HEAVY RARE EARTHS LIMITED

ASX ANNOUNCEMENT
Heavy Rare Earths Limited (ASX:HRE)
4 October 2022

COWALINYA RE-ASSAY PROGRAM DELIVERING RARE EARTH GRADE INCREASE

- **Re-assaying of samples above the Cowalinya resource cut-off grade delivers an average increase of 14.8% in total rare earths**

Heavy Rare Earths Limited (**"HRE"** or **"the Company"**) is pleased to report results from 67 of 729 re-assayed two-metre composite samples from 102 air core holes drilled at its Cowalinya rare earth project in 2021, **which show a 14.8% length-weighted average increase in total rare earth oxides** ("TREO").

The samples being re-assayed were the basis of HRE's maiden mineral resource at the Cowalinya project in the Norseman-Esperance region of Western Australia. Inferred Resources totalling 28 million tonnes @ 625 ppm TREO have been estimated in clay-rich saprolite.[1] Mineralisation is relatively flat-lying, averages 8-9 metres thick, and remains open in all lateral directions.

Assays reported in this announcement are the first from HRE's Analytical (Re-Assay) Program *(refer to ASX announcement 30 August 2022)*. The 67 two-metre composites from 16 mineralised holes drilled mainly in the southern part of the Cowalinya South resource (Figure 1) correspond to 43 four-and two-metre composites that were originally assayed by 4-Acid Digest/ICP-MS ('near total digest') by LabWest Minerals Analysis ("LabWest") in 2021. These 43 original composites reported values above the 300ppm TREO-CeO_2 cut-off used in estimating resources at Cowalinya. LabWest has now assayed the 67 new two-metre composites using Lithium Borate Fusion/ICP-MS ('total digest') and this allows for a direct comparison with the original 4-Acid Digest assays.

Assays from these 67 samples show that the dual strategy of analysis by Lithium Borate Fusion/ICP-MS and adopting finer compositing of samples delivers a length-weighted average increase of 14.8% in TREO grade for samples where the original analytical work by 4-Acid Digest/ICP-MS returned assays above 300ppm TREO-CeO_2. See Table 1 for comparison of results.

These initial positive results are consistent with HRE's earlier assay comparison work (12.2% average increase in TREO grade)[2] and further support routine two-metre sample compositing by HRE for assay by Lithium Borate Fusion/ICP-MS as the basis for future grade estimation of rare earth mineralisation from its resource exploration and expansion program at Cowalinya.

The Company will announce further results on completion of the Analytical (Re-Assay) Program.

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[1] Table 5.1 of Appendix 7 (Cowalinya Resource Report) of the Independent Geologist's Report contained in HRE's IPO Prospectus.
[2] Page 30 of Appendix 7 (Cowalinya Resource Report) of the Independent Geologist's Report contained in HRE's IPO Prospectus.

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 28Mt @ 625ppm 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 deposit air core drilling.
Drill holes from which re-assays are reported in Table 1 are shown in yellow.

Table 1: Summary of results from Cowalinya Analytical (Re-Assay) Program.
Assay comparisons are presented for composite samples that originally returned ≥300ppm TREO-CeO_2 by 4-Acid Digest/ICP-MS.

HOLE NO.	FROM (m)	TO (m)	INTERVAL (m)	Li BORATE FUSION RE-ASSAY PROGRAM		ORIGINAL 4-ACID DIGEST PROGRAM
				2m COMPOSITE (ppm TREO)	4m & 2m COMPOSITE EQUIVALENT (ppm TREO)	4m & 2m COMPOSITE (ppm TREO)
AC1	28	30	4	530	559	533
AC1	30	32		588		
AC1	32	34	4	844	1005	893
AC1	34	36		1166		
AC2	12	14	4	161	484	430
AC2	14	16		808		
AC2	16	18	4	1402	1296	1143
AC2	18	20		1190		
AC2	20	22	4	1368	1549	1409
AC2	22	24		1730		
AC2	24	26	4	986	1118	839
AC2	26	28		1251		
AC2	28	30	4	1193	1041	1227
AC2	30	32		888		
AC3	32	33	1	739	739	759
AC4	24	26	2	977	977	847
AC4	26	28	2	1194	1194	1158
AC4	28	30	2	922	922	770
AC4	30	32	2	1087	1087	943
AC4	32	34	2	955	955	1044
AC4	34	35	2	1292	1292	839

