

**WATER WASTE WATER DEPARTMENT REPORT**

**REPORT 17/02**

**TO:** The Mayor and Members of Council  
**FROM:** Harry Niemi, Director of Public Works  
**MEETING DATE:** Monday, March-20-17  
**SUBJECT:** Guelph Eramosa Township Annual Drinking Water Report

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**RECOMMENDATION:**

**Be it resolved that the Council of the Township of Guelph/Eramosa has received Water Waste Water Department Report 17/02 regarding the Ontario Regulation 170/03 Annual and Summary Reports and the Drinking Water Quality Management System Report to the Owner for 2016 known collectively as the Annual Drinking Water Report; and**

**That Council accepts this report for the period from January 1<sup>st</sup>, 2016 to December 31<sup>st</sup>, 2016.**

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**BACKGROUND:**

In conformance with Quality Management System (QMS) Section 12-2 Reporting to Owner, information shall be communicated to the Owner in a timely fashion by Top Management in order to comply with section 19 of the Safe Drinking Water Act, 2002: Standard of Care, and conformance with the municipal drinking water system requirements.

Guelph/Eramosa Water & Wastewater Division has therefore prepared the attached 2016 Annual Drinking Water Report which includes a summary of any adverse test results and related corrective actions, major changes or activities within the drinking water system and/or the quality management system.

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 Ontario Regulation 170/03 (Section 11 and Schedule 22).

The scope of this report represents 2016 Annual and Summary and Drinking Water Quality Management System information from January 1 to December 31, 2016 for Rockwood, Hamilton Drive and Gazer Mooney Drinking Water Systems.

Some brief highlights of the report are as follows:

- Zero incidents of Regulatory Non-compliance
- Zero adverse water quality Incidents
- No nonconformities identified during internal audit
- Three corrective actions identified during external audit
- A 100% rating for microbiological quality indicating effective removal of pathogens.

#### **FINANCIAL IMPACT:**

There is no financial impact related to this report. All financial implications are accounted for the annual water budget.

#### **SUMMARY COMMENTS:**

The Guelph/Eramosa Water/Wastewater Department is providing the Owner (Council) for review the attached Annual and Summary Report regarding the Operations of Rockwood, Hamilton Drive and Gazer Mooney Drinking Water Systems. Council is also asked to provide any comments (if applicable) with respect to the report and its content.

Respectfully Submitted,

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Harry Niemi, P.Eng  
Director of Public Works

Reviewed By:

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Ian Roger, P. Eng  
CAO

# 2016 Annual Drinking Water Report

For:

Hamilton Drive Drinking Water System

Rockwood Drinking Water System

-And-

Gazer Mooney Subdivision Distribution System

Prepared by:



February 28, 2017

## 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.

### 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, 2016

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 [aknight@get.on.ca](mailto:aknight@get.on.ca) or by calling 519-856-9596*

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## 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 in 2016 (Jan. 01 to Dec. 31).

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 for the Hamilton Drive Drinking Water System covered from November 1<sup>st</sup> 2014 to December 31, 2015. Rockwood Drinking Water System covered December 15, 2014 up to December 31, 2015.

The Ministry of Environment and Climate Change is currently underway inspecting both Hamilton Drive and Rockwood Drinking Water Systems for the period of this report (2016) and the first month of 2017.

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

There were no incidents of non-compliance associated with the Gazer Mooney Subdivision Distribution System in 2016 (Jan. 01 to Dec. 31).

The most recent Ministry of Environment and Climate Change (MOECC) Annual Inspection results for the Gazer Mooney Subdivision Distribution System (for the period of January 1<sup>st</sup>, 2016 to November 30<sup>th</sup>, 2016) resulted in an assessment score of 100 per cent (compliance).

### 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, 2016)

Incident Date	AWQI #	Location	Parameter / Unit of measure	Corrective Action
There were no incidents of non-compliance associated with the Rockwood Drinking Water System or Hamilton Drive Drinking Water System in 2016				

### Gazer Mooney Subdivision Distribution System

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

(Jan. 01 to Dec. 31, 2016)

Incident Date	AWQI #	Location	Parameter / Unit of measure	Corrective Action
There were no incidents of non-compliance associated with the Gazer Mooney Subdivision Distribution System in 2016				

### 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).

The 2016 Management review resulted in an action item requesting the re-evaluation of risk associated with private wells within our well head protection zones. Further discussion is required to determine if the threshold is too high resulting in the requirement of a “critical control response” procedure to be implemented.

There are monitoring processes currently in place through the Source Water Protection Program, MOECC Regulation 903 and the Rural Well Water Quality Program.

Decommissioning grants are available through the Grand River conservation Authority to homeowners within well head protection areas for up to \$1500 dollars

#### **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.

The 2016 internal audit was conducted on February 4 and 5<sup>th</sup> 2016 for the review period from April 2015 to January 31, 2016.

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 audit) was performed on June 6 and 7th 2016 by NSF International Inc.

Three Corrective Actions were identified during the external audit related to Document and Record Control (QMS 4) and Measurement, Recording Equipment Calibration and Maintenance (QMS 17).

The root causes were identified and corrective action plans were implemented and accepted by the external auditor. All corrective actions issued will be followed up by the auditor at the next on-site audit scheduled in November of 2017.

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

Emergency Response testing, training and review of potential emergencies are conducted regularly as part of the Drinking Water Quality Management System.

