

RARE EARTHS OXIDE PRODUCED FROM HALLECK CREEK ORE- MAJOR TECHNICAL BREAKTHROUGH

Highlights

- Rare earth oxides were produced from Halleck Creek ore using the updated preliminary Pre-Feasibility Study (“PFS”) mineral processing flowsheet¹
- A Mixed Rare Earth Oxalate and Mixed Rare Earth Oxide was created from purified leachate solution using the material from the impurity removal testing²
- This is the most significant technical milestone achieved for the Project to date

American Rare Earths (**ASX: ARR | OTCQX: ARRNF | ADR: AMRRY**) (“ARR” or the “Company”) has successfully completed another critical stage in its mineral processing program by producing a mixed rare earths oxide (“MREO”) using the updated preliminary PFS mineral processing flowsheet.

MREO from Halleck Creek (“the Project”) was produced using the material – a pregnant leach solution (“PLS”) – from the impurity removal testing campaign³. This was achieved through precipitating a mixed rare earth oxalate and then creating MREO powder (see Figure 1). This major technical milestone confirms that rare earths can be extracted into metallic oxides from Halleck Creek ore using the updated preliminary PFS mineral processing flowsheet currently being finalized for the upcoming PFS. Solvent extraction computer simulation is now underway, using the results of these tests.

SGS in Lakefield, Ontario, Canada created the MREO from the Halleck Creek PLS through a two-step process. The first step consists of precipitating the metals in solution using oxalic acid to create a mixed rare earth oxalate. Oxalic acid is highly selective in precipitating rare earth elements (“REE”) from PLS while other elements stay in solution. SGS performed three precipitation tests using variable oxalic acid addition rates. The second step, called calcining, involved SGS heating the combined mixed rare earth oxalates to 1,000°C to oxidize the material into a MREO. A beneficial effect of calcining is that it oxidizes the cerium, converting it from Ce³⁺ to Ce⁴⁺. Ce⁴⁺ is not soluble in the reagent which will be used to dissolve REEs from the MREO for solvent extraction.

¹ See ASX release dated November 10, 2025

² See ASX release dated October 13, 2025

³ See ASX release dated October 13, 2025



Figure 1 – Halleck Creek Mixed Rare Earth Oxalate (left) and Mixed Rare Earth Oxide (right)



Why it matters?

Producing a MREO from Halleck Creek ore, using the updated preliminary PFS mineral processing flowsheet currently being finalized for the upcoming PFS, is the most significant technical milestone achieved for the Project to date.

MREO is the precursor used to produce individually separated rare earth products through solvent extraction, such as Neodymium-Praseodymium (“**NdPr**”), Terbium (“**Tb**”), and Dysprosium (“**Dy**”). In general, producing MREO is the most challenging technical step in manufacturing separated rare earth oxides. By comparison, the subsequent solvent-extraction stage is a well-established, relatively straightforward process.

Next steps in Halleck Creek’s updated preliminary PFS mineral processing flowsheet development include:

- Solvent extraction simulation, using MetSim, is underway using the analytical results of the MREO. The simulated solvent extraction flowsheet will be used to model and define specifications and costs for a solvent extraction refinery, which is typical for a PFS.
- Process optimisation using bulk samples continues in parallel with metallurgy. Comminution testing of test pit ore, from the Cowboy State Mine area, is nearing completion at FL Smidth and Loesche. Bulk ground material from the comminution testing is scheduled for reflux classifying concentrator (“**RCC**”) separation and induced roll magnetic (“**IRM**”) concentration at Nagrom. Additional, wet high intensity magnetic separation (“**WHIMS**”) of fines <53µm is scheduled with Eriez.
- Using a mineralised concentrate from the on-going optimisation work, complete a single pass-through mineral processing flowsheet to replicate and validate all hydrometallurgical test results completed to date.

Additional technical details

SGS conducted a small bench scale test for uranium removal using a PLS from multiple secondary neutralization tests. The 24-hour test was conducted using Dowex/Ambersep 21K XLT ion exchange resin. The test reduced the uranium content from 1.27ppm to 0.04ppm, effectively removing 97% of the remaining uranium from solution. Between primary and secondary neutralization, and ion exchange 99% of uranium is removed from the REE enriched PLS.

SGS conducted REE precipitation on the PLS using oxalic acid in a 5% solution at 90%, 100% and 110% stoichiometric doses. The average recovery of REE sharply increased between the three tests, showing an average REE recovery of approximately 97% and the average recovery of the magnet REE (Nd, Pr, Sm, Tb and Dy) is approximately 98% under 110% stoichiometric conditions and , see Table 1Table 1, and Figure 2.

