Halleck Creek 2023 Exploration Update, Field Mapping and Sampling Initiatives

Highlights

- The autumn (September-November) development drilling program[1] in the higher-grade Overton Mountain area has commenced and remains on schedule.
- A core hole was recently completed to 305 m of depth, exhibiting rare earth element (REE) mineralisation throughout utilising XRF. Prior drilling was limited to less than 175 m. The deposit remains open at depth.
- The summer mapping and sampling initiative revealed potential for a larger, higher-grade REE resource at Halleck Creek.
- Optimised future exploration program(s) are being assembled, along with an updated JORC Exploration Target, which is forthcoming.
- Mapping revealed no major structural features, or controls within the updated areas.
- 189 surface samples were analysed via XRF, 52 samples have been sent for confirmatory assay analysis of high-grade target mining areas.

American Rare Earths (ASX: ARR | ADRs - OTCQX: AMRRY | Common Shares - OTCQB: ARRNF) | FSE:1BHA) (ARR or the Company) today announced an update on autumn exploration drilling and completion of significant mapping and sampling work at Halleck Creek, through which the Company has identified potential for a much larger, higher-grade resource.

The Company, which had previously focused on the Red Mountain and Overton claims[2], identified the future potential in the surrounding claims of Bluegrass, Sommers Flat, Trail Creek and County Line areas, as shown in Exhibit 2 to this release. Geologists were able to tightly constrain important contacts and boundaries between the REE enriched material and surrounding rocks. Through GPS-confirmed geology, staff geologists are optimising future drillhole locations, JORC exploration target(s) and placement of conceptual mine layout/facilities.

In addition, the summer work program identified multiple areas with more than 5,000 ppm TREO.

1. ASX announcement - 8 September 2023
2. ASX announcement - 29 June 2023

"Our summer initiative was successful, as the team has now confirmed the presence of rare earth mineralisation across a broader area, and at a higher grade, than had previously been known," said Donald Swartz, Chief Executive Officer of American Rare Earths. "While more work needs to be done to confirm the presence of these claims at depth and across the entirety of our land holdings, we are encouraged by these results as we continue to establish the Halleck Creek property as potentially the largest US mining play for rare earths."

This announcement has been authorised for release by the CEO of American Rare Earths.

Donald Swartz
CEO

Competent Persons Statement:
This work was reviewed and approved for release by Mr. Dwight Kinnes (Society of Mining Engineers #4063295RM) who is employed by American Rare Earths and has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person, as defined in the 2012 JORC Code. Mr. Kinnes consents to the inclusion in the report of the matters based upon the information in the form and context in which it appears.

About American Rare Earths Limited:
American Rare Earths (ASX: ARR | ADRs - OTCQX: AMRRY | Common Shares - OTCQB: ARRNF| FSE:1BHA) owns the Halleck Creek, WY and La Paz, AZ rare earth deposits which have the potential to become the largest and most sustainable rare earth projects in North America. American Rare Earths is developing environmentally friendly and cost-effective extraction and processing methods to meet the rapidly increasing demand for resources essential to the clean energy transition and US national security. The Company continues to evaluate other exploration opportunities and is collaborating with US Government-supported R&D to develop efficient processing and separation techniques of rare earth elements to help ensure a renewable future.

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Technical Information:

Halleck Creek 2023 Mapping and Sampling Initiative overview

Historic maps of the Red Mountain Pluton (RMP) lacked the detail necessary for mineral exploration. As such, ARR geologists endeavored to re-map the RMP at a higher scale. Mapping areas were chosen based on historic maps that showed the presence of RMP rocks. ARR geologists significantly improved the understanding and extent of the REE mineralisation and constrained contacts between the RMP and surrounding rocks in the field.

ARR geologists found that previous geologic contacts were not well-located. ARR geologists determined tighter constraints on contact locations between geologic units. The new mapping was completed with a GPS. GPS-confirmed geology provides greater accuracy when choosing new drillhole locations and will aid in the placement of conceptual mine facilities.

