ASX ANNOUNCEMENT
Heavy Rare Earths Limited (ASX: HRE)
3 January 2023

LARGE ZONE OF RARE EARTH MINERALISATION EMERGING WEST OF COWALINYA SOUTH DEPOSIT

- **Assays received for additional 39 holes from HRE's rare earth exploration and resource expansion drilling program of 435 holes at Cowalinya**
- **Zone of mineralisation over 2 kilometres wide emerging to the west of Cowalinya South deposit**
- **Other coherent zones of rare earth mineralisation apparent up to 4.2 kilometres from the deposit**
- **Rare earth grades exceed the Cowalinya resource grade in 27 drill intervals up to 22 metres thick. New intervals include:**
  - **AC200: 6 metres @ 1862 ppm TREO (25.8% magnet REOs) from 20 metres**
    - **including 4 metres @ 2593 ppm TREO from 20 metres**
  - **AC201: 18 metres @ 710 ppm TREO (22.2% magnet REOs) from 22 metres**
    - **including 2 metres @ 3068 ppm TREO from 32 metres**
  - **AC198: 10 metres @ 640 ppm TREO (19.8% magnet REOs) from 35 metres**
    - **including 2 metres @ 1437 ppm TREO from 41 metres**
- **Assays reported to date enable expansion of metallurgical variability program**

Heavy Rare Earths Limited (**"HRE"** or **"the Company"**) is pleased to report assays from another 39 air core holes of the now completed 435-hole exploration and resource expansion drilling program at its 100 per cent-owned Cowalinya rare earth project in the Norseman-Esperance region of Western Australia.

These latest assays, when combined with those from the first 53 holes *(refer to ASX announcement 1 December 2022)*, demonstrate that coherent zones of saprolite-hosted rare earth mineralisation are apparent up to 4.2 kilometres away from the Cowalinya South deposit. The widest of these mineralised zones, located west of the deposit along drill section A-B on Figure 1, now exceeds 2 kilometres, with mineralisation open to the west of hole AC201 (Figure 2). The 11 consecutive 200 metre-spaced holes that define this zone contain 8 mineralised intercepts where the grade-thickness exceeds the average grade-thickness of the mineralised horizon in the Cowalinya deposit (~9 metres thick @ 624 ppm TREO[1]). These intercepts are listed in Table 1.

[1] Page 19 of Independent Geologist's Report contained in HRE's IPO Prospectus.

A second zone of mineralisation at least 600 metres wide is present on the same drill section and possibly represents part of an easterly/south-easterly extension to the Cowalinya South resource[2]. Confirmation of this extension awaits assays from a number of holes north and south of AC178-AC181 and east of AC110-AC112.

Table 1: Mineralised saprolite intervals from all 2022 drilling that exceed the average grade-thickness of the mineralised horizon in the Cowalinya deposit.
Newly reported holes are highlighted at the top.

HOLE NO.	FROM (m)	TO (m)	INTERVAL (m)	TREO (ppm)	Magnet REOs/TREO
AC165	23	35	12	500	23.5%
AC198	35	45	10	640	19.8%
AC199	21	35	14	412	25.4%
AC200	20	26	6	1862	25.8%
AC201	22	40	18	710	22.2%
AC204	15	33	18	473	25.7%
AC110	18	29	11	826	26.2%
AC111	16	30	14	712	27.9%
AC112	19	29	10	663	29.2%
AC115	22	29	7	1042	27.1%
AC118	19	35	16	396	22.0%
AC119	16	25	9	673	22.9%
AC122	16	21	5	1258	27.6%
AC123	15	18	3	1000	25.0%
AC124	14	30	16	539	22.5%
AC129	15	25	10	740	22.5%
AC130	18	38	20	726	22.4%
AC134	6	18	12	632	19.4%
AC137	15	29	14	758	26.3%
AC142	14	25	11	768	25.9%
AC175	22	44	22	576	21.8%
AC178	28	40	12	563	26.0%
AC179	14	36	22	665	24.8%
AC181	15	26	11	745	27.3%
AC193	20	40	20	448	24.3%
AC194	20	28	8	727	24.1%
AC195	15	30	15	541	21.3%
AC196	19	37	18	631	23.2%

TREO = 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
Magnet REOs = Pr_6O_{11}+Nd_2O_3+Tb_4O_7+Dy_2O_3

[2] Table 5.1 of Appendix 7 (Cowalinya Resource Report) of the Independent Geologist's Report contained in HRE's IPO Prospectus.

