

2018 Annual Drinking Water Report

For:

Hamilton Drive Drinking Water System

Rockwood Drinking Water System

-And-

Gazer Mooney Subdivision Distribution System

Prepared by:



February 28, 2019

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 Ontario Regulation (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, 2018

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

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 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. The updated agreement shall commence on March 1, 2019 and continue until February 29, 2024, with an automatic renewal extended to February 28, 2029.

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 (MECP) 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).

Hamilton Drive

The Hamilton Drive Drinking Water System Inspection was performed in November of 2017 and covered the period from October 21, 2017 to December 31, 2018 resulting in an assessment score of 94.82 per cent (compliance). The lower assessment score is a result of;

Huntington well having break in the electrical conduit at ground level, which caused an opening that provided a pathway for foreign materials to potentially enter the well. On January 10, 2019, confirmation was provided by Township staff that the electrical conduit had been fixed. Township staff also confirmed that, moving forward, weekly operator checks of the above-ground portion of the wells will be documented on a check sheet at the pumphouses.

Schedule 6-5(1) of Ontario Regulation 170/03 requires monitoring and recording of data related to achieving primary disinfection, except when no water is being directed to consumers. All sites within this drinking water system are set to monitor and record required data according to the schedule requirements.

There was an event on June 28, 2018, where a Supervisory Control and Data Acquisition (SCADA) failure led to data not being recorded while the high lift pump was operating at Cross Creek for approximately thirty minutes until the high lift pump could be manually shut down.

Chlorine residual levels were sufficient prior to the missing data, and disinfection occurs via a treated water reservoir, thus it is believed that there was not an issue with disinfection during the time of the missing data.

Action(s) Required: By March 31, 2019, Township staff shall submit a plan to the undersigned officer to describe steps being taken to prevent future recorded data issues.

Rockwood

The Rockwood Drinking Water System Inspection was performed in January of 2018 and covered the period from February 1, 2017 to January 15, 2018 resulting in an assessment score of 100 % per cent (compliance).

The Ministry of Environment, Conservation and Parks Inspection is currently underway inspecting Rockwood Drinking Water System for the period of January 16, 2018 to February 4, 2019. Results will be provided in the 2019 Annual Drinking Water Report.

Gazer Mooney Subdivision Distribution System

There were no incidents of non-compliance associated with the Gazer Mooney Subdivision Distribution System in 2018 (Jan. 01 to Dec. 31).

The most recent Ministry of Environment, Conservation and Parks (MECP) Annual Inspection results for the Gazer Mooney Subdivision Distribution System (for the period of December 1, 2017 to December 31, 2018) 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, 2018)

Incident Date	AWQI #	Location	Parameter / Unit of measure	Corrective Action
Oct. 23, 2018	143750	Huntington Pumphouse	Sodium 28 mg/L	Resample – same outcome
Oct. 26, 2018	143753	Station St. Pumphouse	Sodium 130 mg/L	Resample – same outcome

Gazer Mooney Subdivision Distribution System

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

(Jan. 01 to Dec. 31, 2017)

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 2018				

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 Conservation and Parks 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 annual risk assessment review was conducted by on June 5, 2018. The updated risk assessment outcomes were provided at a Management Review Meeting on September 26, 2018. The results of the Risk Assessment are not made available to the public but are made available to Drinking Water System Owners (Council).

Through the risk assessment review process, one program aspect was lowered relating to the likelihood of risk:

- backflow resulting in non-potable water coming into system.
 - Likelihood was lowered as there are existing control measures already in place and a lack of industrial /commercial businesses within the Drinking Water System.

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 are 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.

2018 Internal Audit

The 2018 internal audit was conducted on August 15 and 16, 2018 for the review period September 1, 2017 and August 15th, 2018.

The internal audit performed within the Guelph/Eramosa Water/Wastewater Department demonstrated that top management and staff are committed to ongoing maintenance and continual improvement of the Quality Management System. While opportunities for improvement were cited during the audit,

they do not undermine the positive programs and attitudes already in place at the Guelph/Eramosa Township.

No nonconformities were identified during the 2018 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 by the Guelph/Eramosa Water/Wastewater Department throughout the year and are reviewed during Management Review. Action items, if possible, are closed or are pending closure by the next scheduled internal audit.

Various opportunities for improvement (OFI) noted in 2018 are: improved document and records control, training, communications, improved equipment and electronic technology updates.

2018 External Audit

Third party audit (external audit) was performed on November 5 and 6th, 2018 by NSF International Inc.

The required corrective action findings were related to Document and Record Control (QMS 5), Measurement and Recording Equipment Calibration & Maintenance (QMS 17) and Management Review (QMS 20). Appropriate corrective actions were implemented and approved by the auditor. These corrective actions will be verified for effectiveness by the auditor at the next audit in the fall of 2019.

Noted opportunities for improvement by the auditor were related to improving the following processes: Drinking Water System (QMS 6); Risk Assessment Outcomes (QMS 7&8) Communication (QMS 12) Measurement and Recording Equipment Calibration and Maintenance (QMS17). These opportunities for improvement will be followed-up on by the auditor at the next off-site audit in Fall of 2019.

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 to ensure that Water Department and related staff maintains a reasonable readiness to deal with emergencies and abnormal events.

Shared training workshops with Wellington Municipalities continued in 2018. Topics covered included Source Protection, Climate Change Impact Assessment to Inflow & Infiltration, CT Calculations and Watermain Disinfection Requirements.

Guelph/Eramosa Township conducted its own Emergency test exercise on November 15, 2018 related to a watermain break located on a main county road.

Feedback gathered during the debriefing session was incorporated to improve related applicable procedures.

