

# LINDIAN REPORTS MAIDEN MINERAL RESOURCE ESTIMATE OF 261 MILLION TONNES AT HIGH GRADE OF 2.19% TREO

## HIGHLIGHTS

- This Mineral Resource Estimate ('MRE') places Kangankunde amongst one the world's largest rare earths deposits and positions it as a globally strategic resource for secure, long-term supply
  - 5.7 million tonnes contained rare earths
  - Includes 1.2 million tonnes of contained rare earths critical metal elements neodymiumpraseodymium (NdPr)
  - NdPr ratio averages 20.2% of TREO
  - Non-radioactive mineralisation
  - MRE includes multiple higher-grade subsets
    - o 23MT @ 3.23% TREO and the focus for the initial Stage 1 mine development
    - o 60MT at 2.4% TREO
    - 46MT at 2.34% TREO
  - Mineralisation remains open at depth and beyond some areas of the current mineral resource envelope
- With the MRE now published, Lindian is well-placed to advance offtake discussions with multiple parties that have expressed interest
- Multiple near-term value catalysts pending

**Lindian's Executive Chairman, Asimwe Kabunga commented:** "Our maiden Mineral Resource Estimate marks a key milestone for Lindian and positions us as a major player in the global rare earths sector. We can confidently claim Kangankunde is one of the world's largest rare earths projects superior in terms of tonnage matched with excellent grade and contaning a high percentage of critical metal elements neodymium-praseodymium (NdPr), and uniquely, material that is non-radioactive. This makes the project highly attractive to parties seeking secure, long term supply, many of which have expressed an interest in Kangankunde's material. Our focus now turns to locking in these offtake agreements and advancing contruction of our stage 1 plant to deliver first product in 2024."

**Chief Executive Officer, Alistair Stephens added:** *"In a little over 10 months, and based on just 14,000 metres of drilling, Lindian has established a vastly superior rare earths resource that positions us in the top echelons of critical minerals companies globally. It is worth noting that the resource remains open. It is an outstanding outcome and I would like to acknowledge the hard work of our technical team in Malawi, and notably, the support of the Malawi Government and the local community. This MRE underpins the next phase of value catalysts for Lindian including mine and processing development activities and offtake agreements. We have a number of meaningful announcements pending that will deliver further value."* 

Level 24, 108 St Georges Terrace Perth WA 6000, Australia <u>www.lindianresources.com.au</u> Twitter: @asxlindian ASX: LIN Executive Chairman Asimwe Kabunga Non-Executive Directors Giacomo (Jack) Fazio Yves Occello T: +61 8 6557 8838 E: info@lindianresources.com.au Enquiries on the announcement to: Alistair Stephens, Chief Executive Officer





**Lindian Resources Limited (ASX:LIN) ("Lindian" or "the Company")** is pleased to announce the maiden Mineral Resource Estimate (MRE) for the Kangankunde Rare Earths Project in Malawi of *261 million tonnes averaging* 2.19% *TREO* above a 0.5% TREO cutoff grade. The resource is entirely Inferred status, has been estimated in accordance with JORC 2012 guidelines and is summarised in Table 1.

#### Table 1: Kangankunde Rare Earths Project Mineral Resource Above 0.5% TREO Cut-off Grade

Descurse Classification	Tonnes	TREO	NdPr% of TREO**	Tonnes Contained NdPr*
Resource Classification	(millions)	(%)	(%)	(millions)
Inferred Resource	261	2.19	20.2	1.2

Rounding has been applied to 1.0Mt for tonnes and 0.1% NdPr% of TREO which may influence total calculation.

\* NdPr =  $Nd_2O_3 + Pr_6O_{11}$ , \*\* NdPr% / TREO% x 100

This MRE places Kangankunde amongst the world's largest rare-earth deposits and as such is a globally strategic resource for long-term security of rare earth supply.

#### Table 2 Kangankunde Rare Earths Mineral Resource by Estimation Domain (at 0.5% TREO cut-off)

Inferred Classification by	Tonnes	TREO	NdPr% of TREO	Tonnes Contained NdPr*
Domain	(millions)	(%)	(%)	(000's)
Domain 1	58	1.76	22.0	225
Domain 2	72	1.91	20.7	285
Domain 3	23	3.23	18.5	137
Domain 4	60	2.40	19.5	281
Domain 5	46	2.34	20.4	220

\* NdPr = Nd<sub>2</sub>O<sub>3</sub> + Pr<sub>6</sub>O<sub>11</sub>. Rounding has been applied to 1.0Mt for tonnes and 0.1% NdPr% of TREO which may influence total calculation.

Resource estimation utilised multi-element relationships from rock chemistry and rare earth mineralisation to define five domains within the overall carbonatite. These domains were assessed against geological understanding and field observations from surface mapping and drill core and were considered appropriate representations of the mineralisation distribution. The resource estimation by domains is summarised in Table 2

Domain 3 is a high-grade domain that will be the focus for initial development planning.

Grade tonnage curve analysis of the resource shows the robustness of grade continuity in the resource with a reduction in tonnes and increase in grade with increasing cut-off.





Figure 1: Grade tonnage relationship Kangankunde Inferred Resource

Tables 4 to 6 list the resources in detail by rare earth element and in commonly reported accumulations.

#### SUMMARY OF MATERIAL INFORMATION USED TO ESTIMATE THE MINERAL RESOURCE

The following is a summary of material information used to estimate the Mineral Resource, as required by Listing Rule 5.8.1 and JORC 2012 Reporting Guidelines.

#### **Mineral Tenement and Land Tenure Status**

The Kangankunde Rare Earths Project is located in the south of Malawi, 90 km north of the city of Blantyre. The mineral tenements include a Medium Scale Mining Licence (MML0290/22) which is surrounded by Exploration Licence EPL0514/18R (Figure 2). The Exploration and Mining Licences have an Environmental and Social Impact Assessment Licence No.2:10:16 issued under the Malawi Environmental Management Act No. 19 of 2017.Both licences are in good standing with no known impediments.

#### Table 3: Kangankunde Rare Earths Project Tenement Details.

$\bigcirc$	Licence ID	Licence Type	Granted Date	Expiry / Renewal Date	Area (km²)	
	MML0290/22	Medium Scale Mining	22 April 2022	22 April 2032	9.0	
	EPL0514/18R	Exploration	16 October 2021	16 October 2023	16.0	





Figure 2: Project Location Plan with Project Mineral Licences

On 1 August 2022 Lindian announced the acquisition of 100% of Malawian registered Rift Valley Resource Developments Limited (Rift Valley) and its 100% owned title to Exploration Licence EPL0514/18R and Mining Licence MML0290/22.

