Discovery of Niobium-Rare Earth Carbonatite System Identified at Overland Project

written by Raj Shah | July 8, 2026

AR3 has identified a new niobium-rare earths mineral system at its 100%-owned Overland Project, expanding the Company's critical minerals exposure beyond its existing Koppamurra REE development and Overland uranium targets.

July 08, 2026 (Source) – Highlights

- Drilling has identified a niobium–rare earth carbonatite-style mineral system at Overland; a discovery style globally recognised as a major source of both REEs and niobium, both critical minerals with strong demand.
- Significant niobium–rare earth intersections returned from drill hole OV167, which intersected a 19-metre interval of anomalous rare earth and niobium mineralisation from 86 metres to end of hole.
- The mineralised interval remains open at depth, with OV167 ending in anomalous basement-hosted rare earth and niobium mineralisation.
- Significant intersection for OV167 – 19m @ 0.61% Total Rare Earth Oxides (TREO), with 20% of the TREO Neodymium+Praseodymium oxides (NdPr) and 1.7% of the TREO Dysprosium+Terbium oxides (Dy Tb), including:
    - 7m @ 0.56% TREO (20% NdPr & 2.3% Dy Tb), with 0.27% Nb_2O_5 from 86m
        - Including 1m @ 1.0% TREO with 0.53% Nb_2O_5 from 87m
    - 3m @ 1.16% TREO (17% NdPr & 0.8% Dy Tb), from 93m
    - 9m @ 0.46% TREO (22% NdPr & 1.7% Dy Tb), from 96m

    - Including 3m @ 0.57% TREO, from 97m

- The results define a significant new early-stage niobium–rare earth exploration target at Overland, with geochemical and mineralogical characteristics interpreted to be consistent with a carbonatite mineral system.
- Pyrochlore, the dominant niobium ore mineral globally, has been identified through petrographic and Scanning Electron Microscope (SEM) assessment of drill cuttings from OV167.
- OV167 was drilled above a large coherent magnetic anomaly, interpreted to potentially reflect Fe–Ti oxide accumulation within basement rocks and presenting an immediate follow-up drilling target.
- The Company's current interpretation is that OV167 may have intersected a sill or dyke-like expression of a larger, untested carbonatite intrusive system nearby.
- Carbonatite mineral systems are globally important as major sources of rare earth elements and niobium (Nb).
- Clear forward work program: follow-up work is planned, including expanded geophysical modelling, detailed petrographic and mineralogical assessment and targeted drilling to test the extent of the carbonatite mineralising system, which typically extend for kilometre scales, and for the potential of shallow supergene enriched portions of the carbonatite system to have developed.
- Engage with this announcement at the AR3 investor hub.

Cautionary Note: The Company cautions that the results reported are from a single drill hole. There is currently insufficient data to define a Mineral Resource, and it is uncertain whether further exploration will result in the estimation of a Mineral Resource. Early-stage results may not be representative of the overall target. However, the geological, geochemical and

mineralogical characteristics of OV167 support further systematic exploration of the R254 target.

Managing Director's Comments:

"OV167 has delivered an exciting and unexpected technical result, the identification of a new niobium-rare earths carbonatite mineral system at Overland.

"Importantly, this is not just a geochemical anomaly. The intersection includes elevated rare earths, niobium, titanium and iron, together with petrographic and SEM evidence identifying pyrochlore, the principal niobium ore mineral globally. These are encouraging early indicators of a fertile carbonatite-related mineral system.

"The result is particularly compelling because OV167 was drilled above a large coherent magnetic anomaly and ended in anomalous basement-hosted mineralisation. Our current geological interpretation is that the hole may have intersected a dyke or sill expression peripheral to a larger carbonatite intrusive centre, which remains untested and represents the Company's next drilling target.

"While this is an early-stage result from a single drill hole and further work is required, the scale of the magnetic feature, the mineral assemblage and the multi-element niobium–rare earth–titanium signature provide AR3 with a significant new critical minerals exploration opportunity within the broader Overland Project, adding further exploration upside alongside our uranium targets on the same tenure.