In the field or in hand sample, it is difficult to distinguish the various facies of the RMP: clinopyroxene quartz monzonite, fayalite monzonite, and biotite hornblende syenite. These rocks are primarily diagnosed by minerals that cannot be classified with the naked eye. Therefore, for mapping purposes, all the rocks of the RMP were grouped together, except for the RMP dikes which are easy to discern from the primary RMP host. All the rocks of the RMP carry REE grade; the clinopyroxene quartz monzonite is the most enriched. Mapping revealed that there are no major structural features or controls within the mapped areas, except for prominent joint sets within the RMP rocks. Mapped features are assumed to be in igneous contacts.

Exhibit 1 illustrates the exploration areas across the Halleck Creek REE project area. The hatched areas illustrate the areas included in this mapping season. Areas outlined in red show areas of planned future mapping.

Exhibit 2 shows the location of mapped sample points and relative sample grades across the Halleck Creek REE project. Triangle points were collected during the 2023 mapping program. Circle points are previous surface geochemical samples collected over time at Halleck Creek.

ARR Geologists collected 189 surface samples from bedrock. The samples were collected in a 200 m grid pattern where outcrop of the RMP was abundant, otherwise, samples were collected at exposed or accessible outcrops (Exhibit 2). All samples were evaluated using a handheld XRF unit. The XRF can detect the rare earths Ce, La, Nd, Pr, and Y at low concentrations. ARR submitted 52 samples to ALS for confirmatory assay analysis.

