
QUARTERLY ACTIVITIES REPORT FOR THE PERIOD ENDED 30 SEPTEMBER 2023

“Our efforts in the September quarter were focused on the ongoing development of the Sandy Mitchell project, and the ongoing testwork of the 1st phase drilling samples. We remain of the view that the Rare Earth placer sand deposit package at Sandy Mitchell is highly prospective, with assay results to date indicating we have a unique rare earth deposit which is amenable to simple mining, beneficiation and marketing from a sand which carries both Rare Earth and Heavy minerals from surface to approximately 10m.” Roger Jackson, Executive Chairman.

EXPLORATION HIGHLIGHTS FOR THE QUARTER

- Assaying and metallurgical test work ongoing over the quarter after the completion of 1,500m Phase 1 drill program at Sandy Mitchell Rare Earths and Heavy Minerals project in North Queensland.¹
- Drill program confirmed Rare Earths and Heavy Mineral mineralisation in every hole and the depth of the sand averaging 10.5 m from surface and sands intersected down to 18 metres ¹.
- Mineralisation has been panned from material at surface to the bottom of the sand profile; there is no overburden evident across the project.
- 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 Lutetium².
- Drilling covered an area of 1.3 square kms which is 1.2% of the radiometric high on the lease.

Panned Assay results for the whole hole composites

- Panned metre samples, composited per hole, had up to 2.8% HM³s.⁴
- The HM concentrate shows a range between 0.4% to 13.8% zirconia and 0.1% to 15.3% titania. The full REE suite is yet to be assayed, but yttrium oxide grades up to .31% and cerium oxide grades up to 13.7%⁴.
- Ce₂O₃ concentration predicts REE grades in the HM concentrate up to 41% with an average of 12%. This is validated by the Yttrium proxy for TREO which predicts a peak 27% TREO with an average of 14%.⁴
- There are also a phosphate grades up to 8.5% and significant quantities of garnet that will be incorporated into the final economic mineralisation suite.⁴

¹ See ASX release dated 26/9/2023

² See ASX release dated 16/8/2023

³ See ASX release dated 22/8/2023

⁴ See ASX release dated 8/9/2023

Lab assays pending for the first batch of 1m-interval assays for Ark's 144-hole Stage 1 drill program

- Assays from the metre sampling across the 1500m of drilling are still pending.
- The slow processing is due to samples being sequentially reviewed by a number of labs as well as logistic issues with transport.

Metallurgical test work has commenced on the recently drilled rare earth element ("REE") and Heavy Mineral sands from the Sandy Mitchell placer deposit ²

- Mineral Technologies Pty Ltd ("MT") has been appointed and is now undertaking a concept study for mineral sands flowsheet development, inclusive of Rare Earths ("RE") mineral beneficiation evaluation by flotation and conventional techniques; test work results expected to be reported early October.
- The key areas covered by the program are:
 - Detailed ore metallurgical characterisation to define the composition of the ore.
 - Heavy Mineral Concentrate ("HMC") production (wet shaking table) which defines response to gravity / fast track production of a gravity HMC.
 - MSP processing inclusive of:
 - Batch flotation of HMC to evaluate extraction of RE minerals.
 - Conventional processing techniques (Electrostatic & magnetic) for REE and other minerals.
 - QEMSCAN mineralogy.
- A hydraulic driven augur rig capable of being modified to drill sands has been acquired by Ark.³
- The rig is mounted on a 4WD Landcruiser for quick movement between drill sites and low impact for reconnaissance drilling.³
- Ark will utilise its on-site staff and geologists to operate the rig and to undertake sampling.
- Sandy Mitchell's Rare Earths are amenable to panning a concentrate yielding low-cost, fast start up, and straightforward beneficiation by gravity processing.
- Aerial reconnaissance completed over the whole Sandy Mitchell EPM with encouraging results; new EPM ground (Applications) visited by directors and geologist via land-owners helicopter air inspection only over radiometric high ground.¹

SANDY MITCHELL

Pan concentrate samples

Prior to this quarter 144 air core holes were drilled vertically up to 18.5m deep at an average of 10.3m. Spacing was 60m by 120m in the northern area, and opened up to 120m by 120m to the south (Figure 3). All holes were drilled in sand from top to bottom and all showed Heavy Mineral concentrations to varying degrees⁴. Logging by Ark Mines' geologists showed there are no layers of clay, topsoil, overburden, or rock in any of the holes. Holes were sampled per metre for the full length of hole to inform a maiden resource, as well as for density measurements and to provide samples for metallurgical test work. These individual metre assays have not yet been completed.

