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July 7, 2006 Our file: 4703 001 016

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RE: NWB 2BE-HOP – Miramar Hope Bay Ltd. – 2005 Annual Report

On behalf of Environment Canada (EC), I have reviewed the information submitted with the above-mentioned application. The following specialist advice has been provided pursuant to Environment Canada's mandated responsibilities for the enforcement of the *Canadian Environmental Protection Act*, Section 36(3) of the *Fisheries Act*, the *Migratory Birds Convention Act,* and the *Species at Risk Act*.

Miramar Hope Bay Ltd. (MHBL) has submitted their 2005 annual report as required under Part B, Item 1 of NWB license NWB 2BE-HOP0207. The report outlines activities at the Madrid Project, and outlines activities at the Windy Camp, the Patch Lake Camp, and the Naatok Camp.

Environment Canada is pleased to see the development of standard operating procedures (SOPs) in the Environmental Protection Plan for exploration activities in the Hope Bay Belt. Environment Canada recommends that the SOPs be amended to include the following environmental protection procedures:

Section 2.1: Grubbing and Disposal of Related Debris

- Grubbed material will be stored in such a manner as to prevent erosion of the material and sedimentation of surrounding waterbodies. If grubbed material is to be left exposed for extended periods, preventative measures (such as covering the material) should be employed to prevent erosion.
- This SOP should reference Section 2.8: Buffer Zones for further information of minimizing erosion and sedimentation.

Section 2.2: Storage, Handling and Transfer to Fuel and other Hazardous Materials

- The proponent should be aware that the CCME document "Environmental Code of Practice for Aboveground Storage Tank Systems Containing Petroleum Products" was updated in 2003. MHBL should ensure that fuel containment systems are being designed using this most recent version of the CCME guidance document.
- The SOP indicates that all approved AST tanks exceeding 4,000L in volume will be contained in a lined secondary containment facility. Environment Canada recommends that as a best-practice, secondary containment be used whenever storing fuel on site, including barreled fuel.

Section 2.4: Solid Waste Disposal

- Environment Canada recognizes that timely disposal of camp waste - specifically food waste - is of critical importance to minimize safety risks associated with wildlife attraction. Timely disposal is usually achieved through burning. However, burning of waste products releases numerous contaminants to the air, many of them persistent, bioaccummulative and toxic (e.g. polycyclic aromatic hydrocarbons - PAH's - heavy metals, chlorinated organics – dioxins and furans). These contaminants can result in serious impacts to human and wildlife health through direct inhalation and they can also be deposited to land and water, where they bioaccumulate through food chains affecting wildlife and country foods. Therefore, burning should only be considered after all other alternatives for waste disposal have been explored.

  A variety of incineration devices are available and selection of the most appropriate will depend on considerations of technical and economical feasibility for each situation. For large, permanent camps and/or operational facilities (e.g. diamond mines), installation of an incineration device capable of meeting the emission limits established under the Canada-wide Standards (CWS) for Dioxins and Furans and the CWS for Mercury Emissions is required (both the Government of Canada and the Government of the Nunavut are signatories to these Standards and are required to implement them according to their respective jurisdictional responsibility). For small, temporary camps the use of a modified burn barrel may be acceptable. The proponent should review the incineration options available and provide justification for the selected device to the regulatory authority.

  If burning is the only alternative available, the proponent should ensure that the waste is burned in a device that promotes efficient combustion and reduction of emissions, and that the amount of waste burned is reduced as much as possible. The use of appropriate waste incineration technology should be combined with a comprehensive waste management strategy (especially waste segregation) that is designed to reduce and control the volumes of wastes produced, transported, and disposed of.
  The Waste Management Plan Waste should consider and include:
  - Purchasing policies that focus on reduced packaging,
  - On-site diversion and segregation programs (i.e. the separation of non-food waste items suitable for storage and subsequent transport and disposal or recycling).
  - If incineration is required, ensure diligent operation and maintenance of the incineration device and ensure appropriate training is provided to the personnel operating and maintaining the incinerator.

