



Presentation | 16 July 2025 | ASX: AHK OTCQB: AHKMF

Rare Earths Heavy Minerals in a Giant Surface Sand Pit

ARK MINES
— LTD. —

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AHK

ASX
Code



66m

Shares on Issue



~\$0.15

Share Price



5,267,317

Options on Issue



ca. \$10.0M

Market Capitalisation



\$1.6M

Cash as at 30 June 2025



Roger Jackson - Executive Chairman

Geologist with 30+ years in exploration, development and mining operations



Benjamin Emery - CEO

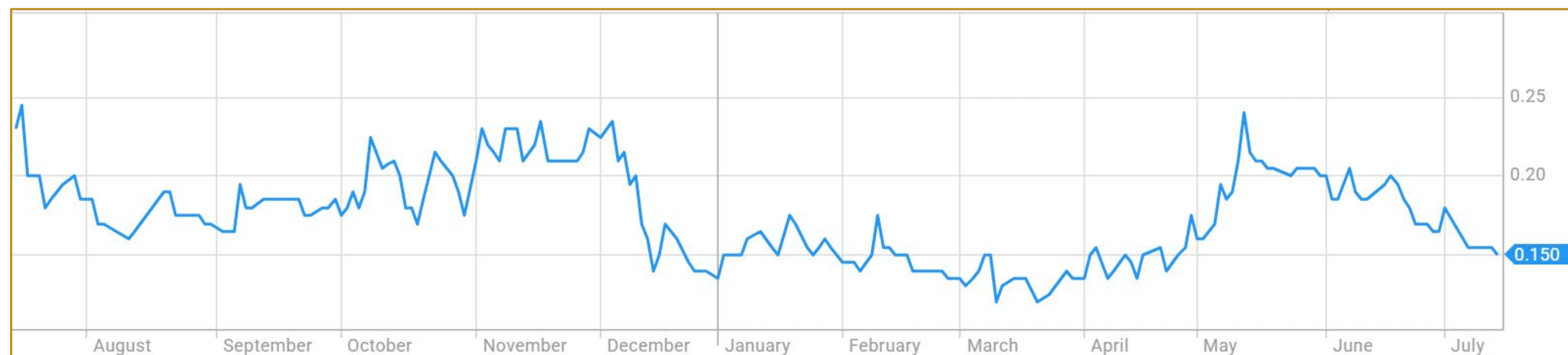
25+ years in Metals marketing, metals trading, exploration, development and mining operations



Ian Mitchell - Non-Executive Director

30+ years in Legal and Corporate in the IPO and Mining and Exploration public company space.

Share Price



RARE EARTHS AND HEAVY MINERALS IN SAND

**SANDY
MITCHELL**
**THE ONLY INLAND
SURFACE
EXPRESSED
PLACER DEPOSITS
TO HOST RARE
EARTHS ON THE
ASX**

ASX: AHK OTCQB: AHKMF



- ✓ Monazite
- ✓ Zircon
- ✓ Titanium
- ✓ Garnet

**SANDY
MITCHELL**
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TO HOST RARE
EARTHS ON THE
ASX**

**A CAPEX LITE RARE EARTH PROJECT START-UP WITH
LOW OPERATIONAL COSTS; SIGNIFICANT NEAR-TERM DEVELOPMENT
OPPORTUNITY WITH A LOW ENVIRONMENTAL IMPACT**

**HOSTS ALL THE RARE EARTHS, HEAVY MINERALS, AND
GARNETS**

**THE PROJECT HAS ACCESS TO QUALITY NEARBY
INFRASTRUCTURE, FAVOURABLE REGULATORY REGIME,
SAFE JURISDICTION, EASE OF PERMITTING – NORTH
QUEENSLAND**

