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NUNAVUT WATER BOARD
NUNAVUT IMALIRIYIN KATIMAYINGI
OFFICE DES EAUX DU NUNAVUT

QUESTIONNAIRE

Applicant: Jaelyn Eberle **Licence No:** _____
(For NWB Use Only)

ADMINISTRATIVE INFORMATION

1. Environment Manager: _____ Tel: _____ Fax: _____ E-mail: _____

2. Project Manager: Jaelyn Eberle Tel: 303-492-8069 Fax: 303-735-2347 E-mail: Jaelyn.Eberle@Colorado.edu

3. Does the applicant hold the necessary property rights? We plan to conduct field research on Crown Land, and we have communicated with DIAND re: permitting. Because we are under the 100 person day limit, we will not require a land use permit (see attached email from Brian O'Mara).

4. Is the applicant an 'operator' for another company (i.e., the holder of the property rights)? If so, please provide letter of authorization. N/A

5. Duration of the Project

   X One year or less Start and completion dates: July 1 – 14, 2009
   ☐ Multi Year:

   If Multi-Year indicate proposed schedule of on site activities
   Start: _____ Completion: _____

CAMP CLASSIFICATION

6. Type of Camp

   ☐ Mobile (self-propelled)
   X Temporary
   ☐ Seasonally Occupied: _____
   ☐ Permanent
   ☐ Other: _____

7. What is the design, maximum and expected average population of the camp?
   Camp will be a small tent camp. We will have one cooking tent, and several small personal tents. There will be 6 or 7 persons maximum in the camp.

8. Provide history of the site if it has been used in the past. We stayed at the site near Bay Fiord (see coordinates below) in July 2001 while conducting paleontological field research in this area. Eberle has not yet visited Site 2 (Strathcona Fossil Forest; see below), although other paleontologists noted the site in the mid 1980s.

CAMP LOCATIONS

9. Please describe proposed camp location in relation to biogeographical and geomorphological features, and water bodies.

Site 1: Bay Fiord/Clinker Airport: Site is located near a bright red clinker bed within sediments of the Eureka Sound Group on central Ellesmere Island, and is approximately 2 km north of a small inlet/fiord coined 'Fossil Bay' (site coordinates: latitude 78° 46' N; longitude 82°50'W) and several km south of Bay Fiord (see attached map). Small river channels run near campsite.

Site 2: Strathcona Fossil Forest Site is located approximately 6 km south of the southern shore of Strathcona Fiord (latitude 78° 37'N; longitude 82° 50'W). The site is on the east side of a river channel that has been coined the Fossil Forest River (see attached map from Francis, 1988).

10. How was the location of the camp selected? Was the site previously used? Was assistance from the Regional Inuit Association Land Manager sought? Include maps and/or aerial photographs. The two campsites were selected based upon their proximity to the rocks of research interest (Eureka Sound Group) as well as previous discoveries of fossils at these sites by others in the 1970s and 80s. The sites are relatively easy to access via twin otter and helicopter operated by the PCSP. Site 1 (near Bay Fiord) has a 'landing strip' for twin otter.

11. Is the camp or any aspect of the project located on:

X	Crown Lands	Permit Number (s)/Expiry Date: Not required
☐	Commissioners Lands	Permit Number (s)/Expiry Date: _____
☐	Inuit Owned Lands	Permit Number (s)/Expiry Date: _____

12. Closest Communities (direction and distance in km):
Grise Fiord is approximately 260 km to the south, on southern Ellesmere Island.

13. Has the proponent notified and consulted the nearby communities and potentially interested parties about the proposed work? Eberle has not yet contacted the community of Grise Fiord, although she has been in contact with DIAND regarding permitting to work on Crown Land. She has also contacted Julie Ross (Nunavut CLEY) regarding application for a palaeontological permit, as well as with the Nunavut Planning Committee (NPC).

