



**MOUNT RIDLEY MINES**

**RARE EARTHS PROJECT - DECEMBER 2021 ASX: MRD**

**Resurgence Conference**

# Disclaimers & Forward-Looking Statements

- This presentation contains forward-looking statements. Where the Company expresses or implies an expectation or belief as to future events or results such expectation or belief is expressed in good faith and believed to have a reasonable basis. However, “forward looking statements” are subject to risks, uncertainties and other factors, which could cause actual results to differ materially from future results expressed, projected or implied by such “forward looking statements”.
- Such risks include but are not limited to commodity values, currency fluctuations, variations in production costs, in grades and/or recovery rates from those assumed in mining plans. Risks may also include political and operational in the countries and states in which the Company operates or sells product and governmental regulation and judicial outcomes.
- The Company does not undertake any obligation to release publicly any revisions to any “forward looking statement” to reflect events or circumstances after the date of this presentation or to reflect the occurrence of unanticipated events, except as may be required under applicable securities laws.
- The information contained in this presentation that relates to exploration strategy or to exploration results is based on information generated by Mount Ridley, and compiled by, or reviewed by, Mr David Crook who is a Member of the Australasian Institute of Mining and Metallurgy and the Australian Institute of Geoscientists. Mr Crook has sufficient experience which is relevant to the activities reported herein to qualify as a Competent Person as defined in the 2012 edition of the Joint Ore Reserves Committee (JORC) Australasian Code for Reporting of Exploration Results, Minerals Resources and Ore Reserves. Mr Crook consents to the inclusion in the presentation the matters based on his information in the form and context in which it appears.



Mount Ridley Rare Earths Project is showing potential to host a major quantity of critical rare earths mineralisation.



Mineralisation model is Ionic Adsorption Clay, thought similar to Chinese deposits.



3,400km<sup>2</sup> Tenements predominantly 100%-owned.



Mineralisation is evident in drilling over an area of 25 kilometres by 3 kilometres and is open to further delineation in all directions.



Hosted in the large Eocene-aged Bremmer sedimentary basin. MRD has the dominant land position when cultivated land is excluded.



Results returned to date compare favourably with the Makuutu REE Project, Uganda.

## about the Mount Ridley REE Project

# a clean energy strategy needs rare earth elements



As the focus on **limiting climate change** increases, many countries are implementing green strategies.

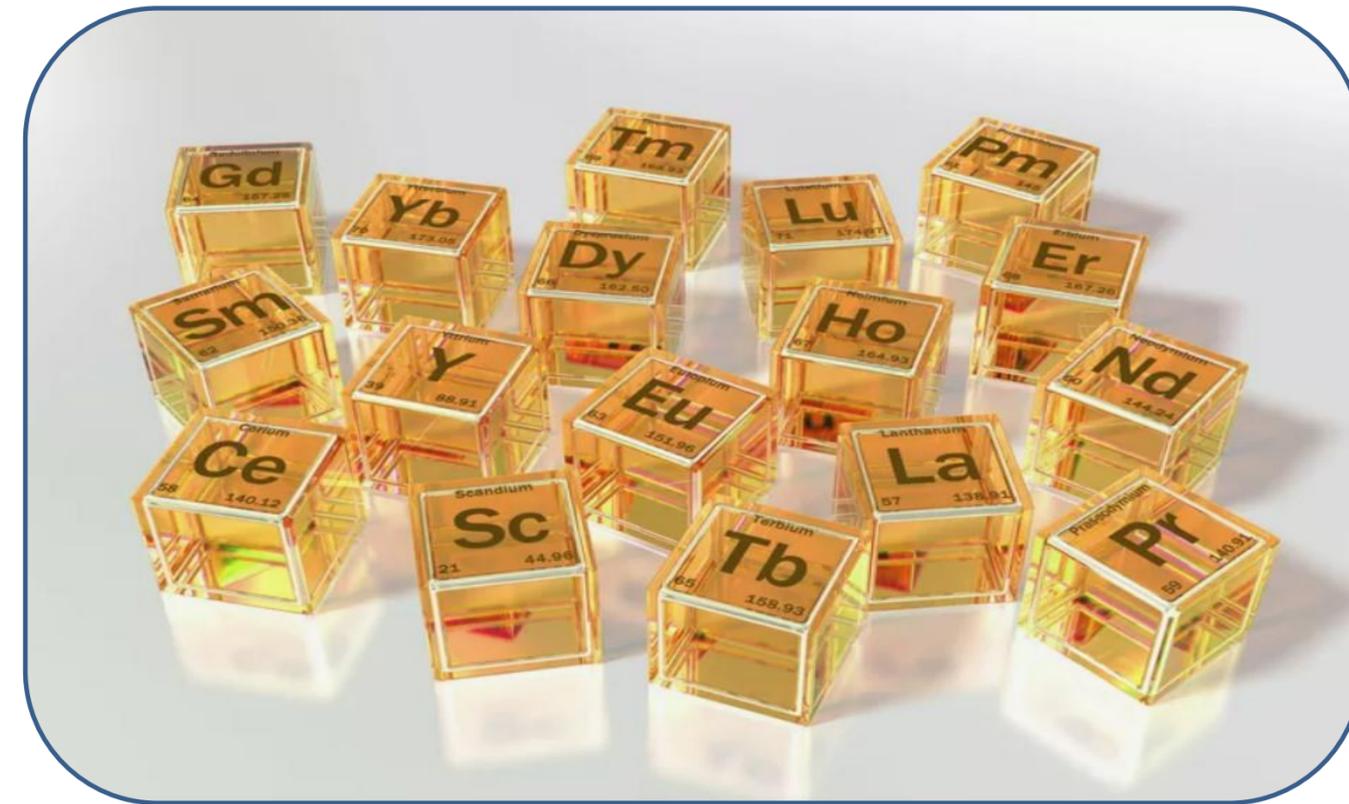


This is **increasing demand** for materials used to manufacture key components.



