RARE X
Sustainable Rare Earths

60 Nd Neodymium | 59 Pr Praseodymium | 15 P Phosphorus

ASX Release
November 23, 2022

Cummins Range Rare Earth and Phosphate Project – Development and Progress Update

Upcoming catalysts include assays from a further 11,000m of drilling and a pivotal resource upgrade in Q1 2023

Highlights

- 2022 drilling program complete with 16,000m drilled to support ongoing metallurgical studies and an upgraded Mineral Resource Estimate expected Q1 2023.
- Metallurgical studies suggest that a combined apatite-monazite float could be achieved with subsequent separation by magnetics – further simplifying the Project from the Scoping Study.
- Power and land access currently under negotiation at Wyndham Port to support a phased infrastructure development solution.
- Mining Agreement negotiations underway with the Jaru Native Title Holders.
- Team bolstered with appointment of Damien Krebs to assist with Metallurgy.
- R&D Claim for FY22 being finalised.

RareX Limited (ASX: REE; RareX or the Company) is pleased to provide an update on ongoing development and stakeholder engagement activities at its 100%-owned Cummins Range Rare Earth and Phosphate Project, located in the Kimberley region of Western Australia.

The Company's 2022 drilling program has concluded safely, laying the foundation for a major Mineral Resource upgrade targeted for Q1 2023.

Metallurgical test work is continuing and showing promising signs to achieve an upsized and simplified combined flotation product from the mine site by focusing on monazite and apatite together following a clay removal de-slime step. This has the potential to simplify the Project from the one originally scoped out for the Pre-Feasibility Study (PFS) with interim product options and the ability to phase in the deployment of key infrastructure.

For more information, please contact:
Investors: Jeremy Robinson, Managing Director
Media: Nicholas Read, Read Corporate
P +61 (0) 8 6383 6593
P +61 (0) 8 9388 1474

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Power and land access negotiations and technical assessments are well underway with Pac Hydro and Horizon Power, respectively the generator and distributor of the Ord River hydro-electric power. The negotiation protocol with the Jaru Traditional Owners has been signed and formal negotiations are underway following the formation of the Jaru Native Title Negotiation Committee and the appointment of lawyers. A scope of works has been prepared for a community impact assessment which will be integrated with the heritage agreement in support of the Mining Licence application. Meanwhile, baseline assessments for flora, fauna, soils, waste, water and heritage are underway and preparation for next year's surveys have begun.

RareX Managing Director, Jeremy Robinson, said: "We are making material progress with the development and evolution of the Project on multiple fronts. Cummins Range is advancing rapidly towards the development phase and 2023 should see numerous key milestones achieved."

Studies and Project Evolution

The recently completed Scoping Study[1], based on the 2020 Mineral Resource, highlighted a potential pathway to monetise both the rare earth and phosphate assets at Cummins Range across two infrastructure locations – Cummins Range and Wyndham Port. The Scoping Study has provided a platform from which to grow and evolve the Project, with the results of ongoing metallurgical test work a key determining factor in its overall scope and configuration.

Recent work suggests an opportunity to simplify the Project while also allowing for an increase in scale at the next study phase. This will be supported by the impending Mineral Resource update, scheduled for Q1 2023.

The 2022 Scoping Study defined a 1.5Mtpa open cut mine at Cummins Range, feeding 500ktpa of Run-of-Mine (ROM) material to a beneficiation (bene) plant comprising simple flotation cells. This plant would produce two concentrate products: a rare earth concentrate and a phosphate concentrate. These concentrates are proposed to be trucked to Wyndham Port.

Recent metallurgical test work suggests that this can be simplified into a single, mixed flotation concentrate of rare earths and phosphate.

At Wyndham Port, a refinery powered by the Ord River hydro facility is envisaged which would process the rare earth concentrate into two further products: a mixed rare earth carbonate (MREC) and phosphoric acid.

With the delivery of a simplified, single interim product from the mine, the coastal infrastructure could be simplified further, allowing for the staged installation of refining capability, deferring capital and reducing execution risk.

[1] ASX Announcement 12 September 2022: Positive Scoping Study for Cummins Range Rare Earths Project

RareX Limited
ASX:REE
ABN: 65 105 578 756

RareX HQ
Unit 6, 94 Rokeby Road
Subiaco WA 6008
Australia

P +61 (0) 8 6383 6593

info@rarex.com.au
rarex.com.au

RareX Limited (ASX:REE)
@rarex_asx

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There is also an opportunity to produce end-product fertilisers by combining the phosphoric acid with the phosphate rock concentrate, but this has not yet been fully investigated. The Company is working with ORDCO[2] on opportunities to supply local farms and stations with phosphate products.

