

EL 30151 LAKE NEALE WEST

FINAL REPORT

15 March 2017 to 9 February 2018

GEMPART(NT)P/L

66 SMITH ST

ALICE SPRINGS 0870

BLOODS RANGE

AW MACKIE

November 2017

CommoditiesP:Cu,Pb,Zn,Ag,Au,P,REE,Th,Ni,Co,Cr,Ti,V,PGE,Sn,W,Ta,Li,KCL,FEO

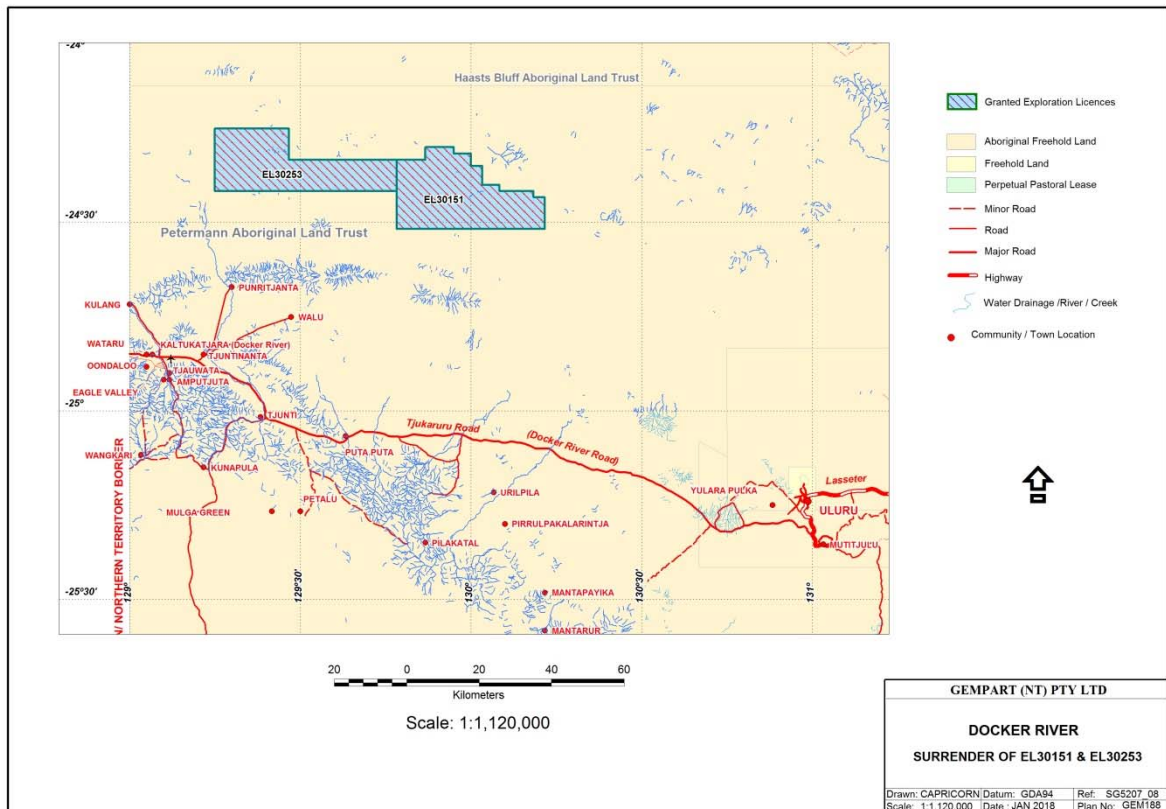
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SUMMARY

EL30151 comprises 760 sqkm of the Great Sandy Desert bioregion overlying part of the south west margin of Neoproterozoic to Devonian Amadeus Basin a post Gondwana remnant of the Centralian Super Basin dominated by the ephemeral playa; Lake Neale one of several salt lakes occupying a regional scale topographical depression trending east-south-east 450km from WA border to the Stuart Highway. Lake Neale is the loci of internal drainage from north, south and east ie 70km long by 10-15km wide of potentially thorianite-xenotime mineralised calcretes as well as potential chloride-sulphate-carbonate-borate-nitrate- evaporite deposits. The northern boundary of the licence area covers 30km of the southern margin of Lake Neale including an arcuate narrow zone trending west north west for 12km x 2km wide of radiogenic calcretes none of which are preferentially enriched in Thorium ? Likewise a similarly trending 15km x 5km calcrete cropping out over the north western licence area Consequently EL30151 is surrendered.



2. INTRODUCTION

EL30151 Lake Neale West is located within the north east corner of BLOODS RANGE map sheet formerly one of six Titles constituting the CLC administered Docker River Exploration and Mining Agreement negotiated between Gempart(NT)P/L and the Traditional Owners.

3. LOCATION and ACCESS Figure 1.

EL30151 Lake Neale West can be accessed from Kaltukatjara(Docker River) via the main Yulara road east for 20km until the turnoff to Tjuntinanta is reached then north east passed Walu(33km) for about 130km where the south east corner of the licence area kisses the road.4WD access is possible from there carefully trending north west over sandy calcretes between dunes for about 55km to the western boundary .