"Our immediate focus is to refine the exploration model through further mineralogical work, geophysical modelling and targeted follow-up drilling to test the extent of this system and its potential for higher-grade or supergene-enriched mineralisation.

“While the Overland carbonatite discovery represents an exciting new exploration opportunity for AR3, our priority remains firmly on progressing the development of our flagship Koppamurra rare earths project. This discovery adds further critical minerals upside to the portfolio, without changing our focus on advancing Koppamurra toward commercialisation.”

Travis Beinke, Managing Director and CEO, Australian Rare Earths Limited

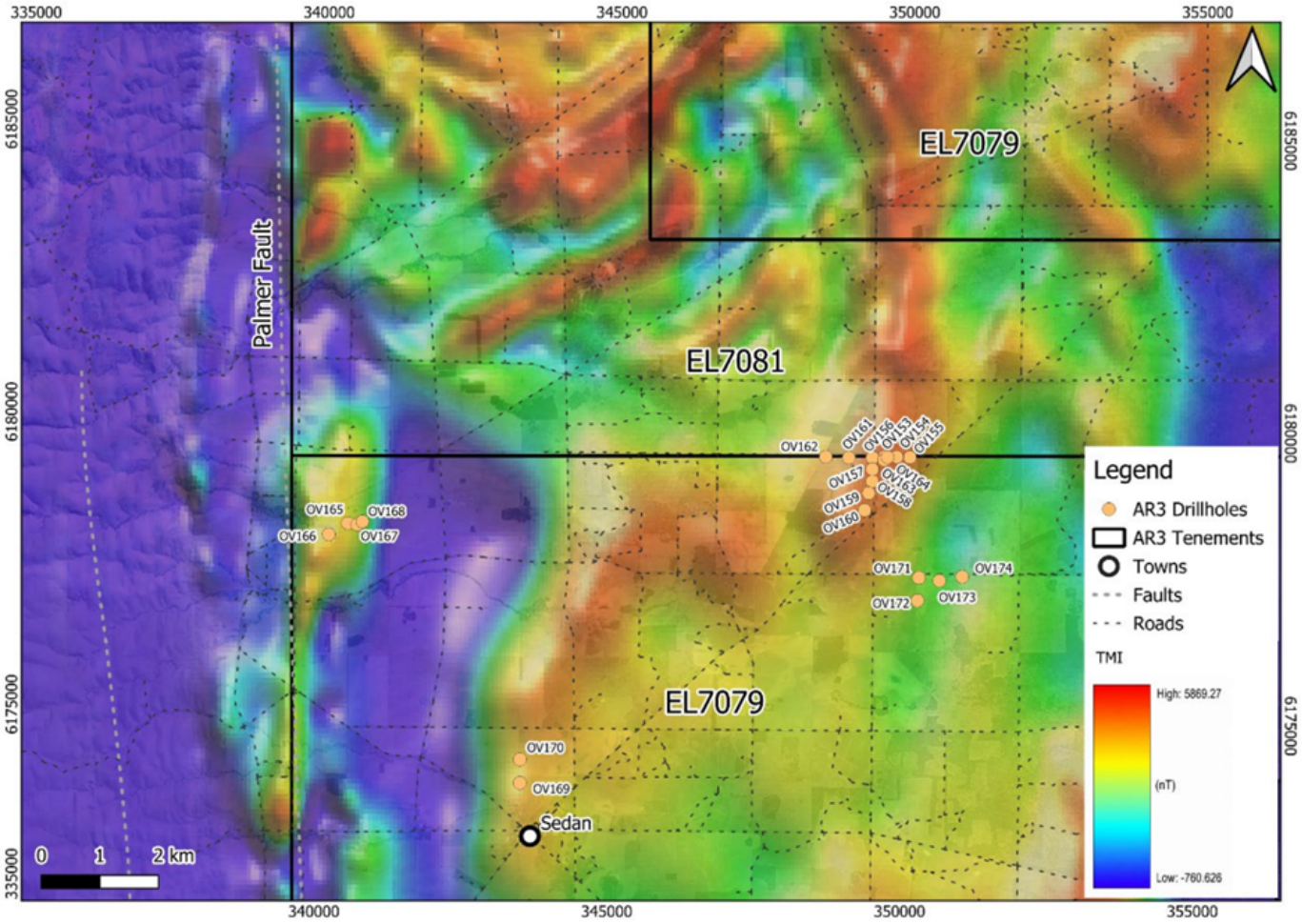

Figure 1 Drillhole Location Plan with Total Magnetic Intensity (TMI). South Australian regional total magnetic intensity images.
https://pid.sarig.sa.gov.au/dataset/mesac139