A number of these components have been identified as Critical Raw Materials, and concerns have been raised about the security of supply.

# critical rare earth elements



REE here refers to 14 elements plus yttrium<sup>1</sup>.



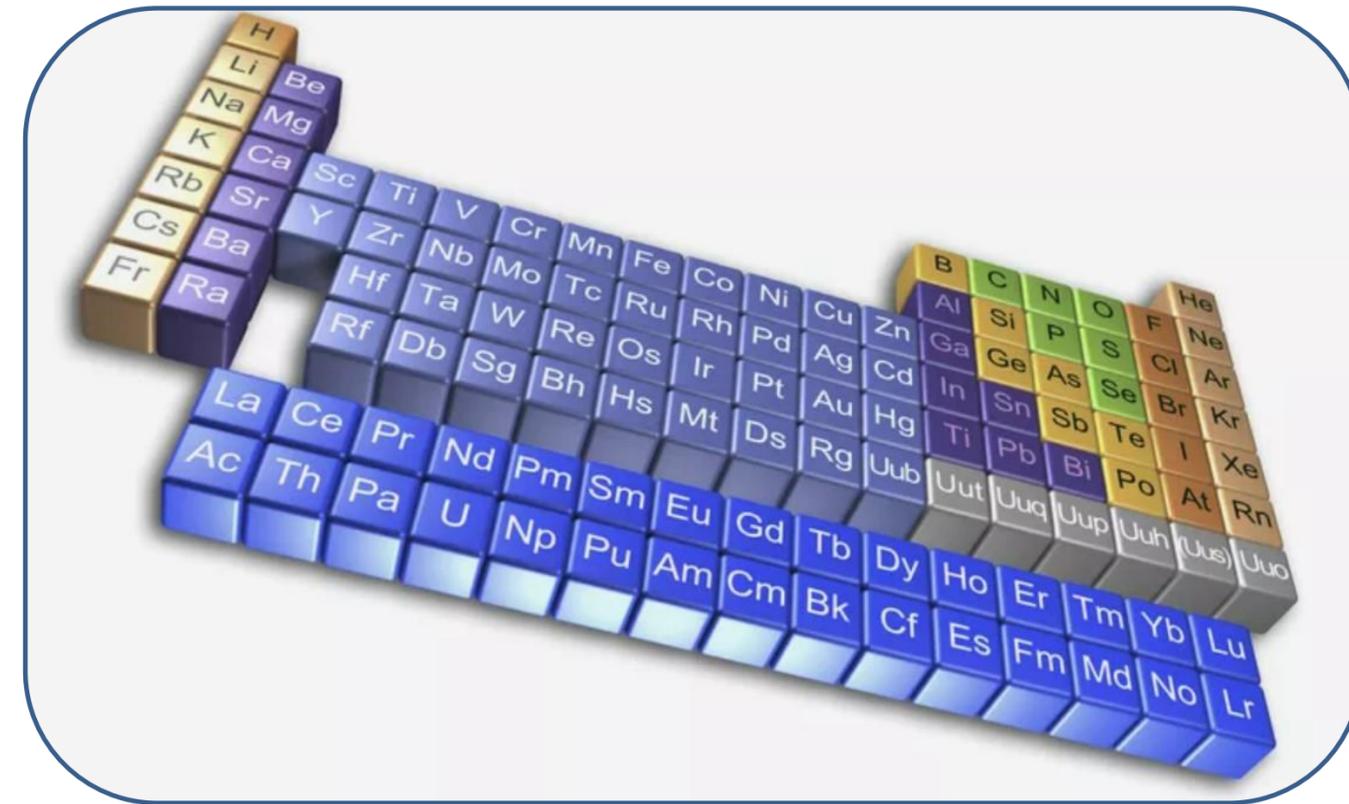
Critical REE<sup>2</sup> are neodymium, praseodymium, dysprosium, terbium and yttrium



REEs make the world's strongest permanent magnets, that are fundamental to the manufacture of electric generators and hybrid vehicle power systems eg<sup>3</sup>.



out of  
interest



For wind turbines, a single 3MW [direct-drive] wind turbine needs 2 tons of REE<sup>4</sup> or ~216kg of neodymium per megawatt of capacity<sup>5</sup> (600-800kg per turbine)

