

Monday, 19 September 2022

Metallurgical test results indicate viable processing pathway for Koppamurra Rare Earths Project

Leach optimisation test work has resulted in excellent recoveries of the four key magnet rare earth elements (REE) while reducing acid consumption and impurity dissolution providing potential for both an environmentally sound and commercially attractive process pathway to economically produce a high-quality specification product.

Highlights

- Excellent results from leach optimisation test work undertaken by ANSTO on drill composite samples taken from the Koppamurra prospect
- Results demonstrate a 50% reduction in acid consumption while maintaining average recoveries of 65% and up to 77% for the four key magnet Rare Earth Elements (REE) being Neodymium, Praseodymium, Terbium and Dysprosium providing potential for both an environmentally sound and commercially attractive process pathway
- High recoveries of the valuable magnet rare earths (Nd, Pr, Tb & Dy) have increased confidence of consistent metallurgical response over spatially diverse locations within Project area. Diagnostic leach recoveries for 10 composite samples collected across the extent of the recently announced updated Mineral Resource, (81.4Mt at 785ppm Total Rare Earth Oxide (TREO)), show notable consistency of response and very high tenor of recovery
- Impressive leach response of a high-grade sample, 15,502 ppm TREO, provides additional confidence the proportion of accessible REE in high grade samples is consistent with the representative composites in the Mineral Resource.
- 850kg of material extracted from the Trial Pit completed at Koppamurra earlier this year currently being processed by ANSTO for rare earth recovery and product specification analysis
- This is a significant step-up in the scale of test work and will pave the way for testing a 500 tonne bulk sample and advanced flowsheet development
- Koppamurra is well placed to capitalise on the sizeable forecast growth in demand for sources of rare earths, with the Project having all four of the key rare earth elements required to make high-strength permanent magnets needed for the growing demand for EV motors, wind turbines and domestic appliances

Australian Rare Earths Limited ([ASX: AR3](#)) ('AR3' or the 'Company') is pleased to announce that it has taken another key step forward in its development strategy for its 100%-owned Koppamurra Rare Earths Project in South Australia-Victoria with the receipt of highly encouraging interim results from metallurgical test work.

The results, from leach optimisation test work being undertaken by the world-renowned test work facility at ANSTO in Sydney, have demonstrated the ability to extract all four key high-value magnet rare earth elements (REE) with a significant reduction in acid consumption and impurity dissolution. These results indicate a more efficient and environmentally sound process pathway while maintaining the commercially attractive recovery levels.

Australian Rare Earths Acting Managing Director Rick Pobjoy said: “These results are pivotal because they show that all four of the key magnet rare earth elements contained in the Koppamurra resource can be extracted at high recoveries”.

“These results paint an extremely favourable outlook for the project from a technical, financial and environmental perspective.”

“We now look forward to replicating the results on a larger scale as part of our strategy to continue de-risking the project.”

Details of Metallurgical Testwork

Leach optimisation test work has led to a reduction in acid consumption and gangue (waste) dissolution with only minor reduction in rare earth recoveries, increasing the potential to economically produce a high-quality specification product while maintaining overall recovery of valuable REE.

Two samples, taken from the Koppamurra prospect, were assessed for rare earth recovery characteristics at varying pH and leach durations; KM0234_3 (1,241 ppm TREO) and KM0241_4 (2,125 ppm TREO). Leaching in the pH range 1.5 to 2.0 showed recoveries of the four valuable magnet REEs (Nd, Pr, Tb & Dy) were maintained, with average recoveries of 65% and up to 77%, while acid consumption from the dissolution of iron and aluminium dropped significantly.

Acid consumption is a key economic driver in the leach process, and the reduction in consumption at higher pH has the potential to decrease costs at a commercial scale. Reduction in iron and aluminium dissolution reduces the risk of these deleterious components reporting to the final product on a commercial scale. Leach test work at increased solids density on a representative composite is underway to confirm the REE extraction response and acid consumption.

