American Rare Earth Limited: Metallurgical Tests at Halleck Creek Indicate Low Mining, Processing Costs

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Sydney, Australia - American Rare Earth Limited (ASX:ARR) (OTCMKTS:ARRNF) (FRA:1BHA) is able to report that at its Halleck Creek rare earths elements project in Albany County, Wyoming, USA, metallurgical tests have paved the way for a potentially low-cost mining and processing operation using conventional technology.

The company, which is also progressing the La Paz REE project in Arizona, is positioning itself to be a key player in the North American supply chain for the renewable future. US Government policy now supports the revival of the American rare earths industry in order to decrease dependence on Chinese supply.

Highlights

The metallurgical tests, conducted by Wood Australia, show that Halleck Creek has favourable characteristics on a number of counts. These are:

- Low ore strength: the ore can be liberated easily, with the ore strength ranking in the lowest 14th percentile of more than 1,300 deposits globally. This requires minimal energy use.

- Ore abrasiveness is below average.

- The ore will require less coarse grinding at the processing plant, meaning another level of energy expenditure and the opportunity to increase capacity.

- These factors will make possible a simplified flow sheet reflecting lower capital cost outlays.

The recently completed comminution testing (which reduces the ore to minute particles) on core material from the Halleck Creek project provides the opportunity to optimise and simplify the grinding and crushing flow sheet. This further demonstrates the capability to reduce operating and capital cost using conventional technology.

Managing Director Chris Gibbs said that one of the major costs in any processing plant is within the crushing and grinding circuit. "These test results indicate there could be significant energy savings due to the ore softness. Simply put, the easier the ore is to crush and grind, the lower our operating costs will be. It will also enable higher throughput rates and efficiencies as the comminution circuit is so often the limiting factor for plant capacity. And, apart from energy savings, the less abrasive ore will lead to reduced wear and tear"

Under the guidance of Wood Australia, Nagrom Laboratories concluded the Feed Characterisation/Comminution module of the test work program. This included SMC Testing Pty Ltd (SMC) that produces data used for the sizing of SAG mills and was originally designed to support Mine-to-Mill studies.

The SMC test work results indicate low ore competency which would translate to low specific energy consumption in a SAG mill. Compared to SMCs global database of over 1300 deposits, Halleck Creek was rated in the 14th percentile for ore competency. The Bond abrasion index test returned a value of 0.24, which is below the average of Wood Australia's database. The Bond ball mill work index test result of 15.6 kWh/t is close to average hardness relative to Wood's database.

The combination of values suggest that Halleck Creek ore should be suitable for processing in a SAG-Ball mill configuration without the need for pebble crushing and could also be processed in a single stage SAG mill. Other modes of grinding, such as high-pressure grinding mills and vertical roller mills may also be considered down track when sufficient sample mass is available for testing.

Next Steps

With oversight from Wood Australia, test work is currently underway on additional steps in the process flow

sheet. This includes magnetic separation test work currently underway at Nagrom Laboratories in Perth, Western Australia. We will then transition to flotation testing of WHIMS magnetics at Auralia Metallurgy, to assess the potential for further upgrading. Testing will then commence on the leach process using Watts & Fisher's proprietary leach technology.

The Company will continue to provide updates on metallurgical test work as results come to hand.

Together with mineralogy tests results announced earlier this month (ASX release 2.12.2022) the economic and technical benefits from these new test results could be significant. Previously the company has advised that mineralogy tests have shown that rare earths host mineral at Halleck Creek can easily be liberated, while the host mineral Allanite contains approximately 90% of total rare earths present. American Rare Earths noted that Halleck Creek has the potential to be a key strategic project with the US, helping to bring supply of critical rare earths onshore.

*To view all tables and figures, please visit:
https://abnnewswire.net/lnk/90EY48LJ

About American Rare Earths Limited:

One of the only ASX listed companies with exposure to the rapidly expanding US market, American Rare Earths Ltd. (ASX:ARR) (OTCMKTS:ARRNF) (FRA:1BHA) is developing its 100% owned magnet metals projects, La Paz in Arizona, and Halleck Creek in Wyoming. Both have potential to be among the largest, rare earths deposits in North America. The company is concurrently evaluating other exploration opportunities while collaborating with US Government supported R&D to develop a sustainable domestic supply chain for the renewable future.

Source:
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