The Township of Guelph/Eramosa Public Works water staff conducted a desk top emergency cross connection exercise in November of 2016.

Opportunity for Improvement / Action Items resulting from the desktop exercise is incorporated into the risk assessment process and emergency plan.

Annual training workshops with Wellington Municipalities continue. This year’s training workshop took place on Oct. 27/16.

Topics covered included - Good record keeping, fuel storage & handling in Well Head Protection Area’s (WHPA) and source protection update, storm water management, hardness in water, optimization with wastewater treatment, pipe bursting for sanitary lateral repairs, and servicing the plowing match site.

#### **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 (Jan. 01 to Dec. 31, 2016) 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 Well # 1 Station St. (TW# 1-67)**

**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	269.60	13.72	781.02	39.75	1,246.89	91.41%
FEBRUARY	249.64	12.70	746.43	37.99	1,308.60	95.94%
MARCH	253.39	12.90	868.24	44.19	1,266.12	92.82%
APRIL	137.76	7.01	975.37	49.64	1,230.77	90.23%
MAY	435.53	22.16	1204.57	61.30	1,223.63	89.71%
JUNE	264.03	13.44	1136.70	57.85	1,233.15	90.41%
JULY	399.38	20.32	1265.36	64.39	1,242.67	91.11%
AUGUST	349.59	17.79	1063.54	54.12	1,179.12	86.45%
SEPTEMBER	50.91	2.59	214.98	10.94	1,134.25	83.16%
OCTOBER	200.67	10.21	696.54	35.45	1,292.31	94.74%
NOVEMBER	17.74	0.90	35.49	1.81	1,321.79	96.91%
DECEMBER	293.56	14.94	971.53	49.44	1,218.86	89.36%

Table 4: Summary of Raw Water Flows – Rockwood Well # 2 Station St. (TW# 1-76)

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	274.40	13.96	872.84	44.42	1,273.26	93.35%
FEBRUARY	136.04	6.92	761.20	38.74	1,260.00	92.38%
MARCH	291.48	14.83	766.00	38.98	1,261.54	92.49%
APRIL	267.39	13.61	968.47	49.29	1,279.67	93.82%
MAY	430.09	21.89	1074.42	54.68	1,266.12	92.82%
JUNE	368.89	18.77	1094.18	55.68	1,266.60	92.86%
JULY	456.77	23.25	1088.24	55.38	1,263.00	92.60%
AUGUST	399.48	20.33	1104.39	56.20	1,272.53	93.29%
SEPTEMBER	270.05	13.74	921.84	46.91	1,260.99	92.45%
OCTOBER	339.37	17.27	815.55	41.50	1,271.61	93.23%
NOVEMBER	194.49	9.90	800.67	40.75	1,265.93	92.81%
DECEMBER	319.60	16.26	718.10	36.54	1,355.49	99.38%

Table 5: Summary of Raw Water Flows – Rockwood Well # 3 Bernardi

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

MONTH	Avg. Daily Volume m <sup>3</sup>	% Of Approved Volume	MAX Daily Volume m <sup>3</sup> /d	% Of Approved Volume	Peak Flow Rate L/min	% Of Approved Flow Rate
JANUARY	420.20	32.08	1027.15	78.41	866.71	78.79%
FEBRUARY	418.37	31.94	1033.92	78.93	1037.40	94.31%
MARCH	372.93	28.47	702.57	53.63	819.20	74.47%
APRIL	304.11	23.21	880.14	67.19	817.73	74.34%
MAY	295.84	22.58	1049.57	80.12	819.93	74.54%
JUNE	383.37	29.26	1026.69	78.37	839.24	76.29%
JULY	354.81	27.08	751.28	57.35	839.24	76.29%
AUGUST	305.98	23.36	791.90	60.45	843.09	76.64%
SEPTEMBER	470.41	35.91	965.79	73.72	842.27	76.57%
OCTOBER	425.72	32.50	1016.28	77.58	867.35	78.85%
NOVEMBER	422.29	32.24	725.00	55.34	873.21	79.38%
DECEMBER	411.42	31.41	1036.39	79.11	872.75	79.34%



Table 6: Summary of Raw Water Flows – Hamilton Drive Well # 1 Cross Creek

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

MONTH	Avg. Daily Volume m <sup>3</sup>	% Of Approved Volume	MAX Daily Volume m <sup>3</sup> /d	% Of Approved Volume	Peak Flow Rate L/min	% Of Approved Flow Rate
JANUARY	16.59	2.04	27.88	3.43	709.04	97.80%
FEBRUARY	92.61	11.41	208.00	25.62	714.68	98.58%
MARCH	108.29	13.34	203.00	25.00	716.09	98.77%
APRIL	101.20	12.46	156.00	19.21	715.93	98.75%
MAY	99.06	12.20	260.00	32.02	712.39	98.26%
JUNE	172.55	21.25	528.00	65.02	708.20	97.68%
JULY	77.06	9.49	272.00	33.50	707.05	97.52%
AUGUST	123.31	15.19	224.00	27.59	705.96	97.37%
SEPTEMBER	141.00	17.36	258.00	31.77	704.51	97.17%
OCTOBER	145.95	17.97	234.00	28.82	706.39	97.43%
NOVEMBER	88.08	10.85	207.00	25.49	705.80	97.35%
DECEMBER	2.00	0.25	5.97	0.74	694.52	95.80%

