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**ASX ANNOUNCEMENT**

**14 November 2022**

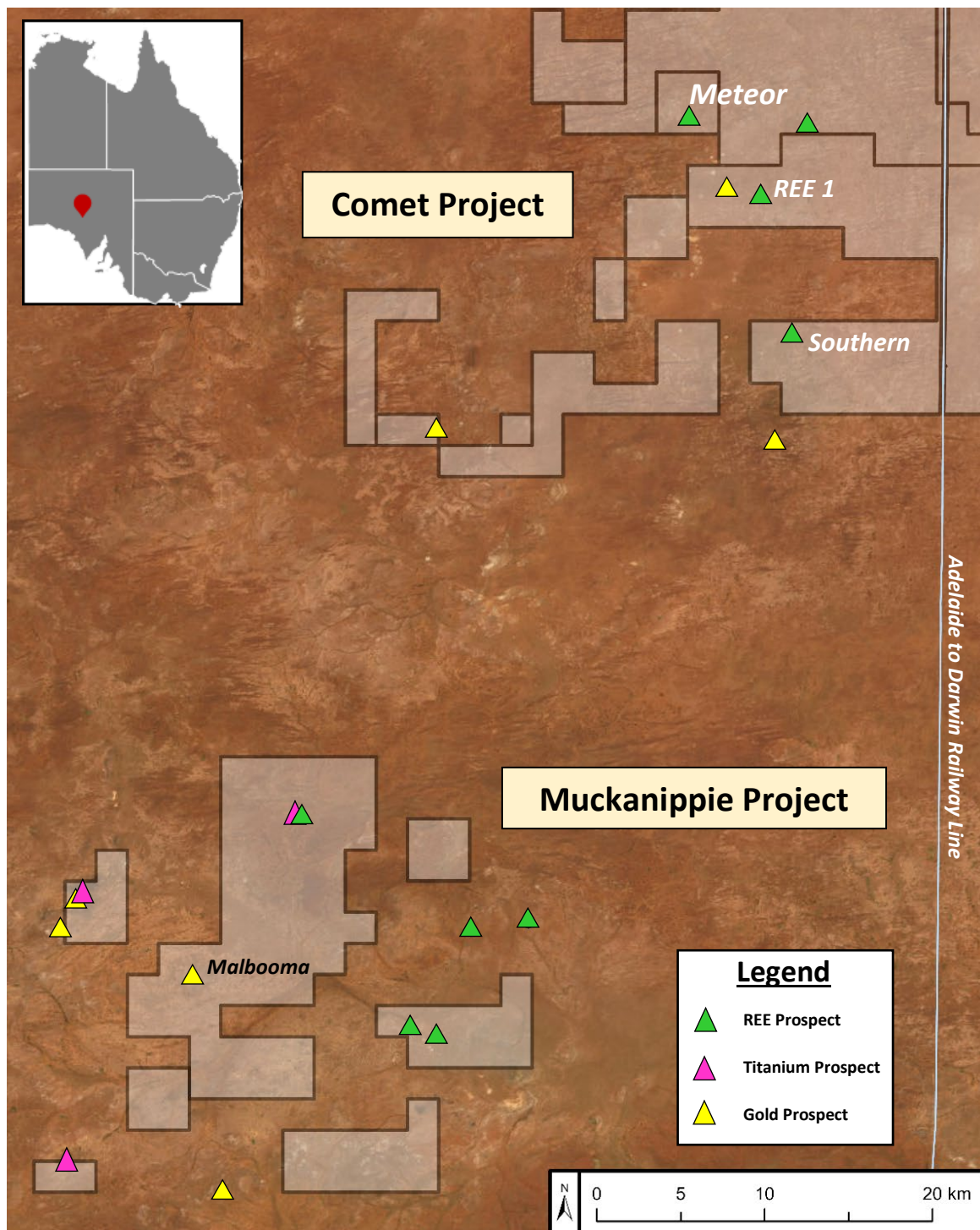
## Muckanippie Project – Tenement Granted

- Muckanippie Exploration Licence (EL 6855) granted over a large anorthosite complex showing evidence for titanium, magnetite iron, rare earths and phosphates
- Review of historical drilling over mafic fraction of the anorthosite complex highlights anomalous titanium-iron and phosphate. **Titanium grades up to 10.5 % TiO<sub>2</sub> recorded.**
- Previous drilling includes - **40m @ 5.5% TiO<sub>2</sub>, 23.7% Fe from 4m** and **94m @ 6.4% TiO<sub>2</sub>, 24.8% Fe from 56m, inc. 12m @ 7.1% TiO<sub>2</sub>, 28.2% Fe from 100m.** Known mineralisation extends from 4 metres below surface to at least 130 metres and remains open. This has been sparsely drilled and follows a magnetic body with a strike length of approximately 2 km.
- Sampling of historical drill core has additionally highlighted areas of anomalous rare earths in the weathered clay profile. Composite samples record up to **1,001 ppm Total Rare Earth Oxide.**
- Globally, anorthosite complexes are a major source of titanium, iron and phosphate with some including high concentrations of rare earths.
- Adelaide to Darwin railway 40 kilometres west of project area offers low-cost connection to markets

