

05 February 2024

Significant Uranium and Gold Targets Identified at Muckanippie

Highlights

- A data review over the recently acquired 100% owned Muckanippie Project area has identified a significant uranium (U) anomaly and numerous gold anomalies.
- Drill hole (MKAC060) records uranium assays up to 58 ppm at shallow depths within a reduced interpreted paleo-channel clay sequence.
- Planning for follow up regional and infill sampling underway.
- Numerous gold anomalous prospect areas have also been identified, including the Malbooma Gold occurrence.
- Gold values up to 22g/t Au returned from Malbooma grab samples from historic diggings.
- Follow up near term groundwork will comprise regional and infill sampling program to define and rank target areas for later drill testing.

Petratherm Limited (ASX: PTR) (“PTR” or “the Company”) is pleased to announce that a review of historical exploration over the Muckanippie Project Area, located in Northern Gawler Craton of South Australia, has identified a significant uranium (U) anomaly hosted in shallow reduced clays within an interpreted paleo-channel sequence. Additionally, the review has highlighted several prospective early-stage gold (Au) anomalous areas.

The Muckanippie Project comprises two 100% owned tenements (ELs 6815 & EL 6855) covering a 258 km² (Figure 1). Petratherm will use the results of the historical review to plan field exploration programs for the coming year.

PTR Chief Executive Officer, Peter Reid Commented:

“The identification of anomalous uranium within paleochannel clays at shallow depth over Muckanippie Project Area, is an exciting development for the Company, that the Company will look to follow up with regional and infill sampling as soon as practicable. In addition, numerous gold anomalies have been identified, and the project includes the Malbooma Gold Prospect where grab samples of up to 22 g/t Au have been reported, providing high priority follow up targets.”

Uranium Potential

In 2007 Uranium SA completed a reconnaissance style regional air-core drilling program in the Muckanippie Region, primarily along station tracks over areas interpreted to possibly represent a paleochannel system. Drill hole MKAC060 reported encouraging uranium assays greater than 50 ppm which is more than 20 times the recorded background uranium reading. The results of the highly anomalous interval are presented in Table 1 with a graphical representation of the mineralised interval shown in Figure 2¹.

Table 1: Significant results from the 2007 Uranium SA air-core drilling program

Hole ID	Depth From	Depth To	Th ppm	U ppm	S %
MKAC060	31	32	32.7	58.9	0.17
MKAC060	32	33	22.5	22.6	0.25
MKAC060	33	34	29	54.6	1.7