Table 1 – REE Precipitation Results from Oxalic Acid Additions

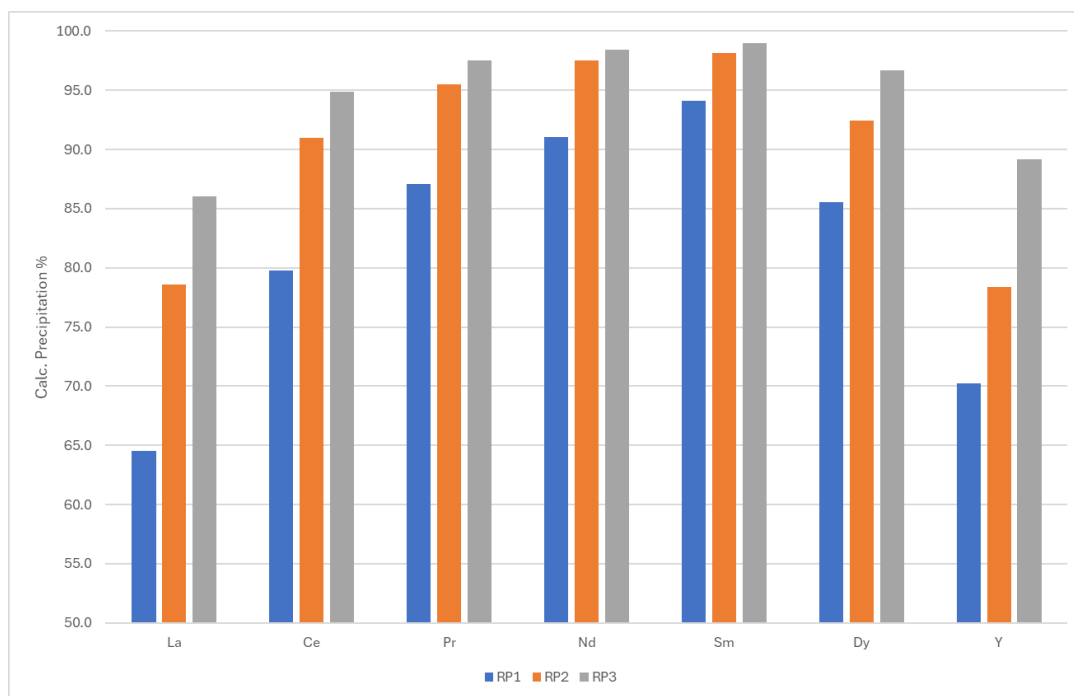
Test ID	RP1	RP2	RP3
Feed	UIX1 Liquor	UIX1 Liquor	UIX1 Liquor
Reagent	H2C2O4	H2C2O4	H2C2O4
Reagent Strength (% w/w)	5%	5%	5%
Dosage	90%	100%	110%
Retention Time (h) ¹	2	2	2
Temperature (°C)	50	50	50
mass (g)	13.86	15.40	100.46
Reagent Oxalic Acid Grade:	71%	71%	71%

¹ for each pH target, as applicable

* client supplied sample

Precipitation (%)	RP1	RP2	RP3
Avg REE less Y	85.6	92.4	96.8
La	64.5	78.6	86.0
Ce	79.8	91.0	94.9
Pr	87.1	95.5	97.5
Nd	91.0	97.5	98.4
Sm	94.1	98.1	99.0
Eu	-	-	97.8
Gd	-	-	98.7
Tb	-	-	97.1
Dy	85.5	92.4	96.7
Ho	-	-	95.0
Y	70.2	78.4	89.2
Er	-	-	93.0
Tm	-	-	75.3
Yb	-	-	89.2
Lu	-	-	73.1
Sc	-	-	85.8
Th	-	-	14.2
U	-	-	4.5
Si	1.0	1.2	1.5
Al	3.2	3.7	0.0
Fe	36.7	35.3	41.3
Mg	0.0	0.0	0.0
Ca	0.6	0.7	0.9
Na	1.0	1.0	1.5
K	0.4	0.7	0.2
Ti	83.0	84.5	83.7
P	1.2	1.3	2.7
Mn	0.2	0.2	0.1
Zn	-	-	-

Figure 2 - Calculated Precipitation Percentage of REE



SGS heated the combined mixed rare earth oxalates from sample RP3 at 1,000°C for two hours to oxidize the material into a mixed rare earth oxide, MREO. During the calcining process water and carbon were driven off and the elements were converted to rare earth oxides. Most notably, as stated above, calcining oxidizes cerium, converting it from Ce³⁺ to Ce⁴⁺. The benefit is that Ce⁴⁺ is not soluble in the reagent which will be used to dissolve REEs from the MREO for solvent extraction. The assayed results of the MREO are shown in Table 2.

Table 2 – Assay Results of Calcine Test 1

RE Element Grade			RE Oxide Grade*			CSM Product Suite	
Element	g/t	%	RE Oxide	g/t	%	g/t	%
La	191,000	19.10	La2O3	224,000	22.40	224,000	22.40
Ce	388,000	38.80	CeO2	476,612	47.66		
Pr	45,800	4.58	Pr6O11	55,334	5.53	55,334	5.53
Nd	170,000	17.00	Nd2O3	198,286	19.83	198,286	19.83
Sm	18,100	1.81	Sm2O3	20,989	2.10	20,989	2.10
Eu	953	0.10	Eu2O3	1,104	0.11	1,104	0.11
Gd	9,220	0.92	Gd2O3	10,627	1.06	10,627	1.06
Tb	892	0.09	Tb4O7	2,098	0.21	2,098	0.21
Dy	3,120	0.31	Dy2O3	3,581	0.36	3,581	0.36
Ho	464	0.05	Ho2O3	532	0.05		
Y	8,990	0.90	Y2O3	11,417	1.14		
Er	855	0.09	Er2O3	978	0.10		
Tm	87	0.01	Tm2O3	99	0.01		
Yb	374	0.04	Yb2O3	426	0.04		
Lu	58	0.01	Lu2O3	66	0.01		
TREE	837,913	83.79	TREO	1,006,148	100.61	516,019	51.60
*Values determined from molar mass of RE oxide							

This release was authorised by the board of American Rare Earths.

Investors can follow the Company's progress at www.americanree.com

Competent Person(s) Statement:

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

ARR confirms it is not aware of any new information or data that materially affects the information included in the original market announcement, and, in the case of estimates of Mineral Resources, that all material assumptions and technical parameters underpinning the estimates in the relevant market announcements continue to apply and have not materially changed. ARR confirms that the form and context in which the Competent Person's findings presented have not been materially modified from the original market announcement.

This work was reviewed and approved for release by Mr. Kelton Smith (Society of Mining Engineers #4227309RM) who is employed by Tetra Tech and has sufficient experience which is relevant to the processing, separation, metallurgical testing and type of deposit under consideration and to the activity which he is undertaking as a Competent Person as defined in the 2012 JORC Code. Mr. Smith is an experienced technical manager with a degree in Chemical engineering, operations management and engineering management. He has held several senior engineering management roles at rare earth companies (Molycorp and NioCorp) as well as ample rare earth experience as an industry consultant. Mr. Smith consents to the inclusion in the report of the matters based upon the information in the form and context in which it appears.

About American Rare Earths Limited:

American Rare Earths (ASX: ARR | OTCQX: ARRF | 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. ("WRI"), 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. 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.

