ASX Announcement

17 January 2023

RARE EARTH CARBONATITE TARGETS HIGHLIGHTED AT LOCKIER RANGE PROJECT GASCOYNE, WESTERN AUSTRALIA

Highlights

- **High resolution radiometric geophysical data acquired over Lockier Range Project.**
- **Interpretation of Thorium radiometric signatures show clear comparisons to nearby Yangibana REE development project (Hastings Technology Metals Ltd) and Yin REE Project (Dreadnought Resources Ltd).**
- **Extensive thorium anomalies identified within a 9km by 3km area at Mt Yaragner.**
- **Compelling evidence of coincident iron oxide (ironstone) for potential weathered REE-bearing carbonatite.**
- **Anomalies coincident with high tenor (>1% total rare earth oxide) assays from historic soil and stream sediment sampling.**

Odessa Minerals Limited (ASX:ODE) ("Odessa" or the "Company") is pleased to announce it has acquired new detailed (50m line spacing) magnetics and radiometrics data for the Lockier Range Project. The Lockier Range project is subject to a binding agreement for the Company to buy OD4 Noonie Pty Ltd, which holds the 125 km^2 ELA09/2649 (the "Lockier Project") from a consortium of private vendors (refer release dated **25 October 2022**).

The Lockier Project sits 65km south-west of Hastings Technologies Metals Ltd's (ASX:HAS) Yangibana REE project, 55km south-west of Dreadnought Resources' (ASX:DRE) Yin REE project and 35km north of Kingfisher Mining Ltd's (ASX:KFM) Mick Well REE project.

David Lenigas, Odessa's Executive Director, commented: ***"It is well documented that thorium radiometrics and coincident ironstone anomalies are tell-tale markers of rare earth bearing carbonatites at the nearby Yangibana and Yin rare earth deposits. To now see this high-resolution geophysical data from our Lockier Range project, particularly Mt Yaragner, interpreted with aerial imagery, for iron oxide zones, sitting within the area of historic, very high-level rare earth assays, makes for a compelling drill targeting exercise."***

Data acquisition

The radiometrics data was part of combined recent airborne magnetics and radiometric survey by MagSpec Airborne Surveys Ltd and has been acquired by the Company from a third-party vendor. The data consists of a detailed 50 metre line-spaced fixed-wing survey and was acquired at a nominal flight height of 30 metres on north-south flight lines.

