American Rare Earths Limited ARBN 003 453 503

ASX RELEASE

2 December 2022

Further Step Towards Commercialisation of Major USA Rare Earths Project

Outstanding Minerology Test Results

Highlights:

- **Minerology tests show rare earth host mineral at Halleck Creek can be easily liberated**
- **Host mineral Allanite contains approximately 90% of total rare earths present**
- **Simplicity of Allanite liberation allows for higher recovery and ability to upgrade rare earth elements at lower costs**
- **Increases confidence that metallurgical process for production can be developed**
- **A first step as part of our commercialisation strategy**

This could be a game changer for American Rare Earths as testing indicates the rare earth elements host material can be recovered using simple separation technology. This could have significant economic benefits for the Halleck Creek Project. In summary, the results provide further confidence in the potential for Halleck Creek to be a key strategic project within the USA, helping to onshore supply of these critical rare earths.

American Rare Earths Limited **(ASX: ARR, OTCQB: ARRNF, FSE: 1BHA) (ARR** or **'the Company')** is pleased to announce the results of initial minerology test work conducted on core material from the Halleck Creek Rare Earths project in Albany County, Wyoming. Under the guidance of Wood Australia, the mineralogical characterisation testing was performed by SGS Canada and with Nagrom completing the hydrostatic analysis.

MD Chris Gibbs said: "These are highly encouraging results for Halleck Creek and we're particularly excited about the straightforward mineralogy of this deposit. The Halleck Creek Project is shaping up to being a world class tier one asset. The sheer size, scale and nature of the deposit lends itself to a low-cost open cut mining operation, and not too complex metallurgy.

The mineralogy test work determined that rare earths elements (REE) rich Allanite is the primary REE bearing mineral at the project.

The average grain size of the observed Allanite was 232 microns indicating a coarse grain structure. This constitutes approximately 87.5% of all Allanite in the sample material with minimal gangue (waste) minerals. The coarse grain size indicates the Allanite will respond well to standard Wet High-Intensity Magnetic Separation (WHIMS) with potentially high recoveries and upgrading of rare earth elements, including neodymium and praseodymium.

This suggests that considerable reductions in operating and capital costs for production facilities could be achieved due to the simplicity of initial ore recovery and reductions in grinding costs.

Next Steps

With oversight from Wood Australia, metallurgical test work continues as we seek to firm up the processing flow sheet. Test work on the comminution circuit and magnetic separation is currently underway at Nagrom Laboratories in Perth, Western Australia. We will then transition to flotation testing of WHIMS magnetics at Auralia Metallurgy, to assess the potential for further upgrading. Auralia is commencing preliminary work shortly on a sample of fresh ore to screen reagents such as collectors and depressants ahead of the work on WHIMS magnetics.

The Company will continue to provide updates on metallurgical test work as results come to hand.

This market announcement has been authorised for release to the market by the Board of American Rare Earths Limited.

Mr Chris Gibbs
CEO & Managing Director

Competent Persons Statement:
The information in this document is based on information compiled by Mr Greg Henderson. Mr Henderson is a Senior Process Consultant at Wood Australia. Mr Henderson is a Fellow of the Australian Institute of Mining and Metallurgy (AUSIMM), number 109007, 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 Henderson 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:

One of the only ASX listed companies with exposure to the rapidly expanding US market, American Rare Earths is developing its 100% owned magnet metals projects, La Paz in Arizona, and Halleck Creek in Wyoming. Both have potential to be among the largest rare earths deposits in North America. The company is concurrently evaluating other exploration opportunities while collaborating with US Government supported R&D to develop a sustainable domestic supply chain for the renewable future.

Appendix A - Technical Summary

1. Mineralogical Characterisation

For the mineralogical characterisation study, SGS performed the following:

- Sample preparation, crushing and riffling;
- Chemical analysis of the head sample, including X-ray fluorescence;
- TIMA-X analysis of the sample to provide mineral identifications; REE deportment;
- Chemical analysis, including X-ray fluorescence, ICP-MS to determine the REE, Y, Th, U, Zr, Nb, Ta, and Sc;
- Semi-Quantitative X-ray diffraction analysis by Rietveld refinement to determine the bulk crystalline composition;
- Electron microscopy to evaluate the REE minerals;
- Mineral chemistry by electron microprobe to determine the major and trace elements of the minerals of interest;
- Davis Tube testwork to assess the presence of magnetite which would need to be removed ahead of WHIMS beneficiation (results were not available for inclusion in this update).

