

Metallurgical Milestone Achieved at Halleck Creek

written by Raj Shah | February 20, 2025

10X Rare Earth Upgrade Successfully Demonstrated at Production Scale Using Conventional Low-Cost Methods.

Key Highlights

- **Metallurgical test work confirms Halleck Creek ore can be upgraded by 10:1**, validating a simple and effective early-stage beneficiation process.
- **93.5% of non-rare earth material can be removed early in processing**, meaning only 6.5% of mined ore requires further refining, significantly reducing processing costs.
- **This metallurgical milestone confirms the 10x upgrade assumption** in the Scoping Study¹, supporting the PFS flowsheet and further de-risking the project
- **Optimization work is ongoing** to enhance recoveries, streamline processing, and lower costs, supporting the upcoming Pre-Feasibility Study (PFS).

February 20, 2025 ([Source](#)) – **American Rare Earths (ASX: ARR | OTCQX: ARRF and AMRRY)** (“ARR” or the “Company”) is pleased to announce the successful completion of large-scale metallurgical test work at its Halleck Creek Rare Earths Project in Wyoming, USA.

Recent testing, conducted in collaboration with Mineral Technologies, confirms that Halleck Creek ore can be efficiently

upgraded at scale using conventional, low-cost methods, reinforcing the strong fundamentals of the project.

Test work successfully upgraded mineralized feedstock from 3,438 ppm (0.34%) TREO to approximately 37,200 ppm (3.72%) TREO—a 10:1 increase in rare earth concentration. This means that for every tonne of ore mined, only 6.5% requires further refining, reducing processing volumes and potentially lowering operating costs.

This work was performed on a 1.9-tonne sample of crushed core material, using MG12 Spirals and Induced Roll Magnetic Separation (IRMS) technology—both commercially proven processing methods.

American Rare Earths CEO, Chris Gibbs, commented:

“These results confirm exactly what we anticipated—Halleck Creek ore can be efficiently upgraded using simple, low-cost conventional processing methods. Successfully demonstrating this at production scale is a major milestone, further de-risking the project as we advance toward development.”

“This large-scale test work validates the 10x upgrade assumption in our Scoping Study¹ and provides further confidence in the project’s potential. With these results in hand, we will issue an Updated Scoping Study shortly, incorporating the JORC Resource increase announced earlier this month.”

“Looking ahead, we are advancing metallurgical test work to optimize processing efficiency and conducting hydrometallurgical testing to refine our flowsheet. This work remains on track to support the development of our Pre-Feasibility Study.”

1. ASX Announcement 18 March 2024

What This Means for Halleck Creek's Development

- **Significant Material Upgrade Reduces Processing Volumes** – 93.5% of non-REE material is removed early, meaning only 6.5% of mined ore requires further processing, reducing complexity and costs.
- **Proven Processing Technology Scales Successfully** – Large-scale testing validates that widely used, low-cost beneficiation methods can efficiently upgrade Halleck Creek ore.
- **A Key Step in Pre-Feasibility Study (PFS) Development** – These results provide critical inputs for the PFS flowsheet, confirming processing assumptions in the Initial Scoping Study and further de-risking the project.

Next Steps: Enhancing Recovery and Process Optimisation

The successful 10:1 early-stage beneficiation upgrade at Halleck Creek is a major milestone in the project's development. The initial TREO recovery from the combined spiral and IRMS process was 62%, which is lower than the 78% outlined in the Scoping Study. However, ongoing test work is focused on optimizing recoveries while maintaining or improving the 10X upgrade factor.

These results confirm the Scoping Study's assumption of a 10x upgrade factor for the relevant processing section. No changes to the processing assumptions were recommended at this stage, as the flowsheet design is still being finalised, with further test work ongoing to optimise recoveries and efficiency. These results provide a strong foundation for further process improvements as the project progresses toward the Pre-Feasibility Study (PFS).



Figure 1: Spiral Test Work at Minerals Technologies

This announcement has been authorized for release by the Board of American Rare Earths.

Full technical details are available [here](#).

About American Rare Earths Limited:

American Rare Earths (ASX: ARR | OTCQX: ARRNF | ADR: AMRRY) is a critical minerals company at the forefront of reshaping the U.S. rare earths industry. Through its wholly owned subsidiary, Wyoming Rare (USA) Inc., the company is advancing the Halleck

Creek Project in Wyoming—a world-class rare earth deposit with the potential to secure America’s critical mineral independence for generations. The Halleck Creek Project boasts a JORC-compliant resource of 2.63 billion tonnes, representing approximately 16% of the greater Halleck Creek project surface area, making it one of the largest rare earth deposits in the United States. Located on Wyoming State land, the Cowboy State Mine within Halleck Creek offers cost-efficient open-pit mining methods and benefits from streamlined permitting processes in this mining-friendly state.

With plans for onsite mineral processing and separation facilities, Halleck Creek is strategically positioned to reduce U.S. reliance on imports—predominantly from China—while meeting the growing demand for rare earth elements essential to defense, advanced technologies, and economic security. As exploration progresses, the project’s untapped potential on both State and Federal lands further reinforces its significance as a cornerstone of U.S. supply chain security. In addition to its resource potential, American Rare Earths is committed to environmentally responsible mining practices and continues to collaborate with U.S. Government-supported R&D programs to develop innovative extraction and processing technologies for rare earth elements. The opportunities ahead for Halleck Creek are transformational, positioning it as a multi-generational resource that aligns with U.S. national priorities for critical mineral independence.

For additional information

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A photo accompanying this announcement is available at <https://www.globenewswire.com/NewsRoom/AttachmentNg/a254fdae-43f8-48f3-9bd8-2dd637b02b9d>