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10 June 2022

INTRUSIVE TARGETS DEFINED IN 3D MODEL

- **3D modelling of airborne magnetic geophysical data reveals intrusive Carbonatite targets at Gascoyne REE Project**
- **Three prominent surface magnetic aureoles occur within the Lyons Block representing larger tonnage style REE targets that extend to over 2km depth**
- **Heritage avoidance surveys postponed due to COVID-19 health and safety protocols, expected to re-commence end of June**

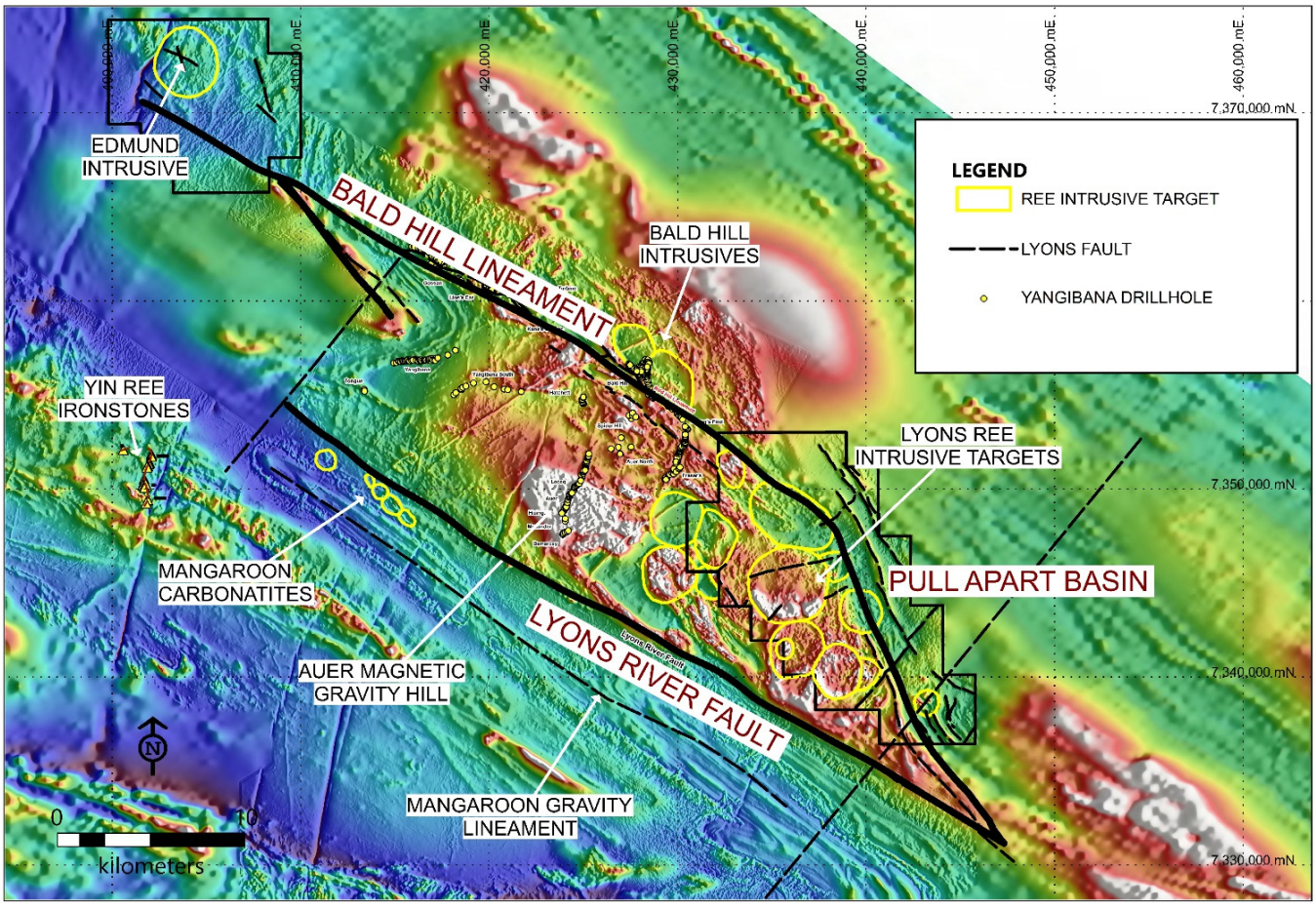

Figure 1. Map showing the Lyons Block REE intrusive Targets within a Rhomboidal Pull Apart Basin

Lanthanein Resources Ltd (ASX: LNR) (**Lanthanein** or the **Company**) is pleased to announce results of the 3D modelling of airborne magnetic geophysics. Results demonstrate a number of interpreted intrusive carbonatite centres present within the Company's Lyons Block in its Gascoyne project in Western Australia (**Gascoyne Project**). The 100% owned Lanthanein Lyons block occurs within a structurally prospective Rhomboidal Pull Apart Basin (Figure 1) which is host to the Hastings and Lanthanein REE anomalous ironstone dykes.

