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12 November 2010

EC File: 4703 003 006
NWB File: 2AM-LUP0914

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Via email: licensing@nunavutwaterboard.org

RE: 101013 2AM-LUP0914 Interim Abandonment and Restoration Plan
101013 2AM-LUP0914 Care and Maintenance Plan

Environment Canada (EC) has reviewed the above-mentioned information submitted to the Nunavut Water Board (NWB). The following specialist advice has been provided pursuant to the *Canadian Environmental Protection Act*, Section 36(3) of the *Fisheries Act*, the *Migratory Birds Convention Act*, and the *Species at Risk Act*.

Lupin Mines Incorporated have submitted a Lupin Mine Interim Abandonment and Restoration Plan and a Canada Lupin Mine Care and Maintenance Plan as requirements of Part I, Items 1 and 2, respectively, of water license 2AM-LUP0914.

Upon review of the two plans, EC provides the following comments and recommendations for the NWB's consideration:

Interim Abandonment and Restoration Plan

- The proponent must ensure that any effluent discharged must be in compliance with Section 36(3) of the Fisheries Act. The proponent shall not deposit, nor permit the deposit of any wastes, chemicals or sediment into any water body. According to the *Fisheries Act*, Section 36(3), the deposition of deleterious substances of any type in water frequented by fish, or in any place under any conditions where the deleterious substance, or any other deleterious substance that results from the deposit of the deleterious substance, may enter any such water, is prohibited.
- Section 5.1.2.3 *Fuel Storage* states that "Material (esker sands) that contain residual hydrocarbons may be subjected to landfarming for natural remediation or burial." The Federal Guidelines for Landfarming Petroleum Hydrocarbon Contaminated Soils (SAIC 2006) should be consulted as they contain landfarming specifics including minimum distances from landfarms to surface waters (500 m)
- Section 5.2.3 *Sewage and Refuse Disposal Facilities* states that "All burnable waste (scrap metal, plastics, residue from burning) is disposed of and buried with waste rock on a regular basis." It does not describe burning practices. EC recommends the use of an approved incinerator for the disposal of combustible camp wastes. EC has developed a Technical Document for Batch Waste Incineration, and is available at the following web link: http://www.ec.gc.ca/gdd-mw/default.asp?lang=En&n=F53EDE13-1

The technical document provides information on appropriate incineration technologies, best management and operational practices, monitoring and reporting.

- Solid wastes that are conditionally suitable for burning are paper products, paperboard packaging and untreated wood. EC is concerned with possible side effects of dioxin and furan emissions which can occur due to the incineration of certain wood structures and therefore requests that only clean wood, which has not been coated with preservative chemicals or paint, be considered for incineration. EC recommends that all residual waste from the burning (i.e. coals) be thoroughly collected, removed from site, and disposed of at a suitable facility.
- Section 6 (a) of the *Migratory Birds Regulations* states that no one shall disturb or destroy the nests or eggs of migratory birds. In order to minimize the risk of accidentally disturbing or destroying nests or eggs of migratory birds during demolition or remediation activities, Environment Canada recommends the following mitigation measures for migratory birds:
    - Structures with known nesting areas should be taken down either before or after the nesting season.
    - In the southern Arctic region of the Northwest Territories and Nunavut, migratory birds may be found incubating eggs from May 14 until July 30, and young birds can be present in the nest until September 12.
    - If other demolition or remediation work occurs during the nesting season, these areas should be inspected for active nests before any demolition or remediation work starts.
    - If active nests (i.e., nests containing eggs or young) are discovered, the proponent should delay any work in the area until nesting is complete (i.e., the young have left the nest).

