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19 April 2022

## Exploration Licence Granted at Murraydium South Australian Rare Earth Project

- Exploration ground prospective for ionic clay hosted rare earth elements (REE) in the Murray Basin heavy mineral province, South Australia
- Numerous deposits and prospects in the region including Australian Rare Earths (ASX:AR3) Koppamurra Project with an Inferred Mineral Resource of 39.9 Mt @ 725 ppm TREO<sup>1</sup>
- Project geology consists of extensive series of stranded shorelines formed during marine regression in Miocene to early Pliocene, the primary host to regional REE mineralisation
- Murray Basin sediments have the potential to host a high value REE assemblage with low radioactivity ore characteristics
- A series of auger, push tube and aircore drilling is planned to investigate the project area for the presence of laterally extensive shallow clay hosted rare earth mineralisation
- Program for Environment Protection and Rehabilitation (PEPR) lodged with SA Dept of Mines and Energy for drilling approvals
- The Murraydium Ionic Clay REE Project complements the Company's Ironstone hosted REE project in the Gascoyne

Frontier Resources Ltd (ASX: FNT) (Frontier or the Company) is pleased to announce that the South Australian Department of Mines and Energy has granted the Exploration Licence EL6717 over the Murraydium Project in the Murray Basin region in South Australia which is prospective for ionic clay hosted rare earth element's (REE).

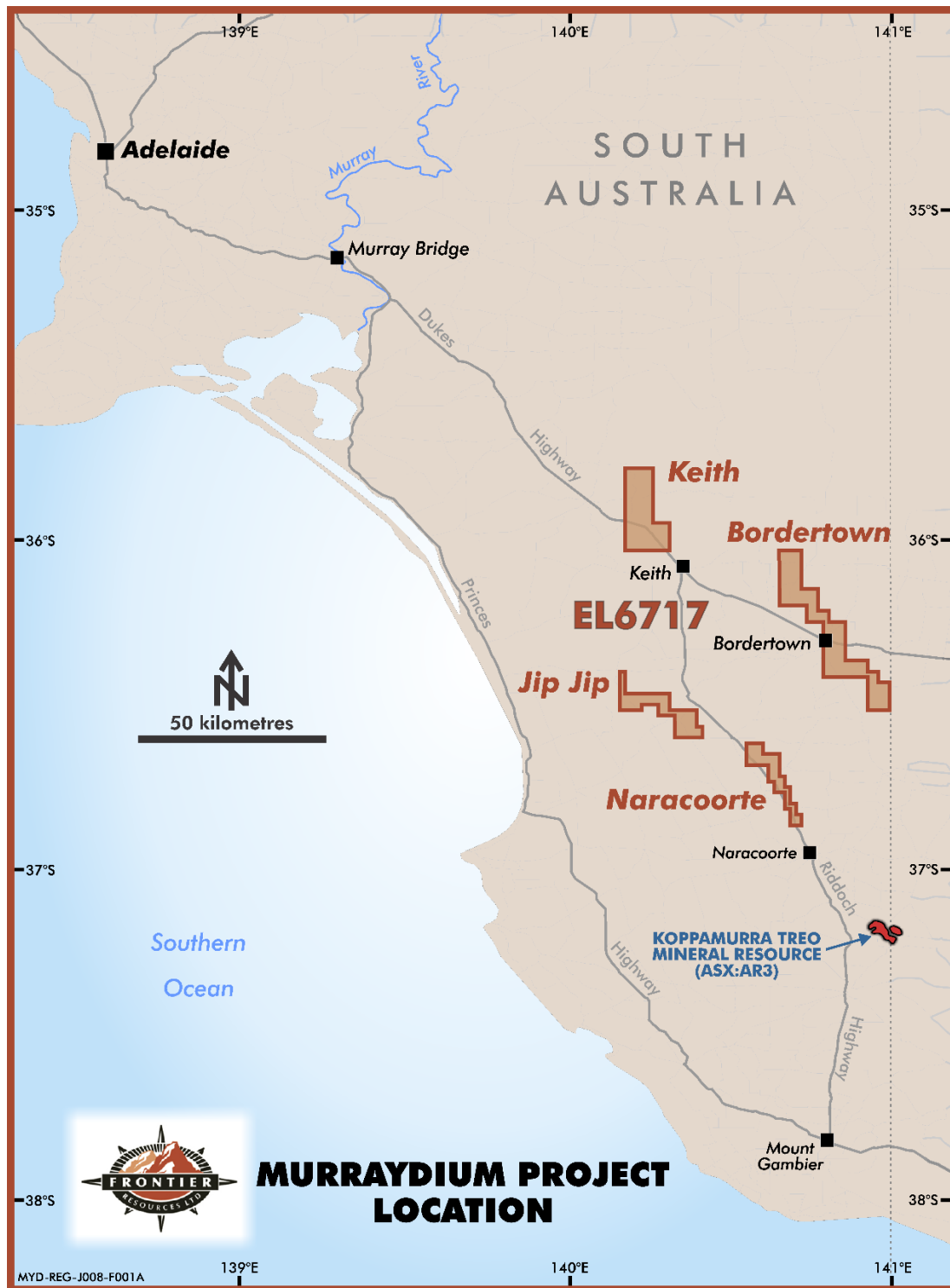
Chairman David Frances commented *"The grant of the Southern Rare Earths exploration licence represents an exciting exploration opportunity in a region that is highly prospective for ionic clay hosted rare earth deposits. The Murraydium Rare Earth Project offers exciting exploration upside potential. Previous work done in the area has outlined an extensive mineralised system where shallow near surface exploration has the potential to delineate shallow JORC Resources."*



