



Annual and Summary Report

For the Period of Jan. 1, 2023 to Dec. 31, 2023

For Arthur and Mount Forest Drinking Water Systems

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Revision Date: February 1, 2024

Revised on February 14, 2024 by Sara McDougall, Process Compliance Analyst

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Introduction

Purpose

The purpose of this report is to provide information to several stakeholders and to satisfy the regulatory requirements of the Safe Drinking Water Act (SDWA), reporting required under Ontario Regulation 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 Township of Wellington North (Arthur and Mount Forest).

Scope

This Annual and Summary report includes information from both Mount Forest and Arthur Drinking Water Systems for the period of January 1st to December 31st, 2023 (unless otherwise noted). The report is a collection of information that was previously found in two separate reports (Annual Report and Summary 22 Report to Council). The information is required to be reported to the following:

- the Drinking Water System Owners (Township of Wellington North Council);
- the public and customers

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 tests results required under O. Reg.170/03 or an approval, Municipal Drinking Water License (MDWL) or order;
- a summary of adverse test results and other issues reported to the Ministry including corrective action taken;
- a description of major expenses incurred to install, repair or replace required equipment;
- the location where this report is available for inspection/review.

And;

-Schedule 22, Summary Report which includes:

- list the requirements of the Safe Drinking Water Act, the Regulations, Drinking Water Works Permits (DWWP), Municipal Drinking Water License (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 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.

This report satisfies applicable requirements for both the Arthur and Mount Forest Drinking Water Systems.

A copy of this report is available for viewing online at www.wellington-north.com

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Notice

Please note that every reasonable effort is made to ensure the accuracy of this report. This report is published with the best available information at the time of the publication. In the event that errors or omissions occur, the online report will be updated. Please refer to the online version of the report for the most current version.

Systems Overview

The role of the water department is to provide customers and the community with safe, consistent supply of high-quality drinking water while meeting, exceeding, and continually improving on legal, operational, and quality management system requirements.

The Arthur and Mount Forest drinking water systems are Class II Water Distribution and Supply Subsystems, composed of groundwater wells and water distribution systems. From January 1st to December 31st, 2023, certified staff of three Operators, one Lead Hand, one Manager and one Process Compliance Analyst operated and maintained the systems.

The water department received full scope reaccreditation to the Drinking Water Quality Management Standard after a successful off-site audit on October 4th, 2023 conducted by a third-party accreditation body. This full accreditation satisfies part of the requirements under the Municipal Drinking Water Licensing Program.

Arthur Drinking Water System

Arthur's municipal drinking water system provides water for a permanent population of approximately 2,628, comprised of approximately 1,258 residential connections and 111 Industrial/Commercial/Institutional (ICI) connections. ICI customers are fully metered and residential units are on a flat rate system. Arthur has approximately 21 km of water main.

The Arthur water system is comprised of three drilled wells, two pump houses, two elevated storage tanks and a water distribution system. The township uses 12% sodium hypochlorite for disinfection. Sodium silicate is used for iron sequestering at Well #7 and Waterworx is used at Well #8 for manganese sequestering. Each well is equipped with one well pump, discharge piping, and disinfection equipment. Well #8 is equipped with a back-up diesel generator. The system's supply for fire protection, peak demands and emergencies, is stored within two elevated storage tanks, one with a capacity of 1137 m³ and one with a capacity of 227m³.

The well pumps and associated metering pumps are started and stopped based on the water level in elevated tank number one. Once the low water level in the tank has been reached, the pump stations are called upon to supply the distribution system with the excess filling the elevated storage tanks to the normal top water level. This system is a demand/storage system. When the level drops below the lead pump start level, the lead well pump will start. If the level continues to drop, the next duty pump in

sequence will start. All pumps stop at the normal top water level until the water level drops in elevated tank number one and the pumps are required again. Whenever all pumps have stopped; the pump sequence changes. Pumps removed from service are automatically skipped.

From January 1st to December 31st, 2023, a total of 379,115.14 cubic meters of water was treated and pumped to the system. The average daily water demand was 1038.37 cubic meters. The highest daily use of water occurred on June 2, 2023 when 1,534.98 cubic meters of water was pumped.

Mount Forest Drinking Water System

Mount Forest's municipal drinking water system provides water for a permanent population of approximately 5,040, comprised of approximately 2,230 residential connections and 242 ICI connections. ICI customers are fully metered, and residential units are on a flat rate system. Mount Forest distribution system is approximately 37 km of water main.

The Mount Forest water system is comprised of four groundwater wells, four pump houses, a standpipe, and a water distribution system. The township uses 12% sodium hypochlorite for disinfection. Each well is equipped with one well pump, discharge piping, and disinfection equipment. Well #3 is equipped with a back-up diesel generator and a booster pump. The system's supply for fire protection, peak demands and emergencies, is stored within a 2083 m³ standpipe.

The well pumps and sodium hypochlorite metering pumps are started and stopped based on the standpipe water level. Once the low water level in the tank has been reached, the pump stations are called upon to supply the distribution system with the excess filling the standpipe to the normal top water level. This system is a demand/storage system. When the level drops below the lead pump start level, the lead well pump will start. If the level continues to drop, the first, second and third lag well pumps will be started, respectively. All pumps stop at the normal top water level until the water level drops in the standpipe and the pumps are required again. Whenever all pumps have stopped; the pump sequence changes. Pumps removed from service are automatically skipped.

From January 1st to December 31st, 2023, a total of 547,440.51 cubic meters of water was treated and pumped to the system. The average daily water demand was 1,498.45 cubic meters. The highest daily use of water occurred on August 10, 2023 when 3,267.95 cubic meters of water was pumped.

Sampling and Testing

The Township of Wellington North's certified operators regularly test the water within the overall system including the raw water at the well source(s), after treatment, and within the distribution system. From January 1st to December 31st, 2023, all regulatory microbiological and chemical quality samples were taken by certified operators and tests performed by accredited, licensed laboratories on water samples collected throughout the drinking water system. These tests include regulatory testing, and those results are included in this report.

Arthur and Mount Forest drinking water systems are defined as large residential systems operated under the regulatory requirements of the Safe Drinking Water Act and the Ontario Water Resources Act (accessed at www.e-laws.gov.on.ca). The Arthur Drinking Water System is operated under Municipal Drinking Water License (MDWL) 113-101 and the Drinking Water Works Permit (DWWP) 113-201. The Mount Forest Drinking Water System is operated under MDWL 113-102 and DWWP 113-202.

The MDWL and the DWWP describe system-specific requirements that are supplementary to provincial regulations and act as a license for water supply and distribution operations. These documents outline specific conditions and requirements regarding operation, maintenance and upgrades that are required by the system and are considered regulatory in nature. These documents are available by request for viewing at 160 Preston Street, Arthur.

Summary 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 Environment, Conservation & Parks (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 Municipal Drinking Water Licenses (MDWL) and Drinking Water Works Permits (DWWP).

The most recent assessment of compliance for Arthur and Mount Forest Drinking Water Systems as determined by the MECP during the 2023 Annual Inspections resulted in a final inspection rating of 100% for each facility.

There was no non-compliance for either Arthur or Mount Forest Drinking Water Systems during the MECP inspections in 2023.

b) Adverse Water Quality Incidents

This section describes all “Adverse Water Quality Incidents” (AWQI). This term refers to any unusual test results 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.

A sample taken from Mount Forest DWS treated Well # 6 on Monday July 31, 2023 had an adverse result of 2 cfu/100mL Total Coliforms. Corrective action was taken and resampling results indicated zero Total Coliforms in all resamples, therefore indicating that the issue was resolved.

Treated samples taken from the Arthur DWS at Well # 7b & Well # 8 on Monday September 11, 2023 had adverse Sodium results of 36.6 mg/L & 21.5 mg/L. Although the Aesthetic Objective for sodium is 200 mg/L the results must be reported to the Ministry of Health (MOH) if above 20 mg/L. This is so physicians can notify patients on sodium restricted diets. Corrective action was taken and resampling results indicated 36.5 mg/L & 21.6 mg/L of sodium, the Public Health Inspector was notified with no further actions required, paperwork was filed and the issue was resolved.