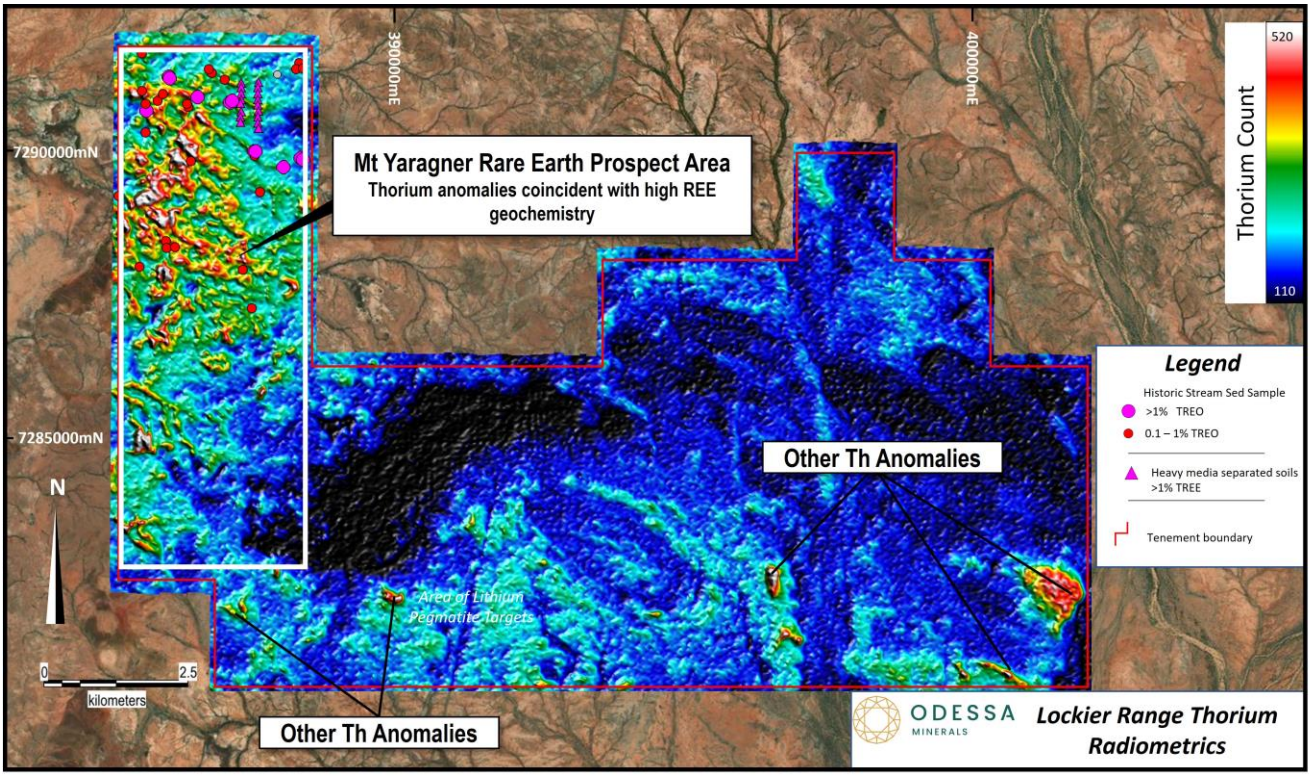

Figure 1: Odessa's Lockier Range Project showing newly acquired thorium radiometric data. The high thorium count relates to the Mt Yaragner area in the west and is coincident with historic high-grade geochemical data. (grid MGA95, Zone 51).

Mt Yaragner REE Project:

The Mt Yaragner Project is located within the western part of the Lockier Range Proejct. The area has been subject to previous exploration and compilation by other explorers including Venus Metals Ltd[1] and Independence Group (now IGO Ltd).[2] Both companies reported very high-tenor soil and stream sediment sampling results for rare earth elements including up to 14% total rare earth element ("TREE") in stream sediment samples, including 3.36% Nd+Pr; and 3.87% TREE in soil samples (refer to Odessa Minerals' announcement dated 25 October 2022 for full details of historic sampling).

All previous historic samples cannot be confirmed until Odessa attends to verification sampling programs itself. IGO surrendered the tenement in 2013.

It is established that mineralised REE-bearing carbonatites in the Gascoyne Province of Western Australia weather into dark brown to black ironstones and exhibit strong thorium radiometric anomalies.[3] As such, the Company has reviewed several individual thorium anomalies and the aerial photography for evidence of REE ironstone carbonatites. Initially, four target areas are discussed herein, though it is noted that there are several other thorium-iron anomalies that warrant further work.

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[1] Venus Metals Corporation Limited (ASX:VMC) ASX announcement dated 14 July 2020 – "NARDOO HILL WEST RARE EARTHS & TANTALUM-NIOBIUM PROJECT". Venus Metals WAMEX Report A128133 (2021).
[2] IGO Newsearch WAMEX Report A99601 (2013)
[3] Slezak, P *et al*. Geology and Ore genesis of carbonatite associated Yangibana REE district, Gascoyne Province, Western Australia. *Mineralium Deposita,* 2021

