



**tellus**  
HOLDINGS

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**PARTIAL RELINQUISHMENT REPORT  
EL28900 FOR PERIOD ENDING  
5<sup>TH</sup> MARCH 2014**

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| 2<sup>nd</sup> May 2014

Titleholder:	Tellus Holdings Ltd
Operator:	Tellus Holdings Ltd
Tenements:	EL28900 Eastern Railroad
Project Name:	Chandler Project
Report Title:	Partial Relinquishment Report for EL28900 "Eastern Railroad", Chandler Project for the period ending 5 March 2014
Author:	Jaime Livesey
Target Commodity:	Halite (Sodium chloride) and trace minerals
Date of Report:	2 May 2014
Datum/zone:	GDA94 / zone 53
250K map sheet:	SG5302 Rodinga
100K map sheet:	5648 Charlotte
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## EXECUTIVE SUMMARY

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EL28900 “Eastern Railroad” held by Tellus Holdings Ltd (“Tellus”) is located in the Amadeus Basin, approximately 130km south of Alice Springs.

The Chandler Project is targeting subsurface salt deposits to assess potential evaporitic mineralisation within the Amadeus Basin. Two known salt units are present in the Chandler project area, namely the Chandler Formation and the deeper Gillen Salt Member.

Exploration activities over the relinquished area were confined to regional desktop studies and literature reviews. Tellus have partially relinquished EL28900 to meet tenure requirements and to concentrate future exploration over areas of greater potential.

## 1 INTRODUCTION

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The Chandler Project is located in the Amadeus Basin, approximately 130km south of Alice Springs. This partial relinquishment report relates to exploration licence EL28900 Eastern Railroad, which is one of six licences held by Tellus which are collectively referred to as the Chandler Project.

## 2 PROJECT DESCRIPTION

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The Chandler Project is targeting subsurface salt deposits to assess potential evaporitic mineralisation within the Amadeus Basin. Two known salt units are present in the Chandler project area, namely the Chandler Formation and the deeper Gillen Salt Member. Exploration activities by Tellus over the relinquished area have included initial assessment of open geochemical and geophysical data.

## 3 LOCATION

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The tenement is located in the southern part of the Northern Territory. Alice Springs is the nearest major town, situated approximately 130km north of EL28900. The area can be accessed via graded roads and station tracks (figure 1). The Central Australian Railway runs to the west of EL28900. The tenement lies within 1:250,000 sheet area Rodinga SG5302 1:100000 sheet area Charlotte (5648).

## 4 TENURE

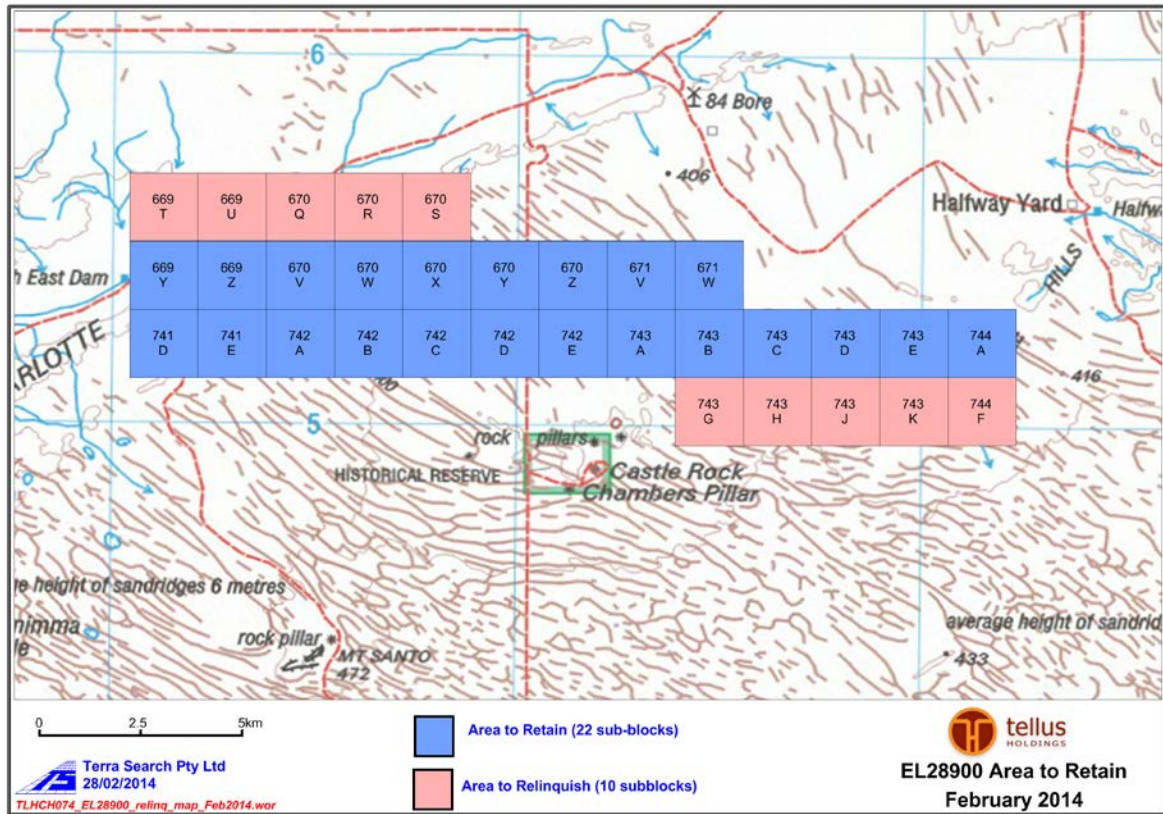
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Exploration licence EL28900 “Eastern Railroad” consisting of 32 sub-blocks was granted to Tellus on the 5th March 2012 for a 6 year term (Table 1). At the end of the second year, Tellus relinquished 10 sub-blocks (Figure 1)

