

11 April 2023

APPROVAL TO START HEAP DESORPTION DEMONSTRATION PLANT AT MAKUUTU MINE SITE

Highlights

- **IonicRE has received Ugandan Ministry of Energy and Mineral Development (MEMD) approval for works to commence on the Demonstration Plant at the Makuutu Mine Site, with early works underway;**
- **Demonstration Plant to validate and optimise Makuutu Stage 1 Definitive Feasibility Study results;**
- **Manufacture and construction of the permanent metallurgical and analytical test laboratories have commenced;**
- **Demonstration Plant to be constructed in two phases to de-risk project development and scale up;**
- **Demonstration Plant Phase 1 to be operational during Q3 2023; and**
- **Commercial quantities of Mixed Rare Earth Carbonate (MREC) produced at the Demonstration Plant expected to be available later in 2023 for ongoing discussions with potential supply chain partners.**

The Board of Ionic Rare Earths Limited ("IonicRE" or "The Company") (ASX: IXR) is pleased to advise approval from the Ugandan Ministry of Energy and Mineral Development (MEMD) to commence activity for the Demonstration Plant at the Makuutu Rare Earths Project ("Makuutu" or "the Project") in Uganda has been granted.

Following on from the recent announcement on the positive Makuutu Stage 1 Definitive Feasibility Study (DFS) announced 20 March 2023, the Company, via our Ugandan subsidiary Rwenzori Rare Metals Limited ("RRM"), is progressing the construction of a technical facility at the Makuutu Mine Site required to validate and optimise metallurgical test work and provide a foundation for grade control, mine design, material handling, metallurgical reconciliation and scale up construction activity to support the commercial Project financing process. As this represents a significant capital expenditure, prudent engineering management requires a suitable demonstration be conducted for a representative period of time in order to de-risk the entire process chain of MREC production from mining to transportation to potential customer facilities.

The Makuutu Demonstration Plant will be one of the first large scale ionic adsorption technical facilities outside of China and represents the initial phase of development at Makuutu. The Demonstration facility will consolidate further metallurgical test work, including an extensive scale up program from 3 metre (m) to 6 m tall heap desorption columns and 6 m tall heap desorption cribs, which will be conducted and signed off by a series of independent competent persons. The technical facility will also include a nano-filtration (NF) test unit, precipitation circuits, drying facilities, additional metallurgical test capabilities, an analytical laboratory which will service an eventual full scale mine operation and offices and site infrastructure to support the overall demonstration program. Additional facility test equipment has been ordered and is expected to arrive to site during this quarter.

Manufacture of the initial technical facility super structure has commenced, along with land acquisition suitable for the Demonstration Plant site location at the Makuutu mine site., A Ugandan construction partner has been contracted to complete initial access roads, site civils and construct the facility.

The second phase of the Demonstration Plant is expected to commence shortly after positive confirmation of the 6 m tall heap stack height and will consist of a series of 5,000 tonne heap desorption modules, which will cycle through various stages of desorption to produce REE loaded desorption rich pregnant leach solution (PLS) liquor. From the REE rich PLS liquor, the Company will produce significant quantities of mixed rare earth carbonate (MREC) for downstream supply chain partner engagement, facilitate off-take, plus also provide feed material to supply IonicRE's own downstream refinery program.

IonicRE's Managing Director Mr Tim Harrison stated;

"The commencement of the Demonstration Plant construction at Makuutu, plus approval to proceed granted by the MEMD in Uganda, represents an exciting milestone for the Project and the Company. The process of de-risking the operation and providing MREC samples is essential to the next stage of attracting supply chain partners and moving towards a Final Investment Decision on the positive outcome of the Demonstration Plant."

"With the Makuutu Stage 1 DFS now completed, and MLA progressing in Uganda, the support from the MEMD to approve progressing to the next step is a positive signal as well their commitment to sustaining an enabling environment and continued support for the development of the Makuutu Rare Earths Project. This Project will be Uganda's flagship, long-life mine. We expect that as we progress through Q2, we will continue to receive positive support on the application, and greater definition on the role Makuutu will play in establishing a heavy rare earths supply opportunity to western end users."

Makuutu Demonstration Plant Development Approach

A dedicated technical team has been assembled in Uganda to drive demonstration activity, working closely with the technical team in Australia, and further appointments will be made over the course of the coming months.

The Demonstration Plant construction and operation will be undertaken on a staged basis with the Phase 1 development incorporating the following;

- For personal use only
1. Construction of a 780m² test facility which will house permanent mine infrastructure such as a metallurgical test facility and a mine analytical laboratory;
 2. Incorporation of a demonstration scale agglomerator to prepare mine ore for heap desorption treatment;
 3. A metallurgical test centre which will accommodate a suitable number of 6 m heap desorption columns and several scaled up heap desorption cribs up to 6m in height;
 4. Pregnant Leach Solution (PLS), Intermediate Leach Solution (ILS) and Wash Solution pumps, reticulation, collection and storage facilities;
 5. Nano-filtration (NF) test unit;
 6. Precipitation tanks and filtration equipment;
 7. Drying ovens, bottle rollers, slurry pressure filters and other metallurgical test equipment;
 8. The installation of a full-scale working analytical laboratory with the capacity to provide real time process information to support the operational management of the demonstration facility;
 9. Reagent and salts storage and mixing area with appropriate ventilation and handling facilities;
 10. Services such as site power, water, storage and access roads;
 11. Offices and ablutions to provide support for the demonstration workforce; and
 12. Fit for purpose communications infrastructure.