AC5	24	26	4	625	646	497
AC5	26	28		667		
AC5	28	30	4	754	524	447
AC5	30	32		295		
AC5	32	34	4	1014	1298	1154
AC5	34	36		1582		
AC6	24	26	4	815	941	668
AC6	26	28		1068		
AC6	28	30	4	1175	1115	798
AC6	30	32		1056		
AC7	28	30	4	416	581	551
AC7	30	32		746		
AC8	20	22	4	719	845	710
AC8	22	24		972		
AC8	24	26	4	1414	1773	1360
AC8	26	28		2132		
AC10	16	18	4	607	780	722
AC10	18	20		952		
AC12	16	18	4	377	1345	712
AC12	18	20		2313		
AC12	20	22	4	1232	1025	1165
AC12	22	24		817		
AC12	24	26	4	601	398	468
AC12	26	28		196		
AC13	16	18	4	93	391	476
AC13	18	20		689		
AC14	20	22	4	785	701	531
AC14	22	24		616		
AC15	12	14	4	178	450	414
AC15	14	16		723		

AC15	16	18	4	438	432	448
AC15	18	20		425		
AC15	20	22	4	687	746	729
AC15	22	24		806		
AC16	12	14	2	741	741	630
AC16	14	16	2	724	724	702
AC16	16	18	2	620	620	599
AC16	18	20	2	616	616	588
AC16	20	22	2	838	838	695
AC16	22	24	2	1040	1040	826
AC16	24	26	2	1533	1533	1336
AC16	26	28	2	1679	1679	1351
AC16	30	31	1	868	868	631
AC28	18	20	2	1436	1436	1425
AC28	32	34	2	908	908	565
AC41	24	26	2	542	542	441
LENGTH WEIGHTED AVERAGE					**907ppm**	**790ppm**

Table 2: Cowalinya air core holes for which re-assays by Lithium Borate Fusion/ICP-MS are reported.

HOLE NO.	NORTHING (m)	EASTING (m)	DIP (°)	TOTAL DEPTH (m)
AC1	6358200	433200	-90	39
AC2	6358200	433100	-90	34
AC3	6358200	432700	-90	33
AC4	6358200	432600	-90	36
AC5	6358200	432500	-90	36
AC6	6358200	432400	-90	32
AC7	6358200	432300	-90	32
AC8	6358200	432200	-90	29
AC10	6358200	432000	-90	27
AC12	6358600	433000	-90	29
AC13	6358600	432900	-90	21
AC14	6358600	432800	-90	25
AC15	6358600	432700	-90	28
AC16	6358600	432600	-90	32
AC28	6359000	432100	-90	39
AC41	6359365	430900	-90	30

Table 3: Re-assays of 2-metre composites by Lithium Borate Fusion/ICP-MS.