Petratherm Limited (ASX: PTR) is pleased to announce that it has received grant of EL 6855 located in the Northern Gawler Craton of South Australia (Figure 1). The tenement covers a 178 km<sup>2</sup> area over the central portion of a regionally extensive layered intrusive sequence known as the Muckanippie Anorthosite Complex (Figures 2 & 3). The layered complex shows evidence of rare earth (REE) and ferro-titanium enrichment.

PTR has an adjacent tenement area (EL 6815) covering an area of 80 km<sup>2</sup> over other portions of the intrusive complex. The licences collectively termed the “Muckanippie Project” make up a new REE and titanium focus exploration region for the Company, building on encouraging REE results at PTR’s Comet Project Area 40 kilometres to the northeast (Figure 1, refer to PTR ASX releases 20/04/2022, 08/08/2022 & 29/08/2022).

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**Figure 1** Muckanippie and Comet Project Areas. REE, Titanium and Gold Prospects.

## Rare Earths at Muckanippie (See Figure 2)

Re-assaying of open file historic government and company drilling has outlined several areas with anomalous REE's in the weathered clay rich profile (Figure 2). In all, 44 holes were re-assayed with one composite sample of the upper saprolite clay horizon and a second composite sample taken at the base of each hole over the saprock zone (refer to Table 2 of significant intercepts). In particular, the broad spaced sampling highlights the central magnetic zone of the Muckanippie Anorthosite Complex (Figure 2) as being highly elevated in REEs ranging between 700 to 1000 ppm Total Rare Earth Oxide (TREO), providing an immediate focus for initial ground exploration works.

## Magnetite Iron and Titanium Dioxide at Muckanippie (See Figure 3)

The Muckanippie Anorthosite Complex includes a number of mafic intrusive bodies and mafic horizons (Figure 3). Limited historical drilling by other explorers has shown broad intervals of highly anomalous titanium and iron, and petrological studies describe abundant apatite, a source of rock phosphate (chemical formula  $\text{Ca}_5(\text{PO}_4)_3(\text{F}, \text{Cl}, \text{OH})$ ) associated with these mafic complexes. Historic drill hole TCP01 (Figure 3) recorded **39m @ 8.7%  $\text{TiO}_2$ , 22.1% Fe** from 55m inc. **10m @ 10.5%  $\text{TiO}_2$  + 22.7% Fe** from 70m. Although no historical phosphate assays were undertaken, later petrological analysis of the core describes **apatite concentrations averaging 7 to 10%** of the total rock mass.

Globally, anorthosite complexes relate to specific geological environments and are reasonably uncommon. However, they have often been found to be a major source of titanium, iron, vanadium and phosphate ores. Table 1 overleaf provides a summary of some notable deposits hosted within anorthosites from around the world. These ores are associated with the mafic portions of the intrusive complex and are generally easily defined using magnetic data as the iron mineralisation associated with the ores is mostly in the form of magnetite.

At Muckanippie, Figure 3 highlights several prominent magnetic areas for follow up. These bodies have only been lightly explored for this style of mineralisation with substantial portions of the prospective magnetic intrusions remaining open for future testing.

PTR's Exploration Manager, Peter Reid, commented –

*"The Muckanippie Anorthosite is a major layered intrusive complex which shows fertility for titanium-iron-phosphate mineralisation. Anorthosites of this type are a major source of these ores globally. The Company is extremely excited with the recent grant of the licence areas and looks forward to hitting the ground running with geophysical programs and drilling planned for the first half of the 2023 calendar period.*