Panned concentrates were taken to yield a rapid guidance sample to inform exploration progression and assess the extent of mineralisation within the drilled area, based on recoverable HMs, in advance of the full assay return of the metre samples.

Assay results returned to date are of these panned concentrates. It is important to note the assay results reflect panning of a weighed aliquot from the 1m sample intervals, followed by compositing of the resultant small concentrate sample on a per hole basis. Composite samples were then sent to IHC

Mining for -1mm screening, heavy liquid separation, pulverisation and pXRF assay of the composited concentrate.

As a result of sample compositing, there is no cutoff grade or significant intercept zone within the section of each hole, and thus the resultant grade is diluted compared to what will be resolved by the 1m sample assays and would inform in any future resource.

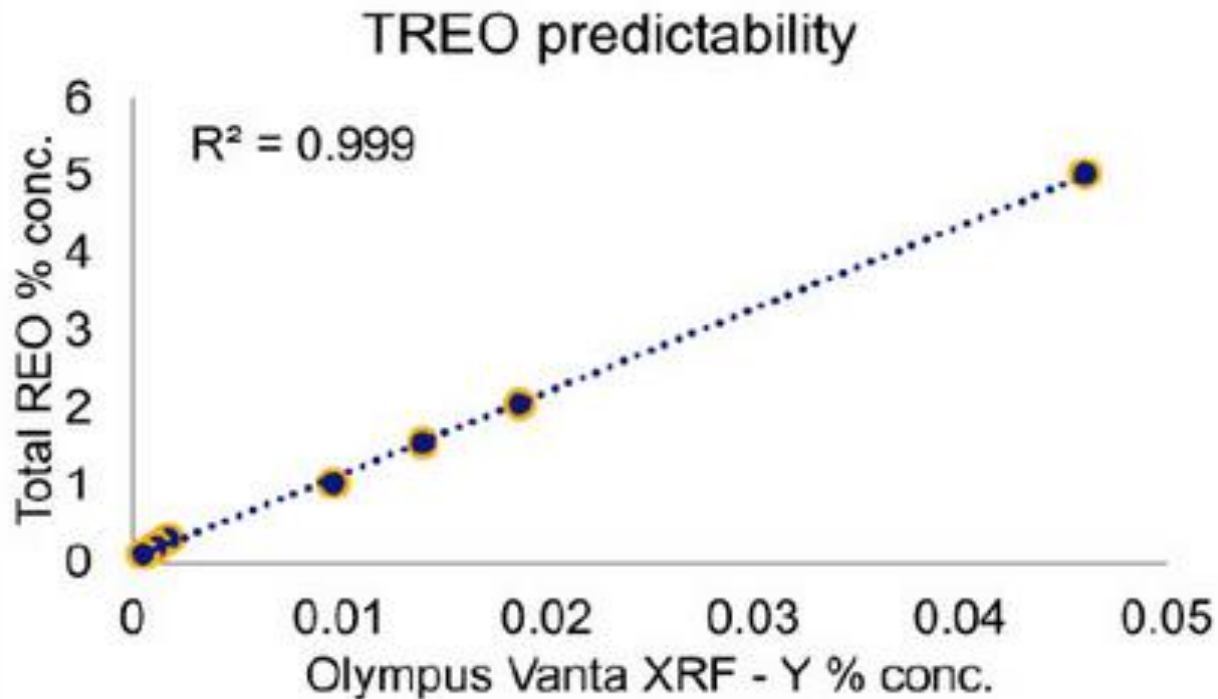


Figure 1: Vanta pXRF performance of assayed total rare-earth oxide predictability based on the yttrium concentration determined by the analyser.

Source: Litofsky, J. 2019. Portable XRF for Rare-Earth Element Identification and Exploration, Vanta. Olympus Industrial Resources.

Given the hand panned nature of the primary interval samples, it is also likely that loss of very fine heavy mineral fractions occurred, and the composited concentrate underrepresents the total recoverable HM fraction.

The pXRF technique used by IHC Mining is rapid and requires minimal processing, but being a relatively low powered technique with relatively low-resolution detection, it is unable to resolve all rare earth elements as separately measurable response peaks. There are two proxies that allow pXRF results to give approximations of rare earth element concentrations. The cerium oxide concentration, when multiplied by 3 approximates TREO, and the yttrium concentration (not as an oxide) also yields a proxy for TREO by regression (Figure 3). In the composited panned concentrates, the 3x Ce_2O_3 technique yields a minimum of 1%, a maximum of 41% and a mean of 12% approximate TREO prediction⁴.