Table 7: Summary of Raw Water Flows – Hamilton Drive Well # 2 Huntington

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			
JANUARY	76.73	8.38	131.00	14.30	635.77	99.96%
FEBRUARY	75.32	8.22	133.00	14.52	611.05	96.08%
MARCH	80.33	8.77	139.00	15.17	611.42	96.14%
APRIL	76.73	8.38	131.00	14.30	612.41	96.29%
MAY	139.57	15.24	355.60	38.82	614.96	96.69%
JUNE	179.95	19.64	368.00	40.17	608.77	95.72%
JULY	245.84	26.84	461.21	50.35	602.27	94.70%
AUGUST	230.67	25.18	458.00	50.00	600.49	94.42%
SEPTEMBER	142.01	15.50	270.00	29.48	598.47	94.10%
OCTOBER	105.73	11.54	236.71	25.84	603.66	94.91%
NOVEMBER	148.26	16.19	246.00	26.86	603.24	94.85%
DECEMBER	136.14	14.86	212.60	23.21	603.58	94.90%

### i. Water Production vs. Water Consumption

Water Production vs. Water Consumption for 2016 shows an overall percentage loss of three (3) percent loss for Rockwood down by one (1) percent from 2015. Hamilton Drive shows a loss of one have percent (0.5%) up from zero (0) percent in 2015.

The Grand River Conservation Authority remains our highest consumer of water in 2016 at an average rate of 19,940 L/day over their 7 month (April to October) operational season.

### ii. Other Operational Performance Data

The following table provides a brief description of expenses incurred within Rockwood and Hamilton Drive Drinking Water Systems

**Table 8: Rockwood and Hamilton Drive 2016 Maintenance Activity**

Major Maintenance Activity / Expenditure	Location
Pump Maintenance and Video Inspection of Wells	RWD- Station St Pumphouse
Well Pipe Repairs	RWD- Station St. Pumphouse
Sodium Silicate Pump Replacement	RWD – Station St. Pumphouse
Watermain Breaks	RWD - Distribution
Flow Meter Repair	HD - Cross Creek Pumphouse
Reservoir Transducer Replacement	HD - Cross Creek Pumphouse
Pressure Relief Valve Replacement	HD - Huntington Pumphouse
Standpipe Exterior Inspection and Repair	Hamilton Drive Standpipe
Supervisory Control and Data Acquisition Upgrades	All facilities (RWD / HD)
Facility Repairs and Maintenance	All facilities (RWD / HD)
Clay Valve Maintenance and Repairs	All facilities (RWD / HD)
Water Meter Program	All facilities (RWD / HD)
Pressure Relief Valve Upgrade	Distribution Flushing Program
Main Street Watermain Extension	RWD - Distribution

\* RWD: Rockwood Drinking Water System \* HD: Hamilton Drive Drinking Water System

### 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 2016 (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 9: 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	0.10-0.87 NTU's
Turbidity (Station Street; Well 1-76)	24	0.15-0.78 NTU's
Turbidity (Bernardi)	24	0.09-0.36 NTU's
<b>Treated Water</b>		
Free Chlorine Residual (Station St)	8760	0.28-2.84 mg/L
Free Chlorine Residual (Bernardi)	8760	0.49-1.93 mg/L
<b>Distribution System</b>		
Free Chlorine Residual	1982	0.12-3.29 mg/L

**Table 10: 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	0.10-0.48 NTU's
Turbidity (Huntington Well 2)	24	0.23-0.67 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	0.16-4.09 mg/L

\* NTUs = Nephelometric Turbidity Units

Table 11: O. Reg. 170/03 Schedule 10 - Rockwood / Hamilton Drive Microbiological Testing

(Jan. 01 to Dec. 31, 2016)

Drinking Water System	Parameter	# of Samples	E.Coli (min –max)	Total Coliform (min – max)	# of HPC Samples	HPC (min – max)
			Units = Cfu/100 mL			
Rockwood	Raw	156	0-0	0-0	N/A	N/A
	Treated	104	0-0	0-0	104	0-1
	Distribution	218	0-0	0-0	218	0-2
Hamilton Drive	Raw	104	0-0	0-0	N/A	N/A
	Treated	104	0-0	0-0	104	0-6
	Distribution	156	0-0	0-0	156	0-2

Table 12 summarizes Organic/Inorganic parameters sampled during this reporting period or the most recent sample results (treated water) for Rockwood and Hamilton Drive Drinking Water Systems.

Table 12: O. Reg. 170/03 Schedule 13-2 13-4 Rockwood / Hamilton Drive Chemical testing results

