



HALLGARTEN + COMPANY

Coverage Update

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American Rare Earths

(ASX:ARR, OTCQX:AMRRY, OTCQB:ARRNF)

Strategy: LONG

Key Metrics

Price (AUD)	\$	0.135
12-Month Target Price (AUD)	\$	0.46
Upside to Target		241%
12mth hi-low		\$0.115-\$0.335
Market Cap (AUD mn)	\$	60.27
Shares Outstanding (mns)		446.42
Fully diluted		493.41

American Rare Earths

Pivoting to Wyoming

- + A Maiden Resource Estimate was published in March 2023 on the flagship Halleck Creek project
- + The JORC-compliant MRE was 1.43 billion tonnes with an average TREO grade of 3,309 ppm, with an average NdPr grade of 734 ppm
- + Board and personnel changes have brought many more US-based individuals on board and made ARR one of the most heavyweight companies (in skillsets) in the Rare Earth space
- + The company has opened a US headquarters in Golden, CO
- + There are still few REE projects in the US and only a handful are in active consideration or credible
- + The low level of radioactive contaminants is a major plus at Halleck Creek & La Paz projects
- + Company started trading its ADRs on the OTCQX in mid-August
- + The company had around AUD\$8.27mn in cash on hand at the end of the June quarter
- + Next up is a new resource for Halleck Creek, probably in late November, and a PEA in 1Q24
- ✗ China still has the whiphand in REE-pricing and can sink prices, suddenly, at will
- ✗ The DoD strategy of picking “champions” is being muddled by companies lacking HREE resources being given consideration
- ✗ The environment for funding REE project builds remains tough so capex to the low side is seen as a virtue

Pivoting to Wyoming

With the focus having been for so long on the La Paz target, investors now must grapple with the concept that ARR is actually a two- (or more) horse race, with Halleck Creek in Wyoming coming up fast on the outside (to continue our favored horse-racing analogy with the Rare Earth space).

Technology partnerships are *de rigueur* in the REE space today also, as the market has become more sophisticated and wants to know that companies not only have a product in the ground, but that they can turn the extraction and on-processing thereof into a sellable and profitable end-product.

In this note, we shall look at progress at Halleck Creek and the strategy there. We shall also update on the expanding technological relationships with Virginia Tech and the Lawrence Livermore National Laboratory, on the development of new processing methods. We also look at the state of the Rare Earth industry in the US over the last two years where there has been considerable excitement generated by the US pivot towards more self-reliance.

Rare Earths Taken Seriously

As long-term watchers of the REE space we have become very cynical of the actions and motivations of the Chinese. The first boom was precipitated by China tightening the screws and was ended by them loosening them again.

A secular change has occurred though as key types of REE deposit which China long relied upon and brutally overexploited have gone out of production. China is now said to be a net importer of Heavy Rare Earths, which is a dramatic turning of the tables.

In the last three years the Rare Earths space has gone from mild buzzing to a full furore. Despite this there has not been a massive burgeoning of projects, as in 2009-11, nor has there been many additions to the number of viable projects in the United States

The awakening in Rare Earths has been spurred by the invective related to the almost total dependence of the US economy (and its military) upon externally sourced Rare Earths, primarily from China.

The renewed interest of politicians and investors coincides with the on-going slide in China's own internal production (particularly in Heavy Rare Earths). This changes the dynamic from the one which has reigned for the last eight years, where China definitively had the whiphand. With Chinese supplies under a cloud and the West having added minimal capacity in recent years, the scenario is one of shortages and rationing, particularly with regard to those REEs for magnets most used in EVs, offshore wind turbines, high efficiency heat pumps, and 5G.

Enter (or rather re-enter) ARR

American Rare Earths is aiming to develop the US's first mid-grade Rare Earth mineral processing facility close to the planned mining site in Albany County, Wyoming.

The Halleck Creek project, in Wyoming, has a Maiden Resource Estimate and higher grades ranging from 3190 -3408 ppm total REOs. Mine planning will be focused in higher-grade areas.

The La Paz deposit is relatively low-grade (300–700 ppm total REEs), being notable for its sheer volume, uncomplicated mineralogy, and low U/Th, and high Scandium content.

Beaver Creek accentuates the focus on Wyoming and its significantly higher grade adds optionality.

Personnel Changes

The overhaul of management at ARR has been dramatic since we last published an update. Rather than dwell upon who is out, the more important features are who is in, and this indicates to the market that

there is swing towards experienced mining management that is North America-based compared to the previous preponderance of antipodean figures.

Chief amongst these changes were the appointment of Donald Swartz as CEO and three heavyweight North American-based non-executive directors. The company now has five US-based Directors on the Board and announced plans to list on the NASDAQ in the future. A North American-based CFO was also added to the team.