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	<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>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.</p> <p>ARR drilled 15 reverse circulation (RC) holes and eight HQ-sized diamond core holes between September and October 2023. All RC holes were 102 meters (334.65 feet) deep, with seven core holes at 80 meters (262.47 feet) and one deep core hole at 302 m (990.81 feet). RC chip samples were collected at a 1.5-meter (4.92 ft) continuous interval via rotary splitter. Rock core was divided into sample lengths of 1.5 m (4.92 feet) long and at key lithological breaks.</p> <p>ARR drilled 38 reverse circulation (RC) holes across the Halleck Creek Resource Claim area between October and December 2022. All holes were approximately 150 meters (492.13 feet) deep, with the exception of HC22-RM015 which went to a depth of 175.5 meters (576 feet). Chip samples were collected at 1.5-meter continuous intervals via rotary splitter.</p>

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

Criteria	JORC Code explanation	Commentary
		<p>In March and April 2022, ARR drilled nine HQ-sized core holes across the Halleck Creek Resource claim area. All holes were approximately 350 ft with the exception of one hole which was terminated at 194 ft. Total drilled length of 3,008 ft (917 m). Rock core was divided into sample lengths of 5 ft (1.52 m) long and at key lithological breaks.</p> <p>A total of 734 surface rock samples exist in the Halleck Creek database. Surface rock samples collected by ARR are logged, photographed and located using handheld GPS units.</p> <p>As part of reverse circulation (RC) and diamond core exploration drilling at Halleck Creek, ARR collected XRF readings on RC chip and core samples. Elements included in XRF measurements include Lanthanum, Cerium, Neodymium, and Praseodymium. ARR collected three XRF readings on each sample, then averaged the readings. Readings are performed at 20-meter intervals down each drill hole. These values are qualitative in nature and provide only rough indications of grade.</p>
	<i>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</i>	Core and RC samples were processed and logged systematically. Quality control included inserting certified reference materials (CRMs), blanks, and duplicates into the sampling stream.
	<i>Aspects of the determination of mineralisation that are Material to the Public Report.</i>	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

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

Criteria	JORC Code explanation	Commentary
		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.
	<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>	<p>Reverse circulation rock chip samples were collected at 1.5-meter continuous intervals via rotary splitter. For each interval chip samples were placed in labelled sample bags weighing between 1-2kg. A 0.5-1kg sample was collected for reserve analysis and logging. Chip samples were also placed into chip trays with 20 slots for logging and XRF analysis.</p> <p>Rock core samples 5 ft (1.52 m) long are fillet cut. The fillet cuts are being pulverised and sampled for 60 elements including rare earth elements using ICP-MS and industry standards. A select number of samples are additionally being assayed for whole rock geochemistry.</p> <p>RC chip samples were sent to ALS labs in Twin Falls, ID for preparation and forwarded on to ALS labs in Vancouver, BC for ICP-MS analysis. ALS analysis: ME-MS81. Core samples were first sent to ALS in Reno, NV, for cutting and preparation, and also sent to Vancouver, BC for the same suite of testwork.</p>

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

Criteria	JORC Code explanation	Commentary
		ALS Laboratories in BC, Canada has performed detailed assay analysis for the project since the fall of 2022. American Assay Labs in Sparks, NV is performed the analyses for the Spring 2022 program.
Drilling techniques	<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>	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	<i>Method of recording and assessing core and chip sample recoveries and results assessed.</i>	A continuous rotary sample splitter was used to collect the RC samples at 1.5m intervals. All drill core was visually logged, measured, and photographed by ARR geologists. Drill core was collected in lengths (runs) of 1.5m (~5 ft). Recoveries were calculated for each core run.
	<i>Measures are taken to maximise sample recovery and ensure the representative nature of the samples.</i>	Reverse circulation rock chip samples were collected at 1.5-meter continuous intervals via rotary splitter. For each interval chip samples were placed in labelled sample bags weighing between 1-2kg. A 0.5-1kg sample was collected for reserve analysis and logging. Chip samples were also placed into chip trays with 20 slots for logging and XRF analysis.

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Criteria	JORC Code explanation	Commentary
		<p>All core and associated samples were immediately placed in core boxes.</p> <p>In 2024, acoustic televiewer surveys provided supplementary data on structural continuity. Natural gamma logs were also collected for each 2024 drill hole which correlate with TREO grades.</p>
	<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>	<p>Recoveries were very high in competent rock. No loss or gain of grade or grade bias related to recovery</p>
Logging	<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>	<p>All RC samples were visually logged by ARR geologists from chip trays using 10x binocular microscopes. Samples at 25m intervals were photos and analysed using an Olympus Vanta handheld XRF analyser in triplicate. Lanthanum, Cerium, Neodymium, and Praseodymium were analysed via XRF.</p> <p>All drill core was visually logged, measured, and photographed by ARR geologists. Drill core was collected in lengths (runs) of 1.5 meters (~5 ft). ARR geologists calculated recoveries for each core run. ARR geologists logged lithology, various types of alteration and mineralisation, fractures, fracture conditions, and RQD. Alpha and beta fracture angles were determined from oriented core in 2024.</p>

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Criteria	JORC Code explanation	Commentary
	<i>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.</i>	<p>RC samples and logging is quantitative in nature. Chip samples are stored in secure sample trays. Chip samples were photographed and 25m intervals.</p> <p>Core logging is quantitative in nature. All core was photographed wet and dry.</p>
	<i>The total length and percentage of the relevant intersections logged.</i>	<p>All RC samples were visually logged by ARR geologists for each 1.5-meter continuous sample.</p> <p>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.</p>
Sub-sampling techniques and sample preparation	<i>If core, whether cut or sawn and whether quarter, half or all core taken.</i>	<p>RC chip samples were not cut.</p> <p>Drill core was fillet cut by ALS Laboratories with approximately 1/2 of the core used for assay. The remaining core material will be kept in reserve by ALS until sent for future metallurgical testwork.</p>
	<i>If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.</i>	<p>Samples varied between wet and dry. The coarse crystalline nature of the deposit minimizes adverse effects of wet samples. Samples were rotary split during drilling and sample collection. ALS labs dried wet samples using their DRY-21 drying process.</p>