Table 12 Chemical testing results

LEGEND	Project Name			ROCKWOOD WELL SUPPLY		HAMILTON DRIVE WELL SUPPLY	
	Sample ID			STATION ST.PH-TREATED	BERNARDI PH-TREATED	CROSSCREEK PH-TREATED	HUNTINGTON PH-TREATED
	Sampling Date			5-Jan-16	5-Jan-16	12-Jan-16	12-Jan-16
Parameter Name	*MAC	Lab Detection limit	Units	Result	Result	Result	Result
2,3,4,6-Tetrachlorophenol	100	0.5	ug/L	<0.50	<0.50	<0.50	<0.50
2,4,6-Trichlorophenol	5	0.5	ug/L	<0.50	<0.50	<0.50	<0.50
2,4-D	100	1	ug/L	<1.0	<1.0	<1.0	<1.0
2,4-Dichlorophenol	900	0.25	ug/L	<0.25	<0.25	<0.25	<0.25
Alachlor	5	0.5	ug/L	<0.50	<0.50	<0.50	<0.50
Atrazine		0.5	ug/L	<0.50	<0.50	<0.50	<0.50
Des-ethyl atrazine		0.5	ug/L	<0.50	<0.50	<0.50	<0.50
Atrazine + Desethyl-atrazine	5	1	ug/L	<1.0	<1.0	<1.0	<1.0
Bromoxynil	5	0.5	ug/L	<0.50	<0.50	<0.50	<0.50
Carbaryl	90	5	ug/L	<5.0	<5.0	<5.0	<5.0
Carbofuran	90	5	ug/L	<5.0	<5.0	<5.0	<5.0
Chlorpyrifos (Dursban)	90	1	ug/L	<1.0	<1.0	<1.0	<1.0
Diazinon	20	1	ug/L	<1.0	<1.0	<1.0	<1.0
Dicamba	120	1	ug/L	<1.0	<1.0	<1.0	<1.0

Table 12 Chemical testing results

LEGEND	Project Name			ROCKWOOD WELL SUPPLY		HAMILTON DRIVE WELL SUPPLY	
	Sample ID			STATION ST.PH-TREATED	BERNARDI PH-TREATED	CROSSCREEK PH-TREATED	HUNTINGTON PH-TREATED
	Sampling Date			5-Jan-16	5-Jan-16	12-Jan-16	12-Jan-16
<b>Bold &amp; Red = Exceedance</b>							
Diclofop-methyl	9	0.9	ug/L	<0.90	<0.90	<0.90	<0.90
Dimethoate	20	2.5	ug/L	<2.5	<2.5	<2.5	<2.5
Malathion	190	5	ug/L	<5.0	<5.0	<5.0	<5.0
Metolachlor	50	0.5	ug/L	<0.50	<0.50	<0.50	<0.50
Metribuzin (Sencor)	80	5	ug/L	<5.0	<5.0	<5.0	<5.0
Pentachlorophenol	60	0.5	ug/L	<0.50	<0.50	<0.50	<0.50
Phorate	2	0.5	ug/L	<0.50	<0.50	<0.50	<0.50
Picloram	190	5	ug/L	<5.0	<5.0	<5.0	<5.0
Prometryne	1	0.25	ug/L	<0.25	<0.25	<0.25	<0.25
Simazine	10	1	ug/L	<1.0	<1.0	<1.0	<1.0
Terbufos	1	0.5	ug/L	<0.50	<0.50	<0.50	<0.50
Triallate	230	1	ug/L	<1.0	<1.0	<1.0	<1.0
Trifluralin	45	1	ug/L	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	0.01	0.009	ug/L	<0.0090	<0.0090	<0.0090	<0.0090
Total PCB	3	0.05	ug/L	<0.05	<0.05	<0.05	<0.05
Aroclor 1016		0.05	ug/L	<0.050	<0.050	<0.050	<0.050
Aroclor 1221		0.05	ug/L	<0.050	<0.050	<0.050	<0.050
Aroclor 1232		0.05	ug/L	<0.050	<0.050	<0.050	<0.050
Aroclor 1242		0.05	ug/L	<0.050	<0.050	<0.050	<0.050
Aroclor 1248		0.05	ug/L	<0.050	<0.050	<0.050	<0.050
Aroclor 1254		0.05	ug/L	<0.050	<0.050	<0.050	<0.050
Aroclor 1260		0.05	ug/L	<0.050	<0.050	<0.050	<0.050
Diuron	150	10	ug/L	<10	<10	<10	<10
Guthion (Azinphos-methyl)	20	2	ug/L	<2.0	<2.0	<2.0	<2.0
Diquat	70	7	ug/L	<7.0	<7.0	<7.0	<7.0
Paraquat	10	1	ug/L	<1.0	<1.0	<1.0	<1.0
Glyphosate	280	10	ug/L	<10	<10	<10	<10
Mercury (Hg)	0.001	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
. Antimony (Sb)	6	0.5	ug/L	<0.50	<0.50	<0.50	<0.50
. Arsenic (As)	25	1	ug/L	<1.0	<1.0	<1.0	<1.0
. Barium (Ba)	1000	2	ug/L	84	45	45	49
. Boron (B)	5000	10	ug/L	23	11	22	32
. Cadmium (Cd)	5	0.1	ug/L	<0.10	<0.10	<0.10	<0.10
. Chromium (Cr)	50	5	ug/L	<5.0	<5.0	<5.0	<5.0
. Lead (Pb)	10	0.5	ug/L	<0.50	<0.50	<0.50	<0.50
. Selenium (Se)	10	2	ug/L	<2.0	<2.0	<2.0	<2.0
. Sodium (Na)	20000	100	ug/L	<b>120000</b>	12000	9800	<b>29000</b>