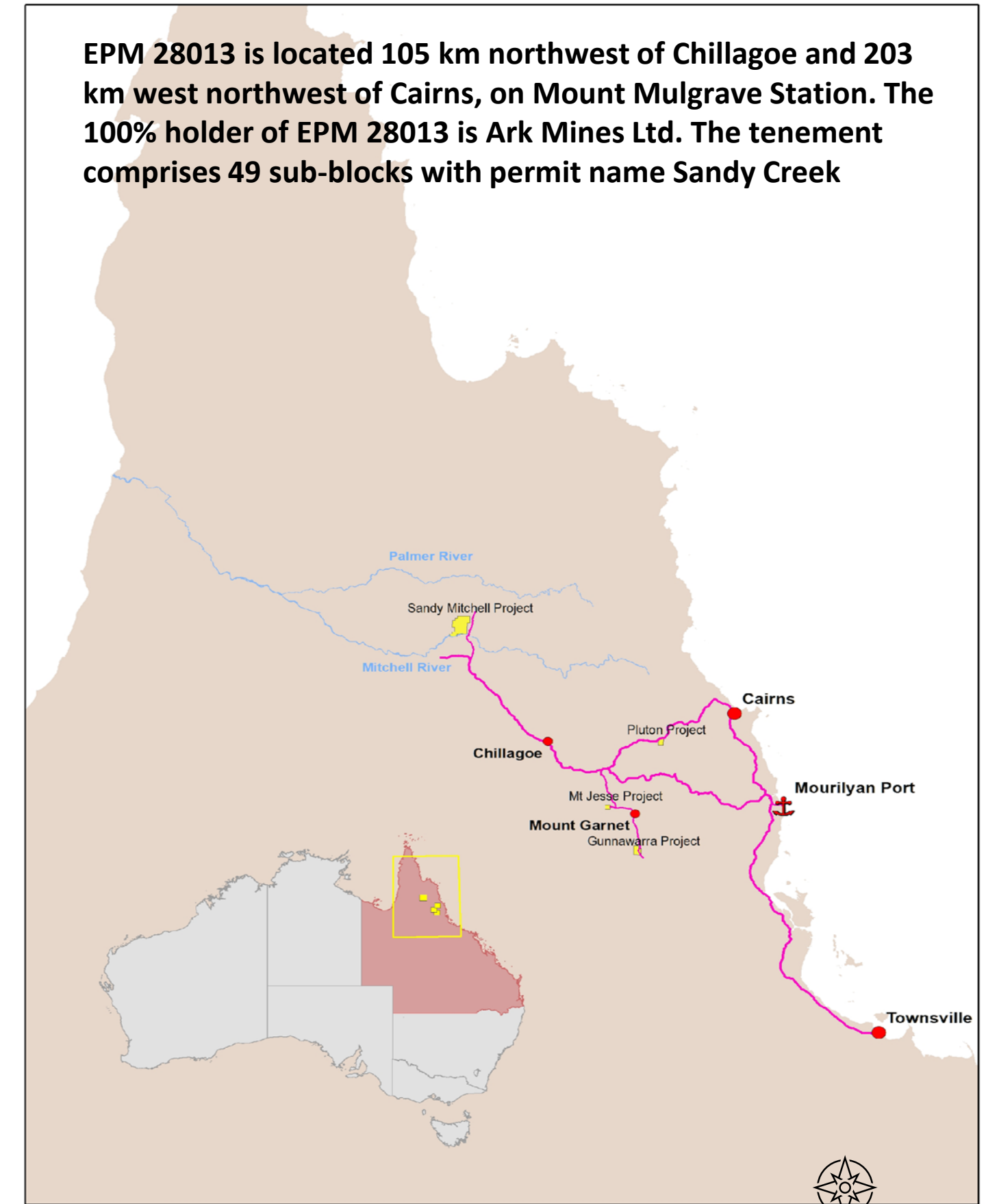
**UNDERPINNED BY A TEAM WITH MINE DEVELOPMENT,
COMMODITIES TRADING, AND EXPLORATION SKILLS**

