

ASX ANNOUNCEMENT

30 OCTOBER 2024



QUARTERLY ACTIVITIES REPORT FOR THE PERIOD ENDED 30 SEPTEMBER 2024

"Operations in the September quarter were highlighted by a significantly expanded Exploration Target (ET) for the Sandy Mitchell rare earths project. Following the release of the ET, Ark completed a detailed works program which resulted in an Updated Measured Mineral Resource Estimate at Sandy Mitchell, announced shortly post quarter-end. While the updated MRE exceeded our expectations for both the grade and size of mineralisation, it still forms just a small subset of the broader Exploration Target we announced in July. Sandy Mitchell is not only a unique Rare Earth and Heavy Mineral gravity beneficiated sand project, but it has the potential for world class scale. The Company will further reinforce the September quarter's achievements with an exciting round of upcoming news flow in the December quarter, highlighted by the forthcoming release of the Sandy Mitchell Scoping Study ahead of a planned Pre-Feasibility Study." **Roger Jackson, Executive Chairman.**

EXPLORATION HIGHLIGHTS FOR THE QUARTER

Sandy Mitchell Rare Earth Project

Updated Mineral Resource Estimate Completed

- Delivery of expanded Exploration Target estimated for Sandy Mitchell of between 1.3 billion tonnes to 1.5 billion tonnes @ 1,250 to 1,490 ppm monazite equivalent (MzEq).
- Exploration Target also includes a basket of high value Heavy Minerals (HM) totalling 15.6 to 22.3 million tonnes of contained HM
- Measured Mineral Resource Estimate (MRE) of 71.8 Mt @ 1,732.7 ppm Monazite Equivalent calculated using a 700ppm MzEq lower cut-off grade

Monazite equivalent calculation

MzEq = 1.000 x monazite + 1.000 x xenotime + 0.361 x zircon + 0.281 x rutile + 0.165 x hi Ti leucoxene + 0.126 x lo Ti leucoxene + 0.072 x altered ilmenite + 0.065 x ilmenite. The proportions of valuable elements in recoverable economic heavy minerals are ascertained by QEM scan deportment percentages applied to all elements

- The resource includes a basket of high value Heavy Minerals (HM), comprised of the following:
 - ✓ Monazite 1,229 ppm
 - ✓ Xenotime 115.7 ppm
 - ✓ Zircon 663 ppm
 - ✓ Ti Minerals: Rutile 105 ppm, High Ti Leucoxene 304 ppm, low Ti Leucoxene 193 ppm, Altered Ilmenite 313.8 ppm and Ilmenite 340 ppm

- High magnetic REO (Nd, Pr, Dy, Tb) element proportion of 25 % of the TREO basket, positioning Sandy Mitchell as one of Australia's most enriched MREO deposits.

	Indicated Resource	Monazite Equivalent	THM	Monazite	Xenotime	Zircon	Rutile	High Ti Leucoxene	Low Ti Leucoxene	Altered Ilmenite	Ilmenite
Grade ppm		1,732.7	3,263.0	1,229.0	115.7	663.0	105.3	304.0	192.7	313.8	339.7
Tonnes	71,789,616	124,386	234,251	88,228	8,302	47,593	7,557	21,820	13,835	22,530	24,385
	Indicated Resource	Treo+Y+Sc	TREO	LREO	HREO	MagREO	CREO				
Grade ppm		457.2	403.5	389.6	13.9	99.4	110.9				
Tonnes	71,789,616	32,821	28,965	27,970	995	7,132	7,960				

Table 1 Reported measured oxide resource for Sandy Mitchell at a 700ppm MzEq lower cut off (HGS 2024, see Appendix A of that report)

UPGRADED MINERAL RESOURCE FOR SANDY MITCHELL

The MRE was carried out by independent consultants HGS Australia in accordance with the 2012 JORC Code using variographically informed ordinary kriging coupled with an ID² validation model. The Mineral Resource Estimate (MRE) is wholly categorised as measured and totals 71.8 Mt at 1,733 ppm monazite equivalent (MzEq) using a lower cut-off grade of 700 ppm Top-cuts were applied on specific elements to control statistical outliers.

In addition to the high value economic commodities modelled, the MRE included estimates for Arsenic (As) and Sulphur (S) for environmental considerations. The modelling shows these to be at very low levels; S (dominantly as sulphate in this oxide zone orebody) was estimated to average 143 ppm and As, a common contaminant in monazite, was estimated to average 9 ppm.