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Criteria	JORC Code explanation	Commentary
	<i>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</i>	<p>RC samples were taken from pulverize splits of up to 250 g to better than 85 % passing minus 75 microns.</p> <p>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.</p> <p>Both sampling methods are considered appropriate for the type of material collected and are considered industry standard.</p>
	<i>Quality control procedures adopted for all sub-sampling stages to maximise the representivity of samples.</i>	<p>ARR submitted CRM sample blanks, CRM standard REE samples from CND Labs and duplicate samples for analysis. Each CRM blank, REE standard, and duplicate were rotated into both the RC and core sampling process every 20 samples.</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>RC samples were collected using a continuous feed rotary split sampler.</p> <p>Fillet cuts along the entire length of all core are representative of the in-situ material.</p>
	<i>Whether sample sizes are appropriate to the grain size of the material being sampled.</i>	<p>Allanite is generally well distributed across the core and the sample sizes are representative of the fine grain size of the Allanite.</p>

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Criteria	JORC Code explanation	Commentary
Quality of assay data and laboratory tests	<i>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</i>	<p>ALS uses a 5-acid digestion and 32 elements by lithium borate fusion and ICP-MS (ME-MS81). For quantitative results of all elements, including those encapsulated in resistive minerals. These assays include all rare earth elements.</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>
	<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>Samples at 25m intervals were photographed and analysed using an Olympus Vanta handheld XRF analyser in triplicate. Lanthanum, Cerium, Neodymium, and Praseodymium were analysed. Simple average values of three XRF readings were calculated.</p> <p>Seven of the core holes received ATV/OTV logging as well as slim hole induction which recorded natural gamma and conductivity/resistivity. Geophysical logging was completed by Century Geophysical located in Gillette, WY in 2023. DGI Geosciences, Salt Lake City, UT, performed logging in 2024. All tools were properly calibrated prior to logging.</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>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</p>

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Criteria	JORC Code explanation	Commentary
		<p>drilling. ALS Laboratories also incorporated their own QA/QC procedures to ensure analytical reliability.</p> <p>For the RC drilling, ARR submitted CRM sample blanks, CRM standard REE samples from CND Labs and duplicate samples for analysis. CRM and Blank samples were inserted alternately at 20 sample intervals. The same was done for the core drilling completed Fall 2023. ALS Laboratories additionally incorporated their own Qa/Qc procedure.</p> <p>For core drilling completed Spring 2022, ARR submitted CRM sample blanks, CRM standard REE samples from CND Labs and duplicate samples for analysis. Blank samples were added one for every 10 core samples, REE samples were added one for every 25 core samples, and Duplicate samples were added one per every 25 core samples. Internal laboratory blanks and standards will additionally be inserted during analysis.</p>
Verification of sampling and assaying	<i>The verification of significant intersections by either independent or alternative company personnel.</i>	<p>RC chip samples have not yet been verified by independent personnel.</p> <p>Consulting company personnel have observed the assayed core samples. Company personnel sampled the entire length of each hole.</p>
	<i>The use of twinned holes.</i>	No twinned holes were used.

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

Criteria	JORC Code explanation	Commentary
	<i>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</i>	<p>Data entry was performed by ARR personnel and checked by ARR geologists. All field logs were scanned and uploaded to company file servers. All photographs of the core were also uploaded to the file server daily. Drilling data will be imported into the DHDB drill hole database. All scanned documents are cross-referenced and directly available from the database.</p> <p>Assay data from the RC samples was imported into the database directly from electronic spreadsheets sent to ARR from ALS.</p> <p>Core 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>	<p>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.</p>
<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>All drill hole collars were surveyed by a registered professional land surveyor.</p> <p>Deviation surveys were conducted post-drilling to confirm subsurface data accuracy.</p>
	<i>Specification of the grid system used.</i>	<p>The grid system used to compile data was NAD83 Zone 13N.</p>
	<i>Quality and adequacy of topographic control.</i>	<p>Topography control is +/- 10 ft (3 m).</p>

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Criteria	JORC Code explanation	Commentary
Data spacing and distribution	<i>Data spacing for reporting of Exploration Results.</i>	Drill spacing varied between 100 and 300 m, with infill drilling conducted to refine the resource model and improve classification confidence.
	<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>	Spacing supports classification into Indicated and Inferred categories based on geostatistical analysis and grade continuity confirmed through cross-sections and swath plots.
	<i>Whether sample compositing has been applied.</i>	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	<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>	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.
	<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>	Orientation of drilling does not bias sampling.
Sample security	<i>The measures are taken to ensure sample security.</i>	All RC chip samples were collected from the drill rigs and stored in a secured and locked facility. Sample pallets were shipped weekly,

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

Section 2 Reporting of Exploration Results		
(Criteria listed in the preceding section also apply to this section.)		
Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	Type, reference name/number, location and ownership, including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.	ARR controls 364 unpatented federal lode claims and 4 Wyoming State mineral licenses covering 3,280 ha (8,108 acres).
	The security of the tenure held at the time of reporting and any known impediments to obtaining a license to operate in the area.	No impediments to holding the claims exist. To maintain the claims an annual holding fee of \$165/claim is payable to the BLM. To maintain the State leases minimum rental payments of \$1/acre for 1-5 years; \$2/acre for 6-10 years; and \$3/acre if held for 10 years or longer.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	Prior to sampling by WIM on behalf of Blackfire Minerals and Zenith there was no previous sampling by any other groups within the ARR claim and Wyoming State Lease blocks.
Geology	Deposit type, geological setting and style of mineralisation.	The REE's occur within Allanite which occurs as a variable constituent of the Red Mountain Pluton. The occurrence can be characterised as a disseminated rare earth deposit.
Drill hole Information	A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:	For the 2023 and 2024 exploration programs, FTE DRILLING USA INC. of Mount Uniacke, Nova Scotia used a Schraam T-450 track mounted rig to drill 15 reverse circulation drill holes. Drill hole depths for 37 holes was 102 m. FTE also utilized an enclosed Versa-Drilling diamond core rig to drill eight HQ-sized core holes.

