ASX ANNOUNCEMENT
Heavy Rare Earths Limited (ASX: HRE)
19 May 2025

NEW ASSAYS CONFIRM WIDESPREAD HIGH-GRADE URANIUM-SCANDIUM-RARE EARTHS AT RADIUM HILL

- **High-grade Uranium-Scandium-Rare Earth assays returned from Radium Hill reconnaissance rock sampling program:**
  - **up to 9,068 ppm (20 lb/t) U_3O_8;**
  - **936 ppm Sc_2O_3; and**
  - **18,899 ppm (1.89%) TREO**
- **New assays build on earlier reported high-grade rock assays of up to 16,273 ppm (35.9 lb/t) U_3O_8, 1,081 ppm Sc_2O_3 and 36,371 ppm (3.6%) TREO**
- **Although Radium Hill was Australia's first major uranium mine the by-product scandium and rare earth opportunity has never been fully evaluated**
- **Scandium grades at Radium Hill compare favourably with leading Australian scandium resources**
- **Recently completed detailed airborne survey highlights projected extension of Radium Hill line of lode and target areas for immediate ground follow-up**
- **Analysis of comprehensive historic mining/exploration data nearing completion; integration with airborne survey to create new 3D structural model of Radium Hill U-Sc-REE mineralisation to drive discovery success**

Heavy Rare Earths Limited ("**HRE**" or "**the Company**") is pleased to provide an update on exploration of its Radium Hill uranium-scandium-rare earth (U-Sc-REE) project in eastern South Australia.

HRE believes there is considerable potential to discover high-grade extensions to mineralisation along the main mine lode system, north-east of the Radium Hill Mine, from which 2.6 million lbs @ 1,200 ppm (2.6 lb/t) U_3O_8 was mined between 1954 and 1961[1].

[1] SARIG SA Geodata MINDEP Database https://drillhole.pir.sa.gov.au/MineralDepositDetails.aspx?DEPOSIT_NO=962

Although Sc and REE were known to be associated with U at Radium Hill since the early 20th Century, there was no attempt to recover these metals until the final year of operation when limited efforts were made to recover Sc during processing of ore at Port Pirie in South Australia.

There has never been systematic sampling for Sc or REE at Radium Hill.

As there has been no significant exploration at Radium Hill since the mine closed in 1961, HRE's focus is on producing an updated geological model of the polymetallic U-Sc-REE vein system using data from both legacy and contemporary geological, geochemical and geophysical programs to generate targets for drill testing in H2 2025.

Rock Sampling

HRE has received assays from a limited program of reconnaissance rock sampling primarily designed to better understand the distribution of Sc and REE, in addition to U, along strike from the Radium Hill Mine.

Eighteen samples were collected at several locations (Figure 1):

- 10 samples (RHR001-RHR010) from outcropping mineralisation and dump material along the line of lode;
- 6 samples (RHR011-RHR016) from channel sampling of outcropping davidite-rich ore within the historic Radium Hill Mining Lease which is excluded from HRE's project area (Radium Hill Mine Exclusion Zone); and
- 2 samples (RHR017-RHR018) from drill core of a davidite-rich vein in drillhole 319, completed in 1961 at the Intermediate prospect, 1 km northeast of the Radium Hill Mine[2]. This hole was not sampled when drilled and is stored in the South Australia Department for Energy and Mining Drill Core Library.

Assay results are shown in Table 1. They confirm high grade U-Sc-REE mineralisation continues northeast along strike from the Radium Hill Mine to the Bristowe's, Radium Hill North and Bonython prospects (Figure 1). The recent results continue the high-grade U-Sc-REE values of up to **16,273 ppm (35.9 lb/t) U_3O_8, 1,081 ppm Sc_2O_3 and 36,371 ppm (3.6%) TREO** previously reported *(refer to ASX announcement 30 October 2024)*.

In the current program, more than half the samples assayed greater than 1,000 ppm (2.2 lb/t) U_3O_8 with the highest value of 9,068 ppm (20 lb/t) U_3O_8 (RHR017) from a 0.5 m mineralised interval of drill core in hole 319. The overall interval for this mineralised vein is:

0.8 m @ 0.74% (16.4 lb/t) U_3O_8, 306 ppm Sc_2O_3, 1.15% TREO from 167.1 m.

Thirteen of the 18 samples returned Sc values greater than 100 ppm including 7 samples greater than 500 ppm Sc_2O_3. These grades compare favourably to the head grades of Australian Sc resources listed in Table 2. **Importantly, the second highest Sc assay of 890 ppm Sc_2O_3 (RHR009) is from a sample collected at the Bonython North prospect, a distant 4.3 km northeast of the Radium Hill Mine** (Figure 1).

[2] https://minerals.sarig.sa.gov.au/Details.aspx?DRILLHOLE_NO=128757

High REE grades are also evident with 8 of the samples returning greater than 10,000 ppm (1%) TREO including the mineralised interval in hole 319.

