

15 February 2023

# High Impact Drilling Programs at Lyons REE Carbonatites and Ironstones

- RC drilling programme planned (>10,000m) targeting large scale Carbonatite targets and high-grade Ironstones to be drill tested in early April 2023
- Two diamond holes jointly funded under DMIRS EIS scheme to be drilled into deeper Carbonatite targets in April.
- Geological team mobilising to site in early March for field reconnaissance and rock chip sampling on new recently defined ironstone targets
- Field camp to be established early March for 6 months while exploration programs are underway
- Heritage avoidance surveys to commence mid-March to allow for further drill ready areas
- Site works for drill access to begin late March

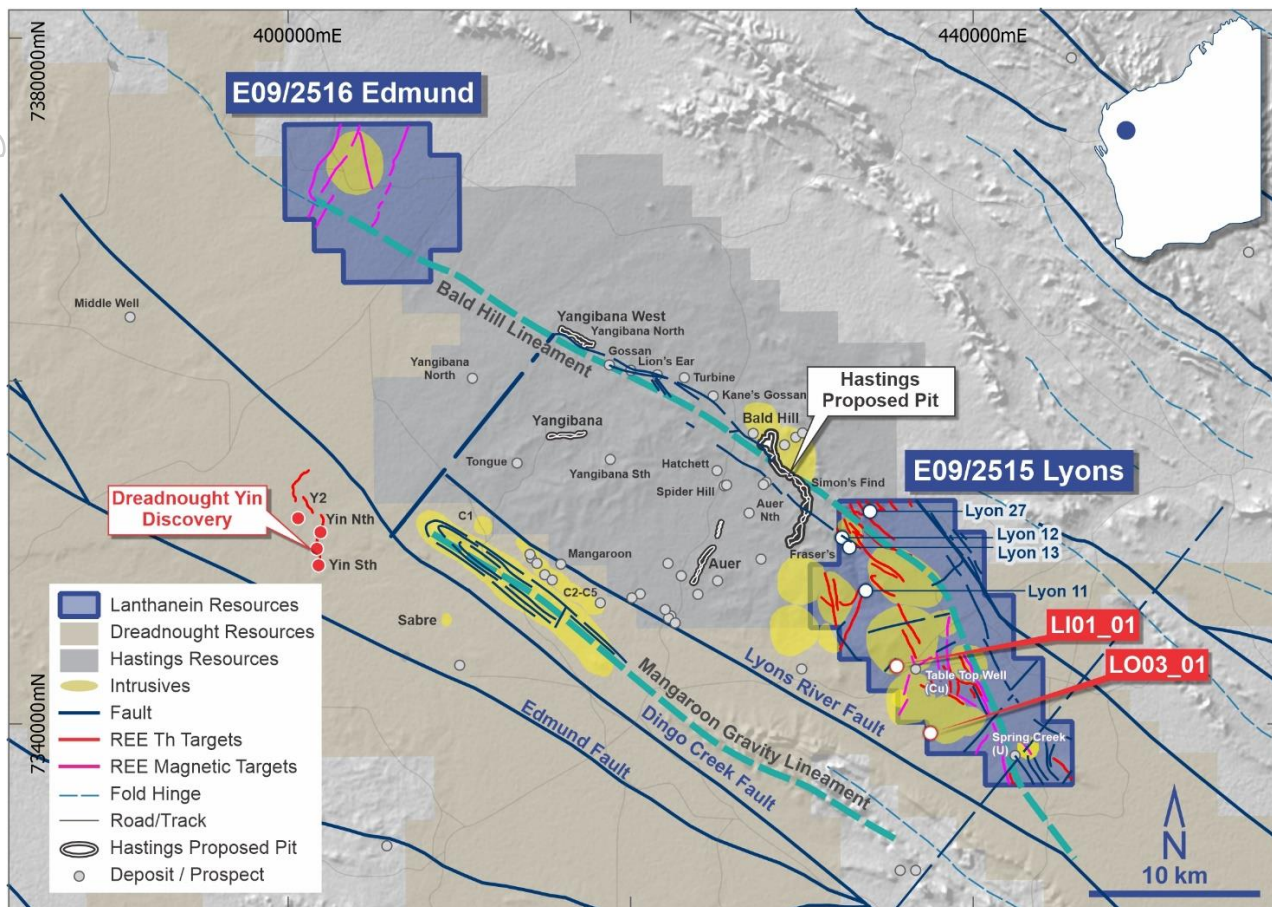
Mr Brian Thomas, Lanthanein Technical Director commented *“The upcoming field programs are extremely exciting as we position ourselves to make a breakthrough discovery that could potentially transform the Company. Not only do we have some large-scale Carbonatites to test but multiple new ironstone trends under shallow cover which we have only recently identified from our review of geophysics. We are setting up a 12 man field camp in March to allow for an extensive plus 10,000m RC drill program to commence over the coming months.”*

*“We look forward to building on the discoveries made to date with the high grade outcropping ironstones at Lyons 12, 13 & 27 which are ~2km from Hastings Technology Metals Frasers and Simons Find pits and updating the market with results as drilling progresses.”*



**Photo 1. Ironstone Outcrop at Lanthanein’s Lyons 12 prospect with Drilling Rig in the background.**

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**Fig 1 : . Lanthanein Resources Lyons and Edmund Projects located within close proximity of Dreadnought Resources Yin discovery and Hastings Technology Metals Yangibana REE mine**

**Lanthanein Resources Ltd (ASX: FNT) (Lanthanein or the Company)** is pleased to announce an overview of the upcoming exploration programs at the Lyons Rare Earths Project in Western Australia (**Lyons Project**). The proposed drill programs will target large scale Carbonatite intrusive targets and high-grade ironstones as previously discovered at Lyons 11, 12, 13 and 27 (Figures 1, 2 and 3; Tables 1 and 2).