Assays for the remaining 368 drillholes will be reported by the Company as results are received.

Encouraged by the assays received to date, HRE has commenced preparing mineralised composites from 17 of the holes listed in Table 1 to add to its geo-metallurgical variability program, for which initial positive results were reported in recent weeks from composites across the Cowalinya resource *(refer to ASX announcement 13 December 2022)*.

Acquisition of Exploration Tenements

HRE is pleased to advise of its acquisition of two granted exploration licences, E63/2144 and E63/2145, from Future Metals Group Pty. Ltd. These are located immediately south-west of and contiguous with its Cowalinya tenement E63/1972 (Figure 3). Their combined size is approximately 20 km^2 (*c.f.,* E63/1972 224 km^2). Both tenements are on unallocated crown land and neither has been targeted for rare earths in previous exploration.

Drilling by HRE suggests there is strong potential for thick developments of saprolite-hosted rare earth mineralisation to continue westwards from E63/1972 into E63/2144.

The Company acquired both licences for a total of $50,000 in cash consideration.

-- Ends --

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 Norseman in Western Australia. This is a clay-hosted rare earth project with a JORC Inferred Resource of 28 Mt @ 625 ppm TREO and a desirable rare earth composition where 25% are the valuable magnet rare earths and 23% the strategic heavy rare earths.

Competent Persons Statement
The Exploration Results contained in this announcement were compiled by Mr. Richard Brescianini. Mr. Brescianini is a member of the Australian Institute of Geoscientists (AIG). He is a director and full-time employee of Heavy Rare Earths Limited. Mr. Brescianini 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.

The Mineral Resources contained in this announcement have been extracted from the Independent Geologist's Report included in the Company's Initial Public Offering (IPO)

Prospectus, a copy of which was lodged with the Australian Securities and Investments Commission (ASIC) on 5 July 2022. The Company confirms that it is not aware of any new information or data that materially affects the Mineral Resources as contained in the Company's IPO Prospectus. All material assumptions and technical parameters underpinning the Mineral Resources in the Company's IPO Prospectus continue to apply and have not materially changed.