14. Will the project have impacts on traditional water use areas used by the nearby communities? No. Will the project have impacts on local fish and wildlife habitats? No

PURPOSE OF THE CAMP

15. ☐ Mining (includes exploration drilling)

- ☐ Tourism (hunting, fishing, wildlife observation, adventure/expedition, etc.) (Omit questions # 16 to 21)
- X Other Paleontological field research

16. Activities (check all applicable)

- ☐ Preliminary site visit
- ☐ Prospecting
- X Geological mapping
- ☐ Geophysical survey
- ☐ Diamond drilling
- ☐ Reverse circulation drilling
- ☐ Evaluation Drilling/Bulk Sampling (also complete separate questionnaire)
- X Other: We will be studying the rocks and looking for fossil localities.

17. Type of deposit (exploration focus):

- ☐ Lead Zinc
- ☐ Diamond
- ☐ Gold
- ☐ Uranium
- X Other: We are studying the surficial sedimentary rocks and looking for fossil localities.

DRILLING INFORMATION

18. Drilling Activities No drilling activities will be conducted.

- ☐ Land Based drilling
- ☐ Drilling on ice

19. Describe what will be done with drill cuttings? N/A

20. Describe what will be done with drill water? N/A

21. List the brand names and constituents of the drill additives to be used? Includes MSDS sheets and provide confirmation that the additives are non-toxic and biodegradable. N/A

22. Will any core testing be done on site? Describe. No

SPILL CONTINGENCY PLANNING

23. The proponent is required to have a site specific Spill Contingency Plan prepared and submitted with the application This Plan should be prepared in accordance with the *NWT Environmental Protection Act, Spill Contingency Planning and Reporting Regulations, July 22, 1998* and *A Guide to the Spill Contingency Planning and Reporting Regulations, June 2002.* Please include for review.
Please see Section 10 on license application. We will use propane (two 20 lb canisters) to fuel our camp stoves. No smoking is permitted near the propane tanks. If a spill occurs, no disposal is required because it cannot be contained once it has been released.

24. How many spill kits will be on site and where will they be located? N/A

25. Please describe the types, quantities, and method of storage of fuel and chemicals on site, and provide MSDS sheets.
Propane (stored in CSA approved 20 lb pressurized cylinders), transported to and from campsites by a twin otter or helicopter operated by the Polar Continental Shelf Project (PCSP).

WATER SUPPLY AND TREATMENT

26. Describe the location of water sources.
Bay and Strathcona fiords are several km from camp sites. Other water sources include nearby river channels and streams, which is where we derive our drinking water. Site 2 (Strathcona Fossil Forest) is on the east side of a river channel.

27. Estimated water use (in cubic metres/day):

- [X] Domestic Use: $2m^3$/day Water Source: local river channels and streams
- [ ] Drilling: N/A Water Source: _____
- [ ] Other: N/A Water Source: _____

28. Describe water intake for camp operations? Is the water intake equipped with a mesh screen to prevent entrapment of fish? (see *DFO 1995, Freshwater Intake End-of-Pipe Fish Screen Guideline*) Describe: Our techniques for collecting drinking water are low-tech. We use a small scoop to manually fill 1 or 2 plastic buckets for cooking and drinking water (stored in cook tent). At the beginning of each day, we fill our canteens from the local stream.

29. Will drinking water quality be monitored? What parameters will be analyzed and at what frequency? No

30. Will drinking water be treated? How? No, we have never treated drinking water on past Arctic research trips (1997 – 2004).

31. Will water be stored on site? At most, one or two 6-gallon plastic buckets will be filled with water and stored in the cook tent for future cooking and drinking.

WASTE TREATMENT AND DISPOSAL

32. Describe the characteristics, quantities, treatment and disposal methods for:

X Camp Sewage (blackwater)

Burned and buried.

X Camp Greywater

Greywater will be drained off in wash water pit, and this pit will be filled in.

X Solid Waste

Garbage will be burned and taken back to PCSP facility in Resolute.

