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REPORT TO CORE AREA LIQUID WASTE MANAGEMENT COMMITTEE MEETING OF WEDNESDAY, JUNE 28, 2023

SUBJECT **Core Area Liquid Waste Management Committee Mid-Year Update**

ISSUE SUMMARY

To provide the Core Area Liquid Waste Management Committee (Committee) with Core Area Wastewater System (System) capital program and operations updates.

BACKGROUND

Capital Program Update

There are two major capital programs associated with the System. One is the Core Area Wastewater Treatment Project (Project) and the second is the Core Area Wastewater Capital Program, which will be an ongoing program of overall asset renewal and upgrades for all system components which are reflected in the 5-year and long-term capital plans.

Core Area Wastewater Treatment Project

The Project delivered nine major components (location map in Appendix A) and, except for the Residual Solids Treatment Plant, have been completed and accepted operationally by the Capital Regional District (CRD). The status of each of the components is detailed in Appendix B.

Core Area Wastewater Capital Program

This capital program reflects the planned capital spending for the next five years and forms part of the annual service budget that is approved in March each year by the CRD Board. In 2023, 36 projects have been identified with an expenditure estimated at \$22,235,000. Of this amount, there are \$15,200,000 worth of projects currently progressing in 2023. The status of each project is detailed in Appendix C.

Operations Update

Odour

As identified in Appendix C, there are several ongoing capital projects that have been scoped and are dedicated to the reduction and control of odours originating from the MPWWTP. In addition, work has continued on the Odour Action Plan which has been updated in Appendix D. Vancouver Island University is continuing its collection of data and has moved into analysis of the data collected but is not ready to present results yet.

Odour Complaints

In 2022 there were 101 odour complaints received, with the vast majority potentially related to the MPWWTP. As of June 12, 2023 there have been 27 odour complaints with 19 related to the MPWWTP.

Year	Number of days complaints received	Number of complaints	Number of unique complainants
2022	85	101	29
To Date 2023	25	27	13

The other eight odour complaints associated with the Core Area system came from the areas near the Craigflower Pump Station, the Clover Point Pump Station and the conveyance system.

Alum Trial

Currently, Ferric Chloride (Ferric) is added as a coagulant to backwash streams to separate and thicken solids and help prevent the formation of H₂S. A possible alternative to using Ferric is Aluminum Sulphate (Alum) which also acts as a coagulant but is less expensive and less corrosive. However, Alum is not as effective at reducing H₂S.

The primary objective of the Alum trial was to investigate the implications of replacing Ferric Chloride (Ferric) with Aluminum Sulphate (Alum) at MPWWTP to eliminate the health and safety risks associated with Ferric Chloride (dealing with a corrosive substance).

There were two Alum trials carried out, the first in December 2022 and a follow up trial to look at odours in May 2023.

The first trial had a colder wastewater temperature (16 degrees Celsius) and did not appear to cause any issues in the system. However, the second trial, with a warmer wastewater temperature (19 degrees Celsius) caused excessive H₂S levels both in the plant and in the Residual Solids Conveyance Line (RCSL). The excessive levels created a health and safety risk for workers and if it had continued would have caused excessive odours being produced both at the plant and in the RCSL and its related pump stations. Therefore, the trial was ended early.

Ongoing investigation into the viability of using other chemicals to replace Ferric Chloride is planned.

Compliance

As part of day-to-day operations, compliance monitoring is performed to ensure regulatory requirements are being met and reported.

A summary of non-compliance events to the end of May 2023 follows:

Month	# of times out of Compliance	Reasons for Non-Compliance
January	2	Primary bypass, tertiary bypass (discharge of blended effluent)
February	1	Primary bypass (discharge of blended effluent)
March	2	Max CBOD exceeded permitted levels; average TSS and CBOD exceeded permitted levels
April	1	Average TSS and CBOD exceeded permitted levels
May	1	Average CBOD exceeded permitted level
Total to end of May:	7	Discharge of blended effluent (3 times); average or maximum exceedance for CBOD and/or TSS (4 times)

- Discharges of blended effluent referenced in the table were due to wet weather events.
- TSS and CBOD levels referenced in table were due to short term spikes in the system due to operational activities that influenced monthly averages. These overages were minor in nature.

In comparison, there were 35 non-compliance events in 2022 with 18 through the end of May of 2022. These events are similar in nature with regards to type of non-compliance:

- Effluent quality compliance (TSS/CBOD) is likely the most significant non-compliance issue from the regulator's perspective.
- Premature discharge of blended effluent was also common. This is when the plant discharged primary plus tertiary blended effluent when it was not actually raining and should have been able to treat everything to tertiary. However, when these events occurred, they were short duration and didn't necessarily negatively affect effluent quality.

Budget

Aside from the noted Odour and Compliance issues, the remainder of the system has had minimal unexpected operational issues to date in 2023, the operating budget is currently generally on track except for two areas which are resulting in the need for a budget amendment:

1. Biosolids Disposal Budget – The 2023 operating budget allocated \$600,000 for a small amount of landfilling and the mixing and placing of Biosolids Growing Medium (BGM) stockpiles that were set aside in 2022. The budget assumption was that Lafarge Richmond would be receiving biosolids, however that has yet to take place. To date the service has spent approximately \$856,000 on landfilling and some BGM mixing/placement.

For the remainder of the year, two scenarios are possible:

- a) The worst-case scenario is seven more months of landfilling at an estimated cost of an additional \$1,865,000 which includes landfill tipping fees as well as the mixing and placing of the final stockpiles of BGM that were set aside in 2022.
 - b) The best-case scenario is for two months of landfilling (assuming Lafarge Richmond is able to receive CRD biosolids and/or a new contingency option is developed) at an estimated cost of an additional \$890,000 which includes landfill tipping fees as well as the mixing and placing of the final stockpiles of BGM that were set aside in 2022.
2. Residual Treatment Facility (RTF) Revenue – The 2023 operating budget identified a revenue source amounting to \$900,000 to come from the RTF acceptance and processing of third-party liquid waste (sludge). The RTF has not been able to receive and process this waste and therefore, there is a revenue shortfall of \$900,000.

As a result of the preceding, the worst-case scenario is that the operating budget could be over budget in an amount of up to \$3,021,000. This budget overage will need to be covered with the service's operational reserves as there is no other funding source available for the 2023 budget year. The operational reserves are estimated to be \$4.7 million at the end of 2023 without the need to use \$3,021,000 to fund the above expense. To access the operational reserves, CRD Board authority is required and there is a recommendation at the conclusion of this report to authorize accessing the funds.

CONCLUSION

This report provides the Core Area Liquid Waste Management Committee with updates on both ongoing capital programs for the Core Area Wastewater System and the Core Area Wastewater Treatment Project. In addition, information has been provided regarding operational issues and non-compliance events and budget anomalies.

RECOMMENDATION

That the Core Area Liquid Waste Management Committee recommends to the Capital Regional District Board:

That staff be directed to amend the Core Area Wastewater Operations Service Financial Plan (3.717) to increase expenditures in 2023 by up to \$3,021,000 due to Biosolids Disposal and Residual Treatment Facility Revenue budget variances with such expenditures to be funded from Operational Reserves (3.717).

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ATTACHMENTS

- Appendix A: Core Area Wastewater Treatment Project Overview Map
- Appendix B: Core Area Wastewater Treatment Project – Current Status
- Appendix C: Core Area Wastewater Capital Program – Current Status
- Appendix D: Odour Investigation Action Plan