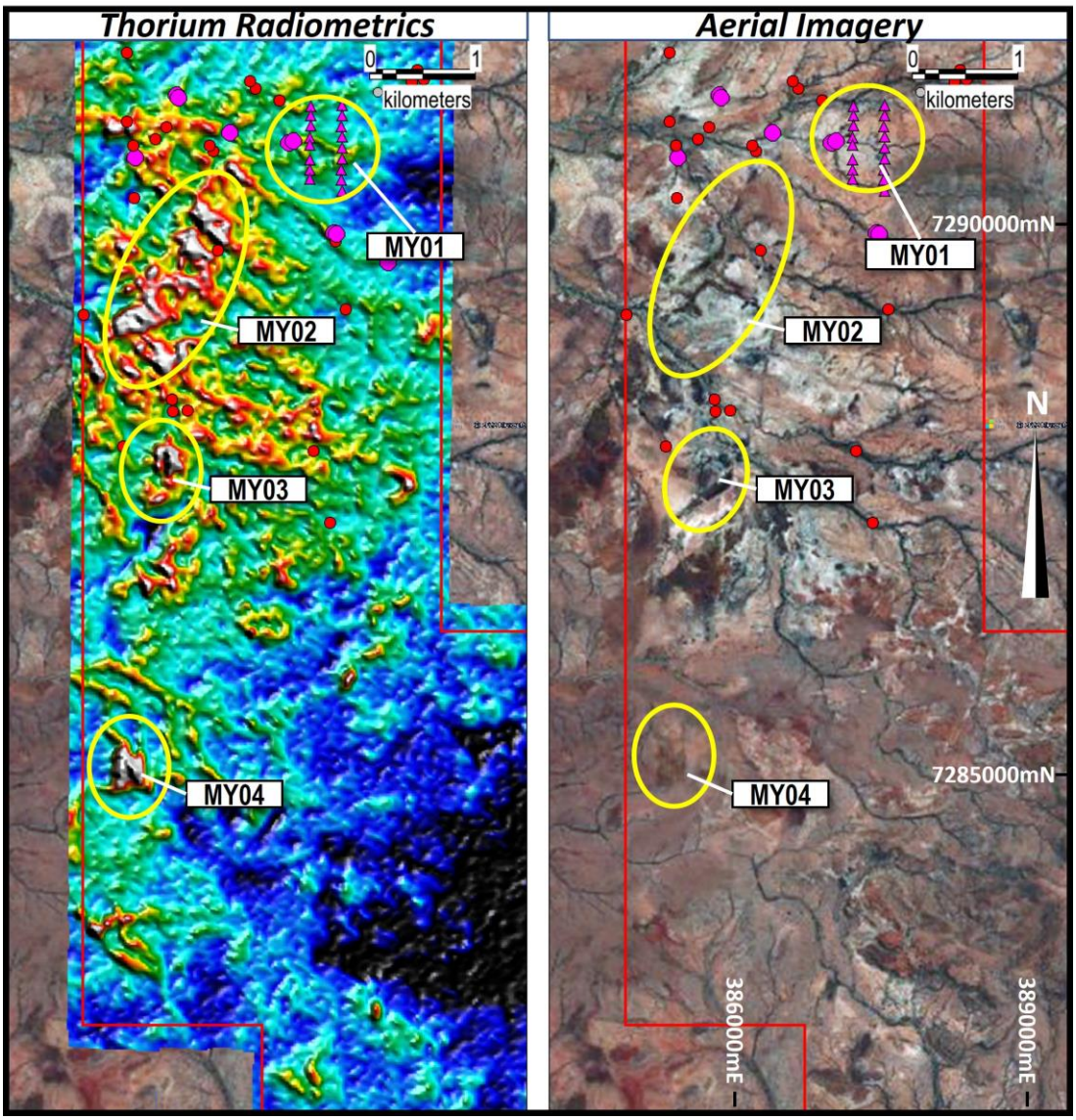

Figure 2: Mt Yaragner area with thorium radiometrics (left) and aerial imagery (right) (grid MGA94 Zone 50).

Mt Yaragner Target 1 (MY01)

The MY01 target area is coincident with previous very high tenor soil sampling of up to 3.8% TREE and immediately upstream from stream sediment samples grading up to 14% TREE (refer to release dated 25 October 2022). The area consists of lag cover (as reported by IGO),[4] and yet there is an evident thorium anomaly approximately 600m x 400m, with evidence of ironstone development (from aerial imagery). This is within the proximity of the high-grade samples.

[4] IGO Newsearch WAMEX Report A99601 (2013)

