

2023 Annual Drinking Water Report

For:

Hamilton Drive Drinking Water System

Rockwood Drinking Water System

-And-

Gazer Mooney Subdivision Distribution System

Prepared by:

Guelph-Eramosa Township



February 28, 2024

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 Rockwood, the Hamlets of Hamilton Drive and Promenade Park (Gazer Mooney Subdivision).

Scope

This Annual & Summary Water Services Report includes information for Rockwood, Hamilton Drive for the period of Jan.1 to Dec. 31, 2023. Gazer Mooney Subdivision Distribution System for this same timeline may be viewed in Appendix A.

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 cfraresso@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 four municipal groundwater wells, a booster pumping station/standpipe 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 and Well #4 Milne Pumphouse supplies 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 Bernardin and Milne 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 SCADA/PLC controls booster pumps 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 recirculated back into the standpipe.

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

Bernard (Well 3) and Milne (Well 4) Pumphouse(s) primary disinfections are achieved by the addition of sodium hypochlorite and provision of chlorine contact time in a 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 well pumps are activated.

Milne pumphouse primary disinfection is achieved by the addition of sodium hypochlorite and provision of chlorine contact time in a below grade reservoir where contact time is provided for primary disinfection. A high lift pump draws water from the reservoir and pumps to the distribution

system as well as the in-distribution standpipe. Chlorine residual concentrations are maintained in the distributed water to provide secondary disinfection.

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 the Hamilton Drive Hamlet 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 serving the Promenade Park Hamlet located in the Township of Guelph/Eramosa. It has approximately 72 metered water service connections, 1.5 kilometers of underground watermains, six fire hydrants and an approximate population of 216 residents.

All 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.

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 March 1, 2019. The terms of the agreement apply until February 29, 2024, with an automatic renewal extended to February 28, 2029.

For reporting purposes, regulatory water quality monitoring collected in the Gazer Mooney Subdivision Distribution System for the 2023 reporting year is available in Appendix A.

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

On January 15, 2024 the Ministry of the Environment, Conservation and Parks commenced a detailed inspection of the Hamilton Drive Drinking Water System. The inspection period covers December 01, 2022 to December 31, 2023. As this was a detailed inspection and did not begin until 2024 the report has not yet been completed and submitted to Guelph/Eramosa Township. Documented below is a non-compliance reported to the Ministry of Environment, Conservation and Parks on September 14th 2023.

Non-compliance On September 14, 2023 it was reported that there was a continuous monitoring failure within the Hamilton Drive Drinking Water System. The uninterruptible power supply (UPS) that allows a computer to keep running for at least a short time failed. Once the issue was discovered the Operator responded and chlorine readings were taken every 5 minutes until issue was resolved.

Corrective Action Completed: - all the UPS systems we have replaced and labelled with date of installation to monitor for battery replacement(s) according to manufacturers’ recommendations. Documented and tracking within the maintenance spreadsheet.

Rockwood

On October 10, 2023, the Ministry of the Environment, Conservation and Parks commenced an announced inspection of the Rockwood drinking water system. The inspection period covered the period from October 1, 2022, to September 30, 2023 resulting in one instance of non-compliance.

During the inspection period, primary disinfection was not always achieved when water was being distributed to consumers during the inspection period.

Non-compliance On August 8, 2023, it was reported that the Station St pumphouse pumps were accidentally running at the same time due to operator error, the station went over their rated capacity for the UV system for about 13 minutes causing 39 L/s to be pushed through the UV reactor which is rated for 30.33 L/s. When discovered the pumps were shut down and immediate action was taken to restore disinfection.

Corrective Action Completed:

- Installation of an interlock inside the Electrical panel. Pumps were tested and confirmation received the interlock would turn off pump running and stay off until one of the two pumps were in the off position.
- Re-training was provided for operational staff and measures are in place to ensure water is not inadequately disinfected.

Gazer Mooney Subdivision Distribution System

The Gazer Mooney Water System announced focused Inspection was performed by the Ministry of the Environment, Conservation and Parks and covered the period from November 06, 2023 to December 13, 2023 resulting in no instances of non-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 (Jan. 01 to Dec. 31, 2023)

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

Incident Date	AWQI #	Location	Parameter / Unit of measure	Corrective Action
2023/10/10	163813 163815	Hamilton Drive Distribution System	* Sodium adverse 33 – 35 mg/L	Resample

Incident Date	AWQI #	Location	Parameter / Unit of measure	Corrective Action
2023/10/10	163810 163811 163812	Rockwood Distribution System	* Sodium adverse 84 – 170 mg/L	Resample

Sodium maximum acceptable concentration = 20 mg/L

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).

In June 2023, Guelph/Eramosa water department conducted the required 36-month assessment of risks associated with our Municipal Drinking Water Systems. The updated risk assessment outcomes were provided at a Management Review Meeting on November 11, 2023. The results of the Risk Assessment are not made available to the public but are made available to Drinking Water System Owners (Council).

Cyber security was considered in this year's outcomes from the risk assessment. Guelph/Eramosa Township's water department has been actively working on implementing a proactive cyber security program along with corporate identified risks. Some of the measures considered in this year's risk assessment include:

- loss of system process visibility for operators (e.g., unable to monitor treatment processes)
- interruption of data recording leading to a loss of critical/compliance data
- inability to remotely control processes and/or loss of automatic control.

In addition, there were several program aspects that were adjusted according to the likelihood of risk, the consequence of risk and what is the capability of responding to the risk.

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.

2023 Internal Audit

Acclains Environmental Inc. was retained to conduct this years' internal audit of the Guelph/Eramosa Township's quality management system (QMS) on August 23-24, 2023 to determine whether it conforms to the requirements of the Drinking Water Quality Management Standard (DWQMS 2.0); and to assess whether the QMS is effectively implemented.

The review period focused on the period between August 17, 2022 and August 24, 2023.

No nonconformities were identified during the audit. Various opportunities for improvement (OFI) noted during the internal audit were discussed at the internal audit closing meeting and are tracked as "action items" to be addressed throughout the year. Guelph/Eramosa Township staff strive to address action items by the next scheduled internal audit.

2023 External Audit

Third party audit off-site system audit was performed on October 10, 2023 by NSF International Inc. Accreditation to the Drinking Water Quality Management Standard Version 2.0 was maintained.