A First-Rate Location

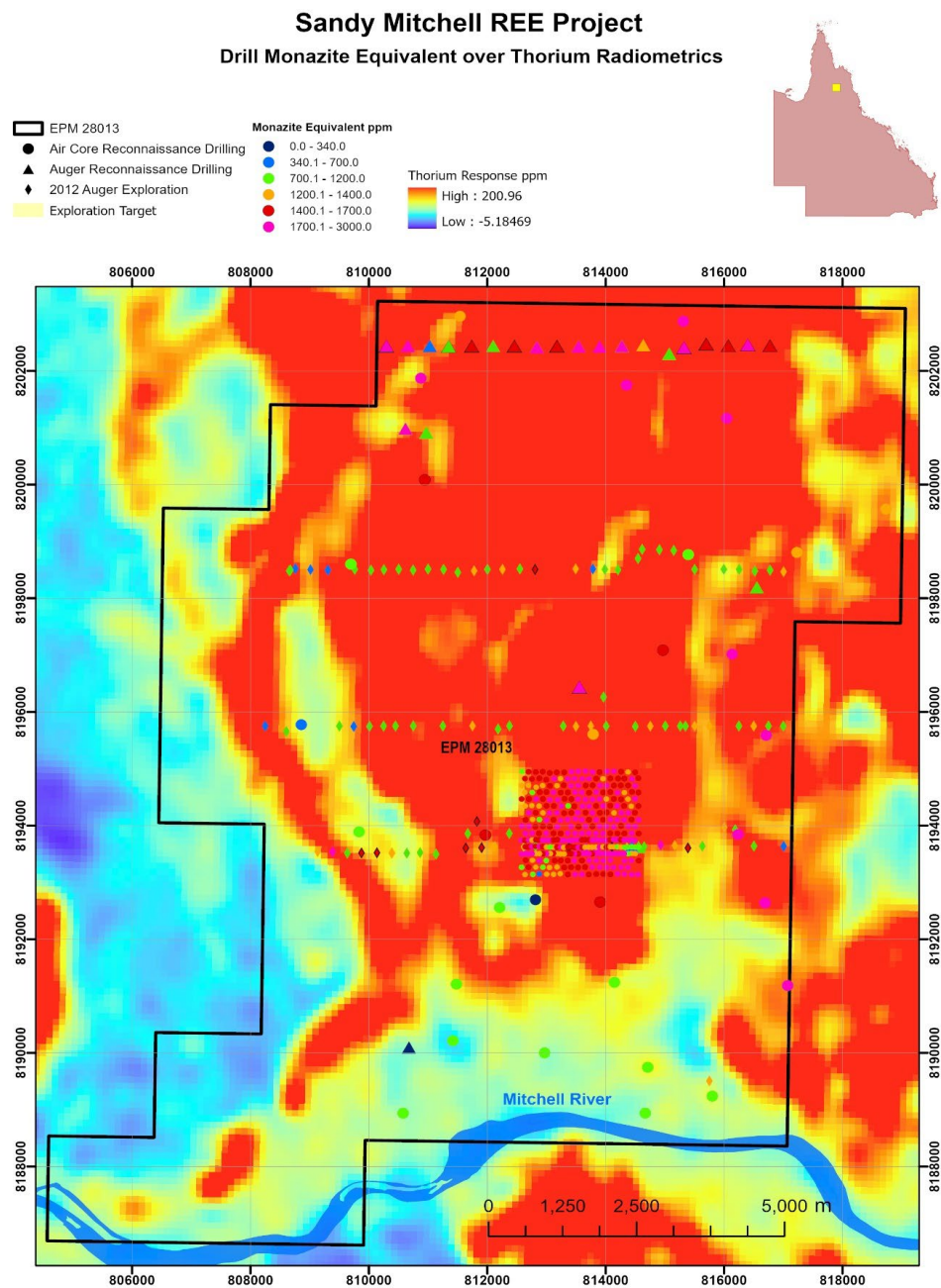


300km west of Cairns and 100km North of Chillagoe

Sits on only one station – 750,000 acres in size



Exploration Target estimated for Sandy Mitchell:
1.3 billion tonne to 1.5 billion tonne @ 1,286 to 1,903 ppm Monazite Equivalent¹



Stage 1 and 2 drilling; monazite equivalent shown against the thorium band radiometric anomaly.
The resource to date is less than 3% of the area drilled.
Coloured symbols representing holes used in the Exploration Target.