Independent consultant and expert on carbonatite intrusives, Franco Pirajno, has reviewed the geophysical modelling, rock sampling results and proposed drill sites. Franco will evaluate results from the upcoming maiden drilling program and has approved of the drill sites which are in part designed to test the outer magnetic aureoles of the carbonatite intrusive targets (refer to ASX Announcement dated 26 April 2022).

Franco Pirajno is a highly cited researcher with considerable experience in the fields of tectonics, ore deposit geology and mineral exploration having worked extensively in Western Australia with published papers on both the Mt Weld and Gifford Creek REE Carbonatites [1] [2]. He is currently adjunct Professor at the Centre for Exploration Targeting (University of Western Australia).

The Mount Weld plug is well defined by aeromagnetic and gravity data that describe a high-density vertical cylindrical body, 3 to 4 km in diameter, surrounded by a low-density halo about 0.5km wide[1]. Recent drilling results by Lynas Rare Earth Limited confirm continuous Rare Earth Element (REE) mineralisation along the 1,020m drill core at an average grade of 2.22% REO. Shallower enriched grades include 13.67% REO at 42 to 62m depth[2].

At least three intrusive targets have been modelled as vertical cylindrical bodies 2 to 4km in diameter within the Lyons Block and extend to over 2km depth (Figure 2). Since 2011 there has been detailed exploration within the Gifford Creek Ferrocarbonatite Complex Pull Apart Basin (Figure 1) focussing on REE within the Yangibana ironstone veins[3]. Intrusive Carbonatite targets represent a new large-tonnage REE target within the area.