Section 2 Reporting of Exploration Results

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

Criteria	JORC Code explanation	Commentary
		<p>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</p> <p>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).</p>
	<i>easting and northing of the drill hole collar</i>	<p>Drilling information from the 2024 exploration program was published in the report "Technical Report of Exploration and Updated Resource Estimates at Red Mountain of the Halleck Creek Rare Earths Project", December 2024.</p> <p>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</p> <p>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.</p>
	<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>	

Section 2 Reporting of Exploration Results		
(Criteria listed in the preceding section also apply to this section.)		
Criteria	JORC Code explanation	Commentary
	<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.
Data aggregation methods	<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 1,000 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 1.50 m, (~5 ft) sample interval.
	<i>The assumptions used for any reporting of metal equivalent values should be clearly stated.</i>	No metal equivalents used.
Relationship between mineralisation widths and intercept lengths	<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>	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.

Section 2 Reporting of Exploration Results		
(Criteria listed in the preceding section also apply to this section.)		
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	<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>	
<i>Diagrams</i>	<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>	Location information is presented in detail in the “Technical Report of Exploration and Updated Resource Estimates at Red Mountain of the Halleck Creek Rare Earths Project”, December 2024.
<i>Balanced reporting</i>	<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>	Reporting of the most recent exploration data is included in the “Technical Report of Exploration and Updated Resource Estimates at Red Mountain of the Halleck Creek Rare Earths Project”, December 2024. Previous data is presented in the “Technical Report of Exploration and Maiden Resource Estimates of the Halleck Creek Rare Earths Project”, March 2023, and in report “Summary of 2023 Infill Drilling at the Halleck Creek Project Area”, November 2023.
<i>Other substantive exploration data</i>	<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</i>	In hand specimen this rock is a red colored, hard and dense granite with areas of localized fracturing. The rock shows significant iron staining and deep weathering.

Section 2 Reporting of Exploration Results		
(Criteria listed in the preceding section also apply to this section.)		
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	<p>results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.</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 gravity separation and magnetic separation to produce a concentrate suitable for downstream rare earth elements extraction.</p>
Further work	<p>The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).</p>	<p>Detailed geological mapping and channel sampling is planned to enhance further development drilling to increase confidence levels of resources.</p>
	<p>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</p>	<p>Geological mapping and channel sampling is planned for the Bluegrass and County Line project areas to potentially expand mineral resources beyond the Cowboy State Mine area.</p>

Section 3 Estimation and Reporting of Mineral Resources		
(Criteria listed in the preceding section also apply to this section.)		
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Database integrity	<p><i>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.</i></p> <p><i>Data validation procedures used.</i></p>	<p>Drill hole data header, lithologic data checked by field geologists and by visual examination on maps and drill hole striplogs.</p> <p>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.</p>
Site visits	<p><i>Comment on any site visits undertaken by the Competent Person and the outcome of those visits.</i></p> <p><i>If no site visits have been undertaken indicate why this is the case.</i></p>	<p>Mr. Dwight Kinnes visited the Halleck Creek site numerous times in 2024 and 2025.</p> <p>Mr. Patrick Sobecke and Mr. Erick Kennedy of Stantec visited the site on February 10, 2025.</p> <p>Mr. Alf Gillman of Odessa Resources and Mr. Kelton Smith of Tetra Tech visited the site on March 7, 2024.</p>
Geological interpretation	<p><i>Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.</i></p> <p><i>Nature of the data used and of any assumptions made.</i></p> <p><i>The effect, if any, of alternative interpretations on Mineral Resource estimation.</i></p> <p><i>The use of geology in guiding and controlling Mineral Resource estimation.</i></p> <p><i>The factors affecting continuity both of grade and geology.</i></p>	<p>The Halleck Creek RE deposit is contained with rocks of the Red Mountain Pluton. These rocks consist primarily of clinopyroxene quartz monzonite (CQM), and biotite hornblende syenite (BHS). These two lithologies are difficult to visually distinguish. However, the concentration of rare earth elements is observable between lithologies.</p> <p>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.</p> <p>The extent of the RMP relative to other units was outlined into modelling domains used for resource estimates.</p> <p>The distribution of allanite throughout CQM and BHS rocks of the RMP is generally uniform and is not structurally controlled. Potassic alternation observed does not appear to affect the grade of allanite throughout the deposit.</p>

Section 3 Estimation and Reporting of Mineral Resources

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

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Dimensions	<i>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.</i>	<p>The Halleck Creek REE project currently contains two primary resource areas: the Red Mountain area and the Overton Mountain area. Resources also extend into the Bluegrass resource area. The Cowboy State Mine area is a subset of Red Mountain cover land minerals owned by the state of Wyoming, and under lease by WRI.</p> <p>The Red Mountain resource area is bounded to the west by the ERGB, and to the south by the Syb. Archean granites bound the Red Mountain area to the east.</p> <p>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.</p> <p>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.</p> <p>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.</p>
Estimation and modelling techniques	<i>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</i>	Mineral Resources are not being reported as part of this release. Please see ASX release dated November 19, 2025.

Section 3 Estimation and Reporting of Mineral Resources

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

Criteria	JORC Code explanation	Commentary
	<p><i>description of computer software and parameters used.</i></p> <p><i>The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.</i></p> <p><i>The assumptions made regarding recovery of by-products.</i></p> <p><i>Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation).</i></p> <p><i>In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.</i></p> <p><i>Any assumptions behind modelling of selective mining units.</i></p> <p><i>Any assumptions about correlation between variables.</i></p> <p><i>Description of how the geological interpretation was used to control the resource estimates.</i></p>	

Section 3 Estimation and Reporting of Mineral Resources		
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	<p><i>Discussion of basis for using or not using grade cutting or capping.</i></p> <p><i>The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.</i></p>	
Moisture	<i>Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.</i>	Mineral Resources are not being reported as part of this release. Please see ASX release dated November 19, 2025.
Cut-off parameters	<i>The basis of the adopted cut-off grade(s) or quality parameters applied.</i>	
Mining factors or assumptions	<i>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</i>	Mineral Resources and mining factors are not being reported as part of this release. Please see ASX release dated November 19, 2025.

