AMERICAN RARE EARTHS ABN 83 003 453 503
ASX RELEASE

20 February 2025

Metallurgical Milestone Achieved at Halleck Creek

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 Study[1], supporting the PFS flowsheet and further de-risking the project
- **Optimisation work is ongoing** to enhance recoveries, streamline processing, and lower costs, supporting the upcoming Pre-Feasibility Study (PFS).

American Rare Earths (ASX: ARR | OTCQX: ARRNF 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 mineralised 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 Study[1] 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[2] increase announced earlier this month."

"Looking ahead, we are advancing metallurgical test work to optimise 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* 2. *ASX Announcement 4 February 2025, and refer to Table 1 on page 5 below*

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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 optimising 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

Technical Summary

Recent tests successfully separated allanite from hastingsite (an iron rich mineral), and concentrated Halleck Creek mineralized feedstock at a 10:1 upgrade ratio, proving at scale the results outlined in the Scoping Study. This metallurgical milestone for Halleck Creek is a key step in the development of the PFS flowsheet and the technical de-risking of the Project.

Mineral Technologies successfully concentrated Halleck Creek mineralized feedstock from 3,699 ppm (0.37%) TREO to 37,200 ppm (3.72%) TREO, a 10:1 upgrade ratio. The tests performed were completed at Mineral Technologies' test facilities using a 1.9 tonne sample of crushed Halleck Creek core material with MG12 Spirals and IRMS techniques using production scale equipment, which helps mitigate future scale up issues.

The majority of rare earth elements (REEs) at Halleck Creek are contained in the mineral allanite which makes up approximately 1.5% of the feed. Hastingsite makes up approximately 16% of the Halleck Creek resource material and a much larger percentage of the gravity concentrate. Allanite and hastingsite have almost identical physical properties. Separating the two minerals from each other has been a challenge in creating a quality concentrate from the Halleck Creek mineralized material. ARR is pleased to report that they are now able to significantly separate the two minerals using IRMS technology.

In addition to separating allanite from hastingsite, IRMS removes significant quantities of impurities like aluminium, calcium, sodium, and silica, which might lead to improved downstream impurity removal processing in on-going metallurgical testing.

Gangue removal and concentration are important steps in the processing of rare earth minerals. These physical processes separate barren gangue materials from rare earth bearing allanite. By removing gangue minerals from allanite, the effective grade of the material can increase by approximately 10-times. In general terms, higher REE grades in the concentration step may result in using less reagents in the next step of refining which will use hydrometallurgical processes such as leaching, solvent extraction, and precipitation to recover final REE products.

Technical Information

- Using gravity Spirals followed by IRMS 93.5% of gangue material can be separated from rare earth element bearing allanite. As a result, only 6.5% of Run of Mine ("ROM") feed moves into leaching and refining of rare earths.
- Test material was prepared by crushing the mineralized material to 100% passing 300 microns and removing the fines less than 50 microns. The TREO recovery of the combined spiral and IRMS process steps was 62%. The majority of the light minerals such as feldspars and quartz, gangue, were separated from the heavy minerals by using spiral separators and the test work was conducted on MT's industrial scale MG12 units.
- Gravity Spirals are conventional front-end separation technology utilized across the mining industry and are well understood. Gravity spirals have been used extensively in mineral sands processing for approximately 70 yrs. Gravity spirals do not have any moving parts and are fed a slurry feed from a standard slurry pump.
- Concentrate material collected from gravity spirals is further separated using a two-stage IRMS process. Magnetic minerals like magnetite, hematite, and an iron-rich amphibole (hastingsite) are separated from rare earth rich allanite in low magnetic fields. Non-magnetic minerals like residual quartz and feldspar are separated from allanite in higher magnetic fields.
- IRMS represents the first technology that significantly separates hastingsite from allanite. Because hastingsite is iron-rich, reducing the volume of hastingsite used in leaching and refining might lead to a reduction in leaching and refining reagents.
- Separating minerals like quartz, and feldspar also reduces the volume of silica, aluminum, calcium and sodium in leaching and refining.
- Using the 1.9 tonne material, MT prepared mineral concentrate from spirals and IRMS to serve as the feedstock for future Hydrometallurgical Testing (Leaching and Impurity Removal) currently being performed at SGS in Lakefield, Ontario.

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

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Competent Person(s) Statement:

Competent Persons Statement: The information in this document is based on information compiled by personnel under the direction of Mr. Dwight Kinnes. 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.

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.

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 processing, separation, 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 is an experienced technical manager with a degree in Chemical engineering, operations management and engineering management. He has held several senior engineering management roles at rare earth companies (Molycorp and NioCorp) as well as ample rare earth experience as a industry consultant. 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) 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.

Table 1 – Mineral Resource Estimate *at Halleck Creek (1000ppm TREO cut off)*

Classification	Tonnage	Grade				Contained Material			
		TREO	LREO	HREO	MREO	TREO	LREO	HREO	MREO
	t	ppm	ppm	ppm	ppm	t	t	t	t
Measured	206,716,068	3,720	3,352	370	904	769,018	692,935	76,550	186,836
Indicated	1,272,604,372	3,271	2,900	360	852	4,162,386	3,689,999	458,140	1,084,256
Meas + Ind	**1,479,320,439**	**3,334**	**2,963**	**361**	**859**	**4,931,405**	**4,382,934**	**534,691**	**1,271,092**
Inferred	1,147,180,795	3,239	2,878	361	837	3,715,661	3,302,005	413,651	960,355
Total	**2,626,501,234**	**3,292**	**2,926**	**361**	**850**	**8,647,066**	**7,684,939**	**948,341**	**2,231,447**

Appendix A – Halleck Creek JORC Table 1

Section 1 Sampling Techniques and Data		
(Criteria in this section apply to all succeeding sections.)		
Criteria	***JORC Code explanation***	**Commentary**
Sampling techniques	*Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as downhole gamma sondes, handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.*	In 2024, WRI drilled 28 drill holes at the Cowboy State Mine area. This included 11 HQ-sized core holes (1,586 m total) and 17 reverse circulation (RC) holes (1,866 m total). RC chip samples were collected at 1.5 m intervals via rotary splitter, while core samples were collected every 3 m of at lithological contacts. ARR drilled 15 reverse circulation (RC) holes and eight HQ-sized diamond core holes between September and October 2023. All RC holes were 102 meters (334.65 feet) deep, with seven core holes at 80 meters (262.47 feet) and one deep core hole at 302 m (990.81 feet). RC chip samples were collected at a 1.5-meter (4.92 ft) continuous interval via rotary splitter. Rock core was divided into sample lengths of 1.5 m (4.92 feet) long and at key lithological breaks. ARR drilled 38 reverse circulation (RC) holes across the Halleck Creek Resource Claim area between October and December 2022. All holes were approximately 150 meters (492.13 feet) deep, with the exception of HC22-RM015 which went to a depth of 175.5 meters

Section 1 Sampling Techniques and Data		
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Criteria	***JORC Code explanation***	**Commentary**
		(576 feet). Chip samples were collected at 1.5-meter continuous intervals via rotary splitter. In March and April 2022, ARR drilled nine HQ-sized core holes across the Halleck Creek Resource claim area. All holes were approximately 350 ft with the exception of one hole which was terminated at 194 ft. Total drilled length of 3,008 ft (917 m). Rock core was divided into sample lengths of 5 ft (1.52 m) long and at key lithological breaks. A total of 734 surface rock samples exist in the Halleck Creek database. Surface rock samples collected by ARR are logged, photographed and located using handheld GPS units. As part of reverse circulation (RC) and diamond core exploration drilling at Halleck Creek, ARR collected XRF readings on RC chip and core samples. Elements included in XRF measurements include Lanthanum, Cerium, Neodymium, and Praseodymium. ARR collected three XRF readings on each sample, then averaged the readings. Readings are performed at 20-meter intervals down each drill hole.

Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	*JORC Code explanation*	Commentary
		These values are qualitative in nature and provide only rough indications of grade.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	Core and RC samples were processed and logged systematically. Quality control included inserting certified reference materials (CRMs), blanks, and duplicates into the sampling stream.
	Aspects of the determination of mineralisation that are Material to the Public Report.	The Red Mountain Pluton (RMP) of the Halleck Creek Rare Earths Project is a distinctly layered monzonitic to syenitic body which exhibits significant and widespread REE enrichment. Enrichment is dependent on allanite abundance, a sorosilicate of the epidote group. Allanite occurs in all three units of the RMP, the clinopyroxene quartz monzonite, the biotite-hornblende quartz syenite, and the fayalite monzonite, in variable abundances.
	In cases where 'industry standard' work has been done, this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases, more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.	Reverse circulation rock chip samples were collected at 1.5-meter continuous intervals via rotary splitter. For each interval chip samples were placed in labelled sample bags weighing between 1-2kg. A 0.5-1kg sample was collected for reserve analysis and logging. Chip samples were also placed into chip trays with 20 slots for logging and XRF analysis.

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Criteria	***JORC Code explanation***	**Commentary**
		Rock core samples 5 ft (1.52 m) long are fillet cut. The fillet cuts are being pulverised and sampled for 60 elements including rare earth elements using ICP-MS and industry standards. A select number of samples are additionally being assayed for whole rock geochemistry. RC chip samples were sent to ALS labs in Twin Falls, ID for preparation and forwarded on to ALS labs in Vancouver, BC for ICP-MS analysis. ALS analysis: ME-MS81. Core samples were first sent to ALS in Reno, NV, for cutting and preparation, and also sent to Vancouver, BC for the same suite of testwork. ALS Laboratories in BC, Canada has performed detailed assay analysis for the project since the fall of 2022. American Assay Labs in Sparks, NV is performed the analyses for the Spring 2022 program.

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Criteria	***JORC Code explanation***	**Commentary**
Drilling techniques	*Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or another type, whether the core is oriented and if so, by what method, etc.).*	Drilling included HQ diamond drilling for core samples using a Marcotte HTM 2500 rig and rotary split RC drilling with a Schramm T455-GT rig. Oriented core was collected where applicable to support structural analysis.
Drill sample recovery	*Method of recording and assessing core and chip sample recoveries and results assessed.*	A continuous rotary sample splitter was used to collect the RC samples at 1.5m intervals. All drill core was visually logged, measured, and photographed by ARR geologists. Drill core was collected in lengths (runs) of 1.5m (~5 ft). Recoveries were calculated for each core run.
	Measures are taken to maximise sample recovery and ensure the representative nature of the samples.	Reverse circulation rock chip samples were collected at 1.5-meter continuous intervals via rotary splitter. For each interval chip samples were placed in labelled sample bags weighing between 1-2kg. A 0.5-1kg sample was collected for reserve analysis and logging. Chip samples were also placed into chip trays with 20 slots for logging and XRF analysis.

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		All core and associated samples were immediately placed in core boxes. In 2024, acoustic televiewer surveys provided supplementary data on structural continuity. Natural gamma logs were also collected for each 2024 drill hole which correlate with TREO grades.
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	Recoveries were very high in competent rock. No loss or gain of grade or grade bias related to recovery
Logging	*Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.*	All RC samples were visually logged by ARR geologists from chip trays using 10x binocular microscopes. Samples at 25m intervals were photos and analysed using an Olympus Vanta handheld XRF analyser in triplicate. Lanthanum, Cerium, Neodymium, and Praseodymium were analysed via XRF. All drill core was visually logged, measured, and photographed by ARR geologists. Drill core was collected in lengths (runs) of 1.5 meters (~5 ft). ARR geologists calculated recoveries for each core run. ARR geologists logged lithology, various types of alteration and

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		mineralisation, fractures, fracture conditions, and RQD. Alpha and beta fracture angles were determined from oriented core in 2024.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	RC samples and logging is quantitative in nature. Chip samples are stored in secure sample trays. Chip samples were photographed and 25m intervals. Core logging is quantitative in nature. All core was photographed wet and dry.
	The total length and percentage of the relevant intersections logged.	All RC samples were visually logged by ARR geologists for each 1.5-meter continuous sample. All drill core was visually logged, measured, and photographed by ARR geologists. Drill core was collected in lengths (runs) of 5 feet (1.52m). ARR geologists calculated recoveries for each core run. ARR geologists logged lithology, various types of alteration and mineralisation, fractures, fracture conditions, and RQD.

Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	*JORC Code explanation*	Commentary
Sub-sampling techniques and sample preparation	*If core, whether cut or sawn and whether quarter, half or all core taken.*	RC chip samples were not cut. Drill core was fillet cut by ALS Laboratories with approximately 1/2 of the core used for assay. The remaining core material will be kept in reserve by ALS until sent for future metallurgical testwork.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	Samples varied between wet and dry. The course crystalline nature of the deposit minimizes adverse effects of wet samples. Samples were rotary split during drilling and sample collection. ALS labs dried wet samples using their DRY-21 drying process.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	RC samples were taken from pulverize splits of up to 250 g to better than 85 % passing minus 75 microns. All core samples were dry. Sample preparation: 1kg samples split to 250g for pulverising to -75 microns. Sample analysis: 0.5g charge assayed by ICP-MS technique.

Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
		Both sampling methods are considered appropriate for the type of material collected and are considered industry standard.
	Quality control procedures adopted for all sub-sampling stages to maximise the representivity of samples.	ARR submitted CRM sample blanks, CRM standard REE samples from CND Labs and duplicate samples for analysis. Each CRM blank, REE standard, and duplicate were rotated into both the RC and core sampling process every 20 samples.
	Measures are taken to ensure that the sampling is representative of the in situ material collected, including, for instance, results for field duplicate/second-half sampling.	RC samples were collected using a continuous feed rotary split sampler. Fillet cuts along the entire length of all core are representative of the in-situ material.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Allanite is generally well distributed across the core and the sample sizes are representative of the fine grain size of the Allanite.
Quality of assay data and laboratory tests	*The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.*	ALS uses a 5-acid digestion and 32 elements by lithium borate fusion and ICP-MS (ME-MS81). For quantitative results of all elements, including those encapsulated in resistive minerals. These assays include all rare earth elements.

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Criteria	***JORC Code explanation***	**Commentary**
		AAL Labs uses 5-acid digestion and 48 element analysis including REE reported in ppm using method REE-5AO48 and whole-rock geochemical XRF analysis using method X-LIB15.
	For geophysical tools, spectrometers, handheld XRF instruments, etc., the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.	Samples at 25m intervals were photographed and analysed using an Olympus Vanta handheld XRF analyser in triplicate. Lanthanum, Cerium, Neodymium, and Praseodymium were analysed. Simple average values of three XRF readings were calculated. Seven of the core holes received ATV/OTV logging as well as slim hole induction which recorded natural gamma and conductivity/resistivity. Geophysical logging was completed by Century Geophysical located in Gillette, WY in 2023. DGI Geosciences, Salt Lake City, UT, performed logging in 2024. All tools were properly calibrated prior to logging.
	Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	For the 2024 drilling program, ARR submitted CRM sample blanks, CRM standard REE samples from CDN Labs, and duplicate samples for analysis. QA/QC samples, including CRM and blank samples, were inserted alternately at every 20th sample for both RC and core

Section 1 Sampling Techniques and Data		
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		drilling. ALS Laboratories also incorporated their own QA/QC procedures to ensure analytical reliability. For the RC drilling, ARR submitted CRM sample blanks, CRM standard REE samples from CND Labs and duplicate samples for analysis. CRM and Blank samples were inserted alternately at 20 sample intervals. The same was done for the core drilling completed Fall 2023. ALS Laboratories additionally incorporated their own Qa/Qc procedure. For core drilling completed Spring 2022, ARR submitted CRM sample blanks, CRM standard REE samples from CND Labs and duplicate samples for analysis. Blank samples were added one for every 10 core samples, REE samples were added one for every 25 core samples, and Duplicate samples were added one per every 25 core samples. Internal laboratory blanks and standards will additionally be inserted during analysis.
	The verification of significant intersections by either independent or alternative company personnel.	RC chip samples have not yet been verified by independent personnel.

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Criteria	***JORC Code explanation***	**Commentary**
Verification of sampling and assaying		Consulting company personnel have observed the assayed core samples. Company personnel sampled the entire length of each hole.
	The use of twinned holes.	No twinned holes were used.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Data entry was performed by ARR personnel and checked by ARR geologists. All field logs were scanned and uploaded to company file servers. All photographs of the core were also uploaded to the file server daily. Drilling data will be imported into the DHDB drill hole database. All scanned documents are cross-referenced and directly available from the database. Assay data from the RC samples was imported into the database directly from electronic spreadsheets sent to ARR from ALS. Core assay data was received electronically from AAL labs. These raw data as elements reported ppm were imported into the database with no adjustments.

Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	*JORC Code explanation*	Commentary
	Discuss any adjustment to assay data.	Assay data is stored in the database in elemental form. Reporting of oxide values are calculated in the database using the molar mass of the element and the oxide.
Location of data points	*Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.*	All drill hole collars were surveyed by a registered professional land surveyor. Deviation surveys were conducted post-drilling to confirm subsurface data accuracy.
	Specification of the grid system used.	The grid system used to compile data was NAD83 Zone 13N.
	Quality and adequacy of topographic control.	Topography control is +/- 10 ft (3 m).
Data spacing and distribution	*Data spacing for reporting of Exploration Results.*	Drill spacing varied between 100 and 300 m, with infill drilling conducted to refine the resource model and improve classification confidence.
	Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.	Spacing supports classification into Indicated and Inferred categories based on geostatistical analysis and grade continuity confirmed through cross-sections and swath plots.

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Criteria	***JORC Code explanation***	**Commentary**
	Whether sample compositing has been applied.	Sample compositing was applied during resource estimation. Grade intervals were composited to 1.5 m (5 feet), the dominant sampling interval, ensuring compatibility with the data collected and supporting accurate resource estimation.
Orientation of data in relation to geological structure	*Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.*	Mineralization at Halleck Creek is a function of fractional crystallization of allanite in syenitic rocks of the Red Mountain Pluton. Mineralization is not structurally controlled and exploration drilling to date does not reveal any preferential mineralization related to geologic structures. Therefore, orientation of drilling does not bias sampling.
	If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	Orientation of drilling does not bias sampling.
Sample security	*The measures are taken to ensure sample security.*	All RC chip samples were collected from the drill rigs and stored in a secured, locked facility. Sample pallets were shipped weekly, by bonded carrier, directly to ALS labs in Twin Falls, ID. Chains of custody were maintained at all times.

Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	*JORC Code explanation*	Commentary
		All core was collected from the drill rig daily and stored in a secure, locked facility until the core was dispatched by bonded courier to ALS Laboratories. Chains of custody were maintained at all times. All rock samples were in the direct control of company geologists until dispatched to American Assay Labs.
Audits or reviews	*The results of any audits or reviews of sampling techniques and data.*	No external audits or reviews have been conducted to date. However, sampling techniques are consistent with industry standards.

Section 2 Reporting of Exploration Results		
(Criteria listed in the preceding section also apply to this section.)		
Criteria	***JORC Code explanation***	**Commentary**
Mineral tenement and land tenure status	*Type, reference name/number, location and ownership, including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.*	ARR controls 364 unpatented federal lode claims and 4 Wyoming State mineral licenses covering 3,280 ha (8,108 acres).
	The security of the tenure held at the time of reporting and any known impediments to obtaining a licence to operate in the area.	No impediments to holding the claims exist. To maintain the claims an annual holding fee of $165/claim is payable to the BLM. To maintain the State leases minimum rental payments of $1/acre for 1-5 years; $2/acre for 6-10 years; and $3/acre if held for 10 years or longer.
Exploration done by other parties	*Acknowledgment and appraisal of exploration by other parties.*	Prior to sampling by WIM on behalf of Blackfire Minerals and Zenith there was no previous sampling by any other groups within the ARR claim and Wyoming State Lease blocks.
Geology	*Deposit type, geological setting and style of mineralisation.*	The REE's occur within Allanite which occurs as a variable constituent of the Red Mountain Pluton. The occurrence can be characterised as a disseminated rare earth deposit.
Drill hole Information	*A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:*	For the 2023 and 2024 exploration programs, FTE DRILLING USA INC. of Mount Uniacke, Nova Scotia used a Schraam T-450 track mounted rig to drill 15 reverse circulation drill holes. Drill hole

Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
		depths for 37 holes was 102 m. FTE also utilized an enclosed Versa-Drilling diamond core rig to drill eight HQ-sized core holes. For the Fall 2022 program, FTE DRILLING USA INC. of Mount Uniacke, Nova Scotia used a Schraam T-450 track mounted rig to drill 37 reverse circulation drill holes. Drill hole depths for 37 holes was 150m and one hole at 175.5m Authentic Drilling from Kiowa, Colorado used both a track mounted and ATV mounted core rig to drill nine HQ diameter core holes. From March to April 2022, ARR drilled nine core holes across the Halleck Creek claim area. Drill holes ranged in depth from 194 to 352.5 ft with a total drilled length of 3,008 ft (917 m).
	easting and northing of the drill hole collar *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar*	Drilling information from the 2024 exploration program was published in the report "Technical Report of Exploration and Updated Resource Estimates at Red Mountain of the Halleck Creek Rare Earths Project", December 2024.

Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	*JORC Code explanation*	Commentary
	dip and azimuth of the hole	Drilling information from the Fall 2023 campaign was published in the report "Summary of 2023 Infill Drilling at the Halleck Creek Project Area", November 2023 Drilling information from the Fall 2022 drilling campaign is presented in detail in the "Technical Report of Exploration and Maiden Resource Estimates of the Halleck Creek Rare Earths Project", March 2023.
	downhole length and interception depth	
	Hole length.	
	If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	No Drilling data has been excluded.
Data aggregation methods	*In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.*	Average Grade values were cut at minimum of TREO 1,000 ppm.
	Where aggregate intercepts incorporate short lengths of high-grade results and longer lengths of low-grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.	Assays are representative of each 1.50 m, (~5 ft) sample interval.

Section 2 Reporting of Exploration Results		
(Criteria listed in the preceding section also apply to this section.)		
Criteria	***JORC Code explanation***	**Commentary**
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No metal equivalents used.
Relationship between mineralisation widths and intercept lengths	*These relationships are particularly important in the reporting of Exploration Results.* *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* *If it is unknown and only the downhole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').*	Allanite mineralization observed at Halleck Creek occurs uniformly throughout the CQM and BHS rocks of within the Red Mountain Pluton. Therefore, the geometry of mineralisation does not vary with drill hole orientation or angle within homogeneous rock types.
Diagrams	*Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported. These should include, but not be limited to, a plan view of drill hole collar locations and appropriate sectional views.*	Location information is presented in detail in the "Technical Report of Exploration and Updated Resource Estimates at Red Mountain of the Halleck Creek Rare Earths Project", December 2024.
Balanced reporting	*Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practised to avoid misleading reporting of Exploration Results.*	Reporting of the most recent exploration data is included in the "Technical Report of Exploration and Updated Resource Estimates at Red Mountain of the Halleck Creek Rare Earths Project", December 2024.

Section 2 Reporting of Exploration Results		
(Criteria listed in the preceding section also apply to this section.)		
Criteria	***JORC Code explanation***	**Commentary**
		Previous data is presented in the "Technical Report of Exploration and Maiden Resource Estimates of the Halleck Creek Rare Earths Project", March 2023, and in report "Summary of 2023 Infill Drilling at the Halleck Creek Project Area", November 2023.
Other substantive exploration data	*Other exploration data, if meaningful and material, should be reported, including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.*	In hand specimen this rock is a red colored, hard and dense granite with areas of localized fracturing. The rock shows significant iron staining and deep weathering. Microscopic description: In hand specimen the samples represent light colored, fairly coarse-grained granitic rock composed of visible secondary iron oxide, amphibole, opaques, clear quartz and pink to white colored feldspar. All of the specimens show moderate to strong weathering and fracturing. Allanite content is variable from trace to 2%. Rare Earths are found within the Allanite. Historical metallurgical testing consisted of concentrating the Allanite by both gravity and magnetic separation. The current program employs sequential gravity separation and magnetic

Section 2 Reporting of Exploration Results		
(Criteria listed in the preceding section also apply to this section.)		
Criteria	***JORC Code explanation***	**Commentary**
		separation to produce a concentrate suitable for downstream rare earth elements extraction.
Further work	*The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).*	Detailed geological mapping and channel sampling is planned to enhance further development drilling to increase confidence levels of resources.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	Geological mapping and channel sampling is planned for the Bluegrass and County Line project areas to potentially expand mineral resources beyond the Cowboy State Mine area.