Further rock chip sampling, high resolution satellite spectral interpretation and drilling programs are planned to investigate additional targets not yet followed up, including thorium and magnetic anomalies throughout the Lyons Project and the high priority structural target along the major Bald Hill lineament which transects both the Edmund and Lyons Project Areas (Figure 4).

The Bald Hill lineament is the major control on rare earth mineralisation at Hastings Technology Metals Yangibana mine and represents a very high priority target for Lanthanein. Potential remains for further discoveries of ironstones and carbonatites (Figure 1) within the Company's tenure where no historical REE exploration has occurred.

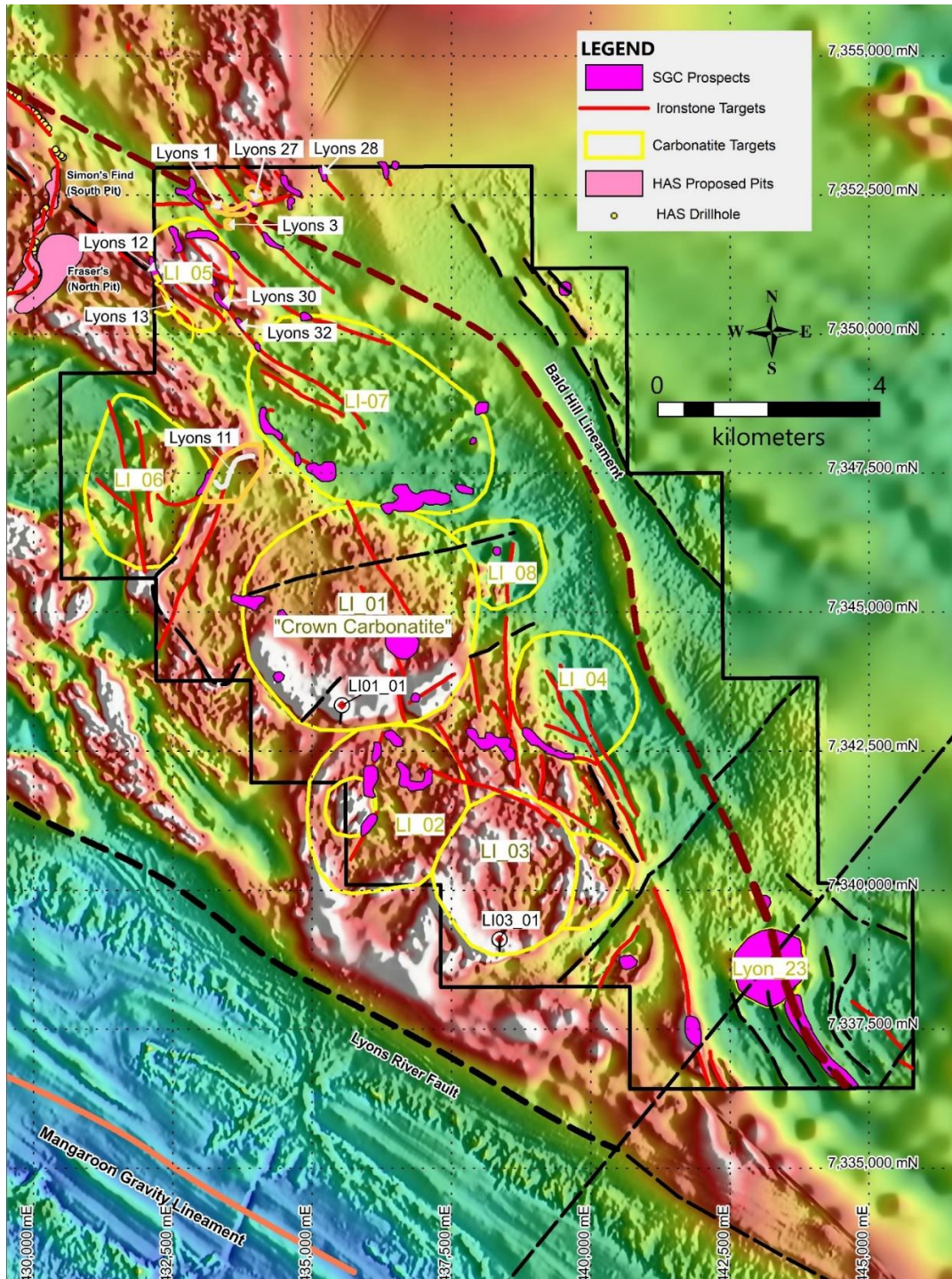
The Company recently received \$200,000 in funding from the Department of Mines Industry Regulation and Safety (DMIRS) to investigate potential for large tonnage REE carbonatites similar to Lynas Corporation's Mount Weld deposit in Western Australia.

Carbonatites are becoming increasingly important due to potential to host economic quantities of Th, U, Nb, P, Y and rare earth elements, which are strategically important for modern technology.

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Within the Lyons Block and along the Bald Hill Lineament, numerous carbonatite intrusions have been modelled from the airborne magnetics (Figure 2) with a similar dimension to the Mt. Weld carbonatite.