This is a world-class placer REE deposit in a Sandpit

- The Exploration Target is summarised in the table below. Most of the Exploration Target lies immediately to the north of the project’s recent drilling and maiden resource.

Exploration Target Range	Exploration Target	MzEq	Monazite	Xenotime	Zircon	Rutile	High Ti Leucoxene	Low Ti Leucoxene	Altered Ilmenite	ilmenite
From Grade (ppm)		1,285.8	976.0	36.3	520.7	60.6	174.6	111.1	180.7	195.6
From (dry tonnes)	1,316,705,000	1,693,000	1,285,000	48,000	686,000	80,000	230,000	146,000	238,000	258,000
To Grade (ppm)		1,903.6	1,444.9	53.7	770.9	89.7	258.5	164.5	267.5	289.6
To (dry tonnes)	1,580,046,000	3,008,000	2,283,000	85,000	1,218,000	142,000	408,000	260,000	423,000	458,000

Exploration Target Range	Exploration Target	TREO	TREO+Y	LREO	HREO	CREO	MagREO		
From Grade (ppm)		315.4	338.1	305.2	10.2	85.1	77.6		
From (dry tonnes)	1,316,705,000	415,000	445,000	402,000	13,000	112,000	102,000		
To Grade (ppm)		466.9	500.6	451.9	15.1	125.9	114.9		
To (dry tonnes)	1,580,046,000	738,000	791,000	714,000	24,000	199,000	182,000		

- The Exploration Target includes a basket of high value Heavy Minerals, comprised of the following:
 - ✓ Monazite from 1,285,800 tonnes to 2,283,000 tonnes, grading from 976 ppm to 1445 ppm
 - ✓ Xenotime from 48,000 tonnes to 85,000 tonnes, grading from 36 ppm to 54 ppm
 - ✓ Zircon from 686,000 tonnes to 1,218,000 tonnes, grading from 521 ppm to 771 ppm
 - ✓ Rutile from 80,000 tonnes to 142,000 tonnes, grading from 61 ppm to 88 ppm
 - ✓ Titanium heavy minerals 872,000 tonnes to 1,549,000 tonnes, grading from 111 ppm to 290 ppm

Exploration Target like the resource is based on mineralisation from surface down to an average depth of 11m. Therefore, no overburden removal, simple mining and low environmental impact. Further, development drilling is very affordable.

1. Refer to AHK ASX Announcement 6th November 2024
ASX: AHK OTCQB: AHKMF

SANDY MITCHELL IS A PLACER SAND RARE EARTHS DEPOSIT

Robust 1st stage Measured Mineral Resource Estimate

- 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

- Reported MzEq and HM grades are expected to support strong project economics through simple low-cost downstream processing, with reference to current market prices for monazite concentrate¹.
- 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.
- 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 @ 1250 to 1490 ppm monazite equivalent. Real and substantial potential for Mineral Resource expansion. (*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). See <https://arkmines.com/asx-annoucement-sandy-mitchell-mine-020724/>

Refer to AHK ASX announcement 021024

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CONCENTRATE ASSAYS RETURNED 52% TREO AND ESTIMATED RECOVERIES OF ~72%



- First pass un-optimised beneficiation test work of the Sandy Mitchell Rare Earth sands has produced a high-grade rare earth concentrate
- 50% waste rejection by screening +2mm sand prior to processing and before beneficiation.
- The beneficiation test work has shown the greatest upgrade is by simple gravity separation, confirming the material is amenable to straightforward beneficiation by gravity processing
- The final concentrate assays returned 51.9% TREO, and contained mostly La, Ce, Pr and Nd, plus Heavy Rare Earths Dy and Tb, which collectively represents a very high value saleable product².
- Direct cerium oxide (CeO₂) recovery from gravity feed to REM concentrate is estimated to be 71.7%, with indications that >83% may be achievable².
- Similar upgrade trends are observed for zirconium dioxide (ZrO₂)

². Refer to AHK ASX Announcement 24th November 2023

This product (Heavy Minerals Concentrate) is a very sought-after input feed across global markets

Mineral recoveries (without fines)

Zircon	686.9	0.069	55-58
Rutile	107.1	0.011	2-3
Xenotime	117.3	0.012	40-44
Monazite	1220.5	0.120	40-44
Garnet	3250.0	0.330	55-58

Recoveries are estimates based on characterisation studies and current test work phase of work. They are within Scoping Study levels of accuracy.