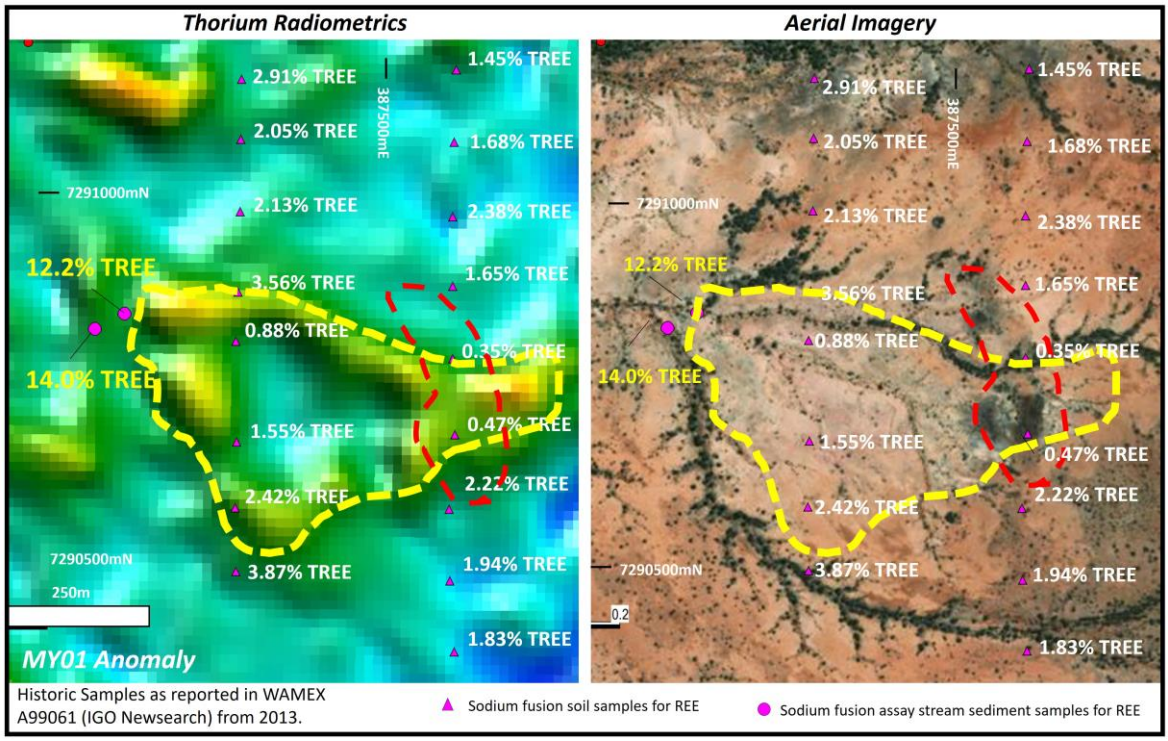

Figure 3: MY01 with thorium radiometrics (left) and aerial imagery (right) showing historic soil and stream sediment samples (grid MGA94 Zone 50). Yellow outline is the radiometric anomaly, and red outline is the iron oxide anomaly interpreted from aerial imagery.

Mt Yaragner Target 2 (MY02)

The MY02 target area is a large thorium anomaly with evidence of iron oxide (interpreted to potentially be ironstone carbonatite covering approximately 1km by 1km area. This target area is immediately upstream from historic stream-sediment sampling with up to 7.4% TREE.

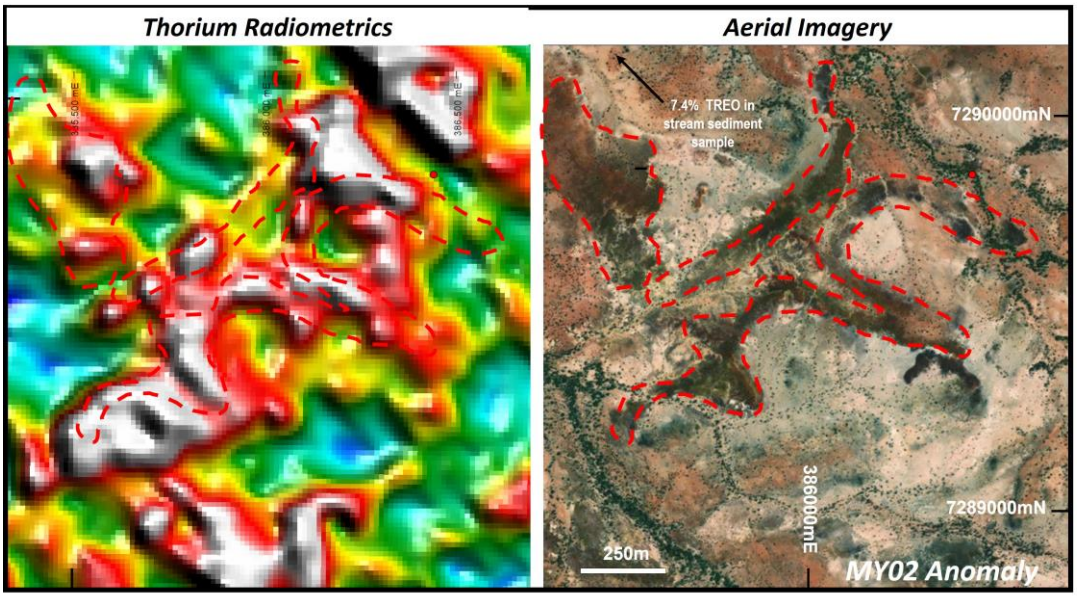

Figure 4: MY02 with thorium radiometrics (left) and aerial imagery (right) (grid MGA94 Zone 50). Red outline is the iron oxide anomaly interpreted from aerial imagery.

Mt Yaragner Target 3 (MY03)

The MY03 target area is a distinct tear-drop shaped large thorium anomaly with a remarkable coincidence of iron oxide (interpreted to potentially be ironstone carbonatite) covering approximately 0.5km by 0.4km area.