Table 12 Chemical testing results

LEGEND	Project Name			ROCKWOOD WELL SUPPLY		HAMILTON DRIVE WELL SUPPLY	
	Sample ID			STATION ST.PH-TREATED	BERNARDI PH-TREATED	CROSSCREEK PH-TREATED	HUNTINGTON PH-TREATED
	Sampling Date			5-Jan-16	5-Jan-16	12-Jan-16	12-Jan-16
<b>Bold &amp; Red = Exceedance</b>							
. Uranium (U)	20	0.1	ug/L	1	0.4	<0.10	<0.10
1,1-Dichloroethylene	14	0.1	ug/L	<0.10	<0.10	<0.10	<0.10
1,2-Dichlorobenzene	200	0.2	ug/L	<0.20	<0.20	<0.20	<0.20
1,2-Dichloroethane	5	0.2	ug/L	<0.20	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	5	0.2	ug/L	<0.20	<0.20	<0.20	<0.20
Benzene	5	0.1	ug/L	<0.10	<0.10	<0.10	<0.10
Carbon Tetrachloride	5	0.1	ug/L	<0.10	<0.10	<0.10	<0.10
Chlorobenzene	80	0.1	ug/L	<0.10	<0.10	<0.10	<0.10
Methylene Chloride(Dichloromethane)	50	0.5	ug/L	<0.50	<0.50	<0.50	<0.50
Tetrachloroethylene	30	0.1	ug/L	<0.10	<0.10	<0.10	<0.10
Toluene		0.2	ug/L	<0.20	<0.20	<0.20	<0.20
Trichloroethylene	5	0.1	ug/L	<0.10	<0.10	<0.10	<0.10
Vinyl Chloride	2	0.2	ug/L	<0.20	<0.20	<0.20	<0.20
2 methyl 4 Chlorphenoxyacetic Acid (HAA)	0.1	0.12	ug/L	<0.12	<0.12	<0.12	<0.12

\* MAC: Maximum Acceptable Concentration

Table 13 summarizes treated and distribution samples taken at the Rockwood and Hamilton Drive Drinking Water Systems for the period of Jan. 01 to Dec. 31, 2016.

Table 13: O. Reg. 170/03 Schedule 13-6, 13-7 Rockwood and Hamilton Drive quarterly results

Sample result location	Nitrate (as nitrogen)	Nitrite (as nitrogen)	Nitrate +Nitrite (as nitrogen)	Trihalomethanes (expressed as a annual running average)
Results based on 4 sample dates in 2016	*MAC 10.0 mg/L	*MAC 1.0 mg/L	*MAC 10.0 mg/L	*MAC 0.10 mg/L
Rockwood - Treated Station St. Pumphouse	<0.10	<0.010	<0.10	
Rockwood -Treated Bernardi Pumphouse	<0.10	<0.010	<0.10	
Rockwood - Distribution				0.022
Hamilton Drive - Treated Cross Creek Pumphouse	<0.10	<0.010	<0.10	
Hamilton Drive - Treated Huntington Pumphouse	<0.10	<0.010	<0.10	
Hamilton Drive - Distribution				0.009

\* MAC: Maximum Acceptable Concentration

Table 14 presents summary results for lead sampling in the Rockwood and Hamilton Drive Drinking Water Systems for the period of Jan. 1 to Dec. 31, 2016

**Table 14: O. Reg. 170/03 Schedule 15.1 Rockwood/Hamilton Lead Testing Summary 2016**

Location	Sample type	Range of results		Plumbing	Distribution samples	Number of Exceedances
		Min.	Max.			
Rockwood	pH	7.21	7.79	exempt	6	n/a
	Alkalinity	300 mg/L	340 mg/L		6	0
	Lead				no sample period	n/a
Hamilton Drive	pH	7.49	7.73	exempt	4	n/a
	Alkalinity	220 mg/L	230 mg/L		4	0
	Lead				no sample period	n/a

#### **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 2016 (Jan. 01 to Dec. 31, 2016). For regulatory sampling schedules that do not occur in 2016 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, 2016 are summarized in table 16. There was no instance of an adverse result in 2016 between Jan. 01 and Dec. 31:

**Table 15: O. Reg. 170/03 Schedule 7-2, Gazer Mooney - Distribution Manual Free Chlorine Residual Summary**

Parameter	Number of Grab Samples	Range of Results (min # - (max #))
Free Chlorine Residual	365	0.63 - 1.11 mg/L

Table 16 summarizes bacteriological sampling and test results required by O. Reg. 170/03 Schedule 10 for the period of Jan. 01 to Dec. 31, 2016. There was no instance of an exceedance for a Regulatory microbiological parameter in 2016 between Jan. 01 and Dec. 31:

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



**Table 16: O. Reg. 170/03 Schedule 10-2, Gazer Mooney Microbiological Testing Summary**

Drinking Water System	Parameter	# of Samples	E.Coli (min – max)	Total Coliform (min – max)	# of HPC Samples	HPC (min – max)
			Units = Cfu/100 mL			
Gazer Mooney Subdivision	Distribution only	52	0-0	0-0	52	0-5

**Table 17: 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	0.10	0.0143 – 0.0533

MAC: Maximum acceptable concentration

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 19 in order to gather additional data and answer common inquiries from the public.

**Table 18: Gazer Mooney General Chemistry Results Summary**

Parameter	MAC mg/L	Total Samples	Min (mg/L)	Max (mg/L)	Average (mg/L)
Sodium	20	1	25	25	25
Chloride	n/a	1	42	42	42

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

Management review was held on March 10, 2016. Water staff has made good progress in addressing action items and recommendations by Management. Below is a summary of action items from the 2016 management review.

