TO:	**GENERAL COMMITTEE**
SUBJECT:	**WATER OPERATIONS BRANCH 2020 DRINKING WATER SYSTEM REPORTS**
WARD:	**ALL**
PREPARED BY AND KEY CONTACT:	**D. MOREAU, MANAGER OF WATER OPERATIONS, EXT. 6158**
SUBMITTED BY:	**B. ARANIYASUNDARAN, P.ENG., PMP, DIRECTOR OF INFRASTRUCTURE**
GENERAL MANAGER APPROVAL:	**A. MILLER, RPP, GENERAL MANAGER OF INFRASTRUCTURE AND GROWTH MANAGEMENT**
CHIEF ADMINISTRATIVE OFFICER APPROVAL:	**M. PROWSE, CHIEF ADMINISTRATIVE OFFICER**

RECOMMENDED MOTION

1. That Staff Report INF001-21 regarding the City of Barrie's Drinking Water System including the following Schedules A – E, be received for information purposes:

    a) Schedule A – 2020 Drinking Water System Operations Report;

    b) Schedule B – 2020 Annual Report, Section 11, Ontario Regulation (O.Reg.) 170/03;

    c) Schedule C – 2020 Municipal Summary Report, Schedule 22, O.Reg. 170/03;

    d) Schedule D – Ministry of Environment, Conservation and Parks (MECP) Standard of Care; and

    e) Schedule E – Quality Management System (QMS) Management Review Meeting Minutes.

PURPOSE & BACKGROUND

Report Overview

2. The purpose of this Staff Report is:

    a) To summarize the Drinking Water System (the System) operating year of January 1st, 2020 through December 31st, 2020; to provide information to City Council on the performance of the System; and to satisfy the regulatory requirements of the Safe Drinking Water Act (SDWA), including the Drinking Water Quality Management Standard (DWQMS) and regulatory reporting requirements under Section 11 and Schedule 22 of O.Reg. 170/03. This Report is a compilation of information that demonstrates the commitment of the Water Operations Branch (the Branch) to providing safe drinking water while being transparent and financially accountable;

b) To provide a summary to Council which includes updates, changes and pertinent information in relation to the requirements of the *Safe Drinking Water* Act and the City of Barrie's Quality Management System; and

c) To solicit from Council an acknowledgement of their receipt of the Annual Report and Municipal Summary Report.

3. The "2020 Drinking Water System Operations Report" summarizes the operating year of January 1st, 2020 through to December 31st, 2020.

4. There are two (2) specific reporting requirements related to O.Reg. 170/03:

a) Section 11 requires that an Annual Report be prepared not later than February 28th of each year. This Report provides a brief description of the System; chemicals used; a breakdown of monetary expenses related to required equipment; a summary of all test results; and a summary of adverse reports and corrective actions taken. In addition, the Report entitled, "2020 Drinking Water System Annual Report", must be available to the public upon request and be posted for viewing on the City of Barrie website.

b) Schedule 22 requires a summary report be prepared not later than March 31st of each year and a copy forwarded to members of Council to enable the Owner of the System to assess the capability of the System to meet existing and planned uses of the System. This report entitled, "Municipal Summary Report", lists the non-compliances in respect to the SDWA, O.Reg. 170/03, the Municipal Drinking Water License, the Drinking Water Works Permit, orders applicable to the System received, and any corrective measures that were taken in respect of the non-compliances. It also summarizes the quantities of the water supplied during the reporting year, including monthly average and maximum daily flows, along with a comparison to the related capacities.

5. In addition, under the DWQMS, there is an obligation for the Operating Authority to report the results of the management reviews, the identified deficiencies, decisions, and action items to the Owner.

ANALYSIS

6. The System consists of a Surface Water Treatment Plant (SWTP) and associated Low Lift Pumping Station (LLPS), 12 groundwater wells, three (3) in-ground storage facilities, three (3) elevated storage reservoirs and seven (7) booster stations, distribution watermains and associated hydrants, valves, and appurtenances in five (5) major pressure zones throughout the City of Barrie (City). Source water for the SWTP is drawn from Kempenfelt Bay of Lake Simcoe. Water supplied from the groundwater system relies on wells drilled into a deep aquifer that is not under the direct influence of surface water. The distribution system consists of approximately 3,854 hydrants and 644 km of watermain and transmission main serving approximately 44,591 services providing water to approximately 151,043 residents.

7. The total annual production for 2020 was 13,509 ML with an average daily flow of 37 ML and a maximum daily flow of 100 ML.

8. The total 2020 cost to operate the System was approximately $1,633.05/ML. Of that total, the cost of production and treatment amounted to approximately $496.50/ML. The proportion of the total attributable to distribution system operating costs amounted to approximately $4,047.53/km of watermain.

The raw and calculated data associated with these costs can be found in Table 1.

Table 1 Raw and Calculated Costs

Raw Data				Calculated Data		
	Expenses	Total Volume Produced in 2020 (ML)	Total km of Watermain	Cost to Operate per ML	Total Cost of Production and Treatment Services	Total Distribution Costs per km
GWS + SWS	$6,707.263.63	13,509	644	Total Expense /Total Volume= **$1,633.05/ML**	GWS+SWS expenses/volume produced= **$496.50/ML**	WDS Expenses / km of watermain= **$4047.53/km**
WDS	$2,607,823.17					
Other	$12,745,790.61					
Total Expenses	$22,060,877.41					

*Note: "Other" expenses include Water Customer Services, Compliance and Technical Support, and Water Operations Administration
GWS = Groundwater Supply
SWS = Surface Water Supply
WDS = Water Distribution Services

9. Approximately 84% of the projected operating budget was expended in 2020.

10. More than 2,900 samples were collected for independent laboratory analysis under the regulatory sampling program for chemical and microbiological parameters in 2020. The analytical results are used to assess and optimize system performance, develop corrective actions, ensure safe water for consumption and to meet legislative requirements.

11. Eight (8) Adverse Water Quality Incidents (AWQIs) were reported in 2020. Each were promptly resolved to the satisfaction of the MECP and Simcoe Muskoka District Health Unit (SMDHU).

12. The MECP conducted two (2) focused inspections of the System. The first (1st) inspection was from January 2019 to January 2020 and the second (2nd) inspection was from January 2020 to September 2020. Following each System inspection, the MECP issued a report summarizing the findings, including regulatory non-compliances. Two (2) non-compliances with regulatory requirements and one (1) recommendation were reported in the 2019 MECP Inspection Report issued on February 13, 2020. One (1) non-compliance with regulatory requirements and zero (0) recommendations were reported in the 2020 MECP Inspection Report issued on October 14, 2020. All incidents of non-compliance, as well as any recommendations were promptly responded to by the Branch.

13. The QMS was subject to an external audit in November 2020. The surveillance audit consisted of an off-site desktop audit of the Operational Plan. There were zero (0) non-conformances or opportunities for improvement identified by the external auditor and accreditation was maintained.

ENVIRONMENTAL AND CLIMATE CHANGE IMPACT MATTERS

14. There are no environmental and/ climate change impact matters related to the recommendation.

ALTERNATIVES

15. As this Staff Report is being presented as a legislative requirement, and for information purposes only, no alternatives are presented.

FINANCIAL

16. There are no financial implications for The Corporation resulting from the proposed recommendation.

LINKAGE TO 2018–2022 STRATEGIC PLAN

17. The recommendation(s) included in this Staff Report support the following goals identified in the 2018-2022 Strategic Plan:

☒ Fostering a Safe and Healthy City

18. The Staff Report is a compilation of information that demonstrates the commitment of the Branch in providing safe drinking water thereby ensuring the health and safety of the residents of the City of Barrie.

Schedule A

2020 Drinking Water System Operations Report

City of Barrie

Water Operations Branch

Drinking Water System

Operations Report

For the Period of

JANUARY 1ST, 2020 TO DECEMBER 31ST, 2020

System Rating:	Water Treatment Subsystem Class IV Water Distribution and Supply Subsystem Class IV Water Distribution Subsystem Class II
Drinking Water System No.:	220001192
Municipal Drinking Water Licence No.:	014-101, Issue No. 6

Effective Date: 2021-02-22

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1 Introduction

The purpose of this report is to summarize the City of Barrie (the City) Municipal Drinking Water System's (the System) operating year from January 1st, 2020 to December 31st, 2020. This report is a compilation of information that demonstrates the commitment of the Water Operations Branch (the Branch) to provide safe drinking water while remaining transparent, financially accountable and demonstrate initiative in driving continual improvement.

The Branch's commitment is driven by the following five (5) priorities:

1. To ensure the delivery of safe drinking water that meets or exceeds regulatory requirements
2. To ensure the delivery of safe drinking water that meets or exceeds expectations and promote customer confidence
3. To employ and retain a respectful, competent, motivated and adaptive workforce that is dedicated to teamwork, continual learning and improvement for the long term
4. To continually improve operational performance in a timely, sustainable, and cost-effective manner
5. To maintain an effective balance between expenditures and revenues

The following sections provide details of the 2020 achievements that support the Branch priorities listed above.

2 Program Review

2.1 Water Operations Branch

The primary objective of the Branch is the production and delivery of potable water from two sources; 1) a deep groundwater aquifer accessed through twelve (12) active groundwater wells and, 2) surface water from Lake Simcoe that is drawn to the Surface Water Treatment Plant (SWTP) from an intake in Kempenfelt Bay.

Comprised of five (5) organizational Sections, four (4) of which have operational responsibilities, the Branch works collaboratively to ensure high quality drinking water is produced and delivered to City residents. Highlights regarding the performance and operations of these Sections are discussed in Sections 2.2 to 2.5 of this report.

2.1.1 Training

The Branch recognizes the importance of employee training as not only a legislated requirement for certified Operators but also a positive way to foster improved performance and adaptability of its workforce. In 2020, approximately 1,500 hours of staff training occurred, and seven (7) Operators were awarded certificate renewals or upgrades. Due to COVID-19, the availability of training was greatly reduced while training providers switched to offering remote learning opportunities. The Ministry of the Environment, Conservation and Parks (MECP) introduced legislation to the Ontario Government, namely *O. Reg. 75/20* under the Emergency Management and Civil Protection Act which allowed for extensions to Operator certificates during the Pandemic. This piece of legislation provided operators the opportunity to receive the necessary training hours in order to qualify for renewal and/or upgrades of their certificates.

2.1.2 Research and Educational Partnerships

In partnership with both the University of Toronto and University of Waterloo, the Branch provides sponsorship to the Natural Sciences and Engineering Research Council which supports university students in advanced studies and promotes discovery research. Not only does the partnership allow the Branch to participate in water treatment research but it also helps guide the research conducted by these schools. The current research work being conducted by the Universities is primarily associated with SWTP processes which routinely utilizes our membrane filtration pilot plant located within the SWTP. This

allows Staff to actively participate in the research projects and be some of the first benefactors of the research being conducted.

2.1.3 Budget and Costs

In 2020, approximately 84% of the projected operating budget was expended. References to financials within this report are based on the 2020 ledger prior to finalization and excludes debenture costs.

Accounts for utilities (natural gas and hydro) in both the Surface Water Supply and Ground Water Supply Sections were under spent, however the Branch relies on Energy Management staff within the Corporate Facilities Department to establish these budgets each year.

The graph below illustrates the total revenues of the Branch and demonstrates the distribution of revenues.

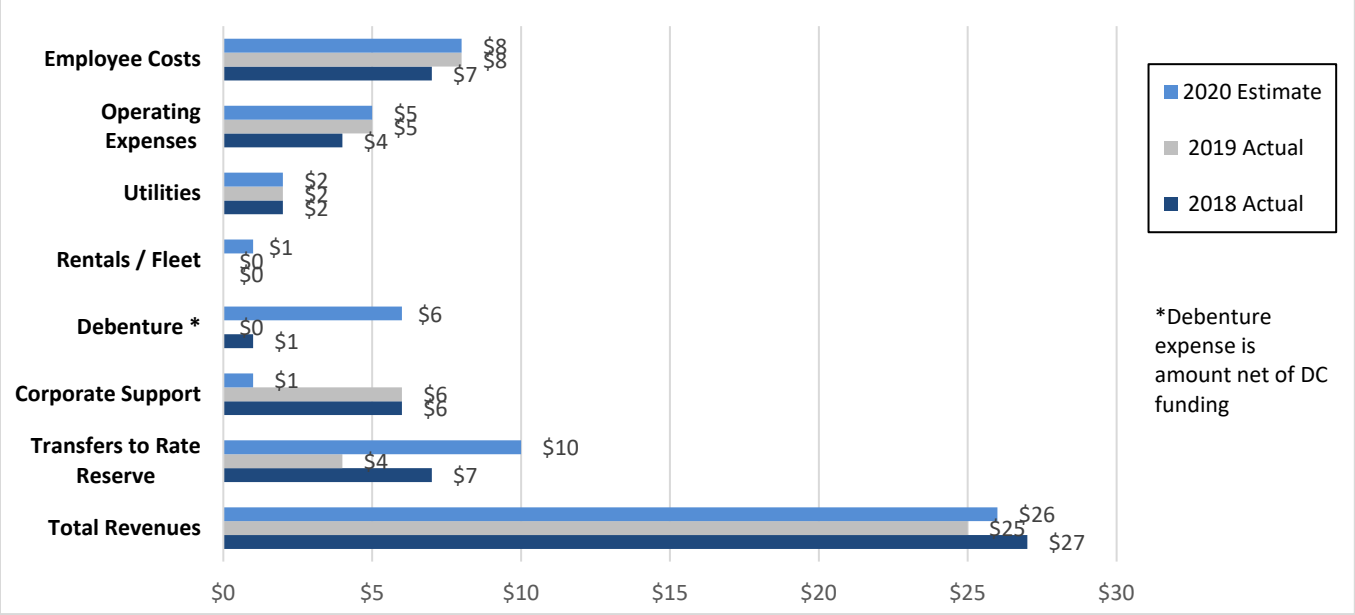

Figure 1. Water Operations Revenues and Fund Allocation

In accordance with O.Reg. 453/07, the Operating Authority developed a financial plan to ensure sustainability of the drinking water system. The Financial Plan is valid for a six (6) year period and contains details of the financial position, financial operations, and cash flow of the System. The Financial Plan was updated in October of 2015 and a copy can be found at www.barrie.ca/waterservices. The financial plan is currently being reviewed and will be updated in 2021.

2.2 Water Treatment Services

Water Treatment is one of the first steps in ensuring the production and distribution of safe drinking water. Water Treatment Services is responsible for all water treatment processes, storage tank monitoring, ongoing operation and maintenance, and water quality sampling. This involves overseeing a System consisting of the SWTP and associated low lift pumping station (LLPS), 12 groundwater wells, 3 in-ground storage facilities, 7 booster stations, and 3 elevated storage towers.

2.2.1 Treatment System Performance

In 2020, a total of 13,509 ML of drinking water was produced, which represents a slight 1% increase from 2019. This seems to follow an overall trend of increased water conservation within the City in the past ten (10) years (Figure 2).

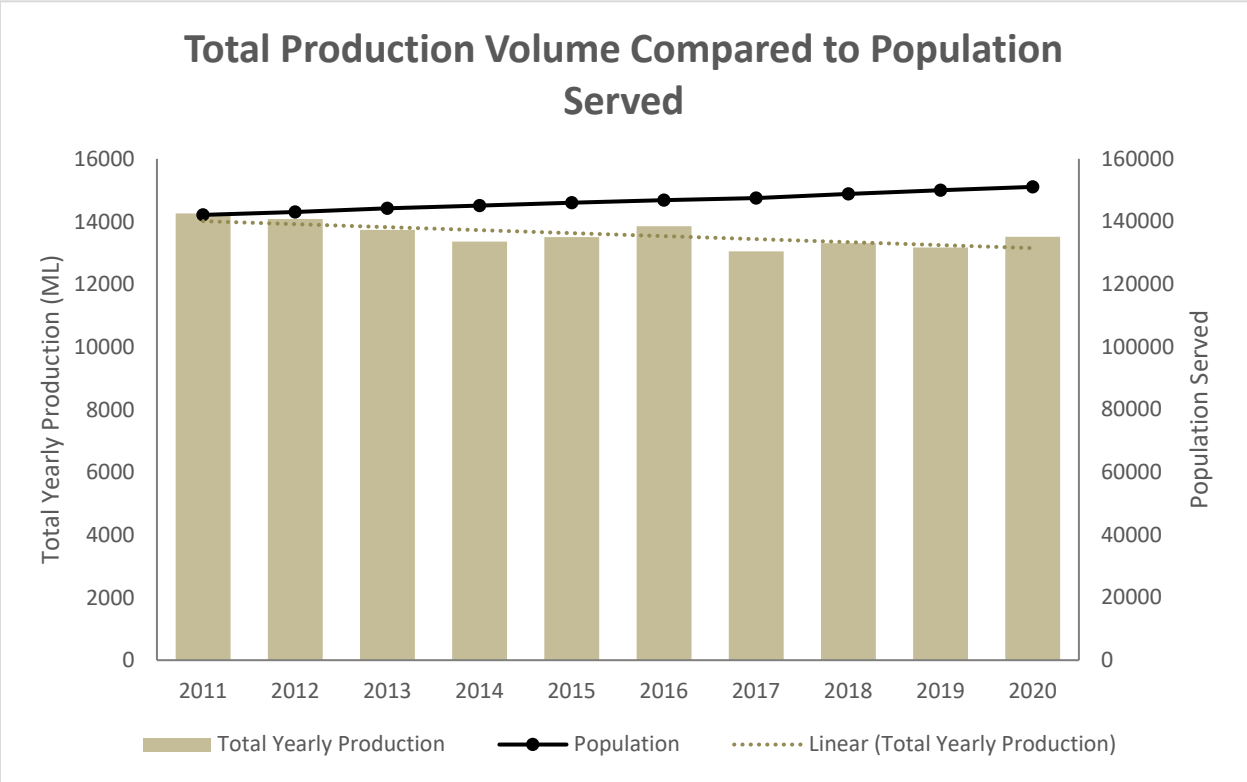

Figure 2. Total yearly production of drinking water (ML) compared to population served

The SWTP completed its tenth (10th) full calendar year of operation in 2020. The SWTP membrane filtration system has a manufacturers operational target of 98% efficiency for which Staff have opted to set as an overall operational goal. Therefore, the SWTP has defined efficiency as the difference between the amount of water we take from Lake Simcoe and the amount of water we send out of the plant to our customers. In 2020 our overall average efficiency was 97.6%, a 0.4% increase from 2019. Factors that can cause these minor variations to the efficiency are annual pilot plant consumption, waste resulting from maintenance activities and flow meter margins of error.

2.2.2 Preventative Maintenance Highlights

The following sections summarize the significant maintenance activities that were completed within the Water Treatment Services Sections in 2020.

2.2.2.1 Groundwater Supply

In 2020, the Groundwater Supply Section completed the following significant maintenance activities:

- Cleaned and disinfected Sunnidale Reservoir Cells A and C
- Cleaned and disinfected Anne St Reservoir Cells 1 and 2
- Cleaned and disinfected Sarjeant Dr. Well #7 clear well

- Cleaned and disinfected Heritage Park Well #11 clear well
- Cleaned and disinfected Johnson Well #9 clear well
- Cleaned and disinfected Brownwood Well #16 clear well
- Cleaned and disinfected Bayfield Tower
- Cleaned and disinfected Ferndale Tower
- Cleaned and disinfected Mapleview Tower
- Completed booster pump repairs on booster pump 1 at Big Bay Booster Pumping Station
- Completed booster pump and associated motor maintenance on booster pumps 2, 3 and 4 at Sunnidale Booster Pumping Station
- Completed booster pump and associated motor maintenance on booster pumps 1, 2, and 3 at Codrington Booster Pumping Station
- Completed well pump and associated motor maintenance at Cross St. Well #17
- Completed well pump maintenance at Centennial Park Well #12
- Replaced well pump motor at Centennial Park Well #12
- Completed well pump maintenance at Heritage Park Well #14
- Replaced well pump motor at Heritage Park Well #14
- Completed well maintenance at Heritage Park Well #14
- Replaced flow control valves on booster pumps 1, 3 and 4 at Big Bay Booster Pumping Station
- Replaced a pressure relief and surge anticipator valve at Big Bay Booster Pumping Station
- Replaced flow control valves on booster pumps 3 and 4 at Leacock Booster Pumping Station
- Replaced flow meter at Sarjeant Dr. Well #7
- Replaced flow meter at Cross St. Well #17
- Replaced the monorail and interior tank lining system at Bayfield Tower
- Repaired the interior tank lining system at Mapleview Tower
- Replaced and upgraded Pressure Reducing Valve (PRV) chamber at Marjoy Avenue

2.2.2.2 Surface Water Supply

In 2020, the Surface Water Supply Section completed the following significant maintenance activities associated with the SWTP:

- Conducted multiple rounds of membrane repairs to maintain filter integrity and efficiency
- Employed the use of remote submersible camera to complete video inspections of internal tanks and reservoirs
- Contracted services to complete camera inspections of the raw water intake pipe
- Removed, inspected and repaired one highlift and one lowlift pump
- Improved spare parts internal inventory to reduce down time during equipment failures

2.3 Water Distribution Services

The quality of drinking water in the distribution system is ensured through ongoing water quality monitoring, and preventative and reactive maintenance completed by Water Distribution Services. Consisting of approximately 3,854 hydrants, 6,857 valves, and 644 kilometers of watermain, the City's distribution system continues to reliably direct potable water to the community.

2.3.1 Preventative Maintenance Highlights

In order to ensure the continued operability of valves within the System, routine valve exercising is conducted. In 2020, 1,940 valves were exercised throughout the City. A valve turning application was created in cooperation with IT staff and implemented to assist the operators with identifying and recording the valves that have been turned. Mandated annual hydrant inspections were also completed by Water Distribution Services staff, including any necessary replacement or repairs. In 2020, all 3,854 hydrants were inspected.

2.3.2 Reactive Maintenance Highlights

Reactive maintenance in the event of infrastructure failure is an inevitability in the distribution system. In 2020, 23 watermain breaks occurred which is a decrease of 53% compared to 2019.

Figure 3 illustrates the historical trend of watermain breaks that occurred in the last ten (10) years.

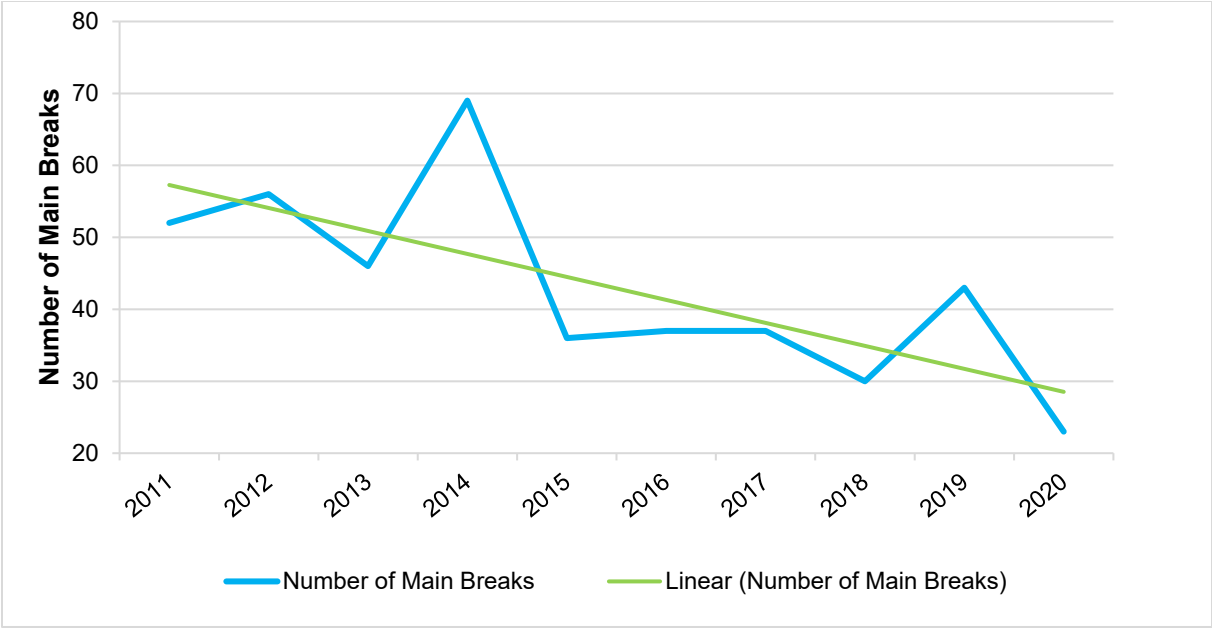

Figure 3. Number of watermain breaks and trend from 2010 to 2020

2.3.3 System Growth, Rehabilitation and Renewal

New infrastructure is installed and commissioned in accordance with the City's Design Guidelines, in addition to the Ministry of Environment, Conservation and Parks (MECP) Watermain Disinfection Procedure.

