NORTH SLAVE MÉTIS ALLIANCE

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Environmental Impact Assessment
Mackenzie Valley Environmental Impact Review Board
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Re: NSMA Scoping Comments - # EA1011-001 - Avalon Rare Metals Inc. Thor Lake Project

The North Slave Métis Alliance (NSMA) has reviewed the Project Description Report (PDR) for the Thor Lake Project, by Avalon Rare Metals, Inc., and provides the following comments to assist in the scoping of the environmental assessment.

Physical Works and Activities:

- Barge traffic. The environmental assessment should fully consider impacts to fish and bird habitat all the way across Great Slave Lake. We need to see good information on Lake Bathymetry and descriptions of the fish and bird habitats that may be affected by the barge traffic, and at risk should there be accidents or malfunctions.
- Haul roads. The roads connecting the project to the barges, and to the railway should be included in the local and regional study areas. The use of the highway system should also be assessed, since it will put wear and tear on infrastructure, and create crowding possible increased accidents, wildlife mortality and disturbance.
- New tailings ponds if existing ones at Pine Point become impermeable.
- All transportation routes and methods need to be scoped in, for entire mine life and post-closure monitoring. Air, water, ice, land. Airstrips, roads, waterways.
- Alternatives to the use of coal should be carefully considered, including hydro power (from Talston), geothermal, wind, etc.
- Alternative methods of transportation should be fully considered.

Air Quality:

- The possible release of lead, mercury, PCB's, and other contaminants sometimes found in diesel fuel, lubricants, and coal should also be considered. Contaminated fuels have been known to be "dumped" in the North by unscrupulous distributors[1].
- The impact of explosive residues on air quality is not adequately discussed.

[1] http://www.nunatsiaqonline.ca/stories/article/87679_bad_gas_lawsuit_still_lumbers_through_nunavut_court/

- The release of contaminants as a result of incineration of waste was not mentioned, but should be examined. Improper incineration of kitchen, accommodation, and sewerage wastes can (and often does, in the NWT[2],[3]) result in the release of dioxins and furans as well as toxic and/or infectious human wastes. Waste oil is proposed to be burned on site in heaters, and this can be very dirty.
- The issue of radioactivity of the ore, tailings, concentrate, and fugitive dusts was not addressed in the PDR. There is a very high level of community concern on the topic, so it should be thoroughly addressed, and should deal with long term storage as well as immediate mining and transportation concerns.
- The potential impacts of noise and odours on wildlife, fish, birds, and people are not adequately addressed, and no specific mitigations are proposed. In particular, there is no mention of fish and bird habitat all across Great Slave Lake. The potential for permanent hearing loss, and the potential interference between predator and prey should be addressed.
- There is no mention of the impacts of light pollution – it would be helpful to at least review the existing information on the subject to see whether it is likely to cause an impact or not – it may affect bats, insects especially.
- Associated with noise, the pressure waves in the atmosphere resulting from blasting may have impacts on sensitive species. A review of the current state of knowledge on the topic at least should be provided.
- The use of "clean coal" on the south side of the lake should be thoroughly discussed. Will there be fly ash, mercury, arsenic, and sulphur emissions?

Water Quality, Quantity, and Rate of Flow:

- Surface hydrology and bathymetry should also be considered for the proposed transportation route across Great Slave Lake, keeping in mind that there is an existing trend towards reduced water levels and climate warming. This change in water levels needs to be well understood over the life of mine, and how it will interact with barge traffic, or winter roads if that option is pursued.
- The baseline for water quality, quantity, and rate of flow should be long enough and good enough to determine natural range of variation seasonally as well as annually. We need to be able to distinguish mine related impacts from natural trends and natural range of variation.
– water licenc criteria for water quality, quantity, rate of flow should be based on acceptable change from natural - so range of natural variation needs to be known.
- Changes in water temperature, volume, speed or chemical composition can affect ice thickness and ability to travel over the ice. Changes in rate of flow can interfere with existing water users (Aboriginal People) as well as fish, birds, and wildlife use of habitat. Voids can be left under ice, making ice more likely to break. Waterways may become less navigable, and/or less useful for harvesting.
- Deposition of dust from incineration, fuel combustion, rock crushing, and explosives will affect water quality from direct deposition and from runoff, including freshet.
- Groundwater quality at the Nechalako Mine and the Pine Point tailings ponds. It is important to know the extent of the aquifer, and what the impact of contamination will be.

