



ASX RELEASE

20 January 2023

American Rare Earths on target to define a significant JORC resource at Halleck Creek

Drilling shows mineralization to depths of 50% more than exploration target

Highlights

- 38-hole drill program completed. With 5726 metres drilled
- Geological data continues to show enriched rare earth mineralisation from surface to depth of drilling at 150m
- 3,817 samples collected and shipped to ALS laboratories for analysis
- Significant upside expected with consistent mineralisation observed to 150m and deposit remains open at depth
- Deposit continues east into neighbouring Bluegrass prospect

American Rare Earths (ASX:ARR | OTCQB:ARRNF | FSE:1BHA) is pleased to announce it has completed its 38-hole, 5,726m drilling program at its Halleck Creek rare earths project in Albany County, Wyoming, USA.

The completion of the drilling program brings the company closer to defining a substantial maiden JORC resource. In this campaign the company drilled to a depth of 150m. This is a 50% increase over and above the 100m depth drilled for the maiden drill campaign and was not included in the exploration targets announced last year. The JORC compliant Exploration Target estimate previously disclosed to market (1st September 2022), outlined between 1.01 and 1.27 Billion Tonnes of Rare Earth mineralised rocks with TREO grades ranging between 2,245 ppm and 2,807 ppm.

The drilling confirms the Rare Earth Elements (REE) containing geological structure is significantly larger than previously thought. Geological data shows significant consistent REE mineralisation across the observed samples, with the massive deposit remaining open at depth and likely continuing east into the company's adjoining Bluegrass prospect.

Managing Director and Chief Executive Officer Chris Gibbs said "We have a major deposit here, the size scale and consistency of the resource we are observing is similar to large-scale, long-life copper / gold porphyry mines which are common throughout the Western United States.

The exploration target of over a billion tonnes is now being authenticated based on this drilling program. The drill results together with the positive metallurgical studies amplify the significant value of Halleck Creek’s potential as a key domestic US rare earth supplier.”

Next Steps

The Company is awaiting assay results to finalise a maiden JORC resource estimate, which it plans on releasing in Q1 2023.

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:

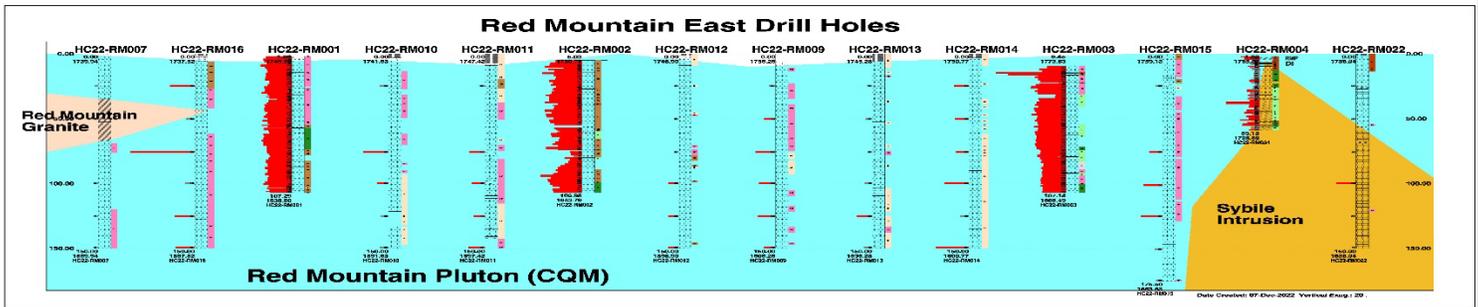
The information in this document is based on company announcements made on 4 August 2022, 01 September 2022, 05 October 2022, 03 November 2022, and 24 November 2022. These announcements were reviewed and approved for release by Mr Dwight Kinnes (Society of Mining Engineers #4063295RM) is employed by 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.

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.

