

ADDRESS

Level 8, 99 St Georges Terrace
Perth WA 6000

PHONE

+61 (08) 9486 4036

ABN

96 095 684 389

WEBSITE

www.lanthanein.com

30 June 2023

Murraydium Rare Earths Drilling Completed

- **Roadside Air Core drilling programme on the Bordertown Block of EL6717 now completed**
- **Targeting Rare Earth Elements (REE) in the shallow Loxton Parilla Sands**
- **Same formation that hosts REE's in neighbouring Australian Rare Earths Ltd (ASX:AR3) Koppamurra Resource of 110mt @ 818 ppm TREO (Total Rare Earth Oxide)⁽¹⁾ plus their exciting Frances Prospect**
- **215 Holes drilled, assays expected in approximately 4-6 weeks**

Mr Brian Thomas, Lanthanein Technical Director commented *"We are very excited with the finalisation of the roadside drilling programme on the Bordertown Block at the Murraydium Project in the Southeast of South Australia. We are now anxiously awaiting assays which will confirm this exciting exploration opportunity in a region that is highly prospective for ionic clay hosted rare earth deposits. Our neighbours in the region, AR3, continue to have exploration success outlining an extensive mineralised system where shallow near surface exploration has delineated significant JORC Resources of REE's in the Loxton Parilla Sands."*



Image 1: Roadside Drilling Team on Railtz Road north of Bordertown

¹ JORC resource comprising 1Mt @ 894ppm TREO (Measured), 63Mt @ 839ppm TREO (Indicated) and 38Mt @ 782ppm TREO (Inferred) (17 April 2023)

