

ASX ANNOUNCEMENT

29 APRIL 2024

QUARTERLY ACTIVITIES REPORT FOR THE PERIOD ENDED 31 MARCH 2024

“The March quarter was highlighted by another round of key milestones for our exploration program at Sandy Mitchell’s, Ark’s flagship Rare Earths development project in North Queensland. The company announced the receipt of all assays from our comprehensive 144-hole Stage 1 drill programme, with consistent REE mineralisation which further confirmed the project’s development potential— especially when combined with recent beneficiation test work which showed that Sandy Mitchell sands make a high-grade rare earth concentrate with robust recoveries using low-cost gravity processes. Already, we can see that Sandy Mitchell is developing into a unique Australian-based Rare Earths project which is attracting the attention of investors and commercial development partners. The Company has an exciting round of upcoming news flow in the June quarter, highlighted by the forthcoming release of the maiden Mineral Resource Estimate for Sandy Mitchell. Metallurgical test work with expert independent processing firm, Mineral Technologies, also remains ongoing, with final results to be incorporated into a Scoping Study ahead of a planned Pre-Feasibility Study later in 2024.” **Roger Jackson, Executive Chairman.**

EXPLORATION HIGHLIGHTS FOR THE QUARTER

- 100% of assays for the Stage 1 air core drill programme at Ark’s 100%-owned Sandy Mitchell Rare Earth Project have now been received (refer fig 2).
- Results continue to confirm significant Rare Earth Element (REE) and Heavy Mineral (HM) intercepts in every meter sampled, consistent with previous results at a slightly higher average grade.
- The final round of Stage 1 assays returned an average grade per-metre for Total Rare Earth Oxide (TREO) + Yttrium (Y) + Scandium (Sc) of 511 parts-per-million (ppm), with a maximum grade of 3525 ppm (refer to fig 3).
- The average Zirconium oxide grade for every meter assayed is now 445 ppm with a maximum grade of 7170 ppm.
- 1,488m drilled in the Stage 1 programme with 2,426m drilled in Stage 2 which extended average metre depths from 10.5m to 12.9 m (refer to fig 4).
- The ongoing receipt of consistent REE and HM grades from the Stage 1 programme continues to validate Ark’s stated development strategy for Sandy Mitchell based on low-cost, straight-forward beneficiation by gravity processing.
- Assay results from Stage 1, along with Stage 2 drilling and ongoing test work, will form the basis of a Maiden Mineral Resource Estimate (MRE) under the 2012 JORC code.
- The Maiden MRE is expected to form the basis of a Pre-Feasibility Study (PFS), which will be prepared in collaboration with third-party mineral processing specialists to optimise future project economics.

CORPORATE HIGHLIGHTS FOR THE QUARTER

- **Memorandum of Understanding (MOU) with Currumbin Minerals, which sets out a framework for the supply and delivery of Heavy Mineral Sands (HMS) from the Sandy Mitchell Rare Earths and Heavy Minerals Project for processing at CM's licenced treatment plant.**
- **The parties will undertake to negotiate a price for Currumbin Minerals to treat HMS ore and produce HM and Rare Earths critical minerals concentrate, to be sold by Ark Mines at commercial market rates**
- **Currumbin Minerals operates Australia's latest-technology heavy mineral sands gravity, electrostatic and magnetic processing plant based in Queensland; it remains owned and operated by the Neumann Family, who have been involved in heavy mineral sand production for over 70 years**
- **The MOU provides a framework for the parties to move towards a definitive collaboration agreement, where Currumbin Minerals will leverage its extensive industry experience and work directly with Ark Mines to optimise end-to-end logistics**

Drill works programme.

100% of Stage 1 assays have now been received (see **Figure 2**). With no cut-off grade and no top cut grade, the average grade of Total Rare Earth Oxides (TREO) + Yttrium (Y) + Scandium (Sc) is now 510.5 ppm (see **Figure 3**). This represents an increase from the previous reported average of 498.7 ppm, based on the initial 82% of assays (*refer ASX Announcement 7 February 2024*).

Further, the assay grades received to-date continue to compare well with the material sent to Downer Mineral Technologies ('Downer') for gravity concentration beneficiation testing (*refer ASX Announcement 24 November 2023*), which had raw grades at a lower 463.0 ppm, and yielded a 51.9% TREO (519,000ppm) concentrate with recovery of 84%.

Application of a typical experimental selection criterion demonstrates the overall homogeneity of the mineralisation: At a cut-off grade of 200 ppm (only material of 200ppm TREO or greater is selected), results in TREO+Y+Sc now upgrade from 510.5 ppm to 535.5 ppm, with rejection of only 6.4% of results. This suggests that the majority of mineralisation in the Stage 1 area may be viable and result in a low-cost bulk mineable resource.

The results are further bolstered by economically significant by-product grades in titanium and zirconium. With 100% of Stage 1 assays now received, the observed grades of raw, un-cut, FeTiO₃ now averages 11,882.1 ppm and go as high as 195,211.5 ppm (19.5%). TiO₂ grades contribute a further 650.5 ppm and go as high as 10,687.4 ppm. Raw ZrO₂ grades average 445.3 ppm and go as high as 7,169.6 ppm with a further contribution to zircon mineral grades from an average 10.7 ppm HfO₂, with a max of 162.1 ppm. All of these heavy mineral by-products are amenable to a similar beneficiation process by low-cost gravity concentration.

The assay returns together with geological logging and modelling of the data will inform Ark's maiden JORC 2012 estimation in the resource grid area. To reiterate the potential scale of the project, Stage 1 drilling to date covers an area of only 1.4 km²; representing just 1% of the peak radiometric reading on the lease which covers 147km² (see **Figure 5**).

