SCREENING DECISION REPORT
NIRB FILE NO.: 07EN023

NIRB File No.: 07EN023
INAC File No.:N2003C0009
KIA File No.: KVL302C265
KIA File No.: KVRW03F286

March 30, 2007

Honourable Jim Prentice
Minister of Indian and Northern Affairs Canada
Ottawa, ON

Via email: prentice.J@parl.gc.ca

And

Mr. Tongola Sandy
President of Kivalliq Inuit Association
Rankin Inlet, NU

Via email: tsandy@kivalliqinuit.ca

Re: Screening Decision for Shear Minerals' Churchill Diamond Project Proposal

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Dear Honourable Jim Prentice and Mr. Tongola Sandy:

The primary objectives of the Nunavut Land Claims Agreement are set out in section 12.2.5 of the Land Claims Agreement. This section reads:

In carrying out its functions, the primary objectives of NIRB shall be at all times to protect and promote the existing and future well-being of the residents and communities of the Nunavut Settlement Area, and to protect the ecosystemic integrity of the Nunavut Settlement Area. NIRB shall take into account the well-being of the residents of Canada outside the Nunavut Settlement Area.

Section 12.4.4 of the Nunavut Land Claim Agreement states:

Upon receipt of a project proposal, NIRB shall screen the proposal and indicate to the Minister in writing that:

a) the proposal may be processed without a review under Part 5 or 6; NIRB may recommend specific terms and conditions to be attached to any approval, reflecting the primary objectives set out in Section 12.2.5;

b) the proposal requires review under Part 5 or 6; NIRB shall identify particular issues or concerns which should be considered in such a review;
c) the proposal is insufficiently developed to permit proper screening, and should be returned to the proponent for clarification; or
d) the potential adverse impacts of the proposal are so unacceptable that it should be modified or abandoned.

NIRB Assessment and Decision

After a thorough assessment of all material provided to the Board (please see Appendix A), the decision of the Board as per section 12.4.4 of the NLCA is:

> **12.4.4 (a)**: the proposal may be processed without a review under Part 5 or 6; NIRB may recommend specific terms and conditions to be attached to any approval, reflecting the primary objectives set out in Section 12.2.5

Recommendations and Recommended Terms and Conditions

After review of all material provided to the Board regarding this project proposal, the Board is recommending the following:

1. Indian and Northern Affairs Canada (INAC) impose mitigation measures and/or conditions similar to those in the April 25, 2003 Federal Land Use Permit, in regard to:
    a. Location and Area
    b. Time
    c. Equipment
    d. Methods and Techniques
    e. Control or Prevention of Flooding, Erosion and Subsidence of Land
    f. Use, Storage, Handling and Disposal of Chemical or Toxic Material
    g. Wildlife and Fisheries Habitat
    h. Objects and Places of Recreational, Scenic and Ecological Value
    i. Petroleum Fuel Storage
    j. Matters Not Consistent with the Regulations

2. The Kivalliq Inuit Association (KIA) impose mitigation measures and/or Environment Terms and Conditions pursuant to the February 21, 2005 Inuit Owned Lands License (KVL302C265) in regard to:
    a. General Standards
    b. Fuel and Chemical Storage
    c. Campsites
    d. Fisheries
    e. Ground Disturbance
    f. Wildlife
    g. Any other conditions recommended by the appropriate Community Lands and Resource Committee (CLARC)

In addition, the Board is recommending the following or similar project-specific terms and conditions be imposed upon the Proponent through all relevant legislation pursuant to 12.4.4(a) of the NLCA:

1. Shear Minerals (the Proponent) shall maintain a copy of the Project Terms and Conditions at the site of operation at all times.

2. The Proponent shall forward copies of all permits required for the project to NIRB prior to the commencement of the project.

3. The NIRB shall be notified of any changes in operating plans or conditions associated with this project prior to any such change.

4. On or before April 15, 2007, the Proponent shall submit to NIRB, Environment Canada (EC), Government of Nunavut Department of the Environment (GN-DOE) and the Nunavut Water Board a *revised* spill contingency plan, which addresses the comments provided to NIRB by GN-DOE. The Proponent is expected to incorporate and otherwise follow all requirements noted (See Appendix C).

5. On or before April 15, 2007, the Proponent shall submit to NIRB, Environment Canada (EC), and the GN-DOE a Wildlife Monitoring Plan, which addresses the *DIAND Caribou Protection Measures*, the Species at Risk Act (SARA) and comments provided to NIRB by GN-DOE and EC (See relevant sections in Appendix C and Appendix D). The Plan must also include:
    a. The following requirements:
        i. Any NIRB conditions contained within this Screening Decision
        ii. The Proponent shall ensure that aircraft do not, unless for emergency, touch-down in areas where concentrations of wildlife are present. And raptor nesting sites and concentrations of nesting or molting waterfowl should be avoided by aircraft.
        iii. The Proponent shall not disturb or destroy the nests or eggs of migratory birds. All disturbances to nests during the early part of the nesting cycle must be avoided (avoid nest sites from late May through to mid-July).
        iv. The Proponent must ensure that camp waste is made inaccessible to wildlife at all times.
        v. The Proponent shall follow procedures outlined in the "Territorial Safety in Bear Country Manual", and should contact the Regional Biologist or the Wildlife manager for information and advice on measures which should be taken to minimize the possibility of conflicts/interactions with bears. Consideration should be given to setting up an electric fence around the camp.
    b. Predicted impacts to wildlife from project activities
    c. Proposed site-specific measures to reduce anticipated adverse impacts to wildlife
    d. Proposed procedures for the Wildlife Monitoring Plan, including frequency, monitoring period, locations where monitoring will occur, and discussion regarding how the data collected in the daily wildlife monitoring program will be used to determine if adaptive mitigation and management strategies for wildlife are required

6. The Proponent shall submit an annual report with copies provided to the NIRB, INAC, the KIA, and EC by January 31 each year that the project is in operation commencing January 31, 2008. The report must contain, but not be limited to, the following information:
    a. A summary of activities undertaken for the year;
    b. A work plan for the following year;
    c. The results of environmental studies undertaken and plans for future studies;
    d. Wildlife encounters and actions/mitigation taken;
    e. An analysis of the effectiveness of mitigation measures for wildlife;
    f. A summary of local hires and initiatives;
    g. A summary of community consultations undertaken;

h. A summary of site-visits by Land Use Inspectors with results and follow-up actions;
i. The number of take-offs & landings from an airstrip with approved flight path with date and location;
j. The number of helicopter touch-downs on the land with date and location (provide unless confidential);
k. Site photos;
l. Progressive reclamation work undertaken;
m. Any approvals given by Land Use Inspectors regarding Caribou Protection Measures;
n. Efforts made to achieve compliance with the Canadian Wide Standards for Dioxins and Furans, and the Canadian Wide Standards for Mercury; and
o. A summary of how the Proponent has complied with NIRB conditions contained within this Screening Decision, and the conditions associated with all authorizations for the project proposal.

7. The Proponent shall locate, if applicable, all sumps, pits, spill basins and fuel caches and other hazardous materials a minimum of thirty (30) metres away from 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.

8. The Proponent is required to use secondary containment measures (such as an impervious liner) for the storage of all barreled fuel rather than relying on natural depressions to contain spills.

9. The Proponent shall apply appropriate technologies to ensure complete combustion of wastes, and should use an approved incinerator, for the disposal of combustible camp wastes which meets the emission limits established under the Canada-Wide Standards (CWS) for Dioxins and Furans and the CWS for Mercury.