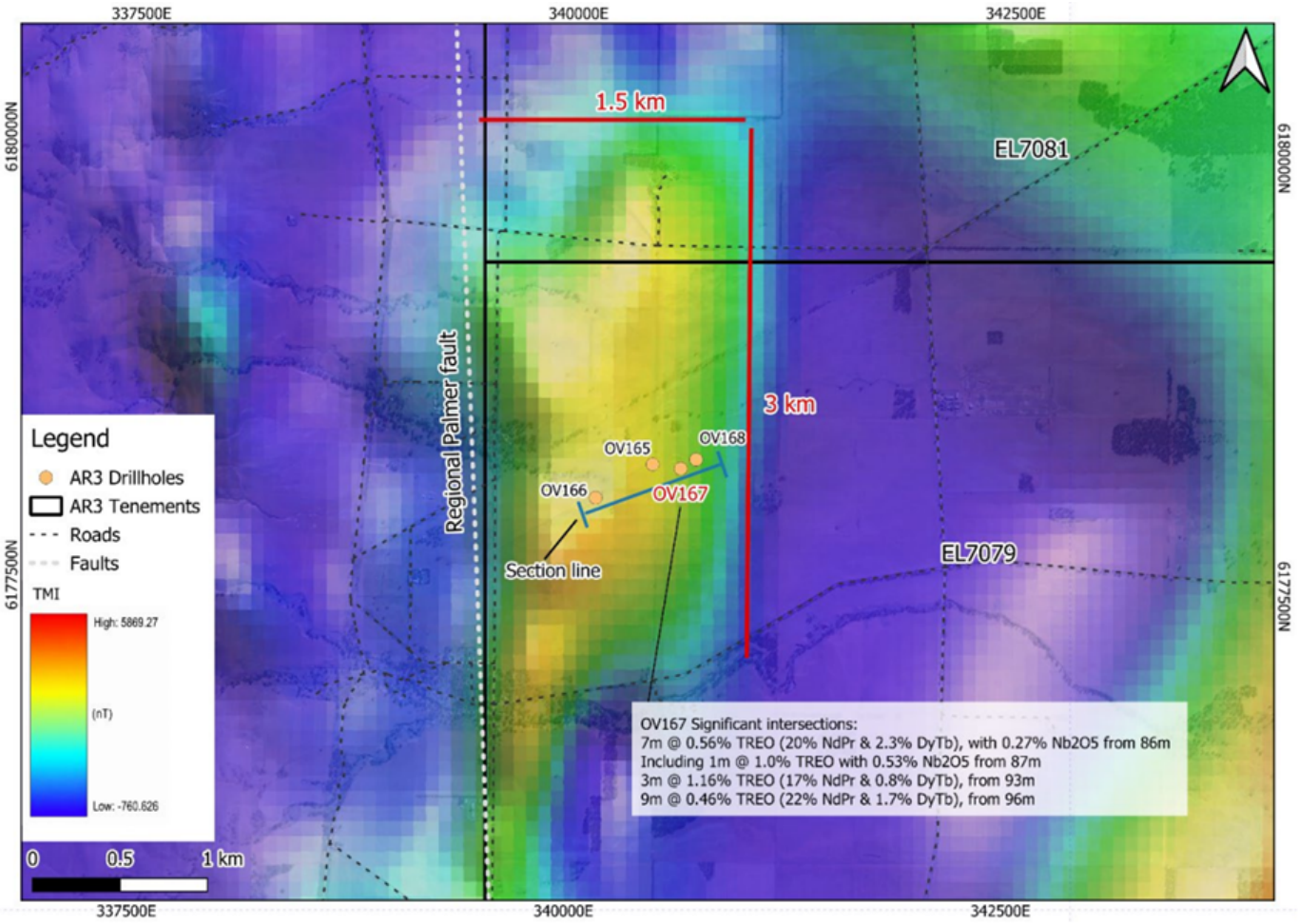

Figure 2 Drillhole Location with W-E section plan and Total Magnetic Intensity (TMI). South Australian regional total magnetic intensity images.
https://pid.sarig.sa.gov.au/dataset/mesac139

Exploration Results

Australian Rare Earths Limited (AR3 or the Company) has identified a significant new niobium–rare earth exploration target at the R254 prospect within the Overland Project in South Australia.

The discovery was made during AR3's Sedan sedimentary-hosted uranium drilling program, highlighting the exploration value of the Company's broad Overland landholding beyond its primary uranium targets.

Drill hole OV167 was completed to a depth of 105 metres. The hole intersected a broad interval of anomalous rare earth and niobium mineralisation from 86 metres to end of hole, with elevated titanium, iron, barium and thorium supporting interpretation of a carbonatite-related mineral system.

The identification of carbonatite-related geochemical and mineralogical characteristics in drill hole OV167 is considered an encouraging early-stage exploration result. While further work is required to confirm the scale, geometry and economic significance of the system, the presence of niobium and rare earth enrichment, together with diagnostic carbonatite-related mineral phases, supports follow-up exploration at the R254 target.

Background: Carbonatite Mineral Systems

Carbonatites are a rare type of igneous rock characterised by a high proportion of carbonate minerals, typically calcite, dolomite or iron-rich carbonate minerals. They commonly occur as intrusive bodies within alkaline igneous complexes and may be expressed as plugs, dykes, sills, breccias, veins or associated alteration zones.

Globally, carbonatite systems are recognised as important hosts for a range of critical minerals, particularly rare earth elements and niobium. They may also be enriched in phosphate, tantalum, uranium, thorium, copper, titanium, iron, vanadium, barium, fluorine, zirconium and other elements, depending on the nature of the intrusive system and subsequent alteration or weathering processes.

