Further Rare Earths Discovery EMU's Merredin Project WA

14 June 2023

EMU NL

RARE EARTHS ELEMENTS, PRECIOUS AND BASE METALS EXPLORER

EMU NL (ASX:EMU) ("**EMU**" or "**the Company**") is pleased to report significant Rare Earth Element (**REE**) anomalism and **elevated copper and zinc values** from its 100% owned Merredin Project (under application) in the WA Wheatbelt[1]. This follows EMU's recent market updates announcing REE discoveries at its 100% owned projects in WA at Condingup near Esperance, Viper near Jerramungup, and Graceland near Lake Grace.

HIGHLIGHTS

- EMU's Initial Rock Chip Reconnaissance Survey has confirmed assay results from historic GSWA rock chip samples[1 & 2] grading **up to 1,405 ppm or (0.14%) TREO.**
- EMU's rock chip samples returned **up to 971 ppm TREO.**
- High value Magnetic Rare Earth Oxides (**MREO**) represent up to **21.3% of TREO** grade from rock chips with numerous assay results greater than **600 ppm TREO.**
- Rock chip sample results confirm the various granitic intrusions in the greater Merredin area to be highly fertile for rare earth elements with the potential to be the primary source for significantly enriched rare earth minerals in clay.
- Additionally, historic soil samples[2] have returned elevated **copper** up to **1452 ppm** and **zinc** up to **1,679 ppm**. These results are highly anomalous and worthy of follow-up.
- EMU considers that there is the potential for REE, Niobium–yttrium–fluorine Pegmatites to exist within the Merredin Project based on prospectivity in the Mukinbudin Province.
- The Merredin REE Project's pending Exploration License application covers 88.2 km^2 in the new and emerging Mukinbudin REE Province.
- Follow up targeted rock sampling is planned to enhance REE vectors.

Peter Thomas, EMU Chairman commented,

"We are very pleased with the prospectivity indicated at the Merredin Project. Following up on historic recordings of REE in the Merredin area, EMU's selection of potentially REE prospective exploration tenements has been vindicated by its maiden field trip to sample outcropping granite rocks. The project adds to our portfolio of REE projects in the wheatbelt and WA's southeast. Whilst it is early days for this project, the prospectivity for REE, along with elevated copper, zinc values and potential pegmatite intrusions, provides a compelling basis for further exploration activity."

[1] ASX Release 28 April 2023 "April Quarterly Activity Report 3 Months Ended 31 March 2023"
[2] DMIRS, WAMEX Report Number a59228. 1997-98 Multi element soils results, Astro Mining NL

Following a review of the Geological Survey of Western Australia's (**GSWA**) public hard rock geochemical data, EMU noticed several assay results indicating the presence of significantly elevated values of REEs in various granite lithologies. EMU's investigations resulted in applications for exploration licences north of Merredin (E70/6300) over vacant exploration ground[3].

The initial rock chip reconnaissance survey assays from granite rock samples contained significant ratios of MREO (21.3%) and HREO (11.25%) which corroborates the historical GSWA results. These results point to anomalous REE zones, clearly demonstrating strong underlying host rock fertility over the Merredin REE Project. A literature review conducted by EMU revealed further evidence with soil samples assaying up to 433ppm Ce and 260ppm La from work conducted in 1998 by Astro Mining NL which assayed for a limited suite of elements - Ni, Cu, Ce, La, Co, Ba, Cr, Nb, Zn and Zr[2].

Magnetic and Heavy REE concentrations are highly desirable for their use in the strongest and most affordable permanent magnets. Higher values of Nd-Pr & Dy (Neodymium-Praseodymium and Dysprosium, key elements in rare earth magnets), recorded in the samples, provide significant encouragement for EMU's Merredin Project given the high value of those elements.

Merredin Project

The Merredin Project is located in the emerging Mukinbudin REE Province north of Merredin, 50km South-southeast of ASX:CDR's Karloning Project from where it is achieving success in discoveries of REE enriched clays over Niobium-Yttrium-Fluorine Pegmatite intrusions and 50km East-southeast of ASX:MAU's Trayning Project from where it has reported success through the discovery of enriched clays over Yilgarn granites.

EMU's Merredin Project is situated 300kms from the port of Fremantle (with access from Merredin via a sealed road network) and approximately 325km from ASX:LYC's Kalgoorlie REE processing facility which has been established for hard rock processing of REE.