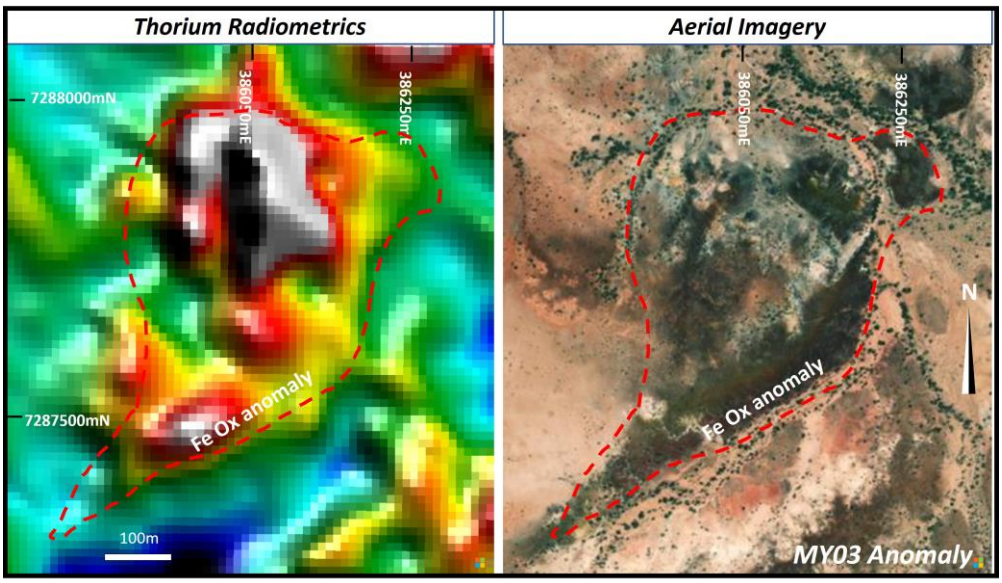

Figure 5: MY03 with thorium radiometrics (left) and aerial imagery (right) (grid MGA94 Zone 50). Red outline is the iron oxide anomaly interpreted from aerial imagery.

Mt Yaragner Target 4 (MY04)

The MY04 target area is one of the strongest thorium anomalies in the dataset and is also coincident with a dark brown anomaly in the aerial imagery (interpreted to potentially be ironstone carbonatite) covering approximately 0.5km by 0.3km area.

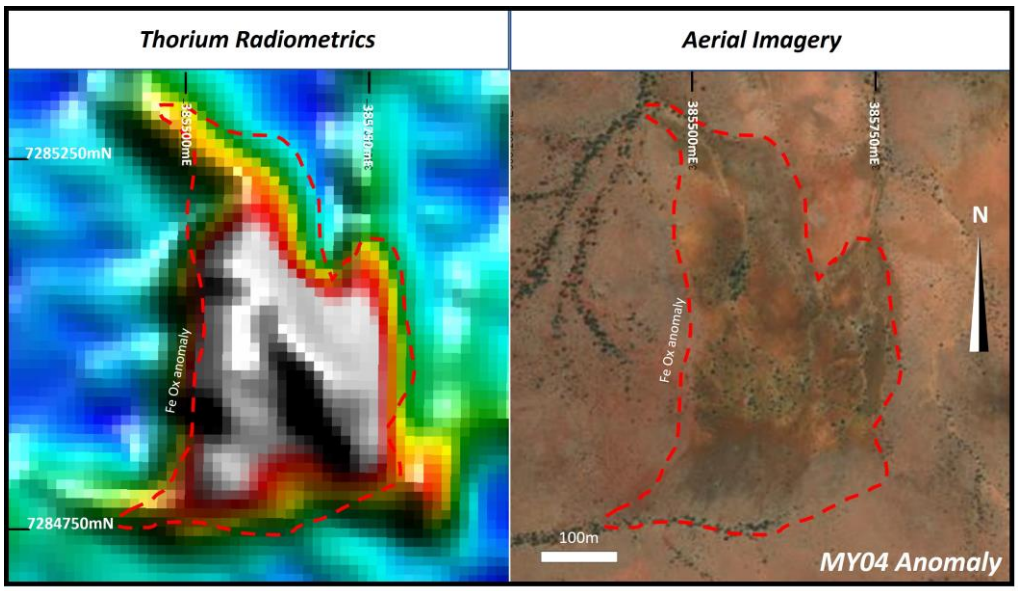

Figure 6: MY04 with thorium radiometrics (left) and aerial imagery (right) (grid MGA94 Zone 50). Red outline is the iron oxide anomaly interpreted from aerial imagery.

Next steps and other work underway

The Lockier Range Project is pending tenement conversion from application to granted license and subsequent completion of acquisition, though the Company believes there is no material obstructions to this completing in the coming months. The work presented herein is preliminary and ongoing processing and modelling of geophysical data is continuing.