Straightforward beneficiation through gravity processing

COMMENCEMENT OF METALLURGICAL IMPROVEMENT WORK AT SANDY MITCHELL RARE EARTH AND HEAVY MINERAL'S PROJECT

- ✓ Specialist consultants IHC Mining have commenced a detailed metallurgical testing program to improve both the beneficiation process and mineral separation process for rare earths and heavy minerals at Sandy Mitchell.
- ✓ Initial work will deliver improved characterisation and preparation of feed for beneficiation. This will flow into an improved flowsheet design through enhanced processes choices.
- ✓ Metallurgy program will utilise a 2,225kg bulk sample from 2024 drill program.
- ✓ Results from the IHC metallurgical analysis will be incorporated into the works program for the detailed Pre-Feasibility Study, which is underway and currently scheduled for completion in early 2026.
- ✓ Process flow sheet designed to produce the following products from the surface sand at Sandy Mitchell:
 - Rare Earth Oxides including magnet rare earths and critical rare earth
 - Zircon with accessory hafnium
 - Titanium oxides
 - Garnets

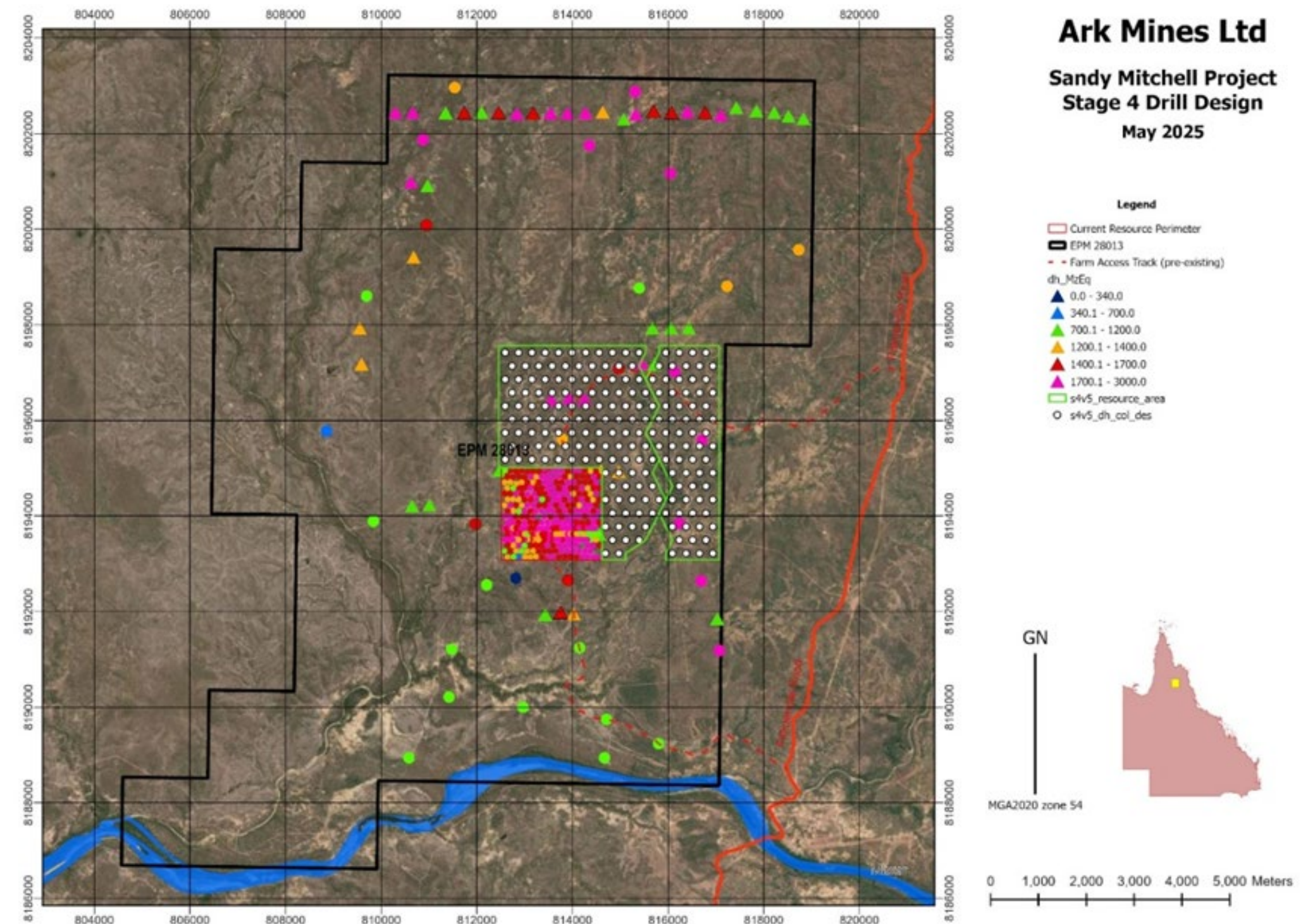
Metallurgy program to be accompanied by the planned recommencement of drilling at Sandy Mitchell, where Ark is targeted a significant expansion of the existing Measured resource.