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, 2018) 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 m³/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 ³		m ³ /d			
JANUARY	3.31	0.17	51.62	2.63	1308.24	96%
FEBRUARY	240.10	12.22	798.57	40.64	1221.06	89%
MARCH	230.13	11.71	816.36	41.54	1205.31	88%
APRIL	232.65	11.84	642.29	32.69	1227.66	90%
MAY	392.77	19.99	1158.17	58.94	1211.17	88%
JUNE	331.92	16.89	1109.72	56.47	1215.38	89%
JULY	305.18	15.53	884.66	45.02	1197.07	88%
AUGUST	315.27	16.04	1001.50	50.97	1192.86	87%

MONTH	Avg. Daily Volume	% Of Approved Volume	MAX Daily Volume	% Of Approved Volume	Peak Flow Rate L/min	% Of Approved Flow Rate
	m ³		m ³ /d			
SEPTEMBER	361.69	18.41	796.36	40.53	1197.25	88%
OCTOBER	296.36	15.08	905.58	46.09	1194.32	87%
NOVEMBER	318.40	16.20	887.57	45.17	1189.74	87%
DECEMBER	487.76	24.82	959.43	48.83	1188.46	87%

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 m³/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 ³		m ³ /d			
JANUARY	279.64	14.23	862.35	43.89	1338.00	98.09%
FEBRUARY	3.89	0.20	57.10	2.91	1348.20	98.84%
MARCH	205.83	10.47	553.90	28.19	1339.20	98.18%
APRIL	257.76	13.12	793.04	40.36	1338.64	98.14%
MAY	237.49	12.09	697.55	35.50	1327.11	97.30%
JUNE	325.94	16.59	993.97	50.58	1340.48	98.28%
JULY	303.58	15.45	1106.32	56.30	1338.28	98.11%
AUGUST	277.26	14.11	610.50	31.07	1324.91	97.13%
SEPTEMBER	333.69	16.98	1233.12	62.75	1336.20	97.96%
OCTOBER	292.67	14.89	861.26	43.83	1332.78	97.71%
NOVEMBER	230.56	11.73	461.21	23.47	1329.60	97.48%
DECEMBER	107.84	5.49	526.00	26.77	1329.00	97.43%

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

Bernardi Well # 3		(Rated Capacity 1,310 m ³ /day)		(Rated Daily Peak 1100 L/min)		
MONTH	Avg. Daily Volume m ³	% Of Approved Volume	MAX Daily Volume m ³ /d	% Of Approved Volume	Peak Flow Rate L/min	% Of Approved Flow Rate
JANUARY	617.10	47.11	1048.56	80.04	883.28	80%
FEBRUARY	625.08	47.72	1045.65	79.82	890.24	81%
MARCH	370.23	28.26	768.27	58.65	900.40	82%
APRIL	355.13	27.11	1068.24	81.54	903.06	82%
MAY	382.15	29.17	1098.93	83.89	904.89	82%
JUNE	335.65	25.62	1013.23	77.35	903.15	82%
JULY	337.81	25.79	840.84	64.19	889.96	90%
AUGUST	312.42	23.85	1070.22	81.70	895.09	81%
SEPTEMBER	285.63	21.80	881.05	67.26	893.44	81%
OCTOBER	294.04	22.45	922.13	70.39	889.32	81%
NOVEMBER	307.56	23.48	744.31	56.82	881.36	80%
DECEMBER	343.77	26.24	886.71	67.69	879.71	80%

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

Cross Creek Well # 1 (Rated Capacity 812 m³/19 hours) (Rated Daily Peak 725 L/min)						
MONTH	Avg. Daily Volume m³	% Of Approved Volume	MAX Daily Volume m³/d	% Of Approved Volume	Peak Flow Rate L/min	% Of Approved Flow Rate
JANUARY	54.90	6.76	111.50	13.73	704.80	97%
FEBRUARY	74.62	9.19	182.00	22.41	700.39	96%
MARCH	74.95	9.23	203.00	25.00	708.00	97%
APRIL	64.27	7.92	198.00	24.38	707.26	97%
MAY	90.11	11.10	266.00	32.76	708.12	97%
JUNE	108.75	13.39	246.00	30.30	704.67	97%
JULY	83.76	10.32	264.00	32.51	697.39	96%
AUGUST	77.16	9.50	231.00	28.45	702.53	97%
SEPTEMBER	63.31	7.80	253.00	31.16	697.45	96%
OCTOBER	41.90	5.16	214.00	26.35	694.97	96%
NOVEMBER	42.88	5.28	126.00	15.52	693.73	95%
DECEMBER	60.88	7.50	129.00	15.89	693.44	95%

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

Huntington Well # 2		(Rated Capacity 916 m ³ /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 ³		m ³ /d			
JANUARY	68.33	7.46	189.02	20.64	607.46	95%
FEBRUARY	41.11	4.49	141.00	15.39	607.14	95%
MARCH	47.31	5.16	134.00	14.63	603.25	94%
APRIL	64.39	7.03	151.00	16.48	603.39	94%
MAY	80.49	8.79	325.76	35.56	602.54	94%
JUNE	57.04	6.23	256.00	27.95	600.91	94%
JULY	111.78	12.20	310.79	33.93	599.51	94%
AUGUST	98.23	10.72	260.00	28.38	599.41	94%
SEPTEMBER	90.49	9.88	249.00	27.18	601.04	94%
OCTOBER	72.77	7.94	258.00	28.17	602.87	95%
NOVEMBER	71.57	7.81	153.00	16.70	607.46	95%
DECEMBER	73.50	8.02	152.00	16.59	605.50	95%

i. Water Production vs. Water Consumption

Water Production vs. Water Consumption for 2018 shows an overall percentage loss of 2 % for Rockwood down by 2.5% from 2017. Hamilton Drive shows a loss of 8% up by 6.4% from 2017. This unexpected increase in water loss for Hamilton Drive will be monitored to investigate the cause.

Considerations for non-revenue water loss are unauthorized water use, customer meter inaccuracies, distribution and service connection piping leaks.

