ARAFURA
RESOURCES LIMITED

Level 3, 263 Adelaide Terrace

Perth WA 6000

Australia

AILERON REYNOLDS PROJECT AREA
ARU REPORT 18/002

Annual and final report for EL31096 (Coppock), Northern Territory, Australia.

by

KJ Hussey BSc(Hons), MAIG, FGS.

1. COPYRIGHT STATEMENT

2. REPORTING DETAILS

Titleholder	Arafura Resources Limited
Operator (if different from above)	as above
Titles/tenements	EL 31096
Tenement Manager	as above
Mine/Project Name	Coppock
Report Title	Annual and final report for EL 31096 (Coppock), Northern Territory, Australia.
Personal author(s)	Kelvin James Hussey BSc(Hons), MAIG, FSG
Corporate author(s)	Arafura Resources Limited
Target commodities	Rare Earth Elements
Date of report	4/10/2018
Datum/zone	GDA94/Zone 53
1:250 000 mapsheets	Alcoota (SF53-10) Alice Springs (SF53-14)
1:100 000 mapsheets	Bushy Park (5652) Burt (5651)
Contact details	Kelvin Hussey khussey@arultd.com

2.1 TABLE OF CONTENTS

2.2 LIST OF TABLES IN REPORT

2.3 LIST OF FIGURES IN REPORT

2.4 ELECTONIC APPENDICES

Laboratory Report (Redacted to suit EL31096)

Mineral Exploration Report files

3. ABSTRACT

Exploration Licence 31096 is located approximately 70km north-northwest of Alice Springs. The title was granted to Arafura Resources (100%) on 25 August 2016 for a period of six years with an initial area of 129.66 km^2. The tenement was relinquished after disappointing REE exploration results were found.

The licence area occurs within the Aileron Province which is known to host various commodities, which include uranium, rare earth elements (REE), base metals, gold, tungsten and vermiculite. The area was selected because it has an elevated airborne Th radiometric signature with palaeochannels draining monazite-bearing metamorphic source rocks of the Strangways Range.

Arafura Resources completed preliminary on-ground reconnaissance, sampling and assaying of REE exploration targets during the final reporting period. Geochemical soil sampling results were low with depleted HREE contents. The REE heavy mineral potential of this Th target has therefore been downgraded.

4. LOCATION AND ACCESS

Exploration Licence 31096 is located approximately 70 kilometres north-northwest of Alice Springs in the North Territory, Australia.

Access to the licence area from Alice Springs is via the Stuart Highway and then the Plenty Highway. Fence lines and well-formed station tracks exist in this area.

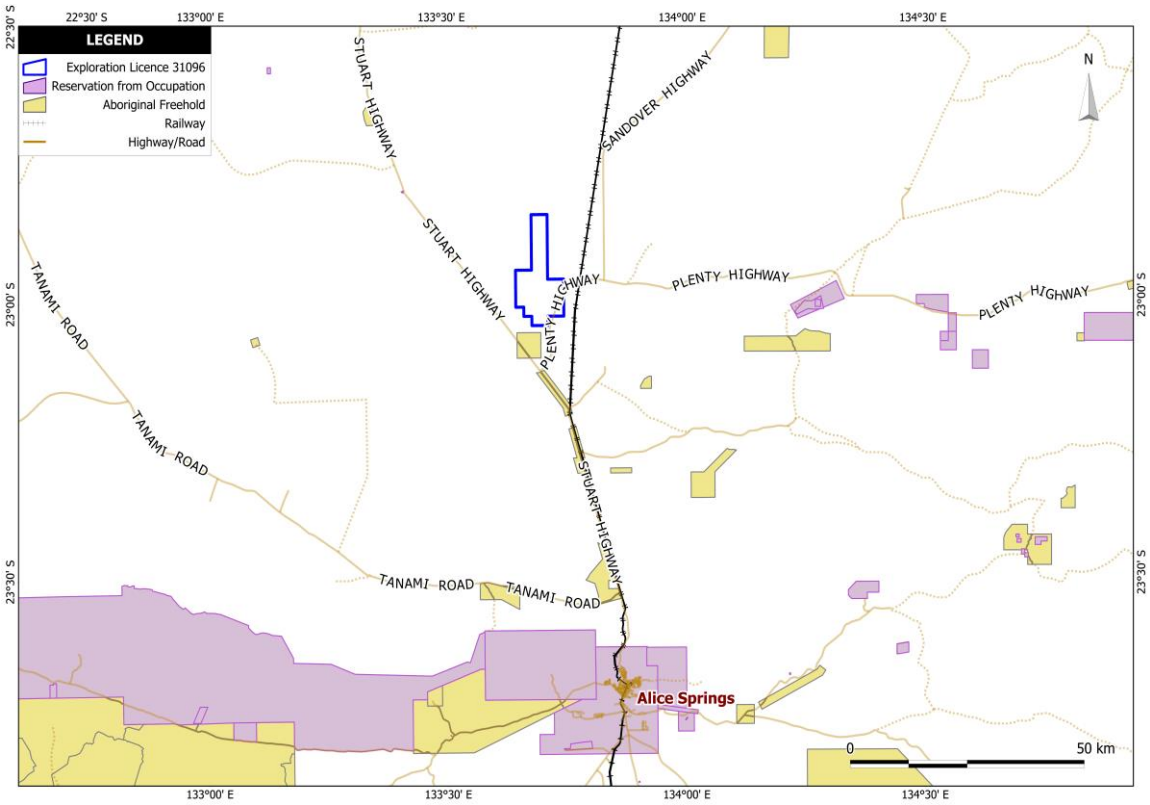

Figure 1: Location of EL31096.