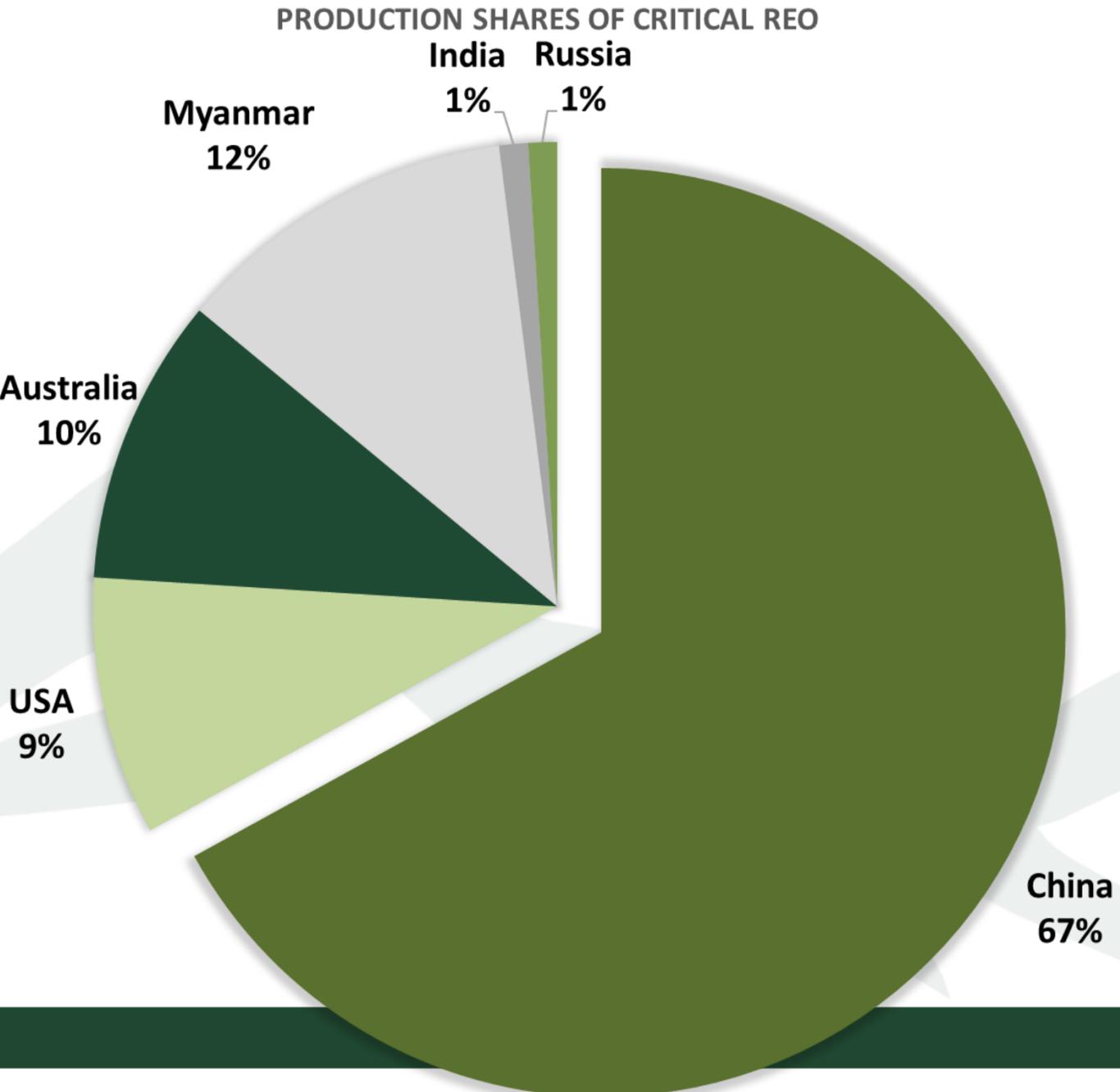


Western Australia generates 40% (2,740 MW) of renewable electricity<sup>6,7</sup> The remaining 4,110 MW could take >1,300 wind turbines to generate.



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# Production leaders of Rare Earths



Critical Elements (including REE) are considered essential in the modern shift towards CLEAN ENERGY outcomes.

CRITICAL REE  
WORLD'S PRODUCTION



67%



10%

very close to  
key  
infrastructure



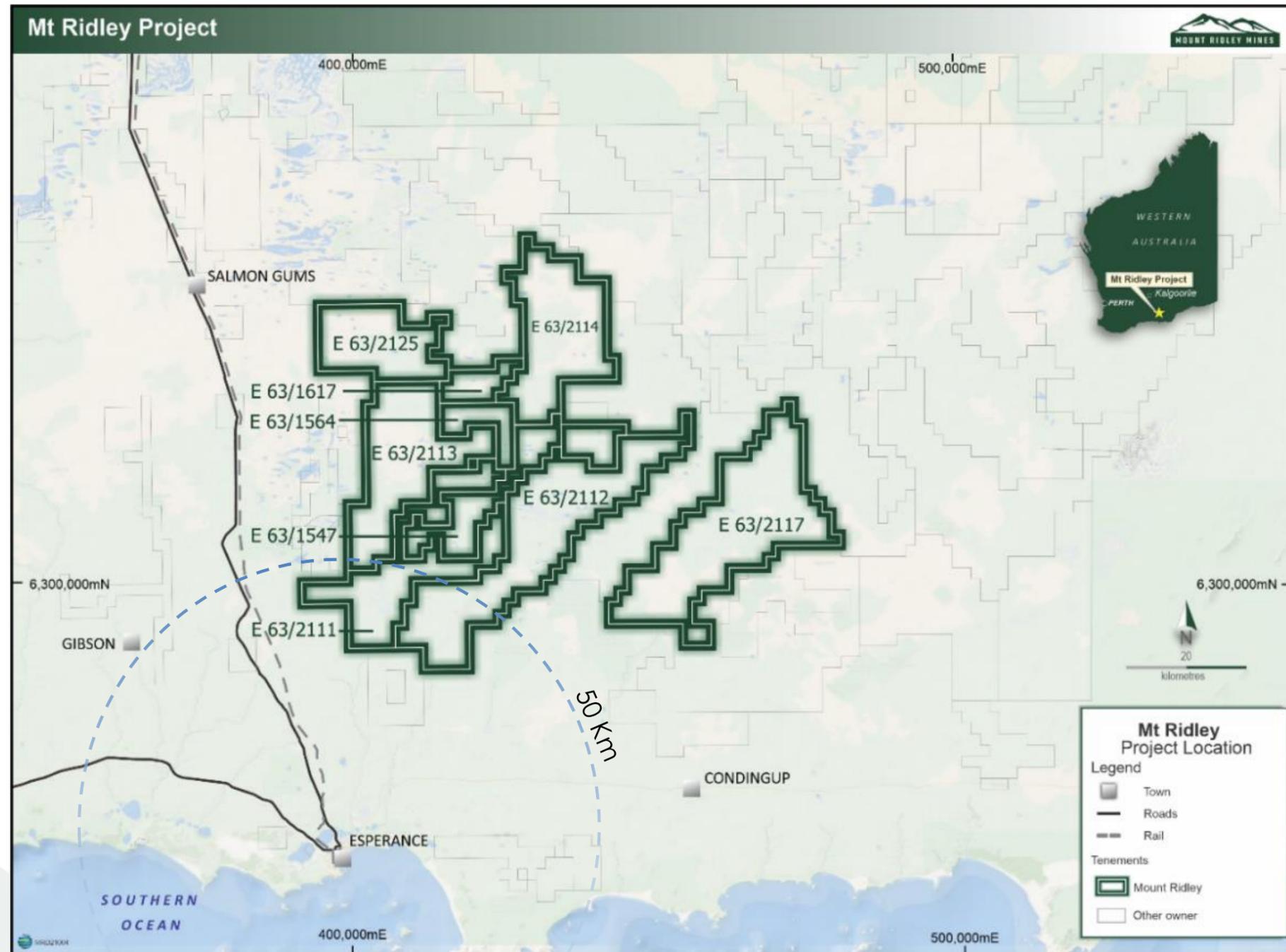
Located 35 kilometres northeast of  
the deep-water port of Esperance,



