ASX ANNOUNCEMENT
Heavy Rare Earths Limited (ASX: HRE)
19 June 2024

URANIUM PROSPECT DEFINED AT PERENJORI PROJECT – UPDATED

- **Palaeochannels delineated by passive seismic surveys at Perenjori**
- **8-kilometre-long airborne radiometric uranium anomaly verified by anomalous soil samples**
- **Potential recognised for palaeochannel- or calcrete-hosted uranium-vanadium deposit such as those at Langer Heinrich (Namibia) and Yeelirrie (Western Australia)**
- **Drilling planned in second half of 2024**

Heavy Rare Earths Limited (**"HRE"** or **"the Company"**) is pleased to report the results of field work aimed at investigating an 8-kilometre-long airborne radiometric uranium anomaly on its Perenjori project in the Mid West region of Western Australia (Fig. 1). The Gingaba Well uranium anomaly is based on an airborne survey flown in 2011 on behalf of the Geological Survey of Western Australia (Robertson, 2012).

The Company's 100 per cent-owned Perenjori rare earth and uranium project is located approximately 185 kilometres ESE of the port city of Geraldton. It covers an area of 421 km^2 in three adjacent exploration licences E70/6397, E70/6398 and recent application E59/2905. The underlying tenure to the project is predominantly unallocated Crown land plus general lease (for grazing purposes) and private farm land. Native Title rights over the region are held by the Yamatji Nation with whom HRE has an Indigenous Land Use Agreement.

The exploration model being investigated by HRE is a palaeochannel-hosted (also known as calcrete-hosted) uranium-vanadium (U-V) deposit, similar to those at Langer Heinrich in Namibia and Yeelirrie in Western Australia. Palaeochannel-hosted rare earth deposits are also being targeted.

Geology and Exploration

The geology of the Perenjori area is dominated by Quaternary lacustrine sediments of ephemeral salt lakes (playas) as well as calcrete, gypsum deposits and laterite. Minor occurrences of laterite are associated with sparse outcrops of weathered Archaean granitoids. Minor outcrops of fresh granitoids range from hornblende and biotite-bearing granite and granodiorite to undifferentiated varieties.