5. TENURE AND LAND USE

The licence covers pastoral land as detailed in Table 1 and Figure 2. The Plenty Highway also passes through EL31096. The title was granted to Arafura for a period of six years but was relinquished 13 September 2018.

Table 1: Tenure and cadastral information.

Licence	Titleholder	Grant Date	Area (km^2)	Cadastre
EL31096	Arafura Resources Limited (100%)	25/08/2016	129.66	NT Portion 641 Perpetual Pastoral Lease Yambah Station
				NT Portion 703 Perpetual Pastoral Lease Aileron Station

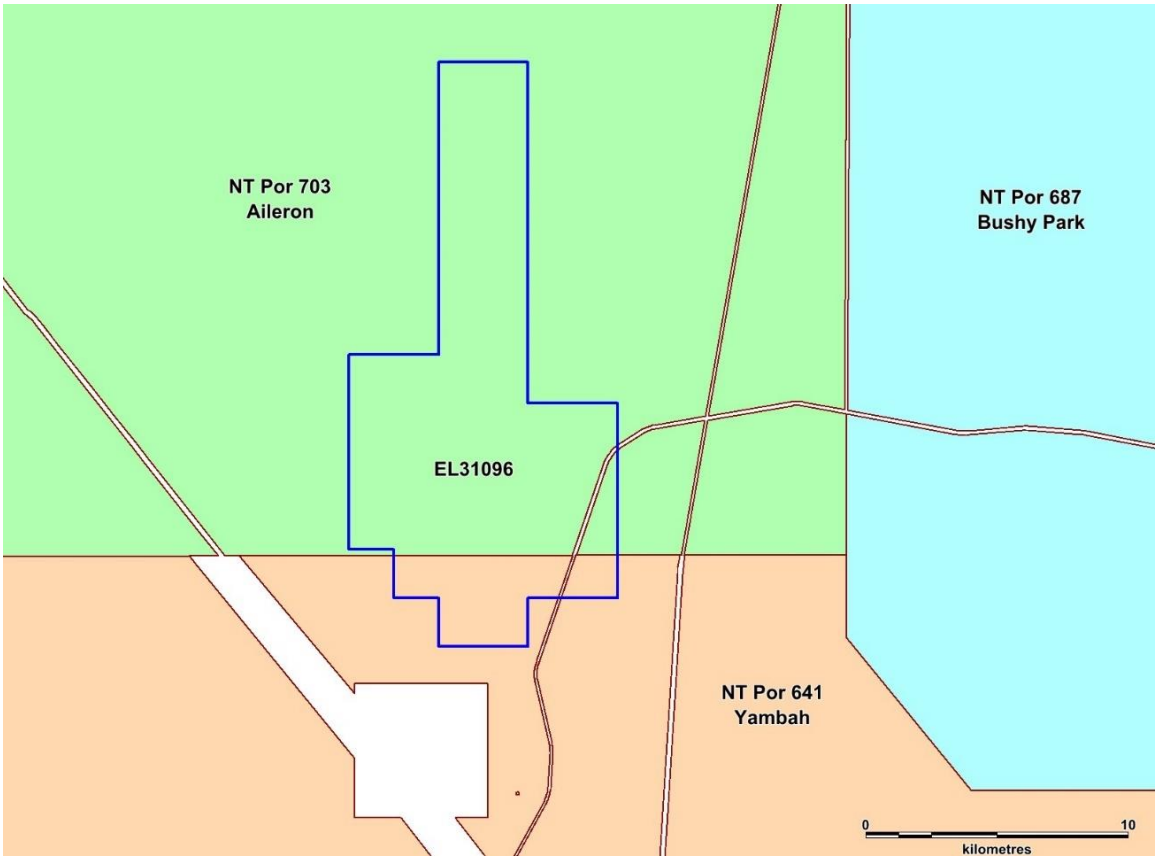

Figure 2: Cadastral map showing the location of EL31096.

6. TOPOGRAPHY AND HYDROLOGY

The topographic setting is best described as a gently sloping red sandy soil plain dominated by sheet wash with broad open drainage features (Figure 3 and 4Figure 4). Low-relief calcrete outcrops occur in the general region. Outcrops of metamorphic basement were not observed. The area spans a natural surface water divide with no distinct incised creeks. Sheet flows are focussed into the more densely vegetated, and slightly lower, drainage features. The changes in relief are subtle.

