Scott,

Please find my comments below on issues that require additional information or clarity. Once this additional information is provided it will be reviewed and sent out for public comment.

Regards,

Joe

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**Request for Addition Information - Hackett River 2007 Water Licence Application**

1. As identified in the general application "In 2006, geotextile fences were constructed to contain any spillage or overflow from the greywater collection tank, the core cutting facitilty, and the camp dry buildings. The fences are approximately 60 – 90 cm high, with the bases buried in the soil, and they are arcuate in construction. Additional containment fences were build at the drills to contain any excess runoff from drilling water, cuttings or return water.". The NWB requests particulars related to geotextile fence set up (product used, installation, construction discussion, photographic record). This is also reiterated in the application A&R Preexisting Conditions and Restoration Plans - New Drill Sites

The geotextile (silt) fences were constructed in a manner similar to that used in controlling run-off from highway construction projects. A series of 2x2 posts were driven into the ground, roughly 1m apart. The posts were set in such a manner as to follow the contours of the land, so as not to create any voids where fluids could escape under the fence. The black, geotextile cloth was then cut into approximately 4' wide strips, and then stapled to the inside of the posts (up hill side), with roughly 12 cm extra laying on the ground. This excess cloth was then covered up with local soil or till to create a seal for the base of the fence.

While I am not sure of the brand of the cloth, here is the information, as supplied by Discovery Mining Services: Invoice reads as follows: 200 SqM 540 g/SqM Non-woven geotextile. Purchased from A&A Technical Services in Yellowknife. I have attached a pdf file for a product as close to ours as possible.

Construction discussions centred on effective placement, and general discussion of how to construct the silt fences. It was decided to install a series of posts, and attach the geotextile fabric to this support. We decided to try this product as a preventative measure, should we ever have a spill of drill cuttings, or grey water from the camp holding tank. The cloth fences have not been tested yet, they are purely an additional line of defense, to allow for additional filtration time for any waters percolating back into the groundwater system.

At present, we have no good photographic records of the fences, but will provide them upon the thaw. I can send aerial shots which show a black line, but they only show the placement in camp (below the grey water tank and dry tents). The fence traverses the circle below, in the middle of the circle, starting from the left hand edge.


2. As identified in the general application, secondary containment berms are relied upon. I am sure the Proponent would agree that secondary containment through a geomembrane is a function of geomembrane product, installation, and construction details. The NWB requests additional information that will detail these functions. The NWB also requests photographic record of the structure in-situ.

The secondary containment berms were installed as per the instructions provided by the manufacturer. We located the berms on the flattest land available, and also have provided a layer of plywood, as a secondary measure to protect against punctures or wear on the floor of the berm. (Photos will be provided with the paper copy).

We use these secondary containment berms as a proactive measure to protect the ecosystem, and have used them since the project inception. Please see attached pdf files for the large berms ("instaberm"), smaller, gasoline berms ("mini berm"), and also the rain drains ("rain drain") used to filter and control any water which collects in the large berms.

3. As stated in the application questionnaire (Q32) "The rock saw is expected to produce approximately 1/2 $m^3$ of sludge cleaned from the bottom of the settling container in the course of the season. The sludge will consist mostly of sulfides. The sludge will be cleaned from the settling container on an as needed basis, dried, placed in plastic sample bags and flown out to the Yellowknife dump for disposal. Alternatively the sludge would be flown to a couple of drill sites located on the north side of Camp Lake where ice melted around the drill casing while drilling, leaving 8 ft deep, steep sided pits that are a potential hazard to wildlife. As a way of recontouring the land surface, saw sludge would

be put in the holes until the pits were no longer a hazard." The NWB requests additional information regarding the underlined segment. Details on how the sludge will be classified, managed, contained through the proposed application, and potential impact to freshwaters should be described in detail.

During the 2005 and 2006 field seasons, we collected all sludge from the core saw, and additional sludge from clean up at the drill sites, and have been using it to infill these holes. There is a rough ratio of 50 parts clean drill sludge to 1 part core saw sludge, so any sulphides from the core saw sludge are contained within the clean sludge, and present a minimal risk to local freshwater. We continue to rehabilitate these depressions to minimize potential impacts on the movements of local animals. The depressions and sludge deposition present no negative impact to freshwaters (Camp Lake), as the location is well over 30m from the lake shore.

4. As stated in the application (SCP Section 4.5), "A regular inspection program shall be established to monitor the condition of the leak containment devices so they do not overflow." The NWB requests detail on the monitoring plan suggested.

The fuel containment berms are monitored on a continual basis, as we maintain a weekly count of the number of drums of fuel in camp. When the staff is counting the drums, they observe the amount of any liquid in the containment berms, and also note any petroleum in the berms, and report it immediately. If any is observed, it is immediately soaked up using the blue absorbent matting. In addition, we utilize a filtration system to control the drainage of water from the secondary containment berms (see attached pdf file “rain drain_filtration” for specifications). The filters are monitored by our staff to ensure they are operating properly, and free from obstructions and debris.

5. As detailed in the application (SCP Section 4.6), "Fuel contaminated soil can be remediated on site through land farming". If landfarming is to be considered than complete details on how the landfarm structure is constructed (by an appropriately qualified engineer), will be operated and maintained, and how soils will be determined treated must be provided. This also builds on INAC's May 23rd, 2006 comments to your 2005 Annual Report.

This was an option to deal with fuel contaminated soil, as laid out in INAC guidelines. We have never had to consider land farming; though, should a situation arise, we would look at engaging an appropriately qualified engineer to design and implement a land farming structure or program.

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Joe Murdock
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Nunavut Water Board