

# American Rare Earths

(ASX: ARR; OTC: ARRF; FSE: 1BH)

## Investor Presentation

May 2023

# Disclaimers and Forward Looking Statements

## Disclaimers

This presentation 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 addition, no representation, warranty or assurance is given in relation to any underlying assumption or that any forward-looking statements will be achieved. Actual future events may vary materially from the forward looking statements and the assumptions on which the forward-looking statements are based. Accordingly, presentation readers are cautioned not to place undue reliance on such forward looking statements as a result of the uncertainties.

ARR wishes to caution readers that these forward-looking statements are based on economic predictions and assumptions on reserves, mining method, production rates, metal prices and costs (both capital and operating) developed by ARR management in conjunction with consultants.

This presentation and the forward-looking statements made in this presentation, speak only as of the date of the presentation.

Accordingly, subject to any continuing obligations under the Corporations Act and the Australian Securities Exchange Listing Rules, ARR disclaims any obligation or undertaking to publicly update or revise any of the forward-looking statements in this presentation, whether as a result of new information, or any change in events, conditions or circumstances on which any such statements is based.

## Competent Person Statement

The information in this report that relates to Exploration Results is based on information compiled by Mr. Jim Guiling. Mr. Guiling is a Member of a Recognised Overseas Professional Organisation included in a list promulgated by the ASX (SME Registered Member of the Society of Mining, Metallurgy and Exploration Inc). Mr. Guiling is Principal of independent consultants World Industrial Minerals LLC. Mr. Guiling has sufficient experience which is relevant to the style of mineralization and type of deposit under consideration and to the activity which they are undertaking as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr. Guiling consents to the inclusion in the report of the matters based on their information in the form and context in which it appears.

The information in this document that relates to Mineral Resource Estimate is based on information provided by Mr Alfred Gillman. Mr. Gillman is Principal of the independent consultant firm Odessa Resources Pty Ltd. Mr. Gillman is a Fellow and Chartered Professional of the Australian Institute of Mining and Metallurgy (AUSIMM) 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. Gillman consents to the inclusion in the report of the matters based upon the information in the form and context in which it appears.

The mineral resources disclosed in this presentation are compliant with NI 43-101 standards which are close to the JORC Code in their key definitions. La Paz mineral resources can therefore be quoted as "qualifying foreign estimates" according to ASX listing rules.

ARR confirms it is not aware of any new information or data that materially affects the information included in the original market announcement, and, in the case of estimates of Mineral Resources, that all material assumptions and technical parameters underpinning the estimates in the relevant market announcements continue to apply and have not materially changed. ARR confirms that the form and context in which the Competent Person's findings presented have not been materially modified from the original market announcement.

# Compelling Story

American Rare Earths is in the right place, at the right time, and with the right commodities.

- **Two world-class projects in mining friendly jurisdictions** – the 1.43 billion tonne JORC Resource at Halleck Creek in Wyoming and its counterpart, La Paz, Arizona.
- **Environmentally and socially responsible** – permitting friendly projects and enjoy low penalty elements
- **Outstanding metallurgy and mineralogy** – will reduce capital and operating costs by allowing conventional technology, opening the pathway to early production.
- **Well-funded** – cash of A\$13.5m at end of March 2023 and significant financial assets ensuring we are well positioned to achieve our planned objectives over the next 2 to 3 years.
- **Key partnerships** – member of US Critical Materials Institute and key partner on multiple US Government funded R&D initiatives designed to transform rare earth processing.
- **Geopolitical forces** – a US administration determined to promote domestic mining of rare earths to lessen its country's dependence on Chinese supply that underpins our objective to become a significant American-based supplier of critically needed rare earths.
- **Market fundamentals** – rapidly increasing global demand for rare earth elements.

*“In other words, we have the key mineral elements in the biggest economy in the world, deposits that allow us to stand out from the rare earths crowd, and we are planning to supply the USA desperately seeking rare earths from a jurisdiction free of political risk.”*





***Our vision is to create significant shareholder value by being a leading and sustainable supplier of rare earths***

***Our mission is to supply rare earths for renewable energy, green technology, a sustainable economy, national security and a carbon reduced future***



# Key Areas that are Creating Substantial Shareholder Value



Expanding high value resources, including two of the potentially largest rare earths projects in the US



Collaborating with leading R&D projects part of the US Government push to build domestic supply



Exploring and developing new rare earth projects



Focus on Neodymium and Praseodymium (NdPr) whose demand is rapidly accelerating



# Our pathway to becoming a leading supplier of critical minerals for a sustainable future

## Exploration

Define resources and reserves



## Development

Advance mining assets



## Production

Purify and separate rare earths after extraction



## Finished Products

Be a leading supplier of rare earths for a range of technologically advanced products vital to the economy of the future

# Key Sites

## 1 Halleck Creek, WY

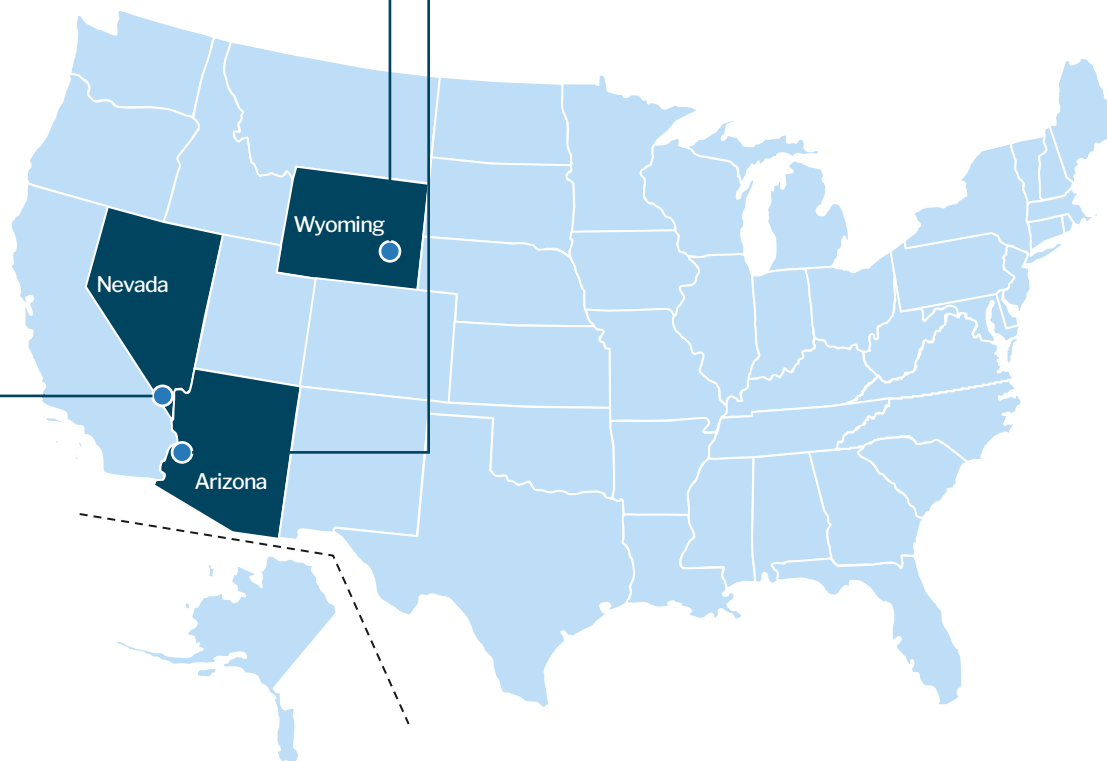
- 1.43 billion tonne JORC Resource
- 4.73 million tonnes of TREO
- 26% high value magnetic metals
- TREO average grade of 3,309 ppm
- Significant upside potential
- Low penalty elements

