10 December 2024

Significant progress on Narraburra REE Project with production of second, cleaner Mixed Rare Earth Carbonate (MREC)

- **Second Mixed Rare Earth Carbonate (MREC-2) successfully produced from Narraburra Rare Earth Element Project (REE)**
- **MREC-2 has similar Magnet Rare Earth Oxides (MREO) contents and considerably less impurities than previous sample (MREC-1) (refer to ASX: GRL announcement 25 Oct 2024)**
- **MREC-2 produced using additional Ion Exchange (IX) step in process flow sheet yielding better results**
- **IX process removed 98% of uranium from the purified leach solution, reducing the total uranium to 7ppm in MREC-2 with negligible MREO and TREO losses**
- **MREC-2 highlights:**
  - **Tb/Dy grade in both GRL's MREC products is higher than most other clay-hosted REE projects**
  - **Similar MREO (Tb, Dy, Nd, Pr oxide) grades of 14.8 wt% compared to 14.2 wt% in MREC-1**
  - **Consistent Rare Earth Oxide (TREO) content in MREC-2 of 57.8wt% and 57.6 wt% in MREC-1**
  - **Excellent overall recovery of MREO from feed through to MREC of 67%**
  - **Both MREC products (particularly MREC-2) contain lower impurities than products from most other clay-hosted REE projects – Sets MREC-2 apart from competitors' offerings**
  - **Quality of MREC-2 highlights GRL's ability to create a saleable product with lower impurities than other industry participants**
  - **MREC-1 and MREC-2 provide GRL with the ability to commence discussions with potential off take partners, which will accelerate early in 2025**

Godolphin Resources Limited (ASX: GRL) ("Godolphin" or the "Company") is pleased to advise that it has successfully produced a second Mixed Rare Earth Carbonate ("MREC") product using drill core samples from the Narraburra Rare Earth Element ("REE") Project ("Narraburra" or "the Project"). This additional testwork was completed as part of the Company's third phase of metallurgical testwork on the Narraburra Project and has yielded highly encouraging results. GRL's new MREC product (MREC-2) will further support industry engagement with potential off take partners for the Narraburra Project.

Management commentary

Managing Director Ms Jeneta Owens said: *"This latest development highlights the considerable potential of the Narraburra REE project and we're very pleased to have successfully produced a significantly cleaner product following the inclusion of a commonly used Ion Exchange step into the process flowsheet. Pleasingly, this removed 98% of the uranium content with minimal REE loss and leaves the Company well placed with two samples to underpin discussions with off take partners."*

"More broadly, results from the MREC precipitation phase continue to highlight the potential for a high-quality, potentially superior product, which can be produced by processing Narraburra's REE mineralisation.

These are critical factors when considering the economics of the Project and will be positive for any future development initiatives. We believe the composition of MREC-2 will further encourage our discussions with potential off take partners and look forward to providing updates on these discussions as developments materialise. We are confident that off take partners will see Narraburra's potential impact on Australia's critical minerals supply chain, and more broadly."

The Process Development Testing program ("Phase 3 Metallurgy") was designed to identify the mineral processing flow sheet required to process the Narraburra REE mineralisation, including slurry leaching, impurity removal and the production of a MREC product.

To further develop the processing methodology from the process used to produce MREC-1, in collaboration with The Australian Nuclear Science and Technology Organisation (ANSTO), GRL investigated using an Ion Exchange (IX) step in the process prior to MREC precipitation to remove impurity uranium.

A fresh sample from drill hole GNBDD-17 was treated by this modified process with excellent results being achieved, including removal of 98% of the uranium from the purified leach solution and reducing the total uranium from 223ppm in MREC-1 to 7ppm in MREC-2 with minimal loss of rare earth elements. The second MREC (MREC-2) produced from the resulting solution had similar concentrations of MREO to MREC-1 with only 8ppm UO_2 content, considerably lower than other MREC products reported from most other clay-hosted projects (Table 5).

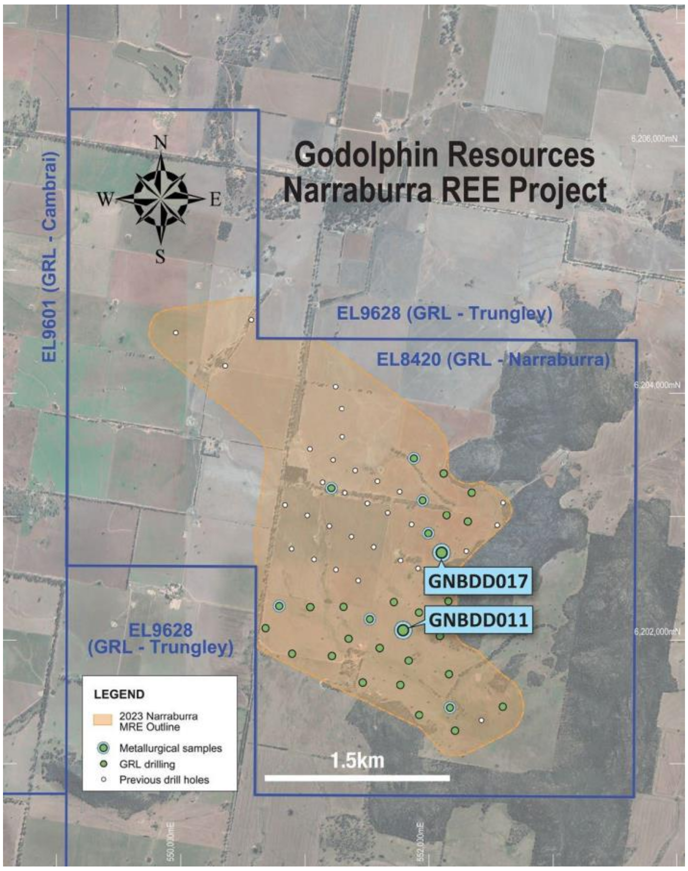

Figure 1: Location of the two drill holes from where the composite samples were collected for the Phase Three metallurgical program

Phase 3 metallurgy testwork

The Process Development Testing program was designed to investigate the options for the processing flow sheet to process the Narraburra rare earth element mineralisation, with the objective of producing a saleable Mixed Rare Earth Carbonate (MREC) product. Phase 3 was undertaken by The Australian Nuclear Science and Technology Organisation (ANSTO).