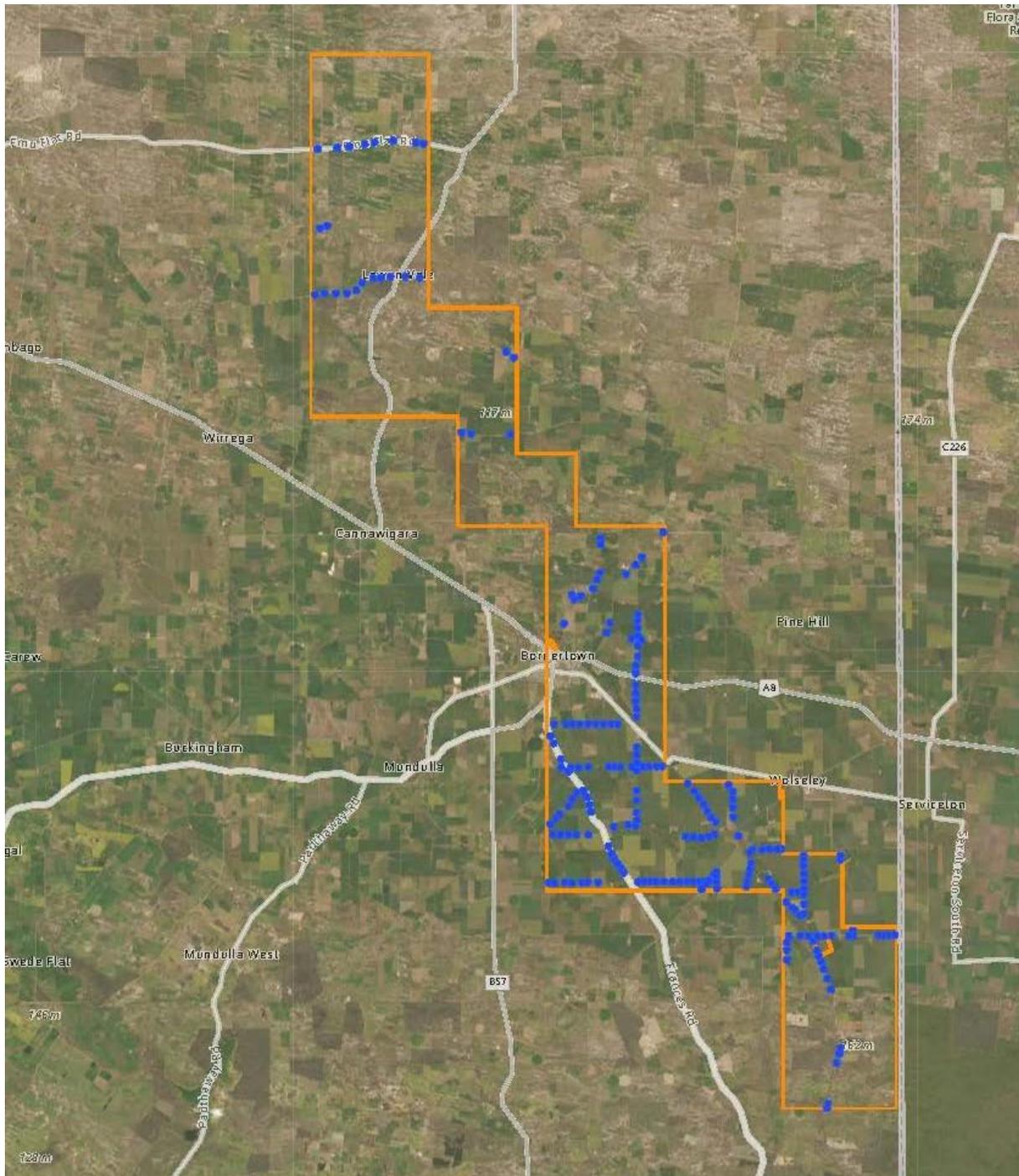


Figure 1: Drilling Locations on the Bordertown Block of Murraydium Project

The roadside drilling programme (Image 1) was conducted in three phases commencing at the end of March 2023 with a total of 215 holes now drilled (Figure 1). The South Australian Department of Energy and Mines drilling approval (EPEPR) gave approval for drilling 307 holes but recent heavy rains in the area meant ground conditions did not allow the full programme to be completed. The EPEPR has recently been extended for a further 12 months so infill drilling will be carried out on any clusters of encouraging results when conditions permit.

As announced previously on 1 May 2023, the Company is very encouraged with the preliminary XRF results from the first phase of the roadside drilling programme in the southern sector of the Bordertown Block at the Murraydium Project in the Southeast of South Australia (see Figure 2 below). Intersections of the Loxton Parilla Sands have returned significant XRF readings of both Praseodymium (Pr_6O_{11}) and Neodymium (Nd_2O_3) oxides with all 72 holes having intersections of >1,000 ppm based on pXRF analysis*.