In the last re-evaluation of risks associated with drinking water, Source Water Protection risks associated with private wells located within a Municipal well head area (WHPA 10) were considered. This outcome resulted in the requirement for a critical control response procedure to be implemented.

Management requested further review to determine if the threshold may be too high requiring critical control response procedures to be implemented.

The newly revised element 14; Review and Provision of Infrastructure were further discussed to ensure the element had been fully considered.

Continue to monitor the Ontario's GUDI (Groundwater Under the Direct Influence of Surface Water) Terms of Reference that may result in classification changes to source waters and may require disinfection system upgrades for the Station Street wells.

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

### **Source Water Protection Plan Reporting**

In 2016, progress continued in the implementation of source protection in the municipality.

A brief summary of key aspects of the Risk Management Official Report and Municipal Report are provided below.

Since July 1, 2016, sixteen (16) development review notices were issued per Section 59 of the Clean Water Act within the municipality. In the same time period, comments were provided on an additional eleven (11) applications that did not require development review notices. Guidance material for applicants and staff was developed county wide including a source protection screening form, instructions to applicants, dedicated page on the website, GIS mapping on Explore Wellington, a business process flow chart and detailed screening aids. Training was provided by the Risk Management Official to planning and building staff. The County Official Plan was also amended to conform to all five Source Protection Plans in the County.

For the municipality, significant drinking water threats are present in both the municipality's vulnerable areas and within vulnerable areas for the City of Guelph water system. Approximately 80 % of the current significant drinking water threat totals are solely within the City of Guelph's vulnerable areas.

Approximately 60 commercial, industrial and institutional properties have been identified as potential significant drinking water threats. Data is still to be analyzed to determine what properties are confirmed as significant drinking water threats. Outreach and threat verification for agricultural properties began in 2016 and will continue in 2017. One Risk Management Plan is in the process of negotiation for the municipality while a second property is subject to discussions between the municipality and the Province to determine whether an RMP is required.

Analysis of the use of home heating oil is continuing to determine properties subject to residential fuel oil policies. To date, field visits have confirmed the heating source for 144 properties with 33 properties being on fuel oil for at least part of their heating source.

In 2015/2016, 401 of 421 mandatory septic inspections (95%) were completed within the Township. There are 640 septic inspections required County wide. If a septic system is present within well head protection area with a vulnerability score of 10 or within an issues contributing area for nitrates, a septic inspection is required every 5 years. In total, there were 99 remedial actions identified in the

municipality with 78 requiring minor maintenance (i.e. pump outs or lid replacements) and 21 requiring major maintenance work (tank or leaching bed replacements).

Other accomplishments included the update of the County Emergency Management Plan to include source protection, updates to education material (ie fact sheets, website), participation in a number of events including the International Plowing Match and beginning the development of education and outreach programs for a variety of significant drinking water threat activities. The Wellington County municipalities continue to implement source protection under the Wellington Source Water Protection partnership, [www.wellingtonwater.ca](http://www.wellingtonwater.ca)

Tier 3 (water quantity) technical studies continue for the City of Guelph and Guelph / Eramosa Township. Staff and consultants continued to participate in meetings and review for these studies in 2016. Although the conclusions are not public until at least April 2017, it is likely that a well head protection area and intake protection zone for water quantity will be established and it will encompass the Township.

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

Please view **4.0 Legal and other Requirements update**

#### *Outstanding from last year;*

1. **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 shortly and may impact disinfection requirements for the Station Street wells.
2. **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.

### **l) Consumer Feedback**

There were five complaints related to water quality covering the audit period of 2016. These were related to discoloured water from flushing, watermain construction or pressure issues within private plumbing. The most frequent complaints of 2016 were high water consumption related to water softener issues.

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

Ongoing dedication by staff and council are needed to support the Drinking Water Quality Management System. Efforts are ongoing to address future staffing requirements and the continued development of the Seaton well pumphouse (located on Milne Place in Rockwood) to meet future demand.

### **n) Infrastructure Review**

In order to satisfy the current and pending requirements of the Drinking Water Quality Management Standard, the Director of Public Works and Operations Manager conduct an annual review of its water treatment, pumping, storage and watermain infrastructure. Taken into consideration is long term forecasting of major infrastructure renewal. The program is communicated verbally identifying needs on an on-going basis (e.g. maintenance inspections) or periodic (e.g. site specific risk assessments). Based on the information collected, needs are assessed, prioritized and is communicated to the owner through the annual budget process.

### **o) Staff Suggestions**

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

### 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 2017 include the following:

Month	2017 Scheduled DWQMS
March	<ul style="list-style-type: none"> <li>Council update - Report to Owner</li> </ul>
March/April	<ul style="list-style-type: none"> <li>Internal Audit.</li> </ul>
May/June	<ul style="list-style-type: none"> <li>Work on noted opportunities for improvement (OFIs) from various sources (e.g. internal audits, external audits).</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 through November	<ul style="list-style-type: none"> <li>Risk Assessment review (element 7/8)</li> <li>Infrastructure review (element 14) and the effectiveness of maintenance program</li> <li>Staff suggestions are considered at this time</li> </ul>
November	<ul style="list-style-type: none"> <li>NSF International Strategic Registrations on-site audit of the Drinking Water Quality Management System</li> </ul>

### 4.0 Legal and other Requirements update

Date - 2016	Source of Posting / Reference	Title of Legal & Other Requirement Highlights of posting	Action and Status Update
Effective Jan. 1	EBR	<u>Regulatory Amendments to Update Ontario Drinking Water Quality Standards, and Testing and Reporting Requirements</u> – changes include: <ol style="list-style-type: none"> <li>The addition of MCPA sampling (added to Schedule 24 and therefore simply an addition to the Schedule 24 bottle set which Maxxam will look after). There is also 13 Pesticide analysis being removed from Schedule 24</li> </ol>	Updated related Chains of Custody, Compliance Records and bottle order from lab.

