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4 June 2012

EC file: 4703 001 129
NWB file: 2BE-FBP1116

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Via email: licensing@nunavutwaterboard.org

RE: 120504 2BE-FBP1116 Amendment Application – Roche Bay PLC – Qikiqtani Region

Environment Canada (EC) has reviewed the information submitted with the above-mentioned amendment application as submitted to the Nunavut Water Board (NWB). The following specialist advice has been provided pursuant to the *Canadian Environmental Protection Act 1999*, Section 36(3) of the *Fisheries Act*, the *Migratory Birds Convention Act*, and the *Species at Risk Act*.

Roche Bay PLC is proposing to amend water license 2BE-FBP1116 to expand the permitted area under the license to include an area that would be suitable for a camp, including a water source. From observations during the 2011 field program and through satellite imagery, a usable site location could not be found within in the currently permitted area.

Based on a review of the amendment application, EC provides the following comments for the NWB's consideration:

General

- The proponent shall not deposit, nor permit the deposit of chemicals, sediment, wastes, or fuels associated with the project 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 deleterious substance that results from the deposit of the deleterious substance, may enter any such water, is prohibited.
- EC does not foresee any major issues with the proposed increase in permitted area use for the project. The Spill Contingency Plan for the project as well as the Abandonment and Restoration Plan should be further updated to reflect the location of camp, including fuel caches.

Comments previously submitted on behalf of EC regarding water license 2BE-FBP would still apply to this project (see attached). If there are any additional proposed changes to the project EC should be notified, as further review may be necessary. 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, Yellowknife, NT)
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29 April 2011

EC file: 4703 001 129
NWRB file: 2BE-FBP----

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RE: 110330 2BE-FBP---- Roche Bay PLC New Type "B" Qikiqtani Region

Environment Canada (EC) has reviewed the information submitted with the above-mentioned application to the Nunavut Water Board (NWB). The following specialist advice has been provided pursuant to the *Canadian Environmental Protection Act 1999*, Section 36(3) of the *Fisheries Act*, the *Migratory Birds Convention Act*, and the *Species at Risk Act*.

Roche Bay PLC (Roche Bay) is applying for a Type B water license from the NWB to support exploration drilling on their Fraser Bay 1-3 Iron Ore Property, approximately 165km from the community of Hall Beach. Project activities include diamond drilling, geological sampling, geophysics and mapping and the construction of a small exploration camp to house up to sixteen employees. Total water usage would be 130 m^3 per day from all activities. Activities are proposed to start in late June 2011 and continue through October 2011, and occur annually over the next five years.

Based on the information provided, EC provides the following comments for the NWB's consideration:

General

- The proponent shall not deposit, nor permit the deposit of chemicals, sediment, wastes, or fuels associated with the project 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 deleterious substance that results from the deposit of the deleterious substance, may enter any such water, is prohibited.
- All sumps, spill basins, and fuel caches should be located in such a manner as to ensure that their contents do not enter any water body, are to backfilled, and re-contoured to match the surrounding landscape when they are no longer required.

Environmental Management Plan

- In Appendix II of the Environmental Management Plan, the Environment Canada contact phone number should be updated to (867)975-4644.

Drilling

- Land-based drilling should not occur within 30 m of the high water mark of any water body.
- The proponent shall not erect camps or store materials on the surface ice of lakes or streams, except that which is for immediate use.
- Regardless of the type of drilling conducted, the following conditions will apply:
  - Drilling wastes from land-based drilling should be disposed of in a sump such that they do not enter any body of water.
  - For lake-based winter drilling the proponent may refer to the Interim Guidelines for On-Ice drilling. Return water released to the lake must be non-toxic. Return water release must not result in an increase in total suspended solids (TSS) in the waters of the lake that exceeds Canadian Council of Ministers of the Environment (CCME) Guidelines for the Protection of Freshwater Aquatic Life (i.e. 10 mg/L for lakes with background levels under 100 mg/L, or 10% above background for those lakes with TSS background levels above 100 mg/L).
  - Drilling additives or mud shall not be used in connection with holes drilled through lake ice unless they are re-circulated, contained such that they do not enter the water, or are demonstrated to be non-toxic.
  - If artesian flow is encountered, core-drill holes shall be plugged and permanently sealed upon project termination.
- EC assessed inorganic chloride salts and concluded that these salts in high concentrations are harmful to the environment. As a result, the proponent should ensure that when using calcium chloride ($CaCl_2$) for drilling purposes that return water is contained in a properly constructed sump and located in such a manner as to ensure that the contents do not migrate out from the sump. Please note that the proponent should not rely on permafrost integrity to contain and isolate drilling wastes.
- The proponent states that "Land based drill cuttings will be collected in sumps and then be mixed with peat moss and fertilizer and reintroduced to the environment. Ice based drill cuttings will be collected in tanks and then follow the same process". EC suggests that if peat moss and fertilizer are to be used as a means of treating drill cuttings then the proponent should provide monitoring data to the NWB on an on-going basis to determine effectiveness of this treatment method.

