

19 July 2024

## Mabel Creek Gravity Survey Defines Significant Copper-Gold Targets (Revised)

**Petratherm Limited** (ASX: PTR) (**PTR** or the **Company**) provides a revised version of the 4 July 2024 announcement entitled 'Mabel Creek Gravity Survey Defines Significant Copper-Gold Targets'.

The announcement is unchanged except for the inclusion of JORC Table 1.

**ENDS**

This announcement has been authorised for release on the ASX by Company Secretary Katelyn Adams.

For further information:

**Katelyn Adams**

Company Secretary

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19 July 2024

## Mabel Creek Gravity Survey Defines Significant Copper-Gold Targets

### Highlights

- Petratherm is exploring the Mabel Creek Project for Tier-1 sized Iron-Oxide Copper-Gold (IOCG) deposits.
- Recently completed gravity surveying has identified **three high-priority Copper-Gold targets**.
- The new targets are dense, non-magnetic features which may represent iron and copper-gold rich alteration within Proterozoic basement.
- Target BCG1 is a significant IOCG style target, adjacent to historical drilling which intersected copper-bearing hematite alteration.
- Two targets are within 10km of known hematite alteration with modelled densities of 3.4 g/cm<sup>3</sup> which is comparable to known IOCG deposits such as Prominent Hill, Carrapateena and the Oak Dam Project.

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**Petratherm Limited** (ASX: PTR) ("**PTR**" or "**the Company**") is pleased to announce that processing and interpretation of gravity data on the Mabel Creek Copper-Gold Project has identified numerous new iron-oxide copper-gold (IOCG) targets.

Gravity surveys were undertaken by the Company in April this year around the BigNE prospect area where favourable geology and alteration had been identified (Figure 1). Several new gravity anomalies were generated from this work and three of them are considered high-priority drill targets.

The Company is searching for large copper-gold accumulations associated with iron-rich alteration (hematite) that form large dense bodies which can be identified in gravity survey data. Examples of these bodies include BHP's mining operations at Prominent Hill and Carrapateena as well as the massive Oak Dam Project<sup>1</sup>.

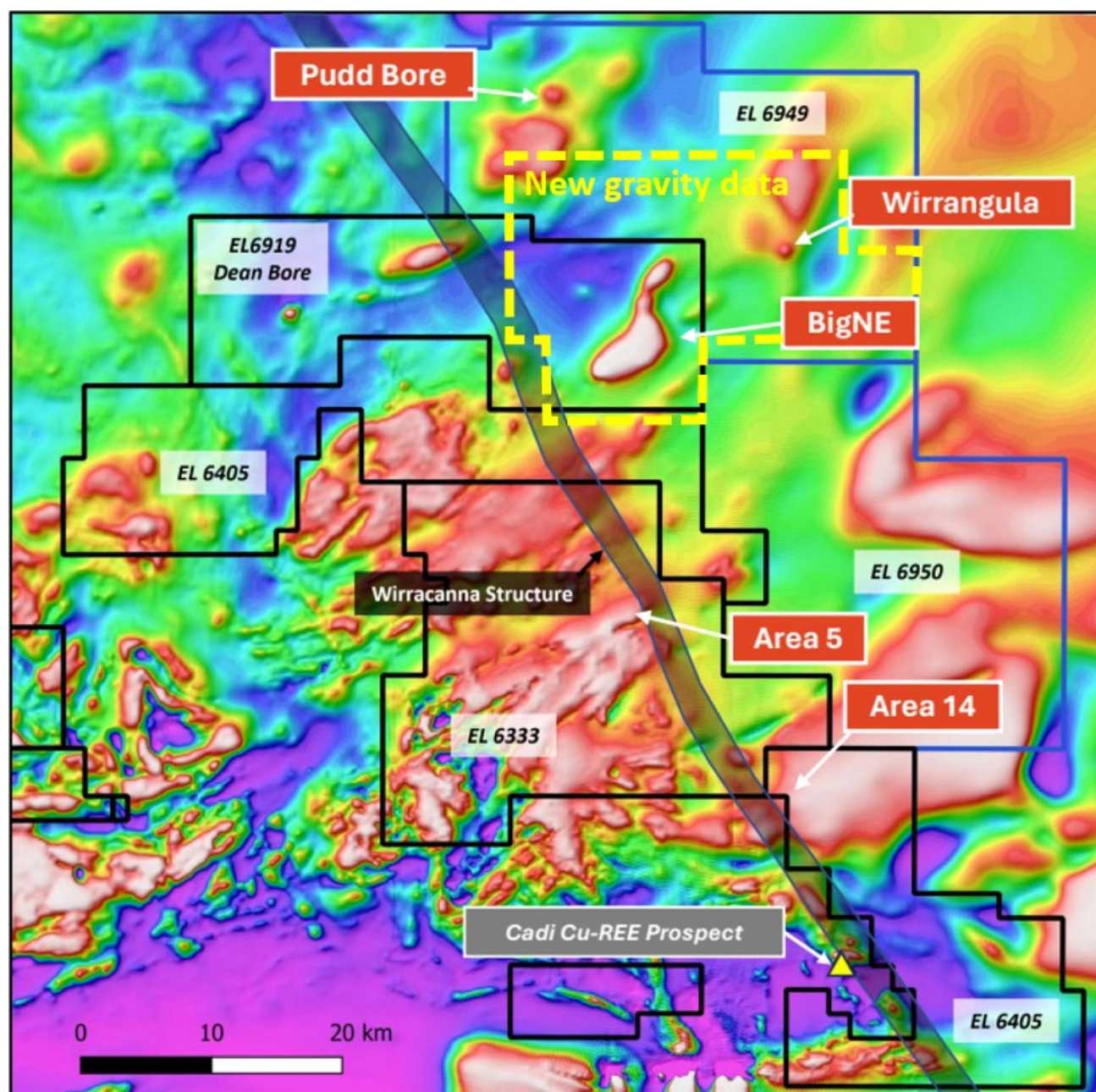
***PTR Chief Executive Officer, Peter Reid, Commented:***