Furthermore, the project has several other prospective areas including the potential for lithium-bearing pegmatites. The recently acquired geophysical data, particularly the magnetics, is currently being assessed for applicability for targeting.

The Company is planning field reconnaissance work, subject to approvals, in the first quarter of this year.

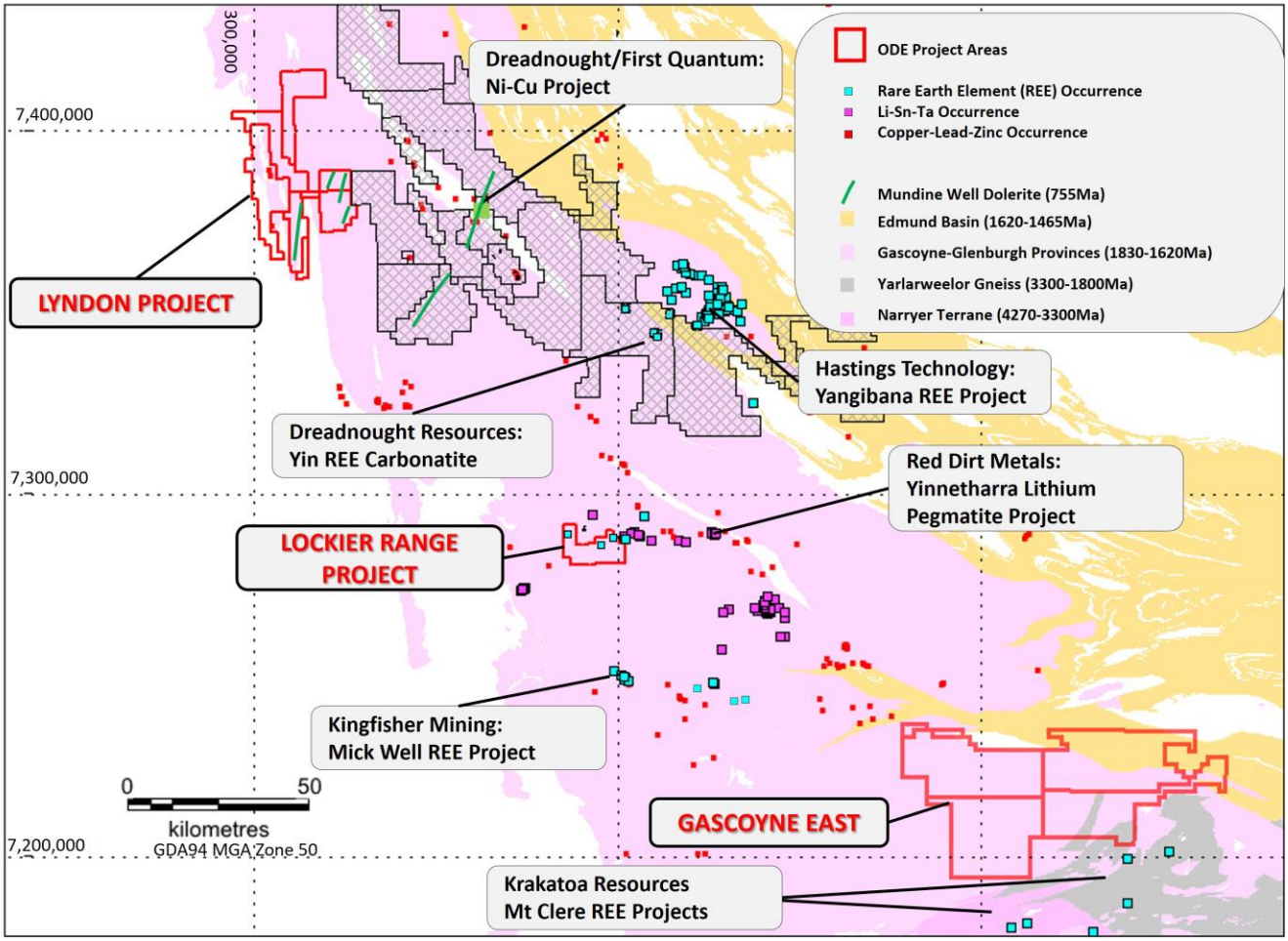

Figure 7: Odessa Minerals' projects in the Gascoyne Region of Western Australia

Reliance on historic data

All sample data reported in this release, as disclosed in the body of the release, has been noted previously in the company release of 25 October 2022. Whilst every effort has been made to validate and check the data, these results should be considered in the context in which they appear and are subject to field verification by the Company.