HOLE NO.	FROM (m)	TO (m)	INTERVAL (m)	Ce (ppm)	Dy (ppm)	Er (ppm)	Eu (ppm)	Gd (ppm)	Ho (ppm)	La (ppm)	Lu (ppm)	Nd (ppm)	Pr (ppm)	Sc (ppm)	Sm (ppm)	Tb (ppm)	Th (ppm)	Tm (ppm)	U (ppm)	Y (ppm)	Yb (ppm)	TREE (ppm)
AC1	28	30	2	170	9.3	5.4	2.3	10.9	1.8	80.4	0.7	85.6	19.6	4.0	14.3	1.5	17.0	0.7	10.1	35.2	4.4	442
AC1	30	32	2	195	7.9	4.2	3.1	12.7	1.6	87.0	0.4	104	23.0	8.0	18.1	1.6	14.4	0.6	4.8	27.6	3.6	490
AC1	32	34	2	196	25.9	14.5	6.0	30.0	5.0	88.6	1.5	143	28.2	14.0	30.5	4.1	6.9	1.8	3.0	117.0	11.0	703
AC1	34	36	2	256	37.9	21.8	8.0	41.1	7.8	109	2.3	183	35.0	14.0	40.6	6.1	6.4	3.1	2.6	200.0	17.1	969
AC2	12	14	2	39.3	1.0	0.8	0.3	1.3	0.2	51.9	0.2	23.2	8.3	8.0	2.2	0.2	6.9	0.1	2.5	5.0	1.0	135
AC2	14	16	2	88.1	19.8	10.2	8.1	24.8	3.6	124	1.2	202	41.6	7.0	37.3	3.4	16.2	1.6	2.6	103.0	9.3	678
AC2	16	18	2	293	26.8	14.1	9.5	38.7	5.3	228	1.7	261	62.8	17.0	50.8	4.9	23.8	2.2	2.5	157.0	15.5	1171
AC2	18	20	2	307	20.5	11.7	7.8	25.6	3.8	208	1.3	210	45.1	13.0	36.8	3.4	15.2	1.5	2.3	101.0	10.1	994
AC2	20	22	2	387	22.2	11.5	7.7	28.0	4.1	242	1.4	217	46.3	12.0	38.0	3.9	14.1	1.6	2.8	119.0	10.2	1140
AC2	22	24	2	583	28.4	10.9	10.7	43.0	5.2	194	1.0	265	60.0	24.0	53.6	5.7	26.4	1.8	4.3	164.0	9.8	1436
AC2	24	26	2	337	13.0	5.5	5.9	19.2	2.1	146	0.5	160	35.8	7.0	28.5	2.6	16.2	0.7	3.2	60.0	4.3	821
AC2	26	28	2	422	16.4	8.0	7.2	25.4	2.8	180	0.7	207	46.7	9.0	37.8	3.3	17.6	0.9	4.9	78.6	4.7	1041
AC2	28	30	2	363	17.4	6.2	8.6	29.7	2.5	189	0.4	219	54.8	19.0	40.5	3.9	11.0	0.8	9.4	55.5	5.2	997
AC2	30	32	2	268	16.6	6.9	6.3	22.4	3.1	119	0.7	144	36.8	14.0	30.4	3.6	12.6	1.0	4.0	75.2	5.9	740
AC3	32	33	1	232	7.7	2.6	4.3	15.0	1.2	115	0.3	141	38.4	22.0	27.4	1.7	6.7	0.3	1.7	28.3	2.2	617
AC4	24	26	2	306	16.3	8.5	5.5	16.9	3.1	138	1.1	173	43.2	8.0	29.6	2.5	21.5	1.2	4.5	61.5	8.4	815
AC4	26	28	2	213	26.2	13.7	10.2	36.5	5.1	192	1.6	234	56.8	18.0	45.3	4.9	18.0	2.2	4.8	142.0	14.9	998
AC4	28	30	2	226	18.7	9.3	5.7	20.0	3.5	149	1.1	169	40.6	7.0	31.3	2.8	18.8	1.4	4.3	83.3	8.7	770
AC4	30	32	2	312	22.4	10.6	6.8	23.8	3.7	156	1.0	186	44.1	14.0	36.2	3.4	15.5	1.2	4.8	90.5	8.2	906
AC4	32	34	2	295	14.7	6.7	5.3	18.0	2.6	162	0.8	157	40.6	14.0	26.9	2.6	11.9	0.8	4.2	58.0	5.5	796
AC4	34	35	2	377	23.1	11.8	7.1	23.9	4.2	199	1.2	215	54.4	13.0	40.6	3.6	12.2	1.4	3.3	105.0	9.8	1077
AC5	24	26	2	171	9.6	4.4	3.2	12.1	1.7	120	0.4	106	27.2	10.0	18.1	1.7	20.7	0.6	3.9	42.3	3.6	522
AC5	26	28	2	184	13.5	6.3	4.8	15.7	2.2	92.1	0.7	125	28.8	15.0	23.9	2.3	10.0	0.8	7.8	52.0	4.5	556
AC5	28	30	2	196	17.1	7.5	5.6	18.2	2.8	102	0.7	139	33.2	16.0	29.0	2.6	6.4	1.0	7.0	68.5	6.1	629
AC5	30	32	2	75	6.4	3.2	1.8	8.2	1.2	37.3	0.4	47.3	10.8	21.0	10.5	1.2	8.7	0.6	4.0	38.0	3.5	245
AC5	32	34	2	312	16.1	6.8	6.2	20.5	2.6	126	0.7	207	49.5	8.0	34.2	2.9	14.6	0.8	3.5	55.6	5.8	847
AC5	34	36	2	471	22.8	8.6	11.0	42.4	3.9	166	0.9	368	78.6	15.0	63.4	5.2	18.8	1.4	3.4	71.1	9.1	1323

