THE CORPORATION OF THE TOWNSHIP OF WELLINGTON NORTH
SUPPLEMENTARY MEETING AGENDA OF COUNCIL;
PUBLIC MEETING; COMMITTEE OF ADJUSTMENT
FEBRUARY 12, 2018 @ 2:00 P.M.
MUNICIPAL OFFICE COUNCIL CHAMBERS, KENILWORTH

PAGE NUMBER

ITEMS FOR CONSIDERATION

6. PUBLIC WORKS

   a. Report PW 2018-005 being a report on the Township's 2017 Drinking Water Systems Annual and Summary Report

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TO:	**MAYOR AND MEMBERS OF COUNCIL** **MEETING OF FEBRUARY 12, 2018**

FROM:	**SARA MCDOUGALL, PROCESS COMPLIANCE ANALYST**

SUBJECT:	**REPORT PW 2018-005- BEING A REPORT ON THE TOWNSHIP'S 2017 DRINKING WATER SYSTEMS ANNUAL AND SUMMARY REPORT**

RECOMMENDATION

THAT Report PW 2018-005 being a consolidated report on the Township's 2017 drinking water annual and summary report be received, accepted and approved;

AND FURTHER THAT the Council directs staff to submit the approved report to the applicable agencies and make the report available to the public.

PREVIOUS REPORTS PERTINENT TO THIS MATTER

N/A

BACKGROUND

The Township of Wellington North has a requirement under Ontario Regulation 170/03, a regulation made under the Safe Drinking Water Act, 2002, to complete an annual report (Section 11) and a summary report (Schedule 22) on the municipal drinking water system it operates. Both reports must be available to the public and the summary report must be submitted to the drinking water system owner.

For 2017, the water and sewer department has consolidated these report requirements into one comprehensive report that covers the requirements of Section 11 and Schedule 22 for both municipal water systems. Section 11 is to be made available to the public by

February 28th and Schedule 22 is to be approved by Council and made available to the public upon approval and no later than March 31st.

A copy of the consolidated report is attached as schedule A.

FINANCIAL CONSIDERATIONS

N/A

STRATEGIC PLAN

Do the report's recommendations advance the Strategy's implementation?

X Yes ☐ No ☐ N/A

Which pillars does this report support?

☐ Community Growth Plan
☐ Human Resource Plan
☐ Brand and Identity
☐ Strategic Partnerships
X Community Service Review
☐ Corporate Communication Plan
☐ Positive Healthy Work Environment

A safe and reliable drinking water system is a prerequisite to community growth and an important service Township staff deliver.

PREPARED BY:	RECOMMENDED BY:
Sara McDougall	*Michael Givens, CAO*
SARA MCDOUGALL **PROCESS COMPLIANCE ANALYST**	**MICHAEL GIVENS** **CHIEF ADMINISTRATIVE OFFICER**

Attachments (1)

SCHEDULE "A"

Annual and Summary Report

For the Period of: Jan. 1, 2017 to Dec. 31, 2017

For Arthur and Mount Forest Drinking Water Systems

Prepared By:
Sara McDougall, Process and Compliance Analyst
Water and Sewer Department

Revision Date: February 1, 2018

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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, 2017 (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 and Chief Administrative Officer (CAO);
-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 at:

-Township of Wellington North Municipal Office, 7490 Sideroad 7W, Kenilworth;

-Township of Wellington North Water Department Office, 160 Preston St, Arthur;

- Online at www.wellington-north.com

Any inquiries can be made by e-mailing smcdougall@wellington-north.com or by calling 519.848.5327.

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 events 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 and Distribution Supply Subsystems, composed of groundwater wells and water distribution system. From January 1st to December 31st, 2017, certified staff of two operators, one foreman, one superintendent 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 on-site audit on October 2nd and 3rd, 2017 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 2,333, comprised of approximately 939 residential premises and 108 Industrial/Commercial/Institutional (ICI). ICI customers are fully metered and residential units are on a flat rate system. Arthur has approximately 19.1 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. Well # 8 is equipped with a back-up diesel generator. 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 in the tank has been reached the well pumps are called upon to supply the distribution system with the excess filling the tank to the normal tank level. This is a demand/storage system. All pumps stop at the normal top water level until the water level drops in the tank and pumps are required again.

From January 1st to December 31st, 2017, a total of 360,402.08 cubic meters of water was treated and pumped to the system. The average daily water demand was 987.03 cubic meters. The highest daily use of water occurred on September 26, 2017 when 1,723.54 cubic meters of water was pumped. This was due to re-filling elevated tank number one after cleaning and inspection.

Mount Forest Drinking Water System

Mount Forest's municipal drinking water system provides water for a permanent population of approximately 4,643, comprised of approximately 2,155 residential premises and 215 ICI premises. ICI customers are fully metered and residential units are on a flat rate system. Mount Forest distribution system is approximately 36.2 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 m^3 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 levels 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, 2017, a total of 482,411.00 cubic meters of water was treated and pumped to the system. The average daily water demand was 1321.23 cubic meters. The highest daily use of water occurred on June 8, 2017 when 1797.22 cubic meters of water was pumped. This was due to hydrant flushing and filling of the Mount Forest Pool.

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, 2017, 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 most of 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 and Climate Change (MOECC) with respect to the following Acts and related regulations: Ontario Water Resources Act (OWRA), Safe Drinking Water Act (SDWA), the Environmental Protection Act (EPA), and 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 MOECC during the 2016-2017 Annual Inspections resulted in a final inspection rating of 100% for each facility.

There was one non-compliance noted during both inspections concerning the repackaging of the sodium hypochlorite and the NSF certification. The Township now purchases the sodium hypochlorite in smaller sealed containers, instead of a bulk shipment that was repackaged into smaller containers which satisfies the NSF packaging certification and the MOECC.

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.

There was one AWQI in Mount Forest and one AWQI in Arthur in 2017.

On September 18, 2017 a treated drinking water sample collected at Mount Forest well #5 had a result of 3 Total Coliforms (greater than the Maximum Acceptable Concentration of 0). This adverse was resampled as per regulations, the resample results were received on September 25th, 2017 and there was zero Total Coliform present. This issue was resolved on Sept. 25, 2017.

On September 18, 2017 a distribution drinking water sample collected at 488 Eliza Street, Arthur had a result of 2 Total Coliforms (greater than the Maximum Acceptable Concentration of 0). This adverse was resampled as per regulations, the resample results were received on September 25th, 2017 and there was zero Total Coliform present. This issue was resolved on Sept. 25, 2017.

Table 1: Summary of Adverse Drinking Water Quality Incidents

#	Date	AWQI	Location	Description	Corrective Action	Re-Sample Results Good
1	Sept. 18	136776	Mount Forest Well #5 (Sligo Rd.) Treated Water	Total Coliform 3cfu/100mL	Wellington-Dufferin-Guelph Public Health, MOECC (SAC) notified and resampled as per regulations.	Yes.
2	Sept. 18	136774	Arthur Distribution Sample 488 Eliza Street	Total Coliform 2cfu/100mL	Wellington-Dufferin-Guelph Public Health, MOECC (SAC) notified and resampled as per regulations.	Yes.