The Grand River Conservation Authority remains our highest consumer of water in 2018 at a rate of 16,300 L/day over their 7 month (April to October) operational season. Total annual consumption was 3489 cubic meters.

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 2018 Maintenance Activity

Major Maintenance Activity / Expenditure	Location
Repair and cleaning of the Hamilton Drive Standpipe	HD – Standpipe
UV pressure sender, sensor, bulb and sleeve replacement	RWD - Station St. Pumphouse
Well valve and probe replacement	RWD - Station St. Pumphouse
Isolation valves installed on emergency pumps	RWD - Booster Station
Generator repair	RWD – Booster Station
Chlorine Analyzer replacement	RWD – Booster Station
Generator repair	RWD – Bernardi Pumphouse
Water meter replacement program	RWD / HD - Distribution
Hydrant flushing and maintenance	RWD / HD - Distribution
Repair and maintenance of watermain valves	RWD / HD - 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 2018 (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 #)
Raw Water		
Turbidity (Station Street; Well 1-67)	51	0.06-0.39 NTU's
Turbidity (Station Street; Well 1-76)	51	0.09-0.65 NTU's
Turbidity (Bernardi)	50	0.04-0.31 NTU's
Treated Water		
Free Chlorine Residual (Station St)	8760	0.26-1.98 mg/L
Free Chlorine Residual (Bernardi)	8760	0.76-1.82 mg/L
Distribution System		
Free Chlorine Residual	1982	0.30-1.52 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 #)
Raw Water		
Turbidity (Cross Creek Well 1)	47	0.08-0.48 NTU's
Turbidity (Huntington Well 2)	46	0.13-0.60 NTU's
Treated Water		
Free Chlorine Residual (Cross Creek)	8760	0.95-2.36 mg/L
Free Chlorine Residual (Huntington)	8760	0.55-1.91 mg/L
Distribution System		
Free Chlorine Residual	1522	0.36-1.73 mg/L

* NTUs = Nephelometric Turbidity Units

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

(Jan. 01 to Dec. 31, 2018)

Drinking Water System	Parameter	# of Samples	E. coli (min – max)	Total Coliform (min – max)	# of HPC Samples	HPC (min – max)
			Units = CFU/mL			
Rockwood	Raw	160	0-0	0-0	N/A	N/A
	Treated	104	0-0	0-0	104	0-2
	Distribution	217	0-0	0-0	217	0-3
Hamilton Drive	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

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

Rockwood Well Supply – Station Street Pumpouse was the only required sampling location for Organic/Inorganic parameters during this reporting period Jan. 01 to Dec. 31, 2018.

LEGEND				Project Name	ROCKWOOD WELL SUPPLY
Bold & Red = Exceedance * MAC = Maximum Acceptable Concentration				Sampling Location	STATION ST.PH-TREATED
				Sampling Date	January 8, 2018
Parameter Name	*MAC	Laboratory Detection limit	Units	Result	
Sodium (Na)	20000	100	ug/L	130000	
2,3,4,6-Tetrachlorophenol	100	0.5	ug/L	<0.50	
2,4,6-Trichlorophenol	5	0.5	ug/L	<0.50	
2,4-D	100	1	ug/L	<1.0	
2,4-Dichlorophenol	900	0.25	ug/L	<0.25	
Alachlor	5	0.5	ug/L	<0.50	
Atrazine		0.5	ug/L	<0.50	
Des-ethyl atrazine		0.5	ug/L	<0.50	
Atrazine + Desethyl-atrazine	5	1	ug/L	<1.0	
Bromoxynil	5	0.5	ug/L	<0.50	
Carbaryl	90	5	ug/L	<5.0	
Carbofuran	90	5	ug/L	<5.0	
Chlorpyrifos (Dursban)	90	1	ug/L	<1.0	

LEGEND Bold & Red = Exceedance * MAC = Maximum Acceptable Concentration				Project Name	ROCKWOOD WELL SUPPLY
				Sampling Location	STATION ST.PH-TREATED
				Sampling Date	January 8, 2018
Parameter Name	*MAC	Laboratory Detection limit	Units	Result	
Diazinon	20	1	ug/L	<1.0	
Dicamba	120	1	ug/L	<1.0	
Diclofop-methyl	9	0.9	ug/L	<0.90	
Dimethoate	20	2.5	ug/L	<2.5	
Malathion	190	5	ug/L	<5.0	
Metolachlor	50	0.5	ug/L	<0.50	
Metribuzin (Sencor)	80	5	ug/L	<5.0	
Pentachlorophenol	60	0.5	ug/L	<0.50	
Phorate	2	0.5	ug/L	<0.50	
Picloram	190	5	ug/L	<5.0	
Prometryne	1	0.25	ug/L	<0.25	
Simazine	10	1	ug/L	<1.0	
Terbufos	1	0.5	ug/L	<0.50	
Triallate	230	1	ug/L	<1.0	
Trifluralin	45	1	ug/L	<1.0	
Benzo(a)pyrene	0.01	0.009	ug/L	<0.0090	
Diuron	150	10	ug/L	<10	
Guthion (Azinphos-methyl)	20	2	ug/L	<2.0	
Diquat	70	7	ug/L	<7.0	
Paraquat	10	1	ug/L	<1.0	
Glyphosate	280	10	ug/L	<10	
Mercury (Hg)	0.001	0.0001	mg/L	<0.0001	
Antimony (Sb)	6	0.5	ug/L	<0.50	
Arsenic (As)	10	1	ug/L	<1.0	
Barium (Ba)	1000	2	ug/L	89	
Boron (B)	5000	10	ug/L	26	
Cadmium (Cd)	5	0.1	ug/L	<0.10	
Chromium (Cr)	50	5	ug/L	<5.0	
Lead (Pb)	10	0.5	ug/L	<0.50	