After playing a key role in establishing the new US team, Melissa Sanderson will resume her role as a Non-Executive Director, supporting the team through her work on ESG, including chairing the Board's ESG committee. She served as a senior diplomat in the US Department of State and her international career has spanned diplomacy and mining over more than 30 years. She is adept at cross-cultural communication and brings exceptional leadership experience in inclusivity and diversity issues. At global mining leader Freeport-McMoRan, she sited, staffed and ran a corporate office focused on government and public relations and social responsibility programs.

In July of 2023, the company appointed a new CEO, Donald S. Swartz II. He was previously a Senior VP for Vista Energy Holdings, which developed two mining projects, both now fully operational in Alberta and Nova Scotia, Canada. He has also held various leadership roles with Westmoreland Coal Company, including Chief Commercial Officer, SVP of Commercial, Sales and Marketing, VP Sales and Marketing, VP of Business Development. He has also held leadership roles with John T. Boyd Company and Consol Energy. He holds a Master of Business Administration from Denver University and a Bachelor of Science in Mining Engineering from West Virginia University.

Then in late August of 2023 the company appointed Kenneth Traub as non-executive director. Since 2019, he has been the Managing Partner of Delta Value Advisors, a strategic consulting and investment advisory firm, specializing in corporate governance and turnarounds. He also currently serves as a director and is Chairman of the Nominating and Corporate Governance Committee of Tidewater, Inc. (NYSE: TDW), the leading global owner and operator of offshore support vessels for the energy industry. He has over 30 years of experience as a CEO, chairman, director, investor, and consultant in public companies with a track record of driving strategic, financial, operational and governance improvements.

Paul Zink as a non-executive director. He is currently a Professor of Practice in the Economics and Business and Mining Engineering departments at the Colorado School of Mines. Prior to this position, he served in Chief Financial Officer roles at Pure Energy Materials, a lithium development company, at Rare Element Resources, and at Koch Mineral Services, a division of Koch Industries. He has also served as President of International Royalty Corporation and of Eurasian Capital, a division of Eurasian Minerals (now EMX Royalty Corp.). Earlier in his career, he also served as Chief Credit Officer of Koch Industries and Director of Corporate Development for Pegasus Gold. He began his career with J.P. Morgan and held various positions, including VP of Mining and Metals Equity Research and Project Finance officer. He holds a BA in Economics and International Relations from Lehigh University. He is a member of the

Society for Mining, Metallurgy and Exploration.

At around the same time the company appointed John Mansanti as a non-executive director. He had been CEO of Pacific Soda, CEO and President of Crystal Peak Minerals (a company we have covered in the past), and Senior VP of Operations for Intrepid Potash. He served as a director for Rye Patch Gold and Alio Gold. He was General Manager for Barrick's Goldstrike, Barrick/Placer Dome's Cortez/Cortez Hills, Turquoise Ridge, and Bald Mountain projects, leading successful restarts for the latter two. He served in multiple operational and project roles for Newmont, Getchell Gold, Santa Fe Pacific Gold, Gold Fields Operating Company, Freeport McMoRan, and Kennecott Copper. He received a BS in Chemistry, a MS in Mineral Processing Engineering, and an Honorary PhD from Montana College of Mineral Science and Technology.

He was the 2017 president of the Society for Mining, Metallurgy and Exploration (SME). He has served and continues to serve on several university advisory boards, educational boards, and foundations. Throughout his career, he has received multiple honors and awards for his technical and leadership skills, including recognition by the Department of the Interior for support of a new Secretarial Order in 2012.

In the administration, the company appointed, in early July of 2023, Jose Rico as its new US-based Chief Financial Officer. He has over 22 years of corporate finance and accounting experience across both US domestic and international operations. Prior to joining American Rare Earths, he was Global Head of Management Company Finance at Resource Capital Funds, a mining-focused global alternative investment firm, and Managing Director of Corporate Accounting at The Charles Schwab Corporation.

Ramping up US Investor Exposure

The company has been escalating its exposure to US investors with the most significant move (beyond the management shift) being the launch of a sponsored Level 1 ADR Program. These ADRs began trading on the OTCQX (the top tier of the OTC market) on the 15th of August 2023 under symbol AMRRY.

Each ADR represents 50 ASX-traded ARR ordinary shares. Crucially, the ADRs are fully DTC eligible with Bank of New York Mellon being the nominated depository bank.

Halleck Creek Project

Originally called the Laramie REE Project at the time ARE acquired it, the now renamed Halleck Creek project is an exploration project located in the southern Laramie Mountain range of south-eastern Wyoming about 70 km northeast of Laramie, Wyoming, and 30 km southwest of Wheatland, Wyoming.