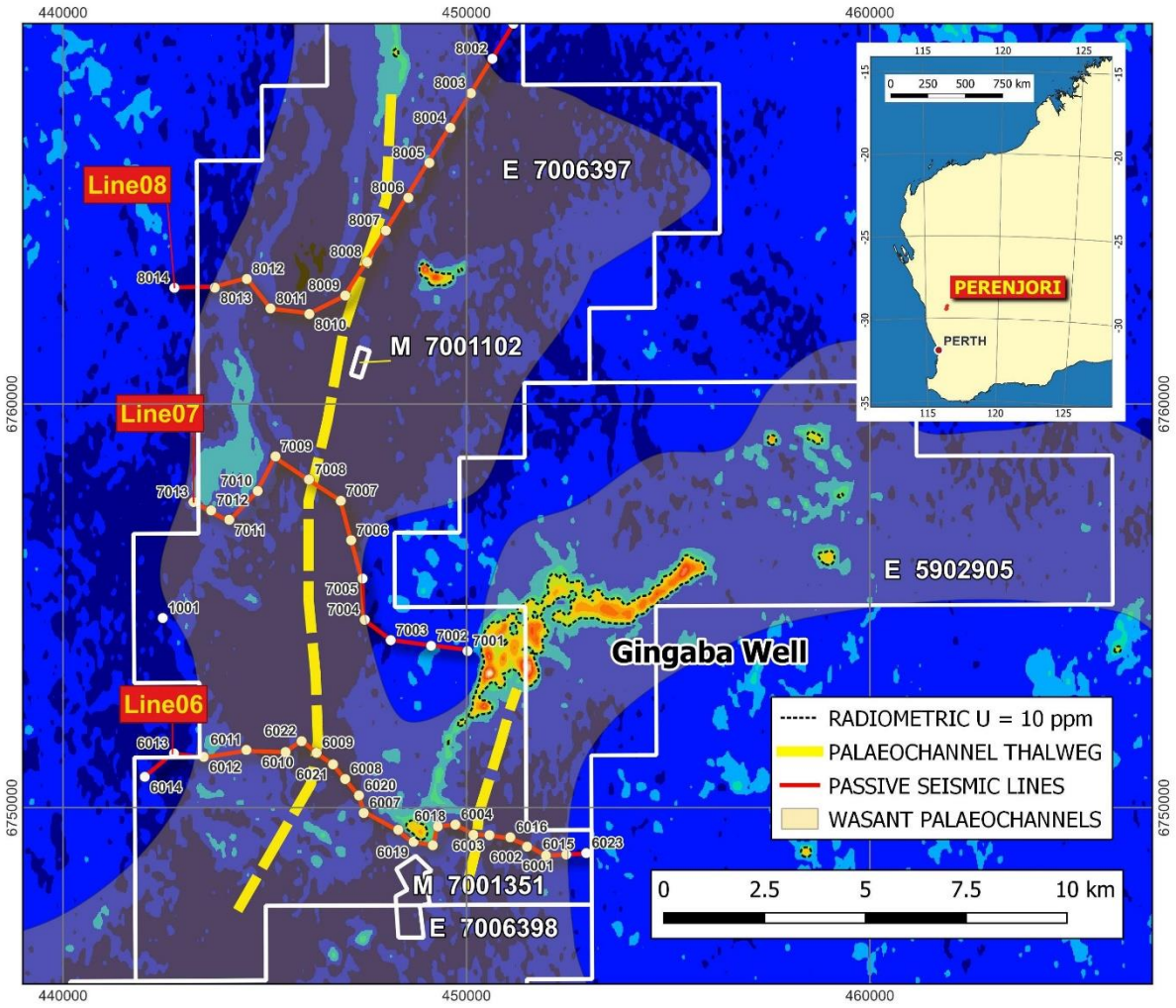

Figure 1: Location of passive seismic lines on airborne radiometric uranium image, Perenjori project.

Two major palaeochannels are inferred to occur beneath the project area (Bell, 2012). Owing to the complete absence of exploration drilling on HRE's tenements, the precise location and depth of these palaeochannels was previously uncertain. In order to define the location and depth of the palaeochannels with greater confidence the Company undertook passive seismic surveys utilizing a Tromino seismometer (Fig. 1). An example of the survey data is shown in figure 2, where two distinct palaeochannels are clearly imaged. The Gingaba Well radiometric anomaly is associated with the easternmost palaeochannel.

There has been only cursory historic work at Gingaba Well with a previous explorer collecting samples of surficial material along two lines with analysis by portable XRF. Samples reporting high U were analysed using a conventional technique and returned U between 50 and 100 ppm. Eighteen soil samples were collected by HRE along the two lines on E70/6397 to verify the historic results, and analysed using the Ultrafine™ method at LabWest Minerals Analysis in Perth. The new soil sampling confirmed the older work and returned up to 138 ppm U in the < 5 µm soil fraction (Table 1). This suggests that the technique will be effective elsewhere in the project area.

