



10 March 2021
Project Number: 200370-03

Jessica Pacunayen
Regulatory Specialist
Wek'èezhii Land and Water Board
#1-4905 48th Street
Yellowknife, NT X1A 3S3

Re: Behchokò Solid Waste Disposal Site – Closure and Reclamation Plan Information Request

Dear Ms. Pacunayen,

In response to your Information Request dated March 8, 2021 on the northwest ponded water management, BluMetric Environmental Inc. (BluMetric™) would like to provide the following answers:

- 1) If a temporary sump were to be created, where would the sump be located within the waste mound? How far would the sump be from the closest water body and are there any potential environmental concerns with this method and/or location? If so, please describe with any proposed mitigations. If none, please provide rationale.

Response:

For this option, it is proposed that a temporary sump will be excavated within the waste mound, directly adjacent to the ponded water area. The location of the sump will be on the top portion of the waste mound, set back a minimum distance of 20 metres (i.e., south or southeast) from the top of the waste mound side slope (denoted by contour elevation line 162.0 m on Drawing No. 03 in the Closure and Reclamation Plan Update letter dated November 4, 2020). This location would place the sump a minimum of 105 metres from the nearest water body external (south) to the waste mound, excluding the northwest ponded area to be dewatered. The size and depth of the temporary sump may be adjusted to accommodate the pumping capacity of the sump pump that is used for the dewatering but it is anticipated that the sump dimensions would roughly measure 5 metres wide by 5 metres long by 3 metres deep. The sump and adjacent side slope area of the waste mound will be inspected continuously during all pumping activities to ensure no overtopping of the sump occurs and to observe for any leachate discharge or seepage from the side slope of the waste mound. Pumping would be ceased prior to any overtopping of

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the sump or upon any observation of leachate seepage/breakout from the waste mound. The landfilled waste materials have a large capacity for water absorption as it is expected that the existing waste is well below its field capacity or saturation moisture level. As such, any waters discharged from the ponded area adjacent to the northwest corner of the waste mound into an internal temporary sump would be expected to seep into the waste materials and naturally attenuate within the subsurface regime, consistent with the existing conceptual model for leachate originating from this natural attenuation landfill site. Following dewatering activities, the temporary sump will be backfilled with the previously excavated waste materials and appropriately covered, in accordance with the final cover design described in the Closure and Reclamation Plan.

2) Are there any other closure alternatives to manage the ponded water?

Response:

Question 3 below describes the alternative options of disposing of the ponded water. No other alternative options are feasible within the water licence.

3) Board staff note that the CGB's 2019 Updated Construction and Design Drawing Report3 recommended that the NW ponded water could also be pumped into "the northern sewage lagoon." Would the lagoon still be considered as a contingency option? If so, please elaborate on how this option complies with the Water Licence and how the water quality results from the ponded water compare to the EQC for the sewage lagoon in the Licence (Part D, Conditions 2 and 3 of the Licence).

Response:

The contingency option is to transport the ponded water into the Rae Sewage Lagoon (Cell 1), adjacent to the north of the solid waste facility. No criteria for the acceptance of waste water at the sewage disposal facility is specified in the water licence as Part D, Conditions 2 (Rae) of the Licence are applicable to the effluent from the lagoon only. Before commencing the closure work at the former solid waste facility, BluMetric will be sampling the ponded water and if this secondary option is required, the additional parameters required for the effluent criteria (Part D, Conditions 2) would be analyzed to evaluate the water quality against the effluent criteria.


4) How much water needs to be pumped from the ponded area? Does this information influence what management option is recommended/contingency options are available? If so, please describe how. If not, please provide rationale.

Response:

Based on our most recent survey data, the northwest ponded area measures approximately 1,400 square metres in area with an approximate average depth of 0.3 metres. As such, it is anticipated that approximately 420,000 litres of water may need to be pumped to temporarily dewater this area for construction. Dewatering and construction activities in this area will be scheduled to occur during a dry period to help minimize water handling requirements. As noted in the Closure and Reclamation Plan Update letter dated November 4, 2020, if it is difficult to maintain dry conditions in the northwest ponded area during construction activities, a temporary berm or coffer dam could be used to maintain a smaller dry area of sufficient size to complete the final closure work on the side slopes of the waste mound in this area, thus requiring a lower volume of water to be pumped and relocated. This method may be used, as required, for either water management option described herein (i.e., discharge to an internal temporary sump within the waste mound or transferring to the Rae Sewage Lagoon, Cell 1).

Should you require any additional information, please do not hesitate to contact me.

Respectfully submitted,
BluMetric Environmental Inc.


Yannick Lanthier, M.Sc.
Geomatics Manager

cc.: Graeme Drew, SAO