Two drill holes to 450m depth are proposed to test the outer magnetic rim of two of the larger carbonatite intrusives including LI-03 at 3km diameter and LI-01 at 4km diameter (Figure 5). Fenitic alteration (incl. magnetite and Th) are found to be associated with the outer rim of these intrusive bodies.



**Figure 2. Interpreted intrusives with RTP filtered magnetics imagery, highlighting relationship with rare earth mineralisation at Hastings, and target areas on Lanthanein's Lyons Project.**

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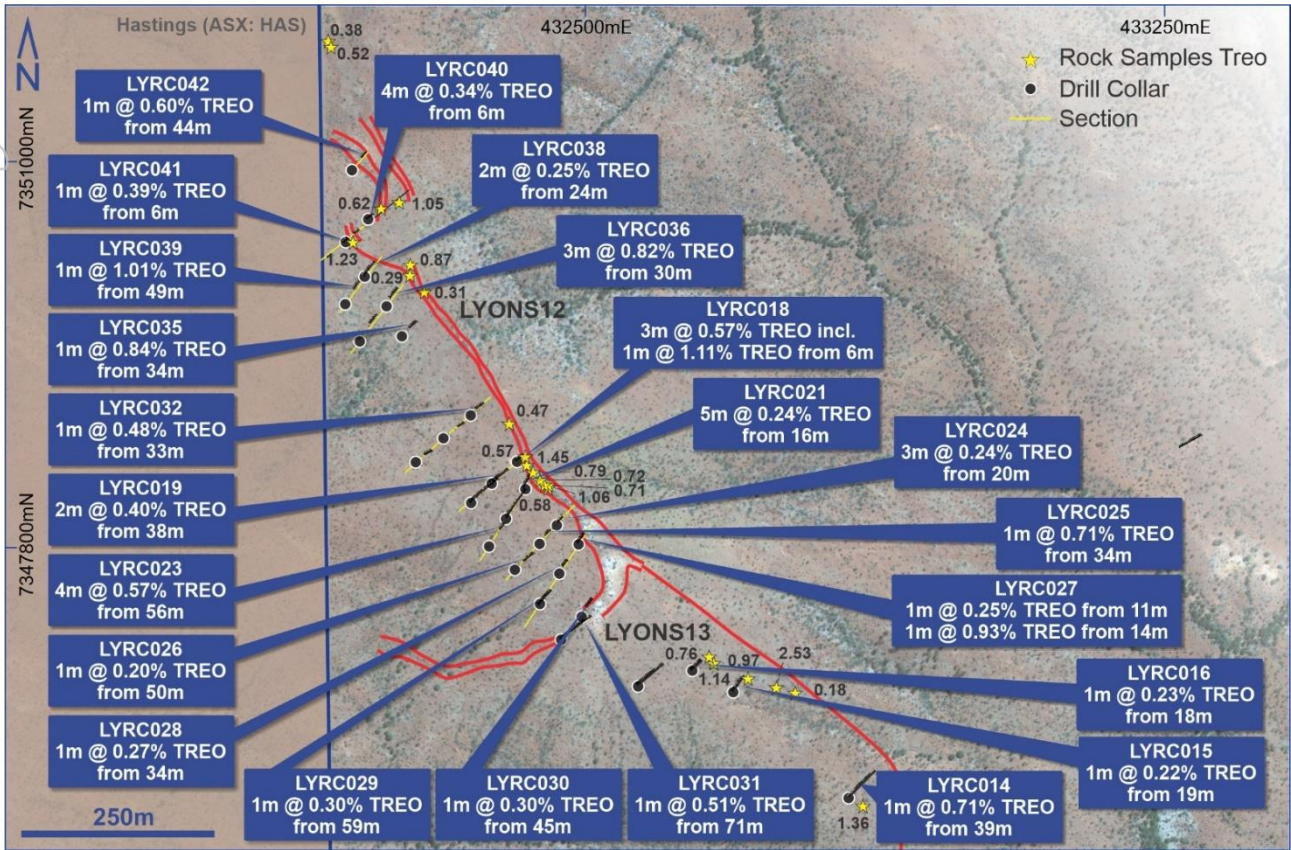


Figure 3. Plan View of the Lyons 12 and 13 Drillholes Identifying REE over 1km of Strike Length at Depth