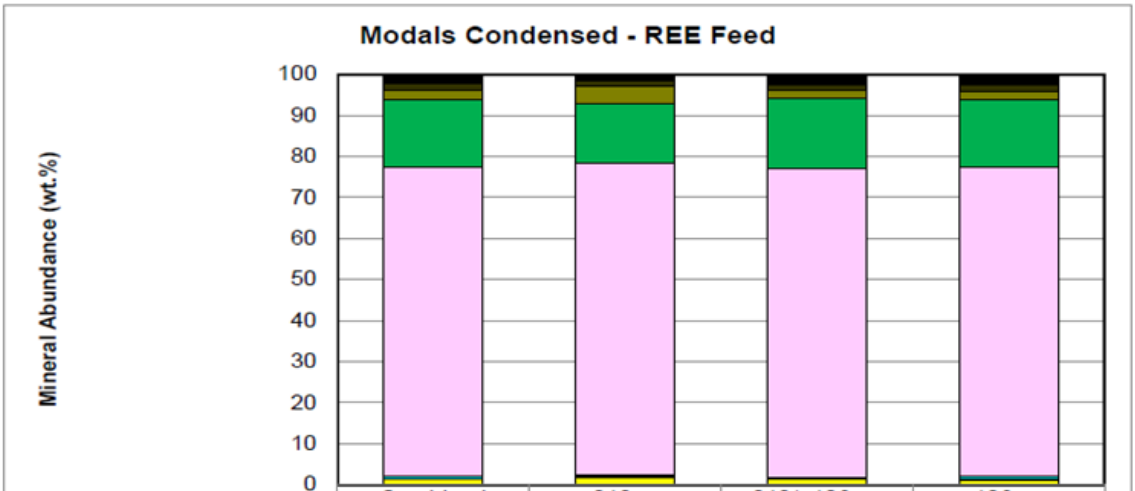
Hydrostatic analysis shows that the core material has a specific gravity of approximately 1.70. Determining a specific gravity for rocks provides foundation data for future calculation of weight averages of metallurgical testing and eventual resource tonnage calculations.

2. Mineral Abundance

Relative mineral abundance for the test sample is presented in Figure 1, with the primary minerals being orthoclase, plagioclase, amphibole, quartz, garnets and biotite. Allanite makes up 1.31% of the total feed mass, with a significant bias to the +212 micron fraction, indicating a coarse crystal structure. The average grain size of Allanite was 232 microns. By contrast, chevkinite/tornebohmite averaged 42 microns, so it would require significantly more grinding to achieve liberation.

Epidote is only present in trace amounts, which favours upgrade with fatty acid flotation since both epidote and Allanite are orthosilicates and separation is notoriously difficult. Flotation will be considered for further upgrading WHIMS magnetics, containing paramagnetic Allanite, after quartz and feldspar minerals have largely been rejected.