GRL provided two composite samples for Phase 2, Composite 1 from drill hole GNBDD011 and Composite 2 from drill hole GNBDD017, both of which included 11 m thick intervals of REE mineralisation. These intervals were selected because they were interpreted to represent possible mining intervals through the Narraburra Project's existing Mineral Resource Estimate[1] (Figure 1). Both samples were used to test optimal conditions for leach extraction. Composite 2 was then selected to develop the impurity removal and MREC precipitation stages. The sample used to produce MREC-2 was a subset of the Composite 2 sample used to create MREC-1, utilising only sample GNB017_3 due to exhaustion of GNB017_1 and GNB017_2 (Table 1a). This was considered acceptable as the main purpose of producing MREC-2 was 'proof of concept' that Ion Exchange could be used successfully in the process flowsheet to remove uranium with negligible loss of rare earths. Importantly, GNB017_3 had similar concentrations of uranium and other impurities to the Composite 2 sample (Table 1b).

Slurry Leaching

As previously reported, the slurry leach phase of the Process Development Testing program indicated that the optimal slurry leach conditions to process the Narraburra REE Project mineralisation are: 40 wt% solids/liquid slurry at pH 2.2 (approx. pH of lemon juice), with the addition of 0.3 M ammonium sulphate (AS or $(NH_4)_2SO_4$) reagent, at 50°C for 24 hours (refer ASX:GRL announcements: 26 August 2024 and 25 October 2024).

When the GNB017_3 sample was subjected to these leaching conditions 73% MREO extraction was achieved with low deleterious element extraction of 175 mg/L Al, 138 mg/L Fe and very low acid consumption of 0.9 kg/t (Table 2).

Impurity Removal (IR)

The Pregnant Leach Solution (PLS) produced during leaching of the GNB017_3 sample was then subjected to Impurity Removal (IR) testing, which is a critical step as certain impurities must be removed by pH adjustment prior to precipitation of the MREC product. The key to impurity removal is to minimise loss of valuable elements, whilst effectively removing all deleterious elements such as iron (Fe) and aluminium (Al).

The pH of the PLS was steadily increased with the addition of 3.19 g/L of magnesia (MgO) to pH 5.7 at 50 °C. Results indicate that rare earth element losses during the IR stage for MREC-2 were consistently lower than during the IR stage with the production of MREC-1 (MREC-2 results see Table 2 below; for MREC-1 results refer to Table 1 in ASX:GRL announcement: 25 October 2024). Magnet rare earth losses were only 7 wt% in the IR stage during the production of MREC-2, compared to 14 wt% during the production of MREC-1.

Ion Exchange (IX)

The PLS after the impurity removal stage was then subjected to an IX process, where 50mL of Puromet MTA6002PF™ Resin was added, agitated (bottle roll) for 24 hours and then stripped with 40mL of 1M Nitric Acid. Results from the IX process showed that 98% of the uranium in solution was removed with less than 1% loss of TREOs from the PLS (Table 2). This result demonstrates effective removal of uranium prior to the MREC precipitation.

Mixed Rare Earth Carbonate (MREC) Precipitation

The final stage of the program was precipitating a MREC product using the 'cleaned' PLS following the IR and IX stages. MREC was precipitated by the addition of 10.7 g/L of ammonium bicarbonate (NH_4HCO_3) to increase the pH of the 'cleaned' PLS to pH 7.3 at ambient temperature. The precipitate was collected and oven dried at 60° C. A total of 3.67 g of MREC was produced.

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[1] Refer ASX: GRL announcements on 19 & 21 April 2023.

Table 1: MREC-1 and MREC-2 feed sample details: a) feed sample location details; b) feed sample composition comparison

a)

Composite Metallurgical sample ID	Original Metallurgical Sample ID	Hole ID	Downhole Depth From (m)	Downhole Depth To (m)	Interval (m)
Composite 2	GNB017_1	GNBDD017	20.00	22.00	2.00
	GNB017_2	GNBDD017	22.00	26.00	4.00
	GNB017_3	GNBDD017	26.00	31.00	5.00

b)

Element	GNB017_3	Comp 2
Impurities	**wt%**	**wt%**
Al	6.85	6.93
Ca	0.02	0.01
Fe	2	2.18
K	4.11	3.76
Mg	0.04	0.03
Mn	0.01	0.01
Na	0.84	0.44
P	<0.001	<0.001
Si	34.53	34.77
Impurities	**ppm**	**ppm**
Sc	2	1
Th	33	27
U	13	11
REEs	**ppm**	**ppm**
La	254	139
Ce	179	162
Pr	80	43
Nd	294	161
Sm	85	49
Eu	2	1
Gd	82	47
Tb	16	9
Dy	101	61
Ho	19	12
Er	56	36
Tm	8	5
Yb	44	31
Lu	6	5
Y	582	381
LRE	807	204
HRE	420	70
Magnets	491	274
TOTAL REE+Y	1809	1143
TOTAL REE-Ce	1630	981