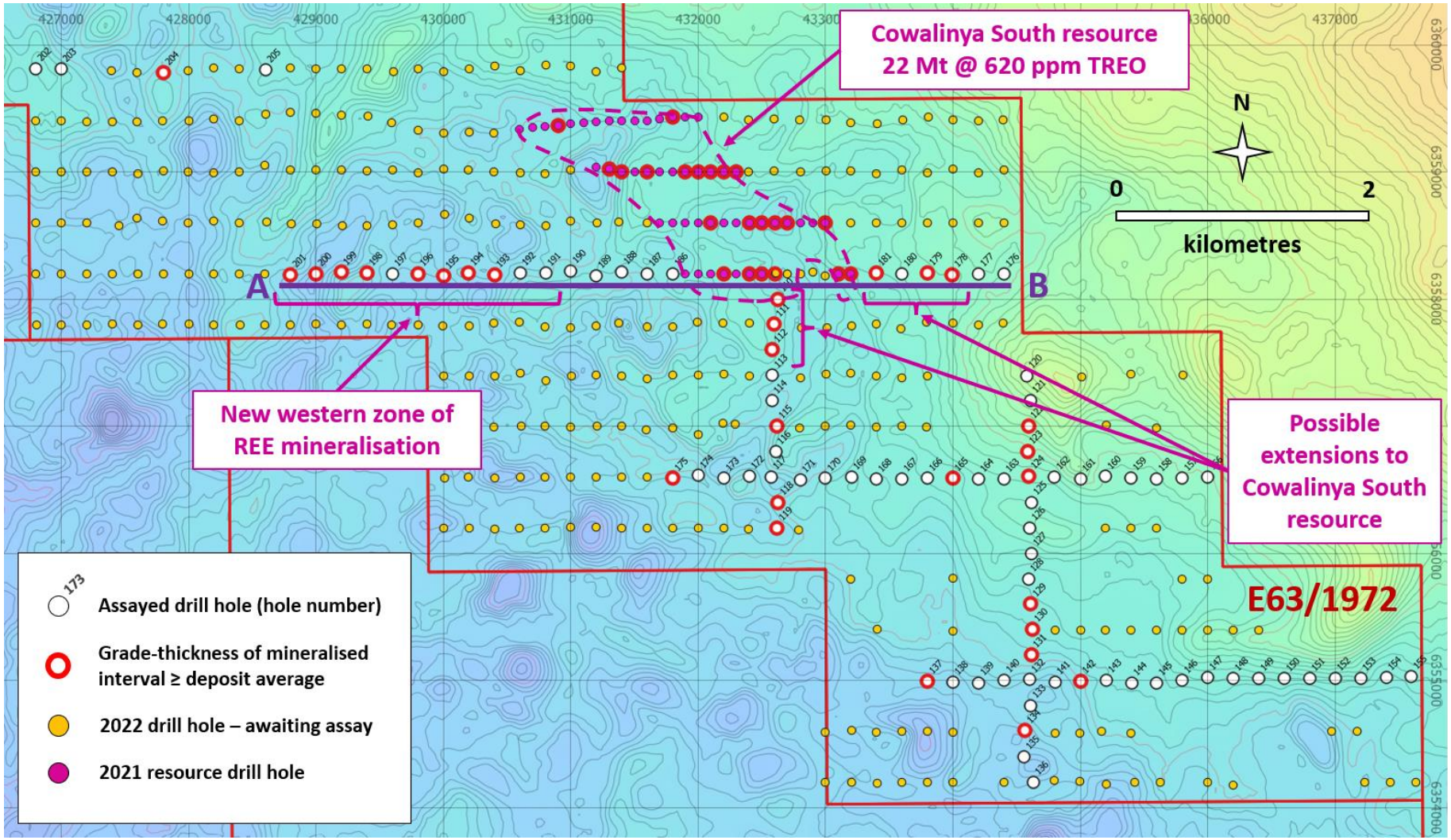

Figure 1: Plan view of Cowalinya air core drilling in south-east portion of E63/1972 showing emerging zones of REE mineralisation.
Background image: Landgate digital elevation model.

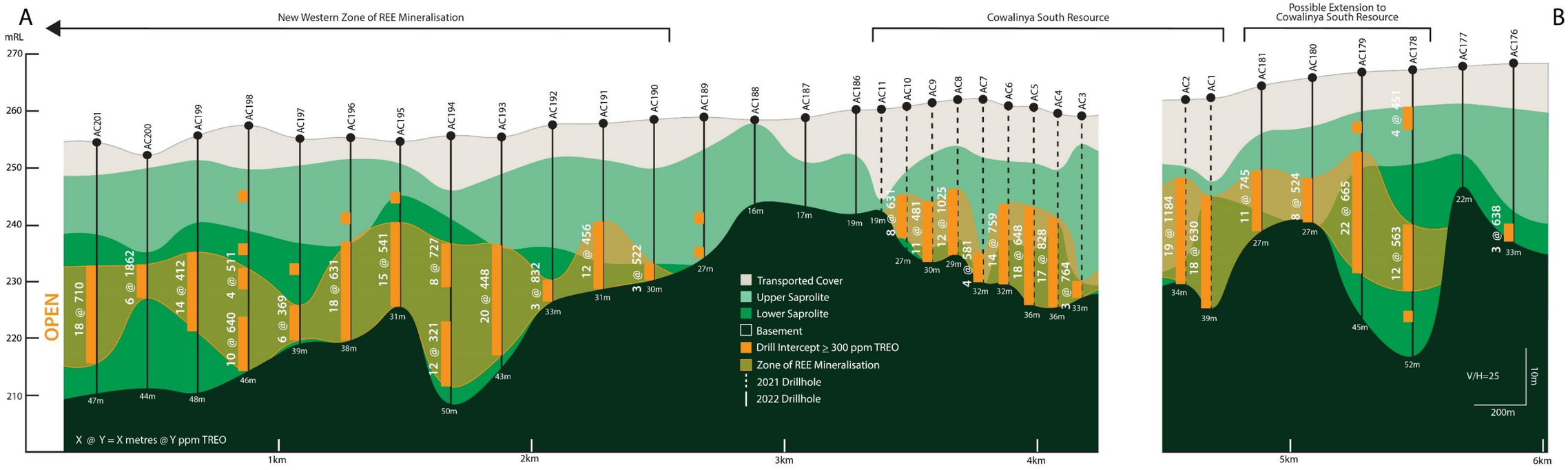

Figure 2: Cross section along exploration drill line A-B (6358200N).
Location of A-B shown on Figure 1.