Figure 1 – Mineral Abundance by TIMA-X Analysis

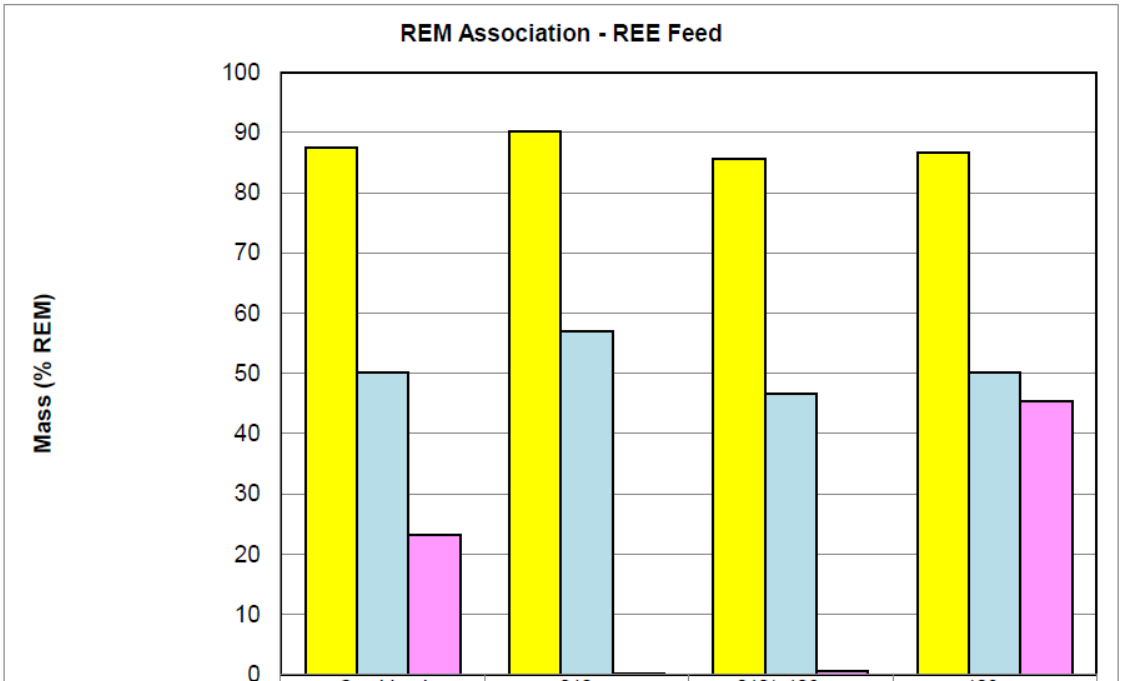


	Combined	+212 um	-212/+106 um	-106 um
Other Minerals	0.16	0.14	0.15	0.18
Fe-(Ti)-Oxides	1.53	1.20	1.67	1.60
Zircon	0.42	0.07	0.57	0.49
Apatite	0.18	0.14	0.12	0.25
Other Silicates	1.53	1.22	1.40	1.88
Garnets/Epidote	2.52	4.42	2.04	1.76
Amphibole	16.3	14.5	17.2	16.5
Quartz/Feldspars	75.5	76.1	75.1	75.4
Carbonates	0.51	0.35	0.42	0.70
Niobates	0.00	0.00	0.00	0.00
Other REM	0.00	0.00	0.00	0.00
Synchysite/Bastnasite	0.02	0.01	0.02	0.03
Xenotime/Monazite	0.00	0.00	0.00	0.00
Chevkinite/Tornebohmite	0.07	0.06	0.06	0.09
Allanite	1.31	1.81	1.22	1.07

3. Allanite Association

SGS determined Allanite association with matrix minerals in the core. They reported that approximately 87.5% of all Allanite exists as free, pure, or liberated forms (due to grinding), as depicted, highlighted in Figure 2. The remaining 12.5% of Allanite is associated with matrix minerals (intergrowths with silicate gangue). The free, pure and liberated Allanite percentage increases to 90.2% for material exceeding 212 microns.

Figure 2 – Liberation of Rare Earth Minerals by Size Fraction



	Combined	+212 um	-212/+106 um	-106 um
Allanite	87.5	90.2	85.6	86.6
Chevkinite/Tornebohmite	50.2	57.0	46.6	50.1
Synchysite/Bastnasite	23.3	0.1	0.7	45.4

