



June 20, 2017

Attention: AlecSandra Macdonald
Regulatory Officer
Gwich'in Land and Water Board
P.O. Box 2018, Inuvik NT, X0E 0T0

RE: G17L1-002 - KBL soil treatment facility, Inuvik – Type 'B' water licence

The Gwich'in Renewable Resources Board (GRRB) was established as the main instrument of forest, fish, wildlife and habitat within the Gwich'in Settlement Area (GSA). GRRB staff have reviewed this application with the objective of providing advice concerning matters within our mandate.

We are pleased to note that the proponent has addressed some of the fish- and wildlife-related concerns staff brought up at the public engagement session on April 13, and included in the GRRB written response dated April 28. This included:

- A commitment to establish a rigorous pre-impact water and soil toxicology baseline for this already-disturbed site, so that the effects of this project on local waters and soils are clearly and quantitatively described through the complete life-cycle of the project,
- Geotechnical data that describes the permafrost depth below the proposed site, and a commitment to ongoing monitoring and protection measures as necessary so that the project does not alter local water flow patterns by changing the depth of the active layer,
- A commitment to fully fence the perimeter of the lease area, to reduce the probability of bear encounters with personnel. This is important to ensure human safety and to reduce human-caused mortality in the Inuvik grizzly bear population management unit.

Staff still have a few remaining concerns that have not been adequately addressed. We offer the following comments for the consideration of the Board.

1. The first is the potential for waterfowl to land on the 18 m x 30 m water retention pond and become oiled or poisoned by the untreated hydrocarbon-contaminated water. This item was mentioned in writing in the first GRRB response to KBL's pre-engagement proposal. This concern is addressed by only 2 sentences in the complete application: both the Water Licence Application and the Operations and Maintenance Plan (Appendix B) state "... *should it be determined that the pond is creating an attraction to waterfowl, netting will be installed as a deterrent*" (p. 17 & 45 of PDF). This is an insufficient level of detail in a response plan, given that exposure to hydrocarbons has lethal and sub-lethal effects on waterfowl. In particular, staff would like to know:

- What frequency or number of “birds on or near pond” (Appendix C, Weekly Inspection Checklist, p. 104 of PDF) will trigger the installation of deterrents by the STF operator?
 - What are the next steps if the proposed deterrent method (netting) is not effective?
 - What actions will facility operators take if they observe birds on the pond that are obviously distressed? (Capture, euthanasia?)
2. Staff also have comments regarding inconsistencies in the soil and water quality parameters listed in the Operations and Maintenance Plan (Appendix B).
 - In Table B-2: Soil Re-Use Criteria (p. 59 of PDF) the value for Arsenic should be 120 mg/kg, not 12 mg/kg, in order to match that for soil intake criteria in Table B-1.
 - In Table B-4: Treated Effluent Discharge Criteria (p. 60 – 61 of PDF) the column “Maximum Grab Sample (µg/L)” the units should be in mg/L instead, to match CCME Water Quality Guidelines for the Protection of Aquatic Life. (Alternatively, multiply all numbers in this column by 1000.)
 3. Table 8-1 and also Appendix B (Operations and Maintenance Plan) state that up to 50 m³ of treated water could be discharged to the environment each day from July 1 through September 30 of each year, into a rip rap-lined discharge ditch on the north side of the water retention pond. This is a significant volume of water compared to the natural precipitation regime for the region. If water discharge rates are actually this high throughout the open-water season, the project could represent a significant addition to surface water flow in the local area. Given these facts staff support Condition 10 of the draft Water Licence, which states “Treated water shall only be used for application on the Biotreatment Pad, unless otherwise authorized by the Board.”
 4. Lastly, Part D: Condition 9 of the draft Water Licence states that arsenic concentrations in all treated water at SNP 0037-1 (Water Retention Pond) and 0037-2 (Treated Water Tank) are acceptable up to 0.05 mg/L in Maximum Grab Sample, prior to discharge. This is ten times higher than the CCME Water Quality Guidelines for the Protection of Aquatic Life, which uses 0.005 mg/L as the standard for acceptable long-term arsenic concentrations in freshwaters. The application package submitted by KBL uses 0.005 µg/L as their arsenic concentration guideline in treated effluent (although the units for that value are likely an error, as noted in the comment above). Staff recommend this Condition match the 0.005 mg/L number as per the CCME guidelines. KBL has provided a rationale and evidence to support their request for higher allowable arsenic concentrations in treated and untreated soils at the site, but they have not requested higher allowable arsenic concentrations in water.

If you have any questions about the GRRB response to this application please contact me by email at jboxwell@grrb.nt.ca or by phone at (867) 777-6600 ext 5

Janet Boxwell
 Renewable Resources Manager
 Gwich'in Renewable Resources Board