DWQMS 20-01 Management Review Memo

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Memo

DATE: **January 28, 2025**

TO: Management Review Participants

FROM: Andrew Smart **DEPT:** Operations

SUBJECT: **WASTEWATER QUALITY MANAGEMENT STANDARD (WWQMS) JANUARY 2024 TO JANUARY 2025 MANAGEMENT REVIEW**

BACKGROUND:

The City of Owen Sound has a Wastewater System Operational Plan, which was prepared in general accordance with the Ontario Drinking Water Quality Management Standard. (There is, as yet, no separate Provincial Standard for Wastewater QMS)

One of the 21 Elements in the Plan is Element 20: Management Review. The procedure for undertaking a Management Review is outlined in procedure SLD-20, (System Level Document 20; a high level procedure) which can be found in the Operational Plan.

This report is written in order to comply with the Management Review requirements laid out in SLD-20.

The following topic items for Management Review are as specified in SLD 20.

a) Incidents of non-compliance with applicable regulations

Normally this section of the Management Review report would review any concerns the Ministry of Environment, Conservation and Parks (MECP) had during the inspection undertaken during the previous calendar year. However, there was no MECP inspection in 2024. The last inspection was March 22, 2019.

- The wastewater plant had (1) final effluent objective exceedance in 2024. The WWTP exceeded the final effluent objective for total phosphorus of 0.5mg/l in July 2024. The July average was 0.68mg/l. This was reported in writing to the local MECP office. The ferric-chloride dosing was adjusted to better control total phosphorus and stay within the objective. The limit was not exceeded.

Identified Action Items:

Operators continue to monitor all plant processes and data trending in order to make process changes as required.

b) Deviations from critical control point limits & corresponding actions taken

Critical control points for the wastewater system were developed during the risk assessment process. The following critical control points were addressed in 2024.

- On September 14, 2024, the 27th street west sewage pump station's main power feed was destroyed by a directional drilling operation. The on-call operator responded, confirmed that there was no overflow then with the assistance of the Wastewater Superintendent organized temporary septage haulage and the setup of an emergency generator for power supply until the main power feed was restored October 8, 2024.

Owen Sound Wastewater Treatment Plant Bypass / Overflow 2024

The following table summarizes the **bypass** events that occurred in 2024. Bypasses are events in which a specific treatment process is "bypassed" at the plant. These events have partial treatment or disinfection prior to the bypassed sewage blending with the secondary effluent prior to discharge. In the following case, the secondary treatment process at the WWTP was bypassed due to the loss of the primary effluent pumps from a Hydro One power fluctuation issue that caused failures at the plant. Bypassed primary sewage blended with the secondary effluent before disinfection, and due to the low volume, had minimal effect on the effluent.

Owen Sound Wastewater Treatment Plant Bypass 2024

Quarter	Date (2024)	Location	Volume (m^3)	BOD5 (mg/l)	TSS (mg/l)	TP (mg/l)	E-Coli cfu/100ml	Total Ammonia Nitrogen (mg/l)
2	13-Apr	Primary Effluent Chamber	2117.4	<4	5	0.27	74UAL	1.8

The following table summarizes the **overflow** events that occurred in 2024. During heavy storm and run off events the wastewater system becomes surcharged and can no longer convey all the sewage to the treatment plant. The collection system has six locations where overflows mainly occur. One is the Westside Sewage Pumping Station and the other five are Sewer Overflow Manhole locations. The Westside Station is monitored and controlled automatically by a control system which runs the pumps and notifies operators of any issues via an alarm system. All five Sewer Overflow Manhole locations have flow monitoring equipment installed that notify operators of the levels and any alarms that occur. In the event of high flows, there is always the risk of an overflow event. On average daily flows are 10,000m3/day; overflow events typically happen at wet weather flows above 65,000m3/day. With the added monitoring devices at each of the overflow locations, operators are able to act on the situation and undertake reporting in a timely manner.

Owen Sound Wastewater Collection System Overflows 2024

Quarter	Location	Date (2024)	Volume (m^3)	BOD5 (mg/l)	TSS (mg/l)	TP (mg/l)	E-Coli cfu/100ml	TKN (mg/l)
2	27th St W	13-Apr	0.16	30	35	0.19	19600UAL	1.1
3	OS-19A	17-Aug	8.5	93	140	1.09	Overgrown	8.1
3	OS-11	18-Aug	2304					
3	OS-12	18-Aug	2814					
3	OS-16	18-Aug	2288					
3	OS-19A	18-Aug	876	24	86	0.39	Overgrown	2.2
3	OS-22	18-Aug	1650					
3	Westside EQ Tank	18-Aug	398.4	25	55	0.39	Not Required	2.7
	Total		10,339.06					

Identified Action Items:

Operators continue to utilize SOP's related to bypasses and overflows.

c) The effectiveness of the risk assessment process

The risk assessment outcomes table was updated November 1st, 2024.