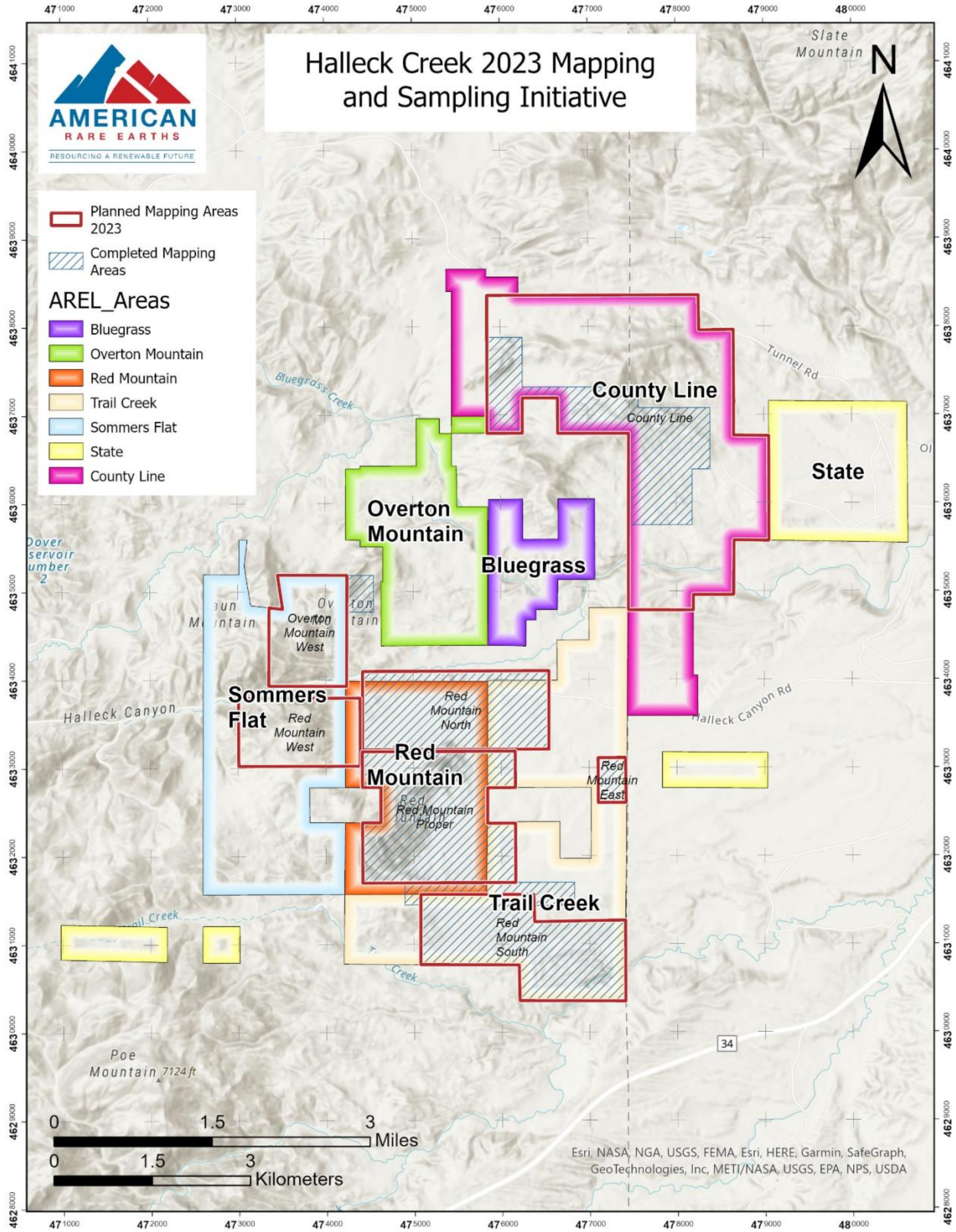

Exhibit 1 – Halleck Creek REE Exploration Areas, Mapped Areas, and Future Map Areas