## 2 La Paz, AZ

- JORC resource of 170 million tonnes
- Exploration target of 742 to 928 million tonnes
- High value magnet metals & Scandium
- Low penalty elements

## 3 Searchlight, NV

- <30km from only producing REE mine in US
- Initial sampling encountered substantial grades of heavy and magnet REE



High value magnet REEs

60  
**Nd**  
Neodymium

59  
**Pr**  
Praseodymium



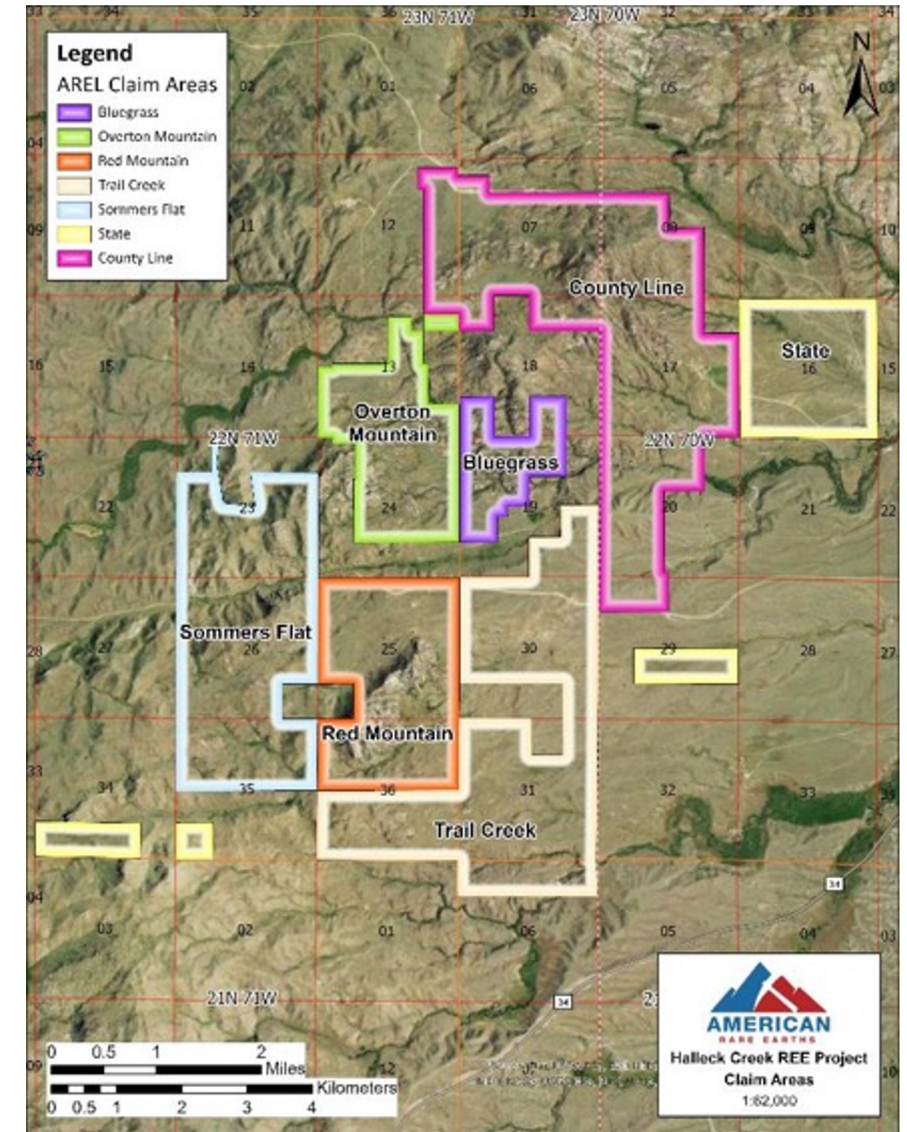
# Halleck Creek, Wyoming





# Overview

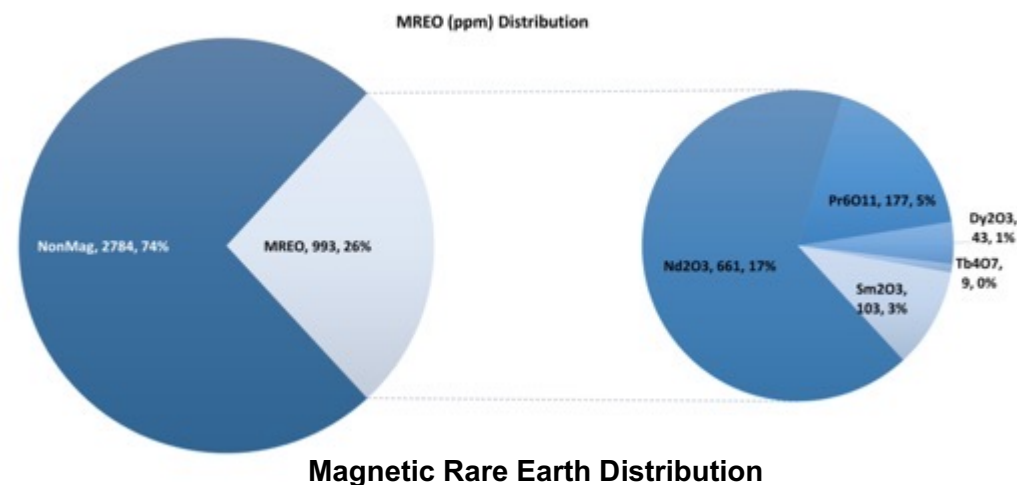
- Potentially the largest rare earth deposit in the United States
- Total JORC Resource of 1.43 billion tonnes
- Estimated 4.7 million tonnes of Total Rare Earth Oxides (TREO)
- 26% highly valuable magnetic rare earth elements (includes 1.05 million tonnes NdPr)
- TREO average grade of 3,309 ppm (0.33%)
- Recently expanded district to 8,165 acres over seven zones
- Significant upside potential with JORC Resources only in Overton and Red Mountain areas. 75% of mineralized zones yet to be drilled and deposit remaining open at depth
- Deposit is from surface with consistent grades throughout making it ideal for large scale, low-cost open pit mining
- Environmentally friendly with low levels of penalty thorium and uranium elements
- Test work demonstrates the ore responds well to conventional processing technology, which reduces operating and capital costs
- Close to infrastructure and a highly skilled workforce