The means of these two proxies are sufficiently close to be considered as validating each other and though not a reliable assay grade or a true estimation, they are considered to give a reasonable predictive value. This will be empirically tested by the metre assays which will also afford refinement that may enable rapid on-site grade prediction to aid mine production.

Sandy Mitchell will also benefit from having considerable scale based on the current 140 km² of tenements held and contiguous sub-blocks of over 138km² currently under application.

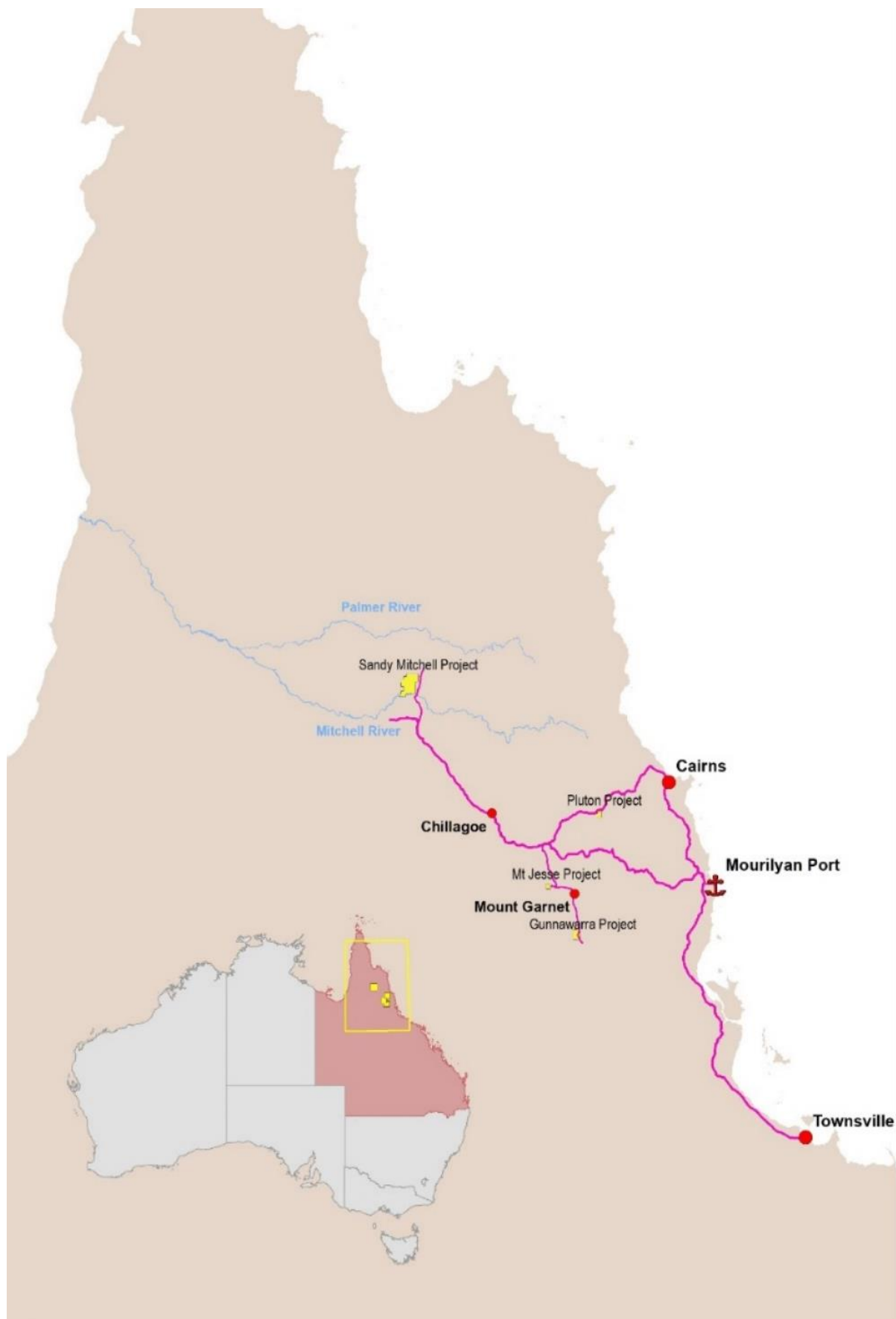


Figure 2: Location of the Sandy Mitchell Project, near Chillagoe, Nth QLD.