Identified Action Items:

Revise the SOP's and ERPs based on the annual risk assessment and SOP review.

d) Results of internal audits

The internal audit for the WWQMS was conducted in November 2024.

In this audit there were no non-conformities and eight (8) opportunities for improvement. The OFI's will be addressed by the WWQMS Representative in collaboration with the Wastewater Superintendent and Manager of Water/Wastewater, as required. The OFI's are related to Documentation, training and the clarification of inter-departmental roles and responsibilities.

Identified Action Items:

Address the resulting internal audits OFI's.

e) Results of wastewater system emergency response testing

An emergency occurred in 2024 due to the damaging of the main power feed to 27th Street sewage pump station.

- September 14th Aecon hit the main power feed during a directional drilling job near the station.
- The on-call operator responded and confirmed that there was no overflow event and set up a sewage pump truck to shuttle wastewater until the pump station was operational again.
- The wastewater superintendent was called and assisted the operator to obtain a portable diesel generator, and it's set up. This got the pump station back in operation.
- Power from the grid was restored October 8, 2024. Pump station back in normal operation.

Identified Action Items:

Practice one selected ERP (Emergency Response Plan) annually as per the Operational Plan and review the other ERP's.

f) Operational Performance

Noted below are projects completed in 2024 that will improve the wastewater system's overall performance.

- Bio-solids holding tank #1 had a complete cleanout and mixing nozzle replacement.
- 17th Street East sewer main replacement project completed.
- Alpha Street sewers were replaced.

g) Trends in the Wastewater Quality Influent and Effluent

2024 Final Effluent Quality

2024	Final BOD5	Final TSS	Final A+A(N)	Final TKN	Final TP	Final CBOD5	Final Nitrate
ECA Limit	*N/A*	*15*	*3.0NF/5.0F*	*N/A*	*0.8NF/1.0F*	*15*	*N/A*
ECA Objective	*N/A*	*12*	*1.6NF/3.2F*	*N/A*	*0.5NF/0.8F*	*12*	*N/A*
Jan Avg.	8.4	5.8	1	1.66	0.34	7.2	20.64
Feb Avg.	7.75	7.25	1.5	2.6	0.38	5	14.58
Mar Avg.	4.75	4.5	1.6	2.85	0.43	4.25	12.98
Apr Avg.	7.4	6.2	1.52	2.82	0.47	4.2	11.17
May Avg.	8.5	3.75	1.58	2.15	0.38	7.5	16.15
Jun Avg.	8.25	6	1.43	2.25	0.31	5	17.8

Jul Avg.	11.4	10	0.94	3.08	0.68	8.4	20.36
Aug Avg.	9.75	9.75	0.63	2.23	0.35	7.75	18.43
Sep Avg.	8.25	8	0.48	1.55	0.48	8	21.73
Oct Avg.	10.4	11	0.7	1.92	0.43	9.8	24.18
Nov Avg.	11.5	11.25	0.8	2.1	0.28	9	22.03
Dec Avg.	8.8	8	0.88	1.94	0.31	8.2	14.58
Annual Avg.	8.76	7.63	1.09	2.26	0.40	7.03	17.89

NF = Non-Freezing (May 1- November 30)
F = Freezing (December 1 - April 30)

2024 Raw Sewage Sampling Results

Month	Raw BOD5	Raw TSS	Raw A+A(N)	Raw TKN	Raw TP
2024	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)
Jan Avg.	128.8	167.2	13.98	19.5	2.13
Feb Avg.	128.5	145.25	14.13	21.15	2.17
Mar Avg.	118	139.75	14.18	20.03	2.28
Apr Avg.	121.4	186.8	12.74	17.58	1.94
May Avg.	180.5	155.5	18.53	23.4	2.54
Jun Avg.	170.75	167	20.13	22.98	2.89
Jul Avg.	166.6	186.2	25.34	29.9	3.58
Aug Avg.	167.5	191.5	22.38	27.48	3.36
Sep Avg	170.25	224.75	27.2	34.75	5.32
Oct Avg.	203.2	240.6	28.36	34.14	4.4
Nov Avg.	220	257	24.9	29.6	4.16
Dec Avg.	149.8	187.6	14.56	17.6	2.75
Annual Avg.	*160.44*	*187.43*	*19.70*	*24.84*	*3.13*

