

22 January 2024

# Mt Weld exploration drilling program successfully completed

Exploration identifies rare earths mineralisation below & surrounding current Mt Weld mine pit

Lynas Rare Earths Limited (ASX:LYC, OTC:LYSDY) is pleased to announce the successful completion of the exploration drilling program into the fresh carbonatite below the current Mt Weld Rare Earth Elements (REE) open pit mine.

Following on from the deep diamond exploration program in 2021, the subsequent exploration drilling program was designed to expand the ore body knowledge of Mt Weld by understanding the primary Rare Earth Elements mineralisation and the geology and structure of the carbonatite host deposit. This program was supported by our strategic partner, Japan Australia Rare Earths (JARE).

The following report provides information about the exploration drilling program.

Key highlights include:

- 30 diamond core holes for 8,000m completed
- 165 reverse circulation (RC) holes for 31,754m completed
- Drillholes were collared from the surface and from the current mine pit floor targeting the area below and surrounding the 2018 Life of Mine (LOM) design
- Reverse circulation (RC) drilling assays have returned results averaging up to 3.3% Rare Earth Oxide (REO) in unweathered (fresh) carbonatite. The majority of holes were drilled to 200m below surface with multiple holes encountering 90 to 110 metres of continuous Rare Earth Element (REE) mineralisation and open at depth
- RC assays have returned Heavy Rare Earth results (Dysprosium (Dy)) between 1,400 to 1,700 ppm Dy<sub>2</sub>O<sub>3</sub> across 2 to 5 m intercepts and up to 4,301 ppm of Dy<sub>2</sub>O<sub>3</sub> in the saprolite zone, outside the current Life of Mine pit. Further drilling is planned with the intent of extending the mineral resource to the northwest
- Assay results for the ratio of NdPr within total REO%, within the carbonatite portion of the holes remain consistent with the weathered saprolite above
- Geological and structural core logging, core photography and sampling is ongoing
- Geological core and RC logging has identified four domains of carbonatite: dolomite, ankerite, calcite
  and phoscorite
- Varying concentrations of coarse grained and fine grained REE mineralisation were observed in multiple domains during core logging
- Mineralogical and metallurgical studies are ongoing with initial gravity test work at external laboratories showing promising results at producing a REE concentrate
- A 3D and 2D seismic survey exploration program was conducted on the central part of Mt Weld Carbonatite to improve knowledge of the geological structures, regolith profile, nature of groundwater bearing aquifer zones and to highlight further exploration targets.

Commenting on the drilling results, Amanda Lacaze, Lynas CEO and Managing Director, said:

"The results of this exploration project are very promising for the future of the Mt Weld resource. The drilling has confirmed extensive Rare Earth Element mineralisation below and surrounding the current mine pit floor and enhanced our understanding of the Mt Weld Carbonatite. This provides opportunities for Lynas to develop a more targeted mine plan, including mining for specific elements in addition to grade considerations.

"The fresh carbonatite has the potential to be a new Rare Earth Element ore source and provide pathways for a simpler, lower cost, extraction process than the current saprolite zone. Results from the drilling program will be used to update the mineral resource model later in the calendar year.



"This exploration drilling has been completed with the support of our partners at Japan Australia Rare Earths (JARE) and we extend our thanks for their technical and financial contributions to the carbonatite scoping study project."

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#### **Background**

On 1 March 2022, Lynas provided an update on the drill results of the 1020m diamond drillhole MWEX10270 into fresh carbonatite below the Mt Weld REE open pit mine. REE mineralisation was confirmed along the entire 1020m drillhole at an average grade of 2.22% REO; no cut-off grade applied. A reverse circulation (RC) and diamond (Dia) exploration program was initiated during 2023. The program targeted the unweathered carbonatite below and surrounding the 2018 Life of Mine (LOM) pit design with the aim of completing a scoping study on the unweathered carbonatite as an ore source. Subject to a successful exploration program to then increase the Mt Weld mineral resource for future economic assessment to convert to ore reserves to meet growing demand for Rare Earth materials.

#### **Exploration Drilling update**

The exploration program commenced in March 2023 and drilling was completed in December 2023. The program consisted of 165 RC holes for 31,754m completed and 30 diamond holes for 8,000m. Exploration drillholes were collared from surface and from the current mine pit floor targeting below and surrounding the 2018 Life of Mine (LOM) pit design into the unweathered carbonatite and outward from the open pit, to explore for Heavy Rare Earth Elements (HREE) around the outer annulus of the central lanthanide zone (Figure 1). Drillhole collar details can be found in Appendix 1.

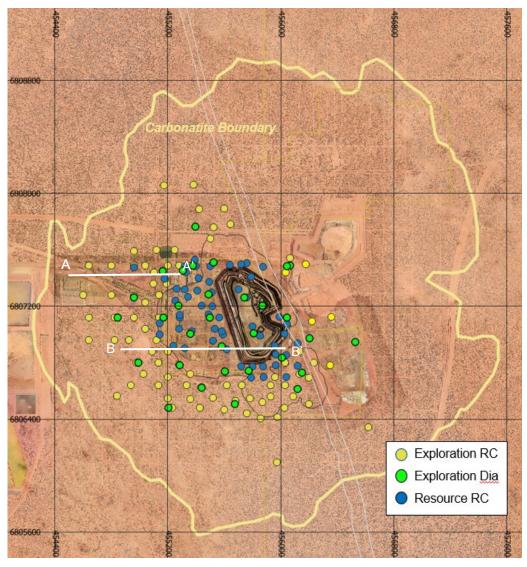


Figure 1: Exploration holes completed to December 2023



#### Geology

The Mt Weld Carbonatite (MWC) is a sub-vertical cylindrical igneous intrusion approximately 3.6 kilometres in diameter. The MWC is concealed under a 25m thick layer of younger transported alluvial sedimentary cover. Prior to the sedimentation, a prolonged lateritic weathering process has concentrated REE minerals in the carbonatite's upper saprolite zone. The saprolite zone has variable thickness from about 80m to 120m. Lynas' current REE open pit mine is about 65m deep and is producing REE ore from the saprolite zone. The MWC also hosts other ore deposits of niobium, tantalum, and phosphates, as depicted in Figure 2.

The exploration program aims to extend Light Rare Earth Elements (LREE) and Heavy Rare Earth Elements (HREE) mineralisation laterally in the saprolite zone and obtain further understanding of the mineralogy and economics of the REE mineralisation within the fresh carbonatite below and surrounding the 2018 Mineral Resource and Ore Reserve.

RC and diamond core logging has identified four main lithological domains of the carbonatite – dolomite, ankerite, calcite and phoscorite carbonatite. Phoscorite is characterised by the presence of phlogopite, magnetite and apatite. These phoscorite zones are typically found within both dolomite and calcite carbonatite units. Rare earth mineralisation is observed as vuggy zones, veins and disseminated through the dolomite carbonatite with REE fluoro-carbonates (parisite, synchysite, bastnaesite) ± sulphides (pyrite, sphalerite and chalcopyrite) ± amphiboles, with monazite and apatite. Mineralisation is also observed in the calcite carbonatite and phoscorite zones.