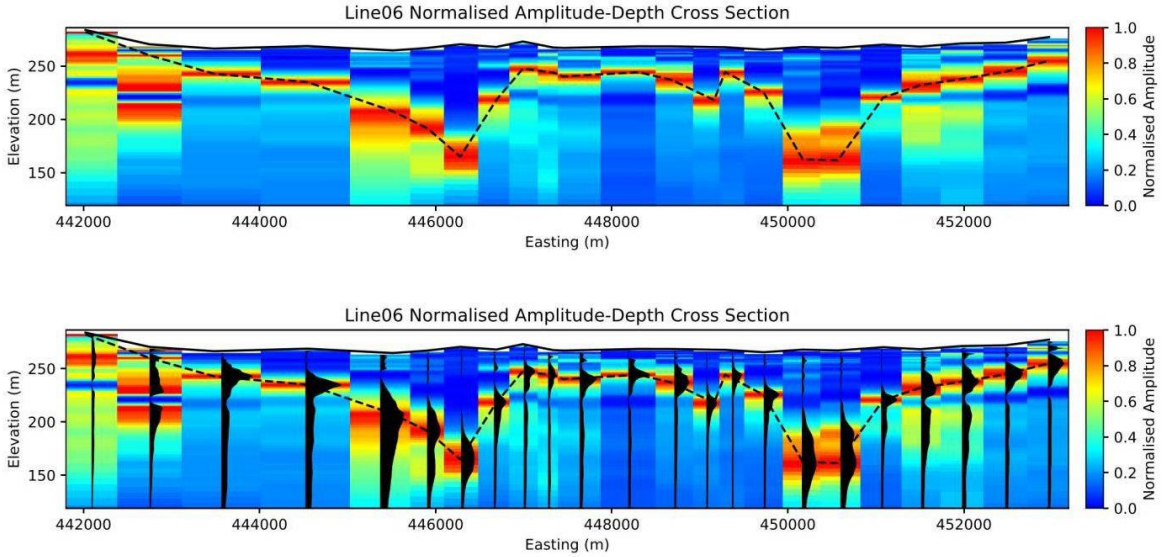

Figure 2: Passive seismic data from line 06, Perenjori project.

Table 1: Ultrafine™ soil results, Perenjori project.

SAMPLE	NORTHING (m)	EASTING (m)	ELEVATION (m)	URANIUM (ppm)
308131	6754396	450404	272	30
308130	6754378	450580	273	24
308129	6754361	450728	274	59
308128	6754387	450874	272	82
308127	6754395	451047	274	72
308126	6754405	451179	273	11
308125	6754450	451303	275	87
308124	6754469	451432	271	38
308114	6753903	450406	275	32
308115	6753904	450521	273	41
308116	6753909	450642	273	18
308117	6753925	450741	275	23
308118	6753939	450823	275	26
308119	6753937	450925	274	37
308120	6753957	451036	276	41
308121	6753966	451171	275	138
308122	6753974	451266	275	21
308123	6753994	451380	275	33

Planned Exploration by HRE

HRE considers that the surface uranium anomaly at Gingaba Well may be indicative of a deposit hosted deeper within the palaeochannel and plans to drill a number of aircore holes in the second half of 2024 to assess this possibility. These will be the first exploration holes drilled into the Perenjori project tenements.

In addition to this, the Company plans further Ultrafine™ soil sampling in an attempt to detect buried uranium mineralisation in parts of the palaeochannel lacking an airborne radiometric anomaly. Rare earths will also be analysed for.

References

Bell, J.G., et al., 2012, WASANT Palaeovalley Map - Distribution of Palaeovalleys in Arid and Semi-Arid WA-SA-NT., Geoscience Australia & National Water Commission.

Robertson B., 2012, Murgoo / Perenjori GSWA Preliminary Airborne Magnetic and Radiometric Survey Data Image Processing Report for Enterprise Metals Ltd: Value Adding Resources Pty Ltd., 10 pp.

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This announcement has been approved by the Board of HRE.

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About Heavy Rare Earths Limited

Heavy Rare Earths Limited (ASX: HRE) is an Australian rare earth exploration and development company. HRE's key exploration project is Cowalinya, near Esperance in Western Australia. This is a clay-hosted rare earth project with an Inferred Resource of 159 Mt @ 870 ppm TREO and a desirable rare earth composition where 28% are the valuable magnet rare earths and 23% the strategic heavy rare earths.

Competent Person's Statement

The Exploration Results contained in this announcement were compiled by Dr. Andy Wilde of Wilde Geoscience. Dr. Wilde is a Fellow and RPGeo (Registered Professional Geoscientist) of the Australian Institute of Geoscientists (AIG). He has more than 35 years' experience in mineral exploration and has sufficient experience relevant to the style of mineralisation and type of deposit under consideration to qualify as a Competent Person as defined in the 2012 JORC Code. Dr. Wilde consents to the inclusion in this announcement of the matters based on the Exploration Results in the form and context in which they appear.