Under the terms of the Transaction, Lindian has an agreement to acquire all the shares in Rift Valley from its existing shareholders for US\$30 million, payable in tranches. To date, Lindian has paid US\$20.0 million in cash and is the registered owner of 67% of the shares in Rift Valley. The remaining amount of US\$10.0 million is due 48 months from the signature date of the Share Purchase Agreement, or on the commencement of production (refer ASX release 1 August 2022) at which time the remaining 33% of the shares in Rift Valley will be transferred to Lindian.

#### Geology

The Kangankunde Hill rises to a height of up to 200 m above the surrounding plain. The deposit contains a central zone of carbonatite rocks passing outwards to a series of zones of altered breccias of varying composition of carbonatite and wall rock clasts in a carbonatite matrix, and ultimately into unaltered gneiss host rock (Figure 3). Similar to many rare earth deposits, the main rare earth containing mineral in the deposit is monazite.





Figure 3: Typical Cross-section showing Main Geology Features with Resource Footprint

Estimation domaining utilised multi-element relationships from minor rock chemistry and rare earth mineralisation to define five domains within the overall carbonatite limits. These domains were assessed against geological understanding and field observations from surface mapping and drill core and were considered appropriate representations of the mineralisation distribution. Leapfrog was utilised to build mineralisation domain wireframes and to code sample intervals with the applicable domain. A plan representation of the defined domains is presented in Figure 4.





Figure 4: Plan view showing Estimation Domains

## **Drilling Techniques and Hole Spacing**

Drilling completed at the Kangankunde Rare Earths Project and used to support the MRE includes eight diamond core (DD) holes, 76 reverse circulation (RC) holes, and 7 RC holes with diamond core tails (RCD) for a total of 15,831 m (Figure 5).

All holes are drilled from surface with various orientations depending on terrain constraints. RC drilling utilised a 5.25" (134 mm) face sampling hammer to generate one-metre samples, which are placed into large plastic bags marked with the hole ID and sample interval. Sample weights are recorded for each sample, with recovery maximised via use of PVC collars in upper portions of the collar.

Diamond drilling used a HQ triple tube size (~61.1 mm diameter) with the triple tube techniques used to maximise core recovery. NQ core was used for deeper drill holes. Drill core was collected from a core barrel and placed in appropriately marked core trays. Down hole core run depths were measured and marked with core blocks. Core was measured for core loss and core photography and geological logging completed.





Figure 5: Drill Hole Layout Plan



#### Sampling

Samples from the RC drilling are collected on one-metre intervals from the rig mounted cyclone and placed into large plastic bags. These are subsequently split using a two-tier riffle splitter to obtain a ¼ sub-sample. This is subsequently reduced in a single-tier riffle splitter to generate an A and B sample reduced to a nominal 1.5 kg. Sample lengths for diamond drilling were determined by geological boundaries with a maximum sample length of 2 metres applied. The core was cut using an electric core saw. Quarter core was submitted to ALS for chemical analysis using industry standard sample preparation and analytical techniques.

Certified reference materials (CRM), analytical blanks, and field duplicates were used as part of the QAQC procedures and were each inserted at a rate of 1:20 samples.

#### Sample Analysis

All samples were dispatched by air freight direct to ALS laboratory in Johannesburg for sample preparation. Following sample preparation, a 30-gram pulverised sub-sample is shipped to ALS Perth Australia for analysis. Sample preparation included whole sample crushing to 70% less than 2mm, Boyd rotary slitting to generate a 750g sub-sample, and pulverising to achieve better than 85% passing 75 microns. Analysis for REE suite was via Lithium Borate Fusion ICP-MS (ALS code ME-MS81h), with elements analysed at ppm levels. This method is considered a total analysis.

#### **Bulk Density**

Insitu dry bulk density was determined using the Archimedes method on a 20 metre downhole interval from available core drilling. A total of 96 samples were tested with dry bulk density ranging from 2.08 g/cm<sup>3</sup> to 3.45 g/cm<sup>3</sup> with the average of 2.95 g/cm<sup>3</sup> used in resource estimation. Future work should include more testing and establishment of a grade density relationship if possible.

#### **Estimation Methodology**

Drill hole sample data was composited to one-metre downhole lengths using a best fit-method. No residuals were generated.

A total of 15 REE grade attributes (Y, La, Ce, Pr, Nd, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, and Lu), and two deleterious elements (U, and Th) were estimated. Final estimated values are converted to stoichiometric oxide values by calculation using published ratios to support reporting of rare earth oxides (REO). The grade estimation process was completed using Maptek Vulcan software using Ordinary Kriging (OK). The variogram for La was applied to the other light rare earth elements, while the Dy variogram was applied for the heavy rare earths. Other variables were directly modelled.

Interpolation parameters were derived using standard exploratory data analysis techniques of statistical and continuity analysis. Appropriate interpolation strategies were developed using kriging neighbourhood analysis (KNA) with a minimum number of 6 composites and a maximum number of 16 composites, with an octant search applied with a restriction on the number of composites per octant set to four. Blocks were estimated in a two-pass strategy with first pass maximum search distances between 190 and 375 metres depending on estimation variable. The second pass doubled the first pass search distance and removed the octant restriction. Blocks not estimated after the second pass were assigned a background waste grade. A cross section looking north with estimated TREO block grades is presented in Figure 6.





The model has a block size of 25 m (X) by 25 m (Y) by 5 m (Z) with sub-celling of 5 m (X) by 5 m (Y) by 2.5m (Z). Grades were estimated into the parent cells.

The block model was validated using a combination of visual and statistical techniques including global statistics comparisons, correlation coefficients comparisons, and trend plots.

### **Resource Classification**

A range of criteria was considered by Cube when addressing the suitability of the classification boundaries. These criteria include:

- Geological continuity and volume;
- Drill spacing and drill data quality;
- Modelling technique; and
- Estimation properties, including search strategy, number of informing composites, average distance of composites from blocks and kriging quality parameters.

Blocks have been classified exclusively in the Inferred category and constrained inside a drilling footprint, with maximum extrapolation of ~100 m from drill holes (Figure 7).







Figure 7: Kangankunde REE Project – Plan view of Inferred Resources showing TREO grades

## Cut-off Grade

The Mineral Resource has been reported above a 0.5% total rare earth oxide (TREO) cut-off. Determination of an appropriate cut-off grade has considered recent metallurgical test work rare earth recoveries and concentrate parameters (ASX release 11 April 2023). Based on these results a price for the predicted contained REO product has been derived from 3<sup>rd</sup> party pricing forecasts and NSR calculation.

These assumptions, together with other cost inputs, were utilised in definition of an optimisation shell to assess the impact of assumed geotechnical constraints and associated strip ratio on the portions of the Mineral Resource which may not be economically recovered. In the opinion of the Competent Person, the results of the optimisation demonstrate that the project has met the conditions for reporting of a Mineral Resource with reasonable prospects of economic extraction.