**Table 1: Details of Exploration Licence EL28900 held by Tellus Holdings**

TENURE	NAME	STATUS	EFFECTIVE_DATE	EXPIRY_DATE	AREA_SQKM	SUBBLOCKS
<b>EL28900</b>	Eastern Railroad	Grant	5/03/2012	4/03/2013	99.75	32

Figure 1: Project Location and Topography



## 5 REGIONAL GEOLOGY

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The Amadeus Basin is an asymmetrical, east-west trending, intracratonic depression covering 155000 sq km of central Australia (Figure 2).

The oldest elements of the Amadeus Basin are Neo-Proterozoic units having a very restricted known extent. These units consist of clastic sedimentary rocks and basalts along the south western margin of the basin (Mount Harris Basalt, Bloods Range Beds, Dixon Range Beds) and an unnamed succession of sedimentary rocks, basalt and dacite near Kintore in the north-west. The units have been interpreted as a rift sequence marking the opening of the Amadeus Basin (Lindsay and Korsch, 1989).

The fluvio-volcanic rift sediments are unconformably overlain by epeirogenic clastics of the Heavitree / Dean quartzites, followed by carbonates and evaporites of the Bitter Springs Formation. The Bitter springs Formation is terminated by an erosional surface upon which shallow marine and glaciogene sediments of the Inindia Beds and its equivalents in the northern Amadeus Basin were deposited. An unconformity surface within the Bitter springs Formation at or near the top of the Gillen Member has wide extent and can be used as a seismic marker.

The top of the Inindia Beds is marked by a flooding surface upon which deeper water pelagic and turbiditic sediments accumulated. This deeper marine sequence is known as the Winnall beds in the south and the Pertatataka Formation in the north. It shallows upward into shallow marine and fluvial clastics in the south west and oolitic platform carbonates of the Julie Formation in the north. The Inindia Beds are thickest in the west and centre of the basin and are absent from the eastern margin of the basin.

The Late Proterozoic phase of deposition was terminated in the south by the Petermann Ranges Orogeny, a period of mountain building, recumbent folding and northward overthrusting (Wells et al. 1970). Molasse sediments were shed north and north-east from uplifted areas and accumulated in a foreland style basin immediately before the rising orogen (Mt Currie Conglomerate, Ayers Rock Arkose), bypassed the middle and eastern fringes of the basin, and accumulated as a prograding deltaic sequence in the north (Arumbera Sandstone).

The Petermann Ranges Orogeny shaped the framework of the Palaeozoic basin, and a northern trough initiated at this time persisted through most of the Palaeozoic. The southern central and south eastern parts of the basin remained uplifted. Palaeozoic sequences in these areas are generally thin with common significant breaks in accumulation.

