Schedule A

2021 Drinking Water System Operations Report

City of Barrie

Water Operations Branch

Drinking Water System

Operations Report

For the Period of

JANUARY 1ST, 2021 TO DECEMBER 31ST, 2021

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: 2022-02-28

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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 to December 31st, 2021. 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 2021 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 2021, approximately 4, 700 hours of staff training occurred, and thirty-seven (37) Operators were awarded certificate renewals or upgrades. At the start of COVID-19, the availability of training was greatly reduced while training providers switched to offering remote learning opportunities. As the pandemic unfolded there became a variety of remote learning opportunities for operators to gain the necessary hours for certificate renewals or upgrades. 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 from March 2020 until January 2021. This piece of legislation provided operators the opportunity to receive the necessary training hours 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 2021, approximately 93% of the projected operating budget was expended. References to financials within this report are based on the 2021 ledger prior to finalization and excludes debenture costs.

Corporate support is based on actual work and staff time in support of the Branch from various departments and is trending below budget to the end of 2021, in addition 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.

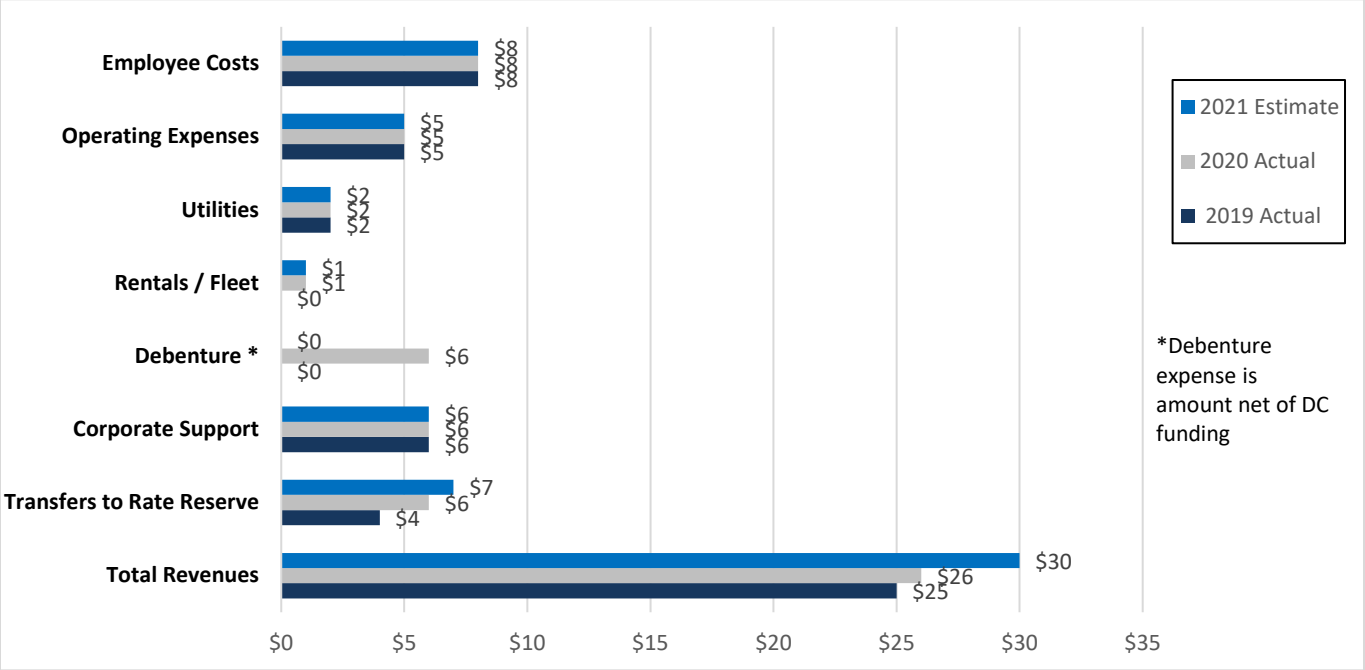

Figure 1. Water Operations Revenues and Fund Allocation

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 ten (10) year period and contains details of the financial position, financial operations, and cash flow of the System. The Financial Plan was updated in April of 2021 and a copy can be found at www.barrie.ca/waterservices.

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 2021, a total of 13,733 ML of drinking water was produced, which represents a slight 1% increase from 2020. This seems to follow an overall trend of increased water conservation within the City in the past ten (10) years (Figure 2).

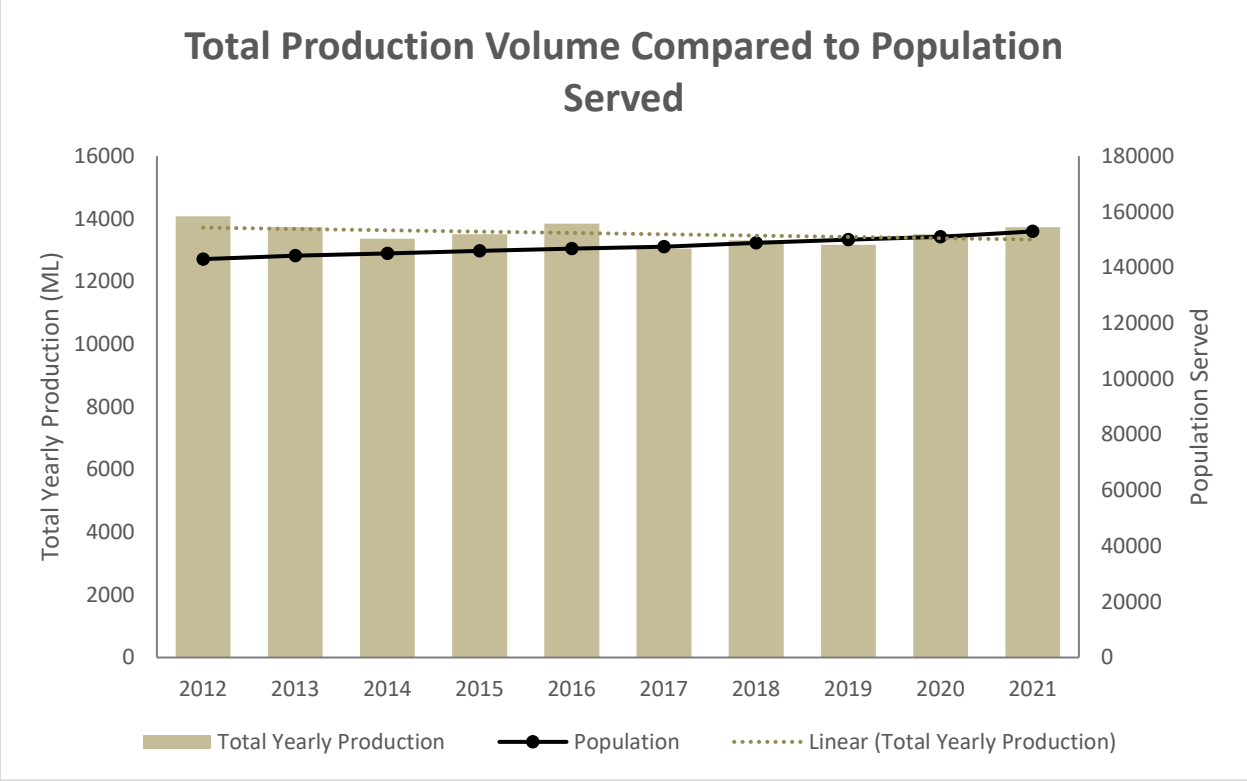

Figure 2. Total yearly production of drinking water (ML) compared to population served

The SWTP 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 SWTP to our customers. In 2021 our overall average efficiency was 97.2%, a 0.4% decrease from 2020. Factors that can cause these minor variations to the efficiency are annual pilot plant consumption, waste resulting from maintenance activities, age of the membrane filtration system 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 2021.

2.2.2.1 Groundwater Supply

In 2021, the Groundwater Supply Section completed the following significant maintenance activities:

- Cleaned and disinfected Cells 4 & 6 at Harvie Reservoir
- Cleaned and disinfected Sarjeant Dr. Well #7 clear well
- Cleaned and disinfected Heritage Park Well #11 clear well
- Cleaned and disinfected Brownwood Dr. Well #16 clear well
- Cleaned and disinfected Johnson St. Well #9 clear well
- Cleaned and disinfected Johnson St. Well #13 clear well
- Completed well pump and associated motor maintenance at Johnson St. Well #13
- Completed well maintenance at Johnson St. Well #13
- Completed well pump and associated motor maintenance at Centennial Park Well #15
- Completed well maintenance at Centennial Park Well #15
- Completed booster pump and associated motor maintenance at Big Bay Booster Pumping Station – Pump #2
- Completed booster pump and associated motor maintenance at Innisfil Booster Pumping Station – Pump #1
- Replaced flow control valves on booster pumps #1, #2 and #3 at Innisfil Booster Pumping Station
- Replaced a surge anticipator valve at Innisfil Booster Pumping Station
- Replaced a flow control valve on booster pump #1 at Leacock Booster Pumping Station
- Replaced a blow off valve at Centennial Park Well #15

2.2.2.2 Surface Water Supply

In 2021, 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
- 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 3,948 hydrants, 6482 valves, and 660.40 kilometers of watermain, the City's distribution system continues to reliably direct potable water to the community.

2.3.1 Preventative Maintenance Highlights

To ensure the continued operability of valves within the System, routine valve exercising is conducted. In 2021, 1,502 valves were exercised throughout the City including 234 Critical valves (400mm to 1200mm). A valve turning application is utilized to track the progress and number of valves turned, this is in cooperation with Information Technology (IT) staff and implemented to assist the operators. Mandated annual hydrant inspections were also completed, including any necessary replacement or repairs. In 2021, all 3,948 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 2021, 34 watermain breaks occurred which is an increase of 48% compared to 2020.

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

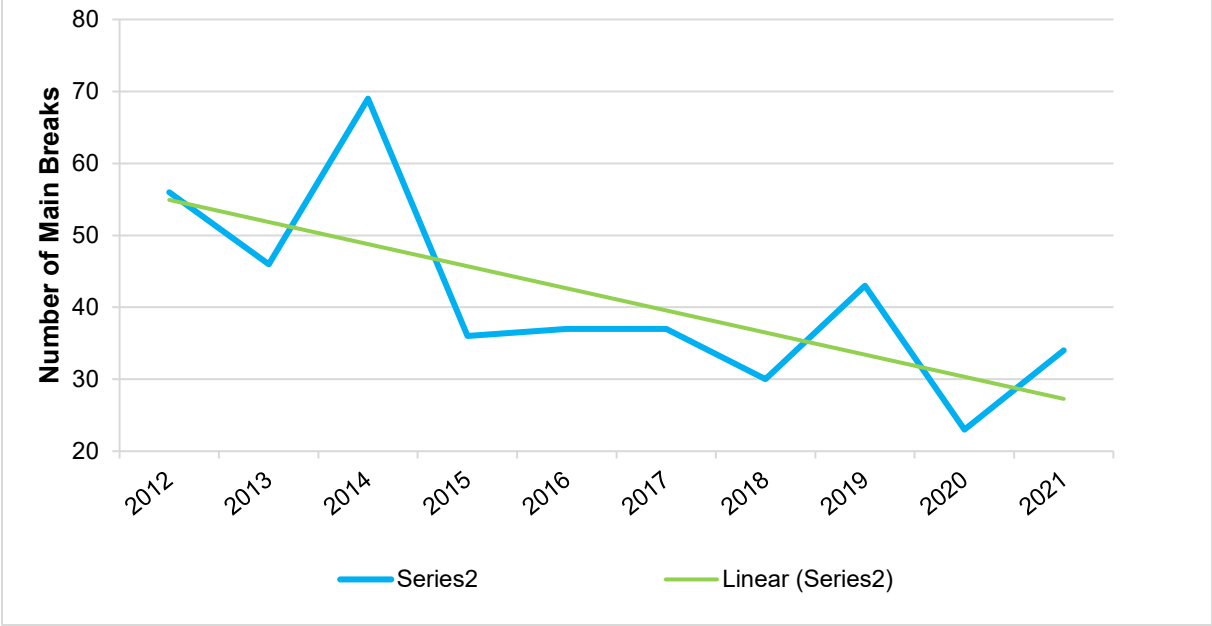

Figure 3. Number of watermain breaks and trend from 2012 to 2021

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 2021 are summarized as follows:

- Dunlop St. W. from Toronto St./Bradford St. to Eccles St. – new 300 mm watermain installed under Hewitt's Creek box culvert
- Six (6) new subdivisions were commissioned – 970 Mapleview Dr. E. Phases 1 & 2, Yonge St. Go Village, Bemp, Hewitt's Gate East, Great Gulf, 700 Mapleview Dr. (total of 4,637 lots)
- Fairview Rd. To Bryne Dr. easement – Hwy 400 crossing with new 300mm watermain
- Fourteen (14) watermain construction projects to service growth and renewal were completed
- Eighteen (18) Industrial, Commercial and Institutional (ICI) servicing projects were commissioned
- Total new watermain commissioned in 2021 was 19.23 kms
- Twenty-eight (28) residential services were replaced
- Two hundred and thirty-eight (238) curb box replacements were completed

2.4 Water Customer Services

Customer service continues to be a priority for the Branch. The Water Customer Services Section ensures our 152,959 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-of-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 six (6) complaints per month in 2021. This is a slight increase from 2020 which can be attributed to more watermain breaks in 2021, as well as an

increase in frozen services during the colder months. Additionally, 1,112 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 2021, a total of 232 new water meters were installed, and 739 water meters were replaced, representing a consistent number from 2020 but a decrease in comparison to numbers obtained prior to the COVID-19 pandemic. 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 2021, 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, 1,458 hydrants were flushed in 2021, representing approximately 37% of the distribution system. Additionally, forty (40) flush boxes were deployed after May 2021 and remained in service until end of October 2021. Each of these flush boxes operates daily 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 2021.

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 seven (7) AWQIs reported in 2021. Each of these events were resolved to the satisfaction of the MECP and Simcoe Muskoka District Health Unit (SMDHU). Refer to Schedule B – 2021 Annual Report, Section 11 O. Reg 170/03 for more details on each AWQI.

3.2 Emergency Scenario

The Barrie Tornado that occurred in July was used as a live emergency scenario for 2021. Given the nature of the incident and the impacts to the City of Barrie, it provided an opportunity for the Branch to test their emergency response plan and associated documentation. The incident involved coordination of efforts from multiple Departments and Branches within the City of Barrie. 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 incident debrief meeting was held on 2021-09-27 where staff and management provided feedback on the incident and discussed opportunities for improvement. This debrief resulted in actioning three (3) opportunities for improvement which are in the process of being 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 one (1) non-conformance and four (4) opportunities for improvement were put forward for consideration by Top Management.

3.4 External Audit

The 2021 External Audit conducted by a third party was a re-accreditation audit which consisted of an off-site desktop and on-site audit of the Operational Plan. There were no non-conformances identified by the external auditor and Reaccreditation was maintained until 2025.

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

The MECP conducted one (1) focused inspection of portions of the Municipal Drinking Water System in 2021. Refer to Schedule C – Municipal Summary Report – Schedule 22-2 O. Reg 170/03, Section 3.1.2 for more details on the 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, 2021, 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 2021, there were 15 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 24 of these forms completed for various work at the booster pump stations, water towers, well stations and the SWTP.