Section 3 Estimation and Reporting of Mineral Resources		
(Criteria listed in the preceding section also apply to this section.)		
Criteria	***JORC Code explanation***	**Commentary**
Database integrity	*Measures taken to ensure that data has not been corrupted by, for*	Drill hole data header, lithologic data checked by field geologists and by visual examination on maps and drill hole striplogs. Assay and Qa/Qc data were imported into the database directly from electronic spreadsheets provide by laboratories. Histograms graphical logs were also prepared and reviewed by ARR geologists.

Section 3 Estimation and Reporting of Mineral Resources		
(Criteria listed in the preceding section also apply to this section.)		
Criteria	***JORC Code explanation***	**Commentary**
	example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes. *Data validation procedures used.*	
Site visits	*Comment on any site visits undertaken by the Competent Person and the outcome of those visits.* *If no site visits have been undertaken indicate why this is the case.*	Mr. Dwight Kinnes visited the Halleck Creek site numerous times in 2024 and 2025. Mr. Patrick Sobecke and Mr. Erick Kennedy of Stantec visited the site on February 10, 2025. Mr. Alf Gillman of Odessa Resources and Mr. Kelton Smith of Tetra Tech visited the site on March 7, 2024.

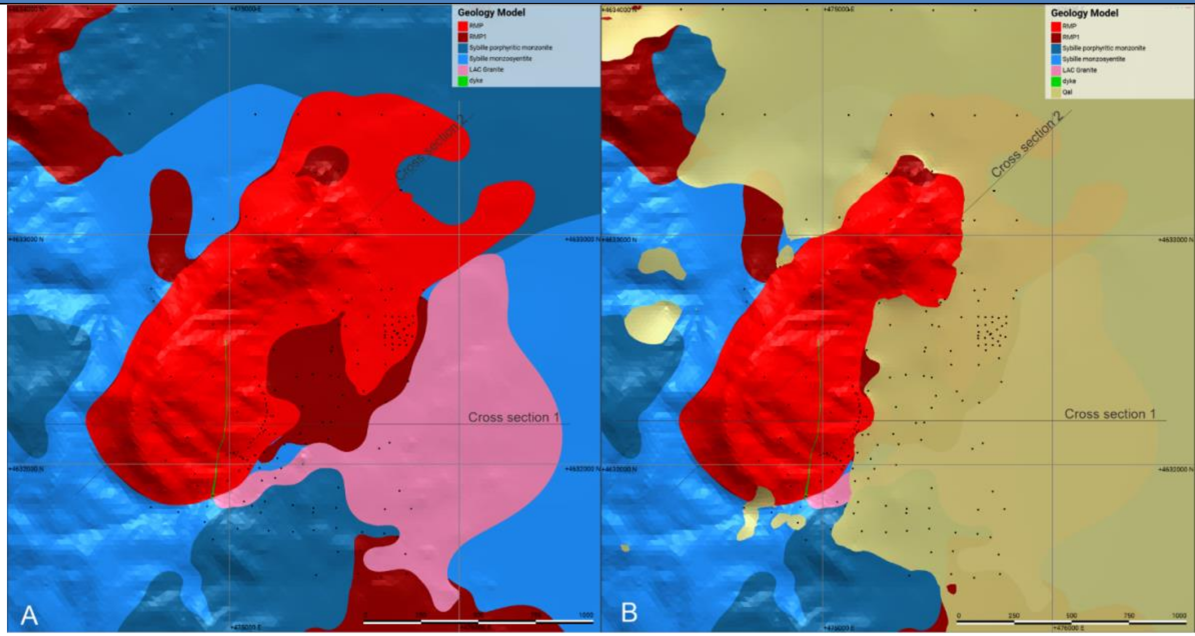
Section 3 Estimation and Reporting of Mineral Resources		
(Criteria listed in the preceding section also apply to this section.)		
Criteria	***JORC Code explanation***	**Commentary**
Geological interpretation	*Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.* *Nature of the data used and of any assumptions made.* *The effect, if any, of alternative interpretations on Mineral Resource estimation.* *The use of geology in guiding and controlling Mineral Resource estimation.*	The Halleck Creek RE deposit is contained with rocks of the Red Mountain Pluton. These rocks consist primarily of clinopyroxene quartz monzonite (CQM), and biotite hornblende syenite (BHS). These two lithologies are difficult to visually distinguish. However, the concentration of rare earth elements is observable between lithologies. Rocks of the Elmers Rock Greenstone Belt (ERGB) and the Sybille (Syb) intrusion are easily distinguishable from rocks of the RMP. These rock units are essentially barren of rare earth elements. Therefore, the confidence in discerning rocks of the RMP from is high. The extent of the RMP relative to other units was outlined into modelling domains used for resource estimates. The distribution of allanite throughout CQM and BHS rocks of the RMP is generally uniform and is not structurally controlled. Potassic alternation observed does not appear to affect the grade of allanite throughout the deposit.

Section 3 Estimation and Reporting of Mineral Resources

(Criteria listed in the preceding section also apply to this section.)

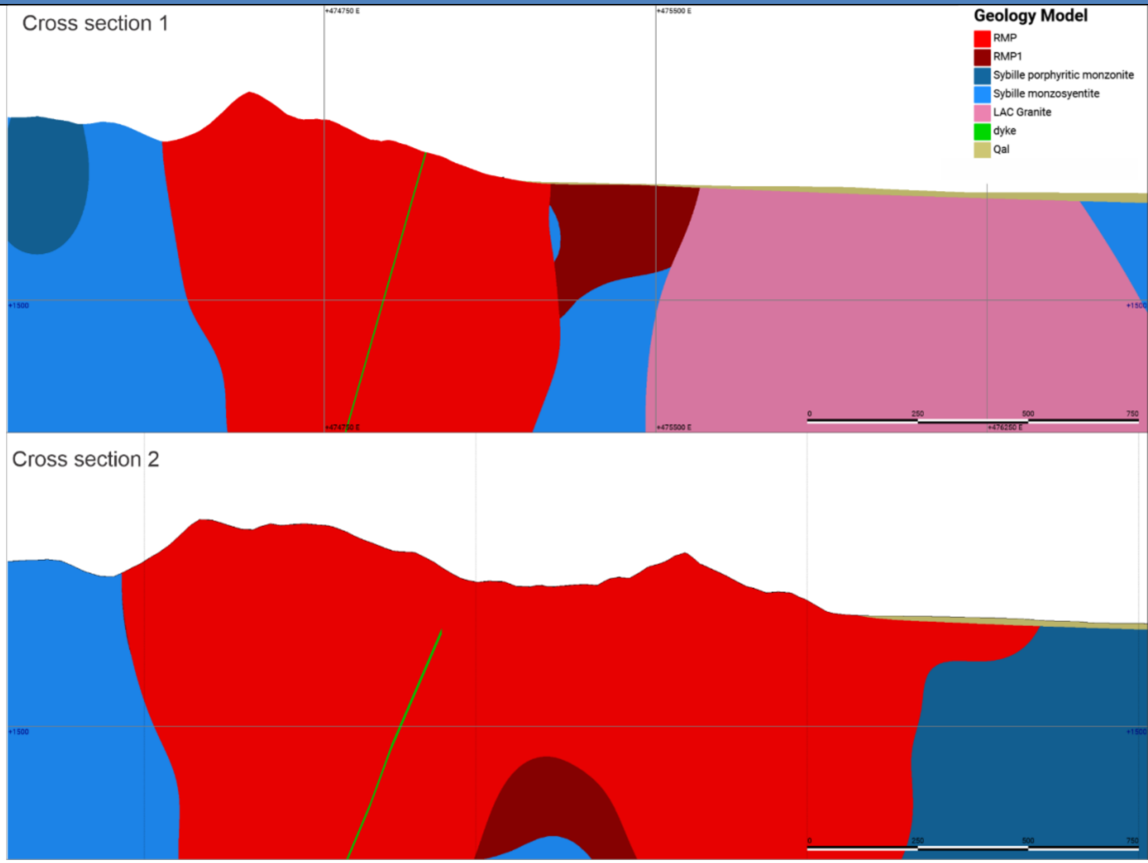
Criteria	***JORC Code explanation***	**Commentary**
	The factors affecting continuity both of grade and geology.	
Dimensions	*The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.*	The Halleck Creek REE project currently contains two primary resource areas: the Red Mountain area and the Overton Mountain area. Resources also extend into the Bluegrass resource area. The Cowboy State Mine area is a subset of Red Mountain cover land minerals owned by the state of Wyoming, and under lease by WRI. The Red Mountain resource area is bounded to the west by the ERGB, and to the south by the Syb. Archean granites bound the Red Mountain area to the east. RC samples with TREO grades exceeding 1,500 ppm occurred at the base of 37 drill holes in the Red Mountain resource area extending down to depths of 150m with one hole extending to a depth of 175.5m. Therefore, ARR considers the Red Mountain resource area to be open at depth. The Overton Mountain resource area is bounded to the west by mineral claims, and therefore, remains open to the west. Lower grade BHS rocks occur at the northern end of Overton Mountain. Drilling data to the east and south indicate that the Overton Mountain resource area remains open across Bluegrass Creek. Like the Red Mountain drilling, RC samples at Overton Mountain contained TREO assay values exceeding 3,500 ppm to depths of 150m in 18 holes. One, 302m diamond core hole additionally exhibited grades exceeding 2,000 ppm to the bottom of the hole. Therefore, ARR considers the Overton Mountain resource area to be open at depth.

Section 3 Estimation and Reporting of Mineral Resources		
(Criteria listed in the preceding section also apply to this section.)		
Criteria	***JORC Code explanation***	**Commentary**
Estimation and modelling techniques	*The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer*	A revised three-dimensional geological model was developed Odessa Resources Pty. Ltd., from Perth Australia, using both drillhole information and surface mapping to isolate the higher-grade RMP domain from the surrounding lithologies. The domains that are modelled comprise the primary geological units as interpreted by ARR geologists. These geological domains consist of: • QAL Quaternary alluvium • RMP Red Mountain Pluton comprising mostly clinopyroxene quartz monzonite (CQM) • RMP1 comprising mostly biotite-hornblende quartz syenite and fayalite monzonite • ERGB unmineralized Elmers Rock Greenstone Belt • SYB low grade monzonite Sybille intrusions • LAC Laramie Anorthosite Complex Geochemical surface sample results were incorporated into the model but only to define the outer limits of the resource block domains. The Figures below show the general arrangement of the geological domains.

Section 3 Estimation and Reporting of Mineral Resources		
(Criteria listed in the preceding section also apply to this section.)		
Criteria	***JORC Code explanation***	**Commentary**
	software and parameters used. *The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.* *The assumptions made regarding recovery of by-products.* *Estimation of deleterious elements or other non-grade*	

Section 3 Estimation and Reporting of Mineral Resources

(Criteria listed in the preceding section also apply to this section.)

Criteria	***JORC Code explanation***	**Commentary**
	variables of economic significance (eg sulphur for acid mine drainage characterisation). *In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.* *Any assumptions behind modelling of selective mining units.* *Any assumptions about correlation between variables.*	 Odessa updated the red Mountain resource model using Leapfrog Edge, with all drill hole data variograms and block model parameters were updated. Grade estimation was carried using an ordinary kriged ("OK") interpolant.

Section 3 Estimation and Reporting of Mineral Resources

(Criteria listed in the preceding section also apply to this section.)

<table>
<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
<tr><td></td><td>Description of how the geological interpretation was used to control the resource estimates.

Discussion of basis for using or not using grade cutting or capping.