The audit results are summarized as follows; zero major non-conformities, one minor non-conformity. And one opportunity for improvement.

The minor non-conformity relates to demonstrating that various opportunities for improvement (OFI) identified within audits are not reviewed / recorded as required within the statement of requirement for element 21 – Continual Improvement.

The root cause for the identified non-conformance was determined and an action plan has been implemented.

The corrective action issued will be reviewed by the third-party auditor at the next on-site audit in October 2024.

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.

Two emergencies late in 2023 were reviewed following a major service leak during an installation of a watermain extension, and a main valve failure on Hwy 7.

Staff took a look at the following,

- What exactly happened.
- Why did it happen.
- What went well.
- What went wrong.
- What did we learn and what would we do differently.
- Do we need to create procedures to ensure future best practices (BMP).

As a result of these debriefs, staff are better prepared, and any required modifications are made to the emergency response plan.

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 except for Sodium levels which remain outside of the provincial standard.

Assessment of Flow Rates and Quantities of Water Supplied

The following six (6) tables list the quantities and flow rates of the water supplied during the reporting period covered by this report (Jan. 01 to Dec. 31, 2023) including monthly average and maximum daily flows and a comparison to the rated capacity and flow rates specified in the system approval.

Table 2: 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 m ³	% Of Approved Volume	MAX Daily Volume m ³ /day	% Of Approved Volume	Peak Flow Rate L/min	% Of Approved Flow Rate
JANUARY	139.98	7%	483.24	25%	1207.33	89%
FEBRUARY	207.41	11%	549.42	28%	1186.26	87%
MARCH	135.40	7%	372.56	19%	1197.99	88%
APRIL	229.43	12%	502.46	26%	1216.12	89%
MAY	289.05	15%	763.35	39%	1268.32	93%
JUNE	234.70	12%	842.91	43%	1209.89	89%
JULY	206.51	11%	568.46	29%	1206.04	88%
AUGUST	101.96	5%	301.67	15%	1207.51	89%
SEPTEMBER	325.03	17%	666.55	34%	1310.81	96%
OCTOBER	231.40	12%	542.30	28%	1230.22	90%
NOVEMBER	121.47	6%	483.30	25%	1276.80	94%
DECEMBER	179.02	9%	383.82	20%	1329.85	97%

Table 3: 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 m ³	% Of Approved Volume	MAX Daily Volume m ³ /day	% Of Approved Volume	Peak Flow Rate L/min	% Of Approved Flow Rate
JANUARY	135.28	7%	425.15	22%	1263.19	93%
FEBRUARY	307.52	16%	598.52	30%	1262.45	93%
MARCH	267.22	14%	567.21	29%	1257.33	92%
APRIL	190.15	10%	422.95	22%	1263.74	93%
MAY	188.07	10%	708.28	36%	1256.96	92%
JUNE	213.25	11%	758.08	39%	1258.42	92%
JULY	121.24	6%	528.38	27%	1257.33	92%
AUGUST	235.18	12%	656.51	33%	1256.96	92%
SEPTEMBER	107.67	5%	308.84	16%	1263.19	93%
OCTOBER	262.54	13%	504.51	26%	1269.41	93%
NOVEMBER	128.11	7%	337.55	17%	1276.56	94%
DECEMBER	182.59	9%	408.51	21%	1264.47	93%

Table 4: Summary of Raw Water Flows – Rockwood Well # 3 Bernardi Pumphouse

Bernardi Well 3

(Rated Capacity 1310 m³/day)

(Rated Daily Peak 1100 L/min)

MONTH	Avg. Daily Volume m ³	% Of Approved Volume	MAX Daily Volume m ³ /day	% Of Approved Volume	Peak Flow Rate L/min	% Of Approved Flow Rate
JANUARY	368.66	28%	632.34	48%	601.30	46%
FEBRUARY	249.21	19%	596.61	46%	606.25	46%
MARCH	267.69	20%	646.00	49%	607.16	46%
APRIL	310.01	24%	590.38	45%	608.54	46%
MAY	438.84	33%	724.09	55%	604.14	46%
JUNE	401.50	31%	581.57	44%	599.84	46%
JULY	411.58	31%	794.98	61%	596.27	46%
AUGUST	359.01	27%	655.67	50%	596.54	46%
SEPTEMBER	269.13	21%	612.99	47%	593.16	45%
OCTOBER	122.66	9%	382.46	29%	603.14	46%
NOVEMBER	371.79	28%	671.78	51%	596.18	46%
DECEMBER	324.00	25%	555.60	42%	600.76	46%

Table 5: Summary of Raw Water Flows – Rockwood Well # 4 Milne

Milne Well # 4 **(Rated Capacity 1310 m³/day)** **(Rated Daily Peak 1100 L/min)**

MONTH	Avg. Daily Volume m ³	% Of Approved Volume	MAX Daily Volume m ³ /day	% Of Approved Volume	Peak Flow Rate L/min	% Of Approved Flow Rate
JANUARY	397.61	30%	727.75	56%	1094.35	84%
FEBRUARY	297.72	23%	508.87	39%	1077.09	82%
MARCH	327.61	25%	573.37	44%	1092.35	83%
APRIL	392.36	30%	776.24	59%	1084.76	83%
MAY	481.45	37%	950.45	73%	1093.94	84%
JUNE	508.68	39%	1059.30	81%	1088.20	83%
JULY	428.89	33%	796.68	61%	1090.77	83%
AUGUST	425.83	33%	710.41	54%	1083.29	83%
SEPTEMBER	490.66	37%	833.76	64%	1078.80	82%
OCTOBER	388.47	30%	649.72	50%	1093.20	83%
NOVEMBER	351.53	27%	605.32	46%	1078.80	82%
DECEMBER	301.61	23%	538.42	41%	1072.20	82%

Table 6: Summary of Raw Water Flows – Hamilton Drive Well # 3 Cross Creek

Cross Creek Well # 3 (Rated Capacity 812 m³/day) (Rated Daily Peak 725 L/min)

