



Environment Canada Environnement Canada

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Our file: 4703 001 035

3 February 2006

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Via Email

**RE: NWB2BRO0405 – Kennecott Canada Exploration Inc. – Brodeur Project –
Renewal**

On behalf of Environment Canada (EC), I have reviewed 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*.

Kennecott Canada Exploration Inc. (Kennecott) is applying for a two-year licence renewal for water use and waste disposal associated with exploratory drilling and camp operations for their Brodeur Project. The Brodeur Project is within latitudes 73°20'N and 73°40'N and longitudes 87°00'W and 89°00'W. Project activities will be supported by a 15 person seasonal camp, named St. Joseph's Exploration Camp. This camp is located 25 km upstream of the Jackson River on the Brodeur Peninsula's northwestern side. The camp has a coordinate of 73°14'49.4"N, 87°52'10.4"N and is 80 km west of Arctic Bay, NU.

Project activities for the 2006 and 2007 exploration seasons include prospecting, geological mapping, geophysical surveying, and diamond drilling, all of which will be conducted with the aim of locating diamond-bearing kimberlite deposits. The proponent anticipates that as much as 4,500 L of freshwater will be consumed on a daily basis to support its project activities. Domestic use will require 3,500 L from a creek and land-based diamond drilling will require 1,000 L from nearby lakes and streams. Camp sewage and gray water will be directed to sumps. Combustible solid wastes will be incinerated and non-combustible wastes, hazardous wastes (including waste oil), and empty fuel drums will be transported to Yellowknife for proper disposal.

Kennecott will have a fuel cache positioned at least 30 m from the high water mark of any water body or natural drainage area. Fuel products will be stored in 205 L steel drums, of which there will be 2,050 L of gasoline (10 drums), 15,375 L of diesel (75 drums), and 61,500 L of Jet-B fuel (300 drums). A spill contingency plan describes the response procedures that will be followed in the event of a fuel spill on land, water, snow, or ice. Furthermore, this plan provides a chain of command and contacts for reporting spills. A spill kit will be made available alongside each diamond drill, the camp, fuel cache, and generator. All spills will be documented and reported using the 24-hour Spill Report Line at (867) 920-8130.



The proponent has submitted an abandonment and restoration plan for its exploration project. This plan includes measures that will be followed when performing a seasonal shutdown and final abandonment of the project.

Environment Canada advises the Nunavut Water Board that the Brodeur Project is within an area that is known to have Ivory Gull breeding sites. Currently, Ivory Gulls are listed under the *Species at Risk Act (SARA)* as a Species of Special Concern on Schedule 1. However, due to recent High Arctic research findings, the Canadian Wildlife Service (CWS) has requested that the Committee on the Status of Endangered Wildlife in Canada up-list the species to Threatened or Endangered. The CWS anticipates that the Ivory Gull species will be up-listed and development practices which affect Ivory Gulls and/or their habitat would be subject to prohibitions under the *Nunavut Wildlife Act* or the *SARA*. Attached to this review letter is a letter addressed to Ms. Ball of Kennecott Canada Exploration Inc., dated September 14, 2004, and a letter addressed to the Nunavut Impact Review Board, dated July 22, 2005, regarding Environment Canada concern of protecting the Ivory Gull. Environment Canada would like the Nunavut Water Board to take into consideration the comments provided in these letters when reviewing the proponent's licence application.

Environment Canada requests that the Brodeur Project's spill contingency plan's reporting procedure include its Territorial environmental enforcement contact. The Enforcement Officer based in Iqaluit is Jimmy Noble. Noble can be reached by office telephone at (867) 975-4644 and secure fax-line at (867) 975-4594.

Environment Canada recommends that all drill water be discharged into sumps. Drill cuttings and sludge shall either be placed within sumps or bagged and transported away from the project area for proper disposal.

GENERAL

- The proponent shall not deposit, nor permit the deposit of any fuel, drill cuttings, chemicals, wastes, 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 35 of the *Migratory Birds Regulations* states that "no person shall deposit or permit to be deposited, oil, oil wastes or any other substance harmful to migratory birds in any waters or any area frequented by migratory birds." Therefore, Environment Canada recommends that sumps be backfilled or made otherwise inaccessible to migratory birds prior to their arrival in spring and that the proponent ensure that all spills are thoroughly cleaned up.