Treated samples were taken from the Mount Forest DWS at Well # 3 & Well # 5 on Monday September 11, 2023 and had adverse Sodium results of 21.9 mg/L & 68.8 mg/L. Although the Aesthetic Objective for sodium is 200 mg/L the results must be reported to Ministry of Health (MOH) if above 20 mg/L. This is so physicians can notify patients on sodium restricted diets. Corrective action was taken and resampling results indicated 23.6 mg/L & 70.9 mg/L of sodium, the Public Health Inspector was notified with no further actions required, paperwork was filed and the issue resolved.

c) Summaries of Flow Rates and Water Supply Capacities

The Safe Drinking Water Act (SDWA) and the Ontario Water Resources Act (OWRA) each require that operating authority's record and report water takings as governed by the Permits to Take Water (PTTW). The following tables list the quantities and flow rates of the water supplied during this reporting period, including monthly average and maximum daily flows, daily instantaneous peak flow rates and a comparison to the rated capacity and flow rates specified in the system approval:

Table 1: Arthur Well #7b Flows

Approved Volume (m³/day): 1961

Approved Flow Rate (L/sec): 22.7

	Avg Daily Volume (m ³)	% of Approved Volume	Max Daily Volume (m ³)	% of Approved Volume	Peak Flow Rate (L/sec)	% of Approved Flow Rate
January	322.49	16.4	653.46	33.3	19.30	85.0
February	328.82	16.8	684.23	34.9	20.19	88.9
March	289.10	14.7	497.88	25.4	21.04	92.7
April	348.69	17.8	541.24	27.6	20.32	89.5
May	368.99	18.8	578.06	29.5	20.43	90.0
June	400.20	20.4	774.13	39.5	20.02	88.2
July	393.72	20.1	901.65	46.0	20.19	88.9
August	345.99	17.6	904.65	46.1	20.07	88.4
September	349.66	17.8	704.90	35.9	20.17	88.9
October	363.65	18.5	665.07	33.9	20.17	88.9
November	339.42	17.3	549.78	28.0	20.49	90.3
December	340.17	17.3	630.95	32.2	20.29	89.4

Table 2: Arthur Well #8a Flows

Approved Volume (m³/day): 2255

Approved Flow Rate (L/sec): 26.1

	Avg Daily Volume (m ³)	% of Approved Volume	Max Daily Volume (m ³)	% of Approved Volume	Peak Flow Rate (L/sec)	% of Approved Flow Rate
January	343.00	15.2	659.52	29.2	21.48	82.3
February	314.86	14.0	613.30	27.2	21.02	93.2
March	319.55	14.2	625.42	27.7	21.74	83.3
April	342.51	15.2	586.35	26.0	21.78	83.4
May	335.56	14.9	680.90	30.2	21.98	84.2
June	419.42	18.6	1003.28	44.5	24.31	93.1
July	369.74	16.4	697.05	30.9	24.14	92.5
August	370.79	16.4	617.04	27.4	24.11	92.4
September	380.75	16.9	566.16	25.1	23.76	91.0
October	341.14	15.1	615.10	27.3	24.01	92.0
November	285.25	12.6	489.72	21.7	23.50	90.0
December	261.70	11.6	582.09	25.8	23.40	89.7

Table 3: Arthur Well #8b Flows**Approved Volume (m3/day): 2255****Approved Flow Rate (L/sec): 26.1**

	Avg Daily Volume (m ³)	% of Approved Volume	Max Daily Volume (m ³)	% of Approved Volume	Peak Flow Rate (L/sec)	% of Approved Flow Rate
January	259.99	11.5	576.85	25.6	20.99	80.4
February	314.76	14.0	585.12	25.9	21.14	81.0
March	364.06	16.1	664.91	29.5	21.03	80.6
April	307.27	13.6	423.62	18.8	21.42	82.1
May	388.37	17.2	646.25	28.7	21.48	82.3
June	399.94	17.7	731.29	32.4	23.75	91.0
July	387.81	17.2	1005.25	44.6	23.55	90.2
August	376.24	16.7	606.87	26.9	23.65	90.6
September	386.53	17.1	658.48	29.2	24.27	93.0
October	355.27	15.8	568.04	25.2	24.85	95.2
November	324.40	14.4	618.17	27.4	23.90	91.6
December	320.64	14.2	621.88	27.6	24.25	92.9

There was 379,115.14 m³ of water processed in Arthur for 2023 (Jan. 01 to Dec. 31). This represents 4.96 % increase compared to the same time period in 2022 and 3.59 % increase from 2021.

Table 4: Mount Forest Well #3 Flows**Approved Volume (m3/day): 1637****Approved Flow Rate (L/sec):22.7**

	Avg Daily Volume (m ³)	% of Approved Volume	Max Daily Volume (m ³)	% of Approved Volume	Peak Flow Rate (L/sec)	% of Approved Flow Rate
January	277.86	17.0	588.63	36.0	19.89	87.6
February	283.74	17.3	640.35	39.1	19.13	84.3
March	275.18	16.8	451.04	27.6	19.58	86.3
April	311.00	19.0	507.86	31.0	19.36	85.3
May	314.26	19.2	621.41	38.0	22.96	101.1*
June	306.70	18.7	365.19	22.3	18.83	83.0
July	302.13	18.5	491.82	30.0	21.18	93.3
August	344.55	21.0	625.87	38.2	17.52	77.2
September	277.12	16.9	492.83	30.1	18.92	83.3
October	279.84	17.1	502.95	30.7	18.41	81.1
November	356.66	21.8	745.10	45.5	21.26	93.7
December	339.98	20.8	632.27	38.6	21.06	92.8

* Flow Rate exceedance occurred on May 5, 2023 due to maintenance. Operators were onsite at Well # 3 monitoring at this time.

Table 5: Mount Forest Well #4 Flows**Approved Volume (m3/day): 1964****Approved Flow Rate (L/sec): 22.7**

	Avg Daily Volume (m ³)	% of Approved Volume	Max Daily Volume (m ³)	% of Approved Volume	Peak Flow Rate (L/sec)	% of Approved Flow Rate
January	331.21	16.9	562.06	28.6	20.52	90.4
February	346.28	17.6	635.18	32.3	19.18	84.5
March	351.26	17.9	572.94	29.2	19.30	85.0
April	356.06	18.1	702.18	35.8	19.19	84.5
May	476.60	24.3	809.15	41.2	19.07	84.0
June	594.01	30.2	634.36	32.3	12.00	52.9
July	572.36	29.1	654.57	33.3	16.95	74.7
August	403.75	20.6	683.61	34.8	19.07	84.0
September	350.56	17.8	716.59	36.5	19.00	83.7
October	323.47	16.5	656.33	33.4	19.22	84.7
November	461.60	23.5	705.67	35.9	19.35	85.2
December	453.85	23.1	900.92	45.9	19.34	85.2

Table 6: Mount Forest Well #5 Flows**Approved Volume (m3/day): 3928****Approved Flow Rate (L/sec): 45.5**

	Avg Daily Volume (m ³)	% of Approved Volume	Max Daily Volume (m ³)	% of Approved Volume	Peak Flow Rate (L/sec)	% of Approved Flow Rate
January	359.94	9.2	696.49	17.7	39.73	87.3
February	385.86	9.8	700.20	17.8	41.60	91.4
March	390.07	9.9	740.73	18.9	35.23	77.4
April	353.73	9.0	637.30	16.2	36.12	79.4
May	593.08	15.1	944.45	24.0	35.50	78.0
June	669.67	17.0	965.60	24.6	32.66	71.8
July	575.50	14.7	726.20	18.5	39.39	86.6
August	570.43	14.5	1297.59	33.0	36.17	79.5
September	398.99	10.2	638.75	16.3	38.77	85.2
October	404.42	10.3	629.67	16.0	37.92	83.3
November	426.56	10.9	1018.81	25.9	38.75	85.2
December	464.94	11.8	1014.54	25.8	37.71	82.9

Table 7: Mount Forest Well #6 Flows**Approved Volume (m3/day): 3928****Approved Flow Rate (L/sec): 45.5**

	Avg Daily Volume (m ³)	% of Approved Volume	Max Daily Volume (m ³)	% of Approved Volume	Peak Flow Rate (L/sec)	% of Approved Flow Rate
January	299.96	7.6	647.03	16.5	41.34	90.9
February	297.90	7.6	532.67	13.6	36.70	80.7
March	271.78	6.9	447.85	11.4	35.50	78.0
April	337.44	8.6	512.62	13.1	36.78	80.8
May	423.37	10.8	867.49	22.1	36.46	80.1
June	362.06	9.2	513.91	13.1	42.50	93.4
July	349.49	8.9	389.24	9.9	58.08	127.6*
August	394.86	10.1	1188.93	30.3	38.50	84.6
September	378.97	9.6	782.34	19.9	37.67	82.8
October	333.24	8.5	486.62	12.4	37.51	82.4
November	101.28	2.6	526.75	13.4	39.45	86.7
December	147.89	3.8	814.83	20.7	39.03	85.8

* Flow Rate exceedance occurred on July 6, 2023 due to a brief disruption in the distribution system caused by a local business doing private fire flow testing when the Mount Forest Standpipe was out of service.

