Work Commences to Produce NdPr Oxide and NdPr Metal from Halleck Creek Ore

written by Raj Shah | November 9, 2026

HIGHLIGHTS

- **Small scale continuous pilot plant under way: Rare earth concentrate from the Halleck Creek deposit in Wyoming has been delivered to Novex, LLC, and work has commenced on a program to produce neodymium and praseodymium (NdPr) oxide followed by NdPr metal from Halleck Creek ore**
- **Pilot plant constructed: Novex has constructed the small-scale continuous pilot plant for the program at its research facility in the United States, including two connected solvent extraction circuits**
- **Concentrate to oxide to metal: The core program covers laboratory process verification (Phase 1), a small-scale continuous pilot plant campaign to produce purified NdPr oxide (Phase 2) and conversion of that oxide into NdPr metal (Phase 3)**
- **Building the U.S. midstream: The work is designed to demonstrate, on Halleck Creek material, the midstream step from separated oxide to the metal used to make permanent magnets**
- **Defined timing: The program is expected to be finalized in Q1 2027, with results to support the planned demonstration at the Saskatchewan Research Council**

November 9, 2026 (Source) – American Rare Earths Limited (**ASX: ARR | OTCQX: ARRNF | ADR: AMRRY**) (**“ARR” or “the Company”**) is

pleased to announce that work has commenced on a small-scale continuous pilot plant to produce NdPr oxide, followed by NdPr metal, from Halleck Creek ore. Rare earth concentrate from the Halleck Creek deposit has been delivered to Novex, LLC (**“Novex”**), and the small-scale continuous pilot plant for the program has been constructed at the Novex research facility. The plant is separate from, and much smaller than, the larger continuous pilot planned at the Saskatchewan Research Council in 2027.

The work is being carried out by the Company’s wholly owned subsidiary, Wyoming Rare (USA) Inc. (**“WRI”**), for the Halleck Creek Process Verification and Selected Rare Earth Metal Production Demonstration.

OVERVIEW

The program is intended to enhance metallurgical understanding of the Halleck Creek ore body while producing high-purity NdPr oxide material and separately producing an NdPr metal specimen from that oxide. These are demonstration quantities and do not represent commercial production.

MOVING HALLECK CREEK MATERIAL INTO THE MIDSTREAM

Most of the world’s rare earth metal is made in China. Magnet manufacturers cannot use oxide directly; they need metal and alloy, and the step from separated oxide to metal remains one of the narrowest points in the supply chain outside China. ARR’s strategy is to connect Halleck Creek’s resource with that midstream step inside the United States.

The Novex program builds on the existing Memorandum of Understanding (**“MoU”**) between WRI and Novex, and it is the oxide to metal workstream described in the Company’s Cowboy State Mine Scoping Study announcement of September 30, 2026. It is the

first time Halleck Creek material will be taken through a single connected program, from concentrate through leaching, purification and separation to NdPr oxide, and then on to NdPr metal.

The feed is concentrate produced from Halleck Creek ore. Approximately 57 kg of this concentrate has been received by Novex. It will be allocated between laboratory testing, feed characterization, the pilot campaign and a contingency reserve.

"This is the first time Halleck Creek material has gone into a connected circuit designed to take it all the way from concentrate to separated NdPr oxide and then to NdPr metal. That is the part of the supply chain the United States most needs to rebuild, and we are testing it on our own ore. This is an exciting step forward for the project and towards our goal of creating a vertically integrated mine-to-magnet capability within the United States."
– Mark Wall, Chief Executive Officer, American Rare Earths

TIMING AND NEXT MILESTONES

Milestone	Indicative timing
Concentrate delivered to Novex; small scale continuous pilot plant constructed; program commenced	Q4 2026 (complete)
Feed characterization, leach route comparison and pilot process review (P1)	Q4 2026
Laboratory program completion and P1 report	Q1 2027
Small scale continuous pilot plant campaign and NdPr oxide qualification (P2)	Q1 2027
NdPr metal production, analysis and integrated core report (P3)	Q1 2027

Timing depends on analytical turnaround and on the measured performance of each stage. A delay in oxide qualification would affect the timing of the metal demonstration that follows it. These are planned targets, not guarantees of timing or outcome.

THE CORE PROGRAM: Phase 1, Phase 2 and Phase 3

The three core programs are linked. Laboratory work in Phase 1 sets the operating conditions for the small-scale continuous pilot plant campaign in Phase 2, and the qualified oxide from P2 becomes the feed for metal production in Phase 3.

