CMC Response to Dillon report – Environmental Section

The Nova Scotia Government enacted a landfill ban for all organic waste, beverage containers, select plastics and much more in 1998. The commitments to the surrounding community during the site selection for the Otter Lake Landfill were based on these Solid Waste-Resource Management Regulations**.**

HRM promised the community adjacent to the Otter Lake Facility a distinct landfill with the Front End Processing (FEP) and Waste Stabilization Facility (WSF) stabilizing organics before being landfilled. This commitment was required both for compliance to the Nova Scotia Solid Waste Resource Management regulations as well as to accommodate a landfill in an urban setting.

The contractual commitment between HRM and Halifax Waste/Resource Society assured that only inert, residual waste or stabilized organics would be stored within the landfill. It states that only Acceptable Waste will be authorized for disposal in the RDF, and that Acceptable Waste does not include any elements which are readily putrescible. The main purpose of the FEP is to sort out organics and send them to the WSF for stabilization before they get landfilled as an inert dry fluff.

<u>Reduction of Community Nuisance of Vectors, Rodents and Litter</u>

The stabilization of the organics is imperative to reduces smells and adequately remove concerns about vectors, such as insects, rats, and birds. There have only been 6 complaints about the landfill since 2012. If the FEP/WSF are removed, more birds and rodents are likely to be attracted to the smell and availability of food sources. As well it is likely that the odour levels will increase and initiate more complaints. Dillon Consulting outlined the benefits of the FEP/WSF in their 2013 report for Mirror NS:

> *"Another benefit of the FEP/WSF system absent from the Stantec analysis is the significant reduction in nuisance impacts at the disposal cell. The content of the CSC's original Integrated Waste/Resource Management Strategy was directly influenced by the legacy of the Highway 101 Landfill. As stated in the Executive Summary of that document; "The Highway 101 Landfill in Upper Sackville has damaged the local community and environment…We can no longer afford to make the same mistakes." The CSC's requirement for the FEP and WSF was founded on an objective to reduce the traditional impacts associated with raw waste landfills, including blowing litter and the attraction of birds. After over 14 years of operation, the processed material that arrives at the RDF has proven to be of limited interest to seagulls and crows. Ongoing litter management is required in active portions of the RDF, but at a reduced level of intensity as compared to a raw waste landfill. The orderly scene at the tipping face of the RDF stands in dramatic comparison to the clouds of gulls, paper and plastic bags that were typically encountered at Sackville's Highway 101 site and from other landfills where raw unprocessed organic material is disposed."*[1]

While this 2013 report was based on higher annual volumes of waste disposal including ICI at Otter Lake, the benefit remains the same based on percentages by weight of composition of organics and paper in the Residential waste. The identification of three areas of focus in the current Dillon Report for revisions

[1] Waste Resource Strategy Update Document Review Report, May 2013 – Mirror NS, Prepared by Dillon Consulting

to the operational requirements are evident of the risk that blowing litter, vectors and rodents nuisances will increase without the FEP / WSF remaining in operation.

Significant residential development has occurred adjacent to the Otter Lake Landfill area during the past 20 years, including Brunello Estates and others. This development occurred based on the commitments to the ongoing controls to limit organics, vectors, and litter at the site. The modification to these operating conditions may have a significant impact on these adjacent residential developments.

Potential Inclusion of Recyclable Plastics in the Landfill

Discussions between Halifax Solid Waste staff and the CMC commenced in the Fall of 2020 for the temporary storage of recyclable plastics at the Otter Lake Landfill due to lack of market to divert these materials. The discussion included the possibility of landfilling recyclable plastics at the RDF in the near future in the event that lack of market continued.

The CMC believes that a discussion of the closure of the FEP / WSF cannot be contemplated in isolation without the consideration of the potential addition of recyclable plastics at the RDF. In addition to recyclables that are currently removed at the FEP, other plastics would be delivered to the RDF from the Halifax Materials Recycling Centre (MRC) facility.

HRM provided details of the Dillon Consulting Report dated January 28th, 2021 addressing the CMC's concerns regarding the effects of the temporary recyclable plastic storage at the landfill. The results show no groundwater impacts from initial few months of temporary plastic storage. This report provides a baseline in the event that the storage area remains in place longer than anticipated.

The CMC requested the details of alternate solutions HRM had pursued for the disposal of film and mixed plastics prior to determining landfilling as the sole solution. Alternate solutions they should have explored may include, but are not limited to, recycling (i.e., Goodwood Plastics, international markets), incineration, or repurposing (i.e., Sustane). HRM provided in their most recent 2021 report Opinion on Plastic Waste Storage that they are currently searching for end markets for the bales of plastic waste that are currently being stored at the landfill, no further information was provided about other alternate solutions or an end date of the storage.