# 1.43 Billion Tonne Maiden JORC Resource

Resource Area	Tonnes (millions)			Kg TREO (millions)			Kg NdPr (millions)			Grade (ppm)	
	Indicated	Inferred	Total	Indicated	Inferred	Total	Indicated	Inferred	Total	TREO	NdPr
Overton Mountain	348	434	782	1,202	1,464	2,666	274	326	600	3,408	767
Red Mountain	274	373	647	907	1,158	2,065	202	248	450	3,190	695
Grand Total	622	807	1,430	2,109	2,622	4,731	477	573	1,050	3,309	734

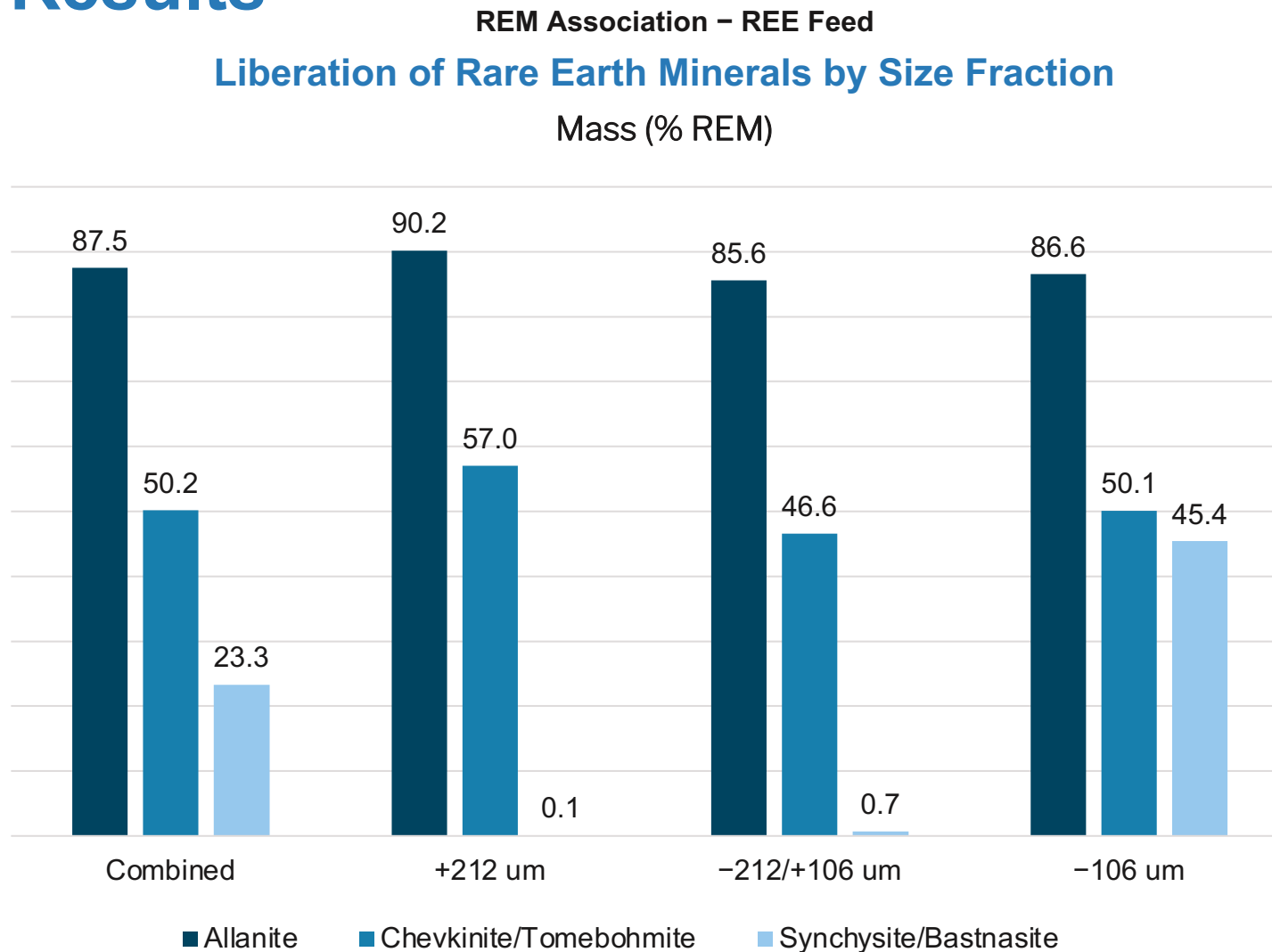
- Magnet Rare Earth Elements (Nd, Pr, Dy, Tb, Sm) comprise approximately 26% of the total rare earths
- Magnetic Rare Earth Distribution:
  - Nd<sub>2</sub>O<sub>3</sub> at 661 ppm (17%),
  - Pr<sub>6</sub>O<sub>11</sub> at 177 ppm (5%),
  - Sm<sub>2</sub>O<sub>3</sub> at 103 ppm (3%),
  - Dy<sub>2</sub>O<sub>3</sub> at 43 ppm (1%), and
  - Tb<sub>4</sub>O<sub>7</sub> at 9 ppm (0.09%)