Refer to AHK announcement 17 June 2025

RESOURCE UPGRADE DRILLING – COMING WEEKS

- ✓ Drilling Contract signed with Australian Exploration Drilling
- ✓ 2500m of drilling is planned for Sandy Mitchell Rare Earth and Heavy Mineral sand project. Drilling will be Air Core through the sand column with Reverse Circulation finish at bedrock, then complete the bedrock intercept metre to end the hole.
- ✓ There are 194 designed holes, all vertical, no down hole survey.
- ✓ The expected the mean depth to be approximately 12.5 m, based on last programmes.
- ✓ Spacing is 280m apart on 16 drill line which are themselves 280m apart.
- ✓ This third stage will build on the 2 stages of Resource drilling at Sandy Mitchell that has been completed without incident
- ✓ The company expects to significantly increase the Mineral Resource at Sandy Mitchell from the Measured Mineral Resource Estimate (MRE) of 71.8 Mt @ 1,732.7 ppm Monazite Equivalent calculated using a 700ppm MzEq lower cut-off grade
- ✓ Expected new resource 350+ million tonnes
- ✓ It is planned to use the updated Resource in the PFS that is planned to be completed early next year

Refer to AHK announcement 1 July 2025



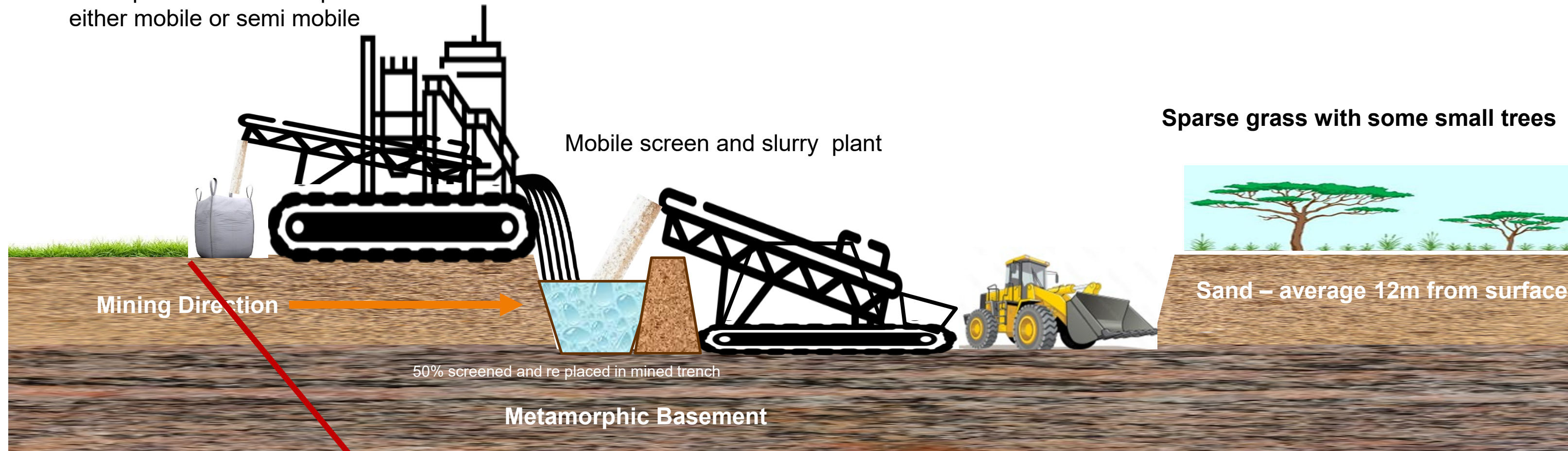
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Wet Spiral beneficiation plant –
either mobile or semi mobile