4. TENURE

EL30151 was granted 15th March 2017 for 6 years and surrendered on 9th February 2018. It was part of the Docker River Mining and Exploration Deed signed on behalf of Traditional Owners by CLC and Gempart(NT)P/L under terms and conditions set out in the 1976 Land Rights Act(ALRA). EL30151 was over part of the Haasts Bluff Land Trust enacted in 1971 as Aboriginal Freehold Land.

5. PREVIOUS EXPLORATION

The south west margin of the Amadeus Basin was first explored by Giles in 1872 and 1876. The first scientific investigations were made by CA Exploring Expedition in 1889 and Horn Scientific Expedition in 1896. In 1901 and 1903 SA Government prospecting expeditions investigated Musgrave, Mann and Rawlinson Ranges. H Basedow prospected Musgrave Ranges , Mt Olga, Mt Connor and Ayers Rock 1903. In 1905 FR George prospected Petermann and Bloods Ranges producing a sketch map and a trace of gold in quartz near Foster Cliff. In 1926 Basedow and Mackay produced a Geology Report on Bloods Range followed by an aerial survey of Petermann Ranges in 1930.

Lasseter's report of a rich gold reef gave rise to many expeditions in the 1930s. He is rumoured to be buried at a rock hole 4km north of Mt Phillips on ELA31516. Lasseter's cave is located at the western end of Curdie Range. The Border Gold Expedition traversed Olia Chain and Petermann Ranges into WA in search of reef in 1935. HA Ellis a geologist was seconded to another party in 1936. GF Joklik accompanied an expedition in 1951. The Frome-Broken Hill Company carried out an extensive survey of area between Souths Range and Petermann Ranges in 1958.

In October 1960 BMR flew an AMAG traverse across south east PETERMANN RANGES . In 1962 a helicopter gravity party visited the area as part of the Amadeus Basin reconnaissance gravity survey. An AMAG/Radiometric survey of the sheet area was flown by BMR in 1965. RAWLINSON was mapped in 1960. In 1962 BMR mapped all of the cropping out area on BLOODS RANGE , while AYERS ROCK was mapped in 1963. SA Department of Mines published MANN in 1962 and explanatory notes in 1964 and WOODROFFE in 1967. PETERMANN RANGES mapping was carried out in stages . The northern part by Forman and Hancock in 1963. JF Ivanac mapped south west corner in 1965 and McCarthy described the rocks he collected.

In 1965 Planet Metals applied for AP1435 and 1546 over Petermann Ranges and Olia Chain conducting a regional AMAG survey (Woyzbun 1968) geochemical survey (Kenneth McMahon 1968) photogeological interpretation (Jorgensen 1966) and mineralisation (Wilson 1966). Ferruginous cappings developed over Neoproterozoic Pinyinna Beds during Tertiary were extensively sampled recording anomalous Pb, Zn, Co values. Four prospects were inspected by JF Ivanac in 1966 namely Butler Dome, Stevenson Peak, Katamala Cone and Chirnside Creek. At Butler Dome three groups of steeply dipping manganiferous /siliceous gossans and collapse breccias extend over a strike length of 2134m. Each group is about 305m long of highly folded /contorted carbonaceous/dolomitic Pinyinna Beds. The main gossan is about 14m wide and stands out as a blue-black outcrop. A 12m shaft has been sunk in footwall of gossan to access quartz veins which cut it, the gossans contain box works and limonite after sulphides while surrounding sediments show extensive iron oxide – muscovite alteration.

On July 4, 1968 Newmont P/L were granted AP2023/2024 over Lake Neale and Lake Amadeus respectively mainly to explore for commercial deposits of sulphur based on premise the above lakes are remnant collapsed crests of anticlines containing thick Neoproterozoic evaporite sequences?

Furthermore below the collapsed caprock of such phenomena gypsum may be reduced either bacteriologically or by hydrocarbons into sulphur? An analysis of available gravity data concluded 'there was a thick evaporitic section in the Lake Amadeus area'? Two field parties visited both areas in early 1969 measuring and sampling several Pub: Bitter Springs Formation sections as well as sampling several gypsum and travertine deposits. Vehicle traverses in conjunction with aerial photography interpretation determined a feasible route to a proposed drill site on Lake Neale.

However neither field party was able to reach reported diapiric structures located north of the lakes.

AMAG/Radiometric geophysical surveying of HULL and BLOODS RANGE was undertaken in 1985 as part of the NTGS Petermann survey flown at an altitude of 100m on N-S flight lines 500m apart.

Second Edition mapping by NTGS on BLOODS RANGE commenced in 1997 limited to southern half of mapsheet ie Musgrave Block and basal Amadeus Basin Formations, concluding in 1999 resulting in HULL and BLOODS RANGE 100k special mapsheets released in 2002 accompanied by Explanatory Notes.

In 2002 EL5701, 5702 were granted to Allender, Hosking and Le Brun over the southern – central BLOODS RANGE mapsheet area. It was joint ventured to a GSE/IGO consortium who carried out several regional soil sampling programs including maglag and -75 micron totalling 562 samples delineating about a dozen gold in soil anomalies as well as several copper anomalies requiring further investigation after the GSE/IGO consortium withdrew in 2004. The above area is now covered by GEMPART(NT)P/L EL27581 and EL31531 granted March 15th 2017.