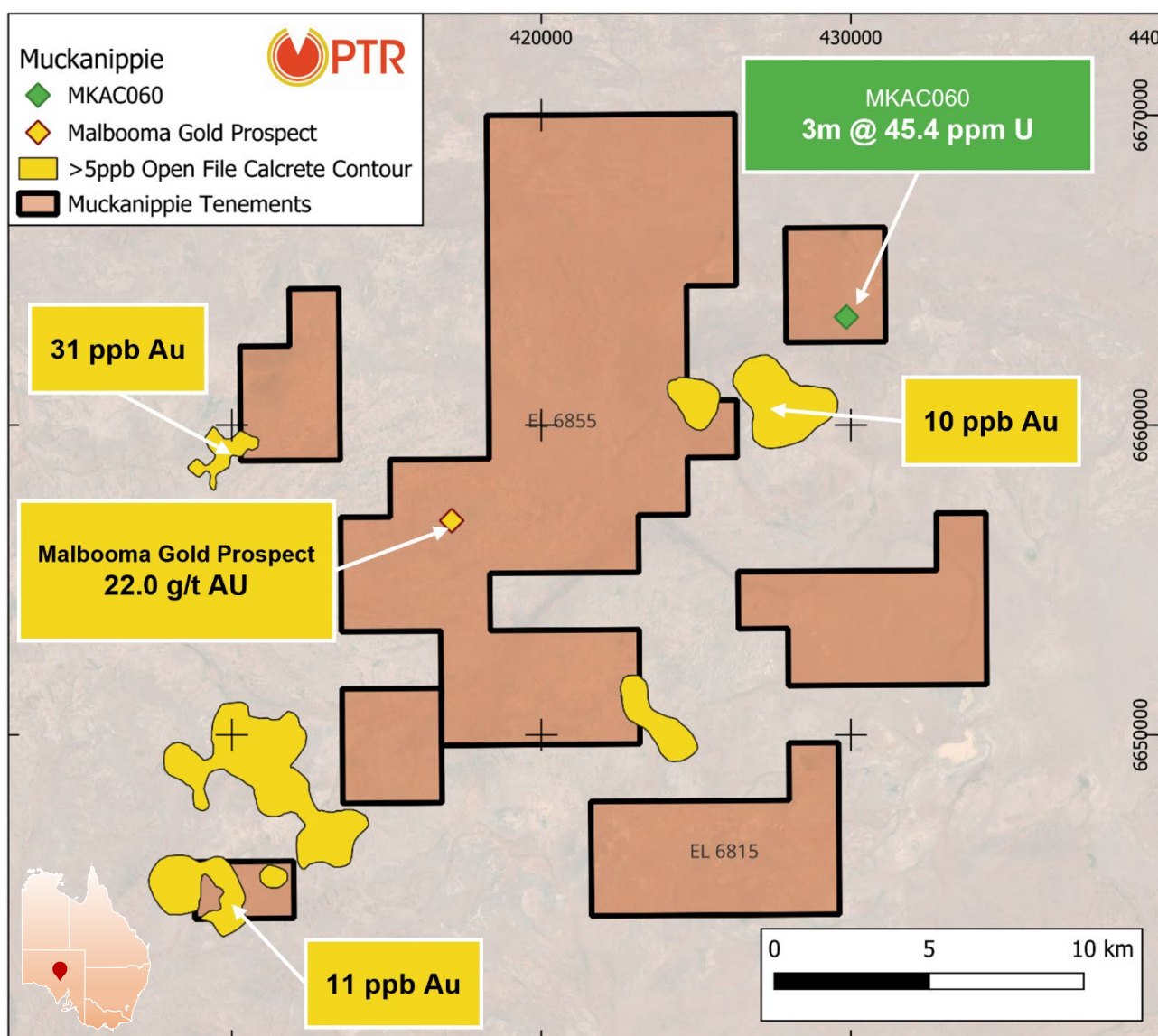


Figure 1 – Regional Location Map of the Muckanippie Project area, and anomalous Uranium and Gold Prospects.

¹ South Australia. Department of Primary Industries and Resources. Open file Envelope, 11353

Logging of the MKAC060 drill core reported the uranium spike is associated with a carboniferous clay interval within a paleochannel sediment (Figure 2). The anomaly whilst recognised at the time as significant has not undergone any follow up exploration.