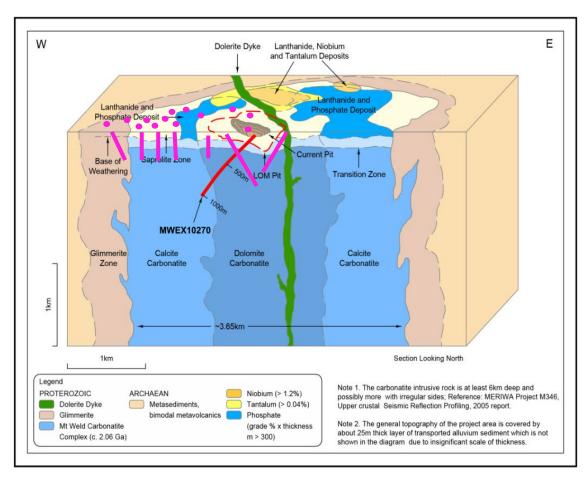


Figure 2: Exploration depth into the Mt Weld carbonatite



Figure 3 shows the rare earth carbonates intersected in the transitional to fresh carbonatite at approximately 70m below surface in MWDD10101. Figure 4 shows bastnasite and parisite within a zone of phoscorite/calcite carbonatite breccia in MWDD10123.

Holes have also intersected the dolerite dyke to the east of the current open pit mine and have passed through the dyke entering the carbonatite on the east side of the dolerite dyke.



Figure 3: Red rare earth carbonate mineral grains observed in MWDD10101 @ ~70m below surface.



Figure 4: Red rare earth carbonate mineral grains (pink/red) observed in MWDD10123 hosted in phoscorite carbonatite.



## **Reverse Circulation (RC) Drilling Results**

Figure 5 cross section shows assay results for the exploration drilling that highlight a higher grade (up to 3.3% REO average grade) zone of mineralisation, within the unweathered carbonatite, directly below the open pit and extending to the west below the LOM pit design. The mineralised zone is approximately 400m in diameter, and open at depth, and associated with monazite, apatite, and rare earth fluoro-carbonates within the dolomite carbonatite. Zonation of the carbonatite is observed in both the RC and diamond hole logging, with a central zone of dolomite carbonatite, extending outward into phoscorite and calcite carbonatite with HREE mineralisation of up to 440ppm Dy<sub>2</sub>O<sub>3</sub> shown in Figure 6.

The weathering profile of the saprolite zone above the fresh carbonatite has zones of highly enriched Heavy Rare Earth minerals. The exploration drilling has identified an area to the north-west of the open pit, returning assay results up to 4,301ppm dysprosium (Dy<sub>2</sub>O<sub>3</sub>), with lateral continuity of approximately 300 meters, as shown in Figure 7.

Mineralogy measurements with Mineral Liberation Analyser show that the Heavy Rare Earths appear to be associated with churchite, a hydrated form of xenotime and yttropyrochlore, both minerals with a strong correlation between yttrium concentration and HREE concentration. Figure 8 shows the distribution of yttrium, >2500ppm, around the Mt Weld open pit, as a more easily measured indicator of Heavy Rare Earth Elements gadolinium, terbium, dysprosium, holmium, erbium, thulium, ytterbium, and lutetium.

The Heavy Rare Earths have a relatively higher concentration in a roughly circular annulus surrounding the Central Lanthanide Deposit which contains the current Life of Mine ore reserve.



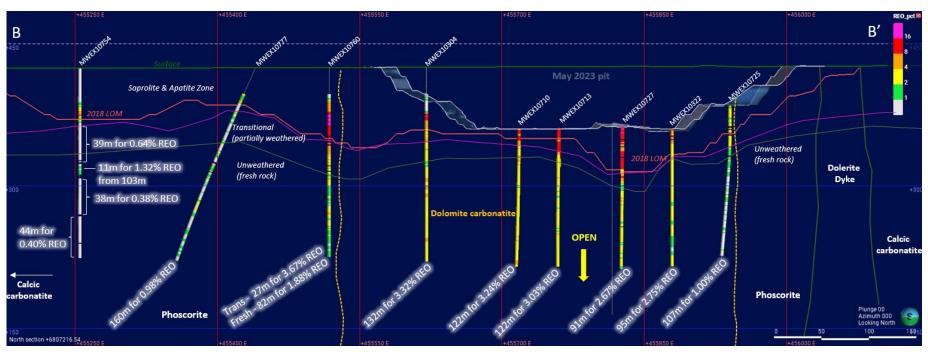


Figure 5: Cross section B to B' within Figure 1 – highlighting exploration % REO intercepts through the central dolomite carbonatite. Assay intercepts shown for transitional and fresh zone only.



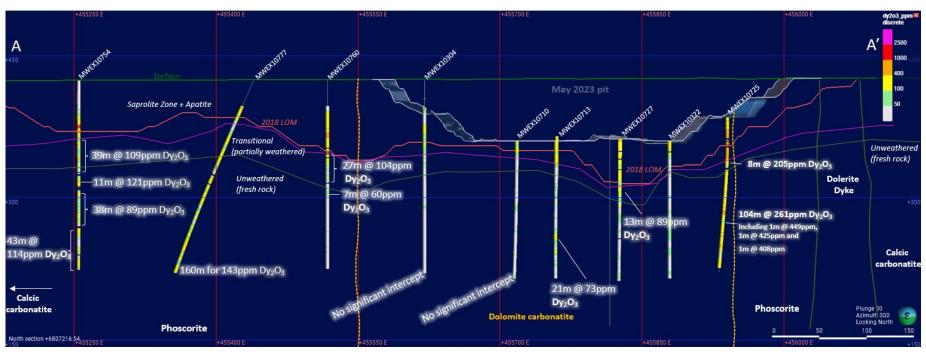


Figure 6: Cross section B to B' within Figure 1 – highlighting exploration results for Dy<sub>2</sub>O<sub>3</sub> through the calcite carbonatite and phoscorite zones.

Assay intercepts shown for transitional and fresh zone only.



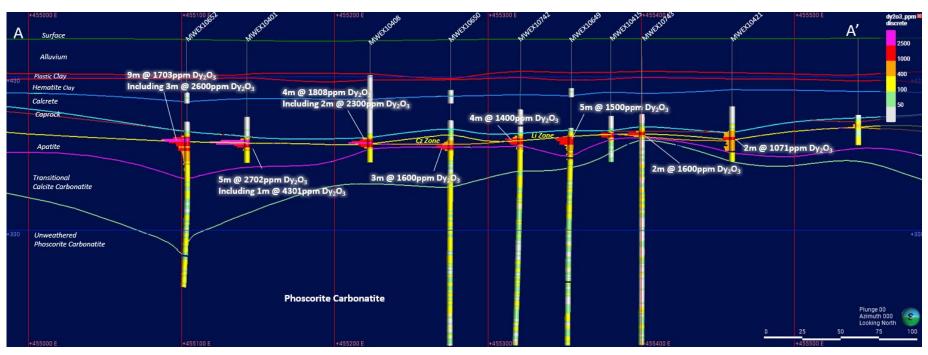


Figure 7: Cross section A to A' within Figure 1 – significant intercepts of Dysprosium within the saprolite zone (>1,000ppm cut-off)



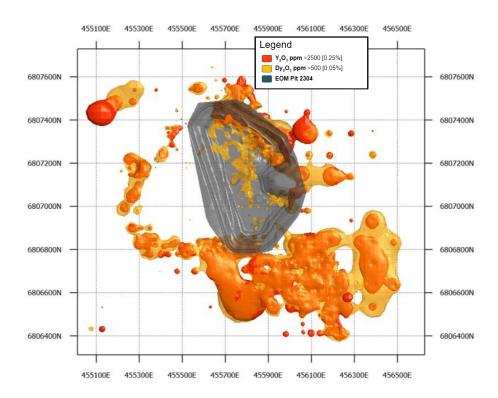


Figure 8: Dysprosium and Yttrium distribution around the Central Lanthanide zone.

