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NUNAVUT WATER BOARD
NUNAVUT IMALIRIYIN KATIMAYINGI
OFFICE DES EAUX DU NUNAVUT

EXPLORATION/ REMOTE CAMP SUPPLEMENTARY QUESTIONNAIRE

Applicant: Dr. Pascal Lee (MARS INSTITUTE) **Licence No:** _____ (For NWB Use Only)

ADMINISTRATIVE INFORMATION

0. RE: HAUGHTON - MARS PROJECT.

1. Environment Manager: P. Lee Tel: (408)687-7103 Fax: (650)604-6779 E-mail: pascal.lee@marsinstitute.net

2. Project Manager: N. Wilkinson Tel: (604)375-7450 Fax: (604)628-7412 E-mail: nicholas.wilkinson@marsinstitute.info

3. Does the applicant hold the necessary property rights? YES (see INAC)

4. Is the applicant an 'operator' for another company (i.e., the holder of the property rights)? If so, please provide letter of authorization. NO

5. Duration of the Project

   ☐ One year or less Start and completion dates: _____
   ☑ Multi Year:

   If Multi-Year indicate proposed schedule of on site activities
   Start: 1 July, 2007 Completion: 31 August, 2012

CAMP CLASSIFICATION

6. Type of Camp

   ☐ Mobile (self-propelled)
   ☐ Temporary
   ☑ Seasonally Occupied: June - August each year (typically)
   ☐ Permanent
   ☐ Other: _____

7. What is the design, maximum and expected average population of the camp?

   Design Pop: ~50 Expected average: ~25 Max: ~45.

8. Provide history of the site if it has been used in the past.

   - Haughton-Mars Project began in 1997.
   - Current Haughton-Mars Project Research Station established at this site in July, 2000.

CAMP LOCATION

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

- HMP Research Station Location: 75°25'57"N, 89°51'45"W.
- Camp is located on northwestern rim of Haughton Crater.
- Creeks and streams located nearby (<1 km).

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.

- HMP RS site was selected by Haughton-Mars Project in 1999.
- Site was not previously used.
- DIAND and QIA approved land access. (Maps attached).

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

☑	Crown Lands	Permit Number (s)/Expiry Date: N2000J0043 / 8 JUNE, 2007
☐	Commissioners Lands	Permit Number (s)/Expiry Date:
☑	Inuit Owned Lands	Permit Number (s)/Expiry Date: Annual permit as needed.

12. Closest Communities (direction and distance in km):

- Grise Fiord, NE, ~150 km
- Resolute Bay, SW, ~150 km

13. Has the proponent notified and consulted the nearby communities and potentially interested parties about the proposed work?

YES. Grise Fiord and Resolute Bay communities are consulted regularly (at least once / year).

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)
- ☑ Other RESEARCH (Planetary Science, Space Exploration).

16. Activities (check all applicable)

- ☑ Preliminary site visit
- ☐ Prospecting
- ☑ Geological mapping
- ☑ Geophysical survey
- ☐ Diamond drilling

- [ ] Reverse circulation drilling
- [x] Evaluation Drilling/Bulk Sampling (also complete separate questionnaire)
- [x] Other: Scientific Research, Exploration Studies.

17. Type of deposit (exploration focus):

- [ ] Lead Zinc
- [ ] Diamond
- [ ] Gold
- [ ] Uranium N/A
- [ ] Other: _____

DRILLING INFORMATION

18. Drilling Activities

- [x] Land Based drilling N/A
- [ ] Drilling on ice

⚠ Scientific research drilling may be conducted certain years (max depth: ~ 5-10 m).

19. Describe what will be done with drill cuttings?

Scientific research.

20. Describe what will be done with drill water?

Dry drilling only.

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.

MI, NASA or Canadian Space Agency research drills only.

22. Will any core testing be done on site? Describe.

Scientific analysis of some cores possible on site.

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 find attached plan.

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

~4 kits (2 at Camp, 2 at Airstrip)

25. Please describe the types, quantities, and method of storage of fuel and chemicals on site, and provide MSDS sheets.

- Diesel, ~15 drums, stored at camp or airstrip.
- Gasoline, ~15 drums, stored at camp or airstrip.
- Aviation Fuel, ~10 drums, stored at airstrip.
- Propane, ~15 bottles, stored at camp or airstrip.

WATER SUPPLY AND TREATMENT

26. Describe the location of water sources.

- Water is drawn from local creek (Lowell Creek) located approx. 200 m from camp.

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

☑ Domestic Use: ~5 m^3/day Water Source: Lowell Creek
☐ Drilling: _____ Water Source: _____
☐ Other: _____ 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:

- Water is pumped with 5 hp electric pump equipped with filter.
- Note: No fish in Lowell Creek.

29. Will drinking water quality be monitored? What parameters will be analyzed and at what frequency?

- Water drinking quality initially monitored. Determined to be safe (NASA water standards).
- Source area is protected to preserve quality.

30. Will drinking water be treated? How?

No.

31. Will water be stored on site? No.

WASTE TREATMENT AND DISPOSAL

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

☑ Camp Sewage (blackwater)
- Urine is collected in empty fuel drums. Flown out.
- Solids are incinerated. Any solid residue is flown out.

☑ Camp Greywater
- Greywater returned to ground via sump.

☑ Solid Waste
- Solids are incinerated. Any solid residue is flown out.

☑ Bulky Items/Scrap Metal
- Flown out if any.

☑ Waste Oil/Hazardous Waste
- Flown out if any.

☑ Empty Barrels/Fuel Drums
- Flown out if any.

☐ Other:

NOTE: Any waste flown out is disposed of in Resolute Bay landfill accordingly.

33. Please describe incineration system if used on site. What types of wastes will be incinerated?
- Salisbury incinerator (burner chamber + grid) uses diesel fuel.
- Solid wastes burned are mostly human feces.

34. Where and how will non-combustible waste be disposed of? If in a municipality in Nunavut, has authorization been granted?
- Non-burnable solid wastes are disposed of in Resolute Bay landfill, in agreement with local community (S. Salluviniq, Mayor)

35. Describe location (relative to water bodies and camp facilities) dimensions and volume, and freeboard for all sumps (if applicable).
- Water source (Lowell Creek) is located ~ 200 m from camp.
- Water sump is located at base camp: (5 x 3 m).

36. Will leachate monitoring be done? What parameters will be sampled and analyzed, and at what frequency?
- No leachate monitoring is currently planed. All solutes are biodegradable.

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?

All water supply, (treatment) and disposal methods ~~used~~ have a proven track record in cold climate at this site.

ABANDONMENT AND RESTORATION

38. Provide a detailed description of progressive and final abandonment and restoration activities at the site.

The HMP is a minimal impact research project. At any given time, site may be restored to initial conditions.

BASELINE DATA

39. Has or will any baseline information be collected as part of this project? Provide bibliography.

- [x] Physical Environment (Landscape and Terrain, Air, Water, etc.)
- [x] 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: See www.marsonearth.org for updated and complete list of publications.

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