Waste Disposal

- If the proponent does ship garbage and sewage waste off-site for disposal, EC suggests that confirmation and authorization be obtained from the intended community landfill (i.e., Hall Beach, Igloolik or Yellowknife) prior to shipment.
- On page 4 of the Abandonment and Restoration Plan, the proponent states that all combustible waste will be burned in burn barrels. EC does not encourage the open burning of waste as a means of disposal. However, considering the constraints at the Roche Bay camp, EC recommends the proponent heed the following guidance:
  - Solid wastes that are conditionally suitable for open burning are paper products, paperboard packaging and untreated wood. Plywood, painted wood or other treated wood should not be disposed of in this manner.
- 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. This information should be incorporated into an incineration management plan for the camp. EC would like the opportunity to review this plan prior to implementation.

- 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 safety transported to a facility that is authorized for the treatment and disposal of industrial hazardous wastes.
- The proponent states that hazardous waste will be shipped off site for disposal. EC suggests that confirmation and authorization be obtained from the intended community landfill (i.e., Igloolik or Yellowknife) prior to shipment. Also, if hazardous waste is transported from the Roche Bay camp, Nunavut to Yellowknife, Northwest Territories for disposal, under the *Canadian Environmental Protection Act* (CEPA 1999) and the Interprovincial Movement of Hazardous Wastes Regulations, the transportation of hazardous waste between territories requires that the proponent completes movement documents. The Government of Nunavut only regulates waste in Nunavut and has no authority in the Northwest Territories. An approved movement document should be completed and accompany any shipments.

Spill Contingency Plan

- Under Section 5.3 Emergency Contact List - Spill Reporting and Response, the listing for EC's 24-hour pager should be removed as it is no longer in service.
- A spill kit, including shovels, barrels, absorbents, etc. should be readily available at all locations where fuel is being stored or transferred in order to provide immediate response in the event of a spill.
- Refueling shall not take place below the high water mark of any water body and shall be done in such a manner as to prevent any hydrocarbons from entering any water body frequented by fish.
- EC recommends that the proponent include a provision that drip pans be used when refueling equipment on site in order to help prevent spills from occurring.
- Spills are to be documented and reported to the NWT/NU 24 hour Spill Line at (867)920-8130. EC recommends that all releases of harmful substances, regardless of quantity, are immediately reported where the release:
    - is near or into a water body;
    - is near or into a designated sensitive environment or sensitive wildlife habitat;
    - poses an imminent threat to human health or safety; or,
    - poses an imminent threat to a listed species at risk or its critical habitat.

Abandonment and Restoration Plan

- Under Section 8. Emergency Contact Information, EC's information should be updated to read: Environment Canada: (867)975-4644. Please note that the 24-hour pager is no longer in service and that listing should be removed.

Wildlife and Species at Risk

- Section 6 (a) of the *Migratory Birds Regulations* states that no one shall disturb or destroy the nests or eggs of migratory birds. If active nests are encountered during project activities, the nesting area should be avoided until nesting is complete (i.e., the young have left the vicinity of the nest).
- Environment Canada recommends that food, domestic wastes, and petroleum-based chemicals (e.g., greases, gasoline, glycol-based antifreeze) 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.
- In order to reduce aircraft disturbance to migratory birds, Environment Canada recommends the following:
    - Fly at times when few birds are present (e.g., early spring, late fall, winter)
    - If flights cannot be scheduled when few birds are present, plan flight paths that minimize flights over habitat likely to have birds and maintain a minimum flight altitude of 650 m (2100 feet).
    - Minimize flights during periods when birds are particularly sensitive to disturbance such as migration, nesting, and moulting.
    - Plan flight paths to avoid known concentrations of birds (e.g., bird colonies, moulting areas) by a lateral distance of at least 1.5 km. If avoidance is not possible, maintain a minimum flight altitude of 1100 m (3500 feet) over areas where birds are known to concentrate.
    - Avoid the seaward side of seabird colonies and areas used by flocks of migrating waterfowl by 3 km.
    - Avoid excessive hovering or circling over areas likely to have birds.
    - Inform pilots of these recommendations and areas known to have birds.
- 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. The Table below lists species that may be encountered in the project area that have been assessed by COSEWIC as well as their current listing on Schedules 1-3 of SARA (and designation if different from that of COSEWIC). Project impacts could include species disturbance, attraction to operations, and destruction of habitat.

Terrestrial Species at Risk potentially within project area [1]	COSEWIC Designation	Schedule of SARA	Government Organization with Primary Management Responsibility [2]
Peregrine Falcon	Special Concern (*anatum-tundrius* complex[3])	Schedule 1 - Threatened (*anatum*) Schedule 3 – Special Concern (*tundrius)*	Government of Nunavut
Polar 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.

- For any Species at Risk that could be encountered or affected by the project, the proponent should note any potential adverse effects of the project to the species, its habitat, and/or its residence. 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.

- 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 proposed project, EC should be notified, as further review may be necessary. 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,

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Environmental Assessment Coordinator

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