Mobile screen and slurry plant

Sparse grass with some small trees



LOW IMPACT MINING

- No Drill and Blast
- No overburden
- No clay to deal with
- Only 12m deep
- At 10m – you can selectively mine
- No tails dam
- No waste piles

OFFSITE Mineral Separation Plant



LOW ENVIRONMENTAL IMPACT

- No Chemicals
- No Salts No Acids
- Simple digging
- In situ processing with gravity only
- No impact on farm country – subsidence
- The landform will be the same after mining as before
- Rehabbed to the Landholder liking by only seeding the ground down

Simple strip mining

Mining and rehabilitation continuous advancement

Well-proven advance mining and rehabilitation methods meaning smaller operational footprint and faster return to pastoral use.

Mine rate 3000 t/h
20-22 Mt/a

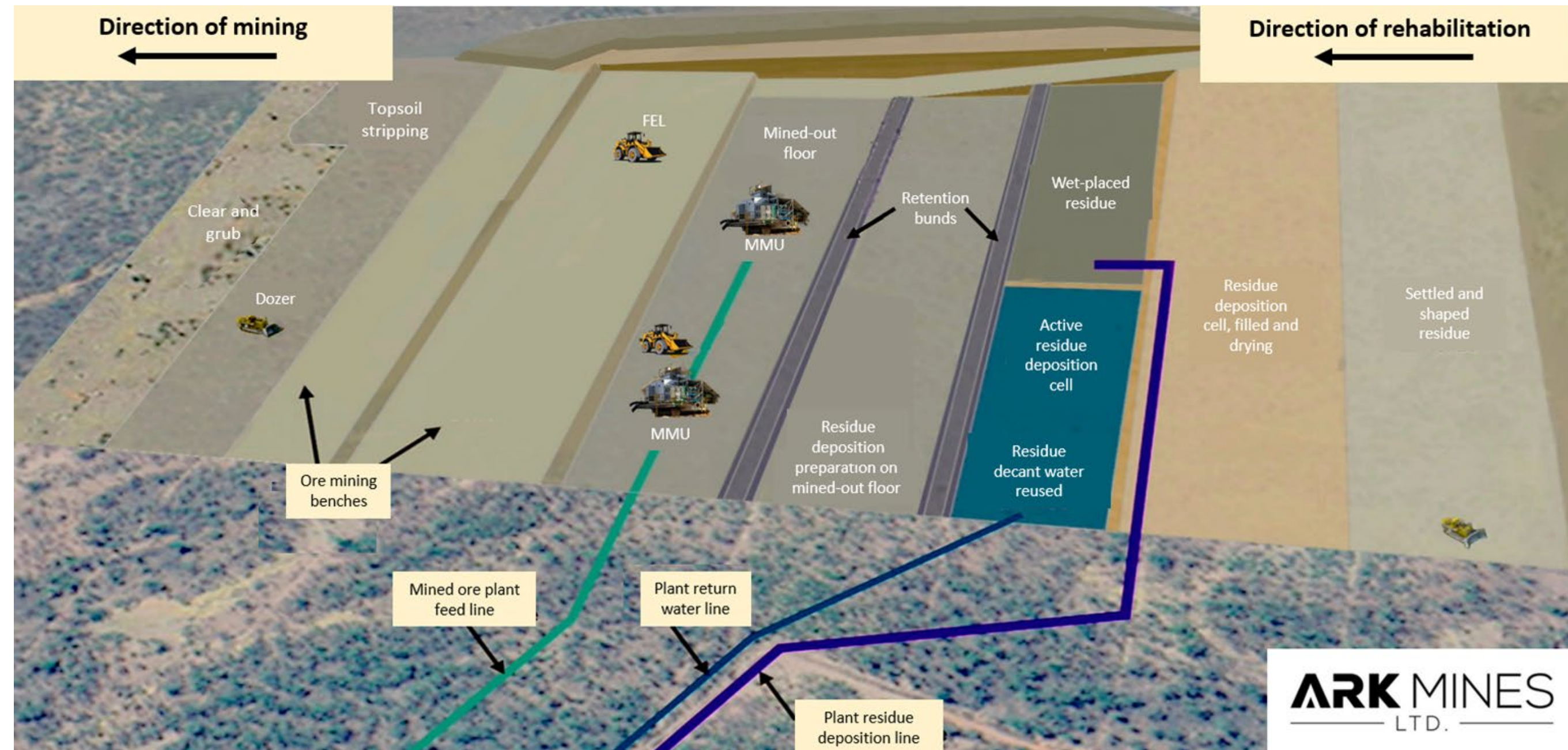
Low-cost, low-risk mining
No comminution
Front-end loaders dig and load
Ore mining starts early
Fast ramp-up to saleable product via
MMU - mobile mining unit
WCP – wet concentrator plant
MSP – mineral separation plant