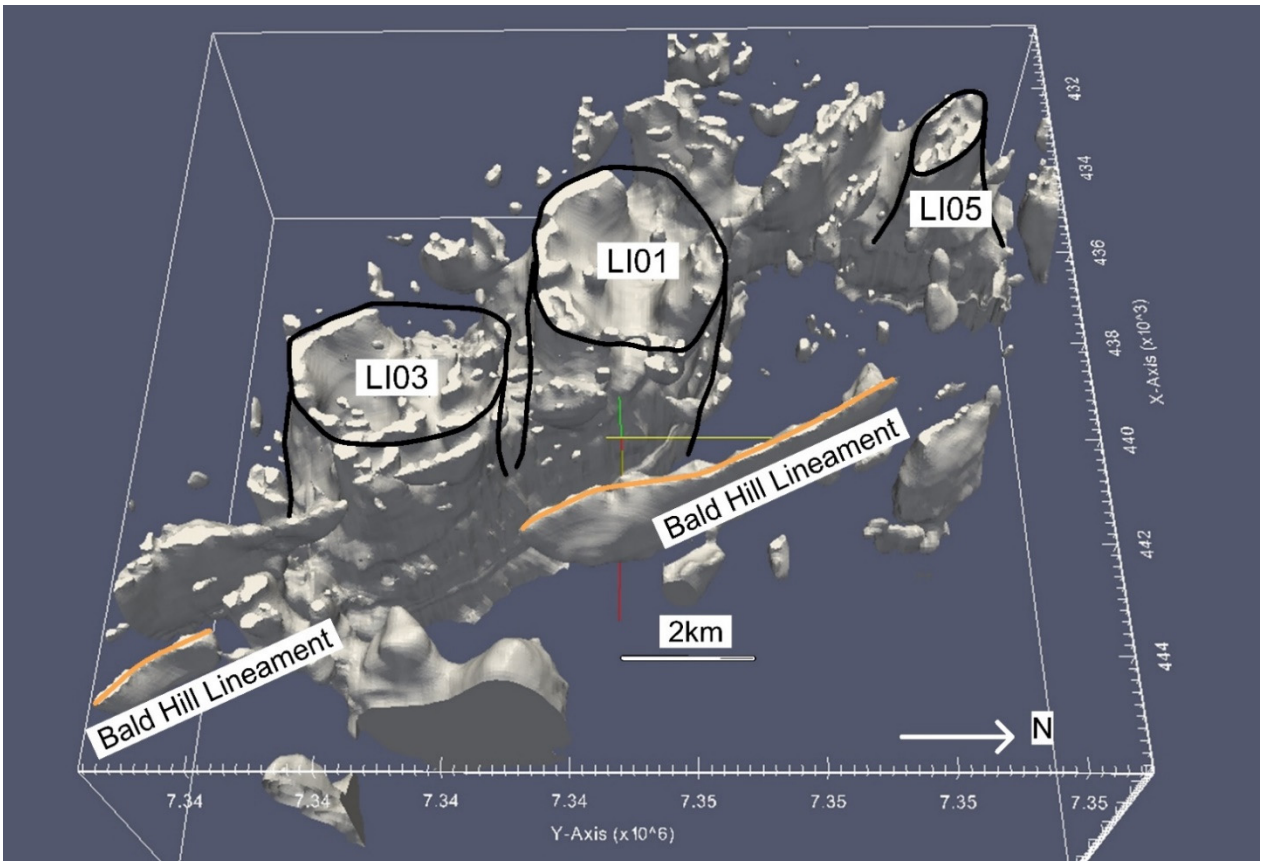

Figure 2. Lyons Block 3D Magnetic Susceptibility Model Looking West Showing Intrusive Targets

Intrusive Target LI01 occurs as a 4.3km diameter interpreted intrusive with a distinctive modelled outer magnetic halo at surface (Figure 2). It extends to over 1km depth and emanates from a larger magnetic intrusive body at greater depth (Figure 3). Anomalous Thorium linear zones which occur within this circular target area are drill targets for REE ironstone. Anomalous Th along the southern magnetic aureole is also a drill target.

Intrusive Target LI03 occurs as a circular 2.8km diameter magnetic aureole emanating from a > 2km depth magnetic intrusive source (Figure 3).

Intrusive Target LI05 has a 2km x 1.3km topographical 'amphitheatre' style surface expression. The 3D magnetic modelling shows a near surface magnetic aureole emanating from a larger magnetic source at 2km depth (Figure 3). This target occurs adjacent to the Bald Hill Lineament and numerous NNW trending Thorium lineament REE ironstone dyke drill targets trend through the feature which are planned to be drill tested.

The Bald Hill Lineament is a significant REE target and has a modelled magnetic signature extending to over 1km depth (Figure 1 and 2).

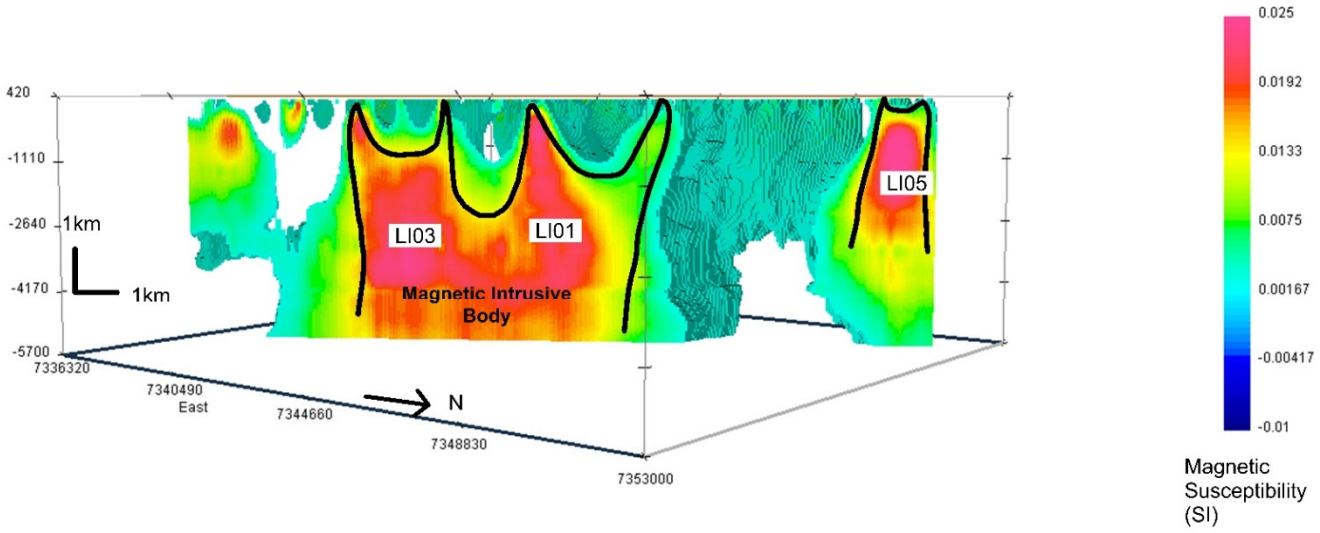

Figure 3. Lyons Block 3D Magnetic Model Cross-Section Looking Southwest

Heritage avoidance surveys have been postponed due to positive cases of COVID-19 onsite. In line with the Company's Health and Safety protocols to ensure the health and well-being of the heritage group, consultants and staff, the survey was temporarily shut down with all personnel leaving site. The heritage surveys are expected to re-commence in the second half of June.

