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Staff Report

Operations Department

Report To: Committee of the Whole
Meeting Date: March 10, 2020
Report Number: CSOPS.20.005
Subject: 2019 Water Summary Report
Prepared by: Meg Boyd, Compliance & Efficiency Coordinator

A. Recommendations

THAT Council receive Staff Report CSOPS.20.005, entitled "2019 Water Summary Report"; for their information.

B. Overview

This report provides an overview of the Town's drinking water system activities in 2019. The Town continues to operate its Water System in accordance with all Provincial Legislative requirements.

C. Background

The delivery of potable water in Ontario is regulated by the Ministry of Environment, Conservation and Parks (MECP) under the Safe Drinking Water Act.

Ontario Regulation 170/03 Schedule 22 requires the Owner of a drinking water system to prepare a Summary Report no later than March 31st of each calendar year that summarizes the following:

a) List the requirements of the Act, the regulations, the system's approval, drinking water works permit, municipal drinking water license, and any orders applicable to the system that were not met at any time during the period covered by the report; and
b) For each requirement referred to in clause (a) that was not met, specify the duration of the failure and the measures that were taken to correct the failure.

The report must also include a summary of the quantities and flow rates of the water supplied during the 2019 period, including monthly average and maximum daily flows as well as daily instantaneous peak flow rates. A comparison of the summary to the rated capacity and flow rates approved in the system's approval must also be documented.

D. Analysis

The Town of the Blue Mountains (TOBM) continues to successfully operate its water system in accordance with all Provincial Legislative requirements.

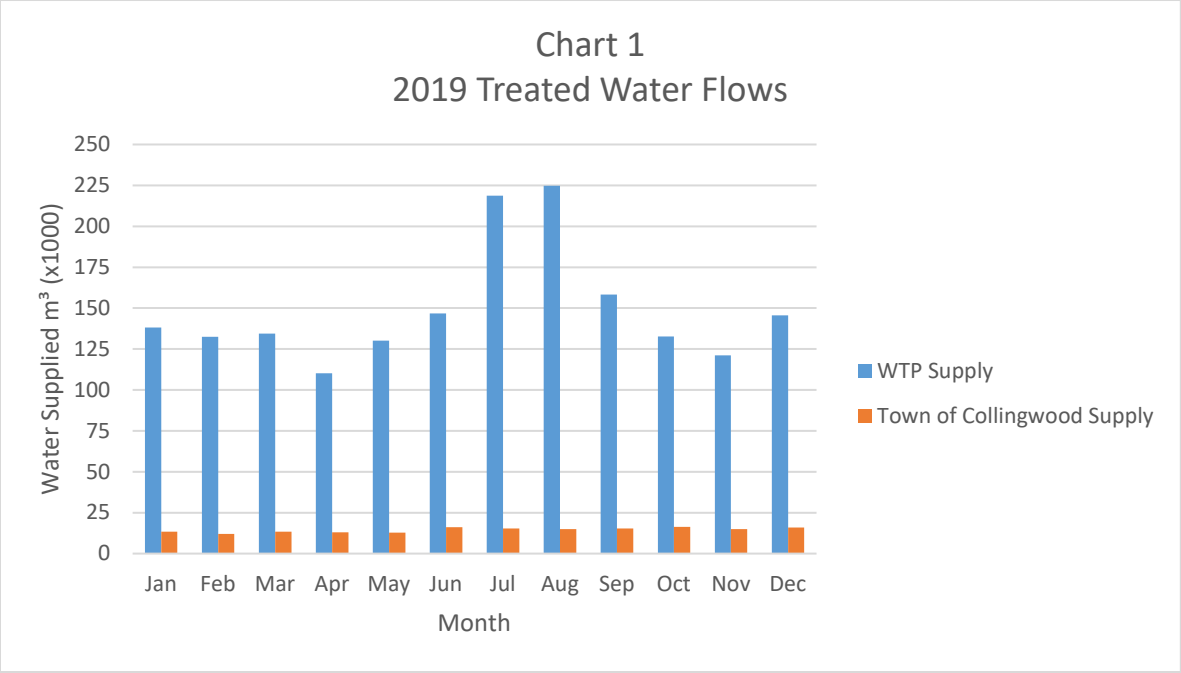
A copy of the 2019 Water Summary Report (Attachment # 1) is required to be presented and accepted by Municipal Council no later than March 31st of each calendar year.

This Report is specific to the Thornbury Water Treatment Plant (WTP) located at 230 Peel Street, its associated distribution system in the Lora Bay, Clarksburg, Thornbury, Camperdown, Swiss Meadows and Craigleith Service Areas and the supplemental supply received from the Town of Collingwood.

Through the implementation of the Municipal Drinking Water Licensing Program, the authority to establish or alter a water system is provided through a Drinking Water Works Permit and the authority to use or operate the water system is provided through a Drinking Water License. On October 23, 2015, the Town was issued Permit Number 111-201, Issue Number 2 and License Number 111-101, Issue 2.

The TOBM also receives a supplemental supply of water from the Town of Collingwood to assist with meeting water demands and providing redundancy. The water purchase agreement signed by the TOBM for a firm net capacity of 1,250 cubic meters per day at the Mountain Road Booster Pumping Station.

Chart 1 below summarizes the monthly totals of Treated Water Flows for the Thornbury Water Treatment Plant as well as the additional supply received from the Town of Collingwood. Presently, the Town has adequate supply to meet maximum daily demands throughout the year.



E. The Blue Mountains Strategic Plan

Goal #2: Engage Our Communities & Partners
Objective #1 Improve External Communication with our Constituents

Goal #3: Support Healthy Lifestyles
Objective #1 Promote the Town as a Healthy Community
Objective #4 Commit to Sustainability

Goal #4: Promote a Culture of Organizational & Operational Excellence
Objective #2 Improve Internal Communications Across our Organization
Objective #3 To Consistently Deliver Excellent Customer Service
Objective #4 To Be a Financially Responsible Organization

Goal #5: Ensure Our Infrastructure is Sustainable
Objective #1 Develop a Long-Term Asset Management Plan for the Maintenance, Renewal and Replacement of Existing Infrastructure
Objective #2 Avoid Unexpected Infrastructure Failure and Associated Costs and Liability
Objective #3 Implement Best Practices in Sustainable Infrastructure
Objective #4 Ensure that Infrastructure is Available to Support Development

F. Environmental Impacts

Provision of Safe Drinking Water

G. Financial Impact

None

H. In Consultation With

Allison Kershaw, Manager Water and Wastewater Services

Scott Hill, Water Supervisor

I. Public Engagement

The topic of this Staff Report has not been subject to a Public Meeting and/or a Public Information Centre as neither a Public Meeting nor a Public Information Centre are required. Comments regarding this report should be submitted to Meg Boyd, Water and Wastewater Compliance and Efficiency Coordinator **wwwinquiries@thebluemountains.ca**.

J. Attached

1. Attachment 1 – 2019 Water Summary Report

Respectfully submitted,

_____
Meg Boyd
Compliance & Efficiency Coordinator

_____
Shawn Carey
Director of Operations

For more information, please contact:
Meg Boyd
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519-599-3131 extension 285

2019 Water Summary Report

The Blue Mountains Water Section

Waterworks Number: 220001762

Reporting Period: January 1, 2019 to December 31, 2019

Table of Contents

Appendices

Executive Summary

This report has been prepared as required by Ontario Regulation 170/03 – Schedule 22 of the Safe Drinking Water Act (SDWA) which states the report must:

a) list the requirements of the Act, the regulations, the system's approval, drinking water works permit, municipal drinking water license, and any orders applicable to the system that were not met at any time during the period covered by the report; and
b) for each requirement referred to in clause (a) that was not met, specify the duration of the failure and the measures that were taken to correct the failure.

Ontario Regulation 170/03 further states the report must include the following information for enabling the owner of the system to assess the capability of the system to meet existing and planned uses of the system:

1) 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
2) A comparison of the summary referred to in paragraph 1 to the rated capacity and flow rates approved in the system's approval, drinking water works permit or municipal drinking water license, or if the system is receiving all of its water from another system under an agreement, to the flow rates specified in the written agreement.

All the above requirements have been met and will be further explored throughout the report.

A copy of this report is required to be presented and accepted by Municipal Council no later than March 31 of each calendar year.

This report is specific to the Thornbury Water Treatment Plant (WTP) located at 230 Peel Street and its associated distribution system in the Lora Bay, Clarksburg, Thornbury, Camperdown, Craigleith and Swiss Meadows Service Areas. Through the implementation of the Municipal Drinking Water Licensing Program, the authority to establish or alter a system is provided through a Drinking Water Works Permit and the authority to use or operate the system is provided through a Municipal Drinking Water License. On October 20, 2015, the Town's License Number 111-101 and Permit Number 111-201 was renewed for another five years. The Town is required to submit a renewal application for the License and Permit in April 2020.

Waterworks Description

The Water Treatment System is classified as a Large Municipal Residential System. The Water Treatment Plant Subclass System is Class 2 and the Water Distribution Subclass System is Class 3. The raw water source is surface water supplied by Georgian Bay.

The distribution system consists of approximately 120 kilometers of watermain owned and operated by the Town of The Blue Mountains (Town). Watermains range in size up to 400mm, consisting of PVC, ductile iron, cast iron, asbestos cement and high density polyethylene.

The Town also receives a supplemental supply from the Town of Collingwood to assist with meeting water demands and providing redundancy. The water purchase agreement signed by the Town and the Town of Collingwood states the Collingwood Public Utilities Board (CPUB) agrees to supply quantities of water to Town of The Blue Mountains equal to a firm capacity of 1,250 cubic meters per day at the Mountain Road Booster Station.

Compliance

Municipal Drinking Water Licensing Program

The Municipal Water Licensing Program was introduced in response to recommendations made by Justice O'Connor during the Walkerton inquiry. Under the Licensing Program, the Town was required to obtain a license to operate the drinking water system.

The License is comprised of five components; the Drinking Water Works Permit, Implementation of a Drinking Water Quality Management System, Accreditation of the Quality Management System, preparation of a Financial Plan and obtaining a Permit to Take Water.

1. Drinking Water Works Permit provides a description of the system, an authorization for alterations to the system and contains conditions relating to the physical works;
2. Drinking Water Quality Management System (DWQMS) is comprised of twenty-one elements that address all aspects of the water system. The overall goal of the DWQMS is continuous improvement with respect to planning, operating and reviewing the drinking water system;
3. Accreditation of the Operating Authority consisting of a third-party audit of the Operating Authorities compliance with the Quality Management System (QMS) criteria. The accreditation of operating authorities is a mandatory requirement under the SDWA. The accreditation body performing third-party audits for the Town is NSF International Strategic Registrations;
4. Ontario Regulation 453/07 requires that before a Municipality can renew its drinking water license, Staff must prepare and approve a financial plan. The plan must be approved by a resolution of Council and must apply for a six-year period. The Plan must include details of the proposed or projected financial operations of the drinking-water system itemized by:
    - total revenues, water rates, user charges, and other revenues;
    - total expenses, amortization expenses, interest expenses, and other expenses;
    - annual surplus or deficit;
    - accumulated surplus or deficit;

5. Permit to Take Water is required for systems that take 50,000 litres or more of source water per day. These permits help to ensure the conservation, protection, management and sustainable use of Ontario's water.