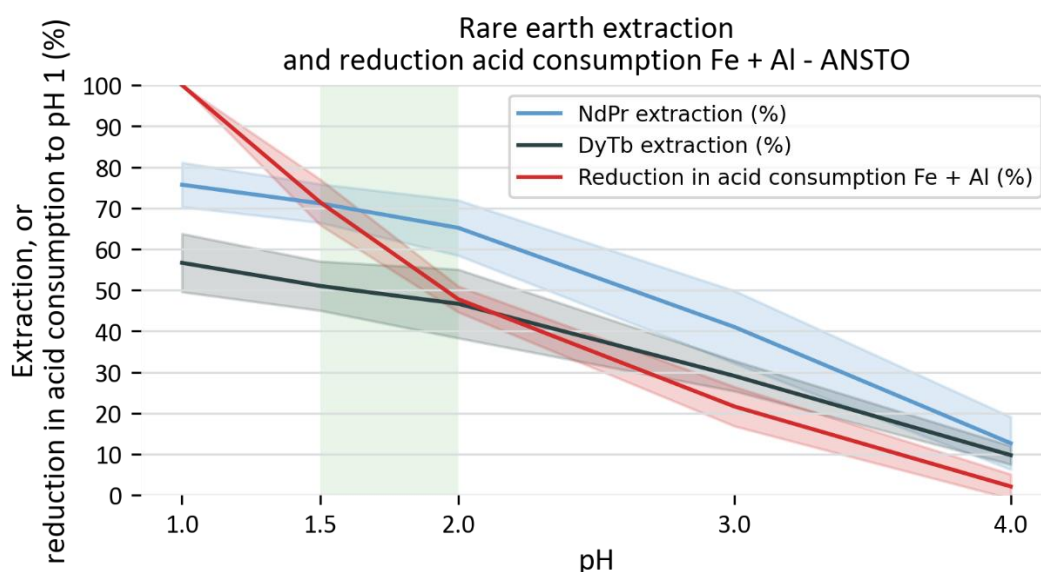


Figure 1: Rare earth extraction, and impurity dissolution, at varying pH at 6 hours leach time for samples KM0-241_4, KM0-234_3

High recoveries of the valuable magnet rare earths (Nd, Pr, Tb & Dy) have increased confidence of consistent metallurgical response over spatially diverse locations within Project area.

Diagnostic leach recoveries for 10 composites collected across the length and breadth of the recently updated clay hosted rare earth Mineral Resource at Koppamurra have shown great alignment despite the geographic spread.

Ten composites, CP001 to CP010, were developed from drill sample residues across a broad area of the clay hosted rare earth Mineral Resource area, with locations identified in the attached map, Figure 3. The combined samples taken from several drillholes in each composite area generated between 30 and 60kg of material each, with grades averaging from 852 ppm TREO to 1,874 ppm TREO. Diagnostic tests at pH 1.0 and pH 4.0 over test durations of 2, 4, and 6 hours, produced similar results for similar conditions on the spatially diverse CP composite samples. Slurry leach tests are progressing on a 10kg composite, comprised of CP003, CP004, CP006, CP009 and CP010 composites, which are subsamples from the area currently proposed for the application for a Mining Lease. Diagnostic and increased solids density tests have generally demonstrated good alignment in the comparative tests for the Koppamurra Project samples to date.