Infrastructure works completed in the distribution system in 2020 are summarized as follows:

- Harvie Road Crossing project - involved some of the System's most critical infrastructure. This project is now complete for water related items. All watermains (750mm, 500mm and 300mm) are in service.
- Mapleview Drive East from Royal Jubilee Drive to Yonge Street - over 1 km of 600mm CPP transmission watermain installed. A portion (750m) has been commissioned and is in service. Awaiting approvals for the completion of this project.
- One new subdivision was commissioned in 2020 – South Go Station, Phase 1 (83 lots)
- Nine (9) watermain construction projects to service growth were completed, resulting in the commissioning of 11.12 km of new watermain
- Twenty-six (26) Industrial, Commercial and Institutional (ICI) servicing projects were commissioned

2.4 Water Customer Services

Customer service continues to be a priority for the Branch. The Water Customer Services Section ensures our 151,043 residents have access to quality water at the tap. They also offer a wide range of services, such as conducting annual System maintenance and providing infrastructure locates of all corporately owned water, sanitary sewer, storm sewer, traffic light and streetlight cabling in the municipal right or way or on any City of Barrie easement.

2.4.1 Available Services

Customers have 24/7 access to required services such as routine inquiries and/or emergency requests. Calls made regarding water quality complaints averaged five (5) complaints per month in 2020. This is a 50% decrease from 2019 which can be attributed to fewer main breaks in 2020, as well as, a more robust preventative maintenance program. Additionally, 1,095 chargeable service calls were completed, which includes long term meter gate valve installations, pool fills, and illegal water use charges.

Water Customer Services is also responsible for installing and maintaining water meters and their associated remote reading devices, as well as programs that improve their efficiency and reduce costs. In 2020, a total of 470 new water meters were installed, and 505 water meters were replaced, representing a 42% decrease from the previous year. The decrease can be attributed to the ongoing COVID-19 pandemic, which put a hold on the Water Meter Replacement Program which aims to replace both ICI and residential meters on a predetermined schedule. This replacement program is based on industry standards and ensures that meters continue to provide accurate consumption measurement while in use. Emergency meter work was still completed as required. Monitoring of water consumption in residential and ICI applications is accomplished through the Advanced Metering Infrastructure (AMI) system. Ongoing efforts of staff ensure that greater than 99.5% of all water meters transmit up-to-date, accurate meter readings for billing purposes throughout the year.

2.4.2 Preventative Maintenance Highlights

Watermain flushing maintains water quality within the distribution system thereby reducing the number of incoming water quality complaints. In 2020, Water Customer Services continued to focus its flushing efforts on areas of the distribution system that were prone to complaints and often associated with aging infrastructure. Accordingly, 756 hydrants were flushed in 2020, representing approximately 20% of the distribution system. There was a significant decrease in the amount of flushing completed in 2020 compared to 2019 due to COVID-19 limitations, including staffing restrictions, health and safety protocols and access to resources. Additionally, forty-two (42) flush boxes were deployed between May 2020 and remained in service until end of October 2020. Each of these flush boxes operates on a daily basis on varying schedules and assist in maintaining adequate chlorine residuals and aesthetic water quality objectives within the distribution system.

2.4.3 Infrastructure Damage Prevention Program

The Branch has dedicated Utilities Technicians that ensure utility locates are provided for all corporately owned water, sanitary sewer, storm sewer, traffic light and streetlight cabling in the municipal right of way or on any City of Barrie easement. As an Ontario 1Call member and the associated provincial legislation, locate requests received are completed within the mandatory five (5) business days, unless otherwise negotiated with the locate requestor. The level of service mandated and achieved for this service was 99% in 2020.

2.5 Compliance and Technical Support

The Compliance and Technical Support (CTS) Section is responsible for regulatory conformance/compliance and reporting with respect to the System, as well as development and implementation of quality/risk management and optimization functions for the Branch. The core responsibilities of the Compliance and Technical Support Section include the Backflow Prevention Program, Computerized Maintenance Management System (CMMS), Quality Management System (QMS), inventory and materials management, and technical support as it relates to water infrastructure.

3 Quality Management System Summary

This section is a summary of the updates, changes and pertinent information in relation to the requirements of the *Safe Drinking Water Act* and the City of Barrie's Quality Management System to meet the requirements of Staff Report 20-G-209, Delegation of Owner Representative for Water Operations Quality Management System and Safe Drinking Water Act Requirements. The Staff Report designates

the Infrastructure Department head as the Owner Representative for the City of Barrie's Drinking Water System for all matters related to the *Safe Drinking Water Act* and the Quality Management System.

3.1 Adverse Water Quality Incidents (AWQI's)

There were eight (8) AWQIs reported in 2020. Each of these events were resolved to the satisfaction of the MECP and Simcoe Muskoka District Health Unit (SMDHU). Refer to Schedule B – 2020 Annual Report, Section 11 O. Reg 170/03 for more details on each AWQI.

3.2 Emergency Scenario

The COVID-19 Pandemic was used as a live emergency scenario for 2020. Given the nature of the pandemic and the impacts to the City of Barrie, it provided a great opportunity for the Branch to test their emergency response plan and associated documentation. Through diligent efforts by Staff, and leveraging the use of technology, the Branch was able to ensure the delivery of safe drinking water to residents that met or exceeded the regulatory requirements. An interim incident debrief meeting was held on 2020-06-11 where staff and management provided feedback on the incident and created some opportunities for improvement. This debrief resulted in actioning five (5) opportunities for improvement which have all been completed and/or implemented.

3.3 Internal Audit

An Internal Audit was conducted and focused on the Drinking Water Quality Management System Procedures. Results yielded three (3) non-conformances and five (5) opportunities for improvement.

3.4 External Audit

The 2020 External Audit conducted by a third party was a surveillance audit which consisted of an off-site desktop review. There were no non-conformances identified by the external auditor and accreditation was maintained.

3.5 Ministry of the Environment, Conservation and Parks (MECP) Inspection

The MECP conducted two (2) focused inspections of portions of the Municipal Drinking Water System in 2020. Refer to Schedule C – Municipal Summary Report – Schedule 22-2 O. Reg 170/03, Section 3.1.2 for more details on each inspection.

3.6 Alterations to the Drinking Water System (Forms 1, 2 and 3)

The Drinking Water Works Permit (DWWP) requires that alterations to the drinking water system be recorded on Forms published by the MECP. There were a variety of alterations made to the System between January 1 and December 31, 2020 that required a Form 1 and 2 to be completed.

Watermain Additions, Modifications, Replacements or Extensions are recorded on a Form 1 – Record of Watermains Authorized as a Future Alteration. During 2020 there were 16 of these forms completed for the Drinking Water System.

Minor Modifications to the drinking water system may require a Form 2 – Record of Minor Modifications or Replacements to the Drinking Water System. There were 30 of these forms completed for various work at the booster pump stations, water towers, well stations and the Surface Water Treatment Plant.

Equipment with Emissions to Air would require a Form 3 – Record of Addition, Modification or Replacement of Equipment Discharging a Contaminant of Concern to the Atmosphere to be completed. There were no Form 3s completed for the Drinking Water System for 2020.

3.7 Management Review

The Branch continued to implement procedural and process improvements in 2020. A component of the continual improvement process is Management Review, which identifies potential deficiencies and/or opportunities for improvement and establishes action plans to address them. Management Review meetings were conducted on a quarterly basis on the following dates: June 22, September 17, and December 10, 2020 and February 19, 2021.

In addition to the items noted in Sections 3.1 to 3.6 above, the following are additional highlights from the 2020 Management Review meetings:

1. Total annual production volume of 13,509 ML in 2020 remained consistent with usage trends over the last few years, with only a slight increase in production compared to 2019.
2. Electronic logbooks were implemented for all 3 subsystems allowing more real time updates for operators while they are working in the field.
3. Reviewed the updated MECP Watermain Disinfection Procedure and completed necessary updates to the associated documentation in the work order management system.
4. Updated procedures and processes in order to support working remotely during the pandemic while still meeting provincial and local health unit regulations and guidelines.

A copy of the 2019 Q4, 2020 Q1, Q2 and Q3 Management Review Meeting Minutes are included in Schedule E for reference. Note that Q4 Management Review meeting is scheduled to take place on February 19, 2021, and as a result the meeting minutes are to be included in the 2021 Annual Report.

4 Closure

It is the belief that this report provides a summary of the operational and performance success of the Branch for 2020. If you have any questions concerning the contents of this report, please contact the Supervisor of Compliance and Technical Support.

Schedule B

2020 Annual Report, Section 11

Ontario Regulation 170/03

City of Barrie
Water Operations Branch

Drinking Water System
2020 Annual Report
Section 11, O.Reg. 170/03

For the Period of

JANUARY 1ST, 2020 TO DECEMBER 31ST, 2020

System Rating:	Water Treatment Subsystem Class IV Water Distribution and Supply Subsystem Class IV Water Distribution Subsystem Class II
Drinking Water System No.:	220001192
Municipal Drinking Water Licence No.:	014-101, Issue No. 6

Effective Date: 2021-02-22

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2020 Annual Report – Section 11, O.Reg. 170/03

1 Introduction

The City of Barrie Water Operations Branch (the Branch) prepared this Annual Report (Report) to satisfy the requirements of Section 11 of Ontario Regulation (O.Reg.) 170/03. Section 11 (1) requires that the owner of a drinking water system prepare a report in accordance with subsection (3) and (6) for the preceding calendar year. The annual report must be prepared no later than February 28th of each year.

This report covers the period of January 1st to December 31st, 2020 and the information provided complies with the reporting requirements outlined in Section 11 of O.Reg.170/03.

A summary of the City of Barrie's Municipal Drinking Water System (the System) description is outlined below:

- Drinking-Water System Number: 220001192
- Drinking-Water System Name: City of Barrie Drinking Water System
- Drinking-Water System Owner: Corporation of the City of Barrie
- Drinking-Water System Category: Large Municipal Residential

2 Reporting Requirements under Section 11 - O.Reg.170/03

Section 11 requires that the Report include the following information relating to the period covered by the report:

- Include a statement of where a Report prepared under Schedule 22 will be available for inspection by any member of the public during normal business hours without charge;
- Contain a brief description of the drinking water system, including a list of water treatment chemicals used by the system;
- Describe any major expenses incurred to install, repair or replace required equipment;
- Summarize any reports made to the Ministry of Environment, Conservation and Parks (MECP) for Adverse Water Quality Incidents (AWQIs);
- Summarize the results of tests required under O.Reg. 170/03, or under an approval; Municipal Drinking Water Licence (MDWL) or order, including an Ontario Water Resources Act order, if tests required under this Regulation in respect of a parameter were not required during that period, summarize the most recent results of tests of that parameter; and
- Describe any corrective actions taken.

3 Evidence of Compliance

3.1 Availability of the Annual Report

In accordance with Section 11 of O.Reg. 170/03, a copy of the Report is available to the public, free of charge from the City of Barrie website and from the Branch by request.

The public will be advised of the Report's availability and how to obtain a copy, without charge, on the City of Barrie's website, in a local newspaper and on social media outlets after February 22, 2021.

3.2 Description of the Municipal Drinking Water System

The System consists of a Surface Water Treatment Plant (SWTP) and associated low lift pumping station (LLPS), 12 groundwater wells, 3 in-ground storage facilities, 7 booster stations, and 3 elevated storage towers.

Treatment at the SWTP consists of primary screening, flocculation, membrane filtration, granular activated carbon contactors (for taste and odour control), and disinfection with chlorine gas. Primary disinfection is achieved through chlorine contact time (CT) in the four baffled wall chlorine contact chamber and reservoir. Secondary disinfection is achieved by boosting the chlorine residual of the treated water upon entry into the distribution system from the SWTP's reservoir. Re-chlorination to maintain the chlorine residual in the distribution system is available at Harvie Road Booster Station/Reservoir and Mapleview Tower.

Treatment at each of the well stations consists of iron sequestration by addition of sodium silicate and disinfection with chlorine gas. Primary disinfection is achieved through CT prior to the first consumer, with the exception of Well 5, which achieves primary disinfection using ultraviolet disinfection. Secondary disinfection is maintained throughout the distribution system with booster chlorination applied at 7 locations throughout the distribution system.

The distribution system consists of approximately 3,854 hydrants and approximately 644 kilometers of watermain and transmission main ranging in sizes from 32mm to 1200mm and as of January 2021, delivering drinking water to a population of approximately 151,043 residents.

3.3 Water Treatment Chemicals

The following water treatment chemicals were used during the reporting period:

- Polyaluminum Chloride – Pre-filtration Coagulant – SWTP
- Chlorine – Primary and Secondary Disinfection – SWTP and Wells
- Sodium Silicate – Iron and Manganese Sequestration – Wells

3.4 Significant Expenses Incurred

A brief summary of the major expenses incurred during the reporting period to install, repair or replace required equipment, and value of each, is included in Table 1.

Table 1 – Summary of Expenses Incurred

Activity	Costs Incurred (2020)
Well Pump Motor Replacement (Heritage Park Well #14)	$21,100
Well Pump Motor Replacement (Centennial Park Well #12)	$26,000
Health and Safety Upgrades (Mapleview Tower)	$21,800
Corrosion Removal and liner Touch up (Mapleview Tower)	$36,700
Health and Safety Upgrades (Ferndale Tower)	$51,100
Replace Generator ATS (Anne St. Booster Pumping Station)	$25,586
Highlift and Lowlift pump inspections and repairs	$54,000
Watermain break repairs (28)	$171,711
Hydro excavation contractors for water infrastructure repairs	$58,013
Advanced Metering Infrastructure (AMI) Service Agreement	$95,690
Meter Replacement Program	$308,605

3.5 Operational Checks, Sampling and Testing

In general, during the reporting period, operational checks were completed and drinking water samples were collected in accordance with O.Reg. 170/03 and the MDWL, with one exception of Well 3A which was not in service; therefore no operational checks or regulated samples were collected. The laboratory results for all analyzed samples regulated by O.Reg. 170/03 and the MDWL are summarized in Table 3 through Table 11, included in Appendix A for reference.

Details of the sampling and testing conducted in 2020 are discussed below in Section 3.5.1 through 3.5.4, inclusive.

3.5.1 Schedule 7 – Operational Checks – O.Reg. 170/03

Operational checks including: treated and distribution free chlorine and raw and treated turbidity was conducted in accordance with Schedule 7 of O.Reg.170/03, with the exception of Well 3A which was not in service.

The operational checks conducted during this reporting period are summarized in Table 3, included in Appendix A for reference.

3.5.2 Schedule 10 – Microbiological Sampling and Testing – O.Reg. 170/03

Raw, treated and distribution water samples were analyzed for microbiological parameters specified in Schedule 10-2, 10-3 and 10-4 of O.Reg. 170/03 and Heterotrophic Plate Count (HPC), and Background bacteria (Background) pursuant to the Ontario Public Health Inspector's Guide (OPHIG), dated 2013.

Laboratory results for most samples analyzed for *E.coli*, Total Coliforms and Background met the requirements and did not exceed the applicable standards stipulated in O.Reg. 169/03 and the OPHIG, with the exception of the raw water samples collected before treatment on the dates detailed in Table 2. Five (5) treated distribution samples yielded Total Coliform counts. Total Coliforms are an indicator bacteria where their presence may indicate that disease-causing organisms (bacteria) may be present in the water. All treated water samples that had a Total Coliform count, had no E. Coli present. One (1) treated distribution sample yielded a NDOGT (No Data Overgrown with Target) result. A NDOGT result indicates that the test has a large number of bacteria present however, the analyst is unable to identify the presence/absence of Total Coliform and/or E. Coli. All adverse results were reported as AWQIs as discussed in Section 3.6.

Table 2 – Summary of E.coli, Total Coliform and Background Presence

Date of Sample	E.coli	Total Coliform	Background>200
SWTP – Raw Water			
2020-01-13	X	X	
2020-01-20	X	X	X
2020-01-27		X	X
2020-02-03		X	
2020-02-10		X	
2020-02-18		X	
2020-03-09		X	
2020-03-23		X	
2020-03-30		X	
2020-04-14	X	X	
2020-04-20		X	
2020-05-04		X	
2020-05-19		X	
2020-06-01		X	
2020-07-06		X	X
2020-08-04	X	X	X
2020-08-10		X	
2020-08-17	X	X	X
2020-08-24			X
2020-08-31	NDOGT	NDOGT	NDOGT
2020-09-08	X	X	X
2020-09-14	X	X	X
2020-09-21	X	X	X
2020-09-28	X	X	X
2020-10-05	X	X	X
2020-10-13			X
2020-10-19	NDOGT	NDOGT	NDOGT
2020-10-26	NDOGT	NDOGT	NDOGT

Date of Sample	E.coli	Total Coliform	Background>200
2020-11-02		X	X
2020-11-09	X	X	X
2020-11-16			X
2020-11-23		X	X
2020-11-30	X	X	
2020-12-07			X
2020-12-14	X	X	
2020-12-21	X	X	
2020-12-29	X	X	
Well 13 – Raw Water			
2020-02-03		X	
Well 15 – Raw Water			
2020-04-14		X	
Well 16 – Raw Water			
2020-02-10		X	
Harvie Reservoir – Treated Water			
2019-06-01		X	
Bayview Reservoir – Treated Water			
2020-06-01		X	
Saunders Rd. Sample Station – Treated Water			
2020-07-27		X	
Mapleview Sample Station – Treated Water			
2020-07-27		X	
Glenwood Drive – Treated Water			
2020-08-16		X	
Penetanguishene Rd. Sample Station – Treated Water			
2020-08-24	NDOGT	NDOGT	NDOGT

The samples analyzed for microbiological and bacteriological parameters during this reporting period are summarized in Table 4, included in Appendix A for reference.

3.5.3 Schedule 13 – Chemical Testing – O.Reg. 170/03

Treated water samples collected from the Water Distribution and Supply Subsystem were analyzed for organic and inorganic chemical parameters in accordance with O.Reg. 170/03, Schedule 13, Section 13.2 (Schedule 23), Section 13.4 (Schedule 24), Section 13.8, and Section 13.9. Analytical results for all samples analyzed for organic and inorganic chemical parameters met the requirements and did not exceed the applicable standards stipulated in O.Reg. 169/03.

Treated water samples collected from the distribution system were analyzed for Trihalomethanes (THMs) and Haloacetic Acids in accordance with O.Reg. 170/03, Schedule 13.6 and 13.6.1. Treated water samples collected from the well stations were analyzed for nitrates and nitrites in accordance with 13.7 of O.Reg.170/03. Laboratory results for all samples analyzed for THM, nitrate and nitrite parameters met the requirements and did not exceed the applicable standards stipulated in O.Reg. 169/03.

The above noted results are summarized in Tables 5, 6, and 7 in Appendix A for reference.

If analysis required under O.Reg. 170/03 with respect to an analytical parameter was not required during the reporting period; the most recent analytical results for that parameter was included in this report, in accordance with O.Reg. 170/03, s.11 (6) (b).

3.5.4 Schedule 15.1 – Lead – O.Reg. 170/03

Lead samples were collected from the plumbing at industrial and commercial locations and several hydrants within the distribution system during the winter and summer sampling period in accordance with Schedule 15.1. Amendments made under the MDWL requires the collection of five (5) Industrial,

Commercial & Institutional (ICI) samples and ten (10) Distribution samples to be collected during the reporting periods of December 15th, 2019 to April 15th, 2020 and June 15th, 2020 to October 15th, 2020.

Analytical results indicated lead concentrations below the established limit of 10ug/L for all of the locations sampled.

The samples analyzed for lead during this reporting period are summarized in Table 8, included in Appendix A for reference.

3.5.5 Municipal Drinking Water Licence

In addition to the sampling and monitoring required by O.Reg. 170/03, specific conditions within the City's MDWL required additional sampling and monitoring at select locations for select Volatile Organic Compounds (VOC), sodium, and UV disinfection at Well 5. Analytical results for all samples analyzed for select VOCs and sodium were below the applicable standards stipulated in O.Reg. 169/03.

The samples analyzed for select VOCs and sodium during the reporting period are summarized in Table 9 and Table 10, respectively and included in Appendix A for reference. UV monitoring documented during this reporting period is summarized in Table 11, included in Appendix A for reference.

3.6 Reporting and Corrective Actions

3.6.1 Schedule 16 – Reporting of Adverse Test Results and Other Problems

Eight (8) AWQIs were reported during the 2020 reporting period in accordance with Schedule 16 of O.Reg. 170/03.

3.6.2 Schedule 17 – Corrective Actions

Corrective actions related to each of the reported AWQIs, as noted above, were completed in accordance with O.Reg. 170/03, Schedule 17. The Branch resolved the AWQIs in consultation with the Simcoe Muskoka District Health Unit (SMDHU) and the MECP in a timely manner.

The AWQIs and associated corrective actions that occurred during this reporting period are summarized in Table 12, included in Appendix A for reference.

4 Closure

It is the belief of the Branch that this report satisfies the requirements of Section 11 of O.Reg. 170/03. If you have any questions concerning the contents of this report, please contact the Supervisor of Compliance and Technical Support at the Branch.

