Pre-Quotation Disclosure Announcement

Heavy Rare Earths Limited [ACN 648 991 039] (ASX:HRE) (**Company**) is pleased to announce that it has raised $6 million through the issue of 30,000,000 fully paid ordinary shares (**Shares**) under the Equity Offer made in its prospectus dated 5 July 2022 and lodged with ASIC on the same date (**Prospectus**). The following information is given for release to the market in connection with the quotation of the Company's shares on the Australian Securities Exchange (**ASX**).

Unless defined in this announcement, capitalised terms have the meanings defined in the Prospectus.

Close of the Offers and issue of securities

The Company confirms all Offers made under the Prospectus have closed and that the Company has issued 30,000,000 Shares at $0.20 (20 cents) per Share under the Equity Offer.

The Company has also issued the following securities under the other Offers:

- 1,000,000 Shares in aggregate to David Ross and Christine Ross under the Vendor Offer; and
- 7,000,000 Class A Options and 2,500,000 Class B Options to former and existing Directors (or their nominee(s)) as described in the Prospectus under the Founder Option Offer; and
- 2,850,000 Class A Options and 1,850,000 Class B Options to third party advisors (or their nominee(s)) as described in the Prospectus under the Advisor Option Offer.

Completion of acquisition of WA exploration licence E 63 / 1972

The Company confirms the satisfaction of all conditions precedent and completion of the Company's acquisition of WA exploration licence E 63 / 1972 under the terms of the Deed of Option dated 27 October 2020 Between Cobold and the Vendors as assigned to the Company pursuant to the Assignment of Option to Acquire Exploration Licence dated 9 June 2021 between the Company, Cobold and the Vendors. The Company confirms that it has issued the Vendors an aggregate of 1,000,000 Shares (being those Shares under the Vendor Offer) and paid the Vendors an aggregate $300,000 in cash as consideration for the acquisition of WA exploration licence E 63 / 1972.

Restricted Securities

The Company advises that the following securities are classified as restricted securities on the basis of mandatory disposal restrictions (escrow) imposed by ASX:

Securities	Number	Restriction Period
Ordinary Shares	7,787,220	24 months from quotation
Ordinary Shares	1,000,000	12 months from issue
Class A Options	9,850,000	24 months from quotation
Class B Options	4,350,000	24 months from quotation

ESOP Securities

A maximum of 5,120,636 securities (being 7.5% of the number of fully paid shares on issue in the Company at listing) may be issued under the Employee Share Ownership Plan (**Plan**) of the Company. A summary of the terms of the Plan is set out in Section 9.3 of the Prospectus.

JORC Information – exploration results

Information (including JORC table 1s) regarding previously and historical exploration results on the site of each of the Cowalinya Project and the Duke Project are set out in Annexure A.

Access confirmation

The Company confirms there are no legal, regulatory, statutory or contractual impediments to the Company entering WA exploration licence E 63 / 1972 and carrying out exploration activities such that the Company will be able to spend its cash in accordance with its commitments for the purposes of Listing Rule 1.3.2(b).

This announcement has been approved by the Board of Heavy Rare Earths Limited.

Justin Mouchacca

Company Secretary

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ANNEXURE A TO PRE-QUOTATION DISCLOSURE ANNOUNCEMENT

JORC Table 1s

COMPETENT PERSON STATEMENT (JORC 2012 EDITION FORMAT)

Requirement: The JORC 2012 Code requires that public reports concerning Exploration Targets, Exploration Results, Mineral Resources or Ore Reserves require inclusion of a formatted "Competent Person Statement" detailing the responsible CP's compliance with the Code (the CP's competence, affiliations and relevant experience), the relationship of the CP with the issuing company, and the CP's consent to disclose the information in the "form and context" that it appears in the report.

CP Statement – JORC Table 1s: The information in the attendant JORC Table 1s, which augment Robin Rankin's June 2022 Independent Geologist's Report (IGR) to Heavy Rare Earths limited (HRE) on their Cowalinya and Duke REE Projects, that presents historic details which may relate to Exploration Targets, Exploration Results, Mineral Resources or Ore Reserves [and which summarises Inferred Mineral Resources contained in a February 2022 Resource Estimation Report by Mr John Tyrrell attached at Appendix 7 to the IGR, in which CP responsibility for information relating to the Cowalinya geology, sample and data collection and quality assurance and quality control (QAQC) was taken by **Mr David Ross** and CP responsibility for information relating to the Cowalinya Mineral Resource estimate was taken by **Mr John Tyrrell**] is based on information compiled by **Robin Rankin**, a Competent Person who is a Member (#110551) of the Australasian Institute of Mining and Metallurgy (MAusIMM) and accredited since 2000 as a Chartered Professional by the AusIMM in the Geology discipline (CP(Geo)). Robin Rankin provided this information to his Client as paid consulting work in his capacity as Principal Consulting Geologist and operator of independent geological consultancy GeoRes. He and GeoRes are professionally and financially independent in the general sense and specifically of their Client and of the Client's project. This consulting was provided on a paid basis, governed by a Scope of Work and a fee and expenses schedule. Results and conclusions reported were not contingent on payments. Robin Rankin has sufficient experience that is relevant to the style of mineralization and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person (CP) as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves' (the JORC Code). Robin Rankin consents to the inclusion in the Client's Report of the matters based on his information in the form and context in which it appears.