The Merredin Project tenements are located over a geologically significant, northern trending structural fault package which may provide additional prospectivity and targeting for follow up exploration.

EMU's tenure over the Merredin Project is pending grant which is expected by the end of the year.

Conceptual Mineralisation Model

The conceptualised mineralisation model for the Mukinbudin Province varies slightly from the Esperance REE Province, where EMU's 100% owned Condingup Project is located, largely due to the different bedrock (REE source rock), amount of cover, depth and volume of hypersaline "ionic" ground water. EMU expects REE supergene concentrations in clay zone traps will be found through future drilling and exploration vectoring. Due to weathering processes, any

[3] ASX Release 7 October 2022 "Rare Earth Exploration Projects – Esperance, Merredin WA, Georgetown QLD"

clay traps intersected in drilling will likely contain greater concentrations of TREO than the numbers reported in the granite rock samples detailed in this release; what this release does is highlight the "fertility" of the rock sample results reported herein and the potential of the granites to yield supergene enriched REE in clay zone traps.

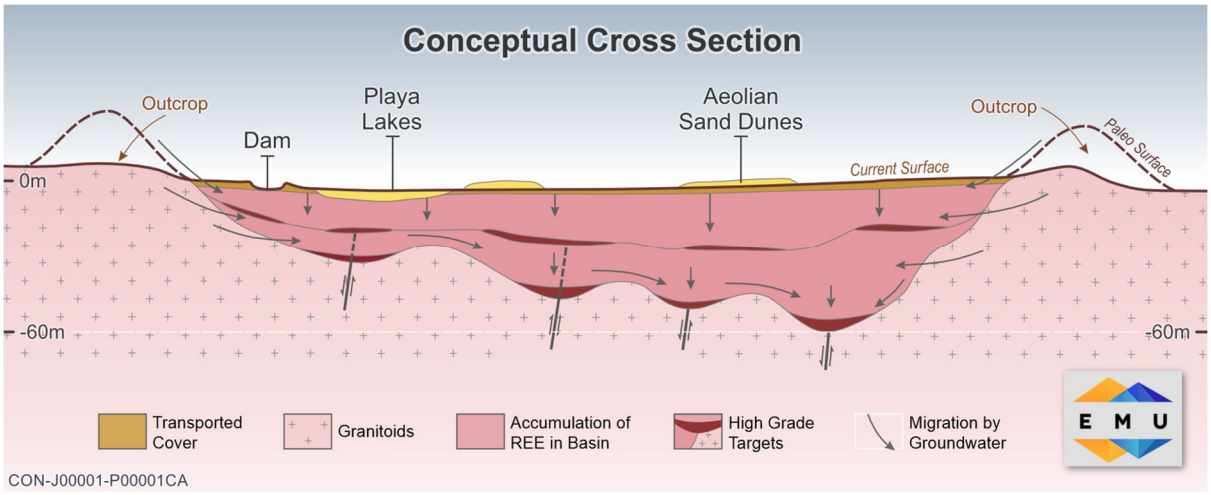

Figure 1. A conceptual cross section of Yilgarn granites showing outcrops, dams, ground water movement and location of high grade REE targets.