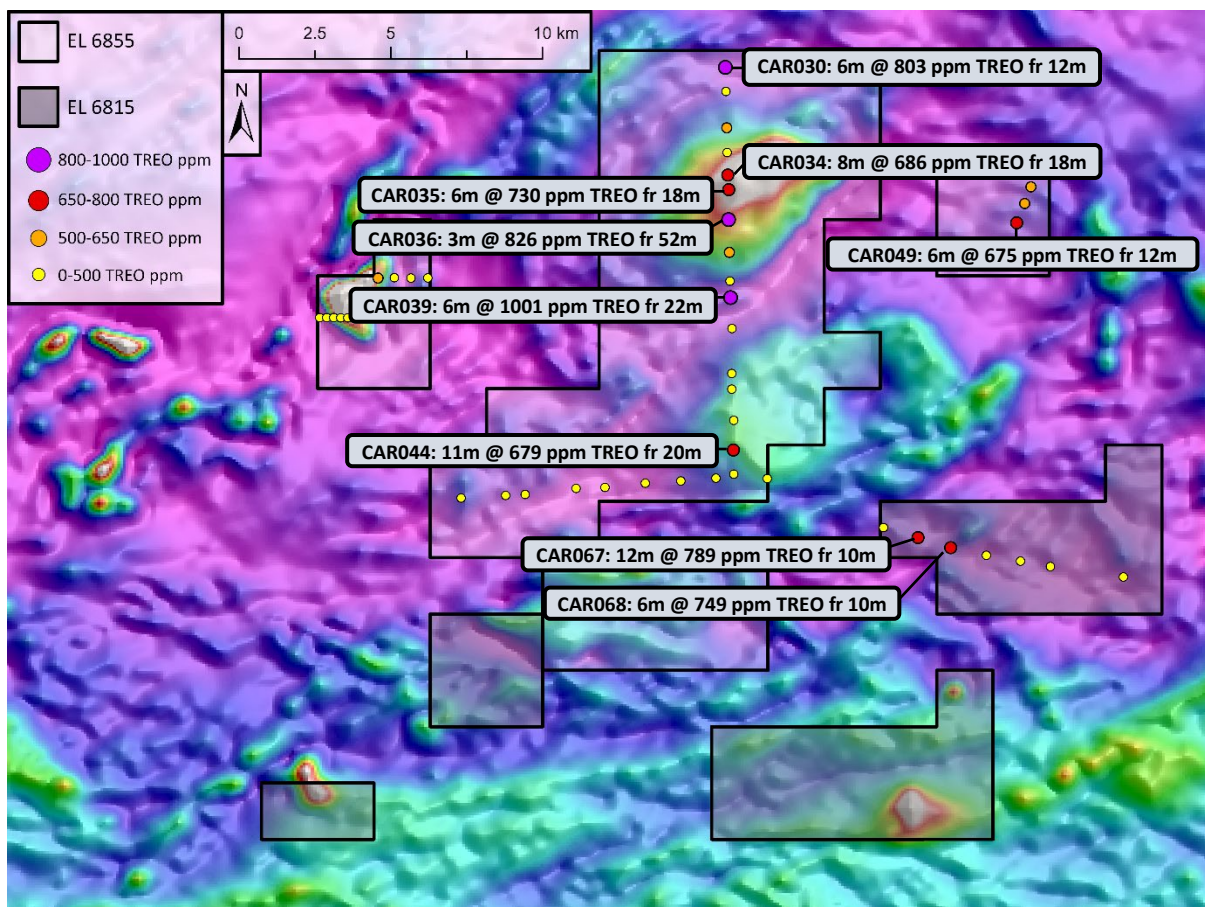
*Looking at potential longer-term upside, the project area is ideally situated just forty kilometres west of the Adelaide to Darwin railway allowing low-cost access to markets."*



