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Staff Report

Infrastructure & Public Works

Report To: Committee of the Whole
Meeting Date: December 4, 2017
Report Number: CSPW.17.097
Subject: Town Landfill Leachate Treatment Fees
Prepared by: Jeffery Fletcher, Manager of Solid Waste and Environmental Initiatives

A. Recommendations

THAT Council receive Staff Report CSPW.17.097, “Town Landfill Leachate Treatment Fees”;

AND THAT Council confirm the treatment fees for leachate from the Town’s Landfill to be at the Water and Wastewater Division’s set rate.

B. Overview

Leachate generation is influenced by high amounts of rain fall and it has also been identified that there may be groundwater infiltration. As a result of these higher leachate flows, Council requested that Staff investigate a reduction in treatment fees to reduce the impact on taxation. The recommendation is to maintain the set rates.

C. Background

The Town’s Disposal Site has experienced much higher than expected leachate generation in the first two years of operation. Town Staff and the Town’s Consultant investigated the source and reason(s) behind this increased volume. Staff felt that infiltration of groundwater has resulted from a change to the original design. The original design included a termination berm and raised liner flap to prevent infiltration. The installation of a termination berm and impermeable liner flap, as originally designed, occurred in mid-October of this year. It is anticipated that this will significantly reduce the production of leachate as a result of infiltration.

During the presentation of Staff Report CSPW.17.077, “Request for Budget Increase,” regarding leachate haulage and treatment costs, Town Council requested that Staff prepare a report to review the option of reducing treatment fees collected by the Town’s Water and Wastewater Division for leachate from the Town’s Landfill Site.

D. Analysis

Budgeted Transfer

The budgeted landfill leachate treatment cost for 2017 was \$113,750. This amount was based on an anticipated 17,500 m³ of leachate generation. To the end of October the Town has treated 23,496 m³ of Town leachate. Staff Report CSPW.17.077 increased the budget and anticipated leachate generation from 17,500 to 30,000 m³ for 2017. This increase represented a significant unanticipated impact on the 2017 budget. The table below shows the budgeted and anticipated leachate generation and the associated volume and cost increase.

Item	Original 2017 Budget Estimate	New Anticipated Amount 2017	Increase
Annual Leachate Generation - New Cell	17,500 m ³	30,000 m ³	12,500 m ³
Haulage Cost ⁽¹⁾	\$122,500	\$210,000	\$87,500
Treatment Charge ⁽²⁾	\$113,750	\$195,000	\$81,250
Sub Total	\$236,250	\$405,000	\$168,750
Other Related	\$0	\$12,000	\$12,000
Total	\$236,250	\$417,000	\$180,750

(1) Haulage Rate (2017) \$7.00/cubic metre

(2) Treatment Rate \$6.50/cubic metre

Town Staff have considered a number of different options for Town Leachate treatment fees such as:

1. Reduce the fee to the domestic per cubic metre rate of \$2.05/cubic metre;
2. Cap the fees at the original 2017 Budget amount of \$113,750; and
3. Keep fees the same at \$6.50/cubic metre;

These options are discussed below.

Per Cubic Metre Rate

Consideration could be given to setting fees in-line with the Town's existing sewer use fees. The table below outlines the fees that would be collected if the Disposal Site leachate was charged the sewer use fee for a 100mm (4 inch) line, which is the anticipated forcemain size currently under design.

	2017 Fees	Months and Annual Volume	Total
Bi-Monthly Rate	\$428.24	12	\$2,569.44
Rate Per Metre	\$2.05	30,000 m ³	\$61,500.00
		Total	\$64,069.44

The total fees that would be collected if the leachate was assigned the sewer use fee schedule for domestic wastewater would be \$64,069.44.

Cap Fees to Budget Amount

The 2017 Town Budget amount was set using the estimated leachate generation of 17,500 cubic metres times the domestic hauled sewage rate of \$6.50 per cubic metre.

In discussions with Water and Wastewater Division Staff, it has been identified that the treatment costs associated with the Town's leachate are much higher than typical influent. Due to the high strength of the leachate, high amounts of alum are required to treat phosphorous and more aeration is required to increase the levels of oxygen in the treatment process which uses additional electricity.

Also, the high odour associated with the leachate has been generating complaints in proximity to the Treatment Plant. Addressing these concerns has occupied Staff time and the use of additional deodorizer both at the Plant and at the Landfill.

Leachate analysis has indicated that for some parameters the leachate is 3 times higher than what the sewer use by-law permits. If parameters do exceed the sewer use by-law, the Water and Wastewater Division has the ability to charge the user a higher rate to cover the additional costs associated with high strength wastewater. Therefore, capping the fees will not allow the Water and Wastewater Division to capture the full cost of treating the Town's Landfill Leachate, due to the observed high strength.

When the Town leachate was first sampled in 2015 (before much waste was in the cell) the strength was very low. However, as more waste has been placed in the cell the strength of the leachate has increased. Additionally, the increased flow of ground water in the cell may have saturated the waste also causing higher strength leachate.

Keep Fees the Same

Due to the high cost of leachate treatment, as discussed above, it is viewed by staff that keeping the fees at the set rate of \$6.50/m³ is the most appropriate option. The operational model for Water and Wastewater is to set fees as close to the cost of treatment as possible. It is viewed that the Wastewater User Rate system should not be used to subsidize the Solid Waste tax supported system.

Conclusion

To the end of October total treatment fees based on the volume hauled are approximately \$153,000. It is not expected that the increased total leachate generation amount approved under Report CSPW.17.077 will be reached (\$195,000 and 30,000m³). By October 19th the termination berm was put in place, which should reduce the expected amount of generation. Based on Council's request to consider a reduction in treatment fees, Town Staff are recommending that Water and Wastewater Division treatment fees remain at the set rate of \$6.50 per cubic metre for hauled waste because the fees collected should be in-line with the cost of treatment.

It should also be noted that although the planned volume of leachate is only around 2% of the Thornbury Plant peak daily flow rate, the loading could comprise up to 64%, for example, of TKN (Total Kjeldahl Nitrogen). Under the current Sewer Use By-law a fee exponentially greater than \$6.50 per cubic metre could be charged based on this loading.

Once the new forcemain is installed the Water and Wastewater rate will be calculated as per the Sewer Use By-law. Based on the sample results of the Landfill Site leachate collected this year the rate could be greater than \$6.50, under the current Sewer Use By-law.

E. The Blue Mountains Strategic Plan

Goal #4: Promote a Culture of Organizational & Operational Excellence

F. Environmental Impacts

The treatment of leachate at the wastewater Plant is an environmentally preferred activity compared to the alternative of natural attenuation into the surrounding ground.

G. Financial Impact

The table below outlines the original 2017 Budget amount and the approved (CSPW.17.077) increased amount of potential revenue for the Water and Wastewater Division related to Leachate fees transferred from the Solid Waste Division.

Item	2017 Budgeted Leachate Treatment	New Estimated Total (CSPW.17.077)
Leachate Volume	17,500 m ³	30,000 m ³
Value	\$113,500	\$195,000

H. In consultation with

Ruth Prince, Director of Finance and IT Services

Allison Kershaw, Manager of Water and Wastewater

I. Attached

None.

Respectfully submitted,

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