The updated MRE leaves Ark Mines well positioned to execute on its stated development strategy for Sandy Mitchell, with low-cost mining of rare earths and heavy minerals combined with low-cost downstream processing through simple gravity separation.

The grades observed in the MRE build off previous drilling results which were used for metallurgical testing by independent processing firm, Mineral Technologies. First-pass water-based beneficiation test work on air core samples returned final concentrate assays of 51.9% TREO (519,000ppm) (refer ARK ASX Announcement 24 November 2023).

Beneficiation

- The mineralisation is from surface to around 12m, amenable to low-cost open pit mining methods.
- First pass un-optimised beneficiation test work of the Sandy Mitchell Rare Earth sands has produced a high-grade rare earth concentrate.

Expansion potential

MRE developed from only 4.5 % of the available anomaly area at Sandy Mitchell, with 87.04 km² available based on an Exploration Target estimated for Sandy Mitchell of 1.3 billion tonnes to 1.5 billion tonnes @ 1,250 to 1,490 ppm monazite equivalent. Real and substantial potential for Mineral Resource expansion.

EXPLORATION TARGET COMPLETED

The Exploration Target announced in May, was prepared independently by Empirical Earth Science (full independent report available at Ark Mines website). Most of the Exploration Target lies immediately to the north of the project's **Indicated Mineral Resources, which are estimated to be 21.7 million tonnes**

at **1,420 ppm Monazite Equivalent (MzEq)** using a 700 ppm MzEq cut-off (refer to ASX announcement 29 May 2024).

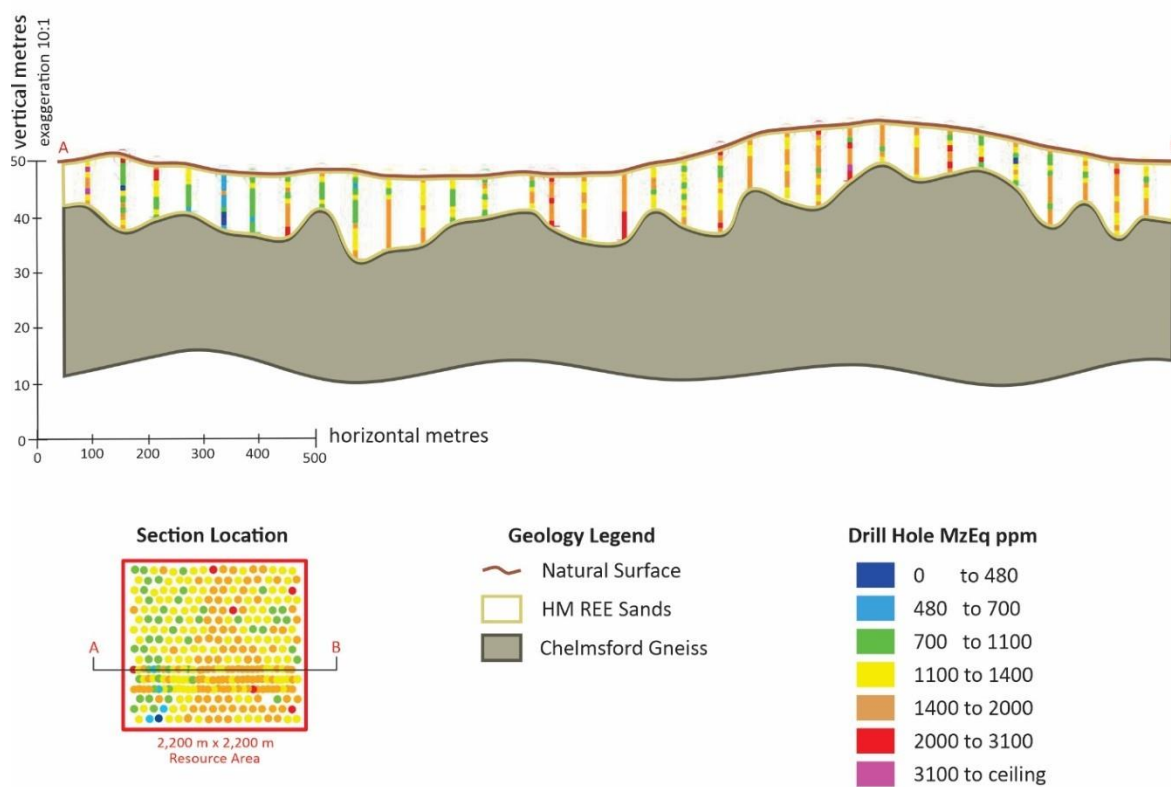
Note: The potential quantity and grade of the Exploration Target is conceptual in nature, and there has been insufficient exploration to estimate Mineral Resources. Furthermore, it is uncertain if further exploration will result in defining additional Mineral Resources at Sandy Mitchell.