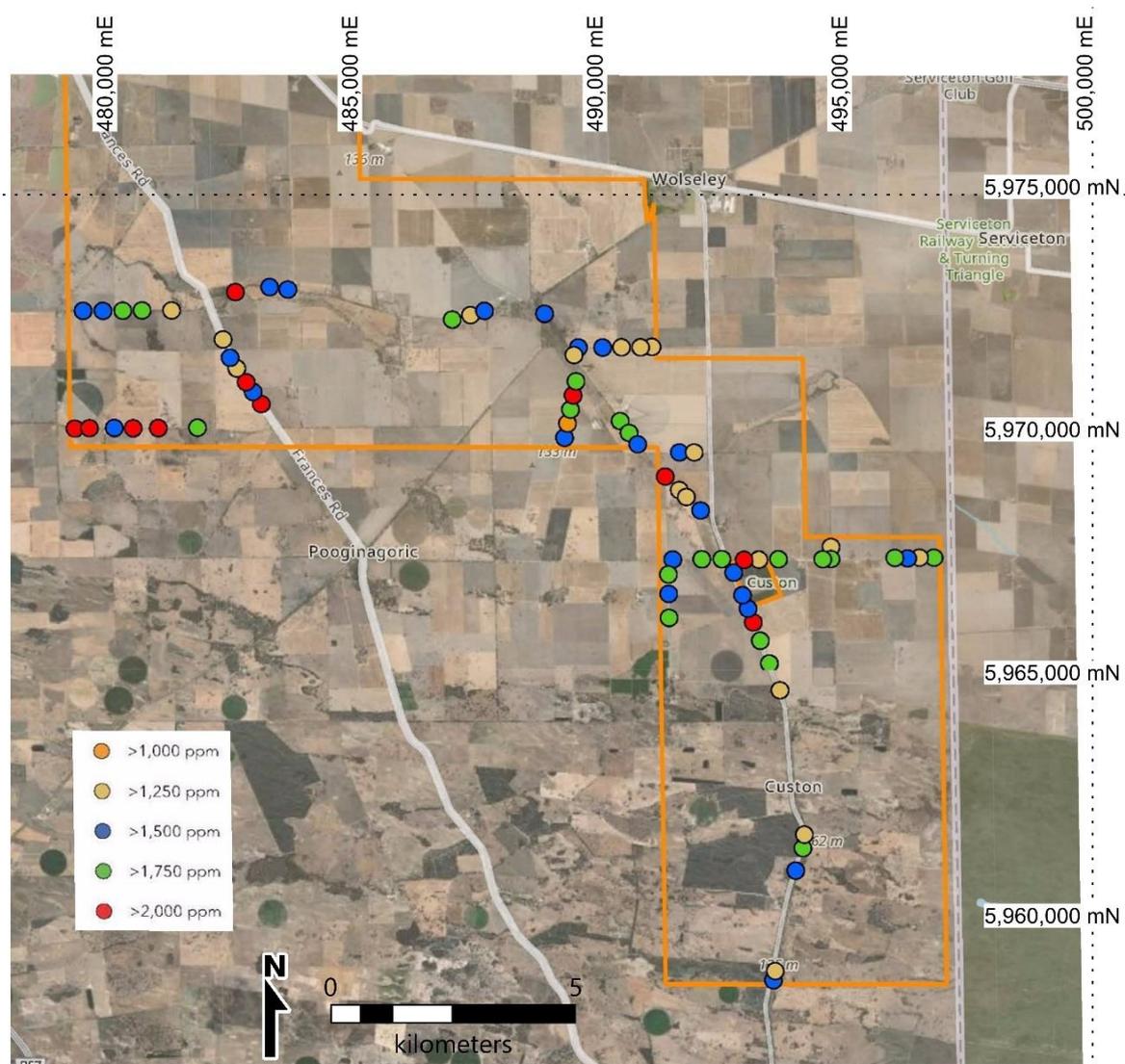


Figure 2: Locations of Roadside Air Core Drill Holes with Maximum XRF Readings for Each Drill Hole

* **The measurement of Rare Earth Elements using a pXRF is a method that has been used at Murraydium and other REE projects in Australia. Performance to OREAS standards demonstrates a strong correlation between pXRF data and certified values. However, pXRF is only a preliminary indication of the expected order of magnitude for final REE analysis. The samples that are the subject of this report have been submitted for laboratory assay and some variation from the pXRF results presented herein should be expected.**

