ASX ANNOUNCEMENT
Heavy Rare Earths Limited (ASX: HRE)
17 July 2025

EXPLORATION CONTINUES AT HIGH-GRADE RADIUM HILL URANIUM-CRITICAL MINERALS PROJECT

- **Recent global events have placed a focus on the critical minerals sector of which HRE is positioned to take advantage**
- **Historical ore processing records confirm Radium Hill Uranium mineralisation also hosts critical minerals including Scandium and Rare Earths**
- **Recent reconnaissance rock sampling by HRE returned high-grade Uranium-Scandium-Rare Earth assays – up to 9,068 ppm (20 lb/t) U_3O_8, 936 ppm Sc_2O_3 and 18,899 ppm (1.89%) TREO**
- **The sampling program confirms shear zone-hosted U-Sc-REE mineralisation extends northeast from the Radium Hill deposit into HRE's project area**
- **Interpretation of recent detailed airborne magnetic-radiometric survey highlights projected extension of Radium Hill line of lode and target areas**
- **HRE to accelerate current field program following up lode extensions and structural targets to identify drill targets for testing in H2 2025.**

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

HRE's Exploration Manager, Joseph Ogierman said: "*Recent geopolitical events have seen a global focus on the critical minerals sector. In April of this year, China imposed export controls on several critical minerals, specifically six rare earths and scandium, in response to the USA imposing 'reciprocal' tariffs on most Chinese goods. Four of the six rare earths are the heavy rare earths terbium, dysprosium, lutetium and yttrium which, along with scandium, are high on the critical minerals lists of several Western economies including the EU, Japan, South Korea, the UK and the USA.*

"One major impact of this move has played out in the recent groundbreaking transaction involving rare earths company MP Materials Corporation and the US Department of Defence (DoD) announced on 10 July. This transaction allows for US$400m investment through the DoD, a US$150m loan from the DoD to expand the infrastructure at MP's Mountain Pass Rare

Earth Mine and Processing Facility, establishing an above market price floor of US$110/kg for the magnetic light rare earths, and a US$1bn finance facility from investment bankers to construct a rare earth permanent magnet manufacturing facility in the USA.

"Last year, HRE identified the Radium Hill project as an undervalued, critical mineral generator which has not been subjected to modern exploration methods for over half a century. Our research has shown there has been no systematic testing for co-product scandium and heavy rare earth critical minerals even though their presence has been known since Radium Hill's discovery of in the first decade of the 20th Century. Although the original Radium Hill Mine is excluded from HRE's project area, understanding the deposit mineralisation is important in providing a template for exploration along strike. We are of the view that the critical minerals footprint and structure of the Radium Hill deposit extends into HRE's ground along the Radium Hill line of lode and target areas.

"At Radium Hill, our immediate focus is to undertake follow up reconnaissance field work along the mineralised extensions north-east from the original Radium Hill Mine to identify uranium and critical mineral drilling targets. We expect to be on site this month to inspect prospects highlighted from work on our recent airborne geophysical survey and to identify new mineralised areas containing critical minerals."

Critical Minerals at Radium Hill – Historical Background

The Radium Hill mining camp is best known as Australia's first operating U mine (1954 to 1962). HRE, however, sees the prospect's true potential to be in the association of U with REEs and Sc, value which has previously not been fully understood or appreciated.

Sir Douglas Mawson observed in 1906 that a new mineral he discovered and named davidite contains "a notable amount of rare earths, uranium, vanadium and chromium"[1]. Subsequent academic studies confirmed significant levels of critical minerals within U-rich ore. However, mining operations at Radium Hill during the 1950s and 1960s concentrated solely on production of U and there were no attempts to extract other critical minerals with only a belated, late-stage effort to produce Sc as a by-product of re-processed U tailings at a process plant in Port Pirie.

Due to this focus, there is virtually no historic data on the grade and distribution of critical minerals within primary mineralisation at Radium Hill. The best information is derived indirectly from analysis of mine residues from Port Pirie. This was where Radium Hill ore concentrates were dissolved and U recovered by ion exchange. All critical minerals such as Sc, yttrium (Y) and other REEs were discarded to tailings ponds.

