



February 20, 2003

To: Phyllis Beaulieu
A/Licensing Administrator
Nunavut Water Board
Gjoa Haven, NU X0B 0J0,

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Re: **Campsite and Research Station, Devon Island, Research Licence**
NIRB: #03YN005 **NWB: NWB4DEV**

Enclosed is the completed NIRB Screening Decision Report for the application for a scientific research licence for research at Devon Island, NU.

NIRB has screened this application for ecosystemic and socio-economic impacts of the proposal.

NIRB's indication to the Minister is:

The decision of the Board in this case 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;

Please contact Stephanie Briscoe, Executive Director at (867) 983-2593 if you have any questions about the Screening Report.

Yours truly,

Jorgen Komak
Environmental Technologist
Nunavut Impact Review Board
P.O. Box 2379
Cambridge Bay, NU X0B 0C0
Tel: (867) 983-2593 Fax: (867) 983-2574

030430 NWB4DEV NIRB Screening
14A



Mr. Thomas Kudloo
Chairperson
Nunavut Water Board
Gjoa Haven, NU X0B 1J0

**RE: Screening Decision of the Nunavut Impact Review Board (NIRB) on Application:
NIRB #03YN005 NWB: #NWB4DEV
Campsite and Research Station, Robert Zubrin, The Mars Society**

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:

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

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.

The decision of the Board in this case 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;**

Reasons for Decision:

NIRB's decision is based on specific considerations that reflect the primary objectives of the Land Claims Agreement. Our considerations in making this decision included:

- storage and disposal of chemicals, fuel, garbage, sewage, and gray water, and impact of these on the ecosystem;
- the impact of campsite and equipment on terrain;
- the impact of ATV activities on archaeological sites or cultural landmarks in the area;
- community support for the project; and
- clean up/restoration of the camp site and drilling locations upon abandonment.

Terms and Conditions:

That the terms and conditions attached to this screening report will apply.

Fuel and Chemical Storage

1. The Permittee shall ensure that fuel storage containers are not located within thirty (30) metres of the ordinary high water mark of any body of water.
2. The Permittee shall ensure that any chemicals, fuels or wastes associated with the project do not spread to the surrounding lands or enter into any water body.
3. The Permittee shall store all fuel in a natural depression and take all reasonable precautions to prevent the possibility of migration of spilled petroleum fuel or chemicals over the ground surface.
4. The Permittee shall have one extra fuel storage container on site equal to, or greater than, the size of the largest fuel container.
5. The Permittee shall examine all fuel and chemical storage containers daily for leaks. All leaks should be prepared immediately.
6. The Permittee shall seal all container outlets except the outlet currently in use.
7. The Permittee shall dispose of all combustible waste petroleum products by incineration or removal from the site.
8. The Permittee shall control all activities, including maintenance procedures and vehicular refueling, to prevent the entry of petroleum products, debris, slash, rubble or other deleterious substances into the water.
9. The Permittee shall have emergency response and spill contingency plans in place prior to the commencement of the operation.
10. The Permittee shall immediately report all spills of petroleum and hazardous chemicals to the twenty four (24) hour spill report line at (867) 920-8130.

Waste Disposal

11. The Permittee shall not discharge or deposit any refuse substances or other waste materials in any body of water, or on the banks thereof, which will impair the quality of the waters of the natural environment.
12. The Permittee shall not locate any sumps or areas designated for waste disposal within thirty (30) metres of the ordinary high water mark of any body of water, unless otherwise authorized.
13. The Permittee shall incinerate all combustible and food wastes daily.
14. The Permittee shall keep all garbage and debris in a covered metal container until disposed of.
15. The Permittee shall ensure that all wastes generated through the course of the operation are backhauled and disposed of in an approved dumpsite.
16. The Permittee shall not bury any wastes.

Wildlife

17. The Permittee shall ensure that there is no damage to wildlife habitat in conducting this operation.
18. The Permittee shall not feed wildlife.
19. The Permittee shall make every effort to prevent the unintentional harassment of polar bears, Peary caribou, muskox and nesting or molting waterfowl at all times. It is an offense under the Wildlife Act to harass wildlife.
20. The Permittee shall use the latest bear detection and deterrent techniques to minimize man-bear interactions.
21. The Permittee shall immediately report problem wildlife to Department of Sustainable Development wildlife officers.
22. The Permittee shall ensure compliance with Section 36 of the Fisheries Act which requires that no person shall deposit or permit the deposit of a deleterious substance on any type in water frequented by fish or in any place under any conditions where the deleterious substance may enter such a water body.
23. The harmful alteration, disruption or destruction of fish habitat is prohibited under Section 35 of the Fisheries Act. No construction or disturbance of any stream/lake bed or banks of any definable watercourse is permitted unless authorized by DFO.

