HALLECK CREEK PROJECT UPDATE

Drilling Program, R&D, Environmental Permitting, Processing and Metallurgical Testwork

Highlights

- 2,470 m drilling program to commence in July 2024 in the Cowboy State Mine area to upgrade resources and advance mine planning work for prefeasibility analysis.

- New Research and Development partnership funding[1] approved by Defense Advanced Research Projects Agency (**DARPA**), with Lawrence Livermore National Laboratory being awarded $US 4.6 million – part of these funds will be used by Lawrence Livermore National Laboratory to continue work to support flowsheet design at Halleck Creek.

- Permitting activities have been initiated at the Cowboy State Mine, beginning with baseline environmental data collection/analysis.

- Flowsheet Optimisation:
  - Advanced separation and concentration testwork continue to progress
  - Detailed leach testing being planned with experts at SGS Canada

American Rare Earths (**ASX: ARR | OTCQX: ARRNF | ADR: AMRRY) ("ARR"** or the **"Company"**) is pleased to provide a project update around previously announced project milestones and announce upcoming exploration drilling at the Halleck Creek Project. Under the DARPA Environmental Microbes as a BioEngineering Resource (EMBER) program, Phase II was recently awarded an additional US$4.6 million in R&D funding for continued studies. This is noteworthy as prior work from this research has been utilised in the current processing flowsheet, using gravity separation techniques developed in the research, and the R&D continues to utilise Halleck Creek ore[2].

Donald Swartz, CEO of American Rare Earths, commented:

"I am pleased to announce our continued project execution to de-risk the project. At the time of our institutional placement in February, we outlined the use of proceeds to accelerate development to include additional drilling, metallurgical testwork, project studies, and permitting. As we enter the 2025 fiscal year, we do so ahead of schedule. Through the Company's involvement in the DARPA initiative, our flowsheet has improved, and I'm excited about the future. The planned drilling will allow ARR to upgrade our resource estimates and provide data for advancing studies in FY2025. The mineral processing and leaching testwork is designed to refine our current flowsheets. The preliminary baseline environmental studies are the first steps towards responsible mine development at the Cowboy State Mine."

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[1] https://www.llnl.gov/article/51036/concentrating-rare-earth-elements
[2] ASX Announcement, "*American Rare Earths Announces Breakthrough Metallurgical Results*", 22 January 2024.

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Project Update

- The Company is mobilising drillers so drilling can commence in July 2024. The plans for the Cowboy State Mine area consist of drilling approximately 23 holes (12 RC holes and 11 HQ core holes) for a total of 2,470 metres (8,100 feet) (Figure 1).

- ARR has engaged WWC Engineering (WWC), from Sheridan, Wyoming, to oversee and conduct baseline environmental data collection activities at the Cowboy State Mine area. These baseline studies include commencing detailed vegetation and animal monitoring surveys. Additional baseline environmental studies will commence after consultation with the Wyoming Department of Environmental Quality – Land Quality Division.

- ARR continues to refine mineral processing flowsheets with ongoing work at Mineral Technologies and SGS Canada. Mineral Technologies ran approximately 400 kg of Halleck Creek core across spiral separators showing distinct separation between the material (Figure 2 and Figure 3). Mineral Technologies collected 53 samples and submitted them for assay with ALS Global, with results pending.

- SGS Canada is performing high-pressure grinding roll (HPGR), gravity separation, wet-high intensity magnetic separation, and electrostatic separation tests on approximately 75kg of Halleck Creek core (Figure 4 andFigure 5). The SGS testwork is designed to build upon separation testing performed by Wood PLC in 2023, with a focus on gravity separation as the primary separation method with results expected in Q3 2024.

- ARR is developing processing and leaching test programs and will be using approximately 3 tonnes of available core samples from Halleck Creek and core samples collected during the July 2024 drilling at the Cowboy State Mine area. The processing and separation testwork will be based on the results of current Mineral Technologies and SGS Canada testing and is expected to commence in Q3 2024.

- SGS Canada have developed a comprehensive testwork plan focusing on leaching, impurity removal and preliminary rare earth oxide processing with work to commence in Q3/Q4 2024.