#### **Diamond Drilling**

Thirty diamond holes for 8,000m were completed during the exploration program. The holes were drilled within the open pit and on the surface. Holes were designed at PQ, HQ and NQ diameter coring widths, some holes drilled with RC pre-collars down to the transitional zone. The drilling was designed to gather geological, mineralogical, metallurgical, and geotechnical information. Holes have been meter marked, orientated, geologically, structurally and geotechnically logged, half-cored and, in some cases, quarter-cored and sent to Perth for analysis. Assay results for the diamond core samples are pending. Diamond drilling collar details are listed in Appendix 1.

Initial observations of the mineralogy during geological logging indicates shallow, medium to fine grained parasite  $Ca(REE)_2(CO_3)_3F_2$  and bastnasite  $(REE)CO_3F$  situated at the top of the fresh/transitional carbonatite, and in the lower apatite ore zone grading into fine grained monazite/apatite dominant mineralisation, increasing with depth. Deeper, medium to fine grained bastnasite and synchysite  $CaREE(CO_3)_2F$  within the dolomite carbonatite.

#### **Metallurgical Studies**

Metallurgical samples of the unweathered carbonatite have been collected from the reverse circulation (RC) holes and sent to an external metallurgical laboratory for crushing, size fraction screening, assaying and Mineral Liberation Analyser (MLA). An early stage, gravity separation program at an external laboratory, showed encouraging results at producing a REE concentrate with further gravity separation test work ongoing. Diamond core samples have been collected for comminution test work and additional mineralogy analysis.



Mineral Liberation Analyser identified Light Rare Earth Element (LREE) minerals of monazite, apatite, bastnasite, synchysite and parisite and Heavy Rare Earth Element (HREE) minerals of churchite yttropyrochlore and aeschynite.

## **Ongoing Work**

The Carbonatite Scoping Study is expected to be completed by the end of the 2024 financial year. The assay results, geological logging and mineralogical analysis will be used to build the new geology model of the Mt Weld Carbonatite with ongoing metallurgical and mining studies to determine the potential economic viability of a fresh rock ore source.

A 40m x 40m resource drilling program, to further define the HREE mineralisation to the north-west of the open pit, has commenced with results expected by the end of Q3FY24.

## **3D Seismic Survey**

A 3D and 2D seismic survey exploration program was conducted on the central part of the Mt Weld Carbonatite as part of the ore body knowledge development program. Interpretation of seismic data helped to build ore body knowledge through improved understanding of sub-surface geological settings and structural aspects which can lead to potential new exploration targets. Seismic data interpretation has provided significant geological information about the characteristics of Mt Weld Carbonatite intrusive body.

The seismic surveys were carried out to:

- Understand Mt Weld Carbonatite aquifer characteristics depth and size of groundwater saturated rocks known as aquifer zones, whether there are multiple aquifers, and if so, whether they are interlinked
- Understand the structural setting of the carbonatite, dolerite dyke orientation, whether there
  are any geological structures cutting across the dolerite dyke acting as groundwater flow
  paths and any regional fault zones which can facilitate groundwater re-charge into
  carbonatite aquifers
- Understand weathering patterns of carbonatite, thickness, and extent of saprolite zone which can lead to exploration targets for saprolite hosted additional REE mineral resources outside the 2018 LOM design
- Understand geological variations within carbonatite which can facilitate to generate exploration targets for LREE, HREE, niobium, tantalum, and phosphate mineral resources.





Figure 9: Location map around Mt Weld mine site showing 3D and 2D seismic data collection lines. White rectangle represents area covered by 3D seismic exploration, and yellow lines represent 2D seismic exploration tracks. The Green line is a section of 47 km long 2D seismic track acquired by Geoscience Australia, GA.

#### Geological Interpretation of Seismic data

Geological interpretation involved multiple stages of seismic data analysis by comparing with known petrophysical properties of rock types occurring in the project area as reference material. Petrophysical data obtained from the 1020m deep exploration hole MWEX10270 was used for seismic data calibration. Seismic data interpretation has resulted in the modelling of geological interfaces, compositional variation of carbonatite, structural settings of carbonatite, weathering profiles of carbonatite, exploration targets for aquifer zones and exploration targets for mineral resources.

# The data analysis showed:

- Nine distinct areas of deep weathering profile are discovered, which are likely to represent paleo-karst topography on the carbonatite body which can host aquifer zones as shown in Figure 10
- Multiple structural trends were discovered on the carbonatite body, which can act as pathways for groundwater flow
- The 3D seismic tomography volume was successful in imaging the Mt Weld regolith profile, a key indicator for the presence of supergene enriched REE oxides. They are porous geological units that can act as groundwater reservoirs or aquifer zones
- Based on the 3D tomography data, several undrilled areas around the Mt Weld mine show good indications of well-developed weathering profiles.



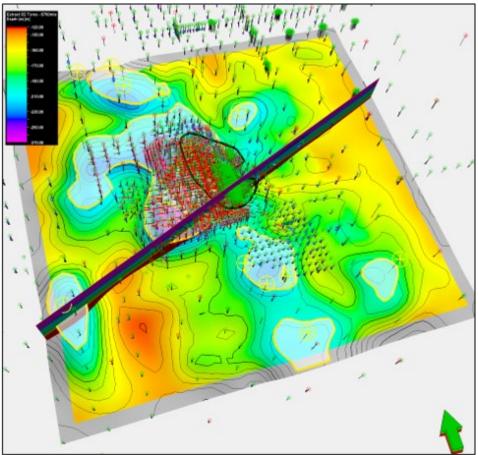


Figure 10: Blue shaded areas represent exploration targets for potential aquifer zones coinciding with thick saprolite zones over Mt Weld Carbonatite body. Oval shaped black line in the middle represents outline of the current open cut mine. Dark blue plane represents general trend of cross cutting geological structures across the dolerite dyke.

# Re-processing of 42km long 2D seismic survey data acquired by Geoscience Australia

As part of the Mt Weld seismic exploration project, 42km long seismic survey data acquired by Geoscience Australia was re-processed and interpreted. Mt Weld Carbonatite intrusive body was interpreted to a depth of 9kms. Contact surface between the carbonatite and Archean metamorphic country rock shows irregular and undulating margin. Re-processing of data has provided insights into the complex geometry and depth extension of Mt Weld Carbonatite intrusive body.



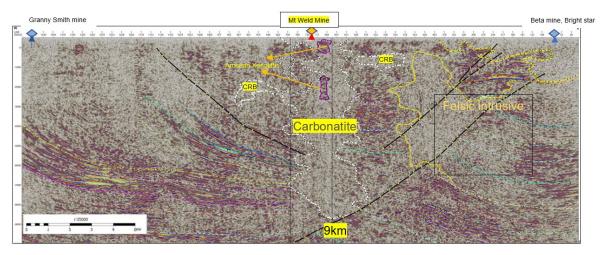


Figure 11: About 12km long West to East cross section view of 2D seismic data interpretation. Mt Weld Carbonatite body is represented by white dotted outline, extending to 9km depth, which shows irregular and undulating contact surface with the surrounding Archean metasedimentary rocks. Xenoliths of country rock are interpreted within carbonatite body.

#### Research

As part of the orebody knowledge building program, Lynas is conducting a collaborative research project with Australian federal government research institution, CSIRO to understand the mineralogical characters of saprolite zone hosted REE mineralisation.

Lynas funded research programs spanning over a period of three and half years are in progress with collaboration between West Australian state funded organisation MRIWA, Murdoch University and Curtin University. Two simultaneous Ph.D. level research programs are aimed at understanding the geological characteristics of saprolite zone hosted and carbonatite hosted REE mineralisation.