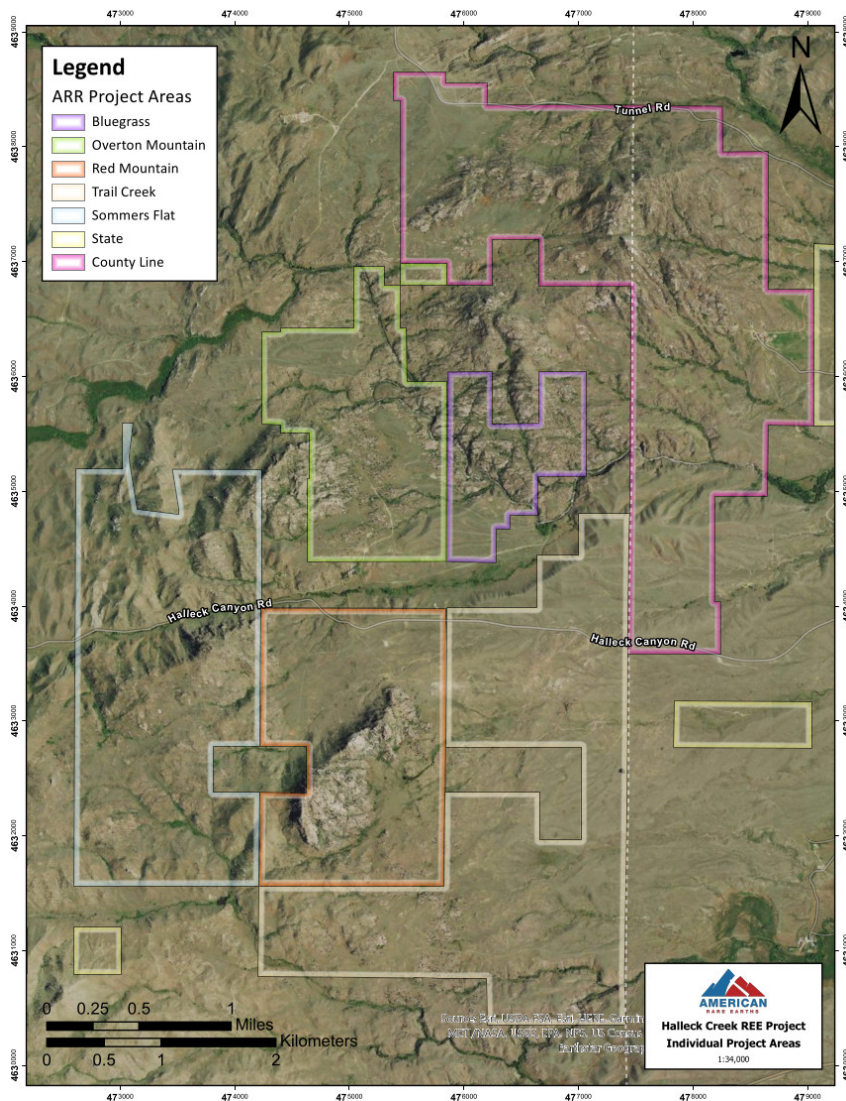
Accumulating the Patch

The origins of this are that, in December of 2020, ARE announced the acquisition of the project from Zenith Minerals (ASX: ZNC). The total project purchase price was 2.5 million ARR ordinary shares (price A\$0.02 each) plus AUD\$50,000 cash. The balance of the acquisition price being AUD\$15,000 and the balance of 1.25m shares was paid in June of 2021.

The purchase included American Rare Earths acquiring all data, including samples and maps, associated with the REE Project in Wyoming, and exploration permits.

In June of 2021, the Wyoming Office of State Lands, and Investments (SLI) approved the acquisition of Zenith's tenements over the project, its lode claims, and mineral leases covering approximately 1,825 acres (739 ha) in Albany County and Platte County, Wyoming.

In June 2021, ARE's subsidiary staked an additional 44 unpatented lode mining claims, significantly expanding the project area. Then, in August of 2022, the Bluegrass prospect was added taking its claim control to over 6000 acres, as shown in the map below.



Geology

The primary rock types exposed on the Laramie REE property are the Red Mountain Pluton and the Sybille intrusive monzonites and syenites. These intrusive complexes have subsequently been intruded by younger granite dikes. The Red Mountain Pluton is composed of three intrusive units:

- Fayalite Monzonite (Olivine rich unit)
- Clinopyroxene Quartz Monzonite
- Biotite Hornblende Quartz Syenite

These rock types contain disseminated allanite of variable quantities up to 2% (by weight%) present throughout the pluton. The younger granite dikes also contain variable quantities of allanite. Based on

the petrographic work completed to date the allanite is the primary host of the REE's. In the older Sybille intrusive allanite is only sparsely present and sampling to date indicates minimal REE mineralization. Therefore, the REE mineralization appears well focused throughout the pluton, which is exposed at surface over several square kilometres.