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 2: 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	304.12	15.5	836.01	42.6	21.40	94.3
February	349.13	17.8	912.13	46.5	20.91	92.1
March	330.86	16.9	647.43	33.0	21.02	92.6
April	278.75	14.2	523.12	26.7	21.38	94.2
May	280.55	14.3	862.74	44.0	21.18	93.3
June	388.96	19.8	979.29	49.9	20.73	91.3
July	394.84	20.1	980.24	50.0	20.93	92.2
August	408.46	20.8	821.66	41.9	21.49	94.7
September	479.16	24.4	1131.69	57.7	22.61	99.6
October	431.73	22.0	917.76	46.8	21.43	94.4
November	360.00	18.4	849.16	43.3	21.56	95.0
December	403.36	20.6	880.36	44.9	21.14	93.1

Table 3: 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	311.29	13.8	501.35	22.2	22.10	84.7
February	249.25	11.1	584.53	25.9	22.15	84.9
March	273.12	12.1	554.78	24.6	22.59	86.6
April	300.86	13.3	520.86	23.1	22.55	86.4
May	327.28	14.5	616.32	27.3	22.62	86.7
June	346.82	15.4	563.14	25.0	22.69	86.9
July	323.50	14.3	559.41	24.8	23.04	88.3
August	337.03	14.9	592.16	26.3	22.73	87.1
September	268.38	11.9	524.78	23.3	22.65	86.8
October	310.40	13.8	510.52	22.6	22.79	87.3
November	329.60	14.6	624.93	27.7	22.61	86.6
December	293.57	13.0	519.95	23.1	22.61	86.6

Table 4: 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	306.28	13.6	526.41	23.3	22.04	84.4
February	321.88	14.3	609.13	27.0	23.22	89.0
March	306.27	13.6	624.71	27.7	22.33	85.6
April	299.33	13.3	478.48	21.2	22.55	86.4
May	315.39	14.0	593.01	26.3	22.75	87.2
June	320.65	14.2	612.68	27.2	22.97	88.0
July	327.15	14.5	608.05	27.0	22.93	87.8
August	322.62	14.3	563.18	25.0	22.56	86.4
September	323.70	14.4	608.34	27.0	22.73	87.1
October	312.39	13.9	626.96	27.8	22.91	87.8
November	315.85	14.0	665.14	29.5	22.69	86.9
December	291.81	12.9	514.43	22.8	22.69	86.9

There was 360,402.08 m^3 of water processed in Arthur for 2017 (Jan. 01 to Dec. 31). This represents 2.08 % increase compared to the same time period in 2016 and 1.26 % increase from 2015.

Table 5: 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	324.49	19.8	524.90	32.1	19.75	87.0
February	334.71	20.4	538.65	32.9	19.40	85.5
March	298.99	18.3	518.22	31.7	19.50	85.9
April	290.21	17.7	742.63	45.4	19.33	85.2
May	309.35	18.9	522.22	31.9	19.24	84.8
June	327.50	20.0	777.63	47.5	18.89	83.2
July	294.83	18.0	528.45	32.3	18.93	83.4
August	282.30	17.2	522.04	31.9	18.87	83.1
September	274.65	16.8	538.49	32.9	18.68	82.3
October	264.71	16.2	521.81	31.9	18.71	82.4
November	278.80	17.0	714.53	43.6	18.86	83.1
December	293.02	17.9	512.18	31.3	18.88	83.2

Table 6: 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	381.57	19.4	730.60	37.2	20.14	88.7
February	393.69	20.0	872.19	44.4	20.20	89.0
March	375.62	19.1	720.11	36.7	22.39	98.6
April	428.44	21.8	647.07	32.9	20.00	88.2
May	376.77	19.2	651.24	33.2	19.81	87.3
June	345.66	17.6	770.80	39.2	20.01	88.1
July	362.36	18.5	637.69	32.5	20.08	88.5
August	361.75	18.4	675.98	34.4	20.21	89.0
September	409.25	20.8	640.58	32.6	19.89	87.6
October	379.11	19.3	646.42	32.9	19.97	88.0
November	356.26	18.1	655.69	33.4	20.35	89.6
December	337.65	17.2	634.14	32.3	20.08	88.5

Table 7: 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	296.06	7.5	525.50	13.4	39.31	86.4
February	289.11	7.4	700.73	17.8	39.10	85.9
March	312.43	8.0	661.89	16.9	39.59	87.0
April	315.26	8.0	507.48	12.9	39.70	87.3
May	312.67	8.0	613.85	15.6	44.49	97.8
June	331.16	8.4	850.14	21.6	37.88	83.3
July	387.08	9.9	691.57	17.6	38.62	84.9
August	433.59	11.0	1107.31	28.2	35.75	78.6
September	339.48	8.6	724.32	18.4	37.66	82.8
October	318.12	8.1	789.97	20.1	34.72	76.3
November	369.65	9.4	613.55	15.6	32.37	71.1
December	450.49	11.5	822.93	21.0	31.67	69.6

Table 8: 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	300.66	7.7	825.13	21.0	33.68	74.0
February	252.23	6.4	532.72	13.6	34.15	75.1
March	308.29	7.8	575.36	14.6	33.96	74.6
April	258.46	6.6	443.02	11.3	34.25	75.3
May	304.33	7.7	624.50	15.9	33.74	74.2
June	399.42	10.2	838.56	21.3	34.87	76.6
July	344.81	8.8	605.99	15.4	40.12	88.2
August	292.09	7.4	676.14	17.2	35.90	78.9
September	293.82	7.5	601.01	15.3	34.30	75.4
October	358.95	9.1	567.59	14.4	44.53	97.9
November	259.05	6.6	512.77	13.1	35.01	76.9
December	245.86	6.3	448.91	11.4	34.35	75.5

There was 482,411.00 m^3 of water processed in Mount Forest for 2017 (Jan. 01 to Dec. 31). This represents 7.2 % less compared to the same time period in 2016 and 10.1% less than in 2015.

d) Raw and Treated Water Quality

This section describes the water quality monitoring, both regulatory and operational, that has been completed in 2017.

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 9: 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	468	0	0.71 to 1.80	mg/L
Mount Forest Free Chlorine Residual	0.05-4.0	522	0	0.61 to 1.89	mg/L

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	cfu/100mL
Arthur Raw-E.coli	n/a	156	n/a	0	cfu/100mL
Mount Forest T.coli	n/a	209	n/a	0	cfu/100mL
Mount Forest E.coli	n/a	209	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 T.coli	0	104	0	0	cfu/100mL
Arthur E.coli	0	104	0	0	cfu/100mL
Mount Forest T.coli	0	209	1	0-3	cfu/100mL
Mount Forest E.coli	0	209	0	0	cfu/100mL

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	1	0-2	cfu/100mL
Arthur Distribution-E.coli	0	156	0	0	cfu/100mL
Arthur Distribution-HPC	n/a	156	n/a	<10 - >2000	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 - 710	cfu/mL

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

In 2017, 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 2017 are below the ½ MAC (half of the maximum allowable concentration). Mount Forest had an annual running average of 32.25 ug/L of Total THM's and Arthur had an annual running average of 18.50 ug/L of Total THM's.

Regulation 170/03, Schedule 13-6.1 was added in 2017 and 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 will come into effect as well as the MAC will use a running annual average of quarterly samples for this parameter.

The results of HAA's for all related Distribution System samples in 2017 are below the ½ MAC (half of the maximum allowable concentration) that will come into effect in 2020.

Table 13: O. Regulation 170/03 Schedule 13-6.1, Haloacetic Acids Sampling Results Summary

Arthur	Date	ODWQS MAC	Distribution
HAA's (ug/L)	Feb 2017	80	5.3<MDL
	May 2017	80	5.3<MDL
	Aug 2017	80	5.3<MDL
	Nov 2017	80	5.3<MDL
Mount Forest	**Date**	**ODWQS MAC**	**Distribution**
HAA's (ug/L)	Feb 2017	80	15.5
	May 2017	80	5.3<MDL
	Aug 2017	80	6.8
	Nov 2017	80	5.3<MDL

*MDL- method detection limit

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 2017.