The Town's updated Water Financial Plan was approved by Council on April 20, 2015 and a copy was submitted to the Ministry of Municipal Affairs and Housing as required by legislation. As the needs of the system change and evolve, so too, will the Financial Plan. The Plan will be updated at minimum every five years. An updated Financial Plan will be considered by Council prior to May 2020.

On January 22, 2013, the Town received Full Scope – Entire DWQMS accreditation which is based on the documentation and implementation of all twenty-one elements of the DWQMS. The Town has received its renewed accreditation, expiring January 10, 2022.

On November 4, 2019 a systems surveillance audit was completed by NSF International Strategic Registrations, the third-party Accreditation Body for the Town. Audits are essential tools for measuring the effectiveness of the QMS and audit findings indicate areas where the QMS met (conformance) or did not meet (non-conformance) the requirements of the QMS. The role of the Auditor is to assess whether the Town's documented QMS met the "DO" requirements of the DWQMS. The "DO" requirements establish what objectives must be met in order to achieve conformance with the Standard.

The final audit report identified two (2) Minor non-conformance items:

1. Competencies required for Water and Wastewater Compliance and Efficiency Coordinator are not documented in the Operational Plan or referenced documents.
2. A process for identifying and implementing Preventative Actions to eliminate the occurrence of potential non-conformities in the Quality Management System is not documented.

A non-conformance indicates that the QMS needs to be improved to meet an element of the DWQMS and the specific details are outlined by the Auditor in the form of a Corrective Action Request (CAR).

Staff prepared responses to the CARs identified and all documentation was filed with NSF-ISR by the deadline of January 3, 2020. The Town received confirmation that responses submitted were accepted by NSF-ISR.

Compliance with Permit Number 111-201 and License Number 111-101 issued for the Town of The Blue Mountains Drinking Water System

The Thornbury Water Treatment Plant is owned by the Corporation of the Town of The Blue Mountains and is operated by employees of the Town's Water Section. Water Operators maintain the associated distribution system, reservoirs and booster pumping facilities. Staffing levels are maintained to ensure adequate numbers of trained and licensed personnel are available for proper operations during emergency or upset conditions or to deal with equipment breakdown. Operator meetings are conducted to allow Staff to review existing regulations and any associated amendments made. Staff training requirements are frequently

reviewed to ensure all Operations Staff have met the training requirements set out in Ontario Regulation 128/04 of the SDWA.

Contingency plans and operations manuals are established and located at the Thornbury Water Treatment Plant and Water Operations Centre. Operations manuals include information necessary for the day to day operations and maintenance of the Water Treatment Plant and Distribution System. Contingency plans include information that may be required for proper operation of the Water Treatment Plant and Distribution system. Contingency plans provide Operations Staff with procedures to ensure work is being performed in a consistent manner and contain such items as emergency plans and contacts, supplier contact lists, and a key list of equipment.

Schedule C: System-Specific Conditions

Section 1.0 – Rated Capacity – The maximum daily volume of treated water that flows from the treatment subsystem to the distribution system shall not exceed 15,140 m^3/day.
There were no instances during this reporting period where the flow rate exceeded the rated capacity.

Section 1.5 – Residue Management – The annual average concentration of Suspended Solids shall not exceed 25 mg/L.
Samples requiring analysis for suspended solids are typically collected during the first week of every month and analyzed by an accredited laboratory. Twelve samples were collected resulting in annual average of 19 mg/L.

Section 1.6 – UV Disinfection Equipment Performance
Ultra Violet (UV) disinfection is the method of disinfection in which ultraviolet irradiation is used to inactivate target organisms in the water source and is the primary disinfection used at the Thornbury WTP. Ultra violet disinfection equipment is installed and operated such that a UV dosage of at least 40 mJ/cm^2 is maintained. A dosage of less than 40 mJ/cm^2 triggers a shutdown of the UV and high lift pumps. A UV transmittance meter measures the waters ability to transmit light and is expressed as a percentage.

Section 2.1 – Flow Measurement and Recording Requirements
Flow measuring devices for measuring the amount of raw water taken from Georgian Bay and the amount of water supplied to the distribution system are calibrated annually as per manufacturer's instructions. The flow rate and daily volume of water conveyed from the treatment system to the distribution system is accomplished through the treated water flow meter and recorded on Supervisory Control And Data Acquisition (SCADA) trending printouts.

Section 4.0 – Additional Sampling, Testing and Monitoring
Water sampling is conducted as per the requirements outlined in Schedule 10 and 13 of Ontario Regulation 170/03. Water samples are collected throughout the distribution system at designated sampling stations as well as at Reservoirs and Booster Stations. Raw water sampling provides Operators with the necessary information to determine the appropriate level of treatment required to make the water potable while treated water and distribution samples are vital for ensuring the quality of water provided to residents is in accordance with Ministry of the Environment, Conservation and Parks (MECP) Regulations.

A weekly sampling plan[1] dictates the weekly sampling locations and is reviewed and revised as necessary. During the winter months, a winter sampling plan[2] is used. Samples requiring annual analysis are typically collected during the first week of April and are analyzed by an accredited laboratory.

Trihalomethane sampling is conducted at the extremities in the distribution system. All sampling is conducted in accordance with MECP Regulations and is monitored on a regular basis.

As of January 1, 2017, drinking water system owners/operating authorities are required to take samples quarterly and have them tested for Haloacetic Acids (HAAs) as outlined in O. Reg 170/03. Operators collected samples in each quarter and the Running Annual Average (RAA) for 2019 was 13 ug/L. Effective January 1, 2020, a standard for HAAs was introduced. The standard is 80 µg/L expressed as a RAA.

Chemicals used in the operation of the drinking-water system that are in contact with water within the system meet all applicable standards as established by AWWA, ANSI, NSF 60, NSF 61 and NSF/372 safety criteria standards. The requirement to comply with NSF/372 came into force on November 12, 2017. Safety Data Sheets are available for all chemicals and materials used.

Schedule D: Conditions for Relief from Regulatory Requirements

The Town is sampling for lead under the reduced sampling protocol. The testing frequency is reduced to two consecutive periods of semi-annual testing once every three years and the number of locations is also reduced. The Town collected samples for lead testing in 2018 in both the winter and summer periods under the reduced sampling program.

Non-Compliance with the Drinking Water Works Permit and Drinking Water License
There were no issues of non-compliance with the Permit and License.

Non-Compliance with Regulatory Requirements and Actions Required Resulting from MECP Inspection
An inspection of the Town's Drinking Water System was initiated on January 11, 2019 by the MECP. There were two Non-Compliance with Regulatory Requirements found. On December 21, 2018, an equipment failure resulted in a loss of SCADA trending and as a result, the Inspector found that continuous monitoring equipment being utilized to fulfill O.Reg 170/03 was not performing tests for the parameters with at least the minimum frequency specified in the Table in Schedule 6 of O.Reg 170/03 and/or was not recording data with the prescribed format. In addition to this, the Inspector found that the Owner and Operating Authority did not ensure that the primary disinfection equipment had a recording device that continuously recorded the performance of the disinfection equipment.

[1] Refer to Appendix A – Sampling Locations
[2] Refer to Appendix A-1 – Winter Sampling Locations

In order to mitigate this issue, the SCADA Integrator for the Water Group installed a Historian Defender program at the WTP to recover any data that is lost during SCADA communication failures.

The inspection report includes an Inspection Summary Rating Record which is designed to encourage drinking water systems to strive for continuous improvement. Based on the Ministry established rating methodology, The Town's Drinking Water System received a 95.43% rating for the 2019 reporting period.

Notifications of Adverse Water Quality Events

This section describes all Adverse Water Quality Incidents (AWQI). This term refers to any unusual test result from treated water that does not meet a provincial water quality standard or situation where disinfection of the water may be compromised. A single adverse water quality incident does not necessarily mean that drinking water from the system is unsafe – it indicates that, on at least one occasion, a water quality standard was not met.

Ontario Regulation 170/03 outlines the instances in which notifications are required when a parameter used to measure water quality exceeds a Maximum Acceptable Concentration (MAC). Once notification is received from the laboratory or Operations staff, Operators are to follow the steps as outlined in the Adverse Sample Result Received from Laboratory Procedure.

There was one (1) precautionary boil water issued and one (1) incident of adverse water quality in 2019.

On August 27, 2019 a watermain break was reported on Sleepy Hollow Road. The leak was at a fire hydrant at a dead end watermain. The watermain was isolated and throttled back, however still left with positive pressure. The area prior to the break was at a high elevation, and the water pressure in this area was below 20psi. The Town implemented a precautionary boil water advisory for the area affected by low pressure. Town Staff delivered notices to affected residences and posted notices on the Town's website. The precautionary boil water advisory was lifted on August 30, 2019 following receipt of two (2) sets of bacteriological sample results with 0 E.Coli and 0 Total Coliform.

On October 2, 2019 a low free chlorine residual of 0.02 mg/L was recorded at the auto flusher located at the west end of Bay Street, east of the Little Beaver River. This is a cast iron 150mm watermain, at a dead end. This watermain has been included in the substandard list, and is eventually to be replaced. The material and size of this main, considering the number of users, make it challenging to maintain an adequate free chlorine residual, without excessive flushing. Ontario Regulation 170/03 requires a minimum of 0.05 mg/L. The incident was reported to the Ministry of the Environment, Conservation and Parks Spills Action Centre and the Grey Bruce Health Unit and no further direction was provided. Operators flushed the affected dead end watermain and restored the free chlorine residual to 0.81 mg/L.

Summary of the Quality of Water Supplied During the Reporting Period

Appended to this report (Appendix B) are the treated water flows for the Thornbury Water Treatment Plant for the 2019 reporting period. The Thornbury Water Treatment Plant services a population of approximately 18,165 residents, including commercial, industrial and resort

facilities. As noted in Chart 1 below, there is a significant increase in water demand during the peak periods of July and August. The increase in water demands during the "peak" recreational periods is attributed to the seasonal tourist influx. Appended to this report (Appendix C) are the supplemental flows received from the Town of Collingwood for the 2019 reporting period.

Chart 1 below summarizes the monthly totals of Treated Water Flows for the Thornbury Water Treatment Plant as well as the additional supply received from the Town of Collingwood.