Adjacent to Goldfields Esperance  
Highway, railway and gas pipeline



Near Esperance airport



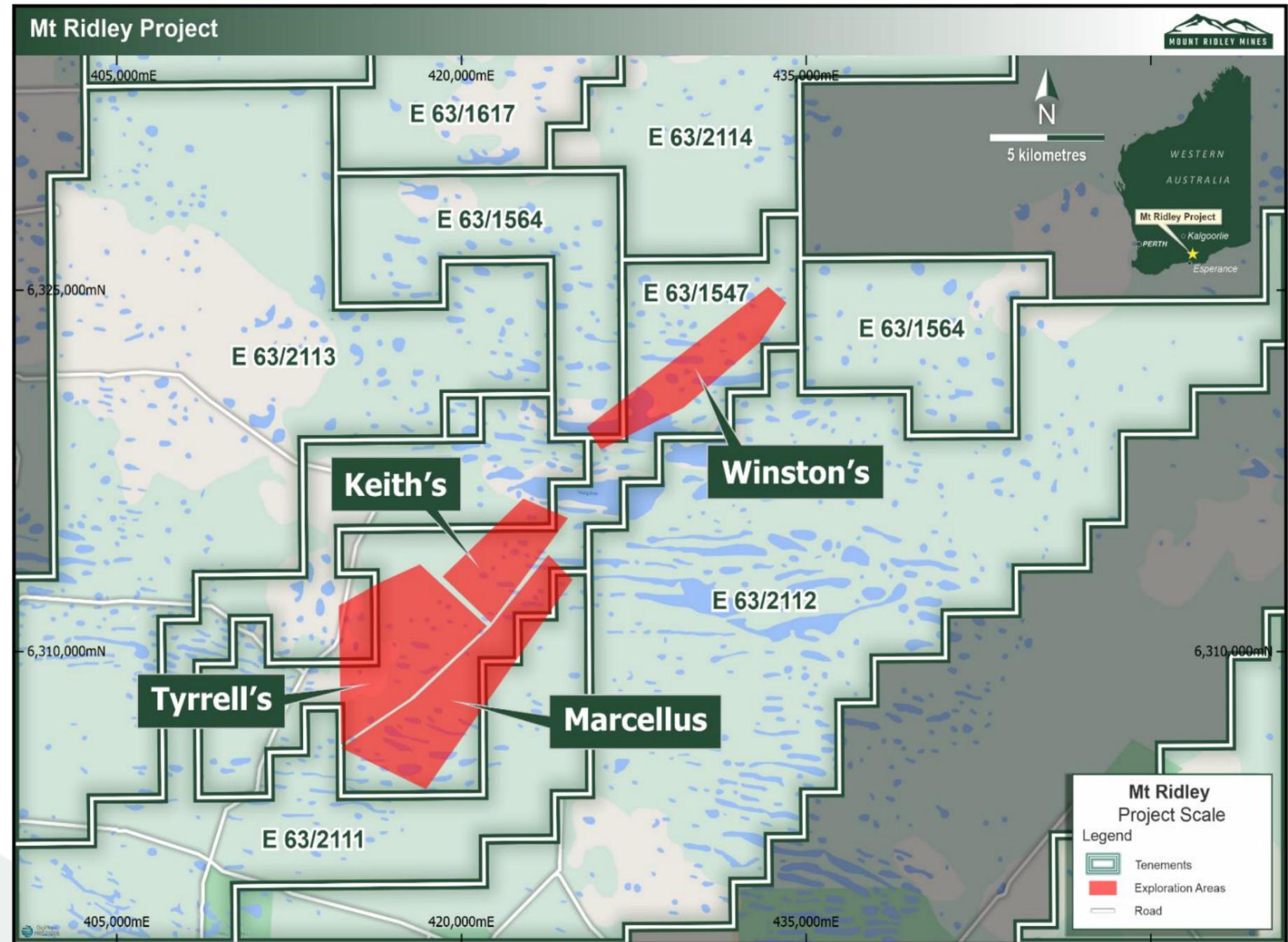
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25km by 3km or  
2% of Project  
area drilled