### Mining and Metallurgy

Development of this Mineral Resource assumes mining using standard equipment and methods. The assumed mining method is open pit mining at an appropriate bench height with conventional drill and blast with excavator and truck configuration for load and haul. Lindian Resources Ltd have completed initial metallurgy test work that resulted in the qualification of a water-based gravity separation process and resulted in a recovery of 70% at a concentrate grade of 60% TREO (refer ASX release dated 11th April 2023). These results together with indicative mining and processing costs and other cost inputs are considered adequate to achieve reasonable expectations of economic metallurgical processing of the project mineralisation.



#### Table 4: Kangankunde Rare Earths Mineral Resource (at 0.5% TREO cut-off)

Class	Tonnes (Mt)	La₂O₃ (ppm)	CeO₂ (ppm)	Pr <sub>6</sub> O <sub>11</sub> (ppm)	Nd₂O₃ (ppm)	Sm₂O₃ (ppm)	Eu₂O₃ (ppm)	Gd₂O₃ (ppm)	Tb₄O <sub>7</sub> (ppm)	Dy₂O₃ (ppm)	Ho₂O₃ (ppm)	Er₂O₃ (ppm)	Tm₂O₃ (ppm)	Yb₂O₃ (ppm)	Lu₂O₃ (ppm)	Y₂O₃ (ppm)
Inferred	261	5,970	11,040	1,100	3,330	240	40	70	5	15	2	3	0.3	2	0.3	45

Table 5: Kangankunde Rare Earths Mineral Resource (at 0.5% TREO cut-off)

Classification	Tonnes (Mt)	TREO (%)	HREO (%)	LREO (%)	NdPr (ppm)	NdPr % of TREO (%)	SEG (ppm)	TbDy (ppm)	U₃O <sub>8</sub> (ppm)	ThO₂ (ppm)
Inferred	261	2.19	0.02	2.17	4,430	20.2	350	20	6	50

Table 6: Kangankunde Rare Earths Mineral Resource by Estimation Domain (at 0.5% TREO cut-off)

Classification	Estimation Domain	Tonnes (Mt)	TREO (%)	HREO (%)	LREO (%)	NdPr (ppm)	NdPr % of TREO (%)	SEG (ppm)	TbDy (ppm)	U₃Oଃ (ppm)	ThO₂ (ppm)
	1	58	1.76	0.02	1.74	3,880	22.0	340	20	8	50
	2	72	1.91	0.02	1.89	3,950	20.7	340	25	8	50
Inferred	3	23	3.23	0.02	3.21	5,980	18.5	415	20	3	65
	4	60	2.40	0.01	2.39	4,690	19.5	335	15	1	35
	5	46	2.34	0.02	2.33	4,770	20.4	340	20	10	50

Notes: All ppm rounded from original estimate to the nearest 10 ppm. Minor variables rounded to nearest 1 ppm however these are immaterial overall. Percentages rounded to nearest 0.01% which may lead to differences in averages from Table 4.

 $Y_2O_3$  is included in the TREO and HREO calculation.

**TREO (Total Rare Earth Oxide)** =  $La_2O_3 + CeO_2 + Pr_6O_{11} + Nd_2O_3 + Sm_2O_3 + Eu_2O_3 + Gd_2O_3 + Tb_4O_7 + Dy_2O_3 + Ho_2O_3 + Er_2O_3 + Tm_2O_3 + Yb_2O_3 +$ 

**TbDy** =  $Tb_4O_7 + Dy_2O_3$ 

 $\mathbf{NdPr} = \mathbf{Pr}_{6}\mathbf{O}_{11} + \mathbf{Nd}_{2}\mathbf{O}_{3}$ 

U and Th are deleterious elements being reported in accordance with JORC (2012) Guidelines.



#### -ENDS-

This ASX announcement was authorised for release by the Lindian Board.

#### For further information, please contact:

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## **About Lindian**

#### RARE EARTHS

**Lindian Resources Limited** is the holder of Malawian registered Rift Valley Resource Developments Limited and its 100% owned title to Exploration Licence EPL0514/18R and Mining Licence MML0290/22 issued under the Malawi Mines and Minerals Act 2018. The Exploration and Mining Licences have an Environmental and Social Impact Assessment Licence No.2:10:16 issued under the Malawi Environmental Management Act No. 19 of 2017.

#### **BAUXITE**

Lindian Resources Limited has over 1 billion tonnes of Bauxite resources (refer company website for access to resources statements and competent persons statements) in Guinea with the Gaoual, Lelouma and Woula projects. Guinean bauxite is known as the premier bauxite location in the world, having high grade and low impurities premium quality bauxite.

## **Forward Looking Statements**

This announcement may include forward-looking statements, based on Lindian's expectations and beliefs concerning future events. Forward-looking statements are necessarily subject to risks, uncertainties and other factors, many of which are outside the control of Lindian, which could cause actual results to differ materially from such statements. Lindian makes no undertaking to subsequently update or revise the forward-looking statements made in this announcement, to reflect the circumstances or events after the date of the announcement.

### **Competent Persons Statements**

The information in this Report that relates to exploration results including drilling, sampling, assay and bulk density data applied to the mineral resource estimate for the Kangankunde Project is based on information compiled by Mr. Geoff Chapman, who is a Fellow of the Australian Institute of Mining and Metallurgy (AusIMM). Mr. Chapman is the principal of geological consultancy GJ Exploration Pty Ltd that is engaged by to Lindian Resources Limited. Mr. Chapman has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken 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' (JORC Code).

Mr. Chapman consents to the inclusion in this report of the matters based on the information in the form and context in which it appears.

The information in this report that relates to Mineral Resources is based on information compiled by Mr Daniel Saunders, a Competent Person who is a Fellow of The Australasian Institute of Mining and Metallurgy. Mr Saunders is a full-time employee of Cube Consulting Pty Ltd, acting as independent consultants to Ionic Rare Earths Limited. Mr Saunders has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration, and to the activity being undertaken 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' (JORC Code).

Mr Saunders consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.



