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NWB1JER0410

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August 12th, 2006 Water Licence Inspection - Report

I would like to thank Cheryl Wray, Maurice Kay and Harold Gates for the much appreciated time and assistance provided during the mine site tour and other assistance when needed. Attached for your records is the Industrial Water Use Inspection Report pertaining to the August 12th, 2006 inspection;

Observations

The following is a list of observations made during the inspection. These observations and the record of subsequent discussions took place during the inspection and make up the substance of this section of the report.

- **Open Pit**: During the inspection there were signs of drainage and seepage into the pit which were visible on the south west wall. In this area the ground (active layer and "over burden") appears to still be saturated with water that may have originated in **Lake C1** prior to the installation of the **C1 Diversion dam**. The level of water within the pit itself and runoff into the pit appear to be contained within the pit sump which was being pumped up out of the pit and into **Pond C**. **Pond C** is one of the locations where samples were taken and are presently being analysed. It should be noted that the water from Pond C is subsequently being pumped into the PKCA (mine tailings area).

- **C1 Diversion Dam:** At the time of inspection it was observed that work had been completed on the Diversion Dam. The floor of the diversion did not show visible signs of flow however water was noted at the exit of the dam where it enters **Carat Lake**. The construction of the Diversion Dam appears to consist of a key trench running roughly North to South parallel the road on the West side of the dam which extends the existing pipeline access road South-West of the pit. This

roadway now extends from the Causeway to the main camp. The Diversion Dam flows under this road through culverts Northwest of the Pit. The bottom of this spillway is lined with rock to prevent erosion for approximately 10 metres. This stream (C1) continues past WQ 12 North of the pit and on to Carat Lake.

☐ **East Dam:** The East Dam has been constructed however, has not been brought up to final grade. Efforts will have to be made to address this once fuel has been transported to the site via the winter ice road.

☐ **South East Dam:** The South East Dam is in the initial construction phase, it appears that this project has been put on hold. A key trench has been excavated however no further efforts appear to have been undertaken. Lack of fuel for this project appears to also be the cause of this stoppage. During the time of this inspection it was noted that water had accumulated in the bottom of the trench and was being pumped out into the PK dam.

☐ **Divider Dyke:** At time of inspection the Divider Dyke was in place but had not been brought up to it's final grade. Lack of fuel was blamed for this as well. The Divider Dyke east side (PKCA side) showed evidence of discolouration attributed to the PK tailings deposited into the containment area. The West side of the Divider Dyke however showed no such discolouration nor evidence of migration of any tailings at this time. It should be noted that during the inspection it was stated that there are plans to build a second divider dyke to the west of the existing dyke in the later stages of the mines planned operating cycle. This project however has not been undertaken nor has any preliminary work been submitted to the water board at this time.

☐ **West Dam** : At time of inspection inspector observed a silt screen on the East side of the West Dam. In consultation with Cheryl Wray, Environmental Supervisor, it was stated that the Dam was also not up to it's final elevation and that this winter the engineers would be returning to complete the final construction of this frozen core dam. In the interim, during the summer months and especially during the period of decanting, the screen was erected to prevent sediment from the dam being carried across into the final discharge stream East of WQ03.

☐ **North Dam (spillway):** On August 13th,2006 during the inspection of the mine site and Dam construction area the Inspector was informed that the North Dam (spill way) has not yet been constructed.

☐ **Domestic Wastes:**.During the Inspection it was noted that there are two large incinerators on site. These units are self contained within Sea-cans. Kitchen and other domestic wastes are burned and the ashes stored in empty 45 gallon drums for removal from the mine site. One of the incinerator buildings contained approximately Thirty- five (5) gallon pails of deep fryer /cooking oil. It appears that the oil when incinerated burns at such a high temperature that the incinerators

may be put at risk. An action plan for dealing with this stock pile was requested and agreed to my the Environmental Supervisor Cheryl Wray. Shipping the extra oil out via winter road was discussed at this time.

☐ **Hazardous wastes (Waste Transfer area) A:** There are two hazardous waste site locations on the mine property. They are located South of the Airport and North of the Mine site. The two areas both have berms and are geo-tech lined. The West Side containment area contains materials marshalled into the containment from exploration activities in the area over the last decade. Most of these materials are unidentifiable by laymen and some may pose serious threats because of high levels of toxicity. During discussions with Harold Gates (mine supervisor) and Cheryl Wray (environmental supervisor) it was determined that a Hazardous materials clean -up company from Yellowknife would be attending the site to package and site these materials out via the winter road. This area would then be used for storage of mine specific materials.

☐ **Hazardous wastes (Waste Transfer area) B:** The second of the two areas, this one on the east side and sharing a common wall with the A site contained oil and fuel for use on the mine property. This included drums of gasoline (20) and large square containers of motor oil. There were no spills nor visible discolouration of the ground within the containment area.

☐ **Tank Farm:** During the inspection of the tank farm the following items were noted and discussed on site with the Mine Manager Harold Gates, the Safety Manager Maurice Kay and Cheryl Wray the Environmental Supervisor.

