



The Territory is prospective for a number of economically significant styles of rare earth elements (REE) mineralisation.

High exploration potential exists throughout the Territory for multiple styles of rare earth element (REE) mineralisation, including: carbonatite-related, unconformity-related, placer-related; clay-hosted and phosphorite-hosted. Early stage exploration by numerous companies is underway for a variety of REE mineralisation styles.

57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	39
La	Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Y

LREE

HREE

La	Lanthanum	Ce	Cerium	Pr	Praseodymium	Nd	Neodymium
Pm	Promethium	Sm	Samarium	Eu	Europium	Gd	Gadolinium
Tb	Terbium	Dy	Dysprosium	Ho	Holmium	Er	Erbium
Tm	Thulium	Yb	Ytterbium	Lu	Lutetium	Y	Yttrium

Developing projects

Approvals in place

Geological Province	Name	Resource	Company
Aileron Province	Nolans	56 Mt @ 2.6% REO, 11% P ₂ O ₅	Arafura Rare Earths Ltd

Under feasibility

Geological Province	Name	Resource	Company
Aileron Province	Charley Creek	805 Mt @ 0.029% REO and 0.05% Zircon	Enova Mining Ltd

JORC resource

Geological Province	Name	Resource	Company
McArthur Basin	Barkly	40 Mt @ 0.21% TREO and 200 Mt @ 0.12% V ₂ O ₅ , 30 ppm Ga	Transition Minerals Ltd

Exploration results

Geological Province	Name	Resource	Company
Aileron Province	Callista	18 m @ 0.45% TREO	GSW Resources Pty Ltd
Aileron Province	Southwark Shear Zone	6 m @ 0.53% TREO	URO Corp Ltd
Carpentaria Basin	North Barkly	3 m @ 1890 ppm TREO	Green Critical Minerals Ltd
Irindina Province	Bruce	2 m @ 0.4% TREO	MetalsGrove Mining Ltd
Warramunga Province	Duke	42 m @ 0.08% TREO	Heavy Rare Earths Ltd

- +++ railway — road - - minor road ■ locality
- ⚙ operating mine ✓ approvals in place Ⓜ under feasibility Ⓜ JORC resource Ⓜ prospect
- Ⓜ producing oil/gas field — oil pipeline — gas pipeline ● REE occurrence



Download NTGS REE information resourcingtheterritory.nt.gov.au



Mining approvals in place

Arafura Rare Earths Ltd ASX:ARU www.arultd.com

Arafura Rare Earths Ltd's globally significant Nolans project has the potential to meet up to 5% of the world's global supply of NdPr and promises to be Australia's first integrated mining and rare earth separation project.

All approvals are in place for mining through to onsite separation of rare earths to produce 4,440 tonnes per annum (tpa) of NdPr oxide, 470 tpa of a mixed middle-heavy rare earth (SEG/HREE) oxide (REO). Arafura also plan to produce 144,000 tpa of fertilizer-grade phosphoric acid (54% P₂O₅).

Binding offtake agreements are in place with Hyundai, Kia and Siemens Gamesa and project financing is well advanced. Most recent announcements include securing debt funding of more than US\$1 billion and signing gas supply agreements.



CAPEX A\$1.068 OPEX A\$200M



JORC Ore Reserves 29.5 Mt @ 2.9% REO, 13% P₂O₅



39+ year mine life



Carbonatite-related REE mineralisation

REE Carbonatite-related REE mineralisation occurs in carbonatite rocks or associated alkaline intrusions emplaced along craton margins. The Territory is prospective for carbonatite-related REE mineralisation associated with the margin of the North Australia Craton in the Aileron and Irindina provinces of Central Australia.

The Territory's most significant REE deposit, Arafura Rare Earths Ltd's Nolans project, is located in the Aileron Province north of Alice Springs, and although not carbonatite-hosted, is interpreted to be carbonatite-related. The deposit is hosted within fluorapatite veins containing allanite and monazite, rich in the magnet-feed LREE neodymium and praseodymium (NdPr).

Recent discoveries of carbonatite-hosted niobium and rare earth mineralisation in the western Aileron Province in Western Australia highlight the potential of the region for further carbonatite-hosted discoveries. Norwest Minerals Ltd, Trek Metals Ltd, Encounter Resources Ltd and WA1 Resources Ltd have exploration licence applications in the Northern Territory for this mineralisation style.

Other companies exploring for carbonatite-related rare earths in central Australia include MetalsGrove Mining Ltd, Babalus Resources Ltd, Megawatt Metals Corp, First Development Resources PLC and Askari Metals Ltd.

Unconformity-related REE mineralisation

There is emerging potential for unconformity-related heavy REE mineralisation across the Territory. This style of mineralisation is known to occur in the Tanami Region, where the Browns Range deposits immediately across the border of Western Australia contain 10.8 Mt @ 0.76% TREO. Mineralisation occurs as xenotime hosted in hydrothermal breccia- or quartz-veins. Northern Minerals Ltd's Boulder Ridge prospect within the NT contains outcropping xenotime-bearing veins, with a maiden drill program planned at the prospect.

Other unconformities with potential to have associated heavy REE mineralization include the base of the greater McArthur Basin, and the basal Amadeus Basin unconformity. Other explorers for this style include Heavy Rare Earths Ltd.

Placer-type REE mineralisation

The Territory also has potential for accumulations of monazite and xenotime in heavy mineral sands and alluvial sediments. Enova Mining Ltd's Charley Creek HREE alluvial deposit has a large resource of detrital xenotime and monazite within alluvial fans in central Australia. Coastal heavy mineral sands deposits occur on the Tiwi Islands north of Darwin.

Clay-hosted REE mineralisation

Exploration for clay-hosted REE deposits is increasing in the Territory.

Xenotime-hosted HREE rich clays at the Skyfall and Stromberg prospects west of Pine Creek highlights potential for clay-hosted HREE mineralisation in the northern NT.

Transition Minerals Ltd have discovered a clay-hosted LREE deposit rich in NdPr in the northern Barkly region at the Vanadis prospect, associated with an overlying vanadium-rich horizon.

Other companies exploring for clay-hosted rare earths include Green Critical Minerals Ltd, Energy Metals Ltd, URO Corp Ltd, and GSW Resources Pty Ltd.

Phosphorite-hosted REE mineralisation

Phosphorite-hosted REE occur in sedimentary phosphate rocks enriched by global seawater REE at the time of deposition. The Georgina Basin in the Northern Territory has large sedimentary phosphorite deposits with potential to host rare earths.

Recent work at Avenira Ltd's Wonarah phosphate deposit in the Georgina Basin has identified significantly anomalous REE mineralisation (up to 0.21% TREO) in a number of stratigraphic horizons within the deposit.

Other REE mineralisation styles

In addition to the mineralisation styles described above, the Aileron and Irindina provinces in central Australia may have potential for hydrothermal- and intrusion-related mineralisation styles. A rare earth-gold-uranium system in the Pine Creek Orogen at the Quantum prospect south of Darwin highlights the potential for rare earths associated with hydrothermal gold and uranium systems in the northern NT.

