Arafura Resources Limited ABN: 22 080 933 455

ANNUAL TECHNICAL REPORT

EXPLORATION LICENCE 31224

12 OCTOBER 2016 - 11 OCTOBER 2017

Titleholder	Arafura Resources Limited
Project Operator	Arafura Resources Limited
Titles/Tenements	EL 31224
Tenement Manager/Agent	AMETS Pty Ltd
Mine/Project Name	N/A
Personal author(s)	Holly Edgar
Company reference number	N/A
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1. Abstract

Exploration Licence 31224 is located approximately 110km north north west of Alice Springs and has area of 148.82 square km.

A majority of the licence sits within the highly prospective Aileron Province. The area is known to host various commodities, which include uranium, rare earth elements (REE), base metals, gold, tungsten and vermiculite.

A small portion of the intracratonic Ngalia Basin intersects the middle of the licence and unconformably overlies the Aileron Province. The Ngalia Basin is also known to host uranium deposits, such as the sandstone hosted uranium deposits at Bigrlyi and Angela-Pamela.

During the reporting period, Arafura Resources did not conduct any exploration on the licence, however baseline groundwater monitoring was undertaken during three field trips, and groundwater modelling was completed as part of the Nolans Project.

2. Copyright

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3. Location and Access

Exploration Licence 31224 is located approximately 110 kilometres north north west of Alice Springs.

Access to the licence from Alice Springs is via the Stuart Highway and thence via an existing track.

The location of the licence is shown in Figure 1.



Figure 1- Location Map

4. Tenure and Land Use

The licence covers pastoral portions of land. The below table shows the details of the licence.

Licence	Titleholder	Grant Date	Area (km2)	Cadastre
EL31224	Arafura Resources Limited (100%)	12/10/2016	148.82	NT Portion 703, Perpetual Pastoral Lease- Aileron Station
				NT Portion 748 – Perpetual Pastoral Lease – Napperby Station

5. Topography & Hydrology

The licence area consists of a slightly undulating sandy landscape with nil outcrops. An unsealed road intersects the licence and small creeks also flow through the licence after heavy rainfall events.



The topography of the licence is shown in Figure 2.

Figure 2 - Topography Map

6. Geology

A majority of the licence is situated within the Aileron Province of the Arunta Region. The Aileron Province is unconformably overlain by the Ngalia, Amadeus, Georgina and Eromanga Basins.

The area consists of Palaeoproterozoic igneous rocks that have undergone greenschist to granulite facies metamorphism. The lithology largely consists of metamorphic clastic sediments, calc-silicates, dolerite, granite, meta volcanics and mafics.

In the middle of the licence, a small portion of the Ngalia Basin is present, which unconformably overlies the Aileron Province. This intracratonic sedimentary basin dominately consists of

sandtone, quartzite, conglomerates, dolostone and shale. Sandstone hosted uranium deposits have been found within the basin.

Significant faulting is present within the region.

The regional geology is shown in Figure 3.



Figure 3- Regional Geology Map

The surface of the licence is dominated by Quaternary aeolian sand and red sandy soil. In Figure 4, the sand is shown in yellow and the red sandy soil is shown in olive green.



Figure 4 – Surface Geology Map

7. Exploration Rationale

A majority of the licence is within the highly prospective Aileron Province, which is known to host various commodities. These include rare earth elements, uranium, base metals, gold, tungsten and vermiculite.

The primary target and commodity of interest for Arafura is REE bearing heavy mineral sands concentrated in paleochannels.

The region is Th enriched compared to the surrounds and it is known that both monazite and xenotime are present in the Reynolds Range region rocks. The below airborne Th image shows the principal target zone.



Figure 5- Airborne Th Image

The red dots on Figures 4 and 5, indicate the locations of the groundwater boreholes. These holes have informed Arafura's EIS with respect to groundwater monitoring and modelling. The groundwater information was written up by consultants (GHD and Ride Consulting) and Kelvin

Hussey (Arafura's Principal Geologist) as part of Arafura's supplementary report for their EIS. This work will be provided to NTGS when available.

Other commodities will be evaluated if found.

8. Previous Exploration

The project area has been actively explored by previous titleholders, in search of various commodities.

Years	Tenement(s)	Exploration Company	Exploration Targets/ Commodities
1971- 1973	AP2710	CRA Exploration	Uranium
1972- 1973	EL753	CRA Exploration	Uranium, Thorium
2001-2003	EL10251	Gutnick Resources NL	Gold, Base Metals
2010- 2011	EL27970	Toro Energy Limited	Uranium
2005- 2013	EL24625- later split into EL29563	Eclipse Uranium Ltd	Uranium
2006- 2013	EL24746	Northern Mining Limited	Copper, Nickel, Cobalt, PGE
2013-2014	EL29503	Arafura Resources Limited	REE

A recent explorer of the area was Toro Energy Limited (Toro). Toro acquired Exploration Licence 27970 over the area to explore for uranium in conjunction with the adjacent Napperby (New Well) uranium deposit, where Toro held an option to progress. Unfortunately, there was a lapse of Toro's agreement with Deep Yellow on the Napperby Project and no exploration was carried out on this tenement. (Rawlings, 2011)

Another previous titleholder of the area was Eclipse Uranium Ltd (Eclipse). Eclipse held the licence to explore for sandstone hosted uranium deposits. Eclipse conducted numerous exploration activities during the licence tenure, which included an airborne radiometric/magnetic survey. In 2013, it was recommended the exploration licence area be relinquished upon very little to no mineral prospectivity. (Kastellorizos, 2013)

Arafura previously held the southern middle portion of the licence under EL29503. Arafura conducted a water drilling exploration program on the historic licence to support the development of the Nolans Bore Project. The results suggested that there is potential for a substantial water supply to the south and southwest of Nolans Bore. (Hussey, 2014) Unfortunately, results showed that shallow REE mineralisation was unlikely to occur within the

licence area and since there was no need to conduct further water drilling at the time, the licence was surrendered. (Hussey, 2014)

9. Exploration During Reporting Period

During the reporting period, Arafura Resources did not conduct any exploration on the licence, however, three field trips to the licence were conducted to carry out groundwater monitoring, as part of the regional baseline studies for the Nolans Bore Project Environmental Impact Statement (EIS). This data is provided in the Nolans project EIS Supplement Report, which has been submitted to the Environmental Protection Authority (EPA) for consideration and will be provided to NTGS once it is publicly available.

10. Conclusions and Recommendations

During the next reporting period (12 October 2017 to 11 October 2018), Arafura intends to conduct exploration on the palaeochannel within the licence, as it has a weakly anomalous airborne Th signature. This suggests a higher concentration of REE-enriched heavy minerals (eg monazite) within the palaeochannel. Arafura will conduct HM sampling and assaying of Th radiometric target/palaeochannel, regolith mapping, reconnaissance and further groundwater monitoring on the licence will also be conducted.

11. References

Hussey, K. First and Final Report for EL29503 (Black Hole) Aileron Reynolds Project Area, Report ARU-14/004. Arafura Resources Limited. 2014

Kastellorizos, P. Annual and Final Report over the Eclipse Uranium Project, EL29563. Eclipse Uranium Ltd. 2013

Rawlings, D. Final Technical Report for period 27th September 2010 to 14th July 2011 EL27970 Bloodwood Bore. Toro Energy Limited. 2011