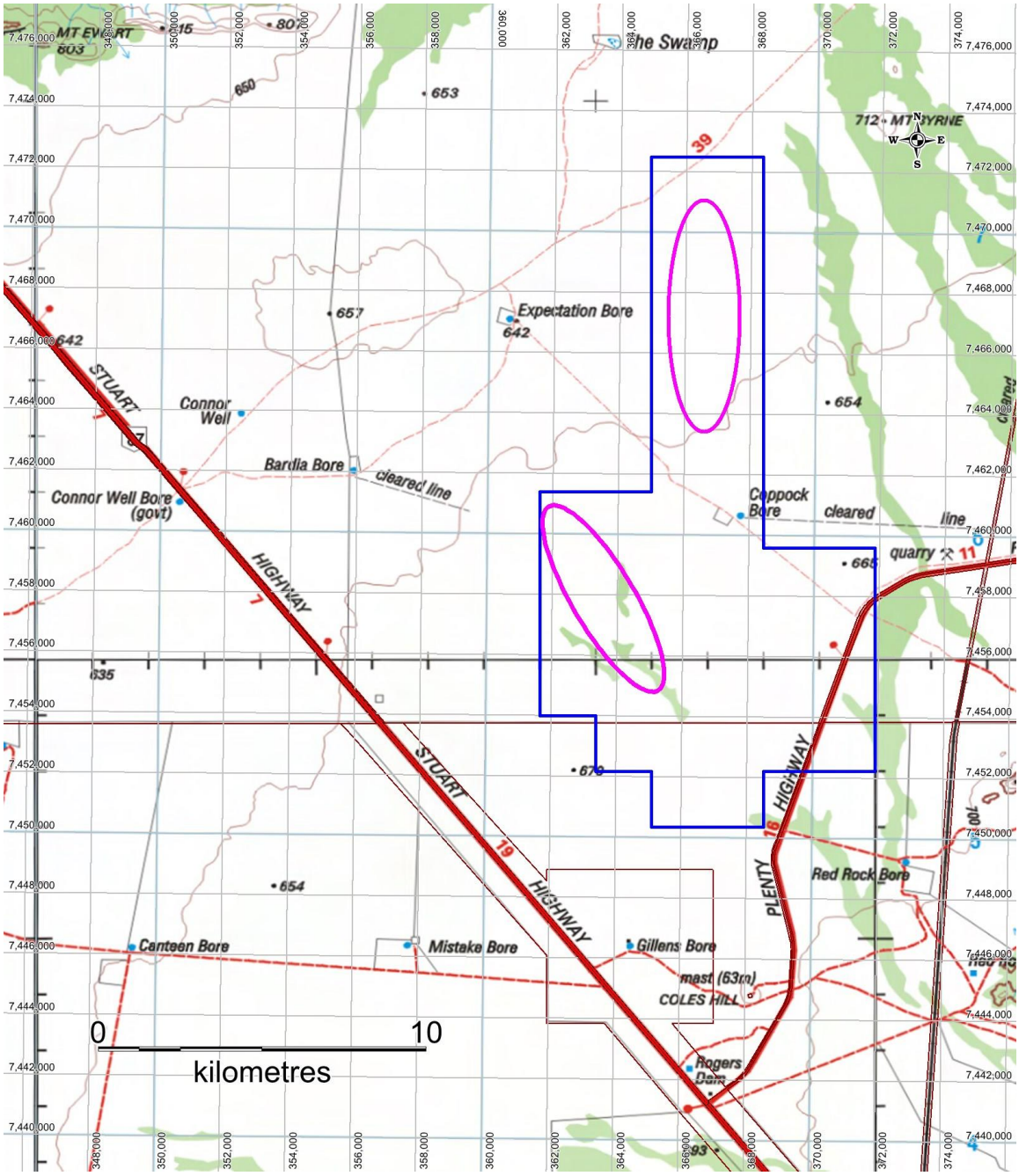

Figure 3: Topographic map and the location of EL31096 and the exploration targets.