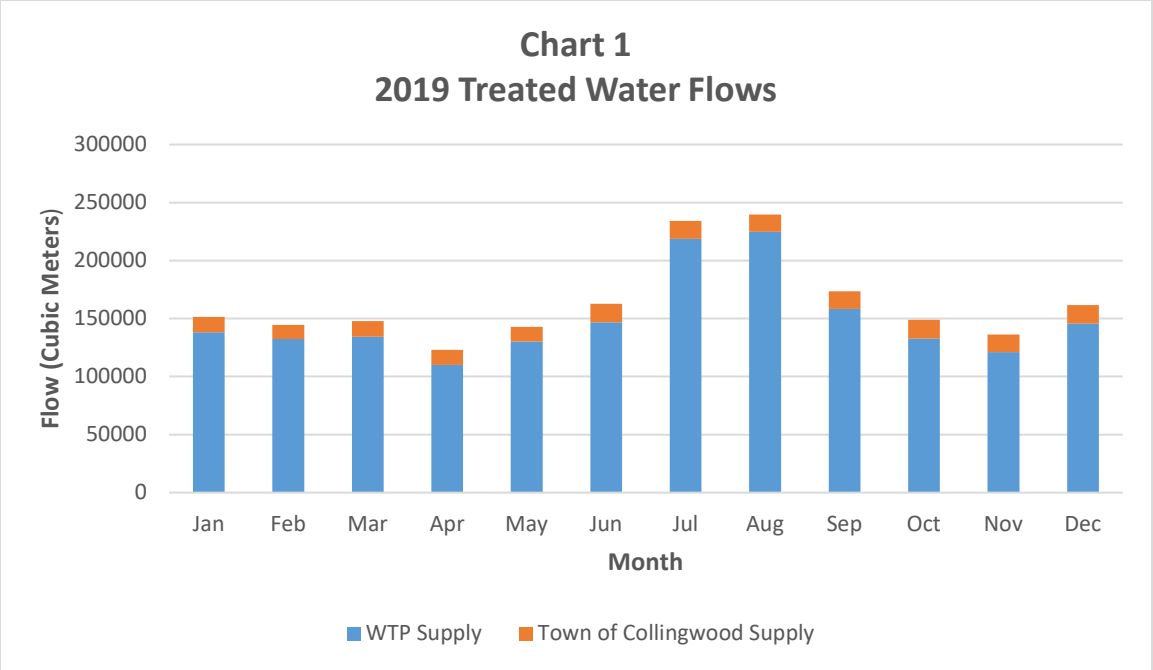
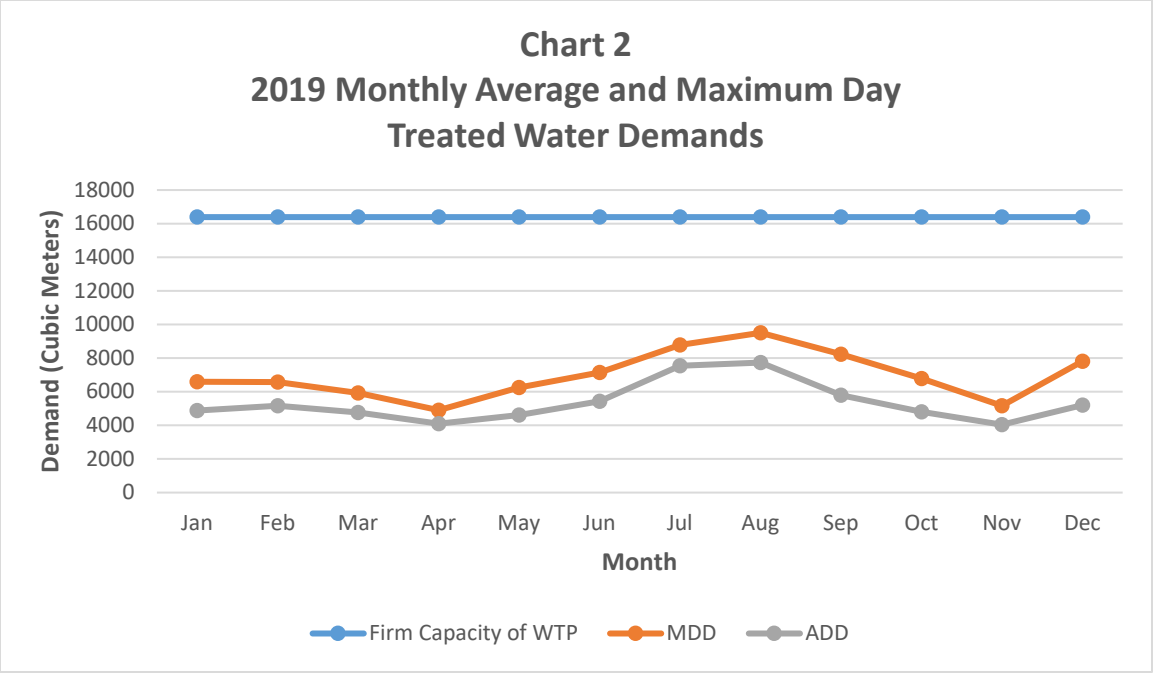


Chart 2 reflects the monthly average daily demands (ADD) and monthly maximum daily demands (MDD) for the treated water at the Thornbury Water Treatment as well as the supplemental supply received from the Town of Collingwood.

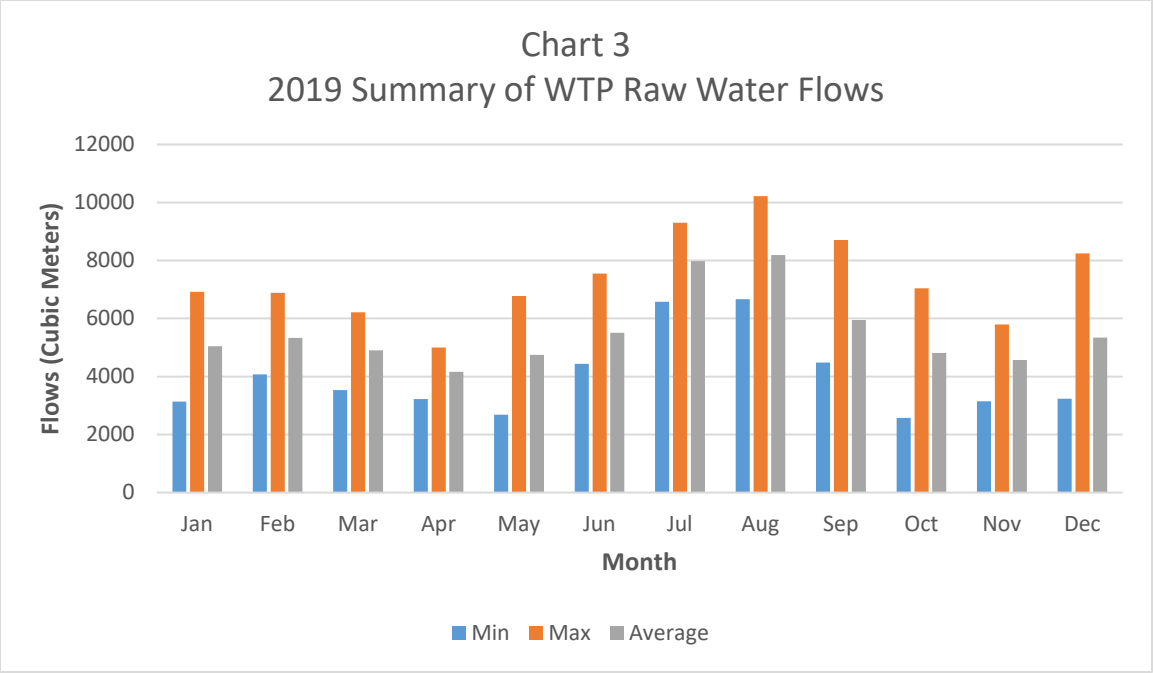


*Firm Capacity includes the supplemental Collingwood Supply of up to 1,250 m^3/day

From June 1 through to and including September 1, the Town imposes restrictions on external water use. The restrictions are in force to encourage water conservation efforts as well as control maximum day demands. During 2019, the Town imposed Stage 1 water restrictions which restricts residents' external water use to between the hours of 7:00am and 9:00am and 7:00pm and 9:00pm on specified calendar days. Properties with odd numbered addresses can water on odd numbered calendar days. Properties with even numbered addresses can water on even numbered calendar days.

Raw Water Flows for the Thornbury Water Treatment Plant

Appended to this report (Appendix D) and included below in Chart 3 are the raw water flows into the Thornbury Water Treatment Plant for the 2019 reporting period. Minimum, maximum and average values are based on daily flows for the month.



Raw Water Flows Versus Capacity

A daily summary of the maximum daily flow rates expressed as a percentage of capacity is included in Appendix E.

Operational Overview

There were seven (7) watermain breaks in the 2019 reporting period. All breaks were repaired with minimal water service interruption to consumers.

Conclusion

The Blue Mountains Water Section continues to successfully operate its Water System in accordance with all Provincial Legislative requirements.

Sampling Locations

Week # 1	Week # 2	Week # 3	Week # 4	Week # 5
Sunset Blvd DE SS (030)	Lora Bay SS (031)	West Ridge DE Phase 1 SS (032)	Lora Bay East Ridge SS (002)	West Ridge SS (032)
Carmichael Crescent SS (035)	Cameron Street SS (004)	Louisa Street East SS (008)	Sunset Blvd. DE SS (030)	Lora Bay Drive SS (031)
Duncan Street SS (005)	Far Hills Club - Alfred Street SS (024)	George McRae Road SS (033)	Edward Street SS (006)	Louisa / Hester SS (007)
Camperdown Court SS (012)	Timberleif & 7th Line SS (009)	Aspen Way / Old Lakeshore SS (015)	Timberleif & 7th Line SS (009)	Carmichael Crescent SS (035)
Blueski George Crescent SS (026)	Barclay Blvd SS (029)	Orchard - National Drive SS (025)	Camperdown - Stone Zack Lane SS (011)	Barclay Blvd. SS (029)
Drakes Path SS (018)	Oak Court SS (014)	Arlberg Crescent SS (017)	Teskey Drive SS (028)	Arlberg Crescent SS (017)
Patricia Drive SS (020)	Timmons Street SS (027)	Timmons Street SS (027)	Ellis Street SS (034)	Monterra/Grand Cypress SS (019)
Mountain Road Booster Station	Monterra/ Grand Cypress SS (019)	Patricia Drive SS (020)	Mountain Road Booster Station	Mountain Road Booster Station
Swiss Meadows Standpipe	Mountain Road Booster Station	Mountain Road Booster Station	Mountain Road SS (021)	Patricia Drive SS (020)
Louisa / Hester SS (007)	Swiss Meadows Scandia SS (022)	Swiss Meadows Maple SS (023)	Swiss Meadows Scandia SS (022)	Swiss Meadows Maple SS (023)

Revised: June 14, 2018

Winter Sampling Locations

Week # 1	Week # 2	Week # 3	Week # 4	Week # 5
10th Line Booster Station	10th Line Booster Station	10th Line Booster Station	10th Line Booster Station	10th Line Booster Station
Water Operations Center	Water Operations Center	Water Operations Center	Water Operations Center	Water Operations Center
Beaver Valley Community School	Town Hall	Town Hall	Town Hall	Town Hall
Thornbury Reservoir	Thornbury Reservoir	Thornbury Reservoir	Thornbury Reservoir	Thornbury Reservoir
Camperdown Reservoir	Camperdown Reservoir	Camperdown Reservoir	Camperdown Reservoir	Camperdown Reservoir
Arrowhead Road Booster Station	Arrowhead Road Booster Station	Arrowhead Road Booster Station	Arrowhead Road Booster Station	Arrowhead Road Booster Station
Happy Valley Booster Station	Happy Valley Booster Station	Happy Valley Booster Station	Happy Valley Booster Station	Happy Valley Booster Station
Mountain Road Booster Station	Mountain Road Booster Station	Mountain Road Booster Station	Mountain Road Booster Station	Mountain Road Booster Station
Swiss Meadows Standpipe	Swiss Meadows Standpipe	Swiss Meadows Standpipe	Swiss Meadows Standpipe	Swiss Meadows Standpipe
Wards Road Booster Station	Wards Road Booster Station	Wards Road Booster Station	Wards Road Booster Station	Wards Road Booster Station