Simple uncomplicated mine plan

No drill and blast
No overburden
Low clay
10–15 metres maximum depth
Low noise level







Chemical-free processing
Re useable water

All residues returned to pit
Returned to farmland in shortest time
Rehabilitated landform to landholder requirements



Placer REE deposits have major advantages

PLACER DEPOSITS HAVE DISTINCT GRADE ADVANTAGES AS NATURE HAS ALREADY DONE THE CRUSHING & GRINDING

	Ionic Clays	Hard Rocks	PLACER (SANDY MITCHELL)
 CAPE	Reasonable	Capex Heavy, Overburden/strip development costs, Mining costs high	Capex lite and utilizing low-cost skid-mounted gravity plant to deliver a concentrate Mining cost and operating cost – negligible
 Scale	Typically, smaller tonnage	Typically require significant scale for economic viability	Potential to be massive tonnage
 Exploratio	Resources can be defined inexpensively and rapidly given shallow drilling using aircore, auger, push-tube core	Similar to other hard rock base metals requiring substantial drilling, geochemistry, geophysics etc	Resources can be defined inexpensively and rapidly given shallow drilling using air-core, auger, push-tube core
 Mining	Stripping and progressive rehabilitation. Many have overburden and some strip ratio	Drill and blast with significant mining fleet. Higher strip ratios or expensive underground mining and development	Stripping and progressive rehabilitation. No Overburden Zero strip ratio. Mined with a wheeled loader only Ability to produce a commercially viable concentrate based on much lower head grades
 Permittin	Due to water processing and chemicals Environmental challenges will need to be met	Significant environmental impact	Simple in-situ gravity processing with the sand put back where it was moved from
 Processin g	Simple metallurgy; clay is washed with a desorption agent to recover REEs	Strong acids and salts with high temperature +/- pressure. Radioactive tailings	Simple metallurgy; gravity and magnetic in-situ processing, no water, continuous rehabilitation Nature has already done our crushing and grinding Heavy mineral credits

ASX: AHK OTCQB: AHKMF

Multiple near-term value drivers



Drilling at Sandy Mitchell



Contact Information



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Roger Jackson



Executive Chairman



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