

**REPORT TO ENVIRONMENTAL SERVICES COMMITTEE  
MEETING OF WEDNESDAY, JULY 19, 2023**

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**SUBJECT**    **Long-Term Biosolids Management Planning**

**ISSUE SUMMARY**

To provide an update on long-term biosolids management planning.

**BACKGROUND**

Commissioning of the Capital Regional District's (CRD) Core Area Wastewater Treatment Project resulted in the continuous generation of residual solids from the McLoughlin Point Wastewater Treatment Plant, which are then processed at the Residuals Treatment Facility into dried pelletized Class A biosolids. The biosolids are currently being managed under a short-term plan that extends until 2025; however, throughout much of 2022 and 2023, the biosolids have been landfilled due to a lengthy service outage at the Lafarge cement plant. The Province requires submission of a long-term biosolids management plan by June 2024.

**Biosolids Long-Term Options Analysis Update**

The CRD procured a technical consultant (GHD) who recently provided a long-term biosolids management options analysis report (Appendix A). In addition to including the options analysis, the report contains an updated review of international biosolids management practices and a summary and evaluation of the recent advanced thermal (gasification and pyrolysis) pilots procured in 2022.

As a result of their options analysis, GHD recommends that the CRD pursue a portfolio of biosolids management options to ensure stable beneficial reuse of biosolids into the future. This is consistent with the CRD's experience to date, as well as a review of the experiences of other jurisdictions. GHD has proposed several long-term management portfolios for consideration, each meeting provincial and federal requirements and expectations for biosolids beneficial reuse. Each portfolio contains a number of options to ensure resiliency if the preferred options are temporarily unavailable. The Board has also directed staff to accelerate the investigation of advanced thermal (gasification) technologies. However, due to limited availability and reliability of thermal options at this time, GHD has recommended that all portfolios include some form of land application, which is consistent with provincial regulatory direction.

The proposed portfolios can be generalized, as follows:

1. Status quo: (cement kiln incineration) with non-agricultural land application contingencies.
2. Thermal processing (incineration/gasification/pyrolysis) with non-agricultural land application contingencies.
3. Multiple land application projects to ensure consistent beneficial use of biosolids.

GHD's report will be used to inform public and First Nations consultation. GHD has proposed an options evaluation that can be used to guide the public and First Nations in their assessment of the proposed portfolios and options, as well as any new options that are identified during consultation. GHD has also provided a summary of the most significant pros and cons with each option in the report.

### **Biosolids Consultation Plan Update**

The CRD recently hired a strategic communications and public engagement consultant, Tavola Strategy Group Ltd., to support the process. This same consultant previously assisted with the short-term biosolids strategy. Their strategy for this long-term planning process will involve engaging with key stakeholders and residents of the capital region to:

- educate on the available beneficial use options, and how multiple options will be required;
- gather public input on values and preferences to inform the Board’s decision on the Biosolids Strategy; and
- meet the requirements for consultation to satisfy provincial legislation.

Most consultation will be via online engagement tools, and Tavola’s high-level scope of work can be found in Appendix B. Their detailed consultation plan will be finalized by September 2023, with overall consultation completed by the end of 2023. In addition, staff will be reconvening the Technical and Community Advisory Committee (TCAC) for liquid waste management issues and this group will be involved with the biosolids planning.

### **Biosolids Advanced Thermal Site Trial Update**

Staff have issued a Request for Expression of Interest (RFEOI) for an advanced thermal site trial. RFEOI submissions must be received by July 21, 2023 and the request is open to any domestic or international vendor. Vendors can also propose co-processing as an option. Once Expressions of Interest have been received and reviewed, the CRD will develop a short-list to support a Request for Proposals process and ultimately enter into negotiations to proceed with any vendor that meets the requirements.

This information will inform the draft plan to be submitted to the Province in 2024. However, an advanced thermal facility is outside of the approved Core Area Liquid Waste Management Plan (LWMP). A new facility will require a major amendment to the LWMP and include a separate review, consultation and approval process. The Province has requested a letter outlining the CRD’s proposed plans and will review and provide feedback on the process required to pursue this option. A site trial will likely take one-two years to plan and procure and another one-two years before sufficient results are available to evaluate the technology. Discussions with the Province also indicate that a minimum of one/two years are required to obtain provincial authorization to operate an advanced thermal pilot facility. When there is sufficient information, the CRD can approach the Province to initiate the approval process.