10. In accordance with GN procedures and sections 5.6.52 and 5.6.55 of the Nunavut Land Claims Agreement, the Proponent shall contact the nearest Government of Nunavut Wildlife Office in the event of a defense kill of a Polar Bear.

11. The Proponent must be fully prepared to deal with spills resulting from vehicle accidents along the road as per all legislated requirements.

12. The Proponent shall be advised that the speed on winter roads should not exceed 30 km/hr for fully loaded vehicles or 50 km/hour for empty vehicles. Trucks must carry sufficient spill response equipment for the safe removal of fuel. Trucks must carry reliable radio and/or satellite phone communications.

13. The Proponent is required to backfill or cap drill holes at the end of a project.

14. The Proponent must locate all sumps at least 31 meters from any water bodies, and these usually shall only be used for inert drilling fluids, not any other materials or substances. The sumps should be properly closed out at the end of the project.

15. The Proponent must dispose of waste from the Pacto toilets in a disposal facility approved by relevant regulators.

16. The Proponent should be aware of the law regarding disturbance of archaeological and palaeontological sites and the removal of artifacts found. If a site is found it should remain

undisturbed and its location should be reported to the Government of Nunavut Department of Culture, Language, Elders and Youth (see Appendix B).

Validity of Land Claims Agreement

Section 2.12.2
Where there is any inconsistency or conflict between any federal, territorial and local government laws, and the Agreement, the Agreement shall prevail to the extent of the inconsistency or conflict.

Dated _____March 29, 2007_____ at Cambridge Bay, NU.

_____
Lucassie Arragutainaq, A/Chairperson

APPENDIX A
File History

On February 5, 2007 the Nunavut Impact Review Board (NIRB or Board) received Shear Minerals' (Proponent) Churchill Diamond project proposal from Indian and Northern Affairs Canada (INAC), and, on Feb 16, 2007 NIRB received a similar application from the Kivalliq Inuit Association (KIA). On February 28, 2007 NIRB received notification that a positive conformity determination had been made on this project proposal by the Nunavut Planning Commission (NPC).

The Churchill Diamond project is located on Crown land and Inuit-Owned land in the Kivalliq region. This project commenced in 2003 (previous company 4579 Nunavut Ltd., a wholly owned subsidiary of the present Proponent). The exploration activities were based out of Rankin Inlet and Chesterfield Inlet, with daily commute by helicopter. The Sedna camp was constructed in 2005 and field crews have been based there since then.

The Proponent has requested an amendment with INAC and KIA to include bulk sampling. The addition of the bulk sampling activities constitutes a significant change to the original project proposal. Also, in correspondence dated March 7, 2007, it came to NIRB's attention that the 2005 Sedna camp and associated activities had not been screened previously. Therefore, the 2007 Part 4 Screening included the following activities:

- Regular sampling
  - Till sampling conducted by foot and supported by helicopter
  - Geoscientific sampling by trenching
- Mini bulk sampling
  - Overburden removal
  - Blasting
  - Excavation
  - Restoration
- Geotechnical work
  - Geological mapping conducted by foot and supported by helicopter
  - Geophysical surveys conducted by foot and supported by helicopter
- Diamond drilling activities supported by helicopter
- Fuel and chemical use
  - Fuel and chemical transportation
  - Temporary fuel storage – to be removed at the end of the field season
  - Permanent fuel storage – to remain for the life of the authorization
- Aircraft (both helicopter and fixed wing) use for surveys and pick up and drop off of personnel
- Use of on-site mechanized vehicles
- Use of a Right-of-Way trail for the transportation of project equipment
- Water use and waste deposition
- Explosives storage
- Soil waste disposal/storage
- Abandonment and site restoration
- Use of existing Sedna camp and expansion (by the addition of 2-3 tents)

The bulk sampling program will involve drilling holes through the overburden to determine the depth of the kimberlite, blasting, and the use of an excavator to remove overburden. The surface disturbance area for the bulk sample sites will vary between 0.03 hectares and 0.15 hectares maximum leaving a limited

imprint. Between 100 and 500 tons of material will be removed from each of the drill sites (maximum of 10 drill sites).

On March 7, 2007, this project proposal was distributed to Chesterfield Inlet and Rankin Inlet, and interested Federal and Territorial Agencies.

On or before March 21, 2007, comments were received from:

- Nunavut Tunngavik Incorporated (NTI)
- Environment Canada (EC) and the Canadian Wildlife Service (CWS)
- Government of Nunavut Department of Culture, Language, Elders and Youth (GN-CLEY)
- Government of Nunavut Department of Environment.

All parties supported the project and provided recommendations for the Board's consideration.

APPENDIX B
Terms and Conditions
(Government of Nunavut Culture, Language, Elders and Youth)

ARCHAEOLOGICAL AND PALAEONTOLOGICAL RESOURCES TERMS AND CONDITIONS FOR LAND USE PERMIT HOLDERS

BACKGROUND

Archaeology

As stated in Article 33 of the Nunavut Land Claims Agreement:

The archaeological record of the Inuit of Nunavut is a record of Inuit use and occupancy of lands and resources through time. The evidence associated with their use and occupancy represents a cultural, historical and ethnographic heritage of Inuit society and, as such, Government recognizes that Inuit have a special relationship with such evidence, which shall be expressed in terms of special rights and responsibilities. [33.2.1]

The archaeological record of Nunavut is of spiritual, cultural, religious and educational importance to Inuit. Accordingly, the identification, protection and conservation of archaeological sites and specimens and the interpretation of the archaeological record is of primary importance to Inuit and their involvement is both desirable and necessary. [33.2.2]

In recognition of the cultural, spiritual and religious importance of certain areas in Nunavut to Inuit, Inuit have special rights and interests in these areas as defined by Article 33 of the Nunavut Land Claims Agreement. [33.2.5]

Palaeontology

Under the Nunavut Act[1], the federal government can make regulations for the protection, care and preservation of palaeontological sites and specimens in Nunavut. Under the *Nunavut Archaeological and Palaeontological Sites Regulations*[2], it is illegal to alter or disturb any palaeontological site in Nunavut unless permission is first granted through the permitting process.

Definitions

As defined in the *Nunavut Archaeological and Palaeontological Sites Regulations*, the following definitions apply:

> "archaeological site" means a place where an archaeological artifact is found.

[1] s. 51(1)
[2] P.C. 2001-1111 14 June, 2001

"archaeological artifact" means any tangible evidence of human activity that is more than 50 years old and in respect of which an unbroken chain of possession or regular pattern of usage cannot be demonstrated, and includes a Denesuline archaeological specimen referred to in section 40.4.9 of the Nunavut Land Claims Agreement.

"palaeontological site" means a site where a fossil is found.

"fossil" includes:

(a) natural casts
(b) preserved tracks, coprolites and plant remains; and
(c) the preserved shells and exoskeletons of invertebrates and the eggs, teeth and bones of vertebrates.

Terms and Conditions

1) The permittee shall not operate any vehicle over a known or suspected archaeological or palaeontological site.

2) The permittee shall not remove, disturb, or displace any archaeological artifact or site, or any fossil or palaeontological site.

3) The permittee shall immediately contact the Department of Culture, Language, Elders and Youth (867) 934-2046 or (867) 975-5500 or 1 (866) 934-2035 should an archaeological site or specimen, or a palaeontological site or fossil be encountered or disturbed by any land use activity.

4) The permittee shall immediately cease any activity that disturbs an archaeological or palaeontological site encountered during the course of a land use operation, until permitted to proceed with the authorization of the Department of Culture, Language, Elders and Youth, Government of Nunavut.

