AMERICAN RARE EARTHS ABN 83 003 453 503

ASX RELEASE

29 January 2025

HALLECK CREEK RESOURCE EXPANDS TO 2.63 BILLION TONNES WITH HIGHER GRADES

WYOMING RARE EARTH PROJECT POSITIONED TO MEET U.S. CRITICAL MINERAL NEEDS

HIGHLIGHTS

- Halleck Creek Total Mineral Resource Estimate increased by 12.2% to 2.63 billion tonnes at 3,926 ppm Total Rare Earth Oxides (TREO).
- Red Mountain Area within Halleck Creek saw a 29.7% growth in resources, increasing to 1.24 billion tonnes, with an 8.3% uplift in grade to 3,252 ppm TREO.
- Cowboy State Mine, representing the first phase of project development within Red Mountain, grew by 29.4% to 543 million tonnes, with a 2.7% increase in TREO grade to 3,438 ppm.
- The deposit remains open at depth and along strike, offering significant upside potential, with the mineral resource estimate covering approximately 16% of the greater Halleck Creek project surface area.

American Rare Earths (**ASX: ARR | OTCQX: ARRNF | ADR: AMRRY**) ("ARR" or "the Company") and its wholly owned subsidiary Wyoming Rare (USA) Inc. ("WRI") are pleased to announce a major milestone resource update for the Halleck Creek Rare Earth Project in Wyoming. The updated JORC-compliant Mineral Resource Estimates (MRE) further establish Halleck Creek as one of the largest rare earth deposits in North America and underscore ARR's continued progress in unlocking its potential as a strategic U.S. asset.

The Halleck Creek resource now exceeds 2.63 billion tonnes, representing a significant 12.2% increase over the previous estimate. This growth highlights the transformational scalability of the project, which remains open at depth and along strike.

The Cowboy State Mine, located within the Red Mountain area, continues to deliver robust resource growth and remains central to ARR's development strategy. Its location on Wyoming State land provides a streamlined permitting process, accelerating ARR's ability to unlock the project's full value. The project's favorable geology and near-surface mineralization support the potential for a low-cost open-pit mining operation, while ongoing metallurgical test work continues to demonstrate the potential for efficient processing of rare earths. These results reinforce ARR's ability to support the U.S. government's efforts to secure domestic critical mineral independence, reducing reliance on imports and supporting economic growth and national security objectives.

Chris Gibbs, CEO of American Rare Earths, commented:

"This resource update demonstrates the continued growth, scale, and strategic importance of Halleck Creek as a cornerstone project for the U.S. rare earth supply chain. With the deposit still open at depth, and along strike, the upside potential is truly remarkable. With the Halleck Creek mineral resource estimate covering approximately 16% of the greater Halleck Creek project surface area, we believe opportunities exist to expand mineral resource estimates with additional exploration."

"The expanded resources will strengthen the project's economics as we finalise the updated Scoping Study, which is set for release shortly, and continue integrating this data into the Pre-Feasibility Study, scheduled for completion later this year. Halleck Creek is positioned to become one of the most significant rare earth assets in North America, supporting U.S. critical mineral independence and economic growth."

Next Steps and Path Forward

The updated resource model and mine plans will have a positive impact on Halleck Creek's project economics, further enhancing its strategic importance. ARR is currently integrating the updated resource and high-grade data into the Scoping Study, which was originally released in March 2024. The updated study is nearing completion and will be released in February 2025.

In parallel, ongoing metallurgical test work continues to deliver promising results, highlighting the potential for cost-efficient processing at Halleck Creek. As outlined in the 2024 Scoping Study, approximately 90% of the gangue (waste) material can be removed during gravity and magnetic separation, significantly increasing REE grades through physical separation methods prior to leaching, which significantly reduces operational costs. Optimisation of these processing techniques is ongoing, and further results will be announced as the next round of metallurgical testing is completed in the March 2025 quarter.

In addition, the updated resource estimates will be incorporated into the ongoing Pre-Feasibility Study (PFS), which remains on track for completion later this year. The PFS will provide a more detailed evaluation of Halleck Creek's technical and economic potential, supporting ARR's phased approach to development and commercial production.

Technical Summary

SUMMARY OF KEY MATERIAL INFORMATION USED TO ESTIMATE THE MINERAL RESOURCES

The updates to the geological models and Mineral Resource Estimates (MRE) were completed by Odessa Resources Pty. Ltd. on behalf of ARR. The updated MRE has been prepared in accordance with the 2012 JORC Code.

The results from the 2024 exploration drilling program at the Cowboy State Mine (CSM) area of Red Mountain, combined with additional surface sampling and geological mapping at Halleck Creek, have increased the in-situ resource estimates to 2.63 billion tonnes at an average grade of 3,292 ppm TREO (Table 1). This represents a 12.2% increase in in-situ tonnage compared to the January 2024 resource estimate for the entire Halleck Creek Rare Earth Project (Figure 4).

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**

The Halleck Creek rare earth project comprises two primary resource areas: Overton Mountain, located to the north, and Red Mountain, to the south (Figure 5). Within the Red Mountain area lies the Cowboy State Mine (CSM), a subarea where WRI is focusing its development efforts. The state of Wyoming owns both the surface and mineral rights within the CSM area, which are leased by WRI. This Wyoming ownership provides WRI with a streamlined permitting pathway through the state.

In 2024, WRI conducted drilling operations in the CSM area. The additional drill holes and assay data enabled the expansion of resource areas and provided detailed geological characterization of the rare earth-bearing Red Mountain pluton within the Red Mountain and CSM areas. As a result, the updated resource estimates apply to the Red Mountain and CSM areas. The Mineral Resource Estimate (MRE) for Overton Mountain remains unchanged.

Table 2 – Mineral Resource Estimate *at* CSM and Red Mountain *(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**
Indicated	322,961,462	3,276	2,907	369	925	1,057,922	938,847	119,075	298,597
Inferred	220,014,226	3,677	3,274	404	1,020	809,092	720,236	88,856	224,411
Cowboy State Mine	**542,975,688**	**3,438**	**3,056**	**383**	**963**	**1,867,014**	**1,659,083**	**207,932**	**523,008**
Indicated	375,376,922	3,047	2,684	363	848	1,143,761	1,007,656	136,105	318,452
Inferred	325,809,499	3,178	2,819	359	881	1,035,512	918,454	117,058	287,105
Red Mountain Fed*	**701,186,420**	**3,108**	**2,747**	**361**	**864**	**2,179,274**	**1,926,110**	**253,164**	**605,557**
Grand Total	**1,244,162,108**	**3,252**	**2,882**	**371**	**907**	**4,046,288**	**3,585,193**	**461,095**	**1,128,565**

* Includes Trail Creek area resources

Table 2 summarizes the MRE for the CSM and Red Mountain areas. A total MRE of 1.24 billion tonnes of material with an average grade of 3,252 using a TREO cut-off of 1,000 ppm was calculated.