6 GEOLOGY Figure 3

EL30151 overlies 760 sq km of the south west Amadeus Basin a large elongate intracratonic basin 800km long x 300km wide overlying Palaeoproterozoic to Mesoproterozoic crystalline basement of Musgrave Block to south and Aileron Province Arunta Block to north. Sedimentation spanned the Neoproterozoic continuing through to the Devonian/Carboniferous era ie initially part of Neoproterozoic Centralian Superbasin which formed after the breakup of Rodinia.

Sedimentation continued until 560-530Ma Petermann Orogeny coeval with assembly of Gondwana and subsequent fragmentation of Superbasin into several smaller intracratonic basins. Thus today's Amadeus Basin is a structural remnant of a larger basin tectonically modified by two major intracratonic orogenic events namely 560-530Ma Petermann and 400-300Ma Alice Springs Orogeny significantly transforming basin architecture.

The Lake Neale area Titles are overlain by largely a Quaternary deposit concealed inferred Neoproterozoic sedimentary package unconformably overlain by isolated exposures of Cambro-Ordovician remnant sandstone located within a northwest-southeast trending synclinal monoflexure bounded steeply to the south by elevated Musgrave Province Bloods and Pinyinna Ranges while to the north gently elevated Amadeus Basin uplands. Evaporation of internally transported saline rain water (Central Australia Groundwater Discharge Zone) accumulating within the low-lying basal synclinal monoflexure formed the Quaternary calcretes we see today within the licence areas.

EL30151 Lake Neale West is mainly flatlying aeolian sand plain and calcrete with a few northwest-southeast trending exposures of Neoproterozoic Bitter Springs Formation siltstone and carbonate however NTGS 1985 Petermann survey 500m l.s. AMAG shows underlying the licence area are a plethora of shallow mainly northwest –trending linear magnetic features perhaps indicative of spillitic basalt flows, dykes or sills commonly found within the Bitter Springs Formation throughout the basin deemed prospective for base metal-Au-Ag-Co-Th-REE carbonate replacement disseminated to massive sulphide mineralisation.

7. EXPLORATION PROGRAM 2017 Figures 4a,4b,4c,4d,4e,

A program of acquisition ,image processing, modelling and interpretation of available NTGS 500m l.s. located digital AMAG and Radiometric data was undertaken to delineate areas of apparent airborne geophysical survey anomalism. highlighting the existence of several large areas of flatlying partially aeolian sand –covered radiogenic calcrete deposits

8. EXPENDITURE

1. Review previous exploration /GA Salt Lakes 2012 Report.....	\$2000.00
2. NTGS GWIS TMI,Th,K,U Image downloads,interpretations.....	\$3000.00
3. Review results/Reporting.....	\$1000.00
4. Administration.....	\$1000.00
TOTAL.....	\$7000.00

9. CONCLUSIONS and RECOMMENDATIONS

The occurrence of radiogenic calcrete deposits over several large areas of both EL30151 and EL30253 require further investigation however the lack of dominance of Thorium downgraded the prospectivity of both areas consequently they were surrendered February 9th 2018