Revised: October 20, 2015

Appendix B

Compliance Report - 2019 Summary of Treated Water Flows

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1st	5266	4747	4667	4005	3349	4358	7767	6789	7707	4325	3727	3528
2nd	5317	6081	5205	3068	3795	4117	6408	7885	7028	4364	4701	3527
3rd	5328	6137	5199	3680	4109	4620	6742	8431	5622	3925	4548	4208
4th	5864	4148	4330	3749	3974	3938	7918	9077	4548	3942	3823	3490
5th	5499	4320	3802	3962	4266	4343	6881	8232	5032	5024	3113	4225
6th	4477	4596	3164	4279	4760	4529	7532	6497	6046	4273	2828	4009
7th	4055	4485	3703	4059	2374	3986	6835	6013	5091	4534	4131	5148
8th	3257	4719	4425	3318	3997	5911	7692	7574	5169	5579	4220	3754
9th	4361	5347	5486	3338	4003	5613	5867	6634	6278	2559	4537	3629
10th	2803	4787	4302	4162	3866	4023	6983	7908	5104	4194	4317	4175
11th	4339	3842	5175	3299	4090	4556	6869	7624	4966	5027	3361	4498
12th	5757	4597	4350	3787	4362	5062	7429	7869	5860	6132	4443	2661
13th	4811	3611	5146	3454	2977	4241	7775	7133	5695	3907	3583	5321
14th	3139	4135	4634	3562	4326	5268	7496	7302	5340	6273	3744	4612
15th	3754	5239	4926	4047	3214	4339	7360	6872	6039	4609	4556	4884
16th	4235	5971	4980	2963	4100	4868	6026	7387	5555	3548	4241	3951
17th	3282	6057	4380	3479	4586	4398	6560	5894	4581	3712	3927	4261
18th	4623	5248	4391	3539	6015	4737	6068	7012	4806	4762	4004	3617
19th	6162	3862	3123	3705	4823	4842	7812	7096	5342	4906	3890	4792
20th	4603	4545	3988	4470	4469	4255	7328	7032	5552	3476	3503	4651
21st	4455	4575	3597	4285	5177	5746	6283	6091	5105	5860	4161	4478
22nd	4139	5571	4409	3189	3806	5613	8119	6514	6013	2308	3785	5501
23rd	3544	5534	5307	3434	4548	5414	6415	7609	5041	4281	4584	5261
24th	4226	4485	3920	3450	4874	5129	7590	7744	4008	3083	5165	5539
25th	4669	3760	4032	3313	3974	5180	7754	7744	4610	4779	4289	5296
26th	5950	3770	3423	3811	4314	4134	8264	7144	4106	3747	4202	5630
27th	4251	4203	3590	4166	5277	4718	7757	7157	4693	4112	3219	5990
28th	4040	4148	4015	4184	3939	5461	6887	6995	4763	4038	3110	6431
29th	3854		4096	2775	3616	6616	6484	7197	4309	3856	5057	5710
30th	3740		4339	3623	4457	6707	5904	7177	4291	3814	4455	5610
31st	4260		4326		4707		5963	7139		3691		7290
Total	138060	132520	134430	110155	130144	146722	218768	224772	158296	132638	121219	145678

Average	4454	4733	4336	3672	4198	4891	7057	7251	5277	4279	4041	4699
Max	6162	6137	5486	4470	6015	6707	8264	9077	7707	6273	5165	7290
Min	2803	3611	3123	2775	2374	3938	5867	5894	4008	2308	2828	2661

All flows are in cubic meters

Appendix C

Compliance Report - 2019 Summary of Supplemental Flows from Town of Collingwood

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1st	430.0	433	434	434	432	433	432	430	519	518	516	516
2nd	432.0	431	433	432	425	433	432	431	518	509	516	517
3rd	487.0	430	434	435	433	433	134	428	517	518	518	517
4th	431.0	430	432	434	433	431	0	430	511	516	515	517
5th	431.0	431	433	434	432	432	540	431	516	517	518	514
6th	430.0	431	433	432	433	431	679	429	518	517	517	517
7th	433.0	431	434	433	427	431	518	431	517	517	517	514
8th	432.0	434	434	433	434	433	516	430	517	517	516	516
9th	432.0	430	434	435	432	432	517	430	517	758	516	517
10th	430.0	430	414	434	433	432	519	431	644	594	515	517
11th	432.0	431	434	433	432	553	519	430	379	517	515	516
12th	430.0	430	434	434	433	432	518	429	341	517	518	517
13th	431.0	432	429	434	433	432	519	431	517	517	517	516
14th	431.0	430	434	433	432	433	519	651	517	518	516	516
15th	429.0	431	433	433	432	433	518	518	517	518	258	517
16th	430.0	430	433	435	431	431	517	518	517	515	509	517
17th	433.0	431	432	433	266	433	520	519	516	518	516	516
18th	430.0	433	434	434	228	432	517	518	518	516	504	516
19th	433.0	431	435	433	433	415	519	510	516	516	503	435
20th	433.0	428	433	433	302	433	519	517	502	517	453	516
21st	430.0	454	435	432	268	432	518	516	518	516	373	516
22nd	433.0	433	435	432	433	433	517	517	518	519	516	517
23rd	427.0	433	433	433	432	432	517	515	517	517	517	503
24th	433.0	433	433	432	432	575	510	518	518	516	516	517
25th	429.0	432	435	432	432	1133	518	517	517	502	517	517
26th	429.0	434	433	429	433	1288	516	510	470	516	517	484
27th	430.0	430	411	432	432	1293	517	517	516	517	518	518
28th	433.0	433	435	434	432	898	516	517	518	517	516	516
29th	431.0		434	433	432	432	518	517	516	518	516	517
30th	432.0		434	434	427	431	723	502	517	517	516	517
31st	435.0		433		431		430	517		518		519
Total	13422	12100	13397	12994	12720	16095	15272	15005	15259	16323	14995	15885

Average	433	432	432	433	410	537	493	484	509	527	500	512
Max	487	454	435	435	434	1293	723	651	644	758	518	519
Min	427	428	411	429	228	415	0	428	341	502	258	435

All flows are in cubic meters

Appendix D

Compliance Report - 2019 Summary of Raw Water Flows

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1st	5868	5323	5415	4737	3787	4933	8798	7656	8706	4859	4196	3936
2nd	6022	6800	5937	3420	4299	4655	7196	8868	7910	4891	5268	3986
3rd	6089	6892	5867	4123	4802	5201	7577	9502	6321	4486	5120	4857
4th	6714	4619	4845	4437	4535	4434	8916	10223	5105	4405	4349	3944
5th	6181	4820	4243	4684	4780	4902	7692	9281	5740	5625	3710	4757
6th	5062	5163	3530	4762	5347	5165	8506	7431	6791	4748	3144	4624
7th	4536	5119	4131	4541	2688	4488	7725	6768	5731	5089	4735	5807
8th	3626	5298	4927	3715	4571	6673	8724	8526	5808	6219	4763	4251
9th	4961	5971	6212	3726	4527	6282	6863	7430	6997	2824	5113	4326
10th	3141	5395	4792	4652	4357	4555	7853	8988	5699	4707	4841	4703
11th	4852	4409	5817	3801	4549	5120	7949	8687	5613	5739	3753	5324
12th	6467	5290	4913	4234	4967	5662	8369	8882	6581	6860	4998	3232
13th	5408	4079	5986	3853	3283	4756	8748	7968	6411	4386	4111	6118
14th	3529	4709	5293	3964	4840	5896	8529	8288	6093	7043	4278	5151
15th	4380	5880	5588	4526	3639	4828	8273	7693	6760	5348	5089	5499
16th	4742	6708	5613	3316	4587	5487	7058	8376	6406	3992	4879	4444
17th	3719	6818	5045	4033	5153	4994	7369	6662	5280	4144	4411	4934
18th	5415	5917	4970	3951	6777	5324	6963	7865	5650	5447	4511	4161
19th	6922	4319	3698	4153	5427	5439	8777	7973	6249	5480	4397	5393
20th	5229	5219	4447	4996	5046	4794	8261	7915	6220	3910	4035	5234
21st	4978	5139	4012	4784	5874	6490	7063	6897	5673	6533	4708	5028
22nd	4978	6262	4919	3575	4271	6283	9149	7462	6726	2575	4244	6195
23rd	3959	6227	5924	3930	5184	6079	7301	8659	5671	4803	5265	5957
24th	4712	5056	4379	3858	5575	5735	8514	8671	4480	3494	5777	6238
25th	5252	4194	4651	3823	4457	5813	8738	8708	5270	5368	4838	6051
26th	6702	4368	3880	4302	4850	4629	9298	8025	4603	4189	4733	6326
27th	4891	4694	4056	4686	6042	5395	8729	8058	5239	4599	3622	6765
28th	4731	4652	4527	4825	4473	6110	7695	7940	5279	4605	3515	7237
29th	4304		4631	3225	4052	7423	7345	8293	4825	4322	5794	6455
30th	4271		4997	4086	5002	7544	6583	8180	4811	4264	4982	6316
31st	4690		4861		5288		6737	8143		4148		8247
Total	156328	149340	152106	124713	147028	165089	247295	254018	178648	149097	137173	165493

Avg	5043	5334	4907	4157	4743	5503	7977	8194	5955	4810	4572	5338
High	6922	6892	6212	4996	6777	7544	9298	10223	8706	7043	5794	8247
Low	3141	4079	3530	3225	2688	4434	6583	6662	4480	2575	3144	3232