LEGEND Bold & Red = Exceedance * MAC = Maximum Acceptable Concentration				Project Name	ROCKWOOD WELL SUPPLY
				Sampling Location	STATION ST.PH-TREATED
				Sampling Date	January 8, 2018
Parameter Name	*MAC	Laboratory Detection limit	Units	Result	
Selenium (Se)	50	2	ug/L	<2.0	
Uranium (U)	20	0.1	ug/L	1	
1,1-Dichloroethylene	14	0.1	ug/L	<0.10	
1,2-Dichlorobenzene	200	0.2	ug/L	<0.20	
1,2-Dichloroethane	5	0.2	ug/L	<0.20	
1,4-Dichlorobenzene	5	0.2	ug/L	<0.20	
Benzene	1	0.1	ug/L	<0.10	
Carbon Tetrachloride	2	0.1	ug/L	<0.10	
Chlorobenzene	80	0.1	ug/L	<0.10	
Methylene Chloride	50	0.5	ug/L	<0.50	
Tetrachloroethylene	10	0.1	ug/L	<0.10	
Toluene	60	0.2	ug/L	<0.20	
Trichloroethylene	5	0.1	ug/L	0.11	
Vinyl Chloride	1	0.2	ug/L	<0.20	

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, 2018.

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

Results based on 4 sample dates in 2018	Nitrate	Nitrite	Nitrate + Nitrite	Haloacetic Acids	Trihalomethanes
	(as nitrogen)			expressed as annual running average	
Maximum Acceptable Concentration (MAC)	10.0 mg/L			0.08 mg/L	0.10 mg/L
Drinking Water System	TREATED – Range (mg/L)			DISTRIBUTION (mg/L)	
Rockwood	<0.010 – 0.010	<0.010 - <0.010	<0.10 - <0.10	0.005	0.01836
Hamilton Drive	<0.10 – 0.10	<0.010 - <0.010	<0.10 - <0.10	0.005	0.01152

Summary results for schedule 15.1 of Ontario Regulation 170/03.

Rockwood and Hamilton Drive Drinking Water Systems are required to sample from the distribution systems as follows:

- Sample for pH and alkalinity every “winter” and “summer” period each year.
- Sample for lead once every three years, both “winter” and “summer” periods.

2018 is the beginning of a “no lead” sampling period, therefore pH and alkalinity is the only testing required for the period of Jan. 1 to Dec. 31, 2018

Table 14: O. Reg. 170/03 Schedule 15.1 Rockwood/Hamilton Testing Summary 2018

Location	Location Type	Number of Samples	Lead Range (mg/L)	pH Range	Alkalinity Range (mg/L)
Rockwood	Distribution	6	N/A	7.25 – 7.47	210 - 330
Hamilton Drive	Distribution	4	N/A	7.62 – 7.80	220 - 230

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 2018 (Jan. 01 to Dec. 31, 2018). For regulatory sampling schedules that do not occur in 2018 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, 2018 are summarized in table 16. There was no instance of an adverse result in 2018 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	0.60 - 1.32 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, 2018. There was no instance of an exceedance for a Regulatory microbiological parameter in 2018 between Jan. 01 and Dec. 31:

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	53	0-0	0-0	51	0-2

Table 17: O. Reg. 170/03 Schedule 13-7, Gazer Mooney - Quarterly Sampling Results Summary

Test Parameter	Units	MAC	Range of Results (based on 4 sample results)
			(min # - max #)
expressed as annual running average			
Trihalomethanes	mg/L	0.100	0.0168 – 0.0233
Haloacetic Acids	mg/L	0.08	<0.005 - <0.005

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: O. Reg. 170/03 Schedule 15.1 Gazer Mooney Lead Testing Summary 2018

Number of Locations	Location Type	Number of Samples	Lead Range (mg/L)	pH Range	Alkalinity Range (mg/L)
1	Distribution	2	0.0030 – 0.0036	7.93 – 8.01	270 - 280

i) Follow up on Action Items from previous management reviews

Management review was held on September 26, 2018 and covers the period between September 2017 to August 2018. Below is a summary of action items discussed.

Deficiencies

- There were 2 identified non-compliance issues noted within the Hamilton Drive 2017-18 Inspection Report related to submitting paper work to the Ministry of Environment Conservation & Parks noting removal of six 454 L hydropneumatic tanks. This was resolved during the inspection timeline of December 2017.
- There was one minor non-conformance from the 2017 external audit re: Continual Improvement /corrective action process not effectively implemented. Follow-up notes the process was effectively resolved and implemented in the 2018 audit.

Decisions

- Implemented a proactive alarm/shutdown testing program for the purpose of helping ensure alarms and shutdowns occur in the event that continuous monitoring equipment malfunctions, loses power, or a test result for a parameter is above or below the maximum or minimum alarm standard.
- Created a universal process for tracking deficiency lists while performing maintenance on valves and hydrants.

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

Source Water Protection Plan Reporting

For reporting purposes, Guelph / Eramosa Township is subject to one Source Protection Plan (based on watershed or Conservation Authority boundaries): Grand River Plan. In 2018, all Source Protection Plans were in effect. Please see Appendix A for the full 2018 Risk Management Official and Municipal Annual Report.

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

Please view 3.0 Legal and other Requirements update from January 1 to December 31, 2018 that could affect the Drinking Water System and/or the Quality Management System.

l) Consumer Feedback

Discoloured water remains the most frequent complaints of 2018. Other noted complaints were related to pressure problems determined to be related to private issues.

m) The Resources Needed to Maintain the QMS

Guelph/Eramosa Public Works Water/Wastewater Department currently has one full-time Water/Wastewater Compliance Administrative Assistant, who is also the Quality Management System Representative, four Water/Wastewater Operators, three of which rotate as the Overall Responsible Operator. Additional staff should be considered for succession planning for Operators planning to retire within the next 2 years.

