

**REPORT TO CORE AREA LIQUID WASTE MANAGEMENT COMMITTEE
MEETING OF WEDNESDAY, MARCH 23, 2022**

SUBJECT **Biosolids Management and Planning Update**

ISSUE SUMMARY

To update the Core Area Liquid Waste Management Committee regarding biosolids short-term management and long-term planning, and initiation of pilot studies to investigate thermal destruction technologies as a long-term biosolids management option.

BACKGROUND

After commissioning of the Core Area Wastewater Treatment Project, residual solids from the McLoughlin Point Wastewater Treatment Plant are now processed at the new Residuals Treatment Facility (RTF) into a dried pelletized Class A biosolid product. The Capital Regional District's (CRD) approved short-term (2021-2025) Biosolids Beneficial Use Strategy, and contingency plan for management of biosolids, is transport and incineration at the Lafarge cement plant, or incorporation into engineered cover systems at Hartland Landfill when Lafarge is not operating.

During the first year of operation, consistent delivery of Class A biosolids to Lafarge under the Beneficial Use Strategy has been challenging. While staff have addressed a number of logistical issues pertaining to biosolids delivery, Lafarge has been unable to receive product consistently due to a number of unplanned shut-downs. Lafarge is currently carrying out planned maintenance and is anticipated to be back in operation by early April.

Biosolids not shipped to Lafarge are managed under the CRD's Short-Term Contingency Plan and used at Hartland Landfill as both a nutrient additive to improve vegetation growth in areas of Hartland Landfill and as an engineered bio-cover to mitigate fugitive methane emissions.

The CRD summarizes the biosolids production and management in a monthly update that is reported through our website (Appendix A).

As a condition of provincial approval of the CRD's short-term plans, the Province requires a final submission of a long-term biosolids management plan by Q2 of 2024. In 2020, the CRD issued a Request for Expressions of Interest that focused on the use of thermal technologies as a long-term beneficial use option for biosolids produced at the RTF. Given the complex operational nature of thermal technologies, the CRD's external consultant recommended pilot studies at existing facilities be carried out to ensure their viability for biosolids management. The recommendation to enter into negotiations with successful candidates and to pursue pilot studies at existing facilities, up to a maximum budget of \$400,000, was approved at the February 10, 2021 CRD Board meeting.

CRD staff engaged in technical discussions with potential candidates and selected three facilities to provide detailed proposals for staff review. The detailed work proposals were incorporated into contracts with the first two vendors listed below, with negotiations underway with the third vendor:

- EPCOR and Chartech: Bench-scale laboratory testing and pilot-scale high-temperature pyrolysis testing at a commercial facility located in London, Ontario.
- Aries Clean Technologies LLC: Proxy pilot-scale gasification testing at the Linden Roselle Sewerage Authority located in Linden, New Jersey.
- Waste Management: Biosolids data review and proxy pyrolysis pilot testing at the Silicon Valley Clean Water Authority located in Redwood, California.

It is anticipated that the bench-scale testing and data review of the pilot studies will be completed in Q2 of 2022 and the pilot scale testing and reporting will be completed in Q3/Q4 of 2022.

The analysis of the pilot studies will be incorporated into a broad options analysis for the CRD Board's consideration in Q1/Q2 2023. That information will then require a public consultation process, as defined by the Province, before a final long-term plan is approved by the Board and submitted to the Ministry of Environment and Climate Change in Q4 of 2023. Concurrently, staff will continue to implement the definitive short-term management plan that bridges the operational plans to the long-term biosolids management plan.

At the July 14, 2021 CRD Board meeting, staff were directed to support the business case process the Township of Esquimalt is undertaking to explore feasibility and gasification of solid waste. Staff inquired with biosolids pilot vendors whether their existing facilities were capable of processing municipal solid waste. Vendors advised staff that extensive pre-processing of solid waste would be required prior to processing in their facilities, and that additional permitting from regulatory agencies may be required prior to initiating any testing.

At the request of the Township of Esquimalt, the CRD is also providing support for biosolids testing under their pilot program for integrated waste management through gasification.

IMPLICATIONS

Financial Implications

Total award contract amounts equalled the approved maximum budget amount of \$400,000. Funding for long-term biosolids management planning, including pilot studies, will be taken from the Core Area Liquid Waste Planning Operating Reserve Fund. Staff have also identified \$50,000 from the Operating Reserve Fund to support the Township of Esquimalt's pilot project. Staff have identified grant opportunities (Federation of Canadian Municipalities "Pilot Project: Waste Stream Management" Program and "Study: Waste Stream Management" Program) as potential funding sources to support this project.

Regulatory Implications

In BC, municipal wastewater residuals must be beneficially reused, in accordance with provincial requirements. The Province approved the CRD's short-term Biosolids Beneficial Use Strategy but directed the CRD to consider options for long-term biosolids management. As directed by the Minister of Environment and Climate Change Strategy, land application must be included in the options analysis for long-term biosolids management, which will follow this pilot project stage.

CONCLUSION

Given the complex operational nature of thermal technologies, the CRD is pursuing pilot studies at existing facilities for biosolids utilization. The CRD obtained detailed proposals and awarded contracts to three vendors to complete pilot study work scheduled for 2022. Information from pilot studies will inform viability of thermal technologies as biosolids management options under the CRD's long-term biosolids planning process, which is due to be completed in Q2 of 2024.

RECOMMENDATION

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

That this report be received for information.

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Concurrence:	Larisa Hutcheson, P. Eng., General Manager, Parks & Environmental Services
Concurrence:	Robert Lapham, MCIP, RPP, Chief Administrative Officer

ATTACHMENT

Appendix A: CRD Wastewater Treatment – Biosolids Production Report (December 2021)