All flows are in cubic meters

2019 Maximum Raw Daily Flow Rates Expressed as a Percentage of Capacity (15,140 m^3 per day)

	Jan	% of Flow	Feb	% of Flow	Mar	% of Flow	Apr	% of Flow	May	% of Flow	Jun	% of Flow	Jul	% of Flow	Aug	% of Flow	Sep	% of Flow	Oct	% of Flow	Nov	% of Flow	Dec	% of Flow
1st	5868	38.76	5323	35.16	5415	35.77	4737	31.29	3787	25.01	4933	32.58	8798	58.11	7656	50.57	8706	57.50	4859	32.09	4196	27.71	3936	25.99
2nd	6022	39.78	6800	44.91	5937	39.21	3420	22.59	4299	28.39	4655	30.75	7196	47.53	8868	58.57	7910	52.25	4891	32.31	5268	34.79	3986	26.32
3rd	6089	40.22	6892	45.52	5867	38.75	4123	27.23	4802	31.72	5201	34.35	7577	50.05	9502	62.76	6321	41.75	4486	29.63	5120	33.81	4857	32.08
4th	6714	44.35	4619	30.51	4845	32.00	4437	29.31	4535	29.95	4434	29.29	8916	58.89	10223	67.52	5105	33.72	4405	29.09	4349	28.73	3944	26.05
5th	6181	40.83	4820	31.84	4243	28.03	4684	30.94	4780	31.57	4902	32.38	7692	50.81	9281	61.30	5740	37.91	5625	37.16	3710	24.50	4757	31.42
6th	5062	33.43	5163	34.10	3530	23.32	4762	31.45	5347	35.32	5165	34.11	8506	56.18	7431	49.08	6791	44.85	4748	31.36	3144	20.76	4624	30.54
7th	4536	29.96	5119	33.81	4131	27.29	4541	29.99	2688	17.75	4488	29.64	7725	51.02	6768	44.70	5731	37.86	5089	33.61	4735	31.27	5807	38.35
8th	3626	23.95	5298	34.99	4927	32.54	3715	24.54	4571	30.19	6673	44.08	8724	57.62	8526	56.31	5808	38.36	6219	41.08	4763	31.46	4251	28.08
9th	4961	32.77	5971	39.44	6212	41.03	3726	24.61	4527	29.90	6282	41.49	6863	45.33	7430	49.08	6997	46.22	2824	18.65	5113	33.77	4326	28.57
10th	3141	20.75	5395	35.63	4792	31.65	4652	30.73	4357	28.78	4555	30.09	7853	51.87	8988	59.37	5699	37.64	4707	31.09	4841	31.97	4703	31.07
11th	4852	32.05	4409	29.12	5817	38.42	3801	25.11	4549	30.05	5120	33.82	7949	52.50	8687	57.38	5613	37.07	5739	37.90	3753	24.79	5324	35.16
12th	6467	42.71	5290	34.94	4913	32.45	4234	27.97	4967	32.81	5662	37.40	8369	55.28	8882	58.67	6581	43.47	6860	45.31	4998	33.01	3232	21.35
13th	5408	35.72	4079	26.94	5986	39.54	3853	25.45	3283	21.68	4756	31.41	8748	57.78	7968	52.63	6411	42.34	4386	28.97	4111	27.15	6118	40.41
14th	3529	23.31	4709	31.10	5293	34.96	3964	26.18	4840	31.97	5896	38.94	8529	56.33	8288	54.74	6093	40.24	7043	46.52	4278	28.25	5151	34.02
15th	4380	28.93	5880	38.84	5588	36.91	4526	29.89	3639	24.04	4828	31.89	8273	54.64	7693	50.81	6760	44.65	5348	35.33	5089	33.61	5499	36.32
16th	4742	31.32	6708	44.31	5613	37.07	3316	21.90	4587	30.30	5487	36.24	7058	46.62	8376	55.32	6406	42.31	3992	26.37	4879	32.22	4444	29.35
17th	3719	24.56	6818	45.03	5045	33.32	4033	26.64	5153	34.04	4994	32.99	7369	48.67	6662	44.00	5280	34.88	4144	27.37	4411	29.13	4934	32.59
18th	5415	35.77	5917	39.08	4970	32.83	3951	26.10	6777	44.76	5324	35.17	6963	45.99	7865	51.95	5650	37.32	5447	35.98	4511	29.79	4161	27.48
19th	6922	45.72	4319	28.53	3698	24.43	4153	27.43	5427	35.85	5439	35.92	8777	57.97	7973	52.66	6249	41.27	5480	36.19	4397	29.04	5393	35.62
20th	5229	34.54	5219	34.47	4447	29.37	4996	33.00	5046	33.33	4794	31.66	8261	54.56	7915	52.28	6220	41.08	3910	25.83	4035	26.65	5234	34.57
21st	4978	32.88	5139	33.94	4012	26.50	4784	31.60	5874	38.80	6490	42.87	7063	46.65	6897	45.55	5673	37.47	6533	43.15	4708	31.09	5028	33.21
22nd	4978	32.88	6262	41.36	4919	32.49	3575	23.61	4271	28.21	6283	41.50	9149	60.43	7462	49.29	6726	44.43	2575	17.01	4244	28.03	6195	40.92
23rd	3959	26.15	6227	41.13	5924	39.13	3930	25.96	5184	34.24	6079	40.15	7301	48.22	8659	57.19	5671	37.46	4803	31.72	5265	34.77	5957	39.34
24th	4712	31.12	5056	33.39	4379	28.92	3858	25.48	5575	36.82	5735	37.88	8514	56.24	8671	57.27	4480	29.59	3494	23.07	5777	38.16	6238	41.20
25th	5252	34.69	4194	27.70	4651	30.72	3823	25.25	4457	29.44	5813	38.39	8738	57.71	8708	57.52	5270	34.81	5368	35.46	4838	31.95	6051	39.97
26th	6702	44.27	4368	28.85	3880	25.63	4302	28.41	4850	32.03	4629	30.57	9298	61.41	8025	53.01	4603	30.40	4189	27.67	4733	31.26	6326	41.78
27th	4891	32.31	4694	31.00	4056	26.79	4686	30.95	6042	39.91	5395	35.63	8729	57.66	8058	53.22	5239	34.60	4599	30.38	3622	23.92	6765	44.68
28th	4731	31.25	4652	30.73	4527	29.90	4825	31.87	4473	29.54	6110	40.36	7695	50.83	7940	52.44	5279	34.87	4605	30.41	3515	23.22	7237	47.80
29th	4304	28.43		0.00	4631	30.59	3225	21.30	4052	26.76	7423	49.03	7345	48.51	8293	54.78	4825	31.87	4322	28.54	5794	38.27	6455	42.63
30th	4271	28.21			4997	33.01	4086	26.99	5002	33.04	7544	49.83	6583	43.48	8180	54.03	4811	31.78	4264	28.16	4982	32.90	6316	41.71
31st	4690	30.98			4861	32.11			5288	34.93			6737	44.50	8143	53.78			4148	27.40			8247	54.47
Avg	5043		5334		4907		4157		4743		5503		7977		8194		5955		4810		4572		5338	
High	6922		6892		6212		4996		6777		7544		9298		10223		8706		7043		5794		8247	
Low	3141		4079		3530		3225		2688		4434		6583		6662		4480		2575		3144		3232	

All flows are in cubic metres

This document can be made available in other accessible formats as soon as practicable and upon request

2019 Annual Compliance Report

Drinking Water System General Information

This report has been prepared in accordance with the reporting requirements of the Safe Drinking Water Act 2002 O.Reg 170/03, s 11(1), (3), (6), (7), (8), (9.1) and 10 as well as Schedule 22-1 and 22-2.

This annual report has been included in the Water Summary Report presented to Council and a notice has been placed in the local newspaper notifying the public and any interested authority that the Blue Mountains Drinking Water System's 2019 Annual Compliance Report can be viewed on the Town's website at www.thebluemountains.ca, or viewed in the Public Information Binder located at Town Hall. Additionally, a request can be made to receive a copy free of charge.

Drinking Water System Information

Drinking Water System Number	220001762
Drinking Water System Name	The Blue Mountains Drinking Water System
Drinking Water System Owner	Town of The Blue Mountains
Drinking Water System Category	Large Municipal Residential
Period being reported	January 1, 2019 to December 31, 2019
Does your Drinking Water System serve more than 10,000 people?	Yes

Drinking Water System Description

The Thornbury Water Treatment Plant is located at 230 Peel Street. The water source is Georgian Bay, part of the Great Lakes Water System.

A 569m long, 600mm diameter raw water intake pipe extends approximately 569m into Georgian Bay. A 38mm diameter chlorine feed line and a chlorine solution diffuser provides pre-chlorination and zebra mussel control. Raw water sampling is accomplished by utilizing a 25mm diameter sampling line which extends out from the intake bell.

After entering the intake, three (3) low lift vertical turbine pumps (2 duty, 1 standby) deliver the raw water to two (2) 0.30mm strainers before it is directed to the microfiltration units.

The microfiltration system consists of three (3) racks. Each rack has 240 modules complete with valve racks and controllers. The microfiltration units filter the raw water by forcing it through 0.1 micron sized membranes.

After being filtered, the treated water is discharged into a common header where it is chlorinated (post-chlorination) prior to being drawn by three (3) high lift vertical turbine pumps (2 duty, 1 standby) and pumped through the ultraviolet disinfection system. The ultraviolet system consists of three (3) Trojan UV Reactors (2 duty, 1 standby) which provide 100% treatment capacity prior to delivery to the Town's distribution system. Ultraviolet is the method of disinfection in which ultraviolet irradiation is used to inactivate target organisms in the water source and is the primary disinfection used at the Thornbury WTP.

Two (2) reverse filtration pumps (1 duty, 1 standby) are used to backwash the microfiltration units into Modified Reverse Filtration Filter (MRFF). The MRFF (modified original mixed media filter) is isolated from the potable water system and is used to filter the reverse filtration water from the microfiltration units and the backflush discharge from the strainers. This waste filtrate water is monitored for chlorine residual and chemically de-chlorinated before being discharged into the Little Beaver River.

Control of the high lift pumps is via level in the 747 cubic meter elevated storage tank located on Victoria Street in Thornbury.

The distribution system consists of approximately 120 kilometers of watermain ranging in size from 50mm to 400mm. Distribution facilities consist of an elevated tank, seven (7) booster stations, four (4) grade level reservoirs and one (1) standpipe.

Water is supplied to the Town of Collingwood through a connection at Long Point Road. Additionally, the Town can supply the Town of Collingwood by reversing flow at Mountain Road and/or opening the valve at Grand Cypress which will supply water to the western part of Collingwood. The supply of water is metered to ensure cost recovery from the Town of Collingwood.

Thornbury Water Tower

An elevated storage tank is located on Victoria Street in Thornbury and is referred to as the Thornbury Water Tower. This Tower has a capacity of 747 cubic meters. The Tower level supplies water pressure to the 10th Line Booster Station, Thornbury Reservoir, Camperdown Court, and Arrowhead Road Booster Station.

10th Line Booster Station

A booster station and re-chlorination facility is located at the 10th Concession and Highway No. 26 and is referred to as the 10th Line Booster Station. The water pressure at this station is boosted for higher distribution pressures and volume to provide fire flows throughout the Lora Bay Service Area. 100% standby power is available at this station. The firm capacity at this station is 66.67 l/s.

Thornbury Reservoir

A treated water reservoir, booster station and re-chlorination facility is located at 1 Grey Street South, Unit 1 in Thornbury and is referred to as the Thornbury Reservoir. The Thornbury Reservoir is equipped with three centrifugal pumps, re-chlorination equipment and 100% standby power. The firm capacity at this station is 150 l/s.

Camperdown Reservoir

A treated water reservoir, pumphouse and re-chlorination facility is located at 109 Camperdown Road and is referred to as the Camperdown Reservoir. This in-ground reservoir and booster station is equipped with two centrifugal operating pumps, one centrifugal fire pump, re-chlorination equipment and 100% standby power. The firm capacity to the upper zone is 12.3 l/s.

Camperdown Court Booster Station

A booster pumping station is located at 103 Camperdown Court and is referred to as the Camperdown Court Booster Station. This station is utilized to fill the Camperdown Reservoir and is equipped with two centrifugal pumps with standby power supplied by the Camperdown Reservoir. The firm capacity at this station is 85 l/s.

Wards Road Booster Station

A booster station is located at 153 Wards Road and is referred to as the Wards Road Booster Station. It services the upper portion of Hidden Lake Road. This booster station is equipped with two centrifugal pumps. This station is equipped with 100% standby power. The firm capacity at this station is 16 l/s.