Figure 1 shows that approximately 1.0 billion tons of MRE with an average TREO grade of 3,565 ppm exist at CSM and Red Mountain when using a TREO cut-off of 2,500 ppm.

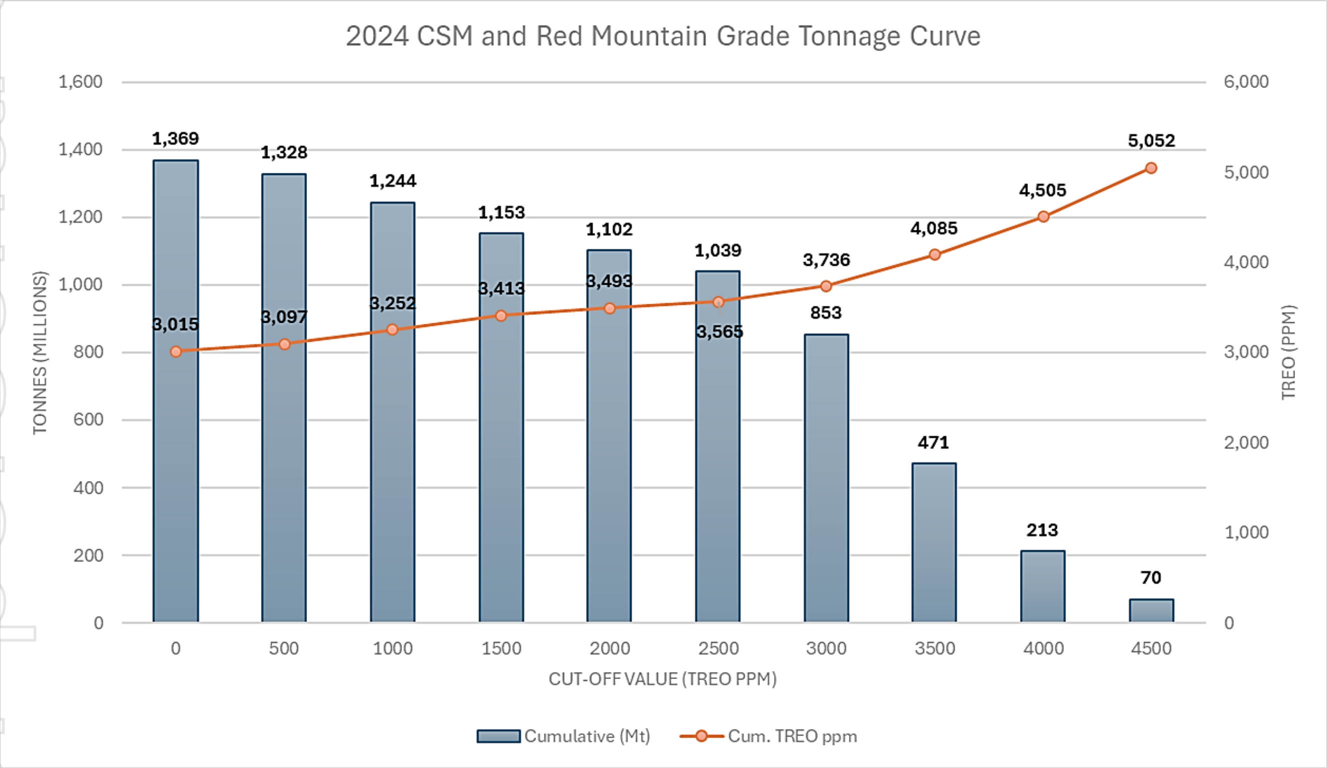


Figure 1 – Grade and Tonnage Curve at Red Mountain

TENEMENT AND LAND STATUS

Wyoming Rare (USA) Inc. a wholly owned subsidiary of American Rare Earths, Inc. controls 364 unpatented lode mining claims totalling 2,535 ha (6,264 acres) across the Halleck Creek Project area. ARR controls an additional 4 Wyoming State Mineral Leases which total 745 ha (1,844 acres).

Total mineral control held by ARR in the Halleck Creek district is 3,280 ha (8,108 acres).

PROJECT GEOLOGY

Halleck Creek is located within the Red Mountain pluton (RMP) of the 1.43 Ga Laramie anorthosite complex (LAC), which is exposed in the Laramie Mountains, a Laramide-aged uplift in southeastern Wyoming.

The primary rare earth-bearing rock types within the RMP are the clinopyroxene quartz monzonite (CQM), and biotite-hornblende quartz syenite (BHS). Allanite is the main rare earth element (REE) host mineral at the Halleck Creek project. Allanite is a sorosilicate within the epidote group which contains a significant number of REEs in its primary mineral structure. Allanite usually occurs in association with clinopyroxene, hornblende, and zircon agglomerated as "mafic clots" within CQM.

DRILLING

Between March 2022 and October 2024, ARR completed four exploration drilling campaigns at Halleck Creek. These drilling programs are a mix of 28 HQ core drilling and 70 reverse circulation (RC) holes. To date 98 drill holes have been drilled for a total meterage of 12,490 meters (40,979 feet).

Table 3 - Halleck Creek Drilling Statistics

Area	Hole Type	Number	Length (m)	Length (ft)
Red Mountain				
	HQ Core	15	1,967	6,455
	Reverse Circulation	35	4,598	15,085
	Total	**50**	**6,566**	**21,540**
Overton Mountain				
	HQ Core	13	1,395	4,576
	Reverse Circulation	35	4,530	14,862
	Total	**48**	**5,925**	**19,438**
Grand Total		**98**	**12,490**	**40,979**

SAMPLING

Drill holes were sampled at 1.5 m (~5ft) intervals, with more detailed samples collected at lithological breaks. ARR follows a strict Qa/Qc program, utilizing certified reference materials (CRM's) from CDN Laboratories for blanks and REE standards. Duplicate samples were also systematically inserted into the assay workflow.