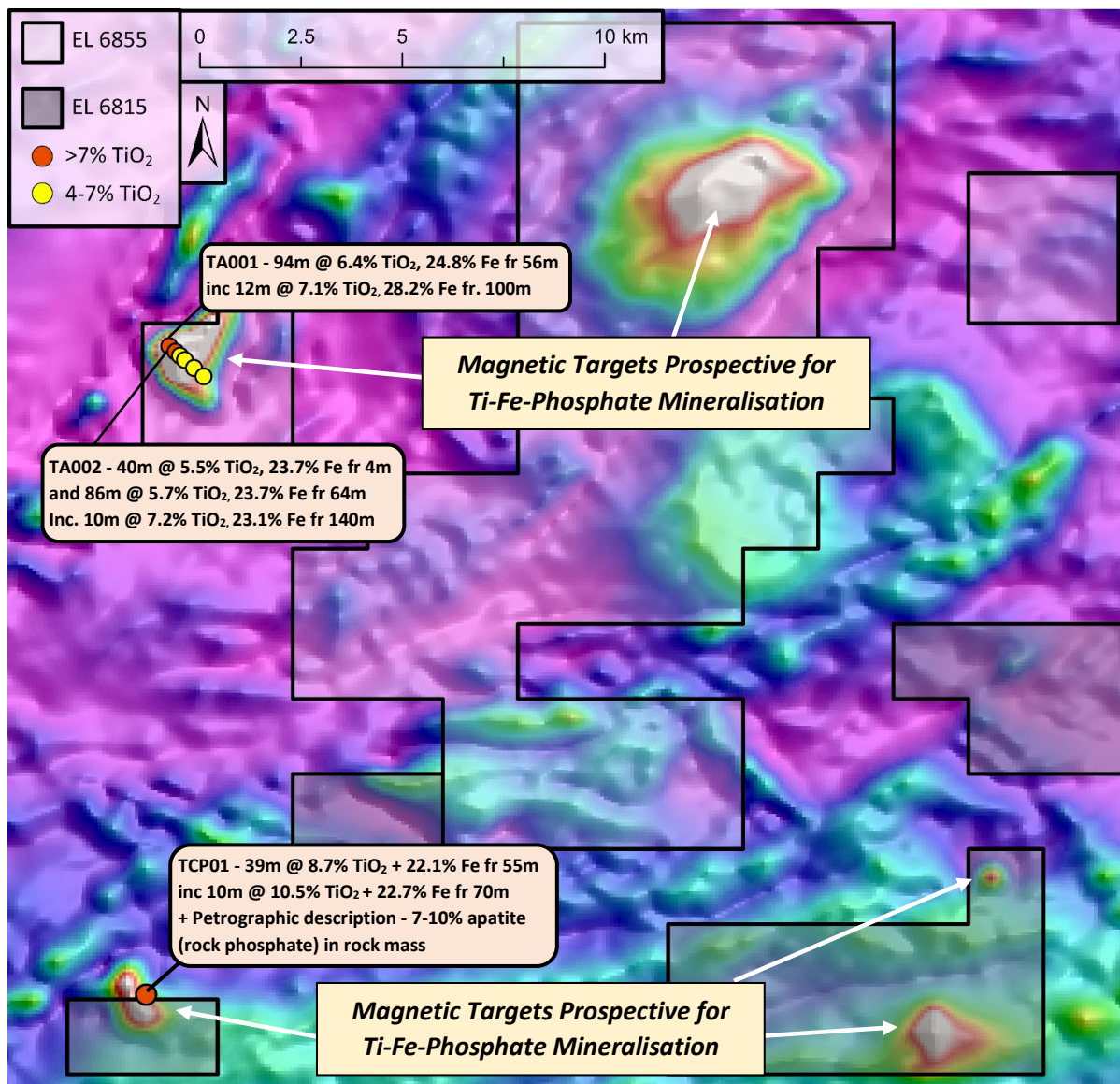
**Table 1 – Examples of Anorthosite Hosted Mineral Deposits from Around the World**

Deposit	Country	Commodities	Characteristics of Deposits*
Lac Tio	Canada	Ti - Fe	138 Mt @ 60% wt. hemo-ilmenite; TiO <sub>2</sub> content ranges between 32-38 wt.%
Tellnes	Norway	Ti	380 Mt @ 18 % TiO <sub>2</sub>
Damiao	China	Fe-Ti-V- P <sub>2</sub> O <sub>5</sub>	resource size unknown - recorded average production of 2Mt of ore per year @ 36 wt.% Fe <sub>2</sub> O <sub>3</sub> , 7.0 wt.% TiO <sub>2</sub> , 0.3 wt.% V <sub>2</sub> O <sub>5</sub> , and 2.0wt.% P <sub>2</sub> O <sub>5</sub>
Lac á Paul	Canada	Ti - P <sub>2</sub> O <sub>5</sub>	472.09 Mt at 6.88% P <sub>2</sub> O <sub>5</sub>

\*Characteristics of Deposits sources: **Lac Tio & Tellnes** - Charlier, B, Namur, O, Bolle, O, Latypov, R & Duchesne, J-C 2015, 'Fe-Ti-V-P ore deposits associated with Proterozoic massif-type anorthosites and related rocks', *Earth-Science Reviews*, vol. 141, pp. 56–81. **Damiao** - Chen, WT, Zhou, M-F & Zhao, T-P 2013, 'Differentiation of nelsonitic magmas in the formation of the ~1.74 Ga Damiao Fe-Ti-P ore deposit, North China', *Contributions to Mineralogy and Petrology*, vol. 165, no. 6, pp. 1341–1362. **Lac á Paul** - proven and probable reserve; 2013 – Arianne Phosphate Inc., NI 43-101 Technical Report - Feasibility Study to Produce 3Mtpy of High Purity Apatite Concentrate at the Lac a Paul Project, Québec, Canada., <https://www.arianne-inc.com/wp-content/uploads/2022/06/43-101.pdf>



**Figure 2** Muckanippie Project – Total Rare Earth Oxide samples overlain on a Magnetic Image. The anorthosite bodies form ring like features and mafic components appear as highly magnetic (red-white) bodies.