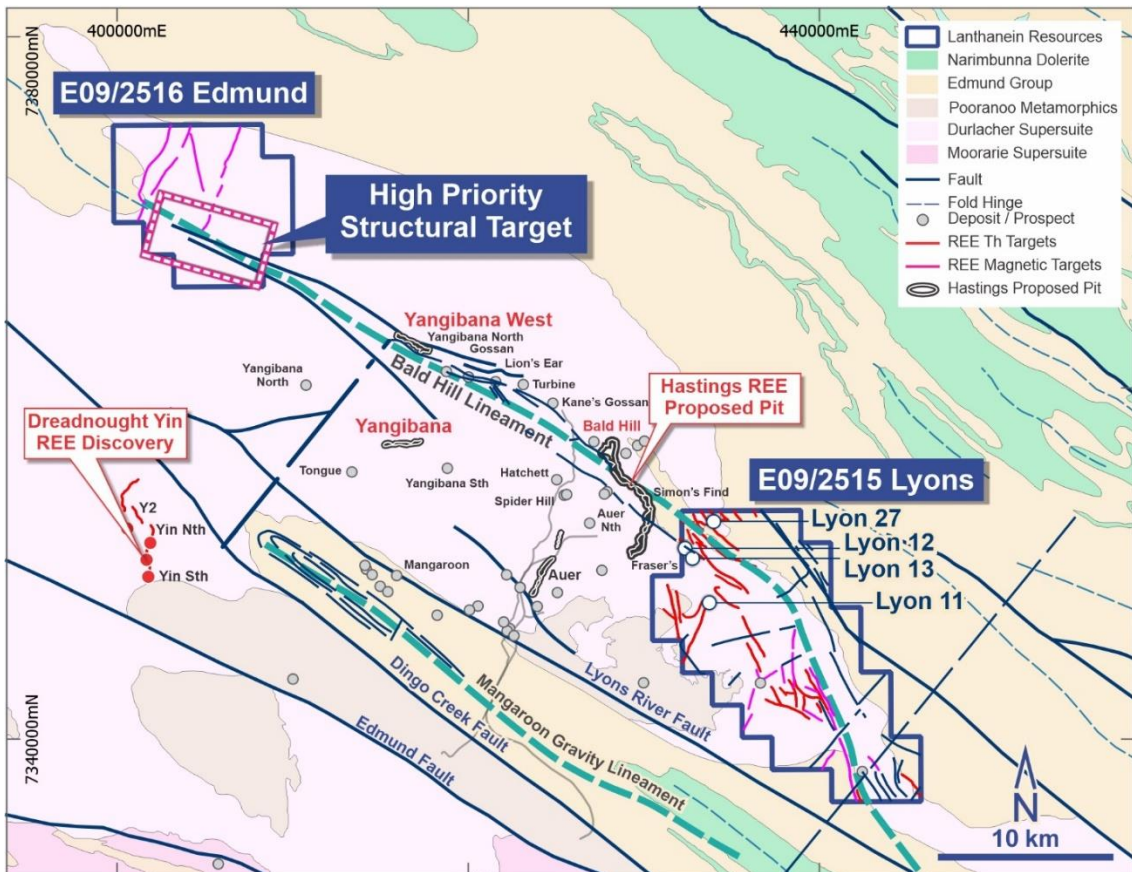
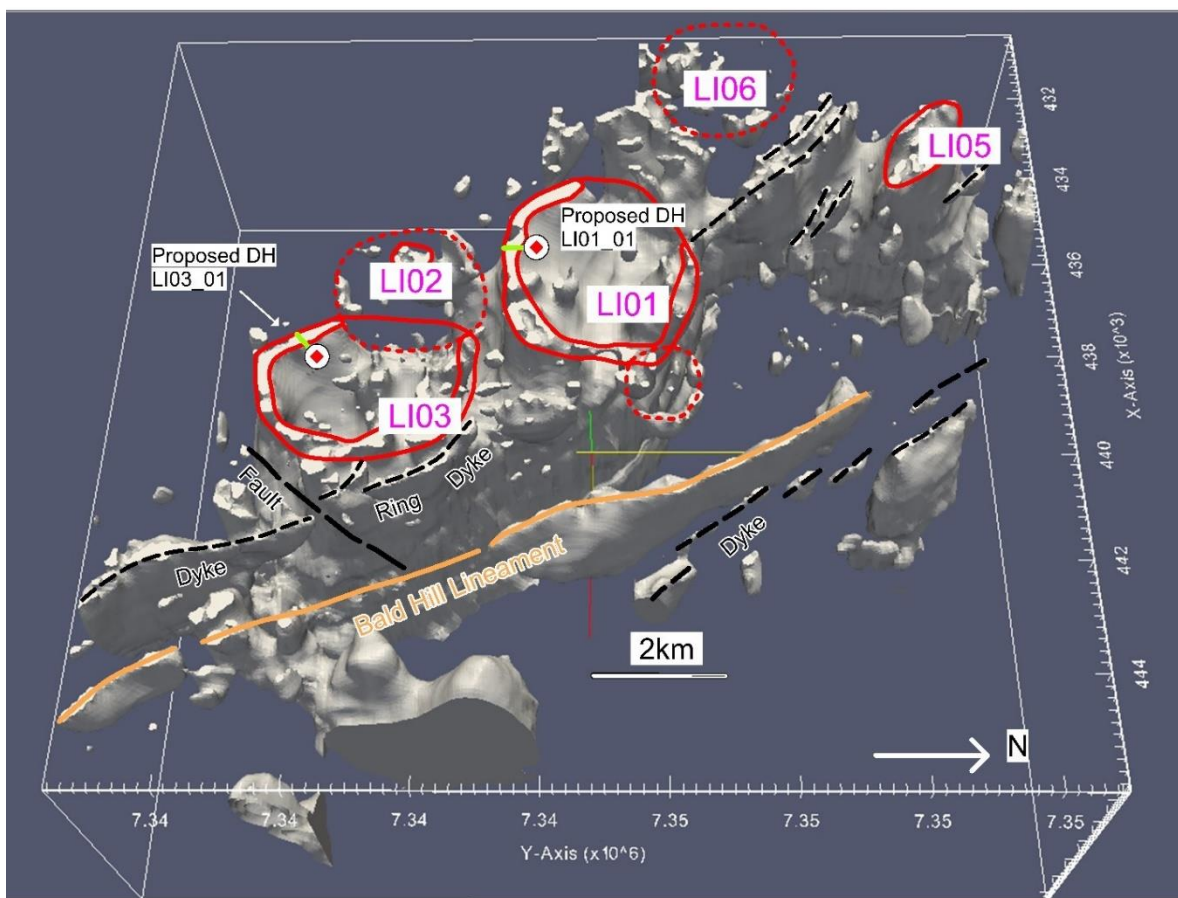


Figure 4. Location of Lyons and Edmund Projects in the Gascoyne, Western Australia, (geology overlay), highlighting the prospective Durlacher Suite of the Gifford Creek Carbonatite Complex, in pink underlying the project areas.

