Titleholder: Rum Jungle Resources Ltd
Operator: Rum Jungle Resources Ltd
Tenement Manager: Ross McColl
Tenement: EL 24987
Project Name: Karinga Creek Potash
Report Title: First Partial Relinquishment report for EL 24987, Karinga Creek, 2011.
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## Contents

SUMMARY .......................................................................................................................... 3  
LOCATION AND ACCESS ................................................................................................. 4  
HISTORY OF TENURE AND JOINT VENTURES ............................................................... 4  
EXPLORATION RATIONALE .............................................................................................. 4  
GEOLOGICAL AND HYDROLOGICAL SETTING ............................................................. 4  
EXPLORATION ON RELINQUISHED PORTION ............................................................. 5  
CONCLUSIONS .................................................................................................................. 5
**SUMMARY**

Exploration is targeting potassium-, magnesium- and sulfate-salts in salt lakes brines to eventually produce potassium sulfate (SOP) and potassium magnesium sulfate (schoenite) fertiliser probably using solar evaporation ponds.

No work was conducted on the relinquished portion of the tenement.
LOCATION AND ACCESS
EL 24987, “Karinga Creek”, is located 150 km southwest of Alice Springs on the Kulgera 1:250 000 map sheet. Access is from the Lasseter Highway which runs east-west north of the the project area and by the Stuart Highway which runs north-south through the eastern part of the tenement. The EL is also serviced by numerous station tracks. Mount Ebenezer Station and roadhouse was used as a logistic base. Although the lakes on EL 24987 are, in general, a lot drier than the lakes further west towards Curtin Springs, lake access for the overall project requires specialist equipment. It was necessary to purchase tracked AWD amphibious vehicles and a trailer with a ground footprint of less than one psi. Helicopter support and equipment lift was also necessary.

Figure 1. Location map of EL 24987 with relinquished areas hatched in green

HISTORY OF TENURE AND JOINT VENTURES
EL 24987 is one of several ELs in Rum Jungle Resources’ Karinga Lakes Potash Project which involves various JVs under Rum Jungle Resources’ operatorship. EL 24987 was applied for on 11/10/2005 and was granted on 10/10/2006 for a period of six years. During the fourth year of tenure, a deal between Rum Jungle Resources and Abrar Malik gave Rum Jungle Resources the rights to operate and acquire the tenement. The tenement originally covered 850 km² or 274 sub-blocks. On 10/10/2011, EL 24987 was partially reduced to 186 sub-blocks or 577.28 km² (figure 1).

EXPLORATION RATIONALE
EL 24987’s salt lakes and sub-surface aquifers are being explored for potassium- and magnesium-rich sulfate brines. It is hoped to produce potash and/or schoenite fertiliser by solar evaporation and/or other onsite treatments. Australia has no producing potash mines. Around 350,000 tonnes of potash is imported into Australia annually from Canada and is worth around $200 million.

GEOLOGICAL AND HYDROLOGICAL SETTING
EL 24987 overlies the southwestern sector of the Amadeus Basin in the Northern Territory. The Amadeus Basin covers approximately 150,000 km² and extends into Western Australia. It is comprised of a Neoproterozoic to mid-Paleozoic succession of predominantly shallow marine sedimentary rocks and attains a thickness of up to 14,000 m. The siltstones of the central Amadeus Basin have weathered into a topographic low. This depression contains a chain of Cenozoic playa salt
lakes. The sediments in these modern lakes and their palaeo-drainages contain brines formed by the evaporation of surface and near-surface water from infrequent and largely unpredictable rain and flooding events.

The Devonian Horseshoe Bend Shale forms low mesas around many of the lakes and constitutes the lake “floor”. Where it is fractured and/or deeply weathered, the Horseshoe Bend Shale is a brine aquifer in its own right. There are variable degrees of mixing with the brine within the lake sediments. The Horseshoe Bend Shale was/is evaporitic, containing sulfate and chloride evaporites. It also contains locally abundant detrital biotite. The evaporites have been leached out over geological time and have almost certainly contributed to the brine, both within the shale and within the lake sediments. These brines have liberated potassium from the weathering biotite.

Quaternary sand dunes, up to 30 m high, encroach onto the depression. The dunes are mostly vegetated and stable. The playas presently occupy only the lowermost topographic depressions in swales between dunes. Quaternary calcrete and silcrete duricrusts (of vadose origin) are characteristically superimposed on Amadeus Basin outcrops, forming escarpments, several meters high along the margins of some of the playa lakes. Low-relief gypsum-sand “islands” are also present in some of the playas.

Groundwater in the Cenozoic calcrites and associated sediments of the study area is generally in the range of 1.5-9.7 g/l total dissolved solids. The fresher ground waters (1.5-4.8 g/l TDS) in the study area are recorded mainly from the bedrock hilly areas and in the perched calcrete aquifers, which are away from direct influence of playa brines. Down the local hydrologic gradients, the groundwaters become increasingly saline, reaching salinities up to 15.7 g/l TDS. In the playa marginal areas, the brines become Cl-SO₄ dominant, and Na is the major cation. Within the playas, intense evaporative concentration of near-surface solutions initially give rise to precipitation of gypsum at concentration above 100g/l TDS. As a result, the playa brines in the general area of Lake Amadeus and Karinga Creek are commonly Na-Cl waters and highly enriched in K, Mg and SO₄.

**EXPLORATION ON RELINQUISHED PORTION**

No work was conducted on the relinquished portion of the tenement.

**CONCLUSIONS**

The relinquished portion of the tenement generally contains areas that do not have salt lakes of interest or salt lakes we are not allowed to access.