



**REPORT TO CORE AREA LIQUID WASTE MANAGEMENT COMMITTEE  
MEETING OF WEDNESDAY, FEBRUARY 28, 2024**

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**SUBJECT**     **Core Area Wastewater Treatment Plant Odour Mitigation Strategy**

**ISSUE SUMMARY**

To provide the Core Area Liquid Waste Management Committee (Committee) with an update on the Core Area Odour Mitigation Strategy and a summary of actions taken and planned projects moving forward.

**BACKGROUND**

The McLoughlin Point Wastewater Treatment Plant (MPWWTP) was designed in accordance with the Project Agreement to treat all odour-laden air before discharge. All exhausted air at, and beyond, the Plant boundary property line and the shoreline should have a maximum odour concentration of five odour units per cubic meter (OU/m<sup>3</sup>). MPWWTP has a sophisticated air collection and handling system, with carbon treatment to manage odour-laden air from the process systems. Despite the state-of-the-art odour control systems, MPWWTP has generated complaints from neighbouring communities since commissioning. As a result, the Capital Regional District (CRD) committed to continued monitoring of the odour control system performance and discharges, and to work directly with equipment suppliers to seek opportunities to further increase potential odour removal.

An internal audit of the odour collection and treatment systems, as well as an analysis of the previous odour complaints, was completed at the end of 2022 outlining the odour mitigation steps for future years. These tasks included an odour assessment using dispersion modelling, odour collection upgrades, revisions to plant maintenance procedures, and a recommendation for further review of findings to validate the approach.

Results from the odour modelling work completed by WSP Canada Inc. confirmed the maximum odour concentration at the Plant property boundary remains below five OU/m<sup>3</sup> during normal plant operations. During plant maintenance work, when tank covers are removed, odour concentrations at the Plant property boundary and within the surrounding community were observed to exceed the maximum five OU/m<sup>3</sup>.

Staff also log and investigate all odour complaints from the community. This information is used to further inform the modelling and understanding of the impact of maintenance activities on odour dispersion.

To reduce the impact to neighbouring communities the odour mitigation strategy proposed by both Integrated Water Services staff and WSP includes a combination of administrative solutions and system upgrades to reduce odours released due to Plant maintenance.

Odour Complaints and Public Engagement

In 2023, there were 149 odour complaints received, each odour complaint was investigated to establish the nature of the odour. Staff met to review all odour complaints, address potential odour events, and discuss odour system upgrades.

Table 1: Summary of Wastewater Odour Complaints Received

<b>Year</b>	<b>Total Odour Incidents</b>	<b>Number of unique complaints</b>
<b>2018</b>	11	11
<b>2019</b>	19	19
<b>2020</b>	29	27
<b>2021</b>	222	69
<b>2022</b>	101	29
<b>2023</b>	149	46

Investigation of odour complaint data collected through 2023 continues to suggest other potential odour sources may be contributing to the impacts in the surrounding communities. CRD staff will continue to engage the City of Victoria to understand the timeframe to rectify the 16 identified cross connections.

In 2017, in accordance with the Community Impact Mitigation & Operating Agreement between the Township of Esquimalt and the CRD, the Wastewater Treatment Project (WTP) established a liaison committee to provide a forum for the discussion of issues relating to the wastewater infrastructure. The Esquimalt Liaison Committee (ELC) includes delegates from the Township of Esquimalt, the West Bay Neighbourhood Association, the Lyall Street Neighbourhood Association, and the Macaulay Elementary School Parent Advisory Council. The ELC has been engaged to provide feedback on the odour mitigation strategy and ongoing odour concerns. In addition, ELC is proactively informed of potentially odour generating maintenance work.

In 2023, ELC met and reviewed the following:

- Community Inquires
- Core Area Liquid Waste Management Committee Staff Reports
- Odour Investigation, Management Plan and Commitments Update

In 2024 quarterly meetings are planned with this committee, including the upcoming meeting on February 29, 2024.

Administrative Improvements

Certain factors such as wind, temperature, and tide patterns impact and increase the risk of odour emissions beyond the facility boundary during maintenance activities. Standard operating procedures now require a review of these factors to align maintenance activities that could produce offsite odours with favorable conditions.

Staff have also identified procedural efficiencies over the past two years to reduce the required time covers are removed, these efficiencies have now been built into standard operating procedures.

When covers must be removed, operators track odour conditions and increase the application of an odour neutralizing compound (Ecosorb), as needed.

### Activities Completed in 2023

Odour mitigation projects in 2023 studied the MPWWTP Odour Control system and odour emissions, collecting valuable information to guide system improvements and upgrades for the coming years.

The following activities were undertaken in 2023 with the goals of informing or reducing air emissions:

- Installation of new H2S Sensors for both primary and secondary odour control systems (improved data collection);
- An odour assessment for MPWWTP using atmospheric dispersion modelling for odour and H2S (WSP);
- An odour collection study, including an option review and preliminary design (Associated Engineering); and,
- Updating of Plant maintenance procedures to reduce odour impacts through administrative processes.

### 2024 System Upgrades

Infrastructure work scheduled for 2024, to improve the system performance and reduce odour emissions, include:

- Secondary Odour Control System Upgrades: reduced moisture through the pre-filter improves odour elimination and extends the lifespan of the product and reduces maintenance activities.
- Densadeg No. 1 scum removal system: improved scum removal eliminates an odour source and reduces the required frequency of Plant Maintenance.
- Tank Cover Upgrades: a new design for tank covers will reduce maintenance project timelines and odour impacts by allowing more efficient access.

### Future 2025 Improvements

- Dirty backwash tank upgrade.
- Upgrades to the primary odour control system mist eliminator.
- Additional odour extraction points for plate settlers and Densadegs.
- Improved secondary odour control system and Moving Bed Biofilm Reactor (MBBR) duct sizing.

## **CONCLUSION**

The Capital Regional District recognizes that while operating under normal conditions the McLoughlin Point Wastewater Treatment Plant odour control system is fully functional and operating as per design specifications, however further system improvements are needed to reduce odours during required plant maintenance.

Following completion of the 2023 McLoughlin Point Wastewater Treatment Plan (MPWWTP),

Odour Control System Review and the MPWWTP Odour Assessment planned odour mitigation project work for 2024 and 2025 focuses on infrastructure upgrades to reduce the community impact from plant maintenance.

**RECOMMENDATION**

There is no recommendation, this report is for information only.

Submitted by:	Jason Dales, B.SC., WD IV, Senior Manager, Wastewater Infrastructure Operations
Concurrence:	Alicia Fraser, P. Eng., General Manager, Integrated Water Services
Concurrence:	Ted Robbins, B. Sc., C. Tech., Chief Administrative Officer

**ATTACHMENT(S)**

Appendix A: Odour Investigation Action Plan