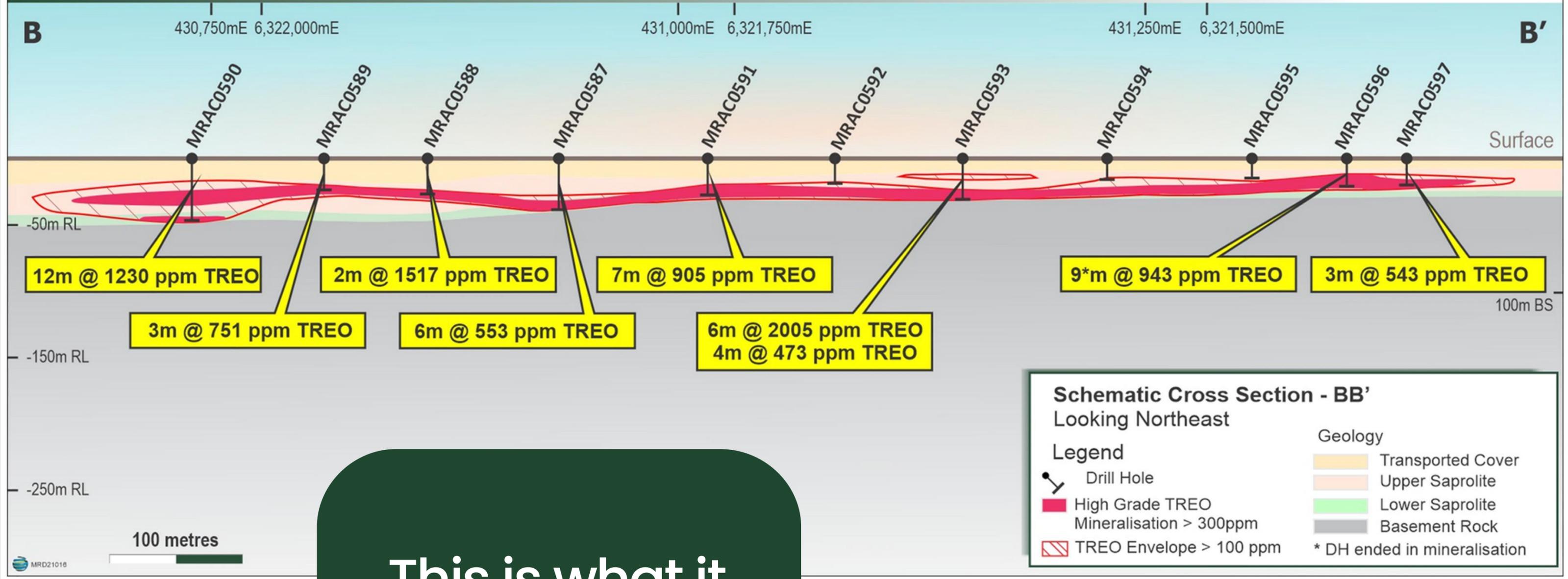
🧭 Drilling returned elevated REE in an area 25km by 3km wide. Open in all directions.

! This represents 2% of the Project area!

🌊 REE mineralisation hosted in Eocene-aged sediments, of the onshore Eucla (Bremmer) Basin.



# Mt Ridley Project - Winston's Prospect



This is what it looks like (267 holes)