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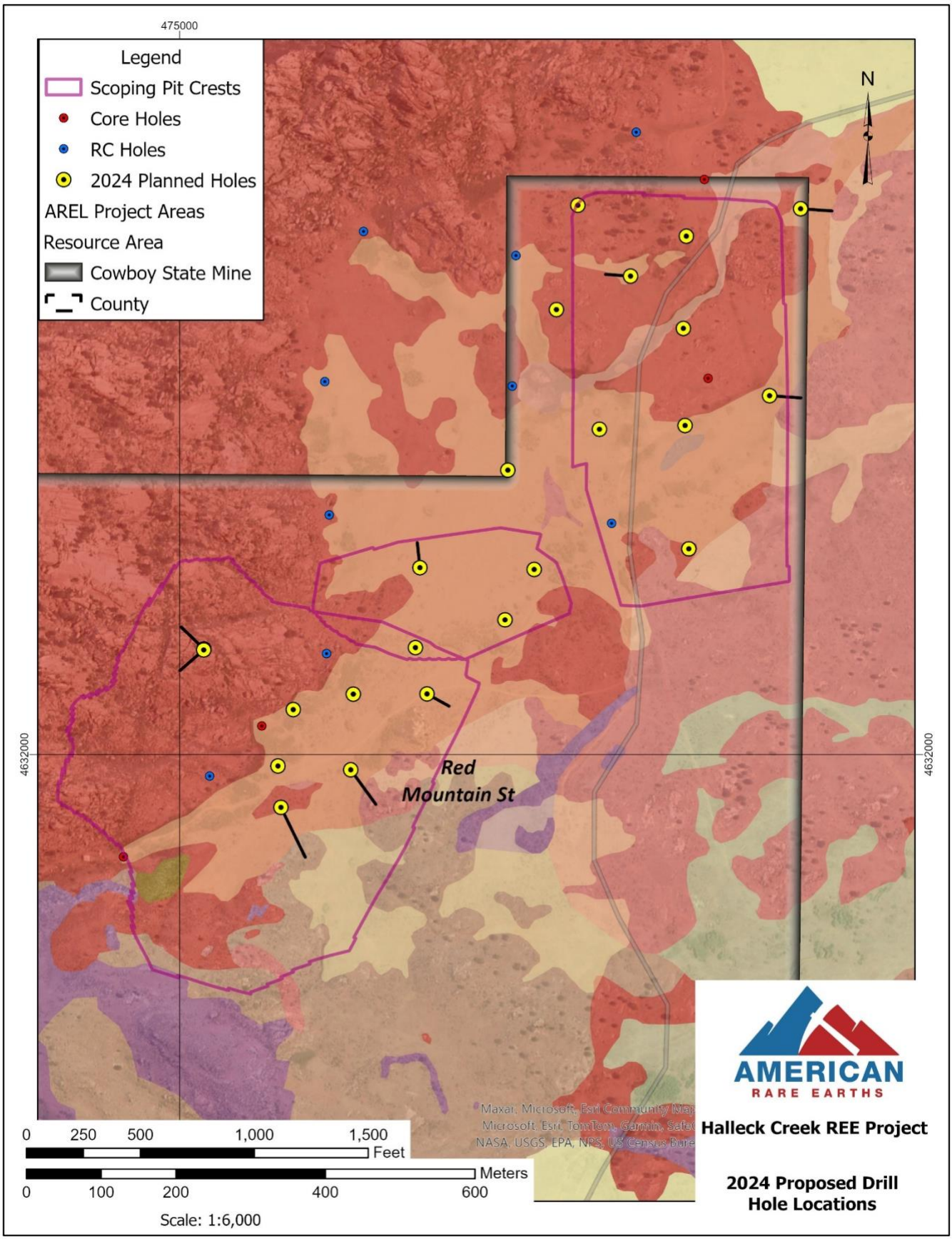

Figure 1 – 2024 Proposed Drill Hole Locations

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Figure 2 – MG 12 Spiral from Mineral Technologies and Halleck Creek Feed in the Spiral

Figure 3 – Separation Products from Rougher Spiral Processing

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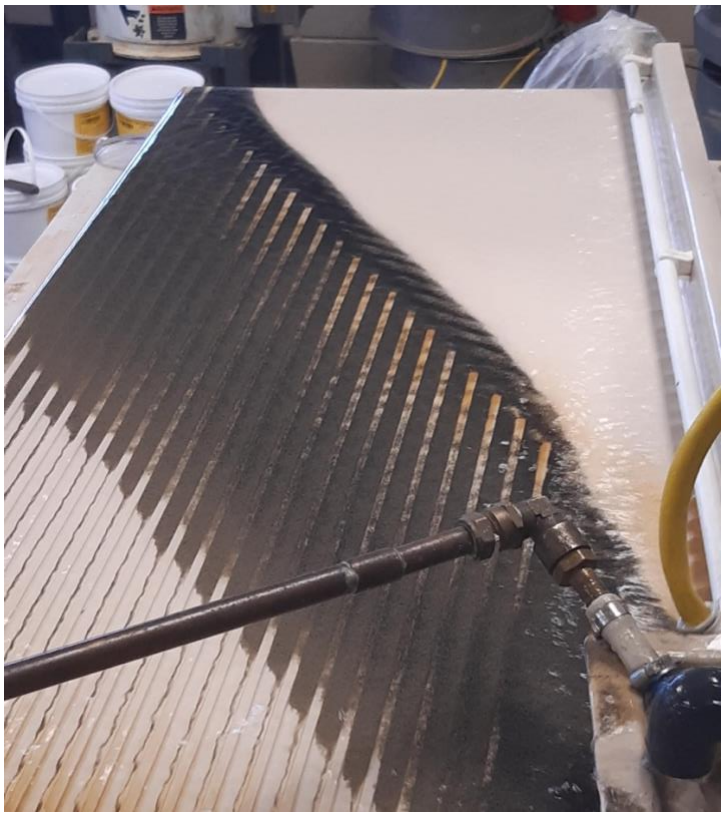

