



Staff Report

Infrastructure and Public Works

Report To: Committee of the Whole
Meeting Date: February 27, 2019
Report Number: CSPW.19.008
Subject: Water Section Operations Update – September to December 2018
Prepared by: Meg Boyd, Compliance & Efficiency Coordinator

A. Recommendations

THAT Council receive Staff Report CSPW.19.008, entitled “Water Section Operations Update – September to December 2018” for their information.

B. Overview

This report provides an overview of the Town’s drinking water system activities for the period of September to December 2018. The Town continues to provide quality drinking water to Town residents and visitors in compliance with regulatory requirements.

C. Background

Ensuring the safety and quality of the Town’s drinking water 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 Act does not require Municipal Officials and Councilors to be an expert in the water field, but does require officials to be informed. The former Town Council had requested regular updates to ensure they are current in the operations of the system. This Report continues to provide the information requested.

The purpose of Attachment # 1 – Water Operations Update is to provide regular up-to-date information with regards to the status of the operation of the Town’s drinking water system and to report on water quality issues for the period of September to December 2018.

This report addresses:

- System Information
- Overview of the Town’s Drinking Water System
- Raw, Treated and Distribution Water Quality Data
- Drinking Water Quality Management Standard

- Staff Training
- 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

D. Analysis

Attachment # 1 demonstrates that Water Operators continue to satisfy all regulatory requirements and to provide quality drinking water to users while ensuring long-term sustainability of the system through regular preventative maintenance programs.

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, wwwinquiries@thebluemountains.ca.

J. Attached

1. Attachment 1 – Water Section Operations Update – September to December 2018

Respectfully submitted,

Meg Boyd

Meg Boyd
Compliance & Efficiency Coordinator

Reg Russwurm

Reg Russwurm, MBA, P.Eng
Director of Infrastructure and Public Works

For more information, please contact:

Meg Boyd
wwwinquiries@thebluemountains.ca

519-599-3131 extension 285



Town of The Blue Mountains

Water Section Operations Update September to December 2018

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 Act does not require Municipal Officials and Councilors to be an expert in the water field, 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 September to December 2018.

This report will address the following:

- System Information
- Overview of the Town's Drinking Water System
- Raw, Treated and Distribution Water Quality Data
- Drinking Water Quality Management Standard
- Staff Training
- 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

Overview of the Town's Drinking Water System

The raw water source for the Blue Mountains' Thornbury Water Treatment Plant (WTP) is Georgian Bay. The WTP has the following components: intake, low lift pumping facilities, strainers, three membrane trains, clearwell for storage, high lift pumps, ultraviolet disinfection, gas chlorination, a backwash wastewater system, and dichlorination of wastewater to the Little Beaver River.

A supplemental water supply is received from the Public Utilities of the Town of Collingwood through the Mountain Road Booster Station.

The distribution system consists of approximately 120 kilometers of water main ranging in sizes up to 400mm. Distribution facilities include an elevated tank, four booster stations, two above ground reservoirs complete with booster stations, in-ground reservoirs and one standpipe.

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 Thornbury Water Treatment Plant (WTP) and analyzed by an accredited laboratory.

Overviews of the raw and treated sampling data for the period of September to December 31, 2018 are presented in Tables 1 and 2 respectively.

Table 1 – Raw Water

Parameter	Result Range (Min-Max)	Parameter Limit
E. Coli	0 to 6	N/A
Total Coliform	0 to 189	N/A

Table 2 – Treated Water

Parameter	Result Range (Min-Max)	Parameter Limit
E. Coli	0	0
Total Coliform	0	0
HPC	0 to 1	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 September to December 31, 2018 is presented in Table 3:

Table 3 – Distribution

Parameter	Number of Samples	Result Range (Min – Max)	Parameter Limit
E. Coli	176	0	0
Total Coliform	176	0	0
HPC	137	0 to 14	N/A

Drinking Water Quality Management Standard

A Drinking Water Quality Management Standard (DWQMS) is defined as policies and procedures, responsibilities and evaluation measures needed to ensure the delivery of the management system to specified standards. The DWQMS is a custom-made Standard specific to the requirements of drinking-water systems in Ontario.

The successful implementation of a Quality Management System (QMS) will assist Town staff in ensuring the requirements of the Ministry of the Environment, Conservation and Parks (MECP) are continually improved upon. The QMS supplies Top Management and Members of Council with the necessary tools to make informed decisions concerning the safe delivery of water.

One of the requirements of the QMS is the development of a QMS Policy. This policy provides the foundation for the QMS. The QMS Policy for the Town’s water system is as follows:

The Town of The Blue Mountains, consistent with its current policy of providing the public safe drinking water, reaffirms its commitment to supply safe, consistent drinking water while maintaining and improving the Quality Management System (QMS) meeting regulatory requirements. The Town will continue to achieve these goals through the implementation of a Quality Management System comprised of policies and procedures through risk assessment evaluations, staff competencies, open communication, workplace safety and emergency contingency plans.