Environmental

24. The Permittee shall ensure that the land use area is kept clean and tidy at all times.
25. The Permittee shall prepare the site in such a manner as to prevent rutting of the ground surface.
26. The Permittee shall be required to undertake any corrective measures in the event of any damage to the land or water as a result of the Permittee's operation.
27. The Permittee shall not use any equipment except of the type, size and number that is listed in the accepted application.
28. The Permittee shall suspend overland travel of equipment or vehicles if rutting occurs.

Camp

29. The Permittee shall not erect camps or store material on the surface ice of lakes or streams.
30. The Permittee shall locate all camps and storage facilities on gravel, sand or other durable land.

Archaeological

31. The Permittee shall follow all terms and conditions for the protection and restoration of archaeological resources as outlined by the Department of Culture, Language, Elders and Youths (CLEY).

Reclamation

32. The Permittee shall complete all clean-up and restoration of the lands used prior to the expiry date of the permit.

Other Recommendations

1. NIRB would like to encourage the proponent to hire local people and services, to the extent possible.
2. NIRB strongly advises proponents to consult with local residents regarding their activities in the region.
3. Any amendment requests deemed by NIRB to be outside the original scope of the project will be considered a new project.
4. The Environmental Protection Branch (DOE), Department of Fisheries and Oceans (DFO), Nunavut Impact Review Board (NIRB), and the Nunavut Water Board (NWB) should be advised of any material changes to plans or operating conditions associated with the project.

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 Feb 20/03 at Arviat, NU

Elizabeth Copland
Elizabeth Copland, Chairperson

03YU005

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COMMENT FORM FOR NIRB SCREENINGS

The Nunavut Impact Review Board has a mandate to protect the integrity of the ecosystem for the existing and future residents of Nunavut. In order to assess the environmental and socio-economic impacts of the project proposals, NIRB would like to hear your concerns, comments and suggestions about the following project application:

Project Title: <u>Campsite and Research Station</u>			
Proponent: <u>Dr. Zubrin, The Mary Society</u>			
Location: <u>Devon Island, Nunavut</u>			
Comments Due By: <u>February 13, 2003</u>	NIRB #: <u>03YN005</u>		
<p>Indicate your concerns about the project proposal below:</p> <table border="0"> <tr> <td> <input type="checkbox"/> water quality <input type="checkbox"/> terrain <input type="checkbox"/> air quality <input type="checkbox"/> wildlife and their habitat <input type="checkbox"/> marine mammals and their habitat <input type="checkbox"/> birds and their habitat <input type="checkbox"/> fish and their habitat <input type="checkbox"/> heritage resources in area </td> <td> <input type="checkbox"/> traditional uses of land <input type="checkbox"/> land use planning and consultation <input type="checkbox"/> community involvement and consultation <input type="checkbox"/> local development in the area <input type="checkbox"/> tourism in the area <input type="checkbox"/> human health issues <input type="checkbox"/> other: _____ </td> </tr> </table> <p>Please describe the concerns indicated above:</p>		<input type="checkbox"/> water quality <input type="checkbox"/> terrain <input type="checkbox"/> air quality <input type="checkbox"/> wildlife and their habitat <input type="checkbox"/> marine mammals and their habitat <input type="checkbox"/> birds and their habitat <input type="checkbox"/> fish and their habitat <input type="checkbox"/> heritage resources in area	<input type="checkbox"/> traditional uses of land <input type="checkbox"/> land use planning and consultation <input type="checkbox"/> community involvement and consultation <input type="checkbox"/> local development in the area <input type="checkbox"/> tourism in the area <input type="checkbox"/> human health issues <input type="checkbox"/> other: _____
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<p>Do you have any suggestions or recommendations for this application?</p> <p><u>No</u></p>			
<p>Do you support the project proposal? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Any additional comments?</p> <p><u>No additional comments</u></p>			
<p>Name of person commenting: <u>MICHAEL ROY</u> of <u>IOALUIT</u></p> <p>Position: <u>BAFFIN REGIONAL COORDINATOR</u> Organization: <u>DIAND - Water Resources</u></p> <p>Signature: <u>Michael Roy</u> Date: <u>Feb 13, 2003</u></p>			

JAN-24-2003 03:58PM FAX:8679832574

ID:DIAND

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Fisheries
and Oceans

Fish Habitat Management
P.O. Box 358
Iqaluit, Nunavut
X0A 0H0

Pêches
et Océans

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Votre titre / Your reference