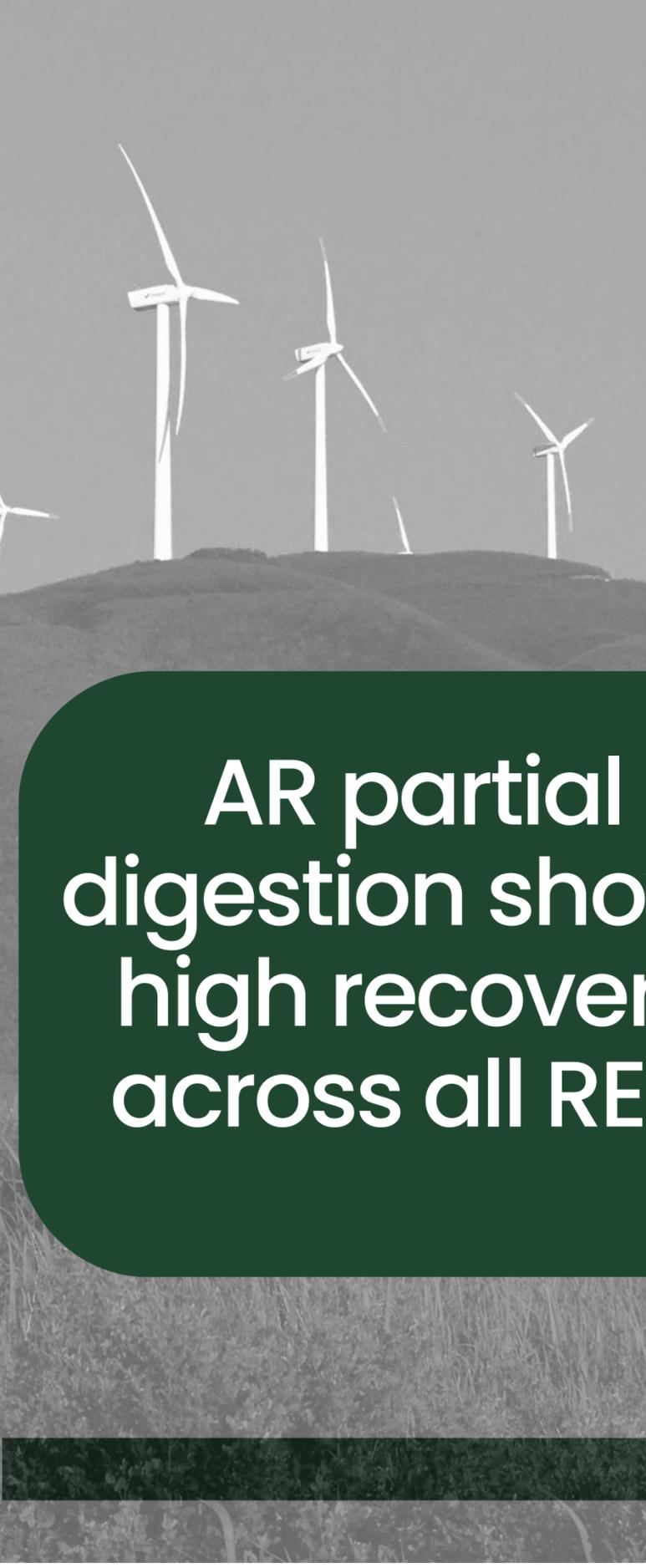


# high recoveries from AR partial digestion test (215 holes)

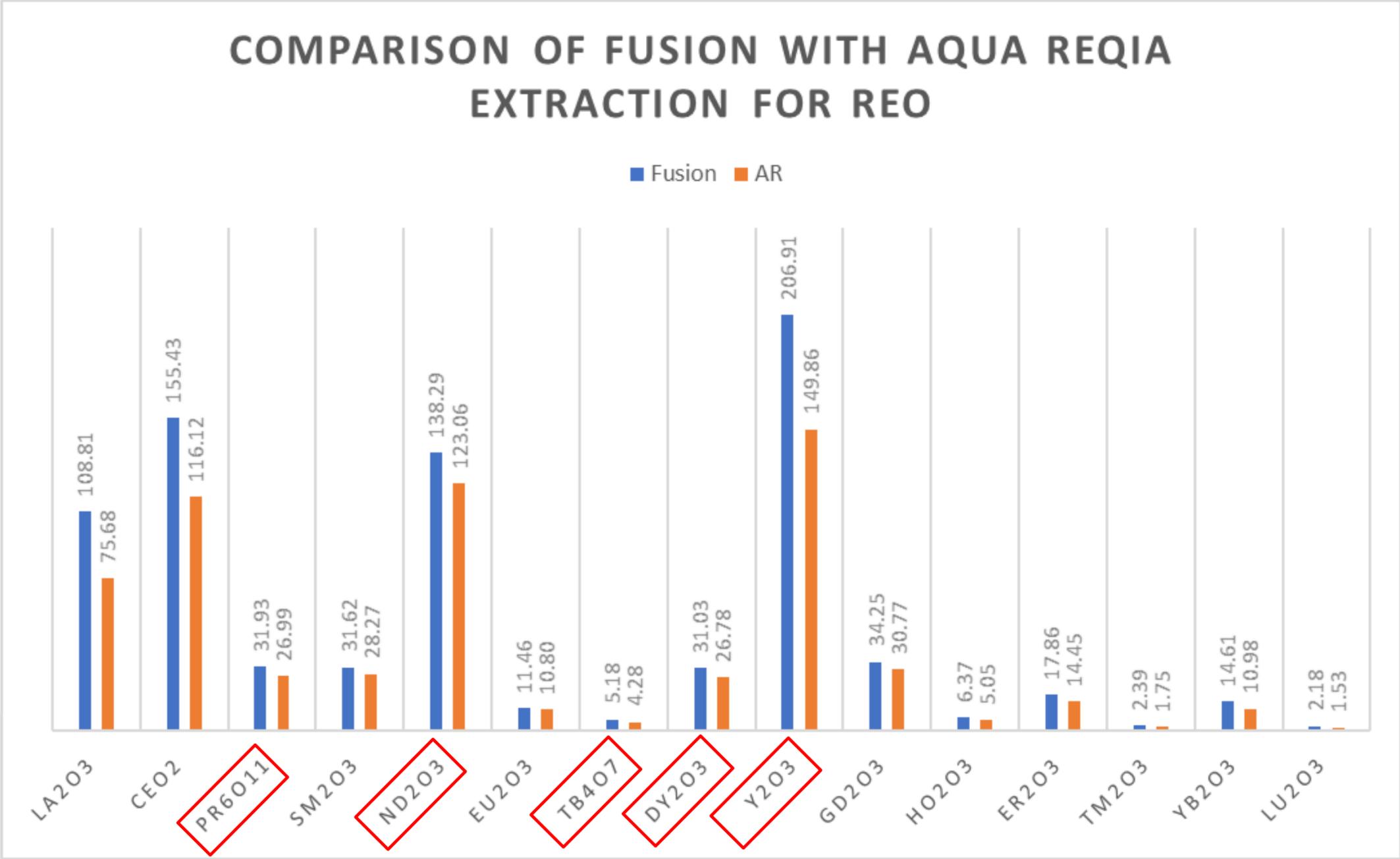
Winston's	Fusion	Weak Aqua Regia	Recovery
MRAC0590: 24 to 36m	12m at 1,231 ppm TREO	12m at 1,107 ppm TREO	89.90%
MRAC0593: 24 to 30m	6m at 2,006 ppm TREO	6m at 1,980 ppm TREO	98.70%
MRAC0605: 36 to 47m	11m at 1,623 ppm TREO	11m at 1,488 ppm TREO	91.70%
MRAC0617: 24 to 36m	12m at 1,540 ppm TREO	12m at 1,224 ppm TREO	79.50%
MRAC0637: 16 to 23m	7m at 1,338 ppm TREO	7m at 1,141 ppm TREO	85.30%
MRAC0638: 24 to 40m	16m at 1,581 ppm TREO	16m at 1,109 ppm TREO	70.10%
MRAC0721: 52 to 68m	16m at 2,119 ppm TREO	16m at 1,718 ppm TREO	81.10%
MRAC0439: 40 to 48m	8m at 2,349 ppm TREO	8m at 1,871 ppm TREO	79.65%
MRAC0456: 28 to 38m	10m at 1,850 ppm TREO	10m at 1,385 ppm TREO	74.86%
MRAC0632: 4 to 17m	13m at 1,289 ppm TREO	13m at 940 ppm TREO	72.92%
MRAC0474: 32 to 50m	18m at 879 ppm TREO	18m at 788 ppm TREO	89.65%
MRAC0471: 28 to 39m	11m at 1,259 ppm TREO	11m at 1,107 ppm TREO	87.93%
MRAC0726: 40 to 47m	7m at 1,857 ppm TREO	7m at 1,470 ppm TREO	79.16%
MRAC0667: 36 to 40m	4m at 3,044 ppm TREO	4m at 2,513 ppm TREO	82.56%
MRAC0441: 20 to 25m	5m at 2,301 ppm TREO	5m at 2,009 ppm TREO	87.31%
<b>Keith's</b>			
MRAC0484: 32 to 40m	8m at 3,357 ppm TREO	8m at 1,916 ppm TREO	57.10%
MRAC0514: 16 to 21m	5m at 1,261 ppm TREO	5m at 1,150 ppm TREO	91.20%
MRAC0518: 16 to 21m	5m at 3,950 ppm TREO	5m at 2,627 ppm TREO	66.50%
MRAC0568: 32 to 38m	6m at 1,882 ppm TREO	6m at 1,720 ppm TREO	91.40%
MRAC0695: 24 to 40m	16m at 1,136 ppm TREO	16m at 996 ppm TREO	87.70%
MRAC0711: 16 to 24m	8m at 2,792 ppm TREO	8m at 2,215 ppm TREO	79.30%
<b>Marcellus, Tyrrell's</b>			
MRAC0679: 16 to 28m	12m at 914 ppm TREO	12m at 833 ppm TREO	91.10%
MRAC0684: 24 to 31m	7m at 1,503 ppm TREO	7m at 903 ppm TREO	60.10%