There was 547,440.51 m³ of water processed in Mount Forest for 2023 (Jan. 01 to Dec. 31). This represents 7.81 % increase compared to the same time period in 2022 and 4.72 % increase from 2021.

d) Raw and Treated Water Quality

This section describes the water quality monitoring, both regulatory and operational, that has been completed in 2023.

Water Quality Review

Under the 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.

Table 8: O. Regulation 170/03 Schedule 7-2, Distribution Manual Free Chlorine Residual Summary

Parameter	ODWQS	Total Analyzed	Total Outside ODWQS Criteria	Range	Units
Arthur Free Chlorine Residual	0.05 - 4.0	365	0	0.78 to 1.68	mg/L
Mount Forest Free Chlorine Residual	0.05 - 4.0	365	0	0.75 to 2.01	mg/L

Table 9: O. Regulation 170/03 Schedule 7-3, Raw Turbidity Sampling Summary

Regulation 170/03, Schedule 7-3 requires a minimum of one raw turbidity sample taken monthly from each well that is supplying water to the drinking water system. We typically sample raw turbidity more than once per month but are not required to.

Parameter	ODWQS	Total Analyzed	Total Outside ODWQS Criteria	Range	Units
Arthur Raw Well # 7b	1	51	0	0.19 to 0.59	NTU's
Arthur Raw Well # 8a/b	1	52	0	0.19 to 0.43	NTU's
Mount Forest Raw Well # 3	1	50	0	0.06 to 0.46	NTU's
Mount Forest Raw Well # 4	1	50	0	0.07 to 0.62	NTU's
Mount Forest Raw Well # 5	1	51	0	0.07 to 0.23	NTU's
Mount Forest Raw Well # 6	1	46	0	0.07 to 0.64	NTU's

Table 10: O. Regulation 170/03 Schedule 10-4- Raw Bacteriological Sampling Summary

Parameter	ODWQS	Total Analyzed	Total Outside ODWQS Criteria	Range	Units
Arthur Raw - T.coli	n/a	156	n/a	0-1	cfu/100mL
Arthur Raw - E.coli	n/a	156	n/a	0-1	cfu/100mL
Mount Forest Raw - T.coli	n/a	203	n/a	0	cfu/100mL
Mount Forest Raw - E.coli	n/a	203	n/a	0	cfu/100mL

Table 11: O. Regulation 170/03 Schedule 10-3, Treated Bacteriological Sampling Summary

Parameter	ODWQS	Total Analyzed	Total Outside ODWQS Criteria	Range	Units
Arthur Treated - T.coli	0	104	0	0	cfu/100mL
Arthur Treated - E.coli	0	104	0	0	cfu/100mL
Arthur Treated - HPC	n/a	104	n/a	<10-60	cfu/mL
Mount Forest Treated - T.coli	0	203	1	0-2	cfu/100mL
Mount Forest Treated - E.coli	0	203	0	0	cfu/100mL
Mount Forest Treated - HPC	n/a	203	n/a	<10-20	cfu/mL

Table 12: O. Regulation 170/03 Schedule 10-2, Distribution Samples Summary

Parameter	ODWQS	Total Analyzed	Total Outside ODWQS Criteria	Range	Units
Arthur Distribution - T.coli	0	156	0	0	cfu/100mL
Arthur Distribution - E.coli	0	156	0	0	cfu/100mL
Arthur Distribution - HPC	n/a	156	n/a	<10 – 160	cfu/mL
Mount Forest Distribution - T.coli	0	208	0	0	cfu/100mL
Mount Forest Distribution - E.coli	0	208	0	0	cfu/100mL
Mount Forest Distribution - HPC	n/a	208	n/a	<10 – 40	cfu/mL

* Note: On September 25, 2023 a treated sample at Mount Forest Well # 3 resulted in an HPC of NDOGHP (No Data: Overgrown with HPC). The following week on October 2, 2023 the same sample location result was 10 cfu/mL HPC.

Treated Water Quality- O. Regulation 170/03 Schedule 13-6, 13-6.1 and 13-7, “Three Month” Sampling Results Summary

In 2023, all operational Treated sources were sampled and analyzed for Schedule 13-6, 13-6.1 and 13-7 parameters as per O.Reg. 170-03.

Regulation 170/03, Schedule 13-6 requires a minimum of one distribution sample taken from the Distribution System where THM’s (trihalomethanes) are most likely to develop (locations with high retention times). The Maximum Allowable Concentration (MAC) for THM’s is 100 ug/L. However, for this parameter the MAC uses a running annual average of quarterly samples.

The results of the running average value for THM’s for all related Distribution System samples in 2023 are below the ½ MAC (half of the maximum allowable concentration). Mount Forest had an annual running average of 18.25 ug/L of Total THM’s and Arthur had an annual running average of 25 ug/L of Total THM’s.

Regulation 170/03, Schedule 13-6.1 requires a minimum of one distribution sample taken from the Distribution System where HAA’s (haloacetic acids) are most likely to develop. On January 1, 2020, the Maximum Allowable Concentration (MAC) for HAA’s of 80 ug/L came into effect. For this parameter, the MAC uses a running annual average of quarterly samples.

The results of HAA’s for all related Distribution System samples in 2023 are below the ½ MAC (half of the maximum allowable concentration). Mount Forest had an annual running average of <5.3 ug/L of HAA’s and Arthur had an annual running average of <5.3 ug/L of HAA’s.

All operational Treated Sources were sampled and analyzed for Nitrates and Nitrites as per Regulation 170/03, Schedule 13-7. There was no instance of any adverse results in 2023.

Table 13: O. Regulation 170/03 Schedule 13-7, Nitrite and Nitrate Sampling Results Summary

Arthur	Date	ODWQS MAC	Well #7b	Well #8a/b
Nitrite (mg/L)	Feb 2023	1	0.018	0.003<MDL
	May 2023	1	0.003<MDL	0.003<MDL
	Aug 2023	1	0.003<MDL	0.003<MDL
	Nov 2023	1	0.003<MDL	0.003<MDL
Nitrate (mg/L)	Feb 2023	10	0.010	0.006<MDL
	May 2023	10	0.008	0.006<MDL
	Aug 2023	10	0.006<MDL	0.006<MDL
	Nov 2023	10	0.009	0.006<MDL

*MDL- method detection limit

Mount Forest	Date	ODWQS MAC	Well #3	Well #4	Well #5	Well #6
Nitrite (mg/L)	Feb 2023	1	0.003<MDL	0.003<MDL	0.003<MDL	0.003<MDL
	May 2023	1	0.003<MDL	0.003<MDL	0.003<MDL	0.003<MDL
	Aug 2023	1	0.003<MDL	0.003<MDL	0.003<MDL	0.003<MDL
	Nov 2023	1	0.003<MDL	0.003<MDL	0.003<MDL	0.003<MDL
Nitrate (mg/L)	Feb 2023	10	0.072	0.006<MDL	2.14	0.006<MDL
	May 2023	10	0.107	0.006<MDL	2.16	0.006<MDL
	Aug 2023	10	0.111	0.006<MDL	2.61	0.006<MDL
	Nov 2023	10	0.080	0.006<MDL	2.3	0.006<MDL

*MDL- method detection limit

Treated Water Quality Statistics- O. Regulation 170/03 Schedule 23 Results Summary

If sampling for a particular schedule's parameters (e.g., Schedule 23 or 24) did not occur within the calendar year of the report, then the most recent values are required to be included in the report for reference.