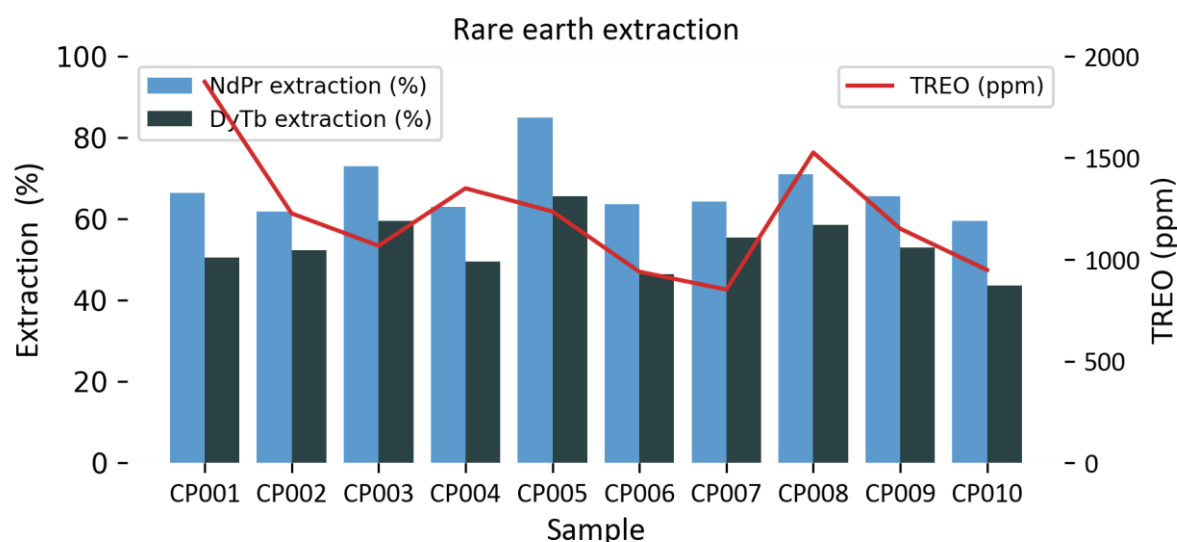


Figure 2: Valuable rare earth extraction for the Koppamurra Mineral Resource area composite samples CP001 to CP010 at pH 1, 6 hours

Impressive leach response of the high-grade sample KM1573_6, measured at 15,502 ppm TREO, provides additional confidence the proportion of accessible REE in high grade samples is consistent with the representative composites in the resource.

Leach response of a high-grade sample KM1573_6, measured at 15,502 ppm TREO, was assessed in diagnostic tests with intermediate sampling. The high-grade sample showed 80% recovery of NdPr and 60% DyTb at 6 hours leach duration, similar to the response of the representative Mineral Resource area composites CP001 through CP010. This result demonstrates the consistency in recoveries across the resource composition variation.

A larger scale test work program to produce a rare earth product from 850kg of Trial Pit material is underway, spearheading flowsheet development and pilot design.

A total of 850kg of material collected from the Trial Pit at Koppamurra is currently being processed by ANSTO for rare earth recovery and product specification analysis. This is a step change in the scale of rare earth recovery test work that has been conducted to date, and will inform design and operational criteria for even larger scale testing and piloting. The rapid technical development of the flowsheet and the project to pilot scale will be supported by ongoing leach optimisation work and process technology selection at ANSTO.