Date - 2016	Source of Posting / Reference	Title of Legal & Other Requirement Highlights of posting	Action and Status Update
		<p>so the total number of sample bottles are less. This sampling takes place annually at Station Street Pumphouse (GUDIWEF) and every three years at all other treated sources (groundwater).</p> <p>2. The addition of HAA sampling every 3 months. Sampling will take place at the same locations where THM sampling occurs, at the same frequency and using the same methodology. This takes effect January 1, 2017.</p> <p>Also, the existing standards for carbon tetrachloride; benzene and vinyl chloride are being lowered. This takes effect January 1, 2017 and arsenic, January 1, 2018.</p>	
2016	City of Guelph/ Region of Waterloo	<p>In 2016, the Region of Waterloo and the City of Guelph co-funded a study to determine the potential environmental impact of residential water softeners to determine the need to pursue strategies to reduce the use of salt based water conditioning units. The study concluded that discharge from water softens is impacting the wastewater quality that could be re-used at the wastewater treatment plant, as well as, is a significant source for potential residential water savings due to the amount of water discharged if these units were removed. Thus, the study recommends that clear and consistent messaging needs to be presented to customers on options for salt reduction; analysis of potential rebates for alternative salt and water-free technologies; consideration of planning or by-law amendments to reduce the use of salt based water softeners; and additional studies and pilot programs with the local water quality companies to develop consistent messaging, alternative products, understanding the markets drive for water softeners and development of expertise in these new technologies. In 2017, the City will continue to work with the Region of Waterloo to reduce the impact of water softeners in both communities.</p> <p>Further information about water softeners and research to date can be found at <a href="http://watersoftenerfacts.ca">watersoftenerfacts.ca</a></p>	Follow the development of the study.

Date - 2016	Source of Posting / Reference	Title of Legal & Other Requirement Highlights of posting	Action and Status Update
Feb. 8	MOECC e-mail	<p>Visit the new <a href="#">Source Water Protection Map</a> now available on Ontario.ca.</p> <p>This interactive map provides the first provincial view of the more than 970 wellhead protection areas and 150 intake protection zones within the source protection areas in Ontario. You can access over 20 layers of information every time you do a customised search.</p> <p>For the first time, the public will be able to see the wellhead protection areas and intake protection zones of the lakes, rivers and aquifers that supply their drinking water. This tool provides them with information needed to make informed property-based decisions. As well, this tool will help ministries and other agencies implement source protection plan policies.</p> <p>A link to the map can be found in the updated <a href="#">General Messages page</a> of the Source Water Protection Resource Catalogue available on Conservation Ontario's website.</p>	No action required.
Feb. 26	OMWA newswire	<p><a href="#">Canadian disaster relief to cost \$900M a year over next 5 years, new PBO report says</a> – Storms, hurricanes and floods driven in part by climate change will cost the federal disaster fund \$902 million a year over the next five years, well above past averages, the parliamentary budget officer predicted Thursday. The average cost to the federal disaster fund has risen from \$54 million a year (in adjusted 2014 dollars) for the 1970-94 period to \$291 million between 1995 and 2004 and \$410 million between 2005 and 2014.</p>	No action required.
Mar. 21	MOECC e-mail	<p>Keep your eyes open for the new Drinking Water Protection Zone signs!</p> <p>They are appearing across Ontario to protect public health and raise awareness of the sensitivity of our drinking water sources.</p> <p>More information is available in the <a href="#">Drinking Water Protection Zone Road Signs</a> catalogue page in the Source</p>	No action required.



Date - 2016	Source of Posting / Reference	Title of Legal & Other Requirement Highlights of posting	Action and Status Update
		<p>Water Protection Education and Outreach catalogue on Conservation Ontario's website.</p> <p>A page on <u>Water Conservation</u> has also been posted. It helps homeowners and businesses understand their water use and gives tips on how to use less.</p>	
Mar. 23	OMWA newswire	<p><u>Ontario Moves to Track Water Usage in Large Buildings</u> Ontario is pushing to get to large building owners measure and track water usage. The Ontario Ministry of Energy has made a proposal that requires large building owners to collect and submit data on their building's water and energy usage each year.</p>	No action required.
Apr. 5	<u>EBR</u>	<p><u>Regulations prescribing certain short term water takings as EASR activities</u> – MOECC posted a discussion paper on the Environmental Activity and Sector Registry and Short-Term Water Takings on March 6, 2015. On November 20, 2015 the ministry posted a proposal for a regulation under the Environmental Protection Act that would prescribe the following activities for the purposes of section 20.21 of the Act – the Environmental Activity and Sector Registry (EASR):</p> <ul style="list-style-type: none"> <li>■ Water takings for Construction Site Dewatering</li> <li>■ Water takings for Road Construction Purposes</li> </ul> <p>A decision has been made to prescribe the two activities noted above for the purposes of subsection 20.21 (1) of the Act. The new EASR regulation made under the Environmental Protection Act is O. Reg. 63/16 Registrations Under Part II.2 of the Act –Water Takings.</p>	No action required
May 27	Wellington Source Water Risk Management Official	Wellington Source Water has filled a 7 month contract position for a Source Protection and Quality Management Technician. The position is split 50% between Centre Wellington Environmental Services and 50% for Wellington Source Water Protection.	No further action required.
June 1	MOECC /G.E.T.	<u>MOECC Watermain Disinfection Procedure</u> implemented	No further action required.