Process Flow Diagrams (PFD's), Piping and Instrumentation Diagrams (P&ID's) and Equipment Lists have been finalised and the laboratory design is completed. It is expected that construction of Phase 1 will be completed by late Q2 this year.

The Phase 2 construction of the Demonstration Plant will comprise the following key components at Makuutu;

1. Site earthworks;
2. The installation of three (3) lined heap desorption leach pads, each designed to handle approximately 5,000 tonnes of ionic clay material each, which will be cycled through various stages of the desorption process;
3. A system of lined ponds, storage vats and leachate collection facilities,
4. Irrigation piping and feed pumping infrastructure;
5. RO/NF plant to assist with liquor management and pre-concentrate PLS, ILS and wash water streams;
6. Impurity precipitation circuit;
7. MREC precipitation circuit and a product drying facility;
8. Reagent and salt storage facilities;
9. Associated service infrastructure.

It is envisaged that the complete Demonstration Plant facility, including both phases 1 and 2 will be operational during Q4 2023.

Authorised for release by the Board.

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About Ionic Rare Earths Ltd

Ionic Rare Earths Limited (ASX: IXR or IonicRE) is set to become a miner, refiner and recycler of sustainable and traceable magnet and heavy rare earths needed to develop net-zero carbon technologies.

The flagship Makuutu Rare Earths Project in Uganda, 51% owned by IonicRE, is well-supported by existing tier-one infrastructure and is on track to become a long-life, low Capex, scalable and sustainable supplier of high-value magnet and heavy rare earths oxides (REO). In March 2023, IonicRE announced a positive stage 1 Definitive Feasibility Study (DFS) for the first of 6 tenements to progress to a Mining Licence Application (MLA) which is pending in Uganda. The Makuutu Stage 1 DFS defined a 35-year life initial project producing a 71% rich magnet and heavy rare earth carbonate (MREC) product basket and the potential for significant potential and scale up through additional tenements. The Stage 1 MLA is expected to be awarded in Q2 2023.

Ionic Technologies International Limited ("IonicTech"), a 100% owned UK subsidiary acquired in 2022, has developed processes for the separation and recovery of rare earth elements (REE) from mining ore concentrates and recycled permanent magnets. Post-acquisition, IonicTech is now focusing on the commercialisation of the technology to achieve near complete extraction from end of life / spent magnets and waste (swarf) to high value, separated and traceable magnet rare earth products with grades exceeding 99.9% rare earth oxide (REO). This technology provides first mover advantage in the industrial elemental extraction of REEs from recycling, enabling near term magnet REO production capability to support demand for early-stage alternative supply chains.

As part of an integrated strategy to create downstream supply chain value, IonicRE is also evaluating the development of its own magnet and heavy rare earth refinery, or hub, to separate the unique and high value magnet and heavy rare earths dominant Makuutu basket into the full spectrum of REOs plus scandium.

This three-pillar strategy completes the circular economy of sustainable and traceable magnet and heavy rare earth products needed to supply applications critical to electric vehicles, offshore wind turbines, communication and key defence initiatives.

IonicRE is a Participant of the UN Global Compact and adheres to its principles-based approach to responsible business.

Competent Persons Statement

The information in this report that relates to Mineral Resources for the Makuutu Rare Earths deposit was first released to the ASX on 3 May 2022 and is available to view on www.asx.com.au. Ionic Rare Earths Limited confirms that it is not aware of any new information or data that materially affects information included in the relevant market announcement, and that all material assumptions and technical parameters underpinning the estimates in the announcement continue to apply and have not materially changed.

The information in this report that relates to Ore Reserves for the Makuutu Rare Earths deposit was first released to the ASX on 20 March 2023 and is available to view on www.asx.com.au. Ionic Rare Earths Limited confirms that it is not aware of any new information or data that materially affects information included in the relevant market announcement, and that all material assumptions and technical parameters underpinning the estimates in the announcement continue to apply and have not materially changed.

The information in this report that relates to Production Targets or forecast financial information derived from production the production target for the Makuutu Rare Earths deposit was first released to the ASX on 20 March 2023 and is available to view on www.asx.com.au. Ionic Rare Earths Limited confirms that all material assumptions and technical parameters underpinning the Production Targets or forecast financial estimates in the announcement continue to apply and have not materially changed.

Forward Looking Statements

This announcement has been prepared by Ionic Rare Earths Limited and may include forward-looking statements. Forward-looking statements are only predictions and are subject to risks, uncertainties and assumptions which are outside the control of Ionic Rare Earths Limited. Actual values, results or events may be materially different to those expressed or implied in this document. Given these uncertainties, recipients are cautioned not to place reliance on forward looking statements. Any forward-looking statements in this document speak only at the date of issue of this document. Subject to any continuing obligations under applicable law and the ASX Listing Rules, Ionic Rare Earths Limited does not undertake any obligation to update or revise any information or any of the forward-looking statements in this document or any changes in events, conditions or circumstances on which any such forward looking statement is based.