# Outstanding Mineralogy Results

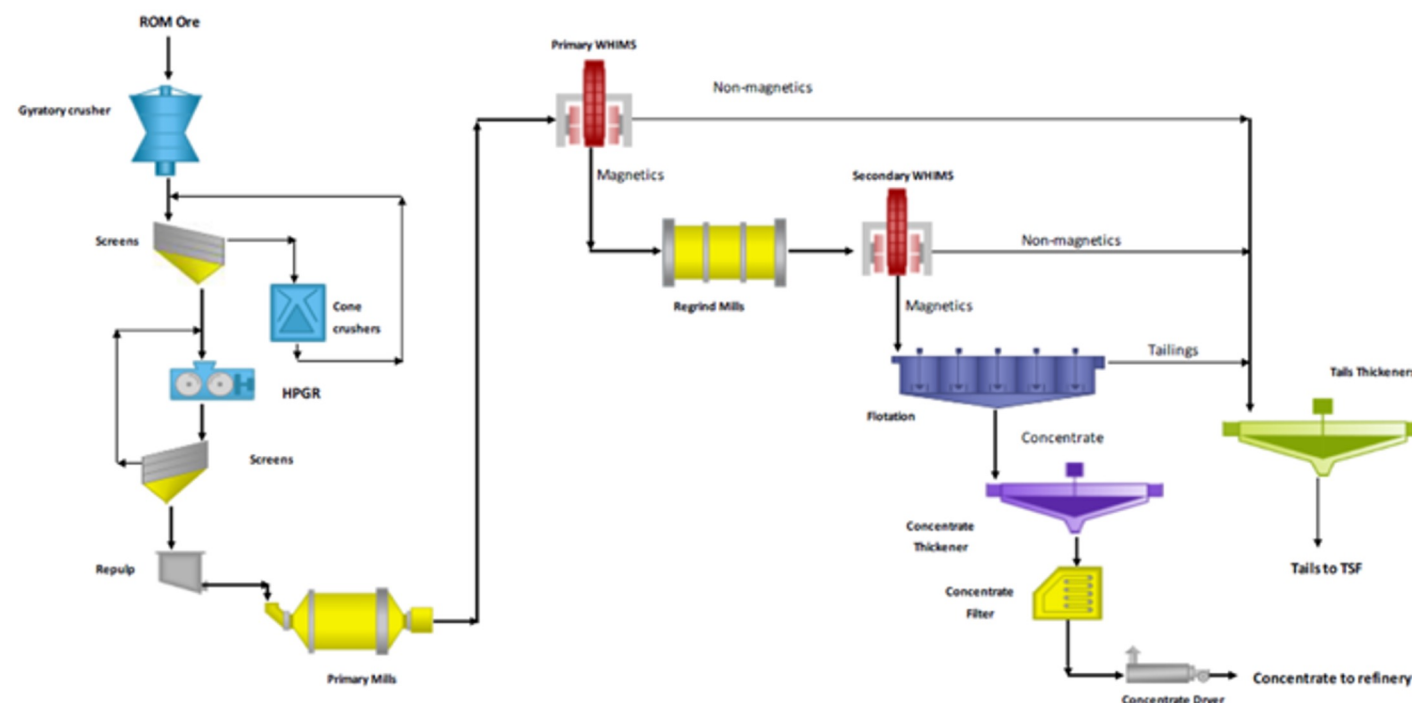
- The mineralogy test work determined that rich allanite is the primary rare earth element bearing mineral at the project
- The average grain size of the observed allanite was 232 microns, indicating a coarse grain structure
- Allanite occurs as distinct mineral crystals. 87.5% of all Allanite can be readily liberated from host rocks.
- Grade-recovery relationships were developed by SGS to indicate the theoretical ultimate beneficiation potential for Cerium, Lanthanum, and Neodymium
- SGS predicted a Cerium grade of 9.3% for 94% recovery, a Lanthanum grade of 4.6% for 94% recovery and a Neodymium grade of 3.8% for 95% recovery



# Metallurgical Test Results

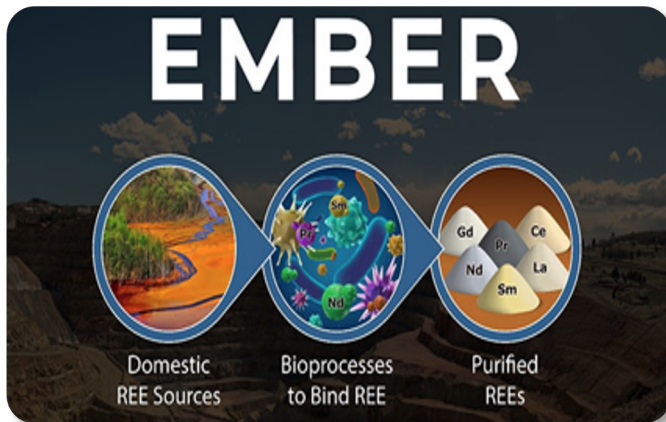
- Initial round of metallurgical results on the core material are very positive
- Halleck Creek was rated in the lowest 14th percentile for ore strength
- The Bond abrasion index test returned a value of 0.24, below the average of Wood Australia's database
- The Bond ball mill work index test result of 15.6 kWh/t is close to the average hardness relative to Wood's database
- Initial tests using Wet High Intensity Magnetic Separation (WHIMS) yielded 90.5% recovery for an upgrade factor of 3.3, rejecting 71.7% of feed mass
- The easier the ore is to crush and grind, the lower the Company's operating costs
- Conceptual flowsheet featuring a two-stage crushing circuit, HPGR and primary ball mill

## Conceptual Flowsheet



# Collaborating with US Funded R&D Projects

We are proud to partner with leading researchers at:



Advanced Research Projects Agency – Energy  
US Department of Energy

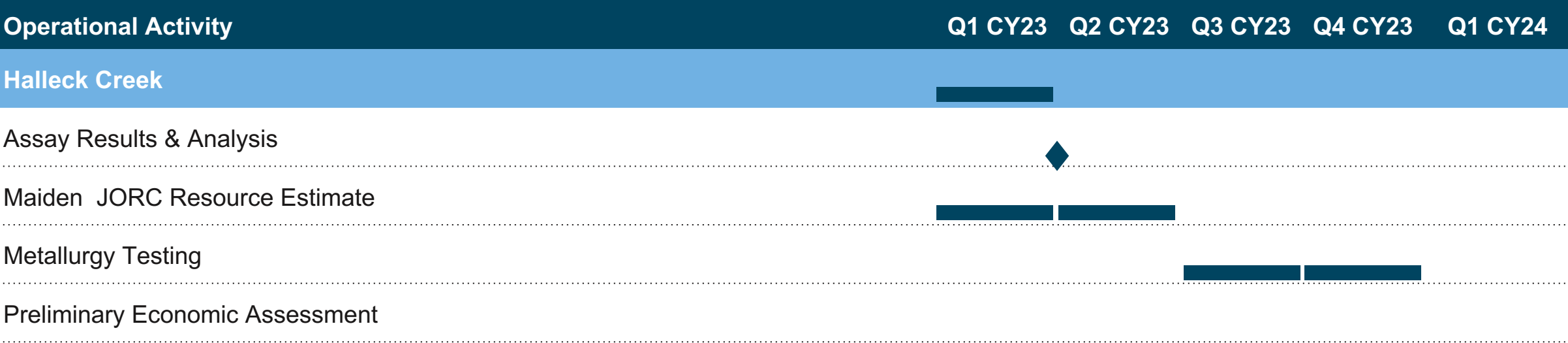
US Department of Defense Advanced Research Projects  
Agency's EMBER program



US Department of Energy Critical Materials Institute (CMI)



# Upcoming Activity



# Contact us



[www.AmericanRareEarths.com.au](http://www.AmericanRareEarths.com.au)