This announcement has been authorised for release by the Directors of the Company.

LANTHANEIN RESOURCES LTD

The information referred to in this announcement relates to the following sources:

[1] Pirajno *et.al*. AusIMM Australian Ore Deposits. "Mount Weld and Gifford Creek rare earth element carbonatites".

[2] ASX.LYC: 1 March 2022. "Mt Weld Drilling Confirms Continuous Rare Earth Mineralisation".

[3] Pirajno *et.al*. Lithos (2014). "The Gifford Creek Ferrocarbonatite Complex, Gascoyne Province, Western Australia: Associated fenitic alteration and a putative link with the ~ 1075 Ma Warakurna LIP".

Competent Persons' Statement

The information in this document that relates to Exploration Results, Mineral Resources or Ore Reserves is based on information compiled by Mr. Thomas Langley who is a member of the Australian Institute of Geoscientists (MAIG) and a member of the Australasian Institute of Mining and Metallurgy (MAusIMM). Mr. Thomas Langley is a consultant of Lanthanein Resources Limited, and is a shareholder, however Mr. Thomas Langley believes this shareholding does not create a conflict of interest, and Mr. Langley has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr. Langley consents to the inclusion in this presentation of the matters based on his information in the form and context in which it appears.

The information in this report that relates to Geophysical Exploration Results is based on information compiled by or compiled under the supervision of Peter Swiridiuk - Member of the Aust. Inst. of Geoscientists. Peter Swiridiuk is a Technical Consultant and Non-Executive Director for Lanthanein Resources. Peter Swiridiuk has sufficient experience which is relevant to the type of mineralisation and type of deposit under consideration to qualify as Competent Person as defined in the 2012 Edition of the Australasian Code of Reporting Exploration Results, Mineral Resources and Ore Resources. Peter Swiridiuk consents to the inclusion in the report of the matters based on the information in the form and context in which it appears. Additionally, Mr Swiridiuk confirms that the entity is not aware of any new information or data that materially affects the information contained in the ASX releases referred to in this report.

The Company confirms that it is not aware of any new information or data that materially affects the information in the original reports, and that the format and context in which the Competent Person's findings are presented have not been materially modified from the original reports.

JORC Code, 2012 Edition – Table 1 report template

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*	**Rock Chips** • Rock Chips were collected by Gascoyne Geological Services Geologist and submitted for analysis. Rock chips are random, subject to bias and often unrepresentative for the typical widths required for economic consideration. They are by nature difficult to duplicate with any acceptable form of precision or accuracy. • Rock chips have been collected by Gascoyne Geological Services to assist in characterising different lithologies, alterations and expressions of mineralisation. In many instances, several rock chips were collected from a single location to assist with characterising and understanding the different lithologies, alterations and expressions of mineralisation present at the locality. • Rock chips were submitted to ALS Laboratories in Perth for determination of Rare Earth Oxides by Lithium Borate Fusion XRF (ALS Method

Criteria	JORC Code explanation	Commentary
	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.	ME-XRF30).
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).*	No drilling undertaken.
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.*	No drilling 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.* • *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.* • *The total length and percentage of the relevant intersections logged.*	No drilling undertaken.
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*	**Rock Chips** Entire rock chips were submitted to the lab for sample prep and analysis.

Criteria	JORC Code explanation	Commentary
	duplicate/second-half sampling. • *Whether sample sizes are appropriate to the grain size of the material being sampled.*	
Quality of assay data and laboratory tests	• *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.* • *For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.* • *Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.*	**Rock Chips** • All samples were submitted to ALS Laboratories in Wangara, Perth where 1-3kg rock chips samples were crushed so that >70% of material passes through -6mm, the sample is then pulverised to >85% passing 75 micron. • A 66-gram aliquot of pulverised sample is fused with 12:22 lithium borate flux containing an oxidizing agent, and poured to form a fused disk. The resultant disk is then analysed by XRF spectrometry specifically for Rare Earths (ALS Method ME-XRF30). • Lithium borate fusion is considered a total digest and Method ME-XRF30 is appropriate for REE determination. • No standards, duplicates or blanks submitted with rock chips. • Airborne geophysical data including magnetics and radiometrics (eK, eTh, eU) were collected by MagSpec Airborne Surveys. The survey was flown with a Cessna 206 aircraft. Magnetic data was collected from a G-823A cesium vapour magnetometer using a 50m line spacing and 30m sensor height. Radiometric data was collected from an RSI RS-500 gamma-ray spectrometer of 32L Crystal Volume flown at 30m sensor height and a 50m line spacing. All readings (X, Y, Z) were within a 2m accuracy. Traverse Line Direction was East-West. • Magnetic modelling was completed by an independent consultancy in Vancouver, Canada using proprietary University of British Columbia (UBC) code to both a 50m and 60m voxel size.
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.*	**Rock Chips** • Rock chip and geological information is written in field books and coordinates and track data saved from handheld GPSs used in the field. • Gascoyne Geological Services geologist inspected and logged all rock chips. • Field data is entered into excel spreadsheets to be loaded into a database.
Location of data points	• *Accuracy and quality of surveys used to locate drill holes (collar and down-*	• All sample locations were recorded with a Garmin handheld GPS which has an accuracy