Weak Aqua Regia ("AR") is a partial digestion technique that uses an acid mix of 1 molar hydrochloric acid (HCl) and 1 molar nitric acid (HNO<sub>3</sub>).





AR partial digestion shows high recovery across all REO

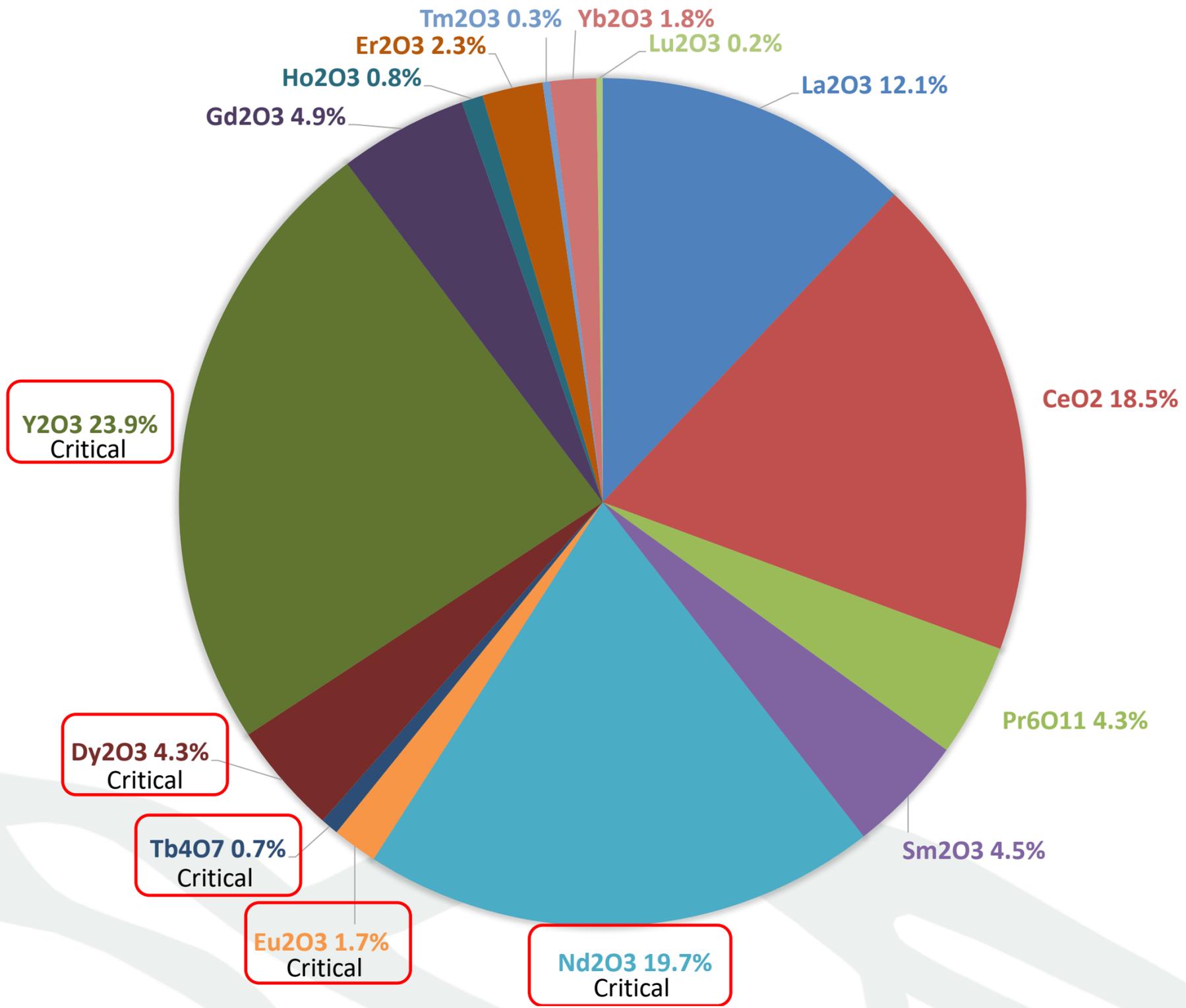


Weak Aqua Regia ("AR") is a partial digestion technique that uses an acid mix of 1 molar hydrochloric acid (HCl) and 1 molar nitric acid (HNO<sub>3</sub>).