CAMPS

- The proponent shall not store materials on the surface ice of lakes or streams, except that which is for immediate use.
- Environment Canada recommends the use of an approved incinerator for the disposal of combustible camp wastes.
- Any sumps, including those created for the disposal of drill cuttings, shall be located above the high water mark of any water body and in such a manner as to prevent the contents from entering any water body frequented by fish. Further, all sumps shall be backfilled upon completion of the field season and contoured to match the surrounding landscape.



DRILLING

- Environment Canada would like to inform the proponent that the *Canadian Environmental Protection Act* lists CaCl as a toxic substance. The proponent shall therefore ensure that if CaCl is used as a drill additive, all sumps containing CaCl are properly constructed and located in such a manner as to ensure that the contents will not enter any water body.
- Land based drilling should not occur within 30 m of the high water mark of any water body. Drilling wastes from land based drilling shall be disposed of in a sump such that the contents do not enter any water body.
- If an artesian flow is encountered, the drill hole shall be immediately plugged and permanently sealed.

FUEL STORAGE / SPILL CONTINGENCY / HAZARDOUS MATERIALS

- Environment Canada recommends the use of secondary containment, such as self-supporting insta-berms, when storing barreled fuel on location rather than relying on natural depressions.
- The proponent shall ensure that any hazardous materials, including waste oil, receive proper treatment and disposal at an approved facility.

MIGRATORY BIRDS

- Environment Canada recommends that all activities be conducted outside the migratory bird breeding season, which extends from 15 May to 1 August. These dates are approximate, and if active nests (i.e., nests containing eggs or young) are encountered outside of these dates, the proponent should avoid the area until nesting is complete (i.e., the young have left the nest). Paragraph 6(a) of the *Migratory Birds Regulations* state that no one shall disturb or destroy the nests or eggs of migratory birds.
- In order to mitigate potential effects and minimize disturbance, any aircraft used in conducting project activities should maintain a horizontal distance of 2 km and a vertical distance of 610 m from any observed groups (colonies) of migratory birds.

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 if you have any questions or comments with regards to the foregoing at (867) 975-4631 or by email via david.abernethy@ec.gc.ca.

Sincerely,

David W. Abernethy
Environmental Assessment Technician

cc. Colette Spagnuolo – Environmental Assessment/Contaminated Sites Specialist, Environment Canada, Iqaluit
Myra Roberson – Environmental Assessment Coordinator, Canadian Wildlife Service, Yellowknife



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September 14, 2004

Kennecott Canada Exploration Inc.
Granville Square
#354 – 200 Granville Street
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Email: susan.ball@kennecott.com

Our File: 4703 003 035

Via Email and regular post

Dear Ms. Ball:

RE: Species Reassessment under the *Species at Risk Act*

Environment Canada would like to provide Kennecott Canada Exploration Inc. with some information regarding a proposed change to the listing of Ivory gulls (*Pagophila eburnea*) under the *Species at Risk Act*, which may affect the Kennecott Canada Exploration Inc. exploration project on the Brodeur Peninsula, near Jackson River, NU.

The purposes of the *Species at Risk Act* (SARA) are to prevent wildlife species from being extirpated or becoming extinct, to provide for the recovery of wildlife species that are extirpated, endangered or threatened as a result of human activity, and to manage species of special concern to prevent them from becoming endangered or threatened. Currently, Ivory gulls are listed under the SARA as a Species of Special Concern on Schedule 1. However, the Canadian Wildlife Service (CWS) of Environment Canada has recently conducted research in the High Arctic which shows that the number of Ivory Gulls has decreased substantially in recent years. The CWS submitted an unsolicited status report on Ivory Gulls to the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) for their consideration, and based on those findings, the CWS expects that COSEWIC will up-list the species to Threatened or Endangered. If the species is up-listed, development which affects Ivory gulls and/or their habitat would be subject to prohibitions under the *Nunavut Wildlife Act* or under the SARA.

