

Statement of Reasons

DEPARTMENT OF PRIMARY INDUSTRY AND RESOURCES – REHABILITATION OF THE FORMER RUM JUNGLE MINE SITE – CLAUSE 14A NOTICE TO ALTER PROPOSAL

PROPOSAL

The Northern Territory Environment Protection Authority (NT EPA) decided on 30 August 2016 that the Rehabilitation of the former Rum Jungle Mine Site (the Proposal) should be assessed under the Environmental Assessment Act 1982 (EA Act) at the level of an Environmental Impact Statement (EIS). Terms of Reference for preparation of the EIS were issued to the Proponent on 17 March 2017.

The former Rum Jungle Mine Site is located near Batchelor, approximately 100 km south of Darwin. Rum Jungle is a highly disturbed landscape, not only from past mining activities but also from the rehabilitation process in the 1980s, when substantial borrow pits were created in order to create covers on the waste rock dumps and backfilled pit. Earlier rehabilitation efforts were partially successful and the most significant environmental legacy of the former Rum Jungle mine has been the impact on downstream water quality as a result of acid and metalliferous drainage (AMD), particularly in the East Branch of the Finnis River but also further downstream. Recent studies have also documented significant groundwater contamination on the mine site.

The Proposal aims to address the long-term environmental legacy issues at Rum Jungle and the nearby satellite sites of Mount Fitch and Mount Burton, caused by the generation of AMD.

On 23 September 2019, the Department of Primary Industry and Resources (the Proponent) submitted a notification of alterations to the Proposal under clause 14A of the Environmental Assessment Administrative Procedures 1984 (EAAP). The alterations were proposed to improve the long term integrity of contaminated waste storage while enhancing aquatic ecosystem values. The proposed alterations in comparison to the previous proposal are summarised in Table 1 below:

Table 1: Comparison of previous Proposal with altered Proposal

Previous Proposal	Altered Proposal
Dewatering and discharge of Main Pit during the wet season and if required, treatment of contaminated water to meet applicable discharge requirements.	The Main Pit will be dewatered as much as required to subaqueously deposit waste rock and cover material to below groundwater level. Treatment methods for contaminated water are being investigated.
Historic tailings located at the base of Main Pit would be dredged and relocated to a new purpose-built waste storage facility (WSF) in a northern location on site.	Tailings will remain in the Main Pit and will be covered with select waste rock and a sub-aqueously discharged cover system.
Waste material from Dyson's backfilled Pit (to grade), Intermediate waste rock dump (WRD) and a portion of Main WRD (most reactive waste) to be transferred to Main Pit.	The Main Pit will be partially backfilled to a subaqueous level with select waste (~7% of total waste rock to be stored) from Dysons backfilled pit, and Intermediate and Main waste rock dumps.

Previous Proposal	Altered Proposal
Any residual waste (i.e. in excess of capacity of Main pit) from Main WRD, Dysons WRD and contaminated soils (including from fluvial areas) relocated to the new Northern Waste Storage Facility (Northern WSF), involving clearing of approximately 51 ha of native vegetation	The remaining waste will be consolidated into a more disturbed location (two smaller Central WSFs rather than the Northern WSF). Some clearing of native vegetation for waste rock storage may still be required. Cover material requirements will be met from external borrow areas.
A seepage collection system would direct any seepage encountered beneath the new Northern WSF to Intermediate pit for treatment and the Intermediate pit lake retained as a 'passive water treatment system'.	Seepage captured from the new Central WSF will no longer be directed to the Intermediate Pit. The focus will be on eliminating seepage volume as far as possible with remaining seepage directed to the Main Pit after reactive barrier treatment (if locally derived water quality trigger values cannot be met).
The East Branch of the Finnis River to be reinstated as far as practicable to its pre-mining course, including to the north of the Main Pit as part of the backfilled pit cover system.	The East Branch of the Finnis River would be diverted through the Main Pit lake rather than to the north of the pit. The existing diversion channel south of the Main Pit may remain to receive some East Branch flow, depending on an assessment of the pit lake flow regime.
Borrow pits were proposed to the east of the mine site and a 14km haul road would be established.	Two alternative borrow pit locations, south and south west of the Mineral Lease, are proposed in areas previously disturbed by buffalo farming and sand mining. Haul roads will use existing public roads and shorter hauls.

The variation of the Proposal was referred to the Australian Government Department of Environment and Energy for assessment under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act).

CONSULTATION

The notice of alteration was reviewed under the EA Act, in accordance with clause 14A of the EAAP.

JUSTIFICATION

The NT EPA considers that the Proposal has been altered from the previous Proposal.