Care and Maintenance Plan

EC supports the mitigation measures proposed to reduce wildlife incidents and mortality, specifically those related to waste management and reducing access to buildings by predators/scavengers (i.e. use of skirting around buildings and stairs). While EC agrees with the general approaches outlined for minimizing disturbance to migratory birds from aircraft overflights and for minimizing disturbance to bird nests, we recommend the following adjustments to the proposed mitigation measures:

- MMG recommends "a minimum general flying altitude of 300 m (1000 ft) above ground level throughout the Project, and 610 m (2000 ft) for all site supply and crew change flights, whenever flying over areas likely to have nesting migratory birds and whenever flying over known raptor nesting areas during the nesting season". It is unclear from this statement in what situations the minimum altitude of 300 m would apply. As a precautionary measure EC recommends that a **minimum altitude of 610 m apply to all flights during the migratory bird breeding season**. EC supports the recommendation of a 1,100 m vertical (3,600 feet) and 1,500 m (5,000 feet) horizontal distance near areas where migratory birds are known to concentrate (e.g. breeding colonies, moulting areas). In addition to these measures, EC recommends that flights during periods when birds are particularly sensitive to disturbance such as migration, nesting, and moulting should be minimized to the extent possible and that MMG should ensure that pilots are informed of these recommendations and areas known to have birds.
- MMG recommends a setback of 100 m to minimize disturbance to nesting birds. EC supports the use of setbacks to protect bird nests and agrees that a 100 m setback is a good precautionary approach to protect nesting birds. MMG states that "although birds may vary in their response to disturbance, all nests should be treated with equal precaution regardless of the response of the bird". EC notes, however, that some birds may require setbacks larger than 100 m to prevent them from flushing from the nest.

Species Group	Pedestrians /ATVs (m)	Roads / Construction / Industrial Activities (m)
Songbirds	30	100
Shorebirds	50[a]	100[a]
Terns/Gulls	200[b]	300[b]
Ducks	100	150
Geese	300	500
Swans/Loons/Cranes	500	750

[a] If project activities are within the breeding ranges of American Golden Plover or Ruddy Turnstone, these setbacks should be increased to 150 m and 300 m respectively. If project activities are within the breeding ranges of Black-bellied Plover, Whimbrel or Redknot (Species at Risk), these setbacks should be increased to 300m and 500m respectively. If field crew are trained in the identification of these species then these higher setbacks need only apply to these more sensitive species, and lower setbacks can be used for the remaining shorebird species.

[b] If project activities are in proximity to breeding colonies of Ross's Gull (Species at Risk) or Ivory Gull (Species at Risk) these setbacks should be increased to 500m and 750m respectively.

EC also makes the following general recommendations:

- In addition to food and domestic wastes, petroleum-based chemicals (e.g., greases, gasoline, glycol-based antifreeze) should also be made inaccessible to wildlife at all times. Such items can attract predators of migratory birds such as foxes, ravens, gulls, and bears. Although these animals may initially be attracted to the novel food sources, they often will also eat eggs and young birds in the area. These predators can have significant negative effects on the local bird populations.
- Section 5.1 of the *Migratory Birds Convention Act* prohibits persons from depositing substances harmful to migratory birds in waters or areas frequented by migratory birds or in a place from which the substance may enter such waters or such an area.
- The following comments are pursuant to the *Species at Risk Act* (SARA), which came into full effect on June 1, 2004. Section 79 (2) of SARA, states that during an assessment of effects of a project, the adverse effects of the project on listed wildlife species and its critical habitat must be identified, that measures are taken to avoid or lessen those effects, and that the effects need to be monitored. This section applies to all species listed on Schedule 1 of SARA. However, as a matter of best practice, Environment Canada suggests that species on other Schedules of SARA and under consideration for listing on SARA, including those designated as at risk by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), be considered during an environmental assessment in a similar manner.

Terrestrial Species at Risk [1]	COSEWIC Designation	Schedule of SARA	Government Organization with Primary Management Responsibility [2]
Eskimo Curlew	Endangered	Schedule 1	EC
Peregrine Falcon	Special Concern (*anatum-tundrius* complex[3])	Schedule 3 – Special Concern (*tundrius)*	Government of Nunavut
Short-eared Owl	Special Concern	Schedule 3	Government of Nunavut
Grizzly Bear	Special Concern	Pending	Government of Nunavut
Wolverine (Western population)	Special Concern	Pending	Government of Nunavut

[1] The Department of Fisheries and Oceans has responsibility for aquatic species.
[2] Environment Canada (EC) has a national role to play in the conservation and recovery of Species at Risk in Canada, as well as responsibility for management of birds described in the Migratory Birds Convention Act (MBCA). Day-to-day management of terrestrial species not covered in the MBCA is the responsibility of the Territorial Government. Populations that exist in National Parks are also managed under the authority of the Parks Canada Agency.
[3] The *anatum* subspecies of Peregrine Falcon is listed on Schedule 1 of SARA as threatened. The *anatum* and *tundruis* subspecies of Peregrine Falcon were reassessed by COSEWIC in 2007 and combined into one subpopulation complex. This subpopulation complex was listed by COSEWIC as Special Concern.