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 2021.

3.7 Management Review

The Branch continued to implement procedural and process improvements in 2021. 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: May 6, August 19, and November 11, 2021, and February 14, 2022.

In addition to the items noted in Sections 3.1 to 3.6 above, the following are additional highlights from the 2021 Management Review meetings:

1. Total annual production volume of 13,733 ML in 2021 remained consistent with usage trends over the last few years, with only a slight increase in production compared to 2020.
2. Updates to Water Operations Branch databases to provide workplace efficiencies resulting in shorter and more effective meetings, reporting capabilities for staff in relation to training reports, and workflow management.
3. Continued use of the electronic logbooks for all 3 subsystems allowing more real time updates for operators while they are working in the field, as well as, staff working at the SWTP and remotely.
4. Number of locate requests increased by 22% from 2020 and are at the highest figure for the past 5 years. Locates were completed within 5 days of the request being submitted 99% of the time.
5. Updated procedures and processes to support working remotely during the pandemic while still meeting provincial and local health unit regulations and guidelines.

A copy of the 2020 Q4, 2021 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 14, 2022, and as a result the meeting minutes are to be included in the 2022 Annual Report.

4 Closure

It is the belief that this report provides a summary of the operational and performance success of the Branch for 2021. If you have any questions concerning the contents of this report, please contact the Supervisor of Compliance and Technical Support.

Schedule B

2021 Annual Report, Section 11

Ontario Regulation 170/03

City of Barrie
Water Operations Branch

Drinking Water System
2021 Annual Report
Section 11, O.Reg. 170/03

For the Period of

JANUARY 1ST, 2021 TO DECEMBER 31ST, 2021

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: 2022-02-28

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2021 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, 2021, 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 28, 2022.

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 uses 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 3,948 hydrants and approximately 660.40 kilometers of watermain and transmission main ranging in sizes from 32mm to 1200mm and as of January 2022, delivering drinking water to a population of approximately 152,959 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 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 (2021)**
Reservoir repairs (Harvie Rd. Reservoir)	$125,000
Valve replacements (Innisfil Booster Pumping Station)	$45,000
Pump #1 bowl replacement (Innisfil Booster Pumping Station)	$22,600
Variable frequency drive replacements	$60,000
Primary membrane permeate pump replacement	$63,000
Watermain break repairs (34)	$209,474
Hydro excavation contractors for water infrastructure repairs	$33,064
Advanced Metering Infrastructure (AMI) Service Agreement	$111,373
Meter replacement program	$338,666

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, only sodium samples were collected at that location. The laboratory results for all analyzed samples regulated by O.Reg. 170/03 and the MDWL are summarized in Table 2 through Table 10, included in Appendix A for reference. All results from samples collected and analyzed during the reporting period met the regulatory requirements with the exception of those indicated in Table 11 of Appendix A.

Details of the sampling and testing conducted in 2021 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 free chlorine in treated water and free chlorine in distribution water, and raw water and treated water turbidity were conducted in accordance with Schedule 7 of O.Reg.170/03, except

for Well 3A which was not in service. The data summarized in the table contains numbers reflective of analyzer calibration and maintenance activities and are not an indication of improperly treated water.

The operational checks conducted during this reporting period are summarized in Table 2, 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. There were several raw water samples collected before treatment that indicated the presence of bacteria. On occasion raw water samples yielded a NDOGT (No Data Overgrown with Target) result. A NDOGT result indicates that the test has a large number of bacteria present and Total Coliform and/or E. Coli are visible to the analyst, but it is difficult to determine exactly how much is present. Three (3) 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. All adverse results were reported as AWQIs as discussed in Section 3.6.

The samples analyzed for microbiological and bacteriological parameters during this reporting period are summarized in Table 3, 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 4, 5, and 6 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 are 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, 2020 to April 15th, 2021 and June 15th, 2021 to October 15th, 2021.

Pandemic related temporary Lead Sampling Regulatory Relief was requested and granted for the five (5) ICI samples for both sampling periods during 2021. Lead sampling from the five (5) ICI locations was not required, and samples were only collected from the ten (10) distribution locations.

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

The samples analyzed for lead during this reporting period are summarized in Table 7 and 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 8 and Table 9, respectively, and included in Appendix A for reference. UV monitoring documented during this reporting period is summarized in Table 10 and 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

Seven (7) AWQIs were reported during the 2021 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 11, 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 2 – 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	0.10	3.54	0.00	6.84	--	--
Well 7	**8760	0.37	1.84	0.00	10.00	--	--
Well 9	**8760	0.32	2.74	0.00	10.00	--	--
Well 11	**8760	0.62	1.64	0.00	2.76	--	--
Well 12	**8760	0.11	4.15	0.00	2.00	--	--
Well 13	**8760	0.51	2.74	0.00	8.27	--	--
Well 14	**8760	0.22	3.31	0.00	10.00	--	--
Well 15	**8760	0.00	3.05	0.00	7.60	--	--
Well 16	**8760	0.35	2.78	0.00	10.00	--	--
Well 17	**8760	0.07	4.40	0.00	8.43	--	--
Well 18	**8760	0.27	3.53	0.00	5.74	--	--
Surface Water Treatment Plant	**8760	0.00	5.00	0.00	354.15	0.01	7.62
Bayfield Tower	**8760	0.00	5.00	--	--	--	--
Ferndale Tower	**8760	0.00	3.88	--	--	--	--
Mapleview Tower	**8760	0.00	3.29	--	--	--	--
Anne Reservoir	**8760	0.02	3.01	--	--	--	--
Harvie Reservoir	**8760	0.46	2.66	--	--	--	--
Sunnidale Reservoir	**8760	0.00	2.80	--	--	--	--

Notes:

** 8760 - Represents continuous monitoring

-- - Analysis not required

NTU - Turbidity measured in Nephelometric Turbidity Units

mg/L - Free Chlorine measured in milligrams per litre

* Data used to populate this table contains numbers reflective of analyzer calibration and maintenance activities and are not an indication of improperly treated water

Table 3 – 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	0	0	0	--	--	<10	370	727
South Sampling Points	0	0	0	1	--	--	<10	130	680
Other (i.e., main breaks, maintenance)	0	0	0	0	0	6	--	--	31
								Sub-Total Distribution Samples	1438
Treated Water									
Well 5	0	0	0	1	0	0	10	40	55
Well 7	0	0	0	0	0	4	10	80	52
Well 9	0	0	0	0	0	1	10	30	50
Well 11	0	0	0	0	0	4	10	220	47
Well 12	0	0	0	0	0	0	10	50	52
Well 13	0	0	0	0	0	1	10	40	36
Well 14	0	0	0	0	0	1	10	150	52
Well 15	0	0	0	0	0	1	10	40	49
Well 16	0	0	0	0	0	2	10	50	52
Well 17	0	0	0	0	0	1	10	290	51
Well 18	0	0	0	0	0	4	10	120	52
Surface Water Treatment Plant	0	0	0	0	0	2	10	1290	53
								Sub-Total Treated Samples	601
Raw Water									
Well 5	0	0	0	0	0	1	--	--	52
Well 7	0	0	0	0	0	34	--	--	52
Well 9	0	0	0	0	0	60	--	--	50
Well 11	0	0	0	0	0	5	--	--	47
Well 12	0	0	0	0	0	3	--	--	52
Well 13	0	0	0	11	0	>200	--	--	35
Well 14	0	0	0	0	0	7	--	--	52
Well 15	0	0	0	2	0	>200	--	--	49
Well 16	0	0	0	0	0	76	--	--	52
Well 17	0	0	0	0	0	5	--	--	51
Well 18	0	0	0	0	0	1	--	--	52
Surface Water Treatment Plant	0	NDOGT	0	NDOGT	6	NDOGT	--	--	52
								Sub-Total Raw Samples	596

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 4 – 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		2021-04-12	2021-04-12	2021-04-12	2021-04-12	2021-04-12	2021-04-12	2021-04-12	2021-04-12	2021-04-12	2021-04-12	2021-04-12	2021-08-30
	MDL	Analytical Result											
Treated Water - Inorganic Parameters													
Antimony	0.0001	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
Arsenic	0.0001	0.0003	0.0003	<MDL	0.0001	0.0002	0.0002	0.0001	0.0004	0.0003	0.0003	0.0004	0.0004
Barium	0.001	0.179	0.27	0.104	0.235	0.401	0.267	0.108	0.281	0.105	0.294	0.255	0.026
Boron	0.005	0.021	0.013	0.010	0.016	0.025	0.018	0.014	0.012	0.013	0.015	0.017	0.019
Cadmium	0.000015	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
Chromium	0.002	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
Mercury	0.00002	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
Selenium	0.001	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
Uranium	0.00005	0.00039	0.00028	0.00099	0.00086	0.00036	0.00146	0.00090	0.00015	0.00100	0.00033	0.0002	0.00024
Treated Water - Organic Parameters													
Alachlor	0.0003	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
Atrazine+metabolites	0.0005	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
Azinphos-methyl	0.001	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
Benzene	0.0005	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
Benzo(a)pyrene	0.000006	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
Bromoxynil	0.0005	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
Carbaryl	0.003	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
Carbofuran	0.001	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
Carbon Tetrachloride	0.0002	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
Chlorpyrifos	0.0005	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
Diazinon	0.001	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
Dicamba	0.01	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
1,2-Dichlorobenzene	0.0005	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
1,4-Dichlorobenzene	0.0005	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
1,2-dichloroethane	0.0005	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
1-Dichloroethylene (vinylidene chloride)	0.0005	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
Dichloromethane	0.005	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
2,4-Dichlorophenol	0.0002	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
2,4-Dichlorophenoxy acetic acid (2,4-D)	0.0100	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
Diclofop-methyl	0.0009	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
Dimethoate	0.001	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
Diquat	0.005	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
Diuron	0.005	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
Glyphosate	0.025	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
Malathion	0.005	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
MCPA	0.01	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
Metolachlor	0.003	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
Metribuzin	0.003	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
Monochlorobenzene	0.005	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
Paraquat	0.001	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
Pentachlorophenol	0.0002	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
Phorate	0.0003	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
Picloram	0.015	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
Polychlorinated Biphenyls (PCB)	0.00005	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
Prometryne	0.0001	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
Simazine	0.0005	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
Terbufos	0.0005	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
Tetrachloroethylene (perchloroethylene)	0.005	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
2,3,4,6-Tetrachlorophenol	0.0002	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
Triallate	0.01	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
Trichloroethylene	0.005	<MDL	<MDL	<MDL	<MDL	<MDL	0.0014	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
2,4,6-Trichlorophenol	0.0002	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
Trifluralin	0.0005	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
Vinyl Chloride	0.002	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL

Notes:

mg/L - All units presented in milligrams per litre
MDL - Method Detection Limit for laboratory analysis
<MDL - Analytical Result did not exceed the laboratory Method Detection Limit (MDL)
SWTP - Surface Water Treatment Plant

Table 5 – Schedule 13 Chemical Sampling and Testing – Trihalomethanes & Haloacetic Acids

Parameter	Running Annual Average
	2021
Trihalomethanes	0.0466
Haloacetic Acids	0.0273

Notes:

mg/L - Reported in milligrams per litre

Table 6 – Schedule 13 Chemical Sampling and Testing – Sodium, Fluoride, Nitrite and Nitrate

Parameter	MDL	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	0.1	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	--	--
		2021-08-30	--	--	--	--	--	--	--	--	--	--	--	32.0
Fluoride	0.2	2019-09-16	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	--	--	<MDL	--
		2019-12-09	--	--	--	--	--	--	--	--	<MDL	--	--	--
		2020-03-02	--	--	--	--	--	--	--	--	--	<MDL	--	--
		2021-08-30	--	--	--	--	--	--	--	--	--	--	--	<MDL
Nitrite	0.1	2021-03-01	--	--	--	--	--	--	--	--	--	--	--	<MDL
		2021-03-08	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	
		2021-05-25	--	--	--	--	--	--	--	--	--	--	--	<MDL
		2021-06-07	<MDL	<MDL	<MDL	<MDL	<MDL	--	<MDL	<MDL	<MDL	<MDL	<MDL	--
		2021-07-22	--	--	--	--	--	<MDL	--	--	--	--	--	--
		2021-08-23	--	--	--	--	--	--	--	--	--	--	--	<MDL
		2021-09-07	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	--
		2021-10-04	--	--	--	--	--	--	--	--	--	--	--	<MDL
		2021-11-22	--	--	--	--	--	--	--	--	--	--	--	<MDL
		2021-12-06	<MDL	<MDL	<MDL	--	0.1	--	<MDL	<MDL	<MDL	<MDL	<MDL	--
		2021-12-15	--	--	--	--	--	<MDL	--	--	--	--	--	--
Nitrate	0.1	2021-01-14	--	<MDL	--	--	--	--	--	--	--	--	--	--
		2021-03-01	--	--	--	--	--	--	--	--	--	--	--	0.2
		2021-03-08	<MDL	<MDL	3.7	0.6	<MDL	1.7	<MDL	<MDL	1.2	<MDL	<MDL	--
		2021-05-25	--	--	--	--	--	--	--	--	--	--	--	0.1
		2021-06-07	<MDL	<MDL	3.0	0.6	<MDL	--	<MDL	<MDL	1.3	<MDL	<MDL	--
		2021-07-22	--	--	--	--	--	1.0	--	--	--	--	--	--
		2021-08-23	--	--	--	--	--	--	--	--	--	--	--	0.2
		2021-09-07	<MDL	<MDL	3.8	0.7	<MDL	1.8	0.2	<MDL	1.2	<MDL	<MDL	--
		2021-10-04	--	--	--	--	--	--	--	--	--	--	--	0.2
		2021-11-22	--	--	--	--	--	--	--	--	--	--	--	0.2
		2021-12-06	<MDL	<MDL	3.6	--	<MDL	--	0.1	<MDL	1.2	<MDL	<MDL	--
		2021-12-15	--	--	--	--	--	2.6	--	--	--	--	--	--

Notes:

-- - Analysis not required
MDL - Method Detection Limit for laboratory analysis
<MDL - Analytical Result did not exceed the laboratory Method Detection Limit (MDL)
mg/L - All units reported in milligrams per litre
SWTP - Surface Water Treatment Plant

Table 7 – Schedule 15.1 – Lead

Parameter	MDL	Sample Count	Range of Results	
			(min)	(max)
Lead (Plumbing)**	0.00002	0	--	--
Lead (Distribution System)		20	<MDL	0.00383

Notes:

mg/L - All units reported in milligrams per litre

MDL - Method Detection Limit for laboratory analysis

** - Regulatory Relief for lead plumbing samples was granted by the MECP during 2021

Table 8 – Municipal Drinking Water Licence – Raw Water Sampling and Testing – Volatile Organic Compound

