APPENDIX B

2016 Annual Landfill Report Correspondence

Clean Harbors Canada, Inc.

2017 Annual Landfill Report

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NEEGAN BURNSIDE

October 16, 2017

Via: Email

Mr. Dean Jacobs
Consultation Manager
Walpole Island Heritage Centre
RR 3
Wallaceburg ON N8A 4K9

Dear Mr. Jacobs:

Re: Review of 2016 Annual Landfill Report
Clean Harbors Lambton Facility
Project No.: FEN020264.1701

Neegan Burnside Ltd. (Neegan Burnside) was retained by Walpole Island First Nation (WIFN) to provide a technical review of the Annual Landfill Report (ALR) completed on behalf of Clean Harbors Environmental Services (CH) for their Lambton Facility. The report covers a period from January 1, 2016 to December 31, 2016. Our previous review of the 2015 ALR was dated August 5, 2016. This review is based on the following documents:

- 2016 Annual Landfill Report for the CH Lambton Facility, which includes appendices related to site operations, inspections and construction, as well as monitoring of groundwater, surface water, air quality and biomonitoring.

The new cell (19-1) began receiving waste in "early 2016" according to the report.

1.0 Performance of New Cell

We had understood that the average leachate elevation in the landfill was approximately 198 masl, and the intention was to keep the leachate in the Leachate Collection Trench at 195 masl or less to ensure hydraulic containment based on the Groundwater Monitoring Plan. Furthermore, the plan specified a trigger level of 196 masl for action and a trigger level of 197 masl for replacement of stone in the trench. The system is not operating according to these design parameters.

Most of the year, the elevation in the pumping well, (as indicated by data loggers at PTS-01, PTS-02, PTS-03 and PTS-04) is above 197 masl. Furthermore, LCS OW1-15, LCS OW2-15 and LCS OW3-15 are frequently higher than 198 masl, sometimes for weeks at a time. We interpret this to mean that leachate can freely flow offsite in the active aquifer during periods when there is no hydraulic control. For most of the year, the setpoint for all wells appears to be 197 masl, which is above the setpoint indicated in the Groundwater Monitoring Plan and actually

at the trigger level to replace the stone. It would appear that in October the set point of PTS-03 was lowered to 196 masl at PTS-01. PTS-02 and PTS-04 seem to maintain a set point of197 masl throughout the year.

The set point of these wells is too high based on Clean Harbors' Groundwater Monitoring Plan. This needs to be justified. We are concerned that leachate impacts could be migrating offsite.

During our review of the Design and Operations Report we indicated that a critical design requirement was that Clean Harbors demonstrate that hydraulic control can be maintained prior to any waste being placed in the new cell. We note that there is no data at LCS OW1-15 prior to June because the data logger was not working, and only intermittent data at LCS OW2-15 or occasional "spikes" at LCS OW3-15. It is not acceptable that it took 6 months to realize that am important monitoring unit was not working, especially at the critical start up stages of the work. This would imply that the data is only periodically checked to ensure compliance. Inspection of the system should be more frequent. We are concerned that waste was placed in the cell without confirmation that the system was working and may have resulted in offsite contamination.

Between mid-November and the end of the year, there is no data from LCS OW2-15 except for a brief time when it spiked over 199 masl. Where there is intermittent data, the implication is that the effluent level is below the sensor and the well is dry. However, without data to show the actual water level, it could also mean the logger is not working properly. The logger should be adjusted to show the actual water level in the Perimeter Leachate Collection System. At LCS OW2-15, there is no data below 196.5 masl and at LCS OW3-15 there is no data below 197.5 masl. Both of these are above the trigger level established by Clean Harbors of 196 masl, and any readings obtained at LCS OW3-15 are over the second trigger (replacement of stone in the trench).

We recognize that triggers can change over the project as the system becomes better understood. However, not meeting these triggers was not even discussed in the Annual Monitoring Report. Please provide the justification for changes to this system.

We concur with recommendations in the Annual Monitoring Report to add additional wells to the transect lines. Please provide a timeline for this work.

2.0 Waste Types and Quantities

The tables 2016 Clean Harbors ALR contain several errors and inconsistencies. Table 5 in section 3.2 (Waste Quantities) outlines the waste received in tonnes from each generator, segregated by waste type. However, the numbers in this table do not match those in other tables. A discrepancy with weights of waste received at the site is seen over multiple tables.

Table 5 has a total waste received quantity of 77,743 tonnes - table 9 lists the facility received 78,494 tonnes. This discrepancy is found in table 5, 6, 7, 8, and 9. Table 9 is a summary of total waste received categorized by source. Table 9 values do not coincide with values listed in table 6 and 7.