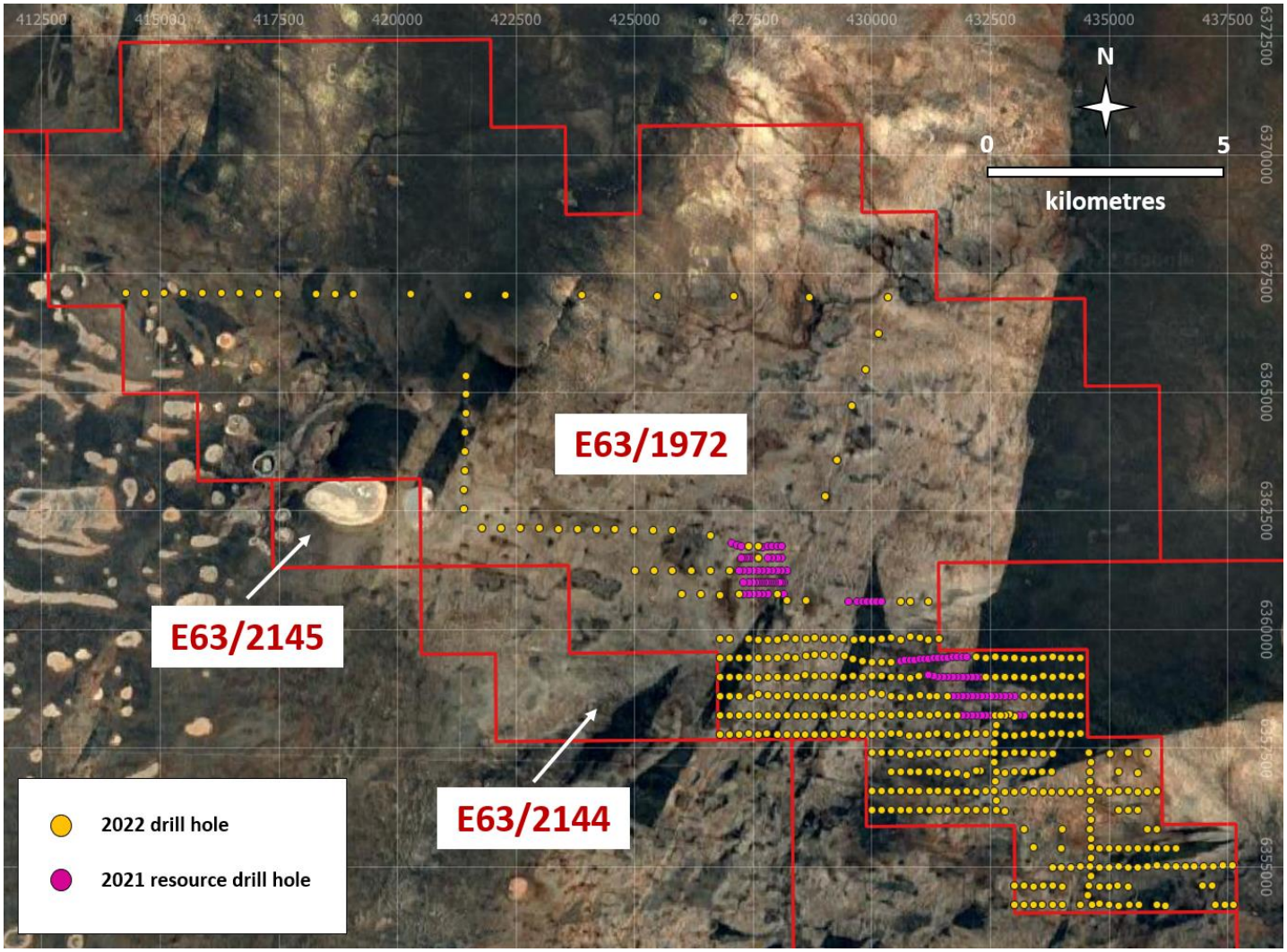

Figure 3: Location of HRE tenement acquisitions E63/2144 and E63/2145.
Background image: Google Earth.