Appendix A - Tables

Table 3 – Schedule 7 Operational Checks

Sample Location	Sample Count	Free Chlorine		Turbidity			
		(min)	(max)	(min)	(max)	(min)	(max)
		Treated Water		Raw Water		Treated Water	
Well 5	**8760	0.09	2.38	0.00	0.85	--	--
Well 7	**8760	0.38	1.60	0.00	4.95	--	--
Well 9	**8760	0.28	2.00	0.00	2.78	--	--
Well 11	**8760	0.52	1.81	0.00	6.05	--	--
Well 12	**8760	0.12	2.00	0.00	2.00	--	--
Well 13	**8760	0.01	2.00	0.00	10.00	--	--
Well 14	**8760	0	2	0.00	10.00	--	--
Well 15	**8760	0.38	1.59	0.00	8.38	--	--
Well 16	**8760	0.29	2.00	0.00	10.00	--	--
Well 17	**8760	0.33	2.00	0.00	9.99	--	--
Well 18	**8760	0.31	2.80	0.00	4.34	--	--
Surface Water Treatment Plant	**8760	0.00	4.28	0.00	470.49	0.00	3.46
Bayfield Tower	**8760	0.42	3.04	--	--	--	--
Ferndale Tower	**8760	0.00	2.00	--	--	--	--
Mapleview Tower	**8760	0.14	1.31	--	--	--	--
Anne Reservoir	**8760	0.00	2.39	--	--	--	--
Harvie Reservoir	**8760	0.06	2.47	--	--	--	--
Sunnidale Reservoir	**8760	0.00	2.00	--	--	--	--

Notes:

** 8760 - Represents continuous monitoring
-- - Analysis not required
NTU - Turbidity measured in Nephelometric Turbidity Units
mg/L - Free Chlorine measured in milligrams per litre

Table 4 – Schedule 10 Microbiological Sampling and Testing

Sample Location	E.Coli		Total Coliform		Background		HPC		Sample Count
	(min)	(max)	(min)	(max)	(min)	(max)	(min)	(max)	
Distribution									
North Sampling Points	0	NDOGT	0	NDOGT	--	--	<10	290	729
South Sampling Points	0	0	0	5	--	--	<10	420	696
Other (i.e., main breaks, maintenance)	0	0	0	1	0	>200	--	--	73
								Sub-Total Distribution Samples	1498
Treated Water									
Well 5	0	0	0	0	0	1	10	40	51
Well 7	0	0	0	0	0	0	10	50	40
Well 9	0	0	0	0	0	0	10	160	50
Well 11	0	0	0	0	0	1	10	80	49
Well 12	0	0	0	0	0	0	10	180	48
Well 13	0	0	0	0	0	0	10	40	19
Well 14	0	0	0	0	0	5	10	370	42
Well 15	0	0	0	0	0	0	10	110	51
Well 16	0	0	0	0	0	150	10	170	51
Well 17	0	0	0	0	0	0	10	40	42
Well 18	0	0	0	0	0	0	10	370	52
Surface Water Treatment Plant	0	0	0	0	0	1	10	60	51
								Sub-Total Treated Samples	546
Raw Water									
Well 5	0	0	0	0	0	8	--	--	51
Well 7	0	0	0	0	0	1	--	--	40
Well 9	0	0	0	0	0	11	--	--	50
Well 11	0	0	0	0	0	0	--	--	49
Well 12	0	0	0	0	0	37	--	--	49
Well 13	0	0	0	20	0	42	--	--	18
Well 14	0	0	0	0	0	26	--	--	42
Well 15	0	0	0	1	0	6	--	--	51
Well 16	0	0	0	1	0	2	--	--	51
Well 17	0	0	0	0	0	14	--	--	42
Well 18	0	0	0	0	0	34	--	--	52
Surface Water Treatment Plant	0	6	0	76	0	198	--	--	51
								Sub-Total Raw Samples	546

Notes:

CFU/100mL - E. coli, Total Coliform and Background results are expressed as Colony Forming Units (CFU)/100mL

CFU/1mL - Heterotrophic Plate Count (HPC) results are expressed as CFU/1mL

-- - Analysis not required

Table 5 – Schedule 13 Chemical Sampling and Testing – Inorganics and Organics

Sample Location		Well 5	Well 7	Well 9	Well 11	Well 12	Well 13	Well 14	Well 15	Well 16	Well 17	Well 18	SWTP
Date Sampled		2018-04-16	2018-04-16	2018-04-16	2018-04-16	2018-04-16	2018-04-16	2018-04-16	2018-04-16	2018-04-16	2018-04-16	2018-04-16	2020-08-31
	RL	Analytical Result											
Treated Water - Inorganic Parameters													
Antimony	0.1	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Arsenic	0.1	0.5	0.4	0.1	0.2	0.2	0.3	0.3	0.4	0.3	0.7	0.5	0.4
Barium	1	185	237	98	215	356	92	257	267	97	271	229	32
Boron	5	17	13	14	14	26	19	20	13	14	16	19	19
Cadmium	0.015	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Chromium	2	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Mercury	0.02	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Selenium	1	<RL	<RL	1	<RL	3	<RL	2	<RL	<RL	<RL	<RL	<RL
Uranium	0.05	0.43	0.28	0.88	0.71	0.4	0.91	1.33	0.14	1.09	0.27	0.2	0.25
Treated Water - Organic Parameters													
Alachlor	0.3	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Atrazine+metabolites	0.5	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Azinphos-methyl	1	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Benzene	0.5	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Benzo(a)pyrene	0.005	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Bromoxynil	0.5	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Carbaryl	3	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Carbofuran	1	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Carbon Tetrachloride	0.2	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Chlorpyrifos	0.5	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Diazinon	1	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Dicamba	10	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
1,2-Dichlorobenzene	0.5	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
1,4-Dichlorobenzene	0.5	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
1,2-dichloroethane	0.5	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
-Dichloroethylene (vinylidene chloride)	0.5	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Dichloromethane	5	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
2,4-Dichlorophenol	0.2	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
,4-Dichlorophenoxy acetic acid (2,4-D)	10	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Diclofop-methyl	0.90	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Dimethoate	1	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Diquat	5	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Diuron	5	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Glyphosate	25	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Malathion	5	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
MCPA	10	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Metolachlor	3	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Metribuzin	3	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Monochlorobenzene	0.5	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Paraquat	1	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Pentachlorophenol	0.2	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Phorate	0.3	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Picloram	15	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Polychlorinated Biphenyls (PCB)	0.05	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Prometryne	0.1	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Simazine	0.5	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Terbufos	0.5	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
etrachloroethylene (perchloroethylene)	0.5	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
2,3,4,6-Tetrachlorophenol	0.20	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Triallate	10	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Trichloroethylene	0.5	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
2,4,6-Trichlorophenol	0.2	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Trifluralin	0.5	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Vinyl Chloride	0.2	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL

Notes:

ug/L - All units presented in micrograms per litre
<RL - Analytical Result did not exceed the laboratory Reporting Limit (RL)
SWTP - Surface Water Treatment Plant

Table 6 – Schedule 13 Chemical Sampling and Testing – Trihalomethanes & Haloacetic Acids

Parameter	Running Annual Average
	2020
Trihalomethanes	45.3
Haloacetic Acids	26.9

Notes:

ug/L - Reported in micrograms per litre

Table 7 – Schedule 13 Chemical Sampling and Testing – Sodium, Fluoride, Nitrite and Nitrate

Parameter	RL	Date Sampled	Analytical Results											
		Sample Location	Well 5	Well 7	Well 9	Well 11	Well 12	Well 13	Well 14	Well 15	Well 16	Well 17	Well 18	SWTP
Sodium	0.2 RL	2019-03-22	--	--	31.9	--	--	--	--	--	--	--	--	--
		2019-09-16	17.8	10	43.7	94.2	140	54.2	61.9	22.7	--	--	9.9	--
		2019-12-09	--	--	--	--	--	--	--	--	10.4	--	--	--
		2020-03-02	--	--	--	--	--	--	--	--	--	9.9	--	--
		2020-08-31	--	--	--	--	--	--	--	--	--	--	--	31.4
Fluoride	0.1 RL	2019-09-16	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	--	--	<RL	--
		2019-12-09	--	--	--	--	--	--	--	--	<RL	--	--	--
		2020-03-02	--	--	--	--	--	--	--	--	--	<RL	--	--
		2020-08-31	--	--	--	--	--	--	--	--	--	--	--	<RL
Nitrite	0.1 RL	2020-02-06	--	--	--	--	--	<RL	--	--	--	--	--	--
		2020-02-24	--	--	--	--	--	--	--	--	--	--	--	<RL
		2020-03-02	--	--	--	--	--	--	--	--	--	<RL	--	--
		2020-03-09	<RL	--	--	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	--
		2020-03-17	--	--	<RL	--	--	--	--	--	--	--	--	--
		2020-05-08	--	<RL	--	--	--	--	--	--	--	--	--	--
		2020-05-25	--	--	--	--	--	--	--	--	--	--	--	<RL
		2020-06-09	<RL	<RL	<RL	<RL	<RL	--	--	<RL	<RL	<RL	<RL	--
		2020-06-10	--	--	--	--	--	--	<RL	--	--	--	--	--
		2020-08-24	--	--	--	--	--	--	--	--	--	--	--	<RL
		2020-08-31	--	--	--	--	--	--	--	--	--	--	--	<RL
		2020-09-08	<RL	<RL	<RL	<RL	<RL	--	<RL	<RL	<RL	<RL	<RL	--
		2020-11-23	--	--	--	--	--	--	--	--	--	--	--	<RL
		2020-12-07	<RL	<RL	<RL	<RL	<RL	--	<RL	<RL	<RL	<RL	<RL	--
		2020-12-21	--	--	--	--	--	<RL	--	--	--	--	--	--
Nitrate	0.1 RL	2020-02-06	--	--	--	--	--	3.5	--	--	--	--	--	--
		2020-02-24	--	--	--	--	--	--	--	--	--	--	--	0.2
		2020-03-02	--	--	--	--	--	--	--	--	--	<RL	--	--
		2020-03-09	<RL	--	--	0.5	<RL	2.5	<RL	<RL	1.1	<RL	<RL	--
		2020-03-17	--	--	3.5	--	--	--	--	--	--	--	--	--
		2020-05-08	--	<RL	--	--	--	--	--	--	--	--	--	--
		2020-05-25	--	--	--	--	--	--	--	--	--	--	--	0.2
		2020-06-09	<RL	<RL	3.6	0.5	<RL	--	--	<RL	1.1	<RL	<RL	--
		2020-06-10	--	--	--	--	--	--	<RL	--	--	--	--	--
		2020-08-24	--	--	--	--	--	--	--	--	--	--	--	0.2
		2020-08-31	--	--	--	--	--	--	--	--	--	--	--	0.2
		2020-09-08	<RL	<RL	2.6	0.6	<RL	--	<RL	<RL	<RL	<RL	<RL	--
		2020-11-23	--	--	--	--	--	--	--	--	--	--	--	0.1
		2020-12-07	<RL	<RL	2.5	0.5	<RL	--	<RL	<RL	1.1	<RL	<RL	--
		2020-12-21	--	--	--	--	--	2.5	--	--	--	--	--	--

Notes:

-- - Analysis not required

<RL - Analytical Result did not exceed the laboratory Reporting Limit (RL)

mg/L - All units reported in milligrams per litre

SWTP - Surface Water Treatment Plant

Table 8 – Schedule 15.1 – Lead

Parameter	RL	Sample Count	Range of Results	
			(min)	(max)
Lead (Plumbing)	0.02	20	0.06	0.58
Lead (Distribution System)		20	0.09	5.08

Notes:

ug/L - All units reported in micrograms per litre

RL - Laboratory Reporting Limit

Table 9 – Municipal Drinking Water Licence – Raw Water Sampling and Testing – Volatile Organic Compound

Parameter	RL	Analytical Results							
		(min)	(max)	(min)	(max)	(min)	(max)	(min)	(max)
Sample Location		Well 11		Well 12		Well 14		Well 15	
Benzene	0.5	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Carbon Tetrachloride	0.2	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
1,2-Dichlorobenzene	0.5	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
1,4-Dichlorobenzene	0.5	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
1,2-Dichloroethane	0.5	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
1,1-Dichloroethene	0.5	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Cis-1,2-Dichloroethene	0.5	<RL	0.84	<RL	<RL	<RL	1.79	<RL	2.06
Dichloromethane	5	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Monochlorobenzene	0.5	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Tetrachloroethylene	0.5	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Trichloroethylene	0.5	<RL	<RL	<RL	<RL	<RL	0.74	<RL	<RL
Vinyl Chloride	0.2	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL

Notes:
ug/L - All units reported in micrograms per litre
<RL - Analytical result did not exceed the laboratory Reporting Limit (RL)

Table 10 – Municipal Drinking Water Licence – Raw Water Sampling and Testing - Sodium

Sample Location	Sodium	
	(min)	(max)
*Well 3A	43	47.4
**Well 9	38.5	47.4
Well 11	79.2	92.8
Well 12	138	147
***Well 13	26.3	55.7
Well 14	39	63.2

Notes:
mg/L - All units reported in milligrams per litre
* - Although 3A was not in service, analytical results required as a condition of the MDWL
** - Samples were not collected at Well 9 in the first quarter due to well maintenance activities
*** - Samples were not collected at Well 13 in the fourth quarter due to well maintenance actvities

Table 11 – Municipal Drinking Water Licence – Ultra Violet Monitoring

Parameter	Minimum	Well 5	
		(min)	(max)
UV Dosage *Monitored Continuously*	40	0	102.2
UVT *Monitored Weekly*	85	85.6	95.6

Notes:
(mJ/cm^2) - UV Dosage measured in millijoules per centimeter squared
% - UVT measured in percent

Table 12 – Schedule 16 and 17 – Summary of Adverse Water Quality Incidents (AWQIs)

AWQI #	Incident Date	Location	Parameter	Result	Unit of Measure	Summary	Corrective Action Date
149694	2020-03-04	Harvie Reservoir, Harvie Booster Pumping Station	Free Chlorine Residual	0.02 mg/L at Harvie Reservoir , 0.00 mg/L at Harvie Booster Pumping Station	mg/L	Low chlorine residuals were detected at 2 separate analyzers, one at Harvie Reservoir and one at Harvie Booster Pumping Station. Online analyzers were verified against handheld analyzers and corrections were made to online analyzers, if required. The low chlorine water was allowed to mix in the reservoir with water of acceptable residual already in the reservoir. Suspected cause of low chlorine was due to a slug of water from the watermain after isolation for integrity inspections. The incident was immediately reported to the SMDHU and the MECP. Bacteriological samples were collected from watermain	2020-03-04
150106	2020-06-01	Harvie Reservoir	Total Coliform	1	Count/100 mL	A microbiological sample was collected in the distribution system during routine weekly sampling. External lab results indicated that the results for Total Coliform exceeded regulatory limits. The incident was immediately reported to the SMDHU and the MECP. Bacteriological samples were collected from the adverse location, as well as, upstream and downstream of the adverse location until 2 consecutive samples collected 24 hours apart were acceptable.	2020-06-02
150107	2020-06-01	Bayview Reservoir	Total Coliform	12	Count/100 mL	A microbiological sample was collected in the distribution system during routine weekly sampling. External lab results indicated that the results for Total Coliform exceeded regulatory limits. The incident was immediately reported to the SMDHU and the MECP. Bacteriological samples were collected from the adverse location, as well as, upstream and downstream of the adverse location until 2 consecutive samples collected 24 hours apart were acceptable.	2020-06-02
150975	2020-07-27	Saunders Sample Station	Total Coliform	5	Count/100 mL	A microbiological sample was collected in the distribution system during routine weekly sampling. External lab results indicated that the results for Total Coliform exceeded regulatory limits. The incident was immediately reported to the SMDHU and the MECP. Bacteriological samples were collected from the adverse location, as well as, upstream and downstream of the adverse location until 2 consecutive samples collected 24 hours apart were acceptable.	2020-07-28
150976	2020-07-27	Mapleview Sample Station	Total Coliform	1	Count/100 mL	A microbiological sample was collected in the distribution system during routine weekly sampling. External lab results indicated that the results for Total Coliform exceeded regulatory limits. The incident was immediately reported to the SMDHU and the MECP. Bacteriological samples were collected from the adverse location, as well as, upstream and downstream of the adverse location until 2 consecutive samples collected 24 hours apart were acceptable.	2020-07-28
151427	2020-08-16	Glenwood Drive	Total Coliform	1	Count/100 mL	A microbiological sample was collected in the distribution system following a water service repair. External lab results indicated that the results for Total Coliform exceeded regulatory limits. The incident was immediately reported to the SMDHU and the MECP. Bacteriological samples were collected from the adverse location, as well as, upstream and downstream of the adverse location until 2 consecutive samples collected were acceptable.	2020-08-18

AWQI #	Incident Date	Location	Parameter	Result	Unit of Measure	Summary	Corrective Action Date
151560	2020-08-24	Penetanguishene Sample Station	Total Coliform & E. Coli	NDOGT	NA	A microbiological sample was collected in the distribution system during routine weekly sampling. External lab results indicated that the results for Total Coliform and E. coli exceeded regulatory limits, with a result of NDOGT (No Data: Overgrown with target). When there is a NDOGT result, it means the test has a large number of bacteria present however, the analyst is unable to identify the presence/absence of Total Coliform and/or E. Coli. The incident was immediately reported to the SMDHU and the MECP. Bacteriolocical samples were collected from the adverse location, as well as, upstream and downstream of the adverse location until 2 consecutive samples collected 24 hours apart were acceptable.	2020-08-25
151909	2020-09-08	Browning Trail	Low Pressure	NA	NA	A low pressure incident lasting about 90 secs resulted from a main break that occurred during a closed pressure zone. Acceptable chlorine residuals and positive pressure were maintained for the duration of the incident. The incident was immediately reported to the SMDHU and the MECP. Pressure readings were collected in the vicinity of the main break and were all acceptable. A review of the negative consumption reports from the Advanced Metering Infrastructure (AMI) system did not identify and properties having negative consumption during the dip in pressure.	2020-09-08

Notes:

NA - Not applicable

Schedule C

2020 Municipal Summary Report, Schedule 22

Ontario Regulation 170/03

City of Barrie
Water Operations Branch

Drinking Water System
2020 Municipal Summary Report
Schedule 22. O.Reg. 170/03

For the Period of

JANUARY 1ST, 2020 TO DECEMBER 31ST, 2020

System Rating:	Water Treatment Subsystem Class IV Water Distribution and Supply Subsystem Class IV Water Distribution Subsystem Class II
Drinking Water System No.:	220001192
Municipal Drinking Water Licence No.:	014-101, Issue No. 6

Effective Date: 2021-02-22

CONTENTS

Municipal Summary Report – Schedule 22-2, O.Reg. 170/03

1 Introduction

The City of Barrie Water Operations Branch (the Branch) has prepared this summary report to satisfy the requirements of Schedule 22-2 of Ontario Regulation 170/03 (O.Reg.170/03). Schedule 22-2 (1) and (1)(a) require that the owner of a drinking water system ensure that a report is prepared in accordance with subsections (2) and (3) for the preceding calendar year. The summary report must be provided to the members of the municipal council, in the case of drinking water systems owned by a municipality, and must be available no later than March 31st of each year.

This report includes the period from January 1st, 2020 to December 31st, 2020, and the information provided complies with the reporting requirements outlined in Schedule 22-2 (2) and (3) of O.Reg.170/03.

2 Schedule 22-2 Reporting Requirements

Schedule 22-2 requires that the report include the following:

- Schedule 22-2 (2) requires:
    - List the requirements of the *Safe Drinking Water Act* (SDWA), the regulations, the system's approval, drinking water works permit, municipal drinking water licence, and any orders applicable to the system that were not met at the time during the period covered by the report; and
    - For each requirement referred to above that was not met, specify the duration of the failure and the measures that were taken to correct the failure.
- Schedule 22-2 (3) requires:
    - A summary of the quantities and flow rates of the water supplied during the period covered by the report, including monthly average and maximum daily flows; and
    - A comparison of the summary referred to above to the rated capacity and flow rates approved in the system's approval, drinking water works permit or municipal drinking water licence.

3 Evidence of Compliance

3.1 Compliance with Schedule 22-2 (2)

The following sections discuss the requirements in Schedule 22-2 (2).

3.1.1 Orders

The Branch was not issued any orders during the 2020 reporting period.

3.1.2 Ministry of Environment, Conservation and Parks (MECP) Drinking Water System Inspection

The MECP conducted two (2) focused inspections of the Municipal Drinking Water System (the System). The first (1st) inspection was from January 2019 to January 2020 and the second (2nd) inspection was from January 2020 to September 2020. Following each System inspection, the MECP issued a report summarizing the findings, including regulatory non-compliances, best practice issues, and recommendations.

3.1.2.1 2019 Drinking Water System Inspection Findings

Two (2) non-compliance with regulatory requirements and one (1) recommendation were reported in the 2019 MECP Inspection Report (Report) issued on February 13th, 2020.

The first non-compliance identified in the inspection findings noted that all UV sensors were not checked and calibrated as required. The Branch responded by creating a recurring work order within the municipal maintenance management system to ensure that the reference sensors are checked and calibrated as required. A work order was also created for the Master Reference Assembly to be checked and calibrated at a minimum frequency based on the manufacturer's recommendations.

The second non-compliance identified in the inspection findings noted that all water quality monitoring requirements by the MDWL or DWWP issued under Part V of the SDWA were not being met. Specifically sampling for VOCs fell outside the required sampling range of 20 to 40 days after the previous sampling event. In all cases, sampling events were missed by a few days. Additionally, one sodium sample was collected from a treated water source instead of a raw water source. The Branch implemented corrections immediately upon identification of all non-compliances and notification to the MECP officer was completed.

The one (1) recommendation outlined in the Report identified that there was no harmful algal bloom monitoring plan in place. The MDWL #014-101, Issue Number 6 requires the Owner to develop and implement a Harmful Algal Bloom Monitoring Plan on or before April 1, 2020. There was no formal plan in place at the time of inspection, but samples were being collected at both the low lift pumping station and the high lift pumping station for microsystin analysis during the months of July and August.

A copy of the MECP Drinking Water System Inspection Summary is included in Appendix A for reference.

3.1.2.2 2020 Drinking Water System Inspection Findings

One (1) non-compliance with regulatory requirements was reported in the 2020 MECP Inspection Report (Report) issued on October 14th, 2020.

The one (1) non-compliance identified in the inspection findings noted that records did not confirm that the water treatment equipment which provides chlorination for secondary disinfection purposes was operated so that at all times and all locations in the distribution system the chlorine residual was never less than 0.05 mg/L free chlorine. There was one instance where the free chlorine residual dropped below 0.05 mg/L within the distribution system. The Branch immediately responded by verifying the chlorine residuals, allowing the water to mix in the reservoir prior to entering the distribution system and collecting microbiological samples.

A copy of the MECP Drinking Water System Inspection Summary is included in Appendix A for reference.

3.1.2.3 Historical Drinking Water System Inspection Findings

The Branch summarized the regulatory non-compliances and MECP recommendations for best practices that were presented in the above noted Reports, along with actions taken by the Branch in response to inspection findings on the MECP Drinking Water System Inspection Summary, which spans the 2016 to 2020 reporting periods, inclusive.

A copy of the MECP Drinking Water System Inspection Summary is included in Appendix A for reference.

3.2 Compliance with Schedule 22-2 (3)

3.2.1 Drinking Water System Production and Flow Rates

In accordance with Schedule 22-2 (3) and in order to assist the Owner in assessing the capability of the system to meet existing and planned uses of the system, the Branch prepared a summary of the quantities of water supplied during the reporting period, including monthly average and maximum daily flows in comparison to the rated capacities. The flows presented below are reported in Megalitres (ML) to reflect the large quantities of water produced by the system.

The Branch supplied 13,509 ML of water in the reporting period. The average monthly flow from all sources within the drinking water system was 1,125 ML, which ranged from 546.9 ML (SWTP) to 28 ML at Well 5.

The Branch was approved to supply a total of 148.26 ML (148,264,000 L) of water per day from fifteen (15) sources, with approved capacity of each source ranging from 6.55 ML/day (various sources) to 65 ML/day (SWTP). The maximum volume of water supplied in any day (maximum day flow) from each source ranged from 4.23 ML (Well 5) to 27.90 ML (SWTP) during the reporting period, as illustrated in the

Flow Summary graph included in Appendix B. Each source was operated within its respective permitted capacity during the reporting period, with the exception of Well 3A, 4A and 19 which were not operated in 2020.

In 2019, the City finalized the Water Supply and Water Distribution and Storage Master Plans which identify future water needs, accommodate residential and employment growth intensification and optimal servicing design. The Master Plans are available on the City of Barrie website.

4 Closure

It is the belief of the Branch that this report satisfies the requirements of O.Reg. 170/03, Schedule 22. If you have any questions concerning the contents of this report, please contact the Supervisor of Compliance and Technical Support.