# Appendix 1

# Reverse Circulation Holes

reverse Circulati	011 1 10100					
Hole_ID	EAST	NORTH	RL	DEPTH	DIP	AZIMUTH
MWEX10304	455620.2	6807199.0	404.9	85	-90	0
MWEX10322	455879.3	6807200.7	360.1	145	-90	0
MWEX10401	455142.6	6807459.3	423.8	80	-90	0
MWEX10408	455222.9	6807460.4	424.2	80	-90	0
MWEX10415	455380.3	6807499.9	424.5	80	-90	0
MWEX10421	455459.2	6807499.6	424.7	80	-90	0
MWEX10634A	452837.9	6807824.0	418.9	200	-90	0
MWEX10635	455382.7	6808061.8	425.1	203	-90	0
MWEX10636	455423.8	6808061.8	424.9	200	-90	0
MWEX10637	455644.8	6807782.9	424.8	200	-90	0
MWEX10638	456077.8	6807531.4	427.0	200	-90	0
MWEX10639	455786.9	6806544.1	424.8	200	-90	0
MWEX10640	455862.1	6806389.9	425.1	209	-90	0
MWEX10641	455992.4	6806091.6	425.2	200	-90	0
MWEX10642	456633.4	6806344.2	427.5	200	-90	0
MWEX10643	454839.2	6806563.8	422.0	200	-90	0
MWEX10644	455524.3	6807757.4	425.2	143	-90	0
MWEX10645	456430.4	6806902.7	427.1	200	-90	0
MWEX10646	455120.0	6807606.9	424.0	210	-90	0
MWEX10647	454956.6	6807591.1	423.5	200	-90	0
MWEX10649	455354.6	6807480.4	424.7	200	-90	0
MWEX10650	455275.6	6807481.0	424.5	200	-90	0
MWEX10651A	455195.5	6807481.6	424.0	200	-90	0
MWEX10652	455103.3	6807439.3	423.6	161	-90	0
MWEX10653A	455038.1	6807490.9	423.8	200	-90	0
MWEX10654A	454960.9	6807476.7	423.4	200	-90	0
MWEX10655	454799.6	6807489.1	423.3	200	-90	0
MWEX10656	454638.7	6807490.3	422.8	200	-90	0
MWEX10657	455192.0	6807345.3	424.3	200	-90	0
MWEX10658	455063.3	6807368.2	423.8	210	-90	0
MWEX10659	455138.1	6807280.9	423.8	200	-90	0
MWEX10660	454960.1	6807270.0	423.1	200	-90	0
MWEX10661	454735.2	6807316.7	423.1	200	-90	0
MWEX10662	454586.5	6807291.0	422.5	200	-90	0
MWEX10663	455043.1	6807227.0	423.2	131	-90	0
MWEX10664	455138.7	6807119.5	423.6	200	-90	0
MWEX10665	454965.7	6807121.5	423.4	200	-90	0
MWEX10666	454827.3	6807121.6	422.6	200	-90	0
MWEX10667	454639.2	6807122.8	422.2	200	-90	0



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454825.4	6806960.1				0
454640.4	6806960.4	422.0	200	-90	0
455216.7	6806880.5	423.9	200	-90	0
455089.6	6806880.1	423.1	221	-90	0
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455143.5	6806797.7	423.2	200	-90	0
454973.5	6806799.5	422.7	215	-90	0
455365.2	6806723.7	423.9	200	-90	0
455203.4	6806692.8	423.3	200	-90	0
455024.6	6806721.4	422.8	200	-90	0
456201.7	6806700.0	426.5	207	-90	0
456030.8	6806640.1	425.8	215	-90	0
455928.3	6806642.9	425.6	207	-90	0
455726.6	6806633.8	424.8	203	-90	0
455621.4	6806639.6	424.6	200	-90	0
455445.4	6806609.9	423.6	200	-90	0
455341.1	6806641.4	423.7	206	-90	0
455133.4	6806639.4	423.1	200	-90	0
454939.8	6806640.6	422.6	200	-90	0
456084.7	6806555.2	425.9	200	-90	0
455927.7	6806550.3	425.5	200	-90	0
455513.9	6806534.3	423.8	200	-90	0
455364.3	6806541.7	423.5	200	-90	0
455199.3	6806540.4	423.2	200	-90	0
456019.1	6806474.9	425.6	200	-90	0
455871.4	6806519.1	425.0	200	-90	0
455601.5	6806453.9	424.2	200	-90	0
455423.7	6806478.9	423.7	200	-90	0
455226.0	6806477.0	423.1	206	-90	0
455763.7	6806430.7	424.9	204	-90	0
455966.8	6806696.1	425.7	233	-90	0
456030.4	6806797.8	425.9	200	-90	0
456136.4	6806716.6	426.1	200	-90	0
456131.0	6806879.3	426.3	200	-90	0
456286.9	6806854.6	426.8	210	-90	0
455598.6	6807892.9	425.4	235	-90	0
455680.9	6806527.3	424.4	200	-90	0
455679.3	6807352.8	360.0	145	-90	0
455689.8	6807281.9	359.8	145	-90	0
	455216.7 455089.6 455283.0 455143.5 454973.5 455365.2 455203.4 455024.6 456201.7 456030.8 455928.3 455726.6 455621.4 455445.4 455341.1 455133.4 454939.8 456084.7 455927.7 455513.9 455513.9 455601.5 455423.7 455601.5 455423.7 455601.5 455423.7 455926.0 455763.7 455966.8 456030.4 456136.4 456131.0 456286.9 455680.9 455679.3	455119.2         6806969.9           454926.7         6806959.5           454825.4         6806960.1           454640.4         6806960.4           455216.7         6806880.5           455089.6         6806880.1           455283.0         6806797.7           454973.5         6806799.5           455365.2         6806723.7           455024.6         6806721.4           456201.7         6806700.0           456030.8         6806640.1           455928.3         6806642.9           455726.6         6806633.8           455445.4         6806609.9           455341.1         6806640.6           454939.8         6806640.6           455927.7         6806555.2           455927.7         6806534.3           45513.9         6806541.7           45501.1         6806474.9           455601.5         6806473.9           455763.7         6806478.9           455601.5         6806477.0           455601.5         6806478.9           455601.5         6806477.0           455966.8         6806696.1           456030.4         680679.8           456030.4 </td <td>455119.2         6806969.9         423.6           454926.7         6806959.5         422.6           454825.4         6806960.1         422.4           454640.4         6806960.4         422.0           455216.7         6806880.5         423.9           455089.6         6806880.1         423.1           455283.0         6806776.3         423.3           4554973.5         6806797.7         423.2           455365.2         6806723.7         423.9           455203.4         6806692.8         423.3           455024.6         6806721.4         422.8           456201.7         6806700.0         426.5           455928.3         6806642.9         425.6           455726.6         6806633.8         424.8           455445.4         6806639.4         423.1           455341.1         6806641.4         423.7           455331.1         6806639.4         423.1           454939.8         6806639.4         423.1           454939.8         6806659.2         425.9           455927.7         6806550.3         425.5           45513.9         6806550.3         425.5           455927.7         68</td> <td>455119.2         6806969.9         423.6         200           454926.7         6806959.5         422.6         200           454825.4         6806960.1         422.4         200           454640.4         6806960.4         422.0         200           455216.7         6806880.5         423.9         200           455089.6         6806880.1         423.1         221           455283.0         6806776.3         423.3         200           455143.5         6806797.7         423.2         200           454973.5         6806799.5         422.7         215           455365.2         6806723.7         423.9         200           455203.4         6806692.8         423.3         200           456201.7         6806700.0         426.5         207           456030.8         6806640.1         425.8         215           455928.3         6806642.9         425.6         207           455726.6         6806633.8         424.8         203           455445.4         680669.9         423.6         200           455431.1         6806641.4         423.7         206           455927.7         6806550.3         <td< td=""><td>455119.2         6806969.9         423.6         200         -90           454926.7         6806959.5         422.6         200         -90           454825.4         680690.1         422.4         200         -90           454640.4         680690.4         422.0         200         -90           455216.7         6806880.5         423.9         200         -90           455089.6         6806780.3         423.3         200         -90           455283.0         6806776.3         423.3         200         -90           4554973.5         6806799.5         422.7         215         -90           455365.2         6806723.7         423.9         200         -90           455024.6         6806721.4         422.8         200         -90           455024.6         6806721.4         422.8         200         -90           455928.3         6806640.1         425.8         215         -90           455928.3         6806640.1         425.8         215         -90           455928.3         6806633.8         424.8         203         -90           455928.4         6806639.4         425.6         207         -90</td></td<></td>	455119.2         6806969.9         423.6           454926.7         6806959.5         422.6           454825.4         6806960.1         422.4           454640.4         6806960.4         422.0           455216.7         6806880.5         423.9           455089.6         6806880.1         423.1           455283.0         6806776.3         423.3           4554973.5         6806797.7         423.2           455365.2         6806723.7         423.9           455203.4         6806692.8         423.3           455024.6         6806721.4         422.8           456201.7         6806700.0         426.5           455928.3         6806642.9         425.6           455726.6         6806633.8         424.8           455445.4         6806639.4         423.1           455341.1         6806641.4         423.7           455331.1         6806639.4         423.1           454939.8         6806639.4         423.1           454939.8         6806659.2         425.9           455927.7         6806550.3         425.5           45513.9         6806550.3         425.5           455927.7         68	455119.2         6806969.9         423.6         200           454926.7         6806959.5         422.6         200           454825.4         6806960.1         422.4         200           454640.4         6806960.4         422.0         200           455216.7         6806880.5         423.9         200           455089.6         6806880.1         423.1         221           455283.0         6806776.3         423.3         200           455143.5         6806797.7         423.2         200           454973.5         6806799.5         422.7         215           455365.2         6806723.7         423.9         200           455203.4         6806692.8         423.3         200           456201.7         6806700.0         426.5         207           456030.8         6806640.1         425.8         215           455928.3         6806642.9         425.6         207           455726.6         6806633.8         424.8         203           455445.4         680669.9         423.6         200           455431.1         6806641.4         423.7         206           455927.7         6806550.3 <td< td=""><td>455119.2         6806969.9         423.6         200         -90           454926.7         6806959.5         422.6         200         -90           454825.4         680690.1         422.4         200         -90           454640.4         680690.4         422.0         200         -90           455216.7         6806880.5         423.9         200         -90           455089.6         6806780.3         423.3         200         -90           455283.0         6806776.3         423.3         200         -90           4554973.5         6806799.5         422.7         215         -90           455365.2         6806723.7         423.9         200         -90           455024.6         6806721.4         422.8         200         -90           455024.6         6806721.4         422.8         200         -90           455928.3         6806640.1         425.8         215         -90           455928.3         6806640.1         425.8         215         -90           455928.3         6806633.8         424.8         203         -90           455928.4         6806639.4         425.6         207         -90</td></td<>	455119.2         6806969.9         423.6         200         -90           454926.7         6806959.5         422.6         200         -90           454825.4         680690.1         422.4         200         -90           454640.4         680690.4         422.0         200         -90           455216.7         6806880.5         423.9         200         -90           455089.6         6806780.3         423.3         200         -90           455283.0         6806776.3         423.3         200         -90           4554973.5         6806799.5         422.7         215         -90           455365.2         6806723.7         423.9         200         -90           455024.6         6806721.4         422.8         200         -90           455024.6         6806721.4         422.8         200         -90           455928.3         6806640.1         425.8         215         -90           455928.3         6806640.1         425.8         215         -90           455928.3         6806633.8         424.8         203         -90           455928.4         6806639.4         425.6         207         -90