Arrowhead Road Booster Station

A booster station is located at 122 Arrowhead Road and is referred to as the Arrowhead Road Booster Station. This station is equipped with three vertical turbine pumps, re-chlorination equipment and 40% standby power. This station provides water to the Craigleith Service Area and supplies water to the Happy Valley Road Reservoirs. Provisions were made through piping and valving to reverse the flow of water from the Craigleith Service Area to the Camperdown and Thornbury Service Areas. The firm capacity at this station is 40 l/s.

Happy Valley Reservoirs

Two reservoirs are located at 136 Happy Valley Road and are referred to as the Happy Valley Road Reservoirs. These reservoirs have a combined capacity of 5,000 cubic meters.

Happy Valley Road Booster Station

A booster pumping station is also located at 136 Happy Valley Road and is referred to as the Happy Valley Road Booster Station. This station is equipped with two pumps and re-

chlorination equipment. This station supplies water to the Swiss Meadows Standpipe and Service Area. The firm capacity of this station is 5.35 l/s.

Swiss Meadows Standpipe

A 536 cubic meters standpipe is located at 154 Scandia Lane above the Swiss Meadows Subdivision.

Mountain Road Booster Station

A booster pumping station is located at 795930 at the intersection of Grey Road 9 and Grey Road 21 and is referred to as the Mountain Road Booster Station. This station is equipped with two in-line water booster pumps and re-chlorination equipment. This station has a firm capacity of 46 l/s. The water supply for this station is received from the Town of Collingwood.

Summary of Water Treatment Chemicals Used Over this Reporting Period

Chlorine (liquefied gas)

Sodium Hypochlorite (12%)

Citric Acid

Sodium Hydroxide

Calcium Thiosulphate

Summary of Monetary Expenses Incurred in 2019

Water SCADA Improvement Program

To improve system reliability and redundancy by improving and expanding the existing SCADA system.

Expended this year: $32,338.05

Vehicle Replacement

Replacement of existing vehicle that has reached the end of its useful life

Expended this year: $40,190.71

Substandard Watermain Replacement Program

To ensure the water system provides safe and reliable delivery of potable water.

Expended this year: $106,606.05

Water Vacuum Unit Replacement

To ensure equipment is reliable by replacing the vacuum excavation and valve turning unit which has reached the end of its useful life.

Expended this year: $120,729.54

Watermain Leak Detection & Repair Program

To reduce the amount of water loss and defer system expansions through completing an annual correlation and acoustic listening survey from 2019 to 2024 and repairing leaks as warranted.

Expended this year: $18,876.68

Water Pressure & Flow Monitoring Device Installations

To monitor flows and pressures to designated Service Areas to ensure sufficient operation of the distribution system.

Expended this year: $73,697.07

Peel Street North Watermain Service Replacement

To increase security of supply by switching existing services from a watermain subject to breaking to a more reliable watermain.

Expended this year: $72,876.60

Water Pressure Zone 4C Distribution Improvements

To improve system reliability, pressures and fire protection by reconfiguring Pressure Zone 4C boundary.

Expended this year: $41,429.46

Unit Boiler at Water Treatment Plant

Expended this year: $44,163.26

Water Treatment Plant Equipment Replacement

To replace piping and valves on Clean in Place (CIP) system for Pall Membrane System at the WTP and to replace critical UV and microfiltration system valves and actuators that have reached the end of their useful lives.

Expended this year: $48,436.52

Summary of Adverse Drinking Water Quality Results

This section describes all Adverse Water Quality Incidents (AWQI). This term refers to any treated water test result that does not meet a provincial water quality standard or a situation where disinfection of the Town's drinking water may be compromised. A single AWQI does not necessarily mean that the system's drinking water is unsafe – it indicates that, on at least one occasion, a water quality standard was not met.

The Town's drinking water system is operated in accordance with Ontario Regulation 170/03 and Operators follow the direction of this regulation when dealing with incidents of adverse drinking water. There was (1) one precautionary boil water advisory issued and one (1) incident of adverse water quality.

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
August 27, 2019	Watermain break resulting in low pressure	<20	psi	Repaired watermain break, flushed watermains and collected (2) two sets of bacteriological samples	August 30, 2019 following receipt of (2) two consecutive sets of bacteriological results with 0 E.Coli and 0 Total Coliform
October 2, 2019	Free Chlorine Residual	0.02	mg/L	Flushing and residual restored	October 2, 2019

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

Parameter	Number of Samples	Range of E. Coli or Fecal Results Min # to Max #	Range of Total Coliform Results Min # to Max #	Number of HPC Samples	Results of HPC Results Min # to Max #
Raw	52	0 to 20	0 to 2,160	Not Required	
Treated	52	0	0	52	0 to 56
Distribution	542	0	0	423	0 to 66

Summary of Operational Testing completed under Schedule 7,8, or 9 of Ontario Regulation 170/03 during this reporting period

	Number of Grab Samples	Range of Results Min # to Max #	Unit of Measure
Turbidity			
Treated	8760	0.031 to 0.883	NTU
Rack 1	8760	0.015 to 0.886	NTU
Rack 2	8760	0.013 to 0.989	NTU
Rack 3	8760	0.016 to 0.989	NTU
Chlorine			
Treated	8760	1.383 to 2.248	mg/L
Discharge	8760	1.312 to 1.952	mg/L
Thornbury Reservoir	8760	1.288 to 1.999	mg/L
10th Line Booster Station	8760	1.312 to 2.476	mg/L
Arrowhead Road Booster Station	8760	1.324 to 1.947	mg/L
Arrowhead Road Booster Station By-pass	8760	1.047 to 1.827	mg/L
Happy Valley Booster Station	8760	0.842 to 2.498	mg/L
Camperdown Reservoir Upper Zone	8760	1.114 to 2.363	mg/L
Camperdown Influent / Effluent	8760	1.272 to 2.488	mg/L
Mountain Road Booster Station	8760	1.088 to 2.327	mg/L
Distribution	5977	0.02 to 1.67	mg/L

This document can be made available in other accessible formats as soon as practicable and upon request

Summary of Additional Testing and Sampling

Please see attached additional sampling results for Haloacetic Acids, Trihalomethanes, Process Wastewater Suspended Solids, Nitrate, Nitrite, pH and Alkalinity.

Haloacetic Acid

Quarter	HAA Sample Result # 1 ug/L	Sampling Location	HAA Sample Result # 2 ug/L	Sampling Location	HAA Sample Result # 3 ug/L	Sampling Location	HAA Sample Result # 4 ug/L	Sampling Location	HAA Sample Result # 5 ug/L	Sampling Location	HAA Sample Result # 6 ug/L	Sampling Location	HAA Sample Result # 7 ug/L	Sampling Location	HAA Sample Result # 8	Sampling Location	HAA Sample Result # 9	Sampling Location	Quarterly Average ug/L
Jan 1 - March 31, 2019	13.7	Thornbury WTP	18.4	Mountain Road SS (021)	13.7	Wards Road BS													**11**
Apr 1 – Jun 30, 2019	14.6	Thornbury WTP	16.6	Mountain Road SS (021)	20.9	Wards Road Booster Station													**13**
Jul 1 – Sep 30, 2019	11.5	Thornbury WTP	18.1	Far Hills Club – Alfred Street SS (024)	24.8	Monterra / Grand Cypress SS (019)	34	Swiss Meadows Scandia SS (023)	20.9	Thornbury WTP	26.1	Cameron Street SS (004)	31.7	Far Hills Club – Alfred Street SS (024)	40.8	Monterra / Grand Cypress SS (019)	38.4	Swiss Meadows Scandia SS (022)	**31**
Oct 1 – Dec 31, 2019	13.5	Thornbury WTP	23.8	Blueski George Crescent SS (026)	24.9	Swiss Meadows Standpipe	12.1	Thornbury WTP	28.2	Camperdown Reservoir	43.3	Swiss Meadows Standpipe							**16**
RAA # 3 Calculated Average	**18**																		

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Trihalomethanes

Quarter	THM Sample Result # 1 ug/L	THM Sample Result # 2 ug/L	THM Sample Result # 3 ug/L	THM Sample Result # 4 ug/L	Quarterly Average ug/L
Oct 1 – Dec 31, 2018	52	48	34	34	42
Jan 1 – Mar 31, 2019	31	39	26	28	31
Apr 1 – Jun 30, 2019	37	39			19
Jul 1 – Sep 30, 2019	43	49	77	60	57.25
RAA # 4 Calculated Average					**37.31**
Oct 1 – Dec 31, 2019	32	39			17.75

Process Wastewater Suspended Solids

Sample Date	Result Value	Unit of Measure
January 2, 2019	33	mg/L
February 4, 2019	3	mg/L
March 3, 2019	7	mg/L
April 1, 2019	9	mg/L
May 6, 2019	6	mg/L
June 3, 2019	8	mg/L
July 2, 2019	3	mg/L
August 6, 2019	5	mg/L
September 3, 2019	3	mg/L
October 11, 2019	4	mg/L
November 4, 2019	83	mg/L
December 2, 2019	64	mg/L
Annual Average	**19**	mg/L

Nitrate Results

Sample Date	Location	Results (mg/L)
January 2, 2019	Thornbury WTP – Raw	0.275
January 2, 2019	Thornbury WTP – Treated	0.275
January 2, 2019	Little Beaver River – Source Protection	1.880
January 2, 2019	Big Head River – Source Protection	1.770
January 2, 2019	Beaver River – Source Protection	0.975
January 2, 2019	Indian Brook	2.600

Sample Date	Location	Results (mg/L)
February 4, 2019	Thornbury WTP – Raw	0.295
February 4, 2019	Thornbury WTP – Treated	0.284
March 4, 2019	Thornbury WTP – Raw	0.270
March 4, 2019	Thornbury WTP – Treated	0.403
March 4, 2019	Little Beaver River – Source Protection	1.390
March 4, 2019	Beaver River – Source Protection	1.230
March 4, 2019	Indian Brook	1.960
April 1, 2019	Thornbury WTP – Raw	0.255
April 1, 2019	Thornbury WTP – Treated	0.259
May 6, 2019	Thornbury WTP – Raw	0.266
May 6, 2019	Thornbury WTP – Treated	0.352
May 6, 2019	Little Beaver River – Source Protection	1.010
May 6, 2019	Big Head River – Source Protection	0.934
May 6, 2019	Beaver River – Source Protection	0.534
May 6, 2019	Indian Brook	1.370
June 3, 2019	Thornbury WTP – Raw	0.263
June 3, 2019	Thornbury WTP – Treated	0.267
July 2, 2019	Thornbury WTP – Raw	0.243
July 2, 2019	Thornbury WTP – Treated	0.252
July 2, 2019	Little Beaver River – Source Protection	0.451
July 2, 2019	Big Head River – Source Protection	0.749
July 2, 2019	Beaver River – Source Protection	0.214
July 2, 2019	Indian Brook	0.413