Exploration Target Range	Exploration Target	MzEq	Monazite	Xenotime	Zircon	Rutile	Ilmenite	TREO+Y+Sc	TREO	LREO	HREO	MagREO	CREO
From Grade ppm		1,250	590	80	620	550	10,000	440	380	370	13	90	110
From Dry Tonnes	1,316,705,000	1,644,000	781,000	103,000	810,000	721,000	13,169,000	573,000	504,000	487,000	17,000	122,000	139,000
To Grade ppm		1,490	710	90	730	650	11,930	520	460	440	13	110	130
To Dry Tonnes	1,580,046,000	2,354,000	1,119,000	148,000	1,160,000	1,032,000	18,855,000	820,000	722,000	698,000	24,000	175,000	199,000

Table 2: Sandy Mitchell Exploration Target. No cut-off grades, top-cuts, or interval exclusions are applied, apart from excluding intervals within underlying bedrock. The calculations and factors used are described in Appendix A, raw drill hole assay data is supplied in Appendix B (from EES 2024, see Ark web site).



Ark Mines Ltd, Sandy Mitchell REE Project
Stage 1 Cross Section 8193750 Nth
 using 10:1 vertical exaggeration



Stage 1 Cross Section 8193750 Nth
 using no vertical exaggeration

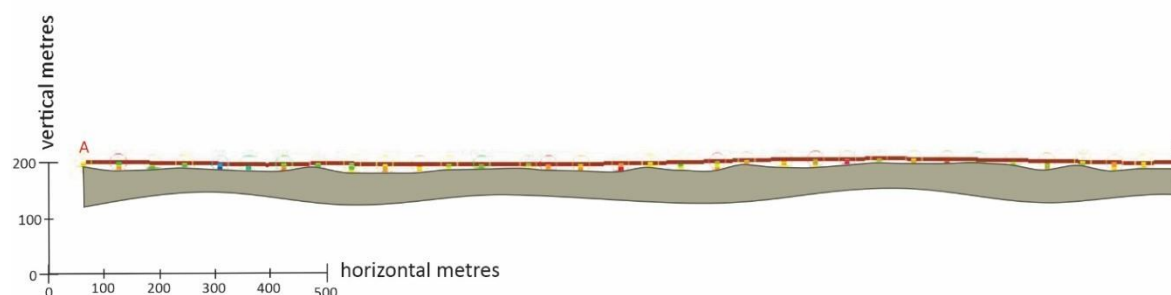


Figure 2: Sandy Mitchell Project west to east cross section at 8193750 m north through the REE & HM sand, showing drill data from the Stage 1 resource AC drill grid coloured for monazite equivalent.

Geology of the Sandy Mitchell Project is dominated by two major rock units, the Proterozoic Chelmsford Gneiss covering the eastern two thirds of EPM 28013, intruded by the younger Devonian Lukinville Granodiorite covering the western third of the tenement. Other associated minor unnamed Kintore Supersuite granitoids related to the Lukinville Granodiorite are present on the southern third of the Chelmsford Lukinville contact, but to the north of these the two major units are separated by a regional scale shear zone.

The Chelmsford Gneiss is covered by REE bearing HM sands approximately 11m deep. These sands are formed in situ by weathering driven disaggregation of the gneiss.

This type of HM sand mineralisation is sometimes referred to as saprolite sands, though this is a misnomer in the case of the Sandy Mitchell Project, as there is very little secondary clay through the profile.

Surficial clays in the top metre are considered transported by the wet season flood wash. The entire sand horizon, and the top of the underlying bedrock is fully oxidised. Figure 2 shows a typical cross section through the REE and HM sands from within the heavily drilled Stage 1 resource area.

HM and REE mineralisation is contained within the very fine sand fraction of the profile and is relatively evenly distributed throughout the profile with enrichment present only in the beds of minor ephemeral streams.

The underlying Chelmsford Gneiss shows HM and REE grades slightly lower than the overlying sands. The granitoids and the shear zone HM and REE grades are at or near the local background. The HM and REE bearing sands are correlated with a strong thorium band radiometric anomaly which allows simple localisation of the mineralisation .

Drilling at Sandy Mitchell totals over 986 holes for over 4,900 m, across six drill programmes. The first of these programmes was carried out by Walter Scott & Partners in 2012, and the other five have been conducted by Ark.