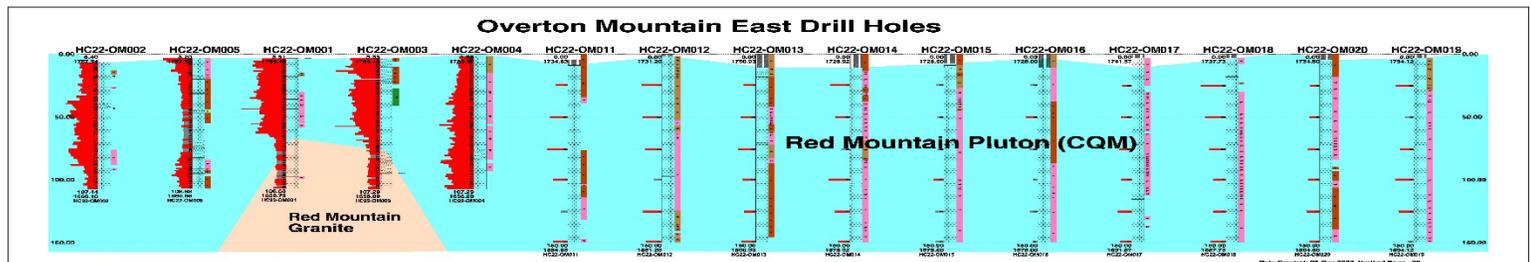
Appendix A – Technical Summary

Red Mountain East Drill Holes



During the drilling program, the company completed 38 Reverse Circulation (RC) holes. The company drilled a total of 5,725.5 meters (18,784.6 feet) in the Red Mountain and Overton Mountain project areas. The final 723 samples have been shipped to ALS labs for assay. For the project approximately 3,817 samples have been collected and shipped to ALS laboratories for analysis. Throughout the program Company inserted certified reference material for rare earths and blanks from CDN Labs as part of a detailed QaQc system.

Overton Mountain East Drill Holes



Geological data collected at site shows exceptional values for Rare Earth Oxides (REO) from surface to depth. Significant field rare earth observations from RC cuttings using a handheld X-Ray Fluorescent (XRF) analyser, are shown in Table 1.

Average REO for HC22-OM012							Average REO for HC22-OM012						
Sample Depth (m)	Lith Type	4 Element Total	La2O3	Ce2O3	Pr6O11	Nd2O3	Sample Depth (m)	Lith Type	4 Element Total	La2O3	Ce2O3	Pr6O11	Nd2O3
24.00-25.50	CQM	3,113	771	1435	263	643	24.00-25.50	CQM	2,961	723	1333	279	626
49.50-51.00	CQM	2,889	740	1345	213	592	49.50-51.00	CQM	2,284	562	987	176	559
75.00-76.50	CQM	2,520	584	1079	251	606	75.00-76.50	CQM	1,205	244	457	177	327
99.00-100.50	CQM	1,216	308	552	0	356	99.00-100.50	CQM	3,236	854	1538	173	671
124.50-126.00	CQM	2,884	710	1343	211	620	124.50-126.00	CQM	2,293	591	1062	159	480
148.50-150.00	CQM	2,467	618	1151	168	529	148.50-150.00	CQM	1,723	419	785	163	356

Table 1 – Average REO Samples

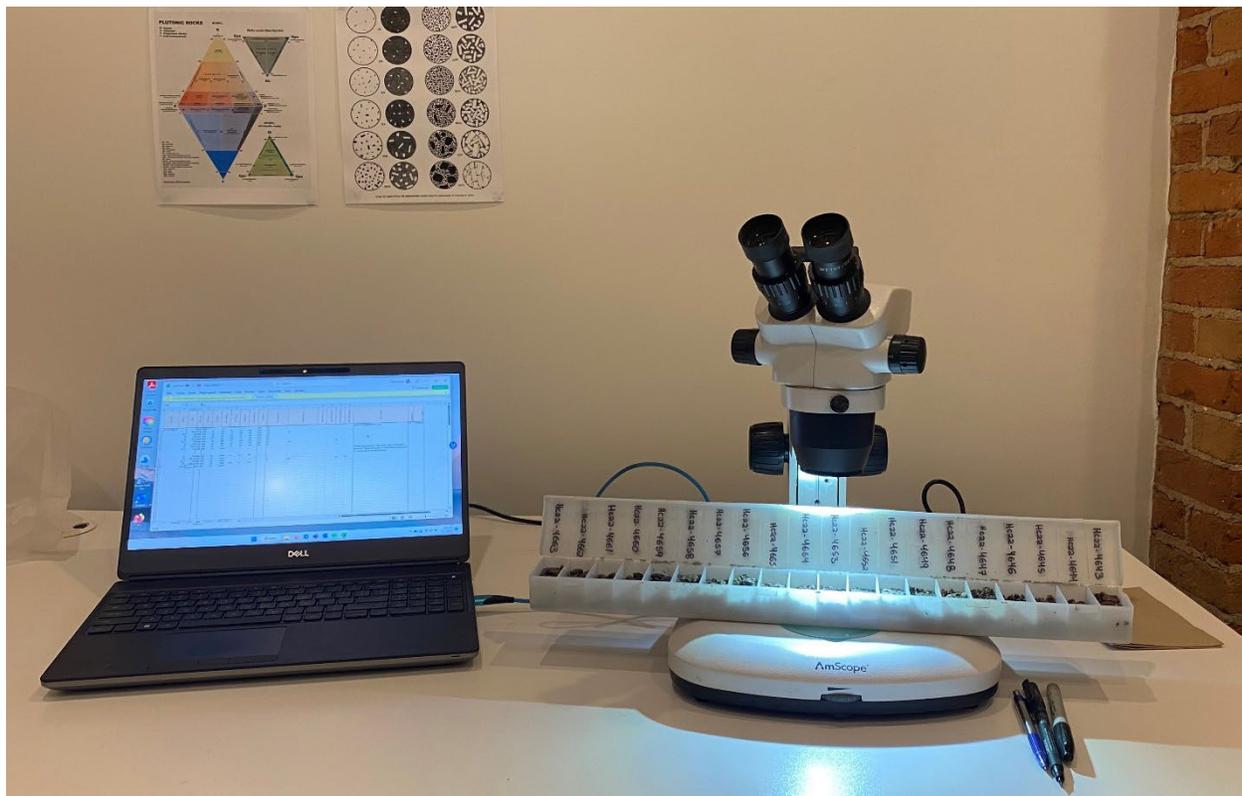
*Three Reading Average of 4 Elements of La, Ce, Nd, and Pr. Values in ppm

