The Debate for the Most Critical Rare Earths Project in the World Begins

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American Rare Earths CEO thinks Halleck Creek "will be one of the most important rare earths projects in the United States, or even the world"

American Rare Earths Limited (ASX: ARR | OTCQB: ARRNF) ("ARR") is a leading developer of rare earth elements with a strong focus on developing sustainable and cost-effective extraction and processing methods. ARR's 100% owned three rare earths projects are all located in the USA. ARR has recently decided to re-domicile to the USA in line with their projects' location.

Their two key projects are Halleck Creek in Wyoming, and La Paz in Arizona. Both have the potential to be among North America's largest rare earth deposits.

Halleck Creek Rare Earths Project's latest developments

In March 2023, ARR announced a JORC Resource at Halleck Creek of **1.43 billion tonnes with an average TREO grade of 3,309 ppm, and an average NdPr grade of 734 ppm.** That's a huge resource and

there is even more potential to grow it further. ARR states that "currently less than 25% of the Halleck Creek District has been drilled and the deposit remains open".

As announced on June 28, 2023, ARR plans to drill a further ~2,400 meters at the Halleck Creek Project. The purpose of the drill program is to both upgrade the Resource and potentially grow it further. The upgrading goal is to "define a significant volume of measured and indicated resources". Drilling is expected to commence later in Q3, 2023 subject to receiving permits.

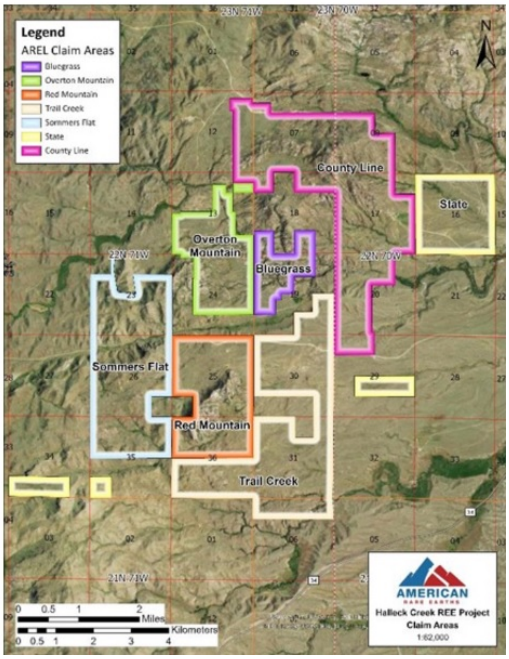
ARR CEO and Managing Director, Chris Gibbs, commented:

> *"The outstanding results we achieved with the JORC Resource of 1.43 billion tonnes at Halleck Creek provides the foundation to build what we think will be one of the most important rare earths projects in the United States, or even the world. The 1.05 million tonnes of NdPr at Halleck Creek can unlock current boundaries of the electrification of the US economy."*

An overview of ARR's 100% owned Halleck Creek Rare Earths Project in Wyoming, USA

Overview

- Potentially the largest rare earth deposit in the United States
- Total JORC Resource of 1.43 billion tonnes
- Estimated 4.7 million tonnes of Total Rare Earth Oxides (TREO)
- 26% highly valuable magnetic rare earth elements (includes 1.05 million tonnes NdPr)
- TREO average grade of 3,309 ppm (0.33%)
- Recently expanded district to 8,165 acres over seven zones
- Significant upside potential with JORC Resources only in Overton and Red Mountain areas. 75% of mineralized zones yet to be drilled and deposit remaining open at depth
- Deposit is from surface with consistent grades throughout making it ideal for large scale, low-cost open pit mining
- Environmentally friendly with low levels of penalty thorium and uranium elements
- Test work demonstrates the ore responds well to conventional processing technology, which reduces operating and capital costs
- Close to infrastructure and a highly skilled workforce



Source: [American Rare Earths company presentation]