**Figure 3** Muckanippie Project – Historical drill holes showing titanium mineralisation. The magnetic bodies outline the major mafic intrusives within the Anorthosite Complex, some of which are yet to be drill tested.

This ASX announcement has been approved by Petratherm's Board of Directors and authorised for release by Petratherm's Chairman Derek Carter.

**For further information please contact :**

Peter Reid (Exploration Manager) Tel: 0435 181 705 E: preid@petratherm.com.au

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 Ltd. 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.

Table 2 – Significant Assay Tables

Muckanippie Project - Titanium Assays (> 5% TiO <sub>2</sub> )					
Drill Hole	From metres	To metres	Interval metres	Fe %	TiO <sub>2</sub> %
TA0001	56	150	94	24.8	6.4
inc	100	112	12	28.2	7.1
TA0002	4	44	40	23.7	5.5
and	64	150	86	23.7	5.7
inc	140	150	10	23.1	7.2
TA0003	8	108	100	20.6	5.2
and	132	140	8	19.5	5.3
TA0005	8	12	4	23.8	6.2
TCP001	55	94	39	22.1	8.7
inc	70	80	10	22.7	10.5

Muckanippie Project - Total Rare Earth Oxide Assays (> 500 ppm)				
Drill Hole	From metres	To metres	Interval metres	TREO ppm
CAR 012	4	10	6	577
CAR 030	12	18	6	803
CAR 032	18	24	6	581
CAR 034	18	26	8	686
CAR 035	18	24	6	730
CAR 036	52	55	3	826
CAR 037	76	80	4	538
CAR 039	22	28	6	1001
CAR 044	20	31	11	679
CAR 047	12	18	6	524
CAR 048	20	26	6	624
CAR 049	12	18	6	675
CAR 067	10	22	12	789
CAR 068	10	16	6	749

Table 3 – Historical Drill Hole Collar Information

Hole ID	EASTING GDA2020 Z53	Northing GDA2020 Z53	RL metres	Dip Deg.	Azimuth Deg.	EOH Depth metres
CAR 009	412444	6662497	184	-90	0	30
CAR 010	413401	6662501	186	-90	0	44
CAR 011	412923	6662488	182	-90	0	50
CAR 012	411982	6662484	186	-90	0	28
CAR 016	414409	6655291	192	-90	0	19
CAR 018	415679	6655390	184	-90	0	22
CAR 019	416229	6655423	182	-90	0	8
CAR 020	417682	6655631	176	-90	0	35
CAR 021	418504	6655669	177	-90	0	30
CAR 022	419651	6655819	174	-90	0	44
CAR 023	420666	6655900	167	-90	0	44
CAR 024	421666	6656000	167	-90	0	31
CAR 025	423129	6655993	165	-90	0	28
CAR 030	421837	6669463	180	-90	0	62
CAR 031	421860	6668673	179	-90	0	54
CAR 032	421892	6667487	178	-90	0	35
CAR 033	421909	6666673	172	-90	0	67
CAR 034	421934	6665936	181	-90	0	55
CAR 035	421964	6665453	182	-90	0	53
CAR 036	421965	6664475	185	-90	0	55
CAR 037	421997	6663404	184	-90	0	80
CAR 038	422020	6662460	186	-90	0	52
CAR 039	422043	6661923	187	-90	0	79
CAR 040	422087	6660905	174	-90	0	29
CAR 041	422094	6659433	167	-90	0	39
CAR 042	422095	6658917	169	-90	0	23
CAR 043	422160	6657901	168	-90	0	25
CAR 044	422156	6656925	167	-90	0	31
CAR 045	422171	6656131	167	-90	0	50
CAR 047	430583	6665608	165	-90	0	56
CAR 048	430410	6665057	162	-90	0	37
CAR 049	430183	6664423	162	-90	0	50
CAR 066	426452	6654414	156	-90	0	16
CAR 067	427434	6654086	158	-90	0	29
CAR 068	428368	6653765	159	-90	0	16
CAR 069	429388	6653524	154	-90	0	24
CAR 070	430364	6653337	158	-90	0	12
CAR 071	431218	6653165	152	-90	0	9
CAR 072	433298	6652832	144	-90	0	5
MKRB265	410330	6661174	195	-90	0	35.5
MKRB267	410530	6661174	195	-90	0	28
MKRB269	410730	6661173	198	-90	0	63
MKRB271	410930	6661174	199	-90	0	48
MKRB273	411130	6661174	194	-90	0	34
TA0001	410962	6662159	NA	-60	315	150
TA0002	411098	6662025	NA	-60	315	150
TA0003	411196	6661927	NA	-60	315	150
TA0004	411302	6661822	NA	-60	315	150
TA0005	411499	6661623	NA	-60	315	100
TA0006	411703	6661422	NA	-60	315	100
TCP001	410474	6646030	191	-60	253	89



