DWQMS 20-01 Management Review Memo

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Memo

DATE: **January 23, 2025**

TO: **Management Review Participants**

FROM: **BRYCE MCDONALD**

SUBJECT: **Drinking Water Quality Management Standard (DWQMS)**
Management review January 1, 2024 to December 31, 2024

BACKGROUND:

The City of Owen Sound has an approved Operational Plan, which was prepared following the Ontario Drinking Water Quality Management Standard 2.0 as part of the Drinking Water Licensing Program.

One of the 21 Drinking Water Quality Management Standard elements is Element 20: Management Review. The procedure for undertaking a Management Review is outlined in section 20 of our Operational Plan. This memo is designed to capture the highlights of our discussions.

1. Incidents of non-compliance with applicable regulations

Typically, this section of the Management Review report would review any concerns the Ministry of the Environment, Conservation, and Parks (MECP) had during the inspection undertaken during the previous calendar year. A MECP inspection was conducted in March 2024 for the previous year (2023). During that review period we had one non-compliance related secondary disinfection residual, resulting in a reduced score of 96.25%.

Identified Action Items: Continue to monitor and improve chlorine residual management program.

2. Adverse Water Quality Incidents (AWQI's)

Three (3) events were reported as adverse in 2024; one (1) was related to a total coliform (TC) was found in a distribution sample, and two (2) were related to low chlorine residual in the distribution system.

Identified Action Items: Staff followed the resampling protocol as identified in O.Reg.170 for a TC hit. This included flushing hydrants and resampling for bacti with 2 sets of samples coming back clear. The low CL2 events required hydrants to be flushed to bring the chlorine residual up and continue to monitor residual at that location. For the second low chlorine, hydrants were flushed to bring the chlorine

residual up and monitoring was increased at that location, with a temporary flushing unit installed.

3. Deviations from critical control point limits & corresponding actions taken

Critical control points are identified in our Critical Control Point Table and Risk Assessment Outcomes review tracking sheet. Our critical control points include primary disinfection, secondary disinfection and backflow/back siphonage. We had two known deviations during this reporting period.

Identified Action Items:

Standard corrective actions were taken including flushing to restore representative residual and enhanced monitoring.

4. The effectiveness of the risk assessment process

Risk Assessments were undertaken in 2024 by both Water Treatment and Water Distribution staff as required by the DWQMS. The water system risk assessment was completed on November 26, 2024.

This process aims to review and score each risk associated with the water system from the treatment plant to the distribution system. Based on recent events, changing technologies, ability to respond and other factors, some risks may be re-scored to help identify areas that need more attention or can go the other way and be scored as a lower risk.

Identified Action Items: We continue to conduct a full risk assessment annually to ensure risk ratings remain current and new risks are documented. We revise the SOPs and ERPs based on the risk assessment and actual field practices.

5. Results of internal and external audits

There was an external audit and an internal audit of the DWQMS performed in 2024:

Internal Audit – acclaims Environmental, an independent auditor evaluated our Drinking Water Quality Management System (DWQMS) in November 2024. This consisted of a two-day on-site visit reviewing all 21 elements of the DWQMS, interviewing water staff, and testing their knowledge of the DWQMS.

No non-conformances were noted, and eight (8) opportunities for improvement (OFIs) were identified in the audit.

These opportunities included identifying a DWQMS representative backup, consideration to establishing procedures and identifying roles and responsibilities respecting infrastructure modifications and upgrades, and a few other administrative related actions.

External Audit – In January 2025, NSF International performed the external audit and found one minor non-conformance and one OFI. The minor non-conformance

was related to document control processes were not fully effective. The OFIs were reviewed, and changes were made.

Identified Action Items: A root cause analysis has been scheduled to review the minor non-conformance; initial containment actions include removing all uncontrolled photocopied documents/cheat sheets and refer operators to the most current digital version. OFIs will be reviewed and implemented as appropriate.

6. Results of water system emergency response testing

Water Staff practiced ERP 6.7 Diesel Generator Failure and updated ERP actions that arose from Debrief.

Identified Action Items: Select an ERP for practice/review in 2025. Continue to refine the ERPs or author new ones as required.

7. Operational Performance

The annual report, which is prepared and submitted to the Operations Committee and Council and the Ministry of the Environment, provides a summary of several performance metrics, which are summarized below. From 1972 to 2024, 24.1 water main breaks a year were documented, on average.

*The spike in 2015 of 54 breaks was due to frozen pipes caused by an extreme cold snap during January and February.