The MREC-2 test achieved high stage recoveries of 99.6% Neodymium, 99% Praseodymium, 99% Dysprosium and 99% Terbium (Table 2), similar to those achieved during the production of MREC-1. This coupled with the strong REO extractions achieved during leaching, and only moderate losses during IR and IX, resulted in a high REO recovery from ore feed through to the final MREC product including:

- 71% of the Terbium (Tb),
- 72% of the Dysprosium (Dy).
- 66% of the Neodymium (Nd),
- 64% of the Praseodymium (Pr),

The MREC produced comprised of 57.8% TREO of which the percentage of magnet rare earth oxides (MREO = Neodymium, Praseodymium, Dysprosium and Terbium oxides) was 14.8% of the MREC weight or 25.6% of the contained TREO (Table 2).

Significantly, the percent of Dysprosium and Terbium was 3.4% of the MREC weight or 5.9% of the contained TREO, which is high when compared to some other ASX listed companies with clay-hosted REE mineralisation projects whose MRECs are relatively Neodymium and Praseodymium rich, but poor in Dysprosium and Terbium. This is important because the value of Dysprosium is over 4 times that of Neodymium and Praseodymium; and the value of Terbium is almost 14 times that of Neodymium and Praseodymium. Significantly, the Dysprosium and Terbium in the MRECs from peer companies which have projects with REE mineralisation in a similar deposit style only have 0.6-0.9 wt% Tb/Dy (Table 5). The MREO content and MREO basket value of GRL's MREC-2 and MREC-1 products are compared in Table 4.

When the current prices of all the REOs are considered (Table 4), the Dysprosium and Terbium in MREC-2 makes up approximately 49.5% of the value of the TREOs, which should result in higher payability based on industry pricing mechanisms.

Table 5 shows a comparison between the compositions of the two Narraburra MRECs produced compared to the composition of MRECs reported from some other similar style REE projects on the ASX.

The compositions of GRL's maiden and second MREC products will be used to initiate the Company's engagement with potential off take partners.

Table 2: Overall Recovery of Rare Earth Elements through the entire processing flowsheet from feed to Mixed Rare Earth Carbonate for MREC-2 from the Narraburra REE Project.

	Slurry Leach	Impurity Removal (pH 5.8)	IX	MREC (pH 7.3)	Feed to MREC
Acid addition (kg/t)	0.9	N/A		N/A	0.9
100% MgO Addition (g/L)	N/A	3.19		N/A	3.19
100 % NH4HCO3 Addition (g/L)	N/A	N/A		10.7	10.7
Elements	***Extraction (%)***	***Precipitation (%)***	**Extraction (Loss) %**	***Precipitation (%)***	***Overall Recovery %***
La	67	3	0.06	99	65
Ce	67	10	0.09	99.5	60
Pr	68	6	0.07	100	64
Nd	71	7	0.07	99.6	66
Sm	72	9	0.10	99.6	65
Eu	77	13	0.00	97	65
Gd	79	7	0.09	99	73
Tb	80	10	0.09	99	71
Dy	81	9	0.08	99	72
Ho	81	13	0.07	99	69
Er	81	12	0.06	98	70
Tm	75	18	0.00	97	60
Yb	66	18	0.04	98	53
Lu	65	23	0.00	97	49
Y	86	18	0.05	97	68
Nd/Pr	70	6	0.13	99.6	65
Tb/Dy	81	10	0.17	99	72
Magnets	73	7	0.30	99	67
TREY	76	11	0.86	98	66
TREY-Ce	77	12	0.76	98	67

Table 3: Composition of MREC-2 from the Narraburra REE Project

MREC-2 Composition		
REOs	**wt% in MREC**	**wt% as % of TREO**
La_2O_3	8.47	14.7
CeO_2	4.73	8.2
Pr_6O_{11}	2.46	4.3
Nd_2O_3	8.91	15.4
Sm_2O_3	2.59	4.5
Eu_2O_3	0.07	0.1
Gd_2O_3	2.55	4.4
Tb_4O_7	0.45	0.8
Dy_2O_3	2.98	5.2
Ho_2O_3	0.55	1.0
Er_2O_3	1.54	2.7
Tm_2O_3	0.19	0.3
Yb_2O_3	0.9	1.6
Lu_2O_3	0.11	0.2
Y_2O_3	21.3	36.9
TREO	57.8	
MREO	14.8	25.6
Tb/Dy	3.4	5.9
Pr/Nd	11.4	19.7
LREO	27.2	47.0
HREO	30.6	53.0

Impurities	**wt%**
Al_2O_3	0.13
CaO	0.34
Fe_2O_3	0.003
K_2O	0.03
MgO	0.15
MnO	0.08
Na_2O	<0.1
SO_4	1.22
SiO_2	0.13
	ppm
Sc_2O_3	<2
Th	4
U	7

Table 4: MREC composition and calculated value of the REOs from MREC-1 to MREC-2 from the Narraburra REE Project