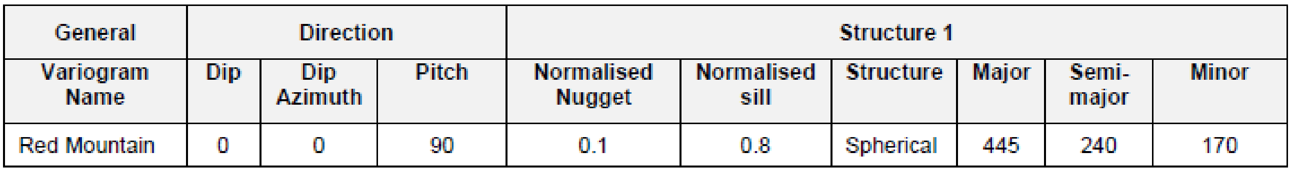
SAMPLE ANALYSIS

Core samples from the maiden core drilling in 2022 were assayed by American Assay Labs in Reno, NV. RC and Core samples from subsequent drilling were assayed by ALS Global. Both laboratories are fully certified. Approximately 1,301 HQ core samples and 6,636 RC samples have been included in MRE for a total of 7,937 samples.

ESTIMATION METHODOLOGY

Odessa Resources Ltd., from Perth Australia, 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 (Table 4, Figure 2). Odessa summarized the modelling and resource updates in the report "Halleck Creek REE Project, Wyoming Red Mountain Update Report Methodology and Resource Estimation Report Undertaken for American Rare Earths Ltd".

Table 4 – Red Mountain Variogram Parameters



General	Direction			Structure 1					
Variogram Name	Dip	Dip Azimuth	Pitch	Normalised Nugget	Normalised sill	Structure	Major	Semi-major	Minor
Red Mountain	0	0	90	0.1	0.8	Spherical	445	240	170

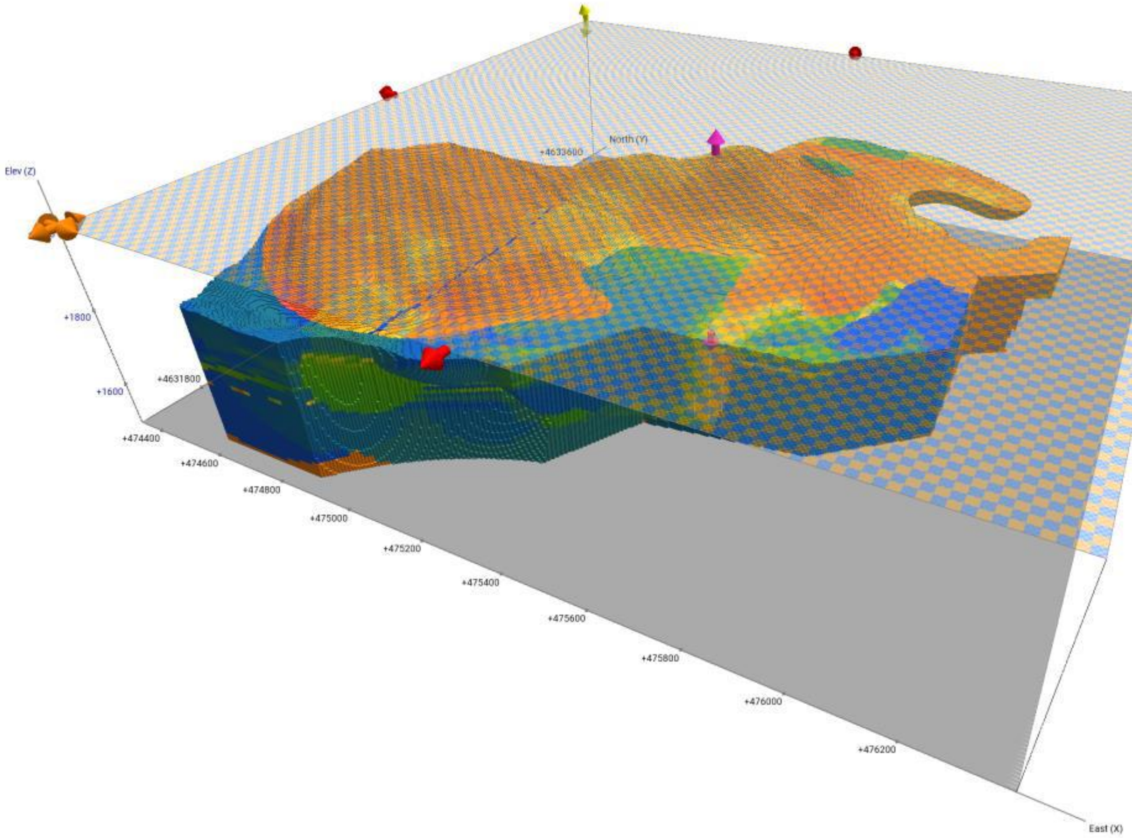


Figure 2 –3D View of Red Mountain Block Model

RESOURCE CLASSIFICATION

The Red Mountain resource is classified as either indicated or inferred and is based on the following key attributes:

- **Geological continuity between drillholes:** 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 Red Mountain.
- **Drill spacing and drill density:** The drill pattern is mostly irregular with drill spacing of approximately 200m.

With respect to previous estimates, the following main changes have been made to the current resource classification limits:

- Indicated limit extended to the west based on positive indications provided by surface geochemistry.
- Lateral limit of Inferred extended to the west to incorporate all the Red Mountain Pluton.
- Vertical limit of Inferred extended to 510RL based on additional positive drilling results.

The Competent Person (CP) considers the above classification strategy and methodology to be appropriate and reasonable for this style of mineralization.

CUT-OFF GRADES

A cut-off grade of 1,000ppm was used to estimate in-situ resources. Stantec calculated a net smelter return (NSR) value based on saleable rare earth element oxides: La2O3, Nd2O3, Pr6O11, Sm2O3, Dy2O3, and Tb4O7. The NSR value demonstrates that a 1,000ppm TREO cut-off grade meets the conditions for reporting of a Mineral Resource with reasonable prospects of eventual economic extraction.

ARR released a revised MRE for Halleck Creek in February 2024, which consisted of 2.34 billion tonnes of material with a TREO grade of 3,196 ppm, using a 1,000 ppm cut-off. The updated MRE consist of 2.54 billion tonnes of material with a TREO grade of 3,369 ppm, using a 1,000 ppm cut-off grade (Table 4).