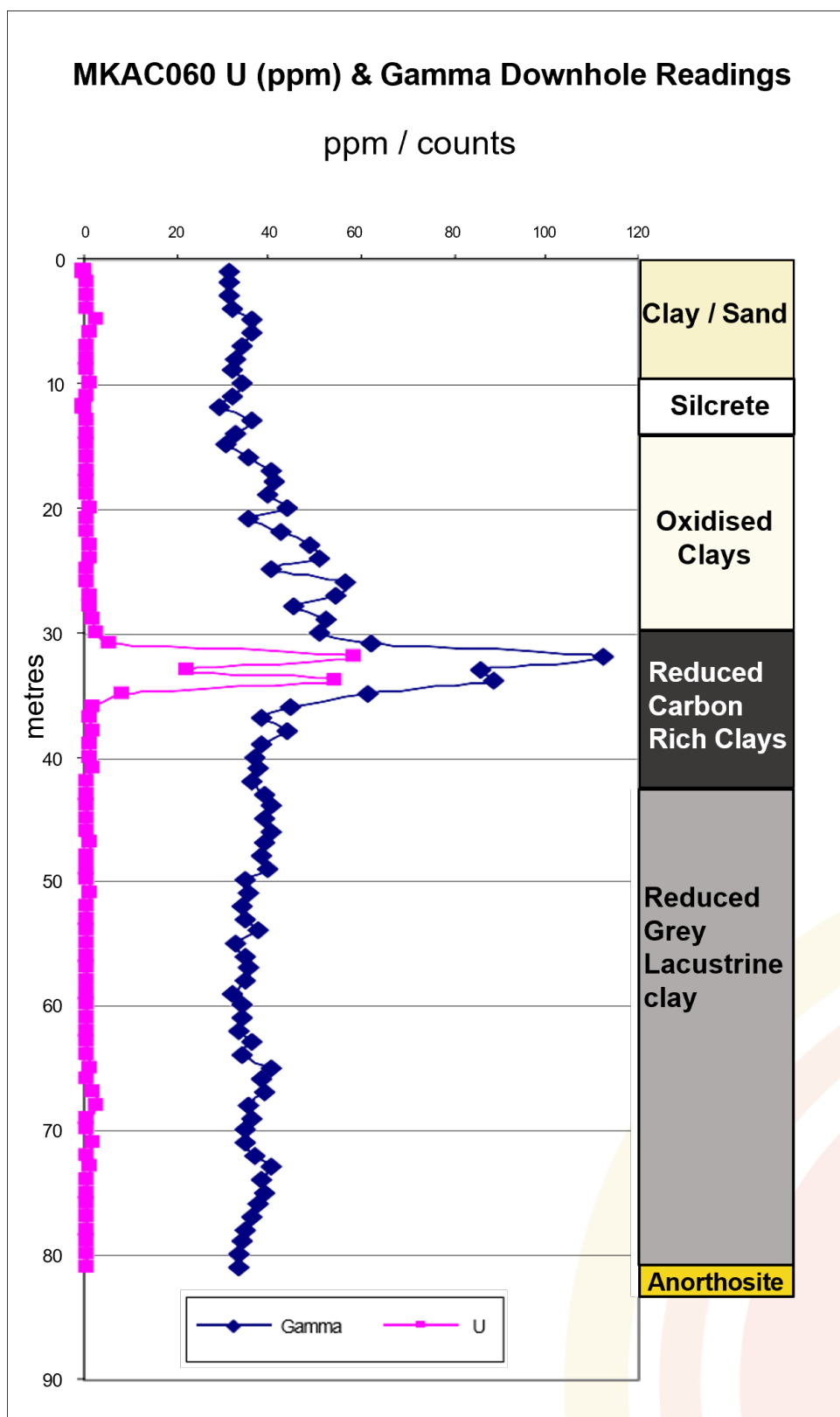


Figure 2 - Downhole recorded gamma for drill hole MKAC060, with reported U (ppm) assays.

Gold Potential

The historic Malbooma Gold Prospect (Figure 1) comprising two outcropping parallel quartz reefs 400 metres apart was first reported by Government geologists in 1908. The quartz lode in each case is up to 1.5 metres wide, trends NNW and extends for approximately 15 metres before passing under cover both north and south. It is unknown how far the quartz reefs may extend under cover. Limited surface and shallow vertical shaft mining of a quartz iron-oxide lode rock has occurred, with no significant exploration having been undertaken since the 1980's. No historical production records exist however mine spoil samples of the ore rock taken by Normandy Exploration in 1997 reported samples between 2 to 11 g/t Au² and an earlier sampling program by CRA in 1982 returned gold values up to 22.0 g/t Au³.

In 1989, junior explorer Tarcoola Gold, completed ground geophysics and follow-up reconnaissance shallow RAB drilling (82 holes, average depth per hole 15 metres) over a portion of prospect area. The drilling immediately adjacent to the main workings reported an ore reef zone with considerable brecciation, and with visible yellow, goethitic box works (after pyrite).

Drill hole MK 12 returned: **16m @ 1.2 g/t Au from 20m to end of hole (EOH)⁴**, with some of the highest grades being reported near EOH – e.g. **4m @ 3.0 g/t Au from 30m**.