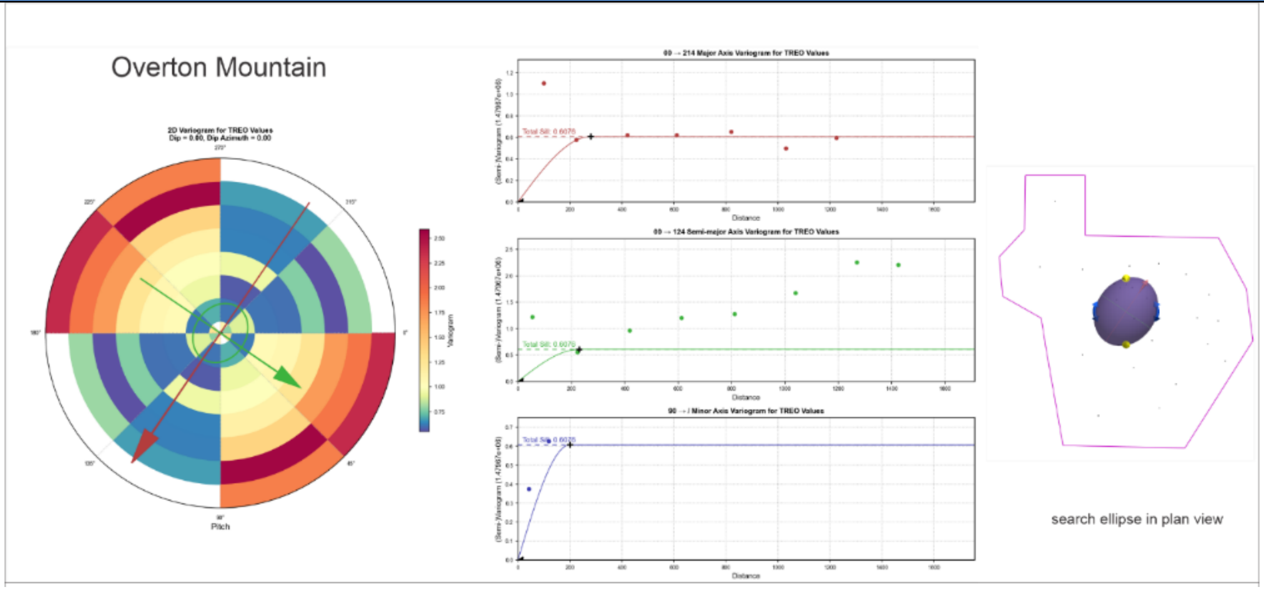
The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.</td><td>Block Model Parameters
<table>
<tr><th>Block Model Parameter</th><th>Value</th></tr>
<tr><td>Parent Block Size</td><td>20m</td></tr>
<tr><td>Sub-block count (i, j, k)</td><td>4, 4, 4</td></tr>
<tr><td>Minimum block size (i, j, k)</td><td>5m ,5m, 2.5m</td></tr>
<tr><td>Base point (x, y, z)</td><td>473900.00, 4631300.00, 2000.00</td></tr>
<tr><td>Boundary size (W x L x H)</td><td>2060.00, 2040.00, 510.00</td></tr>
<tr><td>Azimuth</td><td>0</td></tr>
<tr><td>Dip</td><td>0</td></tr>
<tr><td>Pitch</td><td>0</td></tr>
<tr><td>Size in Blocks</td><td>103x102x51=535,806</td></tr>
</table>
The block model contains attributes pertaining to resource block, resource category, grade class, geologic domain, and numerical attributes for TREO, rare earth oxides of all rare earth elements.</td></tr>
</table>

Section 3 Estimation and Reporting of Mineral Resources		
(Criteria listed in the preceding section also apply to this section.)		
Criteria	***JORC Code explanation***	**Commentary**
		Geological domains focused on higher grade RMP and RMP1 lithologies which provided control of resource block boundaries along with variography.

General	Direction			Structure 1					
Variogram Name	**Dip**	**Dip Azimuth**	**Pitch**	**Normalized Nugget**	**Normalized sill**	**Structure**	**Major**	**Semi-major**	**Minor**
OM	0	0	124	0	0.6	Spherical	280	230	200
RM	0	0	90	0.1	0.8	Spherical	445	240	170

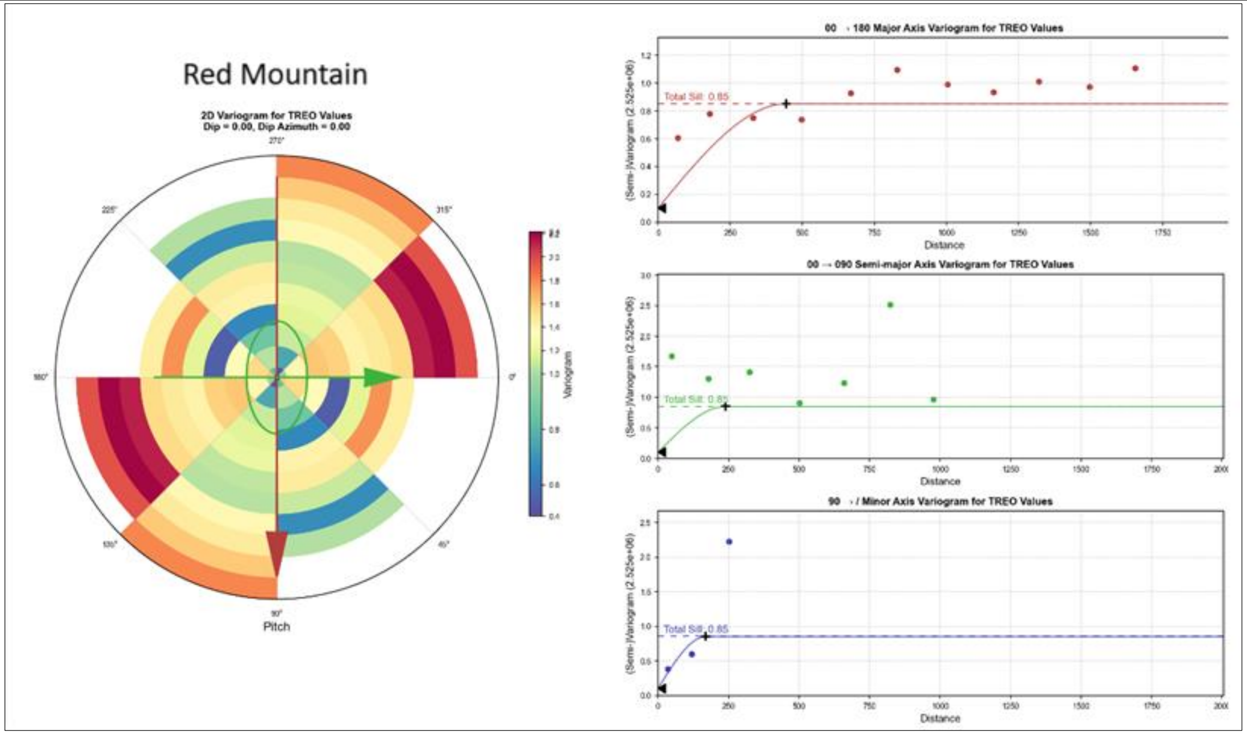
Section 3 Estimation and Reporting of Mineral Resources

(Criteria listed in the preceding section also apply to this section.)

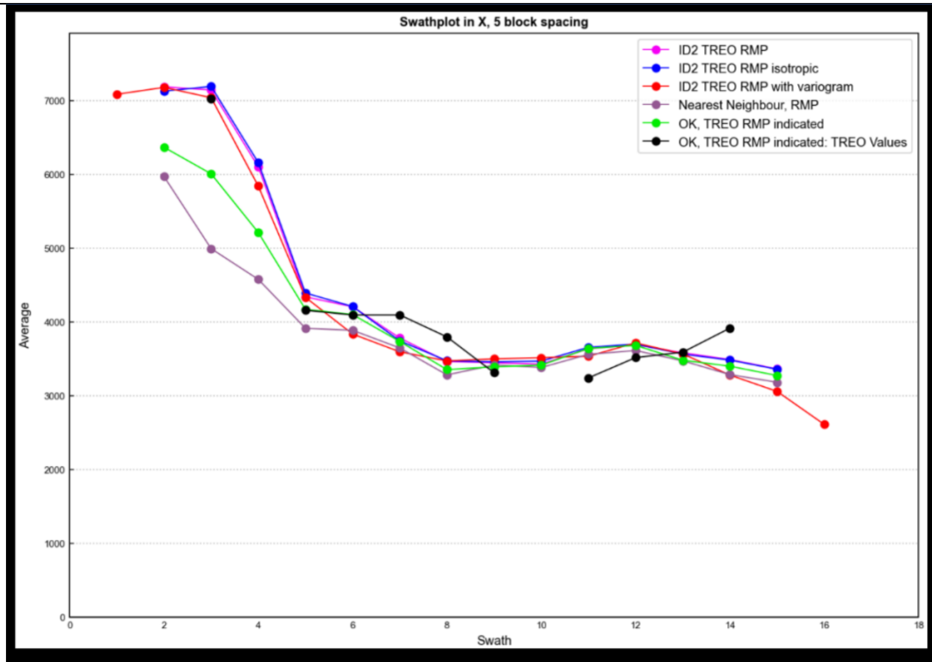
Criteria	***JORC Code explanation***	**Commentary**
		

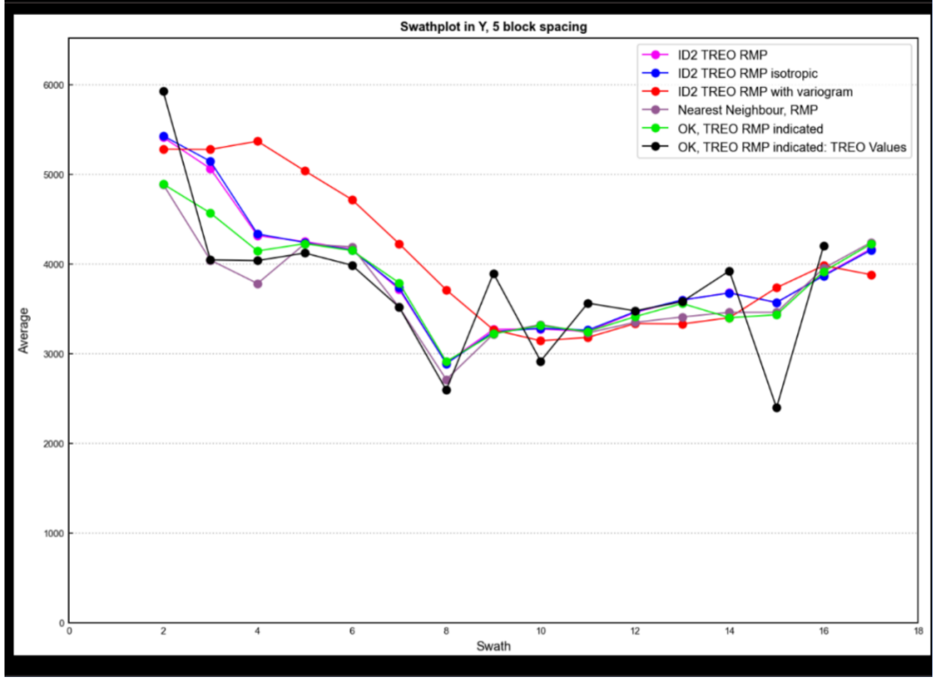
Section 3 Estimation and Reporting of Mineral Resources

(Criteria listed in the preceding section also apply to this section.)

Criteria	*JORC Code explanation*	**Commentary**
		 Several estimation runs were carried out on the RMP Indicated resource to check for any variance between estimated grades and the input data. Modelled estimator:

Section 3 Estimation and Reporting of Mineral Resources		
(Criteria listed in the preceding section also apply to this section.)		
Criteria	***JORC Code explanation***	**Commentary**
		OK TREO RMP: Indicated ordinary kriged estimate with variogram model (150x150x120m search) The additional estimators: ID2 TREO RMP: Inverse Distance Squared (ID2) using horizontal plane (150x150x120m search) ID2 TREO RMP: isotropic Inverse Distance Squared (ID2) using an iso-tropic 150m search ellipse ID2 TREO RMP: with variogram Inverse Distance Squared (ID2) using the same estimation and variogram parameters as the kriged model (445x240x170m search) Nearest Neighbour, RMP: nearest neighbour estimate (150x150x120m search) These validation runs, together with the kriged estimator, were compared against the raw composite data in east-west (X) and north-south (Y) swath plots across the Red Mountain area (see below). The data indicate that the kriged estimator has done a reasonable job in estimating a global resource grade with no systematic bias towards overestimating the grades. The smoothing effects of the kriging interpolant is consistent with both the inherent nature of the kriging process and the large search ellipses used.