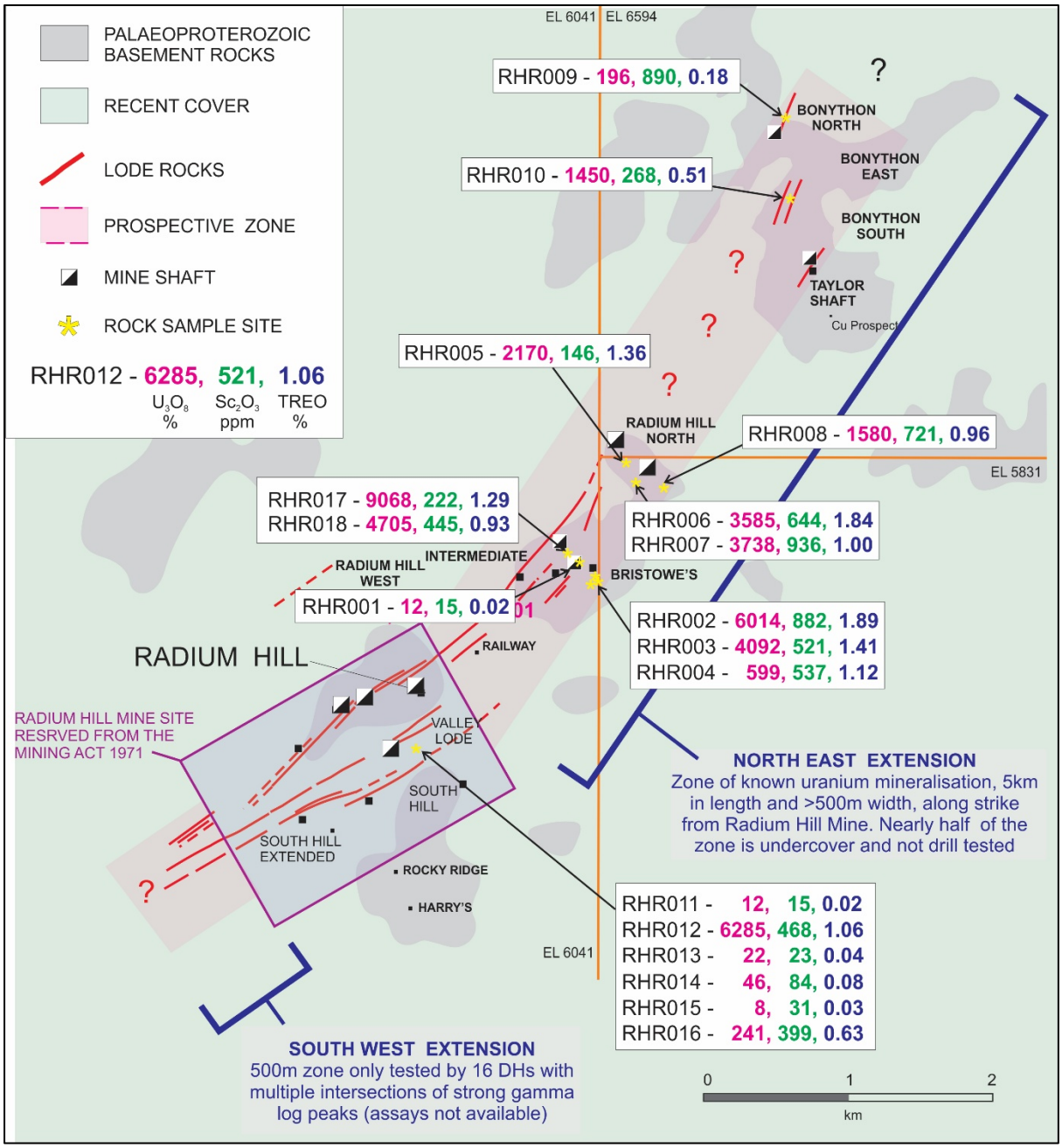

Figure 1: Location of reconnaissance rock samples showing assays for oxides of U, Sc and REE.

Table 1: Radium Hill rock sample assays

Sample ID	Prospect	U_3O_8 ppm	U_3O_8 %	U_3O_8 lb/t**	Sc_2O_3 ppm	TREO %***
RHR001	Bristowe's	12	0.001%	0.03	15	0.02%
RHR002	Bristowe's	6014	0.60%	13.3	882	1.89%
RHR003	Bristowe's	4092	0.41%	9.0	521	1.41%
RHR004	Bristowe's	599	0.06%	1.3	537	1.12%
RH-A*	Bristowe's	59	0.01%	0.1	1081	0.16%
RHR005	Radium Hill North	2170	0.22%	4.8	146	1.36%
RHR006	Radium Hill North	3585	0.36%	7.9	644	1.84%
RHR007	Radium Hill North	3738	0.37%	8.2	936	1.00%
RHR008	Radium Hill North	1580	0.16%	3.5	721	0.96%
RH-B*	Radium Hill North	2476	0.25%	5.5	468	1.09%
RHR009	Bonython North	196	0.02%	0.4	890	0.18%
RHR010	Bonython South	1450	0.15%	3.2	268	0.51%
RHR011	Radium Hill Tailings Trench	12	0.001%	0.03	15	0.02%
RHR012	Radium Hill Tailings Trench	6285	0.63%	13.9	468	1.06%
RHR013	Radium Hill Tailings Trench	22	0.002%	0.05	23	0.04%
RHR014	Radium Hill Tailings Trench	46	0.005%	0.1	84	0.08%
RHR015	Radium Hill Tailings Trench	8	0.001%	0.02	31	0.03%
RHR016	Radium Hill Tailings Trench	241	0.02%	0.5	399	0.63%
RH-C*	Radium Hill	4233	0.42%	9.3	391	1.48%
RH-1*	Radium Hill	5684	0.57%	12.5	606	1.22%
RH-2*	Radium Hill	16273	1.63%	35.9	452	3.64%
RHR017	Intermediate	9068	0.91%	20.0	222	1.29%
RHR018	Intermediate	4705	0.47%	10.4	445	0.93%