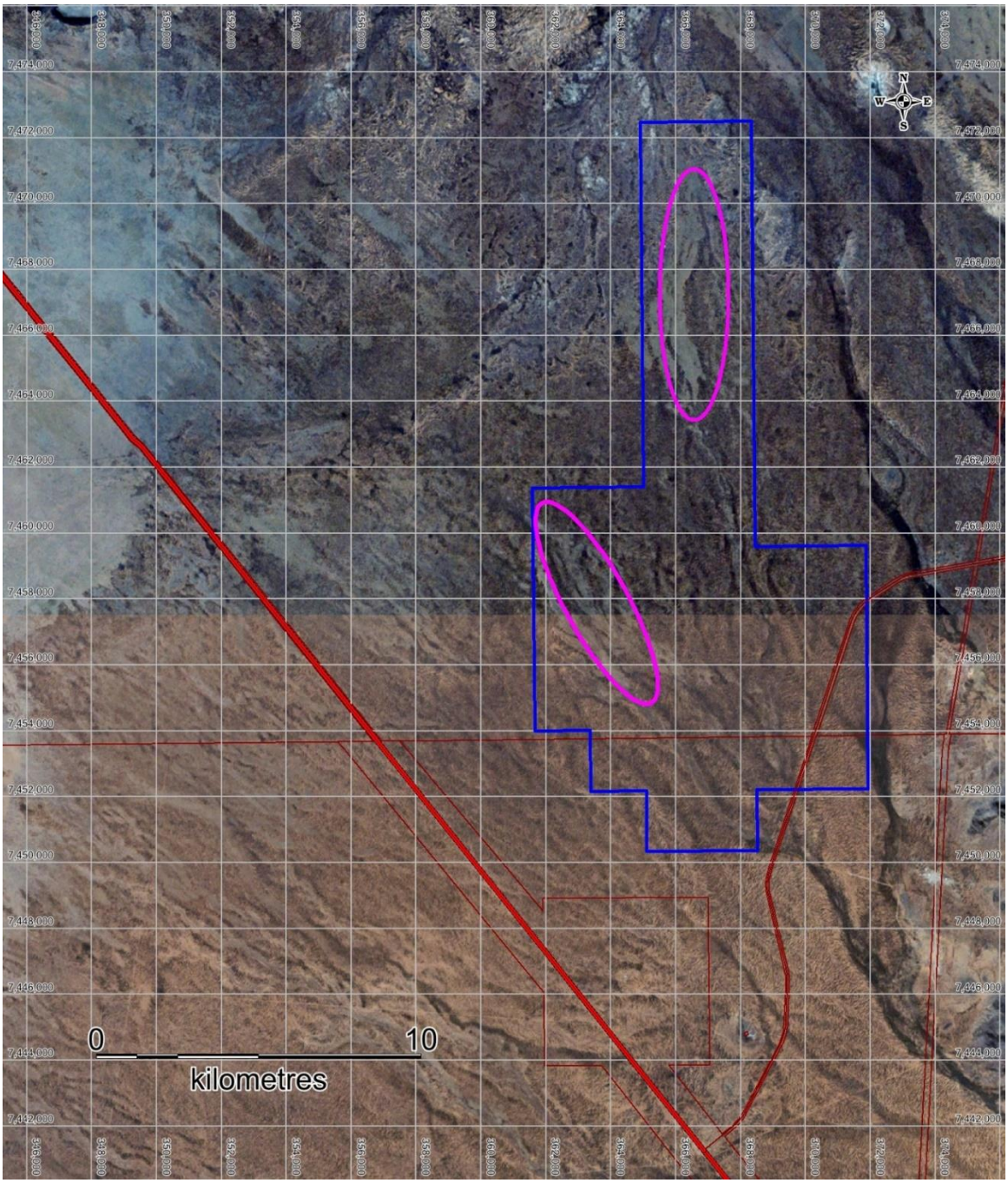

Figure 4: Landsat7TM image (bands 123 as RGB) showing the location of EL31096 and the exploration targets.

7. GEOLOGY

EL31096 is situated in the Aileron Province of the Arunta Region, however the Arunta basement rocks do not crop out in the area. The geology of the licence area is dominated by Cainozoic-Recent alluvial and colluvial sedimentary units transported from the southeast.

Most alluvial and colluvial sediments within EL31096 and its surrounds show an elevated Th radiometric signature with two broad localised linear radiometric highs within the tenement area. These localised linear highs were identified as potential exploration targets for alluvial heavy mineral REE deposits.

The Aileron Province is dominated by metamorphosed Palaeoproterozoic sedimentary and igneous rock units that have undergone a complex geological history. The metamorphic rocks outcropping to the southeast in the Strangways Ranges have undergone high-grade metamorphism which formed, amongst other minerals, REE-enriched monazite. These high-grade metamorphic rocks are the likely provenance for the Th enriched detritus.