10. REFERENCES

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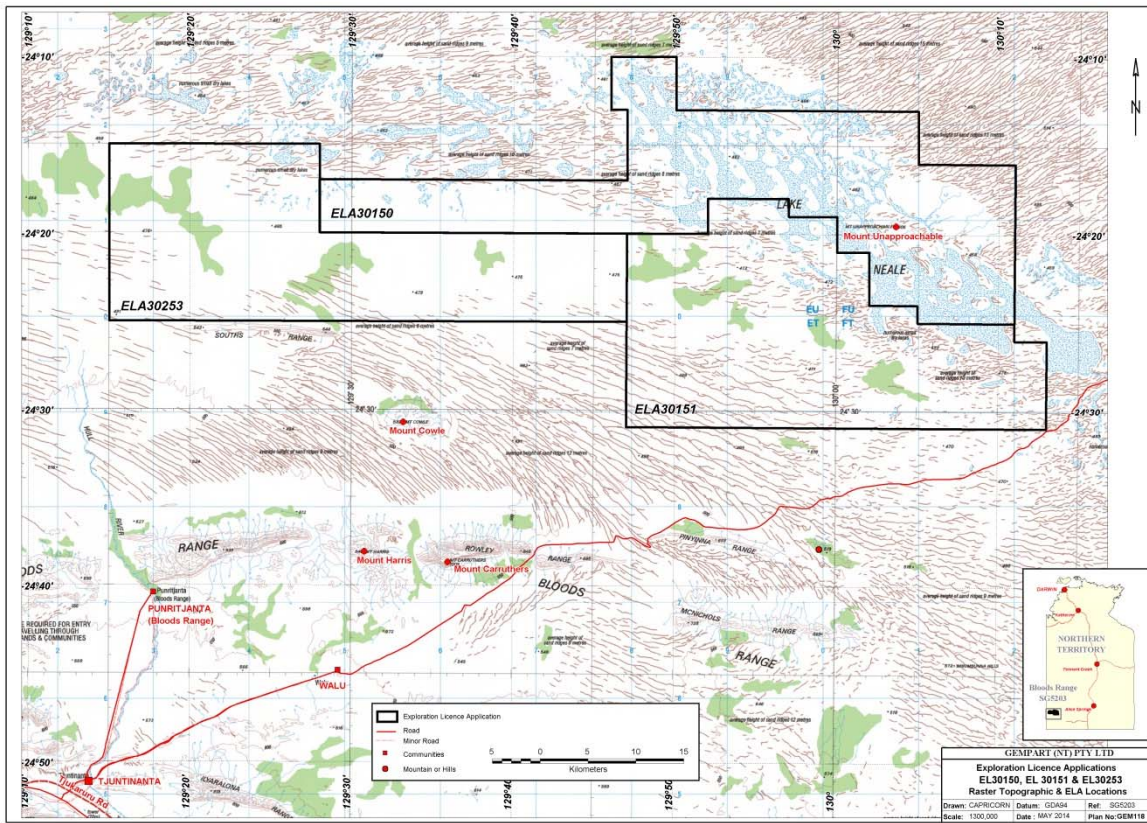
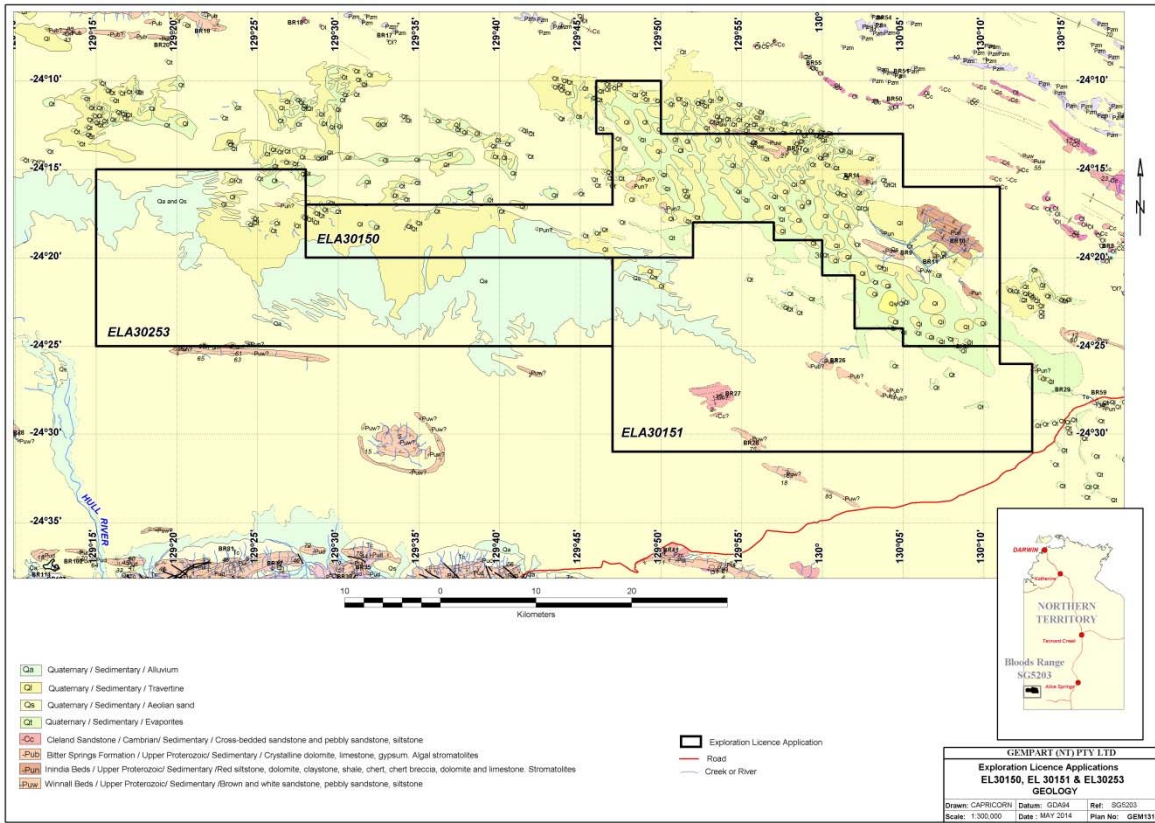