3.0 Assessment of Major Works

Section 2.3 states that Clean Harbors applied for, and obtained an ECA amendment which allows for a larger area (equivalent of two sub-cells) to be open at any time for landfilling. Previously, we had expressed concerns that the modeling done as part of the permit was not based on the 2 cells being open. Please verify that this modeling was redone.

4.0 Site Inspections

4.1 Perimeter Screening Berms

Section 4.1.4 states that erosion of the perimeter screening berms has been noted in a number of locations on the landfill side of the berm. Channeling (ranging from minor to significant) has been observed. All capped landfill side slopes should be inspected and vegetated as required – use of a seed mixture that is appropriate for erosion control is recommended.

5.0 Groundwater Quality

5.1 Active Aquitard

5.1.1 Inorganic Chemistry

Inorganic components were detected on occasion at concentrations greater than the Ontario Drinking Waste Standards (ODWS) – these compounds are: Total Dissolved Solids (TDS), boron, chloride, sodium, fluoride, and Sulphate. Previously, we had indicated during our review that we were satisfied with the approach to continue to monitor and to take action if conditions get worse. We continue to be comfortable with this approach.

5.2 Interface Aquifer

5.2.1 Organic Chemistry

VOC testing in Interface Aquifer well TW22-99D detected the following chemicals:

- Trichloroethylene
- Methylene Chloride (DCM)
- Cis-1,2-Dichloroethylene (cis-1,2-DCE)
- Trans-1,2-Dichloroethylene (trans-1,2-DCE)
- Tetrachloroethylene (PCE)
- Benzene (sporadic detection)

Comparing 2015 ALR Interface Aquifer monitoring results show similar organic chemical detections in well TW22-99D.

Detections of petroleum hydrocarbon constituents (Benzene and Toluene) were detected in samples collected on and off the property. CH states that these constituents were caused by groundwater coming into contact with bitumen in the Kettle Point Formation.

Neegan Burnside recommends continuation of investigation into the source of the VOC's that have been detected in well TW22-99D on multiple accounts.

6.0 Surface Water Quality

Daily discharge monitoring checks against the following criteria:

- pH,
- specific conductivity,
- phenols,
- chloride,
- solvent extractables (oil and grease), and
- Total Suspended Solids (TSS).

Monthly discharge monitoring checks against the following criteria:

- General chemistry,
- Total metals,
- VOC's,
- Semi-volatile organic compounds,
- Toxicity, and
- Presence/absence of fish in the equalization pond.

6.1 Daily Discharge Monitoring

Daily discharge monitoring was completed during five discharge periods in 2016. Effluent monitoring results are compared against discharge criteria defined in the site's ECA. Only one exceedance occurred – TSS exceeded the permitted limit of 15.0 mg/L (measured at 16.2 mg/L). The exceedance triggered the treatment plant to be placed in recirculation mode until the exceedance was resolved.

The procedure for handling exceedances during daily discharge monitoring appears to be effective.

6.2 Monthly Discharge Monitoring

Monthly discharge monitoring was completed during five discharge periods in 2016. Effluent monitoring results were compared against Provincial Water Quality Objectives (PWQO). When exceedances above the PWQO were noted, upstream sampling (for background data) revealed similar exceedances except for molybdenum, boron, and DEHP. Additional explanation on these parameters should be provided.

7.0 Air Quality

Annual fence line ambient air measurements is a requirement of the site's ECA. During the annual testing the following exceedances were measured:

- Some VOC species

- Formaldehyde

Last year it was also noted that Formaldehyde was present at concentrations nearing the 24 hour standard. Clean Harbors denoted the source at that time to a neighboring facility: "The Fencing Company", even though wind data implied that the site could also be the source.

Currently, the formaldehyde emissions are below the limit, however continue to be present. We note for other components, Clean Harbors has concluded: *In these instances, somewhat higher downwind concentrations were found in most measurement sets which provided a reasonable indication of actual facility contributions.*

Since formaldehyde appears to be an ongoing issue, it is recommended that a detailed assessment and further monitoring be taken to determine the source of formaldehyde and a plan of action prepared to mitigate the emissions.

We trust this review meets your current requirements. If you have any questions, please contact the undersigned.

Yours truly,

Neegan Burnside Ltd.

Kent Hunter, P.Eng.
Senior Project Engineer
KH:

cc: Mr. Janet Macbeth, Walpole Island First Nation (Via: Email)
Mr. Michael Parker, Clean Harbors (Via: Email)