RESOURCE RECONCILIATION

Between 2024 and 2025, total estimated resources increased by approximately 285 million tonnes (12.2%). The estimated TREO grade increased by 96 ppm TREO (3%). Measured + Indicated resource increased by 62 million tonnes (4.4%). Inferred resources increased by 222 million tonnes (24.1%).

Differences in the resource estimates occurred due to:

- Increase in resource dimensions because of 2024Exploration
    - 28 additional drill holes at the CSM area (Figure 4 and Figure 5)
    - Drilling to depths of 350 metres demonstrated that the resource continues at depth and remains open (Figure 3)
    - Drill hole spacing of new and existing data increased confidence levels and allowed the resource area to expand
    - Drilling assays increased the grade of the resource

Table 5 - Differences between 2025 MRE Update and 2024 MRE for all Halleck Creek

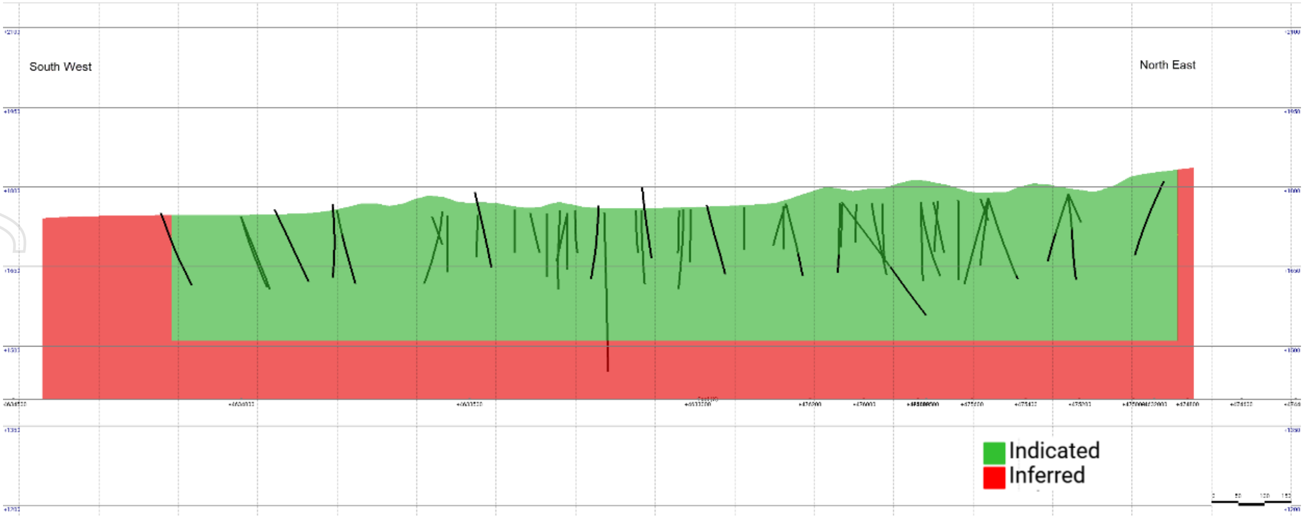
Classification	Differences	Tonnage	Grade			
			TREO	LREO	HREO	MREO
		t	ppm	ppm	ppm	ppm
Meas + Ind	Difference	62,431,070	39	50	9	61
	% Difference	4.4%	1%	2%	3%	8%
Inferred	Difference	222,482,177	198	182	22	100
	% Difference	24.1%	7%	7%	6%	14%
Total	**Difference**	**284,913,248**	**96**	**98**	**14**	**76**
	% Difference	**12.2%**	**3%**	**3%**	**4%**	**10%**

Exploration during 2024 was performed only in the CSM at Red Mountain area. Therefore, MRE changes for the Halleck Creek project only occurred at Red Mountain. The MRE at Red Mountain increased by 285 million tonnes (29.7%) and TREO grade increased by 250ppm (8.3%) (Table 5).

Table 6 - Differences between 2025 MRE Update and 2024 MRE at CSM and Red Mountain

Area	Differences	Tonnes	TREO	LREO	HREO	MagREO
		t	ppm	ppm	ppm	ppm
Red Mountain Federal*	Difference	*161,704,700*	*374*	*381*	*27*	*192*
	% Difference	*30.0%*	*13.7%*	*16.1%*	*8.0%*	*28.5%*
Cowboy State Mine Area	Difference	*123,208,547*	*90*	*89*	*39*	*139*
	% Difference	*29.4%*	*2.7%*	*3.0%*	*11.4%*	*16.8%*
Total	**Difference**	*284,913,248*	*250*	*253*	*32*	*168*
	% Difference	*29.7%*	*8.3%*	*9.6%*	*9.5%*	*22.8%*

* Includes Trail Creek area resources



Odessa 2025

Figure 3 – Cross Section View Showing Resource Classification Vertical Limits at Red Mountain

