



NIRB File No. 14YN011

March 27, 2014

Professor Alexis Templeton
Department of Geological Sciences
University of Colorado
UCB 399, Boulder, CO 80309
USA

Sent via email: alexis.templeton@colorado.edu

Re: Notice of Part 4 Screening for University of Colorado's "Formation and preservation of elemental sulfur in springs relevant to Mars and Europa" project proposal

Dear Alexis Templeton:

On March 10, 2014 the Nunavut Impact Review Board (NIRB or Board) received University of Colorado's "Formation and preservation of elemental sulfur in springs relevant to Mars and Europa" project proposal from the Nunavut Research Institute (NRI). On March 10, 2014 the NIRB issued correspondence indicating that the proposed project appeared to be located in an area which requires conformity to the North Baffin Regional Land Use Plan. On March 17, 2014 the NIRB received a positive conformity determination (North Baffin Regional Land Use Plan) from the Nunavut Planning Commission (NPC). The NIRB has assigned this project proposal file number **14YN011**.

The proposed project is located in the North Baffin Region approximately 520 kilometres north of the community of Grise Fiord. The purpose of the research program would be to learn what controls the source and chemistry of a spring that discharges water with sulfide gas from a glacier at Borup Fiord. The program is proposed to take place in June 2014 over a 12 day period.

The proposed project activities and components include:

- Transportation of personnel and supplies by Twin Otter to pre-existing strip, followed by a helicopter to the camp location;
- Setup of a temporary camp for 6 people;
- Conducting research on foot;
- Collecting water samples from a spring, nearby streams and surface melt on glaciers (approximately 20 litres);
- Collecting rock samples (approximately 100 kilograms);

- Use of water for domestic purposes;
- Production of human and grey water waste;
- Incineration of combustible wastes and removal of non-combustible wastes for disposal; and
- Transportation, storage and use of fuel.

All documents received and pertaining to this project proposal can be obtained from the NIRB's online public registry at:

<http://ftp.nirb.ca/01-SCREENINGS/ACTIVE%20SCREENINGS/14YN011-U%20of%20Colorado-Formation%20%26%20Preservation%20of%20Sulphur/>

including:

- *NRI Scientific Research Application Form in English*
- *Map*
- *Non-technical Project Proposal summary in English*
- *Non-technical Project Proposal summary in Inuktitut*
- *NPC Conformity Determination*

Pursuant to Part 4, Article 12 of the Nunavut Land Claims Agreement (NLCA), the NIRB shall proceed to screen this project proposal. The NIRB may request additional information at any time during the process. The NIRB will copy you on screening process related correspondence and upload related documents to the above ftp site for public access.

Be advised that the NIRB is copying parties and municipalities potentially affected by this project proposal. Interested parties are encouraged to comment directly to the NIRB by **April 7, 2014**.

The NIRB would like parties to provide comments regarding:

- Whether the project proposal is likely to arouse significant public concern; and if so, why;
- Whether the project proposal is likely to cause significant adverse eco-systemic and socio-economic effects; and if so, why;
- Whether the project is of a type where the potential adverse effects are highly predictable and mitigable with known technology, (please provide any recommended mitigation measures); and
- Any matter of importance to the Party related to the project proposal.

Please note that *proposed* project-specific terms and conditions, should the project proceed, have been attached for consideration and comment (**Appendix A**).

Please send your comments to the NIRB at info@nirb.ca or via fax at **(867) 983-2594**.

If you have any questions or concerns, feel free to contact the undersigned at (867) 793-4633 or sgranchinho@nirb.ca.

Sincerely,



Sophia Granchinho, M.Sc., EP
Senior Technical Advisor
Nunavut Impact Review Board

cc: Distribution List
Stephen Grasby, Geological Survey of Canada
Mosha Cote, Nunavut Research Institute

Attachment: Appendix A – *Proposed* Project Specific Terms and Conditions

Enclosures (2): Comment Forms (English and Inuktitut)

Appendix A

Proposed Project Specific Terms and Conditions

The following is a list of project-specific terms and conditions which, should the project proceed, may be recommended to be attached to any approval.

