

AUSTRALIA'S ONLY RARE EARTHS PROJECT WITH IN SITU RECOVERY POTENTIAL

By

Robert Blythman, Rupert Verco

Cobra Resources PLC, Australia

Presenter and Corresponding Author

Rob Blythman

ABSTRACT

The Boland Rare Earth Project is a new rare earth deposit style that is amenable to in situ recovery (ISR) mining. ISR is an established mining method for Uranium. ISR uranium mines dominate the lowest cost producers of uranium globally with CAPEX 10-15% of conventional mines and OPEX 30-40% lower than conventional mines (UXC,2023). Cobra has executed an exploration approach to identify a style of rare earth mineralisation type that allows for sustainable low-cost extraction of rare earths.

Preliminary leach results completed by ANSTO demonstrate magnet rare earth recoveries of up to 58% and heavy rare earth recoveries of up to 65% at a pH of 3-4 over 30 minutes to 6 hours at ambient temperatures and utilising an AMSUL wash. Dissolution of gangue elements (Al, Ca, Fe U, Th) are low. Cobra is in the process of undertaking low pressure column leach testwork through ANSTO to confirm amenability to in situ recovery. A wellfield test pattern was installed in early 2024 to build an aquifer baseline dataset to support a future ISR trial.

ISR circumvents challenges compared to conventional mining of clay deposits including particle size separation (beneficiation), heap or tank leaching, desliming and material management. The paleochannel geological setting is distinct from the Southern China weathered slope setting, allowing for greater reagent control in situ and post extraction aquifer remediation.

Pregnant solution from the column leach test will be used to assess membrane desorption as a low-cost method to process and deliver higher value selective rare earth carbonates.

Keywords: rare earths, ISR, low cost, ionic clay