The value of these critical minerals was recognised late in the processing period with attempts to recover at least some elements, including Sc, undertaken in the final 1-2 years of mine life. An Australian Mineral Development Laboratories (AMDEL) report states that at least 1,000 pounds of 98% Sc_3O_3 was recovered from the processing liquor after U removal[2], though the corresponding original ore grade remains unknown.

[1] *Mawson, D., 1906 On certain new mineral species associated with carnotite in the radio-active ore body near Olary. Transactions and Proceedings of the Royal Society of South Australia, 30, 188–193.*

[2] *Allen, R.J., and Jaworski S., Scandium Research. AMDEL Report No. 532, May 1967*

Since the 1960s, a number of investigations have been conducted to determine the feasibility of extracting Sc and REEs from the Port Pirie residues. One of the more comprehensive evaluations estimated the remaining critical mineral content still present in the estimated 200,000-220,000 t of residues, which includes 40 t of Sc_2O_3, 290 t of Y_2O_3 and 151 t of other heavy rare earth oxides (HREOs)[3].

It is significant that studies showed some Sc to be concentrated, not in davidite, but in magnetic fractions containing ilmenite, iron oxides, rutile and chlorite[4]. This is important as there have been several episodes of ilmenite formation but only one mineralising event in which davidite was formed indicating the potential to expand the search profile for Sc associated with ilmenite separate from Sc associated with davidite.

In summary, the presence of significant amounts of critical minerals at Radium Hill, associated with high-grade U mineralisation, has been known for over a century but there has been no systematic sampling of the primary mineralisation for these elements either during exploration, resource drilling or mining and limited attempts to realise their value aside from a short-lived effort to produce Sc from re-processed tailings in the early 1960s and subsequent studies to re-process residues at Port Pirie.

Recent reconnaissance rock and historic drill core sampling by HRE has confirmed the high-grade nature of critical minerals in Radium Hill-style U mineralisation *(refer to ASX announcement 19 May 2025)*. Assays of up to 9,068 ppm (20 lb/t) U_3O_8, 936 ppm Sc_2O_3 and 18,899 ppm (1.89%) TREO were returned. TREO assays feature material concentrations of the high-value HREEs (tables 1 and 2) which remain at a heightened risk of supply disruption due to political and other factors, as evidenced by China's recent application of export controls on key HREEs and Sc.

Table 1: HREE and Sc critical minerals at Radium Hill subjected to Chinese export controls in April 2025.

Critical Mineral	Average Grade (ppm)[1]	Proportion of Total Rare Earths + Scandium[2]	Traded Price (US$/kg)[3]
Terbium (Tb)	33	0.3%	$998
Dysprosium (Dy)	283	2.2%	$234
Lutetium (Lu)	60	0.5%	$716
Yttrium (Y)	1822	14.4%	$6.95
Scandium (Sc)	560	4.4%	$716

1 Average of individual rare earth oxide (REO) and Sc oxide grades for 18 mineralized samples listed in Table 2 of this announcement: RHR002, RHR003, RHR004, RH-A, RHR005, RHR006, RHR007, RHR008, RH-B, RHR009, RHR010, RHR012, RHR016, RH-C, RH-1, RH-2, RHR017, RHR018.

2 "Total Rare Earths + Scandium" = $La_2O_3 + CeO_2 + Pr_6O_{11} + Nd_2O_3 + Sm_2O_3 + Eu_2O_3 + Gd_2O_3 + Tb_4O_7 + Dy_2O_3 + Ho_2O_3 + Er_2O_3 + Tm_2O_3 + Yb_2O_3 + Lu_2O_3 + Y_2O_3 + Sc_2O_3$.

3 "Traded Price" is as quoted by Shanghai Metals Market https://www.metal.com/price/Rare%20Earth/Rare-Earth-Oxides as at 16 July 2025, for fully separated, high-purity (generally >99.95%) oxide products, inclusive of 13% VAT, delivery to buyer.

