

Statement of Reasons

RUM JUNGLE RESOURCES – AMMAROO PHOSPHATE MINE

PROJECT

Rum Jungle Resources propose to develop a phosphate mine located approximately 200 km south-east of Tennant Creek on the Ammaroo Pastoral Lease. The Ammaroo Phosphate Project involves the open cut mining of shallow phosphate deposits, ore beneficiation and transport to markets. Options are being examined to further process the beneficiated ore to produce phosphoric acid product, for sale for use in manufacture of fertilisers. Mine life is expected to last more than 25 years. Project footprint would be at least 17.5km² (1750 Ha).

Infrastructure components vary with processing options, but include:

- Mine area with a disturbance (and rehabilitation) footprint of at least 10km² for a 25yr mine life, or more than 20km² for a 50+yr mine life;
- Tailings storage facility;
- Infrastructure corridor of approximately 100km length and 100m width, containing power-lines, haul road; and potentially a slurry pipeline (option within stage 2); or phosphoric acid product pipeline and sulphuric acid supply pipeline (option/stage 3);
- Access roads;
- Gas supply pipeline (~25km);
- Power station (~16-20 MW), power lines (100km) and facilities;
- Bore field, to supply ~1588m³/day and reverse osmosis plant;
- Accommodation village (100-250 person);
- Waste water treatment and disposal;
- Airstrip access or build;
- Rail siding including rail spur, storage and train loading facilities;
- Fuel supply and storage facilities;
- Port stockpile and export facilities at East Arm; and
- Potentially a Phosphoric Acid Plant on the mine-site and Sulfuric Acid Plant at the railhead (option/stage 3)

Stage 1 comprises mining of high grade ore with mechanical beneficiation (crushing and screening) and road transport of ore to the railhead, followed by rail transport to East Arm Port for export. Stage 2, after approximately 5 years, would comprise floatation beneficiation of lower grade ore and transport of product, potentially by slurry pipeline to the railhead, and rail transport to East Arm Port for export. An alternative processing option, or further stage 3, exists for construction of a Phosphoric Acid Plant at the mine-site, with a sulfuric acid plant constructed at the railhead, and an acid pipeline connecting the two plants.

The stages could be installed progressively, targeting firstly only high grade ore for mechanical beneficiation (Option 1), while infrastructure for Option 2 is built over five years to provide a floatation beneficiation plant and optional slurry pipeline. Option 2 could later progress to stage/option 3 when a phosphoric acid plant at the mine-site, acid pipeline to the railhead, and sulfuric acid plant at the railhead have been constructed. Floatation beneficiation and a phosphoric acid plant options could both utilise lower grades of ore than required for mechanical beneficiation, and extend the potential footprint and life of the mine.

The Notice of Intent (NOI) for the Ammaroo Phosphate Mine was referred from the Department of Mines and Energy to the Northern Territory Environment Protection Authority (NT EPA) on 24 April 2014 for consideration under the *Environmental Assessment Act* (EA Act).

The Proponent has indicated intent to refer the Project to the Australian Government for assessment under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

CONSULTATION

NT EPA staff have reviewed the NOI in consultation with Northern Territory Government (NTG) advisory bodies, as required by clause 8(1) of the Environmental Assessment Administrative Procedures.

JUSTIFICATION

Advisory Agencies and the NOI have identified the following environmental risks for the project:

Uncertainty of project configuration

A number of project options are discussed in the NOI. Environmental significance exists for all options due to large areas of land disturbance, but is markedly increased with each stage. Water-based beneficiation and a slurry pipeline (stage 2) require large volumes of groundwater extraction with potential regional impacts. Transition to a phosphoric acid processing plant (Option/stage 3) requires large supplies of sulphuric acid and energy, and would produce waste streams of potentially contaminated gypsum and process water.

Water Availability

Project water requirements for options 2 and 3 would result in groundwater drawdown potentially impacting on neighbouring bores and any water dependent ecosystems. Sustainability of high groundwater extraction rates is yet to be demonstrated. Potential exists for contamination of surface water runoff, aquifers and impacts on sensitive receptors.