Parameter	MDL	Analytical Results							
		(min)	(max)	(min)	(max)	(min)	(max)	(min)	(max)
Sample Location		Well 11		Well 12		Well 14		Well 15	
Benzene	0.0005	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
Carbon Tetrachloride	0.0002	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
1,2-Dichlorobenzene	0.0005	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
1,4-Dichlorobenzene	0.0005	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
1,2-Dichloroethane	0.0005	<MDL	<MDL	<MDL	0.00108	<MDL	<MDL	<MDL	<MDL
1,1-Dichloroethene	0.0005	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
Cis-1,2-Dichloroethene	0.0005	<MDL	0.00059	<MDL	0.00135	<MDL	0.00135	<MDL	0.00145
Dichloromethane	0.005	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
Monochlorobenzene	0.0005	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
Tetrachloroethylene	0.0005	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
Trichloroethylene	0.0005	<MDL	<MDL	<MDL	<MDL	<MDL	0.000810	<MDL	0.000820
Vinyl Chloride	0.0002	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL

Notes:
mg/L - All units reported in milligrams per litre
MDL - Method Detection Limit for laboratory analysis
<MDL - Analytical result did not exceed the laboratory Method Detection Limit (MDL)

Table 9 – Municipal Drinking Water Licence – Raw Water Sampling and Testing - Sodium

Sample Location	Sodium	
	(min)	(max)
*Well 3A	41.7	55.6
Well 9	44.7	65.0
Well 11	99.5	104.0
Well 12	141.0	170.0
Well 13	25.7	58.9
Well 14	50.9	65.1

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

Table 10 – Municipal Drinking Water Licence – Ultra Violet Monitoring

Parameter	Minimum	Well 5	
		(min)	(max)
UV Dosage *Monitored Continuously*	40	0	83.1
UVT *Monitored Weekly*	85	85	97.5

Notes:
(mJ/cm^2) - UV Dosage measured in millijoules per centimeter squared
% - UVT measured in percent
* Data used to populate this table contains numbers reflective of analyzer calibration and maintenance activities and are not an indication of improperly treated water

Table 11 – Schedule 16 and 17 – Summary of Adverse Water Quality Incidents (AWQIs)

AWQI #	Incident Date	Location	Parameter	Result	Unit of Measure	Summary	Corrective Action Date
153870	2021-04-12	Centennial WPS12 and WPS15	Sodium	25.9 & 157	mg/L	Sodium samples were collected for regulatory purposes. External lab results indicated that the results for sodium exceeded regulatory limits established by the Ministry of the Environment, Conservation and Parks (MECP). The incident was immediatedly reported to the SMDHU and the MECP. Resamples were collected from the adverse locations.	2021-04-14
153871	2021-04-12	Johnson WPS09 & WPS13, Heritage WPS11 & WPS14	Sodium	44.7, 69.1, 74.1 & 63.8	mg/L	Sodium samples were collected for regulatory purposes. External lab results indicated that the results for sodium exceeded regulatory limits established by the Ministry of the Environment, Conservation and Parks (MECP). The incident was immediatedly reported to the SMDHU and the MECP. Resamples were collected from the adverse locations.	2021-04-14
154023	2021-05-10	John WPS05	Total Coliform	1	Count/100 mL	A microbiological sample was collected from treated water 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. Chlorine dosage was increased, sample taps were cleaned and bacteriological samples were collected from the adverse location until 2 consecutive samples collected 24 hours apart were acceptable.	2021-05-13
155317	2021-09-01	High lift Discharge (SWTP)	Sodium	32	mg/L	Sodium samples were collected for regulatory purposes. External lab results indicated that the results for sodium exceeded regulatory limits established by the Ministry of the Environment, Conservation and Parks (MECP). The incident was immediatedly reported to the SMDHU and the MECP. No corrective actions were required.	2021-09-01
155710	2021-09-27	Innisfil BPS03	Total Coliform	1	Count/100 mL	A microbiological sample collected from 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. Chlorine dosage was increased, sample taps were cleaned and 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.	2021-10-01
155984	2021-10-14	Hydrant #4074 (Muirfield Drive)	Chlorine	0.01	mg/L	Low chlorine residual was detected during dead end maintenance flushing. The incident was immediatedly reported to the SMDHU and the MECP. The hydrant was flushed and the free chlorine residual continued to be tested until adequate results were achieved.	2021-10-14
156072	2021-10-19	Saunders Road Sample Station	Total Coliform	1	Count/100 mL	A microbiological sample collected from the distribution system during routine weekly sampling. External lab results indicated that the results for Total Coliform exceeded regulatory limits. The incident was immediatedly 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.	2021-10-22

Notes:

NA - Not applicable

Schedule C

2021 Municipal Summary Report, Schedule 22

Ontario Regulation 170/03

City of Barrie
Water Operations Branch

Drinking Water System
2021 Municipal Summary Report
Schedule 22. O.Reg. 170/03

For the Period of

JANUARY 1ST, 2020 TO DECEMBER 31ST, 2021

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: 2022-02-28

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 to December 31st, 2021, 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 2021 reporting period.

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

The MECP conducted one (1) focused inspection of the Municipal Drinking Water System (the System). The inspection was from September 2020 to September 2021. Following the System inspection, the MECP issued a report summarizing the findings, including regulatory non-compliances, best practice issues, and recommendations.

3.1.2.1 2021 Drinking Water System Inspection Findings

There were no non-compliances with regulatory requirements and no recommendations reported in the 2021 MECP Inspection Report (Report) issued on November 3rd, 2021.

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

3.1.2.2 Historical Drinking Water System Inspection Findings

The Branch summarized the regulatory non-compliances and MECP recommendations for best practices that were presented in the historical Drinking Water System Inspection Reports, along with actions taken

by the Branch in response to inspection findings on the MECP Drinking Water System Inspection Summary, which spans the 2017 to 2021 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 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 13,686 ML of water in the reporting period. The average monthly flow from all sources within the drinking water system was 1,141 ML, which ranged from 537 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 3.70 ML (Well 5) to 27.46 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, except for Well 3A, 4A and 19 which were not operated in 2021.

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
2021						
1		Not Applicable		Not Applicable		
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	Complete
2017						

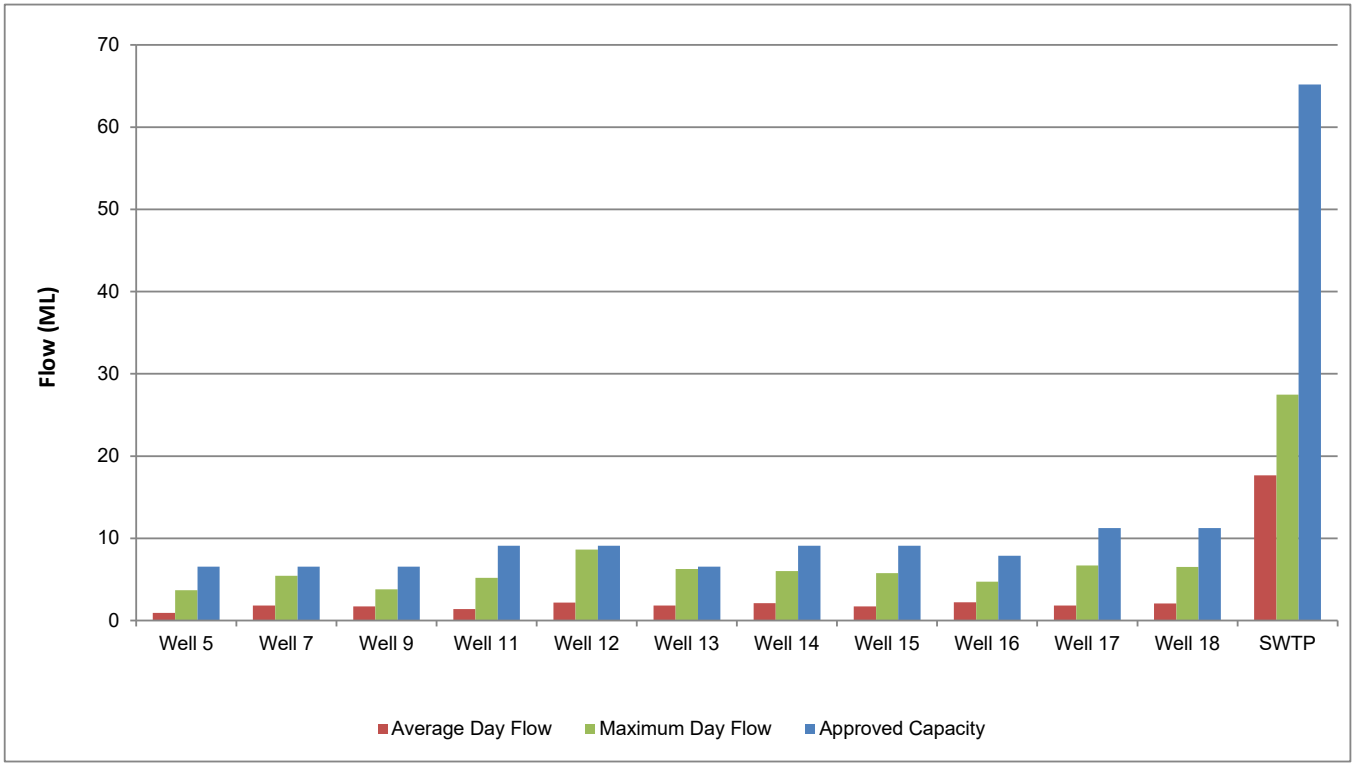
Item No	Applicable Requirement	MECP Non-Compliance With Regulatory Requirements	Actions Taken	MECP Recommendations and Best Practice Issues	Actions Taken	Status
1	Schedule E, Drinking Water Licence # 014-101, and Schedule A, Drinking Water Permit # 014-201	Primary disinfection chlorine monitoring was 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

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	3.70	0.92	27.88	334.59
Well 7	6.55	5.43	1.84	55.87	670.39
Well 9	6.55	3.81	1.71	52.15	625.81
Well 11	9.10	5.19	1.39	42.40	508.74
Well 12	9.10	8.64	2.19	66.75	800.95
Well 13	6.55	6.28	1.83	55.55	666.57
Well 14	9.10	6.01	2.12	64.45	773.40
Well 15	9.10	5.77	1.73	52.76	633.17
Well 16	7.86	4.71	2.20	66.97	803.66
Well 17	11.23	6.68	1.84	56.05	672.56
Well 18	11.23	6.50	2.07	63.06	756.75
SWTP	65.20	27.46	17.64	536.63	6,439.50
System	158.12	90.18	37.48	1,140.52	13,686.09



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

Meeting Minutes

Meeting Details

Date
2021-02-19
Start Time
10:30:00 AM
End Time
3:00:00 PM
Type
Management Review

Attendance

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

Meeting Minutes

Agenda Item	Action Item No	Description
01) 2020 Q2 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. - DSM reports that this has been completed, see 2020 Q4 Management Review presentation - The QMS Action Log was revised to reflect the following: OPC Responsible: DS Due Date: 2021-01-01 Technical Lead: Completion Date: 2021-02-19
	38	Clean up asset information in Computerized Maintenance Management System (CMMS) related to work on Asset Maintenance, Verification and Calibration. - AIP reports she has done whatever possible to verify assets and Work Orders - Reviewed Pending WOs that are still in progress to confirm what further action is required to resolve - Reviewed Wos cancelled in 2020 to confirm that necessary follow up was completed (ex., child WO created, assets removed, etc.) – forwarded list to Supervisor(s) for review/comments - Tested grouping Wos into categories as a way to assess that necessary maintenance, verification and calibration is being completed - This exercise represents approximately 40hrs of work - The QMS Action Log was revised to reflect the following: OPC Responsible: AIP Due Date: 2021-01-01 Technical Lead: Completion Date: 2021-02-19
	154	Review the work order cancellation process and form currently in place and establish efficiencies needed based on Water Customer Services (WCS) needs. - GG reports that this is intended to be addressed during the WCS Mobility project. - The QMS Action Log was revised to reflect the following: OPC Responsible: GG Due Date: 2021-07-01 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. - DS reports that this action item remains open - Reassign to DSM and move to 2021 Q2 - The QMS Action Log was revised to reflect the following: OPC Responsible: DSM Due Date: 2021-08-01 Technical Lead: BM 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. - DSM reports that this Action Item is incomplete and requests it is moved to 2021 Q3 - The QMS Action Log was revised to reflect the following: OPC Responsible: DSM Due Date: 2021-10-01 Technical Lead: Completion Date:
	219	Process Map the After hours call out process and the creation of a service request for a water quality complaint. - GG reports that the after hours service request process was reviewed in collaboration with the Business Performance team. A process map was a component of the project. - The QMS Action Log was revised to reflect the following: OPC Responsible: GG Due Date: 2021-01-01 Technical Lead: BM Completion Date: 2021-02-19

263	Review chlorine analyzer verification and calibration frequencies for Groundwater Supply (GWS). - DS reports Wos have been created and implemented in CMMS to meet the manufacturer requirements. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead: MV	Due Date: 2021-01-01 Completion Date: 2021-02-19
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. - AIP reports that she provided example OFIs and forwarded to DM 2020-08-28. Discussed with Top Management on 2020-09-15, outlining what would qualify as a preventative action, based on the current understanding, and provided some examples of items that Sections may consider documenting including: Installing the Auto-flushers, Valve exercising app, or Lead sampling in Winter season (did it this year for the first time ever) and Top Management agreed to report at least 1 OFI per Operational Section, per year as an initial KPI. - The QMS Action Log was revised to reflect the following:	OPC Responsible: AIP Technical Lead:	Due Date: 2021-01-01 Completion Date: 2021-02-19
295	Review options for reporting the Work Order summary to the Supervisors (e.g. reports, CMMS dashboard, etc.) - DM reports this Action Item is to be reassigned to DSM with a target date set for 2021 Q2 Management Review. Top Management would like to have the ability to review more "live" data. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DSM Technical Lead:	Due Date: 2021-07-01 Completion Date:
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 reports that this is complete. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DM Technical Lead:	Due Date: 2021-02-01 Completion Date: 2021-02-19
371	Update flushing start up turbidity target to 3 NTU including updates to all necessary reporting and documentation. - DS reports that this Action Item is still in progress. All Cityworks reporting and heat maps have been updated. Waiting for confirmation about whether we list the turbidity target on any work orders or SOP's. Would like to move to 2021 Q1 Management Review. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead: BM	Due Date: 2021-05-01 Completion Date:
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 reports that she has been working with Dan Williams and John Cochrane and this is complete. - The QMS Action Log was revised to reflect the following:	OPC Responsible: JD Technical Lead: BH	Due Date: 2021-02-01 Completion Date: 2021-02-19
379	Add inoperable valves (total for the year) to 2020 Q4 Management review Valve turning section - DS reports that this has been completed, see Q4 Management Review presentation - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead:	Due Date: 2021-01-01 Completion Date: 2021-02-19
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 - DS reports that GG is working on reports in eRIS. Once completed, we can run the reports and establish some limits to add to the lab data entry sheets. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead:	Due Date: 2021-05-01 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 - GG reports that the two general chemistry draft reports are complete (Internal lab and External Lab) and are currently being reviewed. Once approved, the reports will be scheduled to send an auto-generated email. - The QMS Action Log was revised to reflect the following:	OPC Responsible: GG Technical Lead:	Due Date: 2021-05-01 Completion Date:
383	Set limits for the General Chemistry parameters in eRIS		