Table 14: O. Regulation 170/03 Schedule 23 Results Arthur Well #7b

Parameter	Sample Date	Result Value	MAC	Unit of Measure	Exceedance
Antimony	Aug. 23/21	0.9<MDL	6	ug/L	No
Arsenic	Aug. 23/21	3	10	ug/L	No
Barium	Aug. 23/21	56.4	1000	ug/L	No
Boron	Aug. 23/21	84	5000	ug/L	No
Cadmium	Aug. 23/21	0.006	5	ug/L	No
Chromium	Aug. 23/21	0.18	50	ug/L	No
Mercury	Aug. 23/21	0.01<MDL	1	ug/L	No
Selenium	Aug. 23/21	0.04<MDL	50	ug/L	No
Uranium	Aug. 23/21	0.229	20	ug/L	No

Table 15: O. Regulation 170/03 Schedule 23 Results Arthur Well #8

Parameter	Sample Date	Result Value	MAC	Unit of Measure	Exceedance
Antimony	Aug. 23/21	0.9<MDL	6	ug/L	No
Arsenic	Aug. 23/21	0.2<MDL	10	ug/L	No
Barium	Aug. 23/21	59.2	1000	ug/L	No
Boron	Aug. 23/21	60	5000	ug/L	No
Cadmium	Aug. 23/21	0.004	5	ug/L	No
Chromium	Aug. 23/21	0.25	50	ug/L	No
Mercury	Aug. 23/21	0.01<MDL	1	ug/L	No
Selenium	Aug. 23/21	0.04<MDL	50	ug/L	No
Uranium	Aug. 23/21	0.43	20	ug/L	No

Table 16: O. Regulation 170/03 Schedule 23 Results Mount Forest Well #3

Parameter	Sample Date	Result Value	MAC	Unit of Measure	Exceedance
Antimony	Jan. 24/22	0.6<MDL	6	ug/L	No
Arsenic	Jan. 24/22	1.6	10	ug/L	No
Barium	Jan. 24/22	139	1000	ug/L	No
Boron	Jan. 24/22	41	5000	ug/L	No
Cadmium	Jan. 24/22	0.004	5	ug/L	No
Chromium	Jan. 24/22	0.18	50	ug/L	No
Mercury	Jan. 24/22	0.01<MDL	1	ug/L	No
Selenium	Jan. 24/22	0.05	50	ug/L	No
Uranium	Jan. 24/22	0.32	20	ug/L	No

Table 17: O. Regulation 170/03 Schedule 23 Results Mount Forest Well #4

Parameter	Sample Date	Result Value	MAC	Unit of Measure	Exceedance
Antimony	Jan. 24/22	0.6<MDL	6	ug/L	No
Arsenic	Jan. 24/22	1.0	10	ug/L	No
Barium	Jan. 24/22	221	1000	ug/L	No
Boron	Jan. 24/22	40	5000	ug/L	No
Cadmium	Jan. 24/22	0.009	5	ug/L	No
Chromium	Jan. 24/22	0.24	50	ug/L	No
Mercury	Jan. 24/22	0.01<MDL	1	ug/L	No
Selenium	Jan. 24/22	0.04<MDL	50	ug/L	No
Uranium	Jan. 24/22	0.166	20	ug/L	No

Table 18: O. Regulation 170/03 Schedule 23 Results Mount Forest Well #5

Parameter	Sample Date	Result Value	MAC	Unit of Measure	Exceedance
Antimony	Jan. 24/22	0.6<MDL	6	ug/L	No
Arsenic	Jan. 24/22	0.2 <MDL	10	ug/L	No
Barium	Jan. 24/22	169	1000	ug/L	No
Boron	Jan. 24/22	37	5000	ug/L	No
Cadmium	Jan. 24/22	0.1	5	ug/L	No
Chromium	Jan. 24/22	0.26	50	ug/L	No
Mercury	Jan. 24/22	0.01 <MDL	1	ug/L	No
Selenium	Jan. 24/22	0.61	50	ug/L	No
Uranium	Jan. 24/22	0.727	20	ug/L	No

Table 19: O. Regulation 170/03 Schedule 23 Results Mount Forest Well #6

Parameter	Sample Date	Result Value	MAC	Unit of Measure	Exceedance
Antimony	Jan. 24/22	0.6<MDL	6	ug/L	No
Arsenic	Jan. 24/22	1.6	10	ug/L	No
Barium	Jan. 24/22	174	1000	ug/L	No
Boron	Jan. 24/22	32	5000	ug/L	No
Cadmium	Jan. 24/22	0.003<MDL	5	ug/L	No
Chromium	Jan. 24/22	0.12	50	ug/L	No
Mercury	Jan. 24/22	0.01<MDL	1	ug/L	No
Selenium	Jan. 24/22	0.04<MDL	50	ug/L	No
Uranium	Jan. 24/22	0.226	20	ug/L	No

Treated Water Quality Statistics- O. Regulation 170/03 Schedule 24 Results Summary

If sampling for a particular schedule's parameters (e.g., Schedule 23 or 24) did not occur within the calendar year of the report, then the most recent values are required to be included in the report for reference.

Table 20: O. Regulation 170/03 Schedule 24 Results for Arthur Well #7b

Parameter	Sample Date	Result Value	MAC	Unit of Measure	Exceedance (Yes/No)
Alachlor	Aug 23/21	0.02<MDL	5	ug/L	No
Atrazine + N-dealkylated metabolites	Aug 23/21	0.01<MDL	5	ug/L	No
Azinphos-methyl	Aug 23/21	0.05<MDL	20	ug/L	No
Benzene	Aug 23/21	0.32<MDL	1	ug/L	No
Benzo(a)pyrene	Aug 23/21	0.004<MDL	0.01	ug/L	No
Bromoxynil	Aug 23/21	0.33<MDL	5	ug/L	No
Carbaryl	Aug 23/21	0.05<MDL	90	ug/L	No
Carbofuran	Aug 23/21	0.01<MDL	90	ug/L	No
Carbon Tetrachloride	Aug 23/21	0.17<MDL	2	ug/L	No
Chlorpyrifos	Aug 23/21	0.02<MDL	90	ug/L	No
Diazinon	Aug 23/21	0.02<MDL	20	ug/L	No
Dicamba	Aug 23/21	0.02<MDL	120	ug/L	No
1,2-Dichlorobenzene	Aug 23/21	0.41<MDL	200	ug/L	No
1,4-Dichlorobenzene	Aug 23/21	0.36<MDL	5	ug/L	No
1,2-Dichloroethane	Aug 23/21	0.35<MDL	5	ug/L	No
1,1-Dichloroethylene (vinylidene chloride)	Aug 23/21	0.33<MDL	14	ug/L	No
Dichloromethane	Aug 23/21	0.35<MDL	50	ug/L	No
2-4 Dichlorophenol	Aug 23/21	0.15<MDL	900	ug/L	No
2,4-Dichlorophenoxy acetic acid (2,4 -D)	Aug 23/21	0.19<MDL	100	ug/L	No
Diclofop-methyl	Aug 23/21	0.40<MDL	9	ug/L	No
Dimethoate	Aug 23/21	0.06<MDL	20	ug/L	No
Diquat	Aug 23/21	1.0<MDL	70	ug/L	No
Diuron	Aug 23/21	0.03<MDL	150	ug/L	No
Glyphosate	Aug 23/21	1.0<MDL	280	ug/L	No
Malathion	Aug 23/21	0.02<MDL	190	ug/L	No
MCPA	Aug 23/21	0.00012<MDL	0.1	mg/L	No
Metolachlor	Aug 23/21	0.01<MDL	50	ug/L	No
Metribuzin	Aug 23/21	0.02<MDL	80	ug/L	No
Monochlorobenzene	Aug 23/21	0.3<MDL	80	ug/L	No
Paraquat	Aug 23/21	1.0<MDL	10	ug/L	No
Pentachlorophenol	Aug 23/21	0.15<MDL	60	ug/L	No
Phorate	Aug 23/21	0.01<MDL	2	ug/L	No
Picloram	Aug 23/21	1.0<MDL	190	ug/L	No
Polychlorinated Biphenyls (PCB)	Aug 23/21	0.04<MDL	3	ug/L	No
Prometryne	Aug 23/21	0.03<MDL	1	ug/L	No
Simazine	Aug 23/21	0.01<MDL	10	ug/L	No

Parameter	Sample Date	Result Value	MAC	Unit of Measure	Exceedance (Yes/No)
Terbufos	Aug 23/21	0.01<MDL	1	ug/L	No
Tetrachloroethylene	Aug 23/21	0.35<MDL	10	ug/L	No
2,3,4,6-Tetrachlorophenol	Aug 23/21	0.20<MDL	100	ug/L	No
Triallate	Aug 23/21	0.01<MDL	230	ug/L	No
Trichloroethylene	Aug 23/21	0.44<MDL	5	ug/L	No
2,4,6 - Trichlorophenol	Aug 23/21	0.25<MDL	5	ug/L	No
Trifuralin	Aug 23/21	0.02<MDL	45	ug/L	No
Vinyl Chloride	Aug 23/21	0.17<MDL	1	ug/L	No