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**Figure 5. Lyons Block 3D Magnetic Susceptibility Model Showing Carbonatite Intrusive Targets LI01, 02, 03, 05 & 06 and Bald Hill Lineament**

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

For additional information please visit our website at [www.lanthanein.com](http://www.lanthanein.com)

#### **LANTHANEIN RESOURCES LTD**

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

<sup>1</sup> ASX.HAS: 5 May 2021 "Yangibana Project updated Measured and Indicated Resource tonnes up by 54%" [b07ebf9d-03c.pdf \(investi.com.au\)](https://investi.com.au/b07ebf9d-03c.pdf). The HAS Resource estimate comprises 4.9Mt @1.01% TREO in the Measured category, 16.24Mt @0.95% TREO Indicated and 6.27Mt @0.99% TREO Inferred.

<sup>2</sup> ASX.DRE: 28 July 2022 "Assays Confirm Yin as a High Grade Rare Earth Discovery" [5a699d6e-eab.pdf \(investi.com.au\)](https://investi.com.au/5a699d6e-eab.pdf)

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.

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### Competent Person's 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.

### Competent Person's Statement

The information in this report that relates to Geophysical Exploration Results is based on information compiled by 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.

**Table 1: Significant Intersections > 0.2% TREO with highlighted > 1% TREO, > 1% Nb<sub>2</sub>O<sub>5</sub>**

Hole ID	From (m)	To (m)	Interval (m)	TREO (%)	Nd <sub>2</sub> O <sub>3</sub> +Pr <sub>6</sub> O <sub>11</sub> (%)	NdPr:TREO (%)	Nb <sub>2</sub> O <sub>5</sub> (%)	ZrO <sub>2</sub>	Prospect
LYRC001				No Significant Intersection		35			Lyons 11
LYRC002	7	9	2	0.38	0.13	35			
LYRC003				No Significant Intersection					
LYRC004 Incl.	7 7	10 8	3 1	0.40 0.80	0.14 0.29	35 36			
LYRC005				No Significant Intersection					Lyons 13
LYRC006 Incl.	115 115	117 116	2 1	0.75 1.23	0.29 0.48	38 39			
LYRC007	15	17	2	0.40	0.14	33			
LYRC008	48	50	2	0.66	0.23	35	0.18 0.11		
LYRC009	90	91	1	0.26	0.08	31			
LYRC010				No Significant Intersection					
LYRC011				No Significant Intersection					
LYRC012	10	11	1	0.46	0.17	37			
LYRC013				No Significant Intersection					
LYRC014	39	40	1	0.71	0.24	34			
LYRC015	19	20	1	0.22	0.10	46	0.25		
LYRC016	18	19	1	0.23	0.09	39			
LYRC017				No Significant Intersection					
LYRC018 Incl.	6 8	9 9	3 1	0.57 1.11	0.29 0.57	48 51	0.51 0.79	1.20 0.47	
LYRC019	38	40	2	0.40	0.18	45	0.56	0.17	
LYRC020	58	59	1	0.22	0.10	46	0.88	0.24	

LYRC021	16	21	5	0.24	0.10	38	0.10	0.17	
Incl.	17	18	1	0.59	0.28	48	0.15	0.09	
LYRC022				No Significant Intersection					
LYRC023	56	60	4	0.57	0.28	44	0.40		
Incl.	57	59	2	0.98	0.49	48	0.64		
LYRC024	20	23	3	0.24	0.11	44	0.11	0.40	
LYRC025	34	35	1	0.71	0.33	47	1.20	0.14	
LYRC026	50	51	1	0.20	0.08	40	0.41	0.33	
LYRC027	11	12	1	0.25	0.12	48			
And.	14	15	1	0.93	0.42	45	0.55	0.67	
LYRC028	34	35	1	0.27	0.11	41	0.24	0.16	
LYRC029	59	60	1	0.3	0.14	47	0.81	0.37	
LYRC030	45	46	1	0.3	0.13	43	0.08	0.17	
LYRC031	71	72	1	0.51	0.22	43	0.83		
LYRC032	33	34	1	0.48	0.24	50	0.41	1.01	
LYRC033				No Significant Intersection					
LYRC034				No Significant Intersection					
LYRC035	34	35	1	0.84	0.43	51	0.71	0.21	
LYRC036	30	33	3	0.82	0.44	53	0.21	0.31	
Incl.	31	32	1	1.67	0.91	55			
LYRC037				No Significant Intersection					
LYRC038	24	26	2	0.25	0.12	49	0.19	0.28	
LYRC039	49	50	1	1.01	0.53	53	0.43		
LYRC040	6	10	4	0.34	0.17	46	0.38	1.12	Lyons 12
LYRC041	6	7	1	0.39	0.21	54	0.16	1.24	
LYRC042	44	45	1	0.60	0.32	54	0.79	2.06	
LYRC043				No Significant Intersection					Lyons 3
LYRC044				No Significant Intersection					Lyons 1
LYRC045	30	31	1	0.21	0.08	38			Lyons 27
LYRC046				No Significant Intersection					
LYRC047	20	25	5	0.69	0.28	40			
Incl.	21	23	2	1.06	0.44	41			
LYRC048	42	44	2	0.22	0.10	43			
LYRC049				No Significant Intersection					
LYRC050				No Significant Intersection					
LYRC051				No Significant Intersection					Lyons 32
LYRC052				No Significant Intersection					Lyons 30
LYRC053				No Significant Intersection					Lyons 28