Challenges continue for more efficient and effective processes and ongoing communication between staff, council and residents. e.g./ education and outreach related to conservation and safeguarding our water quality.

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

- 1 Work towards better access to As-built drawings, forms, SOPs, etc. for Operators in the field by utilizing tablets.
- 2 Assign asset numbers to municipal fire hydrants to easily keep track of hydrant maintenance and use by contractors and Fire Emergencies or training.

3.0 Legal and other Requirements update

Date - 2018	Source of Posting / Reference	Title of Legal & Other Requirement Highlights of posting	Action and Status Update
Jan. 8	OMWA Newswire	<p><u>Ontario Regulation 588/17: Asset Management Planning for Municipal Infrastructure</u></p> <p>The Infrastructure for Jobs and Prosperity Act, 2015 ("IIPA") in section 6(2) sets out principles for the provincial government to regulate asset management planning for municipalities. On December 27, 2017, O. Reg. 588/17 (the "Regulation") under the IIPA was released. Every municipality must have an asset management plan ("AMP") for its entire core municipal infrastructure by July 1, 2021 (water assets; wastewater assets; stormwater assets; roads; bridges and culverts) and for all other municipal infrastructure assets by July 1, 2023.</p>	Monitor and share updates
Jan. 10	OMWA Newswire	<p><u>A New Standard for Lead Service Line Replacement</u></p> <p>The AWWA has released a new standard for the replacement of Lead Service Lines.</p>	No action required.
Jan. 14	Risk Management Official	<p>The Lake Erie Source Protection Region is looking for members of the general public to take part on the Community Liaison Group (CLG) for the Guelph-Guelph/Eramosa Water Quantity Policy Development Study. The study area includes the City of Guelph, as well as parts of the Townships of Guelph/Eramosa and Puslinch, and parts of the Towns of Erin, Halton Hills and Milton.</p>	No action required.

Date - 2018	Source of Posting / Reference	Title of Legal & Other Requirement Highlights of posting	Action and Status Update
Jan. 17	MECP Newsroom	<u>Dennis Coelho fined \$6,000 for Safe Drinking Water Act (SDWA) violation</u> The conviction relates to giving/submitting false or misleading information, either orally, in writing or electronically, to a Provincial Officer.	No action required.
Jan. 20	The Record	<u>Watermain burst left wide swath in Kitchener without water</u> At least 150,000 residents in Kitchener suddenly found their taps were running dry after a 12-inch, 1965 cast iron watermain pipe burst just after 8 a.m. Saturday.	No action required.
Feb. 2	MECP Email	<u>Subject: Source Protection Information Atlas (SPIA) Updates Now Live</u> Launched in January of 2017, this interactive mapping tool has been improved to provide additional support for the implementation of source water protection efforts by our program stakeholders. The information atlas displays more than 1,100 wellhead protection areas and intake protection zones, with features that allow you to easily search, customize and access vital source protection science and policy information.	Shared information
Feb. 26	MECP Email	<u>Governments of Ontario and Canada release action plan to reduce harmful algal blooms in Lake Erie</u>	No action required

Date - 2018	Source of Posting / Reference	Title of Legal & Other Requirement Highlights of posting	Action and Status Update
Mar. 9	City of Guelph News	<p><u>City sharing groundwater modeling analysis with Nestlé Waters Canada to meet new provincial guidelines for water-taking permits</u></p> <p>The City of Guelph has signed an agreement to provide Nestlé Waters Canada with access to analysis from its science-based groundwater flow model through a consultant. The model was developed by the City with the Grand River Conservation Authority and Guelph-Eramosa Township and uses the best available science to determine the effects of water-taking impacts on groundwater availability.</p>	No action required.
Mar. 21	Government of Canada website	<p><u>Guidance on the Use of Quantitative Microbial Risk Assessment in Drinking Water</u></p> <p>Document for Public Consultation</p> <p>Prepared by the Federal-Provincial-Territorial Committee on Drinking Water</p>	Shared Information
Mar. 26	OMWA Newswire	<p><u>Report finds patchwork water infrastructure standards</u></p> <p>A new report prepared for the Ontario Sewer and Watermain Construction Association (OSWCA) has found a hodgepodge of standards among municipalities in cataloguing, inspecting and renewing underground water infrastructure.</p>	No action required

Date - 2018	Source of Posting / Reference	Title of Legal & Other Requirement Highlights of posting	Action and Status Update
Mar. 28	Walkerton Clean Water Centre	The Walkerton Clean Water Centre (WCWC) is pleased to announce a new online service, the <u>Drinking Water Resource Library</u> . The Drinking Water Resource Library was developed to provide easy access to trusted resources related to drinking water. The library consists of a catalog of documents and features multiple search functions to ease the research of information.	Shared information
Apr. 5	Health Canada	Health Canada is asking for public comment on a <u>proposed guideline technical document for copper in drinking water</u> . The existing guideline on copper, last updated in 1992, established an aesthetic objective of ≤ 1.0 mg/L, to ensure palatability and to minimize staining of laundry and plumbing fixtures. There is no health-based guideline at present.	No action required
Apr. 11	Ontario News	<u>Bulk Chemical Distribution Company fined \$60,000 for Hydrogen Peroxide Spill</u> Flochem Ltd. was convicted of one offence under the Environmental Protection Act (EPA) and was fined \$60,000 plus a Victim Fine Surcharge (VFS) of \$15,000 with 6 months to pay. The conviction relates to permitting the discharge of a contaminant, namely Hydrogen Peroxide, into the natural environment which may cause an adverse effect.	No action required.