Chris Gibbs

CEO & Managing Director

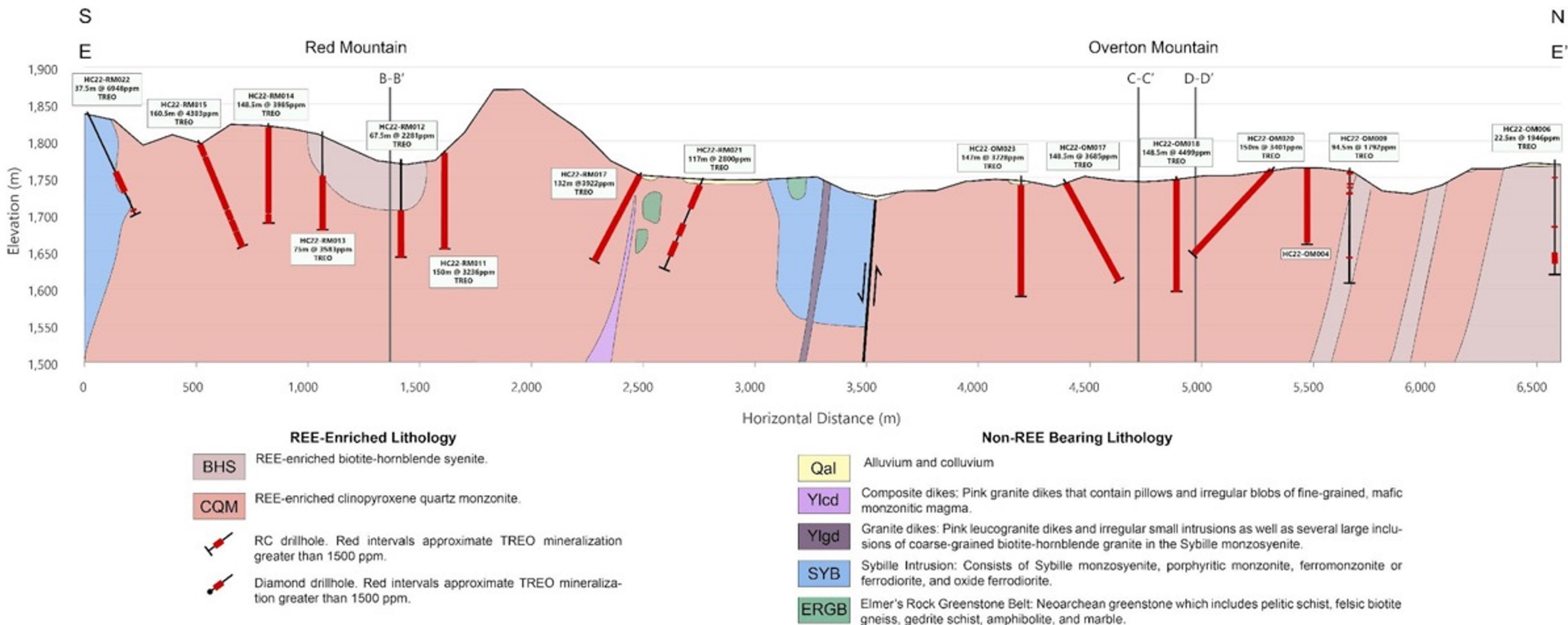
[info@AmericanRareEarths.com.au](mailto:info@AmericanRareEarths.com.au)