During the early Cambrian, continental sedimentation persisted in the north-west (Cleland Sandstone), while shallow marine shales, carbonates and evaporites were deposited in the north-east (Shannon, Giles Creek and Chandler Formations). A widespread transgressive cycle in the Late Cambrian resulted in the deposition of the Goyder Formation.

Two transgressive cycles during the Ordovician resulted in the alternating deposition of tidal flat/barrier bar sands and deeper marine, euxinic muds and silts (Pacoota Sandstone, Horn valley Siltstone, Stairway sandstone, Stokes Siltstone). These sediments form the source-reservoir-seal sequence of the Mereenie and Palm valley hydrocarbon fields in the north-western Amadeus Basin. Of this Larapinta Group, only the Stairway Sandstone persists into the centre and southeast of the basin.



Marine deposition was terminated by the Late Ordovician Rodingan Movement. Uplift of the north-eastern basin resulted in the erosion of up to 3000m of Cambro-Ordovician sediments. This area became the source region for the Early Devonian Carmichael and Mereenie Sandstone. Arid climatic conditions prevailed with sediments transported by both aeolian and fluvial action into a shallow sea transgressing from the west.

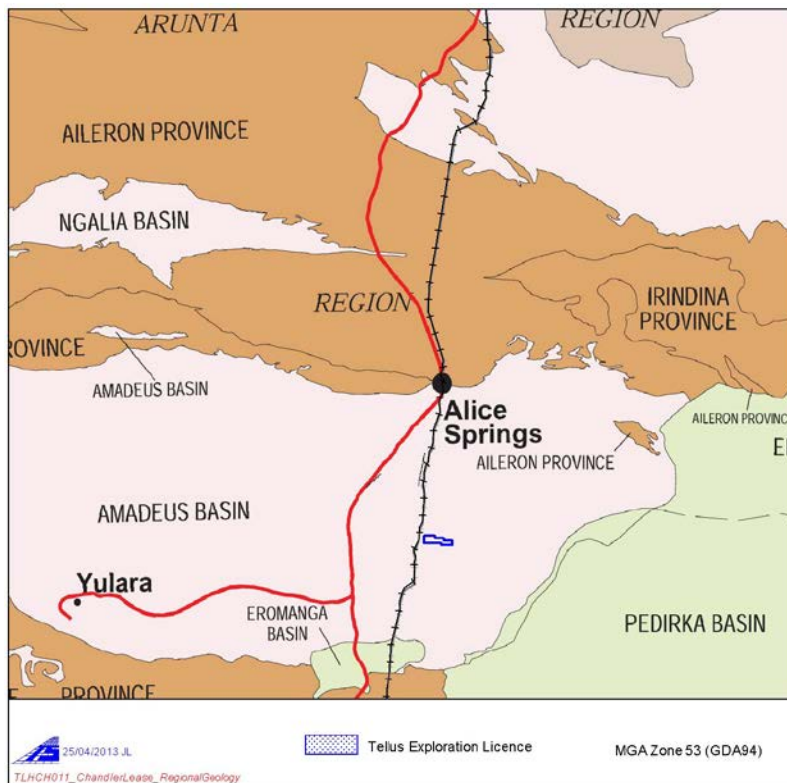
Major uplift of the Arunta block along the present northern margin of the basin commenced in the Middle Devonian. Continental deposition continued as thick molasse sediments accumulated south of the uplifted area. High depositional loading at this time contributed to movement of the Bitter Springs Formation and Chandler Formation evaporites.

A lacustrine siltstone (Parke Siltstone) was laid down conformably on the Meerenie Sandstone, and after uplift, coarser sediments were deposited (Hermannsburg Sandstone, Brewer Conglomerate). These three units, comprising the Pertnjara Group, thin and become finer grained to the south.

Uplift of the Musgrave Province and deformation of the southern Amadeus sequence culminated in the Early-Middle Devonian Finkle Movement (Polly Conglomerate), after which fluvial sands of the Langra Formation and estuarine silts of the Horseshoe Bend Shale accumulated. These sediments comprise the Finkle Group, which is the southern time equivalent of the Pertnjara Group, although the former sequence fines upward in contrast.

Regional deposition was terminated in the Late Devonian-Early Carboniferous by the Alice Springs Orogeny. Some earlier structures were reactivated during this period of deformation. Substantial uplift of the basement Arunta block along the current northern margin initiated movement of thrust sheets in the Alice Springs and Altunga regions, and resulted in significant structuring of the basin. North over south thrusting and reverse faulting is typical of Alice Springs orogeny deformation.