MONTH	Avg. Daily Volume m ³	% Of Approved Volume	MAX Daily Volume m ³ /day	% Of Approved Volume	Peak Flow Rate L/min	% Of Approved Flow Rate
JANUARY	59.6	7%	126.5	16%	442.15	61%
FEBRUARY	52.1	6%	125.5	15%	437.67	60%
MARCH	42.3	5%	117.0	14%	429.43	59%
APRIL	65.4	8%	284.0	35%	422.99	58%
MAY	106.0	13%	436.2	54%	402.27	55%
JUNE	164.9	20%	439.4	54%	349.78	48%
JULY	95.3	12%	276.0	34%	330.15	46%
AUGUST	17.8	2%	229.9	28%	313.94	43%
SEPTEMBER	10.6	1%	194.0	24%	690.46	95%
OCTOBER	56.5	7%	303.4	37%	535.82	74%
NOVEMBER	62.3	8%	283.3	35%	530.16	73%
DECEMBER	57.9	7%	124.5	15%	536.63	74%

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

Huntington Well # 2

(Rated Capacity 916 m³/day)

(Rated Daily Peak 636L/min)

MONTH	Avg. Daily Volume m ³	% Of Approved Volume	MAX Daily Volume m ³ /day	% Of Approved Volume	Peak Flow Rate L/min	% Of Approved Flow Rate
JANUARY	62.2	7%	163.0	18%	636.00	92%
FEBRUARY	66.2	7%	124.0	14%	579.76	91%
MARCH	76.2	8%	143.0	16%	590.68	93%
APRIL	74.1	8%	205.2	22%	645.00	101%
MAY	112.9	12%	387.5	42%	611.40	96%
JUNE	78.4	9%	260.0	28%	633.60	100%
JULY	77.1	8%	252.2	28%	633.60	100%
AUGUST	123.3	13%	322.0	35%	630.00	99%
SEPTEMBER	158.1	17%	349.0	38%	630.00	99%
OCTOBER	101.6	11%	264.0	29%	633.60	100%
NOVEMBER	67.1	7%	266.6	29%	634.20	100%
DECEMBER	68.2	7%	197.7	22%	634.20	100%

i. Water Production vs. Water Consumption

Water production vs water consumption for 2023 shows an overall percentage loss of 3% for Rockwood, substantially reduced from 13% in 2022. Hamilton Drive water loss for 2023 is at 0% down from 10% in 2022. This year we have a much more accurate format for obtaining record data for residential consumption.

Nonrevenue water usage such as, street sweeping, flushing the distribution system, water and sewer facility equipment maintenance and fire fighting have been considered, further reducing the percentage loss.

Our water meter replacement program continues. There are approximately 300 water meter due for replacement. 73 meters have been replaced in 2023 up from 58 in 2022. 73 meters replaced in 2023 up from 58 in 2022. The number of required replacements vs replacement cost keeps this program on a slow and steady pace. Water meter upgrades result in water usage being measured more accurately and provides the ability to identify leaks and losses within the system before they become a larger issue.

Considerations for non-revenue water loss are unauthorized water use, customer meter inaccuracies, distribution watermain breaks/repairs, construction, and service connection leaks.

As is the case every year, the Rockmosa Park soccer field was our highest consumer of water in 2023 at a rate of 28 m³ /day based on a May to October (157 days) operational season and a total consumption of 4406 m³.

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 Drinking Water System(s) 2023 Maintenance Activity

Rockwood (RWD) / Hamilton Drive (HD)	
Major Maintenance Activity / Expenditure	Location
Completion of Supervisory Control and Data Acquisition (SCADA) system hardware upgrades	HD - All facilities
New fleet vehicle - Operations	RWD / HD - All facilities
Treatment system maintenance and parts replacement	HD – Cross Creek & Huntington Pumphouses
Variable frequency drives (VFD) Well Pump and High lift Pump	HD – Huntington Pumphouse
Well assembly replacement	HD-Cross Creek
Ultra-Violet (UV) system maintenance and parts replacement	RWD-Station Street Pumphouse

Rockwood (RWD) / Hamilton Drive (HD)	
Major Maintenance Activity / Expenditure	Location
Water Service replacements	RWD-Distribution system
Water meter program	RWD / HD
Generator repairs and maintenance	RWD / HD - All facilities
Watermain valve maintenance	RWD / HD - Distribution
Fire hydrant repair and maintenance	RWD / HD - Distribution
Watermain flushing program	RWD / HD - Distribution

h) Water Quality – Rockwood, Hamilton Drive Drinking Water System

This section describes the water quality monitoring, both regulatory and operational, that has been completed in 2023 (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 except for Rockwood Station Street location. Here ultraviolet light (UV) 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 7 of O. Reg.170/03 Rockwood

(Jan. 01 to Dec. 31, 2023)

Location	Parameter	Criteria	Number of Grab Samples	Range of Results
Station St. Well 1	Turbidity	**1.0	49	0.12– 0.53 NTUs
Station St. Well 2			49	0.19 – 0.44 NTUs
Milne Well 4			49	0.03 – 0.31 NTUs
Bernardi Well 3		n/a	48	0.04 – 0.17 NTUs
Station St. Treated	Free Chlorine Residual	Alarm set points	8760	0.16 – 2.97 mg/L
Milne Treated			8760	0.40 – 2.92 mg/L
Bernardi Treated			8760	0.69 – 3.14 mg/L
Operational Distribution		*0.05 – 4.0	412	0.45 -1.92 mg/L

** MDWL= Municipal Drinking Water Licence requirement

Table 10: Operational testing done under Schedule 7 of O. Reg.170/03 Hamilton Drive

(Jan. 01 to Dec. 31, 2023)

Location	Parameter	Criteria	Number of Grab Samples	Range of Results
Huntington Well 2	Turbidity	n/a	48	0.08 - 0.66 NTUs
Cross Creek Well 3			45	0.04 - 0.69 NTUs
Huntington Treated	Free Chlorine Residual	Alarm set points	8760	0.67 – 2.74 mg/L
Cross Creek Treated			8760	1.00 – 3.01 mg/L
Operational Distribution		*0.05 – 4.0	150	0.63 -1.98 mg/L

NTUs = Nephelometric Turbidity Units

*ODWQS=Ontario Municipal Drinking Water Quality Standards

Table 11 summarizes raw sampling test results required by the Guelph/Eramosa's Municipal Drinking Water Licence (MDWL) Schedule E for three (3) provisional ground water wells located in Rockwood for the period of January 1, 2023, to December 31, 2023.