#### Appendix 1: Kangankunde Rare Earths Project Hole Details (Datum UTM WGS84 Zone 36S)

Drill Hole ID	Drill Type	UTM East (m.)	UTM North (m.)	Elevation	Hole Length	Azimuth TN	Inclination
				(m.a.s.l.)	EOH (m.)	(Ave.)	(Ave.)
KGKDD001	DD	705315	8327039	795	300.61	083	-57
KGKDD002	DD	705277	8326957	796	188.17	259	-47
KGKDD003	DD	705393	8326999	809	145.21	271	-59
KGKDD004	DD	705433	8326998	801	293.39	077	-45
KGKDD005	DD	705362	8327119	769	60	088	-50
KGKDD006	DD	705351	8327213	728	60	089	-49
KGKDD007	DD	705353	8327151	753	60	093	-53
KGKDD008	DD	705349	8327151	753	60	270	-50
KGKRC004	RC	705487	8327065	797	95	000	-90
KGKRC005	RC	705234	8326997	792	117	265	-44
KGKRC006	RC	705492	8327065	797	300	265	-82
KGKRC007	RC	705310	8326989	802	186	264	-47
KGKRC008	RC	705496	8327069	797	272	343	-65
KGKRC010	RC	705385	8327001	810	139	000	-90
KGKRC011	RC	705342	8326942	806	32	081	-88
KGKRC012	RC	705496	8327070	797	210	347	-42
KGKRC013	RC	705343	8326942	806	162	090	-60
KGKRC014	RC	705490	8327063	797	209	085	-45
KGKRC015	RC	705342	8326941	806	160	269	-63
KGKRC016	RC	705277	8326897	802	171	263	-48
KGKRC017	RC	705345	8326893	804	163	265	-61
KGKRC019	RC	705346	8326893	804	169	287	-86
KGKRC020	RC	705483	8327048	795	167	289	-44
KGKRC021	RC	705348	8326891	803	89	078	-62
KGKRC022	RC	705338	8326846	801	147	077	-62
KGKRC023	RC	705486	8327053	796	28	323	-45
KGKRC024	RC	705337	8326846	802	169	287	-84
KGKRC025	RC	705491	8327071	797	127	053	-65
KGKRC026	RC	705336	8326849	802	168	266	-45
KGKRC027	RC	705380	8326928	800	170	082	-48
KGKRC028	RC	705500	8327068	796	169	020	-45
KGKRC030	RC	705500	8327067	796	188	018	-64
KGKRC031	RC	705342	8326798	808	175	081	-65
KGKRC032	RC	705500	8327067	796	181	046	-43
KGKRC033	RC	705341	8326798	808	169	067	-85
KGKRC034	RC	705491	8327061	797	181	076	-66
KGKRC035	RC	705333	8326797	807	147	260	-45
KGKRC036	RC	705392	8326788	806	174	086	-55
KGKRC037	RC	705483	8327049	795	160	325	-45
KGKRC038	RC	705296	8327040	795	181	254	-68
KGKRC039	RC	705391	8326785	806	150	138	-55
KGKRC040	RC	705290	8327036	796	167	261	-43
KGKRC041	RC	705239	8327002	793	181	082	-51
KGKRC042	RC	705388	8326794	805	151	182	-55
KGKRC043	RC	705238	8327002	793	181	085	-68
KGKRC044	RC	705358	8326964	808	155	270	-50
KGKRC045	RC	705329	8326961	806	150	265	-51
KGKRC046	RC	705271	8327029	796	150	268	-47
KGKRC047	RC	705337	8326962	807	145	091	-54
KGKRC048	RC	705308	8326997	802	143	088	-51
KGKRC049	RC	705207	8327042	790	151	088	-50
KGKRC050	RC	705203	8327042	789	150	264	-50
KGKRC051	RC	705305	8326974	802	154	258	-49
KGKRC052	RC	705232	8327010	792	151	097	-53
KGKRC053	RC	705273	8327018	797	148	088	-49
KGKRC054	RC	705232	8327009	792	81	264	-52
KGKRC055	RC	705395	8326899	793	159	082	-61
KGKRC056	RC	705265	8327090	786	160	089	-59



KGKRC057	RC	705281	8326971	798	109	090	-62
KGKRC058	RC	705199	8327106	774	180	090	-60
KGKRC059	RC	705366	8327118	770	49	090	-60
KGKRC060	RC	705201	8327145	765	175	089	-58
KGKRC061	RC	705367	8327118	770	163	090	-61
KGKRC062	RC	705090	8327106	735	180	076	-59
KGKRC063	RC	705319	8327112	772	180	094	-65
KGKRC064	RC	705102	8327149	735	180	077	-57
KGKRC065	RC	705162	8327214	734	180	092	-55
KGKRC066	RC	705098	8327195	723	181	078	-61
KGKRC067	RC	705326	8327189	741	180	077	-58
KGKRC068	RC	705313	8327240	728	161	100	-58
KGKRC069	RC	705453	8327269	701	181	085	-56
KGKRC070	RC	705245	8327209	748	179	087	-57
KGKRC071	RC	705373	8327265	703	154	087	-61
KGKRC072	RC	705182	8327157	758	180	076	-56
KGKRC073	RC	705421	8327285	694	180	089	-63
KGKRC075	RC	705357	8327153	753	36	090	-60
KGKRC076	RC	705353	8327153	753	160	090	-60
KGKRC077	RC	705356	8327212	727	157	094	-59
KGKRC078	RC	705319	8327306	716	157	082	-63
KGKRC079	RC	705157	8327243	725	180	080	-58
KGKRC080	RC	705088	8327090	736	180	106	-50
KGKRC081	RC	705464	8327294	692	161	097	-62
KGKRC082	RC	704953	8326999	703	31	084	-50
KGKRC083	RC	704945	8326998	703	150	086	-48
KGKRCDD001	RCD	705486	8327068	797	273.81	281	-64
KGKRCDD002	RCD	705486	8327065	797	323.21	270	-65
KGKRCDD003	RCD	705485	8327065	797	240.97	269	-48
KGKRCDD009	RCD	705386	8327001	810	317.2	089	-58
KGKRCDD018	RCD	705479	8327069	797	297.41	318	-61
KGKRCDD029	RCD	705370	8326853	797	322.51	081	-48
KGKRCDD074	RCD	704975	8327119	692	980.59	095	-50

## LINDIAN RESOURCES LTD.

## JORC Code, 2012 Edition – Table 1 report

## Section 1 Sampling Techniques and Data

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

Crite	ria J(	ORC Code explanation	Commentary
Samp techn	oling iques	Nature and quality of sampling (e.g. 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.	Reverse Circulation Drilling         Reverse circulation drilling sampled on 1 metre intervals.         Riffle split sample mass averaging 1.5kg crushed, pulverized using standard laboratory procedures with subsample assayed using appropriate methods for rare earth element total digestion and analysis.         Diamond Core Drilling         Drill core was collected from a core barrel and placed in appropriately marked core trays. Down hole core run depths were measured and marked with core blocks. Core was measured for core loss and core photography and geological logging completed.
		relatively simple (e.g. '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 (e.g. submarine nodules) may warrant disclosure of detailed information.	Sample lengths were determined by geological boundaries with a maximum sample length of 1 metre and minimum of 0.2 metre applied. Core was cut using a core saw and sampled on site at Kangankunde. Core was initially cut in half then one half was further cut in half to give quarter core. Quarter core was submitted to ALS for chemical analysis using industry standard sample preparation and analytical techniques.
Drillin techn	ng • iques	Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).	Reverse Circulation DrillingStandard reverse circulation drilling using 5 ¼ inch face sampling hammer.Diamond Core DrillingCore size was HQ triple tube with a nominal diameter of 61.1mm.
Drill si recov	ample ery •	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	<b>Reverse Circulation Drilling</b> Samples collected on a 1 drilled metre interval. Rock cuttings collected in large plastic bags marked with hole ID and interval from-to via a standard sample collection cyclone.