- Areas of discolouration, indicating spills of product from the large tanks were noted within the berm area. These spills were not reported and may not individually have been of sufficient quantity to fall under the mandatory reporting guidelines. However, in the opinion of the inspectors on site, cumulatively these stained areas indicated that enough product had been deposited within the containment area to require attention. During discussions with mine personnel it was stated that the couplings fitted onto the tanks initially were not of sufficient flexibility to accommodate the movements of the tanks. These movements and shifting of the tanks, possibly caused by the thermal dynamics of the ground, melt water and/or other seasonal events was being addressed through the installation of new flex-couplings on all tanks and attachments to the main line. This was expected to be completed before winter 2006.

- It was noted by the inspectors that there appeared to be a lack of signage and posted emergency procedures in the filling stations. Discussions with mine personnel at the time indicated that this would be addressed and that there had been signage previously but since the mine had only recently become responsible for the delivery and operation of the fuel and tank farm, this may have been overlooked previously.

- Both inspectors on site noted that there were ungulate tracks within the fuel storage area. This was discussed and a recommendation to install a barrier to prevent Caribou and other animals from entering the containment area was presented to mine personnel at this time. In consultation with the mine personnel it was agreed that a snow fence barrier could be tried initially to see if this was sufficient deterrence and if not then a more permanent solution would need to be developed. The installation of the snow fence was to occur immediately.

- On viewing the tank farm at a distance it became apparent that one of the large tanks (tank #8) was leaning slightly off toward the North-west. This was discussed and Mine personnel stated that because the tanks were not full and thus subject to ground movements that this had occurred before. They were aware of the situation and were monitoring it but it did not appear to pose any risk of leaking it was determined that they would wait till this winter ice road fuel hauling began to address the situation. It was hoped that the tank would better settle once it was full.

- Prior to the inspection of the Tank farm the last spill report from the mine site was pulled up and reviewed. This spill was approximately 600 litres and contained within the tank farm's liner and berm area. The spill was still detectable at surface and it appeared that no remedial efforts had taken place within the tank farm. It was noted however that there were portable liners and a large quantity of spill materials at the pumping stations and Tank farm area and that there was little or no evidence of product outside the containment area.

☐ **Solid Waste Disposal Site**: At time of inspection the dump had just been burned. The dump appeared to be in normal operating condition.

☐ **Causeway (water in-take):** At the time of the inspection there were no obvious issues. The Pumping station appeared clean and in good order. Records for consumption are not kept in the pumping station but are recorded at the mine site where water for both the processing plant and domestic use are split off.

Water Sampling:

On the afternoon of August 13th, 2006. Cheryl Wray Environmental Supervisor for Tahera Diamond Mine, myself and Henry Kablalik, Resource Management Officer took samples water samples from the following locations;

- WQ 03 - 65 59.682 N X 111 32.706 W
- WQ 16 - 65 59.666 N X 111 25.718 W *
- WQ 01 - 66 00 158 N X 111 29.090 W
- SW08 - 65 59.636 N X 111 28.673 W
- One duplicate sample

* It should be noted that this sample was taken along the shoreline and will be high in nutrients.

Results from these samples were compared against the terms as outlined in the water license (NWB1JER0410) as issued by the Nunavut Water Board and the current Canadian Environmental Quality Guidelines for both Community Water and Freshwater Aquatic life.

None of the criteria set out in Part G section 6 were exceeded.

Terms and Conditions:

A review of terms and conditions of Water License NWB1JER0410, issued to Benachee Resources Inc, for Tahera Diamond mine was undertaken as a result of the Water License inspection conducted on August 12th and 13th 2006.

This review of the water license included the 13 Parts (A to M) and 13 Schedules (A to M) that make up this license. These 169 separate elements contained within a 53 page license define both the general and specific terms and requirements of the licensee as set by the Nunavut Water Board.

A subsequent review of the Nunavut Water Board web site revealed a large number of documents and reports as well as subsequent requests for further information and correspondence between both the licensee and Nunavut Water Board concerning the terms and conditions as contained within the water license. As such it proved impossible to determine what constituent element of any term or condition may have been or not been met at this time.

Officers comments

It is impossible for this office to determine with any certainty what elements of the license have been complied with, what elements require further studies or what work is required to be completed. It is also impossible to determine what elements are matters of general correspondence or e-mail as well as what items are simply information items.

The lack of a status log or list itemizing the outstanding terms and conditions of the Tahera license is a huge obstacle to reviewing this license for compliance.

In fact this lack of an organized approach to monitoring has left it practicably impossible for this office to say with any certainly if the Licensee is in fact in compliance with the terms and condition of the issued license.

It is strongly recommended by this office and this inspector that the Nunavut Water Board implement a one window approach to the issuing and monitoring of the water licenses within Nunavut. This would include the development and implementation of a database management system to keep track of outstanding items as it relates to the terms and conditions of any and all licenses issued under their auspices. This information could then be passed on to the inspectors who could then complete their inspection and report on those outstanding issues.

Please feel free to contact me at (867) 975-4298 or keima@inac.gc.ca should you have any questions or comments.

Sincerely,

Andrew Keim
Water Resources Officer
INAC, Nunavut District

c.c. Nunavut Water Board, Gjoa Haven