Petratherm Geologists have made ground assessment of the historic workings. There has been no deeper drilling evaluating the extent of quartz lode reef at depth or along trend under cover. The high gold grades recorded and evidence of anomalous gold over the broader area (Figure 1) demonstrates that potential exists for a larger gold system in the surrounding areas given over 90% of the project area is blanketed by shallow cover masking the prospective bedrock.

Gridding of the open file South Australian Government Department of Primary Industries and Resources calcrete soil sampling data defines four other areas of anomalous gold requiring follow-up (Figure 1). Figure 1 shows anomalous 5 ppb gold in calcrete outline with a maximum value of 31 ppb Au being recorded. Historic calcrete sampling over most of the project area is very coarse, typically 1km spacing and requires closer spaced sampling to define targets and to explore for other new gold areas.

Next Steps

Follow up near term groundwork will comprise regional and infill calcrete and rock chip sampling program to define and rank target areas for later drill testing. Future work may also include electromagnetic (EM) geophysical surveying which is an effective tool to map out the extent and form of paleochannels over the Muckanippie Project Area.⁵ This work would aid future drill targeting for roll front style uranium.

ENDS

² South Australia. Department of Primary Industries and Resources. Open file Envelope, 08686

³ South Australia. Department of Primary Industries and Resources. Open file Envelope, 04613

⁴ South Australia. Department of Primary Industries and Resources. Open file Envelope, 06823

⁵ Paleochannel clays are typically very conductive in contrast to surrounding weathered basement rock and cover sediment, hence EM geophysics is an effective tool to map extent of channels buried under shallow cover.

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

Table 1 – Mabel Creek Project Drill Hole Details

Hole ID	Operator	East	North	Elevation (Metres)	Collar dip (Deg)	Collar azimuth (Deg)	Hole Depth (Metres)
MKAC060	Uranium SA Ltd	429858	6663489	unknown	-90	000	81
MK12	Tarcoola Gold Ltd	417177	6656953	unknown	-90	000	36

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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.

About Petratherm Limited

Petratherm Limited (ASX: PTR) is a critical minerals explorer focused on the discovery of world-class copper-gold and rare earth deposits. The Company has several advanced drill ready projects in the Olympic Copper-Gold Domain of South Australia. PTR recently announced the discovery of significant concentrations of rare earths hosted in clays in the Northern Gawler Craton of South Australia which are undergoing further drill testing.

Exploration drilling at the Comet Project Area has delineated two major REE occurrences. The Meteor and Artemis REE prospects both occur at very shallow depths, include high-grade blankets of mineralisation showing good lateral extent and ore thickness. Less than 10% of the project area has been explored for REE's and a systematic program of advancement of current prospects, testing of new areas and metallurgical recovery test work is ongoing.

PTR has several exciting copper-gold targets at its Mabel Creek and Woomera Projects located within the Olympic Copper-Gold Trend. Targeting work has defined several compelling Tier 1 Copper-Gold targets and PTR anticipates drill testing of targets will begin from late in 2023 calendar period.



PTR's Project Locations in South Australia

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
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 Au that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.	- No sampling undertaken. - Historic drill hole and calcrete soil information has been sourced from open file public records managed by the South Australian Department of Primary Industries and Resources. - Additional details from historic drilling are unknown. - No drilling has been undertaken by Petratherm, although limited historical drilling and sampling exists. - Mineralised intersections were encountered but have not been reported as true widths due to insufficient data spacing and orientation relationship knowledge.
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.).	- Historic exploration drilling reported includes RAB and air core - Additional details from historic drilling are unknown.
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 has been undertaken by Petratherm although limited historical drilling exists. - Additional details from historic drilling are unknown.
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.	- No drilling has been undertaken by Petratherm although limited historical drilling exists. - Additional details from historic drilling are unknown.
Sub-sampling techniques	- 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	- Not applicable - Details of sampling techniques from historic public data is unknown.