AC6	24	26	2	272	11.6	5.4	4.2	12.2	1.9	150	0.7	113	33.6	19.0	22.3	1.8	10.3	0.6	5.3	45.1	4.3	679
AC6	26	28	2	372	11.5	4.8	5.2	18.5	2.0	197	0.5	147	43.0	28.0	27.4	2.3	10.8	0.7	5.5	52.4	5.1	889
AC6	28	30	2	406	13.6	5.7	5.7	16.6	2.3	220	0.6	167	50.6	20.0	34.0	2.4	14.3	0.6	8.1	50.0	3.8	979
AC6	30	32	2	370	13.0	5.8	5.0	14.9	2.1	183	0.6	153	44.7	16.0	29.5	2.3	13.7	0.8	9.1	49.9	4.5	879
AC7	28	30	2	133	6.4	3.2	2.7	6.8	1.0	64.9	0.3	67.6	18.1	12.0	14.1	1.1	10.6	0.4	4.3	24.8	2.2	347
AC7	30	32	2	241	9.1	3.8	4.1	15.6	1.6	124	0.4	122	30.7	18.0	22.5	1.9	9.6	0.7	3.7	41.3	3.6	622
AC8	20	22	2	283	5.1	1.9	2.2	5.7	0.8	158	0.2	79.1	27.8	13.0	12.8	0.8	15.3	0.3	4.2	18.9	1.2	598
AC8	22	24	2	298	19.4	8.8	6.9	21.2	3.0	119	0.7	176	42.6	15.0	37.6	3.3	8.2	0.9	5.6	67.8	5.7	811
AC8	24	26	2	358	38.5	18.8	12.2	39.4	6.6	122	1.9	280	60.2	18.0	62.8	6.1	7.2	2.3	8.8	157.0	13.2	1179
AC8	26	28	2	400	77.7	44.0	18.7	72.5	14.7	116	4.6	397	76.0	18.0	95.2	11.8	4.6	5.6	7.4	405.0	33.3	1772
AC10	16	18	2	60.8	11.8	6.2	4.5	15.7	2.3	170	1.1	116	33.8	10.0	19.2	2.2	16.2	0.8	2.6	60.8	5.7	511
AC10	18	20	2	206	16.0	8.2	6.9	23.4	3.3	204	1.1	161	45.8	14.0	27.5	3.1	26.0	1.0	3.2	82.2	6.8	796
AC12	16	18	2	73.4	5.9	3.3	0.6	7.0	1.3	101	0.6	56.4	18.4	7.0	8.6	1.0	13.2	0.5	2.4	33.4	3.8	315
AC12	18	20	2	657	33.0	14.3	8.2	56.5	6.2	430	1.3	385	107	10.0	67.9	6.8	39.4	1.7	7.0	146.0	10.0	1931
AC12	20	22	2	569	14.0	7.0	2.8	19.6	2.9	137	1.0	122	34.3	8.0	24.1	2.7	30.0	0.9	3.6	74.9	6.5	1019
AC12	22	24	2	351	11.7	5.8	2.0	14.5	2.2	93.7	0.8	88.0	24.6	8.0	16.9	2.0	21.5	0.9	3.0	56.3	5.7	676
AC12	24	26	2	141	11.6	5.6	2.2	16.0	2.4	112	0.7	100	27.4	8.0	18.6	2.2	15.1	0.8	2.0	56.3	4.8	502
AC12	26	28	2	43.6	3.5	1.9	0.8	4.8	0.7	45.3	0.3	27.3	8.5	8.0	5.4	0.7	4.1	0.3	0.9	18.6	1.6	163
AC13	16	18	2	23.0	2.3	1.5	0.2	1.9	0.5	21.0	0.3	7.3	2.3	12.0	1.8	0.3	7.1	0.3	2.5	12.8	2.2	78
AC13	18	20	2	160	12.4	6.4	2.0	16.3	2.4	138	1.0	118	36.3	10.0	21.8	2.3	18.7	0.9	4.4	52.7	5.8	576
AC14	20	22	2	262	15.2	8.0	2.3	14.8	2.5	118	0.9	105	27.4	9.0	22.0	2.2	30.6	0.9	3.4	64.2	7.7	653
AC14	22	24	2	209	12.4	6.1	1.8	11.8	2.0	93.3	0.7	76.8	20.0	9.0	16.3	1.7	21.9	0.8	2.4	53.2	5.7	512
AC15	12	14	2	38.2	3.8	2.4	0.6	3.5	0.7	37.7	0.4	21.8	5.7	8.0	3.9	0.6	8.5	0.5	2.4	24.9	3.3	148
AC15	14	16	2	153	20.3	13.5	3.9	17.0	3.7	110	1.9	102	26.3	9.0	21.3	2.8	24.9	1.7	4.0	111.0	13.5	602
AC15	16	18	2	112	10.3	6.0	2.1	9.9	1.9	75.8	0.9	56.6	15.5	6.0	11.5	1.4	16.3	0.7	2.9	52.8	7.0	364
AC15	18	20	2	77.8	13.1	9.2	2.0	10.9	2.6	63.1	1.2	58.8	15.6	7.0	12.8	1.6	13.4	1.1	3.1	75.4	8.8	354
AC15	20	22	2	141	20.0	12.8	2.8	18.6	3.7	104	1.4	99.2	25.1	7.0	21.0	2.9	20.1	1.6	4.7	107.0	10.7	572
AC15	22	24	2	179	22.4	13.9	3.1	23.6	4.2	114	1.6	122	29.5	8.0	25.3	3.3	25.9	1.6	4.9	116.0	11.4	671
AC16	12	14	2	298	13.0	8.3	2.6	12.9	2.5	82.3	1.0	83.7	22.4	8.0	16.0	1.8	28.2	1.0	4.4	60.4	7.5	613
AC16	14	16	2	207	16.1	7.1	3.4	15.7	2.6	104	0.9	120	33.6	11.0	23.5	2.4	32.7	1.0	4.8	59.3	6.9	603

