

DATE: March 24, 2021

TO: Chair and Directors
Solid Waste Advanced Technology Select Committee

FROM: Russell Dyson
Chief Administrative Officer

RE: **Sustane Technologies Chester Facility – Status Update**

FILE: 5360-60/WTE

Supported by Russell Dyson
Chief Administrative Officer

R. Dyson

Purpose

To provide a status update regarding commissioning of the Sustane Technologies Inc. (Sustane) facility constructed in Chester, Nova Scotia.

Recommendation from the Chief Administrative Officer:

This report is presented for information only

Executive Summary

Sustane continues to progress commissioning of their solid waste processing facility constructed in Chester, Nova Scotia. At its April 19, 2018 meeting, the Comox Strathcona Waste Management (CSWM) Board passed the following resolution:

THAT the Comox Strathcona Waste Management Board direct staff to monitor waste management technology proposed by Sustane Technologies Inc., in Nova Scotia, for up to one year of full operations;

AND FURTHER THAT a report on its effectiveness and efficiencies be presented to the CSWM Board following the monitoring period.

Later in 2018, staff retained Morrison Hershfield to develop performance criteria and conduct a performance review of the Chester facility once the plant was fully operational. The performance review is supported and funded by the Regional District of Nanaimo and the Cowichan Valley Regional District in partnership with CSWM.

The more formal assessment will begin once the Chester facility is fully commissioned and considered to be commercially operational. To date, the commissioning at the facility is not yet complete and Morrison Hirschfield has provided status updates to CSWM staff over the past few years. Attached as Appendix A is an email update from Morrison Hershfield providing a summary of Sustane's progress as well as a schedule to completion. Highlights from the memo include:

- Commissioning has progressed and the plant is now operating four days per week, 18 hours per day.
- Metals were interfering with plant equipment, in response Sustane has installed additional equipment to identify and remove metals early in the process.
- The thermal conditioning system is still being optimized in order to increase its capacity from 100 to 200 tonnes per day.

- The pyrolysis process is fully commission, however Sustane is waiting for an operational permit for this part of the process.
- Sustane is now focused on yield and quality of end products.
- Sustane continues to correspond with the BC Ministry of Environment and Climate Change Strategy about whether or not their technology will be considered waste diversion or waste to energy.

By mid-2021 Sustane is aiming to have reached full continuous operation. Morrison Hershfield will begin monitoring the plant performance after three months of full continuous operation. Morrison Hirschfield will continue to maintain close contact with Sustane throughout the commissioning period.

Prepared by:

M. Rutten

Marc Rutten, P.Eng.
General Manager Engineering Services

Attachments: Appendix A – Email: Key points from Sustane’s progress update, March 10 -
Veronica Bartlett to Marc Rutten, March 22, 2021

From: Veronica Bartlett <VBartlett@morrisonhershfield.com>
Sent: March 22, 2021 8:49 PM
To: Marc Rutten
Cc: Vivian Schau; Sarah Willie; Todd Baker
Subject: Key Points from Sustane's progress update March 10

CAUTION! EXTERNAL EMAIL

Hi Marc,

Thanks for sharing your notes from our meeting with Sustane on March 10, 2021 via MS Teams. I have combined them with our notes, as shown below. Please let me know if you/ Sarah or Vivian have a different understanding of any of the key points made during the meeting.

Attending:

Peter Vinall, Sustane
Kevin Cameron, Sustane
Marc Rutten, CVRD
Vivian Schau, CVRD
Sarah Willie, CVRD
Veronica Bartlett, MH
Todd Baker, MH

Peter Vinall gave an update on Sustane's progress over the last year, and provided a virtual zoom walk through of the Chester facility, where there are high definition cameras in all areas. Peter also responded to questions about the Chester facility.

Here are the key points from the progress update:

- The plant is now operating 4 days a week - 18 hrs per day, which is still below plant capacity.
- Currently they employ 18 staff, targeting 25 staff when in full operation.
- Sustane had ongoing operational issues with metals interfering with plant equipment and have now installed additional equipment to identify and remove metals early in the process using bag opener, additional screening and magnets. There is no manual sorting - the process is still fully automated.
- The thermal conditioning system ("cooking system") is now processing approximately 100 tonnes per day. Additional improvements to the thermal conditioning process are being trialed in India and will be installed at the Chester facility when results are proven. Once improvements are made, the facility can operate at capacity (200 tonnes per day).
- Low density plastics are sent to the Pyrolysis process, which produces diesel and naphtha. Approximately 75% plastic is made into diesel and 25% into naphtha.
- Sustane is confident that the diesel will be "road-grade" and naphtha can be used as plastic feedstock by the plastics industry (supporting circular use of plastics).
- Currently all of the naphtha is used for internal energy consumption.
- The pyrolysis process is now fully commissioned, however they are waiting for an operational permit for the pyrolysis unit. The permit is expected in the coming weeks. No other permits are required for the full plant operation.

- Until the permit is granted, Sustane has had to send all non-fibrous material to landfill as the their plastic hopper is full.
- Three types of pollution prevention devices, including an adsorption scrubber system and an adsorption pollution control device, will be installed shortly to satisfy EA requirements.
- Air emission data is not yet available.
- Sustane didn't think that the added pollution devices will have any impact on operational costs.
- Sustane doesn't have a market right now for the char. Only 2-3% of the MSW becomes char.
- No waste from the plant is considered as hazardous waste.
- Now they are simulating how the plant would perform if MSW is accepted that has minimal source separation.
- Sustane has not experienced any issues with dust as the plant has a robust ventilation system. The Chester Plant was required to have motors that are explosion proof. In any future plant, many parts of the process will be placed outside under cover to limit the risk of dust and to avoid strict requirements that come with a higher risk of combustible dust.
- Sustane is now focused on ensuring yield and quality of end products.
- By mid 2021 (in approximately 3 month's time), Sustane is aiming to have reached full continuous operation. Morrison Hershfield will begin monitoring the plant performance after 3 months of full continuous operation.
- Despite the additional investments in capital improvements to the Chester facility, Sustane will not revise the tipping fees. The company is absorbing these costs and will simply learn from the lessons for other new facilities.
- Sustane has corresponded with the BC Ministry of Environment and Climate Change Strategy (MOECCS) in regard to a potential facility with the capacity of 70,000 tonnes per year (tpy).
- Sustane is in preliminary discussions with the MOECCS about whether or not their technology will be considered waste diversion or waste to energy (WTE). This will be important for acceptance in BC.
- According to the MOECCS, the 70,000 tpy facility would not require an Environmental Assessment in BC.
- Sustane is looking at two potential new facilities, one in Prince George and one on Vancouver Island (both at 70,000 tpy).

During the call MH agreed to organize another check-in call in early June to see if the facility is closer to full operation at capacity.

Marc, I hope it is sufficient to capture the points in this format. If you require a formal update in form of a Memo, please let us know.

I will be in touch in May to find a suitable date for the next call in June.

Kind regards,

Veronica

Veronica Bartlett, M.Sc.

Solid Waste Planner

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