Cowalinya REE Project (Western Australia)

Heavy Rare Earths Limited's (HRE) **Cowalinya REE Project** is in Western Australia (WA). The Cowalinya Project is fully described and discussed in the Consultant's June 2022 Independent Geologist's Report (IGR) in Sections:

5. REE deposit types.
6. Background – geography, mineral tenure and geology.
7. Previous regional and local exploration.
8. Previous REE extraction metallurgy.
9. HRE's exploration model.
10. HRE's recent exploration.
11. Cowalinya Resource 2021 estimation review (and detailed in the Cowalinya Mineral Resource Estimate Report mentioned below).
12. Comparable deposits.

Other details relevant to the Cowalinya Project given in the IGR are:

- Data sources description in Section 3.9.
- Full data listings in Appendix 2.
- Independent site data verification details in Appendix 3.
- Independent mineral tenement reports in Appendix 4.
- HRE's exploration drill hole location plans in Appendix 5.
- Independent Cowalinya Mineral Resource Report in Appendix 7 (produced independently by Mr John Tyrrell of JMCT Consulting in February 2022, including a JORC Table 1, drill hole data listings and illustrations).

JORC Code, 2012 Edition – Table 1

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 (eg cut channels, random chips, or specific specialised 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*	• **NB: Exploration predominantly historical:** ○ Historical exploration: ▪ Most exploration sampling on and around the Cowalinya REE Project (Cowalinya) occurred well prior to Heavy Rare Earths Limited's (HRE) and the Consultant's involvement in the Project – and was thus historical and not physically observed by either party. ▪ Details on all historical sampling was derived by the Consultant from open-source hard copy reports produced by previous explorers and/or on-line sources – and is fully described and referenced within the June 2022 IGR (see summary above this Table). ○ Recent exploration: ▪ HRE conducted its own exploration on the Cowalinya Project very recently – and that was thus observed directly by HRE and its agents although not by the Consultant.

Criteria	JORC Code explanation	Commentary
	appropriate calibration of any measurement tools or systems used. • *Aspects of the determination of mineralisation that are Material to the Public Report.* • *In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.*	▪ Details of HRE's exploration was passed to the Consultant directly by HRE – and is also fully described and referenced within the IGR. Details of independent corroboration of that exploration is described in the June 2022 IGR (see summary above this Table). ▪ Only HRE's exploration data was used in the independent Resource estimate and is described in the February 2022 Cowalinya REE Mineral Resource Report ((the Resource Report) which includes its specific JORC Table 1 and CP Statements) appended to the June 2022 IGR at **Appendix 7**. ▪ In the Resource Report (pp2-3) **Mr David Ross** was given as the Competent Person (CP) for the Report's "information relating to the Cowalinya geology, sample and data collection and quality assurance and quality control (QAQC)" and **Mr John Tyrrell** was given as the CP for the Report's "information relating to the Cowalinya Mineral Resource estimate". ▪ In the IGR Mr David Ross was generically summarised as the CP for the Cowalinya Project's "Exploration Results and/or Data" and Mr John Tyrrell as the CP for the Cowalinya Project's "Mineral Resources". • **Sampling (see IGR's Section 7)**: ○ Virtually all historical regional and sampling was aimed at **gold** and comprised initial surface soil/calcrete sampling (<2 m deep) using augers followed by shallow (<60 m deep) "air-core" (AC) drilling of the weathered zone. ○ Those methods are considered "industry standard" for much shallow exploration in WA. ○ Available documentation indicates that exploration quality was adequate at least. ○ More recent historical sampling began to include by-product REE analyses – which allowed HRE's appreciation of possible REE targets. ○ HRE's recent sampling (used in the Resource estimate) was specifically for **REEs** (for the first time on the tenement) through AC drilling, a method highly applicable to their target in the terrain (an "ion-adsorption clay" (IAC) REE lateritic enrichment in weathered material above granite). ○ HRE's sampling is considered to be of medium to high quality. • **Sample intervals:** ○ Historical sample intervals are given by explorer in the IGR Section 7 and were all of the order of a few metres long. ○ HRE's recent samples were bagged on 1 m down-hole intervals. For assays submittal the individual 1 m samples were composited into 4 m intervals. The 4 m composites apparently did not cross geological boundaries. • **Sampling representivity**: ○ Representivity was ensured by sampling being of relatively short down-hole intervals (1 to 4 m). ○ In HRE's specific case the sample lengths were smaller than the anticipated REE deposit thicknesses (~20 m) and therefore fairly representative and capable of discriminating mineralisation. • **Mineralisation identification**: ○ REE deposits are described fully in the IGR's Section 5.