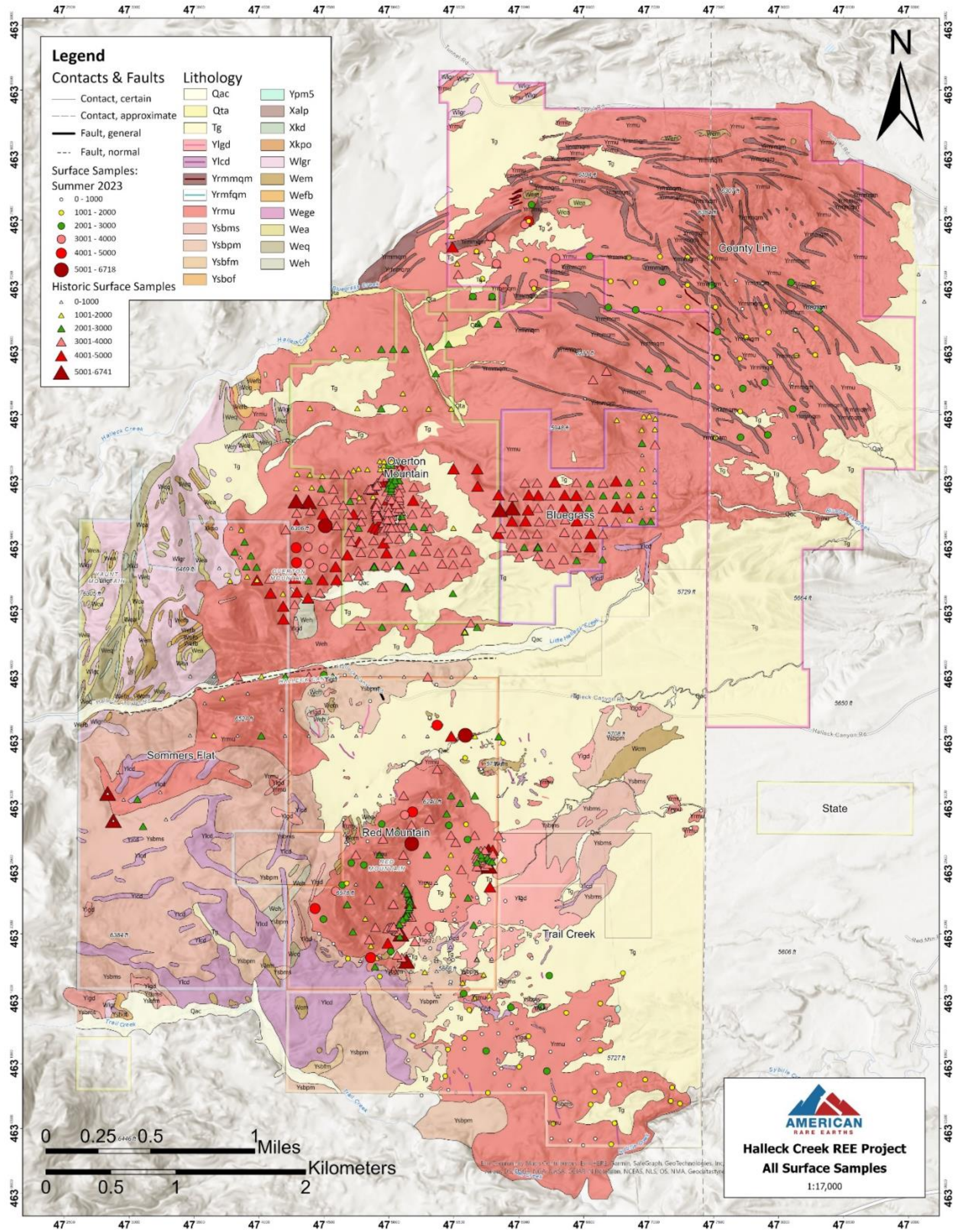

Exhibit 2 – Halleck Creek REE Surface Sample Locations

Appendix – 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.*	During the summer of 2023, 189 surface samples from bedrock were collected. ARR submitted 52 to ALS for confirmatory assay analysis.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	The XRF unit was routinely calibrated using standards provided by the manufacturer and ARR internal preparation.
	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.	The 2023 XRF samples were collected in a 200 m grid pattern where outcrop of the RMP was abundant, otherwise, samples were collected at exposed or accessible outcrops (Figure 5). If a planned sample location was inaccessible, the samples are taken as close as possible to the planned sample location. Samples were photographed during collection. After sample collection, the samples were ground using a pneumatic hammer until they could pass through a 180-mesh sieve (0.08 mm). The finely-ground sample material was placed in a labelled XRF sample cup, and the reject material was saved in the original sample bag for storage and potential lab analysis. The sample cups were then analysed with the handheld XRF using the Geochem 3-Beam analysis for a total of 90 seconds. Standards, blanks, and certified reference materials were included in the

		analyses for Qa/Qc purposes. Most of the samples were analysed using the User Factors calibration adjustment on the XRF, which is tuned to assayed RMP rocks. This adjustment helps correct any matrix affects particular to the RMP rocks. The XRF can detect the rare earths Ce, La, Nd, Pr, and Y at low concentrations so it is a good indicator of mineralisation.
		52 rocks samples were sent to ALS labs in Twin Falls, ID for preparation and forwarded on to ALS labs in Vancouver, BC for ICP-MS analysis.
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.).*	No drilling performed during this program.
Drill sample recovery	*Method of recording and assessing core and chip sample recoveries and results assessed.*	Each rock sample was described geologically by ARR team members.
	Measures are taken to maximise sample recovery and ensure the representative nature of the samples.	After sample collection, the samples were ground using a pneumatic hammer until they could pass through a 180-mesh sieve (0.08 mm). The finely-ground sample material was placed in a labelled XRF sample cup, and the reject material was saved in the original sample bag for storage and potential lab analysis.
	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.	n/a

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 samples were visually logged by ARR geologists from chip trays using 10x binocular microscopes. Samples were photographed and analysed using an Olympus Vanta handheld XRF analyser in triplicate. Lanthanum, Cerium, Neodymium, and Praseodymium were analysed.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	Rock samples were described in detail geologically, but they are still considered to be qualitative.
	The total length and percentage of the relevant intersections logged.	n/a
Sub-sampling techniques and sample preparation	*If core, whether cut or sawn and whether quarter, half or all core taken.*	
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	Rock samples were effectively dry.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	Samples were photographed during collection. After sample collection, the samples were ground using a pneumatic hammer until they could pass through a 180-mesh sieve (0.08 mm). The finely-ground sample material was placed in a labelled XRF sample cup, and the reject material was saved in the original sample bag for storage and potential lab analysis. The sample cups were then analysed with the handheld XRF using the Geochem 3-Beam analysis for a total of 90 seconds. Standards, blanks, and certified reference materials were included in the analyses for Qa/Qc purposes. Most of the samples were analysed using the User Factors calibration adjustment on the XRF, which is tuned to assayed RMP rocks. The sample preparation is considered to be appropriate for these types of samples.

