



Town of The Blue Mountains

Water Section Operations Update May 1, 2021 to August 31, 2021

Introduction

Ensuring the safety and quality of the Town's drinking water system is not only the responsibility of the Water Operators who operate and maintain the system but also the Members of Municipal Council and Municipal Officials who exercise decision-making authority regarding the system.

The Safe Drinking Water Act, 2002 (SDWA) includes a statutory standard of care for individuals who have oversight responsibilities for municipal drinking water systems. The SDWA does not require Municipal Officials and Councillors to be experts in drinking water but does require officials to be informed.

The purpose of this report is to provide Council with a brief overview of the Town's drinking water system and to report on water quality issues for the period of May 1, 2021 to August 31, 2021.

This report will address the following:

- System Information
- Raw, Treated and Distribution Water Quality Data
- Staff Training
- Management Review
- Internal Audit
- Water Treatment Plant and Water Booster Station Maintenance Summary
- Distribution System Summary
- Summary of Plant Flows
- Watermain Break Summary
- Incidents of Adverse Water Quality
- Water Quality Concerns / Resident Complaints

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
Water Treatment Subsystem Class:	Class 2 Certificate No. 1758
Water Distribution Subsystem Class:	Class 3 Certificate No. 1759
Municipal Drinking Water License:	111-101
Municipal Drinking Water Permit:	111-201

Raw, Treated and Distribution Water Quality Data

Ontario Regulation 170/03 specifies guidelines for the number of samples to be taken, the frequency of sampling and the actions to be taken if any of the sample results indicate adverse water quality.

Schedule 10 of Ontario Regulation 170/03 requires weekly sampling and testing for E. Coli, Total Coliform and Heterotrophic Plate Count (HPC).

Weekly samples are collected for raw and treated water from the WTP and analyzed by an accredited laboratory.

Overviews of the raw and treated sampling data for the period of May 1, 2021 to August 31, 2021 are presented in Tables 1 and 2 respectively.

Table 1 – Raw Water

Parameter	Result Range (Min-Max)	Parameter Limit
E. Coli	0 to 4	N/A
Total Coliform	0 to 49	N/A

Table 2 – Treated Water

Parameter	Result Range (Min-Max)	Parameter Limit
E. Coli	0	0
Total Coliform	0	0
HPC	0 to 2	N/A

Drinking water quality is further monitored throughout the distribution system by a comprehensive sampling and analysis program involving weekly sampling at designated sampling stations as well as reservoirs and booster stations.

An overview of the distribution sampling data for the period of May 1, 2021 to August 31, 2021 is presented in Table 3:

Table 3 – Distribution

Parameter	Number of Samples	Result Range (Min – Max	Parameter Limit
E. Coli	202	0	0 cfu/100 mg/l
Total Coliform	202	0 to 10	0 cfu/100 mg/l
HPC	152	0 to 118	N/A

Staff Training

In accordance with Ontario Regulation 128/04, all water treatment and distribution Operators possess operating licenses appropriate to the class of the facility where they are employed. As the Town's distribution system is a Class 3 subsystem, Operators are required to complete a minimum of 26 hours of on the job practical training and 14 hours of formal Continuing Education Units (CEU) training per year.

A summary of the courses attended from May 1, 2021 to August 31, 2021 by Operators is provided in Table 4:

Table 4 – Operator Training

Operator Name	Training Course Completed
Scott Hill	<ul style="list-style-type: none">Working at Heights
Scott Marritt	<ul style="list-style-type: none">Working at Heights
Brian O'Reilly	<ul style="list-style-type: none">Mandatory Certificate Renewal Course (2021-2023)

Drinking Water Quality Management Standard Management Review

As part of the Municipal Drinking Water Licensing Program, the Town is required to establish a Drinking Water specific Quality Management System (QMS) based on the requirements set out in the Drinking Water Quality Management Standard (DWQMS).

The DWQMS requires the Town to have an Operational Plan detailing how the Town is complying with the PLAN, DO, CHECK and IMPROVE components of the DWQMS. The Town's Operational Plan is comprised of 21 Elements. Element # 20, entitled "Management Review" outlines the requirements and processes involved in performing the Town's QMS Management Review.

As Council has the overall responsibility and authority to ensure the Town meets all legislative and regulatory requirements and provides infrastructure and QMS resources as required, it is imperative that this type of information is provided to Council for review.

Element # 20 of the Town's Operational Plan requires that a Management Review of the Town's QMS be conducted every calendar year. These reviews are to be used to evaluate the continuing suitability, adequacy and effectiveness of the QMS.

On July 13, 2021, a Management Review was conducted with the Town's Chief Administrative Officer, the Director of Operations, the Manager of Water & Wastewater Services, the Water Supervisor and the Compliance & Efficiency Coordinator.