Table 21: O. Regulation 170/03 Schedule 24 Results for Arthur Well #8

Parameter	Sample Date	Result Value	MAC	Unit of Measure	Exceedance (Yes/No)
Alachlor	Aug 23/21	0.02<MDL	5	ug/L	No
Atrazine + N-dealkylated metabolites	Aug 23/21	0.01<MDL	5	ug/L	No
Azinphos-methyl	Aug 23/21	0.05<MDL	20	ug/L	No
Benzene	Aug 23/21	0.32<MDL	1	ug/L	No
Benzo(a)pyrene	Aug 23/21	0.004<MDL	0.01	ug/L	No
Bromoxynil	Aug 23/21	0.33<MDL	5	ug/L	No
Carbaryl	Aug 23/21	0.05<MDL	90	ug/L	No
Carbofuran	Aug 23/21	0.01<MDL	90	ug/L	No
Carbon Tetrachloride	Aug 23/21	0.17<MDL	2	ug/L	No
Chlorpyrifos	Aug 23/21	0.02<MDL	90	ug/L	No
Diazinon	Aug 23/21	0.02<MDL	20	ug/L	No
Dicamba	Aug 23/21	0.02<MDL	120	ug/L	No
1,2-Dichlorobenzene	Aug 23/21	0.41<MDL	200	ug/L	No
1,4-Dichlorobenzene	Aug 23/21	0.36<MDL	5	ug/L	No
1,2-Dichloroethane	Aug 23/21	0.35<MDL	5	ug/L	No
1,1-Dichloroethylene (vinylidene chloride)	Aug 23/21	0.33<MDL	14	ug/L	No
Dichloromethane	Aug 23/21	0.35<MDL	50	ug/L	No
2-4 Dichlorophenol	Aug 23/21	0.15<MDL	900	ug/L	No
2,4-Dichlorophenoxy acetic acid (2,4 -D)	Aug 23/21	0.19<MDL	100	ug/L	No
Diclofop-methyl	Aug 23/21	0.40<MDL	9	ug/L	No
Dimethoate	Aug 23/21	0.06<MDL	20	ug/L	No
Diquat	Aug 23/21	1.0<MDL	70	ug/L	No
Diuron	Aug 23/21	0.03<MDL	150	ug/L	No
Glyphosate	Aug 23/21	1.0<MDL	280	ug/L	No
Malathion	Aug 23/21	0.02<MDL	190	ug/L	No
MCPA	Aug 23/21	0.00012<MDL	0.1	mg/L	No
Metolachlor	Aug 23/21	0.01<MDL	50	ug/L	No
Metribuzin	Aug 23/21	0.02<MDL	80	ug/L	No
Monochlorobenzene	Aug 23/21	0.3<MDL	80	ug/L	No
Paraquat	Aug 23/21	1.0<MDL	10	ug/L	No

Parameter	Sample Date	Result Value	MAC	Unit of Measure	Exceedance (Yes/No)
Pentachlorophenol	Aug 23/21	0.15<MDL	60	ug/L	No
Phorate	Aug 23/21	0.01<MDL	2	ug/L	No
Picloram	Aug 23/21	1.0<MDL	190	ug/L	No
Polychlorinated Biphenyls (PCB)	Aug 23/21	0.04<MDL	3	ug/L	No
Prometryne	Aug 23/21	0.03<MDL	1	ug/L	No
Simazine	Aug 23/21	0.01<MDL	10	ug/L	No
Terbufos	Aug 23/21	0.01<MDL	1	ug/L	No
Tetrachloroethylene	Aug 23/21	0.35<MDL	10	ug/L	No
2,3,4,6-Tetrachlorophenol	Aug 23/21	0.20<MDL	100	ug/L	No
Triallate	Aug 23/21	0.01<MDL	230	ug/L	No
Trichloroethylene	Aug 23/21	0.44<MDL	5	ug/L	No
2,4,6 - Trichlorophenol	Aug 23/21	0.25<MDL	5	ug/L	No
Trifuralin	Aug 23/21	0.02<MDL	45	ug/L	No
Vinyl Chloride	Aug 23/21	0.17<MDL	1	ug/L	No

Table 22: O. Regulation 170/03 Schedule 24 Results for Mount Forest Well #3

Parameter	Sample Date	Result Value	MAC	Unit of Measure	Exceedance (Yes/No)
Alachlor	Jan 24/22	0.02<MDL	5	ug/L	No
Atrazine + N-dealkylated metabolites	Jan 24/22	0.01<MDL	5	ug/L	No
Azinphos-methyl	Jan 24/22	0.05<MDL	20	ug/L	No
Benzene	Jan 24/22	0.32<MDL	1	ug/L	No
Benzo(a)pyrene	Jan 24/22	0.004<MDL	0.01	ug/L	No
Bromoxynil	Jan 24/22	0.33<MDL	5	ug/L	No
Carbaryl	Jan 24/22	0.05<MDL	90	ug/L	No
Carbofuran	Jan 24/22	0.01<MDL	90	ug/L	No
Carbon Tetrachloride	Jan 24/22	0.17<MDL	2	ug/L	No
Chlorpyrifos	Jan 24/22	0.02<MDL	90	ug/L	No
Diazinon	Jan 24/22	0.02<MDL	20	ug/L	No
Dicamba	Jan 24/22	0.02<MDL	120	ug/L	No
1,2-Dichlorobenzene	Jan 24/22	0.41<MDL	200	ug/L	No
1,4-Dichlorobenzene	Jan 24/22	0.36<MDL	5	ug/L	No
1,2-Dichloroethane	Jan 24/22	0.35<MDL	5	ug/L	No
1,1-Dichloroethylene (vinylidene chloride)	Jan 24/22	0.33<MDL	14	ug/L	No
Dichloromethane	Jan 24/22	0.35<MDL	50	ug/L	No
2-4 Dichlorophenol	Jan 24/22	0.15<MDL	900	ug/L	No
2,4-Dichlorophenoxy acetic acid (2,4 -D)	Jan 24/22	0.19<MDL	100	ug/L	No
Diclofop-methyl	Jan 24/22	0.40<MDL	9	ug/L	No
Dimethoate	Jan 24/22	0.06<MDL	20	ug/L	No
Diquat	Jan 24/22	1.0<MDL	70	ug/L	No
Diuron	Jan 24/22	0.03<MDL	150	ug/L	No
Glyphosate	Jan 24/22	1.0<MDL	280	ug/L	No
Malathion	Jan 24/22	0.02<MDL	190	ug/L	No

Parameter	Sample Date	Result Value	MAC	Unit of Measure	Exceedance (Yes/No)
MCPA	Jan 24/22	0.00012<MDL	0.1	mg/L	No
Metolachlor	Jan 24/22	0.01<MDL	50	ug/L	No
Metribuzin	Jan 24/22	0.02<MDL	80	ug/L	No
Monochlorobenzene	Jan 24/22	0.3<MDL	80	ug/L	No
Paraquat	Jan 24/22	1.0<MDL	10	ug/L	No
Pentachlorophenol	Jan 24/22	0.15<MDL	60	ug/L	No
Phorate	Jan 24/22	0.01<MDL	2	ug/L	No
Picloram	Jan 24/22	1.0<MDL	190	ug/L	No
Polychlorinated Biphenyls (PCB)	Jan 24/22	0.04<MDL	3	ug/L	No
Prometryne	Jan 24/22	0.03<MDL	1	ug/L	No
Simazine	Jan 24/22	0.01<MDL	10	ug/L	No
Terbufos	Jan 24/22	0.01<MDL	1	ug/L	No
Tetrachloroethylene	Jan 24/22	0.35<MDL	10	ug/L	No
2,3,4,6-Tetrachlorophenol	Jan 24/22	0.20<MDL	100	ug/L	No
Triallate	Jan 24/22	0.01<MDL	230	ug/L	No
Trichloroethylene	Jan 24/22	0.44<MDL	5	ug/L	No
2,4,6 - Trichlorophenol	Jan 24/22	0.25<MDL	5	ug/L	No
Trifuralin	Jan 24/22	0.02<MDL	45	ug/L	No
Vinyl Chloride	Jan 24/22	0.17<MDL	1	ug/L	No