Appendix A MECP Drinking Water System Inspection Summary

Ministry of Environment, Conservation & Parks
Drinking Water System Inspection Summary

Item No	Applicable Requirement	MECP Non-Compliance With Regulatory Requirements	Actions Taken	MECP Recommendations and Best Practice Issues	Actions Taken	Status
2020						
1	Subsection 1-2 (2)4 of Schedule 1 of O. Reg. 170/03	Records did not confirm that the water treatment equipment which provides chlorination or chloramination for secondary disinfection purposes was operated so that at all times and all locations in the distribution system the chlorine residual was never less than 0.05 mg/L free or 0.25 mg/L combined	Residuals were verified, and water was able to mix in the reservoir with water of acceptable residual and microbiological samples collected			Complete
2019						
1	Schedule E of Drinking Water Licence #014-101, Issue Number 6	All UV Sensors were not checked and calibrated as required	Created a recurring work order within the municipal maintenance management system to ensure that the reference sensors are checked and calibrated as required. A work order was also created for the Master Reference Assembly to be checked and calibrated at a minimum frequency based on the manufacturer's recommendations			Complete
2	Condition 5 of Schedule C of Drinking Water Licence #014-101, Issue Number 6	All water quality monitoring requirements imposed by the MDWL or DWWP issued under Part V of the SDWA were not being met	Notified the MECP officer upon identification of all instances of non-compliance and applied appropriate corrections at the time of the incident			Complete

Item No	Applicable Requirement	MECP Non-Compliance With Regulatory Requirements	Actions Taken	MECP Recommendations and Best Practice Issues	Actions Taken	Status
3				Owner did not have a harmful algal bloom monitoring plan in place (requirement to be in place on or before April 1, 2020)	Microsystin samples were being collected at the low lift pumping station and the highlift pumping station during the months of July and August. Plan was implemented in Spring 2020	Complete
2018						
1	Subsection 10-2 (1) of Schedule 10 of O. Reg. 170/03	All microbiological water quality monitoring requirements for distribution samples were not being met (25% HPC on distribution samples monthly)	Sampling locations were reviewed – 5 new sample stations were added, and a couple of locations were removed. Now complete 30 distribution samples (15 North, 15 South) on a weekly basis. We also request 10 samples to have HPC analysis done each week (33% of samples). Chain of custodies set up on a 3-week cycle.			Complete
2				Several typographical errors and omissions within source descriptions of the PTTW, expiring April 20, 2021	A reminder has been set internally to correct these errors at the time of the PTTW renewal	Pending – Updates to the draft PTTW have been completed. This will be closed out after the April 20, 2021 PTTW renewal.

Item No	Applicable Requirement	MECP Non-Compliance With Regulatory Requirements	Actions Taken	MECP Recommendations and Best Practice Issues	Actions Taken	Status
2017						
1	Schedule E, Drinking Water Licence # 014-101, and Schedule A, Drinking Water Permit # 014-201	Primary disinfection chlorine monitoring was not conducted at a location approved by Municipal Drinking Water Licence and/or Drinking Water Work Permit issued under Part V of the SDWA, or at/near a location where the intended CT has just been achieved. **WOB Summary:** In a mutual oversight by the MECP and the Water Operations Branch that was captured through the renewal process of the Municipal Drinking Water Licence and Drinking Water Works Permit, it was realized that Wells 11,12,15,17 & 18's chlorine analyzers were located as such that primary disinfection chlorine monitoring was not being conducted as prescribed by the Procedure for Disinfection of Safe Drinking Water.	Measures were taken to calculate and identify locations in the drinking water system where the intended CT had just been achieved at each of the well sites. Weekly samples had been conducted for each of those designated locations to trend and establish a minimum chlorine residual concentration necessary to maintain the residual at the end of the dedicated chlorine contact section of piping to the level required to complete primary disinfection. Proposal of minimum chlorine residual concentration required to achieve CT based on the maximum chlorine depletions at each of the sites was approved by the MECP. Operations were adjusted accordingly and continued weekly monitoring occurs to ensure continued compliance and confidence that primary disinfection was occurring at these specific well locations.			Complete

Item No	Applicable Requirement	MECP Non-Compliance With Regulatory Requirements	Actions Taken	MECP Recommendations and Best Practice Issues	Actions Taken	Status
2				It is recommended that the Municipality consider reviewing the raw water quality monitoring program on a regular basis to ensure that the deterioration of water quality does not present potential treatment issue in the near future	General Chemistry samples to be collected from sources on a 9-month frequency starting October 2018. Additional sampling from sources for some parameters will be collected and analyzed quarterly by the in-house lab. All results will be reviewed as part of Management Review.	Complete
2016						
1	R.R.O., 1990 Reg. 903-Wells SDWA: Subsection 1-2(1) O.Reg. 170/03	The owner was not maintaining the well(s) in a manner sufficient to prevent entry into the well of surface water or other foreign materials. **WOB Summary:** Well pump vent screen situated at the base of the vertical turbine pump developed corrosion over time and was noticed to be situated on an angle during inspection, which led to the MECP inspector identifying the part as no longer attached effectively.	Action immediately taken to repair the well pump vent screen at John St – WPS 05. Repair documented and communicated to MECP Inspector on 2017/01/09.		Addition of field to the CMMS cyclical work order to include check well pump vent screen. This activity is conducted 3 times per week.	Complete

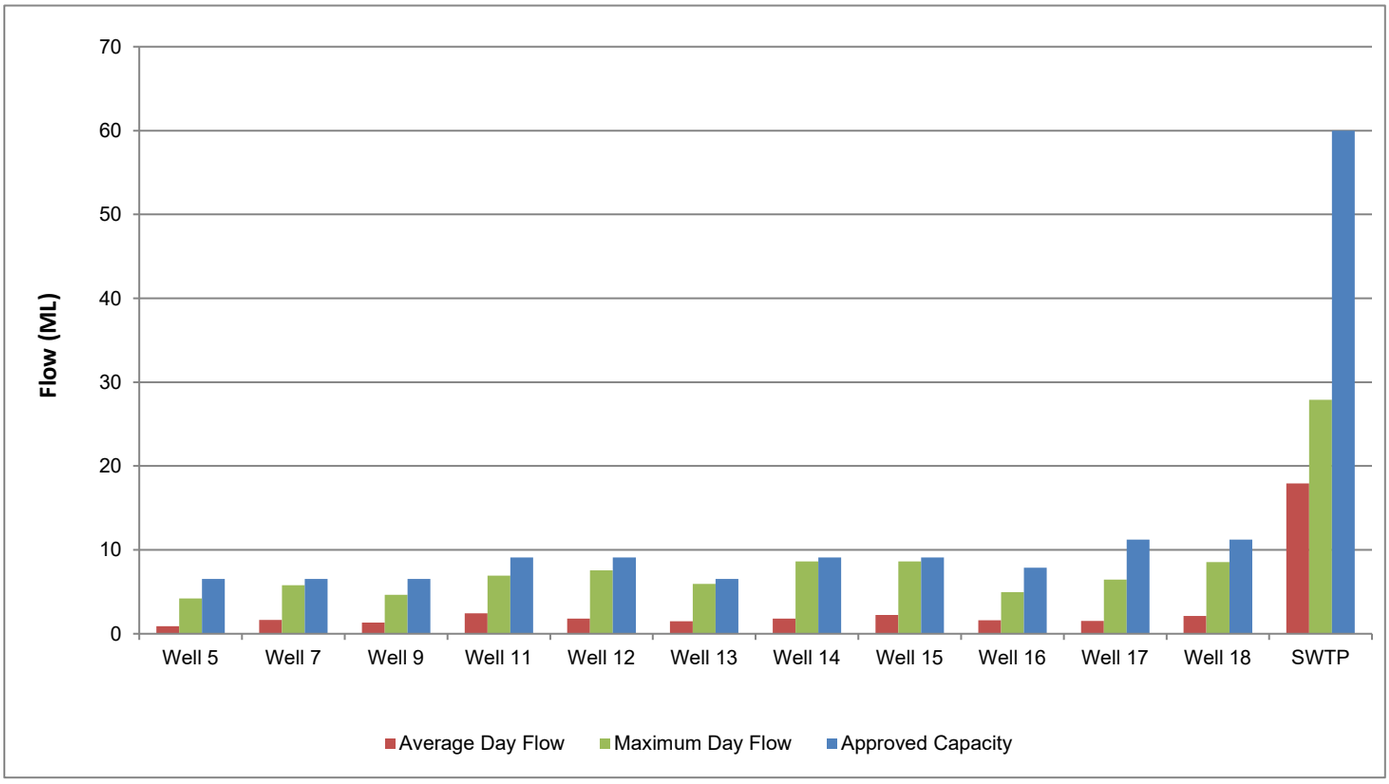
Item No	Applicable Requirement	MECP Non-Compliance With Regulatory Requirements	Actions Taken	MECP Recommendations and Best Practice Issues	Actions Taken	Status
2				The municipality is strongly advised to assess potential risk to the natural environment and collect information on the discharge effluent from generator cooling water and sand separator purge water that discharges directly to Kempenfelt Bay from Heritage Park Well Pumping Station 14. Test for the following parameters: • average individual and total volumes • assessment of total suspended solids • a comparative of temperatures of each process discharging to Kempenfelt Bay	Branch conducted sampling on the three (3) requested parameters.	Complete
3				It is the recommendation that the municipality consider labelling the bottle of deionized water used for verification of the UV unit at John St – WPS 05 with the date of filling, replacing the deionized water every 3 months, and replacing the current wide mouth container with a laboratory wash bottle.	Bottle replaced with the laboratory type wash bottle, labelled with permanent marker identifying the contents and date filled.	Complete

Item No	Applicable Requirement	MECP Non-Compliance With Regulatory Requirements	Actions Taken	MECP Recommendations and Best Practice Issues	Actions Taken	Status
4				It is recommended that the municipality consider assessing the secondary containment capacity for the bulk chemical storage to ensure sizing is capable of containing 110% of the volume of the largest container as per the Ministry's Guidelines for environmental protection measures at chemical and waste storage facilities.	Engineers' drawings referenced and volumes calculated to verify secondary containment is in excess of the required 110% capacity. Verification sent via email to the MECP inspector on 2017-02-15	Complete

Appendix B Tables and Figures

Drinking Water System Usage

Source	Approved Daily Capacity (ML/day)	Maximum Day Flow (ML/day)	Average Day Flow (ML/day)	Monthly Average Flow (ML/month)	Annual Total Volume (ML)
Well 5	6.55	4.23	0.91	27.73	332.75
Well 7	6.55	5.80	1.66	50.75	609.04
Well 9	6.55	4.65	1.33	40.52	486.24
Well 11	9.1	6.92	2.44	74.49	893.94
Well 12	9.1	7.58	1.80	55.02	660.22
Well 13	6.55	5.93	1.49	45.43	545.12
Well 14	9.1	8.63	1.82	55.38	664.53
Well 15	9.1	8.64	2.24	68.31	819.75
Well 16	7.86	4.96	1.62	49.31	591.71
Well 17	11.23	6.46	1.54	47.06	564.76
Well 18	11.23	8.53	2.11	64.47	773.64
SWTP	60	27.90	17.93	546.92	6,563.09
System	152.92	100.23	36.89	1,125.39	13,504.79



Schedule D

Ministry of Environment, Conservation and Parks

Standard of Care

Schedule D

Ministry of Environment, Conservation and Parks

Standard of Care

TAKING CARE OF YOUR DRINKING WATER

A Quick Guide For Members Of Municipal Councils

If you are a municipal councillor, this quick guide is intended to help you better understand the Safe Drinking Water Act, 2002 (SDWA) and provide information about your statutory standard of care responsibilities. You are encouraged to also read ***Taking Care of Your Drinking Water: A Guide for Members of Municipal Councils***. It provides more details about these responsibilities as well as information about how Ontario's drinking water is protected.

Ontarians expect safe, high quality drinking water. It is a matter vital to public health. As a member of a municipal council, you have an important role to play to ensure that your community has access to safe, high quality drinking water — and you are legally obliged to do so.

THREE THINGS TO REMEMBER AS A MUNICIPAL COUNCILLOR:

It's Your Duty. The Safe Drinking Water Act, 2002 includes a statutory standard of care for individuals who have decision-making authority over municipal drinking water systems or who oversee the operating authority of the system. This can extend to municipal councillors. There are legal consequences for not acting as required by the standard of care, including possible fines or imprisonment.

Be Informed. Ask questions. Get answers. You don't have to be an expert in drinking water operations, but you do need to be informed about them. Your decisions can have an impact on public health. Seek advice from those with expertise and act prudently on that advice.

Be Vigilant. Complacency can pose one of the greatest risks to drinking water systems. It is critical that you never take drinking water safety for granted or assume all is well with the drinking water systems under your care and direction. The health of your community depends on your diligent and prudent oversight of its drinking water.

> *"Water is unique as a local service. It is, of course, essential to human life and to the functioning of communities, (and) the consequences of a failure in the water system (are) most seriously felt by those who depend on it locally. Municipal ownership, and the ensuing responsibilities, should provide a high degree of public accountability in relation to the local water system."*
> — Justice Dennis O'Connor,
> 2002 Report of the Walkerton Inquiry

Legal Disclaimer – This quick guide should not be viewed as legal or other expert advice. For specific questions regarding the legal application of the Safe Drinking Water Act, 2002 and its regulations, please consult a lawyer and/or consult the text of the Act at ***www.e-laws.gov.on.ca***.

Ontario

Key Sections of the SDWA for Municipal Councillors

Section 11: Duties of Owners and Operating Authorities

Section 11 of the SDWA describes the legal responsibilities of owners and operating authorities of regulated drinking water systems. It is important for you to understand the scope of your municipality or operating authority's day-to-day responsibilities.

Owners and operators are responsible for ensuring their drinking water systems:

- provide water that meets all prescribed drinking water quality standards
- operate in accordance with the act and its regulations, and are kept in a fit state of repair
- are appropriately staffed and supervised by qualified persons
- comply with all sampling, testing and monitoring requirements
- meet all reporting requirements

Examples of actions required of owners and operators under Section 11:

- Sampling and testing of drinking water with a frequency appropriate to the type, size and users of the system in accordance with the act and corresponding regulations
- Using an accredited and licensed laboratory for drinking water testing services
- Reporting of adverse test results that exceed any of the standards in the Ontario Drinking Water Quality Standards Regulation, both verbally and in writing, to the local medical officer of health and the Ministry of the Environment and Climate Change (MOECC)
- Obtaining a drinking water licence for a municipal residential drinking water system from the MOECC, which includes a financial plan
- Ensuring the drinking water system is operated by an accredited operating authority
- Hiring certified operators or trained persons appropriate to the class of the system
- Preparing an annual report to inform the public on the state of the municipality's drinking water and the system providing it, and an annual summary report for the owners of the drinking water system

Section 19: Your Duty and Liability – Statutory Standard of Care

Section 19 of the SDWA expressly extends legal responsibility to people with decision-making authority over municipal drinking water systems and those that oversee the accredited operating authority for the system. It requires that they exercise the level of care, diligence and skill with regard to a municipal drinking water system that a reasonably prudent person would be expected to exercise in a similar situation and that they exercise this due diligence honestly, competently and with integrity.

Meeting your statutory standard of care responsibilities

Meeting the statutory standard of care is the responsibility of:

- the owner of the municipal drinking water system
- if the system is owned by a municipality, every person who oversees the accredited operating authority or exercises decision-making authority over the system – **potentially including but not limited to members of municipal councils**
- if the municipal drinking water system is owned by a corporation other than a municipality, every officer and director of the corporation

Maintaining an Appropriate Level of Care

Standard of care is a well-known concept within Ontario legislation.

For example, the Business Corporations Act requires that every director and officer of a corporation act honestly and in good faith with a view to the best interests of the corporation and exercise the care, diligence and skill that a reasonably prudent person would in comparable circumstances.

Statutory standards of care address the need to provide diligent oversight. What is considered to be an appropriate level of care will vary from one situation to another. As a municipal councillor, it is important to educate yourself on this statutory requirement and to gain an understanding of the operation of drinking water systems in your community to help you meet the standard of care requirements.

You are not expected to be an expert in the areas of drinking water treatment and distribution. Section 19 allows for a person to rely in good faith on a report of an engineer, lawyer, accountant or other person whose professional qualifications lend credibility to the report.

Enforcing the Statutory Standard of Care

As a municipal councillor, you need to be aware that not meeting your statutory standard of care responsibilities comes with serious consequences. Section 19 provides the province with an enforcement option when needed.

A provincial officer has the authority to lay a provincial offence charge against a person to whom the standard applies. The range of penalties includes maximum fines of up to $4 million for a first offence and provision for imprisonment for up to five years. No minimum penalties are established. Actual penalties would be decided by the courts depending on the severity and consequences of the offence.

It is important to note the difference between the provision of the Municipal Act, 2001, that limits the personal liability of members of municipal councils and officials, and the standard of care imposed under the SDWA. Under sections 448-450 of the Municipal Act, 2001, municipal council members and officials have relief from personal civil liability when they have acted in good faith. However, despite that protection, municipal councillors and officials that are subject to the duty imposed by Section 19 of the SDWA could be penalized if a prosecution is commenced and a court determines they have failed to carry out the duty imposed under that section.

☑ Actions You Can Take – to be better informed about your drinking water oversight responsibilities.

General

- ☐ Read ***Taking Care of Your Drinking Water: A Guide for Members of Municipal Councils,*** which provides more details about your responsibilities as well as information about how Ontario's drinking water is protected and reference material on drinking water.
- ☐ Consider taking the Standard of Care training with the Walkerton Clean Water Centre. Get course details and session offerings at **www.wcwc.ca** or by phoning toll free 1-866-515-0550.
- ☐ Learn about drinking water safety and its link to public health. Speak to water system and public health staff to learn more.
- ☐ Become familiar with your municipal drinking water system. Ask your water manager to give a presentation to council and/or arrange a tour of your drinking water facilities.
- ☐ Review the reports of the Walkerton Inquiry, specifically sections related to municipal government (Chapter 7 in Report I, Chapters 10 and 11 in Report II). The reports are available online at **www.attorneygeneral.jus.gov.on.ca/english/about/pubs/walkerton**.
- ☐ Become further acquainted with drinking water legislation and regulations, available on the Ontario Government e-Laws website at **www.e-laws.gov.on.ca**.

Drinking Water Operational Plan

- ☐ Ask your operating authority to speak to your municipal council about your operational plan.
- ☐ Consider and act on any advice (including identified deficiencies and action items) identified during the annual management review process.
- ☐ Review the Quality Management System policy in your operational plan and its commitments.
- ☐ Ask your operating authority to show how it is meeting these commitments.

Drinking Water Reports and Inspections

- ☐ Obtain and thoroughly review copies of the most recent annual and summary reports.
- ☐ Ask for explanations of any information you don't understand.
- ☐ Consider, act on and correct any deficiencies noted in the reports.
- ☐ Review your annual inspection results and ask questions if there is any indication of declining quality.
- ☐ Clarify any technical terms.
- ☐ Ask how deficiencies are being addressed.
- ☐ Review your system's standing in the ratings reported in the Chief Drinking Water Inspector's Annual Report. If your rating is less than 100 per cent, ask why.
- ☐ Consider, act on and correct any deficiencies highlighted in the inspection.

Infrastructure Planning

- ☐ Find out what maintenance, rehabilitation and renewal plans are in place for your drinking water system.
- ☐ Ask your operating authority to present the findings of its annual infrastructure review.

Communicating with Your Operating Authority

- ☐ Determine when and how your operating authority will communicate to you as an owner.
- ☐ Find out what information is made available to the public and how.

Emergency Planning for Drinking Water

- ☐ Ask your operating authority to review the drinking water emergency plan with council and to explain what responsibilities have been assigned to the owner.
- ☐ Know who will be the spokesperson during a drinking water emergency.
- ☐ Ensure critical staff have taken necessary training on emergency procedures and have participated in testing.

Drinking Water System Operators

- ☐ Ensure there are sufficient resources for appropriate levels of training for municipal staff involved in operating a drinking water system.
- ☐ Confirm that an overall responsible operator (ORO) has been designated and that procedures are in place to ensure all required staff and contractors are certified.
- ☐ Check to see if drinking water operator succession planning is being done and that measures are taken to address any current or anticipated challenges to recruiting skilled employees.
- ☐ Ensure your municipality or operating authority has contingency plans in place for situations where your certified operators may not be available (e.g. labour disputes, illnesses, vacancies, etc.) and, if activated, confirm that these contingency plans have been, where required, approved by the Ministry of the Environment and Climate Change and are working.

Source Protection Planning

- ☐ Review the source protection plan for your area and find out what actions are being taken to protect vulnerable areas around your drinking water sources.
- ☐ Find out if your municipality has appointed risk management officials and inspectors to support source protection planning and whether you are sharing these duties with other municipalities or delegating to a local source protection authority.

For more information, call the Ministry of the Environment and Climate Change at **1-800-565-4923**
Email: **drinking.water@ontario.ca**

PIBS 9810e

Schedule E

Quality Management System
Management Review Meeting Minutes

QMS Meeting

Date: 2020-02-10

Time: 9:00 am to 10:45 pm

Meeting Type: QMS Q4 Management Review

File: Q4.docx

Water Operations Branch

Facilitator: Diana Smith (DS) **Recording: Diana Smith (DS)**	**Absent:**	**Attendees:** **☒ Amanda Inglis-Petahtegoose (AIP)** **☒ Diane Moreau (DM)** **☒ Chris Marchant (CM)**	**☒ Jeanette Dumais (JD)** **☒ Diana Smith (DS)** **☒ Gwen Gilbank (GG)** **☒ Mark Vandergeest (MV)**	**☒ Jamey Adams (JA)** **☒ Jason Giffen (JG)** **☒ Brenden Miller (BM)** **☒ Christina Khawa (CK)**

Agenda

1. Review previous meeting minutes from 2019-11-15
2. Review of Q4 2019 Power Point presentation as documented in agenda items below.