Table 14: 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 2017	1	0.003<MDL	0.003<MDL
	May 2017	1	0.003<MDL	0.003<MDL
	Aug 2017	1	0.003<MDL	0.003<MDL
	Nov 2017	1	0.003<MDL	0.003<MDL
Nitrate (mg/L)	Feb 2017	10	0.009	0.006<MDL
	May 2017	10	0.006<MDL	0.006<MDL
	Aug 2017	10	0.006<MDL	0.006<MDL
	Nov 2017	10	0.006<MDL	0.006<MDL

*MDL- method detection limit

Mount Forest	Date	ODWQS MAC	Well #3	Well #4	Well #5	Well #6
Nitrite (mg/L)	Feb 2017	1	0.003<MDL	0.003<MDL	0.003<MDL	0.003<MDL
	May 2017	1	0.003<MDL	0.003<MDL	0.003<MDL	0.003<MDL
	Aug 2017	1	0.003<MDL	0.003<MDL	0.003<MDL	0.003<MDL
	Nov 2017	1	0.003<MDL	0.003<MDL	0.003<MDL	0.003<MDL
Nitrate (mg/L)	Feb 2017	10	0.064	0.006<MDL	2.2	0.006<MDL
	May 2017	10	0.059	0.006<MDL	2.06	0.006<MDL
	Aug 2017	10	0.062	0.006<MDL	2.39	0.006<MDL
	Nov 2017	10	0.073	0.006<MDL	2.4	0.085

*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 15: O. Regulation 170/03 Schedule 23 Results Arthur Well #7b

Parameter	Sample Date	Result Value	MAC	Unit of Measure	Exceedance
Antimony	Aug. 4/15	0.02	**6**	ug/L	No
Arsenic	Aug. 4/15	3.4	**25**	ug/L	No
Barium	Aug. 4/15	59.9	**1000**	ug/L	No
Boron	Aug. 4/15	79.1	**5000**	ug/L	No
Cadmium	Aug. 4/15	0.003<MDL	**5**	ug/L	No
Chromium	Aug. 4/15	0.03<MDL	**50**	ug/L	No
Mercury	Aug. 4/15	0.01<MDL	**1**	ug/L	No
Selenium	Aug. 4/15	0.04<MDL	**50**	ug/L	No
Uranium	Aug. 4/15	0.224	**20**	ug/L	No

Table 16: O. Regulation 170/03 Schedule 23 Results Arthur Well #8

Parameter	Sample Date	Result Value	MAC	Unit of Measure	Exceedance
Antimony	Nov. 6/17	0.02	**6**	ug/L	No
Arsenic	Nov. 6/17	0.2<MDL	**25**	ug/L	No
Barium	Nov. 6/17	62.4	**1000**	ug/L	No
Boron	Nov. 6/17	52	**5000**	ug/L	No
Cadmium	Nov. 6/17	0.003<MDL	**5**	ug/L	No
Chromium	Nov. 6/17	0.76	**50**	ug/L	No
Mercury	Nov. 6/17	0.01<MDL	**1**	ug/L	No
Selenium	Nov. 6/17	0.04<MDL	**50**	ug/L	No
Uranium	Nov. 6/17	0.461	**20**	ug/L	No

Table 17: O. Regulation 170/03 Schedule 23 Results Mount Forest Well #3

Parameter	Sample Date	Result Value	MAC	Unit of Measure	Exceedance
Antimony	Jan. 11/16	0.02<MDL	6	ug/L	No
Arsenic	Jan. 11/16	1.4	25	ug/L	No
Barium	Jan. 11/16	113	1000	ug/L	No
Boron	Jan. 11/16	42.8	5000	ug/L	No
Cadmium	Jan. 11/16	0.003<MDL	5	ug/L	No
Chromium	Jan. 11/16	0.03<MDL	50	ug/L	No
Mercury	Jan. 11/16	0.01<MDL	1	ug/L	No
Selenium	Jan. 11/16	0.04<MDL	50	ug/L	No
Uranium	Jan. 11/16	0.303	20	ug/L	No

Table 18: O. Regulation 170/03 Schedule 23 Results Mount Forest Well #4

Parameter	Sample Date	Result Value	MAC	Unit of Measure	Exceedance
Antimony	Jan. 11/16	0.02<MDL	6	ug/L	No
Arsenic	Jan. 11/16	0.9	25	ug/L	No
Barium	Jan. 11/16	176	1000	ug/L	No
Boron	Jan. 11/16	40.7	5000	ug/L	No
Cadmium	Jan. 11/16	0.003<MDL	5	ug/L	No
Chromium	Jan. 11/16	0.26	50	ug/L	No
Mercury	Jan. 11/16	0.01<MDL	1	ug/L	No
Selenium	Jan. 11/16	0.04<MDL	50	ug/L	No
Uranium	Jan. 11/16	0.228	20	ug/L	No

Table 19: O. Regulation 170/03 Schedule 23 Results Mount Forest Well #5

Parameter	Sample Date	Result Value	MAC	Unit of Measure	Exceedance
Antimony	Jan. 11/16	0.02<MDL	6	ug/L	No
Arsenic	Jan. 11/16	0.2 <MDL	25	ug/L	No
Barium	Jan. 11/16	140	1000	ug/L	No
Boron	Jan. 11/16	39.1	5000	ug/L	No
Cadmium	Jan. 11/16	0.003<MDL	5	ug/L	No
Chromium	Jan. 11/16	0.28	50	ug/L	No
Mercury	Jan. 11/16	0.01 <MDL	1	ug/L	No
Selenium	Jan. 11/16	0.73	50	ug/L	No
Uranium	Jan. 11/16	0.699	20	ug/L	No

Table 20: O. Regulation 170/03 Schedule 23 Results Mount Forest Well #6

Parameter	Sample Date	Result Value	MAC	Unit of Measure	Exceedance
Antimony	Jan. 11/16	0.02<MDL	**6**	ug/L	No
Arsenic	Jan. 11/16	0.7	**25**	ug/L	No
Barium	Jan. 11/16	124	**1000**	ug/L	No
Boron	Jan. 11/16	36.8	**5000**	ug/L	No
Cadmium	Jan. 11/16	0.003<MDL	**5**	ug/L	No
Chromium	Jan. 11/16	0.16	**50**	ug/L	No
Mercury	Jan. 11/16	0.01<MDL	**1**	ug/L	No
Selenium	Jan. 11/16	0.04<MDL	**50**	ug/L	No
Uranium	Jan. 11/16	0.330	**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 21: O. Regulation 170/03 Schedule 24 Results for Arthur Well #7b

Parameter	Sample Date	Result Value	MAC	Unit of Measure	Exceedance
Alachlor	Aug. 4/15	0.02<MDL	**5**	ug/L	No
Atrazine + N-dealkylated metabolites	Aug. 4/15	0.01<MDL	**5**	ug/L	No
Azinphos-methyl	Aug. 4/15	0.05<MDL	**20**	ug/L	No
Benzene	Aug. 4/15	0.32<MDL	**1**	ug/L	No
Benzo(a)pyrene	Aug. 4/15	0.004<MDL	**0.01**	ug/L	No
Bromoxynil	Aug. 4/15	0.33<MDL	**5**	ug/L	No
Carbaryl	Aug. 4/15	0.05<MDL	**90**	ug/L	No
Carbofuran	Aug. 4/15	0.01<MDL	**90**	ug/L	No
Carbon Tetrachloride	Aug. 4/15	0.16<MDL	**2**	ug/L	No
Chlorpyrifos	Aug. 4/15	0.02<MDL	**90**	ug/L	No
Diazinon	Aug. 4/15	0.02<MDL	**20**	ug/L	No
Dicamba	Aug. 4/15	0.20<MDL	**120**	ug/L	No
1,2-Dichlorobenzene	Aug. 4/15	0.41<MDL	**200**	ug/L	No
1,4-Dichlorobenzene	Aug. 4/15	0.36<MDL	**5**	ug/L	No
1,2-Dichloroethane	Aug. 4/15	0.35<MDL	**5**	ug/L	No
1,1-Dichloroethylene (vinylidene chloride)	Aug. 4/15	0.33<MDL	**14**	ug/L	No
Dichloromethane	Aug. 4/15	0.35<MDL	**50**	ug/L	No