* *Previously reported sample (refer to ASX announcement 30 October 2024).*

** *Calculated value using 1 kg = 2.20463 lb.*

** *TREO (Total Rare Earth Oxides) = La_2O_3 + CeO_2 + Pr_6O_{11} + Nd_2O_3 + Sm_2O_3 + Eu_2O_3 + Gd_2O_3 + Tb_4O_7 + Dy_2O_3 + Ho_2O_3 + Er_2O_3 + Tm_2O_3 + Yb_2O_3 + Lu_2O_3 + Y_2O_3.*

Table 2: Australian Scandium Resources

Company	Deposit	Location	Total Tonnes Mt	Sc_2O_3 ppm[1]
Australian Mines Limited[2]	Flemington	NSW	6.3	684
Rio Tinto Limited[3]	Burra (Owendale)	NSW	35.6	621
Sunrise Energy Metals Limited[4]	Syerston	NSW	60.3	598
Scandium International Mining Corp[5]	Nyngan	NSW	16.81	360
West Cobar Metals Limited[6]	Newmont	WA	12	158

1 Converted to Sc_2O_3 from reported Sc grades using $Sc_2O_3 = Sc \times 1.5338$.
2 Australian Mines ASX announcement 14/04/25 "Australian Mines Expands Scoping Study Amid Chinese Scandium Restrictions". Resource also contains 601 ppm Co and 1,350 ppm Ni. Estimated at a cut-off grade of 300 ppm Sc.
3 Platina Resources ASX announcement 16/08/18 "Increase to Owendale Mineral Resource". Resource also contains 600 ppm Co, 1,000 ppm Ni and 0.28 g/t Pt. Estimated at a cut-off grade of 300 ppm Sc.
4 Sunrise Energy Metals ASX announcement 05/02/25 "Update of Syerston Scandium Project Mineral Resource". Estimated at a cut-off grade of 300 ppm Sc.
5 Scandium International Mining Corp 04/05/16 "Feasibility Study – Nyngan Scandium Project" https://scandiummining.com/site/assets/files/5775/feasbility_study-nyngan_scandium_project.pdf. Estimated at a cut-off grade of 100 ppm Sc.
6 West Cobar Metals ASX announcement 29/04/24 "Maiden Scandium Resource Declared at Salazar". Resource also contains 915 ppm TREO and 4.95% TiO_2. Estimated at a cut-off grade of 75 ppm Sc.

Traditional models of Radium Hill have proposed U, Sc and REE were introduced in the final stage of mineralisation along with the rare mineral davidite (Stage 5)[3]. Petrographic studies commissioned by HRE indicate there may be a later event which has altered davidite, potentially remobilising U, Sc and REE. This could explain why several samples with high Sc do not contain significant U, *e.g.*, RHR009 which assayed 196 ppm (0.02%) U_3O_8, 890 ppm Sc_2O_3 and 1,791 ppm (0.18%) TREO.

This is significant as it suggests Sc and REE may not necessarily be confined to zones rich in U, potentially expanding the search profile for the project. The petrographic report states, *"Scandium was observed in numerous minerals but was predominantly located in U-bearing, Cr-V enriched Ti-Fe oxide. This oxide is an alteration product of davidite."* The report also indicated the average Sc content of host minerals is around 5,000 ppm (0.5%).

Airborne Geophysics

In early April, HRE contracted MagSpec Airborne Surveys to fly a detailed fixed-wing magnetic-radiometric survey over a large part of the Radium Hill project area centred on the line of lode NE-SW structural corridor. The 12.2 km x 3.4 km survey was flown along NW-SE lines spaced 25 m apart at a height of 30 m above ground. Final data has been received and a comparison between the area's existing magnetic coverage (flown in 1995; 100 m line spacing; 60 m height) and the new survey is shown in Figure 2.

Geological and structural interpretation of this data set, incorporating field mapping and the digital capture and analysis of historic mining/drilling/trenching data from mid-1940s to the early-1960s, is progressing, and is expected to provide the foundation for HRE's drill targeting at Radium Hill planned for H2 2025.