**Figure 2: Geological Regions of Northern Territory (adapted from NTGS, 2006)**



## 6 LOCAL GEOLOGY

The project area overlies 1:250K map sheet Rodinga. Majority of the area lies within the Rodinga mapsheet, which was geologically mapped in 1964 by the Bureau of Mineral Resources. Surface geology is shown in figure 3 and stratigraphy is included as figure 4.

The stratigraphy within the Charlotte area has been well defined from drilling of petroleum wells Mt Charlotte 1 and Magee 1, the generalised local stratigraphy is given in Table 2 and published stratigraphic correlation across the Southern Amadeus basin is shown in figure 5.

**Figure 3: Local Geology over EL28900**

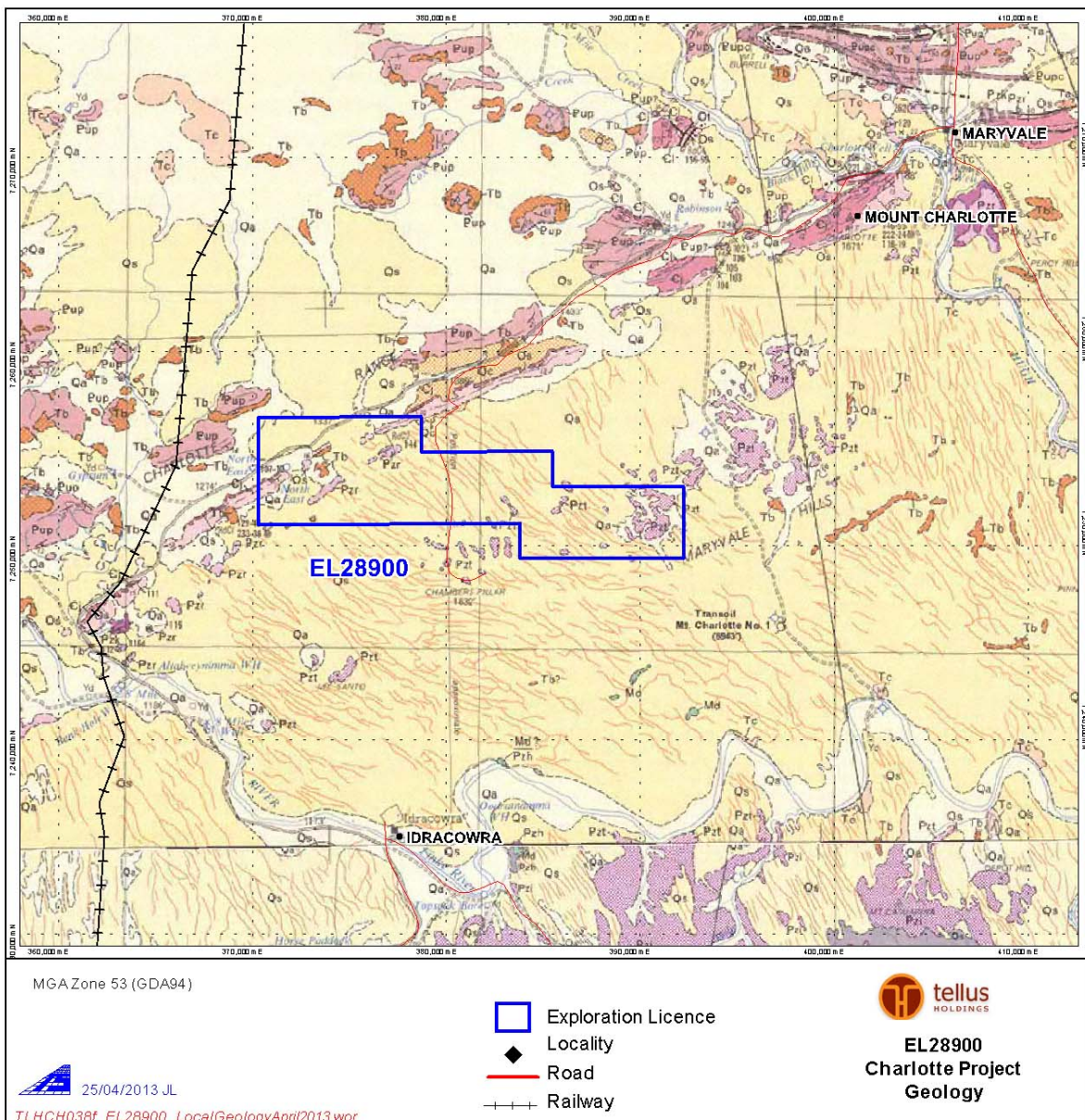
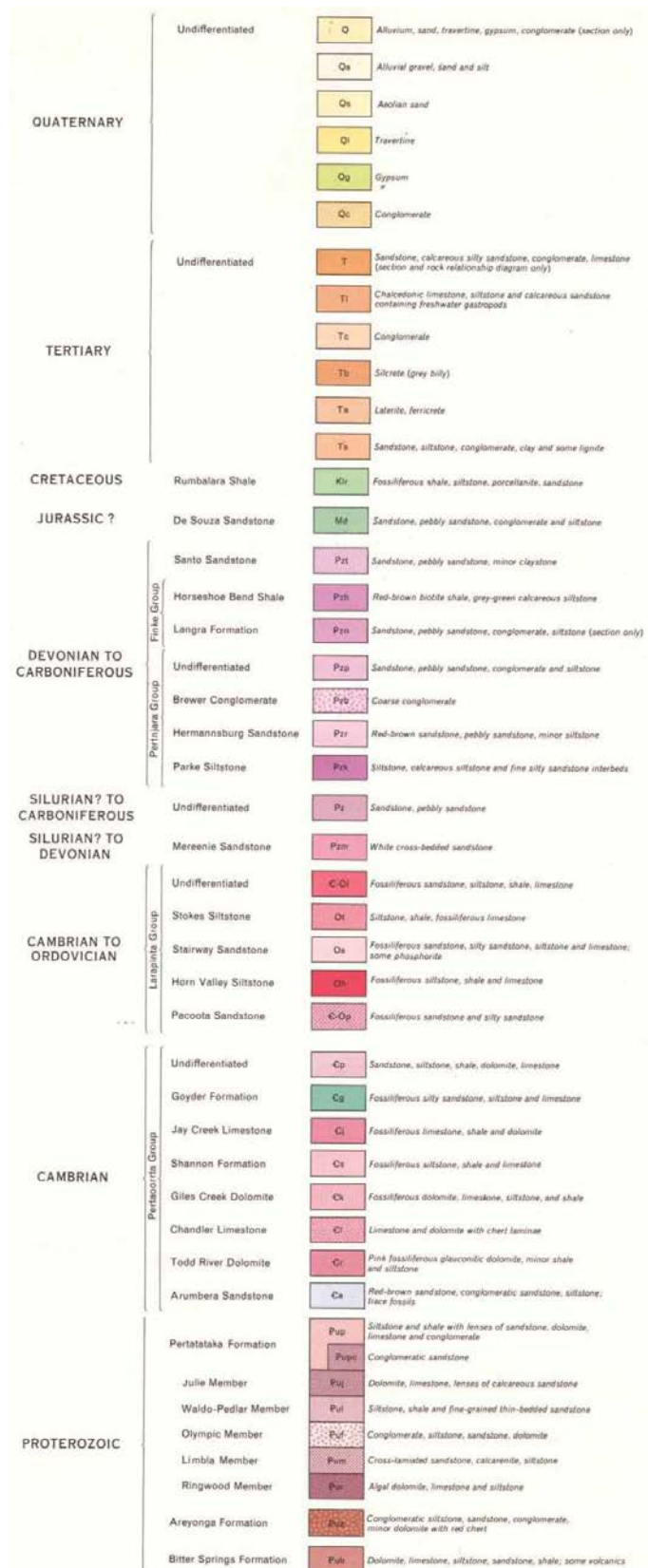


Figure 4: Stratigraphy (from Rodinga SG5302 1:250K map sheet)





**Table 2: Generalised stratigraphy for the Charlotte Project area**

AGE		STRATIGRAPHY			
<b>Cainozoic</b>	Quaternary		undifferentiated		
	Tertiary		undifferentiated		
<b>Palaeozoic</b>	Devonian		Santo Sandstone		
		Finke Group			
		Pertnjara Group	Pertnjara Formation		
	Ordovician	Larapinta Group	Stairway Sandstone		
	Cambrian	Pertaorrtta Group		Jay Creek Limestone	
				Chandler Formation	
			Arumbera Formation		
<b>Precambrian</b>	Upper Proterozoic		Winnall Beds	Pertatataka Formation	
			Bitter Springs Formation	Loves Creek Member	
				Gillen Member	Upper Gillen
					Gillen Salt
				Lower Gillen	
				Heavitree Quartzite	
Middle Proterozoic	Musgrave Block	Arunta Complex			

## 7 HISTORIC EXPLORATION

Initial exploration in the area was targeting diamonds and base metals; this was followed by uranium and most recently potash. The location of historic tenements in relation to Tellus tenure is shown in Figure 5.