Work on the maiden MRE is set to commence as soon as the full set of assay results are returned, which will then be followed by results from the Stage 2 drill program which was completed in December 2023. Ark then plans to validate the data with a Stage 1 model that will precede a more detailed model of the total 360 ha grid area.

Resource drilling at Sandy Mitchell has been divided into two stages: Stage 1 (1,488.3 m on 144 air core holes by Saxon), and Stage 2 (2,425.8 m on 187 air core holes by AED).

The full resource grid is now complete for a total of 3,914 m on 331 air core holes, covering an area of 3.6 km² on a staggered 120 m x 120 m pattern with a 0.7 km² higher resolution portion infilled at 60m x 120m, to support statistical investigations. Stage 1 is approximately a third of the total drilling grid and includes the high-resolution area (see **Figure 2**).

All holes were sampled by the metre and split to yield a representative sample, with 1 in 40 further split to yield a representative duplicate. All representative samples and duplicates have been dispatched to North Australian Laboratories for sodium peroxide fusion with an inductively coupled plasma mass spectrometer finish on a full multi-element REE, HM and accessory mineral suite, plus gravimetric bulk density and moisture.

SANDY MITCHELL - Metallurgical Test Work on Mineral Sands

Metallurgical test work with expert independent processing firm, Mineral Technologies, remains ongoing with final results to be incorporated into a Scoping Study at Sandy Mitchell ahead of a planned Pre-Feasibility Study

Product Description	Mass %	La ₂ O ₃	CeO ₂	Pr ₆ O ₁₁	Nd ₂ O ₃	Tb ₄ O ₇	Dy ₂ O ₃	Y ₂ O ₃	TREO
	to Grav. Fd	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%
Gravity Feed	100	216	462	55	204	3	11	45	0.11
Gravity Concentrate	1.13	12,784	27,516	3,153	11,407	139	512	1,880	6
REM concentrate	0.08	109,891	235,853	26,942	97,393	1,176	4,109	13,843	52

Table 1: Progressive characterisation mass and rare earth oxide assays by laser ablation ICP-MS.

REM: Rare earth mineral concentrate.

TREO: Total rare earth oxides.

The metallurgical characterisation was performed using approximately 55kg of feed material sourced from medium grade Sandy Mitchell drill cuttings. (refer to image 5) Bench scale equipment was used to assess the response of the sample to conventional beneficiation techniques and show product purity after each stage of separation. This simulated industrial process plant stages with aims:

- Size classification to remove slimes, trash oversize and prepare sand suitable for beneficiation,
- Gravity separation and dense media separation to recover the valuable heavy mineral components to concentrate, (image 4)
- Mechanical attrition to clean mineral surfaces, followed by froth flotation to extract rare earth minerals,
- Magnetic separation to perform a final upgrade of the flotation rare-earth concentrate.

Cerium Oxide (CeO₂) is used throughout testing as a rapidly assessable marker for monazite, the mineral which carries the majority of rare earth elements. Since CeO₂ can be measured instantaneously by pXRF and a response overlap in the result means that such measurements capture several rare earth elements, allowing a reasonable representation of the mineral itself. CeO₂ grades were used for initial sample selection by Ark, as well as throughout testing by Downer Mineral Technologies.

The CeO₂ recovery of gravity feed reporting to the rare earth mineral concentrate was 71.7%. However, Mineral Technologies measured that 16.9% of CeO₂ was trapped within intermediate material streams, and calculated that in a normal recirculating gravity plant, overall recovery of 83.8% may be achieved.

The majority of this upgrade was achieved on the two stages of Wilfley table processing (see image 4), simulating rougher and cleaner stages of a gravity plant, with a 52:1 upgrade (0.05% CeO₂ to 2.61% CeO₂) and 50% mass rejection. The accessory zirconium oxide upgrade was similarly encouraging at 0.03% upgrading to 2.36%.

Subsequent froth floatation stages produced only minor upgrades, with the final magnetic separation stage yielding a low impurity 23.6% CeO₂ product, which equated to 52% total rare earth oxides as measured by laser ablation ICP-MS at Bureau Veritas (see Table 1).

Impurities, dominated by aluminium bearing minerals, were progressively rejected throughout processing, but again the largest effect was through the gravity processing.

These studies can be utilised in a class 5 FEL1AACE engineering design study and will assist commercial market evaluation of final products to inform Ark's business case and will be conducted in parallel with Ark's resource estimation at the Sandy Mitchell Project.

Final results from the metallurgical test work are expected to be incorporated into a Scoping Study at Sandy Mitchell ahead of a planned Pre-Feasibility Study.