Program		Scope		Planned output
Phase 1: Laboratory process verification		Leaching, residue filtration and washing, impurity removal and solvent extraction testing on the received Halleck Creek concentrate		Selected processing route, element balances and the operating basis for the pilot plant
Phase 2: Small scale continuous pilot plant NdPr oxide campaign		One connected small scale continuous pilot plant operation, with two solvent extraction circuits run continuously and NdPr finished as oxide		Purified NdPr oxide, targeting 99.99% purity, with full process balances
Phase 3: NdPr metal demonstration		Conversion of qualified P2 oxide into metal using Novex’s existing metallization technology		NdPr metal specimen with independent analysis and a concentrate to metal balance

P1: LABORATORY PROCESS VERIFICATION

The laboratory program verifies earlier leach test results on the received concentrate and compares sulfuric acid, hydrochloric acid and mixed acid leaching routes. It also tests ways to improve extraction of the medium and heavy rare earths and to limit the silica related passivation that can slow leaching.

Beyond leaching, P1 measures each impurity removal step before the bulk pilot inventory is processed. These steps include two stage neutralization to remove iron, thorium, aluminium and silica, uranium removal by ion exchange, and cerium removal by oxidation and precipitation. Laboratory solvent extraction work then defines the conditions for separating lanthanum and cerium from the remaining rare earths, and for separating NdPr from samarium and the heavier elements. At every step Novex will measure rare earth losses, reagent consumption, water and energy use, and the type and quantity of waste produced.

P2: SMALL SCALE CONTINUOUS PILOT PLANT NdPr OXIDE PRODUCTION

P2 operates the small-scale continuous pilot plant as one connected, sequential operation using the process order and operating conditions selected in P1. The circuit runs leaching, filtration and washing, two neutralization steps, uranium polishing and conditional cerium removal, followed by two connected solvent extraction circuits with a provisional allocation of 84 active stages. NdPr is precipitated from the separated solution with oxalic acid, washed and calcined to purified NdPr oxide. The other rare earths are recovered as mixed oxide products and characterized.

The solvent extraction plant is staffed 24 hours a day and is planned to run for approximately 28 operating days. Part of that period is needed for the two circuits to reach hydraulic and

chemical stability, after which qualifying NdPr product is collected. Daily product lots are kept separate until analysis confirms which material qualifies. P2 will deliver complete solids, element, water and energy balances, reagent consumption, and waste characterization across the full flowsheet.

P3: NdPr METAL PRODUCTION

P3 converts qualified NdPr oxide from P2 into NdPr metal. The work covers selection of the reduction route and oxide acceptance criteria, two reduction charges, consolidation of the recovered metal and independent analysis of the product, including metallic impurities and oxygen, carbon, nitrogen and sulfur. All metallization laboratory and pilot work is performed in-house by Novex. Any rare earths introduced through reagents or equipment will be recorded separately and excluded from the recovery attributed to Halleck Creek concentrate.

HOW THE RESULTS WILL BE USED

The Novex program is intended to provide measured process data to inform the design, operating parameters and development of the larger continuous demonstration plant planned at the Saskatchewan Research Council (SRC) in 2027. A separate large sample is currently with Nagrom in Perth for recovery optimization and is scheduled for transfer to the United States in December 2026. Results from Novex will help define equipment and operating requirements for that work and will be considered in the feasibility study.

The program does not replace feed variability testing, extended continuous operation with full process recycles, detailed engineering or commercial scale demonstration. ARR will receive all experimental results and recovered products, including results from any tests where targets are not achieved.

FURTHER PROGRAMS

Novex has also scoped optional programs, which do not form part of the current work package. These include a larger campaign targeting a 200 g NdPr metal bar, which would require additional concentrate, and separation and metallization work for samarium, dysprosium and yttrium. The Company will consider these programs as results from the core work become available.

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

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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. (“WRI”), 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. 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. Further information is available at www.americanree.com.

FORWARD LOOKING STATEMENTS

This announcement contains forward-looking statements that involve subjective judgement and analysis and accordingly, are subject to significant uncertainties and risks, many of which are outside the control of, and are unknown to, American Rare Earths (“ARR”). In such circumstances, the forward-looking statements can be identified by the use of forward-looking words such as “may”, “will”, “expect”, “intend”, “seek”, “estimate”, “believe”, “continue” or other similar words. No representation, warranty or assurance is given or made in relation to any forward-looking statement by ARR or its representatives. In

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