AC16	16	18	2	160	16.0	9.4	3.2	14.6	2.9	88.1	1.2	94.2	24.1	9.0	18.7	2.1	26.3	1.2	4.6	71.2	9.3	516
AC16	18	20	2	154	15.9	8.5	3.0	14.8	2.9	87.0	1.2	105	26.7	9.0	21.3	2.2	23.4	1.2	4.3	60.8	9.3	514
AC16	20	22	2	235	19.6	10.9	4.6	20.5	3.4	107	1.2	140	35.8	9.0	30.6	2.8	25.0	1.3	4.8	75.8	10.4	699
AC16	22	24	2	283	25.6	13.6	6.1	26.2	4.3	137	1.7	173	42.3	8.0	36.1	3.7	24.3	1.6	5.3	101.0	12.1	867
AC16	24	26	2	276	49.2	21.9	10.0	48.5	7.9	218	2.5	278	70.6	9.0	56.0	7.0	25.4	2.9	7.2	212.0	19.2	1280
AC16	26	28	2	226	54.3	30.8	10.6	57.1	10.0	259	3.3	304	71.7	7.0	64.1	7.6	19.8	3.6	5.9	276.0	24.7	1403
AC16	30	31	1	267	21.0	10.4	4.1	19.5	3.7	102	1.2	130	33.7	10.0	26.6	3.0	26.8	1.3	6.5	89.6	8.2	721
AC28	18	20	2	186	45.8	20.7	13.9	48.8	8.0	211	2.3	276	63.8	19.0	54.8	6.8	28.9	2.7	8.3	242.0	16.8	1199
AC28	32	34	2	259	22.4	8.5	6.6	23.5	3.5	101	0.9	166	41.2	21.0	32.4	3.5	15.2	1.1	10.3	80.3	6.9	757
AC41	24	26	2	141	16.2	9.5	4.5	15.2	3.2	60.1	1.0	70.5	18.5	13.0	14.6	2.3	16.1	1.5	3.6	83.9	8.0	450