REO	US$ Price per kg (incl VAT)[2]	wt% in MREC-2	US$ value within 1kg of MREC-2[3]	US$ value within 1kg of TREO[2]	% value	wt% in MREC-1	US$ value within 1kg of MREC-1[2]	US$ value within 1kg of TREO[2]	% value
La2O3	0.55	8.47	$0.05	$0.08	0.2%	8.13	$0.04	$0.08	0.2%
CeO2	0.99	4.73	$0.05	$0.08	0.2%	9.09	$0.09	$0.16	0.5%
Pr6O11	58.30	**2.46**	**$1.43**	**$2.59**	6.8%	**2.46**	**$1.43**	**$2.51**	7.5%
Nd2O3	57.5	**8.91**	**$5.12**	**$9.29**	24.4%	**8.65**	**$4.97**	**$8.63**	25.9%
Sm2O3	2.05	2.59	$0.05	$0.09	0.3%	2.46	$0.05	$0.09	0.3%
Eu2O3	26.70	0.07	$0.02	$0.03	0.1%	0.07	$0.02	$0.03	0.1%
Gd2O3	21.83	2.55	$0.56	$1.09	2.7%	2.44	$0.53	$0.92	2.8%
Tb4O7	795.42	**0.45**	**$3.58**	**$6.55**	17.1%	**0.39**	**$3.10**	**$5.57**	16.2%
Dy2O3	227.95	**2.98**	**$6.79**	**$12.79**	32.4%	**2.7**	**$6.15**	**$10.71**	32.1%
Ho2O3	65.37	0.55	$0.36	$0.73	1.7%	0.52	$0.34	$0.59	1.8%
Er2O3	40.73	1.54	$0.63	$1.18	3.0%	1.11	$0.45	$0.77	2.4%
Tm2O3	112.15	0.19	$0.21	$0.34	1.0%	0.17	$0.19	$0.34	1.0%
Yb2O3	13.69	0.9	$0.12	$0.22	0.6%	0.65	$0.09	$0.15	0.5%
Lu2O3	711.91	0.11	$0.78	$1.52	3.7%	0.09	$0.64	$1.42	3.3%
Y2O3	5.68	21.3	$1.21	$2.18	5.8%	18.71	$1.06	$1.85	5.5%
Tb/Dy		3.43	$10.37	$19.34		3.09	$9.26	$16.28	
MREO		14.8	$16.9	$31.2		14.2	$15.7	$27.4	
TREO		57.8	$21.0	$38.8		57.6	$19.2	$33.8	
MREO/TREO		25.6%				24.6%			

[2] Source: Shanghai Metal Market price on 02/12/2024. Tm2O3 price on 02/12/2024 from https://giti.sg/products/rare-earths/TmO/

[3] Calculated REO values does not incorporate any % payability terms as discussions with potential off take partners has not been progressed at this early stage

Table 5: MREC composition comparison between ASX listed REE projects that may be processed by leaching

REOs	GRL MREC-2 wt% in MREC	GRL MREC-1[4] wt% in MREC	Red Metal[5] wt% in MREC	Meteoric[6] wt% in MREC	BCM (EMA)[7] wt% in MREC	VMM[8] wt% in MREC
La_2O_3	8.47	8.13	21.6	33.00	19.19	26.72
CeO_2	4.73	9.09	0.73	0.79	4.92	1.46
Pr_6O_{11}	**2.46**	**2.46**	**4.21**	**4.90**	**3.93**	**5.00**
Nd_2O_3	**8.91**	**8.65**	**14.25**	**12.60**	**16.09**	**17.49**
Sm_2O_3	2.59	2.46	1.76	1.35	2.54	1.91
Eu_2O_3	0.07	0.07	0.14	0.33	0.28	0.50
Gd_2O_3	2.55	2.44	1.06	0.86	1.60	1.27
Tb_4O_7	**0.45**	**0.39**	**0.16**	**0.10**	**0.17**	**0.16**
Dy_2O_3	**2.98**	**2.7**	**0.6**	**0.45**	**0.77**	**0.71**
Ho_2O_3	0.55	0.52	0.12	0.07	0.11	0.13
Er_2O_3	1.54	1.11	0.14	0.15	0.39	0.28
Tm_2O_3	0.19	0.17	0.03	0.01	0.06	0.03
Yb_2O_3	0.9	0.65	0.14	0.07	0.33	0.17
Lu_2O_3	0.11	0.09	0.02	0.01	0.06	0.02
Y_2O_3	21.3	18.71	3.77	2.57	4.81	4.16
TREO	57.8	57.6	48.7	57.3	55.3	60.0
MREO	14.8	14.2	19.2	18.1	21.0	23.4
MREO/TREO	25.6	24.6	39.4	31.5	37.9	38.9
Tb/Dy	3.43	3.09	0.76	0.55	0.94	0.86
Pr/Nd	11.4	11.1	18.5	17.5	20.0	22.5
LREO	27.2	30.8	42.6	52.6	46.7	52.6
HREO	30.6	26.9	6.2	4.6	8.6	7.4

Impurities	**ppm**	**ppm**	**ppm**	**ppm**	**ppm**	**ppm**
Th	4	3	3	0.4	<10	<10
U	7	223	26	57	100	79
	wt%	**wt%**	**wt%**	**wt%**	**wt%**	**wt%**
Al_2O_3	0.13	0.23	5.14	0.68	0.52	0.37
CaO	0.34	0.46	5.72	0.77	0.05	0.05
Fe_2O_3	0.003	0.02	0.04	0.16	0.06	0.01
MgO	0.15	0.11	2.92	-	0.52	0.02
Na_2O	<0.1	0.21	-	-	0.08	0.18
SO_4	1.22	0.54	-	-	-	-
SiO_2	0.13	1.69	-	0.30	<0.2	0.07

[4] ASX:GRL announcement dated 25-10-2024
[5] ASX:RDM announcement dated 08-07-2024
[6] ASX:MEI announcement dated 29-02-2024
[7] ASX:BCM announcement dated 11-11-2024
[8] ASX:VMM announcement dated 24-09-2024

Project Background

The Narraburra area was first explored in 1999 for Rare Earth Elements associated with the Devonian-aged Narraburra Granite. Narraburra is listed as a Critical Minerals Project by the Critical Minerals Office of the Australian Government's Department of Industry, Science, Energy and Resources and Australian Trade and Investment Commission. Godolphin's objective at Narraburra has been to define a bulk tonnage, REE deposit in free-digging weathered clays and saprock that would be amenable to low-cost mining from a shallow open pit. Processing would include low-cost atmospheric pressure and weak acid leaching to recover REE for sale to local and international customers.