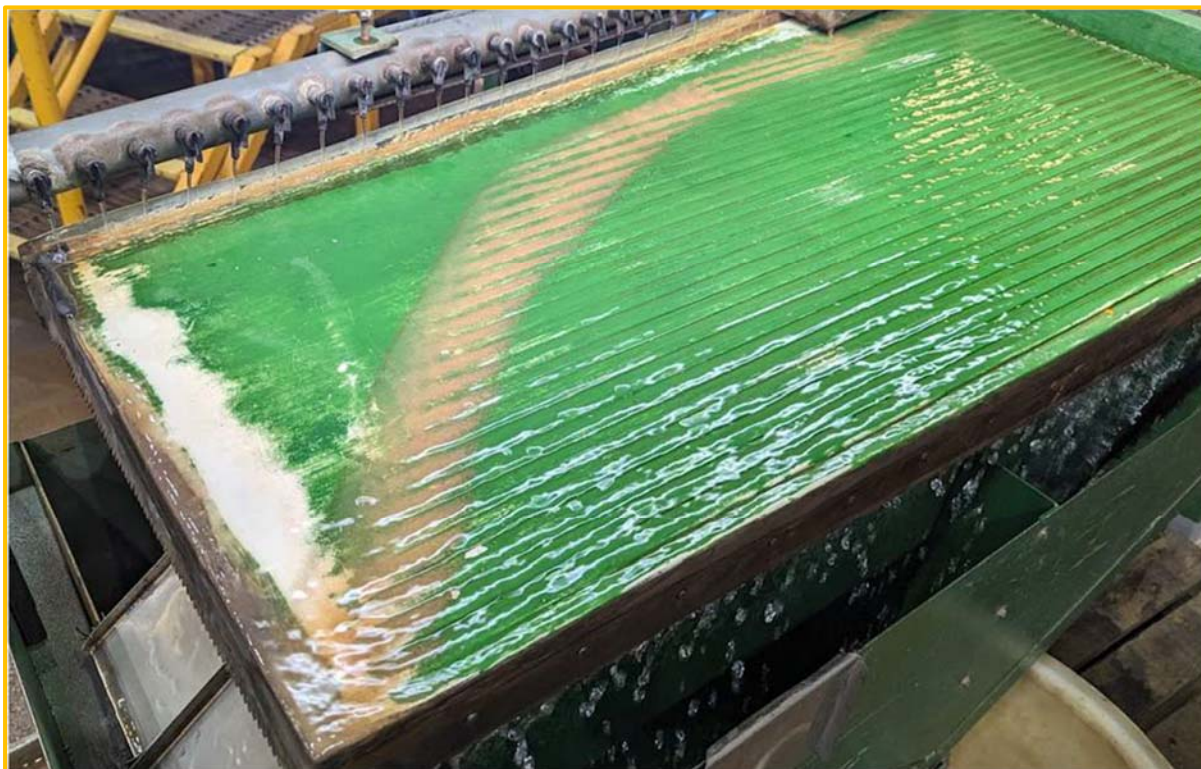


Figure 1. Wet shaker table separation simulating a plant cleaner

SANDY MITCHELL – Next Steps

- **1st phase drilling assays to be incorporated into the Maiden Resource Estimate for Sandy Mitchell**
- **1m assays to be received for the 2nd phase of drilling.**
- **Water monitoring to be undertaken at the bores and from surface water flow.**
- **Stage 3 and 4 drilling to continue.**
- **Advanced metallurgical studies to be undertaken.**
- **Phase 2 drilling to be collated with Phase 1 MRE.**
- **Continued efforts to advance the project towards production.**

No work was undertaken this quarter on Gunnawarra, Mt Jesse or Pluton.