5) The permittee shall follow the direction of the Department of Culture, Language, Elders and Youth and DIAND in restoring disturbed archaeological or palaeontological sites to an acceptable condition.

6) The permittee shall provide all information requested by the Department of Culture, Language, Elders and Youth concerning all archaeological sites or artifacts and all palaeontological sites and fossils encountered in the course of any land use activity.

7) The permittee shall make best efforts to ensure that all persons working under authority of the permit are aware of these conditions concerning archaeological sites and artifacts, and palaeontological sites and fossils.

8) The permittee shall avoid the known archaeological and/or palaeontological sites listed in Attachment 1.

9) The permittee shall have an archaeologist or palaeontologist perform the following functions, as required by the Department of Culture, Language, Elders and Youth:

   a) survey
   b) inventory and documentation of the archaeological or palaeontological resources of the land use area
   c) assessment of potential for damage to archaeological or palaeontological sites
   d) mitigation
   e) marking boundaries of archaeological or palaeontological sites
   f) site restoration

The Department of Culture, Language, Elders and Youth shall authorize by way of a Nunavut Archaeologist Permit or a Nunavut Palaeontologist Permit, all procedures subsumed under the above operations.

Attachment 1 **CONFIDENTIAL**

Borden No.	KfJl-1
Latitude	62 57 22 N
Longitude	091 59 16 W
Map No.	55J/13
Class.	undetermined

Borden No.	KiJi-1
Latitude	63 20 30 N
Longitude	090 40 52 W
Map No.	55O/7
Class.	prehistoric

Borden No.	KiJi-2
Latitude	63 20 43 N
Longitude	090 43 05 W
Map No.	55O/7
Class.	prehistoric

Borden No.	KiJi-3
Latitude	63 20 13 N
Longitude	090 40 19 W
Map No.	55O/7
Class.	undetermined

Borden No.	KjJj-1
Latitude	63 36 15 N
Longitude	090 32 55 W
Map No.	55O/10
Class.	prehistoric

Borden No.	KjJj-2
Latitude	63 37 20 N
Longitude	090 32 50 W
Map No.	55O/10
Class.	prehistoric

Borden No.	KjJj-3
Latitude	63 38 05 N
Longitude	090 33 00 W
Map No.	55O/10
Class.	undetermined

Borden No.	KjJj-4
Latitude	63 39 45 N
Longitude	090 35 45 W
Map No.	55O/10
Class.	prehistoric

Borden No.	KjJj-5
Latitude	63 36 40 N
Longitude	090 32 05 W
Map No.	55O/10
Class.	prehistoric

Borden No.	KjJj-6
Latitude	63 35 35 N
Longitude	090 31 05 W
Map No.	55O/10
Class.	undetermined

Borden No.	KjJj-8
Latitude	63 39 55 N
Longitude	090 35 20 W
Map No.	55O/10
Class.	prehistoric

Borden No.	KiJj-1
Latitude	63 29 49 N
Longitude	091 16 44 W
Map No.	55O/6
Class.	prehistoric; indigenous historic

Borden No.	KiJj-2
Latitude	63 29 48 N
Longitude	091 15 44 W
Map No.	55O/6
Class.	indigenous historic

Borden No.	KiJj-3
Latitude	63 29 00 N
Longitude	091 13 55 W
Map No.	55O/6
Class.	undetermined

Borden No.	KiJj-4
Latitude	63 29 27 N
Longitude	091 18 53 W
Map No.	55O/6
Class.	indigenous historic

Borden No.	KiJk-1
Latitude	63 29 31 N
Longitude	091 20 30 W
Map No.	55O/6
Class.	indigenous historic

Borden No.	KiJk-2
Latitude	63 28 36 N
Longitude	091 20 40 W
Map No.	55O/6
Class.	prehistoric

Borden No.	KiJk-3
Latitude	63 28 33 N
Longitude	091 22 54 W
Map No.	55O/6
Class.	indigenous historic

Borden No.	KiJk-4
Latitude	63 29 00 N
Longitude	091 23 37 W

Map No. 55O/6
Class. indigenous historic

Borden No. KiJk-5
Latitude 63 29 36 N
Longitude 091 22 49 W
Map No. 55O/6
Class. undetermined

Borden No. KjJk-1
Latitude 63 30 39 N
Longitude 091 23 12 W
Map No. 55O
Class. prehistoric; indigenous historic

Borden No. KfJm-1
Latitude 62 53 12 N
Longitude 092 10 38 W
Map No. 55K/16
Class. prehistoric

Borden No. KfJm-2
Latitude 62 53 15 N
Longitude 092 09 55 W
Map No. 55K/16
Class. undetermined

Borden No. KfJm-3
Latitude 62 52 54 N
Longitude 092 08 51 W
Map No. 55K/16
Class. prehistoric; indigenous historic

Borden No. KfJm-4
Latitude 62 52 56 N
Longitude 092 10 12 W
Map No. 55K/16
Class. undetermined

Borden No. KfJm-5
Latitude 62 52 54 N
Longitude 092 09 23 W
Map No. 55K/16
Class. undetermined

Borden No. KfJm-6
Latitude 62 52 35 N
Longitude 092 08 45 W
Map No. 55K/16
Class. undetermined

Borden No. KfJm-7
Latitude 62 51 51 N
Longitude 092 08 38 W
Map No. 55K/16
Class. undetermined

Borden No. KfJm-8
Latitude 62 53 19 N
Longitude 092 10 51 W
Map No. 55K/16
Class. undetermined

Borden No. KfJm-9
Latitude 62 53 25 N
Longitude 092 10 59 W
Map No. 55K/16
Class. undetermined

Borden No. KfJm-10
Latitude 62 53 28 N
Longitude 092 11 08 W
Map No. 55K/16
Class. indigenous historic

Borden No. KfJm-11
Latitude 62 53 31 N
Longitude 092 11 41 W
Map No. 55K/16
Class. prehistoric

Borden No. KfJm-12
Latitude 62 53 48 N
Longitude 092 12 12 W
Map No. 55K/16
Class. undetermined

Borden No. KfJm-13
Latitude 62 53 45 N
Longitude 092 12 07 W
Map No. 55K/16
Class. prehistoric; indigenous historic

Borden No. KfJm-14
Latitude 62 54 05 N
Longitude 092 12 26 W
Map No. 55K/16
Class. undetermined

Borden No. KfJm-15
Latitude 62 54 15 N
Longitude 092 12 35 W
Map No. 55K/16
Class. undetermined

Borden No. KfJm-16
Latitude 62 54 23 N
Longitude 092 12 41 W
Map No. 55K/16

Class.	undetermined

Borden No.	KfJm-17
Latitude	62 54 27 N
Longitude	092 13 08 W
Map No.	55K/16
Class.	undetermined

Borden No.	KfJm-18
Latitude	62 54 47 N
Longitude	092 13 06 W
Map No.	55K/16
Class.	undetermined

Borden No.	KfJm-19
Latitude	62 55 00 N
Longitude	092 13 27 W
Map No.	55K/16
Class.	prehistoric; indigenous historic

Borden No.	KfJm-20
Latitude	62 54 36 N
Longitude	092 13 00 W
Map No.	55K/16
Class.	prehistoric

Borden No.	KfJm-21
Latitude	62 55 21 N
Longitude	092 14 20 W
Map No.	55K/16
Class.	undetermined

Borden No.	KfJm-22
Latitude	62 55 16 N
Longitude	092 13 55 W
Map No.	55K/16
Class.	undetermined

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Longitude	092 11 26 W
Map No.	55K/16
Class.	undetermined