# The Maiden Resource in Depth

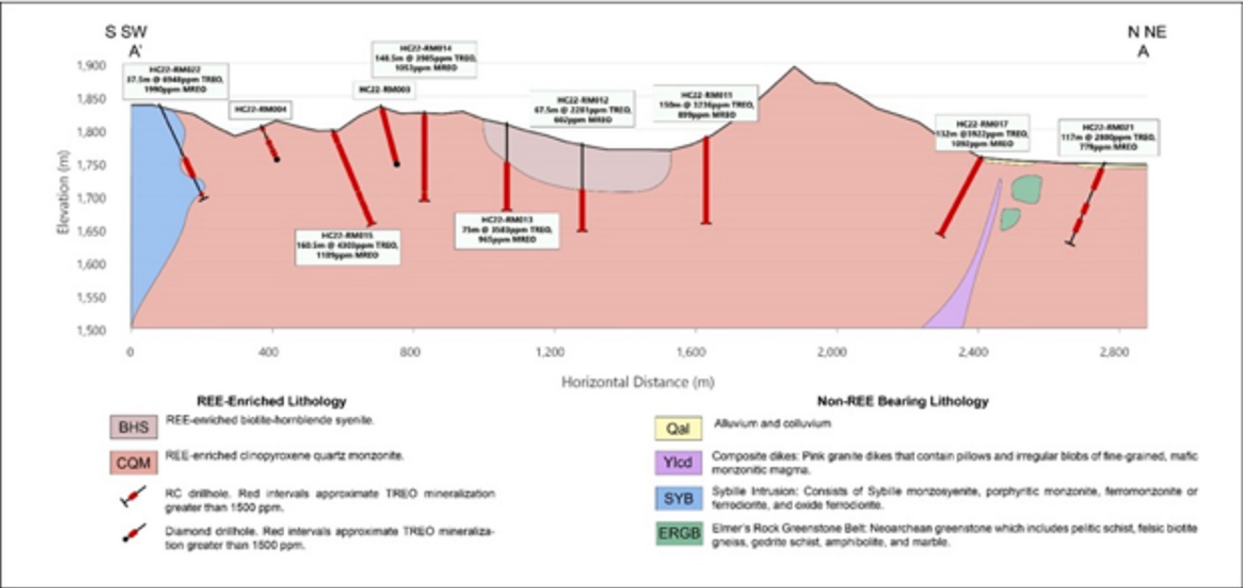




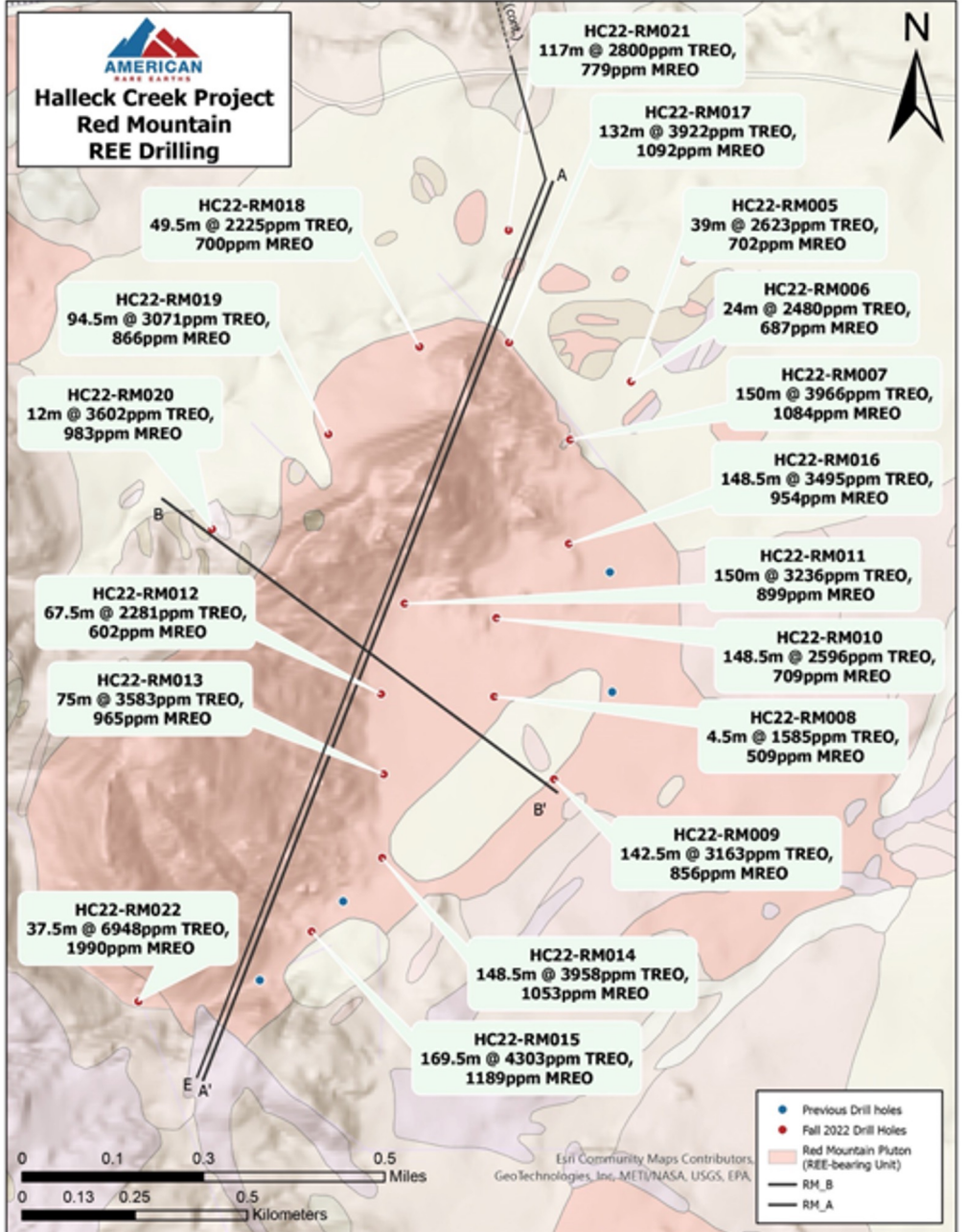
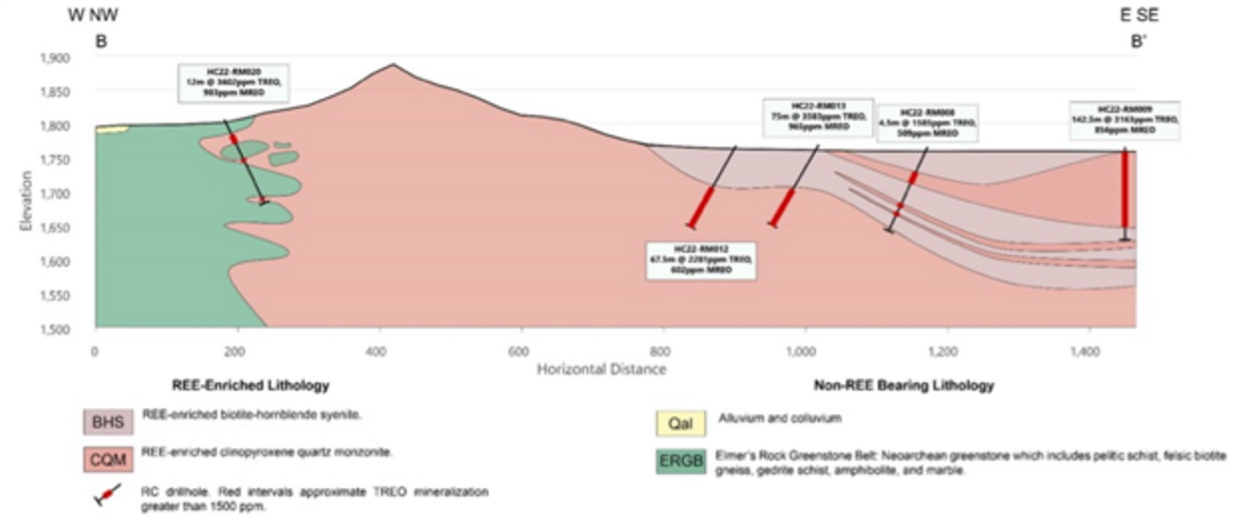
# Red Mountain and Overton Mountain