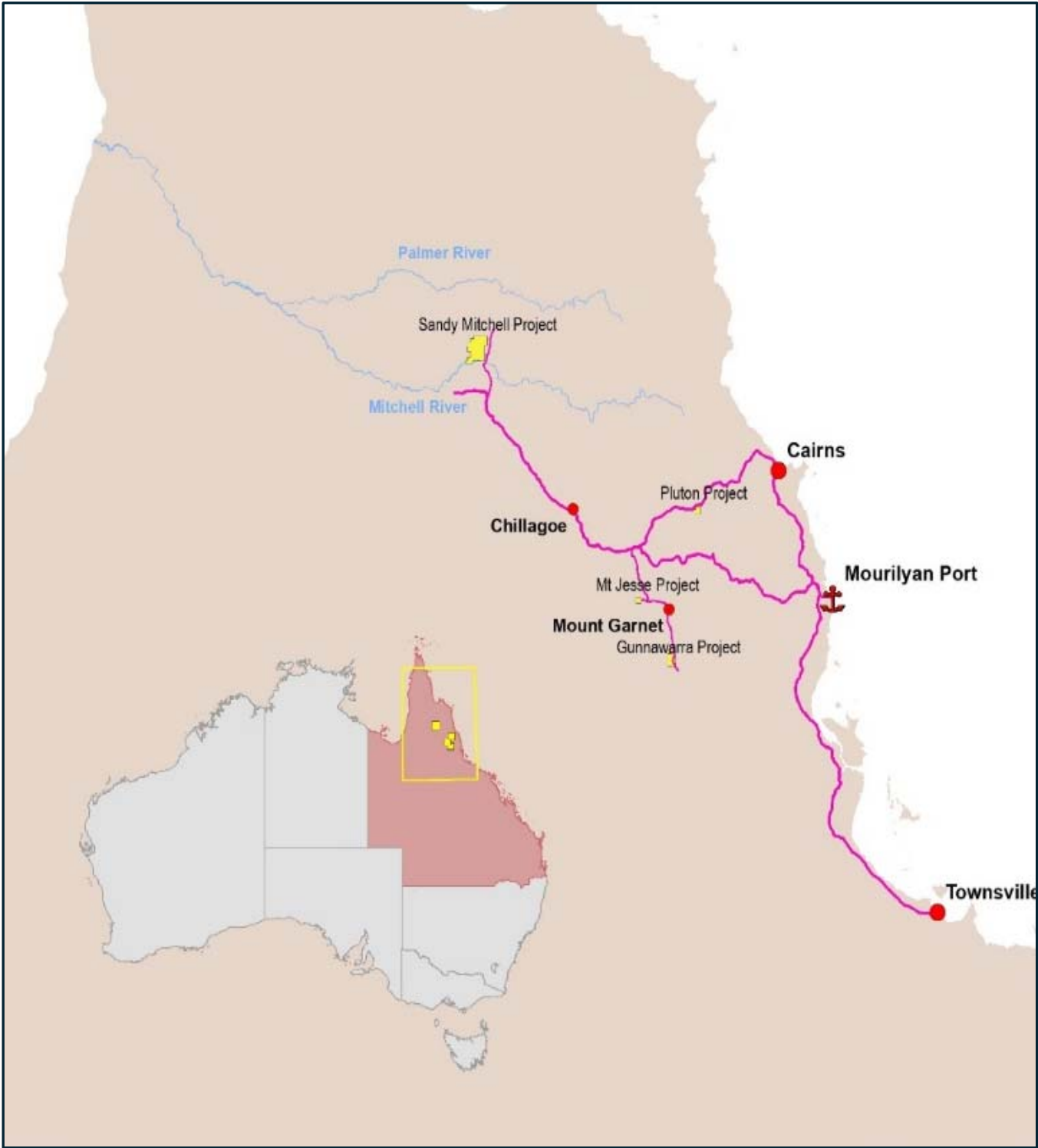


Figure 2: Sandy Mitchell Rare Earth and Heavy Mineral Project location.

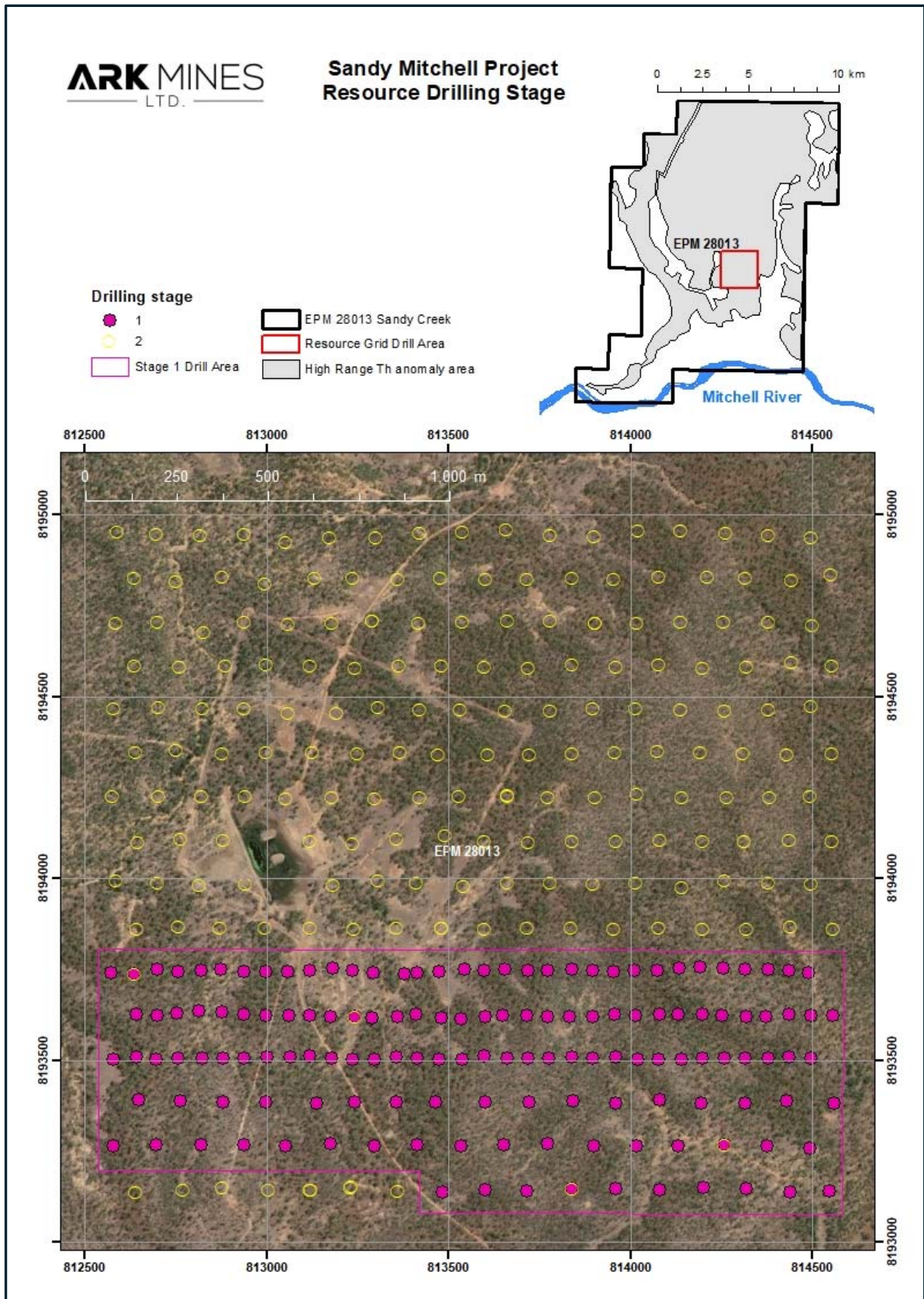


Figure 3: Sandy Mitchell initial resource drilling area showing hole collar location, colour coded by drilling stage. All Stage 1 holes (pink) now have complete assays, covering a 1.4 km² area. Where the map shows a Stage 1 and 2 hole coinciding, a Stage 2 twin was drilled for quality control.