Recycling these plastics would not only reduce GHG emissions but it would reduce the need to extract new resources from the earth, which greatly reduces the energy required to process and manufacture new goods.

The CMC are concerned about the long-term environmental impacts of the plastic storage at the landfill. Dillon Consulting tested water from three surrounding monitoring wells for BTEX, VOCs, semi-VOCs, petroleum hydrocarbons and phthalates, the results they provided were the current levels after only a few months of having the plastic stored at the landfill. The run-off from the bales have yet to be tested.

Storage of plastics within a landfill, even if temporary, can cause the release of carcinogenic chemicals and microplastics due to degradation from heat and sun and ongoing exposure to wet weather events. Current research continues to provide evidence of the extent of how harmful Microplastics are to the environment. The downward drainage from soils creates the potential for microplastics and harmful chemical additives to leach into the groundwater aquifers. These microplastics are very likely to be

retained in soils for long periods of time due to factors such as vertical transport that draw the particles away from the surface, hindering degradation. If microplastics reach the groundwater aquifers, there is the potential that they will eventually end up in the ocean and cause harm to many different marine ecosystems.

The 2021 Dillon report indicated that microplastics are found in significant quantities sourced from everyday life. However, CMC continues to be committed to the diversion of recyclable plastic from the Otter Lake Landfill to not contribute to the quantities of microplastics in the environment.

Leachate Levels

The 2020 Dillon report indicated that leachate levels from the Otter Lake Landfill are currently similar to other landfills in the province. It is important to note that even the best available technology and diligent operations of a landfill do not entirely eliminate the possibility of harmful emissions and leachate escaping the landfill. It is appropriate and important to ask what the accumulated long-term effect to the leachate will be from adding readily putrescible waste as well as film and mixed plastic to the landfill.

The Otter Lake Landfill was sited based on a commitment for a unique landfill built and continuously operated at the highest level of modern level controls. This included construction of the composite liner and the implementation of the FEP / WSF processes.

Regular monitoring of the groundwater is necessary if plastics are to be stored within the landfill, as stated previously, there will be many negative effects to the environment if microplastics or carcinogenic chemicals reach the groundwater.

Greenhouse Gas Emissions

Putrescible waste breaks down anaerobically in a landfill producing methane, which has approximately 25 times greater heat trapping capabilities than carbon dioxide, meaning that it is much more detrimental to the Earth's atmosphere. Organics that end up in the landfill will take significantly longer to break down than if processed through the FEP/WSF.

To date, HRM, Mirror NS and Dillon have not provided any supporting data that shutting down the FEP/WSF would reduce Green House Gas (GHG) emissions either through reduced consumption of electricity generated with significant GHG emissions or the reduction of trucking from the WSF to the RDF. The only reference to date has been an economic savings on the cost of the electricity to run the FEP/WSF. The CMC is concerned about the increase in GHG emissions that would occur from unprocessed organics placed in the landfill.

Preservation of FEP / WSF equipment

Discussion with Mirror NS and HRM indicated that instead of dismantling the FEP / WSF equipment, it would instead be "mothballed" to ensure it is available if the volumes of waste increase with the return of ICI waste. There was no discussion of the details of this activity within the Dillon report.

Conclusion

Otter Lake Landfill plays an integral role in HRM's Integrated Waste/Resource Management Strategy (IWRMS), which is based on maximizing the 3Rs (reduce, reuse, recycle). The IWRMS stated that material had to meet several important conditions before it could be deemed acceptable for disposal at the Otter Lake Landfill Facility. The material cannot include recyclable material, hazardous waste and organic material that has not been stabilized. The only current way for Otter Lake Landfill to meet these objectives is to perform three distinct functions in three facility units: material sorting in the FEP, organic material stabilizing in the WSF and residual material disposal in the RDF.

The decision to begin storing putrescible waste within the landfill should not be rushed. As well, the subsequent consideration to begin landfilling recyclable plastics or continuing the temporary storage must also be considered from all angles. When the health of the environment and surrounding community have the potential to be at risk, no matter how small the possibility is, the decision should not be taken lightly.

The province has previously declined HRM's proposition to remove these facilities. In 2014, the Provincial Environmental Minister Sterling Belliveau wrote that the HRM will not be allowed to close the FEP/WSF and is supported in this by leaders of the opposition parties. A motion that the FEP/WSF must remain was unanimously passed in the Nova Scotia Legislature that same year. HRM must obtain authorization from the Department of Environment before it can implement changes.