ZNC stated in a press release (dated November 6, 2019) that TREO (Total Rare Earth Oxide) grades of up to 0.6% were observed in rock samples collected in the project area.



Exploration

In May of 2022 the company announced the completion of drilling of 917 metres (3,008 feet) and that it had collected 822 samples from nine holes in the Red Mountain and Overton Mountain zones of the larger Red Mountain Pluton, with core recovery from most holes exceeding 99%.

In August of 2022 the company announced a major boost to the planned work at Halleck Creek proposing 12,232 meters of drilling and an expanded exploration target.

- Permits approved on initial 55 reverse circulation (RC) drill holes
- Expecting 5,400 samples over 8200 meters of drilling

Exploration permits have been filed for an additional 27 RC drill holes for 4,032 meters.



The Halleck Creek Resource

In March of 2023, the company published its awaited maiden JORC-compliant resource on the Halleck Creek project. The resource was prepared by Alfred Gillman of the consulting firm, Odessa Resources and James Guilinger, of World Industrial Minerals LLC, utilizing a TREO cut-off of 1,500 ppm.

The JORC Resource at Halleck Creek is 1.43 billion tonnes with an average TREO grade of 3,309 ppm, with an average NdPr grade of 734 ppm. The JORC Resource estimate has exceeded expectations in comparison to previous exploration target estimates and has demonstrated the Halleck Creek project has the potential to become a world class deposit. The resource area covers 384 hectares (949 acres).

HALLECK CREEK RESOURCE								
Resource area	Tonnes (millions)		Grade		Contained TREO (mn tonnes)		Contained Nd/Pr (mn tonnes)	
	Indicated	Inferred	TREO ppm	Nd/Pr ppm	Indicated	Inferred	Indicated	Inferred
Overton Mountain	348	434	3408	767	1.202	1.464	0.274	0.326
Red Mountain	274	373	3190	695	0.907	1.158	0.202	0.248
	622	807			2.109	2.622	0.476	0.574

It is worth noting that the average Thorium grade reported in the resource was 58ppm, while the average U grade was an infinitesimal 7ppm.

Next Up

Under the supervision of Wood PLC, a leading consulting and engineering company, metallurgical test work is ongoing to optimise the process flow sheet. This will include bulk WHIMS and floatation test work which are well advanced, to assess the likely constituents of an upgraded concentrate product. Testing will commence immediately thereafter on the further upgrade of the concentrates via a leaching process.

In June 2023, further metallurgical test work supported previous results showing a simple process flow sheet to produce a REE concentrate and maximise the recovery of magnet metals Neodymium and Praseodymium (NdPr). The bulk rougher/scavenger (primary) Wet High Intensity Magnetic Separation (WHIMS) produced 72% recovery and rejected 77% of feed mass, an upgrade ratio of 3.1. The tests rejected a highly encouraging 77% of waste material in the early processing stages prior to the flotation circuit, demonstrating potential opportunities to reduce the project's operating and capital costs. This is a 5% improvement from preliminary test work results announced in December 2022. These promising results are further enhanced by the low levels of penalty elements, Thorium and Uranium, which remain well below regulatory standard.