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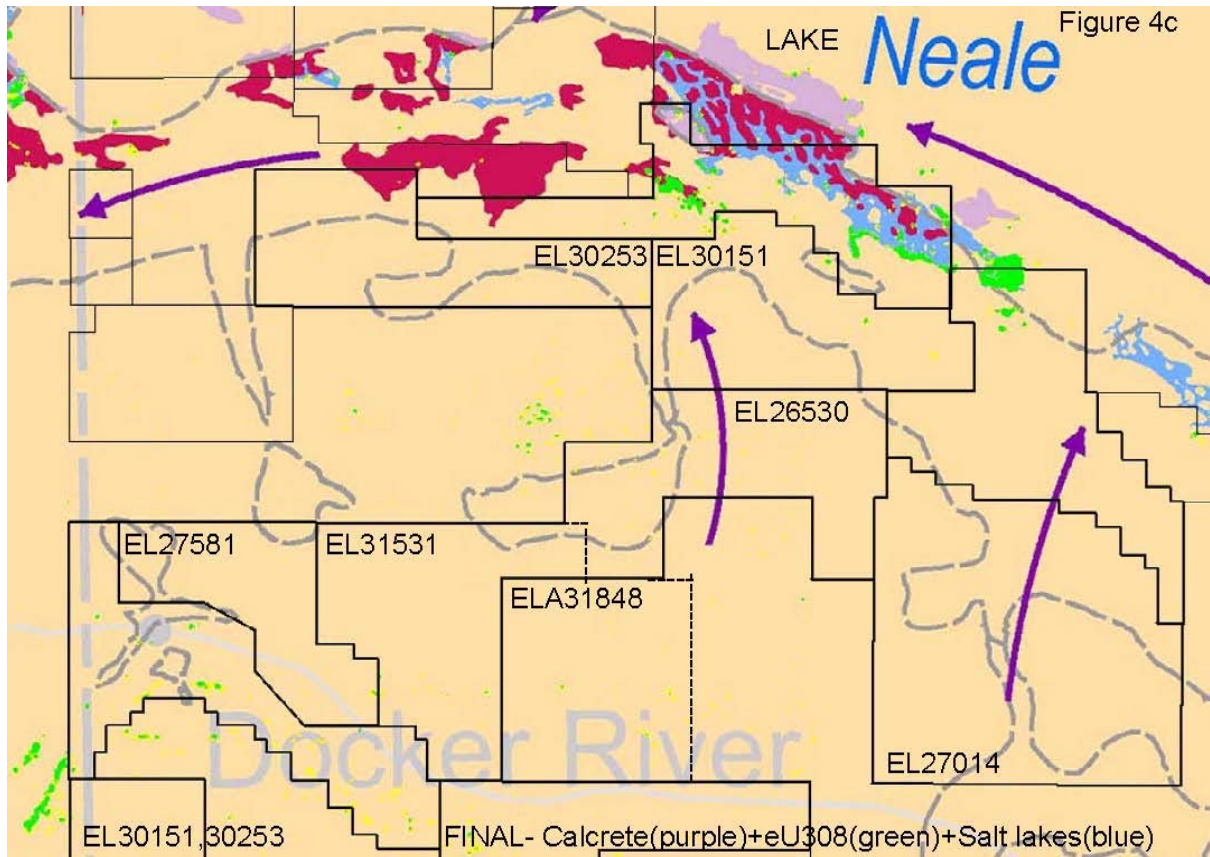
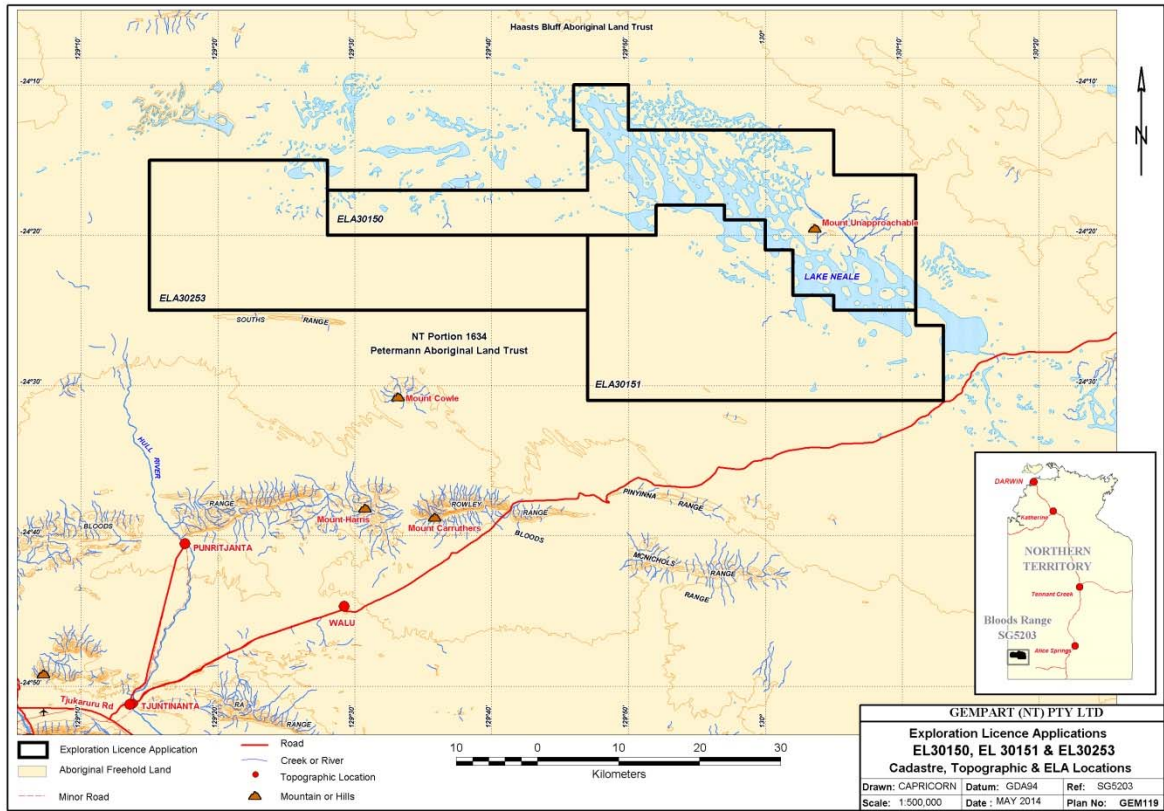
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