Table 2: Mineralised saprolite intervals that assay ≥300 ppm TREO.

HOLE NO.	FROM (m)	TO (m)	INTERVAL (m)	TREO (ppm)	TREO-CeO_2 (ppm)	Magnet REOs/TREO
AC144	15	17	2	387	201	11.4%
AC144	17	19	2	450	239	16.2%
AC144	19	21	2	571	287	19.2%
AC145	17	19	2	410	196	17.4%
AC145	19	21	2	232	121	18.7%
AC145	21	23	2	601	310	22.7%
AC145	23	24	1	349	186	24.0%
AC146	19	21	2	475	302	22.7%
AC146	21	22	1	458	275	23.6%
AC147	16	18	2	385	212	15.8%
AC147	22	24	2	390	218	24.6%
AC147	24	25	1	592	376	28.8%
AC148	17	19	2	349	177	15.0%
AC149	16	18	2	712	596	33.7%
AC149	18	20	2	272	182	26.3%
AC149	20	22	2	314	219	25.3%
AC151	19	21	2	326	155	19.5%
AC151	25	27	2	381	220	25.7%
AC153	10	12	2	454	212	18.2%
AC156	11	13	2	423	243	23.4%
AC156	13	15	2	444	282	27.1%
AC158	13	15	2	362	194	20.9%
AC159	9	11	2	322	184	19.5%
AC159	11	13	2	680	353	20.4%
AC160	13	15	2	315	186	21.4%

AC160	15	17	2	298	177	22.1%
AC160	17	19	2	686	380	24.9%
AC160	19	21	2	405	257	25.9%
AC160	21	23	2	419	272	25.0%
AC162	17	19	2	652	366	22.0%
AC162	19	21	2	550	314	29.4%
AC163	19	21	2	311	173	25.8%
AC164	11	13	2	337	239	25.5%
AC164	17	19	2	560	349	21.4%
AC164	19	21	2	508	289	23.3%
AC164	21	23	2	272	186	24.2%
AC164	23	25	2	524	405	28.2%
AC164	25	27	2	126	77	22.1%
AC164	27	29	2	315	242	27.2%
AC165	23	25	2	687	450	23.9%
AC165	25	27	2	311	210	26.5%
AC165	27	29	2	283	182	26.1%
AC165	29	31	2	793	655	23.3%
AC165	31	33	2	369	248	21.3%
AC165	33	35	2	558	373	20.0%
AC166	17	18	1	316	193	23.5%
AC167	17	19	2	315	185	22.6%
AC167	19	20	1	465	255	22.1%
AC168	18	20	2	805	434	19.4%
AC168	20	22	2	445	266	23.0%
AC168	22	24	2	489	308	24.2%
AC170	19	21	2	405	213	26.1%
AC171	16	18	2	600	313	15.8%

AC171	18	20	2	284	151	20.6%
AC171	20	22	2	307	183	21.3%
AC172	17	19	2	374	204	22.2%
AC174	21	23	2	411	227	21.7%
AC198	11	13	2	445	358	32.8%
AC198	21	23	2	697	340	18.1%
AC198	27	29	2	409	193	12.8%
AC198	29	31	2	612	252	14.5%
AC198	35	37	2	423	185	13.3%
AC198	37	39	2	326	148	15.3%
AC198	39	41	2	314	103	10.3%
AC198	41	43	2	1437	1239	33.8%
AC198	43	45	2	700	568	26.0%
AC199	21	23	2	309	214	22.2%
AC199	23	25	2	448	302	27.0%
AC199	25	27	2	433	285	26.8%
AC199	27	29	2	431	284	26.8%
AC199	29	31	2	511	350	26.2%
AC199	31	33	2	389	272	25.3%
AC199	33	35	2	364	244	23.6%
AC200	20	22	2	2869	2447	29.6%
AC200	22	24	2	2317	2154	24.5%
AC200	24	26	2	401	297	23.3%
AC201	22	24	2	546	292	21.3%
AC201	24	26	2	553	247	16.7%
AC201	26	28	2	314	106	13.7%
AC201	28	30	2	358	132	14.4%
AC201	30	32	2	364	174	16.0%