There were (2) two action items identified during the 2021 Management Review meeting:

- Director of Operations to work with Director of Legal Services to discuss additional support or position for Water Inspector/Bylaw Officer in 2022 Budget. Proposed completion date September 2021
- Manager of Water and Wastewater Services to include a capital budget proposal for a Consultant to investigate Condominium Section 5 Agreements and Boundary Meters. Proposed completion date September 2021

Both of the above noted action items will be completed by December 31, 2021 and verification of completion will be provided at the next Management Review Meeting.

Drinking Water Quality Management Standard Internal Audit

Element # 19 of the DWQMS requires an internal audit be completed at least once every calendar year. An on-site internal audit of the Town's DWQMS was completed by AET Group Inc. on July 14, 2021. The objective of the audit was to determine if the Town's QMS conformed with the requirements of the DWQMS. The audit included document review and site visits to the Water Treatment Plant and Camperdown Reservoir. Interviews were conducted with the Manager of Water and Wastewater Services, Water Supervisor, Compliance and Efficiency Coordinator and Water Operators.

Positive observations noted included interviewed Staff demonstrating excellent awareness of the QMS and a strong understanding of their role and its success.

The audit concluded with (1) one minor non-conformance and (7) seven opportunities for improvement.

The non-conformance identified was in relation to the Management Review where it was found that neither responsibility nor implementation timelines were documented for the action items resulting from the 2020 Management Review. The 2021 Management Review discussed in the previous section addressed this non-conformance by identifying responsibility and establishing timelines for completion.

A summary of the (7) opportunities for improvement is provided below:

1. Consider applying the same password protection on QMS documentation which are used to prevent edits to QMS Forms
2. Consider establishing minimum critical control points associated with Treatment and Secondary Disinfection (as listed in DWQMS: Guidance for Use: Section 11.13)

3. Consider specifying in which facility logbooks the Operator-in-Charge and Overall Responsible Operator will be noted, according to the current practice.
4. Clarify whether desktop emergency procedure reviews/training are considered emergency tests
5. Consider requiring auditor checklists or notes be submitted with the audit report to provide evidence of conformity with the requirements of the standard.
6. Consider reviewing information extending closer to the date of the management review rather than using the calendar year
7. Revisit the action item associated with CAR 100 to determine the best way to obtain the desired capital planning feedback during the risk assessment.

As this was an internal audit, there is no requirement to provide evidence of corrective action to the Auditor, however Staff addressed the minor non-conformance and considered the opportunities for improvement.

Water Treatment Plant and Water Booster Station Maintenance Summary

The following table provides a breakdown of the maintenance performed at the Water Treatment Plant from May 1, 2021 to August 31, 2021.

Table 5 – Water Treatment Plant and Booster Station Maintenance Summary

Maintenance Performed	Number Completed
Monthly Maintenance performed on chlorine injectors	1
Installation of Booster Pump # 2 at Arrowhead Road Booster Station by Third Party Contractor	1
Chain Fall Lifting Devices inspected at Booster Pump Stations and WTP by Third Party Contractor	1
Wet tap on 6" watermain completed on Elgin Street for servicing vacant lot	1
Solenoid and O-Ring changed out on Compressor B by Third Party	1
SCADA Event Reporting changes on Daily Reports by Integrator	1
Third Party Contractor welded collar over top of porous steel and previously welded joint on the 14" Raw Water Supply Line from the Low Lift Pumps	1
UV # 2 Lamp # 1 failed and replaced with new	1
Underwater Video Inspection using disinfected, submersible Remotely Operated Vehicle (ROV) at Swiss Meadows Standpipe completed by Third Party Contractor	1

Maintenance Performed	Number Completed
Backflow Preventor for Bulk Water Station at 10 th Line Water Booster Station tested by Third Party	1
Submersible ROV Inspection of the treated water East Cell and small pump chamber at the Thornbury WTP completed by Third Party Contractor	1
Clean in Place (CIP) Backflow Preventor tested by Third Party Contractor	1
Nozzles on surface wash wands on Trident Filter cleaned	1
Backflow Preventors at Booster Stations and Reservoirs tested by Third Party	1
New Heat Exchangers installed in Compressors at WTP by Third Party Contractor	1
Offshore Water Intake Structure Inspection completed by Third Party Contractor	1
Chlorine Contact Time Calculator installed on SCADA system by SCADA Integrator	1
Programming changes to Chlorine Effluent Pump at Camperdown Reservoir by SCADA Integrator.	1
Bubble test and module repair on Rack # 3 at WTP	1
Installed new disk on Chlorine Tank Scale	1
Installed new 1 inch valve on Pre-Chlorinator	1
Packing on Fire Pump # 3 adjusted at Camperdown Reservoir	1
Orifice and gaskets changed on Pre Chlorinator at WTP	1
Monthly Maintenance	4