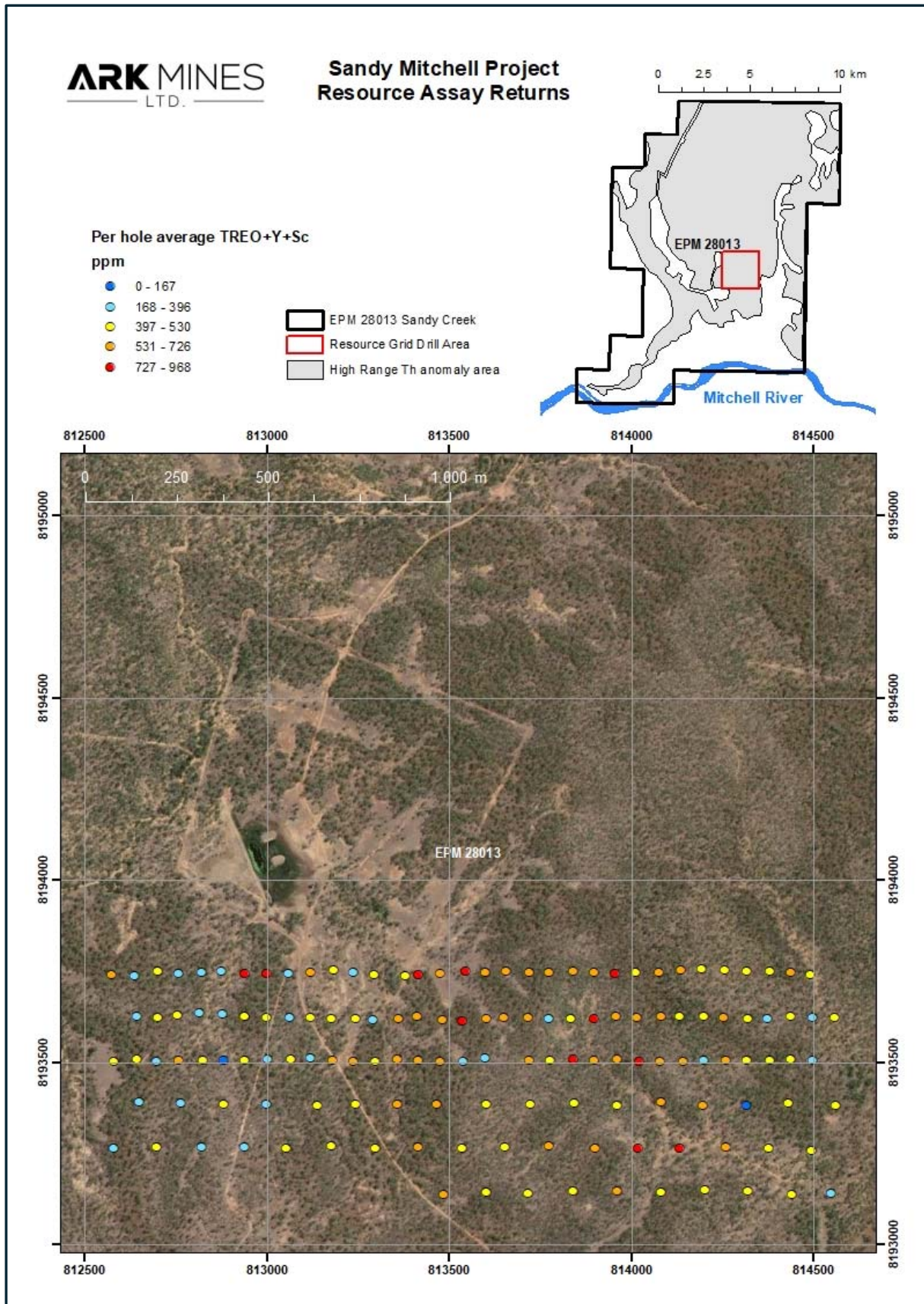


Figure 4: Sandy Mitchell completed Stage 1 drilling, showing TREO + Y + Sc grades averaged per drill hole, from natural surface to bedrock. No cut-off grade has been applied and the results represent the full sand column.4