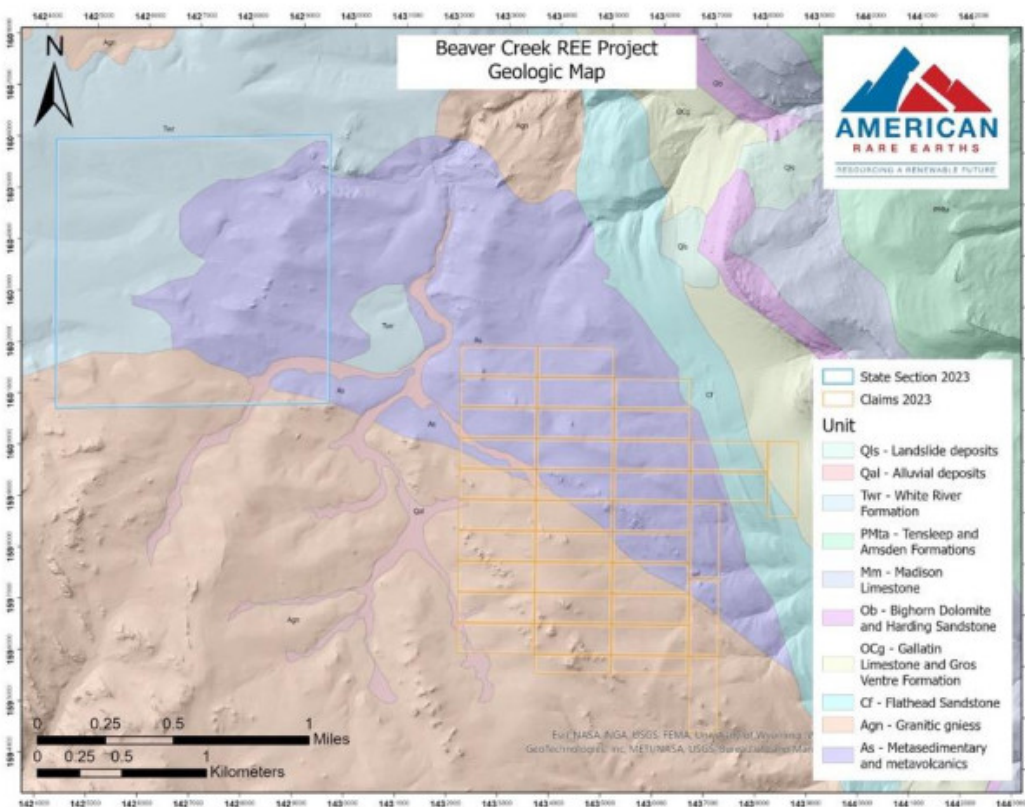
The metallurgical test work will provide the foundation for the PEA/Scoping Study scheduled for release in 1Q24.

As mentioned, the resource area covers only 384 hectares (949 acres) of the total exploration area held

by the company which totals 3,304 hectares (8,165 acres). The company expressed the view that the JORC Resource thus has the potential to greatly increase with future exploration campaigns.

Beaver Creek

The newest addition to the project portfolio is the Beaver Creek project. In late July 2023, the company revealed that it staked 37 federal unpatented lode claims at a new high-grade REE deposit in Wyoming.



The claims cover approximately 303 hectares (749 acres). Applications have also been lodged for a mineral lease application with the state of Wyoming for a further 259 hectare (640 acres). The new area is north of the Halleck Creek Project and has very similar geological characteristics.

Initial sampling indicated grades of between 1.7% and 9.1% of Lanthanum, Cerium, Neodymium, Praseodymium and yttrium (La + Ce + Nd + Pr + Y).



Technology – Various Irons in the Fire

One thing that became clear in the wake of the first REE Boom was that the rewarmed conventional processing methods for REE oxides (many of which were unchanged from the 1960s and 1970s) were the downfall of some of the PEAs and PFSs that many players dished up during the feeding frenzy. Many of these “tried & true” also came with eye-watering price tags that ranged from \$500mn through to over one billion dollars.

This time around, if anything, it is entirely the opposite with most players seeking out new technologies to lower costs and differentiate themselves from the other players on the field. In particular, companies have been looking for systems that can bypass having to process out at great cost (of money and time) the essentially unwanted Lanthanum and Cerium. Few though are talking about the radioactive component in their deposits.

The drawbacks of most conventional REE extraction technologies is their reliance on energy- and chemical-intensive metallurgical techniques that can be expensive and environmentally harmful for source materials that contain low concentrations of REEs (<1% REE content). In addition, these technologies are unable to effectively extract both Scandium (Sc) and those elements in the Lanthanide series at high efficiency. Many of these technologies co-extract Uranium and Thorium, leading to challenging volumes of radioactive wastes.

Virginia Tech

The latest addition to the technology partnerships is that with Virginia Tech. The investigators have selected ARR to provide feedstock, allanite ore, from Halleck Creek for the ARPA-E MINER Project of the

US Department of Energy's (DOE).

ARPA-E is an acronym for the DOE-funded Advanced Research Projects Agency–Energy. MINER is an acronym for Mining Innovations for Negative Emissions Resource Recovery. As the name implies, the MINER program's key objective is to support research that reduces or consumes CO₂ as part of its mining and/or processing of ore bodies.

The team was awarded R&D funding by DOE's Office of Energy Efficiency and Renewable Energy (EERE) Advanced Manufacturing Office (AMO) in an AMO program known as Critical Materials: Next-Generation Technologies and Field Validation. The consortium was to receive up to US\$500,000 to fund the work.

ARR's US subsidiary is a member of a team, headed by Dr. Wencai Zhang at the Department of Mining and Minerals Engineering, at Virginia Tech, working on technology to reduce the release of CO₂ in the processing of REEs. The research project includes: Virginia Tech, Columbia University, Colorado State University, the Virginia Department of Energy, Phinix, Ultool LLC, and ARR's subsidiary, Western Rare Earths.