☐ Bulky Items/Scrap Metal

☐ Waste Oil/Hazardous Waste

☐ Empty Barrels/Fuel Drums

☐ Other:

33. Please describe incineration system if used on site. What types of wastes will be incinerated? Typically we dig a shallow pit and burn the garbage on site. Anything that isn't burned (e.g., aluminum cans, bottles) will be transported back to the PCSP facility in Resolute by otter when fieldwork is completed. Pit will be filled in prior to our leaving camp.

34. Where and how will non-combustible waste be disposed of? If in a municipality in Nunavut, has authorization been granted? Non-combustible waste (such as recyclables including aluminum cans, glass and plastic bottles, etc.) will be transported back to the PCSP facility in Resolute when we pack up camp. Sewage will be buried.

35. Describe location (relative to water bodies and camp facilities) dimensions and volume, and freeboard for all sumps (if applicable). N/A

36. Will leachate monitoring be done? What parameters will be sampled and analyzed, and at what frequency? No.

OPERATION AND MAINTENANCE

37. Have the water supply and waste treatment and disposal methods been used and proven in cold climate? What known O&M problems may occur? What contingency plans are in place?
Yes, we have been following these practices for our Arctic fieldwork for several years.

ABANDONMENT AND RESTORATION

38. Provide a detailed description of progressive and final abandonment and restoration activities at the site.
All tents are packed up, and any trenching around them filled in. Fire, grey water, and sewage pits are filled in and tamped down. All tents, field equipment, and non-combustible garbage are returned to the PCSP facility in Resolute by twin otter. With regard to fossil localities, we primarily collect visible fossils from the surface and do very limited digging and dry-screening. Consequently, there should be little to no disturbance of the ground as a result of our field activities.

BASELINE DATA

39. Has or will any baseline information be collected as part of this project? Provide bibliography.
Not that I am aware of. Although, the rocks have been mapped by geologists from the Geological Survey of Canada (see attached excerpt of geologic map).

- ☐ Physical Environment (Landscape and Terrain, Air, Water, etc.)
- ☐ Biological Environment (Vegetation, Wildlife, Birds, Fish and Other Aquatic Organisms, etc.)
- ☐ Socio-Economic Environment (Archaeology, Land and Resources Use,
- ☐ Demographics, Social and Culture Patterns, etc.)
- **X** Other: It's possible that we may find new kinds of fossils (e.g., extinct species).

REGULATORY INFORMATION

40. At a minimum, you should ensure you have a copy of and consult the documents below for compliance with existing regulatory requirements:

- ✓ ARTICLE 13 – *NCLA -Nunavut Land Claims Agreement*
- ✓ NWNSRTA – *The Nunavut Waters and Nunavut Surface Rights Tribunal Act, 2002*
- ✓ *Northwest Territories Waters Regulations, 1993*
- ✓ NWB - Water Licensing in Nunavut - Interim Procedures and Information Guide for Applicants
- ✓ NWB - Interim Rules of Practice and Procedure for Public Hearings
- ✓ RWED - *Environmental Protection Act, R-068-93- Spill Contingency Planning and Reporting Regulations, 1993*
- ✓ RWED A Guide to the Spill Contingency Planning and Reporting Regulations, 2002
- ✓ NWTWB - Guidelines for Contingency Planning
- ✓ *Canadian Environmental Protection Act, 1999 (CEPA)*
- ✓ *Fisheries Act, RS 1985* - s.34, 35, 36 and 37
- ✓ DFO - Freshwater Intake End of Pipe Fish Screen Guideline

- ✓ NWTWB - Guidelines for the Discharge of Treated Municipal Wastewater in the NWT
- ✓ Canadian Council for Ministers of the Environment (CCME); Canadian Drinking Water Quality Guidelines, 1987
- ✓ Public Health Act - Camp Sanitation Regulations
- ✓ Public Health Act - Water Supply Regulations
- ✓ *Territorial Lands Act* and *Territorial Land Use Regulations*; Updated 2000