Distribution System Summary

The following table provides a breakdown of the Water Meter Field Service calls for May 1, 2021 to August 31, 2021:

Table 6 – Water Meter Field Services Summary

Nature of Call	Number of Calls
Frozen Water Meter Repairs	6 ¹
Replace/Repair Jammed Meter	6
Replace/Repair Remote Touchpads	4
Repair Meter Other (leaks, reversed, etc.)	24
Water Meter Inspections (re-inspections, renovations, new construction)	73
Billing Verification, Hand Deliveries, Datalogs (notices, bills)	148 ²
Install/Repair Radio Units	9
Customer Meetings (usage, pressure, complaints, etc.)	23
Closing Readings	226
Water Turn On	7
Plumbing Inspections	13
Meetings with Contractors, Business Owners, Site Management (Backflow requirements, unauthorized connections, losses etc.)	26

The following table provides a breakdown of the Water Distribution Work Orders completed for May 1, 2021 to August 31, 2021.

Table 7 – Distribution Work Orders

Work Order Description	Number Completed
Watermain Dig Site Clean up	12
Watermain Repairs	7
Service Connection Curb Stop Repairs – Vacuum Unit	10
Service Connection Curb Stops Repairs – Dig	5
Service Connection Repairs	11

¹ Frozen meters may not be discovered until homeowner returns to residence after spending winter elsewhere

² Number of billing verifications may be reduced with the installation of radio meters

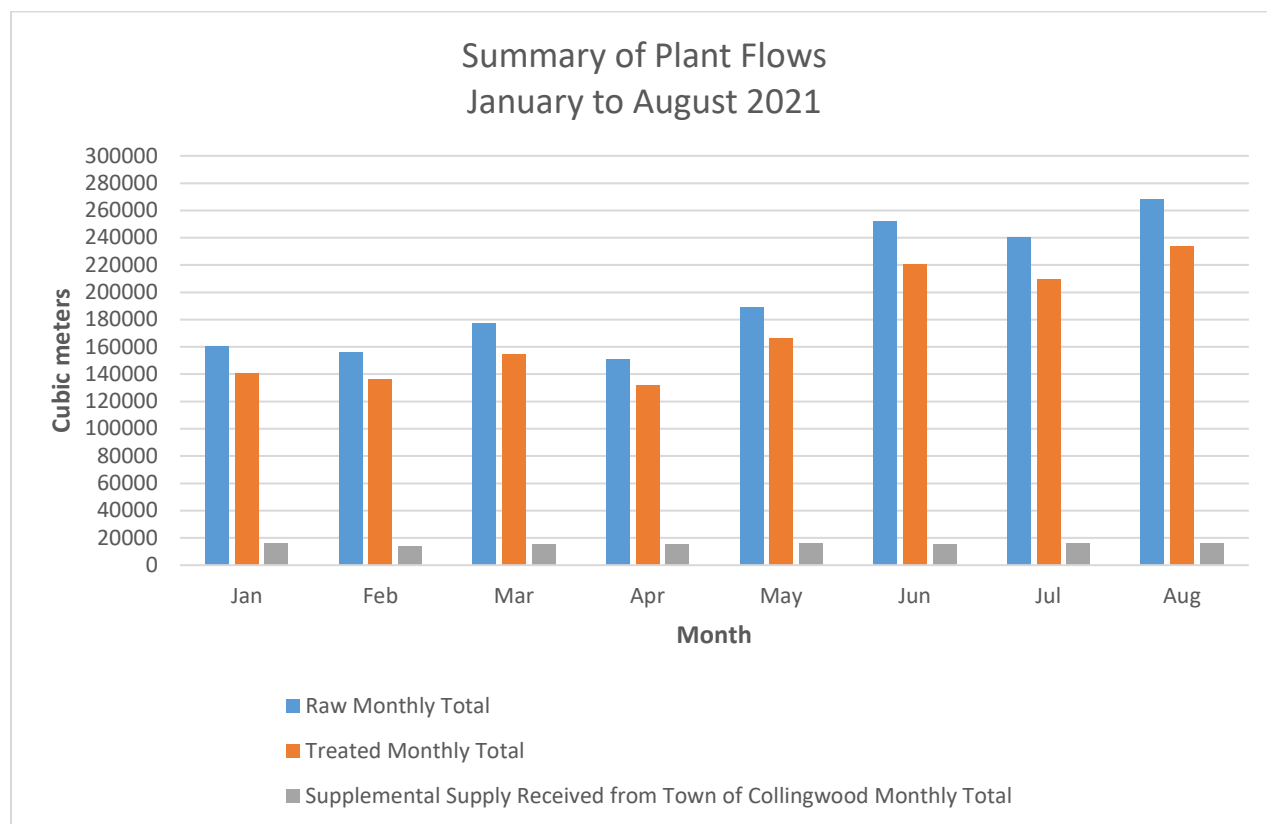
Work Order Description	Number Completed
Service Connection New Installations	57
Valves operated (Curb Stop Valves, Main Valves and Hydrant Valves)	565
Valves Repaired	4
Annual Flushing Program	435
Dead End Flushing – Number of Hydrants Flushed	228
Automatic Flushing Stations – Weekly checks	336
Automatic Flushing Stations – Winterizing or repairs	6
Fire Hydrant Repairs from Inspections / Winterized	30
GPS Unit – Number of Curb Stops Located	349
Water and Sewer locates completed	1037 ³
Pressure Reducing Valve Inspections or Repairs	48
Air Relief Inspections or Repairs	71
Meter and Valve Chamber Inspections or Repairs	22
Confined Space Entries	17
Locating Curb Stops for Leak Detection Survey	25