The altered Proposal was assessed against the NT EPA's environmental factors and objectives to reconsider the environmental significance of the altered Proposal. The NT EPA identified seven key environmental factors that may be significantly impacted by the Proposal (Table 2). The NT EPA considered the importance of other environmental factors during the course of its assessment; however, the impact on those factors was not identified as potentially significant.

Given that the core objective of the Proposal is to address historic sources of contamination at the Rum Jungle mine site that have resulted in impacts to the receiving environment, a number of the NT EPA's environmental objectives, particularly for Terrestrial environmental quality, Hydrological processes, Inland water environmental quality and Aquatic ecosystems, should be viewed in the context of improvement rather than maintenance of the existing situation. Proposal areas that are not on the former Rum Jungle mine site should be viewed in the context of maintaining and/or improving the current situation. The NT EPA has defined Proposal-specific environmental objectives in Table 2, recognising the current environmental conditions on the site and the purpose of the Proposal.

Table 2: Key environmental factors considered for this assessment

Theme	Environmental Factor	Proposal- specific environmental objective
Land	Terrestrial flora and fauna	Protect the Northern Territory's flora and fauna so that biological diversity and ecological integrity are maintained.
	Terrestrial environmental quality	Improve the quality of land and soils so that environmental values are protected.
Water	Hydrological processes	Improve the hydrological regimes of groundwater and surface water so that environmental values are protected.
	Inland water environmental quality	Improve 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.
	Aquatic ecosystems	Restore the aquatic ecosystems to maintain the biological diversity of flora and fauna and the ecological functions they perform.
People and Communities	Social, economic and cultural surroundings	Protect the rich social, economic, cultural and heritage values of the Northern Territory.
	Human health	Ensure that the risks to human health are identified, understood and adequately avoided and/or mitigated.

1. Terrestrial flora and fauna

Proposal-specific environmental objective: Protect the NT's flora and fauna so that biological diversity and ecological integrity are maintained.

The altered Proposal reduces the amount of clearing required due to changing the location of the new WSF from undisturbed native vegetation in the north to a more disturbed location. However, the potential reduction in risk to species of conservation and cultural significance identified in the original proposal will need to be evaluated to determine whether the NT EPA's environmental objective for Terrestrial flora and fauna is likely to be met. The species that require further consideration include:

- Black-footed Tree-rat *Mesembriomys gouldii gouldii* (Endangered under the EPBC Act and Vulnerable under the Territory Parks and Wildlife Conservation 1976 (TPWC Act))
- Partridge Pigeon *Geophaps smithii smithii* (Vulnerable, EPBC and TPWC Acts)
- Merten's Water Monitor *Varanus mertensi* (Vulnerable, TPWC Act)
- Mitchell's Water Monitor *Varanus mitchelli* (Vulnerable, TPWC Act)
- Bladderworts *Utricularia singeriana* and *U. dunstaniae* (Vulnerable, TPWC Act)
- Darwin Cycad *Cycas armstrongii* (Vulnerable, TPWC Act)

The Proposal includes extraction of material for cover from borrow areas that are infested with gamba grass. The establishment of gamba grass is a threatening process to terrestrial flora and fauna and associated values.

Uncertainty remains in respect of the longer term return of suitable habitat for species to meet cultural expectations (as discussed in Cultural, social and economic surroundings, below).

Therefore, the NT EPA considers that the environmental significance of the Proposal has not changed in relation to this factor.

2. Terrestrial environmental quality

Proposal-specific environmental objective: Improve the quality of land and soils so that environmental values are protected.

The Proposal involves substantial disturbance to land surfaces associated with vegetation clearing and earth-moving, including previously disturbed areas and new areas. Areas previously covered by contaminated waste rock will be exposed. If contamination is not appropriately remediated and erosion and sediment control measures are not appropriately designed and/or implemented, significant erosion could occur on site which may result in downstream water quality impacts (i.e. turbidity, sedimentation and contamination) and failure to meet rehabilitation objectives (e.g. non-polluting, long-term stable landforms).

The Proponent will need to demonstrate that the site will be stable in the long term following rehabilitation and all surface contamination will be remediated such that the NT EPA's environmental objective for Terrestrial environmental quality is likely to be met. The NT EPA considers that the environmental significance of the Proposal has not changed in relation to this factor.

3. Hydrological processes

Proposal-specific environmental objective: Improve the hydrological regimes of groundwater and surface water so that environmental values are protected.

The altered Proposal includes diverting flows from the East Branch of the Finnis River through the Main Pit lake rather than to the north of the Main Pit as originally proposed. The current creek diversion channel may also be retained depending on an assessment to determine the acceptability of the flow regime through the Main Pit.