**Table 2: Drill Collar Data (GDA94 MGAz50)**

Hole ID	Easting	Northing	Dip	Azimuth	EOH	Type	Prospect
LYRC001	433562	7347720	-60	130	132	RC	Lyons 11
LYRC002	433589	7347700	-60	128	84	RC	
LYRC003	433600	7347773	-60	134	138	RC	
LYRC004	433642	7347745	-60	132	42	RC	
LYRC005	433582	7347798	-60	134	162	RC	
LYRC006	433546	7347830	-60	131	162	RC	
LYRC007	433670	7347762	-60	148	42	RC	



**ADDRESS**  
 Level 8, 99 St Georges Terrace  
 Perth WA 6000  
**PHONE**  
 +61 (08) 9486 4036

**ABN**  
 96 095 684 389  
**WEBSITE**  
 www.lanthanein.com

Hole ID	Easting	Northing	Dip	Azimuth	EOH	Type	Prospect
LYRC008	433655	7347799	-60	148	72	RC	
LYRC009	433631	7347783	-60	148	102	RC	
LYRC010	433779	7347784	-60	164	36	RC	
LYRC011	433764	7347819	-60	164	60	RC	
LYRC012	433862	7347802	-60	160	36	RC	
LYRC013	433842	7347849	-60	160	84	RC	
LYRC014	432841	7350177	-60	45	84	RC	
LYRC015	432691	7350314	-60	36	48	RC	Lyons 13
LYRC016	432637	7350341	-60	43	36	RC	
LYRC017	432567	7350322	-60	50	78	RC	
LYRC018	432410	7350613	-60	60	24	RC	Lyons 12
LYRC019	432377	7350583	-60	50	54	RC	
LYRC020	432351	7350559	-60	50	78	RC	
LYRC021	432420	7350578	-60	26	36	RC	
LYRC022	432398	7350539	-60	32	78	RC	
LYRC023	432373	7350502	-60	36	72	RC	
LYRC024	432461	7350529	-60	42	36	RC	
LYRC025	432439	7350506	-60	42	48	RC	
LYRC026	432406	7350471	-60	50	66	RC	
LYRC027	432490	7350506	-60	34	30	RC	
LYRC028	432464	7350466	-60	35	42	RC	
LYRC029	432439	7350426	-60	40	78	RC	
LYRC030	432493	7350411	-60	35	66	RC	
LYRC031	432468	7350381	-60	50	84	RC	
LYRC032	432349	7350671	-60	48	48	RC	
LYRC033	432314	7350642	-60	54	66	RC	
LYRC034	432278	7350611	-80	50	108	RC	
LYRC035	432262	7350776	-60	50	48	RC	
LYRC036	432241	7350815	-60	34	48	RC	
LYRC037	432207	7350771	-60	36	72	RC	
LYRC038	432213	7350852	-60	36	42	RC	
LYRC039	432187	7350818	-60	36	66	RC	
LYRC040	432217	7350926	-60	53	48	RC	Lyons 12
LYRC041	432187	7350896	-60	52	60	RC	
LYRC042	432197	7350991	-60	40	54	RC	
LYRC043	433463	7351984	-60	66	84	RC	Lyons 3
LYRC044	433704	7352230	-60	211	54	RC	
LYRC045	434034	7352497	-60	245	42	RC	Lyons 27
LYRC046	434021	7352435	-60	243	84	RC	
LYRC047	433891	7352593	-60	228	84	RC	
LYRC048	433930	7352632	-60	228	72	RC	
LYRC049	433835	7352546	-60	45	60	RC	
LYRC050	433864	7352576	-60	225	48	RC	
LYRC051	433700	7350034	-60	74	42	RC	Lyon_P2
LYRC052	433269	7350630	-60	62	60	RC	Lyon_P3
LYRC053	435602	7348619	-60	35	30	RC	Lyons 28

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**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	<ul style="list-style-type: none"> <li>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.</li> <li>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</li> <li>Aspects of the determination of mineralisation that are Material to the Public Report.</li> <li>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.</li> </ul>	<p>Reverse Circulation (RC) drilling was undertaken to produce samples for assaying.</p> <p>Two sampling techniques were utilised for this program, 1m metre splits directly from the rig sampling system for each metre and 3m composite sampling from the spoil piles. Samples submitted to the laboratory were determined by the site geologist.</p> <p><b>1m Splits</b></p> <p>From every metre drilled a 2-3m samples (split) was sub-sampled into a calico bag via a Metzke cone splitter from each metre of drilling.</p> <p><b>3m Composites</b></p> <p>All remaining spoil from the sampling system was collected in buckets in rows adjacent to the rig. An aluminium scoop was used to then sub-sample each spoil pile to create a 2-3kg 3m composite sample in a calico bag. Only at Lyons 11 prospect as a 3m composite collected.</p> <p>All samples are submitted to ALS Laboratories in Perth for determination of Rare Earth Oxides by Lithium Borate Fusion XRF (ALS Method ME-XRF30).</p> <p><b>Rock Chips</b></p> <ul style="list-style-type: none"> <li>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.</li> <li>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.</li> <li>Rock chips were submitted to ALS Laboratories in Perth for determination of Rare Earth Oxides</li> </ul>