Carbonatite-related mineral systems are commonly associated with major crustal-scale structures and rift-related tectonic settings. Their exploration footprint can be significantly larger than the intrusive body itself, with associated dykes,

sills, breccias and alteration halos providing important vectors toward the main mineralised system.

The identification of carbonatite-related geochemical and mineralogical characteristics in drill hole OV167 is therefore considered an encouraging early-stage exploration result. While further work is required to confirm the scale, geometry and economic significance of the system, the presence of niobium and rare earth enrichment, together with diagnostic carbonatite-related mineral phases, supports follow-up exploration at the R254 target.

Carbonatite deposits represent a significant source of global rare earth and niobium production, including major rare earth deposits such as Bayan Obo in Inner Mongolia and Mt Weld in Western Australia, as well as the world's principal operating niobium mines.

Methodology

The drillhole was geologically logged on-site via 1m sample intervals being returned to surface and by a gamma probe run downhole through the drill string (rods) at the completion of the hole to provide a survey of the background radiometric response of the geological units intersected – see cross section Figure 3.

Selected samples were collected for assay, and the results were uploaded to the AR3 database. Key element concentrations determined by assay (total rare earths, niobium and barium) are displayed downhole – see cross section Figure 3. Additional assayed elemental concentrations of interest are shown in Table 1.

The overall drilling program comprised 22 holes for 1,280m (Figure 1), and aimed to test two large sedimentary-hosted

uranium target zones defined by historic drilling. The drilling, sampling and assay results continue to indicate anomalous uranium accumulations in the sedimentary sequence, however no significant intersections were identified.