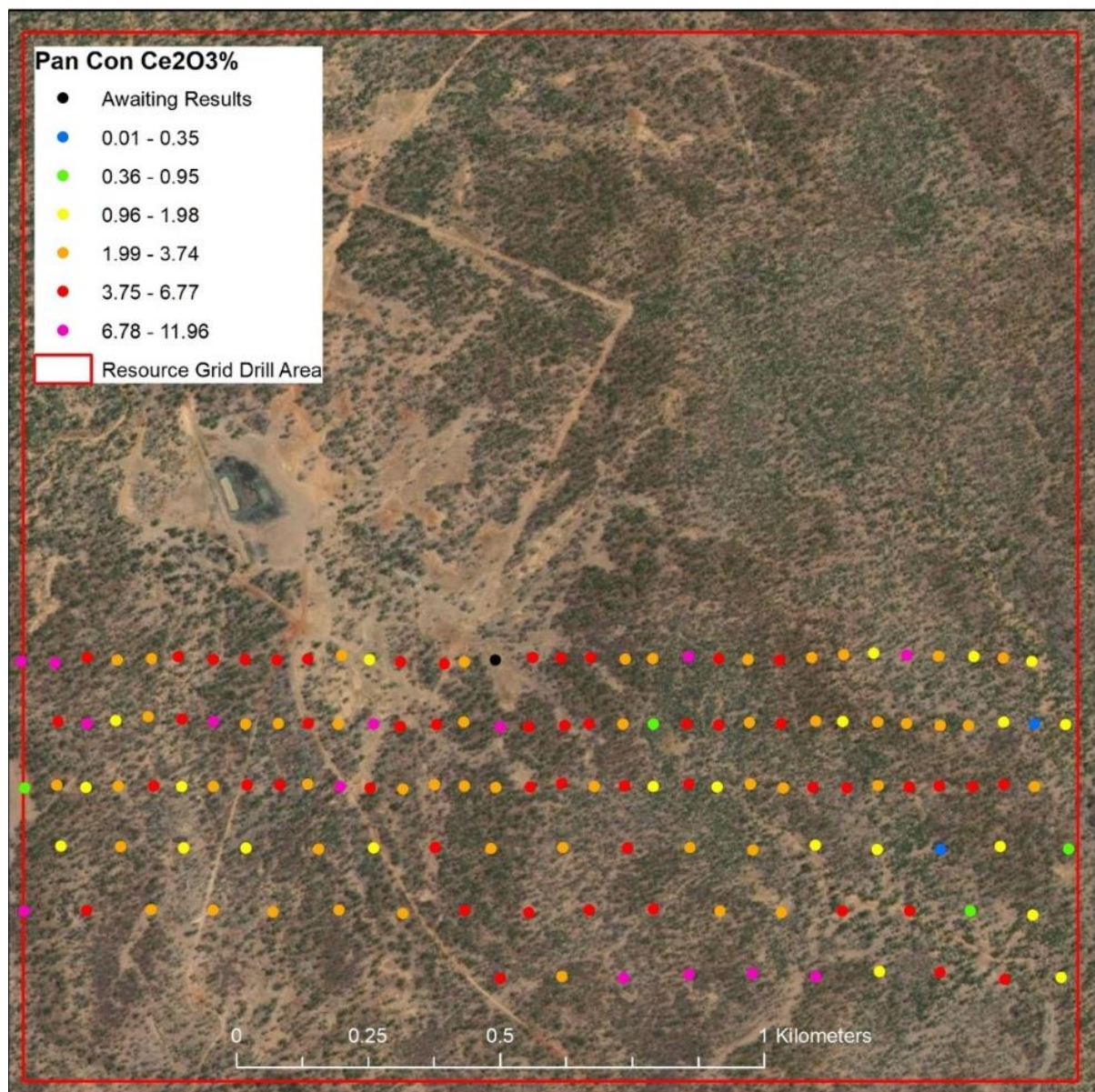
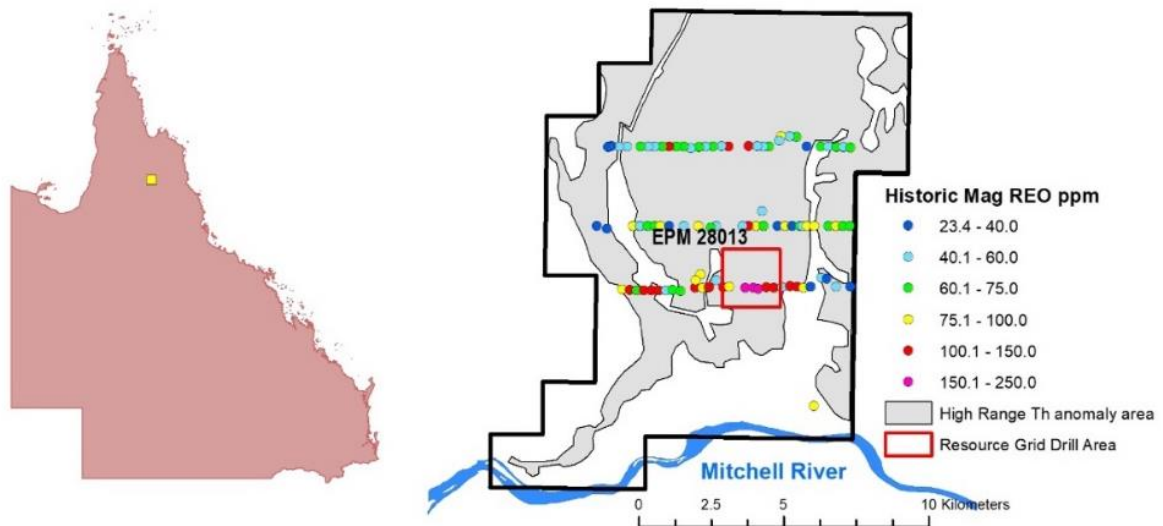