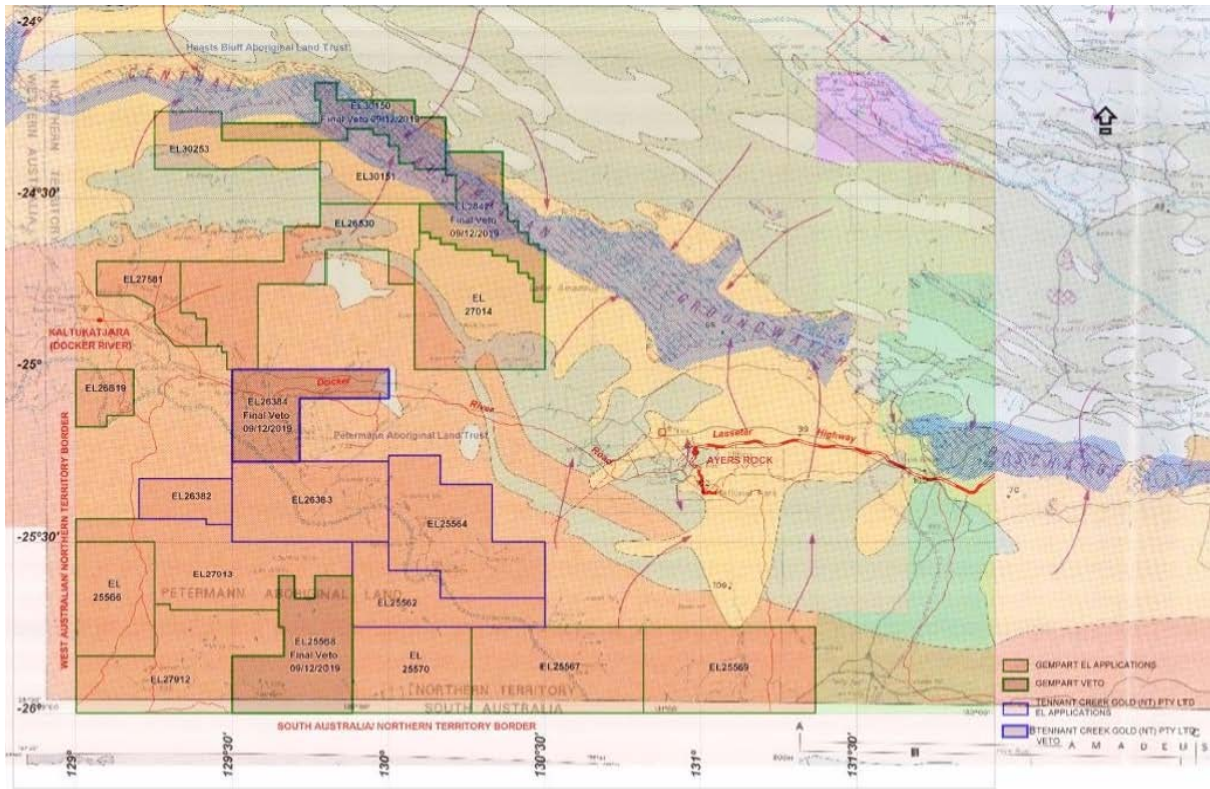
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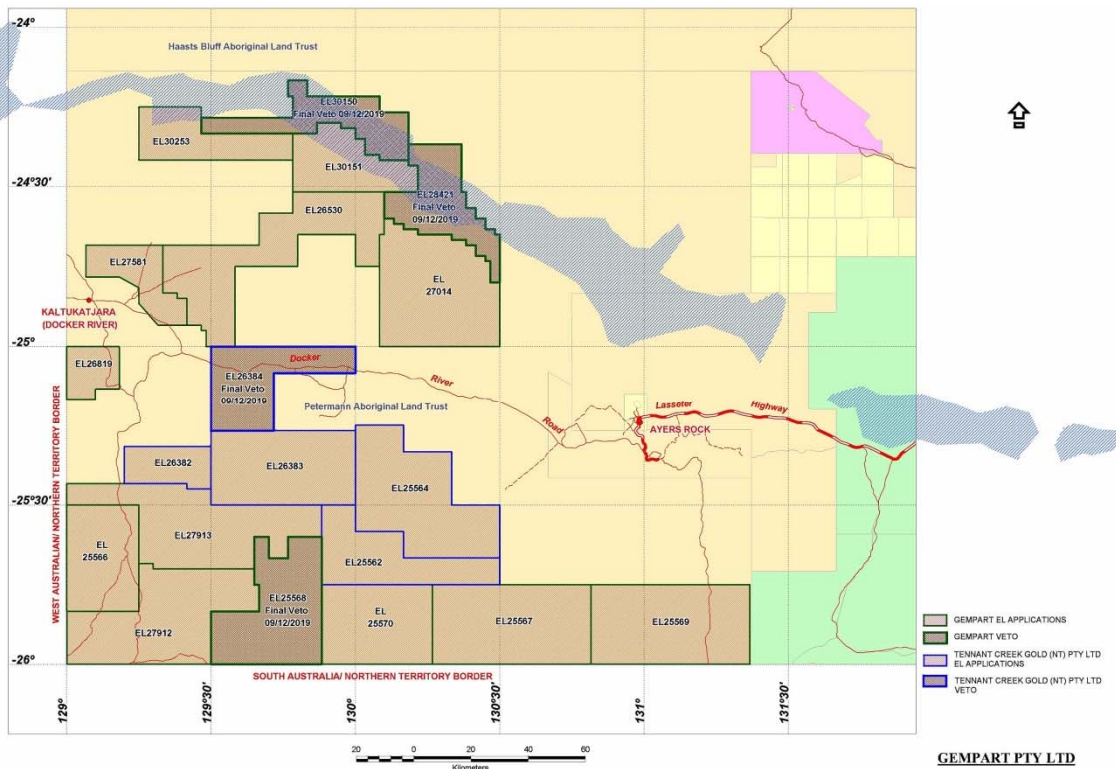


