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TO: Chair and Directors
Comox Strathcona Waste Management Board

Supported by Russell Dyson
Chief Administrative Officer

FROM: Russell Dyson
Chief Administrative Officer

R. Dyson

**RE: Comox Valley Waste Management Centre – Requirement for Additional
Leachate Management Measures**

Purpose

The purpose of this report is to inform the Comox Strathcona Waste Management (CSWM) Board (Board) of the results of an assessment of the first full year of operations of Leachate Treatment Facility at the Comox Valley Waste Management Centre (CVWMC) and to identify challenges and provide our strategy moving forward.

Recommendation from the Chief Administrative Officer:

This report is for information purposes only.

Executive Summary

As part of the construction of Cell 1, a double lined leachate equalization pond was constructed and commissioned in August 2016. The equalization pond stores leachate from Cell 1 and regulates flow into the leachate treatment facility during daily and seasonal fluctuations. The winter of 2018/19 was the first full year of operations and the following challenges have been noted:

- The equalization pond approached capacity during extended and heavy rainfall events last January.
- With an empty cell, no attenuation of water within waste and extreme rain events experienced in our first year, we expect this situation to continue.
- Weather patterns due to climate change have an impact and will need to be considered as we fill the cell and move to development of subsequent cells.

At this time we are developing a list of operational measures to manage leachate generation and storage including:

- Provision for tarping off lower portion of Cell 1 to prevent leachate generation.
- Create temporary storage with tanks or temporary lined ponds.
- Increase the maximum output for leachate treatment facility.
- These measures can be completed within the approved 2019-2023 Financial Plan.

We are also considering permanent additional leachate storage such a second equalization holding pond and will bring a staff report forward in November with a capital budget recommendation in 2020 or if deemed necessary as part of the future construction of Cell 2.

The following regulatory and operational constraints are driving the need for additional leachate management measures:

- The BC landfill criteria for municipal solid waste requires leachate head (depth) within Cell 1 be below 300 mm.
- The operational certificate for the leachate treatment facility limits the daily effluent discharge to 250 m³.
- The existing leachate equalization pond’s useful volume is approximately 11,000 m³.
- The entire surface area of Cell 1 is open, which increases the catchment area for leachate.
- Cell 1 is in early stages of filling and does not have sufficient capacity to absorb and attenuate this precipitation. This means that all water that enters the cell immediately becomes leachate.

Any operational changes that we plan to implement would need to be included in the operational certificate (OC) for the CVWMC and would be reviewed with Ministry staff prior and then included within the OC.

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Background/Current Situation

In August 2016, an approximately 11,000 m³ leachate equalization pond was commissioned at the Comox Valley Waste Management Centre (CVWMC). The lined pond was sized based on preliminary simulation results by the project engineer. We are evaluating the design to determine the circumstances that led to the current situation. Cell 1 was presumed to be opened and filled incrementally, minimizing leachate production rate in the winter. However, a large portion of the Cell was utilized simultaneously to accommodate the placement of select and non-select waste and therefore leading to the generation of large volumes of leachate during heavy rain events.

Given regulatory constraints on leachate that can be stored within Cell 1 and effluent that can be discharged, the equalization pond helps store leachate from Cell 1 and regulates flow into the leachate treatment facility during heavy rain events. However, the equalization pond has been approaching capacity during extended and heavy rainfall events since commissioning. In January 2019, the equalization pond came close to filling up following a sustained heavy rainfall for a period of approximately a month. This has triggered the need to explore short term and long term measures to manage leachate and prevent potential leachate release to the environment.

The BC landfill criteria for municipal solid waste requires leachate head within Cell 1 be maintained below 30mm over the liner. This eliminates the option of using Cell 1 as temporary storage of leachate, unless a special permission is granted by the Ministry for defined set of circumstance. Furthermore, the operational certificate for the leachate treatment facility limits daily discharge of treated leachate to a maximum of 250 m³. The existing leachate equalization pond has around 11,000 m³ of useful capacity.

As waste volumes in Cell 1 increase, the absorption of impinging precipitation will also increase. This will help reduce rapid generation of leachate. However, until such time when the waste column

is sufficiently deep to provide meaningful attenuation of leachate percolation through the waste we must mitigate the generation of leachate with either prevention or additional storage.

Tetra Tech EBA has been tasked with undertaking a design basis review to determine the leachate volumes produced by Cell 1 as well as by future Cell 2 based on recent rain events. Tetra Tech EBA will also develop a list of short and long term options to manage leachate generation and storage. Once the options are developed, staff will work to implement an operational solution to ensure either reduced generation or additional leachate storage capacity is available before this coming winter. Staff will also work towards implementing long term solutions for leachate management following the consultant's recommendation.

The scope of this work does not include storage considerations for leachate generated by the biosolids facility, as this leachate does not affect the criticality, or the need to undertake this work. The new improvements at the biosolids facility are designed to minimize surface runoff and leachate generation. In addition, the biosolids facility has a 780 m³ holding pond and overflow provisions into a leachate infiltration gallery if necessary.

If additional storage is recommended to manage leachate for the long term, staff intend to take a report to the Board in November to request a budget allocation to fund the required engineering and construction work in 2020. In the meantime, staff plans to reduce leachate generation by operating parts of Cell 1 while tarping the other part.