Criteria		JORC Code explanation	Commentary
		whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	All 1 metre interval bags are weighed in the field after removal from the sample collection cyclone. Collected sample mass is measured on a tared digital scale and recorded in drill hole data files.
			Sample recovery is maximized by:
			<ul> <li>Installing PVC collar pipe in the upper fractured rock zone of the hole to a depth where air loss is minimised and sample return is consistent.</li> <li>Sample cyclone is sealed to plastic sample collection bags do not leak</li> </ul>
()			Sample return was variable with:
15			<ul> <li>Occasional natural voids of up to 7 metres having &lt;10%, often 0% return</li> <li>Intervals of rock fracturing and loss of air circulation having recoveries averaging 30-60%</li> </ul>
Y			Competent rock proved good sample recovery averaging >90%
20			No relationship exists between sample recovery and grade.
99			Diamond Core Drilling
$\square$			Core recovery was calculated by measuring actual core length versus drillers core run lengths. Core recovery ranged from 0% in instances where voids or structures caused complete core loss to 100% and averaged 92%.
			No relationship exists between core recovery and grade.
Logging		• Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource	All RC chips and core has been geologically logged by the onsite geologist and chip and core trays retained and photographed
		estimation, mining studies and metallurgical studies.  Whether logging is qualitative or quantitative in nature. Core (or costean	Logging is qualitative with fields including shade, colour, weathering, grainsize, texture, lithology, veining, mineralisation and alteration.
		channel, etc) photography.	Additional non-geological qualitative logging includes comments for sample recovery
$\bigcirc$		• The total length and percentage of the relevant intersections logged.	moisture, and hardness for each logged interval.
Sub-sampl	ling ,	• If core, whether cut or sawn and whether quarter, half or all core taken.	Reverse Circulation Drilling
sample preparation	s and n	• If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.	Plastic sample collection bags have been split using a 2-tier riffle splitter to achieve a $\frac{1}{4}$ sub sample of the original mass.
15		• For all sample types, the nature, quality and appropriateness of the sample preparation technique.	This split is then halved in a single tier splitter to give 2 equal samples of approximately 1kg to 2kg in mass. These are denoted split A and split B
Y		Quality control procedures adopted for all sub-sampling stages to maximise	



	Criteria	JO	RC Code explanation	Commentar	у У
		•	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-	Each interva bags and co and stapled	I is provided with a unique sample number which is written on the subsample rresponding numbered sample tickets are placed within the sub sample bags into the rolled top of each bag.
			half sampling.	Both split A database up	and split B samples are weighed with mass recorded in the drill hole file for load.
		•	whether sample sizes are appropriate to the grain size of the material being sampled.	Split A samp storage at K	ples are dispatched for laboratory analysis. Split B samples are retained in angankunde for future reference as required.
	$\supset$			Sample weig appropriate	ghts were recorded prior to sample dispatch. Sample mass is considered for the grain size of the material being sampled.
	7.5			Diamond Co	ore Drilling
07	<b>D</b>			Samples we bags. These preparation.	re collected from core trays by hand and placed in individually numbered bags were dispatched to the assay laboratory for analysis with no further field
9				Sample weig appropriate	ghts were recorded prior to sample dispatch. Sample mass is considered for the grain size of the material being sampled.
				Field duplica created by le Duplicate sa analytical ba	ate sampling was conducted at a ratio of 1:20 samples. Duplicates were engthways halving the ¼ core primary sample into 2 identical portions. Imples were allocated separate sample numbers and submitted with the same atch as the primary sample.
C	Quality of assay	٠	The nature, quality and appropriateness of the assaying and laboratory	Assay and L	aboratory Procedures – All Samples
	data and		procedures used and whether the technique is considered partial or total.	Samples we	re dispatched by air freight direct to ALS laboratory Johannesburg South
$\left( \right)$		•	For geophysical tools, spectrometers, handheld XRF instruments, etc, the	Africa for sa	mple preparation.
2			parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.	ALS Code	Description
7	9	٠	Nature of quality control procedures adopted (e.g. standards, blanks,	WEI-21	Received sample weight
2	$\bigcirc$		duplicates, external laboratory checks) and whether acceptable levels of	LOG-22	Sample Login w/o Barcode
U			accuracy (i.e. lack of bias) and precision have been established.	DRY-21	High temperature drying
7				CRU-31	Fine crushing – 70% <2mm
				SPL-21	Split sample – Riffle splitter
7	5			PUL-31	Pulverise 250g to 85% passing 75 micron
7	U				Crushing QC Test
4				PUL-QC	Pulvensing QC test



С	riteria	JORC Code explanation	Commentary
			LOG-24 Pulp Login w/o Barcode
			Following sample preparation, a 30 gram pulverized subsample is shipped by airfreight to
	$\sim$		
			The assay technique used for REE was Lithium Borate Fusion ICP-MS (ALS code ME- MS81b). This is a recognised industry standard analysis technique for REE suite and
			associated elements. Elements analysed at ppm levels:
-			Ce Dy Er Eu Gd Hf Ho La
			Lu Nb Nd Pr Rb Sm Sn Ta
-			Tb Th Tm U W Y Yb Zr
-			Analysis for other metals is conducted by four acid digest and ICP-MS (ALS code ME-
11			4ACD81). The elements analysed using this technique are:
			Ag As Cd Co Cu Li Mo Ni
11			Pb Sc TI Zn
у г	2		The sample preparation and assay techniques used are industry standard and provide a
	$\overline{)}$		total analysis.
			All laboratories used are ISO 17025 accredited.
			QAQC
	7		Analytical Standards
JL	))		CRM AMIS0356 and OREAS 463 were included in sample batches at a ratio of 1:20 to drill
			samples submitted. This is an acceptable ratio.
_			The assay results for the standards were consistent with the certified levels of accuracy
-			and precision and no bias is evident.
	)]		Blanks
16			A DIARK SOURCED FROM IOCAL DARREN FOCK WAS INCLUDED IN SAMPLE DATCHES AT A RATIO OF 1:20 to drill samples submitted for analysis. This is an acceptable ratio
V,	)]		No laboratory contamination or bios is avident from require for the blank complete
Ľ			No laboratory contamination or bias is evident from results for the blank samples.
			Duplicates
(11)			created by replicating the sampling process from the primary sample. Duplicates were
¥			were allocated separate sample numbers and submitted with the same analytical batch as
	))		