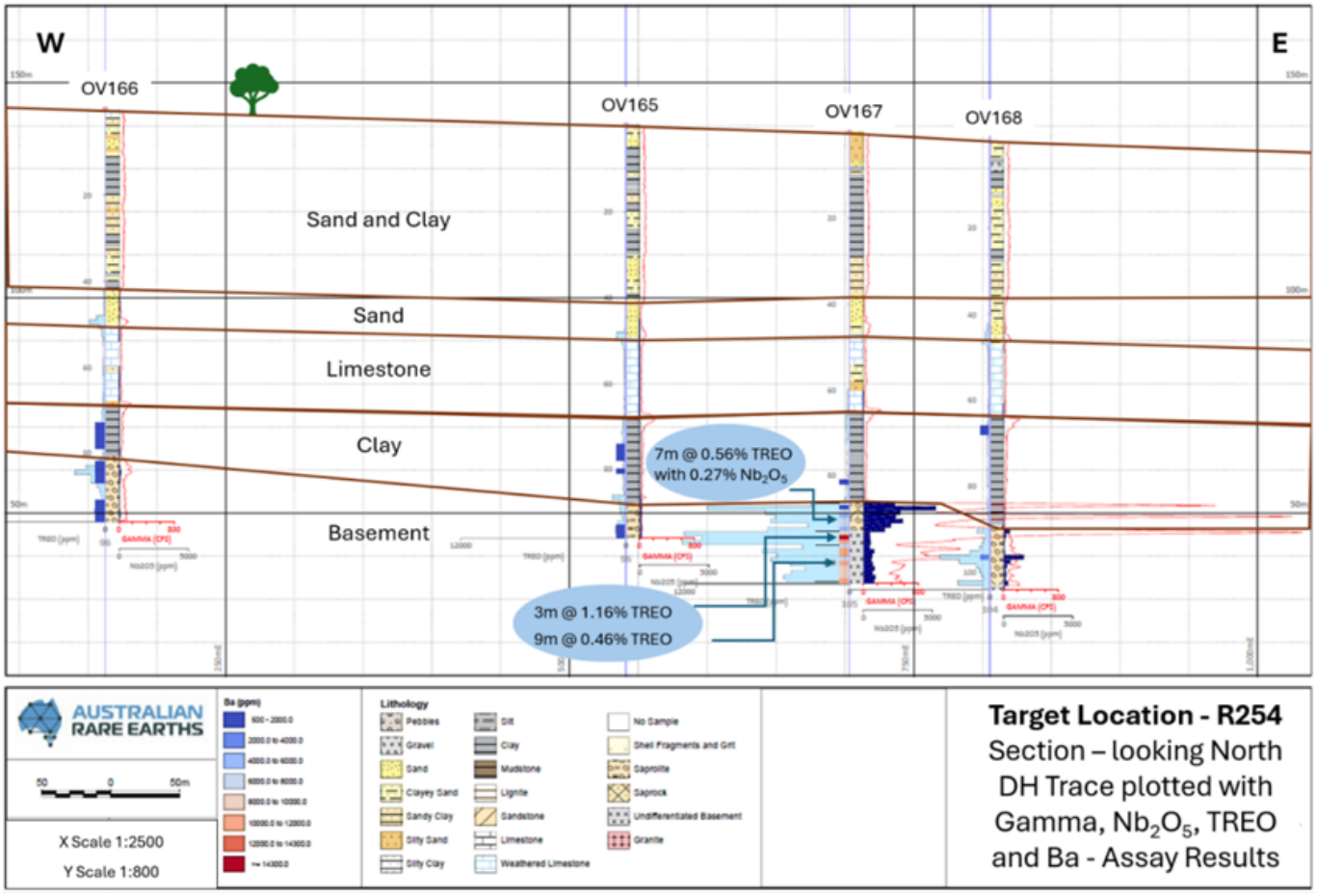

Figure 3 W-E Section displaying downhole; lithology, gamma response (cps), assays for TREO, Niobium and Barium

Table 1

Individual 1m intervals from the zone of interest in drillhole OV167, with assay results for Total Rare Earth Oxide (TREO), including key rare earth assemblage details, and Niobium, Titanium, Iron, Thorium and Barium.