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MWEX10710	455717.9	6807208.6	359.9	145	-90	0
MWEX10711A	455700.9	6807320.0	359.7	145	-90	0
MWEX10712A	455759.5	6807261.7	359.9	145	-90	0
MWEX10713	455759.4	6807198.7	359.8	145	-90	0
MWEX10714	455749.5	6807124.8	360.0	145	-90	0
MWEX10715	455766.3	6807040.7	359.9	145	-90	0
MWEX10716	455791.2	6806969.6	360.1	150	-90	0
MWEX10717	455812.3	6807128.0	359.7	145	-90	0
MWEX10718A	455799.0	6807058.8	360.1	145	-90	0
MWEX10719A	455851.5	6806992.9	359.9	145	-90	0
MWEX10720	455846.3	6806908.0	359.9	102	-90	0
MWEX10721	455903.7	6807002.6	359.8	150	-90	0
MWEX10722	455758.8	6807433.4	402.8	200	-90	0
MWEX10723	455839.0	6807358.0	399.7	180	-90	0
MWEX10724	455929.4	6807281.5	388.4	161	-90	0
MWEX10725	455940.2	6807211.4	384.9	200	-90	0
MWEX10726	455818.2	6807288.3	368.3	150	-90	0
MWEX10727	455827.2	6807191.5	362.5	150	-90	0
MWEX10728	455997.6	6806960.9	413.7	188	-90	0
MWEX10729	455923.9	6806877.9	403.4	177	-90	0
MWEX10730	455787.9	6806844.5	388.3	159	-90	0
MWEX10731	455144.6	6807080.0	423.5	200	-90	0
MWEX10732	455143.4	6806999.0	423.4	200	-90	0
MWEX10733	455631.1	6806704.6	424.5	200	-90	0
MWEX10734	455721.4	6806775.4	425.2	200	-90	0
MWEX10736	455876.3	6806774.0	425.8	200	-90	0
MWEX10737	455800.5	6806771.6	425.6	200	-90	0
MWEX10738	456038.8	6806851.3	426.3	200	-90	0
MWEX10739	455965.3	6806857.5	426.3	200	-90	0
MWEX10740	455989.7	6807123.3	425.8	200	-90	0
MWEX10741	456045.0	6807075.0	426.2	200	-90	0
MWEX10742	455321.2	6807483.0	424.7	200	-90	0
MWEX10743	455400.2	6807482.3	424.8	200	-90	0
MWEX10744	455637.7	6807494.6	425.7	200	-90	0
MWEX10745	455759.8	6807506.0	425.9	200	-90	0
MWEX10746	455500.9	6807484.7	425.1	200	-90	0
MWEX10747	455875.6	6807479.1	426.1	200	-90	0
MWEX10748	455618.9	6806894.8	425.1	200	-90	0
MWEX10749	455592.2	6806998.0	425.1	200	-90	0
MWEX10750	455582.6	6807023.7	425.2	240	-55	80
MWEX10751	455143.4	6806999.0	423.4	200	-90	0
MWEX10752	455179.3	6807395.1	424.2	210	-70	90