NIRB 03YN005

Our file / Notre référence

NU03160

February 12, 2003

Dr. Robert Zubrin - Mars Society
Box 273 Indian Hills, CO 80454
Fax (303) 980-0753

**RE: Research entitled "The Mars Society 'Flashline' Mars Arctic Research Station:
An International Research Station at Haughton Crater, Devon Island, To Support
Human Mars Exploration Research"**

Dear Dr. Zubrin:

This letter is to advise that The Department of Fisheries and Oceans, Fish Habitat Management (DFO-FHM) received copies of your Scientific Research Licence Application for research fieldwork at the Haughton impact crater site on Devon Island. These copies were submitted by both the Nunavut Impact Review Board and the Nunavut Research Institute. Fieldwork is proposed to take place from June 24, 2003 to August 20, 2003. I have reviewed the application and have included the following comments.

Field operations in or near water may result in the harmful alteration, disruption or destruction of fish habitat, which is prohibited under Section 35 of the *Fisheries Act*. Your project will not pose any harm to local fish and their habitat as long as you adhere to the comments and mitigation measures that you provided in your application. These and the following additional mitigation measures are intended to prevent any potentially harmful impacts to fish and fish habitat:

- All disturbed areas should be stabilized upon completion of work, and restored to a pre-disturbed state. Ensure a proper clean-up of the research area upon abandonment and appropriate disposal of garbage and waste to an approved dumpsite.
- Avoid any unnecessary use of ATVs outside the research area in order to preserve the natural state of the surrounding environment.
- Ensure that the IMARS structure is situated at least thirty (30) metres away from the normal high water mark of any water body.

Depositing deleterious substances into fish bearing waters is prohibited as stated under Subsection 36(3) of the *Fisheries Act*. The following are additional measures to mitigate habitat disturbance or loss as well as the deposition of deleterious substances.

- All activities, including maintenance procedures and vehicular refuelling, should be controlled to prevent the entry of petroleum products, sediment, debris, rubble, or other deleterious substances into the water.
- All wastes, sewage containments and fuel caches must be located a minimum of thirty (30) metres from the normal high water mark of any water body. Impermeable spill mats should be placed underneath storage containers, as mentioned in the application, as well as efficient containment berms to ensure that any leaks remain localized and do not enter any water body.
- Have an extra fuel storage container on site equal to or bigger than the size of the largest fuel container. This container can be used to replace any existing container showing signs of leakage. Check for container leaks on a daily basis and prepare any visible leaks immediately.
- Do not leave any leftover fuel drums at the work site when the fieldwork season is over. Lack of monitoring during the off-season can have adverse effects on the environment if a leak should ever occur.
- Ensure that approved emergency response and spill contingency plans are in place prior to commencement of operation and post these plans in a visible area where they can be viewed by project staff. Educate the staff as to their responsibilities in regards to the contingency plans and have spill kits readily accessible at all times.
- All spills of oil, fuel, or other deleterious material should be reported immediately to the 24-Hour Spill Line at (867) 920-8130.

If the proposed work is carried out as described in the application provided to DFO-141M and if the additional mitigation measures specified above are implemented, the proposed work will not be considered as contravening Subsection 35(1) of the *Fisheries Act* which reads:

"No person shall carry on any work or undertaking that results in the harmful alteration, disruption or destruction of fish habitat."

Therefore, an authorization under Subsection 35(2) of the *Fisheries Act* will not be necessary. If a harmful alteration, disruption or destruction of fish habitat and/or the deposition of deleterious substances into fish bearing waters occurs as a result of a change in the plans for the proposed works or failure to implement the additional mitigation measures specified above, prosecution under Subsection 35(1) and/or Subsection 36(3) of the *Fisheries Act* may be initiated.

Please note that this letter of advice will apply for the period of the Scientific Research Licence Application. If you have any questions concerning the mitigation measures or should there be any changes to the proposed work, please contact me at (867) 979-8011 or by fax at (867) 979-8039.



Jeff Wilson
Habitat Management Coordinator
Department of Fisheries and Oceans - Eastern Arctic Area

c.c. Jorgen Komak/Gladys Joudrey NIRB fax (867) 983-2574
Mary Ellen Thomas, Manager - Research Liaison, NRI fax 979-4681

Ministère du gouvernement
Culture Langues, Aînés et Jeunesse

January 25, 2003

Re: Land Use Application NLRB 03YN005 Campsite and Research Station (Dr. R. Zubrin, The Mars Society)

Due Date: February 13, 2003

Dear Ms. Joudrey:

At your request, the Department of Culture and Heritage, Government of Nunavut, has reviewed the above-noted application. Our recommendations follow.