[3] https://portergeo.com.au/database/mineinfo.asp?mineid=mn1190

Magnetics

Preliminary observations of the survey images show significant improvement in magnetic detail along the entire zone of interest, highlighting complex folding and shearing within Willyama Supergroup basement rocks associated with the Radium Hill vein system.

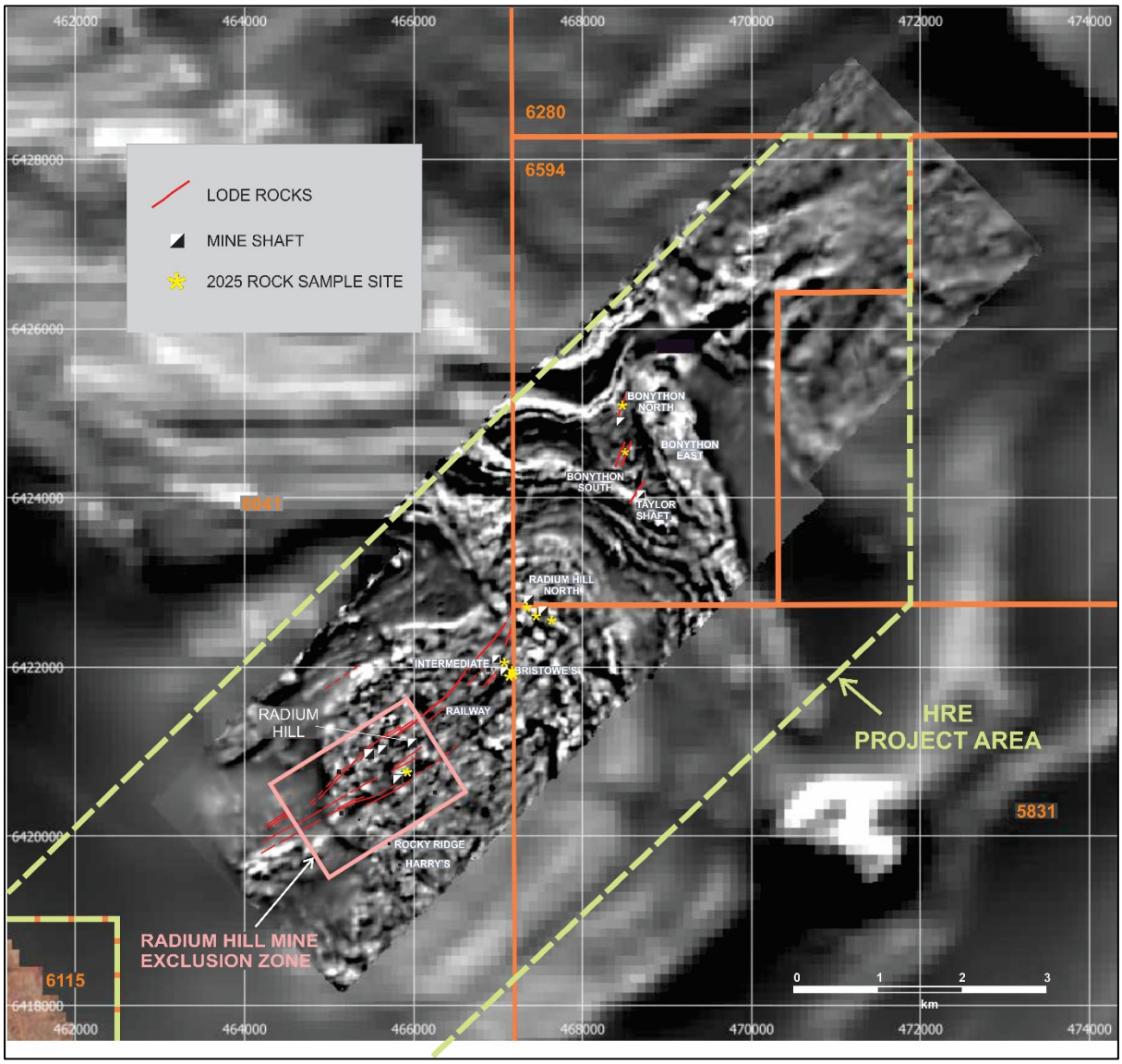

Figure 2: Radium Hill airborne survey showing major improvement in magnetic detail.
Background magnetic image: 1995 Broken Hill Exploration Initiative airborne survey.

Radiometrics

Radiometric images also show significantly higher resolution than was previously available, with the highest intensity signal in the southwestern part of the survey area associated with the historic mining operation and supporting infrastructure at Radium Hill (Figure 3).

Unlike magnetic surveys, radiometric surveys only record near-surface concentrations of the radioelements potassium, thorium and uranium. HRE's survey shows a strong correlation

between anomalous radiometrics and outcropping Willyama Supergroup basement rocks. It also shows several areas of elevated U along the northeast trending zone from the Radium Hill Mine which correspond to historic workings at Radium Hill North, Bristowe's and Bonython Hill (Figure 3).