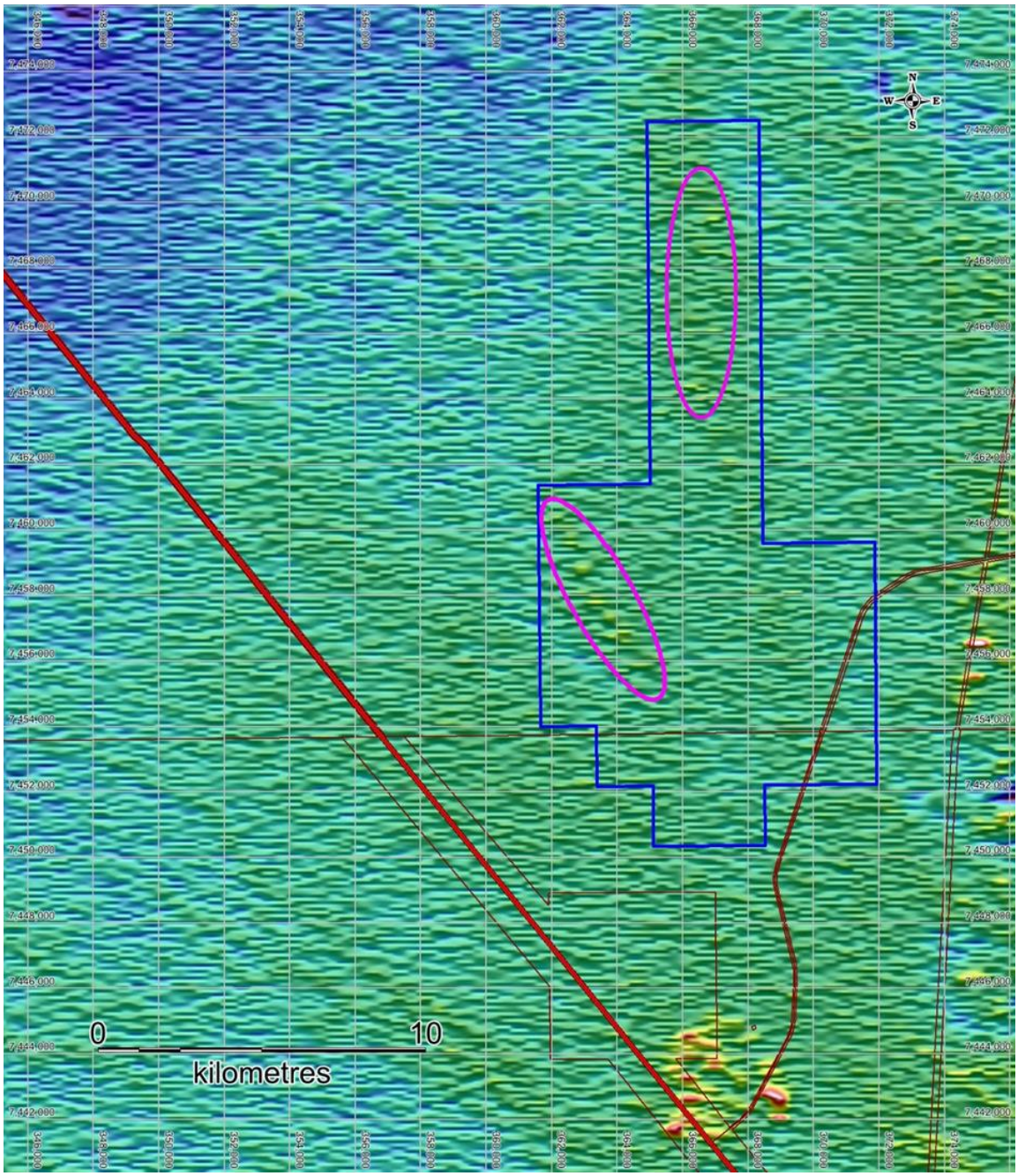

Figure 5. Airborne Th radiometric signature of EL31096 and surrounds.

8. PREVIOUS EXPLORATION

The general project area has been explored by previous titleholders, in search of various commodities. A summary of the exploration history is presented in Table 2.

Table 2: Exploration history.

Years	Tenement(s)	Exploration Company	Exploration Targets/ Commodities
1971- 1973	AP2710	CRA Exploration	Uranium
1974- 1975	EL58	Planet Mining	Base Metals
1979-1980	EL1889	Triako	Base Metals
1983	EL3502	CRA Exploration	Base Metals
1994- 2000	EL8125	People Telecom Pty Ltd	Base Metals
2003	EL10253	Gutnick Resources	Gold
2005- 2012	EL24287	Excelsior Gold	Gold, Base Metals
2003- 2005	EL22923	Tanami Gold	Base Metals, Gold
2006- 2007	EL22923	Deep Yellow	Uranium
2007- 2012	EL25325	Central Australian Phosphate	Uranium
2008	EL10401	Tanami Gold	Gold
2009- 2010	EL26827	Toro Energy	Uranium
2009- 2012	EL27335	Arafura Resources	REE
2013- 2015	EL29555	Wuhua Mining Corporation	Uranium, Base Metals, Phosphate

Deep Yellow (DYL) acquired EL10401 to primarily focus on uranium exploration, however following a meeting with the traditional Aboriginal owners in March 2008 to discuss DYL's proposed program, the Central Land Council advised that the traditional Aboriginal owners did not want exploration for uranium and requested DYL to surrender the tenements (Rhode, 2008). Rock chip samples were assayed for Au, As, Ag, Bi, Cd, Co, Cu, Mo, Ni, Pb, Sb, W and Zn but no elevated levels of these elements were found.

Another previous titleholder of the area was Toro Energy Limited (Toro). Toro considered the area to be prospective for hardrock, calcrete and sandstone hosted uranium deposits. Desktop studies were conducted and 1000m of aircore drilling was planned across the Tertiary palaeochannel, but works were not done. An Exploration Agreement with the Traditional Owners was not achieved. They requested Toro not carry out uranium exploration and to surrender the licence (Rawlings, 2010).

