue.</p> <p>This brochure includes information on septic system maintenance, safe operation and the mandatory inspection program. The brochure will help meet the intent of some source protection policies related to the Clean Water Act, which also supports the province's efforts to prepare for climate change.</p>	No action required. Forwarded e-mail to Risk Management Official, Building Services, Wastewater, WDGP and Technical Staff.
Apr. 13	MOECC	<p><b>A Guide for Drinking Water System Owners Seeking to Undertake a Backflow Prevention Program.</b> This guide provides comprehensive information and suggested approaches that drinking water system owners/operators can use to develop a backflow prevention program.</p> <p>It presents owners and operators with a consistent approach to protecting drinking water from backflow. This will help safeguard Ontarians and further strengthen the drinking water safety net.</p>	No action required. Forwarded e-mail to Building Services, Water Services' Top Management and Technical Staff. Building Services confirmed that we exceed the requirements in the guide.

Date - 2015	Source of Posting / Reference	Title of Legal & Other Requirement Highlights of posting	Action and Status Update
		<a href="#"><u>Download the guide.</u></a>	
Apr. 14	MOECC	<p><b>Ministry of the Environment and Climate Change Chief Drinking Water Inspector's Annual Report 2013-2014 – Notice of Release.</b> Today, Minister Glen Murray released the <a href="#"><u>2013-14 Chief Drinking Water Inspector's Annual Report</u></a>. The report provides an overview of the ministry's progress during 2013-14 and includes in-depth information on the performance of Ontario's drinking water systems and licensed and eligible laboratories.</p> <p>The report highlights that Ontario's drinking water continues to be of high quality and is well protected. These findings are supported by our drinking water quality and inspection results. The ministry and its partners are working together and remain committed to protecting the province's drinking water.</p>	No action required. Forwarded e-mail to Top Management and Technical Staff.
May 22	MOECC	<p><b>New! Heating and Liquid Fuels pages added to Source Protection Education and Outreach Catalogue</b> - Do you use heating oil or store fuel on your property? Then you have legal responsibilities to make sure it does not leak into water sources. Use the new <a href="#"><u>heating and liquid fuels catalogue pages</u></a> to find out how to protect your drinking water from fuel.</p>	No action required.
Jun. 6	<a href="#"><u>Canada Gazette</u></a>	<p><b>Proposed Regulations Amending the Transportation of Dangerous Goods Regulations (Part 8 – Reporting Requirements)</b> - The proposed amendment requires a person to report a release or an anticipated release in excess of a trace amount of dangerous goods, <i>except</i> for dangerous goods included in Packing Group III of the following classes for which the threshold is an amount greater than 30 L or 30 kg: ...Class 8, Corrosives. Since dangerous goods included in Packing Group III pose a lower risk in transport, the threshold aims to exclude the reporting of small releases or small anticipated releases resulting from routine operations involving pumps, compressors and connectors that connect and disconnect during the loading and unloading of dangerous goods.</p>	No action required.
Jun. 30	MOECC E-mail	<b>NEW! Campaign in a Box toolkit now available on</b>	No action required.

Date - 2015	Source of Posting / Reference	Title of Legal & Other Requirement Highlights of posting	Action and Status Update
		<p><b>Conservation Ontario's website</b> Use the new "<u>Campaign in a Box</u>" toolkit to educate your community about source water protection. Plan a campaign using the template and ideas provided. Or develop new materials using content available in the <u>Source Protection Education and Outreach Resource Catalogue</u>.</p>	
Aug. 20	MOECC E-mail	<p><b>EBR consultation on Ontario's Drinking Water Quality Standards.</b> In December 2014, the MOECC posted a discussion paper on the environmental registry outlining proposed changes to drinking water standards and testing procedures for specific substances: chlorate, chlorite, 2 methyl-4-chlorophenoxyacetic acid and haloacetic acids, and to revise the existing standards for arsenic, benzene, carbon tetrachloride, and vinyl chloride.</p> <p>The ministry is now seeking input on a more specific proposal to amend Ontario Regulation 169/03 (Ontario Drinking Water Quality Standards) and Ontario Regulation 170/03 (Drinking Water Systems) made under the Safe Drinking Water Act, 2002, as well as any municipal licences as appropriate in order to update the drinking water standards, and testing and reporting requirements.</p>	Reviewed and noted for compliance.
Sep. 25	MOECC	<p><b>New fees for the Water and Wastewater Operator Certification Program.</b> Starting January 1, 2016, the MOECC will be increasing fees for the Water and Wastewater Operator Certification Program to recover the costs associated with the program. Existing operator certification program fees have remained unchanged since 2004 and account for only half of the true cost to deliver the program. By adjusting fees and adopting the new fee structure, the ministry will recover close to 100 per cent of program costs. In addition to increases to the current fees, the ministry is introducing new fees, also effective January 1, 2016. The list of all new fees and additional information is available on the Ontario Water Wastewater Certification Office's website at <a href="http://www.owwco.ca">www.owwco.ca</a>.</p>	No action required.
Oct. 31	Ontario Gazette	<p><b>Source Protection Committees Regulation (O. Reg. 288/07)</b> amended with changes to minimum and maximum number of committee members. The "Number of Members" table included in section 1 of the regulation outlines the minimum and</p>	No action required.

