Transport Canada / Transports Canada

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Your file Votre reference
17UN025

Our file Notre reference
R 7184-90-47

April 25, 2017

Kofi Boa-Antwi
Technical Advisor II
Nunavut Impact Review Board
PO Box 1360
Cambridge Bay, NU, X0B 0C0
Via electronic mail to: info@nirb.ca

RE: Transport Canada's Response to Comments regarding Transport Canada's "Former Iqaluit Metal Dump Remediation" project proposal

Dear Mr. Boa-Antwi,

Thank you for your letter dated April 13, 2017, in which you provided Transport Canada (TC) with the opportunity to address the comments received from interested parties regarding TC's "Former Iqaluit Metal Dump Remediation" project proposal.

TC offers the following responses to the comments:

Comment #1 - Landfill Design

Detailed rationale for the proposed landfill design is required including for the proposed use of aggregate material and grading as the primary method to prevent infiltration of surface water.

Response:

An aggregate material and grading design was selected as the primary method to prevent infiltration of surface water based on the following observations at the site:

- Debris exposed and buried at the site consists primarily of metal from vehicles, truck bodies, barrels and other scrap metal. To a lesser degree, the site was used for disposal of household garbage (domestic waste). Disposal of domestic waste at the site ceased in the 1970s. These wastes were subsequently capped along with other metal debris. Scattered metallic debris remained at the site and are exposed to the elements.

- Landfills contain a finite mass of waste that can produce landfill leachate. Leachate production typically peaks over the first 10-20 years following waste burial and diminishes over time. The current buried waste mainly consists of metal waste and is considered a weakened source of leachate since it has been buried for nearly 50 years. The release of contaminants from weathering of the remaining scattered metallic debris at the site will be addressed through on site burial of these debris or off-site disposal as part of the remediation project.
- Site conceptual models were created for the site and showed that metal concentrations consistently decrease across the site as the preferential pathways (i.e., drainages and ponds) advance further down-gradient from the source areas. A degree of natural attenuation and/or entrapment is currently being demonstrated on site. With proper landfill reconstruction and the removal of exposed debris, the generation of leachate through moisture entering the landfill or direct exposition to the elements will be further reduced.
- Overland flow is the primary mode of water transport in the area and groundwater associated with fractures in the bedrock and through the thin overburden would likely be minor especially considering that the site lies within the continuous permafrost zone. Accordingly, a landfill design that prevents surface water from getting in contact with the waste is the preferred option for the site for minimizing leachate production. Further details on how the design will limit infiltration is provided below, in the response to Comment #2.

Comment #2 - Landfill Design

No information provided on the compaction rates or permeability to prevent moisture from entering the landfill.

Response:

The design and construction plan for the remediation and rehabilitation of the landfill has been developed based on the following requirements:

i. diverting upstream surface water run-off to prevent it from entering the landfill body;
ii. providing for the long-term stability of the landfill mass against failure, under static and earthquake load conditions; and
iii. isolating the existing waste mass and the additional wastes to be placed, from incident rain fall and snow melt water and the atmosphere to the extent possible.

To meet the requirements, a detailed landfill technical design has been developed which will be described in tender specifications and drawings for this remediation project. Design elements that will prevent moisture from entering the landfill include:

- Construction of a ditch on the upstream side of the existing landfill and construction of swales around the lower outside edges of the waste to intercept any surface water runoff and direct surface water away from the landfill embankment and buried waste.
- Use of well-graded and compacted coarse granular material to encapsulate the wastes that will be added to the landfill against the embankment. The well-graded granular fill will be placed in loose lifts of maximum 300 mm thickness and compacted to 95% of Standard Proctor Dry Density.
- Use of a medium weight rip rap to cover the encapsulated wastes against the embankment. The rip rap will be at least 2 orders of magnitude more permeable than the underlying encapsulated wastes such that water will preferentially flow downslope in the rip-rap layer rather than infiltrate.
- Use of a low permeability cover material on the upper plateau of the landfill. The low permeability capping system will consist of a layer of fine sand with silt overlying a layer of fine granular material overlying the coarse granular material.
- Promote re-vegetation of the upper cap by placing available recovered organic soil on the surface.

Comment #3 – Spill Contingency Plan

Lack of information in the Spill Contingency Plan regarding how potential spills during excavation of buried materials and equipment will be managed.

Response:

The Spill Plan was amended to add to the list of potential sources of contamination that can be encountered during the excavation/debris removal. The response procedure is described under the Action Plan table of the revised Spill Plan (see attached) and is as follows:

a) First consider and then remove or minimize any hazards to human life, health, safety or the environment.
b) Take necessary steps to initially contain or prevent the spread of the spill.
c) Try to identify and stop the source of the spill or leak.
d) Collect liquids through the use of such equipment as absorbent pads.
e) Immediately, collect and transport any contaminated soil resulting from the spill to the LTU for treatment.
f) Send for help if required.
g) Report the spill at **867-920-8130** or complete the form available at the link below and fax it to **867-873-6924** or e-mail it to **spills@gov.nt.ca**. http://www.gov.nu.ca/sites/default/files/NT%20NU%20Spill%20Report%20Form.pdf
h) Complete the collection and disposal of contaminated materials as per direction from the regulatory agencies and applicable regulations.

Thank you for the opportunity to provide responses to the comments. Should you have any questions regarding Transport Canada's responses, please contact me via email at jackie.barker@tc.gc.ca or by telephone at (204) 979-1739.

Regards,

Jackie Barker
Environmental Officer

Attch.