Agenda Item	Discussion/Decision
1. Review Previous meeting minutes from 2019-07-31	**Reviewed minutes and accepted all changes**
2. 2019 Q3 Action Items follow up	**19-021 Check the cycles for system flushing for all zones and add the information to the flushing graphs for Management Review as well as do comparisons of the cycles (e.g. If on a 3 year cycle, compare 2015 to 2018) as opposed to year to year comparisons and include the number of flushing activities that occurred in the comparisons** • Action Item is ongoing. Flushing reports and data currently being reviewed by UPC and IT (Annie Zhang). • Will look to provide an update in 2020 Q1 Management Review. • The QMS Action Log was revised to reflect that the Action Item completion date has been extended to 2020-05-01 **19-037 Check LSRCA for lake turnovers to see if able to include in future graphs for average temperatures** • There was nothing available on the LSRCA website in relation to average temperatures or lake turnovers • The QMS Action Log was revised to reflect that this Action is deemed complete effective 2020-02-10. **19-038 Clean up asset information in CMMS related to work on Asset Maintenance, Verification and Calibration** • Action Item is ongoing. Some of the work has been completed as presented in presentation. • Further asset verification will continue • The QMS Action Log was revised to reflect that the Action Item completion date has been extended to 2020-05-01 **19-096 Review options available to determine that no Deviations from SCADA Critical Control Limits were unreported during a quarter using the new form** • Work with JA and MV was completed and a new process implemented for eLogbooks for daily report review. A new label (CCP deviation) was created and will be used which will allow the Supervisors to monitor entries and ensure deviations are being documented. • The QMS Action Log was revised to reflect that the Action Item is deemed complete effective 2020-02-10. **19-110 Create new graphs with number of ICI and residential meters compared in GWS and SWS versus production and production vs billed volumes for SWS and GWS** • Action Item is ongoing. Review data in 2020 Q1 Management Review. • The QMS Action Log was revised to reflect that the Action Item completion date has been extended to 2020-05-01. **19-206 Discuss eLogbook Best Management Practices, how to document the findings and how to communicate to staff**

**** Refer to QMS Action Log for specific details regarding action items assigned during QMS Meetings**

Agenda Item	Discussion/Decision
	• Action Item is ongoing. • A new Protocol is being created to document best management practices and acronyms to be used. • The QMS Action Log was revised to reflect that this Action Item completion date has been extended to 2020-05-01. **19-207 Review deviations from SCADA Critical Control Limits (F20-03) and use of eLogbook's to record the information** • Discussion with Supervisors and a new process was created for eLogbooks with label of CCP_Deviation. • The QMS Action Log was revised to reflect that this Action Item is deemed complete effective 2020-02-10. **19-208 Review flushing work order and data being collected to determine if want to adjust the turbidity objective of 2 NTU** • Action item is ongoing. Flushing data is being reviewed by UPC and IT (Annie Zhang). • Will look to provide an update in 2020 Q1 Management Review. • The QMS Action Log was revised to reflect that this Action Item completion date has been extended to 2020-05-01. **19-209 Review flushing and valve turning work activities to see if there might be any correlation between the programs and data collected and presented at Management Review** • Action Item is ongoing. Flushing data is being reviewed by UPC and IT (Annie Zhang). • Will look to provide an update in 2020 Q1 Management Review • The QMS Action Log was revised to reflect that this Action Item completion date has been extended to 2020-05-01. **19-210 Discuss with JG about replacing the 3 pie graphs for material, age and size with the newer graphs using the ratios for Management Review** • JG approved removing the pie graphs and replacing with the new bar graphs. • The QMS Action Log was revised to reflect that this Action Item is deemed complete effective 2020-02-10. **19-211 BMT to review the watermain break rates study and discuss options for a baseline to use for watermain break graphs in Management Review** • Action Item is ongoing. Study was provided to BMT. • The QMS Action Log was revised to reflect that this Action Item completion date has been extended to 2020-05-01. **19-212 Update graphs to include total length of the system on the pie graphs and where the data came from for the ratio graphs for size, age, and material in Management Review** • Graphs were updated with total length of the system and data that was provided from GIS for data collection for NWWBI in May 2019 • The QMS Action Log was revised to reflect that this Action Item is deemed complete effective 2020-02-10 **19-213 Review valve asset attributes and data related to number of turns to determine if able to update the asset attributes and have added to the collector app** • DM provided comment that CK did some work on valves and created a reference sheet for the operators to use while turning valves. The reference sheet includes typical turns for the specific manufacturer and size of valve. • The QMS Action Log was revised to reflect that this Action Item is deemed complete effective 2020-02-10 **19-214 Get the "turning Zones selector" updated to "turning quadrants selector" in the collector app** • The Collector app was updated in relation to the turning quadrants selector option. • JD provided comment that Collector app is working well. Still working with IT (John Cochrane) and AODA (Cheryl) to refine the collector app to ensure it can better meet colour blindness requirements (symbols vs colours). • The QMS Action Log was revised to reflect that this Action Item is deemed complete effective 2020-02-10.

**** Refer to QMS Action Log for specific details regarding action items assigned during QMS Meetings**

Agenda Item	Discussion/Decision
	19-215 Review Chain of Custody and Certificate of Analysis for HW#11 and HW#14 for samples collected for Sodium in Q3 • Paperwork was reviewed and there were no findings as the Certificate of Analysis matches the results. • The QMS Action Log was revised to reflect that this Action Item is deemed complete effective 2020-02-10. **19-216 Review THM historical data to see if there are any trends or if the data has been decreasing over time** • Data was reviewed and graph presented during presentation • The QMS Action Log was revised to reflect that this Action Item is deemed complete effective 2020-02-10 **19-217 Update THM CoC to include 2 locations of Lockhart and Cloughley** • CoC was updated • The QMS Action Log was revised to reflect that this Action Item is deemed complete effective 2020-02-10. **19-218 Send link for the new ERO (Environmental Registry of Ontario) which replaced the EBR to DM** • Email was sent to DM • The QMS Action Log was revised to reflect that this Action Item is deemed complete effective 2020-02-10. **19-219 Process map the after-hours call out process and the creation of a service request for a water quality complaint** • Action Item is ongoing. Meeting took place with Mike Allen and this item was added to the IGM initiatives list. • The QMS Action Log was revised to reflect that this Action Item completion date has been extended to 2020-05-01 **19-220 Discussion with BM and JG regarding implementation of eLogbooks for WDS and WCS** • Action Item is ongoing. Initial meeting has taken place, working on protocol for best management practices to be implemented for GWS and SWS and then will discuss next steps for WDS/WCS. Next meetings to involve JA and MV. • The QMS Action Log was revised to reflect that this Action Item completion date has been extended to 2020-05-01. **19-221 Check if OPC can request all missing Water Meter Installer License cards from MTCU or provide information to staff to request individually if required.** • Action Item is ongoing. Three (3) tickets have been provided since the completion of the audit. Waiting to receive information from staff to request the final tickets from MTCU • Look into whether we need to get the ticket for those staff that are not active water meter installers and not on call. Review the non-Health and Safety training Matrix requirements. • The QMS Action Log was revised to reflect that this Action Item completion date has been extended to 2020-05-01 **19-222 Update WCS-SOP-20 with the changes to the MTCU Water Meter Installer Training Program** • SOP was updated. • The QMS Action Log was revised to reflect that this Action Item is deemed complete effective 2020-02-10 **19-223 Review staff that received Water Meter Installer licence before and after the MTCU changed the program** • Staff were reviewed. • The QMS Action Log was revised to reflect that this Action Item is deemed complete effective 2020-02-10

**** Refer to QMS Action Log for specific details regarding action items assigned during QMS Meetings**

Agenda Item	Discussion/Decision
3. Incidents of Adverse Drinking Water Tests	There were no AWQIs reported during Q4. Overview of 3 (three) AWQIs that occurred during 2019. One on April 5 in relation to a loss of pressure from a transmission main break at Yonge St. and Big Bay Point Rd., One on August 22, 2019 for a low free chlorine residual on a hydrant and another on September 12, 2019 for Non Detect Over Growth Target (NDOGT) for a sample collected during commissioning. • No further comments received from the group
4. Deviations from SCADA Critical Control Limits	SWS – No deviations reported for Q4 GWS – No deviations reported for Q4. Summary created for GWS for 2019 containing 5 deviations. • Discussion regarding tag limits being applied to daily and monthly reports for SCADA Critical Control Limits (as listed in T16-02) for both GWS and SWS. • Colours are appearing in the GWS daily and monthly reports but nothing appearing in the reports for SWS **The QMS Action Log was revised to reflect the creation of a new Action Item: 20-250: Review the tag limits applied in the SWS daily and monthly regulatory reports and ensure they are working correctly, assigned to JD with a target date of 2020-05-01**
5. Deviations from Critical Control Point Limits – Flushing Activities	• Issues with the Crystal reports for CMMS flushing data. Work is being done with UPC and IT (Annie Zhang) to get the issues corrected. Data from 2019 Q4 and 2019 Summary data will be provided during 2020 Q1 Management Review **The QMS Action Log was revised to reflect the creation of a new Action Item: 20-252: Run CMMS flushing reports for 2019 Q4 and All of 2019 and present data for flushing activities in 2020 Q1 Management Review, assigned to DS with a target date of 2020-05-01.**
6. Operational Performance – System Wide Production	**Graph – System Wide production, 5-year monthly average** • Presented graphs for monthly water production compared to 5-year average. No comments received from the group. • Presented 2 graphs with monthly water production compared to 5-year average including temperature on 1 and including precipitation on the other graph. No comments received from the group. **Graphs – SWS versus GWS Production** • Presented graphs to the group. Discussion around SWS production being higher that GWS production for December 2019. • Confirm that production numbers are correct for both SWS and GWS for December 2019. **The QMS Action Log was revised to reflect the creation of a new Action Item: 20-253: Confirm that the production numbers for GWS and SWS are correct for December 2019 using queries in eRIS, assigned to DS with a target date of 2020-05-01.**
7. Operational Performance – Average Monthly Efficiency of the SWTP	Presented graph showing SWTP efficiency from 2015-December 2019. • Graph presented to the group. No comments received from the group.
8. Operational Performance – Sectional Work Order Summary	Reviewed tables presented for each of the 4 operational sections. GWS – Regulatory sampling work orders outstanding is 63. • 49 sampling work orders are for WPS17 • 6 sampling work orders are for WPS13 (need to cancel 4 of them - 323337,336371, 336372, 337067 for micro as next sample has already been collected) • 2 work orders are for WPS16 (need to cancel 314894 for Sept Nitrate/Nitrite as Dec sample has already been collected, need to cancel 318385 for in house General Chemistry as January sample has already been collected) • 5 work orders are for WPS03A (285558 and 314885 should be cancelled as next WO is in pending already. 318386 should be cancelled as next WO has already been completed). General Chemistry work order was completed on January 10, but samples for VOC and Sodium were not collected at the same time.

**** Refer to QMS Action Log for specific details regarding action items assigned during QMS Meetings**

Agenda Item	Discussion/Decision
	• WO # 335584 for Mapleview SS, no sample collected why is WO not cancelled, no comment on CoC as to why sample not collected SWS – No outstanding regulatory work orders for 2019 • JA commented on 232 Cancelled work orders from 2019 as seems like a large number. • Review the cancelled work orders to see if any were part of Mobility WDS – 1 Regulatory work order outstanding for 2019 • WO #332555 for Colleen Ave @Jill's Ct was found to be associated with a project. Project number has been added to CMMS WCS – 16 Regulatory work orders outstanding for 2019 • All 16 work orders are for lead sampling. Work orders were created in December 2019, but sampling does not take place until January 2020 • Large number of cancelled work orders are because of a clean up that was completed in summer 2019 which included cancelling approximately 1000 work orders for trouble shoots. **The QMS Action Log was revised to reflect the creation of a new Action Item: 20-254: Ensure work orders for GWS sampling from 2019 are cancelled, assigned to DS with a target date of 2020-05-01.** **The QMS Action Log was revised to reflect the creation of a new Action Item: 20-255: Pull the cancelled work orders list for SWS and send to JA for review, assigned to DM with a target date of 2020-05-01.**
9. Operational Performance – Summary of Call Outs	Reviewed the tables and graph with the group. • 2 tables presented, 1 with all the call outs (24 hours) and 1 with only after hours call outs. • GWS Q1 after hours numbers were provided from overtime reports, all other numbers were derived from e-logbooks in Eramosa. • Discussion around use of label "CallOut" and that it is not always being used correctly. Some maintenance that causes an alarm is being logged with the label "CallOut" when it should be logged using the label "AlarmTest". There were still a couple of instances where this was happening during Q4. • MV commented on Harvie Road still having a large number of callouts due to project work taking place around the facility as well as the possible overflow incident.
10. Operational Performance - Backflow	Summary Information provided for 2019 including: • New fee added to Fees By-Law for Issuing notice of disconnection • 367 Notices of disconnection issued via registered mail in 2019 • 13 or the 367 notices issued, had water temporarily discontinued through by-law enforcement • Regulates annual testing/maintenance of 5412 backflow prevention devices across 2144 properties No comments received from the group
11. Operational Performance – Locates	Reviewed the graph with the group. • Graph was changed from reporting monthly to reporting annually as it was found that the report created for monthly numbers did not account for all the locates being completed in the month. The cumulative monthly numbers did not equal the annual number of locates. Report will only count locates if the locate is called in and completed in the same month, thus missing some locates every month we run the report. Report is being worked on by IT (Annie) to make some changes and make the report more accurate. • Locates are increasing at a faster rate than the industry average. City of Barrie locates are 5.7% higher than the industry average. • Discussion that this is related to growth within the City, reconstruction taking place as well as public awareness (not just call before you dig but call before ground disturbance)
12. Operational Performance – Watermain Breaks	Reviewed the graphs with the group.

**** Refer to QMS Action Log for specific details regarding action items assigned during QMS Meetings**

Agenda Item	Discussion/Decision
	Graph – 5-year monthly averages – watermain breaks • No comments received from the group. **Graph – Watermain breaks by type and cause (presented for Q4 as well as Summary for 2019)** • No comments received from the group. **Ratio Graphs – Main Break Ratio by size, age, and material type** • No comments received from the group.
13. Operational Performance – CTS	Reviewed the graphs with the group. • More action items created in 2019 than previous years as documenting all CIP action items, maintenance action items as well as Management Review action items into the same database • 90% of action items are closed within 10 months, 50% within 3 months and 20% are closed within 1 month
14. Raw Water Supply and Drinking Water Trends - Sodium	Reviewed graph with the group. • Comment that HW#11 result which was low last quarter and this quarter the results seem to be close to previous results. HW#14 seemed high last quarter and has now leveled off to be similar to results from previous quarters.
15. Raw Water Supply and Drinking Water Trends – THMs and HAAs	Reviewed the data and graph with the group. • THM data has been increasing and is now starting to decrease • Supervisor request to add dates to the horizontal axis for the THM graph **The QMS Action Log was revised to reflect the creation of a new Action Item: 20-256: Add horizontal axis to THM graph for Management Review, assigned to JD, with a target date of 2020-05-01.**
16. Raw Water Supply and Drinking Water Trends – Sampling Review	Reviewed the summary with the group. Occurred within Quarter and Reviewed: • Issues with sampling report from CMMS which is being reviewed by Sam Cuggy and IT (Annie Zhang) Discoveries • 1 HPC was missed by Caduceon on January 20, 2020 (Q1) for a treated water sample which forced GWS to resample • 1 missed test in May 2019 for UV reference sensor test • Reference sensor calibration was out of compliance (3-year calibration). Procured a second reference sensor and created work orders to complete 3-year calibration on reference sensors. What's New? • Boron, Health Canada is considering lowering the MAC from 5 mg/L to 2 mg/L. Review of results from 2015 to present had highest results occurring for SWS on Sept 6, 2016 with a result of 0.026 mg/L and for GWS on April 21, 2015 with a result of 0.024 mg/L. • Discussion regarding how low our results are and whether the units are correct.

**** Refer to QMS Action Log for specific details regarding action items assigned during QMS Meetings**

Agenda Item	Discussion/Decision
	The QMS Action Log was revised to reflect the creation of a new Action Item: 20-257: Review Boron sampling results to ensure that units are correct, assigned to JD with a target date of 2020-05-01
17. Raw Water Supply and Drinking Water Quality Trends – SWTP In-House Lab Results	Presented in house lab data for 2019 THM results • THM sampling was discontinued after July 2019 • Remove graphs from future Management Review Presentations
18. Summary of Consumer Feedback	Reviewed graphs with the group. **Graphs – Water Quality Complaints by Type compared to 5-year average** • The "No water" call in November 2019 was 480 Bayfield St, issue resolved and found to be within one of the units. **Graphs – CMMS vs. @Liveconx** • Discussion around calls not being documented.10 calls had no service request or work order created for them. 2 service requests were not submitted as operator did not put overtime in, 2 calls were in relation to a watermain break, 2 calls logged on a work order, 4 calls had no service request created. • All calls have since had a service request or work order created for them and submitted to OSA to enter into CMMS.
19. Review of Asset Maintenance, Verification and Calibration	Reviewed data with the group **Flowmeters** • GWS – All calibrations were completed. One outstanding work order for Anne Booster (WO#285431) • SWS – All calibrations were completed. One asset is misidentified as a flow meter but is actually the field check unit. Asset needs to be updated in CityWorks with a new Work Order template created **Chlorine Analyzers (GWS)** • Codrington Booster was missing an inspection for week of Dec 16 and appears that inspection actually took place on Jan 2, 2020. MV Confirmed that logbook shows inspection took place during the correct week (Dec 16). • Mapleview Tower inspection for week of Feb 11 was cancelled with an unclear cancellation comment. Review the cancellation forms and comments. • Instances where samples were collected outside the 1-week MOE definition (5-10 days from when previously verified). Discussion regarding the manufacturer's requirements related to verification of Chlorine analyzers and what GWS has set up in Cityworks for their cycle. • Station out of service and sometimes the verifications are cancelled and sometimes they are not cancelled. Difference is whether service water is running through the analyzer or not. MV to review the process for station out of service. • Annual calibrations were completed for all 27 active analyzers. There was one additional asset (ID 5257) identified at Anne Booster with a calibration work order associated with it but no weekly verifications completed during 2019. Will review the asset in CMMS. **Chlorine Analyzers (SWS)** • Discussion regarding verifications and calibrations that were being completed during 2019. No in-depth review was completed as the work order name and frequency changed multiple times during the year and everything was reviewed and updated during the switch to mobility in January 2020. • Verifications of analyzers are being completed on a daily basis during rounds. • Calibrations are being completed on a monthly basis for 8 of 10 active assets and every 3 months on 2 of 10 active assets. • Discussion regarding frequency of verification and manufacturers requirements. Review to take place with GWS and SWS. **Lab Equipment/Portable Equipment**

**** Refer to QMS Action Log for specific details regarding action items assigned during QMS Meetings**

Agenda Item	Discussion/Decision
	• Individual assets were not reviewed for compliance with calibration and verification work order and time frames • Portable turbidimeters are verified monthly, with the exception of April when a contractor completes annual maintenance including a verification. Verifications were completed in March (specifically March 7, 8 and 11) by the lab tech, annual maintenance was completed by a contractor on April 16 and 17 which may put some units out of compliance with the MOE definition of monthly sampling and equipment checks and requirements (20-40 days from last check). Review manufacturer's requirements for portable turbidimeter verification requirements to ensure we are within the recommended time frames. **The QMS Action Log was revised to reflect the creation of a new Action Item: 20-258: Follow up on outstanding work order for Anne Booster flow meter calibration (WO#285431), assigned to JD with a target date of 2020-05-01** **The QMS Action Log was revised to reflect the creation of a new Action Item: 20-259: Update asset in CityWorks for SWS field check unit used for flow meter calibrations and create a new Work order for calibration of the field check unit, assigned to JD with a target date of 2020-05-01** **The QMS Action Log was revised to reflect the creation of a new Action Item: 20-260: Update Inspection #166505 with correct date of chlorine analyzer verification, assigned to GG with a target date of 2020-05-01** **The QMS Action Log was revised to reflect the creation of a new Action Item: 20-261: Review cancellation forms for Work Orders related to comment of "Per SS – work was completed on newer w/o's with no way to audit", assigned to DS with a target date of 2020-05-01** **The QMS Action Log was revised to reflect the creation of a new Action Item: 20-262: Review Chlorine Analyzer Asset (ID5257) for Anne Booster in CMMS to determine what it is and what work orders need to be assigned to it, assigned to GG with a target date of 2020-05-01** **The QMS Action Log was revised to reflect the creation of a new Action Item: 20-263: Review chlorine analyzer verification and calibration frequencies for GWS, assigned to MV with a target date of 2020-05-01** **The QMS Action Log was revised to reflect the creation of a new Action Item: 20-264: Review manufacturer's requirements for verification of portable turbidimeters, assigned to DS with a target date of 2020-05-01**

20. External Audit Summery	Reviewed External Audit Findings
	
	• The following elements were audited to DWQMS Version 2.0: Elements 1, 3, 4, 6, 7, 8, 13, 16, 18, 19, 20 and 21
	• Results confirmed that QMS remains effectively implemented and meets requirements of DWQMS Version 2.0
	• Challenges:
	  ○ Providing evidence to recently completed CIPs to verify that corrective actions are effective in correcting and preventing a re-occurrence
	  ○ Documented evidence (on a CIP form) to prove that we were implementing Preventative Actions
	• Recommendations for Discussion:
	  ○ Re-evaluate Element 21
	  ○ Create SMART goals to verify that corrective actions are effective in correcting and preventing re-occurrence
	  ○ Create SMART goals to eliminate the occurrences of potential non-conformances and subsequently verify that corrective actions are effective in preventing an occurrence
	• Some discussion has occurred with Business Performance Analyst (Mike Allen) regarding our Continual Improvement Process. Waiting to see if this project makes it onto his agenda of processes that his team will be reviewing.
	• Discussion regarding adding a definition of effective to the Operational Plan. Consider putting a time frame (e.g. 6 months) into the definition.
	• Review requirements of Preventative Actions in DWQMS and relay to BMT
	
	The QMS Action Log was revised to reflect the creation of a new Action Item: 20-265: Review requirements of Preventative Actions in DWQMS, complete CIP form with some examples of preventative actions taken during 2019, and suggest some target KPI's for each section and share with BMT, assigned to OPCs with a target date of 2020-05-01

21. Changes Affecting QMS	Summary presented to the group. No comments received from the group.
22. Resources Needed to Maintain QMS	DM provided comment that nothing required at this time.

**** Refer to QMS Action Log for specific details regarding action items assigned during QMS Meetings**

Agenda Item	Discussion/Decision
23. Infrastructure Review	CM to provide comments
24. Operational Plan, Currency and Updates	Presented summary of Elements that have been updated in in Q1 and Q2 (those highlighted in red are from updates completed in Q4) • 3- Commitment and Endorsement Revised to allow for digital signatures • 5 – Document and Records Control Reference to downloaded documents being uncontrolled • 6 – Drinking Water System Minor Revisions • 8 – Risk Assessment Outcomes Annual review of procedures, clarified threshold risk rating and critical control point • 10 – Competencies Update to require staff to submit training request forms, exception of Top Management, and form is a “transitory” record. • 11 – Personnel Coverage Remove reference to list of ORO and use report from training database • 13 – Essential Supplies and Services Reflect corporate change in purchasing to the SAP platform and WOB’s use of SAP • 14 – Review and Provision of Infrastructure Minor edits to correct named references to other documents • 15 – Infrastructure Maintenance, Rehabilitation and Renewal Updated to clarify that other authorized staff members may distribute, review and schedule work orders, in addition to Lead Hands • 17 – Measurement and Recording Equipment, Calibration and Maintenance Added verbiage to clarify that WOB adheres to both Manufacturers recommendations/manuals and O. Reg. 170/03 frequency of sampling and equipment check requirements • 18 – Emergency Management Clarification that actual emergencies may be used to test the WOB Emergency Response Plan • 19 – Internal Audit Add using external help for Audit, present findings at Management Review in replace of closing meeting • 20 – Management Review Changes to Management Review • 21 – Continual Improvement Updated to include changes to the CIP Process (combining the CIP and OFI process into 1 form) The remaining elements were reviewed with no changes required in 2019: • 1 – Quality Management System • 2 – Quality Management System Policy • 4 – QMS Representative • 7 – Risk Assessment • 9 – Org Structure, Roles, Responsibilities and Authorities • 12 – Communications • 16 – Sampling, Testing and Monitoring
25. Staff Suggestions	Summary presented to the group. No comments received from the group.
26. New Business	No new business

**** Refer to QMS Action Log for specific details regarding action items assigned during QMS Meetings**

QMS Meeting

Meeting Type: QMS Q4 Management Review
Date: 2020-02-10

Minutes Reviewed By
☒ Diane Moreau (DM)
☒ Diana Smith (DS)
☒ Jeanette Dumais (JD)
☒ Gwen Gilbank (GG)
☒ Chris Marchant (CM)
☒ Jamey Adams (JA)
☒ Mark Vandergeest (MV)
☒ Brenden Miller (BM)
☒ Amanda Inglis-Petahtegoose (AIP)
☒ Jason Giffen (JG)
☐ Christina Khawa (CK) (not available to review and provide comment)

Next Meeting: 2020-06-22

**** Refer to QMS Action Log for specific details regarding action items assigned during QMS Meetings**

Meeting Minutes

Meeting Details

Date
2020-06-22
Start Time
1:00:00 PM
End Time
3:30:00 PM
Type
Management Review

Attendance

Attendee Role	Initials	Name
Facilitator	DS	Smith, Diana
Recorder	DS	Smith, Diana
Attendee	CM	Marchant, Chris
Attendee	DM	Moreau, Diane
Attendee	GG	Gilbank, Gwen
Attendee	JA	Adams, Jamey
Attendee	JD	Dumais, Jeanette
Attendee	JG	Giffen, Jason
Attendee	MV	Vandergeest, Mark
Attendee	BM	Miller, Brenden
Attendee	BA	Araniyasundaran, Bala
Attendee	AIP	Inglis-Petahtegoose, Amanda

Meeting Minutes

Agenda Item	Action Item No	Description
01) Review Previous meeting minutes from 2020-02-10		Reviewed minutes and accepted all changes.
02) 2019 Q4 Action Item Follow up	21	Check the cycles for system flushing for all zones and add the information to the flushing graphs for Management Review as well as do comparisons of the cycles (e.g. If on a 3 year cycle, compare 2015 to 2018) as opposed to year to year comparisons ad include the number of flushing activities that occurred in the comparisons. - Action item is ongoing. Flushing reports and data currently being reviewed by UPC and IT (Annie Zhang). - Will look to provide an update in 2020 Q2 Management Review. - The QMS Action Log was revised to reflect the following: OPC Responsible: DS Due Date: 2020-08-01 Technical Lead: Completion Date:
	38	Clean up asset information in Computerized Maintenance Management System (CMMS) related to work on Asset Maintenance, Verification and Calibration. - Action item is ongoing. OPC's continue to work on Asset verification. A wholesome review to be presented at 2020 Q4 Meeting. - The QMS Action Log was revised to reflect the following: OPC Responsible: AIP Due Date: 2021-01-01 Technical Lead: Completion Date:
	110	Create new graphs with number of Industrial, Commercial, Institutional (ICI) and residential meters compared in Groundwater Supply (GWS) and Surface Water Supply (SWS) versus Production and Production vs Consumption Volumes for SWS and GWS for Management Review. - Action item is ongoing. Work continues on some new graphs however more data is required to see if can provide anything useful. - Attempting to use the zone boundaries for the volumes of water in each zone. - The QMS Action Log was revised to reflect the following: OPC Responsible: DS Due Date: 2020-08-01 Technical Lead: Completion Date:
	154	Review the work order cancellation process and form currently in place and establish efficiencies needed based on Water Customer Services (WCS) needs. - Action item is ongoing. Currently no updates to report. - Work to be completed when WCS moves to mobility. - The QMS Action Log was revised to reflect the following: OPC Responsible: DS Due Date: 2020-08-01 Technical Lead: BM Completion Date:
	158	Review water quality complaint service request work orders to analyze call time to response time to see if we can see any patterns in response.