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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.	A total of 109 vertical aircore holes were drilled in two areas at Cowalinya in July 2021 – 59 holes in Cowalinya South and 50 holes in Cowalinya North. Maximum hole depth was 44m. All holes were testing for supergene rare earth element (REE) mineralisation hosted by saprolitic clays. Both areas drilled overlapped extensively with areas previously aircore drilled by two other companies exploring for gold (AngloGold Ashanti Ltd and Great Southern Gold Pty Ltd). One-metre samples were collected from a cyclone into plastic bags. In the original program, 100 holes were 4m composite sampled with shorter composites at end of hole; 9 holes were sampled on a 1m basis. Overlying transported sediments were not routinely sampled as they were not thought to contain anomalous amounts of REEs – where they were assayed low values were returned. In the re-assay program, 102 of the original 109 holes drilled were sampled on a 2m basis.
	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 was undertaken. Certified standards and duplicate samples were submitted with drill samples.
	Aspects of the determination of mineralisation that are Material to the Public Report.	Aircore drilling was used to obtain 1m samples which were collected in plastic bags. Samples ranging from 1m to 4m composites (original program) and 2m composites (re-assay grogram) were taken for analysis. Sample size was 2-3kg in weight. At LabWest Minerals Analysis (LabWest) in Perth, Western Australia, samples were dried, crushed, split and pulverized with a 0.1g 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.).	Aircore. A type of reverse circulation drilling using slim rods and a 3.5-inch blade bit. The samples recovered are typically rock chips and powder, similar to reverse circulation drilling.

Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	Aircore recovery was visually assessed by comparing drill chip volumes in sample bags for individual metres. Estimates of sample recovery were recorded on drill logs. Routine checks for correct sample depths were undertaken. Aircore sample recoveries were visually checked for recovery, moisture and contamination and considered to be acceptable within industry standards. The cyclone was 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 responsible geologist believes the samples are reasonably representative. Poor sample recovery was regularly recorded in the first couple of metres of a hole and often when hard bedrock was intersected – usually less than a full metre was recovered. Wet samples with moderate recoveries were 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 were geologically logged in enough detail to discern lithological units. Logging was 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 was qualitative in nature.
	The total length and percentage of the relevant intersections logged.	All aircore holes were 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.	1m samples were collected from a cyclone into plastic bags. 4m and 2m composites and single metre samples were 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 achieved a representative sample from top to bottom through the entire bag. The vast majority of samples were 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 involved the use of certified standards every 40^{th} sample in the original program, and every 20^{th} sample in the re-assay program.