[2] http://www.nnsl.com/frames/newspapers/2003-07/jul18_03stant.html
[3] http://www.nnsl.com/frames/newspapers/2007-08/aug15_07st.html

- Concentration and loading over time can be significant even though low toxicity of tailings.
- Issue of discharge having lots of suspended fines, pores in pit will fill and prevent infiltration, what to do with discharge water.
- there is a need to consider the effect of the environment – including changing climate – on the project.
- Equipment list on www.cidar.com contains a partial list of reagents. Flocculants, thickeners, polychromid, magnafloc. Explosive = anfo from Dyno-Nobel. Waste stream – vsx 1 and 2, solvent, kerosene included as part of blend, what volumes? We need to know what, and how much, of everything there is. There must be careful record keeping of all imports of potential contaminants, so we can track their disposal.

Fish Habitat:

- The potential impacts to fish habitat in Great Slave Lake, all the way across (there are many islands and shallow areas, as well as deep areas) from noise, odours, contamination and sediments should be assessed. Physical damage from anchors, accidents (sinking of barges, items lost overboard), etc. should also be assessed.
- Applicability of MMER and CCME guidelines in this specific environment should be discussed. Community preference is for for regulation based on acceptable change from baseline, therefore we need very good charachterization of baseline over time – is any existing trend established well enough to identify what is the range of natural variation? Including seasonal variation - rate of flow.
- DFO has changed their policy/guideline for requiring a fisheries authorization for HADD from 5% degradation of a waterbody to 10%. This should not be accepted without evidence of adequate Consultation. If DFO fails to require HADD then other measures should be considered.
- Potential impacts from radioactivity.
- There is little information about potential aquatic impacts in Great Slave Lake, we need better information including bathymetry and ecology.
- Noise and pressure waves in water may affect fish populations, egg survival, juvenile survival, vitality, and movements – barge transportation, pumps. Some species use pressure and sound to sense their environment and can either be disturbed temporarily or permanently damaged.
- The lake is very dangerous when windy, especially in September. There have been many accidents. Discovery mine lost an entire mill off a barge. The waves are so big the chains broke. There are also a lot of channels where the water is fast, and the ice does not freeze as thick, so dangerous in the winter.
- Lakes that do not have fish in them may still qualify as important fish habitat if they provide nutrients to fish bearing waters downstream, provide flood control, filtration, aeration, and so on, or if they are a source of isect and other fish food.

Vegetation and Soils:

- There needs to be careful measurement and storage of very valuable topsoil for restoration work at closure.
- Contamination by radiation, dust, explosive residues, and other airborne contaminants.
- Soil can be damaged by compaction, and this can be a permanent habitat degradation.
- Changes to permafrost, and erosion can cause permanent habitat degradation.

- Aggregate deposits are economically and ecologically valuable – depletion can be a permanent impact.
- Changes in soil fertility, density, contaminant load and mobility, moisture content, depth, will lead to changes in species composition, productivity of crops of berries, ungulate forage, roots, and forest products. These changes can be permanent.

Wildlife:

- We need to know more about the effects of noise, dust and odours on wildlife, birds.
- Caribou – boreal and barrenground, should both be treated as species at risk.
- CWS should take some responsibility for barrenground caribou, at least, as it has been "listed" as endangered (by order in council) since 1960, itis migratory over at least three provinces and two territories, and the populations are believed to be so low that ENR has restricted aboriginal harvest.
- There are a number of SARA species, and other species of concern in the area.
- Wildlife disturbance due to noise, odours, lights, vibrations, increased traffic on roads and across lake can impact behaviour, productivity, health.
- Invasive species can be introduced on imported items – we need to know where all materials, equipment, and vehicles are coming from in order to assess the risks.
- Great Slave Lake is used by birds, fish and animals, especially islands and reefs. This habitat needs to be adequately described and the impacts of significant barge traffic assessed.