ENQUIRIES

Zane Lewis – Chairman
zlewis@odessaminerals.com.au

General enquiries:
info@odessaminerals.com.au

David Lenigas – Executive Director
dlenigas@odessaminerals.com.au

Please visit our website for more information and to sign up to receive corporate news alerts:
www.odessaminerals.com.au

Competent Persons Statement

Information in this report relating to historic data and interpretations is based on data compiled by Odessa Minerals and reviewed by Jeremy Peters, who is a Fellow of the Australasian Institute of Mining and Metallurgy and a Chartered Professional Geologist and Mining Engineer of that organisation. Mr Peters is an independent consultant of Burn Shirt Pty Ltd and has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined by the 2012 Edition of the Australasian Code for reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr Peters consents to the inclusion of the data in the form and context in which it appears.

Bibliography

Arrow Minerals WAMEX Report A117396 (2018)
https://geodocs.dmirs.wa.gov.au/Web/documentlist/10/Report_Ref/A117396

Geological Survey of Western Australia (2016), 1:500 000 interpreted bedrock geology of Western Australia. Department of Mines, Industry Regulation and Safety. https://dasc.dmirs.wa.gov.au/

Geological Survey of Western Australia (2016), 80m eTh (thorium) radiometric grid of onshore Western Ausralia. Department of Mines, Industry Regulation and Safety. http://www.dmp.wa.gov.au/Geological-Survey/Regional-geophysical-survey-data-1392.aspx

IGO Newsearch WAMEX Report A99601 (2013)
https://geodocs.dmirs.wa.gov.au/Web/documentlist/10/Report_Ref/A99061

Slezak, P *et al.* Geology and Ore genesis of carbonatite associated Yangibana REE district, Gascoyne Province, Western Australia. *Mineralium Deposita,* 2021

Venus Metals Corporation Limited (ASX:VMC) ASX announcement dated 28 January 2021 – "NARDOO HILL WEST RARE EARTH-Ta-Nb PROJECT NEW HIGHLY ANOMALOUS REE DOMAINS IDENTIFIED WEST OF EMETALS CAIRN HILL REE ANOMALY"

Venus Metals Corporation Limited (ASX:VMC) ASX announcement dated 14 July 2020 – "NARDOO HILL WEST RARE EARTHS & TANTALUM-NIOBIUM PROJECT"

Venus Metals WAMEX Report A128133 (2021)
https://geodocs.dmirs.wa.gov.au/Web/documentlist/10/Report_Ref/A128133

1 JORC CODE, 2012 EDITION – TABLE 1 REPORT TEMPLATE

1.1 Section 1 Sampling Techniques and Data

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

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.*	• All geochemistry sampling is historic and compiled from third party reports as noted; and as previously reported in company release dated 25 October 2022.
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 reported
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.*	• No drilling reported
Logging	• *Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate*	• No drilling reported

Criteria	JORC Code explanation	Commentary
	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.*	
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.*	• All geochemistry sampling is historic and compiled from third party reports as noted; and as previously reported in company release dated 25 October 2022.
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.* • *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.*	• All geochemistry sampling is historic and compiled from third party reports as noted; and as previously reported in company release dated 25 October 2022. GEOPHYSICS AND REMOTE SENSING: Data presented for thorium radiometrics was completed in a 2022 survey by MagSpec Airborne Surveys Ltd. Data collected on 50m North-South line spacing at a 30m flight height. Collected using an RSI RS-500 gamma-ray spectrometer with 1024 channels, 2Hz sample rate, 23L crystal volume, and 2x RASX-4 detector packs. Data presented for satellite aerial imagery is as available via MapInfo software, and is the same photorealistic sirface data presented as publicly available via https://www.bing.com/maps/aerial.
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*	• All geochemistry sampling is historic and compiled from third party reports as noted; and as previously reported in company release dated 25 October 2022.

Criteria	JORC Code explanation	Commentary
	verification, data storage (physical and electronic) protocols. • *Discuss any adjustment to assay data.*	GEOPHYSICS AND REMOTE SENSING: Radiometrics data was compared to regional 80m Geological Survey of Western Australia standard thorium radiometrics and found to illustrate similar anomalies, but with increased resolution. Data was gridded and coloured by company advisors for interpretation purposes.
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.* • *Specification of the grid system used.* • *Quality and adequacy of topographic control.*	• All geochemistry sampling is historic and compiled from third party reports as noted; and as previously reported in company release dated 25 October 2022. a. GEOPHYSICS AND REMOTE SENSING Data collected with 2m accuracy using accumulated GPS readings and base-station. All data converted to MGA94 Zone 50 for use in this release.
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.*	• All geochemistry sampling is historic and compiled from third party reports as noted; and as previously reported in company release dated 25 October 2022. • Data reported, as per the original sources, is for soil and stream sediment sampling and is not sufficient to establish geological continuity and is not appropriate for Mineral Resource and Ore Reserve Estimation.
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.*	• All geochemistry sampling is historic and compiled from third party reports as noted; and as previously reported in company release dated 25 October 2022. • GEOPHYSICS AND REMOTE SENSING Data flown on N-S traverses which is at approximately 30deg angle to regional NW-SE structural geological trend.
Sample security	• *The measures taken to ensure sample security.*	• All geochemistry sampling is historic and compiled from third party reports as noted; and as previously reported in company release dated 25 October 2022. • GEOPHYSICS AND REMOTE SENSING Data was supplied directly by the contractor and has been reviewed by Southern Geoscience Consultants.