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[3] *ANSTO Minerals (2006). A report to Primary Industries and Resources, South Australia, on: Assessment of the Economic Potential of Rare Earth Elements within the Uranium Residues at the former Port Pirie Rare Earth Treatment Plant.*

[4] *AMDEL (Australian Mineral Development Laboratories) Port Pirie Residue – recovery of valuable constituents, Project 1/1/10, Progress report for period ending 22 June 1962.*

Geological Setting

Historic geological interpretations place the Radium Hill Mining camp along the north-east trending axis of a regional anticline in Mesoproterozoic age sequences of the Willyama Block, located in the southern Curnamona Craton. Mineralisation occupied narrow, steep, pegmatitic quartz-biotite-ilmenite-feldspar veins in sericitic shears along this north-east fold axis.

The recent airborne magnetic-radiometric survey flown by HRE shows that the structural setting is much more complex than anticipated (see figures 1 and 2). As previously reported, 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 *(refer to ASX announcement 19 May 2025)*.

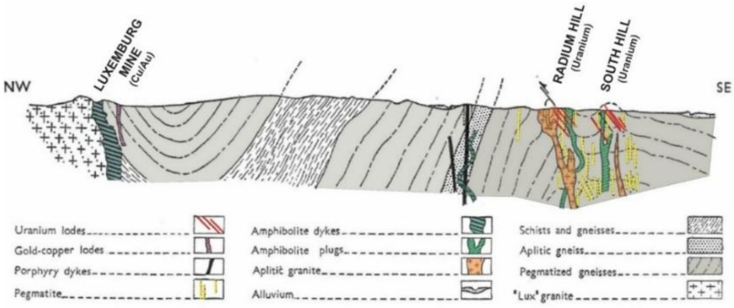

Figure 1: Historical depiction of a geological Cross-Section through Radium Hill.[5]

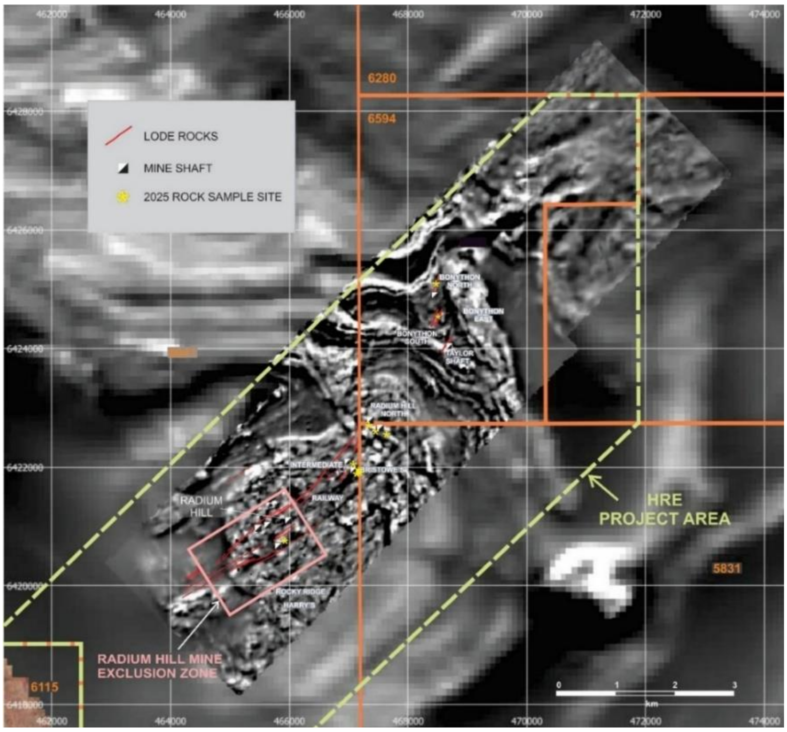

Figure 2: Radium Hill airborne survey showing major improvement in magnetic detail.
Background magnetic image: 1995 Broken Hill Exploration Initiative airborne survey.