Criteria	JORC Code explanation	Commentary
		○ Cowalinya's specific mineralisation type is appreciated as "ion-adsorption clay" (IAC) – a lateritic concentration process in weathered material above granite. This type is described in the IGR's Section 5.6. ○ REE mineralisation concentrations are relatively low (~300-1,000 ppm), grain sizes are small, and their physical appearance is largely indiscernible – therefore their recognition is principally through chemical analysis of samples of weathered clayey material. • **Quality of sampling:** ○ The Consultant considers that all indications of the historical exploration sampling were that it was "industry standard" for the time, that it was administered by geological professionals, and that it was mostly collected by well-known, respected and experienced explorers. ○ Similarly the Consultant considers that HRE's recent exploration sampling was also of "industry standard" and was undertaken by experienced professionals.
Drilling techniques	• *Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg 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).*	• **Drilling methods** variously employed over time were: ○ Auger and/or vacuum drilling – shallow (~2 m) open hole drilling (some historical exploration). ○ AC – air-core reverse circulation method (most historical exploration and all of HRE's exploration). Used to provide temporary cased (twin tube) sample collection for accurate depth sampling and sample contamination minimization. Typically 6 m rods, ~125-140 mm diameter holes. Highly applicable to soft, possibly wet, material. • **Drill hole down-hole survey**: No surveys were undertaken – holes were vertical and were judged too short to be necessary. • **Casing**: All holes would be assumed to have been drilled un-cased with the great majority using a short temporary section of casing at surface to prevent hole collapse. Subsequently the temporary casing would be generally removed and the hole collar rehabilitated.
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.* • *Measures taken to maximise sample recovery and ensure 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.*	• **Recovery in general**: ○ Good recovery would have been the principal objective of all explorers in using AC drilling. ○ The method could be said to be inherently the best for successful drilling and sampling variably consolidated and/or damp material. ○ The method can capture virtually all of a sample interval, including fines. • **Recovery details**: Given in the IGR's Section 7 and Section 10. • **Recovery maximization measures**: Effectively employing AC drilling ensured reasonable sample recovery. • **Recovery/grade relationship and sample material bias**: ○ Little consistent data was available on sample recovery from the various exploration programs – hence evaluation of this was impossible. ○ However the low mineralisation concentrations and small grain sizes (mentioned above) would suggest little relationship between sample recovery and grade. ○ AC is able to capture interval fines and water, therefore increasing the likelihood of capturing any REEs in those fractions.
Logging	• *Whether core and chip samples have been*	• **Logging in general**:

Criteria	JORC Code explanation	Commentary
	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.*	○ Historical exploration reporting indicates geological logging was consistently undertaken. ○ The scope of an IGR precluded any in-depth scrutiny of historical or recent logging. • **Logging adequacy**: As much of the historical exploration was grass-roots and tentative in nature, with drilling being undertaken quickly, geological logging is presumed to have been fairly cursory – with evaluation largely resting on sample assay results. • **Qualitative/quantitative logging**: Logging was qualitative in nature. This involved observation and description. • **Percentage logged**: Unknown.
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 maximise 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.*	• **Sub-sampling overall comments**: ○ The existence of multiple past explorers using slightly varying drilling and sampling techniques implies sub-sampling on the Project would have varied over time. ○ However the Consultant believes all used generally "industry-standard" methods and observes that results of different programs do not appear to have produced noticeable differences. ○ Far greater differences would have arisen due to differing sample analytical methods and laboratories. • **Appropriateness of methods**: Given that the Consultant believes all sampling was "industry standard" he assumes all sub-sampling methods were fully appropriate. • **QC measures to maximise representivity**: Generally unknown (other than the regular use of blanks, duplicates and standards). • **Sampling representivity measures**: ○ Sampling continuously over short intervals were the primary methods of ensuring in-situ material representivity. • **Sample size wrt rock grain size**: Samples sizes (2-3 kg per sample) were very appropriately large compared to the grain size of the in-situ sands and clays (few mm).
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*	• **Assay method and appropriateness**: ○ Laboratories: All Project operators used commercial assaying laboratories (detailed in IGR). ○ Assaying was appropriate for gold (initial targets) and latterly for REEs. ○ Assaying for REEs is an evolving process – with HRE currently investigating and comparing methods. • **Geophysics**: It was generally understood that hand-held XRF tools had not been used on the Project to date (and certainly most historical exploration preceded their invention). • **QC procedures**: Sample QC was undertaken in various forms and discussed in detail by various individual explorers, but overall Project consistency of approach did not exist.