The stated goal of the project is "Energy-relevant Elements Recovery from CO₂-reactive Minerals during Carbon Mineralization" project, in effect, carbon sequestration.

The partnership's goal is to produce Light, Medium, and Heavy REO products of greater than 95% purity. A Neodymium oxide product of greater than 95% purity will also be produced. An innovative extractor technology, based on gas-assisted micro-flow extraction (GAME) theory, will be employed with an efficient task-specific ionic liquid (TSIL) for REE extraction and separation. If this proves successful, it could reduce capex and opex expenditures for producing REEs from lower-grade sources, while improving recovery efficiencies, thus reducing the loss of valuable REE to tailings.

ARR is expected to receive US\$200k in a feedstock grant, with Western Rare Earths providing up to five tons of rock samples collected during recent exploration drilling at the Halleck Creek REE project.

Critical Minerals Institute

ARR's subsidiary, WRE, has been a Team Member of the Critical Materials Institute (CMI), an Energy Innovation Hub, since January 2022. WRE is one of two mining companies on the CMI Team, with the other being Rio Tinto.

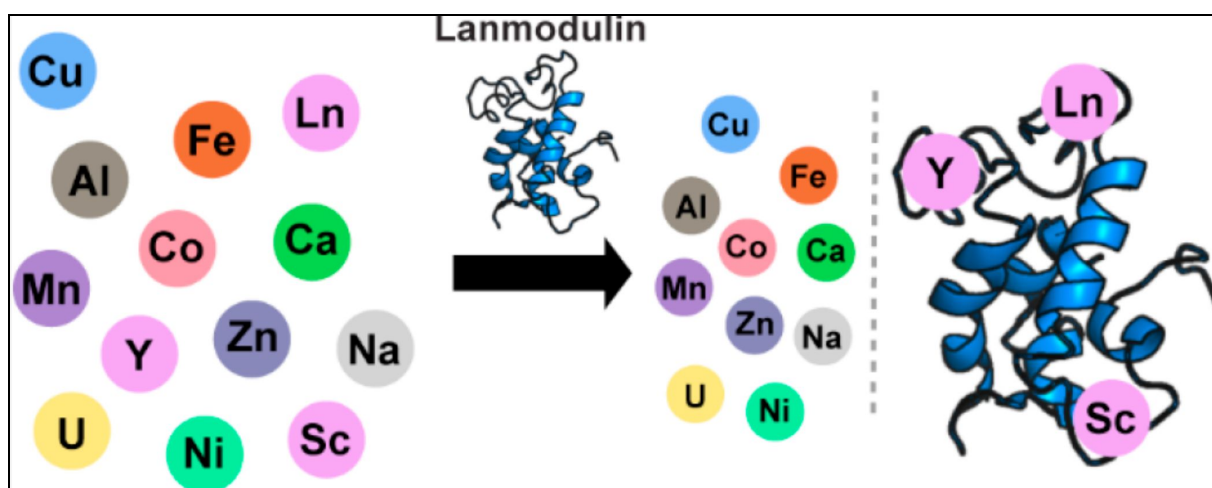
The project includes other CMI Team Members, in the National Lab and University categories, as the primary researchers and Western Rare Earths providing feedstock, beneficiated Rare Earths mineralized ore, and industry guidance.

AMMTO was launched in 2013 and, led by the Ames National Laboratory, CMI is comprised of three other DOE national laboratories, 15 universities, and 36 industry members. At its core, leverages crosscutting research from these partners to diversify supply, develop substitutes, and drive recycling and reuse of critical materials. CMI Team Members have research subcontracts from the CMI, or are providing cost-sharing funds. Requirements include specific research project deliverables within the entity's areas of expertise, based on a scope of work and a negotiated budget, including cost-share as applicable.

In late August of 2023, the DOE's Advanced Materials and Manufacturing Technologies Office (AMMTO) announced renewed funding for CMI, with a potential of US\$30mn per annum, over five years, for this third phase of the Hub.

The Livermore Partnership

In our previous update we had reported that the team from American Rare Earths has been working with Lawrence Livermore National Laboratory (LLNL) and Pennsylvania State University (PSU) to enable clean extraction of both Scandium and lanthanides from low-grade feedstocks. The researchers have completed a proof-of-concept demonstration of a novel biosorption technology that uses the biological ligand, lanmodulin (LanM), for selective Scandium and Lanthanide recovery without enriching U/Th.