5 Year Final Effluent and Raw Sewage Trends

Year	Average Daily Flow (m3)	Raw BOD5	Raw TSS	Raw NH3	Raw TP	Final CBOD5	Final TSS	Final NH3	Final TP	Final E.Coli
2020	14471	156.9	211.8	12.5	1.79	5.2	7.1	0.36	0.25	45
2021	13344	108.6	135.5	35.8	1.65	5.1	6.9	0.68	0.31	23
2022	11639	186	229.8	19.2	2.91	8.5	9.4	0.94	0.37	27
2023	12744	155.5	179.4	16.79	2.52	6.04	8.08	0.81	0.38	18
2024	11342	160.4	187.4	19.7	3.12	7.03	7.63	1.09	0.4	14
Average		153.48	188.78	20.798	2.40	6.374	7.82	0.78	0.34	25.40

Identified Action Items:

As seen above, effluent quality remains in compliance with ECA.

Operators to continue monitoring final effluent objectives via in-house lab testing and external laboratory results.

h) Follow-up on action items from previous management review meetings

The following action items identified in the January 31, 2024; Management Review are noted as outstanding/upcoming:

- Establish signage to notify the public of an overflow event occurring. (Due May 21, 2025)
- Create and submit a Pollution Prevention and Control Plan to the Director on or before May 21, 2027

i) Updates on action items identified between management review meetings

The action items specified between management review meetings are primarily documented in the internal audit process.

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

There is a new Amended Environmental Compliance Approval for the WWTP. Reference # 1994-CERHEG that was put in place, December 1, 2024, and replaces ECA #6575-AFTK6S.

Identified Action Items:

Make required updates to WWQMS to meet requirements of new ECA. Ensure operators are aware of the new ECA and review.

k) Customer feedback

In 2024, there were three (3) customer complaints relating to sewer odours. Two of the complaints were relating to the East Bayshore Sewage Pump Station, and one was from a Business in the 200 block of 10th St E. Operators followed the SOP and logged these complaints. Operators investigated.

In the odour complaint at the East Bayshore pump station, Carbon air filters were installed on the wet well vents, and the running level was adjusted, resolving the odour condition.

The odour complaint at the business in the 200 block of 10th St E, the city, worked alongside the MECP to try and determine the source of the odour of hydrocarbons.

Identified Action Items:

Continue to log consumer feedback as per SOP's.

l) Resources needed for WWQMS maintenance

Assistance is available from the Water/Wastewater administrative assistant, for the WWQMS Representative (Wastewater Treatment and Environmental Lead Hand).

Identified Action Items:

Continue to seek additional assistance from Water and Wastewater Admin assistant and Wastewater Superintendent as required.

m) The Results of the infrastructure review

Infrastructure review is a collaborative process carried out throughout the year. Project updates and emerging issues are discussed at monthly manager meetings. As new projects are identified that require significant financial investment and planning, they are identified in a capital planning sheet and then prioritized through our capital budget process each summer.

Identified Action Items:

Major infrastructure projects identified and discussed included 17th St. Sewer Replacement, Intermediate Bar Screen and Digestor Clean-out

n) Currency and content of the Operational Plan

Our Operational Plan has been updated with the assistance of Brigitte Roth from Acclaims Environmental Inc. This new format streamlines the process for making changes to documents within the WWQMS.

Identified Action Items:

The new operational plan needs to be endorsed by the Council in 2025.

o) Comments and suggestions made by personnel

Operators express support for the following:

- A secondary fine screening process has been tendered out and awarded to JLR. This project is currently in the finalization of the drawings and to go out for tender mid-2025.
- Pumping station upgrades to the control and electrical panels and access hatch on the wet well at the 27th street west pump station.
- The WWTP only has one primary digester to process all bio-solids. Failure of this digester would be catastrophic to the treatment process since no raw sludge could be treated. A second digester would provide redundancy and allow raw sludge to be treated during a routine digester cleanout. Eliminating additional trucking and processing costs.

p) Review and consideration of applicable best management practices, including any publications by the MECP

Identified Action Items:

Cybersecurity Awareness Memo issued November 19th, 2024

Prepared by:

Andrew Smart
Wastewater Treatment and Environmental Lead Hand

Revision History

#	yyyy-mm-dd	**Description** (current version details plus two previous revisions' details)	By
00	2024-11-01	Initial release of this updated document	Andrew Smart