American Rare Earths Announces Zircon Co-Product Potential

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Highlights

- Zircon supply is currently limited but is essential in high-growth industries like ceramics, electronics and nuclear energy, which are experiencing increasing demand globally.
- Initial and historical exploration assay results indicate the potential for significant Zircon co-product potential alongside Rare Earths (REEs) processing at ARR's flagship Halleck Creek project.
    - Zirconium can be easily separated and upgraded, owing to its density, as part of the REEs pre-concentration steps in the Halleck Creek flowsheet; potentially providing significant economic value when produced alongside REE's as a co-product.
    - Historical assay results for zirconium indicate an average in-situ grade is 2,077 ppm. The average crustal abundance is 300 ppm for comparison purposes.
    - Initial assay results from the gravity separation program (spiral testing) within the REEs program provided a 13.7x upgrade which equates to ~2.3%.
    - Through research collaboration with the University of Wyoming, ARR believes zircon is more prevalent at Halleck Creek than previously believed.
    - Beneficiation work currently being performed includes testing to separate and further concentrate zirconium using gravity separation and magnetic removal of paramagnetic minerals to further upgrade the material.
    - Laser ablation assay of zircon crystals show elevated levels of heavy REEs, providing additional upside.

- Future exploration and metallurgy work is focused on several opportunities:
    - Separated zirconium concentrate as a co-product, and
    - Heavy REEs extraction from metamict zircon

DENVER, May 29, 2024 -- American Rare Earths Ltd. (ASX: ARR | OTCQX: ARRNF | ADR: AMRRY) ("ARR" or the "Company") is pleased to announce the zircon co-product potential alongside REE processing at Halleck Creek as part of a research collaboration with the School of Energy Resources ("SER") at the University of Wyoming.

Donald Swartz, Chief Executive Officer of American Rare Earths, commented:

"*Zircon is typically a minor product obtained from processing heavy mineral sands and has many high value applications across multiple industries. We are thrilled to announce the discovery of a potential co-product in our Halleck Creek project. This potential was only recently identified as part of our previously announced REE processing program modifications emphasizing Dense Medium Cyclones work[1] led by Lawrence Livermore National Laboratory. This opportunity has the potential to generate significant additional revenue and enhanced project economics. Further details will be provided as we continue our assessment and evolve our strategy to maximize value for our shareholders*."

This work is a significant step forward in understanding the potential of zircon within the Red Mountain pluton at ARR's flagship Halleck Creek REEs project. Dr. Lily Jackson, an expert in sedimentology, tectonics, and geochronology from SER, has led this research. The Company aims to understand the significance of zircon within the REEs bearing Red Mountain pluton at Halleck Creek. Zircon, like allanite contains REEs elements and, has the potential to be a significant contributor of Heavy REEs ("HREE") at Halleck Creek.

This market announcement has been authorized for release to the market by the CEO of American Rare Earths.

Technical Summary

Preliminary assessments uncovered notable anomalies in zircon within core samples collected from the Red Mountain pluton. The preliminary findings indicate that zircon may occur in greater abundance than previously observed. Observations also reveal that zircon in the samples have metamict cores like metamict cores observed in allanite at Halleck Creek. Furthermore, this preliminary work indicates that metamict zircon cores (centers) exhibit an exceptional enrichment in REEs Elements compared to their rims. This is well illustrated by cathodoluminescence images as observed in Figure 1.

Figure 1 - Back scatter electron and cathodoluminescence image of a single zircon grain from Red Mountain pluton exhibiting metamict and REE enriched cores.

For additional detail and the full technical summary see here:

Competent Persons Statement:

This work was reviewed and approved for release by Mr. Kelton Smith (Society of Mining Engineers #4227309RM) who is employed by Tetra Tech and has sufficient experience which is relevant to the metallurgical testing and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 JORC Code. Mr. Smith consents to the inclusion in the report of the matters based upon the information in the form and context in which it appears.

About American Rare Earths

American Rare Earths Ltd. (ASX: ARR | OTCQX: ARRNF | ADR: AMRRY) owns the Halleck Creek, WY and La Paz, AZ rare earth deposits which have the potential to become the largest and most sustainable rare earth projects in North America. American REEs is developing environmentally friendly and cost-effective extraction and processing methods to meet the rapidly increasing demand for resources essential to the clean energy transition and US national security. The Company continues to evaluate other exploration opportunities and is collaborating with US Government-supported R&D to develop efficient processing and separation techniques of REEs elements to help ensure a renewable future.

Further information
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A photo accompanying this announcement is available at
https://www.globenewswire.com/NewsRoom/AttachmentNg/131447b7-a90a-474e-85ec-c78662894907

[1] ASX Announcement 22 January 2024. American Rare Earths Announces Breakthrough Metallurgical Results