Date - 2018	Source of Posting / Reference	Title of Legal & Other Requirement Highlights of posting	Action and Status Update
Apr. 13	MECP Email	<p>Two decision notices have been posted on the Environmental Registry in relation to the Drinking Water Source Protection Program, part of Ontario's multi-barrier drinking water safety net. These decisions are intended to ensure sources of drinking water continue to be protected by the <i>Clean Water Act</i> and have an effective date of July 1, 2018.</p> <p><u>EBR #013-1840</u></p> <p><u>EBR #013-1839</u></p>	Risk Management Official is aware; no action required
May 1	MECP Email	We've launched a beta version of the new <u>Environmental Registry of Ontario</u> .	Shared information
May 29	MECP Email	<p><u>O Reg 205/18</u></p> <p>A new regulation, under the <i>Safe Drinking Water Act</i>, takes effect July 1, 2018. This regulation applies in source protection areas identified under the <i>Clean Water Act</i> and ensures that municipal residential drinking water sources are protected <i>before</i> drinking water can be provided to the public.</p>	No action required
June 14	OMWA Newswire	<u>Why Barrie sent this homeowner a nearly \$7,500 water bill</u>	FYI -no action required

Date - 2018	Source of Posting / Reference	Title of Legal & Other Requirement Highlights of posting	Action and Status Update
June 19	MECP Email	<p><u>ANSI/AWWA C810-17 Standard for Replacement and Flushing of Lead Service Lines</u></p> <p>On November 1, 2017 the American Water Works Association published a new standard to provide guidance for communities undertaking replacement of lead service lines.</p> <p>The Ministry of the Environment and Climate Change recommends the use of this standard to all municipalities when undertaking lead service line replacement.</p>	No action required
June 28	OMWA Newswire	<p><u>How Do Water Towers Work? (VIDEO)</u></p> <p>How do water towers work - explained in a short informative video by Concerning Reality.</p>	Shared for interest sake. FYI
Aug. 1	Letter from MECP dated May 9, 2018	<p>Haloacetic Acids (HAAs) Sampling Concerns</p> <p>A letter to clarify ministry guidance for HAAs sampling.</p>	Director of Public Works shared with Manager of Operations, and Compliance Admin for discussion
Aug. 24	Email from GRCA	<p>The Province has released a short bulletin developed for municipal drinking water system owners explaining the new <i>Safe Drinking Water Act, 2002</i> regulation, where it applies and system owner responsibilities.</p>	Provided to DPW and shared

Date - 2018	Source of Posting / Reference	Title of Legal & Other Requirement Highlights of posting	Action and Status Update
Aug. 24	Government of Canada	<p><u>Guidelines for Canadian Drinking Water Quality: Guideline Technical Document – Bromate</u></p> <p>Based on this review, the guideline for bromate in drinking water is a maximum acceptable concentration of 0.01 mg/L (10 µg/L), based on a locational running annual average of a minimum of quarterly samples. This information is made available to provide Canadian jurisdictions (provinces, territories and federal departments) with the scientific basis they need to establish or update their requirements for bromate in drinking water.</p>	Monitor and share updates
Sept. 7	Government of Canada	<p><u>Public Consultation: Guidelines for Canadian Drinking Water Quality - Guideline Technical Document on 1,4-Dioxane</u></p> <p>The Federal-Provincial-Territorial Committee on Drinking Water (CDW) has assessed the available information on 1,4 dioxane and intends to establish a drinking water guideline. It has requested that this document be made available to the public and open for comments.</p>	Monitor and share updates
Oct. 9	Orangeville News	<p><u>WDGPH survey shows 88 per cent of private well owners aren't testing water enough</u></p> <p><u>A Wellington-Dufferin-Guelph Public Health survey of private well owners has found only 12 per cent are testing their water frequently enough. With Public Health Ontario recommending wells be tested at least three times a year in the spring, summer and fall, more than half of the survey's respondents that aren't following those guidelines say they planned to but forgot.</u></p>	No action required.

Date - 2018	Source of Posting / Reference	Title of Legal & Other Requirement Highlights of posting	Action and Status Update
Oct. 30	EBR	<p><u>Extending the moratorium on water bottling permits</u></p> <p>The Ministry of the Environment, Conservation and Parks is proposing to amend Ontario Regulation 463/16 to extend the moratorium for one year, until January 1, 2020. This will give us time to further advance the ministry's understanding of the water resources in the province, with a particular focus on groundwater takings by water bottling facilities.</p>	No action required
Nov. 21	MECP email	<p><u>The Ministry of the Environment, Conservation and Parks has released a new organizational chart.</u></p>	No action required
Nov. 24	The Record	<p><u>Chloride levels are rising in Waterloo Region drinking water</u></p> <p>The chloride found in road salt is seeping into both surface water as well ground water aquifers, from the Region draws our drinking water.</p>	No action required.
Nov. 26	Health Canada	<p>Public consultations under the Canadian Drinking Water Guideline were announced - <u>Barium</u>, <u>Chloramines</u> and <u>Enterococci</u>.</p>	Monitor and share updates
Nov. 27	MECP email	<p>The Ministry of the Environment, Conservation and Parks has released the <u>2017-2018 Chief Drinking Water Inspector Annual Report</u>. This report highlights efforts to provide the people of Ontario with high quality drinking water that is among the best protected in the world. Visit Ontario's Open Data Catalogue to see our supporting <u>Drinking Water Quality and Enforcement data</u>.</p>	No action required

Date - 2018	Source of Posting / Reference	Title of Legal & Other Requirement Highlights of posting	Action and Status Update
Dec. 4	Ontario News	<p><u>Clean Water Operator fined \$20,000 for Safe Drinking Water Act Violation</u></p> <p>The conviction relates to failing to ensure that the Saugeen Shores Drinking Water System was operated by persons who had the proper training and expertise to fulfil their operational duties.</p>	No action required FYI
Dec. 7	MECP email	The MECP has proposed amendments to the Watermain Disinfection Procedure and are requesting comments by January 24 th , 2019.	Monitor and share updates
Dec. 18	MECP email	The Ministry of the Environment, Conservation and Parks released the <u>Minister's Annual Report on Drinking Water 2018</u> . It showcases how Ontario is taking action to protect drinking water and water resources.	No action required.