Criteria	JORC Code explanation	Commentary
	adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.	
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.*	• **Independent verification of significant intersections**: ○ No independent verification of mineralisation has occurred ○ However the necessity for this is partially obviated by the capacity of HRE to contrast their recent result with those of previous explorers – with results proving very similar. • **Twinned holes**: ○ No extensive program to hole twinning has yet occurred. ○ However a handful of holes were effectively twinned by later programs drilling new holes very close to existing holes. Mineralised intercepts correlated well. ○ The IGR's Section 10.7.2 details the 3 twin holes drilled by HRE and the comparisons with previous holes. • **Primary data documentation, entry, verification and storage**: ○ Unknown for historical exploration. All accessed as hard copy documents on-line. ○ HRE's exploration fully computerised. • **Adjustment of assays**: Unknown.
Location of data points	• *Accuracy and quality of surveys used to locate drill holes (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.*	• **Drill hole data location**: ○ Location of historical drill hole data all described in original documentation – and taken at face-value. ○ Location of all drill hole data (including recent drilling by HRE) used in the Resource estimation discussed in the Mineral Resource Report (attached as the IGR's Appendix 7) and detailed in the Resource Report's Table 1. • **Coordinate grid system**: Older historical data coordinates were presumed to be in AMG66. Recent data coordinates are in GDA 1994 (MGA Zone 51). • **Topography adequacy**: See the Mineral Resource Report, IGR's Appendix 7.
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.*	• **Drill hole data spacing**: ○ Drill hole spacings and orientations are described in the IGR's Sections 7 and 10. ○ Historical drill hole data spacings varied from explorer to explorer. ○ HRE's recent drill holes were located on E/W cross-sections. Thise sections were spaced either 250 m or 400 m N/S. Hole spacing on section was either 50 m or 100 m E/W. • **Data distribution adequacy wrt grade estimation & classification**: ○ Opinions: ▪ The Consultant's view is that HRE's drill hole spacing, and fine sampling down the drill holes, was clearly sufficient to effectively test and demonstrate geological and grade continuity between holes – as utilised in the Resource estimation. ▪ In agreement with HRE's Resource Consultant the Consultant would propose in-fill drilling is required for greater geological confidence and an up-lift in Resource classification.

Criteria	JORC Code explanation	Commentary
		▪ Similarly the Consultant would propose finer (1 m) down-hole sampling in future. ○ Qualifier: HRE's existing drilling does not "drill-out" the REE deposits – they are still generally open in all directions. • **Compositing**: ○ Compositing details are described in the IGR's Sections 10 and 11 and its Appendix 7. ○ Raw sample intervals were composited on-site down-hole to 4 m with residuals down to 1 m. ○ Compositing did not cross rock type boundaries. ○ Samples were not composited by the laboratories. ○ For the Resource estimation the mixture of 4 m and 1 m long samples were composited to 4 m (and again not generally across geological boundaries).
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 mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.*	• **Data orientation adequacy wrt structure**: ○ Given the sub-horizontal REE deposit orientation. ○ Opinion: The Consultant considers that the vertical drilling (on E/W cross-sections) achieved the most unbiased sampling across-dip and across-strike. The section orientation was probably irrelevant as the deposit strike has not yet been clearly defined. • **Sample orientation bias - none**: As described immediately above the Consultant considers that the drilling orientation did not introduce a sampling bias.
Sample security	• *The measures taken to ensure sample security.*	• **Sample security**: ○ Historical sampling: Unknown security measures. ○ Recent sampling: The Consultant assumed sample security from HRE's close and direct supervision (though directly engaged personnel) of its exploration and if its sampling.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• **Audits of past drilling**: The Consultant is unaware of any past audits of historical sampling; and believes recent sampling has not been audited or reviewed other than through his own independent work done for the IGR.

2 Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section 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*	• **Mineral tenement status**: ○ Described in detail in IGR's Section 6.2 with Tenement report in Appendix 4. ○ Cowalinya Project WA tenement is **Exploration License 63/1972** (E63/1972). ○ E63/1972 held jointly by David Ian Ross and Christine Ann Ross, with whom HRE has a three year option to purchase 100% of the tenement. ○ Tenement area 80 blocks.