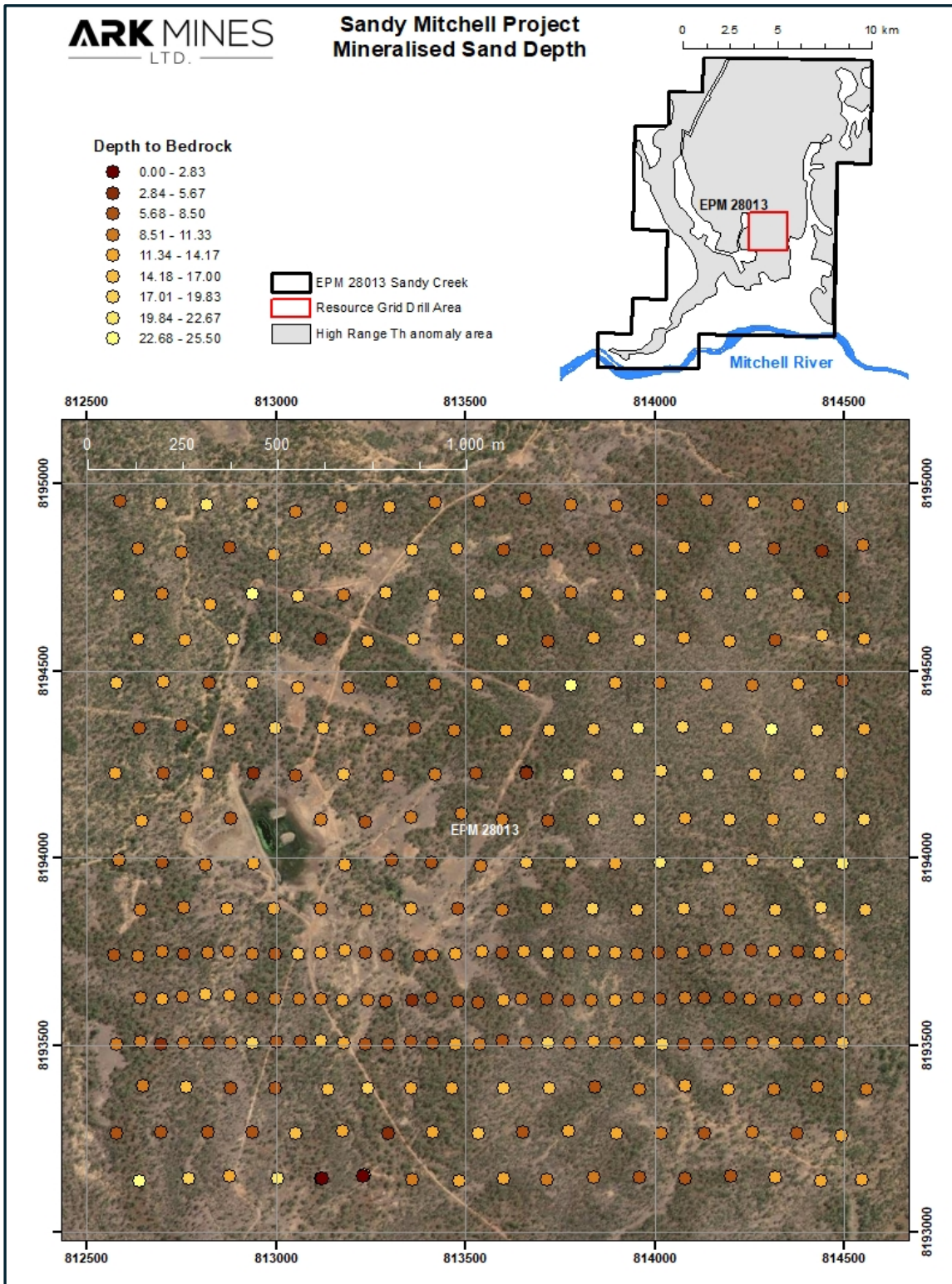


Figure 5: Sandy Mitchell initial resource area showing completed hole collar locations, colour coded by depth to bedrock. This equates to depth of mineralised sand column, since logging and assay returns show no overburden and mineralisation is present in the whole sand column.

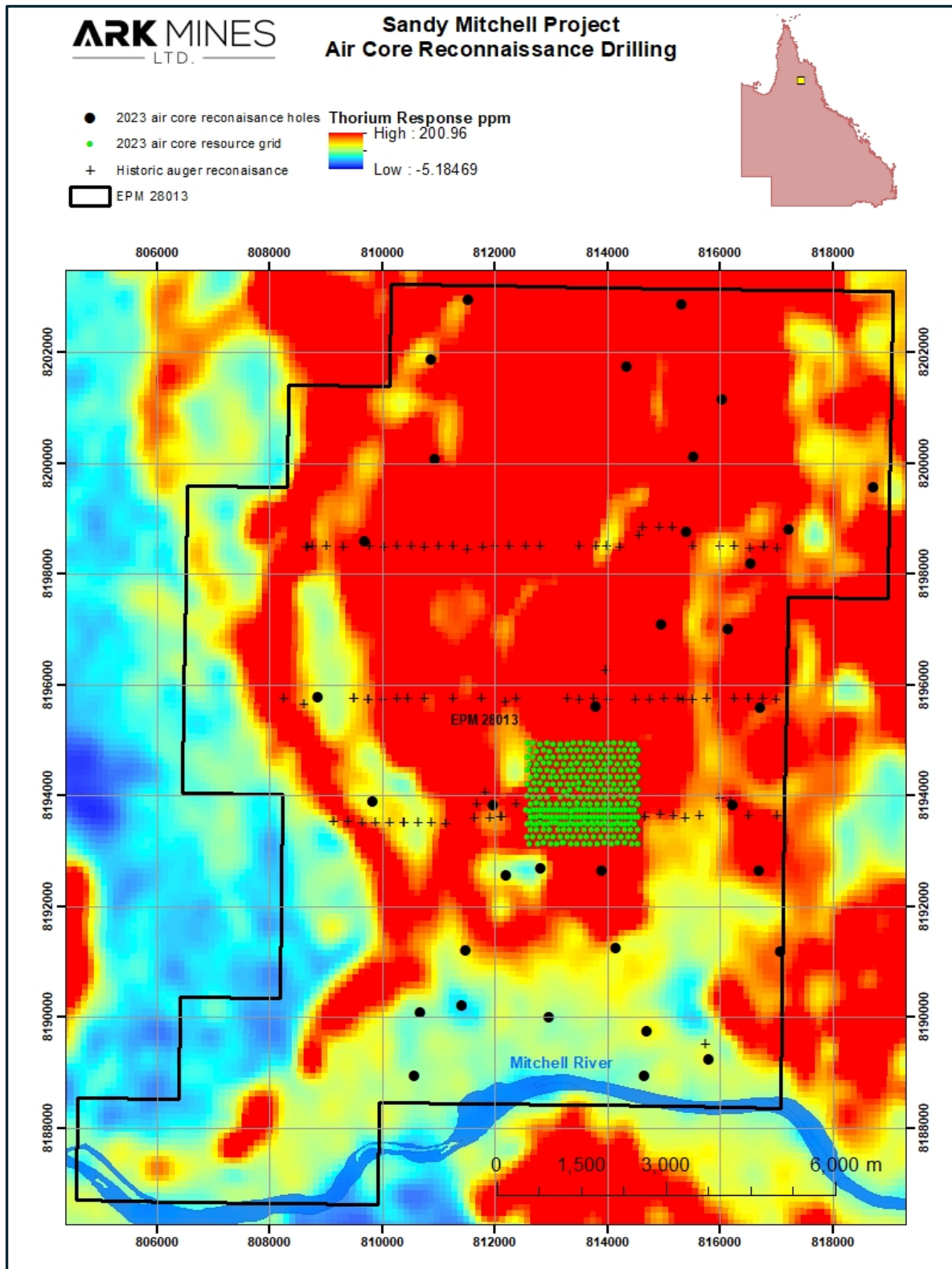


Figure 6: Sandy Mitchell 2023 air core reconnaissance drilling against the thorium radiometric response data. Historic auger reconnaissance and the 2023 air core grid drilling is also shown.