4.0 Appendix A Source Water Protection

February 1, 2019

Martin Keller, Source Protection Program Manager
Grand River Source Protection Authority
mkeller@grandriver.ca

Via E-mail Only

Subject: Guelph / Eramosa Township 2018 Risk Management Official and Municipal Annual Reports

For reporting purposes, Guelph / Eramosa Township is subject to one Source Protection Plan (based on watershed or Conservation Authority boundaries): Grand River Plan. In 2018, all Source Protection Plans were in effect.

Under Section 81 of the Clean Water Act and Section 65 of O. Reg. 287/07, an annual report must be prepared by a Risk Management Official and submitted to the appropriate Source Protection Authority (Conservation Authority) by February 1st of each year. Under Section 45 of the Clean Water Act, a public body, including a municipality, must comply with monitoring and reporting policies designated by a Source Protection Plan. The attached annual municipal reports are provided in accordance with above sections of the Clean Water Act and the monitoring policies outlined in the effective Source Protection Plans for this municipality. These attached reports have been provided electronically as the report templates are formatted for data management purposes. The Wellington County municipalities continue to implement source protection under the Wellington Source Water Protection partnership, www.wellingtonwater.ca

In 2018, progress continued in the implementation of source protection in the municipality.

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

In 2018, there were 8 development review notices issued per Section 59 of the Clean Water Act within the municipality. Additionally, Risk Management staff comments were provided on an additional 43 applications that did not require development review notices, for a total of 51 development applications (notices and comments) reviewed in the municipality. There were 95 Section 59 notices issued County wide and Risk Management staff comments on 256 additional development applications, County wide, for a total of 351 development applications (notices and comments) reviewed County wide in 2018. This represents an increase in the total number of development applications (notices and comments) reviewed County wide from 2016 (137) and 2017 (269).

For the municipality, there has been a decrease in the number of development notices issued but an increase in comments from previous years (16 notices and 11 comments in 2016, 25 notices and 25 comments in 2017). These differences may, in part, be attributable to increased familiarity of staff with the source protection screening process and in determining when a notice is actually required. This trend is expected to stabilize over the coming years in terms of notice and overall numbers. In addition to the notices and comments provided, other applications were screened out by building or planning staff following Risk Management Official Written Direction provided by Wellington Source Water Protection. In 2018, risk management staff conducted quality control and assurance analysis on the screened-out applications to ensure that the screening out process was accurate. The analysis was conducted on building permit data from January to November 2018 and was conducted County wide. The analysis revealed that, County wide, 93% of the applications were screened correctly. Of the 7% County wide that were screened incorrectly, the causes have been identified and remedied and Section 59 notices issued where applicable.

The County Official Plan was amended in 2016 to conform to the five Source Protection Plans in the County and in 2018, the conformity exercise for the Township's zoning by-law was completed. Notice was sent to the Source Protection Authority as required. County wide, two training sessions were run for municipal, building and

planning staff. Overall, feedback from the training sessions were positive and we are planning more training sessions in 2019.

In 2018, the source protection staffing complement stayed constant, County wide, at 2.3 full time equivalents with administrative support provided by the Township of Centre Wellington. All municipalities have, at a minimum, two staff members appointed as Risk Management Officials and Inspectors. These staff are well supported by the internal Wellington Source Protection Working Group which is comprised of other departmental staff from all eight Wellington municipalities including building officials, planners, water compliance staff, public works staff and Chief Administrative Officers. Also, in 2018, one co-op student and one short term contract staff member assisted source protection staff with a variety of tasks in the summer and fall.

Analysis continued on the threat verification data collected in previous years on residential, agricultural, industrial, commercial and institutional activities identified as potential significant drinking water threats in the approved Assessment Reports. Staff complete a variety of tasks to remove or confirm and then mitigate activities identified as potential significant drinking water threats in the approved Assessment Reports. These threat activities are existing, and the analysis can involve desk top interpretation of air photos or GIS data, phone calls, review of municipal records, windshield surveys, site inspections by Risk Management staff and if confirmed, then mitigation through septic inspection, prohibition and / or negotiation of risk management plans.

As a result of this analysis, staff currently estimate approximately 41% of threat activities (398 of 977) in the municipality still require action to either remove or confirm / mitigate the threat activities while 59% have been either removed or confirmed and mitigated.

To support this threats analysis and to determine compliance, 93 inspections were conducted in the Township in 2018. 5 inspections were conducted for compliance purposes (either prohibition or risk management plans) with 1 contravention found. The contravention was related to records keeping for a risk management plan. 88 inspections were conducted for threat verification purposes in the Township in 2018. These 88 inspections were primarily focused on industrial, commercial and institutional properties. County wide, 113 inspections were conducted in 2018 with 84% of inspections (95) conducted for threat activity verification purposes and 16% (18) of inspections were compliance inspections. To date, the focus for threat

verification analysis and inspections has been industrial, commercial and institutional threat activities, residential septic systems, fuel oil use or agricultural activities within 100 metres of municipal wells. In 2019 and beyond, it is anticipated that threat verification activities will include more agricultural activities. The remaining activities in the municipality, requiring threat verification, are a mixture of agricultural, industrial, commercial, institutional and residential activities.

One Risk Management Plan was agreed to in 2018 and nine are in the process of negotiation for the municipality. Cumulatively, there are 3 Risk Management Plans complete in the Township and 11 complete County wide. County wide, the number of Risk Management Plans in progress increased from 23 in 2017 to 73 in 2018, however, the number of complete Risk Managements stayed relatively constant from 2017 to 2018. There will be a more of a focus in 2019 on negotiating risk management plans. It should be noted, however, there a number of factors that could delay Risk Management Plan completion including other time sensitive projects such as Source Protection Plan amendments, Tier 3 studies or development reviews and review time and / or reluctance from property owners, tenants or contractors.