MWEX10753	455263.3	6807323.2	424.3	204	-80	240
MWEX10754	455254.9	6807241.4	424.1	200	-90	0
MWEX10755	455242.0	6806920.4	424.0	200	-90	0
MWEX10756	455327.1	6807441.0	425.7	216	-70	180
MWEX10757	455327.1	6807441.0	425.7	200	-90	0
MWEX10758	455341.3	6807264.4	424.2	200	-90	0
MWEX10759	455320.8	6806900.0	424.1	200	-90	0
MWEX10760	455517.7	6807199.5	425.0	200	-90	0
MWEX10761	455509.5	6807296.9	424.9	200	-90	0
MWEX10762	455493.0	6807374.1	424.9	200	-90	0
MWEX10763	455488.5	6807526.0	424.9	200	-90	0
MWEX10764	455392.8	6807528.0	424.9	200	-90	0
MWEX10765	456026.1	6807006.0	418.7	200	-90	0
MWEX10766	455415.8	6807401.6	424.8	196	-90	0
MWEX10767	455409.6	6807312.3	424.6	200	-90	0
MWEX10768	455958.3	6806920.9	408.0	200	-90	0
MWEX10769	455719.1	6807498.3	426.1	200	-90	0
MWEX10770	455284.0	6807137.5	424.1	200	-90	0
MWEX10771	455283.4	6807117.9	424.1	228	-60	90
MWEX10772	455489.6	6807141.9	425.0	220	-65	270
MWEX10773	455281.5	6807040.1	424.1	200	-90	0
MWEX10774	455369.3	6807020.1	424.3	200	-90	0
MWEX10775	455461.3	6807033.8	424.6	201	-90	0
MWEX10776	455531.1	6807040.9	424.8	200	-90	0
MWEX10777	455440.0	6807205.6	424.4	220	-65	270
MWEX10778	455492.0	6806960.0	425.0	222	-90	0
MWEX10779	455520.4	6806955.6	424.7	200	-90	0
MWEX10780	455563.6	6807119.9	414.5	190	-90	0
MWEX10781	455788.9	6807410.1	405.1	200	-90	0
MWEX10782	455926.4	6807348.3	417.2	190	-90	0
MWEX10783	456119.6	6806939.0	426.3	200	-90	0
MWEX10784	456120.5	6806778.0	426.3	200	-90	0
MWEX10785	455965.2	6806781.6	425.7	200	-90	0
MWEX10786	456040.5	6806698.2	426.0	200	-90	0
MWEX10787	455880.1	6806696.4	425.4	199	-90	0
MWEX10788	455792.7	6806694.9	425.0	200	-90	0
MWEX10789	456182.8	6807497.0	437.2	256	-90	0
MWEX10790	456306.8	6807115.1	449.7	260	-90	0
MWEX10791	456223.8	6807085.7	447.4	251	-90	0
MWEX10792	456431.9	6806679.8	449.7	255	-90	0
MWEX10793	456341.3	6806774.3	434.7	210	-90	0
MWEX10794	456041.0	6807434.9	435.4	245	-90	0



# Diamond Holes

Hole_ID	EAST	NORTH	RL	DEPTH	DIP	AZIMUTH
MWDD10100	6806728.865	456152.165	426.545	600	-60	90
MWDD10101	6806615.491	456117.181	426.121	230	-60	325
MWDD10102	6806744.82	455621.196	424.855	214	-70	90
MWDD10103	6806744.796	455769.502	425.058	230	-60	90
MWDD10104	6807293.094	455485.04	424.868	400	-60	90
MWDD10105	6807007.166	455811.151	359.894	230	-60	180
MWDD10106	6806916.83	455577.539	424.862	231	-60	340
MWDD10107	6807486.278	456068.101	435.672	502	-60	270
MWDD10108	6807261.655	455759.487	359.901	180	-60	340
MWDD10109	6806834.941	456008.709	425.828	212	-70	270
MWDD10110	6807448.497	455162.665	424.081	182	-60	0
MWDD10111	6806605.282	455435.518	423.9	212	-70	0
MWDD10112	6807201.557	455869.426	360.066	229	-55	90
MWDD10113	6806506.858	455677.319	424.701	230	-60	0
MWDD10114	6806943.477	456537.307	427.654	421	-70	210
MWDD10115	6806978.415	456208.434	426.619	230	-60	90
MWDD10116	6807482.217	456054.089	435.156	262	-55	120
MWDD10117a	6806769.602	455275.479	423.734	214	-70	0
MWDD10118	6807469.369	455374.301	424.826	232	-60	0
MWDD10119	6807124.267	455165.626	423.797	214	-70	90
MWDD10120	6807124.301	454840.71	422.711	212	-70	90
MWDD10121	6807199.928	455277.073	424.094	232	-70	0
MWDD10122	6807463.895	455309.929	424.538	229	-60	130
MWDD10123	6806469.877	455198.958	423.047	250	-60	0
MWDD10124	6807519.614	455507.17	424.9	230	-60	110
MWDD10125	6807770.28	455395.276	424.982	280	-60	90
MWDD10126	6806800.478	454982.888	422.736	232	-60	90
MWDD10128	6807120.625	456043.087	426.697	251	-60	60
MWDD10129	6807012.298	455363.524	424.293	230	-60	180
MWDD10130	6807134.82	455493.6	424.91	400	-60	90



# **Competent Person Statement:**

This report is based on, and fairly represents information and supporting documentation jointly prepared by Marcelle Watson, Geology Manager, and Dr. Ganesh Bhat, Principal Resource Geologist. Marcelle Watson is a full-time employee of Lynas Rare Earths Ltd and member of AusIMM. Dr Ganesh Bhat is a full-time employee of Lynas Rare Earths Ltd and member of AusIMM. Ms Watson and Dr Bhat have the relevant experience in relation to the mineralisation being reported on to qualify as a Competent Persons as defined in the Joint Ore Reserves Committee (JORC) Australasian Code for Reporting of Exploration Results, Identified Mineral Resource and Ore Reserves 2012.

# **JORC Code, 2012 Edition – Table 1 report**

**Section 1 Sampling Techniques and Data** 

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or	The exploration drilling program has been a combination of reverse circulation (RC), diamond (DD) drilling.
	handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.  Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.  Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this	RC: sampling technique involves collecting a 2.5 to 3kg sample directly from a cone splitter, a duplicate sample is also collected for metallurgical purposes.
		DD: Diamond drilling is a combination of PQ, HQ and NQ2 hole diameters. The core length is measured and placed in core trays with core blocks
		showing depth and core recovery. The core was split in half then quarters using an automatic core cutting machine. Minimum sample interval is 0.1m, maximum 1m. Assay results are pending for the core samples.
charge for fire assay'). In other of such as where there is coarse 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	One certified standard for every 20th sample (every 50th sample for drill programs pre-Lynas) and one field repeat every 50th sample was inserted to check the repeatability of the sampling and the accuracy of the laboratory.
	warrant disclosure of detailed information.in the area.	About 3% of sample pulps returned from the primary assay laboratory were re-analysed in two other analytical laboratories as umpire analyses. Assay results matched with the original assay results.
		Collar positions were surveyed using global positioning system (GPS) Real Time
		Kinematic (RTK) equipment, accurate to 0.1 m in the Z direction.



Criteria	JORC Code explanation	Commentary
Drilling Techniques	Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).	RC drilling used 110–140 mm diameter drill bits. RC drilling employed face sampling hammers and returning to the collection point inside the drill rods via a sampling cyclone, ensuring minimal contamination during sample extraction.  DD drilling used a combination of PQ, HQ and NQ2 diameter diamond drilling. PQ holes were drilled from the hole collar past the clay zone (approx. 45m) then down to HQ diameter (hole diameter 96.1mm, core diameter 63.5mm) and NQ2 (hole diameter 75.6mm, core diameter 50.7mm). RC pre-collars were drilled through the saprolite zone for several diamond holes, with HQ or NQ diamond tails into fresh rock.  Continuous downhole gyro survey was conducted by the drilling company using the Reflex- gyro survey instrument through the drillhole.