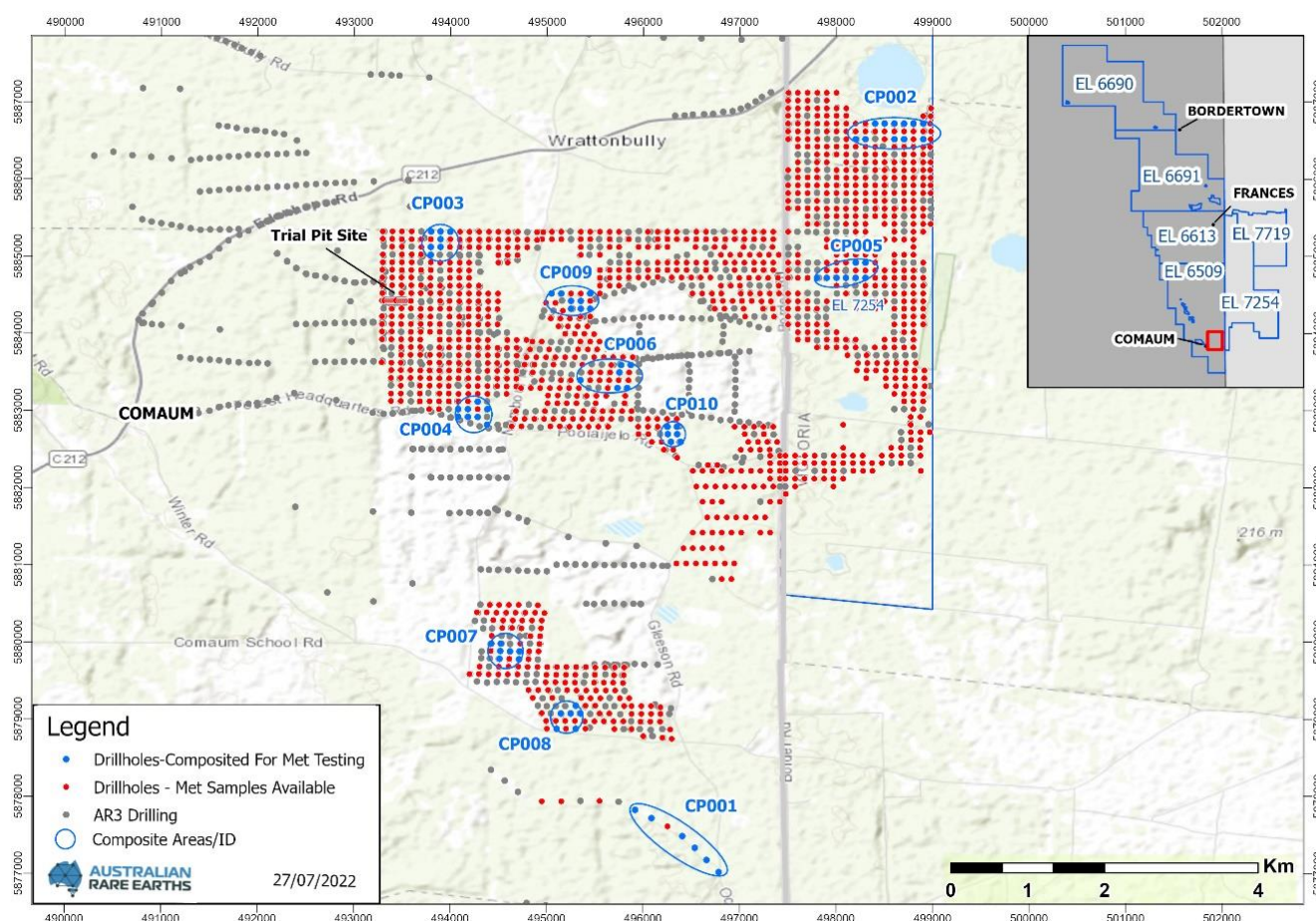


Figure 3: Diagnostic Leach - Composite sample locations, CP001 through CP010

The announcement has been authorised for release by the Board of AR3 Limited.

For further information please contact:

AR3 Limited
Rick Pobjoy
Acting Managing Director
T: 1 300 646 100

Media Enquiries
Nicholas Read / Paul Armstrong
Read Corporate
T: 08 9388 1474

Competent Person's Statement

The information in this report that relates to metallurgical results is based on information compiled by Australian Rare Earths Limited and reviewed by Mr. James Davidson who is the Technical Director of Wallbridge Gilbert Aztec and a member of the Australian Institute of Mining and Metallurgy (AusIMM). Mr. Davidson has sufficient experience that is relevant to the metallurgical testing which was 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. Davidson 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 Statement

This announcement contains forward-looking statements which involve a number of risks and uncertainties. These forward-looking statements are expressed in good faith and believed to have a reasonable basis. These statements reflect current expectations, intentions or strategies regarding the future and assumptions based on currently available information. Should one or more of the risks or uncertainties materialise, or should underlying assumptions prove incorrect, actual results may vary from the expectations, intentions and strategies described in this announcement. No obligation is assumed to update forward looking statements if these beliefs, opinions, and estimates should change or to reflect other future developments.

About Australian Rare Earths Limited

Australian Rare Earths (AR3) is committed to the timely exploration and development of its 100% owned, flagship Koppamurra Project, located in South Australia and Victoria. Koppamurra is a prospective ionic clay hosted rare earth deposit; uniquely rich in all the elements required in the manufacture of rare earth permanent magnets which are essential components in electric vehicles, wind turbines and domestic appliances. The Company is focused on executing a growth strategy that will ensure AR3 is positioned to become an independent and sustainable source of rare earths, playing a pivotal role in the global transition to a green economy.