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
System Leakage % (unaccounted for water)	24.5	20.1	20.5	22.1	18.3	18.0	16.3	20.6	20.59	19.4
Watermain Breaks	54*	16	17	20	25	19	20	25	20	17
Service Leaks	9	6	8	7	6	4	9	5	5	4
Treated Water Produced (Million Cubic Meters)	3.27	2.93	2.80	2.91	2.93	2.58	2.71	2.75	2.82	2.67

Identified Action Items: Leak detection was done in 2023. Three (3) leaks were found by the contractor Nichol Water Services. (This does not mean no other leaks are present; it just means no leaks were found at or beyond the detectable threshold). Staff shall continue to undertake leak detection every three years, so it is next scheduled for 2026.

8. Trends in the quality of raw water supply and drinking water

Several factors influence raw water quality, such as seasonal changes, spring runoff, bay turnover, wind direction, and temperature changes, all of which can cause poor or challenging to treat raw water quality. Spring run-off is normally the most drastic influence, but in recent years, during the winter months, there have been monthly warm spells, causing spring-like runoff conditions or much later starts to winter, causing more rain events in November or even December than previously seen.

When these events occur, influences from the Kenny Drain system (just north of the water plant) can discharge highly turbid water with high organic content. South of the plant, lie the Sydenham and Pottawatomi rivers. Outflow from these rivers, laden with sediment and suspended organic material that disrupts the efficacy of chemical disinfectants, increases the necessary dosage of coagulants and interferes with ultraviolet disinfection, can cause water quality issues at the plant. Depending on the wind speed and direction, the influence of stormwater sources can be anywhere from mild to severe, depending on whether the wind blows the impacted water towards or away from the intake.

A capital project is underway to install an air scour system, underdrain improvements, filter media replacement, and other piping and mechanical upgrade requirements. These improvements are expected to improve backwash and filter performance. Project completion is targeted for Q3 2025.

In August of 2024 we experienced relatively high, sustained source water temperatures leading to an unusual number of water quality complaints about taste and odour. These seasonal taste and odour concerns are common with warmer source water supplies, Owen Sound has not historically been exposed to these challenges.

Identified Action Items: Continue to monitor the Kenny drain outlet and re-evaluate risks and projects related to Kenny drain.

With the understanding that one summer does not constitute a trend we will continue to monitor, source water temperatures and related taste and odour concerns. Some draft public communications have already been started.

9. Follow-up on action items from previous management review meetings

1. **Continue to review the risk assessment yearly. Revise the SOPs and ERPs based on risk assessment and actual field experience.**

   This process is being followed, and Risk Assessments will now be scheduled before the annual Infrastructure review to be used as an input in the review process.

2. **The OFIs from the 2024 external audit will be reviewed and implemented as appropriate.**

   All OFIs have been marked complete.

3. **City Manager would like to see what the water loss calculation is and dollar amount for treating this unaccounted for water.**

   We have asked Hemson to provide this unit cost for treated water and/or an industry standard formula as part of the current water rate study. With the intention of using this internally to support resourcing to lower unaccounted water costs.

4. **Continue to monitor the Kenny drain outlet, now that some improvements to the Kenny drain are complete, to assess impact.**

   The Kenny drain impacts will be added to our 2025 risk assessment to provide an updated risk rating to help identify and prioritize future improvement projects.

5. **Complete a Training Plan and incorporate it into the Operational Plan.**

   A general training plan and core training topics have been added to the operational plan, personalized training plans remain flexible for individuals and their supervisor to identify areas of interest or operational needs.

10. Updates on action items identified between management review meetings

The action items identified between management reviews are primarily discovered through the Internal Audit process and tracked in our Corrective Action Log. However, staff are encouraged to provide suggestions at any time, and we provide roundtable opportunities at each S&O meeting.

11. Changes to services, activities, regulations, etc. that could impact the QMS

The Operational plan now complies with the current version of the Provincial Drinking Water Quality Management Standard 2.0. We have successfully been reaccredited to the new standard.

Identified Action Items:

IT has successfully implemented policies and procedures and executed tests to ensure protection from cybersecurity threats. Cybersecurity Capital Project 23N.6 has been substantially completed.

12. Consumer feedback

As indicated above, customer complaints are a metric for which formal tracking was introduced in December 2010. The following is the ongoing general record.