## **IMPLICATIONS**

### *Service Delivery Implications*

Some long-term biosolids management options (alternative fuel at LaFarge – Richmond, out-of-region land application programs) are available immediately, while others (in-region land application options) will require six to twelve months to develop and still others (advanced thermal pilot projects or facilities) will take years to develop. There are potential pros and cons for each option beyond timing, and ultimately biosolids management will require portfolios of options to ensure program resiliency and continuous service delivery.

With respect to any advanced thermal site trial, there will be a period of up to three years to allow the trial to be procured, designed, approved, constructed and operated so that it can be evaluated, before a final facility could be established. As a result, interim biosolids management options will

need to be identified in the long-term plan to be submitted to the Province by June 2024.

### *Intergovernmental Implications*

Advanced thermal (gasification) technology is not within the approved LWMP and will require significant involvement with the Province. The inclusion of an advanced thermal option in the long-term plan would require a major amendment to the LWMP that includes a separate review, consultation and approval process to be overseen by the Province. Provincial staff indicate that a reasonable timeline for a permanent facility would be in the order of five-ten years.

In a parallel process to the public consultation and reconstitution of the TCAC, the CRD will carry out First Nations consultation on the available options for long-term planning. Staff will use an engagement consultant to assist in planning and actioning meaningful engagement with First Nations.

### *Environmental & Climate Action*

Land application is a well-established practice in British Columbia and many other parts of the world. GHD's review of the scientific literature indicated that when biosolids are properly treated, monitored, and land applied in accordance with regulations, the risks associated with contaminants and pathogens are generally low. Thermal options may result in more substantive contaminant reduction (but not complete destruction); however, contaminants may be distributed more broadly via stack emissions.

When determining the long-term biosolids beneficial use under the LWMP, the CRD must make considerations to minimize GHG emissions. Land application supports this principle by reducing the need for energy-intensive synthetic fertilizer production as well as increasing carbon storage in soil and vegetation. Thermal beneficial use options may displace conventional fuel use, and thereby reduce net GHG emissions; fulsome GHG implications of advanced thermal technologies will be evaluated during the site trial.

### *Social Implications*

Given the Board's longstanding resolution on banning land application in the region, there could be broader opposition to the proposed portfolios identified during public and/or First Nation consultation. Conversely, the financial, technical, regulatory complexities and implications of siting any new advanced thermal facility will also likely garner significant input that will need to be considered in the final report. The proposed consultation will be used to inform the long-term management plan but would not be sufficient to address the subsequent consultation requirements for a LWMP major amendment if a thermal facility is proposed in the plan.

### *Financial Implications*

The production and management of biosolids since 2020 resulted in new costs to the core area wastewater service. Each proposed portfolio and option will have different cost implications. Advanced thermal options tend to be significantly more expensive than land application options. These implications will need to be considered during consultation and evaluation.

*Alignment with Board & Corporate Priorities*

The CRD's existing resolution on biosolids land-application will likely need to be reevaluated. Technical consultants have affirmed that land application is the most reliable option for inclusion, either as a primary, contingency or sole option in all long-term management portfolios. Agricultural versus non-agricultural, and in-region versus out-of-region restrictions will have implications on portfolio resiliency. Consultation will provide an indication of the public's willingness to consider land application options.

**CONCLUSION**

The Capital Regional District (CRD) is required to develop a long-term biosolids management plan, due to the Province by June 2024, as part of the core area wastewater service. The CRD is currently implementing a short-term plan biosolids plan. The CRD has a technical analysis of potential long-term biosolids management options, which recommends consideration of portfolios of options to ensure program resiliency. The public and First Nations consultation starting in the fall will help inform evaluation and selection of these portfolios. Currently, a Request for Expressions of Interest for an advanced thermal site trial is also underway. Information gathered by these parallel processes will be integrated into a draft long-term biosolids management plan for consideration by the Environmental Services Committee and Board in Q2 of 2024.

**RECOMMENDATION**

There is no recommendation. This report is for information only.

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**ATTACHMENTS**

- Appendix A: Long-Term Biosolids Beneficial Use Options Analysis (GHD) – July 5, 2023
- Appendix B: Consulting Services – Long-term Biosolids Strategy Consultation – Tavola (June 27, 2023)