**critical rare earths  
50% of Mt Ridley  
REE basket**



DISTRIBUTION OF RECOVERED RARE EARTH OXIDE BY WEAK AQUA REGIA EXTRACTION





Holistic approach to Heritage Flora and Fauna protection through management plan with ETNTAC (Esperance Tjaltjraak people).



Drilling to expand footprint well beyond the current 25 km x 3 km drilled to date. Mineralisation already known elsewhere within the Bremmer Basin.



Fully funded, major drilling program for 2022, with opening Indicated Resource inventory completed by end of the year.

**drilling  
resources  
metallurgy**

# Corporate Summary

Share Price	\$0.008
Shares (m)	5,641
Market Capitalisation (m)	\$45.1
Options (m)	2,048
Cash+ Liquid Securities:	
Cash at Bank (m)	\$3.60
Liquid Assets (m)	\$2.15
Unlisted Securities	\$1.25
Total (m)	\$7.00

## Board and Consultants



Peter Christie  
Chairman

25 yrs Accountant / Public and resource sector



Graeme Johnston  
Non-Executive Director

30 yrs Geologist / Iron, Gold and Lithium



Johnathon Busing  
Company Secretary

10 yrs accounting/corporate resource sector



Simon Mitchell  
Non-Executive Director

>30 yrs Geologist / Technical & Corporate



Guy Le Page  
Non-Executive Director

30 yrs Exploration and Finance / Corporate and resource sector



David Crook  
Technical Manager

>40 yrs Technical & Corporate Nickel, Gold, Lithium, Iron



# summary

- 🎯 The Mount Ridley Rare Earths Project has the hallmarks of being a large rare earth element deposit.
- 🎯 The exploration model is for an ionic adsorption clay REE –style deposit.
- 🎯 First world jurisdiction and close to infrastructure
- 🎯 The Company is well funded and anticipates an active drilling program in 2022

# Contact Information



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1. REE refers to 14 rare earth elements: cerium (Ce), dysprosium (Dy), erbium (Er), europium (Eu), gadolinium (Gd), holmium (Ho), lanthanum (La), lutetium (Lu), neodymium (Nd), praseodymium (Pr), samarium (Sm), terbium (Tb), thulium (Tm), ytterbium (Yb), plus yttrium (Y)
2. Critical or CREO means Critical Rare Earth Oxides; the sum of Dy<sub>2</sub>O<sub>3</sub>, Eu<sub>2</sub>O<sub>3</sub>, Nd<sub>2</sub>O<sub>3</sub>, Tb<sub>4</sub>O<sub>7</sub>, plus Y<sub>2</sub>O<sub>3</sub>
3. Alves Dias, P., Bobba, S., Carrara, S., Plazzotta, B. (2020), The role of rare earth elements in wind energy and electric mobility, EUR 30488 EN, Publication Office of the European Union, Luxembourg, ISBN 978-92-79-27016-4, doi:10.2760/303258, JRC122671
4. Northwest Mining Association quoted in [Kirby Mountain: Rare earths and wind turbines: Yes, it's a problem \(kirbymtn.blogspot.com\)](http://kirbymtn.blogspot.com)
5. Wind Energy in the United States and Materials Required for the Land-Based Wind Turbine Industry From 2010 Through 2030, by U.S. Geological Survey, U.S. Department of the Interior, Scientific Investigations Report 2011-5036
6. [Badgingarra Wind Farm | APA Group](#)
7. [What is decarbonisation? \(westernpower.com.au\)](http://westernpower.com.au)
8. MRD announcement to ASX dated 21 October 2021. "Encouraging Rare Earth Extraction Results"
9. AR means weak aqua regia acid, a mix of 1 molar hydrochloric acid (HCl) and 1 molar nitric acid (HNO<sub>3</sub>).

- REO means the rare earth element converted to its element oxide equivalent using the factors provided at [Element-to-stoichiometric oxide conversion factors - JCU Australia](#). TREO means the sum of the 15 REO.
- Light REO or LREO means Light Rare Earth Oxides; the sum of La<sub>2</sub>O<sub>3</sub>, CeO<sub>2</sub>, Pr<sub>6</sub>O<sub>11</sub>, Nd<sub>2</sub>O<sub>3</sub>, Sm<sub>2</sub>O<sub>3</sub>, Eu<sub>2</sub>O<sub>3</sub>.
- Heavy REO or HREO means Heavy Rare Earth Oxides; the sum of Gd<sub>2</sub>O<sub>3</sub>, Tb<sub>4</sub>O<sub>7</sub>, Dy<sub>2</sub>O<sub>3</sub>, Ho<sub>2</sub>O<sub>3</sub>, Er<sub>2</sub>O<sub>3</sub>, Tm<sub>2</sub>O<sub>3</sub>, Yb<sub>2</sub>O<sub>3</sub>, Lu<sub>2</sub>O<sub>3</sub>, Y<sub>2</sub>O<sub>3</sub>.

Also refer to Mount Ridley Mines Limited announcements to ASX dated:  
1 July 2021, 2 August 2021, 13 September 2021, 21 October 2021

notes