Criteria	JORC Code explanation	Commentary				
		the primary sample Variability between evident.	duplicate results	is considered accep	table and no sa	ampling bias is
		<i>Alternative Analys</i> No alternative analy	<b>is Technique</b> ⁄tical method ana	ilysis has been under	rtaken.	
Verification of	• The verification of significant intersections by either independent or	No independent ver	rification of signif	icant intersection un	dertaken.	
assaying	alternative company personnel.	One RC drill pair we	ere twinned, KGk	KRC40 and KGKRC04	46, with assay r	esults acceptably
	The use of twinned holes.	comparable over si	milar depths.			
15	• Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Sampling protocols responsible geologi	for sampling and st. No procedure	d QAQC were docum es for data storage ar	nented and held nd managemen	d on site by the t have been
	Discuss any adjustment to assay data.		<u></u>			
$\mathcal{D}$		Data collected in the compiled with assay Geobase Australia	e field by hand a y results compile a professional pro	nd entered into Exce d and stored in a sec ovider of database se	l spreadsheet. cure database r ervices. Data ve	Data are then nanaged by prification is
		Sample numbers fro	om assay data ar	e verified prior to en	try into the data	abase.
		Assay data was rec sampling data in the	eived in digital fo e database.	ormat from the labora	tory and merge	ed with the
,0		Data validation of as is correct.	ssay data and sa	mpling data have bee	en conducted t	o ensure data entry
		All assay data recei	ved from the lab	oratory in element fo	rm is unadjuste	ed for data entry.
		Conversion of elem	ental analysis (R	EE) to stoichiometric	oxide (REO) w	as undertaken by
		spreadsheet using of	defined conversion	on factors.(Source: <u>ht</u>	ttps://www.jcu.e	edu.au/advanced-
		oxide-conversion-fa	actors)		extras/ciement	
()			Element	Conversion	Oxide	
シビ			ppm	Factor	Form	
			Ce	1.2284		
115			Er	1.1477	Er <sub>2</sub> O <sub>3</sub>	
			Eu	1.1579	Eu <sub>2</sub> O <sub>3</sub>	



Criteria	JORC Code explanation	Commentary				
			Gd	1.1526	Gd <sub>2</sub> O <sub>3</sub>	
			Ho	1.1455	Ho <sub>2</sub> O <sub>3</sub>	
			La	1.1728	La <sub>2</sub> O <sub>3</sub>	
			Lu	1.1371	Lu <sub>2</sub> O <sub>3</sub>	
			Nd	1.1664	Nd <sub>2</sub> O <sub>3</sub>	
			Pr	1.2082	Pr <sub>6</sub> O <sub>11</sub>	
			Sm	1.1596	Sm <sub>2</sub> O <sub>3</sub>	
			Tb	1.1762	Tb <sub>4</sub> O <sub>7</sub>	
$\bigcirc$			Tm	1.1421	Tm <sub>2</sub> O <sub>3</sub>	
			Ý	1.2699	Y <sub>2</sub> O <sub>3</sub>	
			Yb	1.1387	Yb <sub>2</sub> O <sub>3</sub>	
		Rare earth oxide is calculations are use	the industry acce ed for compiling F	epted form for report REO into their report	ing rare earths ing and evaluat	. The following ion groups:
$\sim$		Note that Y <sub>2</sub> O <sub>3</sub> is in	cluded in the TR	EO calculation.		
		TREO (Total Rare E Gd <sub>2</sub> O <sub>3</sub> + Tb <sub>4</sub> O <sub>7</sub> + Dy	arth Oxide) = La y <sub>2</sub> O <sub>3</sub> + Ho <sub>2</sub> O <sub>3</sub> + E	2O3 + CeO2 + Pr <sub>6</sub> O11 1r2O3 + Tm2O3 + Yb2O	+ Nd2O3 + Sm2 D3 + Y2O3 + Lu2	2O3 + Eu2O3 + O3.
		HREO (Heavy Rare Er <sub>2</sub> O <sub>3</sub> + Tm <sub>2</sub> O <sub>3</sub> + Yb	Earth Oxide) = S <sub>2</sub> O <sub>3</sub> , + Y <sub>2</sub> O <sub>3</sub> + Lu <sub>2</sub>	Sm2O3 + Eu2O3 + Gd24 2O3	O₃ + Tb₄O <sub>7</sub> + Dỵ	y <sub>2</sub> O <sub>3</sub> + Ho <sub>2</sub> O <sub>3</sub> +
		LREO (Light Rare E	arth Oxide) = La	<sub>2</sub> O <sub>3</sub> + CeO2 + Pr <sub>6</sub> O <sub>11</sub>	+ Nd <sub>2</sub> O <sub>3</sub>	
(D)		SEG = Sm2O3 + Eu	u2O3 + Gd2O3			
		TbDy = Tb4O7 + Dy	y2O3			
		$NdPrO\% = Nd_2O_3 +$	· Pr <sub>6</sub> O <sub>11</sub>			
		NdPrO% of TREO=	NdPrO%/TREO	x 100		
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.	Drill hole collar loca considered accurat Datum WGS84 Zon	tions reported ha e to 0.2m. e 36 South was ι	ave been surveyed b used for location data	y Differential G a planning. coll	PS and are
	Specification of the grid system used.	This is the appropri-	ate datum for the	e project area. No gri	d transformatio	ons were applied to
<b>3</b> D	Quality and adequacy of topographic control.	Downhole surveys	were acquired us	sing non-magnetic gy	vroscope surve	у