Table 11: Raw sampling test results as per Schedule E of the MDWL

(Jan. 01 to Dec. 31, 2023)

Location	Parameter / Unit of measure	Criteria	Number of Grab Samples	Range of Results mg/L
Station St Well 1	F. Specific Coliphage	one positive detection in any running year	8	0-1
Station St Well 2			8	0-0
Milne Well 4			8	0-1
Milne Well 4	Dissolved Organic Carbon	conducted quarterly	4	< 0.4-65
	Nitrite		4	<0.010
	Conductivity different unit per measure (µmhos/cm)		4	610-660 (µmhos/cm)

Table 12: O. Reg. 170/03 Schedule 10 - Rockwood / Hamilton Drive Microbiological Testing

(Jan. 01 to Dec. 31, 2023)

Drinking Water System	Parameter	# Of Samples	E. coli (min –max)	Total Coliform (min – max)	HPC (min – max)
			Units = CFU/mL		
Rockwood	Raw	207	0-0	0-0	N/A
	Treated	161	0-0	0-0	0-21
	Distribution	208	0-0	0-0	0-2
Hamilton Drive	Raw	338	0-0	0-0	N/A
	Treated	338	0-0	0-0	0-1
	Distribution	333	0-0	0-0	0-14

Table 13: O. Reg. 170/03 Schedule 13-2 13-4 Chemical testing results – Rockwood Well Supply

Rockwood Well Supply – Provisional Ground Water Annual Organic/Inorganic parameters for reporting period

(Jan. 01 to Dec. 31, 2023)

LEGEND		Project Name		ROCKWOOD WELL SUPPLY	
Bold & Red = Exceedance		Sample location		MILNE PUMPHOUSE	STATION ST. PUMPHOUSE
*DL = Laboratory Detection Limit		Sample Date		January 4, 2023	
* MAC = Maximum Acceptable Concentration as per Reg 170 & Reg 169 DW - MAC		ND = No Detection		TREATED WATER	
Parameter Name	Units	* MAC	*DL	Result	Result
Mercury (Hg)	mg/L	0.001	0.0001	ND	ND
Antimony (Sb)	ug/L	6	0.50	ND	ND
Arsenic (As)	ug/L	10	1.0	ND	ND
Barium (Ba)	ug/L	1000	2.0	76	87
Boron (B)	ug/L	5000	10	12	27
Cadmium (Cd)	ug/L	5	0.090	ND	ND
Chromium (Cr)	ug/L	50	5.0	ND	ND
Lead (Pb)	ug/L	10	0.50	ND	ND
Selenium (Se)	ug/L	50	2.0	ND	ND
Sodium (Na)	ug/L	20000	100	5800	160000
Uranium (U)	ug/L	20	0.10	0.11	1.1
2,3,4,6-Tetrachlorophenol	ug/L	100	0.50	ND	ND
2,4,6-Trichlorophenol	ug/L	5	0.50	ND	ND
2,4-D	ug/L	100	1.0	ND	ND
2,4-Dichlorophenol	ug/L	900	0.25	ND	ND
Alachlor	ug/L	5	0.50	ND	ND
Atrazine	ug/L	-	0.50	ND	ND
Des-ethyl atrazine	ug/L	-	0.50	ND	ND
Atrazine + Desethyl-atrazine	ug/L	5	1.0	ND	ND
Bromoxynil	ug/L	5	0.50	ND	ND
Carbaryl	ug/L	90	5.0	ND	ND
Carbofuran	ug/L	90	5.0	ND	ND
Chlorpyrifos (Dursban)	ug/L	90	1.0	ND	ND
Diazinon	ug/L	20	1.0	ND	ND
Dicamba	ug/L	120	1.0	ND	ND
Diclofop-methyl	ug/L	9	0.90	ND	ND
Dimethoate	ug/L	20	2.5	ND	ND
Malathion	ug/L	190	5.0	ND	ND
MCPA	ug/L	100	10	ND	ND
Metolachlor	ug/L	50	0.50	ND	ND
Metribuzin (Sencor)	ug/L	80	5.0	ND	ND
Pentachlorophenol	ug/L	60	0.50	ND	ND
Phorate	ug/L	2	0.50	ND	ND

LEGEND		Project Name		ROCKWOOD WELL SUPPLY	
Bold & Red = Exceedance		Sample location		MILNE PUMPHOUSE	STATION ST. PUMPHOUSE
*DL = Laboratory Detection Limit		Sample Date		January 4, 2023	
* MAC = Maximum Acceptable Concentration as per Reg 170 & Reg 169 DW - MAC		ND = No Detection		TREATED WATER	
Parameter Name	Units	* MAC	*DL	Result	Result
Picloram	ug/L	190	5.0	ND	ND
Prometryne	ug/L	1	0.25	ND	ND
Simazine	ug/L	10	1.0	ND	ND
Terbufos	ug/L	1	0.50	ND	ND
Triallate	ug/L	230	1.0	ND	ND
Trifluralin	ug/L	45	1.0	ND	ND
Benzo(a)pyrene	ug/L	0.01	0.0050	ND	ND
2,3,4,6-Tetrachlorophenol	ug/L	100	0.50	ND	ND
2,4,6-Trichlorophenol	ug/L	5	0.50	ND	ND
2,4-D	ug/L	100	1.0	ND	ND
2,4-Dichlorophenol	ug/L	900	0.25	ND	ND
Alachlor	ug/L	5	0.50	ND	ND
Atrazine	ug/L	-	0.50	ND	ND
Des-ethyl atrazine	ug/L	-	0.50	ND	ND
Atrazine + Desethyl-atrazine	ug/L	5	1.0	ND	ND
Bromoxynil	ug/L	5	0.50	ND	ND
Carbaryl	ug/L	90	5.0	ND	ND
Carbofuran	ug/L	90	5.0	ND	ND
Chlorpyrifos (Dursban)	ug/L	90	1.0	ND	ND
Diazinon	ug/L	20	1.0	ND	ND
Dicamba	ug/L	120	1.0	ND	ND
Diclofop-methyl	ug/L	9	0.90	ND	ND
Dimethoate	ug/L	20	2.5	ND	ND
Malathion	ug/L	190	5.0	ND	ND
MCPA	ug/L	100	10	ND	ND
1,1-Dichloroethylene	ug/L	14	0.10	ND	ND
1,2-Dichlorobenzene	ug/L	200	0.20	ND	ND
1,2-Dichloroethane	ug/L	5	0.20	ND	ND
1,4-Dichlorobenzene	ug/L	5	0.20	ND	ND
Benzene	ug/L	1	0.10	ND	ND
Carbon Tetrachloride	ug/L	2	0.10	ND	ND
Chlorobenzene	ug/L	80	0.10	ND	ND
Methylene Chloride (Dichloromethane)	ug/L	50	0.50	ND	ND
Ethylbenzene	ug/L	140	0.10	ND	ND
Tetrachloroethylene	ug/L	10	0.10	ND	ND
Toluene	ug/L	60	0.20	ND	ND