Table 23: O. Regulation 170/03 Schedule 24 Results for Mount Forest Well #4

Parameter	Sample Date	Result Value	MAC	Unit of Measure	Exceedance (Yes/No)
Alachlor	Jan 24/22	0.02<MDL	5	ug/L	No
Atrazine + N-dealkylated metabolites	Jan 24/22	0.01<MDL	5	ug/L	No
Azinphos-methyl	Jan 24/22	0.05<MDL	20	ug/L	No
Benzene	Jan 24/22	0.32<MDL	1	ug/L	No
Benzo(a)pyrene	Jan 24/22	0.004<MDL	0.01	ug/L	No
Bromoxynil	Jan 24/22	0.33<MDL	5	ug/L	No
Carbaryl	Jan 24/22	0.05<MDL	90	ug/L	No
Carbofuran	Jan 24/22	0.01<MDL	90	ug/L	No
Carbon Tetrachloride	Jan 24/22	0.17<MDL	2	ug/L	No
Chlorpyrifos	Jan 24/22	0.02<MDL	90	ug/L	No
Diazinon	Jan 24/22	0.02<MDL	20	ug/L	No
Dicamba	Jan 24/22	0.02<MDL	120	ug/L	No
1,2-Dichlorobenzene	Jan 24/22	0.41<MDL	200	ug/L	No
1,4-Dichlorobenzene	Jan 24/22	0.36<MDL	5	ug/L	No
1,2-Dichloroethane	Jan 24/22	0.35<MDL	5	ug/L	No
1,1-Dichloroethylene (vinylidene chloride)	Jan 24/22	0.33<MDL	14	ug/L	No
Dichloromethane	Jan 24/22	0.35<MDL	50	ug/L	No
2-4 Dichlorophenol	Jan 24/22	0.15<MDL	900	ug/L	No
2,4-Dichlorophenoxy acetic acid (2,4 -D)	Jan 24/22	0.19<MDL	100	ug/L	No

Parameter	Sample Date	Result Value	MAC	Unit of Measure	Exceedance (Yes/No)
Diclofop-methyl	Jan 24/22	0.40<MDL	9	ug/L	No
Dimethoate	Jan 24/22	0.06<MDL	20	ug/L	No
Diquat	Jan 24/22	1.0<MDL	70	ug/L	No
Diuron	Jan 24/22	0.03<MDL	150	ug/L	No
Glyphosate	Jan 24/22	1.0<MDL	280	ug/L	No
Malathion	Jan 24/22	0.02<MDL	190	ug/L	No
MCPA	Jan 24/22	0.00012<MDL	0.1	mg/L	No
Metolachlor	Jan 24/22	0.01<MDL	50	ug/L	No
Metribuzin	Jan 24/22	0.02<MDL	80	ug/L	No
Monochlorobenzene	Jan 24/22	0.3<MDL	80	ug/L	No
Paraquat	Jan 24/22	1.0<MDL	10	ug/L	No
Pentachlorophenol	Jan 24/22	0.15<MDL	60	ug/L	No
Phorate	Jan 24/22	0.01<MDL	2	ug/L	No
Picloram	Jan 24/22	1.0<MDL	190	ug/L	No
Polychlorinated Biphenyls (PCB)	Jan 24/22	0.04<MDL	3	ug/L	No
Prometryne	Jan 24/22	0.03<MDL	1	ug/L	No
Simazine	Jan 24/22	0.01<MDL	10	ug/L	No
Terbufos	Jan 24/22	0.01<MDL	1	ug/L	No
Tetrachloroethylene	Jan 24/22	0.35<MDL	10	ug/L	No
2,3,4,6-Tetrachlorophenol	Jan 24/22	0.20<MDL	100	ug/L	No
Triallate	Jan 24/22	0.01<MDL	230	ug/L	No
Trichloroethylene	Jan 24/22	0.44<MDL	5	ug/L	No
2,4,6 - Trichlorophenol	Jan 24/22	0.25<MDL	5	ug/L	No
Trifuralin	Jan 24/22	0.02<MDL	45	ug/L	No
Vinyl Chloride	Jan 24/22	0.17<MDL	1	ug/L	No

Table 24: O. Regulation 170/03 Schedule 24 Results for Mount Forest Well #5

Parameter	Sample Date	Result Value	MAC	Unit of Measure	Exceedance (Yes/No)
Alachlor	Jan 24/22	0.02<MDL	5	ug/L	No
Atrazine + N-dealkylated metabolites	Jan 24/22	0.01<MDL	5	ug/L	No
Azinphos-methyl	Jan 24/22	0.05<MDL	20	ug/L	No
Benzene	Jan 24/22	0.32<MDL	1	ug/L	No
Benzo(a)pyrene	Jan 24/22	0.004<MDL	0.01	ug/L	No
Bromoxynil	Jan 24/22	0.33<MDL	5	ug/L	No
Carbaryl	Jan 24/22	0.05<MDL	90	ug/L	No
Carbofuran	Jan 24/22	0.01<MDL	90	ug/L	No
Carbon Tetrachloride	Jan 24/22	0.17<MDL	2	ug/L	No
Chlorpyrifos	Jan 24/22	0.02<MDL	90	ug/L	No
Diazinon	Jan 24/22	0.02<MDL	20	ug/L	No
Dicamba	Jan 24/22	0.02<MDL	120	ug/L	No
1,2-Dichlorobenzene	Jan 24/22	0.41<MDL	200	ug/L	No
1,4-Dichlorobenzene	Jan 24/22	0.36<MDL	5	ug/L	No

Parameter	Sample Date	Result Value	MAC	Unit of Measure	Exceedance (Yes/No)
1,2-Dichloroethane	Jan 24/22	0.35<MDL	5	ug/L	No
1,1-Dichloroethylene (vinylidene chloride)	Jan 24/22	0.33<MDL	14	ug/L	No
Dichloromethane	Jan 24/22	0.35<MDL	50	ug/L	No
2-4 Dichlorophenol	Jan 24/22	0.15<MDL	900	ug/L	No
2,4-Dichlorophenoxy acetic acid (2,4 -D)	Jan 24/22	0.19<MDL	100	ug/L	No
Diclofop-methyl	Jan 24/22	0.40<MDL	9	ug/L	No
Dimethoate	Jan 24/22	0.06<MDL	20	ug/L	No
Diquat	Jan 24/22	1.0<MDL	70	ug/L	No
Diuron	Jan 24/22	0.03<MDL	150	ug/L	No
Glyphosate	Jan 24/22	1.0<MDL	280	ug/L	No
Malathion	Jan 24/22	0.02<MDL	190	ug/L	No
MCPA	Jan 24/22	0.00012<MDL	0.1	mg/L	No
Metolachlor	Jan 24/22	0.01<MDL	50	ug/L	No
Metribuzin	Jan 24/22	0.02<MDL	80	ug/L	No
Monochlorobenzene	Jan 24/22	0.3<MDL	80	ug/L	No
Paraquat	Jan 24/22	1.0<MDL	10	ug/L	No
Pentachlorophenol	Jan 24/22	0.15<MDL	60	ug/L	No
Phorate	Jan 24/22	0.01<MDL	2	ug/L	No
Picloram	Jan 24/22	1.0<MDL	190	ug/L	No
Polychlorinated Biphenyls (PCB)	Jan 24/22	0.04<MDL	3	ug/L	No
Prometryne	Jan 24/22	0.03<MDL	1	ug/L	No
Simazine	Jan 24/22	0.01<MDL	10	ug/L	No
Terbufos	Jan 24/22	0.01<MDL	1	ug/L	No
Tetrachloroethylene	Jan 24/22	0.63	10	ug/L	No
2,3,4,6-Tetrachlorophenol	Jan 24/22	0.20<MDL	100	ug/L	No
Triallate	Jan 24/22	0.01<MDL	230	ug/L	No
Trichloroethylene	Jan 24/22	0.44<MDL	5	ug/L	No
2,4,6 - Trichlorophenol	Jan 24/22	0.25<MDL	5	ug/L	No
Trifuralin	Jan 24/22	0.02<MDL	45	ug/L	No
Vinyl Chloride	Jan 24/22	0.17<MDL	1	ug/L	No

Table 25: O. Regulation 170/03 Schedule 24 Results for Mount Forest Well #6

Parameter	Sample Date	Result Value	MAC	Unit of Measure	Exceedance (Yes/No)
Alachlor	Jan 24/22	0.02<MDL	5	ug/L	No
Atrazine + N-dealkylated metabolites	Jan 24/22	0.01<MDL	5	ug/L	No
Azinphos-methyl	Jan 24/22	0.05<MDL	20	ug/L	No
Benzene	Jan 24/22	0.32<MDL	1	ug/L	No
Benzo(a)pyrene	Jan 24/22	0.004<MDL	0.01	ug/L	No
Bromoxynil	Jan 24/22	0.33<MDL	5	ug/L	No
Carbaryl	Jan 24/22	0.05<MDL	90	ug/L	No
Carbofuran	Jan 24/22	0.01<MDL	90	ug/L	No
Carbon Tetrachloride	Jan 24/22	0.17<MDL	2	ug/L	No