Swathplot in X, 5 block spacing
ID2 TREO RMP
ID2 TREO RMP isotropic
ID2 TREO RMP with variogram
Nearest Neighbour, RMP
OK, TREO RMP indicated
OK, TREO RMP indicated: TREO Values
Average
Swath


Swathplot in Y, 5 block spacing
ID2 TREO RMP
ID2 TREO RMP isotropic
ID2 TREO RMP with variogram
Nearest Neighbour, RMP
OK, TREO RMP indicated
OK, TREO RMP indicated: TREO Values
Average
Swath

Section 3 Estimation and Reporting of Mineral Resources		
(Criteria listed in the preceding section also apply to this section.)		
Criteria	***JORC Code explanation***	**Commentary**
Moisture	*Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	Tonnages are based on in-situ, dry basis.
Cut-off parameters	*The basis of the adopted cut-off grade(s) or quality parameters applied.*	A cut-off grade of 1,000 ppm TREO was applied to reported resource estimates based on preliminary net smelter calculations performed by Stantec.
Mining factors or assumptions	*Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining*	Surface mining was chosen as the method to extract the resource due to mineralization outcropping on surface and the homogeneity of the mineral grade over a large extent. In the absence of geotechnical data Stantec used reasonable bench angles, catch bench widths based on industry experience. Mining and metallurgical costs were from Stantec and Tetratech's respective cost databases for a mine and mill of this size and scale. Process recoveries were based on preliminary test work on samples of the mineralization. Mine design work was based on Geovia's Whittle mine software package, using a block model supplied by ARR and reviewed by Stantec for adequacy at a scoping level of study. The following mine design parameters were used in the pit design:

Section 3 Estimation and Reporting of Mineral Resources		
(Criteria listed in the preceding section also apply to this section.)		
Criteria	***JORC Code explanation***	**Commentary**
	dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an	Height between catch benches 6 m Bench Face Angle 70° Berm Width 2.9 m Total Road Allowance 18.5 m Maximum Ramp Grade 10% Minimum Operating Width 30 m

Section 3 Estimation and Reporting of Mineral Resources

(Criteria listed in the preceding section also apply to this section.)

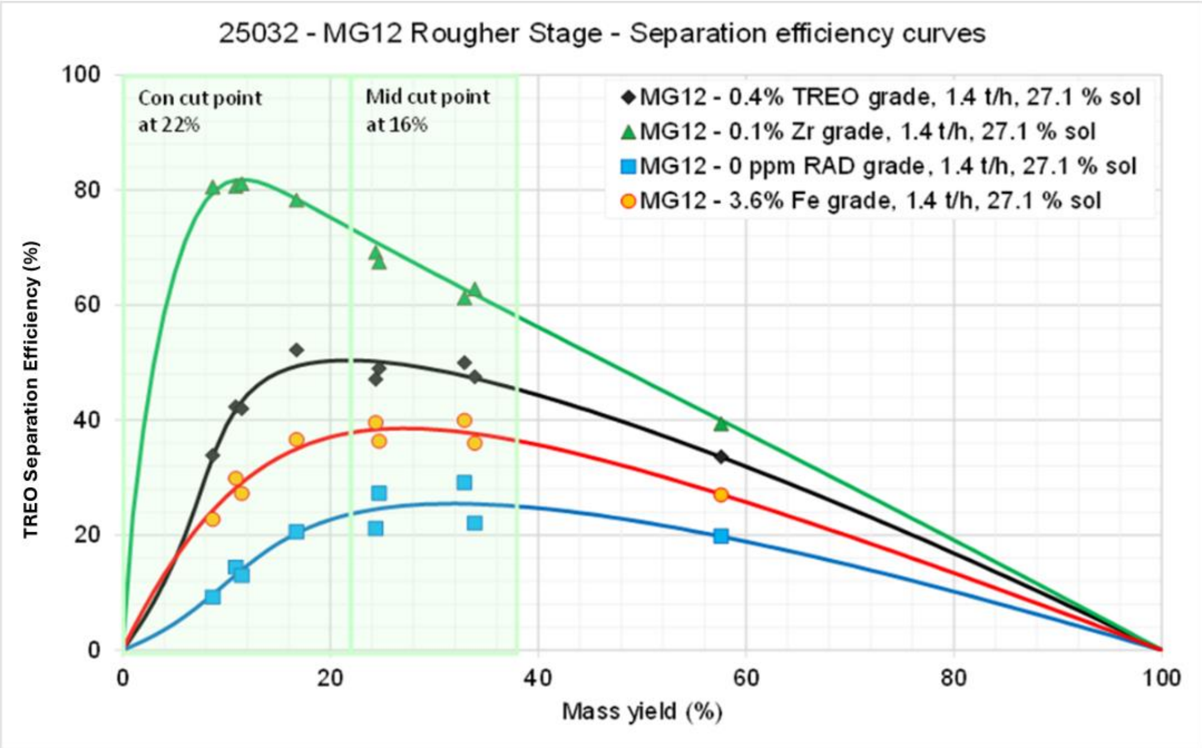
Criteria	***JORC Code explanation***	**Commentary**
	explanation of the basis of the mining assumptions made.	

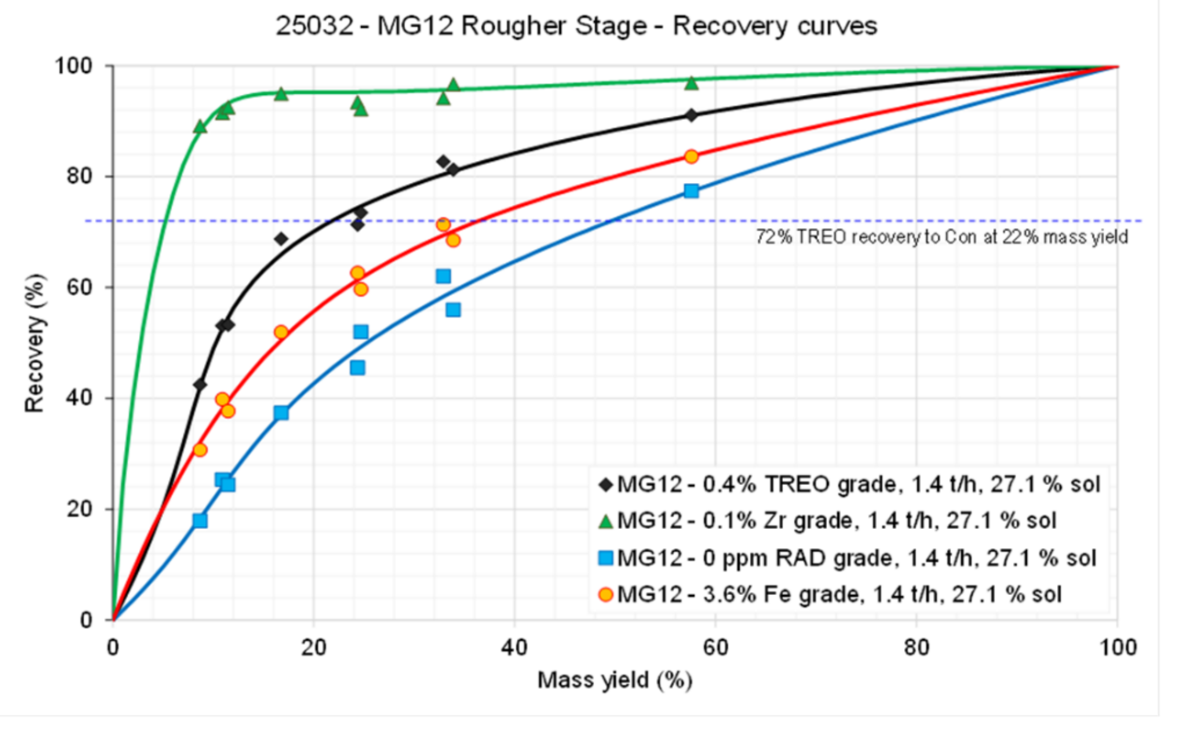
Parameter	Unit	Red Mountain & Overton Mountain							
Revenue, Smelting & Refining		**La**	**Pr**	**Nd**	**Sm**	**Eu**	**Gd**	**Tb**	**Dy**
Price	USD	$2.00	$91.00	$91.00	$10.00	$10.00	$10.00	$1,500.00	$400.00
Recovery	%	68.63%	63.86%	63.86%	70.11%	70.11%	70.11%	70.22%	66.49%
Refining Price Factor	%	0%							
Treatment Charges	USD	$0.00							
Refining Costs	USD	$0.00							
Shipping Costs	USD	$0.00							
Transportation Concentrate Losses	%	0%							
Recovery and Dilution									
External Mining Dilution	%	0%							
Mining Recovery	%	100%							
Geotechnical									
Slope ISA	deg	50							
OPEX									
Milling Cost	USD	$26.43							
Surface Mining Cost	USD	$3.95							
Site G&A	USD	$0.00							
Total OPEX Cost	USD	$29.28							

*OPEX costs are from 2023

No mining dilution was used in the mine design of this study and a mining recovery of 100 % was assumed. Based on the chosen mining equipment, a minimum mining width of 30 meters was utilized. Measured, indicated and inferred mineral resources were included in the mine design, which is appropriate at a scoping level of study. Due to the homogeneity of the mineralization, while

Section 3 Estimation and Reporting of Mineral Resources		
(Criteria listed in the preceding section also apply to this section.)		
Criteria	***JORC Code explanation***	**Commentary**
		it is not reasonable to state that all inferred resources will be converted to a more precise mineral resource category, in general it is felt that it is reasonable to assume that the majority of the inferred resource will be converted to indicated or measured with additional sampling due to the size and homogeneity of the mineralized zone. Supporting mine infrastructure is discussed in the appropriate section of this report.
Metallurgical factors or assumptions	*The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions*	Mineral Technologies in the USA performed separation tests using -300µm x +86µm feed from Halleck Creek on MG12 triple-start spirals. Mineral Technologies processed approximately 1,900 kg of feed material using the production scale MG12 spiral units. The rougher separation efficiency curve is shown below where the max efficiency is at 22% mass yield for the concentrate and 16% for the mid-cut (middlings).

Section 3 Estimation and Reporting of Mineral Resources		
(Criteria listed in the preceding section also apply to this section.)		
Criteria	***JORC Code explanation***	**Commentary**
	regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	 The rougher recovery curve is shown below in which a 22% mass yield translates to a 72% TREO recovery. The resulting grade is 1.19% TREO with a feed of 0.292% TREO (2,923ppm), or a 4.1 upgrade factor.

Section 3 Estimation and Reporting of Mineral Resources		
(Criteria listed in the preceding section also apply to this section.)		
Criteria	***JORC Code explanation***	**Commentary**
		 Mineral Technologies performed additional separation testing using an Induced Roll Magnetic Separator (IRMS) using the rougher spiral concentrate from the -300µm x +86µm ore feed testing. Concentrate material was collected using IRMS power settings greater than 0.6 amps and less than 2.0 amps. The final results for the IRMS treatment is 29.5% mass yield, 86.1% TREO recovery and a concentrate that is 3.72% TREO or an upgrade factor of 2.92 as compared to the rougher concentrate.

