INSPECTION/REQUESTS (DIAND, NWB & KIA)	Field visit conducted by Scott Stewart, Water Resource Inspector, DIAND
SITE/WUP LICENSE NUMBERS	Windy Lake (NWB2HOP0207) & Boston (NWB1BOS0106)
REPORTING YEAR	2005
DATE SENT	December 02 2005
ATTENTION	Scott Stringer, General Manager Northern Operations
FROM	Matthew Kawei, Senior Environmental Coordinator

This is a brief summary report highlighting status of work undertaken in addressing concerns raised by regulatory authorities, in particular – field visits to Windy and Boston Camps by Scott Steward, Water Resource Inspector DIAND during 2005 exploration program season. The inspections were carried out on July 22 2005 with a copy received on the same day.

The contents of this summary report follow the outline of the Indian and Northern Affairs Canada (DIAND) Industrial Water Use Inspection Report format.

Windy Lake Camp – License # NWB2HOP0207

1 Water Supply

1.1 Portable Camp Water

- The source for camp water is Windy Lake. The daily maximum withdrawal rate is 50 m^3 per day. The total volume used for the exploration program could not be verified due to lack of a flow meter at the treatment area.
- A new flow meter has been purchased and the installation will be done at the beginning of 2006 exploration program.

2 Waste Disposal

2.1 Sewage -RBC

- The RBC greywater is released over the hill east of Windy camp into the tundra. During 2005, the release line was extended further past the old core boxes lay down area. MHBL is looking for ways to reduce the microbiological organisms in the release effluent to comply with permitting requirements. *Note: chlorine is not used in this treatment facility.*

2.2 Solid Wastes & Hazardous Wastes

- Solid and hazardous wastes management is a challenge because of steady accumulation over the years prior to MHBL involvement at Windy Lake Camp. However, over the last 12 months (exploration season), significant process have been made in managing this challenge.
- In 2004, a land treatment area (LTA) was built for use store and treat petroleum contaminated topsoil. Approximately 100 m^3 of topsoil are stored in this treatment area. The facility is proving beneficiary, as contaminated topsoil are no longer stored in 45-gal barrels. Topsoil previous stored in 45-

gal barrels will be emptied into this facility for treatment. Treated topsoil once deemed safe would be used for reclamation purposes around the property.

- A segregation system of kitchen waste has been implemented at Windy Lake Camp. Recycle cans are placed in a separate bin while burnable wastes are placed into another bin. The burnable wastes are incinerated in an incinerator-installed onsite. Collected ashes are emptied into the LTA.
- Empty 45-gal drums are consistently removed from site during backload flights in 2005. This process will continue in 2006.
- *Hazardous Wastes: Contaminated Fuel* – Contaminated fuel, Jet B, and oil are stored in 45-gal drums. Most of these drums have been accumulated over the years prior to MHBL involvement at Windy Lake Camp. During 2004, approximately 19,000 L of fuel spilled into the environment. A significant portion of this material was recovered. The recovered fuel was later re-claimed and used for camp heating process in 2004 and 2005. All contaminated fuel from 2004 spill has now being used.
- During summer of 2005, work started on identifying the remaining stock of waste fuel drums. These drums were either Jet A/B drums that were deemed unsafe for use due to expiry date and drums that were used to store used absorbents pads and waste oil containers. The Jet A/B drums were identify and properly labelled. Some Jet A/B was used together with recovered fuel for camp heating purposes. Open drums that were used as storage for used absorbent pads and waste oil drums were carefully checked as these drums posed the most significant risk of a spill. Drums closed to overfilling were decanted into a new drum, capped and properly labelled. Open-end drums were covered with a tarpaulin to prevent rain and snow from entering. Work will continue in 2006 to manage and clean the lay down area.

3 General Conditions

Mr Scott Stewart noted the following general condition items: *Restoration Activities – Acceptable; New Construction – Acceptable; Chemical Storage – Unacceptable; Surv. Net. Prog. – Unacceptable; and Fuel Storage - Incomplete.* MHBL response will follow inspector's observation and comments for each item.

3.1 Restoration Activities

- Clean up of impacted areas as a result of the June spill, building of the LTA in 2004, moving AST tanks and building of a lined secondary in July 2005 disturbed many areas. Activities in summer of 2005 concentrated on use of native grass species to help with slope stabilisation and erosion control. This work was carried in high sediment areas to slow down the rate of run offs into Windy Lake. To prevent further disturbances, barricades were set up to prevent vehicles from entering onto the reclaimed disturbed areas. Pictures in Appendix 6 show what was done in areas of concern.