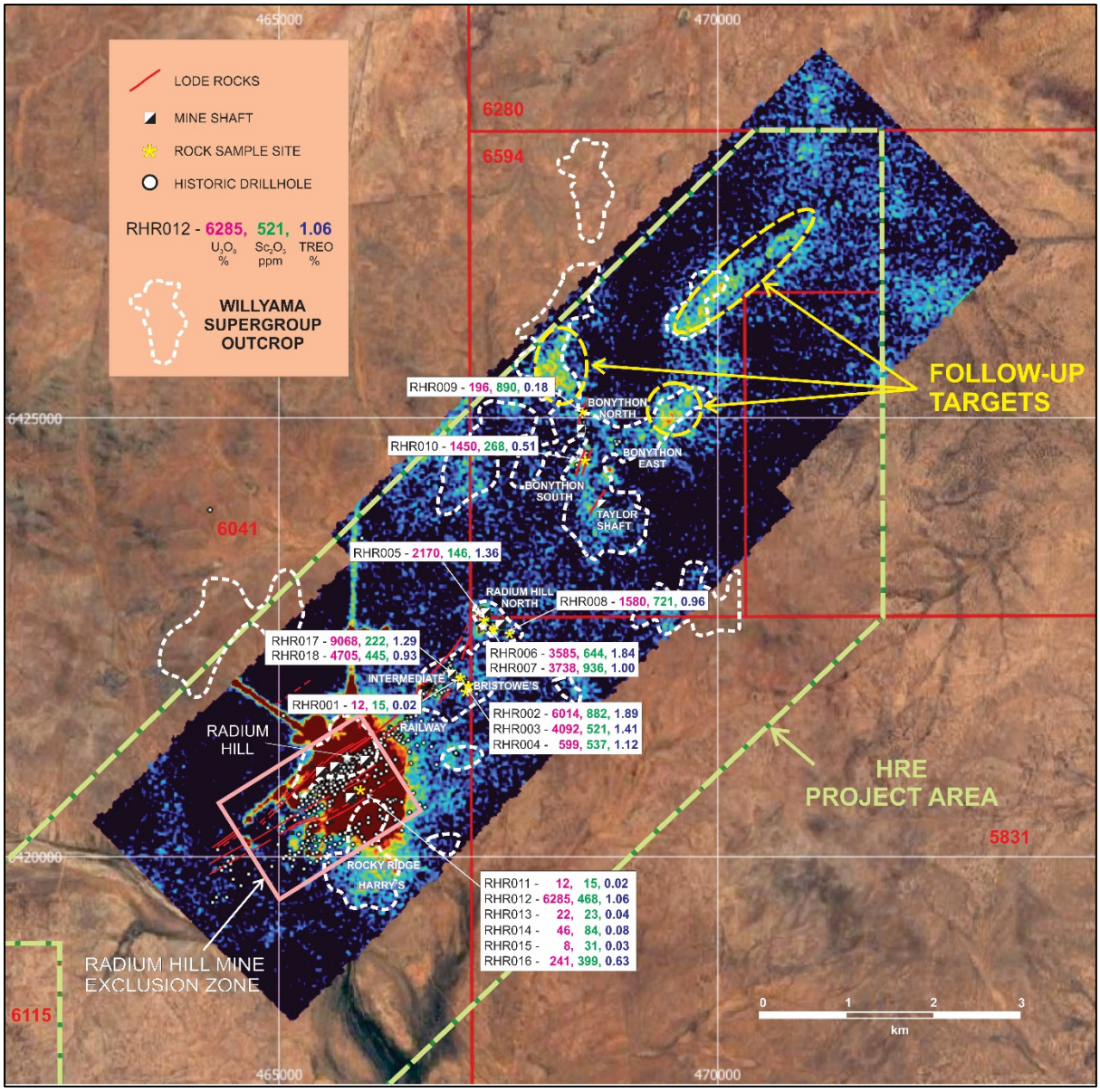

Figure 3: Radium Hill U channel radiometric data highlighting close relationship of elevated readings with outcropping Willyama Supergroup basement rocks, and target areas of interest.

There are also zones of elevated U which are not attributable to known historic mining activity, nor to areas where prospecting or soil sampling has previously been recorded. These anomalous zones are to the north and northeast of Bonython Hill and potentially represent extensions to the Radium Hill line of lode. The largest of these zones measures 2 km in length (Figure 3).

Fieldwork is planned to follow up these anomalous zones as a matter of priority.

-- Ends --

This announcement has been approved by the Board of HRE.

For more information, please contact:

Executive Director
Richard Brescianini
info@hreltd.com.au

Media Enquiries
Ryan Batros
info@brcapital.com.au

About Heavy Rare Earths Limited

Heavy Rare Earths Limited (ASX: HRE) is an Australian uranium and rare earth exploration and development company. HRE's uranium exploration projects are in the uranium-rich Curnamona Province of eastern South Australia and in the Mid West region of Western Australia. The Company's key rare earth exploration project is Cowalinya, near Esperance in Western Australia.