The relocation of the WSF reduces the potential for toe inundation in a 100 year annual recurrence interval flood. While this may reduce the risk to dump foundation stability, the new location of the dump may alter hydrological processes in new areas of the site and introduce new risks. These need to be investigated to ensure that significant degradation of the WSF from changed flow regimes does not occur. The requirement for all problematic waste material to be stored above ground increases the risk to the environment if the WSF degrades, and may increase requirements for maintenance of the landform.

Uncertainty remains around potential impacts and risks to the stability of landforms on the site in relation to hydrological processes and the downstream aquatic environment from the altered Proposal. The NT EPA considers that the environmental significance of the Proposal has not changed in relation to this factor.

4. Inland water environmental quality

Proposal-specific environmental objective: Improve 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.

Whilst the goal of rehabilitation of the mine site is to improve surface and groundwater quality, there is a risk that without appropriate rehabilitation, historical water quality impacts may not be improved, or recovery of the site and the receiving environment could take longer than anticipated.

Potential impacts and risks to inland water environmental quality from the altered Proposal include:

- potential impacts on surface and groundwater quality from AMD from surface waste rock storage and pits
- potential reduced water quality from diversion of East Branch flows of the Finnis River through the Main pit
- post-rehabilitation impacts to water quality in the upper Finnis River.

Uncertainty remains about water quality predictions, water treatment strategies and whether active management of contaminated water may be required post-rehabilitation to meet appropriate water quality objectives that must be developed to improve water quality. The NT EPA considers that the environmental significance of the Proposal has not changed in relation to this factor.

5. Aquatic ecosystems

Proposal-specific environmental objective: Restore aquatic ecosystems to maintain the biological diversity of flora and fauna and the ecological functions they perform.

Aquatic ecosystems directly downstream of the Proposal area are degraded due to historical and ongoing contamination from the former mine site. There is a risk that the Proposal, while aiming to improve water quality and restore aquatic ecosystem health in the receiving environment, may not achieve such objectives, particularly into the longer term with all relocated waste material to be stored above ground.

The NT EPA considers that the environmental significance of the Proposal has not changed in relation to this factor.

6. Social, economic and cultural surroundings

Proposal-specific environmental objective: Protect the rich social, economic, cultural and heritage values of the Northern Territory.

Although large areas of the mine site are significantly disturbed, the rehabilitation aims to improve the site such that cultural practices are able to be undertaken with appropriate safety in the area. The cultural values to be protected and enhanced within the Proposal area include sacred sites, sensitive cultural heritage sites, water quality and flows in the river system, and habitat for flora and fauna in the post-rehabilitation landscape.

A key objective of the Proposal is to rehabilitate the site to a standard that enables culture and belief systems to be passed on to future generations. There is a risk that the full expectations of the Custodians and the NT EPA's proposal-specific objective for this factor may not be met.

The NT EPA considers that the environmental significance of the Proposal has not changed in relation to this factor.

7. Human health

Proposal-specific environmental objective: Ensure that the risks to human health are identified, understood and adequately avoided and/or mitigated.

The altered Proposal design requires significantly less dewatering of the Main Pit void, and does not require dredging and filter pressing contaminated tailings from the Main Pit, which was considered a high risk activity in terms of human health and safety impacts.

However, there is a risk that 'low level' radiation sources from previous uranium mining activities and other contaminated material on the site, if not appropriately managed during rehabilitation and/or disposed of appropriately, may pose a risk to humans and/or biota, particularly if the site is inhabited for extended periods and if biota are harvested for human consumption. The NT EPA considers that the environmental significance of the Proposal has not changed in relation to this factor.

Rum Jungle's environmental legacy including impacts to downstream water quality and aquatic ecosystems, and the rehabilitation of a former uranium mine site with potential radiation issues increases public interest in the Proposal.

CONCLUSION

The NT EPA considers that the altered Proposal has the potential to significantly impact the environment.

The altered Proposal should continue to be assessed at the level of an EIS to enable the NT EPA to decide whether its proposal-specific environmental objectives for Terrestrial flora and fauna, Terrestrial environmental quality, Hydrological processes, Inland water environmental quality,

Aquatic ecosystems, Social, economic and cultural surroundings, and Human health, within the context of the Proposal, are likely to be met.

While the significance of the Proposal has not changed, the NT EPA's Terms of Reference will be revised to account for alterations to the Proposal.

DECISION

The Proposal has been altered in such a manner that its environmental significance has not changed and continuing assessment at the level of an EIS is still 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 AM MAICD

CHAIRMAN

NORTHERN TERRITORY ENVIRONMENT PROTECTION AUTHORITY

16 OCTOBER 2019