## EL6815 & EL6855 (Muckanippie Project) 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><i>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.</i></li> <li><i>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</i></li> <li><i>Aspects of the determination of mineralisation that are Material to the Public Report.</i></li> <li><i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>A total of 98 samples were collected from holes historically drilled over the tenement area. Rock chips were stored and sampled from the South Australia Drill Core Reference Library.</li> <li>Samples were collected as composites from drill chip samples stored in containers. Sampling aimed to test the abundance of REE and other critical minerals in the upper saprolite and along the basement / sap-rock interface.</li> <li>No drilling has been undertaken by Petratherm, although limited historical drilling and sampling exists.</li> <li>Sampling was undertaken using standard industry practices.</li> <li>Historic drill hole information has been sourced from South Australian Government SARIG database records and from open file historic Company reporting. Additional details from historic drilling are unknown.</li> <li>Mineralised intersections were encountered but have not been reported as true widths due to insufficient data spacing and orientation relationship knowledge.</li> </ul>
<b>Drilling techniques</b>	<ul style="list-style-type: none"> <li><i>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.).</i></li> </ul>	<ul style="list-style-type: none"> <li>Historic exploration drilling reported includes RAB &amp; RC.</li> <li>Additional details from historic drilling are unknown.</li> </ul>
<b>Drill sample recovery</b>	<ul style="list-style-type: none"> <li><i>Method of recording and assessing core and chip sample recoveries and results assessed.</i></li> <li><i>Measures taken to maximise sample recovery and</i></li> </ul>	<ul style="list-style-type: none"> <li>No drilling has been undertaken by Petratherm although limited historical</li> </ul>



Criteria	JORC Code explanation	Commentary
	<p><i>ensure representative nature of the samples.</i></p> <ul style="list-style-type: none"> <li><i>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.</i></li> </ul>	<p>drilling exists.</p> <ul style="list-style-type: none"> <li>Additional details from historic drilling are unknown.</li> </ul>
<b>Logging</b>	<ul style="list-style-type: none"> <li><i>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.</i></li> <li><i>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.</i></li> <li><i>The total length and percentage of the relevant intersections logged.</i></li> </ul>	<ul style="list-style-type: none"> <li>No drilling has been undertaken by Petratherm although limited historical drilling exists.</li> <li>Additional details from historic drilling are unknown.</li> </ul>
<b>Sub-sampling techniques and sample preparation</b>	<ul style="list-style-type: none"> <li><i>If core, whether cut or sawn and whether quarter, half or all core taken.</i></li> <li><i>If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.</i></li> <li><i>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</i></li> <li><i>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</i></li> <li><i>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.</i></li> <li><i>Whether sample sizes are appropriate to the grain size of the material being sampled.</i></li> </ul>	<ul style="list-style-type: none"> <li>Samples averaging 250 g were collected for laboratory assay.</li> <li>Laboratory sample preparation included drying, sorting, weighing and pulverizing of submitted samples.</li> <li>Laboratory analytical charge sizes are standard sizes and considered adequate for the material being assayed.</li> </ul>
<b>Quality of assay data and laboratory tests</b>	<ul style="list-style-type: none"> <li><i>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</i></li> <li><i>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.</i></li> <li><i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>Bureau Veritas in Adelaide was used for analytical work. Samples were analysed in the following manner:</li> <li>Lithium Borate Fusion is analysed by Inductively Coupled Plasma Mass Spectrometry for 23 elements.</li> </ul>
<b>Verification of sampling and assaying</b>	<ul style="list-style-type: none"> <li><i>The verification of significant intersections by either independent or alternative company personnel.</i></li> <li><i>The use of twinned holes.</i></li> <li><i>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</i></li> <li><i>Discuss any adjustment to assay data.</i></li> </ul>	<ul style="list-style-type: none"> <li>The Company has queried the results with the Laboratory to verify the accuracy of the results.</li> <li>Rare earth element values have been converted to relevant oxide concentrations as per the industry standard.</li> <li>TREO = <math>\text{La}_2\text{O}_3 + \text{CeO}_2 + \text{Pr}_6\text{O}_{11} + \text{Nd}_2\text{O}_3 + \text{Sm}_2\text{O}_3 + \text{Eu}_2\text{O}_3 + \text{Gd}_2\text{O}_3 + \text{Tb}_4\text{O}_7 + \text{Dy}_2\text{O}_3 + \text{Ho}_2\text{O}_3 + \text{Er}_2\text{O}_3 + \text{Tm}_2\text{O}_3 + \text{Yb}_2\text{O}_3 + \text{Lu}_2\text{O}_3 + \text{Y}_2\text{O}_3</math></li> <li>MREO = <math>\text{Pr}_6\text{O}_{11} + \text{Nd}_2\text{O}_3 + \text{Dy}_2\text{O}_3 + \text{Tb}_4\text{O}_7</math></li> </ul>