LEGEND		Project Name		ROCKWOOD WELL SUPPLY	
Bold & Red = Exceedance		Sample location		MILNE PUMPHOUSE	STATION ST. PUMPHOUSE
*DL = Laboratory Detection Limit		Sample Date		January 4, 2023	
* MAC = Maximum Acceptable Concentration as per Reg 170 & Reg 169 DW - MAC		ND = No Detection		TREATED WATER	
Parameter Name	Units	* MAC	*DL	Result	Result
Trichloroethylene	ug/L	5	0.10	ND	0.11
Vinyl Chloride	ug/L	1	0.20	ND	ND
Total Xylenes	ug/L	90	0.10	ND	ND
Total Trihalomethanes	ug/L	-	0.20	4.30	0.79
Total PCB	ug/L	3	0.05	ND	ND
Glyphosate	ug/L	280	10	ND	ND
Diquat	ug/L	70	7.0	ND	ND
Diuron	ug/L	150	10	ND	ND
Guthion (Azinphos-methyl)	ug/L	20	2.0	ND	ND
Paraquat	ug/L	10	1.0	ND	ND

Table 14 summarizes treated and distribution samples taken at the Rockwood and Hamilton Drive Drinking Water Systems for the period of Jan. 01 to Dec. 31, 2023.

Table 14: O. Reg. 170/03 Schedule 13-6, 13-7 Rockwood and Hamilton Drive quarterly results

(Based on 4 sample results)

Location Type	Test Parameter	MAC mg/L	Rockwood mg/L	Hamilton Drive mg/L
Distribution (Expressed as running average)	Trihalomethanes	0.100	0.015	0.008
	Haloacetic Acids	0.08	0.005	0.005
Treated	Nitrate (N03)	10.0	<0.10 - <0.10	<0.10 - <0.10
	Nitrite (N02)	1.0	<0.010 - <0.012	<0.010 - <0.010
	N03 +N02 (as nitrogen)	-	<0.10 - <0.10	<0.10 - <0.10

MAC: Maximum Acceptable Concentration

Table 15: O. Reg. 170/03 Schedule 13-8 60-month testing for Fluoride and Schedule 15-5, 60-month testing for Sodium.

Location Type	Test Parameter	MAC mg/L	Rockwood mg/L	Hamilton Drive mg/L
Treated	Fluoride	1.5	0.95 – 1.3	0.14 – 0.16
	Sodium	20.0	3.0 – 210	7.0 – 39

MAC: Maximum Acceptable Concentration

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.

2023 was a **Lead** sampling year, therefore is included with pH and alkalinity for the period of Jan. 1 to Dec. 31, 2023

Table 16: O. Reg. 170/03 Schedule 15.1 Rockwood/Hamilton Testing Summary 2023

Location	Location Type	Number of Samples	Lead Range (mg/L)	pH Range	Alkalinity Range (mg/L)
Rockwood	Distribution	7	< 0.001	7.21 – 7.75	240 - 330
Hamilton Drive	Distribution	4	< 0.001	7.37 – 8.21	220- 230

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

Management review was held on November 23, 2023 and covers the period between October 1, 2022, to November 20, 2023. Below is a summary of action items discussed.

Action Items

- Repeat action item. Municipal Bylaw 21-2000 to include enforcement of significant drinking water threats identified within the Municipal Wellhead protection zones. Specifically,
 - Well abandonment (bylaw 21-2002 – amendment of 21-2000) and discharging of saltwater pool water into our storm management systems.
 - Time to spend on updating bylaws has been challenging. Water Services will attempt to create a draft update and send it to bylaw for review.
- In the next risk assessment activity, list cybersecurity as a hazardous event (now required by Ministry’s updated “Potential Hazardous Events...” document and identify control measures and response procedures that can be implemented in case of a cybersecurity threat.
 - Included cyber security in this year’s Risk Assessment but are still working on identifying some of the control measures as not all the information was available during the June 2023 Risk Assessment.
- Create a standard operating procedure (SOP) regarding appropriate use related to safety and security of electronic documentation.
 - This procedure has already been implemented recently using corporate policies and procedures for all Guelph/Eramosa Township staff to follow.

j) Status of Management action items identified between reviews

Water staff are committed to improving the drinking water system including improving on existing programs and processes. Throughout the year, continual improvement items (action items) may be generated throughout many different activities, such as: audits, debrief sessions, root-cause analysis meetings, etc. An ongoing list of action items are available to staff. Tracking action items are generally a group effort but are sometimes assigned. Once an action item is completed it is documented and acknowledged within the continual improvement tracking spreadsheet.

2023 OFI – Element 21 Continual Improvement; progress was made in addressing outstanding action items.

- Hamilton Drive Supervisory Control and Data Acquisition (SCADA) updates is completed. Multiple programming descriptions have changed for our environmental monitoring system (named - eRIS). Ironing out some issues pending Ministry of Environment inspection in January.
- GIS Watermain valves for use in infrastructure mapping is remains in process as part of the Asset Management Plan.
- The Annual Rockwood “Party in the Park” related to educating the public on protecting our source water and water quality was a huge success and will plan for something new in the coming summer.

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 2023, all Source Protection Plans were in effect. Please see Appendix A for the full 2023 Risk Management Official and Municipal Annual Report.

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

Drinking Water/Wastewater Operator Workforce Assessment

- Based on information collected through this assessment, the ministry plans to develop a comprehensive strategy intended to support water operator workforce recruitment and retention.

Record Keeping

- Transition from hard copy to electronic record keeping. Need for procedure creation and staff training using tablets. Fillable forms should be considered first through tablets. Use both hard copy and electronic until everyone is comfortable.

Improvement to risk associated with watermain breaks.