### Wandaroo Mining Corporation / Le Nickel (Australia) Exploration EL747

Regional exploration program aimed at defining the geological setting of the area, the structure and the potential for uranium mineralisation. A photogeological study, geological mapping and airborne magnetics survey were completed with follow up ground reconnaissance.

### CRA Exploration EL 5879 EL6949 EL6950 EL6952

Detailed aeromagnetics and radiometric surveying identified twelve magnetic anomalies. Follow up helimagnetic surveying and loam sampling was completed. Sampling results were negative, only one chromite recovered and considered of low interest. Outcropping ironstone was considered a potential target for base metal mineralisation and was tested by drilling to 14m. The ironstone was found to be a surficial cap on well worked alluvial sands. CRA considered that diamond and base metal potential of the area was adequately tested and no further exploration justified.

#### CRA Exploration EL6952

CRA was targeting diamonds over EL6952. Interpretation of magnetic data highlighted one area for follow up. Aeromagnetics-radiometric survey was flown over the target area and loam sampling completed. Lack of further anomalous features and negative loam sampling led to surrender of tenement.

#### Benger EL8304

Diamond exploration with a single loam sample collected returning negative results.

#### CRA Exploration / Rio Tinto EL9339

Exploration over four tenements targeting sediment hosted copper mineralisation. Activities included steam sediment, rock chip and soil sampling. Initial results were encouraging and led to a RAB drilling program. Although results included several low order anomalies, it was concluded that there was little potential for significant base metal mineralisation.

#### Northern Mining EL24503

Part of Northern Mining's regional Finke Project in Central Australia, considered prospective for massive stratiform manganese and sandstone-hosted and Tertiary remobilised uranium mineralisation. A field visit was undertaken, no evidence of mineralisation was identified and the tenement was relinquished.

#### Nova Energy / Toro Energy EL25050

Toro Energy and subsidiary Nova Energy targeted sedimentary redox related uranium deposits in the upper Devonian Finke Group sediments. A comprehensive desktop study was completed, followed by helicopter assisted reconnaissance. The company planned to follow up with a RAB drilling program however ongoing access problems with Idracowra Station, led to the tenements being surrendered.