Type	Year	Collars	Metres	Assays	Average Depth	Min Depth	Max Depth	Average Sand Depth
		<i>n</i>	<i>m</i>	<i>n</i>	<i>m</i>	<i>m</i>	<i>m</i>	<i>m</i>
Historic auger exp	2012	101	~500	101	~5	?	6.0	~5
S1 AC res	2023	144	1,488.3	1,508	10.3	3.0	18.0	10.3
S2 AC/RC res	2023	185	2,427.1	2,463	13.0	4.1	26.0	12.2
S2 AC/RC exp	2023	32	393.0	394	12.3	4.0	30.0	11.3
S3 auger exp	2023	22	66.6	69	3.0	1.5	5.0	3.0
S3 OP water bore	2023	2	62.0	62	31.0	30.0	32.0	15.0

Table 3: Sandy Mitchell Project drilling summary.

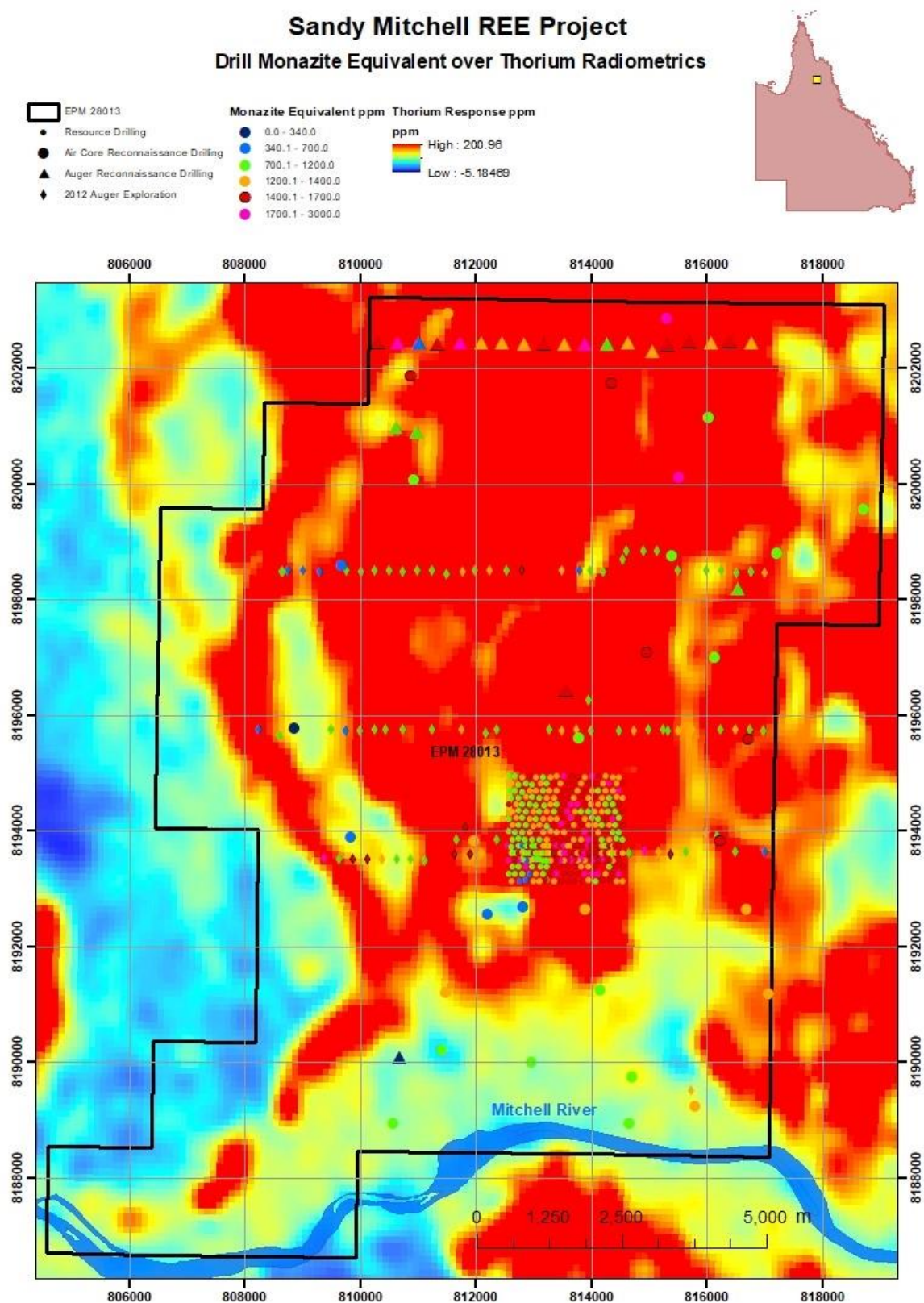


Figure 3: Sandy Mitchell reconnaissance and resource drilling results, recorded against the thorium radiometric response data. Historic auger reconnaissance is also shown. The high range radiometric thorium band anomaly, associated with REE mineralisation, covers an area of 100.7km² within the tenement. The stage 1 and 2 resource area is approximately 2.8% of the tenement area.

SANDY MITCHELL – Next Steps

- Scoping Study (scheduled for release in the December quarter)
- Advanced Metallurgical and Processing optimisation test work
- Further Drilling
- PFS
- Continued Environmental studies

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

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

Ark Expenditure Summary for the Quarter

	Current Quarter \$A'(000)	Year to Date (3- months) \$A'(000)
Compilation activities	49	49
Geophysical surveys and remote	3	3
Surface exploration	26	26
Drilling	48	48
Other laboratory work	11	11
Advanced prospect testing / resource estimation	228	228
Administration	0	0
Other	7	7
Total	<u>372</u>	<u>372</u>

TENEMENT SUMMARY

Ark Tenements

Permit	Transferee Holder	Project	Ownership	Location (refer to Figure 1)
EPM 26464	Mt Jesse Pty Ltd	Mt Jesse	100%	North of Mt Garnet North Queensland
EPM 26560	Gunnawarra Pty Ltd	Gunnawarra	100%	South Of Mount Garnet North Queensland
EPM 26883	Mt Pluton Base Pty Ltd	Mt Pluton	100%	East Of Dimbulah North Queensland
EPM 28013	Ark Mines Ltd	Sandy Mitchell	100%	120km North West of Chillagoe North Queensland

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

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

CORPORATE

Pursuant to ASX Listing Rule 5.3.5, payments of A\$151,000 were made to related parties during the Quarter. These payments were made for consulting fees to executive Directors for work done to advance the Company's exploration tenements and Board fees to all Directors to act as directors of the Company. The total of these amounts is shown in Section 6 of the Quarterly Cashflow Report.

SUBSEQUENT EVENTS