	- DS reports that AI #20-381 needs to be completed prior to completing this action item.		
	- The QMS Action Log was revised to reflect the following:	OPC Responsible: DS	Due Date: 2021-05-01
		Technical Lead:	Completion Date:
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		
	- GG reports that a plan has been developed and aiming to roll out in mid-April.		
	- The QMS Action Log was revised to reflect the following:	OPC Responsible: GG	Due Date: 2021-02-01
		Technical Lead: MV	Completion Date: 2021-02-19
388	Conduct a meeting to discuss rotating sampling sites within the distribution system to accommodate things like seasonal usage		
	- JD reports that we should consider pushing this discussion out to a time when accessibility and the Pandemic are no longer an issue.		
	- The QMS Action Log was revised to reflect the following:	OPC Responsible: GG	Due Date: 2021-10-01
		Technical Lead:	Completion Date:
389	Follow up on outstanding @liveconx calls from Q2 Management Review to ensure they are entered into CMMS		
	- DS reports the following: 1 service request was found and entered, 1 call was from project where water was off longer than listed on notice (no service request created), 1 call is still outstanding (JG to see if can find paperwork). BM to create a SR for the 1 outstanding call.		
	- The QMS Action Log was revised to reflect the following:	OPC Responsible: DS	Due Date: 2021-05-01
		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		
	- DS reports that this has not been confirmed yet, move to 2021 Q1		
	- The QMS Action Log was revised to reflect the following:	OPC Responsible: DS	Due Date: 2021-05-01
		Technical Lead: BM	Completion Date:
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		
	- AIP reports the MOE Disinfection procedure was just reiterating that water not directed to users is non-reportable. No changes are required to P16-03.		
	- The QMS Action Log was revised to reflect the following:	OPC Responsible: AIP	Due Date: 2021-01-01
		Technical Lead:	Completion Date: 2021-02-19
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		
	- AIP reports WDS Work Orders and Inspection changes have been coordinated. Changes to CMMS are now complete. - Reviewed GWS Inspections and no changes are required.		
	- The QMS Action Log was revised to reflect the following:	OPC Responsible: AIP	Due Date: 2021-01-01
		Technical Lead:	Completion Date: 2021-02-19
394	Review work orders for new watermains to ensure they meet the requirements of Section 3.1 of the Watermain Disinfection Procedure		
	- AIP reports that a copy of her review notes was emailed to MV, JG and DM and was also filed on N Drive for future reference during an inspection.		
	- The QMS Action Log was revised to reflect the following:	OPC Responsible: AIP	Due Date: 2021-01-01
		Technical Lead:	Completion Date: 2021-02-19
448	Review eLogbook details for AWQI 151909 to see if operators mention how pressure was restored and add details to Q3 Management Review presentation		
	- DS reports that the presentation was updated with details.		
	- The QMS Action Log was revised to reflect the following:	OPC Responsible: DS	Due Date: 2021-01-01
		Technical Lead:	Completion Date: 2021-02-19
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)		
	- DSM reports that action was completed, see 2020 Q4 Management Review presentation.		
	- The QMS Action Log was revised to reflect the following:	OPC Responsible: DS	Due Date: 2021-02-01
		Technical Lead:	Completion Date: 2021-02-19

Meeting Details | Meeting Date: 2021-02-19 | Meeting Type: Management Review

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 - DS reports that an email was sent to BM, no response received yet. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead: BM	Due Date: 2021-05-01 Completion Date:
451	Update Summary of Operational Performance (F20-07) in relation to call outs and change "Total Call outs" to read number of events - DS reports that she has updated F20-07 and the presentation. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead:	Due Date: 2021-02-01 Completion Date: 2021-02-19
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 - DS reports that this has been completed, see 2020 Q4 Management Review presentation. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead:	Due Date: 2021-02-01 Completion Date: 2021-02-19
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 - DS reports that this has been completed, see 2020 Q4 Management Review presentation. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead:	Due Date: 2021-02-01 Completion Date: 2021-02-19
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 - DS reports that the watermain break graphs have been removed from the presentation. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead:	Due Date: 2021-02-01 Completion Date: 2021-02-19
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 - JD reports that this has been completed, see 2020 Q4 Management Review presentation. - The QMS Action Log was revised to reflect the following:	OPC Responsible: JD Technical Lead:	Due Date: 2021-02-01 Completion Date: 2021-02-19
456	Follow up on outstanding calls from @LiveConx and Nova Networks that were not documented in City Works from Q3 Management Review - DS reports that a second email was sent to BM and JG to see if any follow up has been completed. JG and BM report that some of the outstanding ones were from a large main break and it has been decided that they will not be created retroactively. However, some others are still outstanding and will need to be completed. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead:	Due Date: 2021-05-01 Completion Date:
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 - DS reports that a meeting is scheduled for 2021-03-08. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead:	Due Date: 2021-02-01 Completion Date: 2021-02-19
458	Review the following QMS Elements (2, 4, 11, 12, 13, 17, 19 & 21) - DS reports that this has been completed, see 2020 Q4 Management Review presentation. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead:	Due Date: 2021-01-01 Completion Date: 2021-02-19
459	Schedule Root Cause Analysis training for Manager, Supervisors and Lead Hands - JD reports that this is scheduled for 2021-03-29 and 2021-04-07 - The QMS Action Log was revised to reflect the following:	OPC Responsible: JD	Due Date: 2021-02-01

			Technical Lead:	Completion Date: 2021-02-19
02) Incidents of Adverse Drinking Water Tests		There were no AWQI's to report for Q4. Summary for the year 2020: In March 2020 there was one AWQI. In June 2020, two AWQI's were reported. In July 2020 two AWQI's were reported. In August 2020, two AWQI's were reported. In September 2020, one AWQI was reported. The following Action Item(s) were created:		
	507	Consider correlating our AWQIs for the year with our CIPs to show what our actions and outcomes are for each event. Ensure that in each quarterly presentation, any new AWQI's have an assigned CIP number associated with the event to confirm that all events go through the CIP process in a timely manner.		
		- The QMS Action Log was revised to reflect the following:	OPC Responsible: DSM Technical Lead:	Due Date: 2021-05-01 Completion Date:
03) Deviations from SCADA Critical Control Limits		- There were no deviations to report for SWS in Q4. - For GWS, there were two deviations in Q4 - Heritage Well 11, and Ferndale Tower.		
04) Deviations from Critical Control Limits - Flushing Activities		Flushing Activities (>100 m3): - JD asked if there is value in using this data for our water loss data? - Can we correlate the >100m3 to percentage water loss? Group determined this is most likely negligible as our unaccounted water loss percentage is very low already. - DSM to look at these metrics in Q4 2021 presentation to see if there is a reduction in the deviation percentage water loss from flushing activities. Flushing Activities (>3 NTU at start up): - MV suggested looking at the impact of swabbing activities on start-up turbidity values during flushing activities to determine if turbidity is higher or lower on start up after swabbing has been completed in that area. This can be reviewed to see if any correlations from these activities exist - DSM to conduct preliminary investigation and see if this is worth investigating further. Flushing Activities (<0.2 Cl (F) at start up): -Discussion for the low chlorine (<0.2 Cl at start up) sites, we can use this data when determining where to deploy flush boxes for the next year. Flushing Activity Summary: -New graph presented with summary data. Decision to continue using this graph, but only present annually at Q4. Include anything >100m3 in the graph. -Discussion on new graph to display Zone flushing Activity Summary and would like to include what was planned, what was completed, and amount of deviations. DSM to discuss further with BM on how we would like to present this information going forward. Would like to see the performance of these flushing programs. -Question from JD: What is our benchmark for percent deviation? Should we set up a benchmark so we can review our performance? The following Action Item(s) were created:		
	508	Analyze if there is a reduction in water used for flushing after we changed the NTU limit from >2 to >3, and compare with water loss from previous years.		
		- The QMS Action Log was revised to reflect the following:	OPC Responsible: DSM Technical Lead:	Due Date: 2022-01-01 Completion Date:
	509	Conduct spatial analysis of flushing deviations before and after swabbing to see if swabbing has an impact on turbidity at start up.		
		- The QMS Action Log was revised to reflect the following:	OPC Responsible: DSM Technical Lead:	Due Date: 2021-05-01 Completion Date:
	510	On the low chlorine slides in the Management Review presentation, overlay the locations where the flushboxes are, and how it compares with the low chlorine areas.		
		- The QMS Action Log was revised to reflect the following:	OPC Responsible: GG Technical Lead:	Due Date: 2021-05-01 Completion Date:

	511	For Q4 Management Review presentations going forward, continue using the new graph “Flushing Activity Summary” presented for Q4 2020. Include anything >100m3 in the new graph for the Q4 2021 presentation. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DSM Technical Lead:	Due Date: 2022-01-01 Completion Date:
	512	Establish a benchmark for percentage deviation for the flushing activities. Consider reaching out to Peel Region to inquire about their flushing program. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DSM Technical Lead:	Due Date: 2021-07-01 Completion Date:
	513	In the Flushing Activity Summary chart for Management Review, include what was planned, what was completed, and number of deviations. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DSM Technical Lead:	Due Date: 2022-01-01 Completion Date:
	514	In the new graphs to display Flushing Activity Summary, label the x-axis for the total flushing activities on. Also, include the total number beside each bar. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DSM Technical Lead:	Due Date: 2021-05-01 Completion Date:
05) Operational Performance - System Wide Production		Production was consistent with previous years.		
06) Operational Performance - SWS vs. GWS Production		- Over the past 5 years, there has been a downward trend for GWS and upward trend for SWS. - When observed over the past 2 years, there is a steady/flat trend for GWS, and upward trend for SWS. - Discussion of new graph for SWS and GWS production: Graph shows when GWS produces more than SWS and vice versa. There were 3 months in the past 5 years where SWS production has surpassed GWS. Discussion that it could be beneficial to add significant events on the timeline which could impact the production. Comment from Bala that this new graph may be useful for making some long-term decisions. Decision to keep the new graph and use it to replace the previous SWS vs GWS Production graphs in Management Review presentation. ICI vs RES production graphs - Consumption for ICI and RES shows impact from COVID lockdown. DSM to investigate alternative ways to display these graphs. The following Action Item(s) were created:		
	515	Consider alternative ways to compare the ICI and RES consumption for GWS and SWS as the current graph is difficult to read. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DSM Technical Lead:	Due Date: 2021-05-01 Completion Date:
	516	Replace the previous SWS vs GWS Production graphs in Management Review presentation with the new graph and present quarterly. Remove the monthly graph and the year-over-year comparison for the next Management Review. Consider adding significant events on the timeline which could impact the water usage from each source. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DSM Technical Lead:	Due Date: 2021-05-01 Completion Date:
07) Operational Performance - Water Loss Summary		New graph presented to display our water loss percentage. For 2020 our loss was 3.94% which is a decrease from previous years. Comment from BM that there was a large number of ICI meter replacements in 2018 - 2019 which may have contributed to a higher water loss. DSM and GG to discuss water loss in a separate meeting. The following Action Item(s) were created:		
	517	Add 2020 GWS maintenance volume data to water loss spreadsheet once received from MV. - The QMS Action Log was revised to reflect the following:	OPC Responsible: GG Technical Lead:	Due Date: 2021-05-01 Completion Date:
08) Operational Performance - Average Monthly Efficiency of the SWTP		- The linear (calculated efficiency) illustrates an increasing trend in SWTP efficiency.		

09) Operational Performance - Work Order Summary		- There were 8 outstanding WO's for GWS, and 16 outstanding for SWS in 2020. - WDS has 274 outstanding WO's, these are not connected to any projects in CMMS as those work orders have been omitted. There were some that need to be cancelled for watermain breaks that were created as duplicates or in error. Many of the cancelled WDS Maintenance Activities were likely created either in error, incorrect template, attached to wrong asset, etc. Comment from DM that we should consider a better way to display this data. - WCS, there were 3292 outstanding WO's in 2020, many of which were for flushing that didn't get completed. Due to COVID-19 there are a lot of "No Response Process" (NRP) WO's pending. There are two Emergency WO's outstanding that DSM and BM will investigate. - Going forward, the "Miscellaneous" category will be removed from all sections. - Comment from DM: Would like to see the progress of preventative/planned work throughout the year to see what work was planned vs. what work we completed. - Comment from DM: In the Work Order Summary pie graph would like to break out the green "Corrective" slice to see what types of activities are included in here in more detail. The following Action Item(s) were created:		
	518	Look into which WO activities are corrective and add more of a breakdown for the "Corrective" slice in the Work Order Summary pie chart for Management Review so it is clearer what WO types are included in the corrective category. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead:	Due Date: 2022-01-01 Completion Date:
	519	There are two Emergency WO's outstanding for WCS from Q4 2020 Management Review. Investigate what these two WO's are and why they are still outstanding. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DSM Technical Lead: BM	Due Date: 2021-05-01 Completion Date:
	520	Update the F20-07 Summary of Operational Performance form to remove the "Miscellaneous" category from all Sections as it will no longer be used. - The QMS Action Log was revised to reflect the following:	OPC Responsible: JD Technical Lead:	Due Date: 2021-05-01 Completion Date:
10) Operational Performance - Summary of Call Outs		Items discussed on slide for GWS: - WPS 9 had an increase in call outs each quarter in 2020 Items discussed on slide for SWS: -Increase in call outs for LLPS and Pre-treatment for each quarter in 2020. Discussed how the Total Events differs from the Total Callouts. Total events is the number of times the label “call out” is used in the eLogbook regardless of how many stations or process areas are also added as labels to the event. The total callouts is the sum for how many times the label “call out” was attached to each specific station or process area and is not really representative of the number of events that occurred. Yearly Comparison: In GWS, there has been a decrease in total callouts. In SWS, there has been a slight increase in total callouts. The following Action Item(s) were created:		
	521	Investigate possible causes for an increase in call outs at WPS 9 during 2020. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DSM Technical Lead: MV	Due Date: 2021-05-01 Completion Date:
	522	Investigate possible causes for an increase in call outs at both the LLPS and Pre-treatment area during 2020. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DSM Technical Lead: JA	Due Date: 2021-05-01 Completion Date:

11) Operational Performance - Backflow Prevention		The Backflow Prevention Programs encountered some hurdles due to COVID-19. In April, requests for cross connection surveys and backflow preventer installations were halted. Properties classified as moderate hazards were provided with rolling extensions on their annual testing requirement and high hazard properties were provided with a 30-day extension upon request. In August, rolling extensions for moderate hazards ended, and requests for surveys and device installation resumed. Property owners and qualified contractors quickly addressed the four-month backlog. Despite the challenges, we were able to still maintain high level of compliance. New graph presented to display the annual testing/maintenance requirements.		
12) Operational Performance - Locates		WCS received fewer number of locate requests from previous years. It was noted that when comparing monthly vs. annual, there is often an inconsistency in the number due to complications with how the data is pulled from the system. The annual number will contain less duplication and will be more accurate to present in the Q4 Management Review presentation rather than the monthly numbers. Going forward, Top Management would like to see the yearly report total, but not the year-over-year comparison. Decisiion that Top Management does not need to see the monthly numbers in comparison to the annual number when presented in Q4 Management Review and will review the annual number only. The following Action Item(s) were created:		
	523	For the Operational Performance - Locates slides in the Management Review presentation (slide 43 in Q4), remove the monthly year-over-year comparison (light orange bars from Q4 presentation) from the graph. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DSM Technical Lead:	Due Date: 2022-01-01 Completion Date:
13) Operational Performance - Watermain Breaks		Note from August - December, Zone 2N was a closed zone, however in the presentation it only says August - September. Overall in 2020, it was a record low number for total watermain breaks. The following Action Item(s) were created:		
	524	Update slide for Operational Performance - Watermain Breaks from the Q4 2020 Management Review presentation to say that Zone 2N was closed from August - December instead of August - September. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DSM Technical Lead:	Due Date: 2021-05-01 Completion Date:
14) Operational Performance - Valve Exercising		Overview of the valve turning program: this was the first complete year for the program, and first year for operators with access to iPads. Currently staff must record on paper and in app, however this will be addressed in the future when fully mobile. Goals from 2020: 1) Complete non-critical valve turning in one whole quadrant of the City. 2) Complete all critical valves within the City. Accomplishments: In 2020, 35% of critical valves within the City were turned. For Non-critical valves 111% of the set target (total number of valves to turn in the year) were actually turned but not all within the quadrant that was to be the target for that year. Missed opportunities: Fell short of completing one whole quadrant (S.W. quadrant) as set out at start of 2020. Did not complete all critical valves within the City. New goals for 2021: 1.Would like to continue with the goal of turning 100% of critical valves within the City in one year 2.Turn 50% of non-critical valves in NW quadrant by December 31, 2021 3.Address and turn 100% of the valves listed in the "Complications" section by Dec 31, 2021 Discussion on what is considered acceptable for inoperable valves within a year. Would like to add this to future Management Review presentation. The following Action Item(s) were created:		
	525	Conduct research on whether the health of a distribution system can be measured by establishing a percentage of "Inoperable" valves and determine our COB benchmark. acceptable. - The QMS Action Log was revised to reflect the following:	OPC Responsible: JD Technical Lead: JG	Due Date: 2021-05-01 Completion Date:
15) Operational Performance - CTS		New graph of progress of action items. We have closed 72% of action items in 2020. Action Item 17-104 - target date set for Oct 2021 Action Item 18-106 - generator upgrade action item pushed to Dec 1, 2021 due to COVID-19. This action item was duplicated. Would potentially like to only include Action Items that come from a CIP or display them separately from all other Action Items.		

		New graph for CIP Summary. Group went through outstanding Action Items for CIPs that are older than 1 year with outstanding action items. CIP 57: Reassign this CIP from DS to DSM. CIP 64: AI 19-122 may have become irrelevant. DM to investigate where this is currently at. AI 19-129 is on hold with Engineering. CIP 70 - 19-235 - GG to provide to DM what we are requesting of Engineering 19-237 BM to reach out and see if there is a pond maintenance schedule for 2021. CIP 126: MV to try to reach out to the Ministry again. If no response, GG will email and ask for assistance. The following Action Item(s) were created:
	526	Include a new, additional graph to be included in Management Review presentation for CTS Operational Performance that is specific to Action Items that come from CIPs. - The QMS Action Log was revised to reflect the following: OPC Responsible: DSM Due Date: 2021-05-01 Technical Lead: Completion Date:
16) Raw Water Supply and Drinking Water Quality Trends - Sodium		Some locations showing lower sodium levels in 2020.
17) Raw Water Supply and Drinking Water Quality Trends - THMs and HAAs		The Trihalomethane (THM) average is slightly higher - steadily increase but still below the standard. For Haloacetic Acid (HAA), the average is increasing, but still well below the standard. There was a spike detected in the Q4 sample results, which led to a discussion regarding incorrect sample tap usage and receiving adverse results. The following Action Item(s) were created:
	527	Ensure that all Sample Stations (including THM sampling) are labelled correctly to indicate which tap is used for sampling. - The QMS Action Log was revised to reflect the following: OPC Responsible: GG Due Date: 2021-05-01 Technical Lead: Completion Date:
18) Raw Water Supply and Drinking Water Quality Trends - Lead		No sampling required during the quarter.
19) Raw Water Supply and Drinking Water Quality - Sampling Review		There was discussion about changing the frequency of in-house general chemistry sampling from 3 months to 9 months. DM would like this to be investigated further as these timelines were already established and would require further discussion before making a change in the frequency. The following Action Item(s) were created:
	528	Determine if the in-house General Chemistry frequency and timing will be changing. Follow up required with Natalia Contreras, JA and MV. - The QMS Action Log was revised to reflect the following: OPC Responsible: GG Due Date: 2021-05-01 Technical Lead: Completion Date:
20) Raw Water Supply and Drinking Water Quality - Health Canada Guideline Updates		No comments received from the group.
21) Summary of Consumer Feedback		For Q4, 19 calls received, 15 registered in CMMS. 2 calls did not have a name or address. DS to investigate the remaining outstanding calls from previous quarters (action items already created from previous meetings). DSM to follow up with Mike Foster to ensure the Q4 calls are logged in CMMS. The following Action Item(s) were created:
	529	Follow up on the outstanding consumer feedback calls from Q4 2020 that were not registered in CMMS.

		- The QMS Action Log was revised to reflect the following:	OPC Responsible: DSM Technical Lead:	Due Date: 2021-05-01 Completion Date:
22) Asset Calibration, Verification, and Maintenance		New graph presented to display summary. - In the "Unverified" category 135 cancelled WO's related to turbidimeters. Waiting for Natalia Contreras to return to discuss why they were cancelled. - DSM proposed we look at this by asset going forward. Currently working with GIS to allow us to search by asset type. - Would like to better identify which calibration / verification maintenance is required for compliance vs. conformance. Need to clearly indicate which is regulatory vs. not regulatory. - Needs some further discussion with AIP, DM and BMT, unclear why a list of regulatory verification is not established already. - Discussion regarding C.O. monitors and some work orders being cancelled as that activity is not completed during certain months (May-August). It is possible to set up the cycle in CMMS such that a work order will not be produced from May to August. The following Action Item(s) were created:		
	530	Adjust the WO cycle of the C.O. monitor calibration for WCS to not generate the WO's for the months of May - August.		
		- The QMS Action Log was revised to reflect the following:	OPC Responsible: DSM Technical Lead: SC	Due Date: 2021-05-01 Completion Date:
23) ORO Qualified List of Staff		One update is required for WD Subsystem - add Jeremy VanLeusen. No updates for the other sections are required. The following Action Item(s) were created:		
	531	Add Jeremy VanLeusen to the WD Subsystem section of the ORO List of Qualified Staff.		
		- The QMS Action Log was revised to reflect the following:	OPC Responsible: JD Technical Lead: JG	Due Date: 2021-05-01 Completion Date:
24) 2020 Risk Assessment Summary		New column was added for the Risk Assessment - justification column which contains details on past events that have occurred. This column will be hidden from final version of Table. Two new hazardous events have been added to the Risk Assessment Outcomes Table (T08-01) - Staffing, and Pandemic/Epidemic Outbreak.		
25) Changes Affecting QMS		No further discussion.		
26) Operation Plan, Currency, and Updates		All Elements reviewed.		
27) Resources Needed to Maintain QMS		No further discussion		
28) Results of Infrastructure Review		Completed 2020 Work: Vertical capital works 2020 - Bayfield Tower (liner replacement and painters rail). A separate meeting was held with Top Management on 2021-02-22 to discuss upcoming projects for 2021, which will be further discussed as a group in Q1 2021. Items discussed included: •In collaboration with Finance, WOB is currently leading the update to the Financial Plan with Watson's and Associates. Plan to be completed and presented to Council on May 17th, 2021 •Water is participating on the updates to the Water Asset Management Plan (AMP) lead by Corporate Asset Management (CAM) which to date has included groundwater stations, tower, and reservoir condition assessments, identifying data gaps and opportunities for improvement. We are awaiting finalization of the AMP which will include recommendations for WOB •The AMP is a log-term plan, where as, annual plans with respect to watermain replacement prioritization and is completed in collaboration between CAM and WDS. 2021 - Blake Street, Queen Street and section of Grove Street (Duckworth to Nelson) •WOB is working with Engineering o chamber replacements (Lockhart chamber to be replaced in 2022, followed by Welham and Saunders and Chieftain) •Pit Setters – 5 pits in 2021 (pit installation and blind service cutoffs) •2021 – Mapleview Tower liner replacement •GWS continue to work with Engineering on preliminary stages of Anne Street Booster Project •GWS Big Bay Point Station renewal – design stage •SWS to work with Engineering on design stage of Control System Upgrades •2021 – Engineering projects that includes watermain replacements as part of reconstruction projects. DM has worked with our PA to determine which projects affect water, however, the system was unable to determine that. WOB Manager will meet with Manager of Vertical Infrastructure to review upcoming 2021 Projects. WOB Manager to schedule meetings with both Manager of Liner Infrastructure and Manager of Developer and Special Projects to determine short and long-term projects that may impact WOB. •2021 Maintenance and Renewals Projects – Meter Replacement Program		

	•2021 Design Stage of Bulk Water Station – Site Selection •Updates or changes made to capital projects that may impact WOB will be reviewed in the Capital Status Update Report completed twice a year (next report June 2021). WOB Manager to review and bring back to QMS Management. •Small watermain renewals – may be completed in 2021 (~10 remaining) •Frozen services – lowering services to continue in 2021
29) New Business	Looking to complete review of all SOPs in 2021. DSM to send out list of SOPs for each section to 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
2021-05-06
Start Time
10:30:00 AM
End Time
2:30:00 PM
Type
Management Review

Attendance

Attendee Role	Initials	Name
Recorder	GG	Gilbank, Gwen
Facilitator	DSM	Marcoux, Danielle
Attendee	JD	Dumais, Jeanette
Attendee	AIP	Inglis-Petahtegoose, Amanda
Attendee	DS	Smith, Diana
Attendee	DM	Moreau, Diane
Attendee	LH	Hywarren, Lenita
Attendee	BM	Miller, Brenden
Attendee	JA	Adams, Jamey
Attendee	JG	Giffen, Jason
Attendee	MV	Vandergeest, Mark

Meeting Minutes

Agenda Item	Action Item No	Description
01) 2020 Q4 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. - Managed to gain access to our account again and register the two outstanding staff members from the internal audit - The QMS Action Log was revised to reflect the following: OPC Responsible: GG Due Date: 2021-03-01 Technical Lead: MV Completion Date: 2021-05-06
	371	Update flushing start up turbidity target to 3 NTU including updates to all necessary reporting and documentation. - DS reports that this Action Item is complete - All document have been updated - The QMS Action Log was revised to reflect the following: OPC Responsible: DS Due Date: 2021-05-01 Technical Lead: BM Completion Date: 2021-05-06
	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 - DS reports that the External Lab Data Report is complete, however the Internal Lab Data Report proposed limits are waiting for review and approval from MV - The QMS Action Log was revised to reflect the following: OPC Responsible: DS Due Date: 2021-08-01 Technical Lead: 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 - GG reports that this Action Item is complete - the General Chemistry report has been created, and set up to generate bi-annually and email to MV and Shane Steele - The QMS Action Log was revised to reflect the following: OPC Responsible: GG Due Date: 2021-05-01 Technical Lead: Completion Date: 2021-05-06
	383	Set limits for the General Chemistry parameters in eRIS - DS reports that approval of proposed limits for the Internal General Chemistry report is still in progress - The QMS Action Log was revised to reflect the following: OPC Responsible: DS Due Date: 2021-08-01 Technical Lead: Completion Date:
	389	Follow up on outstanding @liveconx calls from Q2 Management Review to ensure they are entered into CMMS

	- DS reports that this Action Item is complete - A service request for the outstanding calls was generated - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead:	Due Date: 2021-05-01 Completion Date: 2021-05-06
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 - DS reports that this Action Item is complete - Address was updated to 47 Strabane - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead: BM	Due Date: 2021-05-01 Completion Date: 2021-05-06
392	Schedule training for water operators on the new Watermain Disinfection Procedure - JD reports that this Action Item is complete - The training has been scheduled for all required staff and with one year to complete the online module - The QMS Action Log was revised to reflect the following:	OPC Responsible: JD Technical Lead:	Due Date: 2021-02-01 Completion Date: 2021-05-06
401	Consider options of dashboard gauges with % completed for each section for the SOP review - DS reports that this Action Item is complete - DSM has created a gauge that has been added to the Q1 Management Review presentation - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead:	Due Date: 2021-04-01 Completion Date: 2021-05-06
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 - DS reports that this Action Item is complete - The flushbox was relocated in 2020, but will be moved back to previous location for 2021 - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead: BM	Due Date: 2021-05-01 Completion Date: 2021-05-06
456	Follow up on outstanding calls from @LiveConx and Nova Networks that were not documented in City Works from Q3 Management Review - DS reports that this Action Item is complete - All outstanding work orders were created as required - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead:	Due Date: 2021-05-01 Completion Date: 2021-05-06
507	Consider correlating our AWQIs for the year with our CIPs to show what our actions and outcomes are for each event. Ensure that in each quarterly presentation, any new AWQI's have an assigned CIP number associated with the event to confirm that all events go through the CIP process in a timely manner. - DSM reports that this Action Item is complete and has been added to the Q1 Management Review presentation. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DSM Technical Lead:	Due Date: 2021-05-01 Completion Date: 2021-05-06
509	Conduct spatial analysis of flushing deviations before and after swabbing to see if swabbing has an impact on turbidity at start up. - DSM reports that this Action Item is complete - Findings from the spatial analysis were presented in the Q1 Management Review presentation - The QMS Action Log was revised to reflect the following:	OPC Responsible: DSM Technical Lead:	Due Date: 2021-05-01 Completion Date: 2021-05-06
510	On the low chlorine slides in the Management Review presentation, overlay the locations where the flushboxes are, and how it compares with the low chlorine areas. - GG reports that this Action Item is complete		