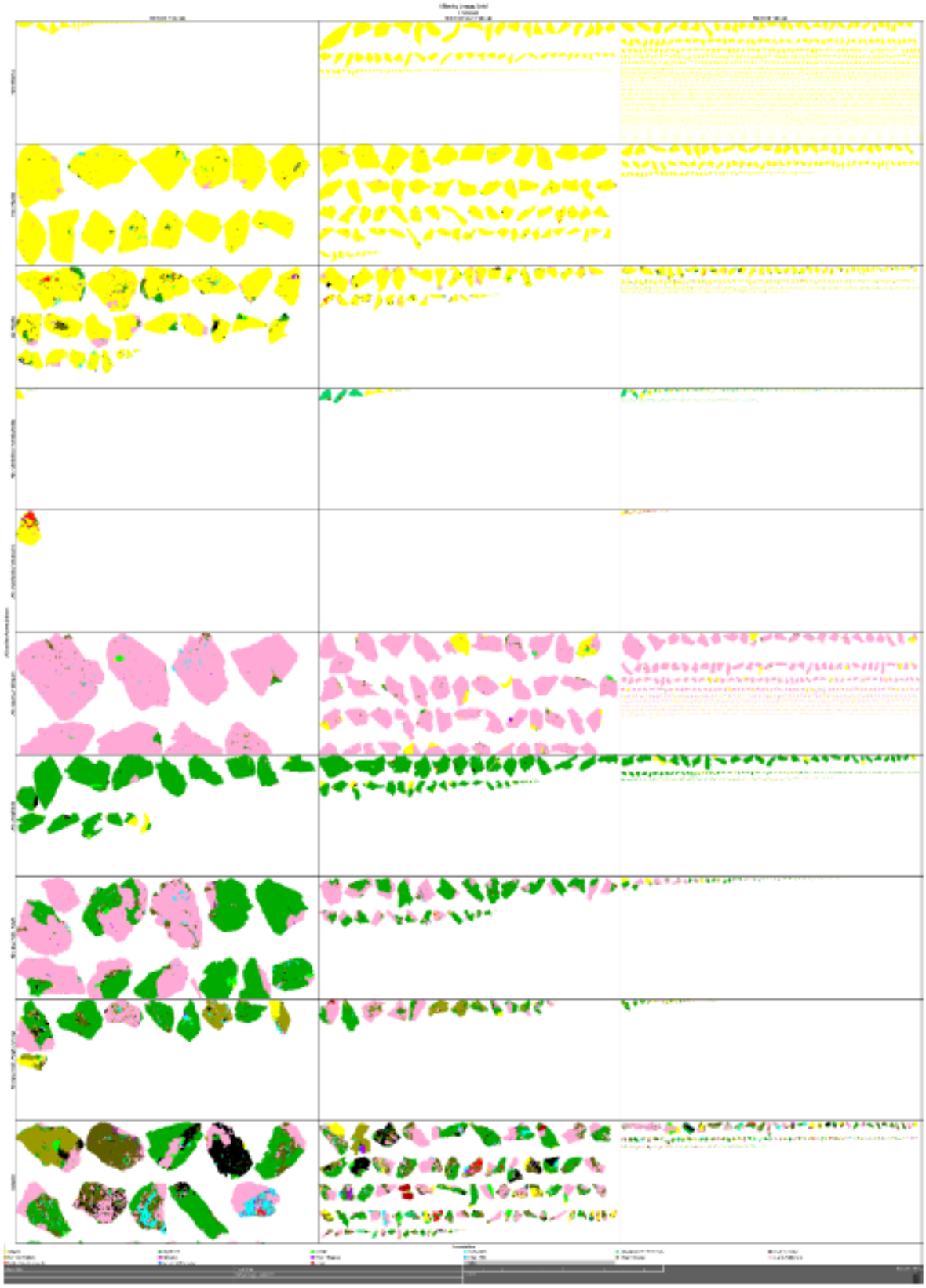
4. Theoretical Grades for Cerium, Lanthanum and Neodymium

Grade-recovery relationships were developed by SGS to indicate the theoretical ultimate beneficiation potential for cerium, lanthanum and neodymium. SGS predicted a cerium grade of 9.3% for 94% recovery, a lanthanum grade of 4.6% for 94% recovery and a neodymium grade of 3.8% for 95% recovery. In practice, achieving such high upgrades would be difficult due to inevitable operational losses, but the data does indicate good potential for an upgrade through physical beneficiation.

5. Allanite Liberation and Association by TIMA-X

Images of sorted particles provide a visual record of allanite liberation and association with other minerals, presented as shown in Figure 3. Allanite grains are coloured yellow and it is evident that a large amount of the mineral is pure or free, with few inclusions of gangue minerals, at coarse sizes. There are allanite inclusions within quartz and feldspars (pink colour) and occlusions (attachment) with amphiboles with a high level of exposure (>50%) which would allow it to be recovered by flotation. Regrinding these middling particles would provide the necessary liberation to recover this Allanite and reject the gangue minerals.

Figure 3 – Allanite Liberation and Association



6. Hydrostatic Density Testing

The wax-coated hydrostatic method tested ten whole HQ core specimens for apparent SG. Values ranged from 2.66 to 2.79, averaging 2.70. This information will be used for resource modelling and estimation purposes as the project develops. The tight range of values provides confidence for calculating contained ore tonnes and corresponding in situ rare earths value.

Appendix B – JORC Table 1

JORC Code, 2012 Edition – Table 1 Halleck Creek Exploration Area		
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 March and April 2022, WRE 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. An additional 71 surface rock samples were collected on claim areas east of the Overton Mountain study area. A total of 513 surface rock samples exist at the Halleck Creek. Surface rock samples collected by ARR are logged, photographed and located using handheld GPS units. As part of reverse circulation (RC) exploration drilling at Halleck Creek. ARR collected XRF readings on RC chip 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 25-meter intervals down each drill hole. These values are considered to be qualitative in natures 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 recoveries and RQD's were calculated by WRE field geologists.
	Aspects of the determination of mineralisation that are Material to the Public Report.	