Contamination of Resource and Waste Streams

- Phosphate resource contains heavy metals of lead, cadmium and arsenic and also contains radionuclides. Management of these elements has not been described;
- Gypsum stockpiles and waste-water discharges containing high levels of heavy metals present risks to surface and ground-waters, and associated riparian and aquatic ecosystems. Rehabilitation success of stockpiles may be compromised due to heavy metal content.
- Risks exist with regard to discharge, storage and handling of sewage, wastes, hydrocarbons, acids and chemicals.

Social Impacts and Road Safety

- Road transport-related social impacts have been identified for all options, which all require over 100 km of haul road to be constructed, potentially through two communities.
- Increased road safety risks would occur with creation of a new haul road through communities, transport of hazardous chemicals, and shared road use with product-transport road-trains on an existing self-drive tourism route;
- Degradation of public road assets would occur.

Erosion and Sediment Control

- Erosion, sedimentation and dust risks exist for stockpiles at Ammaroo, the rail siding and East Arm Port. Sensitive receptors could include local vegetation and ecosystems, ephemeral water ways and marine waters (East Arm);

Flora and Fauna

- Risk exists of presence and impacts on species of conservation significance, including the Greater Bilby (*Macrotis lagotis*, Vulnerable under the *Territory Parks and Wildlife Conservation Act* (TPWCA) and the EPBC Act from habitat disturbance and vehicle strikes);

Other Project Risks

Proposed Project activities introduce further risks including potential for:

- Disturbance of archaeological object/sites and/or sacred sites;
- Introduction and spread of weeds and feral animals;
- Air emissions and noise impacts;
- Impacts associated with increased ship traffic to East Arm Port: and
- Radiation impacts.

Information Gaps

Information Gaps with potential environmental significance exist for key components of the project. Lack of detail has been presented with regard to the proposed project, risk identification and proposed environmental management of risks, including with respect to:

- East Arm Wharf operations;
- Product transport;
- Processing Plant, Sulfuric Acid Plant, beneficiation plants and their waste streams;
- Heavy metals, toxic trace elements and radiation in ores and waste streams;
- Accommodation village; and
- Waste rock and tailings management.

Information gaps exist with regard to Project:

- Water requirements – quantity/quality, hydrogeological / groundwater modelling, sustainability of sources, identification of sensitive receptors and risks to these, management of risks;
- Resource mapping –grade, trace element composition, management;
- Flora /fauna impacts– identification of presence of species of conservation significance, risks, management;
- Heritage, sacred site and cultural impacts –sensitive receptors, risks, management;
- Dust – constituents, modelling, risks and their management; and
- Social impact assessment.

Economic viability

Uncertainty exists as to the Project's economic viability in any of the configuration options presented. This creates risks of the company not being able to afford to fulfil obligations to undertake environmental management and rehabilitation to a standard that is environmentally sustainable and socially acceptable.

Marketability and external costs associated with processing the type of phosphate rock available to the Ammaroo Project need to be carefully researched and trialled, to demonstrate Project viability.

Marketability is grade-dependent, and grade is variable across each deposit. Ore depths have not been presented. Detailed mapping of grades of phosphate rock available in the current mining leases is yet to be demonstrated, to provide a firm basis for economic viability of the mine, and to allow planning of mining method and sequencing of excavation. Blending of grades may need to occur from different locations to achieve target grades acceptable to markets or available processing options. If blending is required from multiple pits, strip-mining method may not be appropriate and waste rock dumps would be required, with greater environmental impacts and/or costs associated with backfilling pits.

Costs associated with management of waste streams, problematic trace elements in the ore, and rehabilitation have not been demonstrated as having been identified and internalised.

DECISION

The NT EPA considers that there is a risk of significant impact to the environment from the proposed action and a number of risks cannot be adequately characterised without further studies and a more comprehensive assessment. Therefore, the proposed action requires assessment under the EA Act at the level of an Environmental Impact Statement.



DR BILL FREELAND

CHAIR

NORTHERN TERRITORY ENVIRONMENT PROTECTION AUTHORITY

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