Competent Person's Statement

The Exploration Results contained in this announcement were compiled by Mr Joseph Ogierman. Mr Ogierman is a Member (#4469) of the Australian Institute of Geoscientists (MAIG). He is a full-time employee of Heavy Rare Earths Limited. Mr Ogierman 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. Mr Ogierman consents to the inclusion in this announcement of the matters based on the Exploration Results in the form and context in which they appear.

Table 3: Details of reconnaissance rock samples collected at Radium Hill during recent field campaign

Sample ID	Prospect	Easting m	Northing m	Sample Type	From m	To m	Width m	Description
RHR001	Bristowe's	466979	6422097	Grab				Sheared qtz-feld-biotite gneiss with coarse davidite-ilmenite and trace red-brown rutile
RHR002	Bristowe's	467070	6421962	Grab				Sheared qtz-feld-biotite gneiss with coarse davidite-ilmenite and trace red-brown rutile
RHR003	Bristowe's	467080	6421956	Grab				Qtz-biotite-davidite vein with minor secondary U (carnotite) coating qtz and davidite-ilmenite
RHR004	Bristowe's	467121	6421971	Grab				Qtz-feld-biotite gneiss with coarse ilmenite/davidite up to 7cm x 2cm
RHR005	Radium Hill North	467275	6422789	Grab				Biot-qtz schist with c.gr. davidite-ilmenite. Minor reddish-brown rutile.
RHR006	Radium Hill North	467333	6422633	Grab				Biot-qtz schist with c.gr. davidite. Yellow carnotite coats davidite + quartz in places.
RHR007	Radium Hill North	467333	6422633	Grab				Biot-qtz schist with c.gr. davidite-ilmenite. Minor reddish-brown rutile.
RHR008	Radium Hill North	467526	6422639	Grab				Qtz-ilmenite-davidite vein
RHR009	Bonython North	468452	6424868	Grab				Quartz-feldspar-biotite gneiss with disseminated ilmenite. Minor qtz-ilmenite veins.
RHR010	Bonython South	468454	6424597	Grab				Biot-qtz schist with c.gr. davidite-ilmenite. Minor reddish-brown rutile.
RHR011	Radium Hill Tailings Trench			Channel	0.0	0.5	0.5	Qtz-feld-biot gneiss
RHR012	Radium Hill Tailings Trench	465815	6420658	Channel	0.5	0.9	0.4	Qtz-davidite
RHR013	Radium Hill Tailings Trench			Channel	0.9	1.6	0.7	Strongly weathered/alt qtz-feld gneiss
RHR014	Radium Hill Tailings Trench			Channel	1.6	1.7	0.1	Sericite shear zone with thin qtz-ilmenite veining
RHR015	Radium Hill Tailings Trench			Channel	1.7	2.0	0.3	Qtz-feld-sericite, sheared banded gneiss
RHR016	Radium Hill Tailings Trench			Channel	2.0	2.3	0.3	Coarse qtz-davidite-ilmenite veining in sheared gneiss
RHR017	Intermediate	466971	6422088	Core	167.1	167.6	0.5	Hole 319: coarse davidite-ilmenite mineralisation in sheared qtz-feld-biotite gneiss
RHR018	Intermediate	466971	6422088	Core	167.6	167.9	0.3	Hole 319: coarse davidite-ilmenite mineralisation in sheared qtz-feld-biotite gneiss

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.* *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.* *Aspects of the determination of mineralisation that are Material to the Public Report.*	• A total of 16 rock samples were collected as grab samples from existing historic mining and exploration workings within EL 5831, EL 6041 and EL 6594, both near to and from the historic Radium Hill Mine site, a 2.64 km^2 area reserved from the South Australian *Mining Act 1971*. This reserved area is enclosed within EL 6041 but excluded from the exploration licence. • Samples were taken from sites such as mine dumps, prospect pits, and adjacent mineralised outcrop or subcrop/float. Equipment used was predominately handheld hammer for the collection of rock fragments. • An additional 2 rock samples represent drill core from a drillhole completed in January 1961 by the-then South Australia Department of Mines. The core is stored in the Tonsley Drill Core Library, a secure facility operated by the South Australia Department for Energy and Mining (DEM). • Core Library personnel collected the samples by using a diamond blade core saw to obtain a representative slice, lengthwise, along the core. • Selection of intervals for channel sampling was based on observable geological boundaries and are representative of the outcrop from which they were taken. • Channel sampling is an industry-wide field technique for establishing metal content to understand potential tenor of underlying mineralisation.

Criteria	JORC Code Explanation	Commentary
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.).*	• No drilling was undertaken on the project.
Drill sample recovery	*Method of recording and assessing core and chip sample recoveries and results assessed.* *Measures taken to maximize sample recovery and ensure the representative nature of the samples.* *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.*	• No drilling was undertaken on the project.
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.* *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.* *The total length and percentage of the relevant intersections logged.*	• No drilling was undertaken on the project.

