



City of Richmond

Report to Committee

To: General Purposes Committee **Date:** March 30, 2020
From: Peter Russell, BAsC, MSc, MCIP, RPP **File:** 10-6175-03-01/2020-Vol 01
 Director, Sustainability and District Energy
Re: **Capital Regional District Biofuel Incineration at the Richmond Lafarge Cement Manufacturing Site**

Staff Recommendation

That the comments outlined in the staff report titled "Capital Regional District Biofuel Incineration at the Richmond Lafarge Cement Manufacturing Site" dated March 30, 2020, from the Director, Sustainability and District Energy be endorsed and directed to Metro Vancouver and the Capital Regional District.

Peter Russell, BAsC, MSc, MCIP, RPP
 Director, Sustainability and District Energy
 (604-276-4130)

REPORT CONCURRENCE		
ROUTED TO: Building Approvals	CONCURRENCE <input checked="" type="checkbox"/>	CONCURRENCE OF GENERAL MANAGER DocuSigned by: <i>[Signature]</i> 9352CB09CEDB448...
SENIOR STAFF REPORT REVIEW	INITIALS: <i>[Signature]</i>	APPROVED BY CAO <i>[Signature]</i>

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Staff Report

Origin

The purpose of this report is to provide an update on biosolid management in Metro Vancouver and inform Council of the Capital Regional District's plan to export refined biosolid pellets from the Hartland Residuals Treatment Facility on Vancouver Island to Lafarge Canada Incorporated's (Lafarge) cement plant in Richmond. This report also recommends that comments regarding this project be endorsed and directed to Metro Vancouver and the Capital Regional District.

This report supports Council's Strategic Plan 2018-2022 Strategy #1 A Safe and Resilient City:

Enhance and protect the safety and well-being of Richmond.

1.4 Foster a safe, caring and resilient environment.

This report supports Council's Strategic Plan 2018-2022 Strategy #2 A Sustainable and Environmentally Conscious City:

Environmentally conscious decision-making that demonstrates leadership in implementing innovative, sustainable practices and supports the City's unique biodiversity and island ecology.

2.1 Continued leadership in addressing climate change and promoting circular economic principles.

Analysis

Biosolids in Metro Vancouver

Biosolids are the stabilized products recovered from the wastewater treatment process and are provincially regulated. Biosolids can be beneficially used in energy production or in land application (as a fertilizer or soil amendment). Biosolids can be further refined to produce biosolid pellets. As a biofuel, refined biosolid pellets can provide a high-heat alternative.

Biosolids from the region's five wastewater treatment facilities are managed by Metro Vancouver, from which 55,000 bulk tonnes of biosolids is generated annually. Metro Vancouver currently relies on land application projects throughout BC for reuse of the product. Metro Vancouver is forecasting this quantity to substantially increase to 150,000 tonnes per year by 2050 but does not expect it can secure sufficient new land application projects to meet the demand, due to fluctuations in customer markets and public concern. Metro Vancouver is currently considering future solutions to resolve this issue including constructing a drying facility at one of the regional wastewater treatment plants.

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Biofuel Imports to Metro Vancouver

The Capital Regional District (CRD) prepared the Core Area Wastewater Program, Biosolids Management Plan in 2009. Under the plan, CRD is planning to pipe residual solids from the McLoughlin Point Wastewater Treatment Plant to a Residuals Treatment Facility located at the Hartland Landfill, where they will produce dried biosolid pellets that can be used as a biofuel. The CRD banned land application of biosolids in 2011 and recently relaxed the ban this year to allow biosolids to be used as fertilizer at the Hartland Landfill. The region remains reliant on the demand of independent vendors such as Lafarge Canada Incorporated (Lafarge) to meet its short-term waste management objectives.