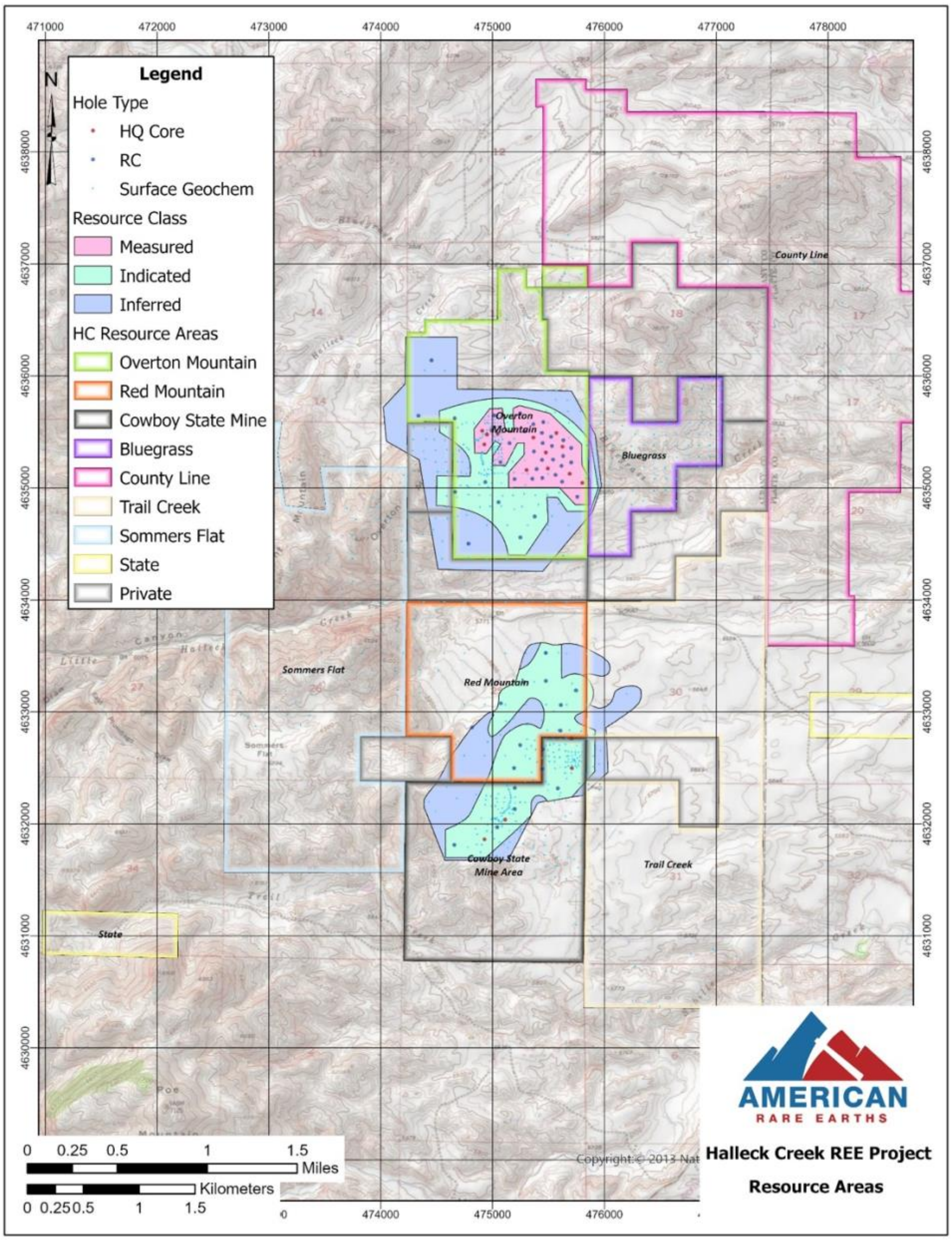


Figure 4 – Greater Halleck Creek Resource Areas with Mineral Resource Extents

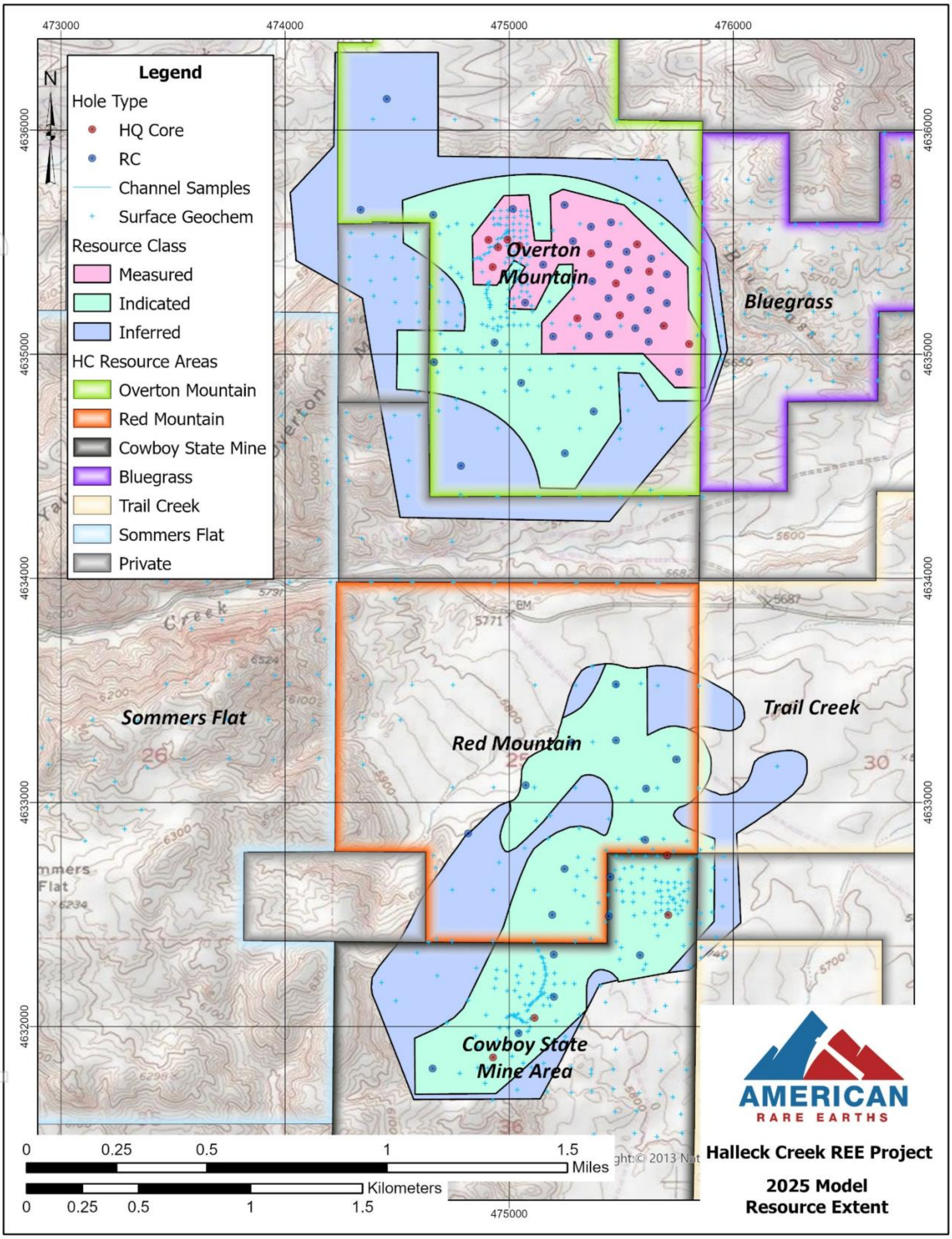


Figure 5 – Halleck Creek Resource Classes and Controlled Resource Extent

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

Further information
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About American Rare Earths Limited:

American Rare Earths **(ASX: ARR | OTCQX: ARRNF | ADR: AMRRY)** is a critical minerals company at the forefront of reshaping the U.S. rare earths industry. Through its wholly owned subsidiary, Wyoming Rare (USA) Inc., 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.