Impacts could be disturbance and attraction to operations.
Environment Canada recommends:

- Species at Risk that could be encountered or affected by the project should be identified and any potential adverse effects of the project to the species, its habitat, and/or its residence noted. All direct, indirect, and cumulative effects should be considered. Refer to species status reports and other information on the Species at Risk registry at www.sararegistry.gc.ca for information on specific species.
- If Species at Risk are encountered or affected, the primary mitigation measure should be avoidance. The proponent should avoid contact with or disturbance to each species, its habitat and/or its residence.
- Monitoring should be undertaken by the proponent to determine the effectiveness of mitigation and/or identify where further mitigation is required. As a minimum, this monitoring should include recording the locations and dates of any observations of Species at Risk, behaviour or actions taken by the animals when project activities were encountered, and any actions taken by the proponent to avoid contact or disturbance to the species, its habitat, and/or its residence. This information should be submitted to the appropriate regulators and organizations with management responsibility for that species, as requested.
- For species primarily managed by the Territorial Government, the Territorial Government should be consulted to identify other appropriate mitigation and/or monitoring measures to minimize effects to these species from the project.
- Mitigation and monitoring measures must be taken in a way that is consistent with applicable recovery strategies and action/management plans.

- Eskimo Curlew is designated as Endangered and listed on Schedule 1 of the *Species at Risk Act*. Eskimo Curlew could potentially occur within the project area. However, there have been no reliable sightings of Eskimo Curlew since 1998 and the National Recovery Team for this species has determined that recovery is not feasible at this time. It is EC's view that, in light of its current status, there is no need for further action with respect to Eskimo Curlew. An appropriate mitigation and monitoring plan will be developed with the Proponent if it is established that this species does occur in the area.

- The Canadian Wildlife Service of Environment Canada is interested in observations of birds, especially observations of birds identified as Species at Risk. Observations can be reported through the NWT/NU Bird Checklist program.

  NWT/NU Bird Checklist Survey
  Canadian Wildlife Service, Environment Canada
  5019 - 52 Street, 4th Floor
  P.O. Box 2310
  Yellowknife NT, X1A 2P7
  Phone: 867.669.4773
  Email: NWTChecklist@ec.gc.ca
- All mitigation measures identified by the proponent, and the additional measures suggested herein, should be strictly adhered to in conducting project activities. This will require awareness on the part of the proponents' representatives (including contractors) conducting operations in the field. Environment Canada recommends that all field operations staff be made aware of the proponents' commitments to these mitigation measures and provided with appropriate advice / training on how to implement these measures.
- Implementation of these measures may help to reduce or eliminate some effects of the project on migratory birds and Species at Risk, but will not necessarily ensure that the proponent remains in compliance with the *Migratory Birds Convention Act*, *Migratory Birds Regulations*, and the *Species at Risk Act*. The proponent must ensure they remain in compliance during all phases and in all undertakings related to the project.

If there are any changes in the project EC should be notified as further review may be necessary. Comments previously submitted on behalf of EC regarding water license 2AM-LUP0914 would still apply to this project. Please do not hesitate to contact the undersigned with any questions or comments with regards to the foregoing at (867) 975-4631 or by email at Paula.C.Smith@ec.gc.ca

Yours truly,

Paula C. Smith
Environmental Assessment Coordinator

cc: Carey Ogilvie (Head, Environmental Assessment-North, EPO, EC, Yellowknife, NT)
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References

SAIC. 2006. Federal Guidelines for Landfarming Petroleum Hydrocarbon Contaminated Soils. Prepared for Environment Canada.