Vanta XRF Handheld Analyser



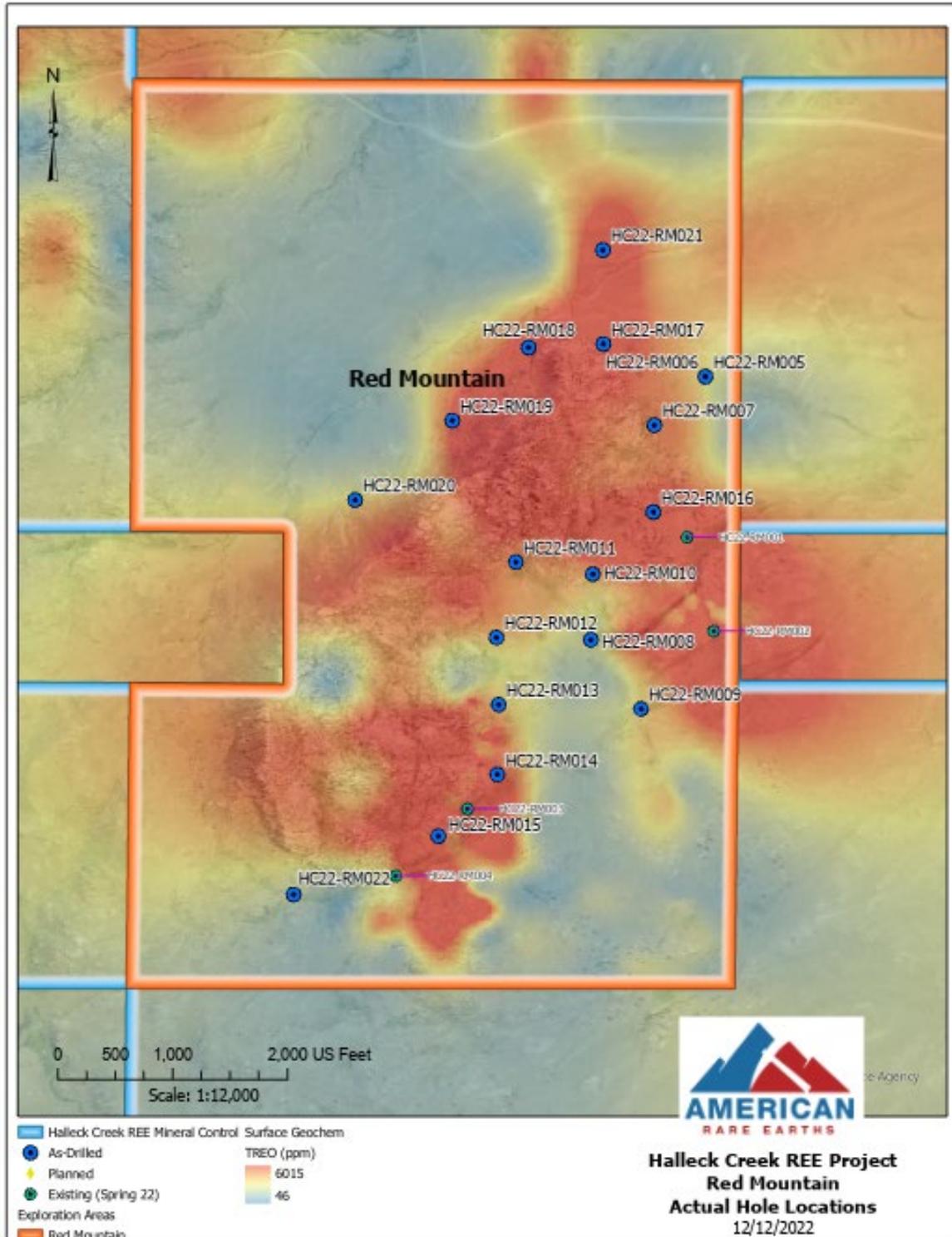
The strong XRF values observed in the drill cuttings, provide good indications that rare earth mineralisation occurs throughout the clinopyroxene quartz monzonite (CQM) geological unit.

