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Rainbow Rare Earths Limited
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Rainbow Rare Earths Limited
("**Rainbow**" or "**the Company**")
LSE: RBW

Further Major Advancement in Phalaborwa Test Work with Cerium Rejection Success

- **Rainbow has achieved a further important advancement of the Phalaborwa test work via the successful incorporation of a cerium ("Ce") depletion step ahead of the final separation circuit**
- **This further enhances the quality of the high grade mixed rare earth product ("MREP")' recently announced, by reducing the Ce content in the MREP by ca. 65%**
- **It also reduces the volumetric flow for the mixed rare earth feed stream entering the final separation circuit, thereby positively impacting both capital and operating costs for this portion of the flowsheet**
- **This achievement demonstrates the unique IP and understanding developed by Rainbow of the recovery of rare earth elements ("REE") from phosphogypsum**
- **The Phalaborwa project is set to be a low-cost and responsible producer of both the critical light and heavy REE used in permanent magnets, which are vital to the green energy transition, defence and many other advanced technologies**

NEWS ANNOUNCEMENT

Rainbow Rare Earths is pleased to announce further successful results from the ongoing test work for the Phalaborwa project in South Africa. This unique project encompasses the recovery and separation of REE from phosphogypsum stacks, a waste product from phosphoric acid production, meaning that many of the costs, risks and long timescales associated with traditional mining projects are eliminated.

Rainbow has been working on further optimising the feed stream to the final separation circuit via the incorporation of a Ce depletion step. This has successfully been achieved, benefitting both the quality of the exceptionally pure MREP recently announced, as well as the capital and operating cost outlook for the separation circuit.

George Bennett, CEO, commented: "*This Ce rejection step is a major achievement in establishing Phalaborwa as one of the world's most efficient producers of light and heavy magnet REE worldwide, as it significantly simplifies the feed entering the final separation circuit, both in terms of volume and in terms of the amount of unwanted metal that must be separated. These results demonstrate the exceptional work being carried out by our team at our in-house facilities in Johannesburg, which is a world-class laboratory at the cutting-edge of REE recovery techniques.*"

Test Work Update
As previously announced, a key component of Rainbow's test work this year has been the delivery of a high grade, low impurity feed stream to the final separation process, as this is expected to be key to reaching separated rare earth oxides of the desired purity level.

Following the efficient impurity rejection work via CIX and the resultant recovery of an exceptionally pure MREP averaging >55% total rare earths oxide ("TREO") and with a TREO purity of >93%, Rainbow has been working on further optimising the feed stream to the final separation circuit via the incorporation of a Ce rejection step.

Ce is a low-value REE (valued at ca. US 1/kg) but it constitutes a large portion of REE material. Its early depletion ahead of final separation is therefore desirable as it reduces the flow and simplifies subsequent hydrometallurgical processes, thereby lowering the required reagent and water consumption, which results in a smaller separation plant with reduced capital and operating costs.

The incorporation of the Ce depletion step to the Phalaborwa flowsheet has helped to reduce the volumetric flow to the separation circuit to approximately 2% of the original 340 m^3/h pregnant leach solution ("PLS") coming into the primary CIX circuit, and has the added benefit that there will be ca. 27% less metal going into the circuit that would need to be dealt with.

Rainbow has therefore achieved a major advancement in the Phalaborwa process by successfully reducing the amount of Ce in its exceptionally pure MREP by ca. 65%, further enhancing this high-grade product. These results have been confirmed via multiple tests.

Rainbow is now focused on finalising the separation component of the Phalaborwa flowsheet, which is set to produce a high purity neodymium and praseodymium ("NdPr") oxide and a SEG+ product, which will be a mix of medium and heavy REE, including the very high value dysprosium ("Dy") and terbium ("Tb"). Rainbow anticipates this workstream to be finalised in Q4 2025.

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Notes to Editors:

About Rainbow:

Rainbow Rare Earths aims to be a forerunner in the establishment of an independent and ethical supply chain of the rare earth elements that are driving the green energy transition. It is doing this successfully via pioneering the first commercial recovery of rare earth elements from phosphogypsum that occurs as the by-product of phosphoric acid production. These projects eliminate the cost and risk of typical rare earth projects, which involve mining and the production of a rare earth concentrate that must be chemically cracked to form a mixed rare earth carbonate before further downstream processing. As such, Rainbow's projects can be brought into production quicker and at a lower cost than traditional hard rock mining projects.

The Company is focused on the development of the Phalaborwa Project in South Africa and the earlier stage Uberaba Project in Brazil. Rainbow's process will deliver separated rare earth oxides through a single hydrometallurgical plant on site, with a focus on the recovery of neodymium, praseodymium, dysprosium and terbium. These are critical components of the high-performance permanent magnets used in electric vehicles, wind turbines, defence and exciting new markets such as robotics and advanced air mobility.

The Phalaborwa updated interim economic study released in December 2024 has confirmed strong base line economics for the project, which has a base case NPV_{10} of US 611 million. Given Phalaborwa is a chemical processing operation, with its resource sitting at surface in a chemically cracked form, it has a much lower operating cost than traditional rare earth mining projects, and it is therefore estimated to be the highest margin rare earth project in development today outside of China.

More information is available at www.rainbowrareearths.com or by visiting the Rainbow Rare Earths Curation Showcase at: Curation Connect - Rainbow Rare Earths Showcase or https://app.curationconnect.com/company/Rainbow-Rare-Earths-90903
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