This reassessment could potentially impact the Kennecott Canada Exploration Inc. exploration project on the Brodeur Peninsula, Baffin Island, NU. This camp is located adjacent to known/suspected Ivory gull colonies. If the status of Ivory gulls is up-listed to Threatened or Endangered (Schedule 1), it will become an offence under sections 32 and 33 of the SARA to :

- Kill, harm, harass, capture or take an individual of a listed species that is extirpated, endangered or threatened;
- Possess, collect, buy, sell or trade an individual of a listed species that is extirpated, endangered or threatened;
- Damage or destroy the residence of one or more individuals of a listed endangered or threatened species or of a listed extirpated species if a recovery strategy has recommended its reintroduction.

One of the first steps in protecting listed species is the development of recovery strategies. Recovery strategies set out the population goals and objectives, establish broad approaches to



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respond to the known threats to the survival of the species, identify critical habitat, and if possible, set time lines for the preparation of action plans. Once a recovery strategy and action plan(s) are implemented for a listed species, critical habitat of a listed migratory bird will be protected through prohibitions against destroying any part of the critical habitat of a listed Endangered or Threatened species.

Until such a time as EC has further information to share with you regarding the status of Ivory gulls under the SARA, EC suggests that the following recommendations be implemented at the Brodeur project site in order to help protect this species:

- Section 6 (a) of the *Migratory Birds Regulations* states that no one shall disturb or destroy the nests or eggs of migratory birds. Therefore, CWS recommends that all activities be conducted outside the migratory bird breeding season, which extends from approximately June 1 to August 1. These dates are approximate, and if active nests (i.e. nests containing eggs or young) are encountered outside of these dates the proponent should avoid the area until nesting is complete (i.e. the young have left the vicinity of the nest).
- If activities are permitted to occur during the breeding season, CWS recommends that the proponent confirm there are no active nests (i.e. nests containing eggs or young) in the vicinity of the operation before activities commence. If active nests of Ivory gulls or other migratory birds are discovered, the proponent should halt all activities until nesting is completed (i.e. the young have left the vicinity of the nest).
- The Brodeur Project camp is located in the vicinity of known and/or suspected colonies of the Ivory Gull. As a result of the special status of this species, the proponent should minimize contact with or disturbance to these colonies.
 - In order to mitigate potential effects and minimize disturbance, any aircraft used in conducting project activities should maintain a horizontal distance of 2 km and a vertical distance of 610 m from any observed groups (colonies) of Ivory Gulls. CWS would also appreciate if the proponent could forward the coordinates of any Ivory Gull colonies observed.

Environment Canada has requested advice from the Nunavut Impact Review Board (NIRB) regarding environmental assessment process requirements under Article 12 of the Nunavut Land Claims Agreement resulting from this issue. Environment Canada looks forward to working with Twin Mining Corporation and the NIRB to ensure the protection of this species. 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.meloche@ec.gc.ca.

Yours truly,

Original signed by

Colette Meloche
Environmental Assessment / Contaminated Sites Specialist

cc: (Gladys Joudrey, Manager, Environmental Administration, Nunavut Impact Review Board, Cambridge Bay, NU)
(Stephen Harbicht, Head, Assessment and Monitoring, Environment Canada, Yellowknife)
(Siu-ling Han, Habitat Biologist, Canadian Wildlife Service, Environment Canada, Iqaluit)
(Mark Mallory, Seabird Biologist, Canadian Wildlife Service, Environment Canada, Iqaluit)



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July 22, 2005

Our file: 4703 001 035

Sylvia Novoligak
Nunavut Impact Review Board
P.O. Box 2379
Cambridge Bay, NU X0B 1J0
Tel: (867) 983-4613
Fax: (867) 983-2594

Via Email at snovoligak@nirb.nunavut.ca

RE: NIRB 05EN104 – Kennecott Canada Exploration Inc. – Brodeur Project

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 (MBCA)*, and the *Species at Risk Act (SARA)*.

Kennecott Canada Exploration Inc. is applying for a land use permit to continue exploration work in the Brodeur Peninsula. This work, which builds upon previous years findings, will include the continuation of surface exploration, including soil sampling, ground and airborne geophysics, and possibly diamond drilling. The 20 person camp is located 25 km upstream on the Jackson River on the northwestern side of the Brodeur Peninsula on Baffin Island, NU.