Sample Date	Location	Results (mg/L)
August 6, 2019	Thornbury WTP – Raw	0.251
August 6, 2019	Thornbury WTP – Treated	0.260
September 3, 2019	Thornbury WTP – Raw	0.218
September 3, 2019	Thornbury WTP – Treated	0.220
September 3, 2019	Little Beaver River – Source Protection	0.163
September 3, 2019	Big Head River – Source Protection	0.341
September 3, 2019	Beaver River – Source Protection	0.184
September 3, 2019	Indian Brook	0.026
October 11, 2019	Thornbury WTP – Raw	0.236
October 11, 2019	Thornbury WTP – Treated	0.241
November 4, 2019	Thornbury WTP – Raw	0.244
November 4, 2019	Thornbury WTP – Treated	0.250
December 2, 2019	Thornbury WTP – Raw	0.270
December 2, 2019	Thornbury WTP – Treated	0.276
December 2, 2019	Little Beaver River – Source Protection	1.420
December 2, 2019	Big Head River – Source Protection	1.370
December 2, 2019	Beaver River – Source Protection	0.724
December 2, 2019	Indian Brook	2.740

Nitrite Results

Sample Date	Location	Results (mg/L)
January 2, 2019	Thornbury WTP – Raw	0.003
January 2, 2019	Thornbury WTP – Treated	0.003
January 2, 2019	Little Beaver River – Source Protection	0.003
January 2, 2019	Big Head River – Source Protection	0.003
January 2, 2019	Beaver River – Source Protection	0.003
February 4, 2019	Thornbury WTP – Raw	0.003
February 4, 2019	Thornbury WTP – Treated	0.003
March 4, 2019	Thornbury WTP – Raw	<0.003
March 4, 2019	Thornbury WTP – Treated	0.003
March 4, 2019	Little Beaver River – Source Protection	<0.003
March 4, 2019	Beaver River – Source Protection	0.010
March 4, 2019	Indian Brook	<0.003
April 1, 2019	Thornbury WTP – Raw	0.003
April 1, 2019	Thornbury WTP – Treated	0.003
May 6, 2019	Thornbury WTP – Raw	0.004
May 6, 2019	Thornbury WTP – Treated	0.003
May 6, 2019	Little Beaver River – Source Protection	0.003
May 6, 2019	Big Head River – Source Protection	0.003
May 6, 2019	Beaver River – Source Protection	0.004
May 6, 2019	Indian Brook	0.003
June 3, 2019	Thornbury WTP – Raw	0.003
June 3, 2019	Thornbury WTP - Treated	0.003

Sample Date	Location	Results (mg/L)
July 2, 2019	Thornbury WTP – Raw	0.003
July 2, 2019	Thornbury WTP – Treated	0.003
July 2, 2019	Little Beaver River – Source Protection	0.012
July 2, 2019	Big Head River – Source Protection	0.005
July 2, 2019	Beaver River – Source Protection	0.004
July 2, 2019	Indian Brook	0.005
August 6, 2019	Thornbury WTP – Raw	0.003
August 6, 2019	Thornbury WTP – Treated	0.003
September 3, 2019	Thornbury WTP – Raw	0.003
September 3, 2019	Thornbury WTP – Treated	0.003
September 3, 2019	Little Beaver River – Source Protection	0.022
September 3, 2019	Big Head River – Source Protection	0.003
September 3, 2019	Beaver River – Source Protection	0.003
September 3, 2019	Indian Brook	0.003
October 11, 2019	Thornbury WTP – Raw	<0.003
October 11, 2019	Thornbury WTP – Treated	0.003
November 4, 2019	Thornbury WTP – Raw	0.003
November 4, 2019	Thornbury WTP – Treated	0.003
December 2, 2019	Thornbury WTP – Raw	0.004
December 2, 2019	Thornbury WTP – Treated	0.003
December 2, 2019	Little Beaver River – Source Protection	0.003
December 2, 2019	Big Head River – Source Protection	0.003
December 2, 2019	Beaver River – Source Protection	0.003

Sample Date	Location	Results (mg/L)
December 2, 2019	Indian Brook	0.003

pH & Alkalinity Results

Date	Location	pH	Alkalinity
January 2, 2019	10th Line Booster Station	8.10	73
January 2, 2019	Camperdown Reservoir	8.13	75
January 2, 2019	Arrowhead Road Booster Station	8.08	76
January 2, 2019	Swiss Meadows Standpipe	8.13	78
February 28, 2019	Private Residential Address	7.74	
February 28, 2019	Hydrant # 211	7.69	75
May 6, 2019	Hydrant # 544	7.61	82
July 2, 2019	Carmichael Crescent SS (035)	8.00	75
July 2, 2019	Blueksi George Crescent SS (026)	7.55	77
July 2, 2019	Patricia Drive SS (020)	8.02	73
July 2, 2019	Louisa / Hester SS (007)	7.99	73
September 3, 2019	Sunset Blvd. DE SS (030)	8.10	69
September 3, 2019	Blueski George Crescent SS (026)	8.13	71
September 3, 2019	Patricia Drive SS (020)	8.15	70
September 3, 2019	Swiss Meadows Standpipe	8.21	70
September 3, 2019	Hydrant # 002	7.62	68
September 3, 2019	Hydrant # 015	7.47	68
September 3, 2019	Hydrant # 560	7.63	69
September 3, 2019	Hydrant # 290	7.66	69
December 17, 2019	Hydrant # 482	8.03	

Date	Location	pH	Alkalinity
December 17, 2019	Private Residential Address	7.88	

Summary of Inorganic Parameters

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

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Antimony	March 18, 2019	0.09	ug/L	No
Arsenic	March 18, 2019	0.4	ug/L	No
Barium	March 18, 2019	12.8	ug/L	No
Boron	March 18, 2019	14	ug/L	No
Cadmium	March 18, 2019	0.003	ug/L	No
Chromium	March 18, 2019	0.15	ug/L	No
Mercury	March 18, 2019	0.01	ug/L	No
Sodium	March 21, 2016	5.10	mg/L	No
Uranium	March 18, 2019	0.180	ug/L	No
Fluoride	March 23, 2015	0.11	mg/L	No
Nitrite	December 2, 2019	0.003	mg/L	No
Nitrate	December 2, 2019	0.276	mg/L	No

Summary of Lead Testing

Summary of lead testing under Schedule 15.1 during this reporting period

Location Type	Number of Samples	Range of Lead Results (min#) – (max#)	Unit of Measure	Number of Exceedances
Plumbing	2	0.20 to 3.53	ug/L	0

Location Type	Number of Samples	Range of Lead Results (min#) – (max#)	Unit of Measure	Number of Exceedances
Distribution	5	0.03 to 0.10	ug/L	0

Summary of Organic Parameters

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

Parameter	Sample Date	Result Value	Unit of Measure	Maximum Acceptable Concentration (MAC)	Interim Maximum Acceptable Concentration (IMAC)	Exceedance
Alachlor	March 18, 2019	0.02	ug/L		0.005 mg/L	No
Atrazine + N-dealkylated metabolites	March 18, 2019	0.01	ug/L		0.005 mg/L	No
Benzene	March 18, 2019	0.32	ug/L	0.005 mg/L		No
Benzo(a)pyrene	March 18, 2019	0.004	ug/L	0.00001 mg/L		No
Bromoxynil	March 18, 2019	0.33	ug/L		0.005 mg/L	No
Carbaryl	March 18, 2019	0.05	ug/L	0.09 mg/L	0.005 mg/L	No
Carbofuran	March 18, 2019	0.01	ug/L	0.09 mg/L		No
Carbon Tetrachloride	March 18, 2019	0.17	ug/L	0.005 mg/L		No
Chlorpyriphos	March 18, 2019	0.02	ug/L	0.09 mg/L		No

Parameter	Sample Date	Result Value	Unit of Measure	Maximum Acceptable Concentration (MAC)	Interim Maximum Acceptable Concentration (IMAC)	Exceedance
Diazinon	March 18, 2019	0.02	ug/L	0.02 mg/L		No
Dicamba	March 18, 2019	0.20	ug/L	0.12 mg/L		No
1,2-Dichlorobenzene	March 18, 2019	0.41	ug/L	0.20 mg/L		No
1,4-Dichlorobenzene	March 18, 2019	0.36	ug/L	0.005 mg/L		No
1,2-Dichloroethane	March 18, 2019	0.35	ug/L	0.005 mg/L		No
1,1-Dichloroethylene (vinylidene chloride)	March 18, 2019	0.33	ug/L	0.014 mg/L		No
Dichloromethane	March 18, 2019	0.35	ug/L	0.05 mg/L		No
2-4 Dichlorophenol	March 18, 2019	0.15	ug/L	0.9 mg/L		No
2,4-Dichlorophenoxy acetic acid (2,4-D)	March 18, 2019	0.19	ug/L	0.1 mg/L		No
Diclofop-methyl	March 18, 2019	0.40	ug/L	0.009 mg/L		No
Dimethoate	March 18, 2019	0.06	ug/L	0.02 mg/L		No
Diquat	March 18, 2019	1	ug/L	0.07 mg/L		No
Diuron	March 18, 2019	0.03	ug/L	0.15 mg/L		No

Parameter	Sample Date	Result Value	Unit of Measure	Maximum Acceptable Concentration (MAC)	Interim Maximum Acceptable Concentration (IMAC)	Exceedance
Glyphosate	March 18, 2019	1	ug/L	0.28 mg/L		No
Malathion	March 18, 2019	0.02	ug/L	0.19 mg/L		No
Metolachlor	March 18, 2019	0.01	ug/L	0.05 mg/L		No
Metribuzin	March 18, 2019	0.02	ug/L	0.08 mg/L		No
Monochlorobenzene	March 18, 2019	0.30	ug/L	0.08 mg/L		No
Paraquat	March 18, 2019	1.0	ug/L	0.01 mg/L		No
Pentachlorophenol	March 18, 2019	0.15	ug/L	0.06 mg/L		No
Phorate	March 18, 2019	0.01	ug/L	0.002 mg/L		No
Picloram	March 18, 2019	1.0	ug/L	0.19 mg/L		No
Polychlorinated Biphenyls(PCBs) – Total	March 18, 2019	0.04	ug/L	0.003 mg/L		No
Prometryne	March 18, 2019	0.03	ug/L	0.001 mg/L		No
Simazine	March 18, 2019	0.01	ug/L	0.01 mg/L		No
THM (RAA # 4 Calculated Average		37.31	ug/L	0.10 mg/L based on a four-quarter		No

Parameter	Sample Date	Result Value	Unit of Measure	Maximum Acceptable Concentration (MAC)	Interim Maximum Acceptable Concentration (IMAC)	Exceedance
				moving annual average		
Terbufos	March 18, 2019	0.01	ug/L		0.001 mg/L	No
Tetrachloroethylene (perchloroethylene)	March 18, 2019	0.35	ug/L	0.03 mg/L		No
2,3,4,6-Tetrachlorophenol	March 18, 2019	0.20	ug/L	0.1 mg/L		No
Triallate	March 18, 2019	0.01	ug/L	0.23 mg/L		No
Trichloroethylene	March 18, 2019	0.44	ug/L	0.005 mg/L		No
2,4,6-Trichlorophenol	March 18, 2019	0.25	ug/L	0.005 mg/L		No
Trifluralin	March 18, 2019	0.02	ug/L	0.045 mg/L		No
Vinyl Chloride	March 18, 2019	0.17	ug/L	0.002 mg/L		No

Inorganic or Organic Parameter(s) that Exceeded Half the Standard Prescribed in Schedule 2 of Ontario Drinking Water Quality Standards

Parameter	Result Value	Unit of Measure	Date of Sample
Not Applicable			

Ministry of the Environment
Southwestern Region
Technical Support Section
Water Resources
733 Exeter Rd
London ON N6E 1L3
Fax: (519)873-5020
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Direction régionale du Sud-Ouest
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Ontario

July 31, 2012

John Casivell
The Corporation of the Town of The Blue Mountains
32 Mill St P.O. Box 310, Thornbury
The Blue Mountains, ON N0H 2P0

Dear Mr. Casivell,

RE: Permit to Take Water 2144-8WJJ5X
230 Peel St N, Thornbury
The Blue Mountains, County of Grey
Reference Number 8461-8TWNPS

Please find attached a Permit to Take Water which authorizes the withdrawal of water in accordance with the application for this Permit to Take Water, dated April 12, 2012 and signed by John Casivell.