Borden No.	KfJm-24
Latitude	62 54 11 N
Longitude	092 12 30 W
Map No.	55K/16
Class.	undetermined

Borden No.	KfJm-25
Latitude	62 54 35 N
Longitude	092 12 34 W
Map No.	55K/16
Class.	undetermined

Borden No.	KfJm-26
Latitude	62 55 09 N
Longitude	092 12 39 W
Map No.	55K/16
Class.	undetermined

Borden No.	KfJm-27
Latitude	62 53 24 N
Longitude	092 11 08 W
Map No.	55K/16
Class.	undetermined

Borden No.	KfJm-28
Latitude	62 53 18 N
Longitude	092 09 29 W
Map No.	55K/16
Class.	undetermined

Borden No.	KfJm-29
Latitude	62 53 23 N
Longitude	092 08 53 W
Map No.	55K/16
Class.	prehistoric

Borden No.	KfJm-30
Latitude	62 53 20 N
Longitude	092 08 40 W
Map No.	55K/16
Class.	undetermined

Borden No.	KfJm-31
Latitude	62 53 01 N
Longitude	092 08 46 W
Map No.	55K/16
Class.	undetermined

Borden No.	KfJm-32
Latitude	62 52 52 N
Longitude	092 08 40 W
Map No.	55K/16
Class.	prehistoric; indigenous historic

Borden No.	KfJm-33
Latitude	62 51 31 N
Longitude	092 07 42 W
Map No.	55K/16
Class.	undetermined

Borden No.	KfJm-34
Latitude	62 51 24 N
Longitude	092 07 16 W
Map No.	55K/16
Class.	undetermined

Borden No.	KfJm-35
Latitude	62 51 40 N
Longitude	092 07 19 W
Map No.	55K/16
Class.	undetermined

Borden No.	KfJm-36
Latitude	62 51 42 N
Longitude	092 05 49 W
Map No.	55K/16
Class.	historic

Borden No.	KfJm-37
Latitude	62 51 50 N
Longitude	092 05 16 W
Map No.	55K/16
Class.	undetermined

Borden No.	KfJm-38
Latitude	62 52 02 N
Longitude	092 04 34 W
Map No.	55K/16
Class.	undetermined

Borden No.	KfJm-39
Latitude	62 50 37 N
Longitude	092 19 38 W
Map No.	55K/16
Class.	indigenous historic

Borden No.	KfJm-40
Latitude	62 50 26 N
Longitude	092 18 57 W
Map No.	55K/16
Class.	undetermined

Borden No.	KfJm-41
Latitude	62 50 29 N
Longitude	092 19 32 W
Map No.	55K/16
Class.	undetermined

Borden No.	KfJm-42
Latitude	62 50 56 N
Longitude	092 10 12 W
Map No.	55K/16
Class.	undetermined

Borden No.	KfJm-43
Latitude	62 50 59 N
Longitude	092 10 28 W
Map No.	55K/16
Class.	undetermined

Borden No.	KfJm-44
Latitude	62 51 32 N
Longitude	092 11 40 W
Map No.	55K/16
Class.	undetermined

Borden No.	KfJm-45
Latitude	62 51 18 N
Longitude	092 09 39 W
Map No.	55K/16
Class.	undetermined

Borden No.	KfJm-46
Latitude	62 51 12 N
Longitude	092 08 55 W
Map No.	55K/16
Class.	undetermined

Borden No.	KfJm-47
Latitude	62 50 43 N
Longitude	092 08 01 W
Map No.	55K/16
Class.	undetermined

Borden No.	KfJm-48
Latitude	62 50 14 N
Longitude	092 06 56 W
Map No.	55K/16
Class.	undetermined

Borden No.	KfJm-49
Latitude	62 53 11 N
Longitude	092 10 41 W
Map No.	55K/16
Class.	prehistoric

Borden No.	KfJm-50
Latitude	62 51 20 N
Longitude	092 10 54 W
Map No.	55K/16
Class.	undetermined

Borden No.	KfJm-51
Latitude	62 54 29 N
Longitude	092 08 01 W
Map No.	55K/16
Class.	undetermined

Borden No.	KfJm-52
Latitude	62 56 28 N
Longitude	092 08 10 W
Map No.	55K/16
Class.	undetermined

Borden No.	KfJm-57
Latitude	62 56 07 N
Longitude	092 07 30 W
Map No.	55K/16

Class.	undetermined
Borden No.	KfJm-59
Latitude	62 57 16 N
Longitude	092 08 55 W
Map No.	55K/16
Class.	undetermined
Borden No.	KfJm-63
Latitude	62 56 46 N
Longitude	092 05 45 W
Map No.	55K/16
Class.	undetermined
Borden No.	KfJm-66
Latitude	62 57 49 N
Longitude	092 02 47 W
Map No.	55K/16
Class.	undetermined
Borden No.	KfJm-67
Latitude	62 57 48 N
Longitude	092 02 36 W
Map No.	55K/16
Class.	undetermined
Borden No.	KfJm-71
Latitude	62 58 06 N
Longitude	092 05 37 W
Map No.	55K/16
Class.	undetermined
Borden No.	KfJm-76
Latitude	62 54 30 N
Longitude	092 07 53 W
Map No.	55K/16
Class.	undetermined
Borden No.	KfJm-77
Latitude	62 54 53 N
Longitude	092 07 25 W
Map No.	55K/16
Class.	undetermined
Borden No.	KfJm-80
Latitude	62 57 40 N
Longitude	092 00 03 W
Map No.	55K/16
Class.	undetermined
Borden No.	KfJm-84
Latitude	62 57 51 N
Longitude	092 00 56 W
Map No.	55K/16
Class.	undetermined
Borden No.	KfJm-87
Latitude	62 58 07 N
Longitude	092 01 55 W
Map No.	55K/16
Class.	undetermined
Borden No.	KfJm-88
Latitude	62 58 11 N
Longitude	092 01 53 W
Map No.	55K/16
Class.	undetermined
Borden No.	KfJm-93
Latitude	62 57 55 N
Longitude	092 01 05 W
Map No.	55K/16
Class.	undetermined
Borden No.	KfJl-2
Latitude	62 58 03 N
Longitude	091 59 54 W
Map No.	55J/13
Class.	undetermined
Borden No.	KfJm-99
Latitude	62 57 42 N
Longitude	092 00 45 W
Map No.	55K/16
Class.	undetermined
Borden No.	KfJm-101
Latitude	62 58 06 N
Longitude	092 01 47 W
Map No.	55K/16
Class.	undetermined
Borden No.	KfJm-102
Latitude	62 58 00 N
Longitude	092 01 46 W
Map No.	55K/16
Class.	undetermined
Borden No.	KfJm-104
Latitude	62 57 57 N
Longitude	092 01 35 W
Map No.	55K/16
Class.	undetermined
Borden No.	KfJm-107
Latitude	62 56 48 N
Longitude	092 04 45 W
Map No.	55K/16
Class.	undetermined
Borden No.	KfJm-109
Latitude	62 56 39 N

Longitude	092 04 29 W
Map No.	55K/16
Class.	undetermined

Borden No.	KfJm-110
Latitude	62 56 32 N
Longitude	092 04 50 W
Map No.	55K/16
Class.	undetermined

Borden No.	KfJm-112
Latitude	62 56 20 N
Longitude	092 04 12 W
Map No.	55K/16
Class.	undetermined

Borden No.	KfJm-114
Latitude	62 56 05 N
Longitude	092 03 28 W
Map No.	55K/16
Class.	undetermined

Borden No.	KfJm-116
Latitude	62 56 31 N
Longitude	092 05 15 W
Map No.	55K/16
Class.	undetermined