Criteria	JORC Code explanation	Commentary
	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.*	○ License term 5 years, commenced 9 January 2020 and expires 8 January 2025. ○ Tenement information independently confirmed through the WA Tenement Register administered by the WA DMIRS on-line. • **Other agreements and material issues pertinent to the tenement:** ○ Except for native title interests the Consultant is unaware of all other agreements and material issues which may relate to the tenement. ○ The Consultant is aware that native title requires agreement, and that certain positions have been negotiated by HRE, but is unaware of the specifics and HRE's entitlement position. • **Security of tenure and impediments to operation**: ○ Tenure: The Consultant is only aware that E63/1972 expires on 8 January 2025. ○ All other aspects of security of tenure at the time of reporting were unknown to the Consultant. • **Impediments to operation**: The Consultant is completely unaware of any impediments to operation of the Project within E63/1972.
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• **Previous exploration**: ○ The IGR endeavoured to find, report and review all previous exploration on or around the Project. ○ That exploration was described in the IGR's Section 7. ○ The most relevant and recent exploration was that by: ▪ AngloGold Ashanti Australia Ltd (AngloGold, 2009 to 2013 within the tenement); ▪ Great Southern Gold Pty Ltd (Great Southern, 2011 to 2017 within the tenement); ▪ Emetals Limited (eMetals, 2020 to 2021, immediately south of the tenement); and ▪ Salazar Gold Pty Ltd (Salazar, 2011 to 2013, on ground ~55 km S of the tenement). • **Appraisal of past exploration**: Overall opinion: The Consultant considers that past exploration followed clear objectives, was competently carried out, and produced good data. Past exploration within the tenement (AngloGold and Great Southern) was in search of gold – but fortuitously also provided REE analyses which provided path-finders to HRE. Recent REE exploration immediately to the south of the tenement (eMetals) illustrated REE mineralisation exactly analogous to HRE's Project. And the mixed target Salazar exploration further south also illustrated REE mineralisation in the general area with the addition of successful metallurgical test-work proving practical extraction.
Geology	• *Deposit type, geological setting and style of mineralisation.*	• **Geology details:** ○ Cowalinya geology is described in the IGR's Section 6.3. ○ Cowalinya's deposit type, geological setting and style of mineralisation is described in the IGR's Section 9.8 and elsewhere. • **Deposit type**: "Ion-adsorption clay" (IAC) REE deposit. • **Geological setting**: Clayey lateritic weathered zone (saprolite) above granite. • **Mineralisation style**: REE concentration (through lateritisation mobilization and redeposition) in the central zone of saprolite weathered from granite. REE minerals sourced from the granite and concentrated in the central part of the saprolite.
Drill hole Information	• *A summary of all information material to the understanding of the exploration*	• **Drill hole data**: ○ All historical drill hole data relevant to an IGR is described in the IGR's Section 7.

Criteria	JORC Code explanation	Commentary
	results including a tabulation of the following information for all Material drill holes: ○ *easting and northing of the drill hole collar* ○ *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar* ○ *dip and azimuth of the hole* ○ *down hole length and interception depth* ○ *hole length.* • *If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*	○ Recent HRE drill hole data pertinent to an IGR and to the recent Resource estimation described in the IGR's Sections 10 and 11. ○ HRE's drill hole location plans appended to the IGR as Appendix 5. ○ HRE's REE mineralised intervals tabulated in the IGR's Tables 9 and 10. ○ Recent drilling also specifically reported, illustrated and tabulated in the Cowalinya Mineral Resource Report, appended to the IGR as **Appendix 7**. The report was independently produced in February 2022 by Mr John Tyrrell of JMCT Consulting. Amongst other Project details it contained a JORC Table 1 (as Appendix A) and drill hole data listings (as Appendix B).
Data aggregation methods	• *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg 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.*	• **Reporting aggregation/weighting/cutting**: ○ All individual REE grades were converted to total oxide values (TREO). ○ Mineralised zones were interpreted where TREO > 300 ppm. ○ During grade estimation all grades were used (no bottom cuts) with top cutting applied selectively to individual REEs and in different areas where extreme data outliers existed. Sample intervals were composited to 4 m. • **Intercept aggregations**: ○ Reporting of intercept aggregations used a lower limit of 300 ppm TREO. • **Metal equivalents**: No metal equivalent values were necessary or used.
Relationship between mineralisation widths and intercept lengths	• *These relationships are particularly important in the reporting of Exploration Results.* • *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.*	• **Geometry of mineralization with respect to drill hole angles**: ○ Mineralisation was sub-horizontal and thus normal to the vertical drilling direction. ○ Down-hole intercept lengths were therefore true thicknesses. • **Down-hole reporting basis – down-hole**: All sample intervals listed were simply by "down-hole" sample interval, representing true thicknesses.

Criteria	JORC Code explanation	Commentary
	• *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').*	
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 drill hole collar locations and appropriate sectional views.*	• **Diagrams**: Data was illustrated in plan and cross-section, with scales and coordinates, in multiple locations in the IGR and in the Resource report appended as Appendix 7.
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.*	• **Balanced reporting**: ○ Historical exploration was comprehensively reported in the IGR in sufficient detail relevant to the nature of a review. ○ Each incidence of exploration was reported with approximately the same detail and weight. ○ Reporting of outlier grade results was particularly avoided to facilitate balanced reporting – and the subdued nature of the mineralisation generally discouraged this anyway.
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.*	• **Other material exploration data**: The IGR endeavored to report **all** aspects of exploration on the Project.
Further work	• *The nature and scale of planned further work (eg 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.*	• **Further work planned**: ○ Involvement in further exploration on the project was outside the scope of the Consultant's engagement to produce and IGR. ○ However the Consultant was aware that the primary intent of HRE's requirement for an IGR was to raise funds through an IPO to principally carry out extensive further drilling exploration within the tenement, using similar techniques as before. ○ The general nature of that drilling would be as in-fill between existing holes and to extend the aerial coverage of the drilling. ○ The Consultant understands (from HRE's Prospectus, and as summarized in the IGR's Section 2.3) that HRE intends (details may be approximate) to drill up to 10,000 m (330 holes) in late 2022 to the west and south-east of the Cowalinya South deposit, initially on a 400*200 m pattern, with results to guide future closer spaced drilling. Exploration will include