# Red Mountain Cross Section A-A

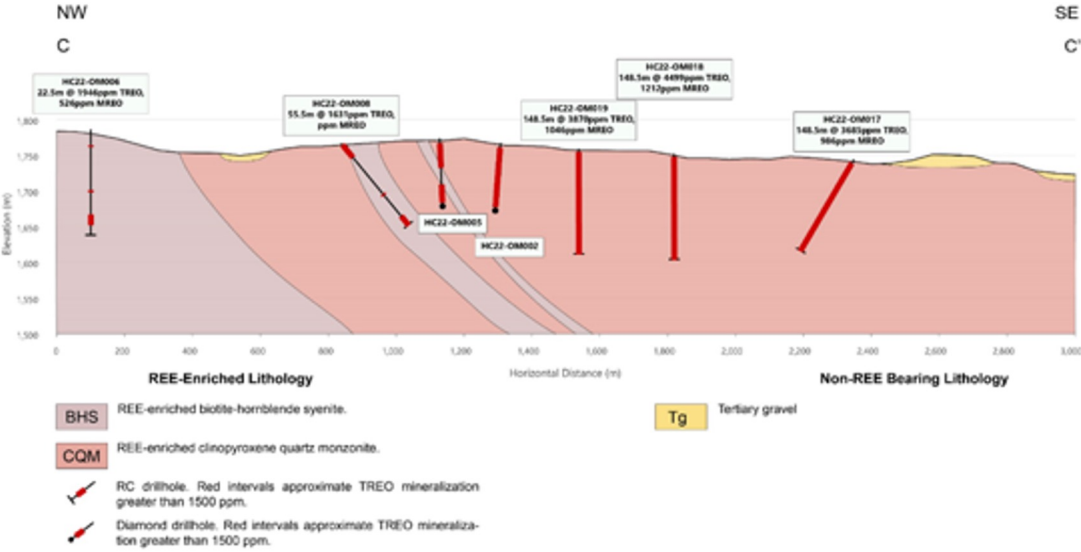


# Red Mountain Cross Section B-B

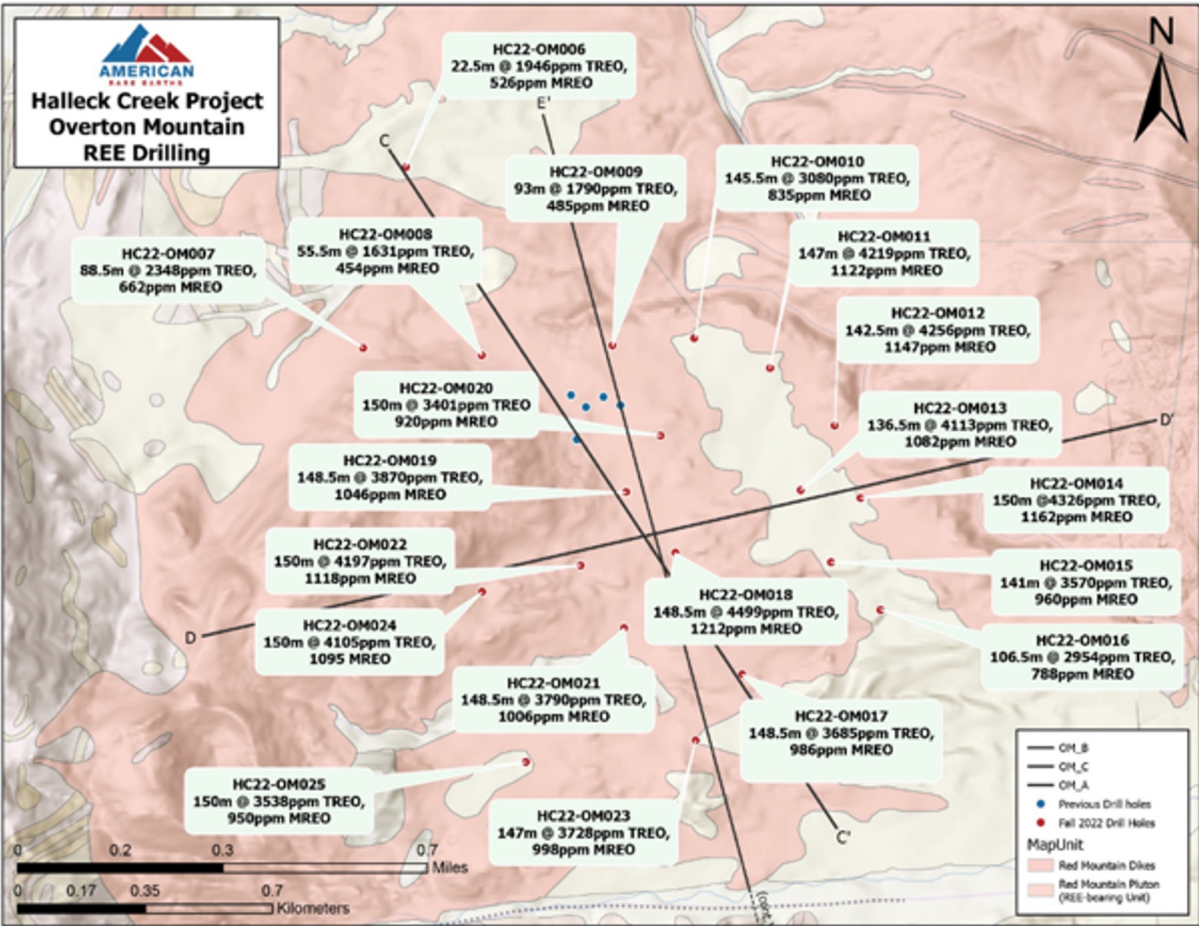
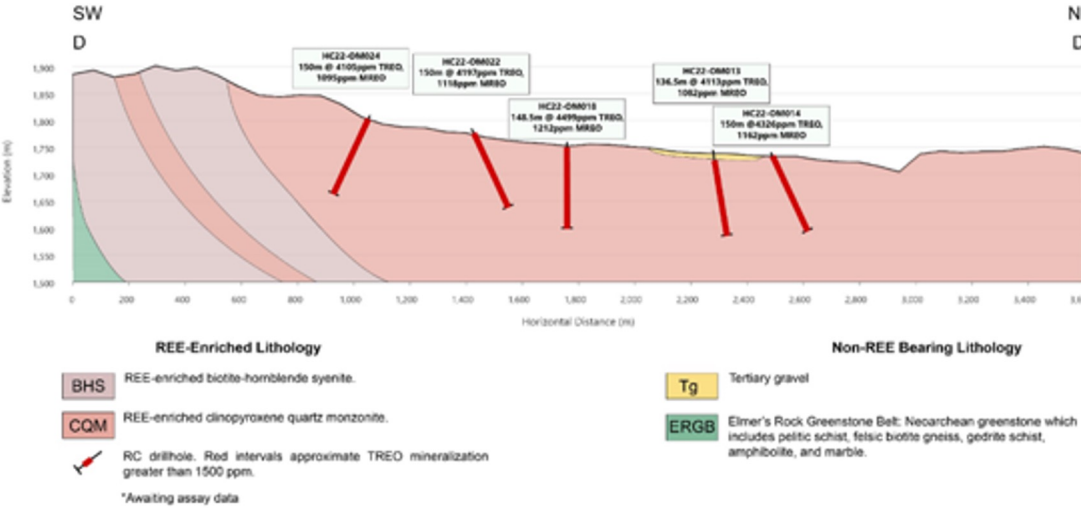