	- Data was added to the Q1 Management Review presentation - The QMS Action Log was revised to reflect the following:	OPC Responsible: GG Technical Lead:	Due Date: 2021-05-01 Completion Date: 2021-05-06
514	In the new graphs to display Flushing Activity Summary, label the x-axis for the total flushing activities on. Also, include the total number beside each bar. - DS reports that this Action Item is complete - Revised graphs will be included in the Q4 Management Review presentation - The QMS Action Log was revised to reflect the following:	OPC Responsible: DSM Technical Lead:	Due Date: 2021-05-01 Completion Date: 2021-05-06
515	Consider alternative ways to compare the ICI and RES consumption for GWS and SWS as the current graph is difficult to read. - DSM reports that this Action Item is complete - New graph presented in Q1 Management Review presentation - The QMS Action Log was revised to reflect the following:	OPC Responsible: DSM Technical Lead:	Due Date: 2021-05-01 Completion Date: 2021-05-06
516	Replace the previous SWS vs GWS Production graphs in Management Review presentation with the new graph and present quarterly. Remove the monthly graph and the year-over-year comparison for the next Management Review. Consider adding significant events on the timeline which could impact the water usage from each source. - DSM reports that this Action Item is complete - Old graph was removed and new graph included quarterly - The QMS Action Log was revised to reflect the following:	OPC Responsible: DSM Technical Lead:	Due Date: 2021-05-01 Completion Date: 2021-05-06
517	Add 2020 GWS maintenance volume data to water loss spreadsheet once received from MV. - GG reports that this Action Item is complete - Data was added to the 2020 water loss spreadsheet - The QMS Action Log was revised to reflect the following:	OPC Responsible: GG Technical Lead:	Due Date: 2021-05-01 Completion Date: 2021-05-06
519	There are two Emergency WO's outstanding for WCS from Q4 2020 Management Review. Investigate what these two WO's are and why they are still outstanding. - DSM reports that this Action Item is complete - Both Work Orders are now closed - The QMS Action Log was revised to reflect the following:	OPC Responsible: DSM Technical Lead: BM	Due Date: 2021-05-01 Completion Date: 2021-05-06
520	Update the F20-07 Summary of Operational Performance form to remove the "Miscellaneous" category from all Sections as it will no longer be used. - JD reports that this Action Item is complete - Form was updated and approved through Document Change process - The QMS Action Log was revised to reflect the following:	OPC Responsible: JD Technical Lead:	Due Date: 2021-05-01 Completion Date: 2021-05-06
521	Investigate possible causes for an increase in call outs at WPS 9 during 2020. - DSM reports that this Action Item is complete - It was determined that a number of power outages in that area of the City may have contributed to the number of call-outs for that station - The QMS Action Log was revised to reflect the following:	OPC Responsible: DSM Technical Lead: MV	Due Date: 2021-05-01 Completion Date: 2021-05-06
522	Investigate possible causes for an increase in call outs at both the LLPS and Pre-treatment area during 2020. - DSM reports that this Action Item is complete		

	- This can be attributed to a combination of overused labels, inclement weather causing power bumps and an ongoing minor issue of low floc tanks during plant shutdowns - The QMS Action Log was revised to reflect the following:	OPC Responsible: DSM Technical Lead: JA	Due Date: 2021-05-01 Completion Date: 2021-05-06
524	Update slide for Operational Performance - Watermain Breaks from the Q4 2020 Management Review presentation to say that Zone 2N was closed from August - December instead of August - September. - DSM reports that this Action Item is complete - Slide was updated in 2020 Q4 presentation - The QMS Action Log was revised to reflect the following:	OPC Responsible: DSM Technical Lead:	Due Date: 2021-05-01 Completion Date: 2021-05-06
525	Conduct research on whether the health of a distribution system can be measured by establishing a percentage of "Inoperable" valves and determine our COB benchmark. acceptable. - JD reports that she met with JG and Jeremy VanLeusen, and determined that a baseline will need to be established first - Water Distribution Services (WDS) will focus on the KPIs established in 2020 - JD reports that a pre-established baseline from peer-reviewed studies/journals, and AWWA manuals was not found - The QMS Action Log was revised to reflect the following:	OPC Responsible: JD Technical Lead: JG	Due Date: 2021-05-01 Completion Date:
526	Include a new, additional graph to be included in Management Review presentation for CTS Operational Performance that is specific to Action Items that come from CIPs. - DSM reports that this will be presented in the Q4 Management Review presentation. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DSM Technical Lead:	Due Date: 2022-01-01 Completion Date:
527	Ensure that all Sample Stations (including THM sampling) are labelled correctly to indicate which tap is used for sampling. - GG reports that this will be addressed after the pandemic situation has improved - The QMS Action Log was revised to reflect the following:	OPC Responsible: GG Technical Lead:	Due Date: 2022-04-01 Completion Date:
528	Determine if the in-house General Chemistry frequency and timing will be changing. Follow up required with Natalia Contreras, JA and MV. - GG reports that this Action Item is complete - The sampling frequency will not be changing at this time - The QMS Action Log was revised to reflect the following:	OPC Responsible: GG Technical Lead:	Due Date: 2021-05-01 Completion Date: 2021-05-06
529	Follow up on the outstanding consumer feedback calls from Q4 2020 that were not registered in CMMS. - DSM reports that there is one outstanding call left to resolve and she will reach out to JG for more information - The QMS Action Log was revised to reflect the following:	OPC Responsible: DSM Technical Lead:	Due Date: 2021-08-01 Completion Date:
530	Adjust the WO cycle of the C.O. monitor calibration for WCS to not generate the WO's for the months of May - August. - DSM reports that this Action Item remains open and will be completed as part of Water Customer Service (WCS) Mobility Project roll out - The QMS Action Log was revised to reflect the following:	OPC Responsible: DSM Technical Lead: SC	Due Date: 2021-08-01 Completion Date:
531	Add Jeremy VanLeusen to the WD Subsystem section of the ORO List of Qualified Staff. - JD reports that this Action Item is complete - Jeremy has been added to the ORO List - The QMS Action Log was revised to reflect the following:	OPC Responsible: JD	Due Date: 2021-05-01

		Technical Lead: JG	Completion Date: 2021-05-06
02) Incidents of Adverse Drinking Water Tests		- There were zero AWQIs to report in Q1 of 2021	
03) Deviations from SCADA Critical Control Limits		- There were no deviations to report for Surface Water Supply (SWS) or Ground Water Supply (GWS) in 2021 Q1	
04) Deviations from Critical Control Limits - Flushing Activities (>100m3)		- There were 31 Work Orders out of 198 (16%) with deviations. - There was a question posed by BM regarding if changing turbidity to >3NTU has impacted this result - DSM reported that it is likely still too soon to see a correlation, and may become more apparent later in the year	
05) Deviations from Critical Control Limits - Flushing Activities (>3NTU Turbidity at Start Up)		- DSM reports that 45 Work Orders out of 198 (23%), exceeded the Critical Control Limit	
06) Deviations from Critical Control Limits - Flushing Activities (<0.2 Cl (F) at Start Up))		- There were 0 Work Orders out of 198 with deviations - Added the flushbox locations associated with a hydrant - Top Management requested that the plumbed flushboxes be added to the map, preferably represented with a different colour or shape to differentiate between the two different types of flushboxes - DSM provided methodology used for Swabbing and Flushing Analysis: - Obtained and processed all data from 2017-01-01 - Investigated how pre-flushing and immediate post-flushing turbidity was impacted (start up vs. post flushing) - Results show that turbidity is significantly reduced at start up post-flushing - DSM noted that there are not a lot of post-flushing results to compare with the pre-flushing, which makes it difficult to conduct a complete analysis - There was discussion to track the volume of water flushed, and flushing time, to determine the total water needed to clean the system and determine which method is most efficient - Action Item 21-564 was created	
	564	For the low chlorine flushing slide in the Management Review presentation, add all of the plumbed auto flushers to the map (in addition to the flushboxes that were added for the Q1 Management Review presentation). - The QMS Action Log was revised to reflect the following:	OPC Responsible: GG Technical Lead:	Due Date: 2021-08-01 Completion Date:
07) Operational Performance - System Wide Production		- DSM reports that for Q1 2021, we are on par with the 5-year system wide production average	
08) Operational Performance - SWS vs GWS Production		- Overall, GWS is producing a higher volume of water than SWS - However, when we look at ICI vs Residential consumption, SWS water consumption for ICI meters is higher than GWS	
09) Operational Performance - Average Monthly Efficiency of the SWTP		- DSM reports that efficiency is still trending upwards for the SWTP - There was discussion about some of the anomalies, however it was deemed that no further investigation is required	
10) Operational Performance - Call Outs Q1 - GWS		- No trends visible with the exception of Johnson 9, which has a known cause (power outage) - No further investigation required	
11) Operational Performance - Call Outs Q1 - SWS		- There is an uptrend in call out for the Chlorine Contact Tanks (CCT) - JA believes this is due to unanticipated alarms and not a "call out"	

		- There was a question about what types of calls are included under the "Facilities" label - JA reports that the two calls under this label were related to a power outage in which the generator ran and triggered an alarm through the fire panel - Action Item 21-565 was created
	565	Add note under the Groundwater Supply (GWS) and Surface Water Supply (SWS) Call Outs Chart in the Management Review Presentation that a call out is an alarm that is received and is not anticipated - The QMS Action Log was revised to reflect the following: OPC Responsible: DSM Technical Lead: Due Date: 2021-08-01 Completion Date:
12) Operational Performance - Locates		- In Q1 Water Operations Branch (WOB) reached above the 4 year average for Locates - BM reports that an increase can be expected due to all the projects that were delayed in 2020 due to COVID-19 which are now starting up again
13) Operational Performance - Watermain Breaks - Monthly		- In Q1, there was an increase in watermain breaks, particularly in February - This is thought to be attributed to a decrease in temperature
14) Operational Performance - Valve Exercising		- In Q1, Water Distribution Services (WDS) completed valve exercising for 21 critical valves and 2 non-critical valves - The results were compared against the KPI that was established for 2021 - JG reports there it is typical to not complete a lot of valve turning in Q1 due to weather - As the warmer months approach, WDS is planning on ramping up the valve exercising work, prioritizing the critical valves over the non-critical - There was a question from AIP about valves with complications being a dynamic number that will change over time, and how Water Operations Branch (WOB) will deal with this - DSM noted that currently this number is established based on the total valve complications in 2020 (145 valves), and this number is currently not a moving target that will change throughout the year - It was noted however, that in the future, we may want to refine this process further and present this differently
15) CIP Summary - Action Item Escalation		- There was 1 outstanding Action Item (#474) to report - MV and GG reported that this item is expected to be closed by the end of May 2021
16) Raw Water Supply and Drinking Water Quality Trends - Sodium		- In Q1, there was a slight increase in sodium results - It was discussed that in the Q4 Management Review presentation, Top Management would like to see a historical graph depicting sodium trending over the last few years - Action Item 21-566 was created
	566	In Q4 Management Review, include a graph of historical sodium sample results over the last few years in addition to the quarterly results - The QMS Action Log was revised to reflect the following: OPC Responsible: GG Technical Lead: Due Date: 2022-01-01 Completion Date:
17) Raw Water Supply and Drinking Water Quality Trends - THMs		- In Q1, Trihalomethane (THM) results for both the Lockhart and Cloughley sampling locations have decreased - There was a discussion about what year (approximately) Water Operations Branch (WOB) is projected to exceed the Ontario Drinking Water Standard limit for THMs - DSM reports that based on the current trajectory, WOB may reach the established limit by the year 2050
18) Raw Water Supply and Drinking Water Quality Trends - HAAs		- The results from the Lockhart location increased in Q1 - The results from the Cloughley location decreased in Q1 - It was noted that the Lockhart station is a blue yard hydrant, not a sample station and the slide would need to be updated accordingly - Action Item 21-567 was created

	567	On the THM and HAA slides (slides 33-34 of Q1 Management Review) update the “Lockhart Sample Station” to say “Lockhart Yard Hydrant” - The QMS Action Log was revised to reflect the following:	OPC Responsible: DSM Technical Lead:	Due Date: 2021-08-01 Completion Date:
19) Raw Water Supply and Drinking Water Quality Trends - Lead		- No exceedances were detected during the lead sampling completed in March 2021 - Top Management determined that an application for relief of the July lead sampling should be submitted for the sampling points in plumbing that do not serve private residences - the same relief that was granted for the December 2020 to April 2021 sampling period - Action Item 21-568 was created		
	568	Reapply for lead sampling regulatory relief for the "summer" sampling period currently scheduled in July for ICI sampling locations - This Action Item is complete - An application for temporary relief was submitted to the Ministry of the Environment, Conservation and Parks, on May 10, 2021 - The QMS Action Log was revised to reflect the following:	OPC Responsible: GG Technical Lead:	Due Date: 2021-05-10 Completion Date:
20) Q1 Sampling Review		- GG reports that all samples were taken in Q1, except where a station was indicated as being Out of Service - No concerns to report at this time		
21) Q1 Sampling Review - Health Canada Guideline Technical Document Review		- GG reports that a review of the proposed changes to two Technical Documents was conducted for 4-chloro-2-methylphenoxyacetic acid (MCPA), and Malathion - Water Operations Branch (WOB) results over the last 5 years for both parameters indicate levels that are well below the proposed limits - No concerns to report at this time		
22) Raw Water Supply & Drinking Water Quality Trends - 2020 VOC Monitoring Program		- VOC plume map - the extent of the plume is relatively stable - CB13-1 is the sample station with the highest TCE concentrations - The concentrations appear to be stable over time. - South plume: two sample stations reaching the max concentrations (CB-11-1 and MW2/00) but overall relatively stable - At Well 14 there was one result that exceeded the Cis-1,2 DCE limit - Update on VOC plans in regards to two of the recommendations: - MV reports that a significant amount of development happening around the lake - WOB teamed up with Source Water Protection to develop a Drinking Water Contingency Plan for the next 25 years - Known VOC plumes were reviewed, and a plan was develop for prevention, mitigation, and treatment, as well as look into alternatives - This plan will look into future alternatives that may include brining additional wells online - This may assist in the future when the Water Supply Master Plan is revised - In the process of updating our Water Master Plan as well - It may also be beneficial to include this information in the risk assessment - Action Items 21-569 and 21-570 were created		
	569	Include an explanation on why the Well 14 Cis-1,2-DCE value is highlighted in red (Slide 42 of Q1 Management Review presentation) - The QMS Action Log was revised to reflect the following:	OPC Responsible: DSM Technical Lead:	Due Date: 2021-08-01 Completion Date:
	570	Top Management to provide another update on the plan to address VOCs in the next quarterly Management Review - consider implementing recommendations presented from Golder Associates Inc. when developing the plan - The QMS Action Log was revised to reflect the following:	OPC Responsible: DSM	Due Date: 2021-08-01

			Technical Lead: MV	Completion Date:
23) Summary of Consumer Feedback		- In Q1, the number of complaints, or actioned service requests, has significantly decreased - In Jan and Feb, 100% of the calls have been resolved over the phone - In Q1, there were 3 calls after hours that were not entered into CMMS		
24) Operational Plan, Currency and Updates		- Only one system procedure has been updated so far		
25) 2021 SOP Review		- JD reports that perhaps we can consider using reviews of SOPs for OTJ forms for Onboarding, if this would be considered a "review" - Action Item 21-571 was created		
	571	Confirm if an annual review of SOPs is written anywhere (system procedures, SOPs, etc.) - The QMS Action Log was revised to reflect the following:	OPC Responsible: DSM Technical Lead:	Due Date: 2021-08-01 Completion Date:
26) Results of Infrastructure Review		- DM reports that there is a lot of work going on in regards to infrastructure updates - Idea to propose at Q1 what is upcoming for the year, provide updates throughout the year at Management Review meetings, and then at Q4 summarize what has been completed - Asset Management Plan work is still in progress - The new requirements for the Plan have been extended to 2022 - Looking into optimization work as part of scope of work - Final report will be discussed when it's complete - Financial Plan is complete, just need to complete the staff report for it - It was shared that there is an increase in water and wastewater charges - Master Plan was completed a few years ago, and a renewal will take place in the near future - Operating Budget: - Would like to discuss items >$20 K relating to installation repair or replacement of equipment - Some main expenses shared include: Rental vehicles, Meter Replacement Program, SAAS software - These types of items will feed into the 2021 Annual Report - Capital Plan Projects: - Top Management provided a list of upcoming capital plan projects - SWTP Control System Upgrade: - Approved in the plan, but project has not started - Will be starting in Mid-May 2021 - Manual control of the system is not possible - Project will take approximately two years to complete - Vertical: - SWTP Optimization: - This item is an error. - Anne St 3N Booster Pump: - New booster station will be able to feed 2N and 3N pressure zones for greater redundancy - Construction to start around 2025		

