



December 10, 2010

Paul Mercredi  
Mackenzie Valley Environmental Impact Review Board  
Box 938, #200 Scotia Centre  
5102-50th Avenue  
Yellowknife, NT X1A 2N7

**Re: Draft Terms of Reference for the environmental assessment of the ‘Nechalacho Rare Earth Element Project’ proposed by Alavalon Rare Metals Inc.**

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Further to your letter of November 26, 2010, Natural Resources Canada (NRCan) is providing the attached comments to Mackenzie Valley Environmental Impact Review Board (the Board) on the draft terms of reference for the ‘Nechalacho Rare Earth Element Project’, proposed by Avalon Rare Metals Inc.

Natural Resources Canada’s is providing comments for the Board’s consideration related to our regulatory mandate under the *Explosives Act*, as well as our areas of scientific and technical expertise in the geosciences, acid rock drainage and metal leaching.

If the Board has any questions regarding NRCan’s comments on the draft terms of reference, please contact the undersigned at (613) 943-0773 or by email at [John.Clarke@nrca.gc.ca](mailto:John.Clarke@nrca.gc.ca)

Sincerely,

John Clarke  
Natural Resources Canada

cc: Laurent Tardif, NRCan-MMS



**Natural Resource Canada Review Comments**  
**Draft Terms of Reference for the Environmental Assessment of Avalon Rare metals**  
**Incorporated's Nechalacho Rare Earth Element Project (Nov 26 2010)**

Explosives

Appendix B: Development description (p. 29, bullet 21) – The draft Terms of Reference refers to “*(t)he types and estimated amounts of explosives to be used, their storage, handling and application, both aboveground and underground.*” As NRCan noted in our August 20, 2010 scoping submission, NRCan may have a potential regulatory responsibility under the *Explosives Act* paragraph 7(1)(a) to issue a licence for any manufacturing facilities for explosives. Noting that the Project Description (April 2010) refers not only to explosives storage, but also suggests the need for an explosives factory (i.e., “ANFO will be prepared on a batch basis in an approved facility to be located within the Mine”, p. 57), NRCan suggests that ‘manufacture of explosives’ be included in the Terms of Reference. For clarity, information NRCan typically expects in an environmental assessment with respect to an explosives factory includes:

- Explosives to be manufactured (typically ammonium nitrate fuel oil (ANFO) and/or emulsion/watergel).
- Maximum quantity of explosives at each facility.
- Infrastructures for manufacturing or storing explosive should be identified and include: explosives and initiation systems magazines, fuel storage, ammonium nitrate storage, maintenance/wash area, process vehicles and their parking area, any offices, warehouses, buildings, etc.
- Specified location (i.e., detailed site plan) of the various components of the facilities, with distances to vulnerable features such as dwellings, roads, camps, railways, bodies of water, etc. The proponent needs to demonstrate that safety distances required by the Explosives Regulatory Division (ERD) of NRCan have been considered and met.
- Fuel and ammonium nitrate storage plans. Storage of ammonium nitrate is to be in conformance with ERD guidelines.
- Liquid effluent disposal plans.
- Evaluation of worst case scenario (i.e. accidental explosion).
- Spill contingency plans.
- Details on any temporary explosive facilities to be used for starting the project must be provided, giving the same information requirements above.

The Board or Proponent may wish to refer to the NRCan Explosives Regulatory Division website (<http://www.nrcan.gc.ca/mms-smm/expl-expl/ind-ind-eng.htm>).



### Climate Change

Section 3.2.4: Description of the existing environment (p. 10, bullet 3, column 1): For clarity, the bulleted item “climate” the Board may want to consider expanding this to “climate, including climate trends and extremes”. This addition could also be made to Appendix A: Existing Environment (p. 24, item #4) “Climatic conditions, including *climate trends and extremes* in temperature, precipitation and wind patterns”.

### Seismicity

Section 3.2.4 - Description of the existing environment (p. 10, bullet 3, column 2): For the bulleted item “terrain and geology”, the Board may want to consider adding “(including a description of existing fractures and faults at the project site)”. This addition could also be made to Appendix A: Existing Environment (p. 26, item #12).

### Acid Rock Drainage and Metal Leaching

Section 3.3.2 - Key line of inquiry water quality, the Board may want to specify the extent to which acid rock drainage/ metal leaching (ARD/ML) are to be included in the scope of the proponents DAR. Specifically, what the Board’s expectations are of the DAR in presenting a detailed characterization program for material characterization and ML/ARD prediction, as well as mitigation options proposed to prevent and control and treat ARD/ML (i.e. removal of Ring and Buck Lake from the Thor watershed, effluent treatment plants at both Thor Lake and Pine Point).

Noting that preventing environmental impacts and managing mine waste in a cost-effective manner requires predicting future drainage chemistry and proactive mitigation measures, the Board (and the proponent) are referred to Mine Environmental Neutral Damage (MEND) Report 5.10E *List of Potential Information Requirements in Metal Leaching/Acid Rock Drainage Assessment and Mitigation Work* and to MEND Report 1.20.1 *Prediction Manual for Drainage Chemistry from Sulphidic Geologic Materials* (both available at <http://www.abandoned-mines.org/mend-e.htm> ).

### Paste Backfill

Appendix B: Development description - Given that the proponent plans to use paste backfill for underground disposal, the Board should confirm whether it expects the DAR to contain detailed information such as physical properties, mineralogy, chemical characterization and long-term structural performance and stability/reactivity.