- Catherine Street / Rail Crossing watermain project will provide redundancy for supply of water and fire protection to newest development north of tracks.

l) Consumer Feedback

Complaints regarding brown water following incidents such as valve repairs/replacements and annual flushing.

m) The Resources Needed to Maintain the QMS

Resources required to support the implementation of the continual improvement process under the DWQMS involve,

- More training time for the quality management system (QMS) and associated procedures, including software training.
- Resources to tackle “action items” between management reviews.
- Succession planning

n) Infrastructure Review

To satisfy the current and pending requirements of the Drinking Water Quality Management Standard, the Director of Public Works and Operations Manager conducted 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 communicated to the owner through the annual budget process. Copies of budget presentations are available through the Municipal Website.

o) Operational Plan currency, content, and updates

Guelph/Eramosa’s Operational Plan was updated March of 2023. There have been no significant updates since this date.

Updates to Hamilton Drive Drinking Water Systems Operation and Maintenance Manual(s) are required in 2024 as there have been notable upgrades and improvements which took place in 2023. Next third-party verification audit for licence renewal is Nov. 2024 with licence application renewal date June 17, 2025, expiry on December 17, 2025.

p) Staff suggestions

Infrastructure (EI. 14) Opportunity to improve asset information that is not currently accessible to the Water / Wastewater team, as necessary for their work.

An employee suggestion was made to have two staff create an emergency scenario and have the remainder participate in the emergency. The next time they can switch. This hopefully will generate a positive mindset for participation and a little competition.

3.0 Appendix A The Gazer Mooney Subdivision Distribution System Annual Report

Appendix A - City of Guelph report

Wellington Source Water Protection



4.0 Appendix B Source Water Protection Report

Appendix B available pending March 18th Council Report

3.0 Appendix A The Gazer Mooney Subdivision Distribution System Annual Report

Water Services' Annual Report

January 1 to December 31, 2023

Guelph Drinking Water System

Corporation of the City of Guelph

Gazer Mooney Subdivision Distribution System

Township of Guelph/Eramosa



Water Services
Environmental Services Department

Last Revision:0

This document is a Province of Ontario form.
To request the information on this form in an accessible format, please contact (add the waterservices@guelph.ca or by calling 519-837-5627; TTY: 519-837-5688 or text 226-821-2132.as the information is our info, not belonging to the province.)

Guelph Distribution System Annual Report

Drinking Water System Number: 220000095

Drinking Water System Name: Guelph Drinking Water System

Drinking Water System Owner: The Corporation of the City of Guelph

Drinking Water System Category: Large Municipal Residential

Period being reported: January 1, 2023, through December 31, 2023

Complete if your Category is Large Municipal Residential or Small Municipal Residential

Does your Drinking Water System serve more than 10,000 people?

Yes.

Is your annual report available to the public at no charge on a web site on the Internet?

Yes.

Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.

An electronic copy of the Summary Report will be provided to MECP upon request.

Complete for all other Categories

Number of Designated Facilities served:

Not applicable.

Did you provide a copy of your annual report to all Designated Facilities you serve?

Not applicable.

Number of Interested Authorities you report to:

Not applicable.

Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility?

Not applicable.

List all Drinking Water Systems (if any), which receive all their drinking water from your system:

Drinking Water System Name: Gazer Mooney Subdivision Distribution System (Guelph Eramosa Township).

Drinking Water System Number: 260057967

Did you provide a copy of your annual report to all Drinking Water System owners that are connected to you and to whom you provide all drinking water?

Yes.

Indicate how you notified system users that your annual report is available and is free of charge.

Public access/notice via the web: Yes.
Public access/notice via Government Office: No.
Public access/notice via a newspaper: No.
Public access/notice via Public Request: Yes.
Public access/notice via a Public Library: No.
Public access/notice via other: No.

City of Guelph Drinking Water System Description:

All water provided to the Guelph Drinking Water System was treated via Water Services' 12 active water treatment Facilities for: primary disinfection using chlorine solution (10 sites) or ultraviolet irradiation (2 sites); secondary disinfection using chlorine solution for a free chlorine residual (12 sites); sequestration using sodium silicate for dissolved iron (2 sites); and manganese removal using green-sand filtration (1 site).

The City of Guelph has 15 active pumping stations; three (3) elevated storage tanks; four (4) major underground storage reservoirs; approximately 563 Kilometres of underground watermains, and a population of approximately 146,175.

List all water treatment chemicals used over this reporting period:

Sodium Hypochlorite (chlorine solution for disinfection).
Sodium Silicate (for iron sequestration).

Were any significant expenses incurred to?

Install required equipment: No.
Repair required equipment: No.
Replace required equipment: No.

Please provide a brief description and a breakdown of monetary expenses incurred:

Capital Projects: The following amounts relate to projects completed in 2023. These numbers do not include the normal operating and maintenance costs.

Project Name: Paisley Station and Reservoir Upgrades

Description: Upgrade booster pumping station and complete reservoir repairs.

Monetary Expense: \$8.6M

Project Name: Calico Station Groundwater Well Upgrades

Description: Complete replacement of the groundwater well. Preliminary design for the new facility was completed. Project paused based on budget deferrals

Monetary Expense: \$900K

Project Name: Membro Facility Upgrades

Description: Complete upgrades to the facility to accommodate the use of the Rocco Well and to take Membro Well offline.

Monetary Expense: \$1.4M

Project Name: Security upgrades to Edinburgh Well

Description: Decommissioning of the Well house; capping and securing the groundwater well.

Monetary Expense: \$40K

Project Name: Watermain Replacement

Description: 1,261.10 meter of watermain replaced on Silvercreek Parkway N/Speedvale Ave/ Woolwich Street/ Metcalfe Street/ York Road-phase 3.

Monetary Expense: \$795.5K

Provide details on the notices submitted in accordance with subsection 18 (1) of the Safe Drinking Water Act or section 16-4 of Schedule 16 of O.Reg.170/03 and reported to Spills Action Centre:

In 2023, there were no Adverse Water Quality Incidents (AWQIs).

