

Statement of Reasons

CORE EXPLORATION LIMITED – GRANTS LITHIUM PROJECT

PROPOSAL

Core Exploration Limited (the Proponent), submitted the Notice of Intent (NOI) for the Grants Lithium Project (the Proposal) to the Northern Territory Environment Protection Authority (NT EPA) on 8 November 2017 for consideration under the *Environmental Assessment Act* (EA Act). On 27 March 2018, the Proponent submitted further information with the results of *Typhonium praetermissum* survey report.

The Proposal is to develop and operate an open-cut lithium mine targeting a pegmatite deposit containing spodumene ore. The ore would be mined using drilling and blasting methods and processed using either crushing or screening to produce Direct Shipping Ore (DSO). A higher lithium concentrate may be produced using water-based Dense Media Separation (DMS). Lithium raw materials are used for lithium ion battery technology with primary use in electric vehicles and energy storage.

The Proposal site is 500 m south of Cox Peninsula Road, approximately 24 km south of Darwin CBD and 22 km (36 km by road) west of the nearest township of Berry Springs.

The Proposal encompasses 117 ha of the 770 ha (7.7 km²) mineral lease ML31726 located on vacant crown land.

The proposed life of mine is two to three years with operations planned as follows: pre-strip (1-7 months), operation (8-25 months), external Waste Rock Dump (WRD) rehabilitation (within 12 months) and final rehabilitation and closure (26-30 months).

The Proposal includes the following components and activities:

- open-cut mining of the pegmatite deposit using open pit drill and blast mining methods
- clearing of 117 hectares (ha) of native vegetation and extraction of 1.8 Million tonnes (Mt) of ore and approximately 18 Mt of waste materials
- establishment of a 14 ha, 150 m deep pit; a 55 ha, 25 m high waste rock dump; and 15 ha of temporary topsoil stockpiles
- either, or both of the following non chemical processing options:
 - crushing and screening to produce DSO at an estimated peak production rate of one million tonnes per annum
 - water-based DMS to produce a beneficiated product of higher lithium concentration
- construction of a 5 km access track and water pipeline to Observation Hill Dam with total footprint of 10 ha
- establishment of mine support infrastructure, processing and waste facilities
- progressive rehabilitation of the external face of the WRD during operation
- containment of 825 000 m³ of tailings in Tailings Storage Facility (TSF) located within the WRD if DMS processing is used
- transport of DSO and/or beneficiated product to East Arm Port by road for overseas export.

The Proposal has an estimated maximum annual water requirement of 300 mega litres (ML) to produce DSO or a maximum of 470 ML per year if DMS processing is used.

CONSULTATION

The NOI has been reviewed as a notification under the EA Act in consultation with Northern Territory Government (NTG) advisory bodies (see Attachment A) and the responsible Minister, in accordance with clause 8(1) of the Environmental Assessment Administrative Procedures (EAAP).

JUSTIFICATION

The Notice of Intent was assessed against the NT EPA's environmental factors and objectives. Review by the NT EPA and NTG advisory bodies identified potential for significant impacts to the key environmental factors of Terrestrial flora and fauna; Terrestrial environmental quality; Inland water environmental quality, Hydrological processes; and Social, economic and cultural surroundings.

1. Terrestrial flora and fauna

Objective: Protect the NT's flora and fauna so that biological diversity and ecological integrity are maintained.

The Proposal area has been subject to past exploration and small-scale mining activity but the proposed disturbance footprint has not been previously mined. The potential impacts and risks to terrestrial flora and fauna associated with the proposal include:

- Potential impact on the threatened plant species Triggerplant - *Stylidium ensatum* listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and *Territory Parks and Wildlife Conservation Act* (TPWC Act). Impacts to this species could result from removal of habitat and loss of individuals/populations and indirect impacts from altered surface water flows due to installation of bunds and introduction and spread of weeds.
- Potential impact on the threatened plant species *Typhonium praetermissum* listed under the TPWC Act. Direct impacts to individuals/populations could arise from removal of suitable habitat that intersects mining components and indirect impacts from introduction and spread of weeds.

The likelihood of threatened fauna species being present on site has been adequately assessed by the Proponent. Some threatened fauna species are considered likely to occur within the Proposal area however these species are largely mobile and the habitat within the proposed development area is sub-optimal. The NT EPA considers that the Proposal is not likely to result in a significant impact to regional populations of any of the threatened fauna species that may occur in the Proposal area.

2. Terrestrial environmental quality

Objective: Maintain the quality of land and soils so that environmental values are maintained.

The potential impacts and risks to terrestrial environmental quality associated with the proposal include:

- Increased risk that rehabilitation of the open cut pit and WRD will not meet acceptable outcomes for erosion control and soil quality post closure due to absence of rehabilitation objectives and a conceptual mine closure plan for the Proposal.
- Potential impacts to land and soils due to the uncertainty around the availability, quantity and quality of materials (including cover materials) proposed for construction, operation and rehabilitation of the Proposal. Related to this is uncertainty associated with how successful

rehabilitation (geotechnically stable, non-polluting/non-contaminating) would be achieved post closure.

3. Inland water environmental quality

Objective: Maintain the quality of groundwater and surface water so that environmental values including ecological health, land uses, and the welfare and amenity of people are protected.