Parameter	Sample Date	Result Value	MAC	Unit of Measure	Exceedance (Yes/No)
Chlorpyrifos	Jan 24/22	0.02<MDL	90	ug/L	No
Diazinon	Jan 24/22	0.02<MDL	20	ug/L	No
Dicamba	Jan 24/22	0.02<MDL	120	ug/L	No
1,2-Dichlorobenzene	Jan 24/22	0.41<MDL	200	ug/L	No
1,4-Dichlorobenzene	Jan 24/22	0.36<MDL	5	ug/L	No
1,2-Dichloroethane	Jan 24/22	0.35<MDL	5	ug/L	No
1,1-Dichloroethylene (vinylidene chloride)	Jan 24/22	0.33<MDL	14	ug/L	No
Dichloromethane	Jan 24/22	0.35<MDL	50	ug/L	No
2,4 Dichlorophenol	Jan 24/22	0.15<MDL	900	ug/L	No
2,4-Dichlorophenoxy acetic acid (2,4 -D)	Jan 24/22	0.19<MDL	100	ug/L	No
Diclofop-methyl	Jan 24/22	0.40<MDL	9	ug/L	No
Dimethoate	Jan 24/22	0.06<MDL	20	ug/L	No
Diquat	Jan 24/22	1.0<MDL	70	ug/L	No
Diuron	Jan 24/22	0.03<MDL	150	ug/L	No
Glyphosate	Jan 24/22	1.0<MDL	280	ug/L	No
Malathion	Jan 24/22	0.02<MDL	190	ug/L	No
MCPA	Jan 24/22	0.00012<MDL	0.1	mg/L	No
Metolachlor	Jan 24/22	0.01<MDL	50	ug/L	No
Metribuzin	Jan 24/22	0.02<MDL	80	ug/L	No
Monochlorobenzene	Jan 24/22	0.3<MDL	80	ug/L	No
Paraquat	Jan 24/22	1.0<MDL	10	ug/L	No
Pentachlorophenol	Jan 24/22	0.15<MDL	60	ug/L	No
Phorate	Jan 24/22	0.01<MDL	2	ug/L	No
Picloram	Jan 24/22	1.0<MDL	190	ug/L	No
Polychlorinated Biphenyls (PCB)	Jan 24/22	0.04<MDL	3	ug/L	No
Prometryne	Jan 24/22	0.03<MDL	1	ug/L	No
Simazine	Jan 24/22	0.01<MDL	10	ug/L	No
Terbufos	Jan 24/22	0.01<MDL	1	ug/L	No
Tetrachloroethylene	Jan 24/22	0.63	10	ug/L	No
2,3,4,6-Tetrachlorophenol	Jan 24/22	0.20<MDL	100	ug/L	No
Triallate	Jan 24/22	0.01<MDL	230	ug/L	No
Trichloroethylene	Jan 24/22	0.44<MDL	5	ug/L	No
2,4,6 - Trichlorophenol	Jan 24/22	0.25<MDL	5	ug/L	No
Trifuralin	Jan 24/22	0.02<MDL	45	ug/L	No
Vinyl Chloride	Jan 24/22	0.17<MDL	1	ug/L	No

Treated Water Quality Statistics- O. Regulations 170/03 Schedule 13-8 and 13-9, “60 Months” Sampling Results Summary

If sampling for a particular schedule’s parameters (e.g., Schedule 23 or 24) did not occur within the calendar year of the report, then the most recent values are required to be included in the report for reference.

Fluoride and Sodium are sampled on the “60 Months” sampling schedule. Results for most recent tests can be found in Table 25.

Table 26: O. Regulation 170/03 Schedule 13-8 and 13-9, Fluoride and Sodium Results

Parameter/Location	Sample Date	Result Value	Unit of Measure	Exceedance
Sodium- Arthur Well #7b	Sep. 11/23	36.6	mg/L	Yes ¹
Sodium- Arthur Well #8	Sep. 11/23	21.5	mg/L	Yes ¹
Sodium- Mount Forest Well #3	Sep. 11/23	21.9	mg/L	Yes ¹
Sodium- Mount Forest Well #4	Sep. 11/23	12.3	mg/L	No
Sodium- Mount Forest Well #5	Sep. 11/23	68.8	mg/L	Yes ¹
Sodium- Mount Forest Well #6	Sep. 11/23	10.4	mg/L	No
Fluoride- Arthur Well #7b	Sep. 11/23	1.32	mg/L	No
Fluoride-Arthur Well #8	Sep. 11/23	0.35	mg/L	No
Fluoride-Mount Forest Well #3	Sep. 11/23	0.98	mg/L	No
Fluoride-Mount Forest Well #4	Sep. 11/23	0.59	mg/L	No
Fluoride-Mount Forest Well #5	Sep. 11/23	0.17	mg/L	No
Fluoride-Mount Forest Well #6	Sep. 11/23	0.78	mg/L	No

¹ The aesthetic objective for sodium in drinking water is 200 mg/L. The local Medical Officer of Health should be notified when the sodium concentration exceeds 20 mg/L so that this information may be communicated to local physicians for their use with patients on sodium restricted diets.

Treated Water Quality Statistics- O. Regulations 170/03 Schedule 15.1 Sampling Results Summary

If sampling for a particular schedule’s parameters (e.g., Schedule 23 or 24) did not occur within the calendar year of the report, then the most recent values are required to be included in the report for reference.

The Mount Forest and Arthur Drinking Water Systems are under reduced sampling under Schedule 15.1 which means we are not required to sample plumbing but are still required to sample in the distribution system. Results for most recent tests can be found in Table 26.

Table 27: O. Regulation 170/03 Schedule 15.1, Lead, Alkalinity and pH Results

Parameter/Location	Sample Date	Result Value	MAC	Unit of Measure	Exceedance
Lead – Hydrant # 125 James St.	Jan 11/21	0.04	10	ug/L	No
Lead – Hydrant # 32 Queen St. West	Jan 11/21	0.01<MDL	10	ug/L	No
Lead – Hydrant # 24 Elgin St. South	Jan 11/21	0.05	10	ug/L	No
Lead – Hydrant # 95 Francis St.	Jan 11/21	0.02	10	ug/L	No
Lead – Tucker/Eliza St. Blow Off	Jan 11/21	0.1	10	ug/L	No
Alkalinity – Hydrant # 125 James St.	Jan 16/23	261	30-500	mg/L	No
Alkalinity – Hydrant # 32 Queen St. West	Jan 16/23	234	30-500	mg/L	No
Alkalinity – Hydrant # 24 Elgin St. South	Jan 16/23	245	30-500	mg/L	No
Alkalinity – Hydrant # 95 Francis St.	Jan 16/23	207	30-500	mg/L	No
Alkalinity – Tucker/Eliza St. Blow Off	Jan 16/23	207	30-500	mg/L	No
Field pH – Hydrant # 125 James St.	Jan 16/23	7.5	-	-	No
Field pH – Hydrant # 32 Queen St West	Jan 16/23	7.5	-	-	No
Field pH – Hydrant # 24 Elgin St. South	Jan 16/23	7.42	-	-	No
Field pH – Hydrant # 95 Francis St.	Jan 16/23	7.8	-	-	No
Field pH – Tucker/Eliza St. Blow Off	Jan 16/23	7.9	-	-	No
Lead – Hydrant # 125 James St.	Jul 12/21	0.10	10	ug/L	No
Lead – Hydrant # 32 Queen St. West	Jul 12/21	5.13	10	ug/L	No
Lead – Hydrant # 24 Elgin St. South	Jul 12/21	0.16	10	ug/L	No
Lead – Hydrant # 95 Francis St	Jul 12/21	0.13	10	ug/L	No
Lead – Tucker/Eliza St. Blow Off	Jul 12/21	0.1	10	ug/L	No
Alkalinity – Hydrant # 125 James St.	Aug 21/23	250	30-500	mg/L	No
Alkalinity – Hydrant # 32 Queen St. West	Aug 21/23	235	30-500	mg/L	No
Alkalinity – Hydrant # 24 Elgin St. South	Aug 21/23	246	30-500	mg/L	No
Alkalinity – Hydrant # 95 Francis St.	Aug 21/23	206	30-500	mg/L	No
Alkalinity – Tucker/Eliza St. Blow Off	Aug 21/23	206	30-500	mg/L	No
Field pH – Hydrant # 125 James St.	Aug 21/23	6.7	-	-	No
Field pH – Hydrant # 32 Queen St. West	Aug 21/23	6.23	-	-	No
Field pH – Hydrant # 32 24 Elgin St. South	Aug 21/23	6.22	-	-	No
Field pH – Hydrant # 95 Francis St.	Aug 21/23	7.01	-	-	No
Field pH – Tucker/Eliza St. Blow Off	Aug 21/23	6.53	-	-	No

e) Significant Expenses Incurred

The table below outlines a brief description and breakdown for significant monetary expenses occurred in 2023.