JORC Code, 2012 Edition – Table 1

Section 1 Sampling Techniques and Data

(Criteria in this Section apply to all succeeding Sections)

Criteria	JORC Code Explanation	Commentary
Sampling techniques	*Nature and quality of sampling (e.g., cut channels, random chips, or specific specialized industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.*	HRE soil samples: approximately 500 g of unsieved surficial material were collected from approximately 50 cm deep, at nominal 100 m intervals along long two lines spaced 400 m apart. Samples were bagged in plastic. These sample sites were selected to coincide with soil samples collected by previous explorer Enterprise Uranium Ltd (Enterprise). The nature of Enterprise's samples is not documented.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	No measures were taken by HRE to ensure representivity of samples. There is no information on Enterprise's sampling.
	Aspects of the determination of mineralisation that are Material to the Public Report.	Not applicable.
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 other type, whether core is oriented and if so, by what method, etc.).*	HRE has not conducted any drilling at Perenjori to date.
Drill sample recovery	*Method of recording and assessing core and chip sample recoveries and results assessed.*	Not applicable.
	Measures taken to maximize sample recovery and ensure representative nature of the samples.	Not applicable.
	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.	Not applicable.

Criteria	JORC Code Explanation	Commentary
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.*	Not applicable.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	Not applicable.
	The total length and percentage of the relevant intersections logged.	Not applicable.
Sub-sampling techniques and sample preparation	*If core, whether cut or sawn and whether quarter, half or all core taken.*	Not applicable.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	Not applicable.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	Not applicable.
	Quality control procedures adopted for all sub-sampling stages to maximize representivity of samples.	Not applicable.
	Measures taken to ensure that the sampling is representative of the in-situ material collected, including for instance results for field duplicate/second-half sampling.	Not applicable.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Not applicable.

Criteria	JORC Code Explanation	Commentary
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.*	HRE's soil samples were analysed using LabWest Minerals Analysis' Ultrafine™ method, which extracts only the < 5 µm portion of the sample. Low detection limits are achieved. This is considered a state-of-the-art analytical methodology, but because only a small portion of the sample is analysed the resultant metal values do not represent the bulk metal content of the sample. Enterprise used a portable XRF and in some cases conventional analysis at Genalysis Laboratory Services Pty Ltd. using four acid digest and ICP-OES & MS finish. This methodology is considered to be adequate for this reconnaissance level of sampling.
	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.	The passive seismic surveys utilised two Tromino seismometers hired from Resource Potentials. The Trominos measured for 20 minutes using default parameters. A plastic bucket was used to shield the instrument from wind noise, and this appears to have been effective. Depth conversion was performed using an average shear wave velocity of 435 m/s.
	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.	HRE's soil sampling used a duplicate, blank and CRM for QA/QC purposes, inserted between every 20 soil samples. No issues have been detected with sample collection or analysis.
Verification of sampling and assaying	*The verification of significant intersections by either independent or alternative company personnel.*	Not applicable.
	The use of twinned holes.	Not applicable.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Sample locations were recorded using a handheld GPS and co-ordinates were downloaded into an ACCESS database where they were merged with analytical data supplied as spreadsheets by the laboratory.
	Discuss any adjustment to assay data.	Not applicable.
Location of data points	*Accuracy and quality of surveys used to locate drillholes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.*	Not applicable.