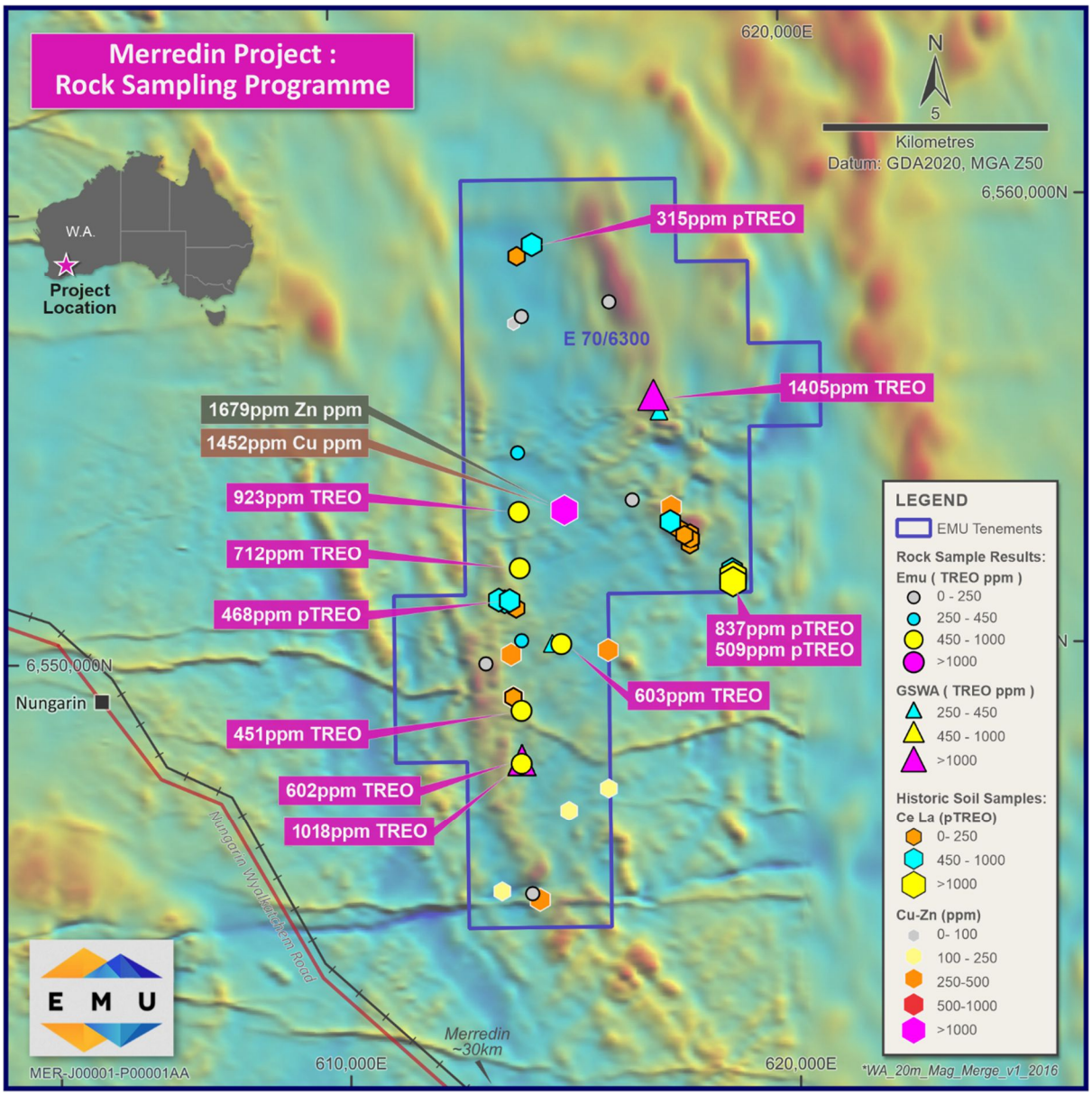

Figure 2. Map showing EMU's Merredin REE Project tenements under application and significant assay results obtained from EMU and GSWA rock chip samples, as well as historic soil samples.

RELEASE AUTHORISED BY THE BOARD

For further information, please contact:

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https://investorhub.emunl.com.au/auth/signup

EMU Investorhub QR Code

Table 2. Significant Rock Sample Results > 450 TREO (PPM & %)

