

**REPORT TO SALT SPRING ISLAND LOCAL COMMUNITY COMMISSION
MEETING OF THURSDAY, OCTOBER 09, 2025**

SUBJECT **Burgoyne Bay – High-Level Analysis of Liquid Waste Management Options**

ISSUE SUMMARY

A request to complete a high-level assessment of biochar as an element of liquid waste treatment, and consider the greenhouse gases implications of the dewatering options at the Salt Spring Island (SSI) Burgoyne Bay liquid waste management facility.

BACKGROUND

The SSI Local Community Commission (LCC) reviewed an analysis of using geotubes as a technique for dewatering on March 20, 2025 (attached as Appendix A). Following a discussion on geotubes further information was requested and the following motion was passed.

That staff report back on a high-level assessment of bio-char as an element of liquid waste treatment and the greenhouse gases implications of the overall process for various options.'

High-Level Analysis of Biochar

The CRD Board has been considering the construction of a biochar facility at Hartland in recent years. Prior to reporting back on biochar, staff have been awaiting anticipated direction from the CRD Board on the consideration of an advanced thermal facility to produce biochar using biosolids from the Core Area wastewater treatment process produced at the Residuals Treatment Facility (RTF) at Hartland as feedstock.

On June 26, 2025, the CRD Board announced Pyrocal PTY Ltd was selected as the preferred proponent to provide the CRD with commercially demonstrated technology for biochar production to be integrated as component addition to the existing RTF. The CRD Board confirmed \$10 Million for the project in its 5-year capital plan. A press release is included in Appendix B. The biochar facility will be the first of its kind in Canada. The proposed system is designed as an added component to the RTF at Hartland Landfill and will process all Class A biosolids that are currently produced.

In North America there are existing pyrolysis plants used to process organic material like forest or agricultural residues. These plants process a consistent source material that enables successful plant operation. This is a key factor to consider when considering a biochar facility. The CRD is not aware of any commercially operating plants in North America processing biosolids. One of the primary reasons Pyrocal was selected is because they have been commercially operating a plant for the City of Logan in Australia.

To create Biochar the production process uses pyrolysis to heat organic material in the absence of oxygen. This process requires a consistent dry feedstock. The CRD's new facility at Hartland will be leveraging the existing drying infrastructure from the adjacent RTF that results in a greater than 90% dry biosolid and enables a business case for biochar production.

On SSI the current liquid waste at Burgoyne Bay is significantly more saturated and varies from a 2% to a 5% solid. The liquid waste is composed of a combination of the outputs from two SSI wastewater treatment plants (WWTP) at Ganges and Maliview, and a greater amount of unprocessed raw septage from the septic tanks across the island. The amount of septage varies through the year. This combination of effluent creates a unique liquid waste product that has a high variability¹.

The RTF could receive other municipal wastewater treatment solids, but an engineering assessment would be required before the introduction of any materials from Salt Spring to determine feasibility and any potential pre-treatment requirements. If the Burgoyne Bay liquid waste were to be shipped to the Hartland facilities a processing fee would need to be determined.

The cost of the RTF facility was \$135 million and was completed in year 2020. The cost of the RTF and biochar facilities are associated with the CRD's Core Area Service, that does not include SSI as a participant. In addition to the capital costs associated with the RTF, the annual operations and maintenance requires a sophisticated and dedicated operator. The staffing of the RTF facility requires a 24 hour a day and seven day a week operation. The biochar facility is also expected to be a complex facility. If either facility was to be considered at a smaller scale on Salt Spring a further in-depth analysis of costs and logistics would need to be completed prior to progressing.

High-Level Greenhouse Gases Analysis

An evaluation of the potential to reduce greenhouses gases (GHG's) was completed at a high level. The evaluation considered the reduction in the amount of greenhouse gases that could occur if the liquid waste was dewatered at the Burgoyne facility prior to trucking the material to Vancouver Island for processing.

The evaluation focused on any potential reductions in GHG's if fewer trucks were on the ferry to Victoria. As part of the evaluation an assumption was made that whether geotubes or an alternative method like a screw press were used for dewatering that the solids in either process would increase to a 20% solid. Subsequently the amount of trucking off-island would be reduced by about 83%.

The conclusion of the greenhouse gas analysis indicates that an equivalent GHG discharge associated with nine gasoline cars would be removed from the roads as a result of dewatering using geotubes. However, this was based on assuming the truck/tractor hauling the waste continues to be powered by a diesel engine. There is an opportunity for the truck/tractor to be exchanged for a vehicle that is powered by electric motor(s) and if that occurred, the difference in greenhouses gases could become negligible.

Overview

This high-level analysis of biochar and greenhouse gases has been completed by utilizing the expertise within the Capital Regional District. A third-party more in-depth analysis of either area of interest must be completed if recommended to progress.

In the March 20, 2025 staff report the following alternatives were provided, however a decision was deferred until additional information on biochar and greenhouse gases were provided. These alternatives remain to be decided on:

¹ Burgoyne Bay Septage Receiving Facility, Alternative Waste-Stream Management Option Analysis, Page 4, Vassos, August 4, 2023

ALTERNATIVES

Alternative 1

The Salt Spring Island Local Community Commission recommends that staff do not pursue the option of using geotubes as a dewatering technique at Burgoyne Bay.

Alternative 2

The Salt Spring Island Local Community Commission recommends that staff do not pursue options of using alternate dewatering techniques at Burgoyne Bay if the costs of operating the current service cannot be reduced.

Alternative 3

The Salt Spring Island Local Community Commission recommends that staff retain a third-party consultant to further investigate and analyze geotubes as an alternative dewatering technique at Burgoyne Bay with a budget of up to \$50,000.

IMPLICATIONS

Alignment with Existing Plans & Strategies

The LCC's Strategic Plan from 2024 to 2027 includes a Goal of *cost effective and environmentally responsible management of liquid waste and residuals*. The evaluation of geotubes and biochar directly addresses the Goal as well as the Objectives and Initiatives related to evaluating and reducing the volume of liquid waste transported off SSI, as well as proper liquid effluent and solid residuals disposal.

Intergovernmental and First Nations Implications

The proposed activities would involve acquiring approvals from provincial agencies and engagement with the local community and First Nations prior to progressing. The Burgoyne facility borders Burgoyne Bay Provincial Park and is in close proximity to properties held by a First Nations Society and island residents.

CONCLUSION

A high-level assessment of biochar as an element of liquid waste treatment and the greenhouse gases implications of the overall process for various options has been completed

The creation of biochar from the liquid waste on Salt Spring could be considered. However the initial high-level review does not indicate this will result in any reduction in costs to operate the service. The amount of greenhouse gases that could be reduced as a result of dewatering the liquid waste on Salt Spring prior to trucking to Vancouver Island was derived to be the equivalent of removing 9 gasoline cars from the roads.

The Alternatives from the March 20, 2025 have not been progressed and continue to be available for the LCC to provide a recommendation on how to proceed.

RECOMMENDATION

The Salt Spring Island Local Community Commission recommends that staff do not pursue the option of using geotubes as a dewatering technique at Burgoyne Bay.

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APPENDIX

Appendix A – March 20, 2025, Staff Report on Geotubes

Appendix B – June 26, 2025, Press Release on CRD Bio Char Pilot Project