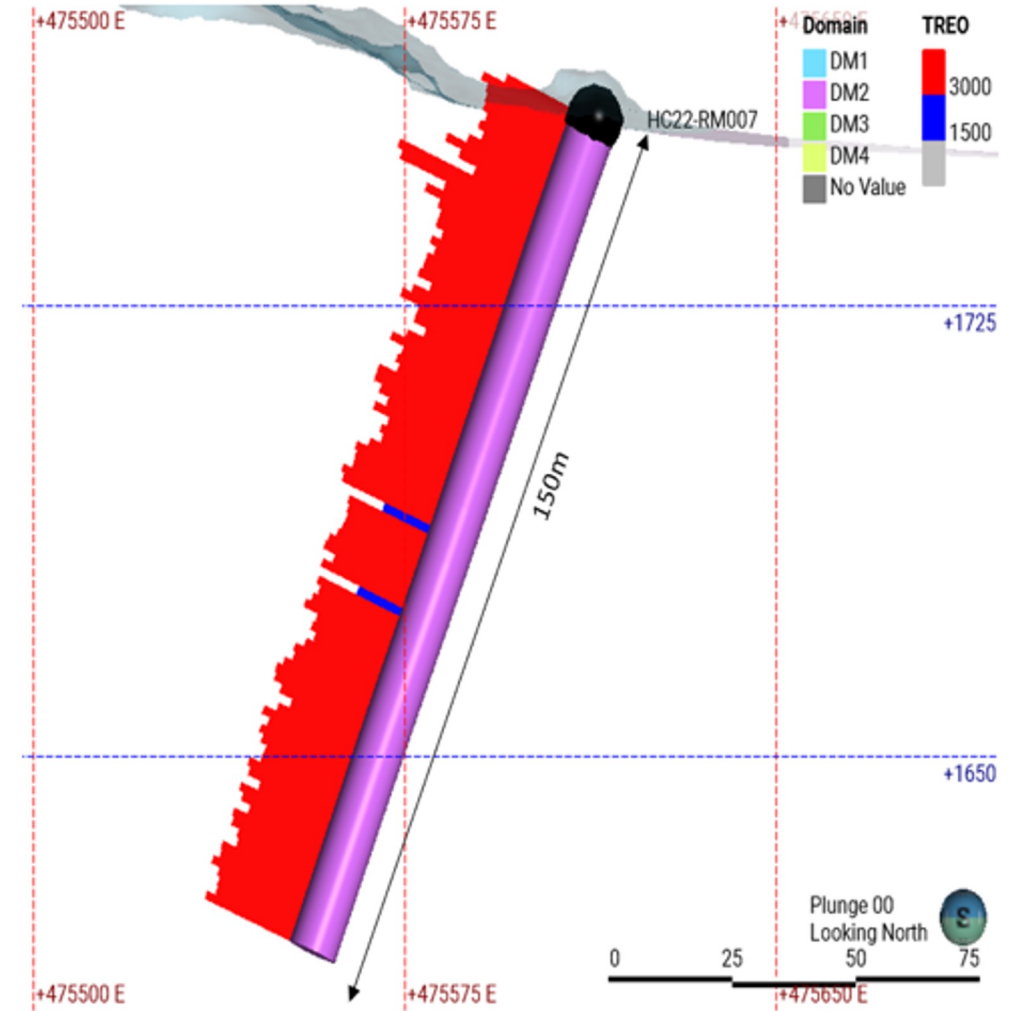
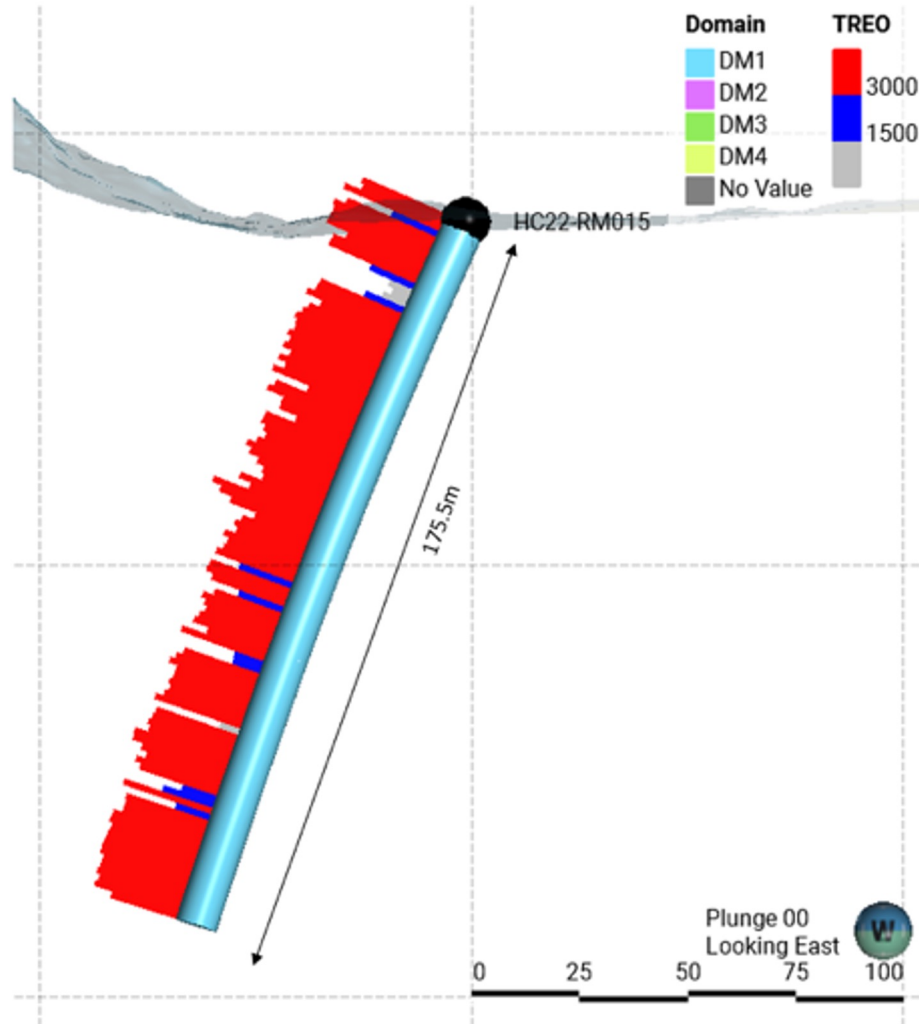
# Overton Mountain Cross Section C-C



# Overton Mountain Cross Section D-D



# Significant Intercepts & Consistent Mineralization





# Management & Executive Directors



## **Chris Gibbs – Managing Director and Chief Executive Officer**

Chris has over 28 Years experience in the resource sector within Australia, Canada, USA, South America, Africa and Europe. He is an innovative leader with a proven track record for implementing organisational change and delivering business results. Vice President of Argonaut Gold since 2018 and previous leadership roles with Centerra Gold, Barrick Gold, Placer Dome and Millennium Chemicals.



## **Melissa Sanderson – Executive Director and President of North America**

Her International career has spanned diplomacy and mining for 30+ years. Mel is adept at cross-cultural communication and brings leadership experience in inclusivity and diversity issues. At global mining leader Freeport-McMoRan, Mel sited, staffed, and ran a corporate office focused on government and public relations, as well as social responsibility programs. She served our nation as a senior diplomat in the U.S. Department of State.



## **Dwight Kinnes – Chief Technical Officer**

Dwight has over 35 years' experience as a technical geologist, specializing in resource modeling, working on mining projects across the US, Canada, Indonesia, Thailand, Columbia, and Australia. Prior to joining ARR, he spent 17 years as President/Principal Consultant at Highland GeoComputing, LLC focusing on resource development, mine production geology and technical database solutions.



## **Mark Terry – Chief Financial Officer**

Mark is a CPA with over 25 years experience in the management of financial, commercial and legal matters in the mineral exploration and mining industry. He commenced his career with KPMG before holding a range of senior finance positions with Normandy Mining, Newmont Australia and Xstrata Zinc where he was Finance and Commercial Manager for Australian Operations. Mark later held the role of CFO of Terramin Australia Limited before providing consulting services in senior finance and project roles with Havilah Resources and Rex Minerals. Most recently, Mark was CFO of Centrex Metals.



# Our Board



## **Creagh O'Connor – Chairman**

Creagh has approximately 40 years experience as a chief executive and board member for public and private companies. During this time, he has been involved in managing Australian and international oil, gas and mineral projects.



## **Geoffrey Hill – Deputy Chairman and Non-Executive Director**

Geoff was a director of ARR from 1989 to June 2014, then re-joined the board in August 2015. He has extensive experience in the identification and implementation of mergers and takeovers and has acted for a wide range of corporate clients in Australia and overseas.



## **Clarence McAllister – Non-Executive Director**

Clarence has over 30 years of international experience in engineering and construction and has been the Chairman of the Board of Western Rare Earths since 2020 and of La Pa Rare Earth LLC prior to that. He is also the Founder and Chief Executive Officer of Fortis Engineers, a world-class electrical and mechanical engineering firm based in Phoenix, Arizona.



## **Sten Gustafson – Non-Executive Director**

With 25+ years of experience in the global natural resources sector, particularly oilfield services, exploration, refining, production, and marketing, Sten is a Senior natural resources industry executive and board member, as well as a former investment banker and corporate and securities attorney.



## **Richard Hudson – Non-Executive Director**

Richard is experienced in strong corporate governance & strong internal controls, resolving shareholder disputes, advising on business sales, acquisitions & mergers. He is currently Chairman of a private Contract Research Organisation in Animal Health operating in Australia & New Zealand. He is Company Secretary of a group of Emergency Veterinary Practices operating throughout Australia. He was previously Chairman for many years of manufacturing business operating in the marine industry in Australia, New Zealand, and Asia.