Site_ID	Medium	Easting	Northing	TREO	MREO %	HREO %	CREO %	CeO2	Dy2O3	Er2O3	Eu2O3	Gd2O3	Ho2O3	La2O3	Lu2O3	Nd2O3	Pr6O11	Sm2O3	Tb4O7	Tm2O3	Y2O3	Yb2O3
ESS01835	Granitoid	610727	6550238	971	22.22	11.34	24.92	363.10	10.48	5.47	3.01	15.79	2.00	269.74	0.56	157.46	45.64	21.80	2.11	0.69	68.83	4.17
ESS01819	Granitoid	614005	6553165	923	22.63	8.66	22.74	412.30	8.84	4.32	1.81	12.10	1.58	209.93	0.45	150.47	47.75	20.64	1.78	0.57	46.99	3.33
ESS01818	Granitoid	613998	6551897	712	21.05	17.6	28.55	256.51	11.11	6.46	1.46	12.10	2.38	177.09	0.73	104.51	32.42	14.73	1.88	0.89	84.32	5.48
ESS01830	Granitoid	628546	6561837	651	21.83	13.56	25.71	267.06	9.69	5.10	2.85	12.79	1.76	145.43	0.58	101.13	29.37	16.47	1.80	0.65	51.81	4.04
ESS01829	Granitoid	622006	6553991	606	21	12.77	24.39	256.51	9.31	4.23	1.73	11.34	1.67	140.74	0.32	89.11	27.15	13.57	1.71	0.47	45.97	2.38
ESS01833	Granitoid	614885	6550200	603	21.84	11.17	23.95	253.00	7.10	4.08	1.84	9.08	1.40	144.25	0.47	94.13	29.26	13.57	1.31	0.53	40.13	3.33
ESS01815	Granitoid	613945	6547565	602	20.36	8.29	20.92	276.43	4.77	2.62	1.46	7.46	0.93	145.43	0.32	88.53	28.32	11.94	0.93	0.38	30.22	2.25
ESS01828	Granitoid	621535	6551875	582	19.82	4.92	17.92	270.57	3.03	1.33	1.12	6.49	0.52	159.50	0.16	84.21	27.39	10.62	0.70	0.16	15.24	0.99
ESS01816	Granitoid	613967	6548743	451	22.6	13.86	27.14	145.24	5.46	2.69	1.44	8.74	1.10	136.04	0.27	73.37	21.88	10.16	1.13	0.34	40.89	1.82

Table 3. Rock Sample Results <450 and >330 TREO (PPM & %)

Site_ID	Medium	Easting	Northing	TREO	MREO %	HREO %	CREO %	CeO2	Dy2O3	Er2O3	Eu2O3	Gd2O3	Ho2O3	La2O3	Lu2O3	Nd2O3	Pr6O11	Sm2O3	Tb4O7	Tm2O3	Y2O3	Yb2O3
ESS01820	Granitoid	614010	6554479	359	20.88	12.33	24.22	154.61	4.20	2.37	1.09	5.74	0.82	80.81	0.34	53.54	16.38	8.23	0.81	0.35	27.30	2.30
ESS01823	Granitoid	621778	6544536	346	20.42	8.18	20.94	153.44	2.83	1.64	1.49	4.73	0.56	88.55	0.24	51.55	15.68	7.05	0.59	0.23	16.00	1.51
ESS01826	Granitoid	620451	6547858	331	20.42	10.68	22.57	145.24	3.87	2.00	1.29	5.16	0.73	79.52	0.24	48.06	14.98	6.83	0.74	0.25	20.83	1.57
ESS01839	Granitoid	608640	6553445	330	21.9	12.84	25.22	132.36	4.67	2.41	1.51	6.35	0.86	78.34	0.23	51.20	15.45	8.55	0.90	0.32	24.89	1.71

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Fully paid shares (listed)

1,450,021,079 (including 18.6m the subject of the ATM which EMU can buy back for nil consideration)

Contributing Shares (listed)

40,485,069 paid to $0.03, $0.03 to pay, no call before 31 December 2023

Contributing Shares (Unlisted)

35,000,000 paid to $0.0001, $0.04 to pay, no call before 31 December 2025

Options (unlisted)

172,453,621 options to acquire fully paid shares, exercisable at $0.01 each, on or before 7 October 2024

Performance Rights (Unlisted)

48,571,429 performance rights in relation to acquisition of Gnows Nest project

Directors:

Peter Thomas
Non-Executive Chairman

Terry Streeter
Non-Executive Director

Gavin Rutherford
Non-Executive Director

Tim Staermose
Non-Executive Director

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COMPETENT PERSON'S STATEMENT

The information in this report that relates to exploration results is based on, and fairly represents information and supporting documentation prepared by Kurtis Dunstone, a Competent Person who is a Member of the Australian Institute of Geoscientists. Mr Dunstone is an employee of EMU NL and has sufficient experience in the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 edition of the "*Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves*". Mr Dunstone consents to the inclusion herein of the matters based upon his information in the form and context in which it appears.

FORWARD LOOKING STATEMENTS

As a result of a variety of risks, uncertainties and other factors, actual events and results may differ materially from any forward looking and other statements herein not purporting to be of historical fact. Any statements concerning mining reserves, resources and exploration results are forward looking in that they involve estimates based on assumptions. Forward looking statements are based on management's beliefs, opinions and estimates as of the respective dates they are made. The Company does not assume any obligation to update forward looking statements even where beliefs, opinions and estimates change or should do so given changed circumstances and developments.