*"A thorough data review indicated that the BigNE area on our Mabel Creek Project has potential to host hematite IOCG deposits similar to Prominent Hill, Carrapateena and Oak Dam, after previous explorers had focused on magnetic targets.*

<sup>1</sup> Refer to Endnote

*“It is extremely encouraging to generate multiple new gravity-only anomalies in this region in our recent survey work. All the known IOCG deposits in the Olympic Province were identified through their gravity signatures.*

*“The computer modelling work undertaken to date has given further weight to our enthusiasm for this area, with our highest priority target less than 2km away from known copper-bearing hematite alteration.”*



**Figure 1** – Magnetic data for PTR's Mabel Creek Project Tenements showing location of new gravity surveys and regional prospects.

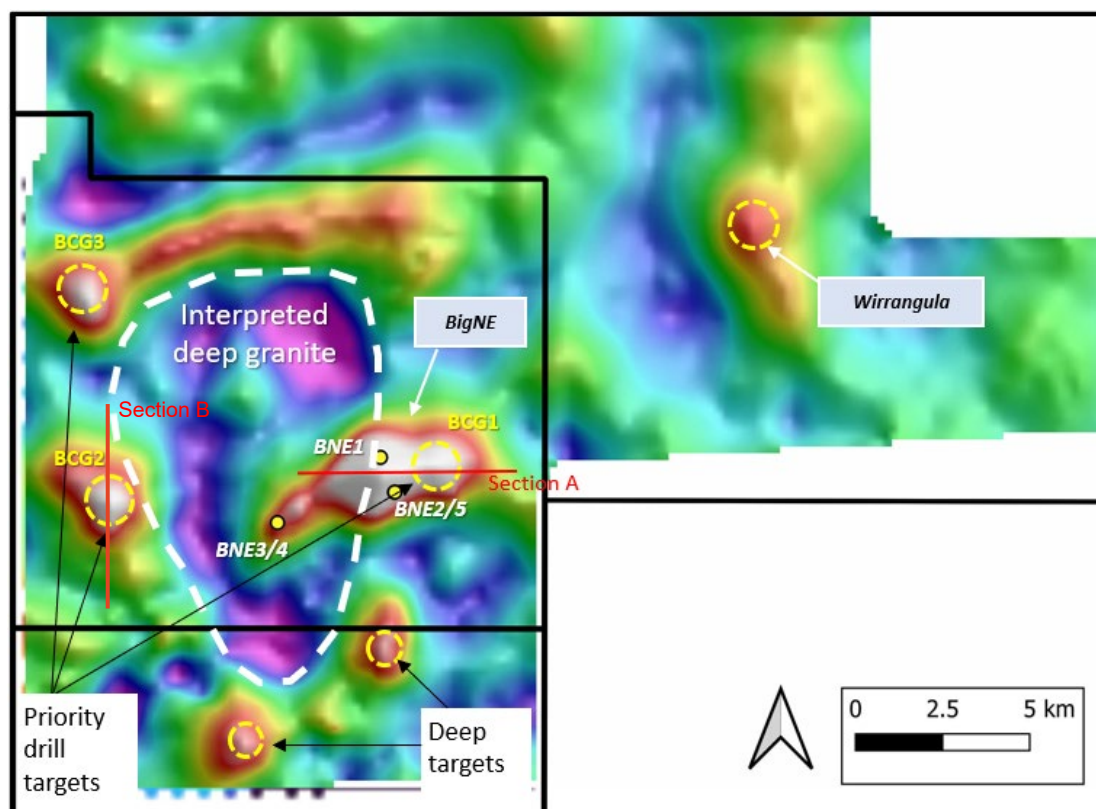


## Gravity Data Modelling

The new gravity data has identified three priority drill targets, all around the edge of a circular gravity low which is interpreted as potentially being caused by an underlying granite intrusion (Figure 2). On the eastern side of the interpreted deep granite are several drill holes drilled by Alliance Resources between 2003 and 2009 which intersected strong iron-rich (hematite) alteration in Proterozoic metasediments overlying strongly magnetic Banded Iron Formation (BIF) units<sup>2</sup>. While the strongly magnetic, deep, BIF units are not considered a target, the dense hematite-only zones have the potential to host IOCG-style copper-gold mineralisation, and in the historical drilling this alteration was associated with strongly elevated copper assays (up to 0.32% Cu over 1.1 metres)<sup>2</sup>. Combined 3D magnetic and gravity inversion modelling was undertaken over this area and a significant gravity-only target, BCG1, was resolved (Figure 3). This target has the potential to be a significant zone of hematite-alteration.