General

1. University of Colorado-Alexis Templeton (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 obtained and required for this project to the Nunavut Impact Review Board (NIRB) prior to the commencement of the project.
3. The Proponent shall operate in accordance with all commitments stated in correspondence provided to the NIRB (Nunavut Research Institute Scientific Research Application, March 10, 2014) and to the Nunavut Planning Commission (Conformity Determination).
4. The Proponent shall operate the site in accordance with all applicable Acts, Regulations and Guidelines.

Water

5. The Proponent shall not extract water from any fish-bearing waterbody unless the water intake hose is equipped with a screen of appropriate mesh size to ensure that there is no entrapment of fish. Small lakes or streams shall not be used for water withdrawal unless approved by the Nunavut Water Board.

Waste

6. The Proponent shall keep all garbage and debris in bags placed in a covered metal container or equivalent until disposed of at an approved facility. All such wastes shall be kept inaccessible to wildlife at all times.
7. The Proponent shall incinerate all combustible wastes daily, and remove the ash from incineration activities and non-combustible wastes from the project site to an approved facility for disposal.

Fuel Storage

8. The Proponent shall locate all fuel and other hazardous materials a minimum of thirty-one (31) metres away from the high water mark of any water body and in such a manner as to prevent their release into the environment.
9. The Proponent shall ensure that re-fuelling of all equipment occurs a minimum of thirty-one (31) metres away from the high water mark of any water body.
10. The Proponent shall use adequate secondary containment or a surface liner (e.g. self-supporting insta-berms and fold-a-tanks), when storing fuel at site.
11. The Proponent shall ensure that all personnel are properly trained in fuel and hazardous waste handling procedures, as well as spill response procedures. All spills of fuel or other deleterious materials of any amount must be reported immediately to the 24 hour Spill Line at (867) 920-8130.

Wildlife - General

12. The Proponent shall ensure that there is no damage to wildlife habitat in conducting this operation.
13. The Proponent shall not harass wildlife. This includes persistently worrying or chasing animals, or disturbing large groups of animals. The Proponent shall not hunt or fish, unless proper Nunavut authorizations have been acquired.
14. The Proponent shall ensure that all project personnel are made aware of the measures to protect wildlife and are provided with training and/or advice on how to implement these measures.
15. The Proponent shall ensure all project staff are trained in appropriate bear/carnivore detection and deterrent techniques.

Migratory Birds and Raptors Disturbance

16. The Proponent shall not disturb or destroy the nests or eggs of any birds. If nests are encountered and/or identified, the Proponent shall take precaution to avoid further interaction and or disturbance (e.g., a 100 metre buffer around the nests). If active nests of any birds are discovered (i.e. with eggs or young), the Proponent shall avoid these areas until nesting is complete and the young have left the nest.

Aircraft Flight Restrictions

17. The Proponent shall restrict aircraft/helicopter activity related to the project to a minimum altitude of 610 metres above ground level unless there is a specific requirement for low-level flying, which does not disturb wildlife and migratory birds.
18. The Proponent shall ensure that aircraft maintain a vertical distance of 1000 metres and a horizontal distance of 1500 metres from any observed groups (colonies) of migratory birds. Aircraft should avoid critical and sensitive wildlife areas at all times by choosing alternate flight corridors.
19. The Proponent shall ensure that aircraft/helicopter do not, unless for emergency, touch-down in areas where wildlife are present.
20. The Proponent shall advise all pilots of relevant flight restrictions and enforce their application over the project area, including flight paths to/from the project area.

Caribou and Muskoxen Disturbance

21. The Proponent shall cease activities that may interfere with the migration or calving of caribou or muskox, until the caribou or muskox have passed or left the area.

Temporary Camps and Land Use

22. The Proponent shall ensure that all camps are located on gravel, sand or other durable land.
23. The Proponent shall ensure that the land use area is kept clean and tidy at all times.

Restoration of Disturbed Areas

24. The Proponent shall remove all garbage, fuel and equipment upon abandonment.

25. The Proponent shall ensure that all disturbed areas are restored to a stable or pre-disturbed state as practical as possible upon completion of field work.

Other

26. The Proponent should, to the extent possible, hire local people and to consult with local residents regarding their activities in the region.