Competent Person Statement

The information in this document is based on information compiled by personnel under the direction of Mr. Dwight Kinnes who is Chief Technical Officer of American Rare Earths. This geological work was reviewed and approved for release by Mr. 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.

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.
	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 drilling was used to obtain 1.5 m samples, with rotary splitters producing representative subsamples for assay. Core samples were cut to appropriate lengths based on lithological boundaries and pulverized for detailed geochemical analysis. Analytical methods included ICP-MS and multi-acid digestion for high-precision REE detection.

Section 1 Sampling Techniques and Data

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

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 RC samples at 1.5 m intervals. ARR geologists visually logged, measured, and photographed all drill core, which was retrieved in 5 ft (1.52 m) runs. ARR geologists calculated the recovery for each core run, averaging 96%. RC recoveries remained consistently high in competent rock.
	Measures are taken to maximise sample recovery and ensure the representative nature of the samples.	Careful core handling and orientation minimized disturbance, ensuring high-quality samples. Reverse circulation (RC) rock chip samples were collected at 1.5-meter continuous intervals using rotary splitters, which ensured representative sampling. For each interval, chip samples were placed in labeled bags weighing 1–2 kg, with an additional 0.5–1 kg sample collected for reserve analysis and logging. Chips were also placed into 20-slot trays for logging and XRF analysis. Acoustic televiewer surveys provided supplementary data on structural continuity.

Section 1 Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
		All core and associated samples were immediately placed in core boxes to maintain integrity.
	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.	No significant relationship between recovery and grade was observed due to uniform allanite distribution across mineralized zones.
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 core and RC samples were logged in detail by ARR geologists, recording lithology, alteration, and geotechnical parameters. RC samples were visually logged using 10x binocular microscopes and chip trays. Drill core was collected in 5-foot (1.52 m) runs, and recoveries were calculated for each run. Core was visually logged, measured, and photographed under both dry and wet conditions. Lithology, various types of alteration and mineralization, fractures, fracture conditions, and RQD were recorded. Gamma surveys were conducted to support mineralization identification.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	Both qualitative and quantitative methods were employed for logging, including lithological descriptions and numerical records of alteration intensity, vein density, and mineral content. RC samples were logged quantitatively, with chip samples stored in secure sample trays and photographed at 25-meter intervals.

Section 1 Sampling Techniques and Data

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

Criteria	***JORC Code explanation***	**Commentary**
		Core logging was also quantitative, with all core photographed and measured to document lithology, alteration, and mineralization.
	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.
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. Core samples were halved using a diamond saw; one half was sent for assay, and the other half retained for reference. Intervals were adjusted as needed to capture lithological transitions.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	RC samples were collected at 1.5-meter intervals and split using a rotary splitter. Samples varied between wet and dry; however, the coarse crystalline nature of the deposit minimized adverse effects of wet samples. Wet samples were dried at ALS Global 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 implemented rigorous QA/QC protocols, submitting CRM sample blanks, CRM standard REE samples from CND Labs, and duplicate samples for analysis. Each CRM blank, REE standard, and duplicate was 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. Core was halved along its entire length to ensure samples were representative of the in-situ material.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Sample sizes were consistent with the grain size of allanite, ensuring representivity. Subsamples were prepared via pulverization to ensure homogeneity.
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 Global performed ME-MS81d analysis, which includes ME-MS81, utilizing a lithium borate fusion followed by acid dissolution and ICP-MS analysis for a comprehensive suite of trace elements, including TREO. This method provides a highly quantitative analytical approach.

Section 1 Sampling Techniques and Data

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

Criteria	***JORC Code explanation***	**Commentary**
		Whole rock elements were added via ICP-AES analysis on the same fusion (ME-MS81).
	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.	A Vanta Olympus M-series portable XRF was used for in-field analyses, with calibration performed using certified standards. Readings were collected every 25 m in RC drilling and validated against lab assays. Lanthanum, Cerium, Neodymium, and Praseodymium were analysed. Simple average values of three XRF readings were calculated. Natural gamma surveys were conducted using equipment from DGI Geoscience, based in Salt Lake City, UT, with parameters including depth-specific reading times and consistent calibration protocols.
	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 drilling. ALS Laboratories also incorporated their own QA/QC procedures to ensure analytical reliability.
Verification of sampling and assaying	*The verification of significant intersections by either independent or alternative company personnel.*	Consulting company personnel have observed the assayed core and RC samples. Company personnel sampled the entire length of each hole.
	The use of twinned holes.	No twinned holes were used.

Section 1 Sampling Techniques and Data

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

Criteria	*JORC Code explanation*	Commentary
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	All data entry was performed electronically by ARR personnel, with field logs automatically updated to the company file servers in real time. Photographs were also uploaded daily to the server. All logs and associated data are cross-referenced and directly accessible from the database. Assay data from surface samples was imported directly into the database from electronic spreadsheets provided by ALS.
	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.

Section 1 Sampling Techniques and Data

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

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. 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 always maintained.
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 covering3,280 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.*	Disseminated REE deposit hosted in allanite within the Red Mountain pluton monzonitic to syenitic body.
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 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

Section 2 Reporting of Exploration Results

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

Criteria	JORC Code explanation	Commentary
		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	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. 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. Detailed exploration for the 2024 exploration program data is presented in "Summary of 2024 Drilling at the Halleck Creek Project Area", November 2024
	elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar	
	dip and azimuth of the hole	
	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 1,500 ppm.

Section 2 Reporting of Exploration Results

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

Criteria	JORC Code explanation	Commentary
	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 5 ft (1.52 m) sample interval.
	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.*	Drill hole locations are shown above. Detailed geological data is presented in "Summary of 2024 Drilling at the Halleck Creek Project Area", November 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.*	All relevant information for this section can be found in Table 1 in the "Technical Report of Exploration and Maiden Resource Estimates of the Halleck Creek Rare Earths Project", March 2023, "Summary of 2023 Infill Drilling at the Halleck Creek Project Area", November 2023, and "Summary of 2024 Drilling at the Halleck Creek Project Area", November 2024. These reports are available upon request.