5 https://sarigbasis.pir.sa.gov.au/WebtopEw/ws/samref/sarig1/image/DDD/BULL030.pdf

Current Activity and Near-Term Plans

Initial structural analysis of the Radium Hill survey magnetic data highlights a complex interplay between structure and host geological sequences (Figure 3). The relationship between these structural features with the Radium Hill U deposit and with recent high-grade reconnaissance sampling is being investigated.

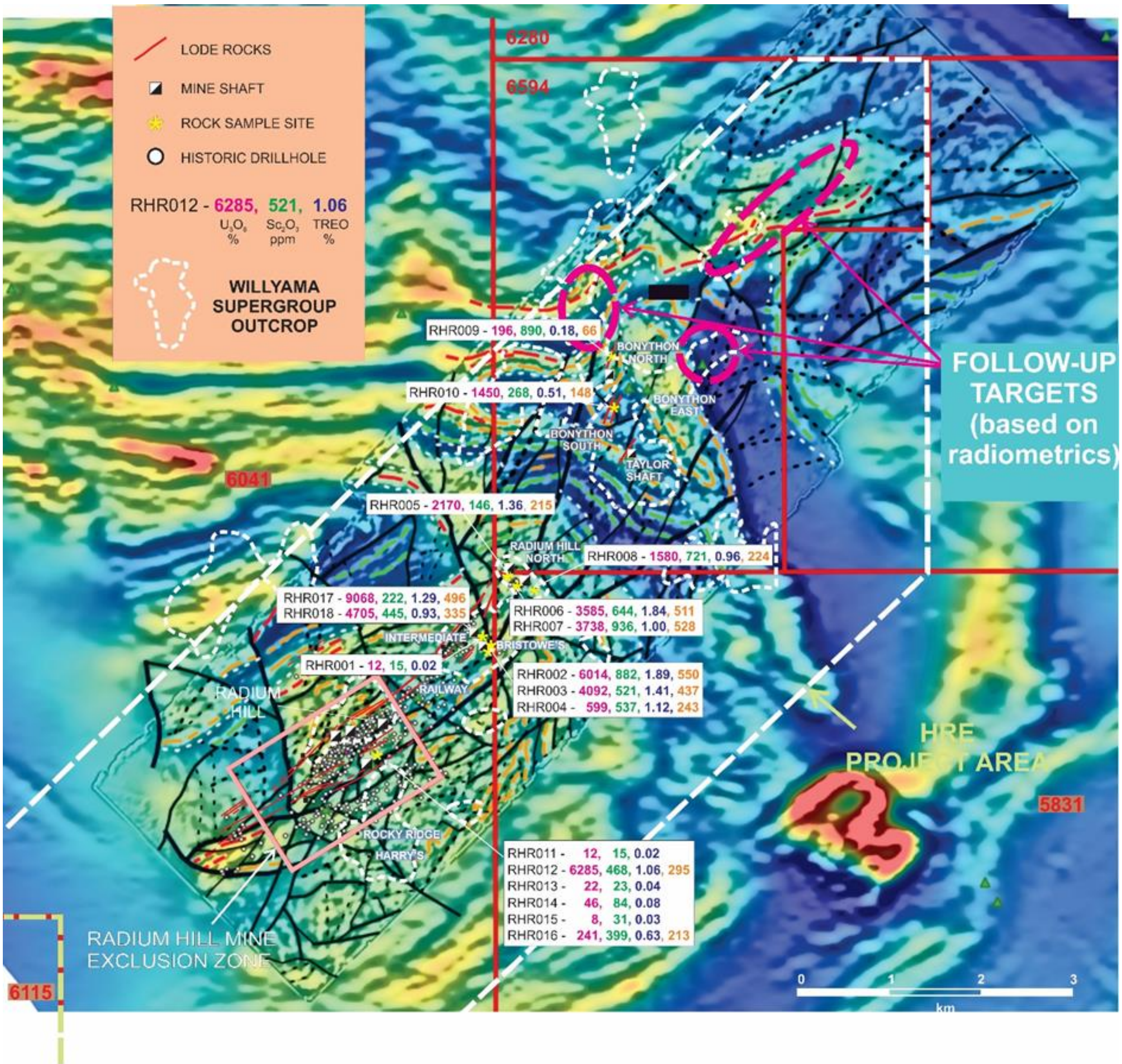

Figure 3: Preliminary structural interpretation of Radium Hill airborne magnetic survey showing major cross-cutting structures within the Radium Hill Anticline.
Background magnetic image: 1995 Broken Hill Exploration Initiative airborne survey.

HRE believes there is considerable potential to discover extensions to mineralisation along the main mine lode system, north-east of the Radium Hill Mine, from which 2.6 million lbs @ 0.12% (1,200 ppm or 2.6 lb/t) U_3O_8 was mined between 1954 and 1961[6]. The Company plans

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

to fast track field checking of radiometric target areas highlighted by the recent geophysical survey and by structural analysis of the magnetic data. This will primarily focus northeast along strike from the Radium Hill Mine to the Bristowe's, Radium Hill North and Bonython prospects, and beyond (Figure 3). Work will involve hand-held scintillometer and pXRF investigation of outcropping target areas and in-situ soils for anomalous U and critical mineral values. A particular focus will be to investigate the relationship between Sc-rich mineralisation and the U mineralising event which, once clear, has the potential to expand the critical minerals search profile for the project.

Table 2: Radium Hill rock sample assays (refer to ASX Announcement 19 May 2025).

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 Mine	4233	0.42%	9.3	391	1.48%
RH-1	Radium Hill Mine	5684	0.57%	12.5	606	1.22%
RH-2	Radium Hill Mine	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%

** 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.*

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This announcement has been approved by the Board of HRE.