The Scoping Study outlined the proposed sale of three products at Wyndham Port: A Mixed Rare Earth Carbonate (c. 10ktpa), Phosphoric acid (c. 30ktpa) and Phosphate rock concentrate (c. 130ktpa). This product suite could be simplified as the project evolves and is refined; however the fundamental products of a rare earth and phosphate combination will remain.

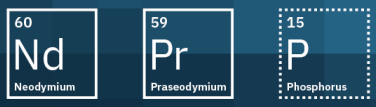
Drilling
2022 has seen approximately 16,000m of diamond and reverse circulation drilling completed at site with a team of approximately 20 RareX employees and contractors. The rigs have now left the site and are scheduled to return soon after the wet season. Drilling has been supported by Kal Drilling and Stark Drilling.

Resource and Geology
The updated Mineral Resource Estimate is on track for Q1 2023 and is expected to be consistent with the previously published Exploration Target. The 2021 resource was calculated on historic and 2020 drilling. The new resource will include 2021 and 2022 drilling and includes over 20,000m of diamond and RC drilling. The updated MRE will take into account a much broader regolith region as well as some underlying fresh rock. Cut-off parameters are being studied and analysis is underway for the possible inclusion of the phosphate-rich zone, which may have the potential to be mined as a direct application fertiliser from a direct shipping operation (DSO), contributing to the phased infrastructure deployment approach.

The Company's geological understanding of the deposit has also evolved significantly with the completion of a regolith study authored by Pete Siegfried from CSA Global Consultants. The regolith mineralisation has been divided into 4 domains that are characteristic of regolith profiles on top of carbonatite pipes. Targeted metallurgy on each of these domains will now be a focus of the PFS.

Mineralogy and Metallurgy
Mineralogy investigations show values are contained in monazite and apatite which are crystalline minerals that are well suited to concentration via froth flotation. This is due to mineral morphology and modest liberation size. The Cummins Range apatite is very low in rare earth and radionuclide content making metallurgical treatment easier.
In the fresh zone, the rare earths are mainly distributed in monazite and bastnasite and are hosted within classic carbonatite gangue minerals. The apatite minerals are dominant in the low rare earth material, with high phosphate minerals present in both regolith and fresh zones.

[2] ASX Announcement 07 November 2022: RareX signs MOU for Supply of Phosphate Products Locally



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Investigations suggest that, once sufficient liberation is achieved, the apatite and monazite minerals can be floated as a combined concentrate and magnetically separated, leading to the potential for simple flotation at site with magnetic separation at the coast. This could lend itself to a phased infrastructure deployment option at Wyndham Port.

Metallurgical programmes have been ongoing during the year and account for the second largest budgetary allocation, behind drilling. The programmes have included testing in the regolith and fresh rock zones, with a recent priority focus on rare earth and phosphate optimised flotation across both the Rare Dyke and the Phos Dyke.

Recent test work has shown a potentially significant preference for gangue clay minerals into the sub-10-micron size fraction, opening up the possibility for pre-float de-sliming to reduce costs in the milling circuit and the flotation cells as well as improve phosphate and rare-earth concentrate quality.

Hydrometallurgical testwork at ANSTO has shown good alignment to the Scoping Study assumptions and shows a sulphuric acid bake following a phosphoric acid gangue leach to be the more appropriate extraction technology. Once the flotation programme has refined the concentrate grade and quality, there is the potential to further optimise the hydrometallurgy circuits and reduce reagent consumptions.

The 2022 metallurgical program is now complete with sample selection from four sub-lithologies, which will aim to confirm current metallurgy performance as well as allowing optimisation of the process flowsheets.

Auralia Metallurgy, Nagrom and ANSTO have been supporting RareX in the metallurgical testing. RareX is also sending ore samples to the highly experienced Chinese research institute; Baotou Meng Rong Fine Materials Co Ltd (BTMR). The BTMR is one of the world's leading flotation R&D laboratories for rare earth elements. By adopting this multi-dimensional approach, RareX hopes to rapidly work toward the establishment of the optimal flotation regime for the regolith and fresh ores.

Power and Land

The opportunity to utilise hydro-electric power at Wyndham is being developed towards formalisation. RareX has been working with Pac Hydro and Horizon Power to understand the current supply limitations, the low-hanging debottlenecking solutions, and the impacts of RareX infrastructure onto the feeder lines at Wyndham.

The Company intends to map a formalised pathway to a power purchase agreement in the near future. RareX is working with PWC as its legal adviser in this regard.

Off-take

Michael Prassas recently joined the team as Head of Corporate Development and has spent considerable time in Europe linking with his connections in the automotive sector, which is a key target market for both the

magnet metals, NdPr, as well as the phosphate material for use in Lithium-Ion Phosphate batteries such as those used in the new generation of electric vehicles due to improved safety and longevity.