**Ark Mines Ltd
Sandy Mitchell Project**

**Stage 1 Drill Pattern &
Metallurgical Sample Area**

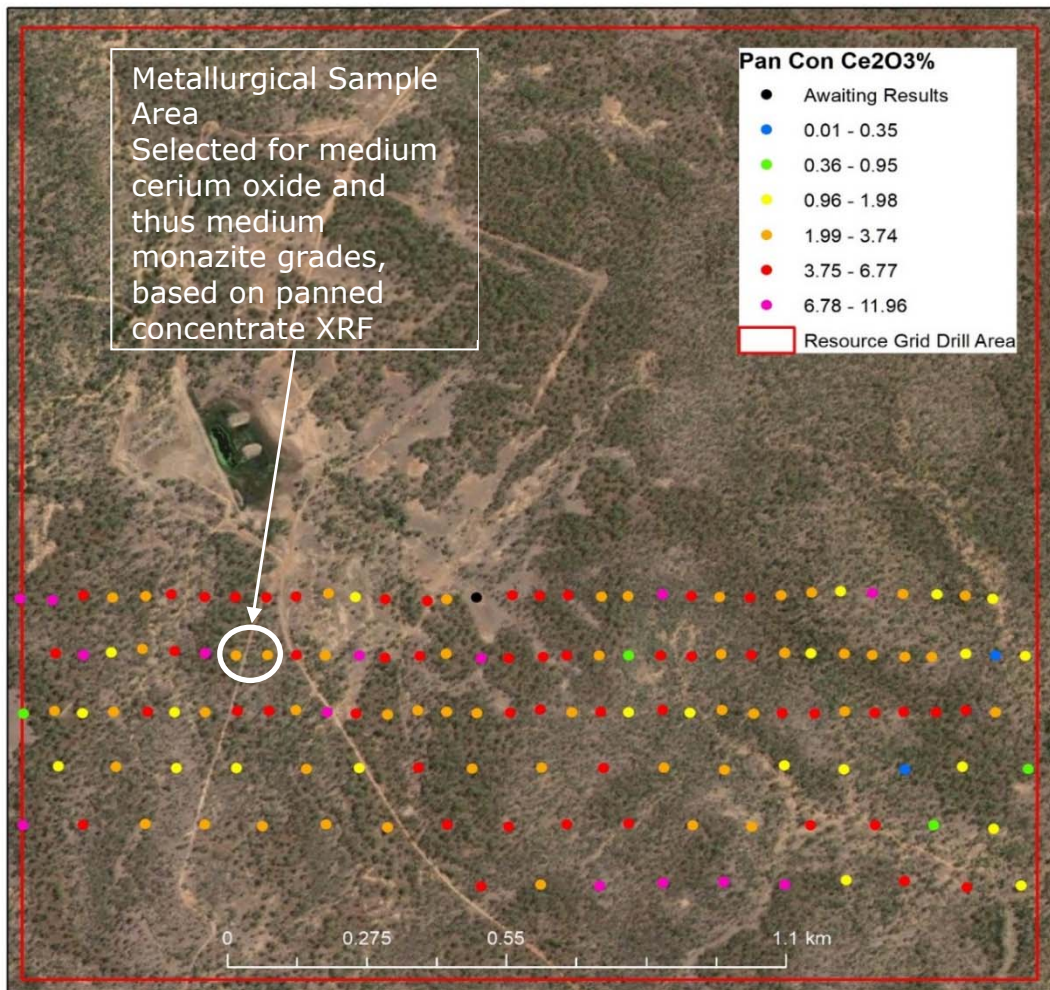
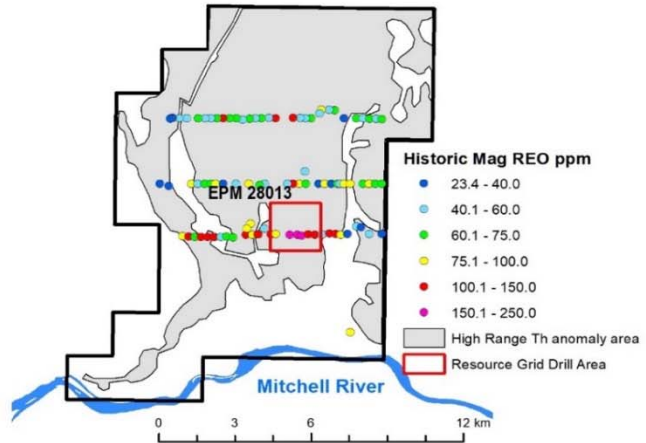


Figure 7. Initial metallurgical sample source drill hole location, showing Ark's Stage 1 drilling coloured by pan concentrate cerium oxide results which were used to select a medium grade sample for testing by Downer Mineral Technologies.