On September 14, 2004, EC sent a letter to Susan Ball, Kennecott Canada Exploration Inc., informing them that this project was located in the vicinity of known and/or suspected colonies of Ivory gulls (*Pagophila eburnea*) (see attached letter). The Canadian Wildlife Service (CWS) of Environment Canada has recently released results from a multi-year study in the High Arctic indicating that Ivory Gulls have shown a significant and persistent population decline in Nunavut recent years. The CWS has submitted a status report on Ivory Gulls to the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) for their consideration. The data in the new status report indicate that the Ivory Gull meets COSEWIC's criteria for designation as an 'Endangered' species.

This reassessment could potentially impact the Kennecott Canada Exploration Inc. exploration project on the Brodeur Peninsula, Baffin Island, NU. This camp is located adjacent to breeding sites used by Ivory Gulls. Appendix A provides the coordinates of Ivory Gull colonies on the Brodeur Peninsula that were identified in surveys conducted by the CWS in 2002-2005, and in the 1980s. In addition to the existing restrictions under the MBCA, if the status of Ivory Gulls is up-listed to Threatened or Endangered (Schedule 1), the species would also be subject to the provision of the *Species at Risk Act*. As such, it will become an offence under sections 32 and 33 of the *SARA* to:

- Kill, harm, harass, capture or take an individual of a listed species that is extirpated, endangered or threatened;
- Possess, collect, buy, sell or trade an individual of a listed species that is extirpated, endangered or threatened;
- Damage or destroy the residence of one or more individuals of a listed endangered or threatened species or of a listed extirpated species if a recovery strategy has recommended its reintroduction.

One of the first steps in protecting listed species is the development of recovery strategies. Recovery strategies set out the population goals and objectives, establish broad approaches to respond to the known threats to the survival of the species, identify critical habitat, and if possible, set time lines for the preparation of action plans. **Once a recovery strategy and action plan(s) are implemented for a listed species, critical habitat of a listed migratory bird will be protected through prohibitions against destroying any part of the critical habitat of a listed Endangered or Threatened species.** It is important to note that critical habitat means the habitat that is necessary for the survival or recovery of a listed wildlife species, which has been identified in the recovery strategy or action plan for the species. Therefore, even if a listed species is not currently using an area due to an ongoing disturbance, it is possible that if this habitat is necessary for the recovery of the listed species (i.e. ideal breeding site, nesting site, feeding area, etc...) it could potentially be included in the identified critical habitat and thereby protected by SARA. Critical habitat for Ivory Gulls is likely to include all known breeding habitat identified in the last four years.

Environment Canada suggests that the following recommendations be implemented at the Brodeur project site in order to help protect this species:

- Section 6 (a) of the *Migratory Birds Regulations* states that no one shall disturb or destroy the nests or eggs of migratory birds. Therefore, CWS recommends that all activities be conducted outside the migratory bird breeding season, which extends from approximately June 1 to August 1. These dates are approximate, and if active nests (i.e. nests containing eggs or young) are encountered outside of these dates the proponent should avoid the area until nesting is complete (i.e. the young have left the vicinity of the nest).
- If activities are permitted to occur during the breeding season, CWS recommends that the proponent confirm there are no active nests (i.e. nests containing eggs or young) in the vicinity of the operation before activities commence. If active nests of Ivory gulls or other migratory birds are discovered, the proponent should halt all activities until nesting is completed (i.e. the young have left the vicinity of the nest).
- The proponent should minimize contact with or disturbance to any colonies of Ivory Gulls.
 - In order to mitigate potential effects and minimize disturbance, any aircraft used in conducting project activities should maintain a horizontal distance of 2 km and a vertical distance of 610 m from any observed groups (colonies) of Ivory Gulls. The CWS would also appreciate if the proponent could forward the coordinates of any Ivory Gull colonies observed to Mark Mallory at the contact information provided below.

Environment Canada would like to work with Kennecott Canada Exploration Inc. to develop project-specific measures that can be implemented to help ensure that recovery of Ivory Gull colonies on the Brodeur Peninsula is not jeopardized and/or impaired by ongoing exploration activities. If the status of this species is up-listed to Endangered and placed on Schedule 1 of the SARA, EC will notify Kennecott Canada Exploration Inc. and include industry in the recovery planning process.