NEW INFORMATION OR DATA

EMU confirms that it is not aware of any new information or data that materially affects the information included in the original market announcements and, in the case of estimates of Mineral Resources, which all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings are presented have not materially changed from the original market announcement.

JORC Code 2012 Edition Table 1:
Section 1: Sampling Techniques and Data

Criteria	JORC Code explanation	Commentary
Sampling techniques	• *Nature and quality of sampling (e.g., cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.* • *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.* • *Aspects of the determination of mineralisation that are Material to the Public Report.* • *In cases where 'industry standard' work has been done this would be relatively simple (e.g., 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases, more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g., submarine nodules) may warrant disclosure of detailed information.*	• A 1-2kg surface rock sample was collected for assay. • Sampling was carried out under Company protocols and QAQC procedures as per current industry practice. See further details below. • Samples were dispatched to LabWest in Perth. Sample preparation by the laboratory included sample sorting, oven drying, mechanical pulverisation to 95% passing 75 microns. Analytical method MMA-04.
Drilling techniques	• *Drill type (e.g., core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (e.g., core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).*	• No drilling was undertaken
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.* • *Measures taken to maximise sample recovery and ensure representative nature of the samples.* • *Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.*	• Not applicable.
Logging	• *Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* • *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.* • *The total length and percentage of the relevant intersections logged.*	• Geological logging was done on a visual basis, including; colour, grain size, lithology type, weathering and mineralogy.
Sub-sampling techniques and sample preparation	• *If core, whether cut or sawn and whether quarter, half or all core taken.* • *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.* • *For all sample types, the nature, quality and appropriateness of the sample preparation technique.* • *Quality control procedures adopted for all sub -sampling stages to maximise representivity of samples.* • *Measures taken to ensure that the sampling is representative of the in-situ material collected, including for instance results for field duplicate/second-half sampling.* • *Whether sample sizes are appropriate to the grain size of the material being sampled.*	• The samples were dried and pulverised to 95% passing -75 microns before analysis. • QA/QC certified reference samples and field duplicates were routinely inserted at a rate of 1 in 20 with every batch submitted for assay. • The sample size is appropriate for the mineralization style, application and analytical techniques used.
Quality of assay data and laboratory tests	• *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.* • *For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.*	• Microwave mixed-acid method MMA-04, 62 element determination including rare-earths using a combination of ICP-MS and ICP -OES finish. • Detection limits are appropriate for the included results.

<table>
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- *Nature of quality control procedures adopted (e.g., standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e., lack of bias) and precision have been established.*

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- All elements were reported in PPM (Parts Per Million).

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<tr><td>Verification of sampling and assaying</td><td>

- *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.*

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- Assays are as reported from the laboratory and stored in the company database, managed by an independent database consultant.
- Field data was collected on site using both field sample books and a company Toughbook (laptop computer) and entered into a set of standard logging templates.
- Relevant individual rare-earth element results were converted to stoichiometric oxide using industry standard stoichiometric conversion factors:

<table>
<tr><th>Element PPM</th><th>Oxide Form</th><th>Conversion Factor</th></tr>
<tr><td>Ce</td><td>CeO2</td><td>1.2284</td></tr>
<tr><td>Dy</td><td>Dy2O3</td><td>1.1477</td></tr>
<tr><td>Er</td><td>Er2O3</td><td>1.1435</td></tr>
<tr><td>Eu</td><td>Eu2O3</td><td>1.1579</td></tr>
<tr><td>Gd</td><td>Gd2O3</td><td>1.1526</td></tr>
<tr><td>Ho</td><td>Ho2O3</td><td>1.1455</td></tr>
<tr><td>La</td><td>La2O3</td><td>1.1728</td></tr>
<tr><td>Lu</td><td>Lu2O3</td><td>1.1371</td></tr>
<tr><td>Nd</td><td>Nd2O3</td><td>1.1664</td></tr>
<tr><td>Pr</td><td>Pr6O11</td><td>1.2082</td></tr>
<tr><td>Sm</td><td>Sm2O3</td><td>1.1596</td></tr>
<tr><td>Tb</td><td>Tb4O7</td><td>1.1762</td></tr>
<tr><td>Tm</td><td>Tm2O3</td><td>1.1421</td></tr>
<tr><td>Y</td><td>Y2O3</td><td>1.2699</td></tr>
<tr><td>Yb</td><td>Yb2O3</td><td>1.1387</td></tr>
</table>