To date, diamond drilling undertaken by Godolphin at Narraburra has intersected broad zones of REE in clay, saprock (clay-weathered rock) and in underlying fresh rock protolith material (refer ASX: GRL announcements: 11 November 2022 and 13 December 2022), the latter has not been included in the reported MRE calculations. The clays and clay-weathered saprock that host the Narraburra REE mineralisation are the result of weathering of REE rich host rocks (peralkaline granite). The REE are contained within three well-defined layers that vary in thickness, with the layers increasing in thickness from surface towards the bedrock with the upper layer at an average 1-2 meters below surface.

The four magnet Rare Earth Elements – Nd, Pr, Tb and Dy have all been identified at Narraburra. These four elements are crucial for producing high-strength permanent magnets which are used in many future-facing manufactured products notably for electric vehicles, where currently conventional internal-combustion-engine vehicles already use many rare earth magnets for operations such as windows, heating & cooling, door controls and navigation/entertainment systems. Plug in hybrids are recorded as requiring 2-3 times more magnets than traditional vehicles and full EV's 3-4 times more, including the driving motors[9]. Other permanent magnet usage includes generators in wind turbines, medical devices and everyday appliances such as computer hard drives and mobile phones.

Scoping Study

Notwithstanding the excellent results to date, the Company has made the strategic decision to pause completion of the Narraburra Scoping Study at the conclusion of the third phase of metallurgical testwork, until REE pricing improves. However, discussions with potential off take partners will progress. This will allow the Company to divert funds to its ongoing drill program at the Lewis Ponds Gold, Silver and Base Metals project, which is yielding promising initial results (refer ASX: GRL announcement: 5 December 2024). The Company remains well positioned to recommence proposed Scoping Study initiatives, once the value proposition for REE improves, or if required by a potential off take partner.

<ENDS>

This market announcement has been authorised for release to the market by the Board of Godolphin Resources Limited.

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[9] https://global-reia.org/rare-earth/

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About Godolphin Resources

Godolphin Resources (ASX: GRL) is an ASX listed resources company, with 100% controlled Australian-based projects in the Lachlan Fold Belt ("LFB") NSW, a world-class gold-copper province. A strategic focus on critical minerals and metals required for the energy transition through ongoing exploration and development in central west NSW. Currently the Company's tenements cover 3,500km^2 of highly prospective ground focussed on the Lachlan Fold Belt, a highly regarded province for the discovery of REE, copper and gold deposits, with multiple long lived mining operations and advanced precious metals projects. Systematic exploration effort across the tenement package is the key to discovery and represents a transformational stage for the Company and its shareholders.

COMPLIANCE STATEMENTS: The information in this report that relates to reporting of metallurgical test work results is based on REE exploration information reviewed by Dr Christopher Hartley, a Competent Person who is a Member (#41781) of the Institute of Materials, Minerals and Mining (IoM3) since 1981. The exploration information was compiled by Godolphin Resources Limited (GRL, see secondary CP Statement below). Dr Christopher Hartley is a Non-Executive Director of Godolphin Resources. Dr Hartley has sufficient experience that is relevant to the REE style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person (CP) as defined in the 2012 edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Dr Hartley consents to the inclusion in the report of the matters based on his information in the form and context in which it appears. Dr Hartley's CP Statement is given on the basis that GRL takes responsibility to a Competent Persons level (as given below) for the collection and integrity of the source data.

The actual REE exploration information in this report that relates to Exploration data, Sampling Techniques or Geochemical Assay Methodology is based on information compiled by Ms Jeneta Owens, Competent Person who is a Member of the Australian Institute of Geoscientists. Ms Owens is the Managing Director and full-time employee of Godolphin Resources Limited. Ms Owens has sufficient experience 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. Ms Owens consents to the inclusion in the report of the matters based on her information in the form and context in which it appears.

Information in this announcement is extracted from reports lodged as market announcements referred to above and available on the Company's website www.godolphinresources.com.au.

The Company confirms that it is not aware of any new information that materially affects the information included in the original market announcements and that all material assumptions and technical parameters underpinning the estimates in the relevant market announcements continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Persons' findings are presented have not been materially modified from the original market announcements.