In order to help identify and mitigate any potential environmental impacts, EC requires the following information in order to facilitate our review of this application:

- Once available, a map outlining the location of any drill holes, including both land-based and on-ice drilling locations.
- The types and volumes of drill additives that will be used in relation to the project

Environment Canada also recommends that the following conditions relating to the drilling program and camp operations be applied throughout all stages of the project:

- The proponent shall not deposit, nor permit the deposit of any fuel, drill cuttings, chemicals, wastes 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.



- If on-ice drilling is to occur, return water released must be non-toxic, and not result in an increase in total suspended solids in the immediate receiving waters above the Canadian Council of Ministers for the Environment Guidelines for the Protection of Freshwater Aquatic Life (i.e. 10mg/L for lakes with background levels under 100 mg/L, or 10% for those above 100mg/L). Further, drilling additives or muds shall not be used in connection with holes drilled through lake ice unless they are re-circulated or contained such that they do not enter the water, or demonstrated to be non-toxic.
- Drilling additives or muds shall not be used in connection with holes drilled through lake ice unless they are re-circulated or contained such that they do not enter the water, or demonstrated to be non-toxic.
- Land-based drilling should not occur within 30 m of the high water mark of any water body. Drilling wastes from land based drilling shall be disposed of in a sump such that the contents do not enter any water body.
- Environment Canada would like to inform the proponent that the *Canadian Environmental Protection Act* has listed CaCl as a toxic substance. If CaCl is to be used as a drill additive during land based drilling, the proponent shall ensure that sumps containing CaCl are properly constructed and located in such a manner as to ensure that the contents will not enter any water body.
- If artesian flow is encountered, drill holes shall be immediately plugged and permanently sealed.
- All sumps and fuel caches shall be located above the high water mark of any water body and in such a manner as to prevent the contents from entering any water bodies frequented by fish. In addition to backfilling sumps at the end of each season, the proponent should contour the area to match the surrounding landscape.
- Drip pans, or other similar preventative measures, should be used when refuelling equipment on site.
- During winter operations, the permittee shall not erect camps or store material on the surface ice of streams or lakes, except that which is for immediate use.
- EC encourages proponents, when storing barrelled fuel at a location, to use secondary containment, such as self-supporting insta-berms.
- The proponent shall ensure that all hazardous and non-combustible wastes receive proper treatment and disposal at an approved disposal facility.
- Environment Canada recommends the use of an approved incinerator for the disposal of combustible camp wastes.
- The Spill Contingency Plan included with the application should include a map outlining the location of fuel caches on site, and related spill kits.

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. Any questions or concerns regarding Ivory Gulls or the *Species at Risk Act* should be directed to Mark Mallory, Seabird Biologist, at (867) 975-4637 or by email at mark.mallory@ec.gc.ca. Thank-you.

Yours truly,

Original signed by

Colette Spagnuolo
Environmental Assessment / Contaminated Sites Specialist

CC: (Stephen Harbicht, Head, Assessment and Monitoring, Environment Canada, Yellowknife)
(Mark Mallory, Seabird Biologist, Canadian Wildlife Service, Environment Canada, Iqaluit)
(Susan Ball, Kennecott Canada Exploration Incorporated – via email at susan.ball@kennecott.com and facsimile at 604-696-3401)

References

Gilchrist, H. G., and M. L. Mallory. 2005. Declines in abundance and distribution of the Ivory Gull (*Pagophila eburnea*) in Arctic Canada. *Biological Conservation* 121: 303-309



Appendix A – Locations of Ivory Gull Colonies on the Brodeur Peninsula, Baffin Island, Nunavut

Latitude	Longitude
73° 32' N	87° 40' W
73° 32' N	87° 52' W
73° 39' N	87° 29' W
73° 39' N	87° 33' W
73° 37' N	87° 39' W
73° 38' N	87° 37' W
73° 34' N	87° 52' W
73° 29' N	87° 47' W
73° 28' N	87° 54' W
73° 18' N	88° 38' W
73° 18' N	88° 34' W
73° 16' N	88° 39' W
73° 31' N	86° 54' W
73° 39' N	87° 18' W
73° 19' N	87° 54' W
73° 25' N	86° 21' W
73° 25' N	87° 33' W