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**Figure 1. Tenement Map of the Southern Rare Earth's Pty Ltd Murraydium Project in the south-eastern region of South Australia.**

The Murraydium Project is located in the south-eastern region of Naracoorte in South Australia's Murray Basin, consisting of four exploration licence blocks, covering an area of 872 square kilometres. The region is seeing a renewed focus for REE minerals with the success of Australian Rare Earths (ASX:AR3) at their 100% owned Koppamurra Project, host to an inferred mineral resource of 39.9 Mt @ 725 ppm TREO<sup>1</sup>.



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## Tenement Details

Details of the four blocks that make up the Exploration Licence EL6717 which cover the project area are set out in the table below.

Murraydium Project	Tenement
Naracoorte Block	EL6717
Bordertown Block	EL6717
Jip Jip Block	EL6717
Keith Block	EL6717

## Regolith Hosted REE Deposits - Background

There are several known types of regolith hosted REE deposits globally including, ion adsorption clay deposits, alluvial and placer deposits (Jowitt et al 2017)<sup>2</sup>. The development of potentially economic regolith-hosted REE deposits requires a combination of a REE enriched protolith and weathering processes that concentrate the REE in the regolith<sup>3</sup>. Ion adsorption type REE deposits are the dominant source of heavy REE currently mined in the world, with all economic examples of this type of deposit confined almost exclusively to areas underlain by granitic rocks in southern China<sup>2</sup>. REE mineralisation in the Murray Basin at Australian Rare Earths (ASX:AR3) Koppamurra Project is hosted by clay material interpreted to have been deposited onto a limestone base (Gambier Limestone) and accumulated in an interdunal, lagoonal or estuarine environment. The mineralogy of the clay is indicative of formation under mildly alkaline conditions in a marine or coastal environment from fine grained sediments either river transported or windblown thereby supporting this interpretation.

Mineralogical test work conducted on a clay sample from the Koppamurra Project area established that the dominant clay minerals are smectite and kaolin, and the few REE-rich minerals detected during the SEM investigation are not considered inconsistent with the suggestion that a significant proportion of REE are distributed in the sample as adsorbed elements on clay and iron oxide surfaces<sup>3</sup>. Work to date suggests that the source of the REE at Koppamurra is most likely basalt associated alkali volcanics of the Newer Volcanics Province in south-eastern Australia, with the wider Koppamurra project area being considered prospective for rare earth mineralisation.

However, whilst Koppamurra clays display ionic character, and the deposit shares a number of similarities with both ion adsorption clay deposits and volcanic ash fall placer deposits, there are also a number of differences, with further work required before a genetic model for REE mineralisation at Koppamurra and the broader Murray Basin can be conclusively defined. In addition, further work is required to better define metallurgical recoveries, process flow sheets, effective mining methods, and project economics<sup>3</sup>.