The schematic above seeks to show how the lanmodulin-based Rare Earth biosorption technology extracts the Lanthanides, Yttrium and Scandium. With this process high-purity Scandium and Lanthanides (Ln) can be produced from a single biosorption and desorption cycle, enabling selective Sc/Ln separation from other non-REE contaminants.

The researchers are now moving on to technical performance testing and economic analysis of an

integrated process. This exercise will address the commercial feasibility this novel extraction technology with feedstocks from Halleck Creek. By using the two different low-grade feedstocks (AZ and WY), the aim is to understand the minimum economically viable composition of rare earth feedstocks, and the optimal phases for the extraction process.

Based on this approach ARR is aiming to develop the US's first low-grade Rare Earth mineral processing facility close to the planned mining site in Albany County, WY. The Halleck Creek project is significantly higher grade than La Paz yet appears to share similarities in mineral host being allanite with uncomplicated mineralogy and low U/Th content. Halleck Creek assays also indicate notable levels of the critical minerals, Zirconium and Hafnium.

ARR's strategy is to leverage the LLNL/PSU biosorption technology and to evaluate the economics of the LLNL/PSU technology to the complete REE supply chain. These activities will hopefully address questions required in order to license and incorporate the technology into its mineral processing platform. If this can be accomplished with high efficiency co-recovery of Scandium and the magnet REEs, while avoiding the need of a permit from the US Nuclear Regulatory Commission, it could be disruptive to the Rare Earths' supply-chain norms. The US Department of Defense, through the DARPA EMBER program, is funding up to US\$13mn for proving and scaling the concept.

The La Paz Project

For more extensive discussion of La Paz we would direct investors to our previous coverage of American Rare Earths. La Paz is a low-grade bulk tonnage deposit with its chief attractions being that the deposit is near surface, low radioactivity, in a good mining jurisdiction, easily accessible location and with a robust volume of high-value Scandium. Scandium is another technology metal on which we have written extensively.

The project lies approximately 170 km north- west of Phoenix. The mining claims are located in La Paz County approximately 16 miles (26 km) northeast of Bouse, Arizona. The property can be reached by going northeast of Bouse on the Rankin/Lincoln Ranch Road approximately 16 miles (26 km).

The La Paz Resource

The first resource estimate (dating from 2011) displayed relatively uniform distribution of total Rare Earth Elements (TREE) across and along strike covering a resource area 2.5 km by 1.5km. The entire deposit is exposed at surface, or lightly concealed by alluvial cover. It is open at depth and is currently defined to 30m below surface.

The latest resource estimate, published in late November 2020 converted the previous NI 43-101 Report and its supporting data to JORC 2012 standards:

La Paz - Resource Estimate			
Cut-off = 0.03%			
	Tonnage mns	Grade ppm	Contained REE lb
Indicated			
TC	0.4	337.7	300,000
Lower Plate	15.8	373.4	11,800,000
	16.2	373.4	12,100,000
Inferred			
TC	7.2	369.8	5,400,000
Lower Plate	104.8	371.6	77,900,000
	112.0	371.5	83,300,000

Searchlight

We might also mention in passing the Searchlight Heavy Rare Earths Project in Nevada though it is not as immediate a priority as the company's other REE projects. This is an exploration project located in a precious metal mining district in the eastern Mojave Desert Region about 119km south of Las Vegas. During the 1950s uranium prospecting rush, a significant number of REE-Thorium occurrences were discovered in the district and adjacent areas, but none were mined. The district has received little attention since.

The eastern Mojave Desert Region is extensively underlain by Precambrian age rocks that also host the Mountain Pass mine located 30km west of the Searchlight Project area. The area is readily accessible by road, with climate and terrain favoring year-around exploration activities.

The REE Space in the US - Faces Old & New

From over 300 claimants to be potential Rare Earth producers in 2011, at the end of the last Rare Earths boom, the number of developers had shrunk to less than twenty survivors by 2019. Of those only five had properties in the United States. Beyond the Halleck Creek & La Paz properties of ARR, the others were Bear Lodge property (Rare Earth Elements - OTCQB:REEMF & General Atomics), Mountain Pass in California (the sole producer, controlled by MP Materials) and Bokan in Alaska (owned by UCore – TSX-v:UCU).

Meanwhile, USA Rare Earths, holder of the Round Top project with Texas Mineral Resources (OTC:TMRC), is now subsumed in a welter of allegations of fraud in the Delaware courts. We have attributed a SHORT rating to TREM in the Model Resources Portfolio for a number of years now, since they first became enmeshed with USA Rare Earths.

We would note though that the number of prospective properties in the US has not shrunk to an appreciable extent since 2011, but rather the attrition has been in Canada, Africa, Australia and elsewhere.