Criteria	JORC Code explanation	Commentary
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.  Measures taken to maximise sample recovery and ensure representative	RC: The RC drill rig had metre marks on the mast and as each metre was reached the driller stopped and alerted the offsider to change the sample bag to ensure the correct 1 m interval was sampled. The use of a "drop box" was used on RC drill rigs to open and close when the 1 m interval is reached. Parent and duplicate samples are checked and weighed
	nature of the samples.	periodically to ensure equal weight and size.
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of	DD: The length of each diamond rod drill was measured and compared to the measured length of the core returned.
	fine/coarse material.	Drilling techniques to ensure adequate sample recovery and quality included careful slow drilling especially in the saprolite zone to maximise the core recovery. Similar process was adopted at structural zones where PQ and HQ size core was collected.
		In a few drill intervals in the weathered zone, small amount of core loss (<10%) was recorded.
		Downhole core orientation mark was recorded on core to facilitate structural logging. Orientation marks were reliable which could be linked to multiple drill runs
		A Lynas employee geologist was engaged during the drilling process to ensure all geological QAQC protocols for reliable, representative, least contaminated sample collection was maintained.
		Logging of all samples followed the established company procedures which included recording of qualitative fields to allow discernment of sample reliability. This included (but was not limited to) recording: sample condition and sample recovery.



Criteria JORC Code explanation	Commentary
Whether core and chip samples have been geologically and geotechnical logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies  • Whether logging is qualitative or quantitative in nature. Core (or costean channel, etc) photography  . • The total length and percentage of the relevant intersections logged.	sufficient to support geological interpretations.  The logging is qualitative in nature with a review of the logging carried out after the assay data was received to ensure the logging agreed with the geochemistry of the sample.



Criteria	JORC Code explanation	Commentary
Subsampling techniques	If core, whether cut or sawn and whether quarter, half or all core taken.  • If non-core, whether riffled, tube sampled, rotary split, etc and whether	The core was split in half and in some drillholes quarter split samples were generated using an automatic core cutting machine.
and sample preparation	<ul> <li>sampled wet or dry.</li> <li>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</li> </ul>	Geological assay and petrology sample results are not yet completed.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	Each meter of half and quarter core was collected in pre-numbered calico bags and dispatched to Intertek Genalysis assay laboratory, Perth.
	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.	Samples, in their entirety, are placed into an appropriately sized clean aluminium tray and labelled in a suitable manner. The samples are placed on trolleys in a specific order. The trolleys are wheeled into a drying oven and dried for 8 hours at approximately 105°C. Samples are routinely jaw
	Whether sample sizes are appropriate to the grain size of the material being sampled.	crushed to a nominal 10mm particle size. Crushed samples were pulverised to -100 micron size.
		The RC sampling technique involves collecting a 2.5 to 3kg sample directly from a cone splitter, a duplicate sample is also collected for metallurgical purposes. Sample weights are checked to ensure both samples are equal weight. Cone splitter and cyclone are cleaned at every rod change and thoroughly cleaned at the end of the saprolite zone and end of hole.
		Sampling followed established company sampling and quality assurance/quality control (QAQC) procedures. Composites are weighed for equal measures from each 1 m interval.
		A field duplicate was collected for approximately every 50 samples submitted to the laboratory to ensure the field sampling had good repeatability. Field repeats correlated very well with original samples showing the sampling method was appropriate.
		The grain size of the particles in the samples is generally less than 1 mm and hence 2.5 kg of sample is considered an appropriate sample size.
		Geological logging will determine the samples to be submitted for analysis, alluvium and calcrete in the top 30 meters from surface, are generally not submitted for analysis.



Criteria	JORC Code explanation	Commentary
Quality of assay data and laboratory tests	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total	A considerable amount of work was carried out by Lynas Corporation and Intertek Genalysis Laboratory in Perth to develop accurate assaying of rare earths and associated gangue elements using ICP-MS (FP6/MS) and ICP-OES (FP6/OE). This was achieved, and the techniques developed have been implemented for analysis of the drill samples.
	. • 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.	ICP-MS and ICP-OES used and calibrated to industry standard requirements. ICP-MS = Agilent 7900, which uses a dilution factor of 1,000 then 1:30 for the instrument read to give a final factor of 30,000. Instrument read cycle time is 1 minute 45 seconds. Calibration check of equipment per job to machine specifications and certified standards.
	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.	With each batch of samples sent to the laboratory, one certified standard for every 20th sample (every 50th sample for drill programs pre-Lynas) and one field repeat every 50th sample was inserted. Field duplicate geological samples were inserted one in every 50th samples. Repeatability of the sampling and the accuracy of the laboratory is within acceptable limits.



Criteria	JORC Code explanation	Commentary
		OREAS geological standards of appropriate REE analytical values have been submitted with each batch of samples to ensure the accuracy of geochemical assay. As part of laboratory QAQC process, control blank samples and standard samples were also introduced by Intertek Genalysis. Upon receiving the assay results, analytical data were compared with the known data corresponding to the standard samples. Results within a range of 2 standard deviation are accepted and assimilated into the geological database. 2 to 3 standard deviations are flagged. Outside 3 standard deviations are requested for re-analysis by the laboratory.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.  • The use of twinned holes.  • Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.  • Discuss any adjustment to assay data.	No diamond holes are drilled as twin holes during the current diamond drilling program.  Field sample interval details were manually recorded in field sampling booklet by a trained and qualified geology technician. Simultaneously representative rock chip samples were collected into RC chip trays.  Representative rock chip samples were collected from each 1 metre depth interval from every hole drilled during the drilling campaign. Samples in the chip trays were photographed by high-resolution digital camera. Sample photos were uploaded into a cloud hosted geological photo database, developed by a commercial service provider, called IMAGO. Using IMAGO photo viewing software, drill samples are reviewed and assessed by Lynas geologists. Entire geological profile photos can be compared and correlated with adjacent drillholes or series of multiple drill holes drilled along a section line.  Lynas geologists will conduct lithologging of the drillholes from the representative RC chip tray samples. Lithologging data will be entered into a digital Toughbook laptop computer in to LogChief software portal provided by Maxgeo, a commercial database service provider. Logging data will be uploaded into cloud hosted encrypted SQL geological database called, DataShed, which is managed by a commercial service providing company, Maxgeo.



Criteria	JORC Code explanation	Commentary
		Geochemical assay data from Intertek Genalysis were uploaded into "holding bay" in the DataShed portal.  Lynas geologists will review the assay results and import into IoGas geochemical software interphase. Using IoGas software, multiple analytes (example CaO%, MgO%, Al2O3%, REO% etc) in a sample assay are compared with each other at 1 meter lithological intervals. Whenever required field lithologging data will be corrected based on the geochemical assay results.  Assay results are compared with the known assay results of geological standards. If the results are withing two standard deviations, the results will be accepted into the final geological database. Results within 3 standard deviations will be flagged. Outside the range of 3 will be rejected and notified to the assay laboratory manager.  Lynas geologists will communicate with DataShed database manger to integrate all acceptable assay results into the geological base.
Location of data points	Accuracy and quality of surveys used to locate drill holes (collar and downhole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.  • Specification of the grid system used.  • Quality and adequacy of topographic control	Each drillhole collar has been surveyed to an accuracy of ±1 cm by an authorised mine surveyor. Holes are predominantly vertical. Downhole surveys for angled holes were taken using an electronic single shot instrument − Reflex EZ-Shot™ or Axis technology.  MGA 94 − Zone 51  Each metre downhole is measured from marks on the drill rig indicating to the drilling crew when the end of one metre finishes and the start of the next metre. The depth of each metre interval is likely to have an accuracy of ±10 cm.