Criteria	JORC Code explanation	Commentary
		down-hole wireline logging and diamond drilling to obtain density data and samples for other geotechnical information and further metallurgical test work.

Duke HREE Project (Northern Territory)

Heavy Rare Earths Limited's (HRE) **Duke HREE Project** is in the Northern Territory (NT). The Duke Project is fully described and discussed in the Consultant's June 2022 Independent Geologist's Report (IGR) in Sections:

5. REE deposit types.
13. Background – geography, mineral tenure and geology.
14. Previous regional and local exploration.
15. Geological potential for a HREE deposit.

Other details relevant to the Duke Project given in the IGR are:

- Data sources description in Section 3.9.
- Independent mineral tenement reports in Appendix 6.

JORC Code, 2012 Edition – Table 1

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 (eg cut channels, random chips, or specific specialised 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.* • *In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3*	• **NB: Exploration <u>exclusively</u> historical:** ○ All exploration sampling on, and all of that around, the Duke HREE Project (Duke) occurred prior to Heavy Rare Earths Limited's (HRE) and the Consultant's involvement in the Project – and was thus historical and not physically observed by either party. ○ The vast majority of that previous exploration was on ground outside the tenements, predominantly to the south. ○ HRE have not to date undertaken any exploration on the Project's tenements. ○ Details on all historical sampling was derived by the Consultant from open-source hard copy reports produced by previous explorers and/or on-line sources – and is fully described and referenced within the June 2022 IGR (see summary above this Table). • **Sampling (see IGR's Section 14)**: ○ Details of historical sampling in the general Duke Project area by previous explorers there are given in the IGR's Section 14. ○ Most historical regional and sampling was aimed at **gold, copper** and to a lesser extent uranium. ○ Sampling employed conventional regional geophysics, soil sampling, and very to relatively shallow drilling. ○ The local and regional area has seen explored heavily since at least the 1960s. Numerous old gold mines lie to the south and south east of the Project tenements. ○ Those previous sampling methods are considered "industry standard" for exploration in the Tennant Creek area, a considerable gold mining district of long standing.

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	kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.	○ Available documentation indicates that exploration quality was adequate at least. ○ HRE's future exploration will be the first for REEs. • **Sampling intervals:** Intervals varied for each explorer. • **Sampling representivity**: The degree to which past sampling was representative is difficult to gauge now, but the Consultant would assume that it was considered so at the time. • **Mineralisation identification**: ○ Previous gold/copper/uranium exploration sought minerals associated with those types of elements. That mineralisation is **not** relevant to the Duke Project. ○ REE deposits are described fully in the IGR's Section 5. ○ Future REE mineralisation expected at Duke would be of the "Browns Range-style", a vein-style breccia-hosted hydrothermal xenotime HREE mineralised system. This type is described in the IGR's Section 5.9. ○ Mineralisation identification would be by analysis of the minerals associated with these systems and in pegmatites, typically xenotime. • **Quality of sampling:** ○ The Consultant considers that all indications of the historical exploration sampling were that it was "industry standard" for the time, that it was administered by geological professionals, and that it was mostly collected by well-known, respected and experienced explorers.
Drilling techniques	• *Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg 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).*	• **Drilling methods:** Methods varied greatly over time and from explorer to explorer. The great majority were aimed at very shallow (up to several metres only) sampling and hence included auger and/or vacuum open-hole drilling. Limited slightly deeper drilling was typically RAB or RC. • **Drill hole down-hole survey**: As the vast majority of holes were shallow and vertical no down-hole surveying was necessary. • **Casing**: All holes would be assumed to have been drilled un-cased with the great majority using a short temporary section of casing at surface to prevent hole collapse. Subsequently the temporary casing would be generally removed and the hole collar rehabilitated.
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.* • *Measures taken to maximise sample recovery and ensure 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.*	• **Recovery in general**: ○ Generally unknown and irrelevant to the Duke Project. ○ No real data was available on historical drilling. ○ The shallow nature of the drilling, aimed at simply obtaining one sample below transported surface cover, implied recovery was not an important consideration. • **Recovery details**: Any available details are given in the IGR's Section 14. • **Recovery maximization measures**: Not known. • **Recovery/grade relationship and sample material bias**: As very little data was available evaluation of this was impossible.
Logging	• *Whether core and chip samples have been geologically and geotechnically logged to a*	• **Logging in general**: ○ Documentation of historical exploration indicates geological logging was consistently