Rare-Earth Oxide results were calculated using:

TREO (Total Rare Earth Oxide) = CeO_2 + Dy_2O_3 + Er_2O_3 + Eu_2O_3 + Gd_2O_3 + Ho_2O_3 + La_2O_3 + Lu_2O_3 + Nd_2O_3 + Pr_6O_{11} + Sm_2O_3 + Tb_4O_7 + Tm_2O_3 + Y_2O_3 + Yb_2O_3

Mag REO (Magnet Rare Earth Oxide) = Dy2O3 + Pr6O11 + Nd2O3 + Tb4O7 + Gd2O3 + Ho2O3 + Sm2O3

HREO (Heavy Rare Earth Oxide) = Dy2O3 + Er2O3 + Eu2O3 + Gd2O3 + Ho2O3 + Lu2O3 + Tb4O7 + Tm2O3 + Y2O3 + Yb2O3

CREO (Critical Rare Earth Oxide) = Dy2O3 + Eu2O3 + Nd2O3 + Tb4O7 + Y2O3

Percent MREO (Magnetic) = MREO / TREO

Percent HREO (Heavy) = HREO / TREO

Percent CREO (Critical) = CREO / TREO

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<tr><td>Location of data points</td><td>

- *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.*
- *Specification of the grid system used.*

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- Rock samples were located using a handheld GPS system with an accuracy of +/ - 5m and stored in the company database.

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</table>

	• *Quality and adequacy of topographic control.*	• All coordinates are referenced to MGA Zone 50, Datum GDA94.
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.*	• Rock samples were collected where rock was exposed at surface.
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.*	• No sampling bias known.
Sample security	• *The measures taken to ensure sample security.*	• Each sample was put into a pre-numbered draw string calico bag, securely tied off and placed into a larger "polyweave" bag. Each polyweave contained 5 calico bag samples and was tied off with a zip tie. Samples were transported by company staff to LabWest Laboratories in Malaga, after returning from the reconnaissance program.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• Continuous improvement, internal reviews of sampling techniques and procedures are ongoing. No external audits have been performed on the methodology to date.

JORC Code 2012 Edition Table 1:
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 re porting along with any known impediments to obtaining a licence to operate in the area.*	• E70/6300 WA tenure hosting the GSWA referenced assays are under application by EMU Resources Pty Ltd.
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	•
Geology	• *Deposit type, geological setting and style of mineralisation.*	•
Data aggregation methods	• *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g., cutting of high grades) and cut-off grades are usually Material and should be stated.* • *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.*	• **TREO (Total Rare Earth Oxide) =** CeO_2 + Dy_2O_3 + Er_2O_3 + Eu_2O_3 + Gd_2O_3 + Ho_2O_3 + La_2O_3 + Lu_2O_3 + Nd_2O_3 + Pr_6O_{11} + Sm_2O_3 + Tb_4O_7 + Tm_2O_3 + Y_2O_3 + Yb_2O_3 **Mag REO (Magnet Rare Earth Oxide) =** Dy2O3 + Pr6O11 + Nd2O3 + Tb4O7 + Gd2O3 + Ho2O3 + Sm2O3 **HREO (Heavy Rare Earth Oxide) =** Dy2O3 + Er2O3 + Eu2O3 + Gd2O3 + Ho2O3 + Lu2O3 + Tb4O7 + Tm2O3 + Y2O3 + Yb2O3

		CREO (Critical Rare Earth Oxide) = Dy2O3 + Eu2O3 + Nd2O3 + Tb4O7 + Y2O3
Diagrams	• *Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.*	• Refer to figures in body of the report. • Geological and mineralisation interpretations are based on current knowledge and will change with further exploration.
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.*	• Key location information and assays have been provided, refer to results reported in body of text.
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.*	• Geological interpretations have been taken from published maps, geophysical interpretation, historical and ongoing exploration.
Further work	• *The nature and scale of planned further work (e.g., 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 soil sampling, mapping, reconnaissance, geochemical and geophysical assessments are required.

- END -