	- Action item is ongoing. Collecting data to see if we can obtain the correct information from CityWorks. - Will present findings in 2020 Q4 meeting. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead: BM	Due Date: 2021-01-01 Completion Date:
206	Discuss eLogbook Best Management Practices, how to document the findings and how to communicate to staff. - A new protocol for eLogbooks was created to document best management practices and acceptable acronyms. Protocol to be updated as required. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead:	Due Date: 2020-05-01 Completion Date: 2020-06-22
208	Review flushing work order and data being collected to determine if want to adjust the turbidity objective of 2 Nephelometric Turbidity Units (NTU). - Action item is ongoing. Flushing reports and data currently being reviewed by UPC and IT (Annie Zhang). - An update to be provided in 2020 Q2 Management Review. - It was an operational decision to use 2 NTU on flushing start up as KPI; the Aesthetic Objective (AO) is 5 NTU. UPCs/OPCs to extract turbidity data on start up and look at maximum, minimum and averages. Review these values for Zones 1, 2N and 3N or 1 year worth of data. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead:	Due Date: 2020-08-01 Completion Date:
209	Review flushing and valve turning work activities to see if there might be any correlation between the programs and data collected and presented at Management Review. - Action item is ongoing. Flushing reports and data currently being reviewed by UPC and IT (Annie Zhang). - Update to be provided in 2020 Q2 Management Review. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead:	Due Date: 2020-08-01 Completion Date:
211	Top Management to review the Watermain Break Rates Study and discuss options for a baseline to use for watermain break graphs in Management Review. - Action item is ongoing. Report was provided to JG and CM to review. Further review and discussion to follow in 2020 Q2. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DM Technical Lead: CM	Due Date: 2020-08-01 Completion Date:
219	Process Map the After hours call out process and the creation of a service request for a water quality complaint. - Action item is ongoing. Meeting took place with Mike Allen and this item was added to the IGM initiatives list, however currently on hold due to the Pandemic. - Action item deemed to not be a priority at this time. OPCs to track any progress and report back in 2020 Q4. - The QMS Action Log was revised to reflect the following:	OPC Responsible: GG Technical Lead: BM	Due Date: 2021-01-01 Completion Date:
220	Discussion with Brenden Miller and Jason Giffen regarding implementation of eLogbooks for Water Distribution Services (WDS) and Water Customer Services (WCS). - Discussions have occurred and currently in the process of implementing the eLogbooks for WDS and WCS. Training to be scheduled for late June/early July 2020. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead:	Due Date: 2020-05-01 Completion Date: 2020-06-22
221	Check if Operations Project Coordinator (OPC) can request all missing Water Meter Installer License cards from Ministry of Training, Colleges and Universities (MTCU) or provide information to staff to request individually if required. - Action Item is ongoing. 2 tickets remaining to be obtained. Currently locked out of the system so will submit information once able to log back into the system. - The QMS Action Log was revised to reflect the following:	OPC Responsible: GG Technical Lead:	Due Date: 2020-08-01 Completion Date:
250	Review the tag limits applied in the Surface Water Supply (SWS) daily and monthly regulatory reports and ensure they are working correctly. - Tag limits were updated according to SCADA Critical Control Limits (T16-02). - The QMS Action Log was revised to reflect the following:	OPC Responsible: JD	Due Date: 2020-05-01

		Technical Lead:	Completion Date: 2020-05-05
	252	Run the Computerized Maintenance Management System (CMMS) flushing reports for 2019 Q4 and all of 2019 and present data for flushing activities in 2020 Q1 Management Review. - Reports in CityWorks were corrected and reports were run for 2019 Q4, as well as, all of 2019. Data presented in presentation. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead:	Due Date: 2020-05-01 Completion Date: 2020-06-22
	253	Confirm that the production numbers for Groundwater Supply (GWS) and Surface Water Supply (SWS) are correct for December 2019 using queries in the Eramosa Reporting Information System (eRIS). - Queries were run in eRIS and the data is correct. Production fluctuates between Surface Water and Groundwater being the highest daily and monthly. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead:	Due Date: 2020-05-01 Completion Date: 2020-06-22
	254	Ensure work orders for Groundwater Supply (GWS) sampling from 2019 are cancelled. - Action Item is ongoing. Most of the work orders were cancelled with exception of Work Order #285558 (showing Out of Service (OOS) but child Work Order is already pending), Work Order #314885 & #318386 (showing OOS but child is already closed). MV to investigate these work orders. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead: MV	Due Date: 2020-08-01 Completion Date:
	255	Pull the cancelled Work Orders list for Surface Water Suppy (SWS) and send to Jamey Adams for review. - Sam Cuggy emailed report for 2019 cancelled Work Orders to JA for review on 2020-06-22. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DM Technical Lead:	Due Date: 2020-05-01 Completion Date: 2020-06-22
	256	Add horizontal axis to Trihalomethane (THM) graph for Management Review. - Horizontal axis was added to graph. See new graph in presentation. - The QMS Action Log was revised to reflect the following:	OPC Responsible: JD Technical Lead:	Due Date: 2020-05-01 Completion Date: 2020-06-22
	257	Review Boron sampling results to ensure that units are correct. - The CoCs and CoAs were reviewed and all results appear correct. - The QMS Action Log was revised to reflect the following:	OPC Responsible: JD Technical Lead:	Due Date: 2020-05-01 Completion Date: 2020-06-22
	258	Follow up on outstanding Work Order for Anne Booster flow meter calibration (Work Order #285431). - Action Item is ongoing. MV verified that the work was completed as required but still need to fill out the work order with the details. - The QMS Action Log was revised to reflect the following:	OPC Responsible: JD Technical Lead: MV	Due Date: 2020-08-01 Completion Date:
	259	Update asset in CityWorks for Surface Water Supply (SWS) field check unit used for flow meter calibrations and create a new Work Order for calibration of the field check unit. - Work was completed during mobility. - The QMS Action Log was revised to reflect the following:	OPC Responsible: JD Technical Lead:	Due Date: 2020-05-01 Completion Date: 2020-06-22
	260	Update Inspection #166505 with correct date of chlorine analyzer verification. - Email was sent to water.support@barrie.ca to have the date corrected on the inspection. Confirmation received correction verified. - The QMS Action Log was revised to reflect the following:	OPC Responsible: GG Technical Lead:	Due Date: 2020-05-01 Completion Date: 2020-06-22

	261	Review cancellation forms for Work Orders related to comment of “Per SS – work was completed on newer w/o’s with no way to audit". - Action Item is ongoing. MV is working with UPC to get this information updated. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead: MV Due Date: 2020-08-01 Completion Date:
	262	Review Chlorine Analyzer Asset (ID5257) for Anne Booster in the Computerized Maintenance Management System (CMMS) to determine what it is and what Work Orders need to be assigned to it. - Asset has been removed but the Work Order and work cycle were not initially cancelled. Both have since been cancelled. - The QMS Action Log was revised to reflect the following:	OPC Responsible: GG Technical Lead: Due Date: 2020-05-01 Completion Date: 2020-06-22
	263	Review chlorine analyzer verification and calibration frequencies for Groundwater Supply (GWS). - Action Item is ongoing. Initial meeting has taken place. Further refinement is required. - The QMS Action Log was revised to reflect the following:	OPC Responsible: MV Technical Lead: MV Due Date: 2020-08-01 Completion Date:
	264	Review manufacturer’s requirements for verification of portable turbidimeters. - Manufacturer recommends a calibration verification (verification) to be done weekly. WOB is currently completing monthly verifications on the portable turbidimeters. - Discussion with Management regarding units not being used to measure for regulatory requirements and therefore not concerned with meeting MOE's definition for monthly sampling (20-40 days). Decision to continue with monthly verifications and to try and meet the MOE definition of monthly but not to be considered a non conformance for portable turbidimeters if out of this range. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead: Due Date: 2020-05-01 Completion Date: 2020-06-22
	265	Review requirements of Preventative Actions in Drinking Water Quality Management Standard (DWQMS), complete Continual Improvement Process (CIP) form with some examples of preventative actions taken during 2019, and suggest some target Key Performance Indicators (KPI’s) for each section and share with Top Management. - Action Item is ongoing. OPCs to review and try to find some KPI's to present for 2020 Q2 Management Review. - The QMS Action Log was revised to reflect the following:	OPC Responsible: AIP Technical Lead: Due Date: 2021-01-01 Completion Date:
03) Incidents of Adverse Drinking Water Tests		- Review 1 AWQI that occurred during Q1 for Harvie Rd./Harvie Reservoir. - No further comments received from the group.	
04) Deviations from SCADA Critical Control Limits		- SWS had no deviations reported for Q1 - GWS reported four (4) deviations from Critical Control Points. Discussion on comments in eLogbooks not aligning with information that we present at Management Review. Suggestion to forward information to GWS Supervisor to complete the spreadsheet. - Discussion on continuing with spreadsheet or just do a screenshot of eLogbooks. Preference to continue with the spreadsheet.	
05) Deviations from Critical Control Limits - Flushing Activities		- 2019 Q4 flushing data presented. No further comments received from the group. - Preventative vs Corrective Flushing Work Orders summary for 2019 compared to 2018 presented to the group. No further comments received from the group. - 2020 Q1 flushing data not presented as there are some issues with CityWorks reporting and UPC (Sam Cuggy) is sorting the issues out with IT (Annie Zhang). Data to be presented in 2020 Q2 Management Review. The QMS Action Log was revised to reflect the creation of a new Action Item 20-291: Run CMMS flushing reports for 2020 Q1 and present data in 2020 Q2 Management Review, assigned to DS with a target date of 2020-08-01.	
06) Operational Performance - System Wide Production		Graph - System Wide Production, 5-year average - Presented graphs for monthly water production compared to 5-year average. No comments received from the group. - Presented 2 graphs with monthly water production compared to 5-year average including temperature on 1 and including precipitation on the other graph. No comments received from the	

	group. Graphs - SWS versus GWS Production - Presented graphs to the group. Discussion that SWS and GWS production fluctuates daily as to which section has the higher production overall each month.
07) Operational Performance - Average Monthly Efficiency of the SWTP	Presented graph showing SWTP efficiency from 2016 to March 2020. - Discussion regarding changes that were made to the eRIS report by Eramosa earlier in 2020 as it was found that was not including the correct information. DS used water taking volumes and production volumes to obtain the efficiency calculations for January to March 2020. DS reviewed the eRIS report and it appeared to be correct with the volumes and efficiency calculation. - Discussion on what is actively being done to improve efficiency if anything. JA reports that they are actively watching the efficiency on the dashboard in eRIS and reviewing small areas to see if there are any efficiencies that can lead to improvement. There is nothing obvious in operations that lead to an increase in the efficiency. Suggestion that potential loss within the plant for things like the boilers. - GG provided comment that efficiency trendline was decreasing in the Annual Report for 2019 so surprised to see that the trendline is now increasing. Will review what has been used for Management Review and for Annual Report. The QMS Action Log was revised to reflect the creation of a new Action Item 20-292: Review the efficiency report in eRIS and compare to what was used for reporting in 2018 and 2019 Annual report and verify that it is correct, assigned to DS with a target date of 2020-08-01.
08) Operational Performance - Sectional Work Order Summary	Reviewed tables presented for each of the 4 operational sections. GWS - 4 outstanding regulatory Work Orders. MV to review what Work Orders are outstanding. Believes to be for WPS03A during the time the well was offline. MV to complete the Cityworks Activity Cancellation form (F06-01) for the Work Orders. WCS - 2 outstanding emergency maintenance Work Orders. They are "Investigate Leak" Work Orders created by UPC (Lissa Loucks). DM to follow up. - Discussion on how we are producing this information for quarterly management review. Suggestion to set up a dashboard report for the supervisors in CityWorks so that they can review this on a regular basis. - Regulatory is actually sampling. Need to update the table to reflect this. - Add an option for "Out of Service" on the spreadsheet to reflect the new categorization for when assets are out of service. - Discussion of what is included in the saved search that is used to fill out the F20-07 and what is used for the outstanding Work Order lists that are sent out to the supervisors quarterly. DM suggested that this be reviewed and updated if required. Presented Graph on Work Order Summary (2019). - Discussion on miscellaneous and what is included in the category. Look at options to add other categories or add examples of what is included in miscellaneous. The QMS Action Log was revised to reflect the creation of a new Action Item 20-293: Complete Cityworks Activity Cancellation Form (F06-01)for Work Orders for sampling for WPS03A, assigned to MV with a target date of 2020-08-01. The QMS Action Log was revised to reflect the creation of a new Action Item 20-294: Follow up on 2 emergency maintenance Work Orders created by UPC (Lissa) for Investigate leak, assigned to DM with a target date of 2020-08-01. The QMS Action Log was revised to reflect the creation of a new Action Item 20-295: Review options for reporting the Work Order summary to the Supervisors (eg. reports, CMMS dashboard, etc.), assigned to DM with a target date of 2020-08-01. The QMS Action Log was revised to reflect the creation of a new Action Item 20-296: Update Summary of Operational Performance (F20-07) to change "regulatory" to sampling and add column for "Out of Service" Work Orders, assigned to DS with a target date of 2020-08-01. The QMS Action Log was revised to reflect the creation of a new Action Item 20-297: Review what is included in the saved search in CMMS that is used to fill out the F20-07 and what is used for the outstanding Work Order lists that are sent out to the supervisors quarterly, assigned to DM with a target date of 2020-08-01.

	The QMS Action Log was revised to reflect the creation of a new Action Item 20-298: Review what Work Orders are included in the "Miscellaneous" category, assigned to DS with a target date of 2020-08-01.
09) Operational Performance - Summary of Call Outs	Reviewed the tables and graph with the group. - 2 tables presented, 1 with all the call outs (24 hours) and 1 with only after hours call outs. - Discussion around label of "CallOut" and that it is not always being used correctly. Still a learning curve for operators to use the correct label in eLogbook. Definition for the label "CallOut" and AlarmTest" are still a challenge for staff as to what label to use. They may initially select one label when they receive the call and once they investigate the issue may realize that not actually the correct label. - Some entries are counted more than 1 time as they have labels tied to multiple stations for the same call out entry. - Discussion on combining Anne BPS/Anne RES, Harvie BPS/Harvie RES, Sunnidale BPS/Sunnidale RES as it is sometimes hard to differentiate which one the call out falls under as operators do not always specify BPS or RES. BMT was in agreement to combine the locations. - Discussion on continuing with both after hours and all call outs spreadsheets. There is minimal effort required to obtain both sets of data. BMT would like to continue with both. The QMS Action Log was revised to reflect the creation of a new Action Item 20-299: Update Summary of Operational Performance (F20-07) to combine Anne BPS/Anne RES, Harvie BPS/Harvie RES and Sunnidale BPS/Sunnidale RES in the call out section, assigned to DS with a target date of 2020-08-01.
10) Operational Performance - Locates	Reviewed the graph with the group. - Discussion that nothing further has been reviewed on the locate report where there might be some overlap or missing data in relation to request for locate and completion of locate. - Discussion to continue with an annual graph during Q4 Management Review as seems more accurate representation.
11) Operational Performance - Watermain Breaks	Reviewed the graphs with the group. Graph - 5-year monthly averages - watermain breaks - No comments received from the group. Graph - Watermain breaks by type and cause - No comments received from the group. Ratio Graphs - Main Break Ratio by size, age and material type - The Breakdown by size, age and material type is still the data provided by GIS for NWWBI data collection in May 2019, no new data has been entered for 2019 data collection year. Will update graph once we receive this information from GIS.
12) Operational Performance - Valve Exercising	Reviewed dashboard with the group. - Critical Valves are those that are 16" or larger - App is working well. It is still a very manual process for Work Order creation by the Lead Hand. - KPI is to turn all critical valves in the City by year end. Discussion that sometimes a challenge to get all the assigned critical valves done in a quarter as they are more time consuming and require the valve turning machine. - The screenshots are not 100% representation of the completed work done in the quarter in the zones. Suggestion to do a live version of the app during the presentation to see true representation of what is completed during the quarter. - Would like to see the % completed for each quarter. KPI is to complete 25% or 1 quadrant each year (Confirm KPI's with DM). - For Q2 presentation would like to look at % completed during the quarter and % completed to date. The QMS Action Log was revised to reflect the creation of a new Action Item 20-300: Request GIS to add % completed to the valve turning app dashboard to show a better representation of work completed in the quadrant, assigned to JD with a target date of 2020-08-01. The QMS Action Log was revised to reflect the creation of a new Action Item 20-301: For Q2 Management Review valve turning, show the % completed during the quarter and % completed to date, assigned to DS with a target date of 2020-08-01.

13) Raw Water Supply and Drinking Water Quality Trends - Sodium	Reviewed graph with the group. - No comments received from the group.
14) Raw Water Supply and Drinking Water Quality Trends - THMs and HAAs	Reviewed the data and graph with the group. - No comments received from the group.
15) Raw Water Supply and Drinking Water Quality Trends - Sampling Review	Reviewed the summary with the group. - CMMS Regulatory sampling report has been repaired by IT (Annie Zhang) and seems to be working well. JD reports that OPC will run the sampling report monthly as seems to be the best option currently. - New "Out of service" process is currently in place now and seems to be helping with cancelling work orders as required once a well has been brought back online. - All sampling was completed as required during Q1. 1 incident regarding a missed HPC by the lab (Caduceon) on 1 sample location requiring GWS to resample. - Discussion regarding chlorine depletion and how we are not always having depletion but increase in chlorine. Requires further investigation (currently being completed by DS and MV). Need to consider the margin of error on the handheld colorimeters when looking at chlorine depletion. - Lead sampling completed during target month of January for the first time and no issues to report. - Frozen sample stations led to cancelling many work orders in Q1. New sample stations were installed which should eliminate the potential for freezing this upcoming winter (2020/2021). - Health Canada guideline technical document review for Boron - WOB well under the proposed MAC of 2 mg/L. - Health Canada guideline technical document review for Barium - WOB results were exhibiting a wide range from 0.026mg/L to 350mg/L in eRIS. Review of the CoA's required to confirm the results. Will discuss at eRIS steering committee meeting. - Health Canada guideline technical document reviews for removal of 18 chemical substances (which includes 14 pesticides). Consultation period ended April 24, 2020. Contaminants unlikely to be found in Canadian drinking water at levels that may pose a risk to human health.
16) Summary of Consumer Feedback	Reviewed graphs with the group Graph - Water Quality Complaints by Type compared to 5-year average - Discussion regarding very few no water calls in Q1 compared to previous years. - The frozen services calls from 2015 slightly skew the average results with the high number of no water calls. This will fall off next year and averages will be more comparable. - Overall the Office Support Administrators (OSA's) have been able to handle majority of the water quality calls over the phone therefore not requiring an operator to visit and troubleshoot on site. Graph - Summary of Consumer Feedback - 100% of after-hours calls were recorded in CMMS. - One SR: 76116 is listed for 65 Penvill Trail but the @liveconx reports says 55 Penvill Trail. Will confirm correct address and correct on SR if required. The QMS Action Log was revised to reflect the creation of a new Action Item 20-302: Review SR: 76116 and call out details from @liveconx and confirm whether address is 55 or 65 Penvill Trail and correct on SR if required, assigned to BM with a target date of 2020-08-01.
17) Changes Affecting QMS	Summary presented to the group. No comments received from the group.
18) Operational Plan, Currency and Updates	Presented summary of Elements that have been updated in Q1. - Element 7 - Risk Assessment Added E2 Regulations for consideration. - Element 9 - Org. Structure, Roles, Responsibilites and Authorities Updated based on organization restructuring - Element 14 - Review and Provision of Infrastructure Updated based on organizational restructuring

	- Element 15 - Infrastructure Maintenance, Rehabilitation and Renewal Updated based on organizational restructuring
19) New Business	No new business

Note:
These meeting minutes have been reviewed an approved by the meeting attendees noted at the top of the document.

Meeting Minutes

Meeting Details

Date
9/17/2020
Start Time
2:00:00 PM
End Time
4:00:00 PM
Type
Management Review

Attendance

Attendee Role	Initials	Name
Attendee	CM	Marchant, Chris
Facilitator	DS	Smith, Diana
Attendee	DM	Moreau, Diane
Attendee	AIP	Inglis-Petahtegoose, Amanda
Recorder	DS	Smith, Diana
Attendee	CK	Khawa, Christina
Attendee	BM	Miller, Brenden
Attendee	GG	Gilbank, Gwen
Attendee	JA	Adams, Jamey
Attendee	JD	Dumais, Jeanette
Attendee	MV	Vandergeest, Mark

Meeting Minutes

Agenda Item	Action Item No	Description
01) Review Previous Meeting minutes from 2020-06-22		Reviewed minutes and accepted all changes
02) 2020 Q1 Action Item Follow up	21	Check the cycles for system flushing for all zones and add the information to the flushing graphs for Management Review as well as do comparisons of the cycles (e.g. If on a 3 year cycle, compare 2015 to 2018) as opposed to year to year comparisons ad include the number of flushing activities that occurred in the comparisons. - Action item is ongoing. - Will look to provide an update in 2020 Q4 Management Review. - The QMS Action Log was revised to reflect the following: OPC Responsible: DS Due Date: 1/1/2021 Technical Lead: Completion Date:
	110	Create new graphs with number of Industrial, Commercial, Institutional (ICI) and residential meters compared in Groundwater Supply (GWS) and Surface Water Supply (SWS) versus Production and Production vs Consumption Volumes for SWS and GWS for Management Review. - New graph created with ICI and Residential Production for GWS and SWS. New graph reviewed during presentation. - The QMS Action Log was revised to reflect the following: OPC Responsible: DS Due Date: 8/1/2020 Technical Lead: Completion Date: 9/17/2020
	154	Review the work order cancellation process and form currently in place and establish efficiencies needed based on Water Customer Services (WCS) needs. - Action item is ongoing. - This will be included in the Water Customer Service mobility project. - GG to provide any updates during 2020 Q4 Management Review. - The QMS Action Log was revised to reflect the following: OPC Responsible: GG Due Date: 1/1/2021 Technical Lead: BM Completion Date:
	208	Review flushing work order and data being collected to determine if want to adjust the turbidity objective of 2 Nephelometric Turbidity Units (NTU). - Table presented with start up turbidity data collected for 2019. - The Provincial Water Quality Objective (PWQO) Aesthetic Objective (AO) is 5 NTU. - There would be a 46% reduction in reporting for this parameter if WOB used the AO as the current target. - Discussion regarding a significant reduction if we move the target to 3 NTU. Would not want to make the target any higher as 5 NTU is visible to the naked eye. BMT was in agreement to move target to 3 NTU. The QMS Action Log was revised to reflect the creation of a new Action Item 20-371.