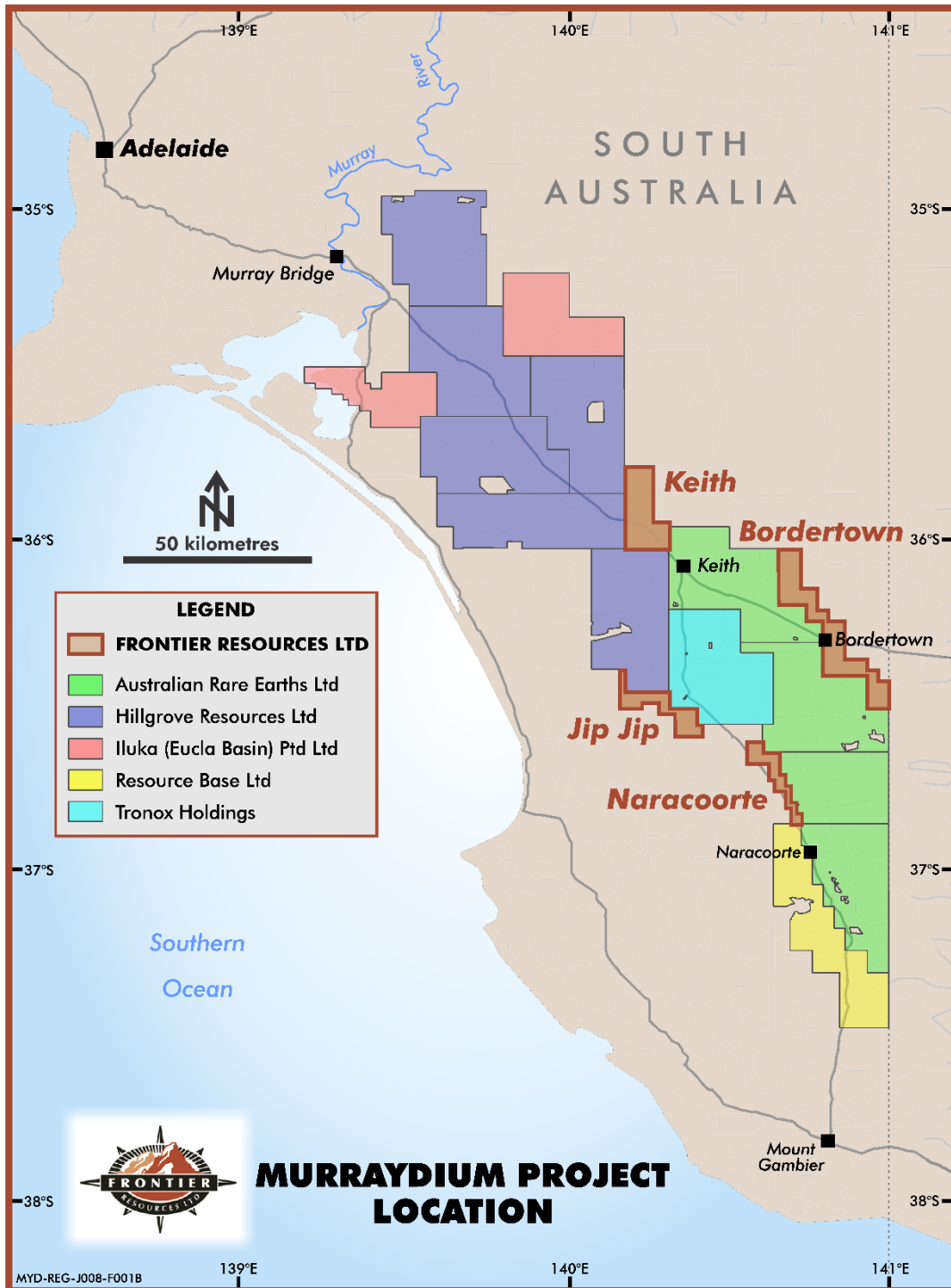


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**Figure 2 : Tenement Map of the Southern Rare Earth's Pty Ltd Murraydium Project in the south-eastern region of South Australia with Neighbouring Tenement Holders**

**Proposed exploration and study activities on the Murraydium Project**

The Company proposes to undertake the following exploration and study activities:

- Review of available desktop literature including geological models and historical exploration data

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- Field mapping to confirm prospective geological horizons to validate geological models and assist in exploration targeting
- Extensive surface sampling and testing as required
- Systematic drilling in the early stages testing for a broad scale, relatively shallow deposit including but not limited to auger, push tube and aircore drilling

This announcement has been authorised for release by the Directors of the Company. For additional information please visit our website at [www.frontierresources.net.au](http://www.frontierresources.net.au).

*The information referred to in this announcement relates to the following sources:*

1. *Australian Rare Earths Limited (ar3.com.au) - Prospectus -29/6/21*
2. *Jowitt SM., Wong VNL., Wilson SA., Gore O., 2017. Critical metals in the critical zone: controls, resources and future prospectively of regolith hosted rare earth elements. Australian Journal of Earth Sciences, 64:8, 1045-1054, DOI: 10.1080/08120099.2017.1380701*
3. *Sanematsu K., and Watanabe Y., 2016. Characteristics and Genesis of Ion Adsorption-Type Rare Earth Element Deposits. Society of Economic Geologists Inc. Reviews in Economic Geology V.28, pp 55-70*

**Competent Person's Statement**

*The information in this document that relates to Exploration Results, Mineral Resources or Ore Reserves is based on information compiled by Mr. Thomas Langley who is a member of the Australian Institute of Geoscientists (MAIG) and a member of the Australasian Institute of Mining and Metallurgy (MAusIMM). Mr. Thomas Langley is a consultant of Frontier Resources Limited, and is a shareholder, however Mr. Thomas Langley believes this shareholding does not create a conflict of interest, and Mr. Langley has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking 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. Langley consents to the inclusion in this presentation of the matters based on his information in the form and context in which it appears.*

*The Company confirms that it is not aware of any new information or data that materially affects the information in the original reports, and that the format and context in which the Competent Person's findings are presented have not been materially modified from the original reports.*