Figure 4 - Halleck Creek -400 x +100 µm Feed on Wilfley Table

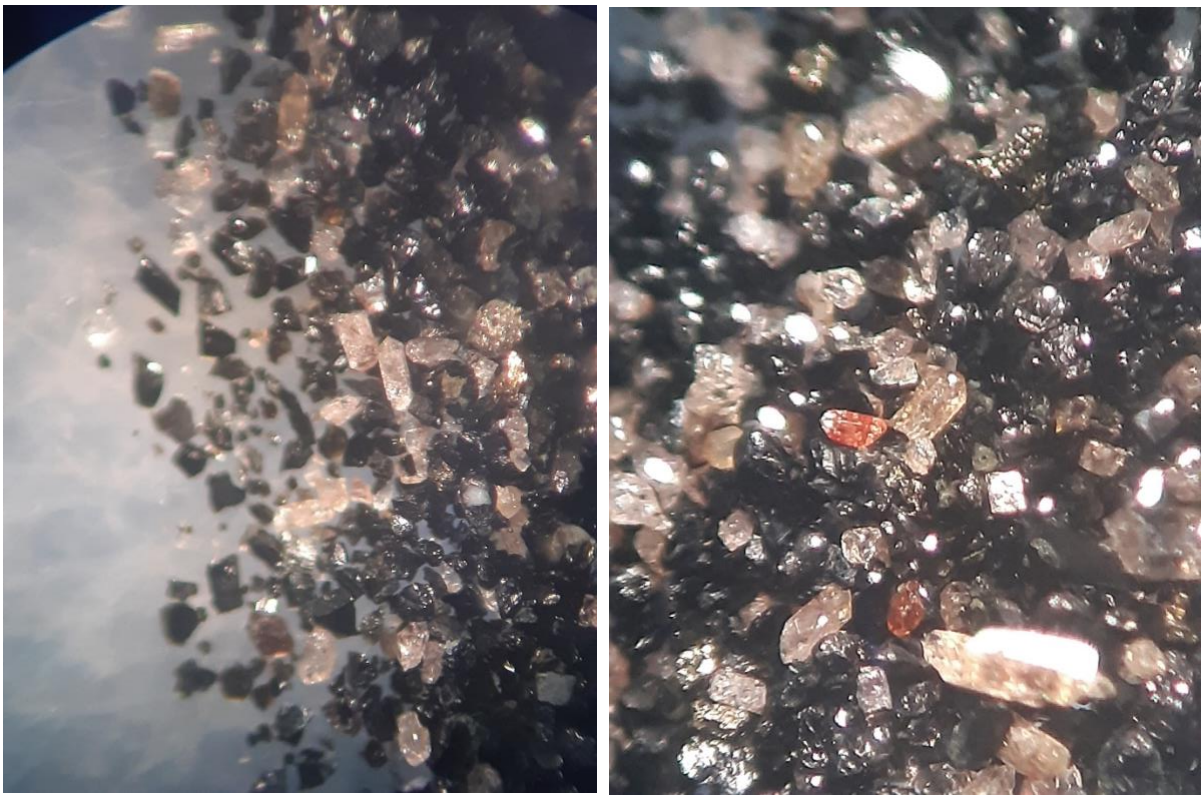

Figure 5 – Gravity Concentrate of -400 x +100 µm Fraction with observable Allanite, Amphibole and Zircon

This announcement is authorised for release by the CEO of American Rare Earths.

Further information

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Competent Persons Statement:

The information in this document is based on company work performed in September and October 2023. This work was reviewed and approved for release by Mr Dwight Kinnes (Society of Mining Engineers #4063295RM) who is employed by American Rare Earths and has sufficient experience which is relevant to the style of mineralisation 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 Kinnes consents to the inclusion in the report of the matters based upon the information in the form and context in which it appears.

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 Limited:
American Rare Earths **(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. The Company 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.

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