- Mining Lease (ML) application submitted, covering a 406 hectares of the Sandy Mitchell Rare Earth and Heavy Mineral Deposit
- Area under application covers the acreage that forms the basis of the recently reported Measured Resource Estimate (MRE)

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

30 October 2024

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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 Chillagoe, 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 owns 100% of the 147km² EPM 28013 'Sandy Mitchell' – an advanced Rare Earths Project in North Queensland with additional 138km² of sub blocks under application
- Maiden Indicated Mineral Resource Estimate (MRE) of 21.7Mt @ 1,419ppm Monazite Equivalent calculated using a 700ppm MzEq lower cut-off grade reported.

Refer to AHK ASX Announcement 29 May 2024

- Exploration Target estimated for Sandy Mitchell: 1.3 billion tonnes to 1.5 billion tonnes @ 1250 to 1490 ppm monazite equivalent.

The potential quantity and grade of the Exploration Target is conceptual in nature; there has been insufficient exploration to estimate a Mineral Resource and it is uncertain if further exploration will result in estimation of a Mineral Resource.

Monazite equivalent calculation

Mz EQ = monazite + xenotime + 0.3217 x zircon + 0.2957 x rutile + 0.0217 x ilmenite

(Detailed in the Appendices Table 1)

Refer to AHK ASX Announcement 2 July 2024

- 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.

MINERAL RESOURCE STATEMENT

The resource estimates are classified in accordance with the Australasian Code for Reporting of Identified Mineral Resources and Ore Reserves (JORC, 2012). The Resource estimate was completed by Andrew Hawker of HGS Australia. Mr Hawker 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 Hawker consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

The resource is classified as Indicated. The classification was considered appropriate based on drill hole spacing, sample intervals, geological interpretation and representativeness of all available assay and density data. The classification reflects the low confidence in short range grade estimations in the model.

EXPLORATION TARGET STATEMENT

The Exploration Target classified in accordance with the Australasian Code for Reporting of Identified Mineral Resources and Ore Reserves (JORC, 2012). The Exploration Target was completed by Daemon de Chaeney of Empirical Earth Science. Mr de Chaeney 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 de Chaeney consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

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 stock.