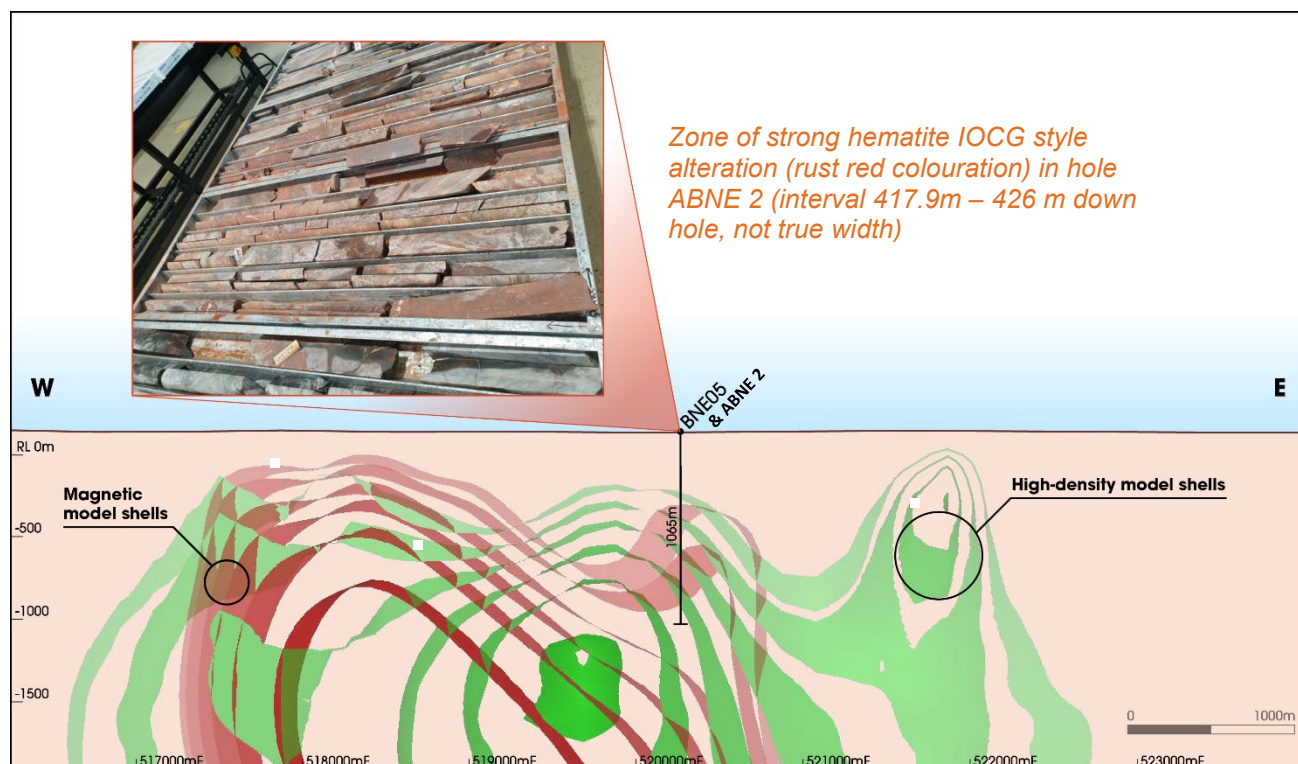
Given the proximity of this target to existing copper-bearing hematite alteration zones, this feature is considered an extremely high priority target with excellent potential to host a large copper-gold deposit.

2D gravity modelling was undertaken on the other gravity features rimming the interpreted deeper granite (Figure 2). To the south the two gravity features modelled as being very dense but deep (>1000 metres below surface), however the two features to the west both produced models of significant density but at depths more amenable to drill testing. For example, the southern of these two features, BCG2, models as a large (450m x 1070m x >4000m) body at 500 metres below surface (Figure 4). The produced model density of 3.4 g/cm<sup>3</sup> is consistent with the measured density of known IOCG deposits in the Olympic Domain.