Section 3 Estimation and Reporting of Mineral Resources

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

Criteria	JORC Code explanation	Commentary
	<i>the case, this should be reported with an explanation of the basis of the mining assumptions made.</i>	
Metallurgical factors or assumptions	<i>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 rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.</i>	<p>Impurity removal testing performed for the Halleck Creek Rare Earths project used leachate solutions prepared by SGS. ARR released the details of the sample material and the leach testing in the release date July 16, 2025. ARR released the details regarding primary and secondary neutralization in the release date November 10, 2025.</p> <p>SGS conducted a small bench scale test for uranium removal using a PLS from multiple secondary neutralization tests. The 24-hour test was conducted using Dowex/Ambersep 21K XLT ion exchange resin. The test reduced the uranium content from 1.27ppm to 0.04ppm, effectively removing 97% of the remaining uranium from solution. Between primary and secondary neutralization, and ion exchange 99% of uranium is removed from the REE enriched PLS.</p> <p>SGS conducted REE precipitation on the PLS using oxalic acid in a 5% solution at 90%, 100% and 110% stoichiometric doses. The average recovery of REE sharply increased between the three tests, showing that nearly all REE are recovered under 110% stoichiometric conditions. Very small amounts of Non-REE elements are precipitated.</p>

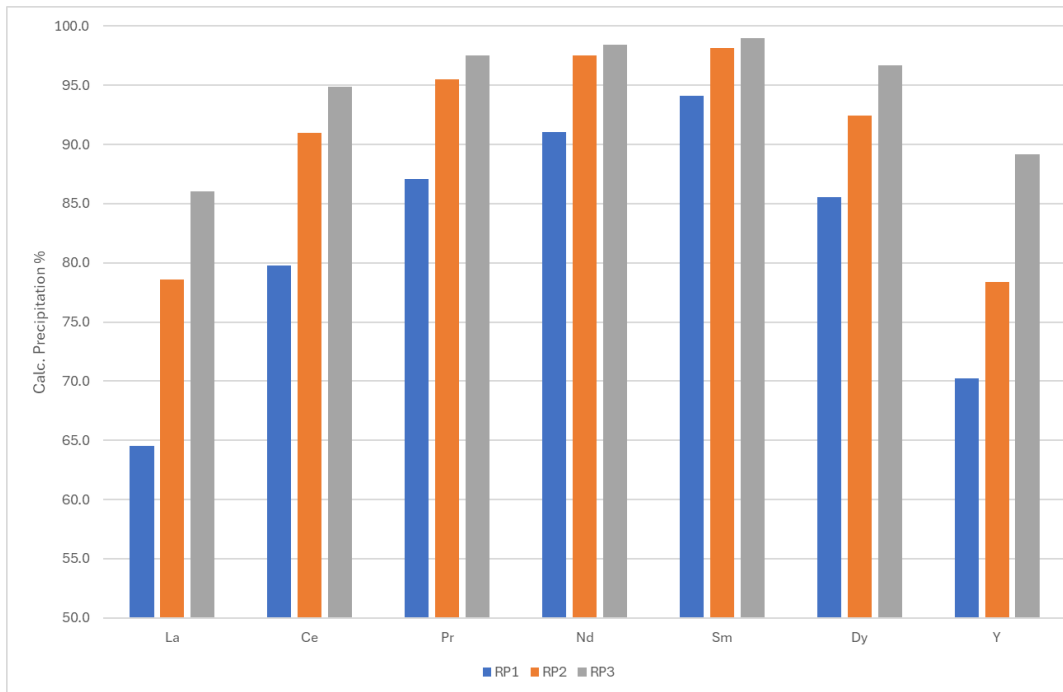
Section 3 Estimation and Reporting of Mineral Resources