Parameter	Sample Date	Result Value	MAC	Unit of Measure	Exceedance
2-4 Dichlorophenol	Aug. 4/15	0.15<MDL	900	ug/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	Aug. 4/15	0.19<MDL	100	ug/L	No
Diclofop-methyl	Aug. 4/15	0.40<MDL	9	ug/L	No
Dimethoate	Aug. 4/15	0.03<MDL	20	ug/L	No
Diquat	Aug. 4/15	1.0<MDL	70	ug/L	No
Diuron	Aug. 4/15	0.03<MDL	150	ug/L	No
Glyphosate	Aug. 4/15	1<MDL	280	ug/L	No
Malathion	Aug. 4/15	0.02<MDL	190	ug/L	No
Metolachlor	Aug. 4/15	0.01<MDL	50	ug/L	No
Metribuzin	Aug. 4/15	0.02<MDL	80	ug/L	No
Monochlorobenzene	Aug. 4/15	0.3<MDL	80	ug/L	No
Paraquat	Aug. 4/15	1<MDL	10	ug/L	No
Pentachlorophenol	Aug. 4/15	0.15<MDL	60	ug/L	No
Phorate	Aug. 4/15	0.01<MDL	2	ug/L	No
Picloram	Aug. 4/15	1<MDL	190	ug/L	No
Polychlorinated Biphenyls(PCB)	Aug. 4/15	0.04<MDL	3	ug/L	No
Prometryne	Aug. 4/15	0.03<MDL	1	ug/L	No
Simazine	Aug. 4/15	0.01<MDL	10	ug/L	No
Terbufos	Aug. 4/15	0.01<MDL	1	ug/L	No
Tetrachloroethylene	Aug. 4/15	0.35<MDL	10	ug/L	No
2,3,4,6-Tetrachlorophenol	Aug. 4/15	0.20<MDL	100	ug/L	No
Triallate	Aug. 4/15	0.01<MDL	230	ug/L	No
Trichloroethylene	Aug. 4/15	0.44<MDL	5	ug/L	No
2,4,6-Trichlorophenol	Aug. 4/15	0.25<MDL	5	ug/L	No
Trifluralin	Aug. 4/15	0.02<MDL	45	ug/L	No
Vinyl Chloride	Aug. 4/15	0.17<MDL	1	ug/L	No

Table 22: O. Regulation 170/03 Schedule 24 Results for Arthur Well #8

Parameter	Sample Date	Result Value	MAC	Unit of Measure	Exceedance
Alachlor	Nov. 6/17	0.02<MDL	5	ug/L	No
Atrazine + N-dealkylated metabolites	Nov. 6/17	0.01<MDL	5	ug/L	No
Azinphos-methyl	Nov. 6/17	0.05<MDL	20	ug/L	No
Benzene	Nov. 6/17	0.32<MDL	1	ug/L	No
Benzo(a)pyrene	Nov. 6/17	0.004<MDL	0.01	ug/L	No
Bromoxynil	Nov. 6/17	0.33<MDL	5	ug/L	No
Carbaryl	Nov. 6/17	0.05<MDL	90	ug/L	No
Carbofuran	Nov. 6/17	0.01<MDL	90	ug/L	No
Carbon Tetrachloride	Nov. 6/17	0.16<MDL	2	ug/L	No
Chlorpyrifos	Nov. 6/17	0.02<MDL	90	ug/L	No

Parameter	Sample Date	Result Value	MAC	Unit of Measure	Exceedance
Diazinon	Nov. 6/17	0.02<MDL	**20**	ug/L	No
Dicamba	Nov. 6/17	0.20<MDL	**120**	ug/L	No
1,2-Dichlorobenzene	Nov. 6/17	0.41<MDL	**200**	ug/L	No
1,4-Dichlorobenzene	Nov. 6/17	0.36<MDL	**5**	ug/L	No
1,2-Dichloroethane	Nov. 6/17	0.35<MDL	**5**	ug/L	No
1,1-Dichloroethylene (vinylidene chloride)	Nov. 6/17	0.33<MDL	**14**	ug/L	No
Dichloromethane	Nov. 6/17	0.35<MDL	**50**	ug/L	No
2-4 Dichlorophenol	Nov. 6/17	0.15<MDL	**900**	ug/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	Nov. 6/17	0.19<MDL	**100**	ug/L	No
Diclofop-methyl	Nov. 6/17	0.40<MDL	**9**	ug/L	No
Dimethoate	Nov. 6/17	0.03<MDL	**20**	ug/L	No
Diquat	Nov. 6/17	1.0<MDL	**70**	ug/L	No
Diuron	Nov. 6/17	0.03<MDL	**150**	ug/L	No
Glyphosate	Nov. 6/17	1<MDL	**280**	ug/L	No
Malathion	Nov. 6/17	0.02<MDL	**190**	ug/L	No
MCPA	Nov. 6/17	0.00012<MDL	**0.1**	mg/L	No
Metolachlor	Nov. 6/17	0.01<MDL	**50**	ug/L	No
Metribuzin	Nov. 6/17	0.02<MDL	**80**	ug/L	No
Monochlorobenzene	Nov. 6/17	0.3<MDL	**80**	ug/L	No
Paraquat	Nov. 6/17	1<MDL	**10**	ug/L	No
Pentachlorophenol	Nov. 6/17	0.15<MDL	**60**	ug/L	No
Phorate	Nov. 6/17	0.01<MDL	**2**	ug/L	No
Picloram	Nov. 6/17	1<MDL	**190**	ug/L	No
Polychlorinated Biphenyls(PCB)	Nov. 6/17	0.04<MDL	**3**	ug/L	No
Prometryne	Nov. 6/17	0.03<MDL	**1**	ug/L	No
Simazine	Nov. 6/17	0.01<MDL	**10**	ug/L	No
Terbufos	Nov. 6/17	0.01<MDL	**1**	ug/L	No
Tetrachloroethylene	Nov. 6/17	0.35<MDL	**10**	ug/L	No
2,3,4,6-Tetrachlorophenol	Nov. 6/17	0.20<MDL	**100**	ug/L	No
Triallate	Nov. 6/17	0.01<MDL	**230**	ug/L	No
Trichloroethylene	Nov. 6/17	0.44<MDL	**5**	ug/L	No
2,4,6-Trichlorophenol	Nov. 6/17	0.25<MDL	**5**	ug/L	No
Trifluralin	Nov. 6/17	0.02<MDL	**45**	ug/L	No
Vinyl Chloride	Nov. 6/17	0.17<MDL	**1**	ug/L	No

