

LUTSEL K'E DENE FIRST NATION

**SUSTAINABLE DEVELOPMENT BASED ON DENESOLINE
BELIEFS AND TRADITIONS**

**Presentation to the MVEIRB Panel on the
Proposed Avalon Thor Lake Project**

THE LUTSEL K'E DENE FIRST NATION

- LKDFN → AKDFN → Traditional Territory
- Travel route between LK and YK
- Subsistence harvesting → Bathurst caribou
- Subsistence harvesting → GSL Fish
- TK of mining impacts → Environmental/Cultural



PROPOSED DEVELOPMENT

- Bathurst Herd Range
- Traditional travel route
- Traditional land use
- Reclamation → Not sufficient for reuse
- Transportation risk → barge
- New minerals being explored → new concerns



OVERVIEW

- Caribou – Direct and Cumulative Impacts
- Fish – Direct and Widespread Impact
- Traditional Use – Fatt Family
- Traditional Use – Travel
- Barge Concerns
- Tailings – Contaminant Concerns



CARIBOU

- South end of Bathurst Herd Range
- 400,000 → 35,000 Population
- Ingestion of contaminants through air emissions
- Cumulative impacts a real threat, action required



RECOMMENDATIONS

Commitment:

Avalon commits to conducting a study of the impacts of their airborne contaminants to the health of caribou, and the subsequent impacts to human health from caribou consumption

Measure:

Requirement from the Panel that Avalon participate in any regional cumulative effects framework that comes into effect through the life of the mine



FISH

- Part of traditional use of the area is fishing on the north shore of GSL
- Water quality of tailings discharge into GSL is a concern, even with 18km to travel, there is no guarantee that contaminants won't reach GSL
- Beyond contaminants reaching from water quality, there will definitely be airborne contaminants that will be deposited in GSL and will consequently input fish quality in that area
- Long distance travel of contaminants and fish



RECOMMENDATIONS

- To be determined



TRADITIONAL LAND USE

- Though other First Nations have submitted Traditional Knowledge Studies, Avalon has not discussed LKDFN members' understanding and use of the area
- The Fatt family has documented history of land use in the area, including a trap-line that ran across Thor Lake
- The Fatt family as well as other community members have important knowledge of the area that should be included in the assessment to enhance Avalon's understanding of the land they use



TRADITIONAL LAND USE

- Map to be added



TRADITIONAL USE

- The proposed project and its associated barge routes intersect heavily used travel routes between Lutsel K'e and Yellowknife
- The shores of GSL near the mine site are common fishing locations for LKDFN members
- This area is commonly used as a resting and eating location on trips from Yellowknife to Lutsel K'e before crossing the open water section of the Lake in the East Arm



RECOMMENDATIONS

Commitment:

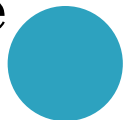
That Avalon meet in Lutsel K'e to consult the land users of that area, and address their concerns and receive their advice accordingly

That Avalon discuss land use and access of commonly traveled corridors and shorelines near the proposed development with the First Nation



BARGE

- TK suggests climate conditions changing, and an impact is the altering of water levels in GSL
- Over the life of the mine changes in water levels could mean reef and ridge exposure, making it more problematic for barges to navigate safely
- Though the company claims no barge incidents in recent memory, the sheer number of barge trips required throughout the summer months is the cause of significant concern
- We want to ensure that Avalon is aware of the gravity of any significant barge incidents for the Dene people



RECOMMENDATIONS

Commitment:

That Avalon monitor the water levels of Great Slave Lake in an attempt to ensure that changing water levels do not impact the ability of the barges to safely navigate

Measure:

That the Board require Transport Canada to include LKDFN in the section 23 regulatory process for the Governor in Council (GIC) exemption, and allow LKDFN to have meaningful input into the terms and conditions of the exemption



TAILINGS - CONTAMINANTS

- Environment Canada's *Review of Rare Earth Elements and Lithium Mining Sectors*, posted to the registry on January 28th, 2013:
 - “Nearly all by-products or waste material from rare earth processing are naturally radioactive due to contained thorium.”
 - “Thorium disposal and radiation are the main concerns that could shut down or delay the Lynas Corporation plant in Malaysia.”
 - “Thorium disposal also caused the shut down of a Mitsubishi rare earth element plant in Malaysia in 1992. The company has since needed to spend an estimated \$100 million to clean up the site.”



TAILINGS - CONTAMINANTS

- “Additionally, thorium radiation from improper disposal has been cited as a major reason the Chinese have slowed production and tried to increase environmental oversight for rare earth element mining and processing. **How to properly capture and dispose of thorium remains a challenge in the industry.**”
- The radioactive and carcinogenic nature of thorium, combined with the lack of any real discussion on thorium throughout this review is alarming



TAILINGS - CONTAMINANTS

- US EPA's *Rare Earth Elements: A Review of Production, Processing, Recycling, and Associated Environmental Issues* posted the public registry on January 28th 2013:
 - “In general, limited toxicological or epidemiological data are available to assess the potential human health effect of rare earth elements.”
 - “The production of large amounts of waste material (often very acidic) and particulate emissions have led to major environment and health concerns with ore extraction and concentration.”
 - Potential exposure to workers through dust, radiologicals and hazardous materials



TAILINGS - CONTAMINANTS

- Table of contaminant concerns to be attached



RECOMMENDATIONS

Measure:

- 1) That EC, DFO and Avalon develop site specific water quality objectives for thorium
- 2) That emissions and dust be monitored for thorium releases to the environment
- 3) That a radioactivity enforcement entity be developed to monitor all aspects of mining, processing, refining, and disposal, for both environmental impacts and human health effects



SUMMARY

- Community consultation inadequate
- Wildlife and fish not adequately protected or monitored
- Community knowledge and frequent use of the area has not been taken into consideration
- The frequency of barge trips and route selection is cause for significant public concern
- The unknown nature of the dangers of REE mining and the significant potential for radioactive releases into the environment are reasons for significant public and environmental concern
- New kind of mine in the NWT, too many unknowns for the Panel not to suggest strong oversight



CONCLUSIONS

- The measures and commitments recommended in this presentation will serve to limit most of the public concern for this project, though the community will still, and will continue to be wary about potential impacts to the environment from this operation.
- We cannot stress enough the need for strong, enforceable environmental measures to be enacted in response to global industry concerns of the real environmental impacts that will result from the proposed development.
- It is important that we learn from other REE mining developments and do not suffer the environmental degradation that other countries currently deal with, and will continue to be problematic into the future