RareX also recently executed an MOU for fertilizer product off-take, distribution and R&D for the purpose of placing a portion of the Cummins Range products locally for the benefit of the Kununurra agricultural sector.

This strategy is particularly pertinent given the price shocks currently reverberating through the phosphate fertilizer industry as a result of the conflict in the Ukraine and the remoteness of Kununurra, which relies solely on imported material, either from overseas or from the East coast of Australia. RareX is looking forward to developing a product road map with ORDCO.

Approvals

RareX expects that it will be required to submit full referrals under State and Commonwealth Acts for the Cummins Range Project and will be conducing baseline surveys accordingly. Because the Project has two infrastructure locations, this is likely to be addressed under separate referrals.

Dry season flora and fauna surveys at site are complete and will be augmented with the wet season surveys early next year. Pre-field trip heritage work has commenced and soil and landform surveys and waste rock characterisation will be initiated in the near future. Recent baseline hydrogeological studies will be augmented with a broader programme in 2023. The Company is working with the Jaru Native Title Holders to further integrate local members into the survey, monitoring and management teams. The Company is planning to make formal submissions at the completion of the PFS. RareX is working with MBS Environmental as its lead consultant for the environmental approvals.

Stakeholder engagement

RareX has been undertaking the groundwork required for its social impact assessment which includes a more focused Community Impact Assessment which will be included as part of the negotiations currently underway with the Jaru Native Title Holders for the Mining Heritage Agreement. RareX recently implemented a dedicated stakeholder database and management system. WSP Golders are the lead consultant in stakeholder engagement.

Native Title

The Mining Licence negotiations have commenced following the signing of the negotiation protocol with the Jaru Native Title Holders and the nomination of the Traditional Owners' Negotiation Committee (TONC). The first of the heritage agreement negotiations commenced on 22 November in Halls Creek. RareX is working with Allens as its legal representative.

GOVERNMENT SUPPORT

RareX also notes the recent announcement of the Critical Minerals Development Plan ("CMDP"), which is designed to provide support for companies and projects moving through the feasibility pathway.

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RareX is preparing for an application when the plan is expected to open in the New Year. In addition, RareX is currently finalising its Research and Development "R&D" claim for the FY22 year, which is expected to provide a significant cash injection to the Company.

Pre-Feasibility Study

The Pre-Feasibility Study (PFS) is underway in some key areas of the project with process design pending the next round of metallurgical studies.

Team Update

RareX has recently signed up to a long-term consulting arrangement with Damien Krebs, Principal Process Consultant for Primero. Damien is one of the foremost experts in rare earth processing and bolsters the team, which already includes Gavin Beer, another pre-eminent rare earth metallurgy and processing specialist.

Additional to this external consulting support, RareX recently hired Lu Zhang as Process Engineer. Lu, formally of METS Engineering Group, has been an embedded consultant to the team for 12 months and brings a great deal of processing capability to the team. Additionally, Lu is a Mandarin speaker and has been supporting RareX in its engagement with the broader rare earth and phosphate industry.

Next Steps

The key upcoming key milestones mean a busy start to the year ahead for RareX:

1. Update Mineral Resource Estimate.
2. Completion of the Heritage Agreement.
3. Negotiation of Power Purchase Agreement.
4. Ongoing metallurgical testwork results

This announcement has been authorised for release by the Board of RareX Limited.

RareX Limited
ASX:REE
ABN: 65 105 578 756

RareX HQ
Unit 6, 94 Rokeby Road
Subiaco WA 6008
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About RareX Limited – ASX: REE

RareX Limited (ASX: REE) is a Perth-based rare earths company committed to becoming a near-term producer of neodymium and praseodymium (NdPr). RareX's focus is on developing rare earths deposits in Australia, including the flag-ship Cummins Range Rare Earths – Phosphate Project.

NdPr is a core enabler of decarbonisation of our society and enables low carbon technologies, especially in the electric mobility sector, robotics solutions and renewable energy, e.g. the wind energy sector. NdPr is the key raw material for manufacturing rare earth powered permanent magnet NdFeB electric motors, the heart of the next industrial revolution the Electrification of our Society.

RareX's focus is on developing rare earths deposits in Australia, including the Cummins Range Rare Earths Phosphate Project in the East Kimberley region of Western Australia. RareX is committed to developing a sustainable, ethical, transparent and secure low carbon rare earth supply chain solution for the global electric mobility market and NdFeB permanent motor downstream ecosystem.

For further information on the Company and its projects visit www.rarex.com.au

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