Table 23: O. Regulation 170/03 Schedule 24 Results for Mount Forest Well #3

Parameter	Sample Date	Result Value	MAC	Unit of Measure	Exceedance
Alachlor	Jan. 11/16	0.02<MDL	5	ug/L	No
Atrazine + N-dealkylated metabolites	Jan. 11/16	0.01<MDL	5	ug/L	No
Azinphos-methyl	Jan. 11/16	0.05<MDL	20	ug/L	No
Benzene	Jan. 11/16	0.32<MDL	1	ug/L	No
Benzo(a)pyrene	Jan. 11/16	0.004<MDL	0.01	ug/L	No
Bromoxynil	Jan. 11/16	0.33<MDL	5	ug/L	No
Carbaryl	Jan. 11/16	0.05<MDL	90	ug/L	No
Carbofuran	Jan. 11/16	0.01<MDL	90	ug/L	No
Carbon Tetrachloride	Jan. 11/16	0.16<MDL	2	ug/L	No
Chlorpyrifos	Jan. 11/16	0.02<MDL	90	ug/L	No
Diazinon	Jan. 11/16	0.02<MDL	20	ug/L	No
Dicamba	Jan. 11/16	0.20<MDL	120	ug/L	No
1,2-Dichlorobenzene	Jan. 11/16	0.41<MDL	200	ug/L	No
1,4-Dichlorobenzene	Jan. 11/16	0.36<MDL	5	ug/L	No
1,2-Dichloroethane	Jan. 11/16	0.35<MDL	5	ug/L	No
1,1-Dichloroethylene (vinylidene chloride)	Jan. 11/16	0.33<MDL	14	ug/L	No
Dichloromethane	Jan. 11/16	0.35<MDL	50	ug/L	No
2-4 Dichlorophenol	Jan. 11/16	0.15<MDL	900	ug/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	Jan. 11/16	0.19<MDL	100	ug/L	No
Diclofop-methyl	Jan. 11/16	0.40<MDL	9	ug/L	No
Dimethoate	Jan. 11/16	0.03<MDL	20	ug/L	No
Diquat	Jan. 11/16	1.0<MDL	70	ug/L	No
Diuron	Jan. 11/16	0.03<MDL	150	ug/L	No
Glyphosate	Jan. 11/16	1<MDL	280	ug/L	No
Malathion	Jan. 11/16	0.02<MDL	190	ug/L	No
MCPA	Jan. 11/16	0.00012<MDL	0.1	mg/L	No
Metolachlor	Jan. 11/16	0.01<MDL	50	ug/L	No
Metribuzin	Jan. 11/16	0.02<MDL	80	ug/L	No
Monochlorobenzene	Jan. 11/16	0.3<MDL	80	ug/L	No
Paraquat	Jan. 11/16	1<MDL	10	ug/L	No
Pentachlorophenol	Jan. 11/16	0.15<MDL	60	ug/L	No
Phorate	Jan. 11/16	0.01<MDL	2	ug/L	No
Picloram	Jan. 11/16	1<MDL	190	ug/L	No
Polychlorinated Biphenyls(PCB)	Jan. 11/16	0.04<MDL	3	ug/L	No
Prometryne	Jan. 11/16	0.03<MDL	1	ug/L	No
Simazine	Jan. 11/16	0.01<MDL	10	ug/L	No
Terbufos	Jan. 11/16	0.01<MDL	1	ug/L	No
Tetrachloroethylene	Jan. 11/16	0.35<MDL	10	ug/L	No
2,3,4,6-Tetrachlorophenol	Jan. 11/16	0.20<MDL	100	ug/L	No

Parameter	Sample Date	Result Value	MAC	Unit of Measure	Exceedance
Triallate	Jan. 11/16	0.01<MDL	230	ug/L	No
Trichloroethylene	Jan. 11/16	0.44<MDL	5	ug/L	No
2,4,6-Trichlorophenol	Jan. 11/16	0.25<MDL	5	ug/L	No
Trifluralin	Jan. 11/16	0.02<MDL	45	ug/L	No
Vinyl Chloride	Jan. 11/16	0.17<MDL	1	ug/L	No

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

Parameter	Sample Date	Result Value	MAC	Unit of Measure	Exceedance
Alachlor	Jan. 11/16	0.02<MDL	5	ug/L	No
Atrazine + N-dealkylated metabolites	Jan. 11/16	0.01<MDL	5	ug/L	No
Azinphos-methyl	Jan. 11/16	0.05<MDL	20	ug/L	No
Benzene	Jan. 11/16	0.32<MDL	1	ug/L	No
Benzo(a)pyrene	Jan. 11/16	0.004<MDL	0.01	ug/L	No
Bromoxynil	Jan. 11/16	0.33<MDL	5	ug/L	No
Carbaryl	Jan. 11/16	0.05<MDL	90	ug/L	No
Carbofuran	Jan. 11/16	0.01<MDL	90	ug/L	No
Carbon Tetrachloride	Jan. 11/16	0.16<MDL	2	ug/L	No
Chlorpyrifos	Jan. 11/16	0.02<MDL	90	ug/L	No
Diazinon	Jan. 11/16	0.02<MDL	20	ug/L	No
Dicamba	Jan. 11/16	0.20<MDL	120	ug/L	No
1,2-Dichlorobenzene	Jan. 11/16	0.41<MDL	200	ug/L	No
1,4-Dichlorobenzene	Jan. 11/16	0.36<MDL	5	ug/L	No
1,2-Dichloroethane	Jan. 11/16	0.35<MDL	5	ug/L	No
1,1-Dichloroethylene (vinylidene chloride)	Jan. 11/16	0.33<MDL	14	ug/L	No
Dichloromethane	Jan. 11/16	0.35<MDL	50	ug/L	No
2-4 Dichlorophenol	Jan. 11/16	0.15<MDL	900	ug/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	Jan. 11/16	0.19<MDL	100	ug/L	No
Diclofop-methyl	Jan. 11/16	0.40<MDL	9	ug/L	No
Dimethoate	Jan. 11/16	0.03<MDL	20	ug/L	No
Diquat	Jan. 11/16	1.0<MDL	70	ug/L	No
Diuron	Jan. 11/16	0.03<MDL	150	ug/L	No
Glyphosate	Jan. 11/16	1<MDL	280	ug/L	No
Malathion	Jan. 11/16	0.02<MDL	190	ug/L	No
MCPA	Jan. 11/16	0.00012<MDL	0.1	mg/L	No
Metolachlor	Jan. 11/16	0.01<MDL	50	ug/L	No
Metribuzin	Jan. 11/16	0.02<MDL	80	ug/L	No
Monochlorobenzene	Jan. 11/16	0.3<MDL	80	ug/L	No
Paraquat	Jan. 11/16	1<MDL	10	ug/L	No

Parameter	Sample Date	Result Value	MAC	Unit of Measure	Exceedance
Pentachlorophenol	Jan. 11/16	0.15<MDL	60	ug/L	No
Phorate	Jan. 11/16	0.01<MDL	2	ug/L	No
Picloram	Jan. 11/16	1<MDL	190	ug/L	No
Polychlorinated Biphenyls(PCB)	Jan. 11/16	0.04<MDL	3	ug/L	No
Prometryne	Jan. 11/16	0.03<MDL	1	ug/L	No
Simazine	Jan. 11/16	0.01<MDL	10	ug/L	No
Terbufos	Jan. 11/16	0.01<MDL	1	ug/L	No
Tetrachloroethylene	Jan. 11/16	0.35<MDL	10	ug/L	No
2,3,4,6-Tetrachlorophenol	Jan. 11/16	0.20<MDL	100	ug/L	No
Triallate	Jan. 11/16	0.01<MDL	230	ug/L	No
Trichloroethylene	Jan. 11/16	0.44<MDL	5	ug/L	No
2,4,6-Trichlorophenol	Jan. 11/16	0.25<MDL	5	ug/L	No
Trifluralin	Jan. 11/16	0.02<MDL	45	ug/L	No
Vinyl Chloride	Jan. 11/16	0.17<MDL	1	ug/L	No