Borden No.	KfJm-118
Latitude	62 56 38 N
Longitude	092 05 31 W
Map No.	55K/16
Class.	undetermined

Borden No.	KfJm-120
Latitude	62 56 37 N
Longitude	092 06 37 W
Map No.	55K/16
Class.	undetermined

Borden No.	KfJm-122
Latitude	62 56 39 N
Longitude	092 06 47 W
Map No.	55K/16
Class.	undetermined

Borden No.	KfJm-128
Latitude	62 57 05 N
Longitude	092 05 46 W
Map No.	55K/16
Class.	undetermined

Borden No.	KfJm-131
Latitude	62 57 15 N
Longitude	092 06 32 W
Map No.	55K/16
Class.	undetermined

Borden No.	KfJm-133
Latitude	62 57 18 N
Longitude	092 06 36 W
Map No.	55K/16
Class.	undetermined

Borden No.	KfJm-139
Latitude	62 58 31 N
Longitude	092 09 20 W
Map No.	55K/16
Class.	undetermined

Borden No.	KfJm-140
Latitude	62 58 38 N
Longitude	092 08 55 W
Map No.	55K/16
Class.	undetermined

Borden No.	KfJm-141
Latitude	62 58 32 N
Longitude	092 08 44 W
Map No.	55K/16
Class.	undetermined

Borden No.	KfJm-143
Latitude	62 54 04 N
Longitude	092 05 46 W
Map No.	55K/16
Class.	prehistoric

Borden No.	KfJm-147
Latitude	62 54 45 N
Longitude	092 08 48 W
Map No.	55K/16
Class.	undetermined

Borden No.	KgJm-1
Latitude	63 03 04 N
Longitude	092 14 38 W
Map No.	55N/1
Class.	undetermined

Borden No.	KgJm-2
Latitude	63 00 00 N
Longitude	092 00 00 W
Map No.	55N/1
Class.	undetermined

Borden No.	KgJm-3
Latitude	63 02 56 N
Longitude	092 14 27 W
Map No.	55N/1
Class.	prehistoric

Borden No.	KgJm-4
Latitude	63 02 40 N
Longitude	092 13 56 W
Map No.	55N/1
Class.	prehistoric

Borden No.	KgJm-5
Latitude	63 00 00 N
Longitude	092 00 00 W
Map No.	55N/1
Class.	undetermined

Borden No.	KgJm-6
Latitude	63 02 30 N
Longitude	092 13 29 W
Map No.	55N/1
Class.	prehistoric

Borden No.	KgJm-7
Latitude	63 02 20 N
Longitude	092 12 51 W
Map No.	55N/1
Class.	prehistoric; indigenous historic

Borden No.	KgJm-8
Latitude	63 02 05 N
Longitude	092 11 34 W
Map No.	55N/1
Class.	prehistoric

Borden No.	KgJm-9
Latitude	63 02 10 N
Longitude	092 11 13 W
Map No.	55N/1
Class.	prehistoric

Borden No.	KgJm-10
Latitude	63 02 19 N
Longitude	092 13 07 W
Map No.	55N/1
Class.	prehistoric

Borden No.	KgJm-11
Latitude	63 02 24 N
Longitude	092 13 12 W
Map No.	55N/1
Class.	prehistoric

Borden No.	KgJm-12
Latitude	63 02 24 N
Longitude	092 13 08 W
Map No.	55N/1
Class.	undetermined

Borden No.	KgJm-13
Latitude	63 02 22 N
Longitude	092 13 02 W
Map No.	55N/1
Class.	prehistoric

Borden No.	KgJm-14
Latitude	63 02 23 N
Longitude	092 13 02 W
Map No.	55N/1
Class.	undetermined

Borden No.	KgJm-15
Latitude	63 02 15 N
Longitude	092 13 09 W
Map No.	55N/1
Class.	undetermined

Borden No.	KgJm-16
Latitude	63 02 16 N
Longitude	092 12 31 W
Map No.	55N/1
Class.	undetermined

Borden No.	KgJm-17
Latitude	63 02 06 N
Longitude	092 12 17 W
Map No.	55N/1
Class.	undetermined

Borden No.	KgJm-18
Latitude	63 02 10 N
Longitude	092 12 17 W
Map No.	55N/1
Class.	undetermined

Borden No.	KgJm-19
Latitude	63 02 13 N
Longitude	092 12 23 W
Map No.	55N/1
Class.	undetermined

Borden No.	KgJm-20
Latitude	63 02 09 N
Longitude	092 12 10 W
Map No.	55N/1
Class.	undetermined

Borden No.	KgJm-21
Latitude	63 02 07 N
Longitude	092 12 10 W
Map No.	55N/1
Class.	undetermined

Borden No.	KgJm-22
Latitude	63 02 04 N
Longitude	092 12 09 W

Map No.	55N/1
Class.	prehistoric
Borden No.	KgJm-23
Latitude	63 02 05 N
Longitude	092 12 06 W
Map No.	55N/1
Class.	undetermined
Borden No.	KgJm-24
Latitude	63 02 09 N
Longitude	092 12 06 W
Map No.	55N/1
Class.	undetermined
Borden No.	KgJm-25
Latitude	63 02 08 N
Longitude	092 12 02 W
Map No.	55N/1
Class.	undetermined
Borden No.	KgJm-26
Latitude	63 02 06 N
Longitude	092 12 00 W
Map No.	55N/1
Class.	undetermined
Borden No.	KgJm-27
Latitude	63 02 08 N
Longitude	092 11 56 W
Map No.	55N/1
Class.	undetermined
Borden No.	KgJm-28
Latitude	63 02 04 N
Longitude	092 11 50 W
Map No.	55N/1
Class.	undetermined
Borden No.	KgJm-29
Latitude	63 02 06 N
Longitude	092 11 38 W
Map No.	55N/1
Class.	undetermined
Borden No.	KgJm-30
Latitude	63 02 09 N
Longitude	092 11 39 W
Map No.	55N/1
Class.	undetermined
Borden No.	KgJm-31
Latitude	63 02 07 N
Longitude	092 11 45 W
Map No.	55N/1
Class.	undetermined
Borden No.	KgJm-32
Latitude	63 02 06 N
Longitude	092 11 29 W
Map No.	55N/1
Class.	undetermined
Borden No.	KgJm-33
Latitude	63 02 05 N
Longitude	092 11 11 W
Map No.	55N/1
Class.	undetermined
Borden No.	KgJm-34
Latitude	63 02 07 N
Longitude	092 11 19 W
Map No.	55N/1
Class.	undetermined
Borden No.	KgJm-35
Latitude	63 02 09 N
Longitude	092 11 50 W
Map No.	55N/1
Class.	undetermined
Borden No.	KfJm-148
Latitude	62 52 43 N
Longitude	092 10 05 W
Map No.	55K/16
Class.	undetermined
Borden No.	KfJm-149
Latitude	62 52 46 N
Longitude	092 10 12 W
Map No.	55K/16
Class.	prehistoric
Borden No.	KfJm-150
Latitude	62 52 52 N
Longitude	092 10 09 W
Map No.	55K/16
Class.	undetermined
Borden No.	KfJm-151
Latitude	62 53 21 N
Longitude	092 08 05 W
Map No.	55K/16
Class.	undetermined
Borden No.	KfJm-152
Latitude	62 51 27 N
Longitude	092 09 25 W
Map No.	55K/16
Class.	undetermined
Borden No.	KfJm-153