	- The QMS Action Log was revised to reflect the following:	OPC Responsible: DS	Due Date: 8/1/2020
		Technical Lead:	Completion Date: 9/17/2020
209	Review flushing and valve turning work activities to see if there might be any correlation between the programs and data collected and presented at Management Review. - Action Item is ongoing. - Will look to review and present data at 2020 Q4 Management Review.		
	- The QMS Action Log was revised to reflect the following:	OPC Responsible: DS	Due Date: 1/1/2021
		Technical Lead:	Completion Date:
211	Top Management to review the Watermain Break Rates Study and discuss options for a baseline to use for watermain break graphs in Management Review. - Main Break Ratio of 1.75 from the study is included in COB main break graphs. - BMT discussion to remove the ratio from the graphs. - Discussion that corrosive soil has a big impact on the materials for main breaks, so there are many factors that need to be considered when looking at main breaks. - No further discussion regarding the study at this time. The QMS Action Log was revised to reflect the creation of a new Action Item 20-372.		
	- The QMS Action Log was revised to reflect the following:	OPC Responsible: DM	Due Date: 8/1/2020
		Technical Lead: CM	Completion Date: 9/17/2020
221	Check if Operations Project Coordinator (OPC) can request all missing Water Meter Installer License cards from Ministry of Training, Colleges and Universities (MTCU) or provide information to staff to request individually if required. - Action item is ongoing. - 2 tickets remaining to be obtained but currently locked out of the system. Will be able to complete once able to get logged back in. - MV to phone and get access granted.		
	- The QMS Action Log was revised to reflect the following:	OPC Responsible: GG	Due Date: 11/1/2020
		Technical Lead: MV	Completion Date:
254	Ensure work orders for Groundwater Supply (GWS) sampling from 2019 are cancelled. - The remaining 3 Work Orders for WPS03A were cancelled by MV.		
	- The QMS Action Log was revised to reflect the following:	OPC Responsible: DS	Due Date: 8/1/2020
		Technical Lead: MV	Completion Date: 9/17/2020
258	Follow up on outstanding Work Order for Anne Booster flow meter calibration (Work Order #285431). - Work Order is still in pending for flow meter that feeds 2N zone. - MV reports that seems to be a duplicate Work Order. WO#330195 is the correct Work Order. MV to get WO #285431 cancelled.		
	- The QMS Action Log was revised to reflect the following:	OPC Responsible: JD	Due Date: 11/1/2020
		Technical Lead: MV	Completion Date:
261	Review cancellation forms for Work Orders related to comment of “Per SS – work was completed on newer w/o’s with no way to audit". - Discussion on whether we want to go back and correct the data or just leave the data the way it is for now and moving forward being clear on cancellation reason on cancellation form. - Decision to update wording. MV to provide updated wording to be included on work orders. MV to look for the cancellation package with Work Orders that require this update to be applied.		
	- The QMS Action Log was revised to reflect the following:	OPC Responsible: DS	Due Date: 11/1/2020
		Technical Lead: MV	Completion Date:
263	Review chlorine analyzer verification and calibration frequencies for Groundwater Supply (GWS). - Action Item is ongoing. - Initial meeting has taken place. Further refinement is required. Next meeting scheduled for October. - MV and Shane Steele have reviewed what SWS is currently doing and will put forward their updates for the Depolox units in the Groundwater System. - The Metcon Analyzers will be slightly different. MV has received maintenance requirements for the analyzers and review has taken place, GWS will be updating all the required		

	information in CMMS. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead: MV	Due Date: 1/1/2021 Completion Date:
291	Run CMMS flushing reports for 2020 Q1 and present data in 2020 Q2 Management Review - Action Item has been completed and flushing data for 2020 Q1 and 2020 Q2 presented in presentation. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead:	Due Date: 8/1/2020 Completion Date: 9/17/2020
292	Review the efficiency report in eRIS and compare to what was used for reporting in 2018 and 2019 Annual report and verify that it is correct - SWS efficiency reports were run for 2018 and 2019 and compared to what was used in the Annual reports. - The only difference was the discharge event and value from September 2018 which was omitted with a note in the 2018 Annual Report. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead:	Due Date: 8/1/2020 Completion Date: 9/17/2020
293	Complete Cityworks Activity Cancellation Form (F06-01) for Work Orders for sampling for WPS03A - Work Orders were cancelled due to maintenance work taking place at WPS03A. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead: MV	Due Date: 8/1/2020 Completion Date: 9/17/2020
294	Follow up on 2 emergency maintenance work Orders created by UPC (Lissa) for Investigate leak - Paperwork has been submitted to cancel the 2 Work Orders. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead:	Due Date: 11/1/2020 Completion Date:
295	Review options for reporting the Work Order summary to the Supervisors (eg. reports, CMMS dashboard, etc.) - DM to consider and present options to BMT. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DM Technical Lead: CM	Due Date: 1/1/2021 Completion Date:
296	Update Summary of Operational Performance (F20-07) to change "regulatory" to "sampling" and add column for "Out of Service Work Orders" - Form has been updated and submitted for Document Change. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead:	Due Date: 8/1/2020 Completion Date: 9/17/2020
297	Review what is included in the saved search in CMMS that is used to fill out the F20-07 and what is used for the outstanding Work Order lists that are sent out to the supervisors quarterly - DM has reviewed with the UPC's. - With mobility, dashboards have been set up for the supervisors. SWS Supervisor has a dashboard showing Work Orders that are past 14 days. The dashboards can be manipulated easily to change what is being viewed. - The monthly outstanding work orders summary will no longer be sent to supervisors. - Will look to report on a quarterly basis at Management Review instead of annually once we confirm what we are going to be reporting. - Once mobility is complete can look to set up targets like past 14 days, past 30 days, etc. - Supervisors will be using the dashboard on a more frequent basis. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DM Technical Lead: CM	Due Date: 11/1/2020 Completion Date:
298	Review what Work Orders are included in the Miscellaneous category - CK completed a list that was reviewed by the OPC team at Maintenance Meeting. - AIP is working on adding some of the Work Orders in the Miscellaneous Category to existing categories and making some suggestions of new categories to be added.		

		- Once summary has been completed then will be presented to BMT for approval. - The QMS Action Log was revised to reflect the following:	OPC Responsible: AIP Technical Lead:	Due Date: 11/1/2020 Completion Date:
	299	Update Summary of Operational Performance (F20-07) to combine Anne BPS/Anne RES, Harvie BPS/Harvie RES and Sunnidale BPS/Sunnidale RES in the call out section - Form has been updated and submitted for document change. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead:	Due Date: 8/1/2020 Completion Date: 9/17/2020
	300	Request GIS to add % completed to the valve turning app dashboard to show a better representation of work completed in the quadrant - Valve turning app has been updated with the % completed on the dashboard. Some further refinement of the dashboard is required. See presentation for further details. - The QMS Action Log was revised to reflect the following:	OPC Responsible: JD Technical Lead: BH	Due Date: 8/1/2020 Completion Date: 9/17/2020
	301	For Q2 Management Review valve turning, show the % completed during the quarter and % completed to date - An iteration of refinement has been completed and discussed in the presentation. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead:	Due Date: 8/1/2020 Completion Date: 9/17/2020
	302	Review Service Request: 76116 and call out details from @liveconx and confirm whether address is 55 or 65 Penvill Trail and correct on Service Request if required - BM still looking into what address is correct. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead: BM	Due Date: 11/1/2020 Completion Date:
	371	Update flushing start up turbidity target to 3 NTU including updates to all necessary reporting and documentation. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead:	Due Date: 1/1/2021 Completion Date:
	372	Remove the main break ratio from the main break graphs used for Management Review. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead:	Due Date: 11/1/2020 Completion Date:
03) Incidents of Adverse Drinking Water Tests		- Reviewed 4 AWQI's that occurred during Q2. - No further comments received from the group.		
04) Deviations from SCADA Critical Control Limits		- SWS had no deviations to report for Q2 - GWS had 1 deviation for turbidity that is not considered a CCP. MV to review with operator and update label for the entry. The QMS Action Log was revised to reflect the creation of a new Action item 20-373.		
	373	Update label for CCP for turbidity from 2020-05-24 at JW13. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead: MV	Due Date: 11/1/2020 Completion Date:
05) Deviations from Critical Control Limits - Flushing Activities		- 2020 Q1 data presented. No further comments received from the group. - 2020 Q2 data presented. No further comments received from the group.		
06) Operational Performance - System Wide Production		Graph - System Wide Production, 5-year average - Presented graphs for monthly water production compared to 5-year average. No comments received from the group. - Presented 2 graphs with monthly water production compared to 5-year average including temperature on 1 graph and including precipitation on the other graph. No comments received from		

		the group. Graphs - SWS versus GWS Production - Presented graphs to the group. No comments received from the group. Graph - SWS versus GWS ICI and RES Production - New graph presented to the group. - Discussion on seasonal increases, GWS Increase when flushing increases. Increase in volumes from flushing and flush boxes. - BMT decision to continue with the graph for this year (interesting for COVID). - Discussion on decreasing number of meters for Residential, should either stay the same or increase and not be decreasing. Send email to BM with information used for the graph. The QMS Action Log was revised to reflect the creation of a new Action Item 20-374.		
	374	Email ICI and RES meter data for GWS and SWS that was used for graph in Management Review to BM for review. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead: BM	Due Date: 11/1/2020 Completion Date:
07) Operational Performance - Average Monthly Efficiency of the SWTP		Presented graph showing SWTP efficiency from 2016 to June 2020. - Efficiency has been increasing during Q2. - JA reports that should be able to investigate where the efficiencies are occurring and provide information for Q3 Management Review. The QMS Action Log was revised to reflect the creation of a new Action Item 20-375.		
	375	Investigate efficiencies occurring at the SWTP during 2020 and provide comment for Q3 Management Review. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead: JA	Due Date: 11/1/2020 Completion Date:
08) Operational Performance - Summary of Call Outs		Reviewed the tables and graph with the group. - 2 tables presented, 1 with all the call outs (24 hours) and 1 with only after hours call outs. - Discussion around the difference between call out numbers. The number is lower when the call out label is selected versus the cumulative number for each process area or GWS station. The cumulative number shows a higher number of call outs overall than the actual number from eRIS. - BMT would like to continue to report how we are reporting currently and also include the call out number from eRIS. - Discussion around uncontrollable events (like power outages) and whether we want to report on these separately. Will look to make some minor adjustments to the spreadsheet with data for eRIS call outs. Check with JA, MV and CM with some options. - JD comment on asset vs. non-asset type events like hydro company reports. - Discussion on difference between after hours and all call outs. Decision to continue with all call outs only. Update the graph to use eRIS call out numbers for all call outs only. The QMS Action Log was revised to reflect the creation of 2 new Action Items 20-376 and 20-377.		
	376	Update F20-07 to include eRIS call out number (total number from call out label) and look at options to include uncontrollable events. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead:	Due Date: 11/1/2020 Completion Date:
	377	Update Management Review after hours call outs graph to use eRIS call out label numbers for all calls. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead:	Due Date: 11/1/2020 Completion Date:
09) Operational Performance - Locates		Reviewed the graph with the group - Numbers of locates requested and completed are down due to COVID but have started to increase in Q3.		
10) Operational Performance - Watermain Breaks		Reviewed the graphs with the group.		

		Graph - 5-year monthly averages - watermain breaks - No comments received from the group. Graphs - Watermain breaks by type and cause - No comments received from the group. Ratio graphs - Main Break Ratio by size, age and material type - Study was reviewed and BMT decided to remove the baseline ratio in the graphs and not replace with anything at this time.		
11) Operational Performance - Valve Exercising		Reviewed the live dashboard with the group. - Updates to the valve turning app need to be done to have the non critical valve gauges (% completed) updated based on the quadrant selected. The quadrants are being cycled every 4 years (1 quadrant/year) so the time frame for the quadrant non-critical valves need to be 4 years before they reset. - Updates to the valve turning app need to be done to have the Critical Valve progress gauge capture 1 year (January to December) and not cover the life of the valve turning app. - Inoperable and Inaccessible (complications) that are listed on the app disappear from the dashboard once they have been repaired or accessible (could be just from a car parked over it). To get numbers for Inoperable and inaccessible valves for Management Review, may need to look for these counts in CMMS - Symbology and everything else has been updated in the app. The QMS Action Log was revised to reflect the creation of 2 new Action Items 20-378 and 20-379.		
	378	Refine the valve turning app non-critical and critical progress gauges to include the following: Non-critical valve gauges update when a quadrant is selected and they cover a 4 year cycle, Critical valve gauges update to cover time frame of 1 year (January-December) - The QMS Action Log was revised to reflect the following:	OPC Responsible: JD Technical Lead: BH	Due Date: 11/1/2020 Completion Date:
	379	Add inoperable valves (total for the year) to 2020 Q4 Management review Valve turning section - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead:	Due Date: 1/1/2021 Completion Date:
12) Raw Water Supply and Drinking Water Quality Trends - Sodium		Reviewed graphs with the group. - WPS12 is still increasing slightly. Would like to create future trending to see when might hit the Canadian Guideline for Drinking Water Quality. The QMS Action Log was revised to reflect the creation of a new Action Item 20-380.		
	380	Conduct future trending for WPS12 Sodium parameter and present at Management Review. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead:	Due Date: 11/1/2020 Completion Date:
13) Raw Water Supply and Drinking Water Quality Trends - THMs and HAAs		Reviewed the data and graph with the group. - No comments received from the group.		
14) Raw Water Supply and Drinking Water Quality Trends - General Chemistry		- Discussed some options regarding how to review the General Chemistry results for GWS. - Can run reports from eRIS to get some baseline numbers for each parameter that we are using for General Chemistry. - Create an eRIS report with minimum and maximum for each parameter. Set up the report to be auto generated and emailed out quarterly to MV and Shane Steele. - Set up limits for each parameter and add to the lab data entry sheet similar to SWS lab data entry where any values outside of the set limits would show as high and highlight in red. No comments to be added in eRIS at this time. - Any anomaly found can be reviewed and discussed at Management Review The QMS Action Log was revised to reflect the creation of 3 new Action Items 20-381, 20-382 and 20-383.		
	381	Run eRIS reports for the past 5 years of data to obtain baseline numbers for the parameters in the General Chemistry Suite to create some upper and lower limits that can be used for the lab		

		data entry sheets - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead:	Due Date: 1/1/2021 Completion Date:
	382	Create a report in eRIS for General Chemistry parameters, set up the report to auto generate and email out to MV and Shane Steele each quarter - The QMS Action Log was revised to reflect the following:	OPC Responsible: GG Technical Lead:	Due Date: 1/1/2021 Completion Date:
	383	Set limits for the General Chemistry parameters in eRIS - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead:	Due Date: 1/1/2021 Completion Date:
15) Raw Water Supply and Drinking Water Quality Trends - 2019 Golder Report		- Reviewed summary with the group. - Not much difference from previous year report (2018). - Plume has not migrated to Kempenfelt Bay yet, expected to reach in 2026. - Reviewed recommendations.		
16) Raw Water Supply and Drinking Water Quality Trends - Sampling Review		Reviewed the summary with the group. - WPS04A sampling has not been completed yet as contracto access was not safe, aiming to sample end of Oct or early November. - All other samples were collected as required unless station was offline. - Chlorine Depletion report has been completed in CMMS but has yet to be reviewed. Further discussion with MV & DM to occur. - UV Transmittance was performed weekly with no issues and all results were greater than 85%. Question about whether any results were over 100%. GG to verify all results are less than 100%. - Health Canada Guideline Technical Document Review on Enterococci as an indicator. Item was discussed during 2019 Q1 Management Review but no sampling completed. Thoughts were that sampling cost was expensive, need to review meeting minutes from Q2 and Q3 to determine decision regarding sampling for Enterococci. The QMS Action Log was revised to reflect the creation of 3 new Action Items 20-384, 20-385 and 20-386.		
	384	Review the chlorine depletion report with DM and MV, determine if further refinement or updates are required - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead: MV	Due Date: 11/1/2020 Completion Date:
	385	Review Q2 UV Transmittance results to ensure all were below 100% - The QMS Action Log was revised to reflect the following:	OPC Responsible: GG Technical Lead:	Due Date: 11/1/2020 Completion Date:
	386	Review Management Review meeting minutes from 2019 Q2 onwards to located decision on Enterococci sampling - The QMS Action Log was revised to reflect the following:	OPC Responsible: GG Technical Lead:	Due Date: 11/1/2020 Completion Date:
17) Raw Water Supply and Drinking Water Quality Trends - Guidance on Monitoring the Biological Stability of Drinking Water in Distribution Systems		Presented summary to the group. - ATP is currently being used in the plant for different process areas. It can be used in the distribution system should they want to start sampling. Samples to be collected in the field and then brought to internal lab for analysis. - Look into leveraging the option of using ATP. What would be the outcomes of the ATP results - flushing, sampling, etc?? Can look where we might have large amounts of biomass and there is nothing else in place supporting renewal rates (like when break rates are not high). - Look into option of whether we want to start collecting some samples for ATP analysis? Where would we collect the samples from? MV would like to investigate this further. Meeting with MV, JA, BM, GG & JD to come up with a plan regarding ATP sampling. - Rotating among sampling sites - eg. rec centres have high usage in the summer vs. the winter months. Further discussion required on whether we want to pursue this. The QMS Action Log was revised to reflect the creation of 2 new Action Items 20-387 and 20-388.		

	387	Conduct a meeting (include MV, JA, BM, GG, JD) regarding ATP sampling within the distribution system. Discuss number of samples, location, frequency, outcome from results and how to analyze results - The QMS Action Log was revised to reflect the following: OPC Responsible: GG Due Date: 11/1/2020 Technical Lead: Completion Date:
	388	Conduct a meeting to discuss rotating sampling sites within the distribution system to accommodate things like seasonal usage - The QMS Action Log was revised to reflect the following: OPC Responsible: JD Due Date: 11/1/2020 Technical Lead: Completion Date:
18) Summary of Consumer Feedback		Reviewed graphs with the group. Graph - Water Quality Complaints by Type Compared to 5-year average - No comments received from the group. Graph - Summary of Consumer Feedback - 1 outstanding service request has been found but not yet entered, 1 call was documented on a work order but not yet entered, and 2 outstanding calls not documented. Follow up still required for the 2 calls. - Service Request 85759 is listed for 45 Strabane but the @liveconx report says it is for 47 Strabane. Need to confirm location and update Service Request if required. The QMS Action Log was revised to reflect the creation of 2 new Action Items 20-389 and 20-390.
	389	Follow up on outstanding @liveconx calls from Q2 Management Review to ensure they are entered into CMMS - The QMS Action Log was revised to reflect the following: OPC Responsible: DS Due Date: 11/1/2020 Technical Lead: Completion Date:
	390	Review Service Request: 85759 and call out details from @liveconx and confirm whether address is 45 or 47 Strabane and correct on Service Request if required - The QMS Action Log was revised to reflect the following: OPC Responsible: DS Due Date: 11/1/2020 Technical Lead: BM Completion Date:
19) Changes Affecting QMS		Reviewed summary with the group. - Watermain Disinfection Procedure includes clarifying when a sample is considered a Drinking water sample or NOT. Need to confirm what is listed and review what is currently on our Chain of Custody and the Reportable vs. Non Reportable Protocol (P16-03). The QMS Action Log was revised to reflect the creation of 4 new Action Items 20-391, 20-392, 20-393 and 20-394.
	391	Review Watermain Disinfection Procedure for when a sample is considered a Drinking water sample or NOT and review what is listed on our Chain of Custody and Reportable vs. Non Reportable Samples Protocol (P16-03) and make updates/changes if required - The QMS Action Log was revised to reflect the following: OPC Responsible: AIP Due Date: 1/1/2021 Technical Lead: Completion Date:
	392	Schedule training for water operators on the new Watermain Disinfection Procedure - The QMS Action Log was revised to reflect the following: OPC Responsible: JD Due Date: 2/1/2021 Technical Lead: Completion Date:
	393	Update work orders and check lists associated with watermain breaks to ensure they include the new requirements as listed in the Watermain Disinfection Procedure - The QMS Action Log was revised to reflect the following: OPC Responsible: AIP Due Date: 1/1/2021 Technical Lead: Completion Date:
	394	Review work orders for new watermains to ensure they meet the requirements of Section 3.1 of the Watermain Disinfection Procedure - The QMS Action Log was revised to reflect the following: OPC Responsible: AIP Due Date: 1/1/2021 Technical Lead: Completion Date:
20) Operational Plan, Currency and Updates		Presented summary of Elements that have been updated in Q1 and Q2.

		- Element 1 - Quality Management System Operational Plan Definitions were updated. - Element 7 - Risk Assessment Added E2 Regulations for consideration. - Element 9 - Org. Structure, Roles, Responsibilities and Authorities Updated based on organization restructuring - Element 14 - Review and Provision of Infrastructure Updated based on organizational restructuring - Element 15 - Infrastructure Maintenance, Rehabilitation and Renewal Updated based on organizational restructuring Look into options to include all elements and check off the ones completed to date, also look into adding a dashboard gauge for completion. The QMS Action Log was revised to reflect the creation of a new Action Item 20-400.
	400	Update slide for Operational Plan, Currency and Updates for Q3 Management Review to include all the elements and check off ones completed to date and look at option to add a dashboard gauge for completion - The QMS Action Log was revised to reflect the following; OPC Responsible: DS; Due Date: 11/1/2020; Technical Lead:; Completion Date:
21) SOP Review		Presented new item to group. - All SOP's to be reviewed annually by each section. - Water Operations SOP review will be initiated by CTS and assistance may be requested from other groups as required. - Discussed using Document Management Form (F05-03) when completing annual review of the SOP's. There is option on the form to select "Review (without changes)". Submit form to waterqms to be tracked. Date on the document will be updated by OPCs. - Look into option to add a dashboard gauge with % completed to date for each section. - Will look at starting this for 2021. The QMS Action Log was revised to reflect the creation of a new Action Item 20-401.
	401	Consider options of dashboard gauges with % completed for each section for the SOP review - The QMS Action Log was revised to reflect the following; OPC Responsible: DS; Due Date: 4/1/2021; Technical Lead:; Completion Date:
22) COVID 19 Review		Questions regarding COVID-19 Review were presented to the group. Discussion to occur in another meeting. The QMS Action Log was revised to reflect the creation of a new Action Item 20-402.
	402	Conduct a meeting with BMT and OPC's to discuss COVID-19 Review presented at Q2 Management Review - The QMS Action Log was revised to reflect the following; OPC Responsible: DS; Due Date: 11/1/2020; Technical Lead:; Completion Date:
23) New Business		- External Audit is scheduled for November 12, 2020 and documentation required to be submitted a month in advance. AIP is lead for the external audit and will be collecting and submitting everything to the auditor by October 9, 2020. - Internal Audit is underway and summary should be ready for Q3 Management Review.