Criteria	JORC Code explanation	Commentary
Data spacing and distribution	Data spacing for reporting of Exploration Results.  Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.  Whether sample compositing has been applied.	The drillholes for this report have been drilled on 100m x 100m and 80m x 80m spacing, suitable spacing for an inferred mineral resource. No mineral resource is being reported in this document.  No sample compositing has been applied.
Orientation of data in relation to geological structure	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.  • If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	The rare earth mineralisation in the carbonatite regolith is in sub-horizontal layers derived by weathering and oxidation processes. Vertical holes were drilled to intersect the mineralisation at approximately 90° to the strike and dip of the mineralisation.  Some angle holes have been drilled to infill spacing and on pit edge perimeters. Angled diamond holes have also be used to drill through the NNW trending dolerite dyke and designed to intersect interpreted structures at depth.  No sampling bias has been introduced by the drilling orientation.



Criteria	JORC Code explanation	Commentary
Sample security	The measures taken to ensure sample security.	All samples were collected and bagged by Lynas staff and transported directly to the analytical laboratory by a reputable trucking company  Geologist and field assistant have cross checked the sample submission sheets against the sampling spreadsheet to eliminate sampling errors.
Audits or reviews	The results of any audits or reviews of sampling techniques and data	Snowden Optiro completed a review of the sampling and data capture during a site visit in April 2023, including inspections of the RC drill rig and in pit geology.  Snowden Optiro also completed a geostatistical review of the drillhole database.



**Section 2: Reporting of Exploration Results** 

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.  • The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	The Mount Weld Rare Earths Project is covered by four mining tenements with long-term tenure that can be renewed for 21-year periods upon application. These tenements are M38/58, M38/59, M38/326 and M38/327. Mt Weld Mining Pty Ltd, a subsidiary of Lynas Corporation, has 100% rights to all mining tenements outlined above. No current ownership issues or native title determinations are known.  There are no known impediments to operations at Mount Weld with mining and operating licenses secured.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	Exploration drilling at the Mount Weld Project has been undertaken by Utah Development company (1969–1973), Union Oil (1981–1984), Wesfarmers (1985–1987) and Carr-Boyd/Ashton Joint Venture (1988–1990) using AC, RC and diamond core drilling techniques.  Feasibility studies were carried out by Wesfarmers on mining of phosphates in the 1980s and Ashton on mining the rare earths in the 1990s.
Geology	Deposit type, geological setting and style of mineralisation.	The Mount Weld Rare Earth deposit is hosted within a supergene enriched zone within the Mount Weld Carbonatite (MWC) regolith. REOs found within the fresh carbonatite are concentrated due to the removal of calcium carbonate and other elements during the weathering and oxidation process. This has created sub-horizontal units enriched in REOs.  The project covers a near-vertical carbonatite plug known as the MWC. The MWC has intruded strongly deformed Archaean volcanic and sedimentary rocks of the Laverton Tectonic Zone (LTZ) which are situated within the north-eastern section of the Yilgarn Craton.



Criteria	JORC Code explanation	Commentary
		A series of Proterozoic dolerite dykes have intruded the LTZ in the project area, with one crosscutting the MWC from the northwest to the southeast. The carbonatite is generally massive with no evidence of large-scale shearing or faulting. This suggests that emplacement was after the last major regional deformation event.
		The mineralisation reflects the distribution of rare earth minerals within the underlying carbonatite. Extensive weathering and erosion of carbonate minerals has caused supergene enrichment and secondary mineralisation of rare earth minerals. The central core of the MWC is the highest grade of REOs, with decreasing zonation of grade towards the margins of the MWC. Heavy REO enrichment in the Duncan deposit forms a halo surrounding the central high-grade core.
		The regolith units consist of sub-horizontal weathering surfaces that are deepest in the central area of the deposit on the western margin of the dolerite dyke.
		Identified REO, rare metal, and phosphate Mineral Resources of the MWC are distributed within three main, sub-horizontal regolith units. The layers are:
		<ul> <li>An iron oxide and monazite-rich saprolite layer, containing limonite, goethite, and silica nodules known as the "Ll" zone. This is yellow-brown variably cemented ironstone gravel to limonite clay, with an irregular thickness and distribution.</li> </ul>
		• A saprolite layer termed "CZ" contains monazite and goethite, which constitutes the main REE mineralised lithology of the Mount Weld Rare Earth deposit.
		<ul> <li>At the base of the regolith is a variably oxidised, apatite-rich residual mineralised layer termed "AP". The AP lithology varies from unconsolidated magnetite-apatite of pristine primary minerals to various states of oxidation, with iron oxides, secondary carbonate, secondary apatite and crandallite. The basal contact of AP is an irregular karstic surface with residual transitional carbonatite. Secondary manganese oxidation is common along the boundary between residual apatite and the supergene regolith above and is known as the "MN" zone.</li> </ul>



Criteria	JORC Code explanation	Commentary
		There are rare metal deposits surrounding the central REE mineralised core of the MWC; these are known as Anchor, Crown, Coors, Swan and Emu and contain niobium, tantalum, titanium and phosphates. Mineralisation is hosted within the same weathered carbonatite regolith units with niobium, tantalum and titanium concentrated within the supergene enriched LI and CZ layers, and phosphates concentrated within the residual AP layer. These deposits also contain REO mineralisation in the range of 1% to 5%.
Drillhole Information	summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:  • easting and northing of the drill hole collar	See Appendix 1 – all RC and Diamond holes drilled for the exploration program have been included, regardless of assay result.
	elevation or RL (Reduced Level – elevation above sea level in metres)     of the drill hole collar	
	dip and azimuth of the hole	
	down hole length and interception depth	
	hole length.	
	• If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	
Data aggregation methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated. • Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail. • The assumptions used for any reporting of metal equivalent values should be clearly stated	Results reported have been for total rare earth oxides intercepts; no cut-off grades used for REO%, and interval grades were calculated by weighted average.  Assay results were consistent within each 1m intercept.  Significant intercepts are separated between rock oxidation states. Assay grades within the saprolite are reported separately from the transition and fresh rock assay grades.  For visual purposes the dysprosium results were reported above 1000ppm within the saprolite zone and above 50ppm in the fresh carbonatite. Assay results can be seen as coloured intervals on each drill hole with a legend to



Criteria	JORC Code explanation	Commentary
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results. • If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported. • If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').	Assay results are reported along the length of drillhole. Cut-off grades were not applied to REO %. For visual purposes the dysprosium results were reported above 1000ppm within the saprolite zone and above 50ppm in the fresh carbonatite. Two consecutive assays of <50ppm are included in the significant intercept, and then separated if consecutive intervals of >2m @ <50ppm are encountered. In drillholes with no sample return >2m the significant intercepts have been separated. Results are shown in the body of the document. Results can be seen as coloured intervals on each drill hole with a legend to illustrate grade ranges.
Diagrams	Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	Appropriate diagrams contained in the report to which this Table 1 applies,
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	Drill hole location is reported, and significant assay intervals shown on diagrams in the body of this report.  Low or non-material grades have also been reported.
Other substantive exploration data	Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	Seismic survey information is included in the body of the document.
Further work	The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).  • Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive	Further metallurgical test work is required to access potential economic pathways for mineral beneficiation of REE minerals. There maybe further step out drilling and resource spaced drilling to define the REE mineralisation.