For more information, please contact:

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About Heavy Rare Earths Limited

Heavy Rare Earths Limited (ASX: HRE) is an Australian uranium and critical minerals exploration and development company. HRE's key exploration projects are in the uranium- and critical minerals-rich Curnamona Province of eastern South Australia and in the Mid-West region of 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 campaigns.

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
RH-A	Radium Hill North	467360	6422761	Grab				Biot-qtz schist with c.gr. davidite-ilmenite. Acicular rutile xtals to 7mm in qtz vein.
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
RH-B	Radium Hill North	467334	6422639	Grab				Biot-qtz schist with c.gr. davidite-ilmenite. Cut by white quartz 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	465815	6420658	Channel	0.0	0.5	0.5	Qtz-feld-biot gneiss
RHR012	Radium Hill Tailings Trench			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
RH-C	Radium Hill Mine	465480	6420965	Grab				Biot-qtz schist with c.gr. davidite-ilmenite from historic ore stockpile
RH-1	Radium Hill Mine	465645	6421018	Grab				Biot-qtz schist with c.gr. davidite-ilmenite from historic ore stockpile
RH-2	Radium Hill Mine	465780	6421131	Grab				Quartz-feldspar-biotite gneiss with c.gr. davidite from historic ore stockpile
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 21 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.

Criteria	JORC Code Explanation	Commentary
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.
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: La_2O_3 = La x 1.1728 CeO_2 = Ce x 1.2284 Pr_6O_{11} = Pr x 1.2082 Nd_2O_3 = Nd x 1.1664 Sm_2O_3 = Sm x 1.1596 Eu_2O_3 = Eu x 1.1579 Gd_2O_3 = Gd x 1.1526 Tb_4O_7 = Tb x 1.1762 Dy_2O_3 = Dy x 1.1477 Ho_2O_3 = Ho x 1.1455 Er_2O_3 = Er x 1.1435 Tm_2O_3 = Tm x 1.1421 Yb_2O_3 = Yb x 1.1387 Lu_2O_3 = Lu x 1.1371 Y_2O_3 = 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: Sc_2O_3 = Sc x 1.5338 U_3O_8 = 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. 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.