The eastern portion of the licence has previously been held by Arafura under EL29335. Arafura did not conduct a significant ground exploration at the time. EL29335 was initially acquired to explore for REE mineralisation within the Proterozoic basement rocks in the area, as it is believed that the basement rocks in the EL29335 area are broadly similar to those which host the nearby Nolans Bore deposit. The moderately thick cover of superficial sedimentary units and lack of suitable extractive materials in the area led Arafura Resources Limited to surrender EL29335 (Dean, 2013).

9. EXPLORATION ACTIVIES BY ARAFURA RESOURCES ON EL31096

During the first reporting period, Arafura Resources completed research, which included a review of satellite and geophysical datasets. Three field trips were also conducted to carry out routine groundwater monitoring, as part of the regional baseline studies for the Nolans Bore Project Environmental Impact Statement (EIS).

Arafura completed a preliminary reconnaissance and sampling of identified Th (REE) targets in the second and final year of the licence. The exploration results were disappointing with very low REE grades.

A total of nine representative sample sites were targeted based on their elevated airborne Th radiometric response (Figure 6). Numerous additional sites were pre-selected in this area however these targets were omitted as continuous field measurements made while traversing the region demonstrated low and relatively consistent radiometric responses. The local environmental dose rate and estimated size fractions of each site are presented in Table 3.

Table 3: Environmental dose rate and approximate grainsize distribution at sample sites on EL31096.

Site_ID	Environmental dose rate µSv/hr	Gravel est%	Sand est%	Silt/mud est%
ARA2701	0.22	1	79	20
ARA2702	0.23	1	79	20
ARA2703	0.28		80	20
ARA2704	0.23		80	20
ARA2705	0.26		80	20
ARA2706	0.26		60	40
ARA2707	0.25		80	20
ARA2708	0.28		80	20
ARA2709	0.26	1	79	20

Field observations demonstrate the area is predominantly comprised of sandy material with the environmental dose rates typical of those encountered while traversing the region. Based on radiation measurements from elsewhere, these levels typically indicate a low potential for significant REE grades. Nevertheless, representative samples were collected and assayed for a suite a REE and other elements for completeness.

A pair of sieved assay samples was collected at each targeted sample site. The uppermost 2-5cm of the red sandy soil was scraped aside to remove any obvious organic matter and a sample collected by digging 3-4 x 20-25cm deep holes within about 1m^2 area and then subsampling a sieved mixture of two scoops from taken from each hole. The process was repeated for the second sample. The sieved samples are considered large enough to be representative of each sample site. The paired assay samples are as follows

- 1-2 kg sample of -3.3mm material, and
- 50-100g of -80# (*i.e*. -180µm) material.

All samples were dried, milled and then analysed using a standard 4-acid digest method with ICP OES/MS determinations for Ag, Al, As, Ba, Be, Bi, Ca, Cd, Ce, Co, Cr, Cs, Cu, Dy, Er, Eu, Fe, Gd, Hf, K, La, Li, Mg, Mn, Mo, Na, Nb, Nd, Ni, P, Pb, Pr, Rb, S, Sb, Sc, Se, Sm, Sn, Sr, Ta, Te, Th, Ti, Tl, U, V, W, Y, Yb, Zn and Zr.

Because most sample sites have little or no over-sized coarse-grained detritus, the -3.3mm fraction is therefore representative of the REE contained at each sample site. The -3.3mm assay samples show a typical LREE enriched UCC pattern, with LREE totals averaging about twice that of the Upper Continental Crust (UCC, Figure 7). The normalised HREE content of the sand fraction is slightly lower and indicates a pattern that is more fractionated than the average UCC.

