



Reference: 345883
X-Reference: MO1701

June 26, 2019

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Dear Sirs:

Re: Second Amended Spill Prevention Order MO1701, dated June 29, 2017 – Final Closure Plan

I previously approved portions of the Cobble Hill Landfill Updated Final Closure Plan Report prepared by Sperling Hansen Associates Inc., dated July 21, 2017, comprising of the minor construction works and the environmental monitoring program, with conditions, as specified in my letters of August 11, 2017, and September 18, 2017. I am informed the minor construction works were completed in September and October 2017.

On January 31, 2019, I received from you a revised version the Updated Final Closure Plan (Cobble Hill Landfill Updated Final Closure Plan 2019 Report, prepared by Sperling Hansen Associates Inc., dated January 31, 2019 [the “2019 Updated Final Closure Plan”]). On April 23, 2019, I also received an amendment to the 2019 Updated Final Closure Plan (the “Amendment”), which addressed some of the deficiencies noted by ministry staff in their preliminary review of the 2019 Updated Final Closure Plan.

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Pursuant to section 2 of the Second Amended Spill Prevention Order MO1701, dated June 29, 2017, (the “SPO”), I hereby approve the 2019 Updated Final Closure Plan and Amendment (together hereinafter referred to as the “Updated Final Closure Plan” in this letter and the SPO), subject to Condition 10 below, with the following conditions:

1. For each submission by a Qualified Professional, if not completed in advance as per the requirement in condition 2 below, that Qualified Professional must complete, sign and submit as part of the submission a Declaration of Competency and a Conflict of Interest Disclosure Statement, which are posted on the following ministry website:
<https://www2.gov.bc.ca/gov/content/environment/natural-resource-stewardship/laws-policies-standards-guidance/environmental-guidance-and-policy/professional-accountability>.
2. Any Qualified Professional engaged to perform work in fulfillment of conditions 3, 5, 6, 8 and 11, must be approved in advance by the ministry if that Qualified Professional is different from the author of the Updated Final Closure Plan, and any approval request must be accompanied by a signed Declaration of Competency and Conflict of Interest Disclosure Statement. This requirement also applies to the Qualified Professional that must be continuously present on-site to supervise all closure activities as per section 3 in the SPO.
3. Before the commencement of construction activities, a report certified by a Qualified Professional that addresses and satisfies all the comments, concerns, conclusions and recommendations in the GHD Slope Stability Detailed Engineering Review – Task 1 report dated March 28, 2019, and includes all of the following, must be submitted to the ministry:
 - Material-specific testing including smooth geomembrane cover liner sand friction layer interface friction angle laboratory testing results;
 - Additional sensitivity analyses results;
 - Additional static and seismic stability analyses results; and
 - Confirmation of adequate interface friction angle and static and seismic stability.
4. The existing non-hazardous contaminated soil in the soil management area with an estimated tonnage and volume of approximately 3,360 tonnes and 1,867 m³ respectively, is authorized to be relocated and discharged in the landfill. No other soils or waste may be discharged into the encapsulated landfill.
5. Before the commencement of construction activities and soil movement, a quality management plan certified by a Qualified Professional must be submitted to the ministry. The quality management plan must satisfy the comments, conclusions and recommendations in the GHD Cover System Detailed Engineering Review – Task 2 dated March 28, 2019, regarding the continued use, and the cutting, removal and re-installation, of the existing geomembrane cover liner. The quality management plan must be developed and carried out in accordance with the cover liner manufacturer’s recommendations and include the detailed construction practices, inspections, repairs, quality controls and testing, that will be carried out.

6. Before the commencement of construction activities, a construction activities work plan and implementation schedule certified by a Qualified Professional must be submitted to the ministry. The construction activities work plan and implementation schedule must include a detailed description of all construction activities and identify their timing, address applicable numbered items 5 to 10, 14 and 19 in the GHD General Review and Comments – Task 5 dated March 28, 2019, and numbered item 18 in the GHD Cover System Detailed Engineering Review – Task 2 dated March 28, 2019. The work plan must identify the name(s), professional designation(s), experience, knowledge and education, of the Qualified Professional(s) who will be on site during construction, as required under section 3 of the SPO, indicating when each professional will be on site, and which professionals will be conducting which tasks. Notice must be provided to the ministry of any changes to the work plan at least 48 hours before the work is undertaken on site.

7. For the relocation of soil to the Land for use as final cover (stabilizing soil wedge), this approval does not provide authorization to discharge waste or serve as a contaminated soil relocation agreement(s). The relocation of soil to the Land for use as final cover is governed by the applicable provisions of the *Environmental Management Act* and the Contaminated Sites Regulation. The relocation of soil to the Land is also subject to the following requirements:
 - (a) Before a specific quantity of soil is accepted at the Facility, the Named Parties must:
 - i. Cause a Qualified Professional who is a member of the Contaminated Sites Approved Professionals List for Numerical Standards to characterize all soil proposed for transport to, and deposit at, the Land in accordance with the ministry’s “Technical Guidance 1 on Contaminated Sites - Site Characterization and Confirmation Testing” (TG1); it is the responsibility of the Qualified Professional to fully justify and document the technical rationale for any deviations from the in-situ and ex-situ soil characterization procedures stipulated in TG1; and
 - ii. Cause a Qualified Professional who is a member of the Contaminated Sites Approved Professionals List for Numerical Standards to prepare and sign a Statement of Assurance confirming that all soil for transport to, and deposit at, the Land has been characterized as required in 7(a) (i), and document and interpret all supporting information including sampling and analysis procedures and the quality control/assurance program.
 - (b) The Named Parties must retain all the documents referred to in (a), such documents must be available for immediate inspection at the Facility by a director or an officer.