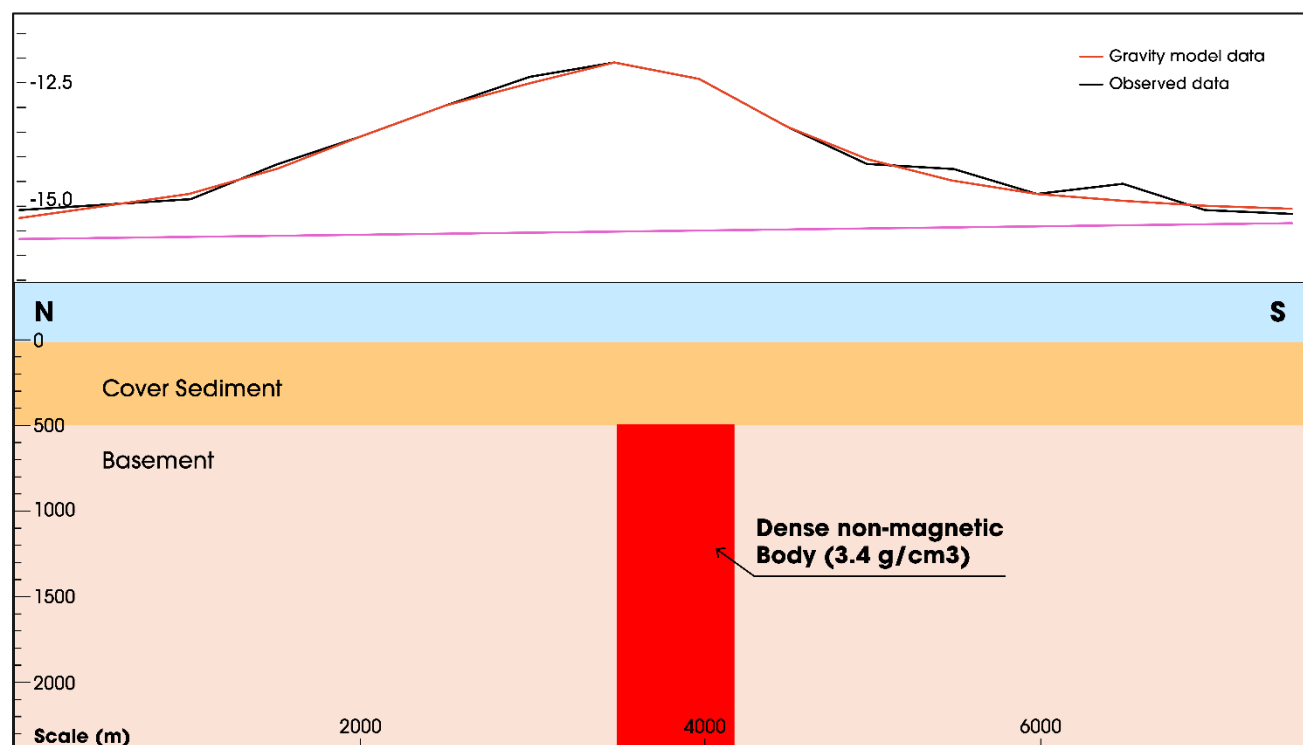


**Figure 2 – New gravity survey data and copper-gold targets.**

<sup>2</sup> PTR ASX Release 14/08/2023 – Significant Copper-Gold Expansion at Mabel Creek



**Figure 3 – Section A – BCG01 target 3D magnetic and gravity inversions with existing drilling.**



**Figure 4 – Section B - Gravity model for BCG2 target.**

## Next Steps

The Company will complete modelling of other targets identified from the gravity survey data (for example Wirrangula) and then rank them in terms of geophysical, geological and structural criteria to select high-priority targets for drill testing. It is anticipated drilling of multiple IOCG targets will commence in the second half of 2024.

**-ENDS-**

This announcement has been authorised for release on the ASX by the Company's Board of Directors.

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## Competent Persons Statement:

The information in this report that relates to Exploration Targets and Exploration Results is based on information compiled by Mr Peter Reid, who is a Competent Person, and a Member of the Australian Institute of Geoscientists. Mr Reid is not aware of any new information or data that materially affects the historical exploration results included in this report. Mr Reid is an employee of Petratherm Limited. Mr Reid has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Reid consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

## Endnote

BHP Group Limited is a producing entity. The purpose of the statement is to illustrate the geological context of the Olympic Province's known Copper and Gold occurrences and the geographical proximity of the Mabel Creek Project.

## About Petratherm Limited

Petratherm Limited (ASX: PTR) is a copper and critical minerals explorer focused on the discovery of world-class deposits in both frontier and mature mineral provinces. The Company has two major exploration projects in the world-class Olympic Copper-Gold Province of South Australia. Work in the region has uncovered Iron-Oxide Copper-Gold style alteration/mineralisation at both its Mabel Creek and Woomera Project Areas. Geophysical targeting work has defined several compelling Tier-1 Copper-Gold targets which the Company is aiming to drill test during the 2024 calendar period.

In addition, PTR has a major project holding in the northern Gawler Craton of South Australia. Recent exploration has uncovered significant concentrations of rare earths over large areas at several prospect sites. The rare earths are associated with a major intrusive complex, which has been found to be highly prospective for other critical minerals including Platinum Group Elements, Vanadium, Chrome and Titanium. This is an early-stage Greenfields project with exceptional upside potential.