Table 25: O. Regulation 170/03 Schedule 24 Results for Mount Forest Well #5

Parameter	Sample Date	Result Value	MAC	Unit of Measure	Exceedance
Alachlor	Jan. 11/16	0.02<MDL	5	ug/L	No
Atrazine + N-dealkylated metabolites	Jan. 11/16	0.01<MDL	5	ug/L	No
Azinphos-methyl	Jan. 11/16	0.05<MDL	20	ug/L	No
Benzene	Jan. 11/16	0.32<MDL	1	ug/L	No
Benzo(a)pyrene	Jan. 11/16	0.004<MDL	0.01	ug/L	No
Bromoxynil	Jan. 11/16	0.33<MDL	5	ug/L	No
Carbaryl	Jan. 11/16	0.05<MDL	90	ug/L	No
Carbofuran	Jan. 11/16	0.01<MDL	90	ug/L	No
Carbon Tetrachloride	Jan. 11/16	0.16<MDL	2	ug/L	No
Chlorpyrifos	Jan. 11/16	0.02<MDL	90	ug/L	No
Diazinon	Jan. 11/16	0.02<MDL	20	ug/L	No
Dicamba	Jan. 11/16	0.20<MDL	120	ug/L	No
1,2-Dichlorobenzene	Jan. 11/16	0.41<MDL	200	ug/L	No
1,4-Dichlorobenzene	Jan. 11/16	0.36<MDL	5	ug/L	No
1,2-Dichloroethane	Jan. 11/16	0.35<MDL	5	ug/L	No
1,1-Dichloroethylene (vinylidene chloride)	Jan. 11/16	0.33<MDL	14	ug/L	No
Dichloromethane	Jan. 11/16	0.35<MDL	50	ug/L	No
2-4 Dichlorophenol	Jan. 11/16	0.15<MDL	900	ug/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	Jan. 11/16	0.19<MDL	100	ug/L	No
Diclofop-methyl	Jan. 11/16	0.40<MDL	9	ug/L	No
Dimethoate	Jan. 11/16	0.03<MDL	20	ug/L	No

Parameter	Sample Date	Result Value	MAC	Unit of Measure	Exceedance
Diquat	Jan. 11/16	1.0<MDL	70	ug/L	No
Diuron	Jan. 11/16	0.03<MDL	150	ug/L	No
Glyphosate	Jan. 11/16	1<MDL	280	ug/L	No
Malathion	Jan. 11/16	0.02<MDL	190	ug/L	No
MCPA	Jan. 11/16	0.00012<MDL	0.1	mg/L	No
Metolachlor	Jan. 11/16	0.01<MDL	50	ug/L	No
Metribuzin	Jan. 11/16	0.02<MDL	80	ug/L	No
Monochlorobenzene	Jan. 11/16	0.3<MDL	80	ug/L	No
Paraquat	Jan. 11/16	1<MDL	10	ug/L	No
Pentachlorophenol	Jan. 11/16	0.15<MDL	60	ug/L	No
Phorate	Jan. 11/16	0.01<MDL	2	ug/L	No
Picloram	Jan. 11/16	1<MDL	190	ug/L	No
Polychlorinated Biphenyls(PCB)	Jan. 11/16	0.04<MDL	3	ug/L	No
Prometryne	Jan. 11/16	0.03<MDL	1	ug/L	No
Simazine	Jan. 11/16	0.01<MDL	10	ug/L	No
Terbufos	Jan. 11/16	0.01<MDL	1	ug/L	No
Tetrachloroethylene	Jan. 11/16	1	10	ug/L	No
2,3,4,6-Tetrachlorophenol	Jan. 11/16	0.20<MDL	100	ug/L	No
Triallate	Jan. 11/16	0.01<MDL	230	ug/L	No
Trichloroethylene	Jan. 11/16	0.44<MDL	5	ug/L	No
2,4,6-Trichlorophenol	Jan. 11/16	0.25<MDL	5	ug/L	No
Trifluralin	Jan. 11/16	0.02<MDL	45	ug/L	No
Vinyl Chloride	Jan. 11/16	0.17<MDL	1	ug/L	No

Table 26: O. Regulation 170/03 Schedule 24 Results for Mount Forest Well #6

Parameter	Sample Date	Result Value	MAC	Unit of Measure	Exceedance
Alachlor	Jan. 11/16	0.02<MDL	5	ug/L	No
Atrazine + N-dealkylated metabolites	Jan. 11/16	0.01<MDL	5	ug/L	No
Azinphos-methyl	Jan. 11/16	0.05<MDL	20	ug/L	No
Benzene	Jan. 11/16	0.32<MDL	1	ug/L	No
Benzo(a)pyrene	Jan. 11/16	0.004<MDL	0.01	ug/L	No
Bromoxynil	Jan. 11/16	0.33<MDL	5	ug/L	No
Carbaryl	Jan. 11/16	0.05<MDL	90	ug/L	No
Carbofuran	Jan. 11/16	0.01<MDL	90	ug/L	No
Carbon Tetrachloride	Jan. 11/16	0.16<MDL	2	ug/L	No
Chlorpyrifos	Jan. 11/16	0.02<MDL	90	ug/L	No
Diazinon	Jan. 11/16	0.02<MDL	20	ug/L	No
Dicamba	Jan. 11/16	0.20<MDL	120	ug/L	No
1,2-Dichlorobenzene	Jan. 11/16	0.41<MDL	200	ug/L	No
1,4-Dichlorobenzene	Jan. 11/16	0.36<MDL	5	ug/L	No

Parameter	Sample Date	Result Value	MAC	Unit of Measure	Exceedance
1,2-Dichloroethane	Jan. 11/16	0.35<MDL	5	ug/L	No
1,1-Dichloroethylene (vinylidene chloride)	Jan. 11/16	0.33<MDL	14	ug/L	No
Dichloromethane	Jan. 11/16	0.35<MDL	50	ug/L	No
2-4 Dichlorophenol	Jan. 11/16	0.15<MDL	900	ug/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	Jan. 11/16	0.19<MDL	100	ug/L	No
Diclofop-methyl	Jan. 11/16	0.40<MDL	9	ug/L	No
Dimethoate	Jan. 11/16	0.03<MDL	20	ug/L	No
Diquat	Jan. 11/16	1.0<MDL	70	ug/L	No
Diuron	Jan. 11/16	0.03<MDL	150	ug/L	No
Glyphosate	Jan. 11/16	1<MDL	280	ug/L	No
Malathion	Jan. 11/16	0.02<MDL	190	ug/L	No
MCPA	Jan. 11/16	0.00012<MDL	0.1	mg/L	No
Metolachlor	Jan. 11/16	0.01<MDL	50	ug/L	No
Metribuzin	Jan. 11/16	0.02<MDL	80	ug/L	No
Monochlorobenzene	Jan. 11/16	0.3<MDL	80	ug/L	No
Paraquat	Jan. 11/16	1<MDL	10	ug/L	No
Pentachlorophenol	Jan. 11/16	0.15<MDL	60	ug/L	No
Phorate	Jan. 11/16	0.01<MDL	2	ug/L	No
Picloram	Jan. 11/16	1<MDL	190	ug/L	No
Polychlorinated Biphenyls(PCB)	Jan. 11/16	0.04<MDL	3	ug/L	No
Prometryne	Jan. 11/16	0.03<MDL	1	ug/L	No
Simazine	Jan. 11/16	0.01<MDL	10	ug/L	No
Terbufos	Jan. 11/16	0.01<MDL	1	ug/L	No
Tetrachloroethylene	Jan. 11/16	0.35<MDL	10	ug/L	No
2,3,4,6-Tetrachlorophenol	Jan. 11/16	0.20<MDL	100	ug/L	No
Triallate	Jan. 11/16	0.01<MDL	230	ug/L	No
Trichloroethylene	Jan. 11/16	0.44<MDL	5	ug/L	No
2,4,6-Trichlorophenol	Jan. 11/16	0.25<MDL	5	ug/L	No
Trifluralin	Jan. 11/16	0.02<MDL	45	ug/L	No
Vinyl Chloride	Jan. 11/16	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 27.