Section 3 Estimation and Reporting of Mineral Resources		
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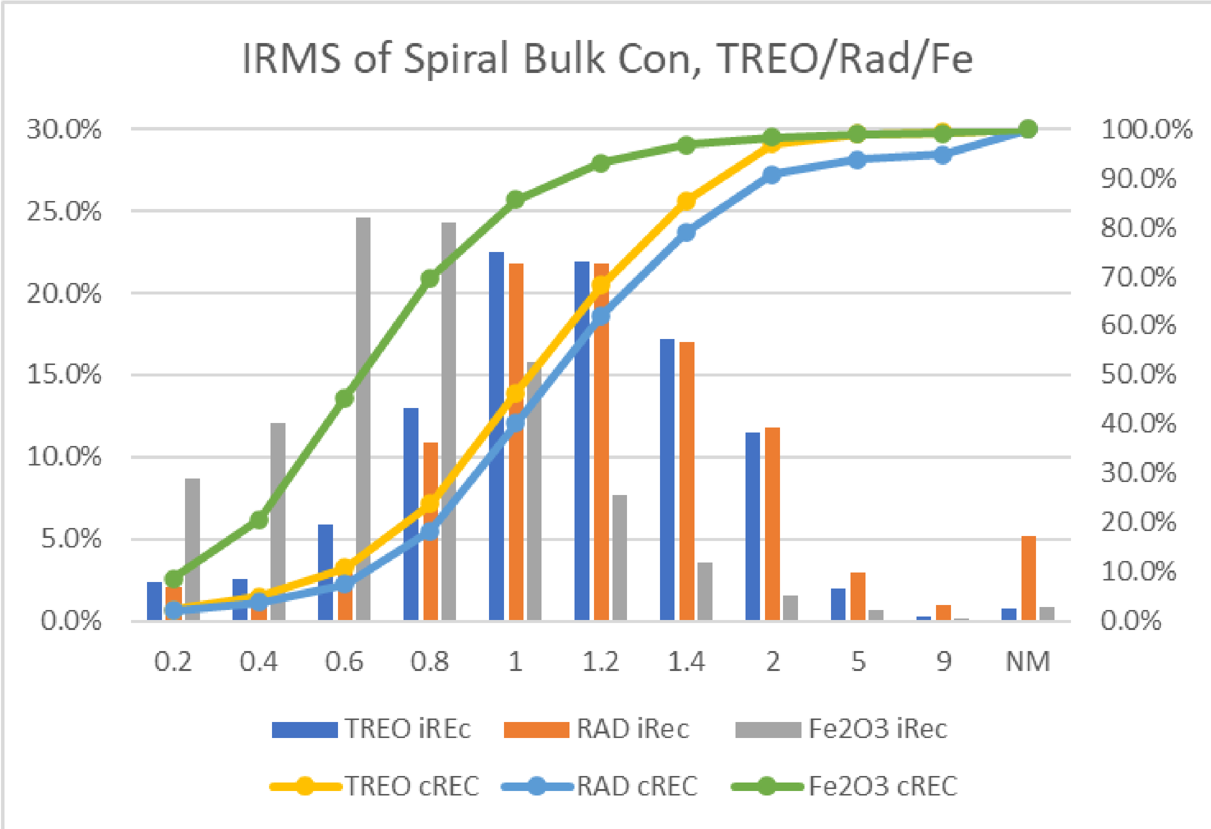
Criteria	***JORC Code explanation***	**Commentary**
		

Section 3 Estimation and Reporting of Mineral Resources

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary

The combined results of spiral separation and IRMS separation of Halleck Creek feed material sized between -300μm x+86μm results in a final 6.5% mass yield, 62% recovery, and a TREO enrichment factor of 9.6.

IRMS processing is also the first technology found to significantly separate iron minerals (hastingsite) from REE bearing minerals (allanite). The following table shows that discarding material using IRMS setting less than 0.6 amps and greater than 2.0 amps results in large rejection fractions of deleterious elements, with small losses in TREO.

				Individual Recovery											
Amps	Mass	Wt %	TREE ppm	TREO iREc	RAD iRec	SiO2 iRec	Al2O3 iRec	Fe2O3 iRec	MgO iRec	CaO iRec	Na2O iRec	K2O iRec	TiO2 iRec	P2O5 iRec	MnO iRec
0.2	18.8	3.8%	6,664	2.4%	2.1%	2.8%	2.1%	8.7%	17.3%	5.3%	1.6%	1.4%	5.4%	11.1%	7.5%
0.4	26.9	5.4%	5,079	2.6%	1.8%	3.8%	3.3%	12.0%	11.2%	9.7%	2.5%	2.0%	18.0%	7.2%	13.3%
0.6	54.2	10.9%	5,755	5.9%	3.7%	7.8%	6.9%	24.6%	18.1%	21.1%	4.8%	3.8%	27.1%	13.1%	25.3%
0.8	55.8	11.2%	12,301	13.0%	10.9%	8.2%	7.3%	24.3%	18.6%	21.9%	5.2%	4.1%	22.8%	15.0%	24.1%
1	40.2	8.1%	29,684	22.5%	21.7%	6.0%	5.6%	15.8%	12.0%	15.3%	3.8%	2.9%	13.8%	11.9%	15.5%
1.2	23.4	4.7%	49,570	21.9%	21.8%	3.7%	3.6%	7.6%	5.9%	8.2%	2.4%	1.9%	6.6%	6.9%	7.6%
1.4	15	3.0%	60,849	17.2%	17.0%	2.6%	2.6%	3.5%	2.8%	4.4%	1.9%	1.7%	3.3%	4.0%	3.6%
2	12.7	2.5%	47,902	11.5%	11.8%	2.6%	2.7%	1.5%	1.7%	2.6%	2.4%	2.2%	2.0%	3.4%	1.8%
5	21.7	4.4%	4,752	1.9%	2.9%	5.0%	5.4%	0.7%	2.0%	2.1%	6.2%	5.7%	0.8%	6.4%	1.0%
9	13.5	2.7%	1,037	0.3%	1.0%	3.2%	3.5%	0.2%	0.7%	0.9%	4.1%	3.8%	0.1%	3.3%	0.3%
Non Magnetic	216	43.4%	195	0.8%	5.2%	54.2%	56.9%	0.9%	9.7%	8.5%	65.1%	70.5%	0.0%	17.5%	0.0%
TOTAL	498.2	100.0%	10,626	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
-0.6 amps - Tails	99.9	20.1%	5,744	10.8%	7.6%	14.4%	12.3%	45.4%	46.5%	36.0%	8.9%	7.3%	50.5%	31.5%	46.1%
+0.6 x -2.0 - Con	147.1	**29.5%**	**31,004**	**86.2%**	83.3%	23.1%	21.9%	52.9%	41.0%	52.4%	15.7%	12.8%	48.5%	41.3%	52.6%
+2.0 amps - Tails	251.2	50.4%	634	3.0%	9.2%	62.4%	65.8%	1.8%	12.4%	11.5%	75.4%	80.0%	1.0%	27.2%	1.3%
Rejection to Tails		**70.5%**		**13.8%**	**16.7%**	**76.9%**	**78.1%**	**47.1%**	**59.0%**	**47.6%**	**84.3%**	**87.2%**	**51.5%**	**58.7%**	**47.4%**

Direct sulphuric acid leaching shows that more than 90% of REE can be extracted from allanite. SGS Canada in Lakefield Ontario is currently performing detailed leach testing and impurity removal testing using mineral concentrate prepared by Mineral Technologies using spirals and IRMS.

Based on research testwork to date, metallurgical recovery factors for the study as thus:

Section 3 Estimation and Reporting of Mineral Resources		
(Criteria listed in the preceding section also apply to this section.)		
Criteria	***JORC Code explanation***	**Commentary**
		La Recovered (kg) 68.6% NdPr Recovered (kg) 63.9% SEG Recovered (kg) 70.1% Tb Recovered (kg) 70.2% Dy Recovered (kg) 66.5%
Environmental factors or assumptions	*Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential*	ARR acquired exploration drilling notices from the Wyoming Department of Environmental Quality (WDEQ), Land Quality Division, for all drilling activities performed to date. ARR is developing a permitting needs assessment with local environmental consulting groups to present to each division at WDEQ to identify comprehensive environmental baseline studies needed to permit a mining operation at Halleck Creek. ARR is identifying additional regulatory stakeholders in Wyoming as part of the needs assessment. Factors for mine closure have been included in mining costs and financial modeling. At this stage of development, no mine closure plans have been developed. At this stage in project development, no social impact studies have been completed.

Section 3 Estimation and Reporting of Mineral Resources		
(Criteria listed in the preceding section also apply to this section.)		
Criteria	***JORC Code explanation***	**Commentary**
	environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this	

Section 3 Estimation and Reporting of Mineral Resources		
(Criteria listed in the preceding section also apply to this section.)		
Criteria	***JORC Code explanation***	**Commentary**
	should be reported with an explanation of the environmental assumptions made.	
Bulk density	*Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.* *The bulk density for bulk material*	An average specific gravity of 2.70 represents the in-place ore material at Halleck Creek based on hydrostatic testing. Bulk density testing will be included during bulk sample collection currently being designed and permitted.

Section 3 Estimation and Reporting of Mineral Resources

(Criteria listed in the preceding section also apply to this section.)

Criteria	***JORC Code explanation***	**Commentary**
	must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit. *Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.*	
Classification	*The basis for the classification of the Mineral*	The classification at Halleck Creek is based on the following key attributes: **Geological continuity between drill holes**

Section 3 Estimation and Reporting of Mineral Resources		
(Criteria listed in the preceding section also apply to this section.)		
Criteria	***JORC Code explanation***	**Commentary**
	Resources into varying confidence categories. *Whether appropriate account has been taken of all relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).* *Whether the result appropriately*	• Mineralization is controlled by batholith-scale fractionation. Hence, both empirical observations and statistical analysis confirm a very high degree of continuity with the respective rock masses at Overton Mountain and Red Mountain. • This is supported by variography. **Drill spacing and drill density** • The drill pattern is mostly irregular with drill spacing of approximately 200m. • At Overton Mountain an area has been infilled on a systematic grid spacing of approximately 90m. This spacing is considered to be adequate to support a measured classification. • Drill hole spacing at Red Mountain is considered to be adequate to support indicated resources. The CP considers the above classification strategy and methodology to be appropriate and reasonable for this style of mineralisation.

Section 3 Estimation and Reporting of Mineral Resources		
(Criteria listed in the preceding section also apply to this section.)		
Criteria	***JORC Code explanation***	**Commentary**
	reflects the Competent Person's view of the deposit.	
Audits or reviews	*The results of any audits or reviews of Mineral Resource estimates.*	There have not been any audits of mineral resource estimates.
Discussion of relative accuracy/ confidence	*Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the*	Reported resources for Halleck Creek are in-place global estimates of tonnage and rare earth grade. The basis of classification of mineral resources was based on geostatistical analysis of variograms of rare earth elements. The resource is classified as either measured, indicated or inferred. Subject to the application of 'modifying factors' the measured plus indicated component of the resource may allow for a formal evaluation of its economics with the potential to be converted to a Probable Ore Reserve. Therefore, a high degree of conservatism has been adopted as the underlying premise of the resource classification and, in particular, the indicated component.

Section 3 Estimation and Reporting of Mineral Resources		
(Criteria listed in the preceding section also apply to this section.)		
Criteria	***JORC Code explanation***	**Commentary**
	application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate. *The statement should specify whether it relates*	

Section 3 Estimation and Reporting of Mineral Resources		
(Criteria listed in the preceding section also apply to this section.)		
Criteria	***JORC Code explanation***	**Commentary**
	to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used. *These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.*	

Section 4 Estimation and Reporting of Ore Reserves – Ore Reserves Are not Being Reported

Section 4 Estimation and Reporting of Ore Reserves

(Criteria listed in section 1, and where relevant in sections 2 and 3, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral Resource estimate for conversion to Ore Reserves	*Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve.* *Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.*	No mineral resources have been converted to Ore reserves
Site visits	*Comment on any site visits undertaken by the Competent Person and the outcome of those visits.* *If no site visits have been undertaken indicate why this is the case.*	Mr. Patrick Sobecke and Mr. Erick Kennedy of Stantec visited the on February 10, 2025 with geologist Ms. Sara Stotter from ARR. The visit included an inspection of the land at both Red Mountain and Overton Mountain and the project geology. The site visit included ARR facilities in Laramie, Wyoming. Mr Kelton Smith of Tetra Tech and Mr. Alf Gillman of Odessa Resources, completed a site visit on March 7, 2024 with Mr. Dwight Kinnes.
Study status	*The type and level of study undertaken to enable Mineral Resources to be converted to Ore*	American Rare Earths Pty. Ltd. (ARR) has engaged Stantec Consulting Services Inc. (Stantec) to conduct a scoping study under the Australian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code or JORC) standards for the Halleck Creek Rare Earth Deposit (HCRE-D. As such, mineral resources are reported in this study and not ore reserves, as is stated for a scoping study in the JORC code.