EL30151,30253 over CA Groundwater-

Discharge Zone FINAL Fig 4d

GEMPART PTY LTD

Scale: 1:1,000,000



EL30151,30253 over CA Groundwater Discharge Zone 2

FINAL Figure 4e

GEMPART PTY LTD

Scale: 1:1,000,000

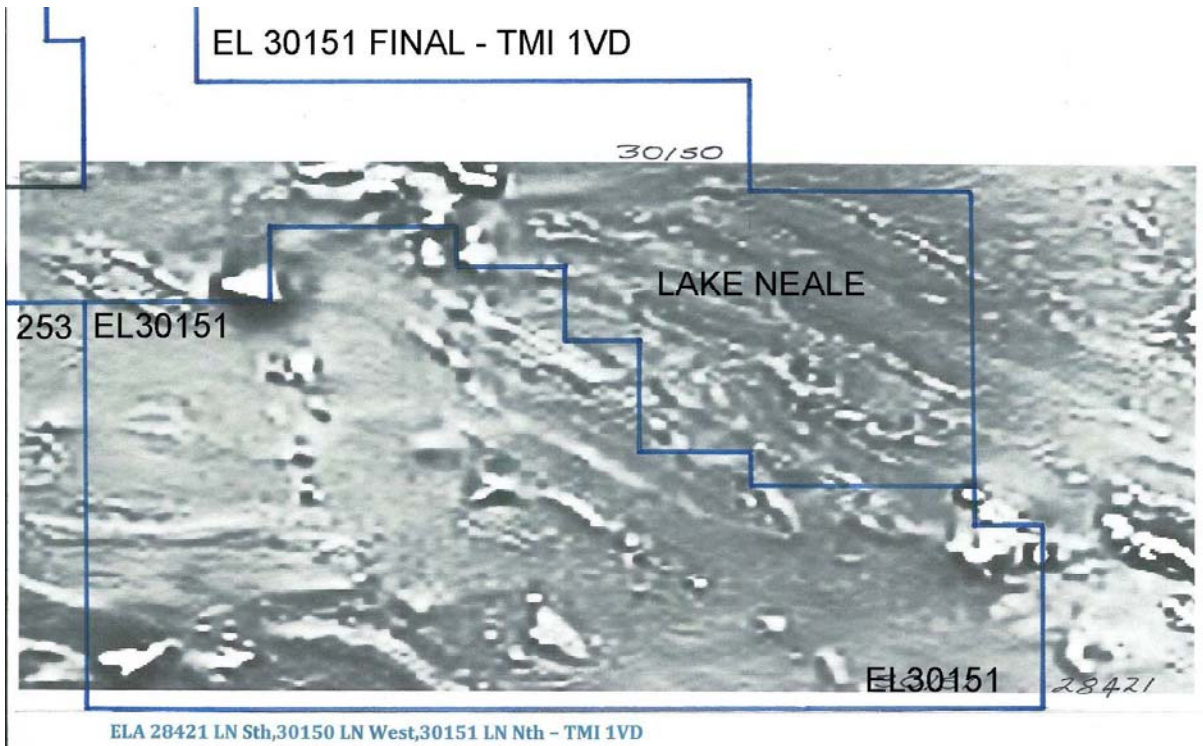


Figure 4h

EL 30151,30253 FINAL - Ternary Radiometrics over Topography

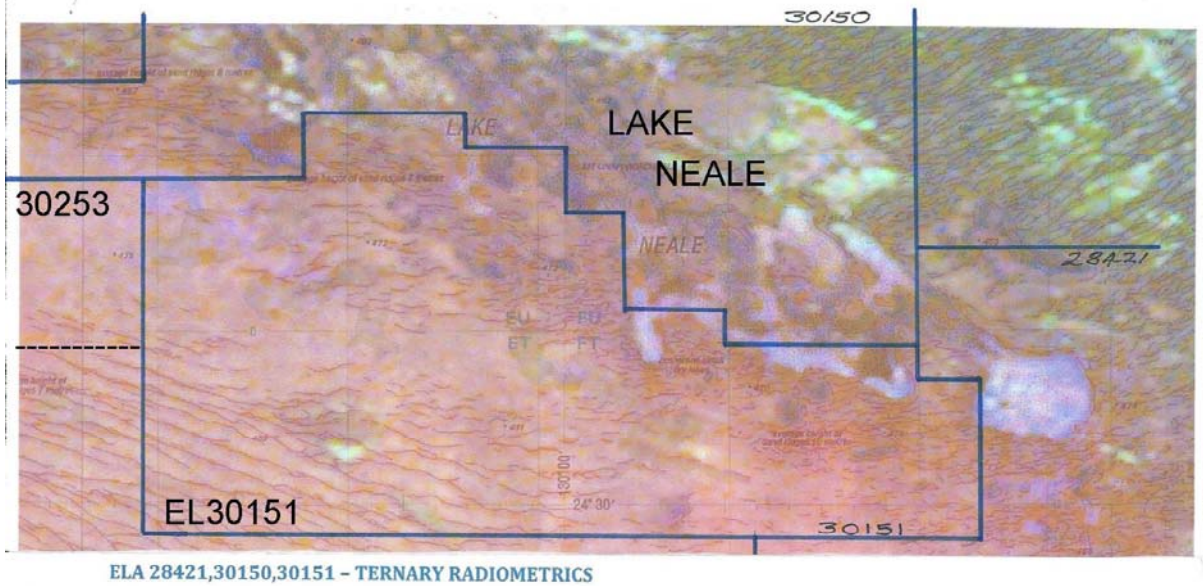


Figure 4i

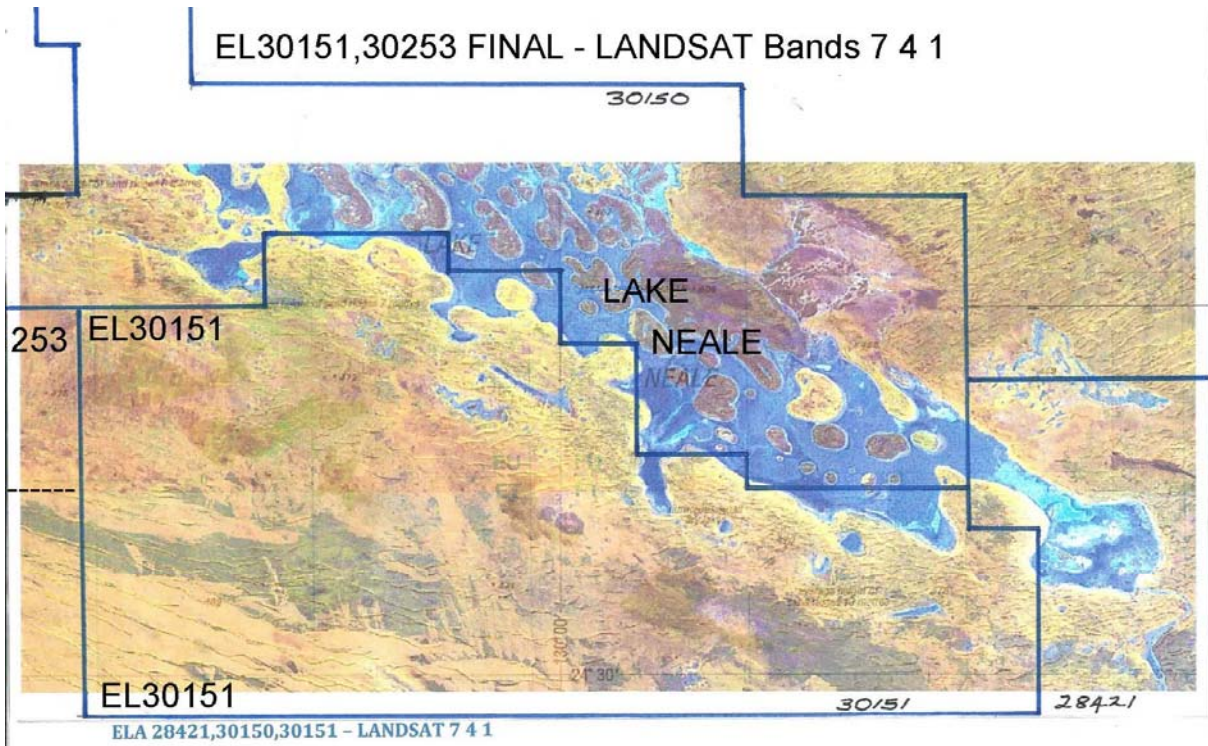


Figure 4j