Latitude	62 55 08 N
Longitude	092 13 46 W
Map No.	55K/15
Class.	undetermined
Borden No.	KfJm-154
Latitude	62 55 09 N
Longitude	092 13 46 W
Map No.	55K/15
Class.	undetermined
Borden No.	KfJm-155
Latitude	62 55 11 N
Longitude	092 13 49 W
Map No.	55K/15
Class.	undetermined
Borden No.	KfJm-156
Latitude	62 55 12 N
Longitude	092 13 51 W
Map No.	55K/15
Class.	undetermined
Borden No.	KfJm-157
Latitude	62 55 15 N
Longitude	092 13 50 W
Map No.	55K/15
Class.	undetermined
Borden No.	KfJm-158
Latitude	62 55 19 N
Longitude	092 14 00 W
Map No.	55K/15
Class.	undetermined
Borden No.	KfJm-159
Latitude	62 55 20 N
Longitude	092 14 07 W
Map No.	55K/15
Class.	indigenous historic
Borden No.	KfJm-160
Latitude	62 55 19 N
Longitude	092 14 21 W
Map No.	55K/15
Class.	undetermined
Borden No.	KfJm-161
Latitude	62 55 27 N
Longitude	092 14 37 W
Map No.	55K/15
Class.	undetermined
Borden No.	KfJm-162
Latitude	62 55 32 N
Longitude	092 14 47 W
Map No.	55K/15
Class.	undetermined
Borden No.	KfJm-163
Latitude	62 55 35 N
Longitude	092 14 54 W
Map No.	55K/15
Class.	undetermined
Borden No.	KfJm-164
Latitude	62 53 21 N
Longitude	092 07 39 W
Map No.	55K/15
Class.	undetermined
Borden No.	KfJm-165
Latitude	62 54 53 N
Longitude	092 13 40 W
Map No.	55K/15
Class.	undetermined
Borden No.	KfJm-166
Latitude	62 54 52 N
Longitude	092 13 43 W
Map No.	55K/15
Class.	undetermined
Borden No.	KgJm-36
Latitude	63 01 59 N
Longitude	092 09 35 W
Map No.	55N/1
Class.	indigenous historic; contemporary
Borden No.	KgJm-37
Latitude	63 01 30 N
Longitude	092 09 40 W
Map No.	55N/1
Class.	indigenous historic
Borden No.	KgJm-38
Latitude	63 01 16 N
Longitude	092 09 25 W
Map No.	55N/1
Class.	indigenous historic ; historic
Borden No.	KgJm-39
Latitude	63 01 19 N
Longitude	092 09 41 W
Map No.	55N/1
Class.	indigenous historic
Borden No.	KgJm-40
Latitude	63 01 59 N
Longitude	092 11 26 W

Map No.	55N/1
Class.	prehistoric; indigenous historic

Borden No.	KgJm-41
Latitude	63 02 25 N
Longitude	092 12 50 W
Map No.	55N/1
Class.	prehistoric; indigenous historic

Borden No.	KgJm-42
Latitude	63 02 22 N
Longitude	092 13 05 W
Map No.	55N/1
Class.	indigenous historic

Borden No.	KgJm-43
Latitude	63 02 29 N
Longitude	092 13 36 W
Map No.	55N/1
Class.	prehistoric

Borden No.	KgJm-44
Latitude	63 02 23 N
Longitude	092 13 29 W
Map No.	55N/1
Class.	indigenous historic

Borden No.	KgJm-45
Latitude	63 01 21 N
Longitude	092 12 53 W
Map No.	55N/1
Class.	indigenous historic

Borden No.	KgJm-46
Latitude	63 01 22 N
Longitude	092 13 11 W
Map No.	55N/1
Class.	indigenous historic

APPENDIX C

COMMENTS AND RECOMENDATIONS
(Government of Nunavut, Department of Environment)

March 20, 07

Leslie Payette
Manager Environmental Administration
Nunavut Impact Review Board

via Email to: lpayette@nirb.nunavut.ca

RE: NIRB FILE # 07EN023 – SHEAR MINERALS LTD. – CHURCHILL DIAMOND EXPLORATION & BULK SAMPLING PROJECT

Dear Ms. Payette:

The Government of Nunavut, Department of Environment (DOE) has reviewed the Churchill diamond project proposal from Shear Minerals Ltd. for conducting diamond exploration and bulk sampling approximately 35 km southwest of Chesterfield Inlet. DOE believes the project will not result in significant adverse effect on the environment; however has the following comments and recommendations to make based on the *Environmental Protection Act* and the *Wildlife Act*, regarding spill contingency, overland transportation, abandonment & restoration, air quality and wildlife.

1. SPILL CONTINGENCY PLAN

Based on DOE's *Spill Contingency Planning and Reporting Regulations, and Spill Reporting in Nunavut: a Guide to the New Regulations*, we have the following comments and recommendations to make:

- Page 5 of the *Churchill Diamond Project Spill Contingency Plan* states the proponent will "contact the 24-Hour Spill Line, Receive instructions from the appropriate contact agencies listed in Section 3.1 regarding collection of the contaminated soil or vegetation, its removal and site cleanup/restoration." The Spill Line and regulators do not provide disposal instructions for spilled and/or contaminated materials. It is the proponent's responsibility to develop a complete plan which addresses the steps to be taken from the start of the spill, up to and including the final clean up and disposal. Regulatory agencies such as DOE, INAC and Environment Canada can review the final plan to assess its adequacy and provide advice at that time. Regulatory bodies can, and have, provided information and advice in emergency situations; however, these agencies should not be included in a spill plan as routine advisors.

- To prevent spreading in the event of a spill, fuel stored in drums and chemicals should be located, whenever practical, in a natural depression a minimum distance of 90 feet from all streams, preferably in an area of low permeability. Furthermore, all fuel and chemical storage containers should be situated in a manner that allows easy access and removal of containers in the event of leaks or spills. Large fuel caches in excess of 20 drums should be inspected daily.

- A contact number is provided in the spill plan, but it is not clear if the number is a 24 hour emergency contact number. The 24 hour number for the persons responsible for activating the contingency plan is required as this ensures the employee discovering the spill can activate a response and provides a 24 hour point of contact for the authority investigating the spill.

- The DOE monitors the movement of hazardous wastes, from the generator to final disposal, through use of a tracking document known as a Waste Manifest. A Waste Manifest must accompany all movements and all parties must register with DOE. This registration can be done at DOE by contacting Robert Eno at (867)975-7748 or reno@gov.nu.ca.

- The NWT-Nunavut spill report form has been updated, and can be obtained from the Spill Line. The proponent is advised to enter spill information electronically in the form so the information is legible to regulators inspecting the spill. Within a few months, it is anticipated that the Spill Line will be able to receive e-mailed spill reports. Until further notice, however, the form is to be filled out and faxed to the Spill Line as before.

2. OVERLAND TRANSPORTATION

- Speed on winter roads should not exceed: 30 km/hr for fully loaded vehicles; 50 km/hour for empty vehicles.

- Trucks should carry at least 10 square metres of polyethylene material (for lining a trench or depression), a spark-proof shovel & oil absorbent blankets or squares.

- Trucks should carry reliable radio and/or satellite phone communications.

- Trucks should carry sufficient response equipment for the safe removal of fuel from an overturned tanker (such as hatch cone covers, hoses etc).

- In general, proponents should be fully prepared to deal with spills resulting from vehicle accidents along the road, in a timely and efficient manner.

3. ABANDONMENT & RESTORATION

- Drill holes should be backfilled or capped at the end of a project. The sumps should be located at least 30 meters from any water bodies, and only be used for inert drilling fluids, not any other materials or substances. The sumps should be properly closed out at the end of a project.