Date - 2016	Source of Posting / Reference	Title of Legal & Other Requirement Highlights of posting	Action and Status Update
	Drinking Water Works Permit	as required within the Guelph/Eramosa Drinking Water Works Permit.	
Jun. 2	MOECC e- mail	<p>The <u>2016 Spring Operator Certification Bulletin</u> has just been launched. Some highlights include:</p> <ul style="list-style-type: none"> <li>• Ontario's Water and Wastewater Certification Program receives North American awards</li> <li>• MOECC's new watermain disinfection procedure and implications to operators and system owners</li> <li>• Changes to Ontario's Drinking Water Quality Standards, testing and reporting requirements</li> <li>• OWWCO's new and improved website and Director approved course listing</li> </ul> <p>Operator bulletins are posted on the program administrator's website at <a href="http://www.owwco.ca">www.owwco.ca</a>.</p>	No action required.
July 1	GRCA	Grand River Plan - Source Water Protection implementation. <u>Grand-River-Source-Protection-Plan</u>	Continued implementation and conformance
Jul. 13	MOECC e- mail	<u>Review of the Environmental Bill of Rights – A Provincial Dialogue</u> - The purpose of this notice is to inform the public of the Ministry of the Environment and Climate Change's review of components of the Environmental Bill of Rights and to seek public feedback.	No action required.
Aug. 23	MOECC e- mail	<p>Changes Proposed to Ontario's Drinking Water Regulations – The Ministry of the Environment and Climate Change is proposing amendments to:</p> <ul style="list-style-type: none"> <li>• O. Reg. 169/03 Ontario's Drinking Water Quality Standards and the Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines;</li> <li>• O. Reg. 170/03 Drinking Water Systems;</li> <li>• O. Reg. 243/07 Schools, Private Schools and Day Nurseries;</li> <li>• O. Reg. 248/03 Drinking Water Testing Services; and</li> </ul>	<p>Changes to the proposed standards are not expected to be an issue within the Guelph/ Eramosa Drinking Water Systems.</p> <p>No further action required.</p>

Date - 2016	Source of Posting / Reference	Title of Legal & Other Requirement Highlights of posting	Action and Status Update
		<ul style="list-style-type: none"> <li>O. Reg. 128/04 Certification of Drinking Water System Operators and Water Quality Analysts.</li> </ul> <u>Environmental Registry (#012-8244).</u>	
Oct. 21	MOECC e-mail	<u>Ontario Proposes Two Year Moratorium on New and Expanded Water Bottling Operations</u> - Ontario is taking action to protect the province's water resources for future generations by proposing a two-year moratorium on new or expanded water takings from groundwater by bottling companies, as well as stricter rules for renewals of existing permits.	No action required
Nov. 16	OMWA newswire	<u>Ontario Environment Commissioner Released Report on Stormwater Pricing</u> The Environment Commissioner of Ontario (ECO) has released a report today noting that Ontario's municipalities face a \$6.8 billion deficit to fix existing stormwater infrastructure and to accommodate future growth. This financial gap could get even bigger as municipalities deal with larger flows and more polluted runoff, as landscapes are paved over to meet growth pressures.	No action required
Nov. 28	MOECC e-mail	Notice of Release of the Chief Drinking Water Inspector's Annual Report 2015-2016 - the Ministry of the Environment and Climate Change released the <u>Chief Drinking Water Inspector's Annual Report 2015-2016</u> .	No action required.
Dec. 2	EBR	Bottled Water Technical Guidance Document –MOECC has proposed a regulation (EBR Registry # 012-8783) that would establish a moratorium on the issuance of new or increasing permits for water bottling by prohibiting a person from using groundwater for the purpose manufacturing bottled water or manufacturing water as a product that is sold in other types of portable containers. The moratorium would apply in all of Ontario and would be in effect until January 1, 2019.	No action required.
Dec. 19	MOECC e-mail	<u>Updates To Ontario's Drinking Water Regulations - Amendments to Ontario's Drinking Water Quality</u>	No further action required.

Date - 2016	Source of Posting / Reference	Title of Legal & Other Requirement Highlights of posting	Action and Status Update
		Standards, aesthetic objectives and regulations come into effect on July 1, 2017, with additional requirements for licensed laboratories beginning January 1, 2018.	
Dec. 21	MOECC e-mail	<p>Notice of Release of the Minister's Annual Report on Drinking Water 2016 – Please be advised that today the Ministry of the Environment and Climate Change released the <u>Minister's Annual Report on Drinking Water 2016</u>. It is available online at <a href="http://ontario.ca/drinkingwater">ontario.ca/drinkingwater</a>.</p> <p>The Minister's Annual Report on Drinking Water 2016 highlights the work Ontario is doing to protect our drinking water. This year's report includes information on the effects of climate change on our water resources and specific actions we are undertaking to address these challenges.</p>	No action required.