Submission Into Toongi Rare Earth Mine.

Mod 1 - Project Layout and Processing Changes

Areas of Concern

1. Disturbance Footprint- As the site occupies 780 ha and with the highest point being 400m, it is significant disturbance on the Agricultural surround of Dubbo.
    - **Comment-**One might say it is like the Golden West HWY Denman to Singleton.
2. Salt Encapsulation Cells- Occupies 34.5 ha 17m above adjoining land, containing Brine Concentrate. A significant risk may happen in extreme rainfall, of banks breaching or overflowing.
3. Solid Residue Storage Facility-
    - Maximum embankment height of 368.5m AHD or up to 35m above the natural land surface.
    - • A combined storage volume of approximately 27.7Mt or 22.3Mm3.
    - The approved Solid Residue Storage Facility occupies an area of approximately 101.98ha.
    - **Comment-**With such a huge volume of solid residue, concerns of subsidence, dust, and extreme weather leaching chemical residue and radioactive material into the surrounding outside area, and water table and creeks.
4. Soil Stockpile Areas which cover a total area of approximately 129ha.
    - combined storage volume of 20Mm3.
    - Maximum elevations of 385m AHD (Cell A), 390m AHD (Cell B) and 370m AHD (Cell C), with maximum embankment heights of approximately 40m above the natural surface level.
    - A combined upper surface area of approximately 81ha.

- **Comment-**With such a huge volume of solid residue, concerns of subsidence, dust, and extreme weather leaching chemical residue and radioactive material into the surrounding outside area, and water table and creeks.

5. Chlor-alkali Plant
    - The Applicant anticipates importing approximately 65 000tpa of salt to the Project Site for use in the Chlor-alkali Plant to produce approximately 100 000tpa of 34% HCl solution and 95 000tpa of 32% NaOH solution
    - Extreme care needed in handling huge quantities of aggressive chemicals.
6. Product Refinement and Value Adding
    - Zirconium Basic Sulphate would be either: – calcined (roasted in the presence of oxygen) to produce Zirconia (ZrO_2); or – passed to a dehafniated zirconia (DHZ) and hafnium (Hf) circuit using solvent extraction to produce products that are also calcine to produce dehafniated zirconia (DHZ) and Hafnia (HfO_2).
    - Niobium pentoxide (Nb_2O_5) produced by the approved Niobium circuit would be passed to an arc furnace with iron to produce ferroniobium metal.
    - **Comment-**A proportion of the Rare Earth Element solutions produced by the approved solvent extraction circuit would be passed to individual rare earth element Precipitation and Calcination Circuits where a range of high purity rare earth element oxides would be produced.
7. TRANSPORTATION
    - The Applicant was, at the time of finalisation of RWC (2013), unable to commit to implementation of Option A, namely rail transportation to the Project Site with select materials transported by road. Notwithstanding this, the Applicant committed to undertaking a review of the feasibility of each of the proposed transport options within three years of commencing the development.
        i. Preferred Option A – Rail (to Toongi) and Minor Road • Rail transportation of reagents direct to the Project Site. • Rail transportation of selected reagents to the Fletcher International Exports Terminal north of Dubbo, and transportation to the Project Site by truck. • Road transportation of remaining reagents (including limestone), fuels and other materials to the Project Site by road using B-doubles, semi-trailers, specialised tankers, or other road registered vehicles.
        ii. Contingency Option B – Rail (to Dubbo) / Road (to Toongi) • Rail transportation of all bulk reagents to the Fletcher International Exports Terminal north of Dubbo and transportation to the Project Site by truck (excluding B/Double configurations as the road network from the Fletchers International Exports Terminal was at the time unsuitable for B-double trucks).

iii. Contingency Option C – Road • Road transportation of reagents and other materials to the Project Site using B-doubles, specialised tankers, semitrailers, and other road reg

- **Comment-**Obviously with up 75 trucks a day, workers vehicles, and 3 trains per week, Dubbo residence and Obley Rd will experience Noise, Dust (possible Radioactive), Chemical spills in the event of an accident.

8. MODIFIED WATER REQUIREMENT AND SUPPLY
    - water annual makeup water requirement for the Project would be approximately 4 050L of water for each tonne of ore processed, or an annual requirement for 4.05GL of water. That water was to be sourced from a range of sources including:
        i. • the Macquarie River (high and general security water);
        ii. • the shallow alluvial aquifers associated with the Macquarie River.
        iii. • fractured rock aquifers associated with the Lachlan Fold Belt; and
        iv. • water harvested under the Applicant's harvestable right.
    - Approval Source Allocation (MLpa)
        i. Comment WAL9191 Macquarie and Cudgegong Regulated Rivers Water Source downstream of the upper limit of Lake Burrendong. 218(MLpa) High security licence.
        ii. WAL30259 750 (MLpa) General security licence.
        iii. WAL19994 22 (MLpa) High security licence.
        iv. WAL3396 282 (MLpa) High security licence.
        v. WAL3412 34 (MLpa) High security licence.
        vi. WAL36409 300 (MLpa) High security licence.
        vii. WAL37691 Upper Macquarie Alluvial Groundwater Source (to be associated with water supply work approval 80 WA726382). 1 402 (MLpa) Approved to extract up to 1 250ML per annum under 80WA726382.
        viii. Total 3 008(MLpa)
    - **Comment-**High dependency on ground water a major concern.
9. Project Life
    - Project is expected to formally commence in 2022, with an initial construction and site establishment phase occurring from 2022 to 2024 and mining operations occurring for the following 20 years from 2025 to 2045. This proposed extension to the Project life would therefore account for delays to commencement since development consent was originally granted and provide for the same Project life as originally granted.
10. REHABILITATION AND FINAL LAND USE
    - **Comment-**It's hard to see how this site will be left in a state, similar to what it is now, given the Salt, Chemical and overburden will be left at the sit and revegetated???
11. Greenhouse Gas Consideration

- Scope 1 Emissions.....140 040t CO2-e • Scope 2 Emissions.....120 560t CO2-e • Scope 3 Emissions.....1 107t CO2-e • Scope 1 and 2 Emissions .....260 600t CO2-e • All Scope Emissions.....261 707t CO2-e
- **Comment-**Greenhouse Gas emission needs to reduce dramatically.

12. Noise
    - **Comment-**Noise created by mine (daylight) and Processing (24hrs) will undoubtable effect neighbouring properties.
13. **Comment-**Biodiversity Impacts will be extreme and rehabilitation questionable.
14. Aboriginal Heritage
    - The approved Project included unavoidable direct impacts to 14 known Aboriginal heritage sites which were either completely or partially within the approved Project's disturbance footprint. A further 12 known Aboriginal heritage sites were located adjacent to the approved disturbance footprints and therefore required careful management to avoid impacts.
    - **Comment-**Every effort should be made to restrict disturbance of sites and Local Indigenous Consultation must made and consent sort.

Conclusion

The Project should only go ahead if comments mention above are addressed, and The Company agrees to a yearly independent Audit of the Project done by an Australian University. The Audit would have to be available to the general public within 2 weeks of completion.

We are aware that with the mining of rare earths, some uranium will be extracted and stored onsite. The workers and Dubbo region residents deserve to know what the radiation levels are at all times. Uranium -238 has a half-life of 704 million years and uranium -234 has a half -life of 245 000 years. Dubbo Environment Group requests that an independent monitor be engaged to publicly report these levels at least quarterly. This monitor should not be an agency of the Federal or State government, or a private contractor for the ASM company.

Ian George
Vice President of Dubbo Environment Group
igeorge@bigpond.net.au
0428845649