The potential impacts and risks to inland water environmental quality associated with the proposal include:

- Land clearing for mining activities would disturb soils which could result in erosion and increased turbidity and sedimentation of surface water quality of drainage systems discharging into Darwin and/or Bynoe Harbours.
- Increased risk of impact to inland water environmental quality through spills of hazardous substances (e.g. hydrocarbons), tailings or process water, in the absence of objectives and actions to control waste streams.
- Uncertainty on the potential for waste rock and tailings to produce AMD and if AMD potential is present, potential impact to surface and ground water from acidic and/or neutral and/or metalliferous and/or saline mine drainage through runoff and seepage from the WRD and TSF and pit walls. The uncertainty relates to presentation of limited waste rock characterisation over a limited area within the proposed pit footprint. A comprehensive mine waste rock characterisation program would establish whether there is potential for AMD that would require prevention and management for preventing impacts to inland water environmental quality.
- There is uncertainty on the preferred processing method and If DMS is chosen, potential impacts of the production, management and storage of tailings to inland water environmental quality require further assessment.
- The preferred processing method would influence the final WRD design and management of waste rock and potential impacts for either method require further assessment
- Potential impacts on groundwater quality through the establishment of a permanent mine pit lake. There is uncertainty regarding the hydrological system of the final pit lake, final water level and volumes, prediction of long term water quality of the pit lake and potential impacts to people and fauna post closure.
- Conceptual closure includes a pit lake and rehabilitated WRD within Darwin and/or Bynoe Harbour catchments and there is uncertainty around potential impacts to waterways in the event of unsuccessful mine closure. There is uncertainty around alternative closure strategies and potential impacts to water quality.
- Increased risk of impact to water quality following mine closure due to absence of criteria and actions including evaluation of rehabilitation success and progress toward achieving closure objectives.

4. Hydrological processes

Objective: Maintain the hydrological regimes of groundwater and surface water so that environmental values are protected. The potential impacts and risks to hydrological processes associated with the proposal include:

- The Proponent is proposing that water will be sourced from Observation Hill Dam, old mine pits and groundwater from the surrounding borefield. The existing groundwater resource has been identified as limited and there is potential for impacts to groundwater levels and other users through cumulative effects of water abstraction from bores, pit inflows, dewatering old mine pits and the operational pit, and evaporation losses from the pit post closure. There is uncertainty around the water sources for the Proposal and sustainability of groundwater and surface water reserves.

- Water demand for the Proposal depends on the processing method proposed – either DSO or a beneficiated DMS product. There is uncertainty on which processing method would be chosen and the preferred option would need to consider the potential impacts to hydrological processes and mitigation measures to prevent impacts.
- There is potential for altered surface water flows from localised changes to topography through the construction of the WRD, flood diversion bund and the pipeline easement.
- There is uncertainty around the permanent retention of the pit flood diversion bund and potential impacts to surface water flows if the pit is flooded during operations and post closure.
- There is uncertainty on groundwater levels and flows in the Proposal area and how the creation of a permanent mine pit lake at post closure could impact groundwater flows around the void.

5. Social, economic and cultural surroundings

Objective: Protect the rich social, economic, cultural and heritage values of the Northern Territory.

There is uncertainty regarding the potential positive and negative social and economic impacts to the region and stakeholders including:

- The Proposal is located in close proximity to the Cox Peninsula Road (500m) and the haulage of product to East Arm Port will pass through Berry Springs, Noonamah and Palmerston. There is potential for cumulative impacts from construction operation traffic from this Proposal and other extractive mining operations in the region impacting road users.
- The chosen processing method (DSO versus DMS) would impact the amount of road haulage required through local communities and potentially the mine schedule and life of mine. The preferred method requires assessment of the potential impacts to social and economic surroundings.
- Potential impact to the visual amenity of the area from mining components during operations and post closure (in particular the WRD).
- There is uncertainty regarding the mine closure objectives and agreed stakeholder post mining land use.

Conclusion

The NT EPA considers that the Proposal has the potential to have significant environmental impacts and the NT EPA's environmental objectives for Terrestrial flora and fauna; Terrestrial environmental quality; Inland water environmental quality, Hydrological processes; and Social, economic and cultural surroundings are unlikely to be met based on the information provided. A more comprehensive evaluation of these impacts and potential mitigation measures is required to enable the NT EPA to form a view about whether its environmental objectives can be met.

Detailed matters for assessment will be set out by the NT EPA in Terms of Reference for the Proposal. Draft Terms of Reference will be available for public review.

DECISION

The Grants Lithium Project is capable of having a significant effect on the environment and its environmental significance is such that the preparation of an environmental impact statement (EIS) is necessary with respect to the proposed action.

A handwritten signature in blue ink, appearing to read 'P. Vogel', is written over a horizontal line.

**DR PAUL VOGEL
CHAIRMAN**

NORTHERN TERRITORY ENVIRONMENT PROTECTION AUTHORITY

3 MAY 2018

Attachment A: Northern Territory Government Agencies consulted on the Notice of Intent

Department	Division
Department of Environment and Natural Resources	Flora and Fauna Water Resources Weeds Environment Bushfires NT Rangelands
Department of Infrastructure, Planning and Logistics	Lands Planning Infrastructure Transport
Department of Primary Industry and Resources	Fisheries Mining Compliance Petroleum Primary Industry
Department of Tourism and Culture	Heritage Tourism NT Arts and Museums Parks and Wildlife
NT Police, Fire and Emergency Services	Business Improvement and Planning
Department of Health	Environmental Health Medical Entomology
Department of Trade, Business and Innovation	Economics and Policy Strategic Policy and Research
Department of Housing and Community Development	Maintenance Planning Housing supply
Power and Water Corporation	
Aboriginal Areas Protection Authority	Technical
Department of the Attorney-General and Justice	Commercial Division NT Worksafe
Land Development Corporation	
Department of the Chief Minister	Economic and Environmental Policy