Criteria	JORC Code explanation	Commentary
		Topography is derived from SRTM 30 metre digital elevation database.
Data spacing and distribution	<ul> <li>Data spacing for reporting of Exploration Results.</li> <li>Whether the data spacing and distribution is sufficient to establish the degree.</li> </ul>	Drill spacing for this phase of drilling is a nominal 50 metre hole spacing on 50 metre line spacing. Topography limitations have necessitated drilling some holes off section.
	of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.	Evaluation of hole spacing for suitability to determine geology and grade estimation will be undertaken following this phase of drilling.
	Whether sample compositing has been applied.	No mineral resource estimation has been undertaken.
$\bigcirc$		No sample compositing has been used.
Orientation of data in relation to geological structure	<ul> <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>	The relationship between mineralisation and drill orientation is not known.
Sample security	The measures taken to ensure sample security.	After collection, the samples were transported by Company representatives via road to Lilongwe and dispatched via airfreight to ALS Johannesburg South Africa. Sample shipments are managed by a professional cargo freight company and remain secure during transport.
D		Following sample preparation subsamples are shipped to Perth Australia by ALS using DHL. Samples are received in Australia and subject to customs inspection and quarantine treatment.
		Samples were subsequently transported from Australian customs to ALS Perth via road freight and inspected on arrival by a Company representative.
Audits or reviews	• The results of any audits or reviews of sampling techniques and data.	No audits or reviews have been undertaken
	·	<u>.</u>
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### 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	<ul> <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</li> </ul>	The Kangankunde Project comprising granted Exploration Licence EPL0514/18R and Mining Licence MML0290/22 is 100% owned by Rift Valley Resource Developments (RVRD) a Malawian registered company. Lindian Resources currently holds 67% of RVRD with a binding share purchase agreement in place to progressively acquire 100% of RVRD.
	impediments to obtaining a licence to operate in the area.	
Exploration	Acknowledgment and appraisal of exploration by other parties.	Previous exploration includes:
parties		1952-1958: Eight trenches excavated. No data records known to exist.
		1959: Geological mapping, ten trenches excavated, seven drill holes drilled below main trenches. Data not sighted
$\square$		1972-1981: Trench mapping and sampling, adit driven 300 metres north to south with several crosscuts. Diamond drilling from crosscuts. Pilot plant operated producing strontianite and monazite concentrate. Limited data available in hard copy only.
		1987- 1990: Feasibility study activities including surface core drilling, processing studies, geotechnical and groundwater studies, estimation of "geological reserves" (Not JORC compliant). Limited data available in hard copy reports.
$\bigcirc$		Historical data is largely not available or not readily validated and is currently not reported.
Geology	Deposit type, geological setting and style of mineralisation.	Intrusive carbonatite containing monazite as the main rare earth bearing mineral.
		The Kangankunde carbonatite complex is characterized by an elliptic structure centring Kangankunde Hill. The diameters in N-S and E-W directions are 900m and 700m, respectively.
		In the ellipse, the following rocks are zonally arranged from the centre to the outer part; carbonatites, carbonatized breccias, wall rock / carbonatite breccias and basement rocks.
15		The carbonatites are dolomitic, sideritic and ankeritic and at surface are distributed widely on the northern and western slopes of the Kangankunde Hill. Manganese carbonatite is found at the top and on the eastern slope of the hill.
		22



	Criteria	JORC Code explanation	Commentary
			Monazite is found in all carbonatite types in varying quantities. Other associated minerals are strontianite, barite and apatite.
	Drill hole Information	<ul> <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:</li> </ul>	The material information for drill holes relating to this announcement are contained in Appendix 1.
(		<ul> <li>easting and northing of the drill hole collar</li> </ul>	
C	$\supset$	<ul> <li>elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar</li> </ul>	
		o dip and azimuth of the hole	
	15	<ul> <li>down hole length and interception depth</li> </ul>	
C	D	o hole length.	
2		<ul> <li>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.</li> </ul>	
	Data aggregation methods	<ul> <li>In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.</li> </ul>	No intervals reported in this announcement.
ζ	D	<ul> <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> </ul>	
		• The assumptions used for any reporting of metal equivalent values should be clearly stated.	
C	Relationship between	• These relationships are particularly important in the reporting of Exploration Results.	Not applicable. No intervals reported in this announcement.
5	mineralisation widths and intercept	• If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	
Ĭ	lengths	• If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').	



	Criteria	JORC Code explanation	Commentary
	Diagrams	<ul> <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>	Refer to diagrams in body of text.
C	Balanced reporting	<ul> <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>	Not applicable. No intervals reported in this announcement.
	Other substantive exploration data	<ul> <li>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.</li> </ul>	Multi element analysis has been conducted including potential radionuclides uranium (U) and thorium (Th). Metallurgical testwork undertaken establishing gravity concentration processing. This is reported in separate announcements.
	Further work	<ul> <li>The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).</li> <li>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</li> </ul>	Future work programs are intended to evaluate the economic opportunity of the project including near mine exploration drilling, resource definition drilling, processing optimization, mine op-itemisation and design.

## Section 3 Estimation and Reporting of Mineral Resources

## (Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

4	Criteria	JORC Code explanation	Commentary
	Database integrity	Measures taken to ensure that data has not been corrupted by, for     example, transcription or keying errors, between its initial collection and     its use for Mineral Resource estimation purposes.	Data collected in the field has been validated is validated prior to and during upload to the master database. Field data collection sheets and master database have validation controls on data entry.
	$\square$	Data validation procedures used.	Analytical data is received in digital format from the laboratory and merged with the sampling data in the master database for QAQC analysis and review against field data. Once finalised and validated data is stored in a protected Access database.
	Б		Prior to application to resource modelling the database is validated using standard software protocols



Criteria	JORC Code explanation	Commentary
Site visits	<ul> <li>Comment on any site visits undertaken by the Competent Person and the outcome of those visits.</li> <li>If no site visits have been undertaken indicate why this is the case.</li> </ul>	The project site has been visited by the Competent Person for Exploration Results who has observed drilling operations, reviewed drill core, and reviewed sampling and QAQC procedures.
		The project has not been visited by the Competent Person responsible for the reporting of Mineral Resources and is not considered necessary for the Inferred resource reporting level.
Geological interpretation	<ul> <li>Confidence in (or conversely, the uncertainty of ) the geological interpretation of the mineral deposit.</li> <li>Nature of the data used and of any assumptions made.</li> <li>The effect, if any, of alternative interpretations on Mineral Resource estimation.</li> <li>The use of geology in guiding and controlling Mineral Resource estimation.</li> </ul>	The Kangankunde carbonatite complex includes a central core lithology which consists of carbonatite agglomerate and is cut by carbonatite dykes, and surrounded by a ring of feldspathic breccia and agglomerate. The carbonatite body is surrounded by a fenite aureole. The REE-rich carbonatites are concentrated in the centre of the complex, with others occurring irregularly in veins and dykes (commonly as dolomitic and ankeritic carbonatites) that intrude different units of the carbonatite body.
	The factors affecting continuity both of grade and geology.	Minor element chemistry together with rare earth mineralisation was used to define five mineralisation domains for subsequent estimation. These domains were assessed against geological understanding and field observations from surface mapping and drill core and were considered appropriate representations of the mineralisation distribution.
		There is a moderate degree of confidence in the interpretation of the mineralisation based on historical activity including adits and trenches. As drilling continues the geological and chemical profile of the project will increase, allowing more detailed domaining regimes to be applied.
		Numerous small-scale faults are interpreted to occur at the project however these infer relatively limited offsets within the mineralised zones.
Dimensions	• The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.	The Kangankunde Hill rises to a height of up to 200 m above the surrounding plain. The central carbonatite extends approximately 700 m north-south, and ~400 m east-west, around which is a broad collar of mixed carbonatite breccias and fenite. The mineralisation has been intercepted at ~300 m below surface and remains open at depth.
Estimation and modelling techniques	• The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method	A total of 15 rare earth element (REE) grade attributes (Y, La, Ce, Pr, Nd, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, and Lu), Sc, and 2 deleterious elements (U, and Th) were estimated. Final estimated values are converted to stoichiometric oxide values by calculation using published ratios to support reporting of rare earth oxides (REO).