3.2 Lined Secondary Containment Berm

- Hard copies for the approvals to construct lined secondary containment berms at Windy Lake and Patch Lake were obtained from NWB in July 2005. Construction of the lined secondary containment for AST tanks at Windy Camp and Patch Lake proceed under approval number (Motion # 2005-24).
- Construction at Windy immediately (see pictures in Appendix 4). Kitnuna Construction personnel supervised by Biogenie Consulting engineers carried out the construction.
- Contaminated topsoil dug out was placed in the LTA for treatment. Turning of the soil in the LTA was not possible as no proper equipment was available to carryout such task.
- After completion of the farm, the 70,000 L AST tank was placed inside the berm. The empty 50,000 L AST tank will be re-located to Patch Lake during winter of 2006 (see pictures in Appendix 4).
- It took approximately 5 days to complete construction of the berm. However, progress was slow due to the bad weather that lasted for a couple of days during the earth-moving period. This created a situation where sediment runoffs from disturbed areas into Windy Lake were possible.
- To manage this challenge, grass cover materials removed from the construction site was placed along areas identified as being sensitive north of the LTA. The objective was to form a natural barrier with materials locally available to: (i) slow down sediment runoffs (see photos in Appendix 6); (ii) apply corncobs and peat moss over the natural barrier to absorb any petroleum products carried by the runoffs; and (iii) utilize natural grass and shrubs as a means for erosion mitigation process. The natural barrier was effective in achieving the above objectives.

3.2.1 Patch Lake

- Environmental work at Patch Lake focused on building the lined secondary containment berm (see pictures in Appendix 5). Major Drilling personnel supervised by Biogenie Consulting engineers carried out the construction.
- It took approximately 3 days to complete construction of the berm. However, progress was slow due to the bad weather that lasted for a couple of days during the earth-moving period. A more challenging issue was to find enough cover material for the protection of the liner before eight (8) AST tanks can be moved into the lined berm. During construction, it was observed that not enough materials would be generated for both the walls and cover. Operations personnel are currently looking at various options for cover material to complete the task.

3.3 Chemical Waste Storage

- *Hazardous Wastes: Batteries* – At the beginning of the 2005 exploration program, there were 32 wet cell batteries counted in the solid waste lay down

area. All 32 batteries were packed in approved in containers and sent offsite to facilities in Yellowknife for proper disposal.

- *Hazardous Wastes: Broken Drilling Salt Bags* – Bags of drilling salts (NaCl & CaCl) were restacked onto pallets. Bags that were broken due to handling were re-bagged and properly labelled.
- *Hazardous Wastes: Solidified Cement Bags* – Solidified cement bags were removed and stored on high ground away from water drainage systems. Discussion is ongoing with KIA to use this material as a fill-in for low depression areas along tracks and walkways in high traffic areas around the camp.

3.4 Surv. Net. Prog. – Unacceptable

- It is unclear what this refers to (have to clarify with Scott Stewart).

3.5 Fuel Storage – Incomplete

- During site inspection by DIAND Water Resource Inspector, the work on lined secondary containment berm was in progress and therefore very little was done in moving fuel drums into the berm.
- At the end of the summer exploration program, all the Jet A, Jet B drums, gas drums, and fuel, filled green tidy tanks into the lined berm. The gas tidy tank will be relocated into the farm during winter of 2006.

3.6 General comments

- *Skidoo refilling tank* – All gas drums have be relocated into the newly constructed lined secondary containment berm. The green tidy tank will be relocated during winter of 2006.
- *Sewer greywater line*: - The damaged line was replaced and extended well over the ridge and performing as expected.
- *Hazardous Waste Consultant*: - A consult was contacted to provide input into our current management practices. From our discussions with the consultant, the approach MHBL is undertaking is acceptable.
- *Shipment of Hazardous Wastes before January 2006*: - Our current level of effort into managing and cleaning up the hazardous wastes had gone far beyond our previous efforts. A significant improve has been done identifying the contents of all the drums and reclaiming what we could in the short summer period.
- MHBL plans to continue with this process in the summer of 2006. We therefore, would like to request an extension to the period for removing all hazardous waste materials out of Windy Lake Camp from before January 2006 to before January 2008.

Boston Camp License # NWN1BOS0106

Scott completed a field report and passed onto the Site Supervisor. Even though Scott was happy with the work done at Windy Lake, in his report Scott requested few items that needed attention in 2005. These includes: (i) identifying and removing of all hazardous waste materials from Windy Camp by January 2006; replacing currently used 45-gal drums for fuel supply to tents with tidy tanks; and continue with solid waste removal from property.