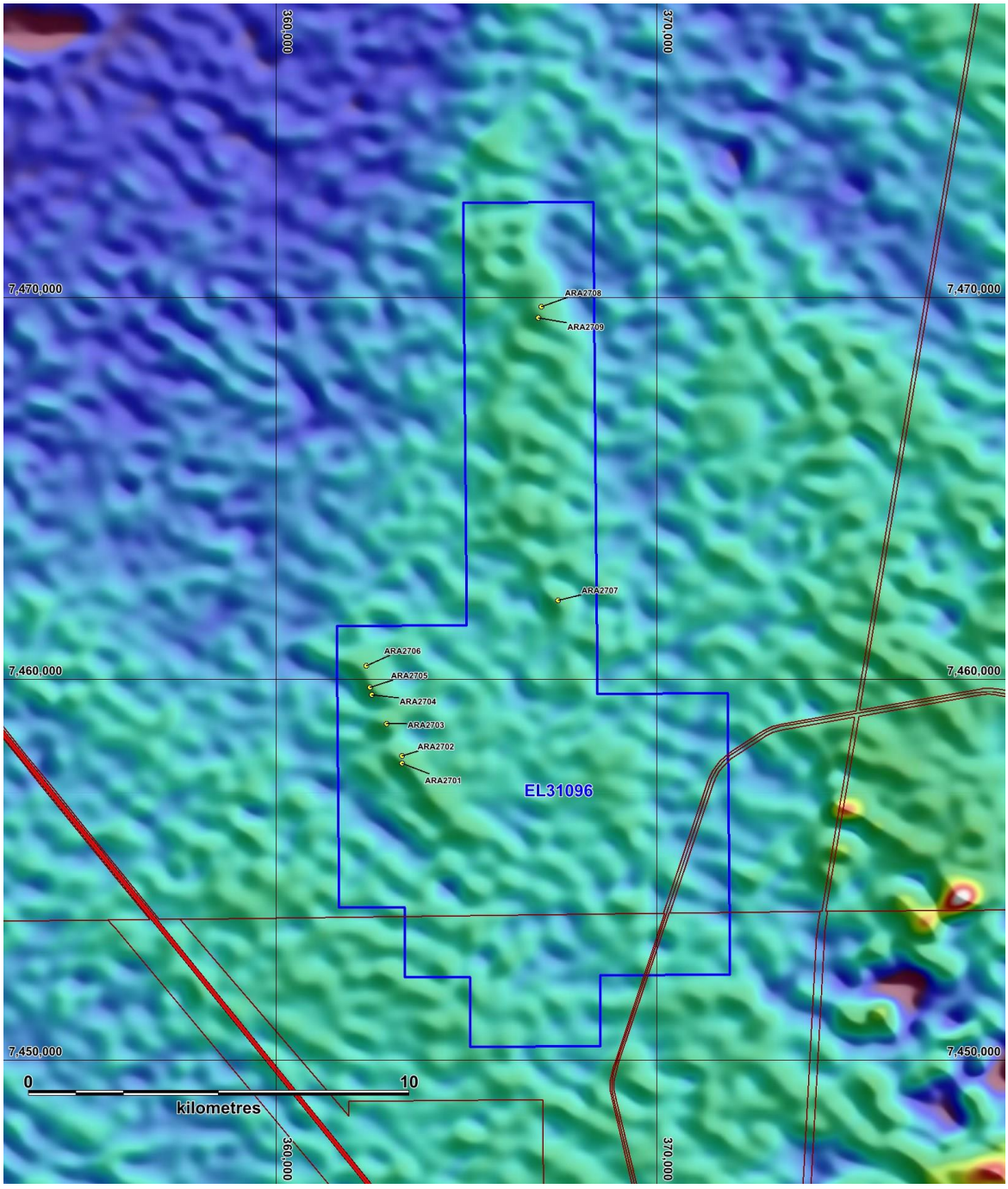

Figure 6. Linear stretch of regional airborne Th radiometric data showing the location of all sample sites.

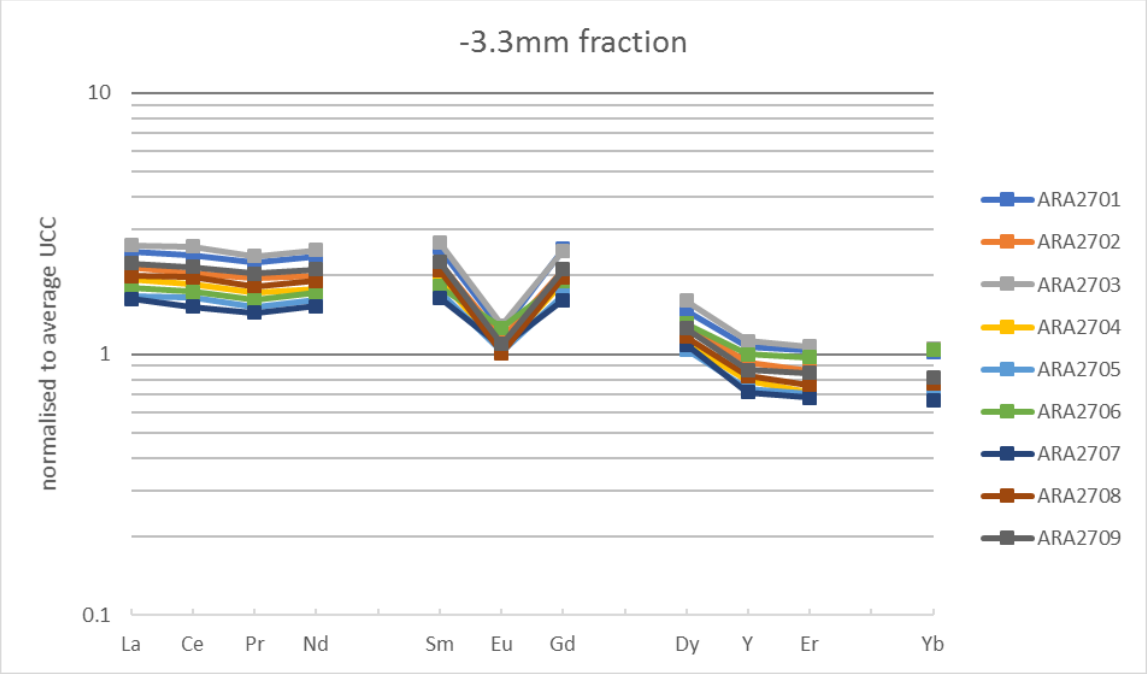

Figure 7: UCC normalised REE patterns for the coarse fraction. Yttrium is used as a proxy for Ho. Normalising values are from the UCC model of Rudnick and Gao (2014).