Criteria	JORC Code explanation	Commentary
Criteria	<ul> <li>JORC Code explanation</li> <li>was chosen include a description of computer software and parameters used.</li> <li>The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.</li> <li>The assumptions made regarding recovery of by-products.</li> <li>Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation).</li> <li>In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.</li> <li>Any assumptions about correlation between variables.</li> <li>Description of how the geological interpretation was used to control the resource estimates.</li> </ul>	<ul> <li>Commentary</li> <li>The grade estimation used the Ordinary Kriging ("OK") technique using 1 m composited samples. Interpolation parameters were derived using standard exploratory data analysis techniques of statistical and continuity analysis. Appropriate interpolation strategies were developed on a domain basis using kriging neighbourhood analysis ("KNA"), which included: <ul> <li>Oriented ellipsoidal search radii ranged from 190m to 375m depending on the estimation domain;</li> <li>Minimum number of samples = 6;</li> <li>Maximum number of samples = 16, and</li> <li>Octant search with a maximum of 4 samples per octant</li> <li>The maximum extrapolation distance from the last data points was approximately 100 m.</li> </ul> </li> <li>Computer software used for the modelling and estimation were: <ul> <li>Leapfrog Geo v2023.1 was used for geological domain modelling.</li> <li>Imdex ioGAS 64-8.1 was used for multi-element relationships to assist</li> </ul> </li> </ul>
9	<ul> <li>Discussion of basis for using or not using grade cutting or capping.</li> <li>The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.</li> </ul>	<ul> <li>with domain definition</li> <li>Supervisor v8.14 was used for geostatistical analysis.</li> <li>Maptek Vulcan 2023 was used for grade estimation, block modelling and reporting.</li> </ul>
		The estimation block model definitions are:
		<ul> <li>Non-rotated block model with an azimuth of 000°GN;</li> <li>OK panel size was set at 25m x 25m x 5m (XYZ)</li> <li>Sub-block size of 5m x 5m x 2.5m (XYZ);</li> <li>The bulk of the drilling is irregular as defined by topography however broadly approaches 50m by 50m, and</li> <li>Appropriate search ellipses were derived from KNA with an average search radii of 190m to 375m and average anisotropy of 10:10:1 (major/semi/minor).</li> </ul>
2		Selection of the block size was based on the geometry of the mineralisation, data density, and the likely degree to which selective mining can be successfully applied to the geologically based domain boundaries.
		Estimations of U and Th elements were completed for the Mineral Resource estimate. Estimates of Sc were also completed. No other deleterious elements or other non-grade variables of economic significance are reported.
U		Correlations between the elements were determined from statistical analysis of the



Criteria	JORC Code explanation	Commentary
		REE and demonstrated strong positive correlations between the majority of REE variables within the applicable grouping criteria.
		The estimation model was validated using the following techniques:
		<ul> <li>Visual 3D checking and comparison of informing samples and estimated values;</li> <li>Global statistical comparisons of raw sample and composite grades to the block grades;</li> <li>Comparison of correlation coefficients between composite and block data;</li> <li>Validation 'swath' plots by northing, easting and elevation for each domain, and</li> <li>Analysis of the grade tonnage distribution.</li> <li>No by-product recoveries were considered.</li> <li>No commercial scale mining production has taken place at the deposit.</li> </ul>
Moisture	Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	Tonnes are estimated on an Insitu Dry Bulk Density basis. No moisture content has been determined by testwork or used in estimation.
Cut-off parameters	• The basis of the adopted cut-off grade(s) or quality parameters applied.	Lindian Resources Ltd have completed initial metallurgy testwork that resulted in the qualification of a water based gravity separation process and resulted in a recovery of 70% at a concentrate grade of 60% TREO (refer ASX release dated 11th April 2023). These results together with indicative mining and processing costs, and geotechnical parameters were used to define a resource optimisation shell which supports application of a reporting cut-off grade of 0.5% TREO.
Mining factors or assumptions	<ul> <li>Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.</li> </ul>	The assumed mining method would be standard drill, blast, load and haul using excavator and truck configuration.
Metallurgical factors or assumptions	• The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining	Lindian Resources Ltd have completed initial metallurgy testwork that resulted in the qualification of a water based gravity separation process and resulted in a recovery



Criteria	JORC Code explanation	Commentary
	reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	of 70% at a concentrate grade of 60% TREO (refer ASX release dated 11th April 2023).
Environmental factors or	Assumptions made regarding possible waste and process residue	Initial site layout designs have considered tailings emplacement locations. At this
assumptions	disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of	stage no mining waste dump or long-term stockpiles locations have been planned. There is sufficient land holding for adequate waste dumping.
Bulk density	<ul> <li>Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.</li> <li>The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture</li> </ul>	Bulk density has been determined from 97 individual drill core measurements using Archimedes method. Samples were oven dried, weighed, coated with wax then weighed dry and in water using an appropriate analytical balance. The average bulk density of 2.95 g/cm <sup>3</sup> derived from these samples has been applied to the carbonatite for resource modelling with a value of 2.7 g/cm <sup>3</sup> applied to the surrounding country rock.
	<ul> <li>and differences between rock and alteration zones within the deposit.</li> <li>Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.</li> </ul>	
Classification	<ul> <li>The basis for the classification of the Mineral Resources into varying confidence categories.</li> <li>Whether appropriate account has been taken of all relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).</li> <li>Whether the result appropriately reflects the Competent Person's view of the deposit.</li> </ul>	Classification of the mineral resource considered the interpretation confidence, drilling density, demonstrated continuity, estimation statistics (conditional bias, kriging efficiency) and block model validation results. The Kangankunde Mineral Resource has been classified into the Inferred category only. The assigned Mineral Resource classification reflects the Competent Person's view of the deposit.
Audits or reviews	• The results of any audits or reviews of Mineral Resource estimates.	No audits or review have been completed for the Mineral Resource estimate.



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Discussion of relative	Where appropriate a statement of the relative accuracy and confidence	The relative accuracy of the Mineral Resource estimate is reflected in the reporting
accuracy/ confidence	level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the	of the Mineral Resource as per the guidelines of the 2012 JORC Code.
	application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if	The statement relates to the global estimates of tonnes and grades.
	such an approach is not deemed appropriate, a qualitative discussion of	No production data is available.
	the factors that could affect the relative accuracy and confidence of the	
	<ul> <li>The statement should specify whether it relates to global or local</li> </ul>	
$\square$	estimates, and, if local, state the relevant tonnages, which should be	
	relevant to technical and economic evaluation. Documentation should	
	include assumptions made and the procedures used.	
(1)	These statements of relative accuracy and confidence of the estimate	
	should be compared with production data, where available.	