#### Red Gum Resources EL26433

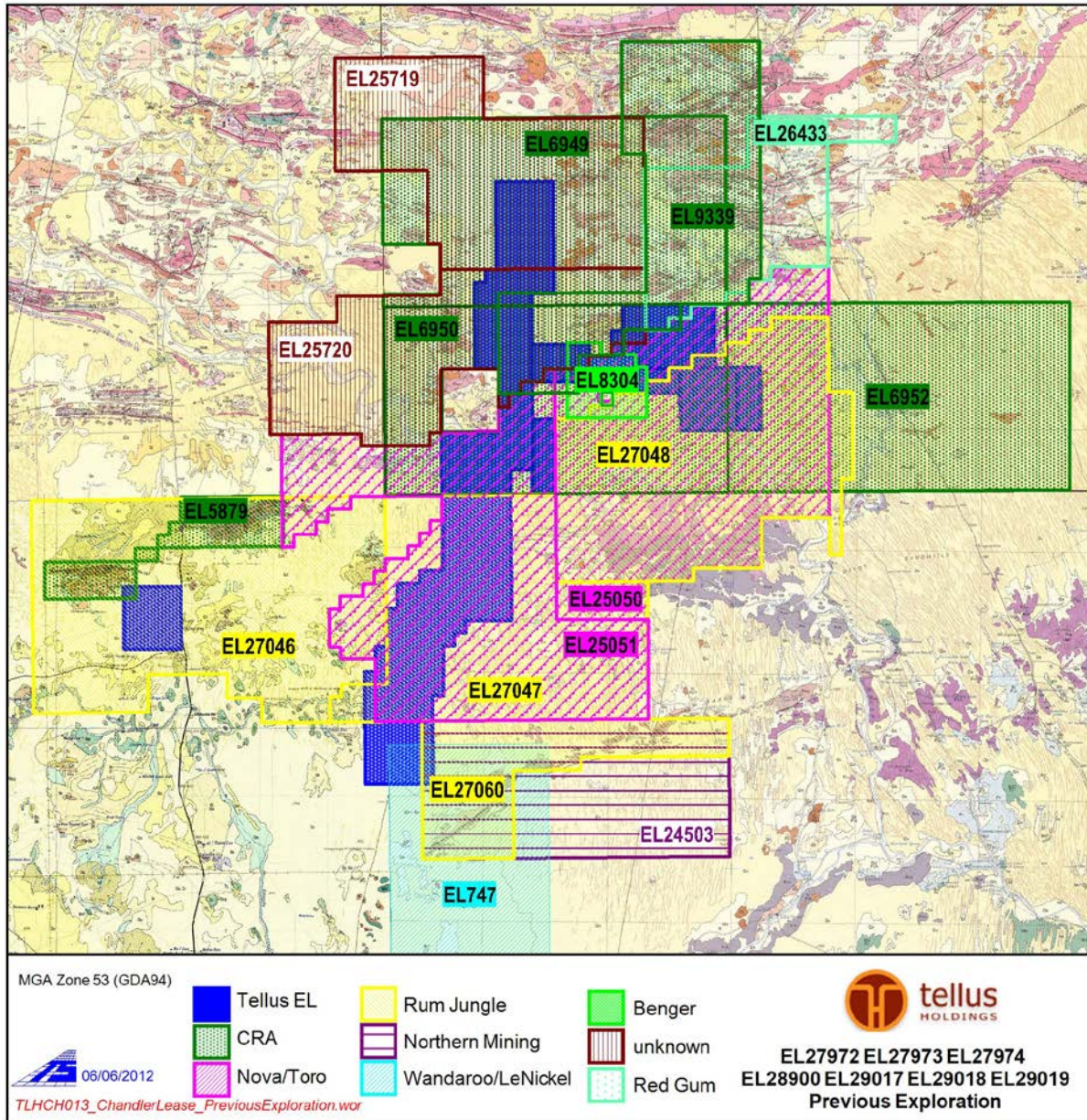
The company had financial issues resulting from the global financial crisis. No field work was completed and tenure relinquished.

#### Rum Jungle Uranium Limited EL27048

Exploration was part of regional project targeting subsurface potash. Research into potential drill targets in the Chandler Formation and Gillen Formation were completed. Thirteen samples of drill cuttings from petroleum well Magee1 were assayed to determine if potash was present in the Chandler Formation or Gillen Formation. Results were not positive, which led to the conclusion that either the Chandler Formation at this location is not rich in potassium or maybe the potassium was dissolved by drilling fluids and fresh water whilst the well was being drilled.

Rum Jungle Uranium Limited were unsuccessful in attracting a joint venture partner, so they were unable to continue with the seismic and deep drilling required to test the potash potential of the Chandler and Gillen Formations. Rum Jungle Uranium Limited relinquished the tenure in order to concentrate on other projects.

Figure 5: Historic tenements covering Project Area



## 8 EXPLORATION ACTIVITIES CONDUCTED

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Regional desktop studies were completed to identify areas prospective for evaporitic mineralisation. This included review of historic work over the area and review of open file geophysical data.

## 9 CONCLUSION

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Exploration activities over the relinquished area were confined to regional desktop studies and literature reviews. Tellus have partially relinquished EL28900 to meet tenure requirements and to concentrate future exploration over areas of greater potential.

## 10 REFERENCES

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*Northern Territory Geological Survey, March 2006. Geological Regions of the Northern Territory map sheet.*

*Wakelin-King, G. and Austin L., 1992. EP 38, Well Completion Report Magee 1 Northern Territory. Pacific Oil & Gas. Limited, Report no. 304715. NTGS Open File Petroleum Report PR1992-0121*

*Young IF, Ambrose GJ, 2007. Petroleum geology of the southeastern Amadeus Basin: the search for sub-salt hydrocarbons. In Munson TJ and Ambrose GL (editors) 'Proceedings of the Central Australian Basin Symposium, Alice Springs, Northern Territory, 16/18 August 2005'. NTGS Special Publication 2, 183-204*