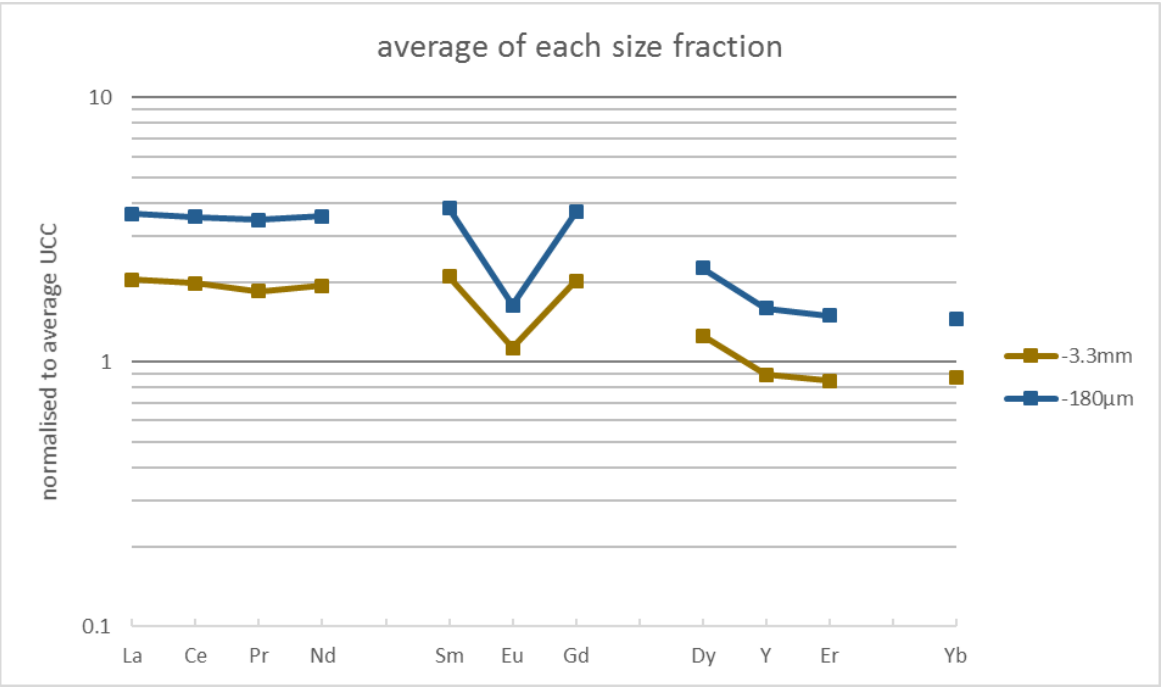

Figure 8: Comparison of UCC normalised REE patterns for the different size fractions. Yttrium is used as a proxy for Ho. Normalising values are from the UCC model of Rudnick and Gao (2014).

10. CONCLUSIONS AND RECOMMENDATIONS

The exploration samples specifically targeted nine locations along two broad linear Th radiometric highs. Given the measured environmental dose rates were relatively uniform along the traverses, the sample sites are considered typical and likely reflect the maximum amount of monazite in the soils. All assay samples show typical LREE patterns consistent with the average UCC however the higher-value HREE are notably depleted when compared to their LREE contents.

The Th and LREE contents suggest that monazite is present however the relatively depleted HREE contents suggests that xenotime content is likely to be much lower, or absent. This relationship contrasts with material derived from the Reynolds Range where substantial xenotime and monazite has been demonstrated. The lower HREE content may also be due to a decreased zircon content, as indicated by the low Zr content of the soil samples.

Despite some overall enrichment of REE in the finer fraction, the total REE levels across EL31096 are in general, too low to warrant further investigation especially given the lower HREE contents. It is recommended that REE exploration efforts be focussed elsewhere.

11. REFERENCES

Dean, R. 2013. Annual and Final Report, Burt Plain Project, EL27335 and 27336, ARU-13/002. Arafura Resources Limited.

Rawlings, D. 2010. EL 26827 Red Rock Final Technical Report for Period 11th February 2009 to 19th July 2010. Toro Energy Limited.

Rhode, J. 2008. Final Report Burt Plain Project EL 10401 Yambah From 6 December 2001 to 13 May 2008. Deep Yellow Ltd.

Rudnick, RL and Gao, S. 2014. Composition of the Continental Crust. Treatise on Geochemistry 2nd Edition. Volume 3, p 1-51.