SAFETY AND ENVIRONMENT FOR THE QUARTER

• Reportable Incidents	Nil
• Medical Treatments	Nil
• LTIs	Nil
• Environmental incidents	Nil
• Landholder Issues	Nil

EXPLORATION EXPENDITURE SUMMARY FOR THE QUARTER

	Current Quarter A'(000)	Year to Date (nine months) A'(000)
Drilling	174	891
Compilation activities	35	91
Geophysical work	4	18
Laboratory work	3	49
Surface exploration	3	15
Tenure	1	19
Travel and accommodation	0	32
Other	1	9
Total	221	1,124

Table 2: Ark Expenditure Summary for the Quarter

TENEMENT SUMMARY

Permit	Transferee Holder	Project	Ownership	Area km2
EPM 26464	Mt Jesse Pty Ltd	Mt Jesse	100%	4
EPM 26560	Gunnawarra Pty Ltd	Gunnawarra	100%	11
EPM 26883	Mt Pluton Base Pty Ltd	Mt Pluton	100%	6
EPM 28013	Ark Mines Ltd	Sandy Mitchell	100%	138

The Group did not acquire or dispose of any tenements during the quarter.

The Group has not entered into any farm-in agreements.

Table 3: Ark Tenements

CORPORATE

Pursuant to ASX Listing Rule 5.3.5, payments of A\$136,000 were made to related parties during the Quarter, being the payment of the Executive Director's fees, in addition to Non-Executive Directors' fees as set out in Section 6 of the Quarterly Cashflow Report.

PREVIOUSLY REPORTED INFORMATION

The information in this announcement references previously reported announcements. The announcements are available to view on the Company's website (www.arkmines.com.au) and on the ASX website (www.asx.com.au). The Company confirms that it is not aware of any new information or data that materially

affects the information included in the previous announcements and that all material assumptions and technical parameters underpinning the exploration results continue to apply and have not materially changed.

AUTHORITY FOR RELEASE

This announcement has been approved by the Board of Ark Mines Ltd.



Roger Jackson

Executive Chairman

29 April 2024

Further Information:

Roger Jackson

Executive Director

+61 400 408 550

Ben Emery

Executive Director

+61 409 138 138

ABOUT ARK MINES LIMITED

Ark Mines is an ASX listed Australian mineral exploration company focused on developing its 100% owned projects located in the prolific Mt Garnet and Greenvale mineral fields of Northern Queensland. The Company's exploration portfolio consists of three four quality projects that are prospective for copper, iron ore, nickel-cobalt porphyry gold and rare earth elements.

Sandy Mitchell Rare Earth and heavy Mineral Project

- Ark has recently Acquired the 147km² EPM 28013 'Sandy Mitchell' – an advanced Rare Earths Project in North Queensland with additional 138km² of sub blocks under application
- Project contains all critical Light Rare Earths as well as Heavy Rare Earths including dysprosium (Dy), terbium (Tb), holmium (Ho), erbium (Er), thulium (Tm) ytterbium (Yb), yttrium (Y) and excluding only Lutetium
- Up to 25% of the TREO is Nd and Pr (magnet metals)
- Rare Earths at 'Sandy Mitchell' are amenable to panning a concentrate; Planned low-cost, fast start up, straightforward beneficiation by gravity processing

Mt Jesse Copper-Iron project

- Project covers a tenure area of 12.4km² located ~25km west of Mt Garnet
- Centred on a copper rich magnetite skarn associated with porphyry style mineralization
- Three exposed historic iron formations
- Potential for near term production via toll treat and potential to direct ship

Gunnawarra Nickel-Cobalt Project

- Comprised of 11 sub-blocks covering 36km²
- Borders Australian Mines Limited Sconi project - the most advanced Cobalt-Nickel-Scandium project in Australia
- Potential synergies with local processing facilities with export DSO Nickel/Cobalt partnership options

Pluton Porphyry Gold Project

- Located ~90km SW of Cairns near Mareeba, QLD covering 18km²
- Prospective for gold and associated base metals (Ag, Cu, Mo)
- Porphyry outcrop discovered during initial field inspection coincides with regional scale geophysical interpretation.

COMPETENT PERSONS STATEMENT

The Information in this report that relates to exploration results, mineral resources or ore reserves is based on information compiled by Mr Roger Jackson, who is a Fellow of the Australian Institute of Mining and Metallurgy and a Fellow of the Australasian Institute of Geoscientists. Mr Jackson is a shareholder and director of the Company. Mr Jackson has sufficient experience which is relevant to the style of mineralisation and type of deposits under consideration and to the activity that he is undertaking to qualify as a Competent Person as defined in the 2012 edition of the 'Australian Code for Reporting Exploration Results, Mineral Resources and Ore Reserves' (the JORC Code). Mr Jackson consents to the inclusion of this information in the form and context in which it appears in this report. Mr Jackson confirms information in this market announcement is an accurate representation of the available data for the exploration areas being acquired.

FORWARD LOOKING STATEMENTS AND IMPORTANT NOTICE

This report contains forecasts, projections and forward-looking information. Although the Company believes that its expectations, estimates and forecast outcomes are based on reasonable assumptions it can give no assurance that these will be achieved. Expectations and estimates and projections and information provided by the Company are not a guarantee of future performance and involve unknown risks and uncertainties, many of which are out of Ark Mines' control.

Actual results and developments will almost certainly differ materially from those expressed or implied. Ark Mines has not audited or investigated the accuracy or completeness of the information, statements and opinions contained in this announcement. To the maximum extent permitted by applicable laws, Ark Mines makes no representation and can give no assurance, guarantee or warranty, express or implied, as to, and takes no responsibility and assumes no liability for the authenticity, validity, accuracy, suitability or completeness of, or any errors in or omission from, any information, statement or opinion contained in this report and without prejudice, to the generality of the foregoing, the achievement or accuracy of any forecasts, projections or other forward looking information contained or referred to in this report.

Investors should make and rely upon their own enquiries before deciding to acquire or deal in the Company's securities.