	Quality control procedures adopted for all sub-sampling stages to maximise the representivity of samples.	Standards, blanks, and certified reference materials were included in the analyses for Qa/Qc purposes. Most of the samples were analysed using the User Factors calibration adjustment on the XRF, which is tuned to assayed RMP rocks
	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.	Samples were collected by geologists in the field.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Rock samples are appropriate for the size of the material.
Quality of assay data and laboratory tests	*The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.*	ALS uses a 5-acid digestion and 48 elements by lithium borate fusion and ICP-MS. For quantitative results of all elements, including those encapsulated in resistive minerals.
	For geophysical tools, spectrometers, handheld XRF instruments, etc., the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.	Samples were photographed during collection. After sample collection, the samples were ground using a pneumatic hammer until they could pass through a 180-mesh sieve (0.08 mm). The finely-ground sample material was placed in a labelled XRF sample cup, and the reject material was saved in the original sample bag for storage and potential lab analysis. The sample cups were then analysed with the handheld XRF using the Geochem 3-Beam analysis for a total of 90 seconds. Standards, blanks, and certified reference materials were included in the analyses for Qa/Qc purposes. Most of the samples were analysed using the User Factors calibration adjustment on the XRF, which is tuned to assayed RMP rocks.

	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.	ALS and ARR perform routine and formal Qa/Qc checks of XRF analyses and assays.
Verification of sampling and assaying	*The verification of significant intersections by either independent or alternative company personnel.*	Samples have not yet been verified by independent personnel.
	The use of twinned holes.	n/a
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Data entry was performed by ARR personnel and checked by ARR geologists. All field logs were scanned and uploaded to company file servers. All photographs of the core were also uploaded to the file server daily. XRF and assay data will be imported into the DHDB drill hole database. All scanned documents are cross-referenced and directly available from the database. Assay data for the assays will be received electronically from ALS. Digital copies of the final data are cross-referenced in DHDB. The spreadsheets of data from ALS are imported directly into DHDB.
	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.*	RC drill holes have been located using handheld GPS units. Final surveys of hole locations will be performed by professional surveyors.
	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.*	In areas with uniform rock types, samples were collected on a 200x200m grid. In geologically complex areas, samples were collected more frequently as rock types vary.

	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 XRF samples are not sufficient to define resources or reserve estimates.
	Whether sample compositing has been applied.	Sample composites have not been 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.*	Samples were collected without structural effects.
	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 samples were in the direct control of ARR personnel unit the samples were shipped to ALS for analysis. ARR maintains chain of custody records.
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 acquired 5 unpatented federal lode claims on BLM US Federal Land totalling 71.6 acres (29 has) from Zenith Minerals Ltd. in 2021. 67 unpatented federal lode claims were staked by ARR that totalled 1193.3 acres (482 ha) in summer 2021. ARR staked 182 unpatented federal lode claims in March 2022 covering an area of approximately 3,088 acres (1,250 ha). ARR staked 118 unpatented federal lode claims in November 2022 covering an area of approximately 2,113 acres (855 ha). As of 31 December 2022, ARR controlled 367 unpatented federal lode claims and 4 Wyoming State mineral licenses covering 8,165 acres (3,304 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 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:*	No drilling occurred in this program
	easting and northing of the drill hole collar	n/a

	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.	n/a
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.*	n/a
	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.	n/a .
	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').*	XRF samples were collected across all observed rock units and mapped using GPS.
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 the within this press release, above.

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.*	ARR currently has assay results for approximately 4,210 samples for 38 full drill holes in the Red Mountain area including assays for blanks, CRM standards and duplicate samples.
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 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, 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.	Additional drilling is planned in new exploration areas and to increase resource confidence levels.