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

Microbiological testing done under the Schedule 10, 11 or 12 of Regulation 170/03, during this reporting period:

	Number of Samples	Range of E. Coli Results (min #)-(max #)	Range of Total Coliform Results (min #)-(max #)	Number of HPC Samples	Range of HPC Results (min #)-(max #)
Raw	891	0-2	0-35	0	Not applicable.
Treated	550.	0-0	0-0	550	0-300
Distribution	1646	0 - 0	0 - 0	749	0-110

Operational testing done under Schedule 7, 8 or 9 of Regulation 170/03 during the period covered by this Annual Report:

	Number of Grab Samples	Range of Results (min #)-(max #)	Unit of Measure
Turbidity	881	0.05-0.39	NTU
Chlorine	791	0.40-1.46	mg/L
Fluoride (If the DWS provides fluoridation)	Not applicable.	Not applicable.	Not applicable.

Summary of additional testing and sampling carried out in accordance with the requirement of an approval, order or other legal instrument:

The Micro Particulate Analysis (MPA) below is an ongoing assessment/confirmation of the water quality at the Arkell Collectors shallow groundwater infiltration system. The data is used to confirm adequate disinfection of this source water at F.M. Woods. In 2023 the Arkell Collector source water was fully disinfected and sampled/analyzed as per the Municipal Drinking Water Licence (MDWL 017-101 – 2021/07/06).

Date of legal instrument issued	Parameter	Date Sampled	Result	Unit of Measure
MDWL 017-101 2022/07/15	cryptosporidium	23/04/03	0	Relative Risk Factor is 0 (low risk).
	giardia	23/04/03	0	
	diatoms	23/04/03	0	
	other algae (pigment bearing)	23/04/03	0	
	rotifers, eggs	23/04/03	0.6	
MDWL 017-101 2022/07/15	cryptosporidium	23/05/08	0	Relative Risk Factor is 1 (low risk).
	giardia	23/05/08	0	
	diatoms	23/05/08	0	
	other algae (pigment bearing)	23/05/08	0	
	rotifers, eggs	23/05/08	0	
MDWL 017-101 2022/07/15	cryptosporidium	23/09/11	0	Relative Risk Factor is 1 (low risk).
	giardia	23/09/11	0	
	diatoms	23/09/11	0	
	other algae (pigment bearing)	23/09/11	0	
	rotifers, eggs	23/09/11	0	

Summary of Inorganic parameters tested during this reporting period or the most recent sample results:

The required three year sampling for ground water sources was done in 2022 and is included in the results in the table below. The table also includes the annual 2023 sampling for surface water sources.

NOTE: A result of zero indicates that the result obtained was below the method detection/reporting limit.

Parameter	Sample Date	Result Value (min.) - (max.)	Unit of Measure	Exceedance
Antimony	2023	0 - 0.0009	mg/L	No
Arsenic	2023	0 - 0.0034	mg/L	No
Barium	2023	0.034 - 0.093	mg/L	No
Boron	2023	0.013 - 0.049	mg/L	No
Cadmium	2023	0 - 0.00096	mg/L	No
Chromium	2023	0 - 0	mg/L	No
Mercury	2023	0 - 0	mg/L	No
Lead	2023	0 - 0	mg/L	No
Selenium	2023	0 - 0	mg/L	No
Sodium	Jan 2019 - Dec 2022	23 - 170	mg/L	No
Uranium	2023	0.00037 - 0.0020	mg/L	No
Fluoride	2019	0 - 0.73	mg/L	No
Nitrite	2023	0 - 0.037	mg/L	No
Nitrate	2023	0 - 2.37	mg/L	No

Summary of lead testing under MDWL 017-101 – Lead Regulatory Relief during this reporting period.

The table below includes all samples/analysis required by the MDWL 017-101, Lead Reduction Plan.

Number of Locations	Location Type	Number of Samples	Range of Lead Results (min#) – (max #)	Unit of Measure	Number of Exceedances
11	Private Plumbing	15	0 - 0.027	mg/L	11
10	Distribution	10	0 - 0	mg/L	0

Summary of Organic parameters sampled during this reporting period or the most recent sample results:

Under O.Reg. 170/03; Schedule 13-4, treated groundwater sources are assessed on a 3-year sampling schedule and last sampled in 2019; treated GUDI sources are on an annual schedule and last sampled in 2021. Sampling/analysis occurred as required with value results covering both source characterizations, below.

NOTE: A result of zero indicates that the result obtained was below the method detection/reporting limit.

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Alachlor	2023	0 - 0	mg/L	No
Atrazine + N-dealkylated metabolites	2023	0 - 0	mg/L	No
Azinphos-methyl	2023	0 - 0	mg/L	No
Benzene	2023	0 - 0	mg/L	No
Benzo(a)pyrene	2023	0 - 0	mg/L	No
Bromoxynil	2023	0 - 0	mg/L	No
Carbaryl	2023	0 - 0	mg/L	No
Carbofuran	2023	0 - 0	mg/L	No
Carbon Tetrachloride	2023	0 - 0	mg/L	No
Chlorobenzene	2023	0 - 0	mg/L	No
Chlorpyrifos	2023	0 - 0	mg/L	No
Diazinon	2023	0 - 0	mg/L	No
Dicamba	2023	0 - 0	mg/L	No
1,2-Dichlorobenzene	2023	0 - 0	mg/L	No
1,4-Dichlorobenzene	2023	0 - 0	mg/L	No
1,2-Dichloroethane	2023	0 - 0	mg/L	No
1,1-Dichloroethylene (vinylidene chloride)	2023	0 - 0	mg/L	No
Dichloromethane	2023	0 - 0	mg/L	No
2-4 Dichlorophenol	2023	0 - 0	mg/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	2023	0 - 0	mg/L	No
Diclofop-methyl	2023	0 - 0	mg/L	No
Dimethoate	2023	0 - 0	mg/L	No
Diquat	2023	0 - 0	mg/L	No
Diuron	2023	0 - 0	mg/L	No
Glyphosate	2023	0 - 0	mg/L	No
HAAs (<i>Note: show latest running annual average</i>)	2023	0.014	mg/L	No
Malathion	2023	0 - 0	mg/L	No
2-methyl-4-chlorophenoxyacetic acid / MCPA	2023	0 - 0	mg/L	No