Cultural:

- Human Rights impacts – failure to recognise property rights of Aboriginal Peoples without settled land claims. There should be a properly done Human Rights Impact Assessment (HRIA) which identifies all the potentially affected communities, and thoroughly describes each community's vulnerabilities and strengths.
- Free entry mining system and Crown royalty regime does not recognize constitutionally protected Métis rights to minerals. The economic impact of exploitation of resources where ownership is disputed, and the social cost to Communities which are subjected to discriminatory treatment, neglect, oppression.
- Aboriginal Rights, including Aboriginal Title, and Treaty Rights should be recognized, and accommodated, whether comprehensive claims are settled or not.
- HRIA should include assessment of impacts to political rights (self-determination), harvesting rights, economic rights, language rights, and spiritual/aesthetic values. [4], [5], [6]
- Non-renewable resource depletion
- Equitable distribution of costs and benefits of project, recognition of relatively disadvantaged groups.
- The mine life has an impact on the length of time that there is interference with Aboriginal Rights.

[4] http://www.humanrightsimpact.org/
[5] http://www.humanrightsimpact.org/en/resource-database/toolsets/resources/view/75/user_hria_toolsets/
[6] http://www.un.org/esa/socdev/unpfii/en/declaration.html

- The shoreline of Great Slave Lake, the islands, the traditional fisheries, and the traditional Métis trasnportation route (Beaulieu River system)
– Increasing the "resource" to be removed has an effect on "resource depletion" impacts, impacts of inequitable revenue sharing, and foreclosure of self-determination options.
- If the closure objective is reclamation, and not restoration, then the residual impacts must be recognised as permanent and addressed in a way that will provide ongoing permanent mitigation.
- Pay attention to the definition of "community". Prefer the use of the term First Nation, as that term includes the Métis in the Northwest Territories. Remember, a community is really a group of People, not a geographic location – which, without its people, would not be a community.
- Heritage resource impact assessment – needs to be much more than an archaeological site survey. Each community must be recognised as the experts with regards to their own heritage values. Cultural Landscape assessment for each affected cultural group.
- Traditional Knowledge should be incorporated into environmental management.
- Need to consider effect of barge traffic on other subsistence and economic activities including sport and commercial fishing in the east arm, tourism, traditional harvesting, etc.

Closure and Abandonment:

- Closure objectives for each mine component, including a firm time schedule, should be established during environmental assessment, and agreed with directly affected communities as part of their Impact Benefit Agreements. Criteria should be also agreed upon, and informed by traditional knowledge. Methods of achieving objectives, meeting criteria can evolve, but plan should not be left till some later unspecified date.
- Post closure monitoring – involvement of Aboriginal Peoples.
- There should be a firm timeline on when closure will be completed, as impacts of the project are directly related to time project continues. IBA's will need to be re-negotiated if size of mine (tonnage to be mined) or length of mine (years of operation) change.
- The shape, size, orientation and grain size of waste rock piles needs to be specified and achieve community acceptance – good for people and wildlife – not just safe.
- The socio-economic, cultural and environmental impacts of the project continue until full and final restoration. If reclamation is chosen as the overall closure objective, there must be recognition that many impacts will be permanent. Temporary mitigations and compensations are not appropriate for permanent impacts.

Cumulative Impacts:

- The social impact of demographic change and political marginalization.
- The social impact of inadequate capacity.
- The socio-economic impact of non-renewable resource depletion and inequitable royalty sharing.
- The socio-economic impact of inequitable employment and education opportunities.
- Wildlife, fish, bird, and plant habitat degradation and destruction.
- Greenhouse gasses.
- Water contamination.
- Soil depletion, erosion, and degradation.
- Dust impacts on vegetation and bioaccumulation of undersirable nutrients/contaminants.

- Fire risks due to increase human access.
- Invasive species (moulds, viruses, bacteria, plants, animals, insects, etc)
- The Mackenzie Gas Project is another potential contributor to barge traffic on Great Slave Lake that may occur at around the same time and magnify impacts.

Other Projects:

- Previous use of Great Slave Lake for barging and ice road fuel and equipment – routes going up the Mackenzie River, to the East Arm and to Discovery, Giant, Con, and others, might provide good information on dangers and risks.
- The MGP project description, portions related to use of barges from Hay River up Deh Cho River may help estimate cumulative impacts.
- Other rare earth mine monitoring programs from other jurisdictions might provide good information on mitigation methods.

Sincerely,

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