In 2018, County wide, staff continued the implementation of the source protection education and outreach program as required by the applicable Source Protection Plans. Four newspaper ads were run during the year on topics related to salt, water conservation, fertilizer and who protects our water. During inspections, education material was provided directly to the proponents generally regarding the threats present, the process (RMP, prohibition etc.) and property specific mapping. This material was generally well received and found to be useful by the proponents. Similarly, material is provided to every applicant that receives a Section 59 notice, this includes fact sheets and property specific mapping. Wellington Source Water Protection continues to maintain and update a website (www.wellingtonwater.ca), ten fact sheets on specific topics and other print media (i.e. post cards to direct applicants to mapping). Staff participate and Wellington Source Water Protection is a sponsor for the Waterloo-Wellington Children's Groundwater Festival. Staff participate on the organizing committee as well as during the Festival to deliver presentations. The Children's Groundwater Festival is an excellent way to reach Grade 2 to 5 and high school children (and their parents) and deliver water protection messages including source protection. The Festival attracts 5,000 elementary children and 500 high school / adult volunteers. Approximately 600 children attend from the County of Wellington

as well as participation from a County high school and companies / municipalities as volunteers.

In 2018, staff participated on two provincial working groups consulting on potential provincial changes to guidance documents and / or legislation. These groups included: Dense Non- aqueous phase liquids and Water Quantity. The water quantity working group is related to the science and policy review of the Provincial water management framework and the moratorium on water bottling permits to take water.

In 2018, staff were involved in reviewing, authoring and/or participating in a significant number of Source Protection Plan amendments and / or work plans for 4 of the 5 applicable Source Protection Plans in the County. The amendments were primarily focused on policy updates and/or technical updates. Additionally, there was staff review and participation in technical studies to delineate new wellhead protection areas for quality within Centre Wellington and Guelph / Eramosa and new issues contributing areas in Centre Wellington. It is anticipated that existing threat activities numbers will change with the delineation of new wellhead protection areas and issues contributing areas.

Tier 3 (water quantity) technical studies continue for the City of Guelph, Guelph / Eramosa Township, Township of Puslinch and Town of Erin. Staff and consultants continued to participate in meetings and review for these studies in 2018. This project is led by the Grand River Source Protection Authority (GRCA) and funded by the Ontario Ministry of the Environment and Climate Change. Staff from the Townships, Town and County participate on the project team along with other affected municipalities, the Source Protection Authority staff and the Province. The study area includes the City of Guelph, as well as parts of the Townships of Guelph/Eramosa and Puslinch, and parts of the Towns of Erin, Halton Hills and Milton.

The 2018 technical work involved closely reviewing the identified significant drinking water threat activities and using the hydrogeological model to assist in determining the most appropriate risk management measure to manage categories of threat activities. Threat activities for water quantity include water taking and activities that reduce groundwater recharge such as the creation of impervious surfaces. This work was finalized in 2018 in the Threats Management Strategy report. Concurrently, a climate change assessment was completed for the entire study area and included the threats ranking for the intake protection zone. Results from both studies are being used in the development of policy approaches and policy text. A third technical study

still in progress in 2018 was the screening tool. This project was evaluating potential methods to assist screening water taking applications within the WHPA-Q.

In 2018, significant staff and consultant time was spent on developing and finalizing policy approaches and drafting policy text for the Tier 3 study in Guelph, Guelph / Eramosa, Puslinch and Erin. Negotiations and discussions are still ongoing between Wellington County municipalities, City of Guelph, Region of Waterloo, Region of Halton, Grand River Conservation Authority and the Province on policy text and this is expected to continue through 2019. Consultation with municipalities within the study area and public consultation continued in 2018. Municipal consultation is occurring, at a staff level, through Implementing Municipal workshops organized by the GRCA. Municipal and Community Liaison Group workshops occurred in 2018 on topics including the completed technical studies and policy approaches. The Community Liaison Group is comprised of members of stakeholder groups including public, environmental groups, industry and agriculture.

Tier 3 (water quantity) technical studies continue for Centre Wellington. Staff and consultants continued to participate in meetings and review for these studies in 2018. This project is led by the Grand River Source Protection Authority (GRCA) and funded by the Ontario Ministry of the Environment and Climate Change. Staff from the Township participate on the project team along with the Source Protection Authority staff and the Province. The study area includes the Township of Centre Wellington, as well as parts of the Townships of Guelph/Eramosa, Wellington North, Mapleton and the Town of Erin.

The 2018 technical work involved completion of the Physical Characterization Report and development, calibration and documentation of the groundwater model. The risk assessment is scheduled to begin in 2019. Threat activities for water quantity include water taking and activities that reduce groundwater recharge such as the creation of impervious surfaces.

Public consultation continued in 2018. Municipal consultation is occurring, at a staff level, with adjoining municipalities through the review of the reports by a third-party consultant and discussion between staff. A Community Liaison Group workshop occurred in 2018 and multiple follow-up sessions with stakeholders also occurred. The Community Liaison Group is comprised of members of stakeholder groups including public, environmental groups, industry and agriculture.

In 2015 through 2017, 415 of 421 mandatory septic inspections (99%) were completed within the Township. There are 641 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. For the 2015 to 2020 inspection period, there are still six outstanding septic inspections in the Township where property owners have refused the inspection. Staff are considering options for enforcing compliance through the Ontario Building Code and / or Clean Water Act.

Attached for your reference is summary table of source protection implementation for all municipalities in Wellington County (the County and seven, local municipalities). Further detail can also be found in the County of Wellington municipal reports submitted separately. For further information on the attached reports, please contact the undersigned at 519-846-9691 ext 362.

Respectfully submitted,

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