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Criteria	JORC Code explanation	Commentary
		by Lithium Borate Fusion XRF (ALS Method ME-XRF30).
Drilling techniques	<ul style="list-style-type: none"> <li>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).</li> </ul>	<p><b>RC Drilling</b></p> <p>Topdrill undertook the program utilising a Drill Rigs Australia track mounted Schramm T685WS drill rig with additional air from an auxillary compressor and booster. Bit size was 5 3/4 inch.</p>
Drill sample recovery	<ul style="list-style-type: none"> <li>Method of recording and assessing core and chip sample recoveries and results assessed.</li> <li>Measures taken to maximise sample recovery and ensure representative nature of the samples.</li> <li>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.</li> </ul>	<p><b>RC Drilling</b></p> <p>Drilling was undertaken using a 'best practise' approach to achieve maximum sample recovery and quality through the mineralised zones.</p> <p>Best practise sampling procedure included: suitable usage of dust suppression, suitable shroud, lifting off bottom between each metre, cleaning of sampling equipment, ensuring a dry sample and suitable supervision by the supervising geologist to ensure good sample quality.</p> <p>At this stage, no known bias occurs between sample recovery and grade.</p>
Logging	<ul style="list-style-type: none"> <li>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.</li> <li>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.</li> <li>The total length and percentage of the relevant intersections logged.</li> </ul>	<p>RC chips were logged by a qualified geologist with sufficient experience in the geological terrane and relevant styles of mineralisation using an industry standard logging system which could eventually be utilised within a Mineral Resource Estimation.</p> <p>Lithology, mineralisation, alteration, veining, weathering and structure were all recorded digitally.</p> <p>Chips were washed each metre and stored in chip trays for preservation and future reference.</p> <p>RC pulp material is also analysed on the rig by pXRF, scintillometer and magnetic susceptibility meter to assist with logging and the identification of mineralisation.</p> <p>Logging is qualitative, quantitative or semi-quantitative in nature.</p>
Sub-sampling techniques and sample preparation	<ul style="list-style-type: none"> <li>If core, whether cut or sawn and whether quarter, half or all core taken.</li> <li>If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.</li> <li>For all sample types, the nature, quality</li> </ul>	<p><b>RC Drilling</b></p> <p>From every metre drilled, a 2-3kg sample (split) was sub-sampled into a calico bag via a Metzke cone splitter.</p>

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Criteria	JORC Code explanation	Commentary
	<p>and appropriateness of the sample preparation technique.</p> <ul style="list-style-type: none"> <li>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</li> <li>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.</li> <li>Whether sample sizes are appropriate to the grain size of the material being sampled.</li> </ul>	<p>QAQC in the form of duplicates and CRM's (OREAS Standards) were inserted through the ore zones at a rate of 1:50 samples. Additionally, within mineralised zones, a standard and a blank were inserted.</p> <p>2-3kg samples are submitted to ALS Laboratories (Perth), oven dired to 105°C and pulverised to 85% passing 75um to produce a 0.66g charge for determination of Rare Earth Oxides by Lithium Borate Fusion XRF (ALS Method ME-XRF30).</p> <p>Standard laboratory QAQC is undertaken and monitored.</p> <p><b>Rock Chips</b></p> <p>Entire rock chips were submitted to the lab for sample prep and analysis.</p>
<p>Quality of assay data and laboratory tests</p>	<ul style="list-style-type: none"> <li>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</li> <li>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.</li> <li>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.</li> </ul>	<p><b>Laboratory Analysis</b></p> <p>Lithium Borate fusion is considered a total digest and Method ME-XRF30 is appropriate for REE determination.</p> <p>Standard laboratory QAQC is undertaken and monitored by the laboratory and by the company upon assay result receipt.</p> <p><b>Rock Chips</b></p> <ul style="list-style-type: none"> <li>All samples were submitted to ALS Laboratories in Wangara, Perth where 1-3kg rock chips samples were crushed so that &gt;70% of material passes through -6mm, the sample is then pulverised to &gt;85% passing 75 micron.</li> <li>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)</li> <li>Lithium borate fusion is considered a total digest and Method ME-XRF30 is appropriate for REE determination.</li> <li>No standards, duplicates or blanks submitted with rock chips.</li> </ul> <p>Airborne geophysical data including magnetics and radiometrics (eK, eTh, eU) were collected by</p>

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		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 50m line spacing. All readings (X,Y,Z) were within a 2m accuracy. Traverse Line Direction was East-West.
Verification of sampling and assaying	<ul style="list-style-type: none"> <li>The verification of significant intersections by either independent or alternative company personnel.</li> <li>The use of twinned holes.</li> <li>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</li> <li>Discuss any adjustment to assay data.</li> </ul>	<p><b>Logging and Sampling</b></p> <p>Logging and sampling were recorded directly into a digital logging system, verified and eventually stored in an offsite database.</p> <p>Significant intersections are inspected by senior company personnel.</p> <p>No twinned holes have been drilled at this time.</p> <p>No adjustments to any assay data have been undertaken.</p> <p><b>Rock Chips</b></p> <ul style="list-style-type: none"> <li>Rock chip and geological information is written in field books and coordinates and track data saved from handheld GPSs used in the field.</li> <li>Gascoyne Geological Services geologist inspected and logged all rock chips.</li> <li>Field data is entered into excel spreadsheets to be loaded into a database.</li> </ul>
Location of data points	<ul style="list-style-type: none"> <li>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.</li> <li>Specification of the grid system used.</li> <li>Quality and adequacy of topographic control.</li> </ul>	<ul style="list-style-type: none"> <li>Collar position was recorded using a Garmin handheld GPS which has an accuracy of +/- 5m.</li> <li>GDA94 Z50s is the grid format for all xyz data reported.</li> </ul> <p>Azimuth and dip of the drill hole was recorded after the completion of the hole using a Reflec Sprint IQ Gyro. A reading was undertaken every 10<sup>th</sup> metre with an accuracy of +/- 1° azimuth and +/- 0.3° dip.</p>
Data spacing and distribution	<ul style="list-style-type: none"> <li>Data spacing for reporting of Exploration Results.</li> <li>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</li> </ul>	<p>See drill table for hole positions.</p> <p>Data spacing at this stage is not suitable for Mineral Resource Estimation.</p>