Criteria	JORC Code explanation	Commentary
	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.*	of +/- 5m. • GDA94 MGAz50.
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.*	Sample spacing and distribution is not sufficient to establish the degree of geological and grade continuity appropriate for a Mineral Resource.
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.*	At this early stage of exploration, mineralisation thickness's, orientation and dips are not known.
Sample security	• *The measures taken to ensure sample security.*	• All geochemical samples were collected, bagged, and sealed by Gascoyne Geological Services staff and delivered to Bennalong Transport in Carnarvon. • Samples were delivered directly to ALS Laboratories in Wangara, Perth by Bennalong Transport ex Carnarvon.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	No audits have been completed.

Section 2 Reporting of Exploration Results

(Criteria in this section apply to all succeeding sections.)

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.*	Lanthanein Resources Ltd entered into a conditional agreement to acquire all of the shares in Dalkeith Capital Pty Ltd (Dalkeith) which holds two granted exploration licences in the Gascoyne Region of Western Australia. The acquisition was completed on 4 January 2022. • The Gascoyne Project consists of 2 granted

Criteria	JORC Code explanation	Commentary
	• *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.*	Exploration Licenses (E09/2515 and E09/2516). • All tenements are 100% owned by Dalkeith Capital. • The Gascoyne Project covers 2 Native Title Determinations including the Thudgari (WAD6212/1998) and the Combined Thiin-Mah, Warriyangka, Tharrkari and Jiwarli (WAD464/2016). • The Gascoyne Project is located over the following pastoral leases; Edmund, Gifford Creek, and Wanna.
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• Historical exploration of a sufficiently high standard was carried out in the region by a few parties including: Hurlston Pty Ltd 1986-1987: WAMEX Report A23584 Newmont 1990: WAMEX Report A32886 Newcrest 1990: WAMEX Report A36887 Desert Energy 2006-2007: WAMEX Reports A78056, A80879
Geology	• *Deposit type, geological setting and style of mineralisation.*	• The Gascoyne Project is located within the Gascoyne Province of the greater Capricorn Orogen – the region that records the collision of the Pilbara-Glenburgh Terrane at 2215–2145 Ma (Ophthalmian Orogeny) and eventual collision of Pilbara/Glenburgh and Yilgarn at 2005–1950 Ma (Glenburgh Orogeny), the Gifford Creek Carbonatite Complex (GCCC) intrudes the Durlacher Supersuite (including Yangibana and Pimbyana Granites) and the Pooranoo Metamorphics. The c.1360 Ma GCCC is composed of; • ~NW striking Lyons River Sills (calcio-, magnesio- and ferrocarbonatites) • ~NE striking fenite (alteration) veins • Yangibana Ironstones (REE ore bodies) • Magnetite-biotite dykes • Carbonatites in the region are thought to have been generated from melting of the Glenburgh Orogen-fertilized mantle during reactivation of structures (e.g. Lyons River Fault) at c. 1370 Ma followed by magma ascent along the same structures. • The Gascoyne Project is prospective for Ferrocarbonatite hosted REEs.
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 holes:* o *easting and northing of the drill hole collar*	No drilling undertaken.

Criteria	JORC Code explanation	Commentary
	○ *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.*	
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.*	No drilling undertaken.
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 clear statement to this effect (eg 'down hole length, true width not known').*	No drilling undertaken.
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.*	• Refer to figures within this report.
Balanced reporting	• *Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	• The accompanying document is a balanced report with a suitable cautionary note.
Other	• *Other exploration data, if meaningful*	• Suitable commentary of the geology

Criteria	JORC Code explanation	Commentary
substantive exploration data	*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.*	encountered are given within the text of this document.
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.*	• Detailed ground geophysical 3D resistivity and Microgravity surveys, surface geochemistry, mapping and drilling.