Hole ID	From (m)	To (m)	Sample ID	TREO (ppm)	NdPr %of TREO	DyTb %of TREO	Nb2O5 (ppm)	TiO2 (%)	Fe2O3 (%)	Th (ppm)	Ba (ppm)	Geology
OV167	86	87	743334	2,740	17%	4.6%	2,289	4.65	4.8	675	288	Saprolite
OV167	87	88	743335	10,322	19%	2.7%	5,264	6.29	5.7	2,400	1,300	Saprolite
OV167	88	89	743336	6,098	19%	2.0%	2,689	4.35	12.0	632	6,420	Saprolite
OV167	89	90	743337	5,373	19%	2.4%	2,346	3.92	16.6	1,090	5,880	Saprolite, ~5% sulphides
OV167	90	91	743338	5,739	22%	1.7%	2,861	3.07	13.5	717	6,100	Saprolite, fault (?)
OV167	91	92	743339	3,036	22%	1.5%	2,003	2.94	10.5	352	6,240	Saprolite, fault (?)
OV167	92	93	743340	5,934	19%	0.9%	1,545	2.57	11.9	529	5,540	Saprolite, fault (?)
OV167	93	94	743341	12,026	17%	0.9%	472	2.10	11.3	1,930	9,540	Basement, ~5% sulphides
OV167	94	95	743342	10,726	18%	0.7%	494	2.69	19.6	1,070	14,300	Basement, ~5% sulphides
OV167	95	96	743343	12,127	17%	0.6%	522	2.67	14.7	1,090	10,400	Basement, ~5% sulphides
OV167	96	97	743344	3,423	19%	0.9%	479	2.55	11.9	176	7,160	Basement, ~5% sulphides
OV167	97	98	743345	6,327	21%	1.3%	794	4.09	19.4	321	10,200	Basement, ~5% sulphides
OV167	98	99	743346	5,285	23%	1.6%	644	4.17	23.9	346	10,200	Basement, ~5% sulphides
OV167	99	100	743347	5,748	23%	2.1%	579	2.84	18.7	411	7,420	Basement, ~5% sulphides
OV167	100	101	743348	4,279	22%	2.4%	694	4.19	17.6	195	11,400	Basement, ~5% sulphides
OV167	101	102	743349	3,201	22%	2.5%	815	5.74	17.9	185	8,040	Basement
OV167	102	103	743350	4,257	23%	1.5%	672	4.09	15.7	138	9,180	Basement
OV167	103	104	743351	4,771	24%	1.5%	858	3.75	18.9	184	9,380	Basement
OV167	104	105	743352	4,566	23%	1.2%	794	3.7	21.2	149	10,800	Basement

Significant intersections include:

- 7m @ 0.56% TREO with 0.27% Nb_2O_5, and 4.0% TiO_2, from 86m
  - Including 1m @ 1.0% TREO with 0.53% Nb_2O_5, and 6.3% TiO_2, from 87m

- 3m @ 1.16% TREO, from 93m
- 9m @ 0.46% TREO, from 96m with 3.9% TiO_2
  - Including 3m @ 0.57% TREO, from 97m

The mineralised interval is associated with a large coherent magnetic anomaly, interpreted as potentially reflecting Fe–Ti oxide accumulation within basement rocks. AR3 considers this an important exploration vector, and the current working model suggests that OV167 may have intersected a sill or dyke-like feature associated with a larger, untested carbonatite intrusive body. This represents an immediate target for follow up drilling

– see Figure 1.