Summary of Plant Flows

A summary of the WTP Raw, Treated and supplemental flow supply received from the Town of Collingwood is presented in Graph 1:

³ January 1 to April 30, 2021 – 628 Water and Sewer locates were completed

Graph 1:



Watermain Break Summary

Watermain breaks are typically reported by the public, Town Staff or discovered during visual inspections by Operators. In most instances, watermain breaks are repaired by Operators and, at times, with the assistance of outside contractors or Staff from the Town's Roads Department.

For the period of May 1, 2021 to August 31, 2021, there was (1) one watermain break as summarized below:

On June 15, 2021 a watermain break was reported by a resident on Brooker Boulevard. A hole was found in the 150mm PVC pipe and the cause determined to be faulty pipe installation. The watermain was repaired same day with minimal disruption to residents.

Incidents of Adverse Water Quality

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 were (2) two adverse water quality incidents for the period of May 1, 2021 to August 31, 2021.

On July 28, 2021, Operators received notification from our accredited lab that a drinking water sample collected on July 26, 2021 tested positive for (2) two Total Coliforms. The sample was taken from the Stone Zack area. Staff followed all required protocols as per Ontario Regulation 170/03 which including flushing and collecting (2) two sets of consecutive samples, twenty-four hours apart.

On August 3, 2021, both sets of resamples came back clear from the lab and Water Operators completed the Notice of Issue Resolution and submitted to the Grey Bruce Owen Sound Health Unit and the Spills Action Centre of the Ministry of the Environment, Conservation and Parks.

On September 1, 2021, Operators received notification from our accredited lab that a drinking water sample collected on August 30, 2021 tested positive for (10) ten Total Coliforms. The sample was taken from the Monterra / Grand Cypress area. Staff followed protocols as per Ontario Regulation 170/03 which including flushing and collecting (2) two sets of consecutive samples, twenty-four hours apart.

On September 7, 2021, both sets of resamples came back clear from the lab and Water Operators completed the Notice of Issue Resolution and submitted to the Grey Bruce Owen Sound Health Unit and the Spills Action Centre of the Ministry of the Environment, Conservation and Parks.

The free chlorine residuals for both adverse water quality incidents were good and the suspected cause is build-up on the sample station taps. Operators will ensure the sample tap is disinfected prior to sample collection to prevent this from occurring.

Water Quality Concerns / Resident Complaints

Staff record information relating to the water quality issues on the Resident Water Quality Concern Form. If required, Operators attend the location of concern to collect samples or assess the nature of the concern.

The ongoing analysis of the water quality data is useful in determining if the water quality is changing throughout the distribution system over time. As an example, taste and odor complaints may indicate that the watermain in an area is deteriorating.

A summary of the water quality concerns from residents received during the period of May 1, 2021 to August 31, 2021 is included in Table 8 below:

Table 8 – Water Quality Concerns

Water Quality Concern	Date(s)	Number of Occurrences	Resolution / Comment
Low Pressure	June 3 June 8 August 16 August 29	4	<ul style="list-style-type: none"> • Instances of low pressure coincided with lawn watering times. Pressure reading collected at nearby hydrant was within acceptable range. • Internal plumbing • Pressure reading collected and within acceptable range. Leak was discovered during curb stop operation and was repaired. • Internal plumbing
White Sediment	June 10	1	<ul style="list-style-type: none"> • Cause of sediment was determined to be an internal issue.
Bubbles	June 18	1	<ul style="list-style-type: none"> • Bacteriological sample collected and returned with 0 EC/TC/HPC