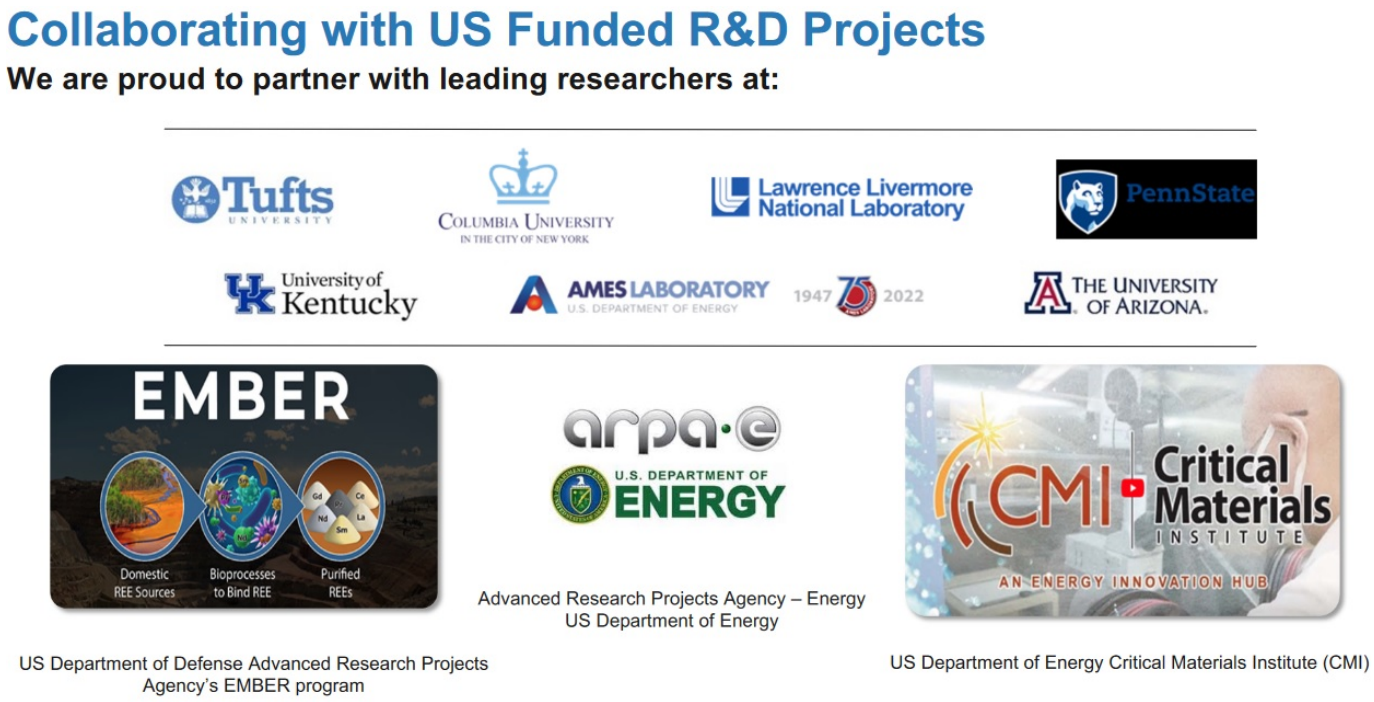
In other news, on July 6, 2023, ARR [announced] that they are advancing new and potentially better processing methods for their Halleck Creek Rare Earths Project. This is a key development as processing rare earths is a complex and expensive process, mostly done in China. ARR [state]:

> *"…..the company is actively engaged in US Government-funded research aimed at developing cleaner and cheaper processing methods for rare earths, utilizing biological techniques. In collaboration with renowned institutions and laboratories, American Rare Earths is making significant strides towards this goal….**the development of a new method that employs a protein isolated from bacteria to extract and separate rare earth elements in a more environmentally friendly manner.** With the potential for scalability, this breakthrough could be instrumental in the development of a domestic supply of rare earth metals, **reducing the ecological impact** associated with traditional extraction methods."*

Note: Bold emphasis by the author.

A reduced ecological impact would also be potentially beneficial when it comes to project permitting.

ARR is collaborating with partners to develop new biological methods to extract and separate rare earth elements



Source: [American Rare Earths company presentation]

Also [announced] on June 2, 2023, Halleck Creek ore achieved very positive initial metallurgical test results using Wet High Intensity Magnetic Separation (WHIMS) which yielded "72% recovery and rejected 77% of feed mass, an upgrade ratio of 3.1". This was using a simple process flow sheet to produce a rare earth concentrate and maximize the recovery of magnet metals neodymium and praseodymium (NdPr).

ARR is studying using annualized ore processing of 10, 15 and 20 million tonnes per annum feed rate to the concentrator which would equate to a modeled production of 3,800 tonnes, 5,700 tonnes and 7,600 tonnes, respectively of the highly valuable NdPr oxides contained in mixed rare earth carbonate. At the

upper end of these projections that would put ARR in the league of western market leaders such as Lynas Rare Earths Limited (ASX: LYC) and MP Materials Corp. (NYSE: MP), in terms of NdPr production volumes.

Near-term catalysts for the Company at Halleck Creek will be results of the detailed metallurgical testing, any results from baseline environmental test work, further drilling results and a possible resource upgrade, and any further news regarding their co-development work to produce new biological methods to extract rare earths. Beyond that the next large step is a Preliminary Economic Assessment, perhaps in H1, 2024.

Closing remarks

ARR continues to do the hard work to build a strong future for the Company. To date, results at Halleck Creek have been very encouraging. A huge resource, good recovery rates, and potential to one day achieve very significant volumes of NdPr. Any success with biological rare earths processing would be a nice bonus.

American Rare Earths trades on a market cap of A$74 million.