Appendix 1 – JORC Code, 2012 Edition, Table 1 report

Section 1 Sampling Techniques and Data (Criteria in this section applies to all succeeding sections)

<table>
<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
<tr><td>Sampling techniques</td><td>Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.
Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.
Aspects of the determination of mineralisation that are Material to the Public Report</td><td>

Composite 1 and Composite 2 metallurgical samples were taken from drill holes GNBDD011 and GNBDD017 respectively, which were part of a 31-hole diamond core drilling program for 1,397.8m completed by GRL in 2022.
All drill holes were drilled at a vertical angle, which is interpreted to be approximately perpendicular to the relatively flat lying mineralised layers in the Narraburra REE Mineral Resource.
The metallurgical samples are all ¼ diamond core sampled from the remaining ½ diamond core samples left over from the routine sampling and analysis.
The Composite 1 and Composite 2 metallurgical samples were both composed from the ¼ core samples that were originally sampled for Phase 2 metallurgical testwork completed by ANSTO and announced on 13 December 2023 and 19 February 2024 (ASX: GRL).
Details for Composite 1, Composite 2 and GNB017_3 metallurgical samples are:

<table>
<tr><th>Composite Metallurgical sample ID</th><th>Original Metallurgical Sample ID</th><th>Hole ID</th><th>Down hole Depth From (m)</th><th>Down hole Depth To (m)</th><th>Interval (m)</th></tr>
<tr><td rowspan="3">Composite 1</td><td>GNB011_1</td><td>GNBDD011</td><td>26.00</td><td>31.00</td><td>5.00</td></tr>
<tr><td>GNB011_2</td><td>GNBDD011</td><td>31.00</td><td>35.00</td><td>4.00</td></tr>
<tr><td>GNB011_3</td><td>GNBDD011</td><td>35.00</td><td>37.00</td><td>2.00</td></tr>
<tr><td rowspan="3">Composite 2</td><td>GNB017_1</td><td>GNBDD017</td><td>20.00</td><td>22.00</td><td>2.00</td></tr>
<tr><td>GNB017_2</td><td>GNBDD017</td><td>22.00</td><td>26.00</td><td>4.00</td></tr>
<tr><td>GNB017_3</td><td>GNBDD017</td><td>26.00</td><td>31.00</td><td>5.00</td></tr>
</table>

¼ diamond core sample still remains in the core trays in GRL secured storage.
All mineralised intervals in each drill hole from the 31-hole diamond core drilling program were subject to routine sampling and analysis (½ core samples).
The Competent Person ensured all sampling was representative of each drilled interval and in-line with company sampling protocols. All relevant sampling details were continuously monitored and recorded.
All drill holes were logged and recorded in a GRL Narraburra-specific template and saved in the Company's database. Data includes: from and to measurements, colour, weathering, regolith profile, lithology, magnetic susceptibility, specific gravity, rock quality designation, rock strength characterisation including penetrometer readings, structures, and alteration.

</td></tr>
<tr><td>Drilling techniques</td><td>Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details.</td><td>

Diamond Drilling (DD) with PQ core size using a triple tube. Multi-shot surveys were taken at the end of the hole whilst pulling the rods. All holes were drilled vertically. Holes were not orientated.

</td></tr>
<tr><td>Drill sample recovery</td><td>Method of recording and assessing core and chip sample recoveries and results assessed.</td><td>

Drill core recovery was determined by comparing the drilled length of each interval with the physical core in the tray. The drill depth and drill run length data was recorded on the core blocks by the drilling company and checked by GRL geologists. GRL geologists attributed any core loss to the likely position it came from within a drill run.
Diamond core recoveries are recorded in logging sheets and also via digital photograph of core trays.
Overall estimated recoveries were on average high (over 90%). Care was taken to ensure the core was representatively sampled in the broken or friable zones and that sample intervals aligned with core loss.

</td></tr>
<tr><td>Logging</td><td>Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.</td><td>

The drill core was geologically logged by a GRL geologist and geotechnically logged by a suitably trained technician. The logs include detailed datasets for: lithology, alteration, mineralisation, veins, structure, geotechnical logs, core recovery and magnetic susceptibility.
The data was logged and quality checked by a qualified geologist and is suitable for use in any future geological modelling, resource estimation, mining and/or metallurgical