Figure 3: 144 completed drill collars at Ark's Sandy Mitchell Project, covering 1.3 km². Northern portion drilled at 60m x 120m and southern periphery drilled at 120m x 120m, to refusal for an average depth of 10.5m. Ce values represented in coloured dots.

Next steps for Sandy Mitchell

- 1 m assays to be received.
- Water monitoring bore for base line water studies to be drilled.
- Stage 2 and 3 drilling to continue.
- Metallurgical results to be received.
- Phase 1 drilling to be resourced.
- Continued efforts to move the project on to production.

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

SAFETY AND ENVIRONMENT FOR THE QUARTER

• Reportable incidents	Nil
• Medical treatments	Nil
• Lost time injuries	Nil
• Environmental incidents	Nil
• Landholder issues	Nil

EXPENDITURE SUMMARY

During the quarter the Company's cash expenditure on exploration and evaluation totalled \$409,000, summarised as follows:

Expenditure	Current quarter \$A'000	Year to date (3 months) \$A'000
Drilling	330	330
Laboratory work	34	34
Geophysical work	13	13
Surface exploration	10	10
Tenure	10	10
Travel and accommodation	10	10
Other	2	2
Total	409	409

During the quarter, the Company paid \$116,000 to related parties and their associates. These amounts were for the payment of directors' fees and consulting fees at normal commercial rates.

TENEMENT SUMMARY

Permit	Transferee Holder	Project	Location	Area km2
EPM 26464	Mt Jesse Pty Ltd	Mt Jesse	50kms NW of Chillagoe Nth Qld	4
EPM 26560	Gunnawarra Pty Ltd	Gunnawarra	25km W of Mt Garnet Nth Qld	11
EPM 26883	Mt Pluton Base Pty Ltd	Mt Pluton	40km S of Mt Garnet Nth Qld	6
EPM 28013	Ark Mines Ltd	Sandy Mitchell	90km SW of Cairns Nth Qld	138

No tenements were acquired or disposed of during the quarter.

CORPORATE

Ark raised \$3,055,050 before costs, via a placement of shares at an issue price of \$0.29 per share. Subject to shareholder approval, investors will be entitled to one (1) free attaching option per two (2) shares allocated. The options will have an exercise price of \$0.40 (40 cents) and expire three years from the date of issue. The options will be listed subject to meeting ASX listing requirements. The options will subject to shareholder approval which will be sought at the Company's next AGM.

At the subscription date, the issue price of \$0.29 per share and free attaching option was a:

- 19.40% discount to the last traded price;
- 18.65% discount to the 5-day VWAP; and a
- 10.41% discount to the 15-day VWAP.

Funds raised by the Placement are focusing on accelerating rare earths exploration work at the Company's 100% owned Sandy Mitchell Project.

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) 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
27 October 2023

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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 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 mineralisation.
- 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.