



**Environment Environnement
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Your file: EA1011-001

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Via email: pmercredi@reviewboard.ca

RE: Comments on the Draft Terms of Reference for the Environmental Assessment of Avalon Rare Metals Inc.'s Nechalacho Rare Earth Element Project

Environment Canada (EC) staff have reviewed the above-noted Draft Terms of Reference and offers the following advice for your consideration. The following specialist advice has been provided pursuant to EC's mandated responsibilities arising from *Canadian Environmental Protection Act*, Section 36(3) of the *Fisheries Act*, the *Migratory Birds Convention Act*, and the *Species at Risk Act*. Comments are in the order of the sections in the document.

Comments and Recommendations

Section 2.2.2 Geographic scope

Bullet 4 should be expanded to explicitly include the Pine Point tailings management area and associated area(s) receiving effluent discharge.

Section 3.2.5 Development Description

The bullet on water usage, management and treatment measures should specify "all" sources of water (surface, groundwater, effluent).

Section 3.3.1 Impact assessment steps and significance determination factors

The first paragraph, 4th bullet outlines the requirement to identify the natural range of background conditions and current baseline conditions, with reference to natural variability. To incorporate anthropogenic changes to the natural baseline conditions (for example, discharges of treated effluent from the Pine Point Mine's tailings pond) the wording should be amended slightly. Wording to the effect of "...natural *or existing* variability..."

First paragraph last (7th) bullet: This section focuses on means to ensure predictions are accurate, and if not, to proactively manage against adverse impacts when encountered. This should be broadened to explicitly look beyond predicted effects (or lack of effects) to encompass detection of changes where none were expected.

Section 3.3.2 Water Quality Thor Lake

5th bullet – it isn't entirely clear whether this refers to the mine wastes (although the term "concentrate" is used) or the ore concentrate, although this isn't specified in Appendix C, such as in the event of a spill. Assuming the latter, then an additional bullet should be added requiring the proponent to predict the leachate characteristics of the mine wastes, as proposed

long-term disposal is underwater, and leaching is likely to occur. The additional bullet would be consistent with Appendix C. 1.b page 34.

Section 3.3.2 Water Quality Pine Point

The last bullet combines two points that would be clearer if in separate bullets. A separate bullet could be used after the mitigations measures bullet, to the effect of: "The proponent should describe the contingency measures to be used should non-compliant effluent occur."

Section 3.3.3 Cumulative effects at the Pine Point site area -

Cumulative effects of the whole project, including the Thor Lake area, need to be considered and not just effects for the Pine Point site. While Appendix D appears to discuss cumulative effects for the whole Nechalacho Project, the title of this section is misleading in its specificity. Equal importance needs to be applied to cumulative effects of both areas.

Section 3.3.6 Wildlife

Under the first bullet asking the developer to describe potential effects from the Nechalacho Project on wildlife and its habitat, the sub-bullet stating "effects of tailings ponds on waterfowl" should be changed to "effects of tailings ponds on *waterfowl and other aquatic birds*." This will ensure that the scope of the review will also potential effects on species groups such as shorebirds, grebes, loons, rails, cranes, etc., which are also likely to use aquatic habitats in the project area.

Section 3.3.8, Air quality, Appendix H, part 2.g.

Bullets 2 and 4 of Section 3.3.8 and part 2.g of Appendix 8 use the terms "established" and "approved" to describe the expected air quality modelling software to be used by the proponent. EC recommends that a more proactive approach be taken to ensure that the most up-to-date program is used to predict the dispersion and deposition of the proposed operation's emissions. Specifically, it is recommended that the terms "approved air quality model" and "established air quality model" be replaced with:

- "air quality model approved by ENR and EC"; or,
- "CALPUFF version 6 air quality model with 3-D met data".

The following should be added to bullet 3 of Section 3.3.8:

- ...Avalon should compare air pollution and GHG emissions from the use coal at the Pine Point processing site with alternative fuels such as oil, and natural gas, and other energy sources such as hydro-electricity.

For bullet 5 part b of Section 3.3.8, and Appendix H, part 2.e, EC recommends that the bullets be replaced with the following:

- Provide analytical results detailing the composition of the tailings dust, the concentrate, and any intermediate product that may have the potential to become fugitive dust.

Section 3.3.10 Biophysical environmental monitoring and management plans

In the 3rd paragraph, it is recommended that the word "impacts" be replaced with "changes".

Section 3.5 Accidents and Malfunctions

The proponent will need to go beyond identification of the risks (first bullet) and demonstrate capability to deal with a worst-case occurrence, which is the intent of response plans (last bullet). In addition to describing all accident and emergency response plans, the developer should also include a description of how an accident, such as a complete overturning of all barges during a Great Slave Lake transit of a typical concentrate-loaded barge-train, would be rectified.

A bullet should be included to require the developer to describe the contingency plans for the failure of the tailings management area at the Pine Point hydrometallurgical processing site.

Section 3.6 Alternatives

EC recommends the list be expanded; typically also listed are alternative tailings disposal schemes, alternative mining methods, and examining sequencing of mining and milling activities to take advantages of potential environmental synergies.

Appendices

The preamble states that "...the developer does not necessarily need to address each specific item from the appendices." This gives rise to concern that a greater level of detail should be specified in the body of the ToR for items in the appendices that are needed for the assessment but not listed in the front sections. Alternatively, this statement could be re-phrased to state that the items from the appendices must be substantially addressed, unless the developer can reasonably establish that an item specified in the appendices is not necessary or may be unavailable.

Appendix A: Existing environment

Point 7. Avalon is directed to include a reference lake for the Pine Point site, as well as providing Great Slave Lake data. The reference lake may be difficult as there are few lakes in the area, and the local river quality may not be useful. Given that we are dealing with a previously impacted site, it may be appropriate to remove the last sentence and later, in the monitoring section, have the proponent describe how change will be measured and assessed for significance.

Point 10 c) asks the proponent to "describe each species in terms of the requirements of Item #8 above." This should be changed to refer to the requirements of Item #9.

Point 13

The spatial extent of the physical and chemical makeup of soils and water body sediments should be specified, i.e. the mine and processing sites, downstream until GSL, and include reference locations as appropriate.

Appendix B: Pine Point

Point 16 is out of place, as this activity would be occurring at Thor Lake and not Pine Point, and should be relocated to the preceding section.

Appendix C: Water Quality

Point 10. a. i. This point refers to metals listed in column 1 of the *Metal Mining Effluent Regulations* Schedule 4 (this should be made explicit for clarity); however, it is recommended that the point state "...and other metals of concern..." to avoid being too narrow in focus. As an errata for this section and Pine Point, "*Regulation*" should be plural.

Point 10. a. ii. As cyanide and radium-226 are listed under the MMER they do not have to be specified here. Also, cyanide is only measured if it is used in the processing; this does not appear to be the case here. This point could be amended to include non-metal parameters (ammonia, nitrate, phosphorus, major ions, and total suspended solids) with the metals being included in an expanded point i.

Appendix F: Wildlife

Point 1 d) Barge traffic across Great Slave Lake should be added to the list of potential sources of sensory disturbances.

Appendix H: Air quality

In part 3.c, EC recommends that the bullets be replaced with:

- Develop and describe an incineration management plan that follows the guidance presented in Environment Canada's Technical Document on Batch Waste Incineration, to ensure compliance with the Canada Wide Standards for Dioxins and Furans from incineration.

Please do not hesitate to contact Jane Fitzgerald at (867) 669-4746 or by e-mail at jane.fitzgerald@ec.gc.ca with any questions or comments.

Yours truly,

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