Binocular Microscope for logging RC Chips from Halleck Creek.



The maps below illustrate a good correlation between surface geochemical samples and XRF observations at depth. This supports the surface geochemical analysis previously disclosed to market (4 August 2022).

Red Mountain Drill Hole Locations



Overton Mountain Drill Hole Locations

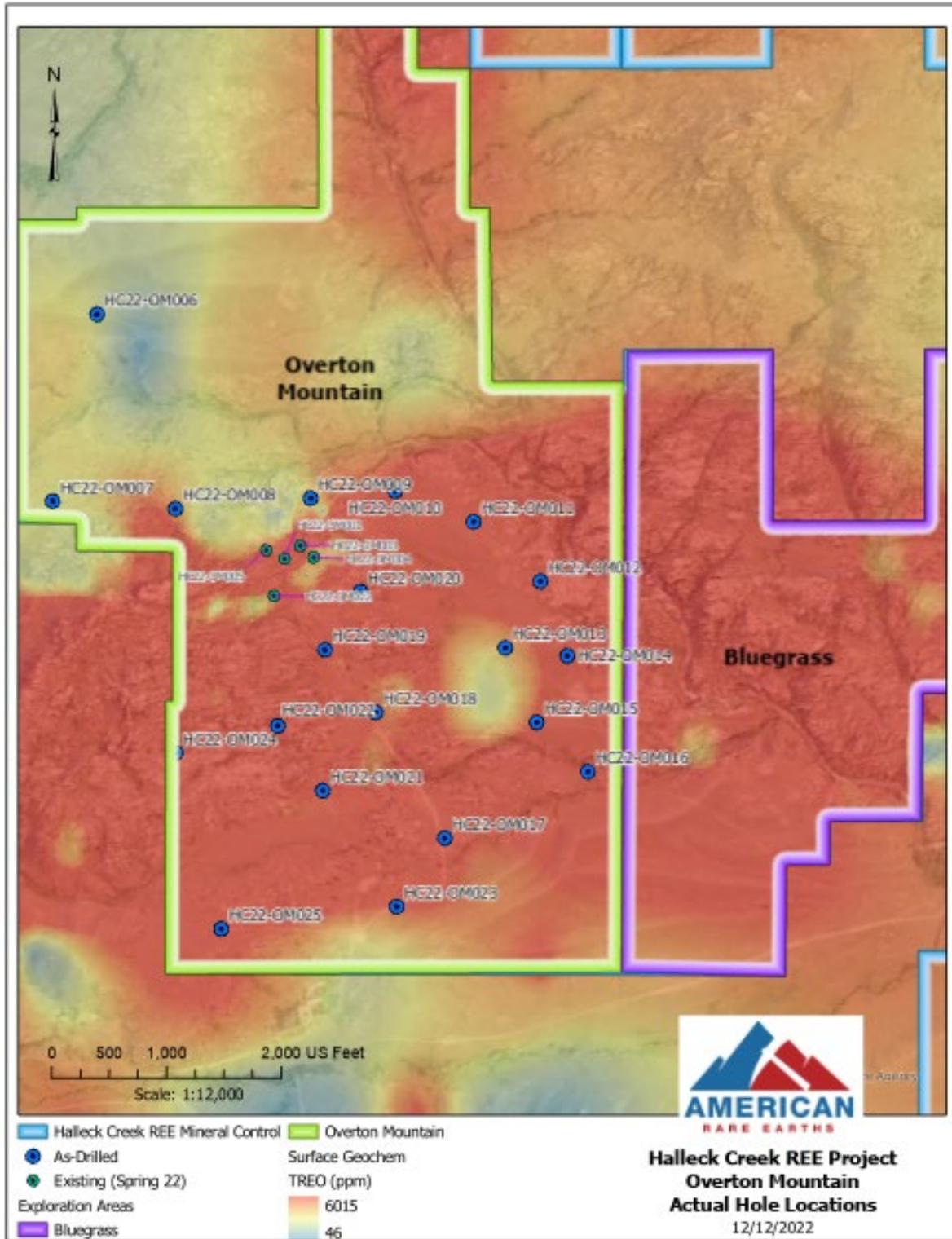


Table 2 – Location of Halleck Creek 2022 RC Holes

Red Mountain					Overton Mountain				
DHID	Easting	Northing	Length	Approx Samples	DHID	Easting	Northing	Length	Approx Samples
HC22-RM005	475,749	4,633,192	150	100	HC22-OM006	474,454	4,636,139	150	100
HC22-RM006	475,749	4,633,192	150	100	HC22-OM007	474,336	4,635,642	150	100
HC22-RM007	475,613	4,633,063	150	100	HC22-OM008	474,662	4,635,622	150	100
HC22-RM008	475,445	4,632,493	150	100	HC22-OM009	475,022	4,635,649	150	100
HC22-RM009	475,578	4,632,309	150	100	HC22-OM010	475,246	4,635,669	150	100
HC22-RM010	475,450	4,632,667	150	100	HC22-OM011	475,455	4,635,586	150	100
HC22-RM011	475,246	4,632,700	150	100	HC22-OM012	475,633	4,635,428	150	100
HC22-RM012	475,194	4,632,499	150	100	HC22-OM013	475,539	4,635,251	150	100
HC22-RM013	475,200	4,632,321	150	100	HC22-OM014	475,704	4,635,230	150	100
HC22-RM014	475,196	4,632,135	150	100	HC22-OM015	475,623	4,635,053	150	100
HC22-RM015	475,040	4,631,971	176	117	HC22-OM016	475,759	4,634,922	150	100
HC22-RM016	475,611	4,632,832	150	100	HC22-OM017	475,378	4,634,745	150	100
HC22-RM017	475,478	4,633,279	150	100	HC22-OM018	475,195	4,635,079	150	100
HC22-RM018	475,279	4,633,269	150	100	HC22-OM019	475,059	4,635,246	150	100
HC22-RM019	475,077	4,633,075	150	100	HC22-OM020	475,154	4,635,401	150	100
HC22-RM020	474,819	4,632,865	150	100	HC22-OM021	475,054	4,634,872	150	100
HC22-RM021	475,477	4,633,528	150	100	HC22-OM022	474,935	4,635,044	150	100
HC22-RM022	474,656	4,631,816	150	100	HC22-OM023	475,250	4,634,563	150	100
					HC22-OM024	474,663	4,634,971	150	100
					HC22-OM025	474,784	4,634,504	150	100

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	<p><i>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.</i></p>	<p>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.</p> <p>An additional 71 surface rock samples were collected on claim areas east of the Overton Mountain study area.</p> <p>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.</p> <p>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 nature and provide only rough indications of grade.</p>