*PTR's Project Locations in South Australia*

## EL 6919, EL 6949 & EL6950 JORC Table 1

### Section 1 Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
<b>Sampling techniques</b>	<ul style="list-style-type: none"> <li>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.</li> <li>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</li> <li>Aspects of the determination of mineralisation that are Material to the Public Report.</li> <li>In cases where 'industry standard' work has been done this would be relatively simple (eg '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 Au that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.</li> </ul>	<ul style="list-style-type: none"> <li>Petratherm Limited are reporting the results of a ground-based gravity survey.</li> <li>No drilling results are being reported.</li> </ul>
<b>Drilling techniques</b>	<ul style="list-style-type: none"> <li>Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).</li> </ul>	<ul style="list-style-type: none"> <li>No drilling results are being reported.</li> </ul>
<b>Drill sample recovery</b>	<ul style="list-style-type: none"> <li>Method of recording and assessing core and chip sample recoveries and results assessed.</li> <li>Measures taken to maximise sample recovery and ensure representative nature of the samples.</li> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>No drilling results are being reported.</li> </ul>
<b>Logging</b>	<ul style="list-style-type: none"> <li>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.</li> <li>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.</li> <li>The total length and percentage of the relevant intersections logged.</li> </ul>	<p>No drilling results are being reported.</p>
<b>Sub-sampling techniques and sample preparation</b>	<ul style="list-style-type: none"> <li>If core, whether cut or sawn and whether quarter, half or all core taken.</li> <li>If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.</li> <li>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</li> <li>Quality control procedures adopted for all sub-</li> </ul>	<ul style="list-style-type: none"> <li>No drilling results are being reported.</li> </ul>



Criteria	JORC Code explanation	Commentary
	<p><i>sampling stages to maximise representivity of samples.</i></p> <ul style="list-style-type: none"> <li>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.</li> <li>Whether sample sizes are appropriate to the grain size of the material being sampled.</li> </ul>	
<b>Quality of assay data and laboratory tests</b>	<ul style="list-style-type: none"> <li>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</li> <li>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.</li> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>No drilling results are being reported.</li> </ul>
<b>Verification of sampling and assaying</b>	<ul style="list-style-type: none"> <li>The verification of significant intersections by either independent or alternative company personnel.</li> <li>The use of twinned holes.</li> <li>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</li> <li>Discuss any adjustment to assay data.</li> </ul>	<ul style="list-style-type: none"> <li>No drilling results are being reported.</li> </ul>
<b>Location of data points</b>	<ul style="list-style-type: none"> <li>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.</li> <li>Specification of the grid system used.</li> <li>Quality and adequacy of topographic control.</li> </ul>	<ul style="list-style-type: none"> <li>All maps and locations are in UTM grid (GDA94 Z53). Height observation accuracy 0.023 metres. Station coordinates better than 0.005 metres accuracy.</li> <li>Scintrex CG-5 Autograv gravity meters were used for gravity data acquisition and base station control. Leica GX1230 GNSS receivers were used for gravity station positional acquisition.</li> <li>All gravity and GNSS data were acquired using Daishsat UTV methods, with 2 crews operating concurrently onsite</li> <li>GNSS base station, numbered 1553, was utilised as primary GNSS control for the survey.</li> <li>Data was corrected for terrain effects.</li> </ul>

Criteria	JORC Code explanation	Commentary
<b>Data spacing and distribution</b>	<ul style="list-style-type: none"> <li>• <i>Data spacing for reporting of Exploration Results.</i></li> <li>• <i>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.</i></li> <li>• <i>Whether sample compositing has been applied.</i></li> </ul>	<ul style="list-style-type: none"> <li>• 618 ground gravity survey stations were collected on a 1000 x 500 metre grid.</li> <li>• Grid size allows for accurate gravity modelling of basement gravity anomalies.</li> <li>• No drilling results are being reported.</li> </ul>
<b>Orientation of data in relation to geological structure</b>	<ul style="list-style-type: none"> <li>• <i>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</i></li> <li>• <i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>• The gravity grid is at a sufficient station spacing to determine an accurate portrayal of gravity variations within the target basement.</li> <li>• No drilling results are being reported.</li> </ul>
<b>Sample security</b>	<ul style="list-style-type: none"> <li>• <i>The measures taken to ensure sample security.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Daishsat Geodetic Surveyors provided the gravity data.</li> <li>• The data is stored on secure servers and local computers.</li> <li>• No drilling results are being reported.</li> </ul>
<b>Audits or reviews</b>	<ul style="list-style-type: none"> <li>• <i>The results of any audits or reviews of sampling techniques and data.</i></li> </ul>	<ul style="list-style-type: none"> <li>• A review of the data has been completed by Daishsat Geodetic Surveyors and by an independent geophysical contractor.</li> <li>• No significant errors were located.</li> </ul>

## Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
<b>Mineral tenement and land tenure status</b>	<ul style="list-style-type: none"> <li>• <i>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.</i></li> <li>• <i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>• EL 6919 was granted to Petratherm Ltd (100%) on the 25/07/2023 for a period of 6 years.</li> <li>• EL 6949 and EL 6950 were granted to Petratherm Ltd (100%) on 06/11/2023 for a period of 6 years.</li> <li>• EL 6919, EL6949 &amp; EL6950 are approximately 50km northeast of Coober Pedy overlapping Mount Barry and Nilpinna Pastoral Stations.</li> </ul> <p><b>Native Title Claims:</b></p> <ul style="list-style-type: none"> <li>• SCD2012/002 Arabana &amp;</li> </ul>

Criteria	JORC Code explanation	Commentary
		<p>SCD2011/001 Antakirinja Matu-Yankunyjatjara.</p> <ul style="list-style-type: none"> <li>The tenements are in good standing and no known impediments exist.</li> </ul>
<b>Exploration done by other parties</b>	<ul style="list-style-type: none"> <li>Acknowledgment and appraisal of exploration by other parties.</li> </ul>	<ul style="list-style-type: none"> <li>Previous exploration over the survey area includes regional State Government airborne magnetic and radiometric surveying.</li> <li>Refer PTR ASX announcement 14/08/2023 for Summary Tables and JORC Table 1 information relating to the historical BigNE drilling.</li> </ul>
<b>Geology</b>	<ul style="list-style-type: none"> <li>Deposit type, geological setting and style of mineralisation.</li> </ul>	<ul style="list-style-type: none"> <li>Petratherm is primarily exploring for Iron-Oxide Copper-Gold mineralisation (e.g. Olympic Dam-style) within the Peake &amp; Denison Domain of the Gawler Craton, South Australia.</li> </ul>
<b>Drill hole Information</b>	<ul style="list-style-type: none"> <li>A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: <ul style="list-style-type: none"> <li>easting and northing of the drill hole collar</li> <li>elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar</li> <li>dip and azimuth of the hole</li> <li>down hole length and interception depth</li> <li>hole length.</li> </ul> </li> <li>If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.</li> </ul>	<ul style="list-style-type: none"> <li>No drilling results are being reported.</li> </ul>
<b>Data aggregation methods</b>	<ul style="list-style-type: none"> <li>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.</li> <li>Where aggregate intercepts incorporate short lengths of high-grade results and longer lengths of low-grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.</li> <li>The assumptions used for any reporting of metal equivalent values should be clearly stated.</li> </ul>	<ul style="list-style-type: none"> <li>No drilling results are being reported.</li> </ul>
<b>Relationship between mineralisation widths and</b>	<ul style="list-style-type: none"> <li>These relationships are particularly important in the reporting of Exploration Results.</li> <li>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</li> <li>If it is not known and only the down hole lengths are</li> </ul>	<ul style="list-style-type: none"> <li>No drilling results are being reported.</li> </ul>

Criteria	JORC Code explanation	Commentary
<b><i>intercept lengths</i></b>	<i>reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').</i>	
<b><i>Diagrams</i></b>	<ul style="list-style-type: none"> <li>• <i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>• No drilling results are being reported.</li> <li>• The appropriate figures are incorporated into the body of the report.</li> </ul>
<b><i>Balanced reporting</i></b>	<ul style="list-style-type: none"> <li>• <i>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.</i></li> </ul>	No drilling results are being reported.
<b><i>Other substantive exploration data</i></b>	<ul style="list-style-type: none"> <li>• <i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>• The gravity survey data underwent reprocessing and gridding by an independent geophysical consultant to produce the target models shown in this report.</li> </ul>
<b><i>Further work</i></b>	<ul style="list-style-type: none"> <li>• <i>The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).</i></li> <li>• <i>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</i></li> </ul>	<ul style="list-style-type: none"> <li>• A range of exploration techniques are being considered to progress exploration including additional geophysical surveying to aid drill targeting and future drilling of gravity anomalies.</li> </ul>