Section 2 Reporting of Exploration Results

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

Criteria	*JORC Code explanation*	Commentary
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 localised 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 high gradient magnetic separation and flotation 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).*	Further drilling is planned to increase the area of the project, and to increase confidence levels of resources. Geological mapping and surface channel sampling will also be performed to define and prioritize drilling targets.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	Additional drilling is planned in new exploration areas and to increase resource confidence levels.

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 example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.* *Data validation procedures used.*	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.
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, Mr. Alf Gilman, and Mr. Kelton Smith visited the Halleck Creek site within the past year.
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 factors affecting continuity both of grade and geology.*	The Halleck Creek REE deposit contains rocks of the Red Mountain Pluton. These rocks consist primarily of clinopyroxene quartz monzonite (CQM), biotite hornblende syenite (BHS), and fayalite monzonite (FM). These three 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.

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 distribution of allanite throughout CQM and BHS rocks of the RMP is generally uniform and is not structurally controlled. Alternation observed does not appear to affect the grade of allanite throughout the deposit.
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 Cowboy State Mine area and the Bluegrass resource area. The Red Mountain resource area is bounded to the west by the ERGB, and to the south by the Syb. Further exploration is needed to determine the extent to the north and two 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.

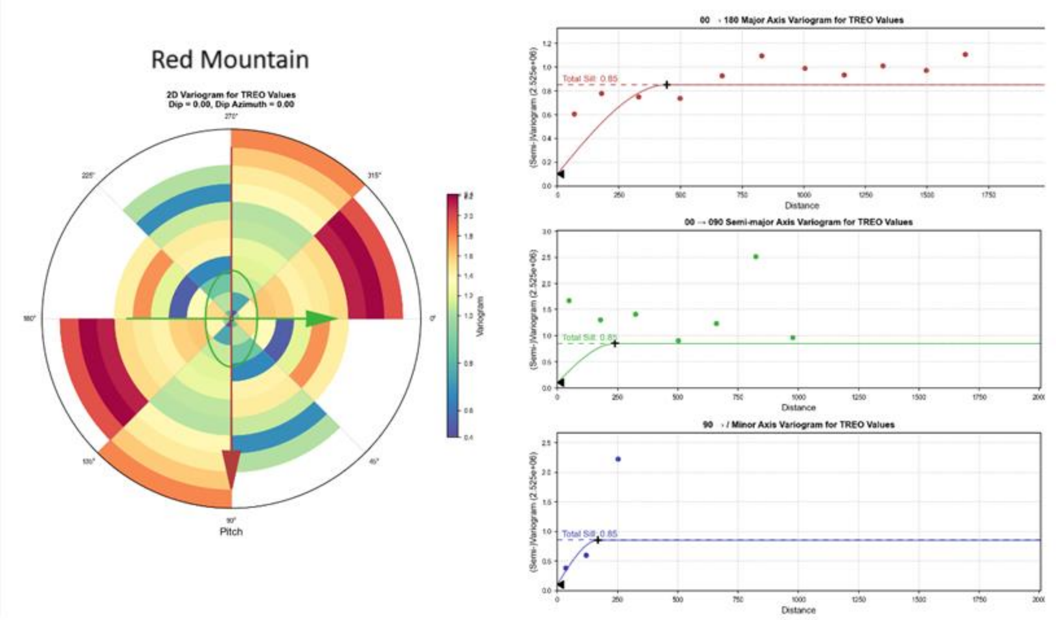
Section 3 Estimation and Reporting of Mineral Resources

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

<table>
<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
<tr>
<td>Estimation and modelling techniques</td>
<td><p>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 software and parameters used.</p>
<p>The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.</p>
<p>The assumptions made regarding recovery of by-products.</p>
<p>Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation).</p>
<p>In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.</p>
<p>Any assumptions behind modelling of selective mining units.</p>
<p>Any assumptions about correlation between variables.</p></td>
<td><p>Odessa Resources Ltd., from Perth Australia, 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.</p>
<p>Block Model Parameters</p>
<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>
<p>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.</p>
<p>Geological domains focused on higher grade RMP and RMP1 lithologies which provided control of resource block boundaries along with variography.</p></td>
</tr>
</table>

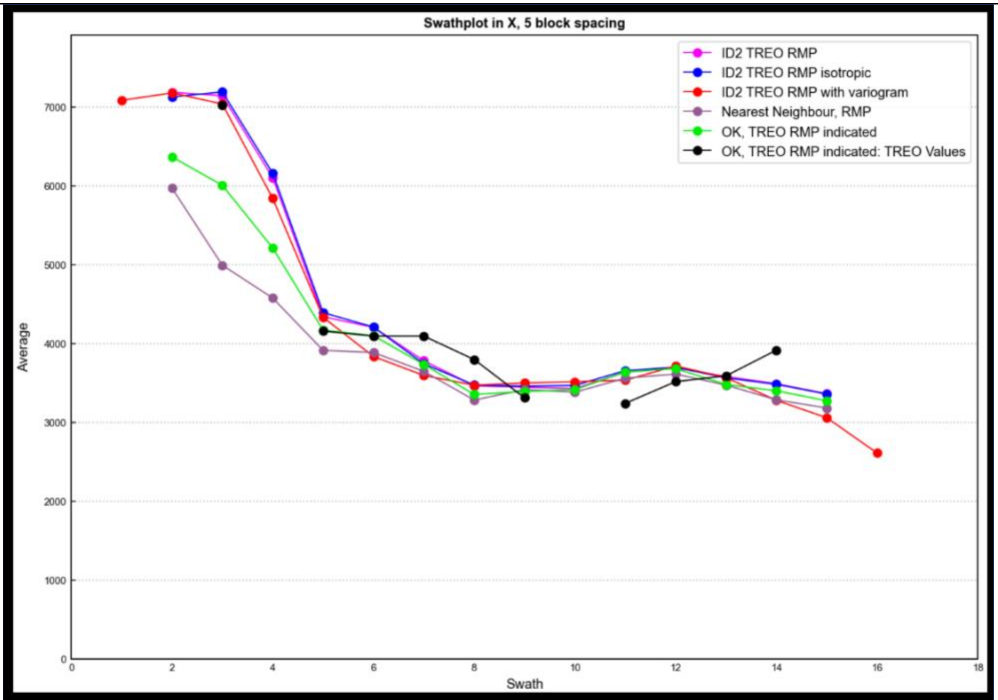
Section 3 Estimation and Reporting of Mineral Resources