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Criteria	JORC Code explanation	Commentary
	<p><i>procedure(s) and classifications applied.</i></p> <ul style="list-style-type: none"> <li>Whether sample compositing has been applied.</li> </ul>	
Orientation of data in relation to geological structure	<ul style="list-style-type: none"> <li>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</li> <li>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.</li> </ul>	<p>Drilling was undertaken at a near perpendicular angle to the interpreted strike and dip of the ironstone outcrops and modelled magnetic data.</p> <p>No sample bias is known at this time.</p>
Sample security	<ul style="list-style-type: none"> <li>The measures taken to ensure sample security.</li> </ul>	<p>All geochemical samples were collected, bagged, and sealed by Gascoyne Geological Services staff and delivered to Bishops Transport in Carnarvon.</p> <p>Samples were delivered directly to ALS Laboratories in Wangara, Perth by Bishops Transport ex Carnarvon.</p>
Audits or reviews	<ul style="list-style-type: none"> <li>The results of any audits or reviews of sampling techniques and data.</li> </ul>	<p>The program is continuously reviewed by senior company personnel.</p>

## 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	<ul style="list-style-type: none"> <li>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.</li> <li>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.</li> </ul>	<p>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.</p> <ul style="list-style-type: none"> <li>The Gascoyne Project consists of 2 granted Exploration Licenses (E09/2515 and E09/2516).</li> <li>All tenements are 100% owned by Dalkeith Capital.</li> <li>The Gascoyne Project covers 2 Native Title Determinations including the Thudgari (WAD6212/1998) and the Combined Thiin-Mah, Warriyangka, Tharrkari and Jiwarli (WAD464/2016).</li> <li>The Gascoyne Project is located over the following pastoral leases; Edmund, Gifford Creek, and Wanna.</li> </ul>
Exploration	<ul style="list-style-type: none"> <li>Acknowledgment and appraisal of</li> </ul>	<ul style="list-style-type: none"> <li>Historical exploration of a sufficiently high standard</li> </ul>

Criteria	JORC Code explanation	Commentary
done by other parties	exploration by other parties.	<p>was carried out in the region by a few parties including:</p> <p>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</p>
Geology	<ul style="list-style-type: none"> <li>Deposit type, geological setting and style of mineralisation.</li> </ul>	<ul style="list-style-type: none"> <li>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.</li> </ul> <p>The c.1360 Ma GCCC is composed of;</p> <ul style="list-style-type: none"> <li>~NW striking Lyons River Sills (calcio-, magnesio- and ferrocarnatites)</li> <li>~NE striking fenite (alteration) veins</li> <li>Yangibana Ironstones (REE ore bodies)</li> <li>Magnetite-biotite dykes</li> </ul> <ul style="list-style-type: none"> <li>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.</li> <li>The Gascoyne Project is prospective for Ferrocarnatite hosted REEs.</li> </ul>
Drill hole Information	<ul style="list-style-type: none"> <li>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: <ul style="list-style-type: none"> <li>easting and northing of the drill hole collar</li> <li>elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar</li> <li>dip and azimuth of the hole</li> <li>down hole length and interception depth</li> <li>hole length.</li> </ul> </li> <li>If the exclusion of this information is</li> </ul>	<p>An overview of the drilling program is given within the text within this document.</p>

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Criteria	JORC Code explanation	Commentary
	<i>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.</i>	
Data aggregation methods	<ul style="list-style-type: none"> <li>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.</li> <li>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.</li> <li>The assumptions used for any reporting of metal equivalent values should be clearly stated.</li> </ul>	No pXRF readings or metal equivalents are reported.
Relationship between mineralisation widths and intercept lengths	<ul style="list-style-type: none"> <li>These relationships are particularly important in the reporting of Exploration Results.</li> <li>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</li> <li>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').</li> </ul>	<p>Drilling is undertaken close to perpendicular to the dip and strike of the mineralisation.</p> <p>The true thickness of the mineralisation intersected in drill holes cannot currently be calculated.</p>
Diagrams	<ul style="list-style-type: none"> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>Refer to figures within this report.</li> </ul>
Balanced reporting	<ul style="list-style-type: none"> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>The accompanying document is a balanced report with a suitable cautionary note.</li> </ul>
Other substantive exploration data	<ul style="list-style-type: none"> <li>Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey</li> </ul>	<ul style="list-style-type: none"> <li>Suitable commentary of the geology encountered are given within the text of this document.</li> </ul>

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	<p><i>results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.</i></p>	
Further work	<ul style="list-style-type: none"> <li><i>The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).</i></li> <li><i>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</i></li> </ul>	<p>Additional RC drilling</p> <p>Diamond Drilling</p> <p>Metallurgical test work</p> <p>Resource Modelling</p>

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