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		<div>REE Precipitation Results from Oxalic Acid Additions</div> <table><tr><th>Test ID</th><th>RP1</th><th>RP2</th><th>RP3</th></tr><tr><td>Feed</td><td>UIX1 Liquor</td><td>UIX1 Liquor</td><td>UIX1 Liquor</td></tr><tr><td>Reagent</td><td>H2C2O4</td><td>H2C2O4</td><td>H2C2O4</td></tr><tr><td>Reagent Strength (% w/w)</td><td>5%</td><td>5%</td><td>5%</td></tr><tr><td>Dosage</td><td>90%</td><td>100%</td><td>110%</td></tr><tr><td>Retention Time (h)¹</td><td>2</td><td>2</td><td>2</td></tr><tr><td>Temperature (°C)</td><td>50</td><td>50</td><td>50</td></tr><tr><td>mass (g)</td><td>13.86</td><td>15.40</td><td>100.46</td></tr><tr><td>Reagent Oxalic Acid Grade:</td><td>71%</td><td>71%</td><td>71%</td></tr></table> <div>¹ for each pH target, as applicable * client supplied sample</div> <table><tr><th>Precipitation (%)</th><th>RP1</th><th>RP2</th><th>RP3</th></tr><tr><td>Avg REE less Y</td><td>85.6</td><td>92.4</td><td>96.8</td></tr><tr><td>La</td><td>64.5</td><td>78.6</td><td>86.0</td></tr><tr><td>Ce</td><td>79.8</td><td>91.0</td><td>94.9</td></tr><tr><td>Pr</td><td>87.1</td><td>95.5</td><td>97.5</td></tr><tr><td>Nd</td><td>91.0</td><td>97.5</td><td>98.4</td></tr><tr><td>Sm</td><td>94.1</td><td>98.1</td><td>99.0</td></tr><tr><td>Eu</td><td>-</td><td>-</td><td>97.8</td></tr><tr><td>Gd</td><td>-</td><td>-</td><td>98.7</td></tr><tr><td>Tb</td><td>-</td><td>-</td><td>97.1</td></tr><tr><td>Dy</td><td>85.5</td><td>92.4</td><td>96.7</td></tr><tr><td>Ho</td><td>-</td><td>-</td><td>95.0</td></tr><tr><td>Y</td><td>70.2</td><td>78.4</td><td>89.2</td></tr><tr><td>Er</td><td>-</td><td>-</td><td>93.0</td></tr><tr><td>Tm</td><td>-</td><td>-</td><td>75.3</td></tr><tr><td>Yb</td><td>-</td><td>-</td><td>89.2</td></tr><tr><td>Lu</td><td>-</td><td>-</td><td>73.1</td></tr><tr><td>Sc</td><td>-</td><td>-</td><td>85.8</td></tr><tr><td>Th</td><td>-</td><td>-</td><td>14.2</td></tr><tr><td>U</td><td>-</td><td>-</td><td>4.5</td></tr><tr><td>Si</td><td>1.0</td><td>1.2</td><td>1.5</td></tr><tr><td>Al</td><td>3.2</td><td>3.7</td><td>0.0</td></tr><tr><td>Fe</td><td>36.7</td><td>35.3</td><td>41.3</td></tr><tr><td>Mg</td><td>0.0</td><td>0.0</td><td>0.0</td></tr><tr><td>Ca</td><td>0.6</td><td>0.7</td><td>0.9</td></tr><tr><td>Na</td><td>1.0</td><td>1.0</td><td>1.5</td></tr><tr><td>K</td><td>0.4</td><td>0.7</td><td>0.2</td></tr><tr><td>Ti</td><td>83.0</td><td>84.5</td><td>83.7</td></tr><tr><td>P</td><td>1.2</td><td>1.3</td><td>2.7</td></tr><tr><td>Mn</td><td>0.2</td><td>0.2</td><td>0.1</td></tr><tr><td>Zn</td><td>-</td><td>-</td><td>-</td></tr></table>	Test ID	RP1	RP2	RP3	Feed	UIX1 Liquor	UIX1 Liquor	UIX1 Liquor	Reagent	H2C2O4	H2C2O4	H2C2O4	Reagent Strength (% w/w)	5%	5%	5%	Dosage	90%	100%	110%	Retention Time (h) ¹	2	2	2	Temperature (°C)	50	50	50	mass (g)	13.86	15.40	100.46	Reagent Oxalic Acid Grade:	71%	71%	71%	Precipitation (%)	RP1	RP2	RP3	Avg REE less Y	85.6	92.4	96.8	La	64.5	78.6	86.0	Ce	79.8	91.0	94.9	Pr	87.1	95.5	97.5	Nd	91.0	97.5	98.4	Sm	94.1	98.1	99.0	Eu	-	-	97.8	Gd	-	-	98.7	Tb	-	-	97.1	Dy	85.5	92.4	96.7	Ho	-	-	95.0	Y	70.2	78.4	89.2	Er	-	-	93.0	Tm	-	-	75.3	Yb	-	-	89.2	Lu	-	-	73.1	Sc	-	-	85.8	Th	-	-	14.2	U	-	-	4.5	Si	1.0	1.2	1.5	Al	3.2	3.7	0.0	Fe	36.7	35.3	41.3	Mg	0.0	0.0	0.0	Ca	0.6	0.7	0.9	Na	1.0	1.0	1.5	K	0.4	0.7	0.2	Ti	83.0	84.5	83.7	P	1.2	1.3	2.7	Mn	0.2	0.2	0.1	Zn	-	-	-
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Section 3 Estimation and Reporting of Mineral Resources

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Criteria	JORC Code explanation	Commentary																																
		<div><p>Calculated Precipitation Percentage of REE</p><table><thead><tr><th>Element</th><th>RP1 (%)</th><th>RP2 (%)</th><th>RP3 (%)</th></tr></thead><tbody><tr><td>La</td><td>64.5</td><td>78.5</td><td>86.0</td></tr><tr><td>Ce</td><td>79.5</td><td>91.0</td><td>95.0</td></tr><tr><td>Pr</td><td>87.0</td><td>95.5</td><td>97.5</td></tr><tr><td>Nd</td><td>91.0</td><td>97.5</td><td>98.5</td></tr><tr><td>Sm</td><td>94.0</td><td>98.0</td><td>99.0</td></tr><tr><td>Dy</td><td>85.5</td><td>92.5</td><td>96.5</td></tr><tr><td>Y</td><td>70.0</td><td>78.5</td><td>89.0</td></tr></tbody></table></div> <p>SGS heated the combined mixed rare earth oxalates from sample RP3 at 1,000°C for two hours to oxidize the material into a mixed rare earth oxide, MREO. During the calcining process water and carbon were driven off and the elements were converted to rare earth oxides. Most notably, as stated above, calcining oxidizes cerium converting it from Ce³⁺ to Ce⁴⁺. The benefit is that Ce⁴⁺ is not soluble in the reagent which will be used to dissolve REEs from the MREO for solvent extraction.</p>	Element	RP1 (%)	RP2 (%)	RP3 (%)	La	64.5	78.5	86.0	Ce	79.5	91.0	95.0	Pr	87.0	95.5	97.5	Nd	91.0	97.5	98.5	Sm	94.0	98.0	99.0	Dy	85.5	92.5	96.5	Y	70.0	78.5	89.0
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Section 3 Estimation and Reporting of Mineral Resources