This Permit to Take Water expires on August 31, 2022. Authorized rates and volumes of water taking are given in Table A.

Ontario Regulation 387/04 (Water Taking) requires all water takers to report daily water taking amounts to the Water Taking Reporting System (WTRS) electronic database: http://www.ene.gov.on.ca/envision/water/pttw.htm. Daily water taking must be reported on a calendar year basis. If no water is taken, then a "no taking" report must be entered. Please consult the Regulation and Section 4 of this Permit for monitoring requirements.

If you have questions about reporting requirements, please call the WTRS Help Desk at 416-235-6322 (toll free: 1-877-344-2011) or by email, WTRSHelpdesk@ontario.ca. It is preferred that you submit your data directly and electronically to the WTRS. Where this is impracticable, please use the Water Taking Submission Form (included as Appendix C of the *Technical Bulletin: Permit To Take Water (PTTW) - Monitoring and Reporting of Water Takings*), which can be downloaded from the above web site, and fax your completed forms to 416-235-6549 or mail them to: Water User Reporting Section, 125 Resources Rd. Toronto, ON M9P 3V6.

Take notice that in issuing this Permit, terms and conditions pertaining to the taking of water and to the results of the taking have been imposed. The terms and conditions have been designed to allow for the development of water resources, while providing reasonable protection to existing water uses and users.

Yours truly,

[redacted]

Dan Dobrin
Supervisor, Water Resources
Southwestern Region

File Storage Number: SIGRBMC10.220

Ontario

Ministry of the Environment
Ministère de l'Environnement

PERMIT TO TAKE WATER
Surface Water
NUMBER 2144-8WJJ5X

Pursuant to Section 34 of the Ontario Water Resources Act, R.S.O. 1990 this Permit To Take Water is hereby issued to:

The Corporation of the Town of The Blue Mountains
32 Mill St P.O. Box 310, Thornbury
The Blue Mountains, Ontario, N0H 2P0
Canada

For the water taking from: Georgian Bay

Located at: 230 Peel St N Thornbury
The Blue Mountains, County of Grey

For the purposes of this Permit, and the terms and conditions specified below, the following definitions apply:

DEFINITIONS

(a) "Director" means any person appointed in writing as a Director pursuant to section 5 of the OWRA for the purposes of section 34, OWRA.

(b) "Provincial Officer" means any person designated in writing by the Minister as a Provincial Officer pursuant to section 5 of the OWRA.

(c) "Ministry" means Ontario Ministry of the Environment.

(d) "District Office" means the Owen Sound District Office.

(e) "Permit" means this Permit to Take Water No. 2144-8WJJ5X including its Schedules, if any, issued in accordance with Section 34 of the OWRA.

(f) "Permit Holder" means The Corporation of the Town of The Blue Mountains.

(g) "OWRA " means the *Ontario Water Resources Act,* R.S.O. 1990, c. O. 40, as amended.

You are hereby notified that this Permit is issued subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

1. Compliance with Permit

1.1 Except where modified by this Permit, the water taking shall be in accordance with the application for this Permit To Take Water, dated April 12, 2012 and signed by John Casivell, and all Schedules included in this Permit.

1.2 The Permit Holder shall ensure that any person authorized by the Permit Holder to take water under this Permit is provided with a copy of this Permit and shall take all reasonable measures to ensure that any such person complies with the conditions of this Permit.

1.3 Any person authorized by the Permit Holder to take water under this Permit shall comply with the conditions of this Permit.

1.4 This Permit is not transferable to another person.

1.5 This Permit provides the Permit Holder with permission to take water in accordance with the conditions of this Permit, up to the date of the expiry of this Permit. This Permit does not constitute a legal right, vested or otherwise, to a water allocation, and the issuance of this Permit does not guarantee that, upon its expiry, it will be renewed.

1.6 The Permit Holder shall keep this Permit available at all times at or near the site of the taking, and shall produce this Permit immediately for inspection by a Provincial Officer upon his or her request.

1.7 The Permit Holder shall report any changes of address to the Director within thirty days of any such change. The Permit Holder shall report any change of ownership of the property for which this Permit is issued within thirty days of any such change. A change in ownership in the property shall cause this Permit to be cancelled.

2. General Conditions and Interpretation

2.1 Inspections

The Permit Holder must forthwith, upon presentation of credentials, permit a Provincial Officer to carry out any and all inspections authorized by the OWRA, the *Environmental Protection Act* , R.S.O. 1990, the *Pesticides Act* , R.S.O. 1990, or the *Safe Drinking Water Act,* S. O. 2002.

2.2 Other Approvals

The issuance of, and compliance with this Permit, does not:

(a) relieve the Permit Holder or any other person from any obligation to comply with any other applicable legal requirements, including the provisions of the *Ontario Water Resources Act* , and

the *Environmental Protection Act* , and any regulations made thereunder; or

(b) limit in any way any authority of the Ministry, a Director, or a Provincial Officer, including the authority to require certain steps be taken or to require the Permit Holder to furnish any further information related to this Permit.

2.3 Information

The receipt of any information by the Ministry, the failure of the Ministry to take any action or require any person to take any action in relation to the information, or the failure of a Provincial Officer to prosecute any person in relation to the information, shall not be construed as:

(a) an approval, waiver or justification by the Ministry of any act or omission of any person that contravenes this Permit or other legal requirement; or

(b) acceptance by the Ministry of the information's completeness or accuracy.

2.4 Rights of Action

The issuance of, and compliance with this Permit shall not be construed as precluding or limiting any legal claims or rights of action that any person, including the Crown in right of Ontario or any agency thereof, has or may have against the Permit Holder, its officers, employees, agents, and contractors.

2.5 Severability

The requirements of this Permit are severable. If any requirements of this Permit, or the application of any requirements of this Permit to any circumstance, is held invalid or unenforceable, the application of such requirements to other circumstances and the remainder of this Permit shall not be affected thereby.

2.6 Conflicts

Where there is a conflict between a provision of any submitted document referred to in this Permit, including its Schedules, and the conditions of this Permit, the conditions in this Permit shall take precedence.

3. Water Takings Authorized by This Permit

3.1 **Expiry**

This Permit expires on **August 31, 2022**. No water shall be taken under authority of this Permit after the expiry date.

3.2 Amounts of Taking Permitted

The Permit Holder shall only take water from the source, during the periods and at the rates and amounts of taking specified in Table A. Water takings are authorized only for the purposes specified in Table A.

Table A

	Source Name / Description:	Source: Type:	Taking Specific Purpose:	Taking Major Category:	Max. Taken per Minute (litres):	Max. Num. of Hrs Taken per Day:	Max. Taken per Day (litres):	Max. Num. of Days Taken per Year:	Zone/ Easting/ Northing:
1	Georgian Bay	Lake	Municipal	Water Supply	14,400	24	18,662,400	365	17 543003 4935254
						Total Taking:	18,662,400		

4. Monitoring

4.1 The Permit Holder shall maintain a record of all water takings. This record shall include the dates and times of water takings, and the total measured amounts of water pumped per day for each day that water is taken under the authorization of this Permit. The Permit Holder shall keep all required records up to date and available at or near the site of the taking and shall produce the records immediately for inspection by a Provincial Officer upon his or her request. The total amounts of water pumped shall be measured using a flow measuring device.

5. Impacts of the Water Taking

5.1 Notification

The Permit Holder shall immediately notify the local District Office of any complaint arising from the taking of water authorized under this Permit and shall report any action which has been taken or is proposed with regard to such complaint. The Permit Holder shall immediately notify the local District Office if the taking of water is observed to have any significant impact on the surrounding waters. After hours, calls shall be directed to the Ministry's Spills Action Centre at 1-800-268-6060.

5.2 For Surface-Water Takings

The taking of water (including the taking of water into storage and the subsequent or simultaneous withdrawal from storage) shall be carried out in such a manner that streamflow is not stopped and is not reduced to a rate that will cause interference with downstream uses of water or with the natural functions of the stream.

6. Director May Amend Permit

The Director may amend this Permit by letter requiring the Permit Holder to suspend or reduce the taking to an amount or threshold specified by the Director in the letter. The suspension or reduction in taking shall be effective immediately and may be revoked at any time upon notification by the Director. This condition does not affect your right to appeal the suspension or reduction in taking to the Environmental Review Tribunal under the *Ontario Water*

Resources Act , Section 100 (4).

The reasons for the imposition of these terms and conditions are as follows:

1. Condition 1 is included to ensure that the conditions in this Permit are complied with and can be enforced.

2. Condition 2 is included to clarify the legal interpretation of aspects of this Permit.

3. Conditions 3 through 6 are included to protect the quality of the natural environment so as to safeguard the ecosystem and human health and foster efficient use and conservation of waters. These conditions allow for the beneficial use of waters while ensuring the fair sharing, conservation and sustainable use of the waters of Ontario. The conditions also specify the water takings that are authorized by this Permit and the scope of this Permit.

In accordance with Section 100 of the Ontario Water Resources Act, R.S.O. 1990, you may by written Notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 101 of the Ontario Water Resources Act, R.S.O. 1990, as amended, provides that the Notice requiring the hearing shall state:

1. The portions of the Permit or each term or condition in the Permit in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

In addition to these legal requirements, the Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The Permit to Take Water number;
6. The date of the Permit to Take Water;
7. The name of the Director;
8. The municipality within which the works are located;

This notice must be served upon:

The Secretary
Environmental Review Tribunal
655 Bay Street, 15th Floor
Toronto ON
M5G 1E5
Fax: (416) 314-4506
Email: ERTTribunalsecretary@ontario.ca

AND

The Director, Section 34
Ministry of the Environment
733 Exeter Rd
London ON N6E 1L3
Fax: (519)873-5020

Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal:

by telephone at (416) 314-4600 ***by fax at (416) 314-4506*** ***by e-mail at www.ert.gov.on.ca***

This Permit cancels and replaces Permit Number 4176-7DJJZG, issued on 2008/04/28 12:00:00 AM.

Dated at London this 31st day of July, 2012.

[redacted]

Dan Dobrin
Director, Section 34
Ontario Water Resources Act , R.S.O. 1990

Schedule A

This Schedule "A" forms part of Permit To Take Water 2144-8WJJ5X, dated July 31, 2012.