Nevertheless, Mountain Pass (in the guise of Molycorp) was advanced to production when the curtains came down in 2011 and all the rest have been marking time. None of the projects in long term development have secured the elusive Nuclear Regulatory Commission (NRC) permit that a Thorium producing US REE mine will require. It is notable that the NRC has not issued a new greenfield mine permit in well over two decades.

While La Paz existed back at the earlier time it was not really on the radar and has surfaced in the current revival as a somewhat “fresh face” on the landscape. Mountain Pass died (and has been reborn under MP Materials - NYSE:MP) and the others went through a long somnolence (from which Bokan and Bear Lodge have still not awoken).

Energy Fuels (TSX:EFR) entered the Rare Earth space on an experimental basis and have operated that silo on the smell of an oily rag.

Cobalt Blue

This funding source dates back to a previous reincarnation of American Rare Earths. It has been and remains somewhat of a cashcow due to the sale of the company's former Thackaringa Cobalt asset to Cobalt Blue Holdings Limited (ASX: COB). This has been a key to the company's ability in the short term to eschew other financing methods.

While the company has sold most of the shares it has obtained from this asset sale over recent years, the company still holds:

- a \$3mn five-year Promissory Note, interest free for years 1, 2 and 3, with interest of 6% per annum for years 4 and 5, payable in arrears. The note, which is now in year 4, is secured over the title to the tenements
- exploration, base and precious metal rights on an agreed sub-tenement as defined in the agreement, with a 2% Net Smelter Royalty on all Cobalt from the Broken Hill (Thackaringa) Cobalt Project
- ARR currently owns 4 million shares.

Financing

In mid-August of 2022, the company announced a placement of approximately 48.3 million new fully paid ordinary shares at an issue price of AUD\$0.29 to raise AUD\$14mn. The company had received firm

commitments for a single-tranche placement so it was not a long drawn-out process.

A total of six million options, at an exercise price of \$0.435 (expiring three-years after the date of issue) were issued to the lead manager, Canaccord.

Risks

It is important to enumerate some of the risks that may be faced:

- A return to weak Rare Earth prices
- The REE market is still controlled largely by China
- Financing difficulties for mine build
- Failure of demand to match rising production (i.e. build it and no-one comes)
- Excessive number of competing projects could crowd the scene and investors' attention in the event that REE prices remain robust

Rare Earth prices are not likely to go substantially lower than the levels they have been at in recent years as even the Chinese are not running a charity anymore. Prices, while ebullient in the period 2020-22, have been pushed down by China in recent times, presumably in an attempt (*comme d'habitude*) to mess with the mind of potential REE producers outside China. However, there is no rationale for them to even vaguely test the highs of 2011-12 or the lows of the 2011-20 doldrums. The Chinese have learnt their lesson from last boom and that lesson is that the best way to maintain control and discipline market players is by aggressive predatory pricing. The problem the Chinese have is that, as net importers of HREE, the baton has now passed to other hands.

There is not a lot of money for major REE capex out there, especially those without access to the Government push, and market pull, that comes with being in the USA or those needing to wrangle an NRC permit or its equivalent in other developed countries.

With the EV "revolution" finally gaining traction outside of China the potential for greater demand for REE magnets from that quarter is enhanced. We see no reason for REE demand to slacken and indeed there is the potential for it to finally start to meet some of the bullish projections of 10 years ago.

Finally, there is the issue of competing projects. The Canadian projects have a few contenders to be real. Projects farther away stand some prospect (particularly if located on the territory of US allies, i.e. Australia, see Lynas) of being seen as being "as good as onshore".

Conclusion

The Rare Earth "crisis" has not gone away with the passing of the years, and indeed has intensified. The main targeted (new) usage of wind turbines in the previous REE boom has now been surpassed by the

almost frenzied hunt for magnet REEs for the EV revolution. The *rigor mortis* -like grip of China on the REE supply chain has scarcely been loosened despite all the gum-flapping in the Western halls of power.

With such a small number of names to conjure with inside US borders, the few surviving Rare Earth players have scarcity value. Inevitably promoters will attempt to create new “stories” in the space but the embedded advantage lies with projects, like those of ARR, that have historic exploration work done and resource estimates to hand. If then one applies a filter that excludes projects that are radioactive (literally or metaphorically) then the universe is less than a handful.

With two projects now on the go the challenge for American Rare Earths is to prove up the metallurgy and create a cogent plan to, economically, mine and upgrade to a REO product for the North American market. The strategic alliances on the technology side help towards the goal of differentiating the company from those others in the REE space.

Thus, we reiterate our **LONG** rating on American Rare Earths and reiterate our 12-month target price of 46 cts.



Important disclosures

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