Criteria	JORC Code explanation	Commentary
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• All geochemistry sampling is historic and compiled from third party reports as noted; and as previously reported in company release dated 25 October 2022. • GEOPHYSICS AND REMOTE SENSING Data was supplied directly by the contractor and has been reviewed by Southern Geoscience Consultants.

1.2 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 licence to operate in the area.*	• EL09/2649 is an exploration license application in the name of Milford Resources Pty Ltd. Milford Resources has entered into an agreement to transfer the tenement to OD4 Noonies Pty Ltd. Ministerial consent is required to transfer the tenement in the first year of the license. • In turn, the board of OD4 Noonies has entered into a binding agreement to sell OD4 Noonies to Odessa Minerals. As well as the terms outlined in the body of the release, there is a 1% royalty payable to an associated entity of OD4 Noonies on future production.
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• All geochemistry sampling is historic and compiled from third party reports as noted; and as previously reported in company release dated 25 October 2022. b. All sample data reported is based on historic data from select sources namely **WAMEX A99061 (IGO 2013) Stream Sediments; WAMEX A99061 (IGO 2013) Soil Samples; VENUS METALS PRESS RELEASE (28 Jan 2021) and A128133 (2021) Stream Sediments; WAMEX A117396 (ARROW MINERALS 2018) Stream Sediments.**
Geology	• *Deposit type, geological setting and style of mineralisation.*	• The project area is underlain by Proterozoic rocks of the Gascoyne province of Western Australia. Rock types included Durlacher Super Suite Granitoids, Moogie Metamorphics (meta sediments) and Thirty Three Supersuite leucogranites. • Based on rock type, radiometrics and geochemical anomalism the tenement area is prospective for carbonatite hosted rare earth elements comparable in style to the Yangibana Deposit located to the north in a similar geological

Criteria	JORC Code explanation	Commentary
		setting. • Based on the presence of Thirty Three super suite granitoids intruding Durlacher Supersuite, the project area is prospective for lithium bearing pegmatites analogous to the nearby Yinnetharra Pegmatite field.

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:*
	  ○ *easting and northing of the drill hole collar*
	  ○ *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.*
		• No drilling reported.

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.*	• All geochemistry sampling is historic and compiled from third party reports as noted; and as previously reported in company release dated 25 October 2022. • No averaging or cutting is reported by previous explorers. • TREE (total rare earth elements) reported in tables is the element assay for all reported assay results of rare earth group of 15 elements being namely cerium (Ce), dysprosium (Dy), erbium (Er), europium (Eu), gadolinium (Gd), holmium (Ho), lanthanum (La), lutetium (Lu) neodymium (Nd), praseodymium (Pr), promethium (Pm), Samarium (Sm), terbium (Tb), thulium (Tm), ytterbium (Yb); plus 2 other closely related elements namely scandium (Sc) and Yttrium (Y). • GEOPHYSICS AND REMOTE SENSING Data is gridded based on original line information.
Relationship between	• *These relationships are particularly important in the reporting of Exploration Results.* • *If the geometry of the mineralisation with respect to the drill hole angle*	• No drilling reported

Criteria	JORC Code explanation	Commentary
mineralisation widths and intercept lengths	*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 (e.g., 'down hole length, true width not known').*	
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.*	• Maps included in the body of this release.
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.*	• All geochemistry sampling is historic and compiled from third party reports as noted; and as previously reported in company release dated 25 October 2022.
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.*	• All geochemistry sampling is historic and compiled from third party reports as noted; and as previously reported in company release dated 25 October 2022. • GEOPHYSICS AND REMOTE SENSING As detailed in the body of the release.
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.*	• Once the tenement is granted, Odessa Minerals is planning on conducting field reconnaissance work including verification sampling of historic results. Dependent on results of verification sampling, the project area will be subjected to reconnaissance drilling.

1.3