Criteria	JORC Code Explanation	Commentary
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.* *For all sample types, the nature, quality and appropriateness of the sample preparation technique.* *Quality control procedures adopted for all sub-sampling stages to maximize representivity of samples.* *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.* *Whether sample sizes are appropriate to the grain size of the material being sampled.*	• No drilling was undertaken on the project. • All rock grab samples were approximately 200 - 500 g in weight. • No subsampling is described in rock grab samples. • No field of duplicate sampling was undertaken. • Sample sizes were appropriate for the material sampled.
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.* *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.* *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.*	• The nature of the analyses is appropriate to the nature of mineralisation. Analyses were complete by the Adelaide laboratory of Bureau Veritas Minerals Pty Ltd (BV). • The assay technique used by BV is by ICP-OES with Lithium Borate Fusion using method LB101 for Al, Ba, Be, Cr, Fe, K, Mg, Mn, Na, P, Sc, Si, Ti and V. Method LB102 was used with ICP-MS for Bi, Co, Cs, Ga, Ha, In, Mo, Nb, P, Rb, Re, Sb, Se, Sn, Sr, Ta, Te, Tl, U, W, Y, Zr, La, Ce, Pr, Nd, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu. • An aliquot of sample is accurately weighed and fused with lithium metaborate at high temperature in a Pt crucible. The fused glass is then digested in nitric acid.
Verification of sampling and assaying	*The verification of significant intersections by either independent or alternative company personnel.* *The use of twinned holes.* *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.* *Discuss any adjustment to assay data.*	• This report does not include drilling or drilling results.

Criteria	JORC Code Explanation	Commentary
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.* *Specification of the grid system used.* *Quality and adequacy of topographic control.*	• This report does not include drilling or drilling results. • Grab sample locations were recorded using a hand-held Garmin Etrex 22x GPS with ±3 metre accuracy. The grid system used is GDA94 Zone 54.
Data spacing and distribution	*Data spacing for reporting of Exploration Results.* *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.* *Whether sample compositing has been applied.*	• Data spacing is appropriate for the style of geological reconnaissance and rock characterisation.
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.* *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.*	• Orientation is not considered in this reconnaissance style of rock sampling, where samples were collected from historical ore dumps and mine pits.
Sample security	*The measures taken to ensure sample security.*	• Samples were hand-delivered to the BV laboratory in Adelaide by the Competent Person.
Audits or reviews	*The results of any audits or reviews of sampling techniques and data.*	• No audits or review of the sampling techniques and results from the exploration program have been performed.

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.* *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 Radium Hill Project covers 57 km^2, within which there is a 2.64 km^2 area covering the historic Radium Hill Mine and Tailings Dam, which is reserved from the South Australian *Mining Act 1971*. • Heavy Rare Earths Limited (HRE) has entered into a binding agreement with Havilah Resources Limited (Havilah) to acquire an initial 80% interest in the uranium rights on all or part of 22 tenements in South Australia, including parts of 4 tenements at Radium Hill (ELs 5831, 5848, 6041 and 6594). Thereafter HRE and Havilah will co-fund exploration and development activities under a joint venture arrangement. • The agreement excludes access to the 2.64 km^2 area over the historic Radium Hill Mine (Radium Hill Mine Exclusion Zone). This area is administered by the South Australian Government. • Havilah will remain the title holder of each tenement and HRE as operator will work with Havilah on all tenement governance matters including annual technical reporting, tenement administration and heritage access agreements. • A program for environment protection and rehabilitation (PEPR) approval from the South Australian Department for Energy and Mining (DEM) will be required to undertake ground disturbing works. • Havilah has Native Title Mining Agreements (NTMA) in place with all the relevant Native Title parties covered by the tenements and these NTMAs are registered with DEM.
Exploration done by other parties	*Acknowledgment and appraisal of exploration by other parties.*	• Exploration at Radium Hill was undertaken solely by the South Australia Department of Mines in the years up to 1962. Exploration in the specific project area by private companies has only reviewed government data.

Criteria	JORC Code Explanation	Commentary
Geology	*Deposit type, geological setting and style of mineralisation.*	• The Radium Hill area comprises a sequence of gneisses of late Palaeoproterozoic age (Willyama Supergroup), which was intensely deformed and metamorphosed by the Olarian Orogeny (ca. 1640–1580 Ma) and intruded by granitoid intrusives of early Mesoproterozoic age (ca. 1590–1580 Ma). Uranium mineralisation occurs in NE-trending fractures and shears that cross-cut the regional banding in a domal NE-plunging anticlinal structure. • Mineralisation occurs in fracture or shear planes in the gneisses and schists with associated acid and basic dykes. • Within a typical lode channel, uranium is mostly concentrated centrally along the strike of the lode shears, within the larger lens-like swellings of the lodes. Sequence of mineralisation is as follows: i) Replacement of sericitic shear rock along overthrust fault zones by quartz-biotite-hematite-ilmenite mineralisation; ii) Intrusion of rare earth pegmatites (salmon pink and glassy white felspar) containing orthite and xenotime; iii) Movement along the shears causing brecciation of the earlier bodies and their biotite alteration; iv) Intrusion of 'new amphibolites' along faults at about this stage; and v) Introduction of clear quartz stringers containing davidite together with irregular replacements by bright red felspar.