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	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.*	undertaken. ○ The scope of an IGR precluded any in-depth scrutiny of historical logging. • **Logging adequacy**: As much of the historical exploration was grass-roots and tentative in nature, with drilling being undertaken quickly, geological logging is presumed to have been fairly cursory – with evaluation largely resting on sample assay results. • **Qualitative/quantitative logging**: Logging was qualitative in nature. This involved observation and description. • **Percentage logged**: Unknown.
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 maximise 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.*	• **Sub-sampling overall comments**: Generally unknown and irrelevant to the Duke Project. The existence of multiple past explorers using slightly varying drilling and sampling techniques implies sub-sampling on the Project would have varied over time. Sampling is assumed to have been "industry standard". Available sampling details were sketchy. • **Appropriateness of methods**: Given that the Consultant believes most or all sampling was "industry standard" he assumes all sub-sampling methods were fully appropriate. • **QC measures to maximise representivity**: Generally unknown (other than the regular use of blanks, duplicates and standards). • **Sampling representivity measures**: Generally unknown. • **Sample size wrt rock grain size**: Generally unknown.
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 (eg standards, blanks, duplicates,*	• **Assay method and appropriateness**: Generally unknown and irrelevant to the Duke Project. It is simply assumed that the multiple explorers would have used appropriate assay methods. All operators used commercial assaying laboratories. • **Geophysics**: It was generally assumed that hand-held XRF tools had not been used on the Project to date (and certainly most historical exploration preceded their invention). • **QC procedures**: Sample QC was undertaken in various forms and discussed in detail by various individual explorers, but overall Project consistency of approach did not exist.

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	external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.	
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.*	• **Independent verification of significant intersections**: Generally unknown and irrelevant to the Duke Project. • **Twinned holes**: Generally unknown and irrelevant to the Duke Project. • **Primary data documentation, entry, verification and storage**: Most historical data accessed from report hard-copy. Data from more recent exploration held electronically by the NT Mines Department. • **Adjustment of assays**: Unknown.
Location of data points	• *Accuracy and quality of surveys used to locate drill holes (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.*	• **Drill hole data location**: Location of historical drill hole data all described and usually illustrated in original documentation – and taken at face-value. • **Coordinate grid system**: Older historical data coordinates were presumed to be in AMG66. Recent data coordinates are in GDA 1994 (MGA Zone 53). • **Topography adequacy**: N/A.
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.*	• **Drill hole data spacing**: Highly variable, and generally irrelevant to the Duke project. • **Data distribution adequacy wrt grade estimation & classification**: Generally unknown and irrelevant to the Duke Project. • **Compositing**: Generally unknown and irrelevant to the Duke Project.
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 mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.*	• **Data orientation adequacy wrt structure**: Generally unknown and irrelevant to the Duke Project. Effectively most historical data collected at surface. • **Sample orientation bias - none**: Unknown.

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Sample security	• *The measures taken to ensure sample security.*	• **Sample security**: Unknown.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• **Audits of past drilling**: Unknown.

2 Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section 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.*	• **Mineral tenement status**: ○ Described in detail in IGR's Section 13.4 with Tenement report in Appendix 6. ○ Duke Project NT tenements currently under application are **Exploration License 33101** (EL33101) and **Exploration license 33194** (EL33194). ○ EL33101: ▪ Under application by HRE Corporation Limited (now Heavy Rare Earths Limited (HRE). ▪ Tenement area 38 blocks. ▪ Licence term 6 years, application 21 December 2021. ○ EL33194: ▪ Under application by Heavy Rare Earths Limited (HRE). ▪ Tenement area 45 blocks. ▪ Licence term 6 years, application 26 April 2022. ○ Tenement information independently confirmed through the NT Government, DITT, on-line. • **Other agreements and material issues pertinent to the tenement:** ○ Except possibly for native title interests the Consultant is unaware of all other agreements and material issues which may relate to the tenement. • **Security of tenure and impediments to operation**: ○ Tenure: The Consultant is only aware that EL33101 and EL33194 are under application. ○ All other aspects of security of tenure at the time of reporting were unknown to the Consultant. • **Impediments to operation**: The Consultant is completely unaware of any impediments to operation of the Project within the Duke tenements.
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• **Previous exploration**: ○ The IGR endeavoured to find, report and review all previous exploration on or around the Project. ○ That exploration was described in the IGR's Section 14. ○ Relevant past exploration spans 60 years and ~22 programs involving some ~30 exploration companies. ○ All exploration was principally for gold, copper and uranium. ○ No previous exploration was for REEs,

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		• **Appraisal of past exploration**: Overall opinion: The Consultant considers that past exploration followed clear objectives, was competently carried out, and produced good data. Past exploration was for elements not sought by HRE, and therefore is incidental to HRE's purposes. However past exploration produced useful geological mapping data and particularly good aerial geophysical data.