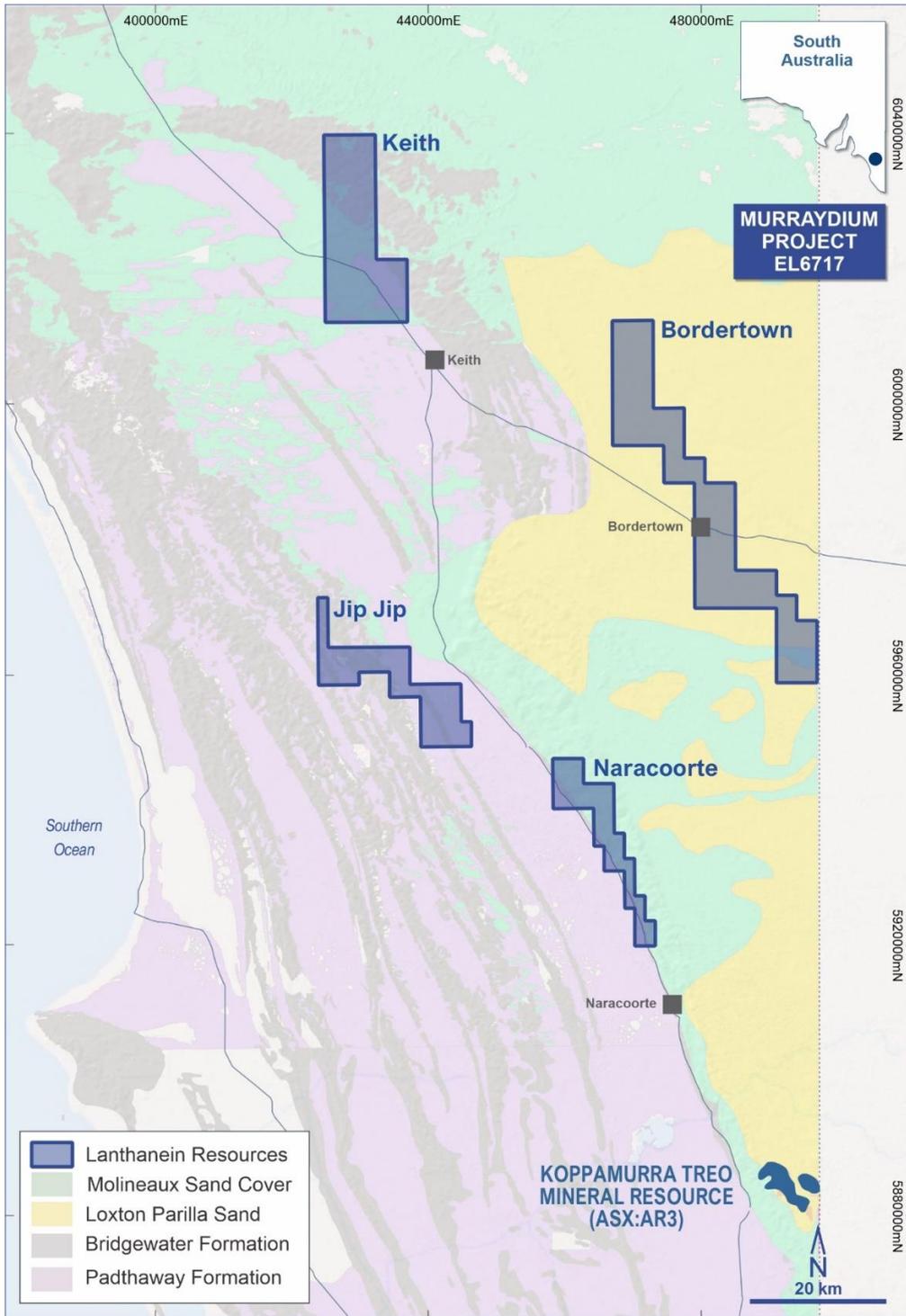


Figure 3: Plan showing extent of Loxton Parilla Sands in the South East of South Australia

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The Murraydium Project (Figure 3) is located in the south-eastern region of South Australia with EL 6717 covering an area of 872 km² of the Murray Basin. The region is seeing continued activity in the exploration for REE minerals with the success of Australian Rare Earths (ASX:AR3) at their 100% owned Koppamurra Project, host to a total mineral resource of 101 Mt @ 818 ppm TREO, plus other successes with Resource Base Ltd (ASX:RBX) announcing a maiden Mineral Resource Estimate of 21Mt @ 767 ppm TREO (Inferred) at their Mitre Hill Deposit in the Murray Basin in Victoria.

The project area forms part of an extensive Tertiary strand plain comprising a series of sandstone-dominant fluvial and beach-dune strand complexes. The sand units commonly form undulating sand ridges interspersed with low lying areas of clay, mud and sand. The Koppamurra Deposit of REE-bearing clays that contain the Yellow Tail and Red Tail deposits occurs within the lower part of the Loxton-Parilla Sand unit (Figure 3). The Loxton-Parilla Sand is a very extensive unit widely distributed across the southern Murray Basin. Extensive areas of Loxton- Parilla Sand are exposed at surface within the Bordertown Block where it typically forms rolling terrain of low sandy hills and ridges.

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. 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. 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. 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. 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.

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Image 2: Roadside Drilling Team on Raitz Road north of Bordertown with traffic management in place

This announcement has been authorised for release by the Directors of the Company.

For additional information please visit our website at www.lanthanein.com

LANTHANEIN RESOURCES LTD

Competent Person's Statement

The information in this report that relates to Geophysical Exploration Results is based on information compiled by Peter Swiridiuk - Member of the Aust. Inst. of Geoscientists. Peter Swiridiuk is a Technical Consultant and Non-Executive Director for Lanthanein Resources. Peter Swiridiuk has sufficient experience which is relevant to the type of mineralisation and type of deposit under consideration to qualify as Competent Person as defined in the 2012 Edition of the Australasian Code of Reporting Exploration Results, Mineral Resources and Ore Resources. Peter Swiridiuk consents to the inclusion in the report of the matters based on the information in the form and context in which it appears. Additionally, Mr Swiridiuk confirms that the entity is not aware of any new information or data that materially affects the information contained in the ASX releases referred to in this report.