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		<table> <tr> <th>Element Name</th><th>Element Oxide</th><th>Oxide Factor</th></tr> <tr><td>Ce</td><td>CeO<sub>2</sub></td><td>1.2284</td></tr> <tr><td>Dy</td><td>Dy<sub>2</sub>O<sub>3</sub></td><td>1.1477</td></tr> <tr><td>Er</td><td>Er<sub>2</sub>O<sub>3</sub></td><td>1.1435</td></tr> <tr><td>Eu</td><td>Eu<sub>2</sub>O<sub>3</sub></td><td>1.1579</td></tr> <tr><td>Gd</td><td>Gd<sub>2</sub>O<sub>3</sub></td><td>1.1526</td></tr> <tr><td>Ho</td><td>Ho<sub>2</sub>O<sub>3</sub></td><td>1.1455</td></tr> <tr><td>La</td><td>La<sub>2</sub>O<sub>3</sub></td><td>1.1728</td></tr> <tr><td>Lu</td><td>Lu<sub>2</sub>O<sub>3</sub></td><td>1.1371</td></tr> <tr><td>Nd</td><td>Nd<sub>2</sub>O<sub>3</sub></td><td>1.1664</td></tr> <tr><td>Pr</td><td>Pr<sub>6</sub>O<sub>11</sub></td><td>1.2082</td></tr> <tr><td>Sc</td><td>Sc<sub>2</sub>O<sub>3</sub></td><td>1.5338</td></tr> <tr><td>Sm</td><td>Sm<sub>2</sub>O<sub>3</sub></td><td>1.1596</td></tr> <tr><td>Tb</td><td>Tb<sub>4</sub>O<sub>7</sub></td><td>1.1762</td></tr> <tr><td>Th</td><td>ThO<sub>2</sub></td><td>1.1379</td></tr> <tr><td>Tm</td><td>Tm<sub>2</sub>O<sub>3</sub></td><td>1.1421</td></tr> <tr><td>U</td><td>U<sub>3</sub>O<sub>8</sub></td><td>1.1793</td></tr> <tr><td>Y</td><td>Y<sub>2</sub>O<sub>3</sub></td><td>1.2699</td></tr> <tr><td>Yb</td><td>Yb<sub>2</sub>O<sub>3</sub></td><td>1.1387</td></tr> </table>	Element Name	Element Oxide	Oxide Factor	Ce	CeO <sub>2</sub>	1.2284	Dy	Dy <sub>2</sub> O <sub>3</sub>	1.1477	Er	Er <sub>2</sub> O <sub>3</sub>	1.1435	Eu	Eu <sub>2</sub> O <sub>3</sub>	1.1579	Gd	Gd <sub>2</sub> O <sub>3</sub>	1.1526	Ho	Ho <sub>2</sub> O <sub>3</sub>	1.1455	La	La <sub>2</sub> O <sub>3</sub>	1.1728	Lu	Lu <sub>2</sub> O <sub>3</sub>	1.1371	Nd	Nd <sub>2</sub> O <sub>3</sub>	1.1664	Pr	Pr <sub>6</sub> O <sub>11</sub>	1.2082	Sc	Sc <sub>2</sub> O <sub>3</sub>	1.5338	Sm	Sm <sub>2</sub> O <sub>3</sub>	1.1596	Tb	Tb <sub>4</sub> O <sub>7</sub>	1.1762	Th	ThO <sub>2</sub>	1.1379	Tm	Tm <sub>2</sub> O <sub>3</sub>	1.1421	U	U <sub>3</sub> O <sub>8</sub>	1.1793	Y	Y <sub>2</sub> O <sub>3</sub>	1.2699	Yb	Yb <sub>2</sub> O <sub>3</sub>	1.1387
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Yb	Yb <sub>2</sub> O <sub>3</sub>	1.1387																																																									
<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 (GD2020 Z53). Drill hole positions have been reproduced from SA Government open file databases and the accuracy of this data is unknown.</li> </ul>																																																									
<b>Data spacing and distribution</b>	<ul style="list-style-type: none"> <li>Data spacing for reporting of Exploration Results.</li> <li>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.</li> <li>Whether sample compositing has been applied.</li> </ul>	<ul style="list-style-type: none"> <li>No drilling or sampling has been undertaken by Petratherm although historical drilling exists.</li> <li>Data spacing is insufficient to establish the degree of geological and grade continuity required for a Mineral Resource estimation.</li> </ul>																																																									
<b>Orientation of data in relation to geological structure</b>	<ul style="list-style-type: none"> <li>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</li> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>No drilling has been undertaken by Petratherm although limited historical drilling exists.</li> <li>The relationship between the drilling orientation and the orientation of key mineralised structures has not been confirmed.</li> </ul>																																																									
<b>Sample security</b>	<ul style="list-style-type: none"> <li>The measures taken to ensure sample security.</li> </ul>	<ul style="list-style-type: none"> <li>Company staff collected laboratory samples.</li> <li>Samples submitted to the laboratory were transported and delivered by Company staff to Bureau Veritas Laboratories Adelaide.</li> </ul>																																																									
<b>Audits or reviews</b>	<ul style="list-style-type: none"> <li>The results of any audits or reviews of sampling techniques and data.</li> </ul>	<ul style="list-style-type: none"> <li>No sampling has been undertaken by Petratherm</li> </ul>																																																									