	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.	Rock core samples 5 ft (1.52 m) long are being 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. American Assay Labs in Sparks, NV is performed the analyses.
		The rock samples pulverised and analysed for 48 elements, including rare earth elements using ICP-MS. American Assay Labs in Sparks, NV is performed the analyses.
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.).*	Core: HQ, diamond tip, 5-ft runs, unoriented. Total drilled depth of 3,008 ft (917 m).
Drill sample recovery	*Method of recording and assessing core and chip sample recoveries and results assessed.*	All drill core was visually logged, measured, and photographed by WRE geologists. Drill core was collected in lengths (runs) of 5 ft (1.52 m). Recoveries were calculated for each core run. Each rock sample was described, photographed with its location determined using handheld GPS.
	Measures are taken to maximise sample recovery and ensure the representative nature of the samples.	All core and associated samples were immediately placed in core boxes.
	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 drill core was visually logged, measured, and photographed by WRE geologists. Drill core was collected in lengths (runs) of 5 feet (1.52m). WRE geologists calculated recoveries for each core run. WRE geologists logged lithology, various types of alteration and mineralisation, fractures, fracture conditions, and RQD.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	Core logging is quantitative in nature. All core was photographed.
	The total length and percentage of the relevant intersections logged.	All drill core was visually logged, measured, and photographed by WRE geologists. Drill core was collected in lengths (runs) of 5 feet (1.52m). WRE geologists calculated recoveries for each core run. WRE 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.*	Drill core was fillet cut by American Assay Labs, with approximately 1/3 of the core used for assay. The remaining core material will be kept in reserve by WRE in a secure location.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	All 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.
	Quality control procedures adopted for all sub-sampling stages to maximise the representivity of samples.	WRE 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.

	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.	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.*	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.	No geophysical tools used in the drilling program.
	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.	WRE 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.
Verification of sampling and assaying	*The verification of significant intersections by either independent or alternative company personnel.*	Consulting company personnel have observed the assayed 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 WRE personnel and checked by WRE 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 was received electronically from AAL labs. These raw data as elements reported ppm were imported into the database with no adjustments.
	Discuss any adjustment to assay data.	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.*	Down hole surveyed were not used. Drill hole location is based on GPS coordinates +/- 10 ft (3 m) 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.*	Both randomly spaced and localised clustering of drillholes.
	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.	The data is not at a sufficient spacing to determine a mineral resource or reserve. No resources or reserves are being reported for the Halleck creek area.
	Whether sample compositing has been applied.	Each sample is the result of assaying a 5 ft interval of core. Composite assay values have not been calculated or applied.
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.*	6 holes were vertical, and three were angled at 65° in various directions depending on drill hole location.
	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.	

Sample security	*The measures are taken to ensure sample security.*	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 American Assay Labs. 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.*	Wyoming Rare Earths Project Acquisition – 5 Unpatented mining claims on BLM US Federal Land totalling 71.6 acres (29 has) were acquired from Zenith Minerals Ltd. Sixty seven (67) additional unpatented mining claims were staked by ARR that totalled 1193.3 acres (482 ha). Overall, the ARR subsidiary controls 3101 acres (1255 ha) of mining claims and Wyoming State Leases. ARR staked an additional 182 federal claims in March 2022 covering an area of approximately 3,088 acres (1,250 ha).
	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 ($11,880.00) 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 Minerals 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 type 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:*	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, WRE 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	All relevant information for this section can be found in Table 1 of the report entitled "Summary of Maiden Exploration Drilling at the Halleck Creek Project Area", May 2022.
	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 (eg 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.
	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 (eg 'down hole length, true width not known').*	The geometry of the mineralisation with respect to drill hole angle is not yet known. Vertical holes represent true depth and angled holes represent down-hole length.
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.*	See Figures in ASX Release "Halleck Creek Drilling Update" dated 24 November 2022.
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.*	The latest exploration results reported in "Mapping and Surface Sampling Summary at the Halleck Creek Project Area: April 2022""" All relevant information for this section can be found in Table 1 of the report entitled "Summary" of Maiden Exploration Drilling at the Halleck Creek Project Area", "May 2022.
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. Metallurgical testing to date consisted of concentrating the Allanite by both gravity and magnetic separation. The rare earth rich allanite concentrate will be further evaluated for extraction of the rare earths.

Further work	*The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).*	Further drilling, mapping and sampling is planned.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	Locations of additional drillholes will be based on assay results when received.