Section 4 Estimation and Reporting of Ore Reserves		
(Criteria listed in section 1, and where relevant in sections 2 and 3, also apply to this section.)		
Criteria	**JORC Code explanation**	**Commentary**
	Reserves. *The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.*	
Cut-off parameters	*The basis of the cut-off grade(s) or quality parameters applied.*	Based on 2023 costs, the break-even cut-off grade was calculated using mining costs ($3.95/ore tonne) determined by Stantec and milling costs ($26.43/ore tonnes) supplied by Tetratech (ARR's metallurgical consultant) and are appropriate for a mine of this size and scale. General and Administration costs are included in both costs listed above. This calculation was not updated for this release.
Mining factors or assumptions	*The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of*	Surface mining was chosen as the method to extract the resource due to mineralization outcropping on surface and the homogeneity of the mineral grade over a large extent. In the absence of geotechnical data Stantec used reasonable bench angles, catch bench widths based on industry experience. Mining and metallurgical costs were

Section 4 Estimation and Reporting of Ore Reserves

(Criteria listed in section 1, and where relevant in sections 2 and 3, also apply to this section.)

Criteria	JORC Code explanation	Commentary
	appropriate factors by optimisation or by preliminary or detailed design). *The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.* *The assumptions made regarding geotechnical parameters (eg pit slopes, stope sizes, etc), grade control and pre-production drilling.* *The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).* *The mining dilution factors used.* *The mining recovery factors used.* *Any minimum mining widths used.*	from Stantec and Tetratech's respective cost databases for a mine and mill of this size and scale. Process recoveries were based on preliminary test work on samples of the mineralization. Mine design work was based on Geovia's Whittle mine software package, using a block model supplied by ARR and reviewed by Stantec for adequacy at a scoping level of study. The following mine design parameters were used in the pit design: Height between catch benches 6 m Bench Face Angle 70° Berm Width 2.9 m Total Road Allowance 18.5 m Maximum Ramp Grade 10% Minimum Operating Width 30 m

Section 4 Estimation and Reporting of Ore Reserves

(Criteria listed in section 1, and where relevant in sections 2 and 3, also apply to this section.)

Criteria	JORC Code explanation	Commentary

The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.

The infrastructure requirements of the selected mining methods.

Parameter	Unit	Red Mountain & Overton Mountain							
Revenue, Smelting & Refining		**La**	**Pr**	**Nd**	**Sm**	**Eu**	**Gd**	**Tb**	**Dy**
Price	USD	$2.00	$91.00	$91.00	$10.00	$10.00	$10.00	$1,500.00	$400.00
Recovery	%	68.63%	63.86%	63.86%	70.11%	70.11%	70.11%	70.22%	66.49%
Refining Price Factor	%	0%							
Treatment Charges	USD	$0.00							
Refining Costs	USD	$0.00							
Shipping Costs	USD	$0.00							
Transportation Concentrate Losses	%	0%							
Recovery and Dilution									
External Mining Dilution	%	0%							
Mining Recovery	%	100%							
Geotechnical									
Slope ISA	deg	50							
OPEX									
Milling Cost	USD	$26.43							
Surface Mining Cost	USD	$3.95							
Site G&A	USD	$0.00							
Total OPEX Cost	USD	$29.28							

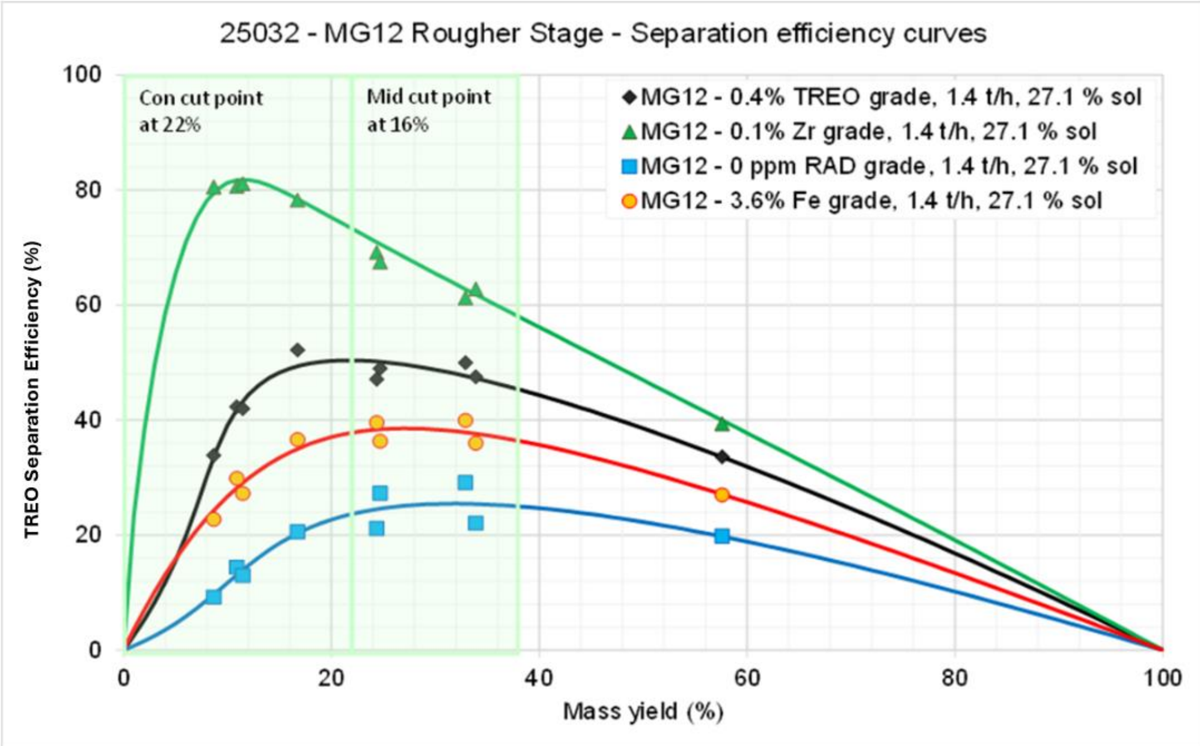
*OPEX costs are from 2023

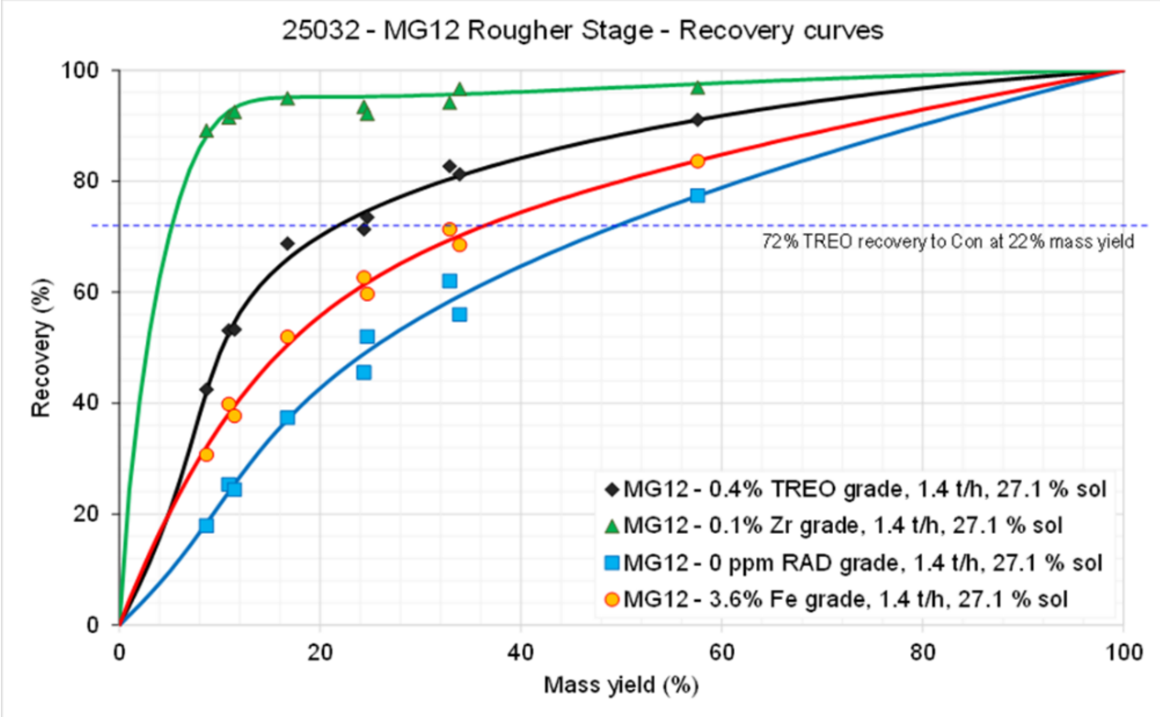
No mining dilution was used in the mine design of this study and a mining recovery of 100 % was assumed. Based on the chosen mining equipment, a minimum mining width of 30 meters was utilized. Measured, indicated and inferred mineral resources were included in the mine design, which is appropriate at a scoping level of study. Due to the homogeneity of the mineralization, while it is not reasonable to state that all inferred resources will be converted to a more precise mineral resource category, in general it is felt that it is reasonable to assume that the

Section 4 Estimation and Reporting of Ore Reserves		
(Criteria listed in section 1, and where relevant in sections 2 and 3, also apply to this section.)		
Criteria	**JORC Code explanation**	**Commentary**
		majority of the inferred resource will be converted to indicated or measured with additional sampling due to the size and homogeneity of the mineralized zone. Supporting mine infrastructure is discussed in the appropriate section of this report.
Metallurgical factors or assumptions	*The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.* *Whether the metallurgical process is well-tested technology or novel in nature.* *The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.* *Any assumptions or allowances made for deleterious elements.* *The existence of any bulk sample or pilot scale test work and the degree to which such samples are*	Mineral Technologies in the USA performed separation tests using -300µm x +86µm feed from Halleck Creek on MG12 triple-start spirals. Mineral Technologies processed approximately 1,900 kg of feed material using the production scale MG12 spiral units. The rougher separation efficiency curve is shown below where the max efficiency is at 22% mass yield for the concentrate and 16% for the mid-cut (middlings).

Section 4 Estimation and Reporting of Ore Reserves

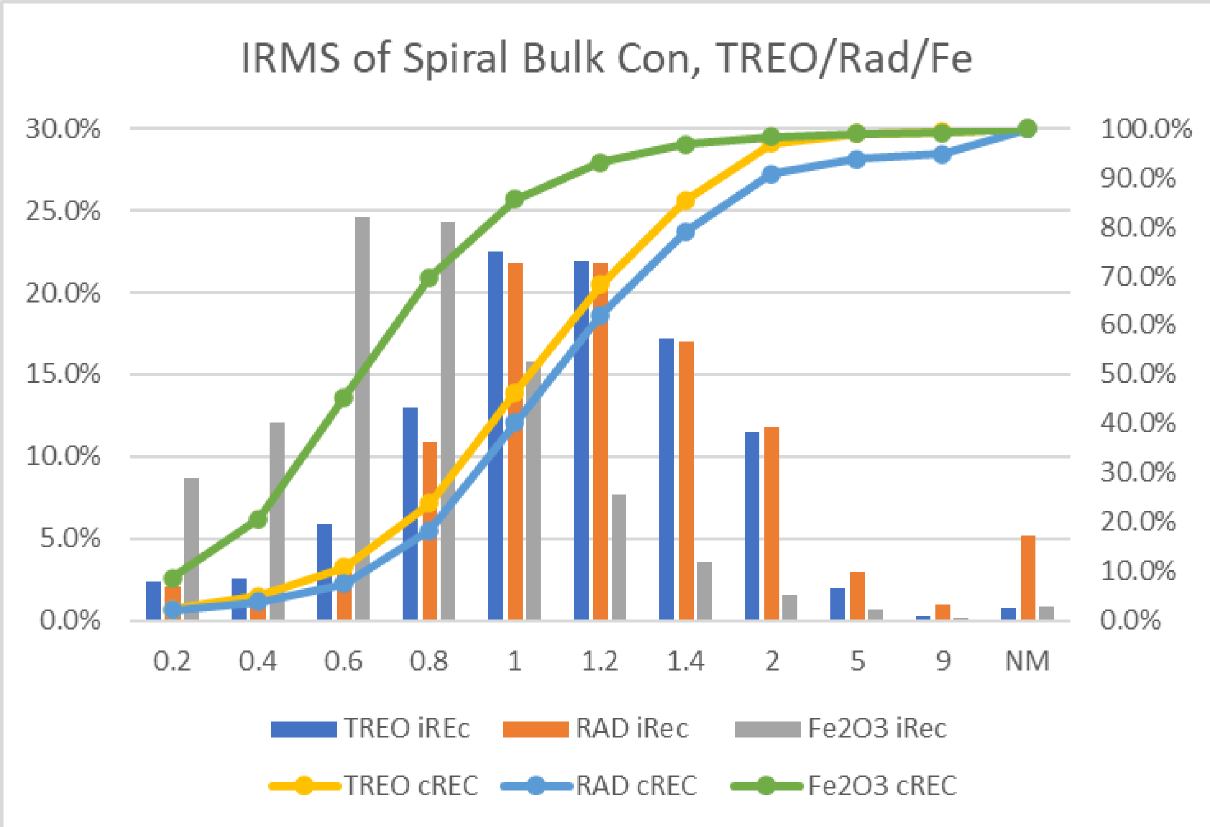
(Criteria listed in section 1, and where relevant in sections 2 and 3, also apply to this section.)