Criteria	JORC Code explanation	Commentary
		<p>although limited historic sampling exists.</p> <ul style="list-style-type: none"> <li>Additional details from historic drilling are unknown.</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>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.</li> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>EL 6855 was granted on 18/10/22 for a period of 6 years.</li> <li>EL6815 was granted on 12/08/2022 for a period of 6 years.</li> <li>EL6855 &amp; EL6815 are located approximately 120 km south south-west of Coober Pedy overlapping Bulgunnia and Mulgathing Pastoral Stations.</li> <li>The tenement is located within the Woomera Prohibited Area (Green Zone).</li> <li><b>Native Title Claims:</b> SCD2011/001 Antakirinja Matu-Yankuntjatjara.</li> <li>The tenement is 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 work includes;</li> <li><b>Surface Geochemical Sampling:</b> Calcrete</li> <li><b>Airborne Geophysics:</b> Magnetics &amp; Radiometrics.</li> <li><b>Ground Geophysics:</b> Magnetics and Gravity.</li> <li><b>Exploration Drilling:</b> Open file records indicate 195 RAB reconnaissance and prospect scale holes drilled &amp; 9 RC.</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 rare earths and Ti-Fe-P associated with the Muckanippie Anorthosite Complex. Targets include primary basement mineralisation and secondary enrichment in the weathering zone.</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:</li> </ul>	<ul style="list-style-type: none"> <li>No drilling has been undertaken by Petratherm although limited historical drilling exists.</li> </ul>

Criteria	JORC Code explanation	Commentary
	<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> <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>• Details from historic drilling are presented in Table 3. The TA0001-TA0006 series of historic holes have no recorded RL data.</li> <li>• Data sourced from SA Government open file databases and the accuracy of this data is unknown.</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>• All reported drill results are true results as reported by Bureau Veritas.</li> <li>• No assumptions of metal equivalent values were made or used.</li> </ul>
<b>Relationship between mineralisation widths and intercept lengths</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 reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').</li> </ul>	<ul style="list-style-type: none"> <li>• No drilling has been undertaken by Petratherm.</li> </ul>
<b>Diagrams</b>	<ul style="list-style-type: none"> <li>• 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.</li> </ul>	<ul style="list-style-type: none"> <li>• See Figures in main body of release attached.</li> </ul>
<b>Balanced reporting</b>	<ul style="list-style-type: none"> <li>• 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.</li> </ul>	<ul style="list-style-type: none"> <li>• No drilling has been undertaken by Petratherm.</li> </ul>
<b>Other substantive exploration data</b>	<ul style="list-style-type: none"> <li>• 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.</li> </ul>	<ul style="list-style-type: none"> <li>• No other substantive exploration data has been collected by Petratherm.</li> </ul>
<b>Further work</b>	<ul style="list-style-type: none"> <li>• The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).</li> <li>• Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</li> </ul>	<ul style="list-style-type: none"> <li>• A range of exploration techniques are being considered to progress exploration including geophysical surveying and drilling.</li> </ul>