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 September to December 31, 2018 by Operators is provided in Table 4:

Table 4 – Training Overview

Operator Name	Training Course Attended
Stephanie Cole	<p>Traffic Control – Temporary Work Zones</p> <p>Emergency Tabletop Exercise</p> <p>Occupational Health and Safety Awareness Workers in Ontario</p> <p>WHMIS 2015 Refresher</p> <p>Confined Space Entry Training and Practice Rescue</p>
Rob Gilchrist	<p>Traffic Control – Temporary Work Zones</p> <p>Workplace Noise & Hearing Loss Prevention Programs</p> <p>First Aid, CPR and AED</p> <p>Safe Drinking Water Operator Essentials</p> <p>Emergency Tabletop Exercise</p> <p>Chainsaw Safety</p> <p>Occupational Health and Safety Awareness Workers in Ontario</p> <p>WHMIS 2015 Refresher</p> <p>Confined Space Entry Training and Practice Rescue</p>
Scott Hill	<p>Traffic Control – Temporary Work Zones</p> <p>Supervisor Health and Safety</p> <p>Workplace Noise and Hearing Loss Prevention Programs</p> <p>Georgian Bay Water Works – Fall Conference</p> <p>Emergency Tabletop Exercise</p> <p>Confined Space Entry Training and Practice Rescue</p>
Scott Marritt	<p>Workplace Noise and Hearing Loss Prevention Program</p> <p>Georgian Bay Water Works – Fall Conference</p> <p>Traffic Control – Temporary Work Zones</p> <p>Chainsaw Safety</p> <p>WHMIS 2015 Refresher</p> <p>Occupational Health and Safety Awareness Training for Workers in Ontario</p> <p>Confined Space Entry Training and Practice Rescue</p>

Operator Name	Training Course Attended
Don McArthur	Traffic Control – Temporary Work Zones Workplace Noise and Hearing Loss Prevention Programs New Watermain Commissioning Manager for Success: Effective Utility Leadership Practices Emergency Tabletop Exercise Introduction to Water Disinfection and Turbidity
Kevin McGuire	Workplace Noise and Hearing Loss Prevention Programs Traffic Control – Temporary Work Zones Emergency Tabletop Exercise WHMIS 2015 Refresher Chainsaw Safety Occupational Health and Safety Awareness Training for Workers in Ontario
Al Scott	Management of Cyanotoxins in Drinking Water Treatment Natural Organic Matter in Drinking Water: Characteristics, Challenges and Control New Watermain Commissioning Traffic Control – Temporary Work Zones Emergency Tabletop Exercise Occupational Health and Safety Awareness Training for Workers in Ontario Confined Space Entry Training and Practice Rescue Working at Heights – Fundamentals of Fall Prevention Introduction to Water Disinfection and Turbidity

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 September to December 31, 2018.

Table 5 – Water Treatment Plant and Booster Station Maintenance Summary

Maintenance Performed	Number Completed
Monthly Maintenance at Water Treatment Plant and Booster Stations	4
New switch installed for Micro 2000 Analyzer	1

Maintenance Performed	Number Completed
New circuit installed for raw well pump	1
New hand control switches and hour meters for three high lift pumps	1
Two (2) new level transmitters installed at Camperdown Reservoir	1
Programmable Logic Control (PLC) Replacement at Water Treatment Plant	1
Zebra mussel control – flushing of raw water sample line with compressed air	1
Quarterly Clean in Place (CIP) complete	1
Inspection of Swiss Meadows Standpipe	1
UV # 1 HMI Screen replaced	1
Acid tank fresh water supply valve and actuator replaced	1
SC-100 Controller for raw and treated turbidity replaced with SC-200 Controller	1

Distribution System Summary

The following table provides a breakdown of the Water Meter Field Service calls for September to December 31, 2018:

Table 6 – Water Meter Field Services Summary

Nature of Call	Number of Calls
Frozen Meter Repairs	3
Replace/Repair Jammed Meter	6
Replace/Repair Remote Touchpads	15
Repair Meter Other (leaks, reversed, etc.)	7
Meter Inspections (re-inspections, renovations, new construction)	91
Billing Verification, Hand Deliveries (notices, bills)	302
Install/Repair Radio Units	7

Nature of Call	Number of Calls
Customer Meetings (usage, pressure, complaints, etc.)	16
Closing Readings	233
Water Turn On	4
Plumbing Inspections	6
Meetings with Contractors, Business Owners, Site Management (Backflow requirements, unauthorized connections, losses etc.)	14

The following table provides a breakdown of the Water Distribution Work Orders completed for September to December 31, 2018.