1 Waste Disposal

1.1 Sewage – RBC Disposal

- A Rotating Biological Contractor (RBC) is used to treat sewage at Boston camp. In previous years, microbiological organisms in the effluent samples have been over compliance values. During the short work program at Boston in summer of 2005, work begin to try and experiment if a modification the outfall area would help reduce the number of microbiological organisms in the effluent.
- To help in reducing the numbers to comply with regulatory requirements, a natural filter system using gravel, sand, and peat moss/corncobs was constructed to aid in removal of nutrients and microbiological organisms from the release greywater effluent. As the installation was done at the end of the exploration, no effluent samples were collected to test the process. Testing will be done in 2006. If the system proves satisfactory, a similar method will be employed at Windy Lake. Photographs of the system are shown in Appendix 3.
- SNP signs were erected at all sampling point at Boston camp.

1.2 Solid Waste Management

- In the short period at Boston, environmental work focused on solid waste management. This involved removing drill-cutting mega bags from the lay down site along the airstrip. Approximately 200 empty bags disposed off in the burn pit on site. (See pictures in Appendix 1).
- Empty 45-gal drums stored on property is a challenge. Most drums were opened as a means to store solid wastes generated around and the camps and drilling sites. Approximately 147 empty drums crushed and packed on pallets (See pictures in Appendix 2: C-D).
- *Hazardous Water (Petroleum Contaminated Topsoil)*: - Turning of the contaminated soil in the LTA was by hand. This process was very slow in achieving a desired outcome. Lack of proper equipment hampered completion of this task. What was observed during turning of the soil showed non-biodegradable materials placed together with the contaminated soil and therefore absorbed the petroleum products leached from the soil (See Appendix 2: E-F). The photographs show only a small portion of the non-biodegradable materials found while turning the soil.

- *Hazardous Waste Material*: - Approximately 30 broken drilling salt bags were repacked and stacked on pallets.
- *Contaminated Fuel/Oil:* - Contaminated petroleum products were stored in 45-gal barrels. Some of these barrels were capped while others were open-ended. In drums were fuel/oil was visible, absorbent pads were used to soak up the fuel/oil and burnt. Corncobs (peat moss) were added to the remaining contaminated water to absorb the remaining petroleum products. The used corncobs were placed in the LTA at Boston Camp. In barrels where only water was present, a sump pump was used to transfer water from open barrels into the lined pond via the lined fuel farm berm. The barrels were cleaned using peat mass and turned upside down.

2 General Conditions

- *Hazardous Waste*: - An email was received from Scott Stewart relating to two (2) open-ended 45-gal drums containing waste fuel/oil observed at Boston Land Treatment Area were in danger of overflowing. Personnel were flown in from Windy Lake camp to rectify the problem.
- The contents of the drums decanted into 2 separate 45-gals barrels and capped. The open-ended barrels were cleaned using peat moss turned upside down. Other open-ended barrels were covered to prevent rain and snow from entering.

Appendix 1: Initial stage of Boston drill cuttings cleanup of the lay down area along the airstrip.

Photographs A & B: Pictures showing mega bags containing drill cuttings lay down area along the airstrip at Boston camp. These pictures taken after initial work done and therefore do not show all previous exposed bags.

Photographs C & D: Picture C showing a mega bag lifted by the front loader, while picture D showing the bag sliced open to let the drilling cuttings out of the bag.

Photographs E & F: Picture s E & F showing the current outlook of the drill cutting lay down area along the airstrip. Approximately 200 mega bags were sliced in 3 half days of work. A much-desired view on the area.

Appendix 2: Solid waste management – Drum crushing and storage and LTA soil turning

Photographs A & B showing 45-gal drums containing non-combustible solids wastes mixed with drums containing hazardous petroleum products and other refuse used during previous spills clean-ups activities.

Photographs C & D showing 45-gal drums crushed and packed on pallets ready for shipment out of property.

Photographs E & F showing non-biodegradable materials recovered during turning of the contaminated soil stored in the LTA at Boston Camp. Most of these products were plastics and absorbent pads.

Appendix 3: Sewer Waster Management – construction of the filter system

Photographs A & B: Photograph A showing construction of a filter system intended to help reduce the level of total and faecal coliform at the end of the discharge line at Boston camp. Photograph B shows gravel placed in the filter system.

Photographs C & D: Photo C showing peat moss and corncobs laid over the gravel bed. Rocks were then placed on the peat moss and corncobs. Photo D showing the general location with corncobs spread to absorb sludge and remove odour emitting from the discharge area. The application was effective in reducing foul odour.

Photographs E & F: Photographs showing the final discharge area. Testing of the system was not possible due to less loading entering into the system.

Appendix 4: Windy Lake Lined Secondary Berm Construction

Appendix 5: Patch Lake Lined Secondary Berm Construction

Appendix 6: Topsoil erosion/sedimentation runoff control using local grass cover