Date - 2015	Source of Posting / Reference	Title of Legal & Other Requirement Highlights of posting	Action and Status Update
		maximum number of members for each of the Source Protection Areas or Regions.	
Nov. 9	MOECC	<b>Revisions to the DWQMS have been posted for comment on the Environmental Registry.</b> The MOECC is proposing revisions to the Drinking Water Quality Management Standard (DWQMS). The revisions are administrative in nature and intended to clarify existing requirements. Environmental Registry posting: <a href="#">Env. Registry Number 012-5530</a> .	Reviewed the changes with Operational Staff.
Dec. 1	UW NSERC E-mail	<b>Health Canada Guidance for Issuing and Rescinding Boil Water Advisories.</b> Health Canada has just posted a guidance document titled ' <b>Guidance for Issuing and Rescinding Boil Water Advisories in Canadian Drinking Water Supplies</b> ' at: <a href="http://www.healthycanadians.gc.ca/publications/healthy-living-vie-saine/water-advisories-avis-eau/index-eng.php">http://www.healthycanadians.gc.ca/publications/healthy-living-vie-saine/water-advisories-avis-eau/index-eng.php</a>	Emergency procedure related to water advisories will be updated to reflect guidance material as applicable.
Dec. 8	MOECC E-mail	<b>Watermain Disinfection Procedure.</b> The final version of the MOECC's Watermain Disinfection Procedure document is provided. Our Drinking Water Works Permit will be revised to reflect the requirements outlined in the Watermain Disinfection Procedure document, with a planned implementation date of no earlier than May 1 2016. The following popular stakeholder comments were considered in the finalization of the procedure: <ol style="list-style-type: none"> <li>1. Clarification or modification of the reporting requirements to the local public health unit and the imposition of boil water advisories;</li> <li>2. Clarification or modification of the reporting requirements to the MOECC;</li> <li>3. Required disinfectant concentrations and contact times to ensure adequate disinfection;</li> <li>4. The requirement for backflow prevention devices as referenced in AWWA Standard C651;</li> <li>5. The requirements for an Operator-in-Charge (OIC) to be present and make decisions regarding the disinfection procedure to be followed.</li> </ol>	Review of requirements against the practices we have in place for disinfecting watermains as part of an addition, modification, replacement, extension, planned maintenance, or emergency repair.
Dec. 15	MOECC E-mail	<b>EBR Decision Notice on Ontario's Drinking Water Quality Standards, Testing and Reporting Requirements.</b> The MOECC has approved changes to Ontario Regulations 170/03 and 169/03. The details of the changes can be found in the <a href="#">EBR</a>	Reviewed the changes. Review existing processes to reflect changes.

Date - 2015	Source of Posting / Reference	Title of Legal & Other Requirement Highlights of posting	Action and Status Update
		<p><u>Decision Notice.</u> The amendments:</p> <ul style="list-style-type: none"> <li>• Strengthen standards for arsenic, carbon tetrachloride, benzene and vinyl chloride;</li> <li>• Adopt new standards for chlorate, chlorite, 2-methyl-4-chlorophenoxyacetic acid (MCPA) and haloacetic acids (HAAs);</li> <li>• Clarify/optimize testing, sampling and reporting requirements for trihalomethanes (THMs) and HAAs; and</li> <li>• Remove 13 pesticides from testing requirements.</li> </ul>	