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Metolachlor	2023	0 - 0	mg/L	No
Metribuzin	2023	0 - 0	mg/L	No
Paraquat	2023	0 - 0	mg/L	No
Pentachlorophenol	2023	0 - 0	mg/L	No
Phorate	2023	0 - 0	mg/L	No
Picloram	2023	0 - 0	mg/L	No
Polychlorinated Biphenyls(PCB)	2023	0 - 0	mg/L	No
Prometryne	2023	0 - 0	mg/L	No
Simazine	2023	0 - 0	mg/L	No
Terbufos	2023	0 - 0	mg/L	No
Tetrachloroethylene (perchloroethylene)	2023	0 - 0	mg/L	No
2,3,4,6-Tetrachlorophenol	2023	0 - 0	mg/L	No
THMs (Note: show latest running annual average)	2023	0.031	mg/L	No
Triallate	2023	0 - 0	mg/L	No
Trichloroethylene	2023	0 - 0.00024	mg/L	No
2,4,6-Trichlorophenol	2023	0 - 0	mg/L	No
Trifluralin	2023	0 - 0	mg/L	No
Vinyl Chloride	2023	0 - 0	mg/L	No

List any Inorganic or Organic parameter(s) that exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards

There were no instances of organic or inorganic parameter sample results exceeding half the standard from January 2023 through December 2023.

The Gazer Mooney Subdivision Distribution System ANNUAL REPORT

Drinking Water System Number: 260057967

Drinking Water System Name: Gazer Mooney Subdivision Distribution System

Drinking Water System Owner: The Corporation of the Township of
Guelph/Eramosa

Drinking Water System Category: Small Municipal Residential

Period being reported: January 1, 2023, through December 31, 2023

Complete if your Category is Large Municipal Residential or Small Municipal Residential

Does your Drinking Water System serve more than 10,000 people?

No.

**Is your annual report available to the public at no charge on a web site on
the Internet?**

Yes.

**Location where Summary Report required under O. Reg. 170/03 Schedule
22 will be available for inspection.**

An electronic copy of the Summary Report will be provided to MECP upon request.

Complete for all other Categories

Number of Designated Facilities served:

Not applicable.

**Did you provide a copy of your annual report to all Designated Facilities
you serve?**

Not applicable.

Number of Interested Authorities you report to:

Not applicable.

**Did you provide a copy of your annual report to all Interested Authorities
you report to for each Designated Facility?**

Not applicable.

**List all Drinking Water Systems (if any), which receive all their drinking
water from your system:**

Drinking Water System Name: Not applicable.

Drinking Water System Number: Not applicable.

Did you provide a copy of your annual report to all Drinking Water System owners that are connected to you and to whom you provide all drinking water?

Yes.

Indicate how you notified system users that your annual report is available and is free of charge.

Public access/notice via the web: Yes.

Public access/notice via Government Office: No.

Public access/notice via a newspaper: No.

Public access/notice via Public Request: Yes.

Public access/notice via a Public Library: No.

Public access/notice via other: No.

Gazer-Mooney Subdivision Drinking Water System

The Gazer Mooney Subdivision has approximately 72 fully metered water service connections; 2 kilometres of underground watermains, and an approximate population of 209 people.

All water provided to the Gazer Mooney Subdivision Distribution System is supplied by the Guelph Drinking Water System.

List all water treatment chemicals used over this reporting period:

Treated drinking water was supplied in its entirety from the Guelph Drinking Water System. Please refer to the Guelph Drinking Water System Annual Report for a list of water treatment chemicals used in the drinking water treatment process.

Were any significant expenses incurred to?

Install required equipment: No.

Repair required equipment: No.

Replace required equipment: No.

Please provide a brief description and a breakdown of monetary expenses incurred:

No significant expenses were incurred in 2023 to maintain the Gazer Mooney Subdivision Distribution System.

Provide details on the notices submitted in accordance with subsection 18 (1) of the Safe Drinking Water Act or section 16-4 of Schedule 16 of O.Reg.170/03 and reported to Spills Action Centre:

In 2023, there were no Adverse Water Quality Incidents (AWQIs) in the Gazer Mooney Subdivision Distribution System.

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

Microbiological testing done under the Schedule 10, 11 or 12 of Regulation 170/03, during this reporting period:

	Number of Samples	Range of E. Coli Results (min #)-(max #)	Range of Total Coliform Results (min #)-(max #)	Number of HPC Samples	Range of HPC Results (min #)-(max #)
Raw	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Not applicable.
Treated	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Not applicable.
Distribution	51	0 - 0	0 - 0	51	0 - 4

Operational testing done under Schedule 7, 8 or 9 of Regulation 170/03 during the period covered by this Annual Report:

	Number of Grab Samples	Range of Results (min #)-(max #)	Unit of Measure
Turbidity	Not applicable.	Not applicable.	Not applicable.
Chlorine	105	0.91 – 1.34	mg/L
Fluoride (If the DWS provides fluoridation)	Not applicable.	Not applicable.	Not applicable.

Summary of additional testing and sampling carried out in accordance with the requirement of an approval, order or other legal instrument:

Date of legal instrument issued	Parameter	Date Sampled	Result	Unit of Measure
Not applicable.	Not applicable.	Not applicable.	Not applicable.	Not applicable.

Summary of Inorganic parameters tested during this reporting period or the most recent sample results:

Please refer to the Guelph Drinking Water System Annual Report for treated drinking water summary inorganic water quality results.

Summary of lead testing under “Approved Relief” during this reporting period:

NOTE: A result of zero indicates that the result obtained was below the method detection/reporting limit.

Location Type	Number of Samples	Range of Lead Results (min#) – (max #)	Unit of Measure	Number of Exceedances
Distribution	2	0 - 0	mg/L	0

Summary of Organic parameters sampled during this reporting period or the most recent sample results:

NOTE: A result of zero indicates that the result obtained was below the method detection/reporting limit.

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
HAA's - Haloacetic acids (Note: show latest running annual average)	Jan - Dec 2023	0	mg/L	0
THM's - trihalomethanes (Note: show latest running annual average)	Jan - Dec 2023	0.025	mg/L	0

The above table are sample results from the Gazer Mooney Subdivision Distribution System. For organic water quality results from the Guelph Drinking Water System, please refer to the Guelph Drinking Water System Annual Report; in 2023, there were no exceedances related to organic parameters in the Guelph Drinking Water System.

List any Inorganic or Organic parameter(s) that exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards:

There were no instances of organic parameter sample results exceeding half the standard in 2023 in the Gazer Mooney Subdivision System or the Guelph Drinking Water System.