	<p><i>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</i></p>	<p>Core recoveries and RQDs were calculated by WRE field geologists.</p>
	<p><i>Aspects of the determination of mineralisation that are Material to the Public Report.</i></p>	

	<i>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.</i>	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.
<i>Drilling techniques</i>	<i>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.).</i>	Core: HQ, diamond tip, 5-ft runs, unoriented. Total drilled depth of 3,008 ft (917 m).
<i>Drill sample recovery</i>	<i>Method of recording and assessing core and chip sample recoveries and results assessed.</i>	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.
	<i>Measures are taken to maximise sample recovery and ensure the representative nature of the samples.</i>	All core and associated samples were immediately placed in core boxes.
	<i>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.</i>	Recoveries were very high in competent rock. No loss or gain of grade or grade bias related to recovery

<i>Logging</i>	<i>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.</i>	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.
	<i>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.</i>	Core logging is quantitative in nature. All core was photographed.
	<i>The total length and percentage of the relevant intersections logged.</i>	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.
<i>Sub-sampling techniques and sample preparation</i>	<i>If core, whether cut or sawn and whether quarter, half or all core taken.</i>	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.
	<i>If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.</i>	
	<i>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</i>	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.
	<i>Quality control procedures adopted for all sub-sampling stages to maximise the representivity of samples.</i>	WRE submitted CRM sample blanks, CRM standard REE samples from CNL 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.