The CRD expects to export up to 7,000 tonnes of biofuel annually to two locations in Metro Vancouver. Lafarge, located at 7611 No. 9 Rd. in Richmond, expects to receive 3,500 tonnes per year beginning in 2020, and the remaining 3,500 tonnes per year is expected to be delivered annually to the Lehigh Cement site located in Delta in subsequent years. The CRD will have the dried, granular by-product exported by truck and ferry in bulk trailers to Lafarge where it will be used to displace coal or natural gas in cement kiln burners for cement manufacturing. Lafarge received a Development Variance permit from the City in 2017 to upgrade its kiln and new material handling system. Lafarge is planning to construct a new silo and closed-loop, conveyance system for handling the biofuel. The new infrastructure will be designed to manage fugitive dust and reduce the potential for odours. Lafarge has committed to the necessary work and has secured provincial funding from the CleanBC Industry Fund to support the upgrades. Staff have held preliminary meetings with Lafarge to discuss concerns related to odours being generated through shipping into Richmond and management on their Richmond site. Potential requirements for City-issued permits related to the upgrades were also discussed. Staff are currently anticipating a building permit application in the coming months.

Lafarge estimates that the CRD's annual supply of biosolids will only satisfy approximately 1% of their future alternative fuel offsetting needs, leaving capacity for locally refined biosolids and biofuels should they be produced in the future.

Metro Vancouver Permitting Requirements

The overall project must consider the environmental and human health risks including managing odours, the risk of ignition, and human exposure through authorized transporting, handling, and storing procedures. Lafarge currently has an air discharge permit and a solid waste license issued by Metro Vancouver under delegated authority from the Province. The existing solid waste permit allows Lafarge to accept select alternative fuels such as biosolid pellets for onsite incineration. The air discharge permit includes provisions for Lafarge to conduct air quality pilot studies, including assessing odours from new fuels. Lafarge has advised staff that they intend to undertake a pilot study to assess the biofuel during incineration. Results from the pilot study would be submitted to Metro Vancouver for review to determine if permit amendments are required for the release of additional contaminants into the air. No additional environmental permits are required to transport, store, or incinerate the refined biosolid pellets.

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Literature from the Environmental Protection Agency in the United States suggests that odours from transporting, handling, storing and incinerating the refined biofuel can be managed effectively with technology and best management practices. The City is also aware that approximately 8,000 tonnes of biosolids (recovered regionally) was used to amend soils for use at the Ecowaste facility in Richmond last year, and no odour complaints were filed with Metro Vancouver during that time. Nonetheless, the City of Richmond's (the City) concerns related to odour and air quality have already been communicated to Metro Vancouver and Lafarge. The City met with Lafarge staff in February 2020 and at the City's request, Lafarge has agreed to add carbon air filters to the silo design to further mitigate potential odour releases to the environment. Meetings with Metro Vancouver staff have taken place to get more information about the project and relay the City's concerns.

Recommended Comments for Metro Vancouver

After evaluating the project and reviewing Metro Vancouver's Biosolids Management Plan Framework, it is recommended that the following comments be endorsed and sent to appropriate departments at Metro Vancouver and the CRD for consideration:

- That Metro Vancouver review the scope of Lafarge's proposed incineration pilot study and ensure that information relating to odour, metals and pathogens emissions are included as part of the air quality testing, and that Metro Vancouver complete third party sampling during that time to verify the results;
- That a copy of all of the test results, in a suitable format, be made available for the City to review and evaluate;
- That Metro Vancouver be requested to investigate the benefit of developing biosolids-specific air quality standards to ensure that regional air quality standards continue to be achieved;
- That Lafarge be required to prepare and submit a biosolids management plan to outline the measures and best management practices that will be in place to reduce the risk to the community including management of odours, loading and offloading, transportation, storage and incineration;
- That Metro Vancouver begins preparing regional best management practices including evaluating suitable technologies in preparation for an increase in the beneficial uses of biosolids in the region;
- Given that Lafarge has agreed to the City's request that carbon filters be added onto the future silo to further reduce the potential for odours, that Metro Vancouver staff ensure that suitable carbon filters are present and operational prior to allowing future air discharges; and
- That Metro Vancouver appropriately notifies the community, in particular neighbouring businesses, regarding Lafarge's plan to incinerate biosolid pellets.

Financial Impact

None.

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Conclusion

The development of well-managed, biosolids projects in Metro Vancouver can reduce costs, conserve nutrients, and can benefit local circular economy initiatives. The Lafarge project, if managed responsibly, will provide a case study for the future use of biosolids refined locally.

The City will remain engaged in the project to ensure the City's odour and air quality concerns are addressed and will report back to Council accordingly.



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