- Page 6 of the *Churchill Diamond Project Abandonment and Restoration Plan* states: "the camp uses Pacto toilets. Bags containing waste are removed from site." However, it is not clear how the wastes will be disposed of eventually. It is important that the waste be disposed of in a facility approved by relevant regulators.

4. AIR QUALITY

The Government of Nunavut is signatory to *Canada-Wide Standards (CWS) for Dioxins and Furans*, and Canada-*Wide Standards for Mercury Emissions*. We therefore request the proponent ensures incineration emissions comply with the CWS by implementing the following recommendations.

Medium Camps (10-50 people or greater than 900 but less than 4410 person days/yr)

The proponent shall apply appropriate technologies to ensure complete combustion of wastes, and the use of a dual chamber, forced-air incinerator is recommended. The proponent shall make determined efforts to achieve compliance with the CWS. Efforts should include the implementation of 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 Strategy 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 provide appropriate training to the personnel operating and maintaining the incinerator.

Waste wood treated with preservatives such as creosote, pentachlorophenol or heavy metal solutions should not be burned. Additionally, plastics, electrical wire, asbestos and building demolition wastes (except clean wood) are wastes likely to produce dioxins and furans when burned and should be excluded from incineration. The efforts made to achieve compliance shall be reported to the Nunavut Impact Review Board as part of the annual report.

5. WILDLIFE

Caribou

Page 10 of the *NIRB Part 1 Form Project Proposal Information Requirements* states that “caribou are frequently observed on the Churchill property.” DOE therefore recommends that the proponent implements the *DIAND Caribou Protection Measures* as indicated in the following.

1.(a) The proponent is recommended not to conduct any activity between May 15 and July 15 within the Kivalliq region.

(b) A proponent may operate within the Kivalliq region beyond the May 15 deadline set out in 1(a), provided that when caribou cows are approaching the area of operation, the proponent will implement 1(c).

(c) During the period of May 15 to July 15, the proponent will suspend all operations, particularly blasting, low-altitude overflights by aircraft, and the use of snowmobiles and ATV’s (all-terrain vehicles) outside the immediate vicinity of the camp, and all personnel will remain quietly in camp or, upon advice from the Conservation Officers (Government of Nunavut) and Land Managers, the proponent will remove all personnel from the site who are not required for the maintenance and protection of the camp facilities and equipment.

(d) The proponent may resume activities prior to July 15 if the caribou cows have ceased to use the area for calving or post-calving.

2. (a) During migration of caribou, the proponent shall not locate and operate so as to block or cause substantial diversion to migrating caribou.

(b) The proponent shall cease activities that may interfere with migration, such as airborne geophysics surveys or movement of equipment, until the migrating caribou have passed.

3. The proponent shall not construct any camp, cache any fuel or conduct blasting within 10 km, or conduct any diamond drilling operation within 5 km, of any “Designated Crossing” as outlined on the map annexed to a Land Use Permit.

4. Low-level overflights should be avoided when one encounters concentrations of caribou.

Bear-People Conflicts

The operation is in an area where “on occasion grizzly and polar bears have also been seen” as stated on page 10 of the *NIRB Part 1 Form Project Proposal*

Information Requirements. DOE therefore requests the following recommendations be implemented. Proper food handling and garbage disposal procedures should be followed to reduce the likelihood that bears will be attracted to the operation. Careful planning and attention to details of camp design and maintenance will decrease the attraction of bears to a camp. The use of an electric fence around the camp site is advised and the proponent should also consider the use of the on site helicopter as a means of deterring bears.

The applicant should follow procedures outlined in the "Safety in Bear Country Manual", and should contact the Regional Biologist or the Wildlife Manager indicated below for information and advice on measures which should be taken to minimize the possibility of bear-people conflicts. The proponent is advised to insure that all staff on the site receives the appropriate training in minimizing human-bear conflicts.

Raptor Nesting Areas

Raptor nests occur throughout Nunavut, and most of the prospecting areas likely contain at least a few nest sites. Take care not to disturb nesting raptors from 15 April to 1 September by staying at least 1.5 km away from them when in transit by aircraft, and to avoid approaching them closely while on foot.

The following is a list of general precautions that must be considered when conducting prospecting activities near Peregrine Falcon, Gyrfalcon, and other raptor nests (most of these precautions will also apply to all nesting bird species):

1) Disturbance is most harmful early in the nesting period (May and June for Peregrine Falcon and Gyrfalcon, similar for Rough-legged Hawk):
Raptors will attempt to maximize their chances of successfully raising young. If they decide early in the breeding period that their nest is at risk, they may abandon it. If nests are disturbed at this stage of nesting, there may not be sufficient time to renest. <u>All disturbances to nests during the early part of the nesting cycle must be avoided (avoid nest sites from late May through to mid-July).</u>

2) Individuals show variability in their response to disturbance:
Different birds will show different responses to varying levels of disturbance. This may result from the general health of the bird, weather conditions, previous life experiences, and adaptability. Therefore, <u>treat all nest sites with equal precaution, regardless of the response of the bird.</u> <u>Do not disturb raptor nests during conditions of poor weather (rain, snow, high winds).</u>

3) Approaching the nest site near the time of fledgling (where chicks fly away from the nest) often leads to premature nest departure:
During the last few weeks of nesting, severe disturbance at the nest often causes young raptors to jump out of the nest. This can cause death from exposure,

predation, starvation, or trauma from the fall itself. All activity within 100m of a nest site during the latter part of the nest stage (10-20 August for peregrine falcons in this region) must be avoided.

Further details on raptor nests and disturbance mitigation can be obtained from the Wildlife Officer in communities closest to the area of interest, or from regional biologists.

Aircraft Disturbance

Aircraft activities have been shown to affect wildlife such as caribou, muskoxen and birds in behaviour, development and reproductive success as well as subject the wildlife to adverse weather conditions and accidental damage or injury. However, by raising flight altitudes, studies have shown that it will alleviate some of the negative effects. Therefore, we recommend that the following protection measures are taken to reduce aircraft disturbance on wildlife.

Unless there is a specific requirement for low level flights, aircraft activities should maintain a minimum altitude of 610 meters above ground level in places where there are occurrences of wildlife. In areas where there are observed large concentrations of birds, flight level is restricted to 1,000 meters vertical distance and 1,500 meters horizontal distance from the birds. These guidelines are provided as a general standard, and exceptions may arise on a case-by-case basis. As a good practice, it is recommended to avoid critical and sensitive wildlife areas at all times by choosing alternate flight corridors.

Wildlife Contacts

Manager, Wildlife
-Dan Shewchuck, (867) 857-2828, dshewchuk@gov.nu.ca

Biologist, Kivalliq Region
- Mitch Campbell, (867) 857-2828, mcampbell@gov.nu.ca

The DOE thanks NIRB for the opportunity to provide comments on the Churchill diamond project proposal. Please contact us if you have further questions.