	<p><i>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.</i></p>	<p>Fillet cuts along the entire length of all core are representative of the in-situ material.</p>
	<p><i>Whether sample sizes are appropriate to the grain size of the material being sampled.</i></p>	<p>Allanite is generally well distributed across the core and the sample sizes are representative of the fine grain size of the Allanite.</p>
<p><i>Quality of assay data and laboratory tests</i></p>	<p><i>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</i></p>	<p>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.</p>
	<p><i>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.</i></p>	<p>No geophysical tools used in the drilling program.</p>
	<p><i>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.</i></p>	<p>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.</p>
<p><i>Verification of sampling and assaying</i></p>	<p><i>The verification of significant intersections by either independent or alternative company personnel.</i></p>	<p>Consulting company personnel have observed the assayed samples. Company personnel sampled the entire length of each hole.</p>
	<p><i>The use of twinned holes.</i></p>	<p>No twinned holes were used.,</p>
	<p><i>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</i></p>	<p>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</p>

		<p>hole database. All scanned documents are cross-referenced and directly available from the database.</p> <p>Assay data was received electronically from AAL labs. These raw data as elements reported ppm were imported into the database with no adjustments.</p>
	<i>Discuss any adjustment to assay data.</i>	Oxide values are calculated in the database using the molar mass of the element and the oxide
<i>Location of data points</i>	<i>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.</i>	<p>Down hole surveyed were not used.</p> <p>Drill hole location is based on GPS coordinates +/- 10 ft (3 m) accuracy.</p>
	<i>Specification of the grid system used.</i>	The grid system used to compile data was NAD83 Zone 13N.
	<i>Quality and adequacy of topographic control.</i>	Topography control is +/- 10 ft (3 m).
<i>Data spacing and distribution</i>	<i>Data spacing for reporting of Exploration Results.</i>	Both randomly spaced and localised clustering of drillholes.
	<i>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.</i>	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.
	<i>Whether sample compositing has been applied.</i>	Each sample is the result of assaying a 5 ft interval of core. Composite assay values have not been calculated or applied.
<i>Orientation of data in relation to geological structure</i>	<i>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</i>	6 holes were vertical, and three were angled at 65° in various directions depending on drill hole location.
	<i>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.</i>	

Sample security	<i>The measures are taken to ensure sample security.</i>	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	<i>The results of any audits or reviews of sampling techniques and data.</i>	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	<i>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.</i>	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).
	<i>The security of the tenure held at the time of reporting and any known impediments to obtaining a licence to operate in the area.</i>	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.

<i>Exploration done by other parties</i>	<i>Acknowledgment and appraisal of exploration by other parties.</i>	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.
<i>Geology</i>	<i>Deposit type, geological setting and style of mineralisation.</i>	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.
<i>Drill hole Information</i>	<i>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:</i>	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).
	<i>easting and northing of the drill hole collar</i>	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.
	<i>elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar</i>	
	<i>dip and azimuth of the hole</i>	
	<i>downhole length and interception depth</i>	
	<i>Hole length.</i>	
<i>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.</i>	No Drilling data has been excluded	
<i>Data aggregation methods</i>	<i>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.</i>	Average Grade values were cut at minimum of TREO 1,500 ppm.
	<i>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.</i>	Assays are representative of each 5 ft (1.52 m) sample interval.
	<i>The assumptions used for any reporting of metal equivalent values should be clearly stated.</i>	No metal equivalents used.

<p><i>Relationship between mineralisation widths and intercept lengths</i></p>	<p><i>These relationships are particularly important in the reporting of Exploration Results.</i> <i>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</i> <i>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').</i></p>	<p>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.</p>
<p><i>Diagrams</i></p>	<p><i>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.</i></p>	<p>See Figures in ASX Release "Halleck Creek Drilling Update" dated 24 November 2022.</p>
<p><i>Balanced reporting</i></p>	<p><i>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.</i></p>	<p>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.</p>
<p><i>Other substantive exploration data</i></p>	<p><i>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.</i></p>	<p>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.</p> <p>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.</p> <p>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. .</p>

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