This geological setting is supported by the exploration models outlined in Simandl & Paradis (2018)[1] and described in Figure 4. They note that carbonatites commonly occur as isolated pipes, sills, dykes, or plugs, or as part of alkaline-carbonatite complexes, incorporating cone sheets, ring dykes, radial dykes, and especially fenitisation-type halos (alkali metasomatism). This model significantly increases the target footprint as fenitisation aureoles can substantially expand the detectable size of carbonatite systems and often serve as a key vector to larger intrusions even where the main carbonatite body has not been directly intersected.

Elevated niobium (Nb), iron (Fe), rare earth elements (REE) and thorium (Th) are consistent with the geochemical signature expected within the distal carbonatitic-fluid domain shown on the right-hand side of the hypothetical carbonatite mineralising system shown in Figure 4. This style of mineralisation is compatible with recognised carbonatite systems where late carbohydrothermal fluids transport and precipitate Nb and REE along structural conduits beyond the principal intrusive centre.

[1] George J. Simandl & Suzanne Paradis (2018) Carbonatites: related ore deposits, resources, footprint, and exploration methods, Applied Earth Science, 127:4, 123-152, DOI: 10.1080/25726838.2018.1516935

Australian comparisons for this style of mineralisation include:

- The Lynas Ltd Mt Weld Carbonatite (Western Australia) is one of the world’s highest-grade Rare Earth Element (REE) deposits. Discovered in 1966 via aeromagnetic surveys, it features a 3-kilometer-wide, sub-vertical volcanic pipe containing high concentrations of rare earths, niobium,

and phosphate.

- West Arunta Region (e.g., Luni Niobium Project – WA1 Resources): Carbonatite-hosted niobium and REE mineralisation linked to prominent magnetic anomalies, highlighting the scale potential of these systems in Australia.