Geology	• *Deposit type, geological setting and style of mineralisation.*	• **Geology details:**
		  ○ Duke Project geology is described in the IGR's Section 13.5.
		  ○ Duke Project's deposit type, geological setting and style of mineralisation is described in the IGR's Section 15.1 and elsewhere.
		• **Deposit type**: The REE deposit type postulated for the Duke Project is the "Browns Range-style" – a "vein-style" breccia-hosted hydrothermal xenotime HREE mineralised system. This vein REE deposit type is described in the IGR's Section 5.9, and is based on REE deposits at Browns Range just inside WA on the NT border with to the west. This vein REE deposit may also be a new REE deposit type know as an "unconformity-related REE deposit" as the REE mineralisation occurs in structures near unconformities.
		• **Geological setting**: The important basis for the Duke Project geological location is its position in Tennant Creek Region sedimentary and meta-sedimentary rocks which are closely analogous to similar age and type rocks in the Tanami Region to the west which hosts Browns Range. At Browns Creek and Duke these rocks sit above a large granite dome. And also at both sites the meta-sedimentary rocks are unconformably overlain by younger sediments. The meta-sediments at Browns Creek are cut by numerous vein-like granitic, syenitic and pegmatitic intrusions. And the REE deposits at Browns Creek are characterised as breccia-hosted hydrothermal systems.
		• **Mineralisation style**: The Browns Range REE deposits are dominated by xenotime (an REE phosphate dominated by the HREE yttrium). It is therefore argued that, for the formation of the Browns Range REE deposits in the "Unconformity-related REE Deposit" style, the host sediments should be rich in phosphorus (such as apatite). The style does not require an igneous source in itself (although a granite exists near the tenement. It is not yet known if sediments within HRE's NT tenement are P-rich.
		• **Vein setting**: The Browns Range deposits contain xenotime found in narrow steeply dipping intrusive breccia-hosted hydrothermal systems, or "veins". These systems are controlled by faults, often conjugate sets, with deposits often found at intersections. GS mapping around the Duke Project shows multiple faults in and around the Project area and many past explorers mention the presence of dolerite sills and dykes as well as lamprophyre sills and dykes – their intrusion controlled by local faults and shears. The area therefore has the structural potential for the formation of veins and pegmatites, and thus potentially for REE deposits.

Drill hole Information	• *A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill*	• **Drill hole data**:
		  ○ Previous exploration and drilling on and around the Duke tenements was undertaken in numerous programs by a great variety of explorers over 60 years.
		  ○ That historical drill hole data is described by exploration program in the IGR's Section 14 on

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	holes: ○ *easting and northing of the drill hole collar* ○ *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar* ○ *dip and azimuth of the hole* ○ *down hole length and interception depth* ○ *hole length.* • *If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*	previous exploration. ○ Descriptions include program objectives, drilling details, many illustrations, and summary results.
Data aggregation methods	• *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg 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.*	• **Reporting aggregation/weighting/cutting**: Specifics are generally unknown and irrelevant to the Duke Project. • **Intercept aggregations**: Specifics are generally unknown and irrelevant to the Duke Project. • **Metal equivalents**: No metal equivalent values were necessary or used.
Relationship between mineralisation widths and intercept lengths	• *These relationships are particularly important in the reporting of Exploration Results.* • *If the geometry of the mineralisation with respect to the drill hole 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*	• **Geometry of mineralization with respect to drill hole angles**: Generally unknown and irrelevant to the Duke Project. • **Down-hole reporting basis – down-hole**: Generally unknown and irrelevant to the Duke Project.

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	clear statement to this effect (eg 'down hole length, true width not known').	
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 drill hole collar locations and appropriate sectional views.*	• **Diagrams**: Past exploration was amply illustrated with plans in the IGR's Section 14. Many program maps were extracted from the NT STRIKE mapping facility provided by the NT DITT – and therefore reference modern geology and coordinates.
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.*	• **Balanced reporting**: ○ Historical exploration was comprehensively reported in the IGR in sufficient detail relevant to the nature of a review. ○ Each incidence of exploration was reported with approximately the same detail and weight. ○ Reporting of outlier grade results was particularly avoided to facilitate balanced reporting – and the subdued nature of the mineralisation generally discouraged this anyway.
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.*	• **Other material exploration data**: The IGR endeavored to report **all** aspects of exploration on the Project.
Further work	• *The nature and scale of planned further work (eg 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.*	• **Further work planned**: ○ Involvement in further exploration on the Duke project was outside the scope of the Consultant's engagement to produce and IGR. ○ However the Consultant was aware that the primary intent of HRE's requirement for an IGR was to raise funds through an IPO to additionally (to the Cowalinya Project) undertake a program of prospecting and surface geochemistry on the Duke Project to verify the Browns Range exploration model.