Location	Maintenance Item	Cost
Mount Forest	Mount Forest Standpipe Rehabilitation	\$1,512,719.58
Mount Forest	Well 6 Maintenance/Inspection	\$43,147.58
Mount Forest	Cork Street, Waterloo to Princess Reconstruction (Water Portion)	\$177,219.70
Arthur	Domville Street Reconstruction, Andrew to Conestoga (Water Portion)	\$143,235.50
Arthur	Leak Detection	\$3,663.36
Arthur/Mount Forest	Wellhouse Security Upgrades	\$41,416.65
Arthur	Arthur Water Supply/Storage EA (ongoing)	\$13,098.82
Arthur	Spheroid Water Tower Exterior Cleaning	\$15,132.73
Arthur/Mount Forest	Valve Repair Tool	\$14,012.35

f) Source Water Protection

For reporting purposes, the Township of Wellington North is subject to two Source Protection Plans (based on watershed or Conservation Authority boundaries): Grand River Plan and the Saugeen Valley, Grey Sauble, Northern Bruce Peninsula Plan (Saugeen Valley). Although the Ausable Bayfield Maitland Valley (ABMV – Maitland Valley) Plan also encompasses part of the municipality, there are no reporting requirements associated with that Plan for the Township. In 2023, 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 Township of Wellington North Risk Management Official and Municipal Annual Reports were prepared and submitted to the appropriate authorities by February 1, 2024.

Summary of Key Aspects

The Wellington County municipalities continue to implement source protection under the Wellington Source Water Protection partnership, www.wellingtonwater.ca In 2023, 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 2023, there were 6 development review notices issued per Section 59 of the Clean Water Act within the municipality. Additionally, Source Protection staff comments were provided on an additional 36 applications that did not require development review notices, for a total of 42 development applications (notices and comments) reviewed in the municipality. There were 93 Section 59 notices issued County wide and Source Protection staff comments on 390 additional development applications, County wide, for a total of 483 development applications (notices and comments) reviewed County wide in 2023. This represents an increase in the total number of development applications (notices and comments) reviewed County wide from 2022 (425) and an increase compared to the five year average of 366 development applications (notices and comments).

For the municipality, 2023 also represents an increase in the number of development notices issued and in comments from the previous five year average of 32 development applications (notices and comments), however, the total number in 2023 (42) is similar as the past two years. 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.

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 18% of threat activities in the municipality still require action to either remove or confirm / mitigate the threat activities while 82% have been either removed or confirmed and mitigated. Note that the percentages are weighted equally between Source Protection Authorities to provide an overall municipal percentage. The majority of the remaining threat activities are winter maintenance or fuel handling / storage activities.

To support this threats analysis and to determine compliance, 95 inspections were conducted in the Township in 2023 with 44 for compliance purposes (prohibition) with no contraventions found and 51 for threat verification or risk management plan negotiation purposes. County wide, 953 inspections were conducted in the reporting year with 19% of inspections (182) being prohibition compliance inspections, 1% (9) being RMP compliance inspections and 80% (762) of inspections conducted for threat activity verification or risk management plan negotiation purposes. Overall, the inspections were generally related to manure application and storage prohibitions, to verify farming or winter maintenance activities or related to chemical / fuel handling and storage. Inspections were higher this year related to the need for confirmation of existing activities related to recent Assessment Report updates.

Four Risk Management Plans were agreed to in 2023 with 17 Risk Management Plans agreed to cumulatively within the Township. There are 81 Risk Management Plans in place County wide. This leaves 1 Risk Management Plan still to be signed in the Township for fuel handling / storage and it is under negotiation with the corporate office of the petroleum company. There was a Source Protection Plan deadline to have this plan in place by December 31, 2022 and this has not occurred due to the complexities of negotiating with the corporate office and delays related to the pandemic. This information will be presented to the Source Protection Committee and the Province over the next few months and if concerns are raised by either of these bodies then staff will inform Council. Staff also can impose the Risk Management Plans via an order, however, to date, staff have not chosen this route so not to disrupt the negotiations. It is staff's intention to negotiate a mutually agreed to Risk Management Plan and only utilize the order powers if negotiations fail. If an order is deemed necessary, staff are required to provide 120 days notice to the ordered parties prior to issuance of the order and the order is appealable. The remaining 19 winter maintenance properties requiring Risk Management Plans have a deadline of 2027 and staff are in progress of beginning negotiations for these properties. One winter maintenance Risk Management Plan was agreed to in 2023.

The following is a summary of the Education and Outreach results, County wide, for 2023.

In total, 40 education and outreach daily events were completed this reporting year. Fourteen of the events were training sessions for municipal staff on general source protection topics and more detailed training on how it relates to municipal planning, building, sewage, roads and risk management operations. There were over 100 attendees cumulatively at the training. Fifteen events supported a variety of municipal and public events including Fall Fairs, Home Show, winter maintenance contractor outreach (in collaboration with the City of Guelph) and other community and school events. In support of the mandatory septic inspection program, staff managed and assisted in the delivery of six Septic Social Events to educate and answer questions from residents about the program.

The remaining five days of events was for the Waterloo-Wellington Children's Groundwater Festival. Staff participates and Wellington Source Water Protection / County of Wellington is a sponsor for the Waterloo-Wellington Children's Groundwater Festival. For 2023, the Festival offered a virtual Festival but was also back in-person for four days at the Guelph Lake Conservation Area for the first time since 2019. Links to the virtual Festival content are available here <https://www.youtube.com/@watereducation4640>. 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. Registration for the 2023 both virtual and in-person Festival was 6,489 students and teachers with views of the videos continuing after the Festival. Registrations from Wellington County was up to 23% from 11% in 2022, likely due to the Festival location being within the County. Staff continue to participate on the organizing committee and various sub-committees including serving as co-chairs.

In addition to events, development reviews and inspections continued and included educational material being provided directly to the proponents generally regarding the threats present, the process (development review, RMP negotiations, prohibition etc.), property specific mapping, and general Source Water information. Where necessary, stickers and metal tags were provided to proponents listing the Spills Action Centre number and that their location is located within a vulnerable area for municipal wells. Updates were made to the Wellington Source Water Protection website www.wellingtonwater.ca, and staff continue to update and maintain ten fact sheets on specific topics and other print media (i.e. post cards to direct applicants to mapping). Throughout the year, social media posts on a variety of topics were either posted or re-shared by our municipalities' corporate channels. Often the content of these posts was from the Conservation Ontario social media calendar or in partnership with the local Conservation Authorities. Four newspaper ads were also run during the year on topics related to water conservation, salt and fertilizer use.

In 2023, all four Source Protection Plans within the County were at different stages of amendments. Staff reviewed, provided comments and in some cases assisted Conservation Authority staff in authoring portions of the various amendments. Staff also provided support to the County's Official Plan Municipal Comprehensive Review, provided support to a number of water supply and / or water supply master plan projects related to water systems within or adjacent to the County, were involved in technical studies related to wellhead protection area updates and location of new municipal wells and participated in a provincial working group on annual reporting metrics. This includes support to the Township hydrogeologist for the new well location in Arthur.

The septic inspection program occurs on a five year cycle. The second round of inspections was scheduled to start in 2020, however, was postponed due to the COVID pandemic. It was completed within the Township in 2023. There are eight properties requiring septic inspections in the program, 7 were completed and one was exempt in 2023. Of the 7 properties inspected, 1 property had a major remedial action while 3 had minor remedial actions. Major remedial actions include tank integrity issues and leaching bed concerns while minor remedial actions include tank pump outs, lids etc. 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 further information, please contact Kyle Davis, Risk Management Official, 519-846-9691 ext 362 or kdavis@centrewellington.ca

Note: The Source Water Protection information in this report was provided by Kyle Davis, Risk Management Official.