	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 was taken every 80th sample in the original program, and every 20th sample in the re-assay program.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	The sample size of 2-3kg 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.	In the original program, analyses were done at LabWest using their MMA-04 technique: microwave assisted HF/multi-acid digest with ICP-MS/OES finish. In the re-assay program, analyses were done at LabWest using their AF-02S technique: lithium meta/tetraborate fusion with ICP-MS/OES finish. These techniques are considered to be ‘near total’ (MMA-04) and ‘total’ (AF-02S) 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) were measured in the original program, with oxides of aluminium (Al), calcium (Ca), iron (Fe), magnesium (Mg) and phosphorus (P) added for the re-assay program.
	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 were inserted every 40th sample in the field in the original program, and every 20th sample in the re-assay program. Field duplicates were taken every 80th sample in the original program, and every 20th sample in the re-assay program. LabWest used OREAS standards, blanks and sample repeats. Acceptable levels of accuracy were achieved. In the original program, Bureau Veritas conducted check assays by lithium borate fusion/laser ablation/ICP-MS on 46 samples containing >300ppm total rare earth oxide (TREO) from Cowalinya South – these on average gave 12.2% higher TREO values than the original HF/multi-acid digests by LabWest reflecting 'total' digest by the fusion method as opposed to 'near total' digest by the multi-acid method. Correlation coefficient between the two methods was 0.985. The Bureau Veritas work provided the technical justification to proceed with the re-assay program.
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.	Three aircore holes were drilled close enough to historical aircore holes to be able to compare downhole La and Ce assays. The distribution profiles and values were similar for two of the holes.
	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 were surveyed using a hand-held Garmin Etrex 10 GPS with ±3m accuracy. Only northings and eastings were recorded using the hand-held GPS.
	Specification of the grid system used.	GDA94 z51.
	Quality and adequacy of topographic control.	Cowalinya North and South are located in relatively flat terrain. Collar RLs have been obtained from a surface wireframe constructed using collar RL information contained in historical drill logs from AngloGold Ashanti and Great Southern Gold.

Data spacing and distribution	Data spacing for reporting of Exploration Results.	Cowalinya North: a mixture of 250m x 100m and 250m x 50m. Cowalinya South: 400m x 100m.
	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 sufficient for this style of mineralisation to establish an Inferred Mineral Resource at both Cowalinya North and South. The mineralisation occurs as extensive, generally flat lying supergene blankets hosted in saprolitic clays.
	Whether sample compositing has been applied.	In the original program, 100 holes out of 109 were assayed by 4m composite samples, compiled from one metre drilled samples. 2m and 3m composites were sometimes created at the end of a hole depending on the final depth. The remaining 9 holes were sampled on a 1m basis. This resulted in a total of 859 samples (including standards, blanks and field duplicates) being submitted for assay. In the re-assay program, 102 holes out of 109 were assayed by 2m composite samples, resulting in a total of 729 samples (including standards, blanks and field duplicates). Sampling targeted mineralised drill intervals from the original program that assayed ≥200ppm TREO.
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.	The Competent Person undertook the sampling and delivery of samples to the laboratory.
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 km east-north-east of Salmon Gums, 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 is Heavy Rare Earths Limited (HRE). Mr. David Ross was the responsible geologist who supervised the drilling and undertook the sampling. Full native title rights have been granted over the tenement and surrounding lands to the Ngadju people.
	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 both 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.
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 2.

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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 300ppm TREO-CeO_2. 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 >1000ppm 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 (eg '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 a plan view of the Cowalinya drillhole collar locations.
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.	Re-assays of intersections of mineralised widths (≥300ppm TREO-CeO2) for which a direct comparison with assays from the original program is possible, are reported in Table 1. Complete assays for these intervals are presented in Table 3.
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.	Preliminary metallurgical testwork has shown up to 91% TREO recovery from Cowalinya South using 5% hydrochloric acid at 30°C. U and Th values are reported in the re-assay program as they are considered to be deleterious elements in rare earth processing. The highest values recorded for these elements in the original program were 48ppm U_3O_8 and 48ppm ThO_2 and 12ppm U_3O_8 and 45ppm ThO_2 in the re-assay program. Weighted averages for all intersections reporting ≥300ppm TREO-CeO_2 in the original program were 5ppm U_3O_8 and 15ppm 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).	Further aircore drilling is in progress to test for lateral extensions to mineralisation. 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.