Criteria	JORC Code Explanation	Commentary
	Specification of the grid system used.	Not applicable.
	Quality and adequacy of topographic control.	Not applicable.
Data spacing and distribution	*Data spacing for reporting of Exploration Results.*	Soil samples were collected for verification of previous explorer's results and to assess utility of the Ultrafine™ technique. Sample spacing was a nominal 100 m along lines 400 m apart.
	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.	Not applicable.
	Whether sample compositing has been applied.	Not applicable.
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.*	Soil sample lines are perpendicular to the inferred thalweg of the targeted palaeochannel.
	If the relationship between the drilling orientation and the orientation of key mineralized structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	Not applicable.
Sample security	*The measures taken to ensure sample security.*	Samples were in the custody of HRE personnel from collection to delivery to the laboratory.
Audits or reviews	*The results of any audits or reviews of sampling techniques and data.*	Not applicable.

Section 2 Reporting of Exploration Results

(Criteria listed in the preceding Section 1 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.*	Exploration licences E70/6397, E70/6398 and E59/2905 (application) that make up the Perenjori project are located 185 kilometres ESE of Geraldton in Western Australia (Figure 1). They consist of 70, 39 and 32 graticular blocks respectively, occupying a total area of 421 km^2. They are situated on a mixture of unallocated Crown land, general lease (for grazing purposes) and private farm land. The registered holder of the tenements is Heavy Rare Earths Limited (HRE). Full native title rights have been granted over the tenements and surrounding lands to people collectively represented by the Bundi Yamatji Aboriginal Corporation, with whom cultural heritage surveys are undertaken in advance of substantial disturbance exploration works.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	The granted tenements are in good standing. There are no impediments to operating on the tenements other than requirements of the Western Australian Department of Mines, Industry Regulation and Safety (DMIRS), and the Yamatji Proponent Standard Heritage Agreement which is industry standard.
Exploration done by other parties	*Acknowledgment and appraisal of exploration by other parties.*	There is no exploration drilling recorded on the Perenjori project tenements. Historic exploration of most relevance was undertaken by Enterprise Uranium Ltd (Enterprise) for uranium on E59/1856 and E70/4295 in 2012-14. Enterprise undertook limited ground spectrometer readings, and soil, rock and brine sampling of airborne radiometric (U) anomalies. They also flew wide-spaced lines of airborne EM attempting to characterise the paleo drainage system, with follow up hand-held XRF and soil sampling yielding U values of up to 100 ppm. Soil analyses did not include rare earths.

Criteria	JORC Code Explanation	Commentary
Geology	*Deposit type, geological setting and style of mineralisation.*	The deposit type being investigated is a palaeochannel- or calcrete-hosted U-V deposit. A secondary target is ion adsorption clay-hosted rare earth mineralisation in palaeochannels or developed over bedrock granitic rock types which contain anomalous levels of rare earths. Although relatively modest in grade, low-cost mining and processing can make this type of REE deposit profitable to exploit. The geology of the Perenjori area is dominated by salt lakes (playas) and Quaternary lacustrine, calcrete and laterite. Laterite is associated with sparse outcrops of Archaean granitoids which locally exhibit extreme weathering. Minor outcrops of fresh granitoids range from hornblende and biotite-bearing granite and granodiorite to undifferentiated varieties.
Drillhole Information	*A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drillholes:* - *easting and northing of the drillhole collar* - *elevation or RL (Reduced Level – elevation above sea level in metres) of the drillhole collar* - *dip and azimuth of the hole* - *down hole length and interception depth* - *hole length.*	Not applicable.
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.*	Not applicable.
	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.	Not applicable.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	Not applicable.

Criteria	JORC Code Explanation	Commentary
Relationship between mineralisation widths and intercept lengths	*If the geometry of the mineralisation with respect to the drillhole angle is known, its nature should be reported.* *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g., 'down hole length, true width not known').*	Not applicable.
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 drillhole collar locations and appropriate sectional views.*	Not applicable.
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 practiced to avoid misleading reporting of Exploration Results.*	Not applicable.
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.*	Not applicable.
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).* *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	HRE plans a program of shallow (< 50 m) drillholes at Gingaba Well in order to test the palaeochannel beneath the surface geochemical anomaly. In addition, systematic soil sampling at Perenjori will be undertaken.