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		<table><tr><th colspan="9">Assay Results of Calcine Test 1</th></tr><tr><th colspan="3">RE Element Grade</th><th></th><th colspan="3">RE Oxide Grade*</th><th colspan="2">CSM Product Suite</th></tr><tr><th>Element</th><th>g/t</th><th>%</th><th></th><th>RE Oxide</th><th>g/t</th><th>%</th><th>g/t</th><th>%</th></tr><tr><td>La</td><td>191,000</td><td>19.10</td><td></td><td>La2O3</td><td>224,000</td><td>22.40</td><td>224,000</td><td>22.40</td></tr><tr><td>Ce</td><td>388,000</td><td>38.80</td><td></td><td>CeO2</td><td>476,612</td><td>47.66</td><td></td><td></td></tr><tr><td>Pr</td><td>45,800</td><td>4.58</td><td></td><td>Pr6O11</td><td>55,334</td><td>5.53</td><td>55,334</td><td>5.53</td></tr><tr><td>Nd</td><td>170,000</td><td>17.00</td><td></td><td>Nd2O3</td><td>198,286</td><td>19.83</td><td>198,286</td><td>19.83</td></tr><tr><td>Sm</td><td>18,100</td><td>1.81</td><td></td><td>Sm2O3</td><td>20,989</td><td>2.10</td><td>20,989</td><td>2.10</td></tr><tr><td>Eu</td><td>953</td><td>0.10</td><td></td><td>Eu2O3</td><td>1,104</td><td>0.11</td><td>1,104</td><td>0.11</td></tr><tr><td>Gd</td><td>9,220</td><td>0.92</td><td></td><td>Gd2O3</td><td>10,627</td><td>1.06</td><td>10,627</td><td>1.06</td></tr><tr><td>Tb</td><td>892</td><td>0.09</td><td></td><td>Tb4O7</td><td>2,098</td><td>0.21</td><td>2,098</td><td>0.21</td></tr><tr><td>Dy</td><td>3,120</td><td>0.31</td><td></td><td>Dy2O3</td><td>3,581</td><td>0.36</td><td>3,581</td><td>0.36</td></tr><tr><td>Ho</td><td>464</td><td>0.05</td><td></td><td>Ho2O3</td><td>532</td><td>0.05</td><td></td><td></td></tr><tr><td>Y</td><td>8,990</td><td>0.90</td><td></td><td>Y2O3</td><td>11,417</td><td>1.14</td><td></td><td></td></tr><tr><td>Er</td><td>855</td><td>0.09</td><td></td><td>Er2O3</td><td>978</td><td>0.10</td><td></td><td></td></tr><tr><td>Tm</td><td>87</td><td>0.01</td><td></td><td>Tm2O3</td><td>99</td><td>0.01</td><td></td><td></td></tr><tr><td>Yb</td><td>374</td><td>0.04</td><td></td><td>Yb2O3</td><td>426</td><td>0.04</td><td></td><td></td></tr><tr><td>Lu</td><td>58</td><td>0.01</td><td></td><td>Lu2O3</td><td>66</td><td>0.01</td><td></td><td></td></tr><tr><td>TREE</td><td>837,913</td><td>83.79</td><td></td><td>TREO</td><td>1,006,148</td><td>100.61</td><td>516,019</td><td>51.60</td></tr><tr><td colspan="9">*Values determined from molar mass of RE oxide</td></tr></table>	Assay Results of Calcine Test 1									RE Element Grade				RE Oxide Grade*			CSM Product Suite		Element	g/t	%		RE Oxide	g/t	%	g/t	%	La	191,000	19.10		La2O3	224,000	22.40	224,000	22.40	Ce	388,000	38.80		CeO2	476,612	47.66			Pr	45,800	4.58		Pr6O11	55,334	5.53	55,334	5.53	Nd	170,000	17.00		Nd2O3	198,286	19.83	198,286	19.83	Sm	18,100	1.81		Sm2O3	20,989	2.10	20,989	2.10	Eu	953	0.10		Eu2O3	1,104	0.11	1,104	0.11	Gd	9,220	0.92		Gd2O3	10,627	1.06	10,627	1.06	Tb	892	0.09		Tb4O7	2,098	0.21	2,098	0.21	Dy	3,120	0.31		Dy2O3	3,581	0.36	3,581	0.36	Ho	464	0.05		Ho2O3	532	0.05			Y	8,990	0.90		Y2O3	11,417	1.14			Er	855	0.09		Er2O3	978	0.10			Tm	87	0.01		Tm2O3	99	0.01			Yb	374	0.04		Yb2O3	426	0.04			Lu	58	0.01		Lu2O3	66	0.01			TREE	837,913	83.79		TREO	1,006,148	100.61	516,019	51.60	*Values determined from molar mass of RE oxide								
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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	ARR acquired exploration drilling notices from the Wyoming Department of Environmental Quality (WDEQ), Land Quality Division, for all drilling activities performed to date. ARR is developing a permitting needs assessment with local environmental consulting groups to present to each division at WDEQ to identify comprehensive environmental baseline studies needed to permit a mining operation at Halleck Creek. ARR is identifying additional regulatory stakeholders in Wyoming as part of the needs assessment.																																																																																																																																																																																				

Section 3 Estimation and Reporting of Mineral Resources

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Criteria	JORC Code explanation	Commentary
	<i>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.</i>	Factors for mine closure have been included in mining costs and financial modeling. At this stage of development, no mine closure plans have been developed. At this stage in project development, no social impact studies have been completed.
<i>Bulk density</i>	<i>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 spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.</i>	An average specific gravity of 2.70 represents the in-place ore material at Halleck Creek based on hydrostatic testing. Bulk density testing will be included during bulk sample collection currently being designed and permitted.

Section 3 Estimation and Reporting of Mineral Resources		
(Criteria listed in the preceding section also apply to this section.)		
Criteria	JORC Code explanation	Commentary
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	
Classification	<p>The basis for the classification of the Mineral Resources into varying confidence categories.</p> <p>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).</p> <p>Whether the result appropriately reflects the Competent Person's view of the deposit.</p>	Mineral Resources are not being reported as part of this release. Please see ASX release dated November 19, 2025.
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	There have not been any audits of mineral resource estimates.
Discussion of relative accuracy/confidence	Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if	Mineral Resources are not being reported as part of this release. Please see ASX release dated November 19, 2025.

Section 3 Estimation and Reporting of Mineral Resources		
(Criteria listed in the preceding section also apply to this section.)		
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	<p><i>such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.</i></p> <p><i>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.</i></p> <p><i>These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.</i></p>	

SECTION 4 ESTIMATION AND REPORTING OF ORE RESERVES – ORE RESERVES ARE NOT BEING REPORTED