Criteria	JORC Code explanation	Commentary
	considered representative of the orebody as a whole. *For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?*	 The rougher recovery curve is shown below in which a 22% mass yield translates to a 72% TREO recovery. The resulting grade is 1.19% TREO with a feed of 0.292% TREO (2,923ppm), or a 4.1 upgrade factor.

Section 4 Estimation and Reporting of Ore Reserves		
(Criteria listed in section 1, and where relevant in sections 2 and 3, also apply to this section.)		
Criteria	**JORC Code explanation**	**Commentary**
		 Mineral Technologies performed additional separation testing using an Induced Roll Magnetic Separator (IRMS) using the rougher spiral concentrate from the -300µm x +86µm ore feed testing. Concentrate material was collected using IRMS power settings greater than 0.6 amps and less than 2.0 amps. The final results for the IRMS treatment is 29.5% mass yield, 86.1% TREO recovery and a concentrate that is 3.72% TREO or an upgrade factor of 2.92 as compared to the rougher concentrate.

Section 4 Estimation and Reporting of Ore Reserves

(Criteria listed in section 1, and where relevant in sections 2 and 3, also apply to this section.)

Criteria	JORC Code explanation	Commentary
		

(Criteria listed in section 1, and where relevant in sections 2 and 3, also apply to this section.)

Criteria	JORC Code explanation	Commentary

The combined results of spiral separation and IRMS separation of Halleck Creek feed material sized between -300µm x+86µm results in a final 6.5% mass yield, 62% recovery, and a TREO enrichment factor of 9.6.

IRMS processing is also the first technology found to significantly separate iron minerals (hastingsite) from REE bearing minerals (allanite). The following table shows that discarding material using IRMS setting less than 0.6 amps and greater than 2.0 amps results in large rejection fractions of deleterious elements, with small losses in TREO.

				Individual Recovery									
Amps	Mass	Wt %	TREE ppm	TREO iREc	RAD iRec	SiO_2 iRec	Al_2O_3 iRec	Fe_2O_3 iRec	MgO iRec	CaO iRec	Na_2O iRec	K_2O iRec	TiO_2 iRec
0.2	18.8	3.8%	6,664	2.4%	2.1%	2.8%	2.1%	8.7%	17.3%	5.3%	1.6%	1.4%	5.4%
0.4	26.9	5.4%	5,079	2.6%	1.8%	3.8%	3.3%	12.0%	11.2%	9.7%	2.5%	2.0%	18.0%
0.6	54.2	10.9%	5,755	5.9%	3.7%	7.8%	6.9%	24.6%	18.1%	21.1%	4.8%	3.8%	27.1%
0.8	55.8	11.2%	12,301	13.0%	10.9%	8.2%	7.3%	24.3%	18.6%	21.9%	5.2%	4.1%	22.8%
1	40.2	8.1%	29,684	22.5%	21.7%	6.0%	5.6%	15.8%	12.0%	15.3%	3.8%	2.9%	13.8%
1.2	23.4	4.7%	49,570	21.9%	21.8%	3.7%	3.6%	7.6%	5.9%	8.2%	2.4%	1.9%	6.6%
1.4	15	3.0%	60,849	17.2%	17.0%	2.6%	2.6%	3.5%	2.8%	4.4%	1.9%	1.7%	3.3%
2	12.7	2.5%	47,902	11.5%	11.8%	2.6%	2.7%	1.5%	1.7%	2.6%	2.4%	2.2%	2.0%
5	21.7	4.4%	4,752	1.9%	2.9%	5.0%	5.4%	0.7%	2.0%	2.1%	6.2%	5.7%	0.8%
9	13.5	2.7%	1,037	0.3%	1.0%	3.2%	3.5%	0.2%	0.7%	0.9%	4.1%	3.8%	0.1%
Non Magnetic	216	43.4%	195	0.8%	5.2%	54.2%	56.9%	0.9%	9.7%	8.5%	65.1%	70.5%	0.0%
TOTAL	498.2	100.0%	10,626	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
-0.6 amps - Tails	99.9	20.1%	5,744	10.8%	7.6%	14.4%	12.3%	45.4%	46.5%	36.0%	8.9%	7.3%	50.5%
+0.6 x -2.0 - Con	147.1	**29.5%**	**31,004**	**86.2%**	83.3%	23.1%	21.9%	52.9%	41.0%	52.4%	15.7%	12.8%	48.5%
+2.0 amps - Tails	251.2	50.4%	634	3.0%	9.2%	62.4%	65.8%	1.8%	12.4%	11.5%	75.4%	80.0%	1.0%
Rejection to Tails		**70.5%**		**13.8%**	**16.7%**	**76.9%**	**78.1%**	**47.1%**	**59.0%**	**47.6%**	**84.3%**	**87.2%**	**51.5%**

Direct sulphuric acid leaching shows that more than 90% of REE can be extracted from allanite. SGS Canada in Lakefield Ontario is currently performing detailed leach testing and impurity removal testing using mineral concentrate prepared by Mineral Technologies using spirals and IRMS.

Section 4 Estimation and Reporting of Ore Reserves		
(Criteria listed in section 1, and where relevant in sections 2 and 3, also apply to this section.)		
Criteria	**JORC Code explanation**	**Commentary**
		Based on research testwork to date, metallurgical recovery factors for the study as thus: La Recovered (kg) 68.6% NdPr Recovered (kg) 63.9% SEG Recovered (kg) 70.1% Tb Recovered (kg) 70.2% Dy Recovered (kg) 66.5%
Environmen-tal	*The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.*	ARR acquired exploration drilling notices from the Wyoming Department of Environmental Quality (WDEQ), Land Quality Division, for all drilling activities performed to date. ARR is developing a permitting needs assessment with local environmental consulting groups to present to each division at WDEQ to identify comprehensive environmental baseline studies needed to permit a mining operation at Halleck Creek. ARR is identifying additional regulatory stakeholders in Wyoming as part of the needs assessment. Factors for mine closure have been included in mining costs and financial modeling. At this stage of development, no mine closure plans have been developed. At this stage in project development, no social impact studies have been completed.
Infrastructure	*The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly*	Processing facilities will be split between the mine site and a second site near Wheatland, Wyoming. A concentrate will be produced at the mine site and trucked by highway to the second and final processing facility where saleable metals will be produced. Infrastructure consisting of roads, water supply, electrical power, natural gas and buildings to support operations at both sites is included in the economics of the project. Mining, oil and gas

Section 4 Estimation and Reporting of Ore Reserves

(Criteria listed in section 1, and where relevant in sections 2 and 3, also apply to this section.)

Criteria	JORC Code explanation	Commentary
	for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.	operations are common in Wyoming and is reasonable to expect a well trained work force will be able to be attracted to the operation during start up and life of mine operations.
Costs	*The derivation of, or assumptions made, regarding projected capital costs in the study.* *The methodology used to estimate operating costs.* *Allowances made for the content of deleterious elements.* *The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co- products.* *The source of exchange rates used in the study.* *Derivation of transportation charges.* *The basis for forecasting or source of treatment and refining charges,*	Site capital costs buildings were determined from the Mine Cost Handbook (2021) and escalated based on inflation factors to 2023 costs. Costs to erect access roads and construct the water supply system were based on construction and drilling costs from recent similar projects Stantec has worked on. Stantec relied on price expectations provided by ARR, which were based on price forecasts from multiple firms. No exchange rates were used in this study, as all costs are in US dollars.

Section 4 Estimation and Reporting of Ore Reserves

(Criteria listed in section 1, and where relevant in sections 2 and 3, also apply to this section.)

Criteria	JORC Code explanation	Commentary
	penalties for failure to meet specification, etc. *The allowances made for royalties payable, both Government and private.*	
Revenue factors	*The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.* *he derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.*	
Market assessment	*The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.*	Rare earth price assumptions used in the base case scenario are derived from ARR's assessment of price expectations over the next couple of years. ARR's assessment is based on an average of spot and price forecasts from Goldman Sachs, Morgan Stanley, JPM Chase, and Canaccord Genuity. The resultant price is lower than the average price over the past two years. All prices are FOBfob. Pricing data from various sources can be found in Appendix BX and are summarized in the table below.

Section 4 Estimation and Reporting of Ore Reserves

(Criteria listed in section 1, and where relevant in sections 2 and 3, also apply to this section.)

<table>
<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
<tr><td></td><td>A customer and competitor analysis along with the identification of likely market windows for the product.
Price and volume forecasts and the basis for these forecasts.
For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.</td><td><table><tr><th>Product</th><th>Price ($/kg)</th></tr><tr><td>NdPrO</td><td>$90.61</td></tr><tr><td>Dysprosium</td><td>$400</td></tr><tr><td>Terbium</td><td>$1,500</td></tr><tr><td>SEG</td><td>$10</td></tr><tr><td>Lanthanum</td><td>$2</td></tr></table></td></tr>
<tr><td>Economic</td><td>The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.
NPV ranges and sensitivity to variations in the significant assumptions and inputs.</td><td>The evaluation of the project assumes 100% ownership.
The financial model was completed on yearly increments; NPV was determined at both pre and post-tax treatments, using the Discounted Cash Flow method of valuation using discount rates of 8%, 10% and 12%. Some costs were escalated at a rate of 5% per annum from the date of their source to 2023 costs. US Federal, Wyoming state tax and various State royalty treatments were applied to the post tax case.
Sensitivity to the major cost drivers have been modelled, including equivalent NdPr price, Processing OPEX, Mining OPEX and Processing CAPEX.</td></tr>
<tr><td>Social</td><td>The status of agreements with key stakeholders and matters leading to social licence to operate.</td><td>At this stage in project development, no social impact studies have been completed.</td></tr>
</table>

Section 4 Estimation and Reporting of Ore Reserves

(Criteria listed in section 1, and where relevant in sections 2 and 3, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Other	*To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:* *Any identified material naturally occurring risks.* *The status of material legal agreements and marketing arrangements.* *The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third*	No Ore Reserves are reported in this scoping study, in agreement with JORC standards.

Section 4 Estimation and Reporting of Ore Reserves

(Criteria listed in section 1, and where relevant in sections 2 and 3, also apply to this section.)

Criteria	JORC Code explanation	Commentary
	party on which extraction of the reserve is contingent.	
Classification	*The basis for the classification of the Ore Reserves into varying confidence categories.* *Whether the result appropriately reflects the Competent Person's view of the deposit.* *The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).*	No Ore Reserves are reported in this scoping study, in agreement with JORC standards.
Audits or reviews	*The results of any audits or reviews of Ore Reserve estimates.*	Stantec performed a gap analysis of the resource model before starting any work and found the work adequate to support a scoping study.
Discussion of relative accuracy/ confidence	*Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to*	No Ore Reserves are reported in this scoping study, in agreement with JORC standards.

Section 4 Estimation and Reporting of Ore Reserves

(Criteria listed in section 1, and where relevant in sections 2 and 3, also apply to this section.)

Criteria	JORC Code explanation	Commentary
	quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate. *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.* *Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage.*	

Section 4 Estimation and Reporting of Ore Reserves

(Criteria listed in section 1, and where relevant in sections 2 and 3, also apply to this section.)

Criteria	JORC Code explanation	Commentary
	It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	