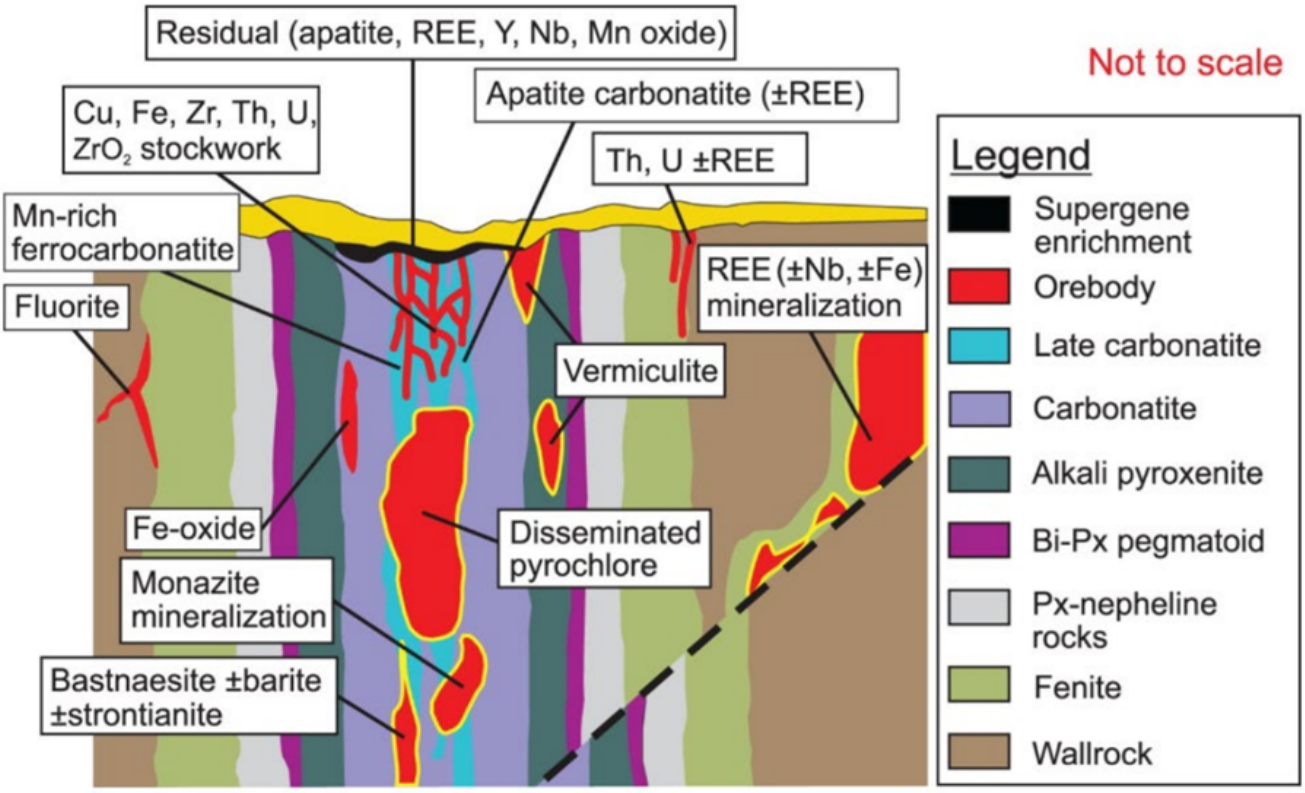

Figure 4: Vertical section of a hypothetical carbonatite mineralising system displaying the relationship between metallic and industrial mineral deposits relative to lithological units and geological contacts. The 'distal' carbo-hydrothermal fluid-related mineralisation or hydrothermally remobilised mineralisation (away from alkaline-carbonatite complex) and residual deposits within weathered crust above the carbonatite complex are also highlighted. Bi – biotite, Px – pyroxene. Modified from Laznicka.

Initial petrographic and mineralogical assessment, including thin-section examination, SEM and mineral chemistry, has

identified key carbonatite related mineral phases. Pyrochlore is the principal niobium-bearing ore mineral in major niobium deposits globally.

Further detailed petrographic and mineralogical assessments will be used to refine the exploration model and evaluate the potential proximity to a larger nearby alkaline-carbonatite system.

Next Steps

- Detailed mineralogical/petrographic assessment through thin section and SEM.
- Expanded geophysical modelling (gravity gradiometry, and magnetics) and further evaluation of the fenitisation halo across the project area.
- Follow-up diamond and RC drilling to delineate the sill/dyke geometry and test for the potential of a larger nearby carbonatite system.

The announcement has been authorised for release by the Board of Australian Rare Earths Limited.

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Competent Person's Statement

The information in this report that relates to Exploration results is based on information compiled by Australian Rare Earths Limited and reviewed by Mr Rick Pobjoy who is the Chief Technical Officer of the Company and a member of the Australian Institute of Mining and Metallurgy (AusIMM). Mr Pobjoy has sufficient experience that is relevant to the style of mineralisation, the type of deposit under consideration and to the activities undertaken to qualify as a Competent person as defined in the 2012 edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr Pobjoy consents to the inclusion in this report of the matters based on this information in the form and context in which it appears.

Forward-Looking Statements

This announcement contains forward-looking statements. Such statements are based on the Company's current expectations and are subject to risks and uncertainties. Actual results may differ materially from those expressed or implied. Reference to the Simandl & Paradis (2018) paper is for contextual exploration modelling purposes only.

About Australian Rare Earths Limited

Australian Rare Earths (AR3) is a diversified critical minerals company, strategically positioned to meet the growing global demand for uranium and rare earth elements:

- AR3's Koppamurra Rare Earths Project in South Australia and Victoria is a significant deposit of light and heavy

rare earths, which has secured important Australian government support through a $5 million grant to accelerate development. With support from global advanced industrial materials manufacturer, Neo Performance Materials, AR3 is progressing towards commercialisation with a Pre-Feasibility Study, Maiden Ore Reserves and a pilot scale facility, solidifying its role in diversifying global rare earth supply chains for the clean energy transition.

- AR3’s large ~8,000 km² Overland Uranium Project in South Australia shows strong uranium discovery potential, with initial drilling identifying opportunities for substantial near-surface and deeper deposits.

With strategic projects and strong government support, AR3 is poised for significant growth in the critical minerals market.