Note:
These meeting minutes have been reviewed an approved by the meeting attendees noted at the top of the document.

Meeting Minutes

Meeting Details

Date
12/10/2020
Start Time
9:30:00 AM
End Time
12:00:00 PM
Type
Management Review

Attendance

Attendee Role	Initials	Name
Attendee	JD	Dumais, Jeanette
Attendee	GG	Gilbank, Gwen
Attendee	AIP	Inglis-Petahtegoose, Amanda
Recorder	DS	Smith, Diana
Facilitator	DS	Smith, Diana
Attendee	CK	Khawa, Christina
Attendee	DM	Moreau, Diane
Attendee	BM	Miller, Brenden
Attendee	CM	Marchant, Chris
Attendee	JA	Adams, Jamey
Attendee	JG	Giffen, Jason
Attendee	MV	Vandergeest, Mark

Meeting Minutes

Agenda Item	Action Item No	Description		
01) Review previous meeting minutes from 2020-09-17		Reviewed minutes and accepted all changes		
02) 2020 Q2 Action Item Follow up	221	Check if Operations Project Coordinator (OPC) can request all missing Water Meter Installer License cards from Ministry of Training, Colleges and Universities (MTCU) or provide information to staff to request individually if required. - Action item is ongoing - MV has reached out to MTCU and they are all working remote so there has been no progress yet on gaining access again - MV suggested that we may want to look at other options once CM moves to new position, and new Manager is hired - The QMS Action Log was revised to reflect the following:	OPC Responsible: GG Technical Lead: MV	Due Date: 3/1/2021 Completion Date:
	258	Follow up on outstanding Work Order for Anne Booster flow meter calibration (Work Order #285431). - Work order was a duplicate and has been cancelled in CityWorks - The QMS Action Log was revised to reflect the following:	OPC Responsible: JD Technical Lead: MV	Due Date: 11/1/2020 Completion Date: 12/10/2020
	261	Review cancellation forms for Work Orders related to comment of “Per SS – work was completed on newer w/o’s with no way to audit". - Cancellation reason was updated on all work orders in CityWorks. This has been verified in City works. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead: MV	Due Date: 11/1/2020 Completion Date: 12/10/2020
	263	Review chlorine analyzer verification and calibration frequencies for Groundwater Supply (GWS). - Action item is ongoing - Meeting was held with GWS and SWS - Prominent analyzer work orders have been updated in CityWorks to follow the Manufacturers Recommendations - Depolox work orders will be updated to mirror what SWS is currently doing. Paperwork is in progress and set to start January 2021 - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead: MV	Due Date: 1/1/2021 Completion Date:
	294	Follow up on 2 emergency maintenance work Orders created by UPC (Lissa) for Investigate leak - 2 work orders have been cancelled in CityWorks - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead:	Due Date: 11/1/2020 Completion Date: 12/10/2020

Meeting Details
Meeting Date 12/10/2020
Meeting Type Management Review

297	Review what is included in the saved search in CMMS that is used to fill out the F20-07 and what is used for the outstanding Work Order lists that are sent out to the supervisors quarterly - Action item is ongoing - DM to review and will present options to Top Management - The QMS Action Log was revised to reflect the following:	OPC Responsible: DM Technical Lead:	Due Date: 2/1/2021 Completion Date:
298	Review what Work Orders are included in the Miscellaneous category - All work orders have been categorized accordingly and a new category for "Customer Service" was added - The QMS Action Log was revised to reflect the following:	OPC Responsible: AIP Technical Lead:	Due Date: 11/1/2020 Completion Date: 12/10/2020
302	Review Service Request: 76116 and call out details from @liveconx and confirm whether address is 55 or 65 Penvill Trail and correct on Service Request if required - Address was confirmed to be 55 Penvill Trail and has been corrected on the service request in CityWorks - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead: BM	Due Date: 11/1/2020 Completion Date: 12/10/2020
372	Remove the main break ratio from the main break graphs used for Management Review. - Main Break ratio has been removed from the graphs - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead:	Due Date: 11/1/2020 Completion Date: 12/10/2020
373	Update label for CCP for turbidity from 2020-05-24 at JW13. - CCP_Deviation label was removed from entry for JW13 on 2020-05-24 as it was not a true CCP - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead: MV	Due Date: 11/1/2020 Completion Date: 12/10/2020
374	Email ICI and RES meter data for GWS and SWS that was used for graph in Management Review to BM for review. - Email was sent to BM with the data. BM has reviewed with Sam Cuggy and some minor updates were made to the data for Q2. - Information is coming from the consumption reports so if a meter is having communication issues then the meter would not be included in that month's numbers - No further investigation required into this item - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead: BM	Due Date: 11/1/2020 Completion Date: 12/10/2020
375	Investigate efficiencies occurring at the SWTP during 2020 and provide comment for Q3 Management Review. - Email sent to JA on 2020-10-23 - JA provided comment that the changes are minor, we could look into them but would be hard to see exactly what they are. No further action required on this item. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead: JA	Due Date: 11/1/2020 Completion Date: 12/10/2020
376	Update F20-07 to include eRIS call out number (total number from call out label) and look at options to include uncontrollable events. - F20-07 was updated and went through document change process - It will be difficult to determine controllable and uncontrollable events and then categorize each event, very grey area - Decision was to leave as is and speak to any outliers that may occur during Management Review, highlight any major concerns as they arise - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead:	Due Date: 11/1/2020 Completion Date: 12/10/2020
377	Update Management Review after hours call outs graph to use eRIS call out label numbers for all calls. - Graphs were updated and provided in the presentation - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead:	Due Date: 11/1/2020 Completion Date: 12/10/2020
378	Refine the valve turning app non-critical and critical progress gauges to include the following: Non-critical valve gauges update when a quadrant is selected and they cover a 4-year cycle, Critical valve gauges update to cover time frame of 1 year (January-December) - JD has contacted GIS (Dan Williams) who said they would look into it. No further communication received from GIS about updates		

	- The QMS Action Log was revised to reflect the following:	OPC Responsible: JD Technical Lead: BH	Due Date: 2/1/2021 Completion Date:
380	Conduct future trending for WPS12 Sodium parameter and present at Management Review. - New graph was added to presentation for review - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead:	Due Date: 11/1/2020 Completion Date: 12/10/2020
384	Review the chlorine depletion report with DM and MV, determine if further refinement or updates are required - Operational status was added to the report and the report is available in CityWorks - Discussion within GWS as to who will review the data and on what frequency is still to be determined - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead: MV	Due Date: 11/1/2020 Completion Date: 12/10/2020
385	Review Q2 UV Transmittance results to ensure all were below 100% - All results were reviewed and were above 85% and below 100% - The QMS Action Log was revised to reflect the following:	OPC Responsible: GG Technical Lead:	Due Date: 11/1/2020 Completion Date: 12/10/2020
386	Review Management Review meeting minutes from 2019 Q2 onwards to located decision on Enterococci sampling - 2019 Q1 meeting minutes states a decision of waiting until review of QMRA data has been completed - The QMS Action Log was revised to reflect the following:	OPC Responsible: GG Technical Lead:	Due Date: 11/1/2020 Completion Date: 12/10/2020
387	Conduct a meeting (include MV, JA, BM, GG, JD) regarding ATP sampling within the distribution system. Discuss number of samples, location, frequency, outcome from results and how to analyze results - Meeting has been scheduled for 2020-12-11 - Kick off meeting related to ATP and whether we want to implement beyond using at the SWTP - The QMS Action Log was revised to reflect the following:	OPC Responsible: GG Technical Lead: MV	Due Date: 2/1/2021 Completion Date:
388	Conduct a meeting to discuss rotating sampling sites within the distribution system to accommodate things like seasonal usage - No meeting has taken place - Opportunity to look at on an annual basis, mainly related to new construction and outer areas of the City that may need to look at adding sample stations to - Add to Q4 Sampling review, annual sampling site review - Is there an opportunity to map the newly proposed construction areas related to watermains (inactive watermains) and overlay with existing sampling sites to see what we may need to consider. Review this on an annual basis in Q4 - The QMS Action Log was revised to reflect the following:	OPC Responsible: JD Technical Lead:	Due Date: 2/1/2021 Completion Date:
389	Follow up on outstanding @liveconx calls from Q2 Management Review to ensure they are entered into CMMS - Call from 4 Marjoy was related to a construction job replacing a PRV and the water was off for longer than the notice indicated (Can we remove this event or should it still have a service request created?) - DM to follow up on 29 Park Side Dr. Service request to see where it might be at - Service request for 13 Bayshore was located, JG to ensure service request gets entered into CityWorks - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead:	Due Date: 2/1/2021 Completion Date:
390	Review Service Request: 85759 and call out details from @liveconx and confirm whether address is 45 or 47 Strabane and correct on Service Request if required - Email sent to BM on 2020-10-23 to follow up on what is the correct address - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead: BM	Due Date: 2/1/2021 Completion Date:
400	Update slide for Operational Plan, Currency and Updates for Q3 Management Review to include all the elements and check off ones completed to date and look at option to add a dashboard		

		gauge for completion - Slide has been updated with all elements and those completed have been checked off - New dashboard gauge for completion was also added to slide - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead:	Due Date: 11/1/2020 Completion Date: 12/10/2020
	402	Conduct a meeting with BMT and OPC's to discuss COVID-19 Review presented at Q2 Management Review - Summary of meeting has been included in presentation - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead:	Due Date: 11/1/2020 Completion Date: 12/10/2020
03) Incidents of Adverse Drinking Water Tests		- Reviewed 3 AWQI's that occurred during Q3 - JD comment about how corrective actions of disinfection restored and mains flushed relate to pressure, and nothing about pressure being restored. The QMS Action Log was revised to reflect the creation of a new Action item 20-448		
	448	Review eLogbook details for AWQI 151909 to see if operators mention how pressure was restored and add details to Q3 Management Review presentation - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead:	Due Date: 1/1/2021 Completion Date:
04) Deviations from SCADA Critical Control Limits		- SWS had no deviations to report for Q3 - GWS had 1 deviation to report for Chlorine at WPS16 (Brownwood). 17 min delay before pump lock out is due to clear well on site. Residual was 0.44 mg/L when the flow stopped.		
05) Deviations from Critical Control Limits - Flushing Activities		- 2020 Q3 data presented - Could add total number of work orders completed (include % deviated during quarter) - Can review the increase or decrease in percentage quarterly or annually for the deviations - Cl residual on start up - 1 deviation, flush boxes were still out during Q3 - Review what location this is and do we warrant adding a flush box in this location. - Note that Turbidity Limit will increase from 2 NTU to 3 NTU starting January 2021 The QMS Action Log was revised to reflect the creation of 2 new Action items 20-449 and 20-450		
	449	Add total number of work orders completed during the quarter and % deviated during the quarter to the Management Review presentation for flushing activities (Deviation from Critical Control Limits) - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead:	Due Date: 2/1/2021 Completion Date:
	450	Review 1 deviation for low Cl on start up from Q3 Management Review to determine what location it is and whether a flush box should be added to that area or not - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead: BM	Due Date: 2/1/2021 Completion Date:
06) Operational Performance - System Wide Production		Graph - System Wide Production, 5-year average - Presented graphs for monthly water production compared to 5-year average. No comments received from the group. - Presented 2 graphs with monthly water production compared to 5-year average including temperature on 1 graph and including precipitation on the other graph. No comments received from the group. Graph - SWS versus GWS Production - Presented graphs to the group - Note that volumes in Groundwater are quite a bit higher than Surface Water volumes as flushing in the groundwater system increases the volumes used especially during Q3 when flushing was a ramped back up Graph - SWS versus GWS ICI and RES Production - Interesting trends especially for SWS residential (commuter area) around March when COVID started and people were sent to work from home causing a large increase in water usage where the opposite happened on the ICI side with a decline in water usage in April (many businesses were closed or limited hours) due to COVID		

07) Operational Performance - Average Monthly Efficiency of the SWTP		Presented graph showing SWTP efficiency from 2016 to September 2020 - No comments received from the group		
08) Operational Performance - Summary of Call Outs		Reviewed the tables and graph with the group - 2 tables presented, 1 with all the call outs (24 hours) and 1 with only after hours call outs - Confirmed that "Total Callouts" is number of events that occurred. Update F20-07 and slide in presentation to be events instead of "Total Callouts" - GWS callouts were higher this year due to towers being offline during Q3 causing more callouts to the booster pump stations with the closed pressure zones - Discussion related to after hours call outs versus all call outs. Number of events is important to determine how the facility is operating and it does not matter when the call outs are taking place. - For the graph of callouts, would like to see the old data up until 2018, then add 2019 and 2020 data with all call outs. Include note with the graph stating that using all call outs (events) starting in 2019 instead of just after hours call outs The QMS Action Log was revised to reflect the creation of 2 new action items 20-451 and 20-452		
	451	Update Summary of Operational Performance (F20-07) in relation to call outs and change "Total Call outs" to read number of events - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead:	Due Date: 2/1/2021 Completion Date:
	452	For the graph of callouts on Management Review, add the old data up until 2018, then add 2019 and 2020 data with all call outs. Include note with the graph stating that using all call outs(events) starting in 2019 instead of just after hours call outs - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead:	Due Date: 2/1/2021 Completion Date:
09) Operational Performance - Locates		Reviewed the graph with the group - Increase in August and September when work started to ramp back up. Many projects were put on hold/businesses shut down at the start of COVID		
10) Operational Performance - Watermain Breaks		Reviewed the graphs with the group Graph - 5-year monthly averages - watermain breaks - Add a note for August and September 2020 (Closed Zone for Zone 2N in August and September and Zone 3N in September) - Interesting to see if changes in winter months (decrease in breaks) due to larger number of breaks during closed zone work in Q3 Graphs - Watermain breaks by type and cause - No comments received from the group - Group discussion that they are not gleaning anything from these graphs so they can be removed from the presentation going forward Ratio graphs - Main Break Ratio by size, age and material type - Similar inforamtion is being reviewed between Geographical Information System (GIS), Corporate Asset Management (CAM) and Water Operations from data obtained through CityWorks. The information presented in these slides is not providing any further information to what is already reviewed and discussed in relation to infrastructure renewal - Group discussion that they are not gleaning anything from these graphs so they can be removed from the presentation going forward The QMS Action Log was revised to reflect the creation of 2 new action items 20-453 and 20-454		
	453	In Management Review graphs, add a note to the "Number of Watermain Breaks compared to 5-year average" graph for August and September 2020 that had Closed Zone for Zone 2N in August and September and Zone 3N in September - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead:	Due Date: 2/1/2021 Completion Date:
	454	Remove the following watermain break graphs from Management Review Presentation: Watermain Breaks by type and cause Main Break ratio by size, age and material type - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead:	Due Date: 2/1/2021 Completion Date:
11) Operational Performance - Valve Exercising		Reviewed the live dashboard with the group - Definition of critical valves used is anything equal to and greater than 16" (400 mm)		

		- Two (2) of the four (4) quadrants only have minimal valves that remain to be operated (e.g. NE requires 3 critical valves to be turned) - 37% of critical valves remain to be turned this year, target is to turn all critical valves annually. This will not happen this year. - There was a higher percentage of valves that were turned this year compared to previous years (for both critical and non-critical valves) - Critical valves will reset to 0 once their individual counter reaches 365 - Non-critical valves are set to 4 years or 1,460 days (waiting for update from GIS that the completion rate can be implemented per quadrant on the gauges) - JG and WDS Lead Hand have discussed a plan for starting in 2021 to start with critical valves and then move to non-critical valves throughout the year - Add a slide with metrics on a quarterly basis to show progress at the end of each quarter - Present a Summary of 2020 and metrics for 2021 in Q4 presentation The QMS Action Log was revised to reflect the following new action item 20-455
	455	For management Review, add a slide with metrics on a quarterly basis to show progress at the end of each quarter for valve turning. Add a summary for 2020 and metrics for 2021 into Q4 Management Review presentation - The QMS Action Log was revised to reflect the following: OPC Responsible: JD Due Date: 2/1/2021 Technical Lead: Completion Date:
12) Raw Water Supply and Dinking Water Quality Trends - Sodium		Reviewed the graphs with the group - As part of the Corporate Environmental Obligations Framework, discussions have been had between Source Water and Water Operations to better understand roles and responsibilites as it relates to source water in order to develop solutions that will reduce/eliminate potential impacts to source water (preventative) rather than reacting to issues in drinking water - New graph for WPS12 with future trending was added showing that sodium is expected to reach 200 mg/L between 2027-03-08 and 2027-09-08
13) Raw Water Supply and Drinking Water Quality Trends - THMs and HAAs		Reviewed the data and graph with the group - No comments received from the group
14) Raw Water Supply and Drinking Water Quality Trends - Lead		- Sampling was completed on 2020-07-08 - No results were >0.0050 mg/L (1/2 MAC) - Lead relief for ICI locations was requested, waiting for response from MECP
15) Raw Water Supply and Drinking Water Quality Trends - Sampling Review		Reviewed the summary with the group - Outstanding samples for WPS04A were completed by contractor on 2020-11-24 (Q4) - Application for lead sampling relief for 5 ICI sampling points has been submitted to the MOE for next cycle of lead sampling - OOS (Out of Service) status in CityWorks has helped for operational purposes and for reviewing data
16) Raw Water Supply and Drinking Water Quality Trends - Health Canada Guidance Documents		Presented Summary to the group Open Documents - Dicamba proposed MAC of 110 ug/L, WOB sampling results are all <5 ug/L (well below the proposed MAC) - Bromoxynil proposed new MAC of 30 ug/L (increase), WOB sampling results are all <0.3 ug/L (well below the proposed MAC) Closed Documents - Cyanobacteria in Recreational Water, proposed Microsystin in recreational waters is 10 ug/L, current drinking water MAC 1.5 ug/L, WOB sampling results are all <0.15 ug/L - 2,4 Dichlorophenoxyacetic acid (2,4-D) consultation closed 2020-11-06, WOB sampling results are all well below proposed MAC - Metribuzin consultation closed 2020-09-11, WOB sampling results are all well below proposed MAC - Diquat consultation closed 2020-10-02, WOB sampling results are all well below proposed MAC
17) Summary of Consumer Feedback		Reviewed graphs with the group Graph - Water Quality Complaints by Type compared to 5-year average - Several calls for August and September that were related to closed zone in 2N and watermain break on Browning trail Graph - Summary of Consumer Feedback - Need to follow up on the outstanding call from @LiveConx and Nova that were not documented in CityWorks. Send summary to BJ and JG with outstanding calls that have no service request in CityWorks

		The QMS Action Log was revised to reflect the creation of a new action item 20-456
	456	Follow up on outstanding calls from @LiveConx and Nova Networks that were not documented in City Works from Q3 Management Review - The QMS Action Log was revised to reflect the following: OPC Responsible: DS Due Date: 2/1/2021 Technical Lead: Completion Date:
18) Emergency Scenario Summary		Reviewed summary of Emergency Scenario (COVID-19 Pandemic) Interim Debrief - Top Management and OPCs met and went through 4 questions 1. What is going well? 2. What is not going well? 3. What are things we can do to make things better? 4. What lessons have we learned? - 5 Opportunities for Improvement were identified. Four (4) action items have already been completed (20-338, 20-339, 20-340 and 20-342) and one (1) remains outstanding (20-341) - Would like to review everything again at the end of 2020. Reviewed Summary from meeting help on 2020-10-26 - Include this in the Annual 2020 Pandemic review and follow up on status of each item or any changes The QMS Action Log was revised to reflect the creation of a new action item 20-457
	457	Set up a meeting for Q1 to complete another review of 2020 Pandemic data and update items that were discussed in Interim Review and add any additional discussion points - The QMS Action Log was revised to reflect the following: OPC Responsible: DS Due Date: 2/1/2021 Technical Lead: Completion Date:
19) MECP Inspection Summary		Reviewed summary with group - 1 non-compliance identified with inspection related to not providing secondary disinfection at all times - No Recommendations or Best Practices were noted in the inspection report
20) Summary of External Audit		Reviewed Summary with group - No non-conformances or Opportunities for Improvement were identified in the Audit Report - Some follow-up discussion on how the audit was conducted: requests for documentation that had not been completed yet in the calendar year (Standard changed to be calendar year and not 12 months in February 2017) from previous time the action was performed
21) Summary of Internal Audit		Reviewed summary with the group - 3 non-conformances were identified. At the time of finalization of the Internal Audit report, two (2) action items had been completed leaving only one (1) that was outstanding. The outstanding item was a better way to document the "review and provision of infrastructure". A lot of this relies on getting information from other departments and happens throughout the year. Discussions take place between the Manager of Water and Management of other departments - 5 Opportunity for Improvements(OFI) were identified. The suggested OFI's will be reviewed at a separate CIP (Continual Improvement Plan) meeting to determine whether they will be actioned or not. - MV comment regarding Section 3.4.2 of WOB-QMS-06 related to "secondary disinfection" that we need to ensure that the wording in the system procedure is the same as that from the DWWP - "Re-chlorination" - Need to do a CIP for the Non-Conformances and discuss the recommendations (OFIs) and determine wat is going to be actioned or not
22) Changes Affecting QMS		Reviewed summary with the group - DWQMS Workshop ideas (Discussion??) - Relates to Internal Audit non-conformance on Element 15. Suggestion to minute a meeting of reviewing Risk Assessment Outcomes with Engineering group to satisfy the Infrastructure Maintenance, Rehabilitation and Renewal (Element 15) as well as, suggestion to use asset management plan/process to prove review and provision of Infrastructure. Currently reviewing the Asset Management Plan, determine how to use this to satisfy this element (Will be discussed with OPC team).
23) Operational Plan, Currency and Updates		Presented summary of Elements that have been updated in Q1, Q2 and Q3 - Identified those that were reviewed in October and November - 8 elements remain to be reviewed before end of 2020 (Elements 2, 4, 11, 12, 13, 17, 19 and 21) The QMS Action Log was revised to reflect the creation of a new Action item 20-458
	458	Review the following QMS Elements (2, 4, 11, 12, 13, 17, 19 & 21) - The QMS Action Log was revised to reflect the following: OPC Responsible: DS Due Date: 1/1/2021 Technical Lead: Completion Date:

Meeting Minutes

Meeting Details

Meeting Date	12/10/2020
Meeting Type	Management Review

24) New Business		Escalation Action Item Report - Report currently lists anything that has been discussed 4 or more times at a meeting, which could include Maintenance or Management Review meetings - Need to identify whether an action item is from an OFI or from a Root Cause Analysis - The corrective action(s) identified in a root cause analysis meeting should be actioned quickly and should not take a really long time to get completed if in fact these are considered important root causes of a problem - If the action item is an OFI we may take more time to action - less priority - We can then bring these action items to Management Review (by way of the escalation report) and we can look at them and determine how to escalate appropriately - Discussed Root Cause training that the OPC's and DM just completed and how it would be beneficial to the Management Team and Lead Hands to take. Decision from Top Management to book Root Cause analysis training in 2021 for Supervisors and Lead Hands Current Action Items on the Escalation report: 120 - This is an OFI. Action has been completed, GG to follow up with Corrie Laver 179 & 191 - More of a project and not a Root cause. Work is ongoing with MV 235 & 236 - Involves staff from outside of WOB so taking longer to get work completed 269 - OFI from watermain break 283 - OFI. Currently waiting for Q4 reporting to be completed before finishing this action item The QMS Action Log was revised to reflect the creation of a new action item 20-459		
	459	Schedule Root Cause Analysis training for Manager, Supervisors and Lead Hands - The QMS Action Log was revised to reflect the following:	OPC Responsible: JD Technical Lead:	Due Date: 2/1/2021 Completion Date:

Note:
These meeting minutes have been reviewed an approved by the meeting attendees noted at the top of the document.