Table 27: 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	Sept. 9/13	36.8	mg/L	Yes[1]
Sodium- Arthur Well #8	Nov. 9/15	21.5	mg/L	Yes[1]
Sodium- Mount Forest Well #3	Sept. 9/13	16.2	mg/L	No
Sodium- Mount Forest Well #4	Sept. 9/13	10.7	mg/L	No
Sodium- Mount Forest Well #5	Sept. 9/13	58.9	mg/L	Yes[1]
Sodium- Mount Forest Well #6	Sept. 9/13	10.1	mg/L	No
Fluoride- Arthur Well #7b	Sept. 9/13	1.40	mg/L	No
Fluoride-Arthur Well #8	Nov. 9/15	0.32	mg/L	No
Fluoride-Mount Forest Well #3	Sept. 9/13	1.14	mg/L	No
Fluoride-Mount Forest Well #4	Sept. 9/13	0.81	mg/L	No
Fluoride-Mount Forest Well #5	Sept. 9/13	0.18	mg/L	No
Fluoride-Mount Forest Well #6	Sept. 9/13	1.34	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 28.

Table 28: 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 # 62 Fergus Street S	Aug .19/15	0.13	10	ug/L	No
Lead – Hydrant # 71 Egremont Street N	Aug. 5/15	0.07	10	ug/L	No
Lead – Hydrant # 57 Fergus Street N	Aug. 10/15	0.23	10	ug/L	No
Lead – Hydrant # 22 Andrew Street	Sep. 10/15	0.01<MDL	10	ug/L	No
Lead – Hydrant # 95 Francis Street W	Sep. 10/15	0.16	10	ug/L	No
Alkalinity – Hydrant # 125 James Street	Jul. 31/17	245	30-500	mg/L	No
Alkalinity – Hydrant # 124 Elgin Street S	Jul. 31/17	224	30-500	mg/L	No
Alkalinity – Hydrant # 32 Queen Street W	Jul. 31/17	225	30-500	mg/L	No
Alkalinity – Hydrant # 95 Francis Street W	Jul. 31/17	199	30-500	mg/L	No
Alkalinity – Yard Hydrant on Eliza Street N	Jul. 31/17	195	30-500	mg/L	No
Field pH – Hydrant # 125 James Street	Jul. 31/17	6.98	-	-	No
Field pH – Hydrant # 124 Elgin Street S	Jul. 31/17	7.80	-	-	No
Field pH – Hydrant # 32 Queen Street W	Jul. 31/17	7.68	-	-	No
Field pH – Hydrant # 95 Francis Street W	Jul. 31/17	7.5	-	-	No
Field pH – Yard Hydrant on Eliza Street N	Jul. 31/17	7.68	-	-	No

e) Significant Expenses Incurred

The table below outlines a brief description and breakdown for significant monetary expenses occurred in 2017.

Location	Maintenance Item	Cost
Arthur	Francis Street Watermain Replacement	$141,314.04
Arthur (Spheroid)	Water Tower Inspection	$4,746.00
Arthur	Well 7B VFD Installation	$2,591.09
Arthur	Well 7B Pump Pull/Wire replacement	$5,463.24
Arthur	Well 7B Flow Meter/Piping Replacement	$7,177.11
Mount Forest	Well 6 Flow Meter/Piping Replacement	$9,070.86
Mount Forest	Check Valve /Piping in Well 3 and Well 4	$6,734.80
Mount Forest	James Street Watermain Replacement	$351,346.07
Mount Forest	Durham Street Watermain Extension	$102,015.00
Arthur/Mount Forest	Chlorine Pumps	$3,287.06

f) Source Water Protection

The Township of Wellington North is subject to three Source Protection Plans (based on watershed or conservation authority boundaries): the Grand River Plan, the Saugeen Valley, Grey Sauble, Northern Bruce Penisula Plan (Saugeen Valley) and the Ausable Bayfield Bayfield Maitland Valley(ABMV – Maitland Valley) Plan. In 2017, all Source Protection Plans were in effect.

Under Section 81 and Section 45 of the Clean Water Act as well as Section 65 of Ontario Regulation 287/07, Risk Management Official and Municipal Annual Reports must be prepared and submitted to the appropriate Source Protection Authority (Conservation Authority) by February 1st of each year. Please note that although the ABMV-Maitland Valley Plan also encompasses part of the municipality, there are no reporting requirements associated with that Plan for the Township. The Township of Wellington North 2017 Risk Management Official and Municipal Annual Reports were prepared and submitted to the appropriate authorities by February 1st, 2018.

Summary of key aspects of the Risk Management Official Report and Municipal Report 2017

In 2017, two development review notices were issued per Section 59 of the Clean Water Act within the municipality. Additionally, comments were provided on an additional ten applications that did not require development review notices. There were 132 Section 59 notices issued County wide and comments on 137 additional development applications County wide. The County Official Plan was amended in 2016 to conform to the five Source Protection Plans in the County and in 2017, work began on the conformity exercise for the Township's zoning by-law. County wide, six training sessions were run for municipal staff and consultants (engineers, surveyors, planners). Overall, feedback from the training sessions were positive and we are planning more training sessions in 2018.

In 2017, approval was provided by six municipalities (Townships of Centre Wellington, Guelph / Eramosa, Mapleton, Puslinch and Wellington North and the Town of Erin) to hire a shared services position, on a three year contract, to support source protection implementation. This position is the designated Risk Management Inspector and alternate Risk Management Official for these municipalities and also acts as the Source Protection Coordinator for all the municipalities in Wellington County. The position reports to the shared Risk Management Official and is located at the Wellington Source Water Protection Risk Management Office in Elora. County wide this brings our source protection, staffing complement to 2.3 full time equivalents as the Town of Minto's Risk Management Inspectors / alternate Risk Management Official are staff members in the Town Building Department. All municipalities have, at a minimum, two staff members appointed as Risk Management Officials and Inspectors. These staff are well supported by the internal Wellington Source Protection Working Group which is comprised of other departmental staff from all eight Wellington municipalities including building officials, planners, water compliance staff, public works staff and Chief Administrative Officers.

Analysis continued on the threat verification data collected in previous years on agricultural, industrial, commercial and institutional properties identified as potential significant drinking water threats in the approved Assessment Reports. Inspections were conducted on three agricultural properties regarding

prohibition. Thirty three inspections were conducted County wide in 2017. Two Risk Management Plans are in the process of negotiation for the municipality. County wide, there were five Risk Management Plans agreed to in 2017 with 23 in progress. These numbers are expected to increase in 2018 and beyond as the focus shifts from education, outreach and threat verification to negotiating risk management plans. For the Arthur wellhead protection areas, all existing significant drinking water threats enumerated in the Grand River Assessment Report have either been managed (through septic inspections or prohibition notices) or have been verified to not be present.

In 2017, the Township implemented sewer use and connection by-laws as required by the Saugeen, Grey Sauble, Northern Bruce Peninsula Source Protection Plan. These by-laws were approved by Council in December 2016. Eleven source protection road signs have now been installed in the Township with 21 installed County wide on municipal or County roads. Additional road signs have been installed by the Province on provincial highways.