  <u>The objective should be to ensure that only food waste and food-contaminated waste is burned</u> (the use of paper, cardboard and clean wood as supplementary fuel is acceptable).

  Used absorbent materials, oily or greasy rags, and equipment servicing wastes (such as used engine oil, antifreeze, hydraulic oil, lead acid batteries, brake fluid and other lubricants) should be safely stored and transported in sealed containers (odour free to prevent animal attraction) and safely transported to a facility that is authorized for the treatment and disposal of industrial hazardous wastes.

Section 2.6: Surveying

- The report states that "Surveying activities may disturb wildlife species" and that "No attempt to harass or disturb wildlife will be made by any person". However, more details as to exactly how the surveying team will avoid disturbing wildlife would be useful. For example:
  - What will the survey team do if they encounter an active bird nest?
  - What will the survey team do if they encounter large groups of wildlife (e.g. flock of birds) using the area where they planned to work?

Section 2.10: Surface Drilling

- If drill additives are used, the drill wastes should be directed to a properly constructed sump located above the high water mark of any waterbody and in such a manner as to prevent the contents from entering any waterbody frequented by fish. The *Canadian Environmental Protection Act* (1999) lists CaCl as a toxic substance. Special care should be taken when using chlorides as a drill additive to ensure that sumps used for the disposal of drill wastes are properly constructed.
- Land-based drilling should not occur within 30 m of the high water mark of any waterbody unless special permission has been received from the appropriate regulatory bodies.
- If an artesian flow is encountered, the drill hole should be immediately plugged and permanently sealed.

Section 2.15: Marine Vessels

- The Spill Contingency Plan for the site should be updated to address potential spills in the marine environment. The Plan should address the key principles of prevention, preparedness, response and recovery.

Section 2.18 Blasting on Land

- The report states that "The immediate area of the site will be surveyed within three hours prior to a blast and operations will be curtailed if sensitive animals (e.g. grizzly bears, caribou, and other mammals) are observed within 500 m."
    - Do sensitive animals also include Species at Risk such as Peregrine Falcon or Short-eared Owls?
    - Are there any other non-mammal wildlife that might also be considered sensitive to the blasting (e.g., large flocks of birds in the area)?

Section 2.19: Winter Trails

- Winter lake/stream crossings should be located to minimize approach grades and should be constructed entirely of ice and snow materials. The banks of any watercourse or waterbody are to be protected at all times. Bank disturbance is to be avoided; water crossings should be at right angles to streams and stream crossings shall be removed or notched prior to spring break-up.
- No disturbance of the stream bed or banks of any definable watercourse should be permitted.
- Suitable erosion control measures should be implemented at all stream/lake crossings.

Section 7.2 - Wildlife Encounters

- The report acknowledges the importance of proper handling of food scraps and garbage to reduce attraction of wildlife to the project area. However, some wildlife are also attracted to other edible attractants (e.g. plastics, motor oil, etc). There is no mention of mitigation measures to ensure that these other potential attractants are not accessible to wildlife.
- The report states that all wildlife sighting are to be recorded and reported to the Site Supervisor. However, it does not mention any more specific procedures or mitigation measures if an active bird nest or active mammal den is encountered.

The Annual Report makes reference to the construction and operation of land treatment areas at the Windy Camp and the Patch Lake Camp. However, these facilities do not seem to be licensed under NWB 2BE-HOP. The proponent should verify with the Nunavut Water Board as to whether an amendment is required to operate these facilities. Environment Canada has been researching best practices for the design, construction, operation and maintenance of petroleum hydrocarbon remediation facilities (landfarms) in the north, would be pleased to provide MHBL with technical advice regarding the operation and maintenance of the land treatment areas at Windy camp and Patch Lake camp.

If there are any changes in the proposed project, EC should be notified, as further review may be necessary. Please do not hesitate to contact me with any questions or comments with regards to the foregoing at (867) 975-4639 or by email at colette.spagnuolo@ec.gc.ca.

Yours truly,

Original signed by

Colette Spagnuolo
Environmental Assessment / Contaminated Sites Specialist

cc: (Stephen Harbicht, Head, Assessment and Monitoring, Environment Canada, Yellowknife)