AC201	32	34	2	3068	2781	38.0%
AC201	34	36	2	365	297	28.0%
AC201	36	38	2	442	318	27.3%
AC201	38	40	2	381	248	23.9%
AC204	15	17	2	578	292	23.4%
AC204	17	19	2	257	138	25.5%
AC204	19	21	2	313	163	23.7%
AC204	21	23	2	555	293	24.6%
AC204	23	25	2	539	284	25.6%
AC204	25	27	2	808	436	27.8%
AC204	27	29	2	480	271	27.4%
AC204	29	31	2	273	160	26.9%
AC204	31	33	2	457	260	25.8%
AC205	13	15	2	311	160	19.6%
AC205	15	17	2	376	193	24.6%
AC205	17	19	2	393	211	25.8%

TREO = 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.
Magnet REOs = Pr_6O_{11}+Nd_2O_3+Tb_4O_7+Dy_2O_3.

Table 3: Cowalinya air core holes for which rare earth assays are reported.

HOLE NO.	NORTHING (m)	EASTING (m)	RL (m)	DIP (°)	TOTAL DEPTH (m)
AC144	6354982	435402	262.3	-90	29
AC145	6354983	435601	262.3	-90	25
AC146	6355001	435801	263.4	-90	23
AC147	6355027	435999	264.3	-90	26
AC148	6355019	436198	263.9	-90	23
AC149	6355018	436400	264.1	-90	26
AC150	6355015	436602	264.0	-90	20
AC151	6355017	436800	264.2	-90	28
AC152	6355020	437000	264.7	-90	18
AC153	6355019	437200	264.9	-90	25
AC154	6355024	437400	262.6	-90	15
AC155	6355033	437600	264.2	-90	20
AC156	6356600	435999	270.0	-90	17
AC157	6356591	435801	269.9	-90	15
AC158	6356587	435599	268.8	-90	17
AC159	6356594	435399	268.5	-90	15
AC160	6356605	435199	268.6	-90	24
AC161	6356585	435000	270.5	-90	12
AC162	6356602	434798	267.7	-90	22
AC163	6356583	434400	266.9	-90	26
AC164	6356583	434200	265.9	-90	46
AC165	6356590	433999	264.4	-90	38
AC166	6356590	433798	264.1	-90	19
AC167	6356586	433598	263.4	-90	21
AC168	6356583	433399	263.0	-90	25
AC169	6356601	433203	262.8	-90	29
AC170	6356590	433000	261.3	-90	22
AC171	6356577	432801	259.5	-90	22
AC172	6356606	432400	260.8	-90	20
AC173	6356591	432203	257.8	-90	19
AC174	6356612	432000	259.4	-90	24
AC198	6358205	429402	259.2	-90	46

AC199	6358210	429200	257.4	-90	48
AC200	6358201	429002	254.4	-90	44
AC201	6358191	428802	256.7	-90	47
AC202	6359814	426801	263.1	-90	25
AC203	6359808	426999	262.2	-90	13
AC204	6359783	427804	260.2	-90	34
AC205	6359803	428602	262.3	-90	25

2012 JORC Code – Table 1

Section 1: Sampling Techniques and Data

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.	At the end of the current program, a total of 544 vertical aircore holes have been drilled by HRE on the Cowalinya project, 109 holes in 2021 and 435 holes in 2022. Maximum hole depth is 58 metres. All holes have been tested for supergene rare earth element (REE) mineralisation hosted by saprolitic clays. Drilling in 2021 overlapped extensively with areas previously aircore drilled by two companies exploring for gold (AngloGold Ashanti Ltd and Great Southern Gold Pty Ltd). One-metre samples are collected from a cyclone into plastic bags. All holes drilled in 2022 have been 2 metre composite sampled with 1 metre samples at end of hole. Overlying transported sediments are not routinely sampled as they do not contain anomalous amounts of REEs.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	For aircore drilling, regular air and manual cleaning of cyclone is being undertaken. Certified standards and duplicate samples are submitted with drill samples.
	Aspects of the determination of mineralisation that are Material to the Public Report.	Aircore drilling is used to obtain 1m samples which are collected in plastic bags. Samples ranging from 1m to 2m composites are taken for analysis. Sample size is 2-3 kilograms in weight. At LabWest Minerals Analysis (LabWest) in Perth, Western Australia, samples are dried, crushed, split and pulverized with a 0.1-gram sub-sample set aside for assay.
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.).	The drill type is aircore, a form of reverse circulation (RC) drilling using slim rods and a 3.5-inch blade bit. The samples recovered are typically rock chips and powder, similar to RC drilling.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	Aircore recovery is visually assessed by comparing drill chip volumes in sample bags for individual metres. Estimates of sample recovery are recorded on drill logs. Routine checks for correct sample depths are undertaken. Aircore sample recoveries are visually checked for recovery, moisture and contamination and are considered to be acceptable within industry standards. The cyclone is routinely cleaned ensuring no material build up.