</td></tr>
</table>

Criteria	JORC Code explanation	Commentary
		studies.
Sub-sampling techniques and sample preparation	*For all sample types, the nature, quality and appropriateness of the sample preparation technique.*	• Metallurgical sample intervals were allocated by a GRL geologist using geological boundaries or material type boundaries as a guide. Then the samples were composited together to provide a composite sample for each drill hole that is representative of the mineralised interval. • The PQ ½ core was split using hand methods for weathered material, which involved using stainless steel tools to split the core in half lengthways. For hard material, a core saw was used to cut the ½ core sample in half lengthways. • Sample size and preparation technique was appropriate for the nature of mineralisation.
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.* *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.*	• Head assays of the composited intervals for metallurgical testwork compared favorably against the routine sample assays used in the estimation of the Narraburra Mineral Resource. • GRL inserted QAQC samples (blanks and standards) into the routine sampling sequence at a rate of 1 in 20. • All of the QAQC data has been statistically assessed. GRL has undertaken its own further review of QAQC results of the ALS routine standards. The results are considered to be acceptable and suitable for reporting. • Slurry leach Stage: Previously multiple slurry leach tests at varying conditions (reagent type, reagent strength, pH, temperature) were carried out on the metallurgical samples to determine the optimal Slurry Leaching conditions for the Narraburra REE Project mineralisation. • Slurry leach tests were carried out on a ~1 L scale using 300 g of clay (<1 mm, dry weight, dried at 50° C). Intermediate thief slurry samples were taken and processed at 4, 8 and 12 h for solid and liquor analysis. The thief liquors and the final primary filtrate were analysed for the following elements: ➢ ICP-MS for Ce, Dy, Er, Eu, Ga, Gd, Hf, Ho, La, Lu, Mn, Nb, Nd, Pr, Sc, Sm, Tb, Th, Tm, U, Y, Yb (ALS); ➢ ICP-OES for Al, Ca, Fe, K, Mg, Mn, Na, P, Si, Zn, Zr (ANSTO). ➢ These techniques are considered total. • The final solids filter cake was then washed on the filter with two displacement washes of 450 mL each of lixiviant, followed by a 300 mL water wash. All of the final washed filter cake was then pulverised, and a sub-sample taken for drying at 105° C. This sub-sample was analysed for the following elements: ➢ Fusion digest/MS (ALS) - Ce, Dy, Er, Eu, Gd, Ho, La, Lu, Nd, Pr, Sc, Sm, Tb, Th, Tm, U, Y, Yb; ➢ XRF (ANSTO) - Al, As, Ba, Ca, Co, Cr, Cs, Cu, Fe, Hf, K, Mg, Mn, Mo, Na, Nb, Ni, P, Pb, Rb, S, Si, Sn, Ta, Ti, V, Zn, Zr. ➢ These techniques are considered total. • The 2 wash liquors (combined lixiviant and water wash) were also analysed as for the final leach liquor. • Intermediate RE extractions were then calculated using the head and thief residue assays. The final RE extractions were then calculated based on the head assay and both the final solids assay, and the assays and volumes of the final filtrate, the combined lixiviant washes and the water wash. • Impurity Removal Stage: PLS liquor was sampled at 15, 30 and 60 minutes and was analysed for the following elements: ➢ Fusion digest/OES/MS (ANSTO) - Ce, Dy, Er, Eu, Gd, Ho, La, Lu, Nd, Pr, Sc, Sm, Tb, Th, Tm, U, Y, Yb; ➢ XRF (ANSTO) - Al, As, Ba, Ca, Co, Cr, Cs, Cu, Fe, Hf, K, Mg, Mn, Mo, Na, Nb, Ni, P, Pb, Rb, S, Si, Sn, Ta, Ti, V, Zn, Zr. ➢ These techniques are considered total. • Ion Exchange Stage: PLS liquor • MREC Precipitation stage: Liquor samples taken after 0.5 h, 1 h and on completion of the test (2 h). Thief and final liquor samples were taken for ICP-OES and ICP-MS analysis. Then solid product (MREC) was generated, filtered and washed with DI water and dried at 60° C. Thief liquor, final liquor and MREC samples were analysed for the following elements:

Criteria	JORC Code explanation	Commentary
		➢ Acid digest/OES/MS (ANSTO) - Ce, Dy, Er, Eu, Gd, Ho, La, Lu, Nd, Pr, Sc, Sm, Tb, Th, Tm, U, Y, Yb; ➢ XRF (ANSTO) - Al, As, Ba, Ca, Co, Cr, Cs, Cu, Fe, Hf, K, Mg, Mn, Mo, Na, Nb, Ni, P, Pb, Rb, S, Si, Sn, Ta, Ti, V, Zn, Zr. ➢ These techniques are considered total.
Verification of sampling and assaying	*The verification of significant intersections by either independent or alternative company personnel.* *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.* *Discuss any adjustment to assay data.*	• Head assays of the composited intervals for metallurgical testwork were compared favorably against the routine sample assays. • All data and logging were recorded directly into field laptops. Visual validation, as well as numerical validation were completed by two or more geologists. • REE/RM oxides were calculated for all reported ICP-MS results. The oxides were calculated according to the following factors listed below: *La2O3: 1.173 (i.e. ppm La x 1.1728 = ppm La2O3); CeO2: 1.2284; Pr6O11: 1.2082; Nd2O3: 1.1664; Sm2O3: 1.1596; Eu2O3: 1.1579; Gd2O3: 1.1526; Tb4O7: 1.1762; Dy2O3: 1.1477; Ho2O3: 1.1445; Er2O3: 1.1435; Tm2O3: 1.1421; Yb2O3: 1.1387; Lu2O3: 1.1371; Y2O3: 1.2699; Ga2O3: 1.3442; HfO2: 1.1793; Nb2O5: 1.4305; Rb2O: 1.0936; ZrO2: 1.3508* • Total rare earth oxide is the industry standard and accepted form of reporting rare earth elements. TREO, TLREO, THREO, MREO as calculated as below • TREO (total rare earth oxides) = La2O3 + CeO2 + Pr6O11 + Nd2O3 + Sm2O3 + Eu2O3 + Gd2O3 + Tb4O7 + Dy2O3 + Ho2O3 + Er2O3 + Tm2O3 + Yb2O3 + Lu2O3 + Y2O3 • TLREO (total light rare earth oxides) = La2O3 + CeO2 + Pr6O11 + Nd2O3 + Sm2O3 • THREO (total heavy rare earth oxides) = Eu2O3 + Gd2O3 + Tb4O7 + Dy2O3 + Ho2O3 + Er2O3 + Tm2O3 + Yb2O3 + Lu2O3 + Y2O3 • MREO (magnet rare earth oxides) = Pr6O11 + Nd2O3 + Tb4O7 + Dy2O3
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.*	• A handheld GPS was used to locate the drill hole collar locations prior to drilling, with an averaged waypoint measurement: accuracy of less than 5m. • A DGPS was used after drilling to pick up the final collar locations: accuracy of less than 0.77m • Coordinates used were WGS84 and transformed into Map Grid of Australia 1994 Zone 55 • Hole paths have been systematically surveyed at 6m intervals by the drill contractor
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.*	• Early-stage drilling program for Narraburra. • Target is broad, flat lying REE mineralisation in clay and saprock above fresh igneous rock (peralkaline granite). • Drill spacing for the majority of the Narraburra MRE area ranges from approximately 200mx300m to 300mx300m. In some outlying areas, drill spacing extends out to approximately 1km. • The data spacing and distribution of drill holes into the Narraburra mineralised area was deemed to be sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied. • Narraburra REE Project Mineral Resource Estimate (MRE) of 94.9 million tonnes at 739ppm TREO, which includes a higher-grade component of 20 million tonnes at 1,079ppm TREO using a 600ppm cutoff in accordance with JORC (2012) (refer ASX: GRL announcement: 19 April 2023). • Composite 1, Composite 2 (including GNB017_3) metallurgical samples were taken from drill holes GNBDD011 and GNBDD017 respectively. • The metallurgical samples discussed in this report were composited to provide a composite sample for each drill hole that is representative of the mineralised interval. • These intervals have been selected because they are interpreted to represent possible mining intervals through the Narraburra Rare Earth Project Mineral Resource. • Details for Composite 1, Composite 2 and GNB017_3 metallurgical samples are:

Composite Metallurgical sample ID	Original Metallurgical Sample ID	Hole ID	Down hole Depth From (m)	Down hole Depth To (m)	Interval (m)
Composite 1	GNB011_1	GNBDD011	26.00	31.00	5.00
	GNB011_2	GNBDD011	31.00	35.00	4.00
	GNB011_3	GNBDD011	35.00	37.00	2.00
Composite 2	GNB017_1	GNBDD017	20.00	22.00	2.00
	GNB017_2	GNBDD017	22.00	26.00	4.00
	GNB017_3	GNBDD017	26.00	31.00	5.00

Criteria	JORC Code explanation	Commentary
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.*	• Mineralisation is interpreted to be in relatively flat-lying layers associated with weathering profiles of the underlying granite. Vertical orientation of the drillholes was deemed suitable to target mineralisation of this style. • No significant bias is likely as a result of the pattern of intersection angles.
Sample security	*The measures taken to ensure sample security.*	• All samples were collected and accounted for by GRL employees/consultants during drilling. All logging was done by GRL personnel. All samples were bagged into calico bags by GRL contractors under the instruction of GRL personnel. • GRL personnel or contractors were present at the drill rig daily during the drilling • Diamond Drill core was geotechnically logged at the drill rig prior to transportation and collected from the site and taken to the secure GRL shed in Orange NSW for further processing. • All drill core was securely stored in GRL's shed in Orange NSW. • Metallurgical samples were securely couriered to ANSTO.
Audits or reviews	*The results of any audits or reviews of sampling techniques and data.*	• Surveys, Assays, Geology, previous resource estimates were studied internally for factors likely to introduce bias. • No external audits have been done on this data.

Section 2 Reporting of Exploration Results (Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	*Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.* *The security of the tenure held at the time of reporting along with any known impediments to obtaining a license to operate in the area.*	• The Narraburra Rare Earth Element Project is located 12km to the northeast of the township of Temora in NSW and has an elevation approximately 315m above sea-level. • Narraburra Rare Earth Element Project Mineral Resource is located on EL8420. • Critical Rare Earths Pty Ltd, a wholly owned subsidiary of GRL, holds 100% of EL8420. • The land is owned by private land holders
Exploration done by other parties	*Acknowledgment and appraisal of exploration by other parties.*	• See ASX announcements by Godolphin Resources (ASX: GRL) on 2 March 2022 and 11 November 2022, as well as Capitol Mining Limited (ASX: CMY) on 9 November 2011 • Previous exploration includes airborne magnetic surveys, re-processing of public Aster data, geological mapping, mineralogical studies, preliminary metallurgical test work, with irregular wide-spaced RAB and RC drilling.
Geology	*Deposit type, geological setting and style of mineralization.*	• EL8420 is situated over part of the Narraburra Complex, comprising three suites of alkaline granite at the triple junction of the Tumut, Girilambone-Goonumbla and Wagga Zones, central southern New South Wales. EL8420 straddles the northern edge of the junction between the Gilmore Fault and the Parkes Thrust, both structures are known for their relationship to precious and base metal mineralisation. • The Narraburra rare earth element (REE) mineralisation is hosted within the saprolite and saprock cap of highly fractionated Devonian alkaline and peralkaline granites.

Criteria	JORC Code explanation	Commentary
		• Mineralisation occurs within these alkaline units as concentric bands, wrapping around the southern and western side of the largest sub-unit in the Narraburra complex, the Bodingerra Granite.
Drill hole Information	*A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:*	• Drill hole information for drill holes from which the metallurgical samples were taken: **Hole ID** / **Hole Type** / **MGA55 East** / **MGA55 North** / **MGA_RL** / **Dip** / **Depth m** **GNBDD011** / DD / 551793.89 / 6202082.59 / 320.53 / 90 / 53.4 **GNBDD017** / DD / 552102.87 / 6202710.41 / 325.95 / 90 / 44.9
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.*	• Oxide equivalents have been calculated as discussed above. • TREO grades reported in Table 1 are head assays of the entire interval of the composite sample, not a weighted average calculation.
Relationship between mineralization 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.*	• The holes were drilled at an average of -90˚ declination (i.e. vertical). • The mineralisation has been interpreted as relatively flat lying. • Therefore, mineralised intervals should be a close approximation of the true thickness.
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.*	• Map pertaining to the location of the drill holes used for metallurgical testwork relative to the Narraburra REE Project Mineral Resource (Figure 1 in this announcement).
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 Results.*	• All known details of the metallurgical results have 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.*	• See ASX announcements by Godolphin Resources (ASX: GRL) on 2nd March 2022, and 11th November 2022, and Capitol Mining Limited (ASX: CMY) on 9 November 2011.
Further work	*The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).*	• Further metallurgical activities are currently under assessment.