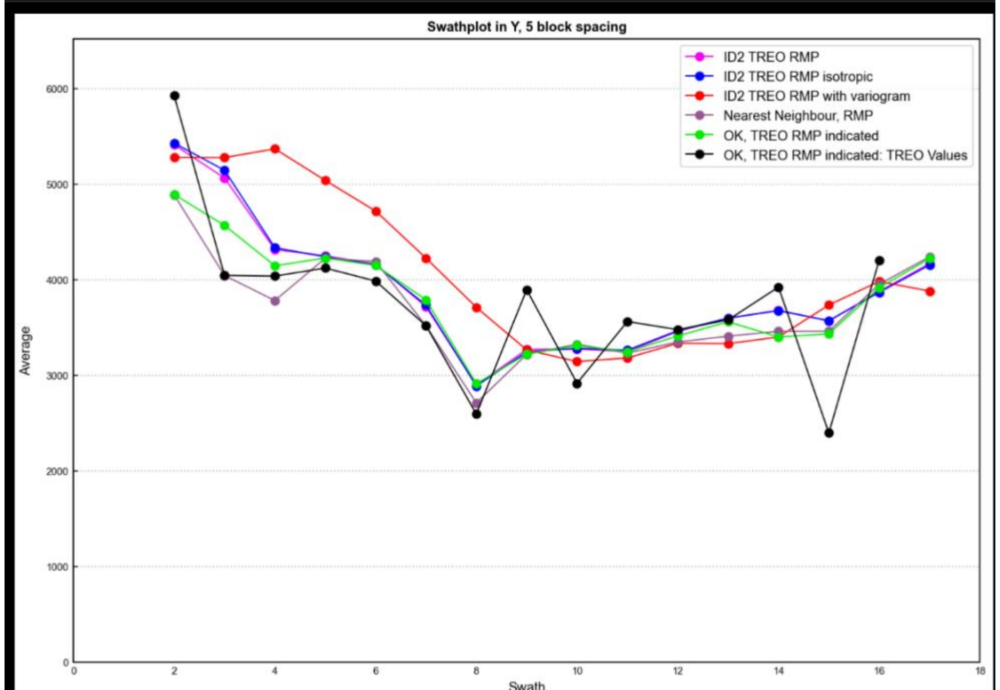
(Criteria listed in the preceding section also apply to this section.)

<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>
<table>
<tr><th>General</th><th colspan="3">Direction</th><th colspan="6">Structure 1</th></tr>
<tr><th>Variogram Name</th><th>Dip</th><th>Dip Azimuth</th><th>Pitch</th><th>Normalised Nugget</th><th>Normalised sill</th><th>Structure</th><th>Major</th><th>Semi-major</th><th>Minor</th></tr>
<tr><td>Red Mountain</td><td>0</td><td>0</td><td>90</td><td>0.1</td><td>0.8</td><td>Spherical</td><td>445</td><td>240</td><td>170</td></tr>
</table>


Several estimation runs were carried out on the RMP Indicated resource to check for any variance between estimated grades and the input data.
</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**
		Modelled estimator: 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
7000
6000
5000
4000
3000
2000
1000
0
Swath
0
2
4
6
8
10
12
14
16
18


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
6000
5000
4000
3000
2000
1000
0
Swath
0
2
4
6
8
10
12
14
16
18

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 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 explanation of the basis of the mining assumptions made.*	No mine plan or design has been prepared at this stage however the shallow nature of the deposit assumes extraction by open pit mining methods.
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 regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be*	Preliminary metallurgical testwork shows that use of dense media separation and WHIMS can potentially reject up to 93% of waste and upgrade grade by about 10 times. Additional testwork is ongoing to test these processes on larger volumes of core. Direct sulphuric acid leaching shows that more than 90% of REE can be extracted from allanite. Additional testwork is ongoing to test these processes on larger volumes of core.

Section 3 Estimation and Reporting of Mineral Resources

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

Criteria	***JORC Code explanation***	**Commentary**
	rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	
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 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 should be reported with an explanation of the environmental assumptions made.*	ARR is in the process of outlining environmental, social, and community impacts regarding the potential development of the project. These impacts are being included in conceptual designs of all facets of the project.
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 must have been measured by methods that adequately account for void*	An average specific gravity of 2.70 represents the in-place ore material at Halleck Creek based on hydrostatic testing.

Section 3 Estimation and Reporting of Mineral Resources

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

Criteria	***JORC Code explanation***	**Commentary**
	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 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 reflects the Competent Person's view of the deposit.*	The classification at Halleck Creek is based on the following key attributes: **Geological continuity between drill holes** • 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. The CP considers the above classification strategy and methodology to be appropriate and reasonable for this style of mineralisation.
Audits or reviews	*The results of any audits or reviews of Mineral Resource estimates.*	There have not been any audits of mineral resource estimates.

Section 3 Estimation and Reporting of Mineral Resources

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

Criteria	***JORC Code explanation***	**Commentary**
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 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 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.*	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 4 Estimation and Reporting of Ore Reserves – Ore Reserve Are not Being Reported

(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.*	
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.*	
Study status	*The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.* *The Code requires that a study to at least Pre-Feasibility Study level has*	

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

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

Criteria	JORC Code explanation	Commentary
	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.*	
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 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*	

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

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

Criteria	JORC Code explanation	Commentary
	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.* *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.*	

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

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

Criteria	**JORC Code explanation**	**Commentary**
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 considered representative of the orebody as a whole.*	

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

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

Criteria	JORC Code explanation	Commentary
	For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?	
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.*	
Infrastructure	*The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with*	

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

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

Criteria	JORC Code explanation	Commentary
	which the infrastructure can be provided, or accessed.	
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, penalties for failure to meet specification, etc.*	

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

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

Criteria	JORC Code explanation	Commentary
	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.* *A customer and competitor analysis along with the identification of*	

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

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

Criteria	JORC Code explanation	Commentary
	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.*	
Economic	*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.*	
Social	*The status of agreements with key stakeholders and matters leading to social licence to operate.*	

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

(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*	

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

(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).*	
Audits or reviews	*The results of any audits or reviews of Ore Reserve estimates.*	
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*	

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

(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 – Ore Reserve Are not Being Reported

(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.	