Water Complaints by Year

Year	Water Quality Complaints	Water Pressure Complaints
2015	14	13
2016	14	12
2017	18	18
2018	22	18
2019	18	18
2020	22	13
2021	24	7
2022	30	9
2023	21	20
2024	46	8

Complaints of water quality varied widely. Most often, complaints are related to aesthetic, taste, or odour concerns. This type of complaint is typically addressed via phone consultation or site visit.

Complaints about water pressure and discoloration are investigated and resolved by Water Distribution Operators. The cause of poor pressure issues is almost always a water meter, plumbing issue (i.e., clogged old, galvanized pipe), or plugged faucet aeration screens from flushing or plumbing work.

Identified Action Items:

We are in the process of streamlining our customer complaint process which will see discoloured water, low pressure and no water calls fielded directly by our distribution staff and water quality/taste and odour concerns go through the water treatment plant.

In 2024 we did have an increase in seasonal taste and odour complaints due to the prolonged warm source water temperature. Plans are in place to carefully monitor these concerns and develop communications if this becomes a trend.

13. Resources needed for QMS maintenance

Currently we have sufficient resources to maintain our QMS. With some additions and changes to staffing in 2024 some roles and responsibilities will need to be adjusted and clarified.

Identified Action Items:

Continue to monitor workloads, roles and responsibilities to ensure resources are adequate as we further develop operational programs, refine programs and develop performance indicators.

14. Results of the infrastructure review

SLD-14 spells out the system currently in use to meet the requirements of the Standard. The system remained the same as documented in the 2023 Management Review.

Items which were brought forward for consideration in the 2025 Budget are documented in Management meeting minutes, project specific meetings and often brought through Operations Committee and Council budget meeting and captured in minutes.

Identified Action Items: Although thorough discussions and review took place through S&O, Manager Meetings and budget preparation a formal infrastructure review was not completed. In 2025 we have scheduled a formal infrastructure review ahead of budget preparation to formalize this process.

15. The currency and content of the Operational Plan

The content of the Operational Plan is current and compliant with DWQMS 2.0. Commitment and Endorsement by current upper management and council will occur in Q1 of 2025.

Identified Action Items: DWQMS Commitment and Endorsement required by council.

16. Additional observations, comments and suggestions made by personnel

The operators continue to support the completion of the Engineering Standards document currently in progress.

Staff continue to observe a significant inconsistency in the quality of water main construction and commissioning on development projects. Similarly, service records and as-constructed drawings for developments are often received late, inaccurate, or not at all. Consulting Engineer consistency in this regard is lacking. New terms and conditions to help address these issues have been prepared by Engineering Services, for inclusion in subdivision agreements.

It is important to ensure that work plans include the capacity to continue gathering GIS data to keep it current. Water Distribution Staff has placed heavy importance on locating and surveying the remaining 5% in 2025. It is crucial that the City receives proper CAD/georeferenced drawings immediately after construction to enter into GIS and for reference during operation and maintenance activities.

The water distribution group is in desperate need of at least one additional service vehicle to complete legislative maintenance programs. To date our regulators have accepted that these programs are in the planning stages, but they will soon be requesting data to prove implementation. Programs requiring a service vehicle include water main flushing, chlorine residual management, valve exercising/turning and others

Succession planning and staffing levels for water treatment plant continues to be an area of concern. Our dedicated staff have made it work to date, but it is an area of significant vulnerability.

Capital project execution has been a challenge from project management workload, schedule and process uniformity staff are finding it challenging to keep up with aggressive replacement and rehabilitation schedules.

Identified Action Items: For discussion, Management Review.

17. Financial Plan

The Financial Plan was revised and submitted in 2020 to support the Drinking Water Works Permit and Drinking Water System License renewal. An updated financial plan will be required for our 2025 license renewal.

Identified Action Items: Corporate services have retained Hemson Consulting to assist in completing this financial plan. The plan is required to be submitted by April 1st, 2025, with our Municipal Drinking Water License application.

18. SOP Review 2024

The Water Treatment and Water Distribution Standard Operating Procedures (SOPs) were reviewed in detail in the Fall of 2024, by the Water Distribution Staff and Water Treatment Staff.

Identified Action Items: Review the SOPs again in 2025. Complete a Training Plan and incorporate it in the Operational Plan.

CONSULTATION:
This report was prepared in part by the Water and Wastewater Administrative Assistant with contributions from the Water Treatment Superintendent and the Water Distribution Superintendent.

FINANCIAL/BUDGET IMPLICATIONS:
The cost of the DWQMS is included in the existing operations budget.

Respectfully submitted by:

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