8. Before the two new shallow monitoring wells MW19-01 and MW19-02 are drilled, the Named Parties must ensure that the Qualified Professional hydrogeologist that will complete the drilling well logs provides a copy of draft plans and proposals to the ministry hydrogeologist and incorporate any feedback provided by the hydrogeologist. The two new shallow monitoring wells MW19-01 and MW19-02 must satisfy the following requirements:
 - (a) The well locations must be centrally situated downslope and as close as practical to the landfill toe.
 - (b) The wells must be installed using a diamond drilling method in fractured rock and the well screens must not exceed 3 m in length and must straddle the seasonally fluctuating water table.
 - (c) The monitoring well drilling logs for the wells must be completed by an experienced Qualified Professional hydrogeologist, stored at the Facility and available for inspection, and include:
 - i. Labeling of fractures and marking of core;
 - ii. Calculation of core recovery and rock quality designation; and
 - iii. Description of core samples, including formation and rock type, field strength, colour, structure, decomposition, disintegration, fracture density, depth, and type, dip angle, aperture, healing, infilling, and moisture conditions.
 - (d) After drilling, the wells must be appropriately developed to remove any material introduced during the drilling process.
 - (e) The wells must be surveyed to a geodetic datum for water level monitoring.
9. Construction activities for implementation of the Updated Final Closure Plan must be completed on or before October 31, 2019, or alternate date approved by the ministry. Construction activities must be completed in accordance with the quality management plan and the construction activities work plan and implementation schedule referenced in conditions 5 and 6 of this approval
10. The semi-monthly status reports submitted pursuant to section 4 of the SPO must also include:
 - (a) Identification of any deviations from the quality management plan and the construction activities work plan and implementation schedule referenced in conditions 3 and 4 of this approval;
 - (b) The results of inspections, repairs, quality controls and testing, in accordance with the quality management plan referenced in condition 5 of this approval;
 - (c) The planned activities (and associated timing) for the next reporting cycle; and
 - (d) The environmental monitoring program laboratory reports and tabulated results.
 - (e) Copies of all soil relocation documentation as required in condition 7 of this approval.

11. On or before December 31, 2019, a revised standalone environmental monitoring program certified by a Qualified Professional must be submitted to the ministry. The environmental monitoring program must incorporate feedback from ministry staff and include:
 - (a) Monthly sampling at surface water site SW-1 for a minimum of 12 consecutive months following the completion of closure activities, to confirm if there are any water quality impacts due to installation of the stabilizing soil wedge at the Facility;
 - (b) Revised conceptual hydrogeological model and summary;
 - (c) A well installation details table for the existing and new monitoring wells. The table must detail geographical coordinates of all wells, surveyed geodetic elevation, installation depth, screen interval and geology, and water levels;
 - (d) A site plan depicting all monitoring locations;
 - (e) Increased recording frequency of the leachate storage tanks transducer level data;
 - (f) Description of monitoring frequencies and parameters;
 - (g) Description of field methods;
 - (h) Quality assurance and quality control measures;
 - (i) Description of water quality benchmarks, limits and triggers, and a summary of linkages between triggers and responses;
 - (j) Description of all reporting objectives and deliverables;
 - (k) Description of the forensic investigations that will be conducted on future water samples that report detectable concentrations of hydrocarbons. The forensic investigations must address the following key queries:
 - i. Characterize the product;
 - ii. Determine the source(s);
 - iii. Evaluate the product age and degradation, if any; and
 - iv. Describe mitigations to eliminate the source(s).

12. This approval does not approve the duration of the post closure period in the 2019 Updated Final Closure Plan. The duration of the post closure period for the purpose of section 6 of the SPO shall be subject to further review, approval and/or extension.

In accordance with section 6 of the SPO, all submissions must be made electronically to the following email inbox: EnvironmentalCompliance@gov.bc.ca. Copies of all reports and documentation prepared and submitted before and during construction in accordance with this letter and the SPO must also be submitted to: Authorizations.South@gov.bc.ca.

In the event of any discrepancy between any of these conditions, and the text included in the 2019 Updated Final Closure Plan and/or Amendment, these conditions will take precedence.

I reserve the right to amend the above conditions as circumstances warrant.

The requirements of the SPO remain in full force and effect. In accordance with section 3 of the SPO, the Named Parties must carry out all closure activities in the 2019 Updated Final Closure Plan and Amendment in accordance with the conditions of this approval. Failure to comply with the requirements of the SPO is a contravention of the *Environmental Management Act* and may result in legal action. The intent of the *Environmental Management Act* is to prevent pollution. Should the monitoring program indicate any environmental concerns, it is within my authority to exercise further actions I deem necessary to minimize risk to the environment.

Please be advised that the ministry will have a daily presence onsite through either staff and/or a ministry-hired contractor during the conduct of all work. In addition, ministry staff or ministry-hired contractor may inspect any works or installations prior to those works or installations being completed and removed from plain view. The ministry may also have staff or ministry-hired contractors observe and monitor some or all of the closure activities at the site, and collect samples of the landfill base or cover layers, contaminated soil, leachate, surface water and/or groundwater as needed. Should any information be needed by the staff and/or ministry-hired contractors to inform their observations and/or assess compliance, it is expected that the information is provided in a timely manner to those staff.

Sincerely,



George Heyman
Minister

cc: Laurel Nash, Assistant Deputy Minister, Environmental Protection Division, Ministry of Environment and Climate Change Strategy
A.J. Downie, Director, Authorizations – South, Environmental Protection Division, Ministry of Environment and Climate Change Strategy
Tessa Graham, Executive Director, Regional Operations, Environmental Protection Division, Ministry of Environment and Climate Change Strategy