Yours sincerely,

Original signed by

Helen Yeh
Environmental Assessment Coordinator
Department of Environment
Government of Nunavut
P.O. Box 1000, Stn. 1360
Iqaluit, Nu X0A 0H0

PH: (867) 975-7733
FX: (867) 975-7747
EM: hyeh@gov.nu.ca

APPENDIX D

COMMENTS AND RECOMENDATIONS
(Environment Canada)

Environment Canada **Environnement Canada**

Environmental Protection Operations
Qimugjuk Building 969
P.O. Box 1870
Iqaluit, NU X0A 0H0
Tel: (867) 975-4639
Fax: (867) 975-4645

March 21, 2007

Leslie Payette
Manager Environmental Administration
Nunavut Impact Review Board
Cambridge Bay, NU
Tel: 866 983 4611
Fax: 867 983 2594 via e-mail

RE: Shear Minerals - Churchill Diamond Project - NIRB 07EN023

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.*

Shear Minerals Ltd plans to conduct ground and airborne geophysical surveys; prospecting; rock, till and soil sampling; geological mapping; diamond drilling and test pit trenching. Exploration activities will commence once equipment has been transported to the field sites and exploration camp (Sedna camp) on Josephine Lake, in March 2007. The winter activities will be supported by Challenger, snow machines, fixed-wing aircraft and helicopter. All summer activities will be supported by helicopter and fixed-wing aircraft. Sedna Camp will be expanded by the addition of 2-3 tents to support the additional crew members; an extension of the existing core tent to be double in size; an electric incinerator for garbage disposal and a water filtration system to ensure clean drinking water in camp, particularly in times of spring run off.

The drill program is designed to further delineate the known kimberlite dykes on the property. There will be up to 3 holes drilled from each set up, to test the dykes at varying depths for geological, spatial and grade information. By completing the ground geophysics program early on, Shear will be able to identify any new targets in advance of the exploration drill program.

Bulk Sample Program

In addition to the above described exploration activities, Shear minerals Ltd is proposing a mini bulk sampling program in 2007. A bulk sample is required in order to further assess the diamond grade potential of the 2006 discoveries and to obtain a preliminary valuation of the diamonds, which is a key component in evaluating a diamond deposit. Results from this year's bulk sample are required to plan the 2008 program. The bulk sampling program will involve drilling holes through the overburden to determine the depth of the kimberlite, blasting and the use of an excavator to remove overburden. The surface disturbance area for the bulk sample sites will vary between 0.03 hectares and 0.15 hectares maximum. Between 100 and 500 tons of material will be removed from 10 drill sites (maximum 5,000 tons).

Environment Canada recommends that the following conditions be applied throughout all stages of the project:

General/Camp

- 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
- Any sumps, including those created for the disposal of drill cuttings, shall be located at least 30m 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.
- 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. 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 Nunavut are signatories to these Standards and are required to implement them according to their respective jurisdictional responsibility).
- 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. EC recommends that incineration technology be combined with a **Waste Management Plan**.
    - 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).
        - Commitment to recycling where possible.
        - 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.
    - 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 and safely transported to a facility that is authorized for the treatment and disposal of industrial hazardous wastes.

<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).

Fuel Storage/Spill Contingency

- Secondary containment or a surface liner (drip pans, fold-a-tanks, etc) should be placed under all container or vehicle fuel tank inlet and outlet points, hose connections and hose ends during fuel or hazardous substance transfers. Secondary containment should be of adequate size and volume to contain and hold fluids for the purpose of preventing spills (the worst-case scenario). Appropriate spill response equipment and clean-up materials (absorbents, containment devices, etc) must be on hand during any transfer of fuel or hazardous substances and at vehicle-maintenance areas.

- Transfer operations should be attended by trained personnel at all times.
- Decanting of snow or water from the berm area should proceed only if the appropriate chemical analysis has determined the contents meet the requirements of Section 36(3) of the *Fisheries Act*.
- Fuel containers, including barrels, should be marked with the responsible party's name, product type, and year purchased or filled.
- Waste tracking, or "manifesting," should be implement to ensure proper use, storage, and management of materials. Manifests provide detailed information to first responders in the event of an accident and serve as a tool for confirming that shipments of dangerous or hazardous waste are properly handled, transported, and disposed of.
- All staff shall be instructed regarding these spill/clean-up procedures.
- All releases of harmful substances, regardless of quantity, are immediately reportable 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.

Drilling

- Environment Canada would like to inform the proponent that the *Canadian Environmental Protection Act* has listed 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.
- Drilling additives or mud 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.
- For "on-ice" drilling, 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).
- 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.

Winter Road

- Winter lake/stream crossings shall be constructed entirely of ice and snow materials; stream crossings shall be removed or notched prior to spring break-up.
- The Proponent shall ensure that the right-of-way is sufficiently frozen prior to the transportation of project equipment in order to prevent rutting.

The Canadian Wildlife Service (CWS) of Environment Canada has reviewed the above-mentioned submission and makes the following comments and recommendations pursuant to the *Migratory Birds Convention Act* (the *Act*) and *Migratory Birds Regulations* (the *Regulations)*, and the *Species at Risk Act* (SARA).

- Section 6 (a) of the Migratory Birds Regulations states that no one shall disturb or destroy the nests or eggs of migratory birds. Therefore, EC recommends that activities in which there is a risk of disturbing or destroying nests or eggs be conducted outside the migratory bird breeding season, which extends from approximately May 15 to July 31. 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). EC notes that although Shear Minerals would prefer to be able to complete the bulk sampling under snow conditions, they have suggested that some of the bulk sampling could occur

in summer. There is a risk of disturbing or destroying nests or eggs with land clearings activities such as those associated with the bulk sampling. As such, EC recommends that the land clearing activities associated with the bulk sampling not be done between May 15 and July 31.

- For other activities permitted to occur during the breeding season, EC recommends that the proponent confirm there are no active nests (i.e. nests containing eggs or young) in the vicinity of their operations before activities commence. If active nests of migratory birds are discovered, the proponent should halt all activities in the nesting area until nesting is completed (i.e. the young have left the vicinity of the nest).
- In order to reduce disturbance to resting, feeding, or moulting birds, EC recommends that aircraft used in conducting project activities maintain a flight altitude of at least 610 m during horizontal (point to point) flight unless safety or cloud ceiling do not permit. Environment Canada acknowledges that lower flight altitudes may be required for the geophysics surveys.
- In order to reduce disturbance to resting, feeding, or moulting birds, Environment Canada recommends that aircraft used in conducting project activities maintain a vertical distance of 1000 m and minimum horizontal distance of 1500 m from any observed concentrations (flocks / groups) of birds.
- EC recommends that camp waste be made inaccessible to wildlife at all times. Camp waste can attract predators of migratory birds (e.g., foxes and ravens) to an area if not disposed of properly.
- 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.
- 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. EC 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, but will not necessarily ensure that the proponent remains in compliance with the *Migratory Birds Convention Act* (the *Act*) and *Migratory Birds Regulations (*the *Regulations)*. The proponent must ensure they remain in compliance with the *Act* and *Regulations* during all phases and in all undertakings related to the project.

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.

Species at Risk that may be encountered	COSEWIC Designation	Schedule of SARA	Government Organization with Primary Management Responsibility [1]
Short-eared Owl	Special Concern	Schedule 3	Government of Nunavut
Peregrine Falcon (subspecies tundrius)	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] Environment Canada 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. Thus, for species within their responsibility, the Territorial Government is best suited to provide detailed advice and information on potential adverse effects, mitigation measures, and monitoring.

Impacts could be disturbance, attraction to operations, and destruction of habitat.

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. Refer to 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.
- The proponent should record the locations and frequency of any observations of Species at Risk and note any actions taken to avoid contact or disturbance to the species. This information could be recorded as part of the wildlife sighting sheets that Shear Minerals is developing for field personnel, helicopter pilots and camp personnel.
- For species under the responsibility of 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.

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) 975-4631 or by email at cindy.parker@ec.gc.ca.

Yours truly,

Original signed by

Cindy Parker
Environmental Assessment Technician

cc: (Colette Spagnuolo, Environmental Assessment & Contaminated Sites Specialist, Environment Canada, Iqaluit)