Table 7 – Distribution Work Orders

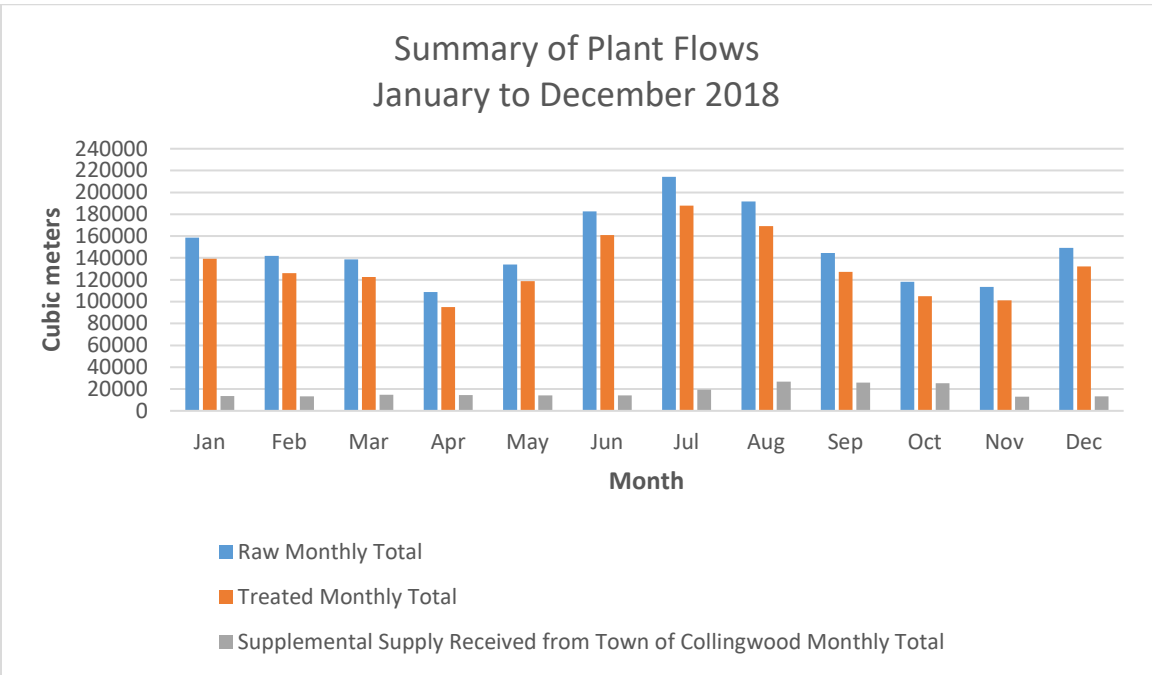
Work Order Description	Number Completed
Watermain Dig Site Clean up	1
Service Connection Curb Stop Repairs – Vacuum Unit	5
Valves operated (Curb Stop Valves, Main Valves and Hydrant Valves)	463
Service Connection Curb Stop Repairs - Dig	5
Service Connection Repairs	6
Service Connection New Installations	1
Pressure Reducing Valve Inspections or Repairs	27
Fall Hydrant Flushing Program	361
Dead End Flushing Program – Number of Fire Hydrants Flushed	216
Water and Sewer locates completed	606
Automatic Flushing Stations – Weekly check of chlorine residuals	382
Watermain Repairs	2
Automatic Flushing Stations – Winterizing or repairs	12
Sample Station Winterizing or Repairs	32

Work Order Description	Number Completed
Fire Hydrant Repairs from Inspections and Winterizing	103
Air Relief Inspections or Repairs	71
Meter and Valve Chamber Inspections or Repairs	16
Confined Space Entries	27
Leak Detection Services	8
Fire Hydrant Markers Installed – Number of Days	4.5 days

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:

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 September to December 31, 2018, there was one watermain breaks as summarized below:

On November 30, 2018 Staff were notified of a water leak on Huron Street West. Staff found a circle break on the 150mm cast iron water main with a 106 wood directly under the pipe where it broke. Staff repaired the watermain 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 no incidents of adverse water quality for the period of September to December 31, 2018, however, there were two occasions where trending data from the Town's Supervisory Control and Data Acquisition (SCADA) system was lost.

On December 22, 2018, it was determined that the Historian software which collects the trending data had crashed. During the time of failure, the Historian was not trending data, however, the PLC was still fully monitoring the Water Treatment Plant and Booster Stations. If an adverse event would have occurred, the On-call Operator would have been notified via the automatic dialer on site. The Town has an Autodialer alarm setup when the Historian software fails.

On December 29, 2018, the Human Machine Interface (HMI) was not displaying data and no control was possible. After several attempts to connect the virtual machine, the physical server hosting the HMI virtual machine and I/O Server was rebooted and after some time the Human Machine Interface (HMI) was restored. During this time, all Operator control of the system was not possible, but the PLC continued to monitor and control the system as required. If an adverse event would have occurred, the On-call Operator would have been notified via the automatic dialer on site.

During this time, the historian was not collecting data. The quick panels were functioning at all stations except for the 10th Line Booster Station and Mountain Road Booster Station. The data from all other stations was reviewed upon restoration of Historian. Both issues were reported to the MECP Spills Action Centre and Grey Bruce Owen Sound Public Health Unit with no further action required

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 odour complaints may indicate that the watermain in an area is deteriorating.

A summary of the water quality concerns received during the September to December 31, 2018 period is included in Table 8 below:

Table 8 – Water Quality Concerns

Water Quality Concern	Date(s)	Number of Occurrences
Cloudy Water	October 4, 2018	1
Taste	October 7, 2018	1
Low Water Pressure	October 22, 2018	1
Particles in Water	October 23, 2018	1
Rusty Colored Water	November 2, 2018	1
High Water Pressure	December 14, 2018	2