		- PRV Chamber Replacement Program: - Ongoing program in place and involves updating the existing PRV chamber to be "EFI Smart Chambers" in order to receive data on pressures, flows, and to also be climate and moisture controlled - Lockhart Rd PRV chamber is scheduled to be replaced in 2022 and will be moved to a slightly different spot out of the conservation area - Big Bay Point Booster Station: - Initiated in 2015 there were pump issues so there was a request to add VFDs in that location - Condition assessment to be completed as part of the project to see which equipment is at its end of life - Currently in the procurement phase for preliminary design, which will include a the condition assessment component - New Bulk Water Filling Station: - BM reports that the City is currently in the process of selecting a site for the bulk water station in the south end of Barrie to service developments - Project projected to commence in 2022 - Bayfield St Water Tower: - MV reports that this project was undertaken in 2020 and is complete but remains open until the 2 year warranty has passed - Landmark will inspect with an engineer in November 2021 and November 2022, to ensure there are no issues with the lining replacement - Mapleview Water Tower: - In 2019 determined there were corrosion issues in the liner - Some spot repairs were completed, however the painters rail has significant corrosion and was beyond repair - Proceeding with an emergency procurement to repair this tower in 2021 - Ferndale Water Tower: - In 2020 it was determined that an overcoat and epoxy would need to be applied to the exterior of the tower, extending the life by 10 to 12 years - It is being included in the Capital Budget for completion in 2023 - Linear: - Discussion on how we would like to present this information as there are a lot of projects - Al Miller (Technical Advisor) attends to Branch Leadership Team (BLT) meetings every month to update on linear projects - consider adding the infrmation to Management Review - Action Item 21-572 was created
	572	DSM and DM/JG to discuss how the Linear Infrastructure Review should be communicated in the Management Review presentations - The QMS Action Log was revised to reflect the following: OPC Responsible: DSM Due Date: 2021-08-01 Technical Lead: JG Completion Date:
27) Changes Affecting QMS (Q1)		- Internal Audit - possibility of engaging corporate auditors either this year or in future audits - WCS Mobility WO Template and Inspection reviews complete - Supply Chain Woes: - Diesel generator parts, chlorine shortages, and pipe materials may be in short supply - Suppliers are notifying that delays should be expected - May need to consider increasing our minimums to allow the purchase of extra materials/equipment in the interim
28) New Business		- No new business to discuss

Meeting Minutes

Meeting Details		
	Meeting Date	2021-05-06
	Meeting Type	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
2021-08-19
Start Time
9:30:00 AM
End Time
12:00:00 PM
Type
Management Review

Attendance

Attendee Role	Initials	Name
Facilitator	AIP	Inglis-Petahtegoose, Amanda
Recorder	GG	Gilbank, Gwen
Attendee	BM	Miller, Brenden
Attendee	JA	Adams, Jamey
Attendee	JG	Giffen, Jason
Attendee	LH	Hywarren, Lenita
Attendee	DS	Smith, Diana
Attendee	MV	Vandergeest, Mark
Attendee	JD	Dumais, Jeanette
Regrets	DM	Moreau, Diane
Attendee	BAF	AstopFord, Brittany

Meeting Minutes

Agenda Item	Action Item No	Description
01) Review previous minutes from 2021-05-06		Reviewed minutes and accepted all changes.
02) 2021 Q1 Action Item Follow up	154	Review the work order cancellation process and form currently in place and establish efficiencies needed based on Water Customer Services (WCS) needs. GG reports at this time it is suggested to WCS to submit multiple WO cancellations on the same form rather than categorizing the WOs by "cancellation form required vs. not required". - The QMS Action Log was revised to reflect the following: OPC Responsible: GG Due Date: 2021-08-01 Technical Lead: BM Completion Date: 2021-08-19
	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 has been reassigned to DS. DS reports that she is collecting data to see if we can obtain the correct information from CityWorks. - The QMS Action Log was revised to reflect the following: OPC Responsible: DS Due Date: 2022-04-01 Technical Lead: BM Completion Date:
	295	Review options for reporting the Work Order summary to the Supervisors (e.g. reports, CMMS dashboard, etc.) Action item remains open and has been reassigned to DS. - The QMS Action Log was revised to reflect the following: OPC Responsible: DS Due Date: 2021-10-01 Technical Lead: Completion Date:
	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 DS reports that documentation for proposed limits has been submitted to Mark Vandergeest for review. It has been reviewed and approved by MV. - The QMS Action Log was revised to reflect the following: OPC Responsible: DS Due Date: 2021-08-01 Technical Lead: Completion Date: 2021-08-19
	383	Set limits for the General Chemistry parameters in eRIS DS reports that documentation for proposed limits has been submitted to MV for review. It has been reviewed and approved by MV. Limits have been added to eRIS for the general chemistry reports. - The QMS Action Log was revised to reflect the following: OPC Responsible: DS Due Date: 2021-08-01 Technical Lead: Completion Date: 2021-08-19
	512	Establish a benchmark for percentage deviation for the flushing activities. Consider reaching out to Peel Region to inquire about their flushing program. Action item remains open and has been reassigned to AIP. - The QMS Action Log was revised to reflect the following: OPC Responsible: AIP Due Date: 2022-07-01 Technical Lead: Completion Date:
	529	Follow up on the outstanding consumer feedback calls from Q4 2020 that were not registered in CMMS. Action item is complete and all outstanding calls have been registered in CMMS.

		- The QMS Action Log was revised to reflect the following:	OPC Responsible: DSM Technical Lead:	Due Date: 2021-08-01 Completion Date: 2021-08-19
	530	Adjust the WO cycle of the C.O. monitor calibration for WCS to not generate the WO's for the months of May - August. Action Item remains open and will be completed as part of WCS Mobility Project. - The QMS Action Log was revised to reflect the following:	OPC Responsible: GG Technical Lead: SC	Due Date: 2021-10-01 Completion Date:
	564	For the low chlorine flushing slide in the Management Review presentation, add all of the plumbed auto flushers to the map (in addition to the flush boxes that were added for the Q1 Management Review presentation). GG reports that WCS is currently collecting more accurate location data for the plumbed auto flushers. BM provided list of autoflusher addresses on 2021-08-19. - The QMS Action Log was revised to reflect the following:	OPC Responsible: GG Technical Lead:	Due Date: 2021-10-01 Completion Date:
	565	Add note under the Groundwater Supply (GWS) and Surface Water Supply (SWS) Call Outs Chart in the Management Review Presentation that a call out is an alarm that is received and is not anticipated Action item is complete. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DSM Technical Lead:	Due Date: 2021-08-01 Completion Date: 2021-08-19
	567	On the THM and HAA slides (slides 33-34 of Q1 Management Review) update the “Lockhart Sample Station” to say “Lockhart Yard Hydrant” Action item is complete. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DSM Technical Lead:	Due Date: 2021-08-01 Completion Date: 2021-08-19
	569	Include an explanation on why the Well 14 Cis-1,2-DCE value is highlighted in red (Slide 42 of Q1 Management Review presentation) Action Item is complete. Explanation was added to the slide. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DSM Technical Lead:	Due Date: 2021-08-01 Completion Date: 2021-08-19
	570	Top Management to provide another update on the plan to address VOCs in the next quarterly Management Review - consider implementing recommendations presented from Golder Associates Inc. when developing the plan Action Item remains open. - The QMS Action Log was revised to reflect the following:	OPC Responsible: AIP Technical Lead: MV	Due Date: 2022-01-01 Completion Date:
	571	Confirm if an annual review of SOPs is written anywhere (system procedures, SOPs, etc.) Checked WOB-SOP-55 and CTS-SOP-09 and QMS-SOP-05 and there is no mention of a required annual review of SOPs, only an annual review of QMS Elements. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DSM Technical Lead:	Due Date: 2021-08-01 Completion Date: 2021-08-19
	572	DSM and DM/JG to discuss how the Linear Infrastructure Review should be communicated in the Management Review presentations Action Item is complete. See presentation for more details. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DSM Technical Lead: JG	Due Date: 2021-08-01 Completion Date: 2021-08-19
03) Incidents of Adverse Drinking Water Tests		There were three Adverse Water Quality Incidents (AWQI's) reported in Q2. Two of these events were related to sodium exceedances at multiple wells that were reported as two separate AWQI numbers. The third was a total coliform exceedance at Well 5.		
04) Deviations from SCADA Critical Control Limits		For SWS - Nothing to report in Q2 2021 For GWS - Nothing to report in Q2 2021 Discussion if it is time to establish WCS/WDS Critical Control Limits and add the CCP_Deviation label to the WDS/WCS Logbook. Any time there is an observation above 20 psi, add a note in the eLogbook.		

		The following Action Item(s) were created:		
	607	Establish WCS/WDS Critical Control Limits and add the CCP_Deviation label to the WDS/WCS Logbook. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead: BM	Due Date: 2021-10-01 Completion Date:
05) Deviations from Critical Control Limits - Flushing Activities (>100m3)		80 out of 386 Work Orders had deviations (20.7%).		
06) Deviations from Critical Control Limits - Flushing Activities (>3NTU Turbidity at Start Up)		52 out of 386 Work Orders had deviations (13.5%). Suggestion from BM to review this year-over-year to see if things are changing over the years and determine if our efforts are helping to reduce deviations. The following Action Item(s) were created:		
	608	Incorporate a year-over-year table for the Flushing Activities (>3NTU Turbidity at Start Up) slide in the Management Review presentation to determine if the number of deviations are reducing over time. - The QMS Action Log was revised to reflect the following:	OPC Responsible: BAF Technical Lead:	Due Date: 2021-10-01 Completion Date:
07) Deviations from Critical Control Limits - Flushing Activities [<0.2 Cl (F) at Start Up]		4 out of 386 Work Orders had deviations (1%).		
08) Operational Performance - System Wide Production		Trend shows an increase over the 5-year average.		
09) Operational Performance - SWS vs GWS Production		No comments were provided.		
10) Operational Performance - Average Monthly Efficiency of the SWTP		A slight increasing trend in efficiency has been noted.		
11) Operational Performance - Call Outs Q2 - GWS		No anomalies were identified in the call outs for Q2. MV reports that the Water Operations Branch (WOB) has been making efforts to reduce these call outs.		
12) Operational Performance - Call Outs Q2 - SWS		No anomalies were identified in the call outs for Q2. JA reports that the Primary Membrane data appears to fluctuate quite a lot and would like to investigate possible causes for this. The following Action Item(s) were created:		
	609	In the Q2 Management Review presentation it was noted in the SWS Operation Performance slide that the Call-Outs for the Primary Membrane section appears to fluctuate quite a lot quarterly. Investigate possible causes for this fluctuation. - The QMS Action Log was revised to reflect the following:	OPC Responsible: BAF Technical Lead: JA	Due Date: 2021-10-01 Completion Date:
13) Operational Performance - Locates		An increase in the number of locates is noted in May and June. BM reports that WOB has completed substantially more locate work than anticipated (almost twice as many).		
14) Operational Performance - Watermain Breaks (Monthly)		One watermain break took place in Q2 (in June). Discussion about conducting a cost-benefit analysis regarding cost of repairing watermain breaks in house vs. external contractor. It was determined this was not required at this time.		
15) Operational Performance - Valve Exercising		In the Northwest Quadrant: 29 out of 1,167 non-critical valves have been turned.		

		75 critical valves have been turned (19%). JG reports that WDS has experienced challenges with the software which contributed to some issues with the progress. City-wide Progress: JG reports that progress across the City is good, and on track to reach goals.
16) CIP Summary		There are currently 13 open CIPs, with two older than one year (on track to be closed in September). Good progress has been made on closing older CIPs.
17) Raw Water Supply and Drinking Water Quality Trends - Sodium		There is an increasing sodium trend. Well 13 was identified as "Out of Service" (OOS) during the Q2 sampling period.
18) Raw Water Supply and Drinking Water Quality Trends - THMs		The Trihalomethane (THM) trend is reasonably stable, but increasing slightly. Discussion regarding the scale on the graph. Decision was made to adjust the scale to read from 0-100 instead of 0-60. Action Item 21-611 was created.
19) Raw Water Supply and Drinking Water Quality Trends - HAAs		The Haloacetic Acid (HAA) trend is reasonably stable. There was discussion to adjust the scale for both THM's and HAA's to include the established regulatory limit in the scale, with the goal of providing a more accurate perspective. The following Action Item(s) were created:
	611	In the THM and HAA slides in Management Review, adjust the graph scale to include the regulatory limit for each to ensure the data and trendline is more accurately represented. - The QMS Action Log was revised to reflect the following: OPC Responsible: GG Due Date: 2021-10-01 Technical Lead: Completion Date:
20) Q2 Sampling Review		All sampling in Q2 was compliant.
21) Identifying Portable Analyzers as Out of Service		Top management would like to proceed with looking into the possibility of indicating that a portable unit is OOS on the Work Order. Action Item 21-598 has already been created to address this.
22) Q2 Sampling Review - Health Canada Guideline Technical Document Review		No comments were received.
23) Summary of Consumer Feedback		Calls resolved over the phone have increased significantly. First call response (i.e. resolved over the phone) has increased 35% since 2017. Discussion about whether the eLogbook has helped to resolve issues, by increasing awareness of what activities are taking place around the City. Top Management would like to continue to show the new Consumer Response Efficiency slide, not the previous Summary of Consumer Feedback slide. There are still 2 calls in Q1 outstanding without being registered in CMMS. Operator is currently working on submitting the requested information. There are zero outstanding work orders for Q2 after-hours water quality complaints. The following Action Item(s) were created:
	612	Discuss with the Operations Support Administrators (OSAs) if having access to the eLogbook entries has been helpful in addressing any complaints. - The QMS Action Log was revised to reflect the following: OPC Responsible: DS Due Date: 2021-10-01 Technical Lead: Completion Date:
24) 2020 Emergency Scenario Summary		Final debrief from 2020 emergency scenario was conducted. Comments were collected and summarized on the slide. Although the Covid-19 pandemic is still ongoing, the 2020 emergency scenario is now closed.
25) Operational Plan, Currency and Updates		On track with the review of all System Procedures.
26) 2021 SOP Review		Presented the number of completed and outstanding SOP's for review for each section.

27) Results of Infrastructure Review	It was reported that there is an issue with finding property for the New Bulk Water Filling Station which is causing a delay in the project. Linear (watermain) updates: A lot of watermain is being installed. Several new subdivisions are being built and keeping WOB busy with installing watermains there. Planning to add some new icons to the infrastructure review map to show Construction Status, Commissioning, and Date in Service. Allan Miller will provide some additional updates for Q3 Management Review.
28) Changes Affecting QMS (Q2)	Starting to return to in-person training. Lead Relief granted for 5 ICI sampling points again for the 2021 sampling period. DocuSign is being tested for signatures for staff in the field as there are issues using Adobe (pdf). OPC's are assisting with Non-Standard Procurement Documents. Several new staff members have joined the team. SWS SCADA upgrade project is getting started.
29) New Business	No comments received.