Criteria	JORC Code Explanation	Commentary
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.*	• ca. 670 diamond core drillholes drilled in the Radium Hill area of which ca. 190 drillholes were drilled within the project area outside the Radium Hill Mine Exclusion Zone.

Criteria	JORC Code Explanation	Commentary
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.* *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.* *The assumptions used for any reporting of metal equivalent values should be clearly stated.*	• This report does not include drilling or drilling results. Sample results are from individual samples, not subject to cutting of grades or compositing. • No metal equivalent values are reported. • All REE assays have been converted to oxide (REO) values using the following industry standard element-to-stoichiometric oxide conversion factors: La2O3 = La x 1.1728 CeO2 = Ce x 1.2284 Pr6O11 = Pr x 1.2082 Nd2O3 = Nd x 1.1664 Sm2O3 = Sm x 1.1596 Eu2O3 = Eu x 1.1579 Gd2O3 = Gd x 1.1526 Tb4O7 = Tb x 1.1762 Dy2O3 = Dy x 1.1477 Ho2O3 = Ho x 1.1455 Er2O3 = Er x 1.1435 Tm2O3 = Tm x 1.1421 Yb2O3 = Yb x 1.1387 Lu2O3 = Lu x 1.1371 Y2O3 = Y x 1.2699. These oxide values are summed to produce a total rare earth oxide (TREO) grade for each assay sample. • All Sc and U assays have been converted to oxide values using the following industry standard element-to-stoichiometric oxide conversion factors: Sc2O3 = Sc x 1.5338 U3O8 = U x 1.1792.

Criteria	JORC Code Explanation	Commentary
Relationship between mineralisation widths and intercept lengths	*If the geometry of 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').*	• Mineralisation at Radium Hill is subvertical to steeply SE dipping. Reported intercepts in costeans are believed to represent the true thickness of mineralisation but drillhole intercepts are believed to be greater than true thickness (true width is not known but may be ca. 50-75% of intercepts).
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.*	• No new discoveries are being reported here. • Maps and tables are shown in the body of the report.
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.*	• Due to the large number of historic exploration drillholes in the project area, it is impractical to present a comprehensive report of such. Historic exploration data was often classified and there is often very little information except for uranium intercepts mentioned in brief summary texts or on maps and sparse sections.

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.*	• The majority of exploration within the project area has been costeaning and drilling but also includes multiple government and company geophysical surveys including airborne electromagnetics, magnetics, radiometrics, and ground gravity, to map out geological basement structure. Most of these surveys were completed prior to 1962. • Metallurgical work was undertaken at Radium Hill prior to and during mining from 1954-61. This is not considered material at this stage of investigation. • HRE commissioned MagSpec Airborne Surveys to fly an airborne magnetic-radiometric survey over most of the project area. NW-SE flight lines were spaced 25 m apart and tie lines 250 m apart. A mean terrain clearance of 30 m was maintained throughout the survey. 1,659-line km of data was acquired. Survey equipment was as follows: **Aircraft Type** • Cessna 210 **Acquisition System** • Sample rates up to 20 Hz • Integrated Novatel OEM DGPS receiver providing positional information to tag incoming data streams and pilot navigation guidance • Visual, real-time, on-screen system monitoring / error messaging to limit refights due to equipment failure **Magnetometer** Geometrics G-823A tail sensor mounted in a stinger housing • Sensor Type - Cesium vapor • Resolution - 0.001 nT • Sensitivity - 0.01 nT • Sample Rate - 20 Hz (~3.5 m sample interval) • Compensation - 3-axis fluxgate magnetometer

Criteria	JORC Code Explanation	Commentary
		Gamma-Ray Spectrometer RSI RS-500 gamma-ray spectrometer, incorporating 2x RSX-4 detector packs • Total Crystal Volume - 32 L • Channels - 1024 • Sample Rate - 2 Hz (~35 m sample interval) • Stabilisation - Multi-peak, automatic gain **Altimeters** Bendix/King KRA 405 radar altimeter • Resolution - 0.3 m • Sample Rate - 20 Hz • Range - 0-760 m Reinshaw ILM-500R laser altimeter • Resolution - 0.01 m • Sample Rate – up to 20 Hz • Range - 0-500 m **Magnetic Base Stations** GEM GSM-19 Overhauser • Resolution - 0.01 nT • Accuracy - 0.1 nT • Sample Rate - 1.0 Hz **Navigation and Flight Path Recovery** NovAtel OEM719 DGPS Receiver • Channels - 555 • Signal Tracking - L1/L2 + GLONASS Multi Frequency • Positional Accuracy - 0.4 m RMS (NovAtel CORRECT) • Sample Rate - 2 Hz

Criteria	JORC Code Explanation	Commentary
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.*	• Compilation of available historical geological and geochemical data, magnetic and radiometric interpretations, geological mapping and more comprehensive rock chip sampling is nearing completion leading to development of a geological model for Radium Hill-type U-Sc-REE mineralisation. • On-ground exploration consisting of geological mapping in conjunction with scintillometer and hand-held XRF sample analysis is planned. • Target generation for drill testing based on the new geological model.