In 2017, County wide there was a focus on the development and implementation of the source protection education and outreach program as required by the applicable Source Protection Plans. The Wellington Source Water Protection website was upgraded to make it more user friendly, create a more useable back end and to achieve easier integration with the County online mapping portal. Five new fact sheets were created for the following topics: Development Applications, Water Quantity, Residential Fuel Oil, Fertilizer, and Chemical Handling. Three newspaper ads were run in the Wellington Advertiser during the year on topics related to planning and building applications, mapping and DNAPL / hazardous waste disposal. Postcards were created to advertise the online mapping tool that helps development applicants determine if they are in a vulnerable area. Postcards were distributed via all eight municipal offices (upper and lower tier) and through all County libraries (14 locations) to target both development review applicants and the general public.

Staff participate in, and Wellington Source Water Protection is a sponsor for, the Waterloo-Wellington Children's Groundwater Festival. Staff participate on the organizing committee as well as during the Festival to deliver presentations. The Children's Groundwater Festival is an excellent way to reach Grade 2 to 5 and high school children (and their parents) and deliver water protection messages including source protection. The Festival attracts 5,000 elementary children and 500 high school / adult volunteers. In 2017, approximately 600 children attended from the County of Wellington as well as participation from a County high school and companies / municipalities as volunteers. In 2017, a presentation was also made to a County High School environmental program on source protection.

During inspections, education material was provided directly to the proponents generally regarding the threats present, the process (RMP, prohibition etc.) and property specific mapping. This material was generally well received and found to be useful by the proponents. Similarly, material is provided to every applicant who receives a Section 59 notice, this includes fact sheets and property specific mapping. In 2017, the mandatory fuel oil education and outreach program began. It was focused in the Town of Erin for 2017 and 16 properties received mail outs with educational materials (letter, fact sheets) and a sticker with the Spills Action Centre number. Metal tags for fuel oil fill pipes were also made available, if it was confirmed that the property was on fuel oil. This program will be rolled out in

other County municipalities in 2018 and beyond. In the Saugeen Valley and Maitland Valley Source Protection Areas, this program will support negotiation of risk management plans.

In 2017, staff also participated in a number of provincial working groups and commented on proposed amendments on four of the five Source Protection Plans applicable in the County. The Centre Wellington Tier 3 water quantity study area extends into the Township and staff and a hydrogeological consultant reviewed the draft report completed in 2017 for this study. Work on this study will continue in 2018.

A table summarizing Wellington Source Water Protection Annual Reporting for 2017 is attached at the end of this report.

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

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Source Protection Annual Reporting Summary 2017 - Wellington County municipalities

Reportables		Centre Wellington	Guelph/Eramosa	Mapleton	Puslinch	Wellington North	Erin	Minto	County of Wellington	Total
Septic Inspection Program (Cumulative)	Completed	24	415	N/A	54	9	127	6	N/A	635
	Outstanding	0	6	N/A	0	0	0	0	N/A	6
	Major Remedial Action	5	27	N/A	1	1	8	0	N/A	42
	Minor Remedial Action	4	79	N/A	12	1	14	1	N/A	111
	Septic Socials	1	3	N/A	2	1	1	1	N/A	9
S59 Notices Issued		12	25	2	14	2	8	69	N/A	132
Comments on Development reviews (in addition to notices)		30	25	32	27	10	12	1	N/A	137
Inspections (Threat Verification) - Section 62		6	5	2	0	3	3	14	N/A	33
Inspections (Compliance) - Section 57 Prohibition		1	0	0	0	0	0	0	N/A	1
Inspections (Compliance) - Section 58 Risk Management Plans		0	0	0	0	0	0	0	N/A	0
RMPs	Cumulative Completed since SPP Effective Date	4	2	0	0	0	0	2	N/A	8
	Completed	1	2	0	0	0	0	2	N/A	5
	In Progress	5	1	0	0	2	0	15	N/A	23
Chemical Management Plan (Official Plan Section 4.9.5)	Cumulative Completed since OPA 98	0	1	0	0	1	1	0	3	3
	Completed	0	1	0	0	0	1	0	2	2
	In Progress	0	0	0	0	0	0	1	1	1
RMP, Development Review Templates and Business Process / Database		Ongoing	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing	N/A
RMO / RMI Appointment		Complete	Complete	Complete	Complete	Complete	Complete	Complete	N/A	N/A
Education and Outreach		The Wellington Source Water Protection website was upgraded. Five new fact sheets including: Development Applications, Water Quantity, Residential Fuel Oil, Fertilizer and Chemical Handling (including DNAPLs). Six training sessions were run for municipal staff and consultants (engineers, surveyors, planners. Three newspaper ads on topics related to planning and building applications, mapping and DNAPL / hazardous waste disposal. Postcards were created to advertise the online mapping tool that helps development applicants determine if they are in a vulnerable area. Postcards were distributed via all eight municipal offices (upper and lower tier) and through all County libraries (14 locations). Staff participate and Wellington Source Water Protection is a sponsor for the Waterloo-Wellington Children's Groundwater Festival. The Festival attracts 5,000 elementary children and 500 high school / adult volunteers. Approximately 600 children attend from the County of Wellington as well as participation from a County high school and companies / municipalities as volunteers. In 2017, a presentation was made to a County High School environmental program on source protection. In 2017, the mandatory fuel oil education and outreach program began. It was focused in the Town of Erin for 2017 and 16 properties received mail outs with educational materials.								
Road Signs (not including provincially installed signs)		0	0	0	0	11	0	10	N/A	21
Emergency Management Plan		Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	1
Official Plan Update		County Complete, Local to be completed	Complete	Complete	Complete	Complete	County Complete, Local to be completed	Complete	Complete	1
ZBL Update		Ongoing	Ongoing	Complete	Ongoing	Ongoing	Ongoing	Ongoing	N/A	1
Municipal By-laws Required (Sewer Use, Connection)		N/A	N/A	N/A	N/A	Complete	N/A	Complete	N/A	3

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Source Protection Annual Reporting Summary 2017 - Wellington County municipalities

Reportables	Centre Wellington	Guelph/Eramosa	Mapleton	Puslinch	Wellington North	Erin	Minto	County of Wellington	Total
Tier 3 - Water Quantity Studies	Physical Characterization Report drafted, public consultation through Community Liaison Group, Technical work (GIS analysis and review of agricultural properties) in support of project	Risk Assessment completed and accepted by Province. Additional modelling ongoing, policy development has begun. Public and municipal consultation through Community Liaison Group.	N/A	Risk Assessment completed and accepted by Province. Additional modelling ongoing, policy development has begun. Public and municipal consultation through Community Liaison Group.	N/A	Risk Assessment completed and accepted by Province. Additional modelling ongoing, policy development has begun. Public and municipal consultation through Community Liaison Group.	N/A	Risk Assessment completed and accepted by Province. Additional modelling ongoing, policy development has begun. Public and municipal consultation through Community Liaison Group.	2
Provincial Working Groups	Staff participated on four provincial working groups consulting on potential provincial changes to guidance documents and / or legislation. These groups included: Non-agricultural source material / Hauled Sewage, Dense Non-aqueous phase liquids, Waste and Water Quantity.								
Review and Commenting on Source Protection Plan Amendments	None	None	None	Halton-Hamilton	Saugeen	CTC	Maitland	Maitland, Saugeen, CTC, HH	4
Provincial Reporting (Annual Reports and Grant reports)	5	5	5	6	7	6	7	8	49