We recommend approval of the above-cited application, as the proponent's proposed activities do not constitute a threat to known archaeological resources.

The attached conditions specify plans and methods of site protection and restoration to be followed by the permittee if an archaeological site is encountered or disturbed in the course of the land use activity.

Sincerely,

Douglas Stenton
Director, Heritage
Department of Culture, Language, Elders and Youth

Encl.



ARCHAEOLOGICAL AND PALAEOONTOLOGICAL 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 Act¹, 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) 934-2033 or (867) 975-5500 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.

FACSIMILE MESSAGE



Environment Environnement
Canada Canada

Environmental Protection Branch
Qimugjuk Building 979 P.O. Box 1870
Iqaluit, NU X0A 0H0

DATE: February 4, 2003

TO: Jorgen Komak
Environmental Technologist
Nunavut Impact Review Board

FROM: Colette Meloche
Environmental Assessment Specialist
Environment Canada

PHONE: 867-983-2593

PHONE: 867-975-4639

FAX: 867-983-2594

FAX: 867-975-4845

Number of pages including cover: 3

Subject: NIRB 03YN005 - The Mars Society, Devon Island, NU

MESSAGE:

Hi Jorgen,

Please find attached Environment Canada's comments on the above mentioned application. Please don't hesitate to contact me if you have any questions or concerns. Thanks.

Best Regards,

Colette Meloche
Environmental Assessment Specialist

FEB-04-03 14:14 From: ENV CAN IQUALUIT NUNAVUT

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Environment
CanadaEnvironment
Canada

Environmental Protection Branch
Qimugjuk Building 968 P.O. Box 1870
Iqaluit, NU X0A 0H0
Tel: (867) 975-4639
Fax: (867) 975-4645

February 4, 2003

Jorgan Komak
Environmental Technologist
Nunavut Impact Review Board
P.O. Box 2379
Cambridge Bay, NU X0E 0G0:
Tel: (867) 983-2593
Fax: (867) 983-2594

Our file: 4704 001

Via Facsimile

RE: NIRB 03YN006 - The Mars Society - Campsite and Research Station, Devon Island, NU

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*.

The Mars Society, a private international society, is proposing to continue their existing Flashline Mars Arctic Research Station (FMARS) research at the Haughton impact crater site on Devon Island, NU. This research had previously been permitted under land permit N2000J0041. The research, which seeks to simulate the conditions that would be encountered if a manned spacecraft landed on Mars, would be carried out during the months of June - September, and would involve 7 scientists and engineers.

Environment Canada requires the following information in order to facilitate the review of this project:

- A map detailing the location of the campsite in relation to water
- A map detailing the location of any proposed sumps in relation to water
- A map detailing the location of fuel caches in relation to water
- A spill contingency plan, outlining a clear path of response in the event of a spill.

The following conditions should be applied throughout all phases of the project:

- The proponent shall not deposit, nor permit the deposit of wastes or fuels associated with the project into any water body. According to the *Fisheries Act*, Section 36(3), the deposition of deleterious substances of any type in water frequented by fish, or in any place under any conditions where the deleterious substance, or any other deleterious substance that results from the deposit of the deleterious substance, may enter any such water, is prohibited.
- All sumps shall be located above the high water mark of any waterbody and in such a manner as to prevent the contents from entering any waterbody frequented by fish. Further, all sumps shall be backfilled and restored at the end of each season to prevent the contents from entering any waterbody.

Environment Canada / Environnement Canada



FEB-04-03 14:14 From:ENV CAN ICAALUIT NUNAVUT

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Environment
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Canada

- Environment Canada recommends that spill basins and fuel caches be located above the high water mark of any waterbody and in such a manner that the contents do not enter any waterbodies.
- When storing barreled fuel at the location, EC recommends the use of secondary containment with impervious liners, such as self-supporting insta-berms.
- All garbage and debris shall be kept in a covered metal container until disposed of.
- Environment Canada recommends the use of an approved incinerator for the disposal of combustible camp wastes and food wastes. Any non-combustible waste should be segregated and disposed of at an approved landfill facility.
- Drip pans should be used when refuelling equipment on site.
- All spills are to be documented and reported to the NWT Spill Line at (867) 920-8130.
- The permittee shall not erect camps or store material on the surface ice of streams or lakes.

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.melodie@ec.gc.ca.

Yours truly,

Colette Melodie
Environmental Assessment Specialist

cc: (Mike Fournier, Northern Environmental Assessment Coordinator, Environment Canada, Yellowknife)

Canada