	Measures taken to maximize sample recovery and ensure representative nature of the samples.	Due to the generally good drilling conditions through dry saprolite the site geologist believes the samples are reasonably representative. Poor sample recovery is regularly recorded in the first couple of metres of a hole and often when hard bedrock is intersected – usually less than a full metre is recovered. Wet samples with moderate recoveries are encountered most often in the transported sand/silcrete layer lying immediately above saprolite.
	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 sample bias has been identified to date. Future studies will be undertaken.
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.	Chip/clay samples are geologically logged in enough detail to discern lithological units. Logging is appropriate for this style of drilling and current stage of the project.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	Logging is qualitative in nature.
	The total length and percentage of the relevant intersections logged.	All aircore holes are completely geologically logged.
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.	One-metre samples are collected from a cyclone into plastic bags. Two-metre composites and single metre samples are collected by spearing each plastic bag with a scoop down the side of the bag and dragging it back up the side of the bag so as not to lose any sample – this achieves a representative sample from top to bottom through the entire bag. The vast majority of samples are dry sampled.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	Sampling technique is appropriate for the sample types and stage of the project.
	Quality control procedures adopted for all sub-sampling stages to maximize representivity of samples.	QAQC procedures involve the use of certified standards every 20th sample.
	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.	A field duplicate is taken every 20th sample.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	The sample size of 2-3 kilograms is considered appropriate to the grain size and style of mineralisation being investigated.

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.	Analyses are done at LabWest using their AF-02S technique: lithium meta/tetraborate fusion with ICP-MS/OES finish. This technique is considered to be a 'total' digest. A suite of 15 REEs – lanthanum (La), cerium (Ce), praseodymium (Pr), neodymium (Nd), samarium (Sm), europium (Eu), gadolinium (Gd), terbium (Tb), dysprosium (Dy), holmium (Ho), erbium (Er), thulium (Tm), ytterbium (Yb), lutetium (Lu), and yttrium (Y) – plus scandium (Sc), thorium (Th) and uranium (U), and oxides of aluminium (Al), calcium (Ca), iron (Fe), magnesium (Mg) and phosphorus (P), are measured.
	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.	Not applicable.
	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.	OREAS standards and/or blanks are inserted every 20th sample. Field duplicates are taken every 20th sample. LabWest uses OREAS standards, blanks and sample repeats. Acceptable levels of accuracy have been achieved.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	Significant intersections have yet to be verified by an independent geological consultant. They have been verified by alternative company geological personnel.
	The use of twinned holes.	No twinned holes have been drilled to date during the current program, however this is planned for the latter part of the campaign.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	All data have been entered into Excel spreadsheets.
	Discuss any adjustment to assay data.	No data has been adjusted.
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.	Hole collars are surveyed using a hand-held Garmin Etrex 22x GPS with ±3 metre accuracy. Northings, eastings and elevations are recorded using the hand-held GPS.
	Specification of the grid system used.	GDA94 z51.