Criteria	JORC Code explanation	Commentary
<i>and sample preparation</i>	<i>appropriateness of the sample preparation technique.</i> <i>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</i> <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> <i>Whether sample sizes are appropriate to the grain size of the material being sampled.</i>	
<i>Quality of assay data and laboratory tests</i>	<i>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</i> <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> <i>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.</i>	- No drilling has been undertaken by Petratherm although limited historical drilling exists. - Additional details from historic drilling are unknown.
<i>Verification of sampling and assaying</i>	<i>The verification of significant intersections by either independent or alternative company personnel.</i> <i>The use of twinned holes.</i> <i>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</i> <i>Discuss any adjustment to assay data.</i>	No drilling has been undertaken by Petratherm although limited historical drilling exists. Additional details from historic drilling are unknown.
<i>Location of data points</i>	<i>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.</i> <i>Specification of the grid system used.</i> <i>Quality and adequacy of topographic control.</i>	All maps and locations are in UTM grid (GDA94 Z53). Drill hole positions have been reproduced from SA Government open file databases and the accuracy of this data is unknown.
<i>Data spacing and distribution</i>	<i>Data spacing for reporting of Exploration Results.</i> <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> <i>Whether sample compositing has been applied.</i>	- No drilling or sampling has been undertaken by Petratherm although historical drilling exists. - Data spacing is insufficient to establish the degree of geological and grade continuity required for a Mineral Resource estimation.
<i>Orientation of data in relation to geological structure</i>	<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> <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>	- No drilling has been undertaken by Petratherm although limited historical drilling exists. - The relationship between the drilling orientation and the orientation of key mineralised structures has not been confirmed.

Criteria	JORC Code explanation	Commentary
Sample security	<i>The measures taken to ensure sample security.</i>	- No sampling has been undertaken by Petratherm although limited historic sampling exists. - Additional details from historic drilling are unknown.
Audits or reviews	<i>The results of any audits or reviews of sampling techniques and data.</i>	- No sampling has been undertaken by Petratherm although limited historic sampling exists. - Additional details from historic drilling are unknown.

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	<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> <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>	- EL 6855 was granted on 18/10/22 for a period of 6 years. - EL6815 was granted on 12/08/2022 for a period of 6 years. - EL6855 & EL6815 are located approximately 120 km south south-west of Coober Pedy overlapping Bulgunnia and Mulgathing Pastoral Stations. - The tenement is located within the Woomera Prohibited Area (Green Zone). Native Title Claims: SCD2011/001 Antakirinja Matu-Yankunyjtjajara. - The tenement is in good standing and no known impediments exist.
Exploration done by other parties	<i>Acknowledgment and appraisal of exploration by other parties.</i>	- Previous exploration work includes; Surface Geochemical Sampling: Calcrete Airborne Geophysics: Magnetism & Radiometrics. Ground Geophysics: Magnetism and Gravity. Exploration Drilling: Open file records indicate 195 RAB reconnaissance and prospect scale holes drilled & 9 RC.
Geology	<i>Deposit type, geological setting and style of mineralisation.</i>	Petratherm is exploring for gold, uranium and rare earths associated with the Muckanippie Anorthosite

Criteria	JORC Code explanation	Commentary
		Complex. Targets include primary basement mineralisation and secondary enrichments in paleochannels and in the weathering zone.
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 has been undertaken by Petratherm although limited historical drilling exists. - Data sourced from SA Government open file databases and the accuracy of this data is unknown.
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.	- No drilling has been undertaken by Petratherm. - No assumptions of metal equivalent values were made or used.
Relationship between mineralisation widths and intercept lengths	- These relationships are particularly important in the reporting of Exploration Results. - If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported. - 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').	No drilling has been undertaken by Petratherm.
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.	See Figures in main body of release attached.
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.	No drilling has been undertaken by Petratherm.
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	No other substantive exploration data has been collected by Petratherm.

Criteria	JORC Code explanation	Commentary
	<i>characteristics; potential deleterious or contaminating substances.</i>	
<i>Further work</i>	<i>The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).</i> <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>	A range of exploration techniques are being considered to progress exploration including soil sampling, geophysical surveying, and drilling.