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
2021-11-11
Start Time
9:30:00 AM
End Time
11:30:00 AM
Type
Management Review

Attendance

Attendee Role	Initials	Name
Facilitator	BAF	AstopFord, Brittany
Attendee	DM	Moreau, Diane
Attendee	JA	Adams, Jamey
Attendee	MV	Vandergeest, Mark
Attendee	LH	Hywarren, Lenita
Attendee	AIP	Inglis-Petahtegoose, Amanda
Recorder	GG	Gilbank, Gwen
Regrets	BM	Miller, Brenden
Regrets	JG	Giffen, Jason

Meeting Minutes

Agenda Item	Action Item No	Description
01a) 2021 Q2 Action Item Follow up	295	Review options for reporting the Work Order summary to the Supervisors (e.g. reports, CMMS dashboard, etc.) Meeting took place with MV, JA and LH to review the quarterly work order summary reports that are sent to Supervisors and the new dashboard in CMMS that JA has been using. Decision to continue with quarterly reports, review what is included in the quarterly reports (see new Action item 21-630), review the saved searches for the dashboard (see new Action item 21-631) and set up dashboard for MV (see new Action Item 21-632). Will also continue with annual review at Management Review meeting. Discussion to take place with BM and JG to determine process once they are mobile. - The QMS Action Log was revised to reflect the following: OPC Responsible: DS Due Date: 2021-10-01 Technical Lead: Completion Date: 2021-11-11
	388	Conduct a meeting to discuss rotating sampling sites within the distribution system to accommodate things like seasonal usage GG reports that a meeting with MV and LH took place, and a decision was made that rotating sampling sites is not necessary at this time. However, it was discussed that a review of the current locations should occur to ensure that the current locations are adequate (a couple of gaps were identified when looking at these locations on a map). Please see new action item 21-629. - The QMS Action Log was revised to reflect the following: OPC Responsible: GG Due Date: 2021-10-01 Technical Lead: Completion Date: 2021-11-11
	530	Adjust the WO cycle of the C.O. monitor calibration for WCS to not generate the WOs for the months of May - August. GG reports that this Action Item is complete, and the Work Order cycle was updated accordingly. - The QMS Action Log was revised to reflect the following: OPC Responsible: GG Due Date: 2021-10-01 Technical Lead: SC Completion Date: 2021-11-11
	564	For the low chlorine flushing slide in the Management Review presentation, add all of the plumbed auto flushers to the map (in addition to the flush boxes that were added for the Q1 Management Review presentation). GG reports that this Action Item is complete. The auto flusher locations have been added to the Q3 Management Review presentation. There was discussion to create a new action item to add the flush boxes / auto flushers as assets in CityWorks. Please see action item 21-633. - The QMS Action Log was revised to reflect the following: OPC Responsible: GG Due Date: 2021-10-01 Technical Lead: Completion Date: 2021-11-11
	607	Establish WCS/WDS Critical Control Limits and add the CCP_Deviation label to the WDS/WCS Logbook. A meeting took place with BM/JG and established 2 Critical Control Limits (<20psi pressure, <0.05 mg/l Cl (F)). The new label was added to the eLogbook and reviewed with staff in WDS and WCS at morning meetings. WOB-SOP-09 has been updated to include documentation in eLogbook. - The QMS Action Log was revised to reflect the following: OPC Responsible: DS Due Date: 2021-10-01 Technical Lead: BM Completion Date: 2021-11-11
	608	Incorporate a year-over-year table for the Flushing Activities (>3NTU Turbidity at Start Up) slide in the Management Review presentation to determine if the number of deviations are reducing over time. BAF reports that this Action Item remains open with plans to incorporate it into the Q4 Management Review presentation. - The QMS Action Log was revised to reflect the following: OPC Responsible: BAF Due Date: 2022-01-01 Technical Lead: Completion Date:

	609	In the Q2 Management Review presentation it was noted in the SWS Operation Performance slide that the Call-Outs for the Primary Membrane section appears to fluctuate quite a lot quarterly. Investigate possible causes for this fluctuation. BAF reports that this Action Item is complete. It was determined that some quarters experience higher equipment failures than others and often equipment can fail several times before WOB is able to identify the problem and repair it. No specific issue was identified as a cause. - The QMS Action Log was revised to reflect the following:	OPC Responsible: BAF Technical Lead: JA	Due Date: 2021-10-01 Completion Date: 2021-11-11
	611	In the THM and HAA slides in Management Review, adjust the graph scale to include the regulatory limit for each to ensure the data and trendline is more accurately represented. GG reports that this Action Item is complete, and the slides have been updated for the Q3 Management Review presentation. - The QMS Action Log was revised to reflect the following:	OPC Responsible: GG Technical Lead:	Due Date: 2021-10-01 Completion Date: 2021-11-11
	612	Discuss with the Operations Support Administrators (OSAs) if having access to the eLogbook entries has been helpful in addressing any complaints. This Action Item is complete. Follow up was completed with OSA's and they agreed that the eLogbook access has helped with calls that they receive about pressure or coloured water. Additional feedback was that it is only helpful as long as the operators are using the eLogbook for their entries consistently. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead:	Due Date: 2021-10-01 Completion Date: 2021-11-11
01b) New Action Items	629	Review sampling site locations map in the Q4 Management Review presentation. A comprehensive review of the THM/HAA, and Auto Flusher locations will also take place to determine if locations should be updated. - The QMS Action Log was revised to reflect the following:	OPC Responsible: GG Technical Lead:	Due Date: 2022-01-01 Completion Date:
	630	Review the saved search or query that is set up for the quarterly reports for outstanding work orders for each Section that are run by the UPCs from CMMS and emailed out to Lead Hands/Supervisors. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead:	Due Date: 2022-01-01 Completion Date:
	631	Review the saved searches that are used for the "Status" Inbox for SWS on CMMS and compare to what is used as the criteria for the quarterly reports that are run by the UPCs and emailed out to supervisors. Determine if any changes are required to either of the quarterly reports or the "Status" Inbox and implement the changes. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead:	Due Date: 2022-01-01 Completion Date:
	632	Set up "Status" Inbox for GWS (Lead Hand/Supervisor) similar to SWS once review of searches/queries and updates to reports/inbox have been completed. - The QMS Action Log was revised to reflect the following:	OPC Responsible: DS Technical Lead:	Due Date: 2022-01-01 Completion Date:
	633	Add the auto flushers as assets in CityWorks. - The QMS Action Log was revised to reflect the following:	OPC Responsible: BAF Technical Lead:	Due Date: 2022-01-01 Completion Date:
	634	Reach out to the MOE to confirm that AWQI 155317 for Sodium has been closed out. Sodium had been previously reported in April 2021 and the AWQI number was generated in error by the external laboratory. The AWQI number did not appear in the 2021 MOE inspection report and WOB would like clarification on the status of this number. - The QMS Action Log was revised to reflect the following:	OPC Responsible: LH Technical Lead:	Due Date: 2021-12-01 Completion Date:
02) Incidents of Adverse Drinking Water Tests		There were two Adverse Water Quality Incidents (AWQIs) reported in Q3: 1. Sodium - No CIP was initiated since this event should not have been reported by the external laboratory, as a report had already been made in the preceding 57 months. There was discussion if we could reach out to the MOE to retract the AWQI since it is not a true AWQI, and it was not noted in the recent MOE inspection report. Please see new action item 21-634. 2. Total Coliform - CIP 147 has been initiated		
03) Deviations from SCADA Critical Control Limits		SWS - There were zero deviations to report in Q3		

	GWS - There was one deviation that took place in Q3 for Well 16 due to low chlorine residual WCS/WDS - This information will be presented in Q4 Management Review
04) Deviations from Critical Control Limits - Flushing Activities (>100m3)	There were 419/991 Work Orders with deviations, or 42.3%.
05) Deviations from Critical Control Limits - Flushing Activities (>3NTU Turbidity at Start Up)	There were 227/991 Work Orders with deviations, or 22.9%. There was discussion after reviewing the map on this slide, noting how it appears there are no auto flushers in the areas experiencing deviations. Further discussion is required when BJ is present. To be included in the review of sample site locations (see existing Action Item 21-629).
06) Deviations from Critical Control Limits - Flushing Activities (<0.2 Cl (F) at Start Up))	There were 2/991 Work Orders with deviations, or 0.2% in Q3.
07) Operational Performance - System Wide Production	It was noted that in both August and September, the system production exceeded the 5-year average. Temperature averages for Q3 were standard and in line with the 5-year average. For precipitation, it was noted that there was a drastic decrease of rainfall in August compared to the 5-year average. There was discussion about the value in displaying the precipitation chart; Decision was made to leave it as is for now.
08) Operational Performance - SWS vs GWS Production	There was a discussion about whether the SWS vs. GWS slide will continue to be presented in both Management Review meetings and in the WOB Branch Meetings. Decision was made to continue presenting this graph as is in both meetings. WOB anticipates that over the years, with an increase in development around the City, this chart could possibly illustrate a change in the production levels for each system. MV noted that the zone flushing might have some impact on the amount of water GWS produces. In the future, WOB may consider introducing "population" as a component to be included in this graph. ICI and RES Production Graph: There was a spike in water consumption for ICI Meters in August for Surface Water consumers. Similarly for residential meters, there was an increase is Surface Water consumption over Groundwater consumption for the month of August.
09) Operational Performance - Average Monthly Efficiency of the SWTP	The average monthly efficiency of the SWTP is generally continuing to show a slight increase in efficiency over time.
10) Operational Performance - Call Outs Q1 - GWS	The following observations were made: Callouts to Bayfield Tower have been decreasing each quarter since Q2 2020. Callouts from Sunnidale Reservoir spiked from Q2 to Q3 of 2021. In response to the increase in callouts for Q3 at Innisfil Booster Pumping Station, MV noted that there is equipment in the station that occasionally takes time to see a trend in the alarms before an investigation takes place. MV noted that some of the callouts for Q3 can be attributed to the Dunlop Street watermain work taking place. To combat this, a temporary watermain has been installed to allow the system to operate as it should, in an effort to reduce some of these callouts.
11) Operational Performance - Call Outs Q1 - SWS	The following observations were made: There was a total of 79 callouts for Q3 for SWS, which is a spike from the downward trend in the two previous quarters of 2021. A slight increase to most of the SWS processes was noted. JA discussed that a single event could cause callouts to increase in a number of other processes. For example, one event with a pump issue, resulted in several callouts to subsequently take place at more than one location.

	Discussion that sometimes preventative maintenance work can also trigger a callout, which can impact what this data is illustrating and could potentially be misleading. However, it was agreed that there is value in looking at the alarms over a period of time, not just single events. There was discussion about considering tracking the type of alarm rather than (or in addition to) the location. At this time, WOB will continue to report this information as is for Management Review.
12) Operational Performance - Locates	For locates, in comparison with the 4-year average, in July and September WOB surpassed the average, and was on par with the average in August.
13) Operational Performance - Watermain Breaks - Monthly	Watermain Breaks in Q3 were less than the 5-year average.
14) Operational Performance - Valve Exercising	WOB had a goal of turning 50% of non-critical valves in the Northwest quadrant by December 31. Currently WOB has surpassed this goal and has turned 57% at the time of the Q3 Management Review presentation. WOB had an additional goal to exercise 100% of critical valves by October 31, 2021. To date, WOB has completed 60% of this goal. Complications: WDS was having issues with the valve turning app and have been busy with other projects which may impact the results of the KPI illustrated on the slide.
15) CIP Summary - Action Item Escalation	A review of open CIPs took place. No comments were received.
16) Raw Water Supply and Drinking Water Quality Trends - Sodium	Each of the Wells are showing an increasing trend in sodium. The issue is particularly more urgent at Well 12 where the sodium levels are creeping closely towards reaching the 200 mg/L aesthetic objective limit.
17) Raw Water Supply and Drinking Water Quality Trends - THMs	Trihalomethanes (THMs) are continuing on a gradual upward trend.
18) Raw Water Supply and Drinking Water Quality Trends - HAAs	Haloacetic Acids (HAAs) are continuing on a gradual upward trend. DM noted that in 2016 we completed an evaluation to decide where to take the HAA an THM samples. We should consider re-evaluating again now that 5 years have passed, to ensure that these locations are still acceptable / relevant (see existing Action Item 21-629).
19) Raw Water Supply and Drinking Water Quality Trends - Lead	Lead sampling was conducted in July 2021 with zero exceedances. Sampling relief was granted for the 5 ICI locations during this time. WOB does not anticipate applying for relief again for the December 15 to April 15 sampling period.
20) Q3 Sampling Review	A sampling review was conducted for Q3, and all sampling was found to be in compliance with the requirements. It was noted that there were a few instances where sampling had to be delayed due to Wells being Out of Service (OOS). Also, there was discussion about one instance where a UV transmittance reading was exactly 85%, indicating a near miss.
21) Q3 Sampling Review - Health Canada Guideline Technical Document Review	No new drinking water Guideline Technical Documents were proposed in Q3.
22) Raw Water Supply & Drinking Water Quality Trends - VOC Monitoring Program	There was a review of the City's VOC Contingency Plan, and the following items were discussed: There are historical VOC issues and this project was a large undertaking to review the VOC plume, in collaboration with Source Water. A number of recommendations were provided and WOB is determining how to approach actioning some of these recommendations. The artesian conditions of some of the Wells complicate the issue further.
23) Summary of Consumer Feedback	In Q3, the OSA's maintained 100% call resolution over the phone.
24) Water Operations KPIs	The following KPIs were discussed: GWS:

	-Reducing the number of call outs annually. Target is 300, and current total is 265 -Percentage of well station downtime. To be discussed further in Q4 Management Review. -Air valves: Q3 goal has been reached and MV anticipates reaching 100% by year end WDS: -JG not present to comment SWS: -Increase average monthly efficiency to achieve target of 98%. For 2021, an average of 97.37% has been achieved so far. WCS: -BM not present to comment CTS: -KPIs to be determined
25) Operational Plan, Currency and Updates	All elements have been reviewed for 2021.
26) 2021 SOP Review	Presented the current SOP review progress for each section.
27) Summary from Emergency Response Training Scenario	The tornado from 2021-07-15 was used as the Emergency Scenario for 2021. A debrief of the event took place 2021-09-27, during which a review of the positive actions, and opportunities for improvement were discussed.
28) Efficacy of the Risk Assessment Process	A risk assessment was completed on 2021-06-21. Some revisions to the process were outlined and presented on the slide. No additional comments were received.
29) Results of Infrastructure Review	An overview of the City capital / reconstruction projects, subdivision projects, and ICI projects was illustrated on a map, including which phase each project was in.
30) Changes Affecting QMS (Q3)	The following Q3 changes affecting QMS were reviewed: -Standardizing Onboarding for the Branch via an Onboarding Home Page on MS Teams. -Bookings for training in house have broadened the training opportunities for staff. -MOE granted lead sampling relief again for the June 15 Oct 15 sample window for the 5 ICI sampling points. -Team databases have resulted in workplace efficiencies with shorter meetings and more effective minuting. -Critical Control Limits label added for Water Distribution Subsystem (Pressure & Free Chlorine) for reporting purposes.
31) New Business	No new business was discussed.

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