	Quality and adequacy of topographic control.	The Cowalinya project is located in relatively flat terrain. Topographic control is provided by Landgate's Digital Elevation Model over the region which has an expected horizontal accuracy of 10 metres and vertical accuracy of 2 metres (both 95% confidence interval).
Data spacing and distribution	Data spacing for reporting of Exploration Results.	Generally 400 metres x 200 metres.
	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.	Data spacing is considered sufficient for this style of mineralisation to establish Inferred Mineral Resources. The mineralisation occurs as extensive, generally flat lying supergene blankets hosted in saprolitic clays.
	Whether sample compositing has been applied.	All holes have been assayed by 2 metre composite samples, compiled from 1 metre drilled samples. Additionally, a 1 metre end-of-hole sample is submitted for a 62 multi-element assay. A total of 501 samples (including standards, blanks and field duplicates) have been submitted for assay.
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.	Sampling is likely to be unbiased as vertical holes are intersecting flat lying mineralisation.
	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.	It is unlikely to be biased.
Sample security	The measures taken to ensure sample security.	Experienced field assistants have undertaken the sampling and delivery of samples to the freight company in Esperance, which provides a direct delivery service to LabWest in Perth.
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	No audits or reviews have been commissioned to date.

Section 2: Reporting of Exploration Results

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 licence E63/1972 is located 55 kilometres east-north-east of Salmon Gums in Western Australia. It consists of 80 graticular blocks comprising an area of 224 km^2. It is situated on unallocated crown land. The registered holder of the tenement is Heavy Rare Earths Limited (HRE). Full native title rights have been granted over the tenement and surrounding lands to the Ngadju people, 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 tenement is in good standing. There are no impediments to operating on the tenement other than requirements of the DMIRS and the Heritage Protection Agreement, all of which are industry standard.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	AngloGold Ashanti and Great Southern Gold previously worked in the area of E63/1972 exploring for gold mineralisation. Surface geochemical sampling and aircore drilling was undertaken by both companies but no significant gold mineralisation was discovered. Both companies assayed bottom of hole samples for a suite of multi-elements including REEs. Anomalous bedrock REE values were recorded in numerous holes from their drilling. Great Southern Gold also assayed for La and Ce for the entire length of a number of holes. AngloGold Ashanti flew an airborne magnetic/radiometric survey to assist with mapping of buried bedrock lithologies. Buxton Resources and Toro Energy also previously worked in the area of E63/1972 exploring for gold and nickel mineralisation, and uranium mineralisation, respectively. Both companies flew time-domain electromagnetic surveys to aid in their exploration targeting. No significant mineralisation was discovered.
Geology	Deposit type, geological setting and style of mineralisation.	The deposit type being investigated is low grade saprolite clay-hosted supergene rare earth mineralisation. This style of supergene rare earth mineralisation is developed over bedrock granitic rock types (granites and granitic gneisses) which contain anomalous levels of REEs. Although low grade, low mining and processing costs can make this type of deposit profitable to exploit.

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.	All relevant data for the drilling is shown in Table 3.
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.	All REE assay results 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 TREO grade for each assay sample. Minimum grade cut-off used is 300 ppm TREO. Maximum internal dilution is 2 metres @ <300 ppm TREO. No high cut-off has been applied. Length weighted averages have been applied to intersections.

	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.	Intervals reporting >1000 ppm TREO are reported separately.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No metal equivalent values have been used.
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').	To date the targeted mineralisation appears to occur in flat lying sheets and drill holes have all been drilled at 90° vertically. The down hole length of intercept is effectively a true thickness of mineralisation.
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.	Refer to Figure 1 for plan view of the Cowalinya drillhole collar locations. Refer to Figure 2 for drillhole section 6358200N.
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.	Summary assays for all mineralised intervals ≥300 ppm TREO are presented in Table 2.
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.	Particle size analysis on mineralised saprolite shows that, on average: - 78.5% of REEs are confined to the -25 µm size fraction - the -25 µm fraction comprises 37.2% of the bulk saprolite feed mass - the REE grade of the -25 µm fraction is 116% higher than the bulk saprolite feed grade. Preliminary leach testwork has shown up to 91% TREO recovery from Cowalinya South using 5% hydrochloric acid at 30°C. U and Th values are reported as they are considered to be deleterious elements in rare earth processing. The highest values recorded for these elements on the project to date are 52 ppm U_3O_8 and 81 ppm ThO_2. Maximum values for all intersections reporting ≥300 ppm TREO-CeO_2 in the current program are 38 ppm U_3O_8 and 81 ppm ThO_2.
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).	Comprehensive metallurgical testwork is in progress and petrological studies will be completed to identify REE-bearing mineral species.

	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 deems this to be commercially sensitive.