Presentation | October 2 2024 | ASX: AHK

Rare Earths in a Giant Sand Pit

ARK MINES LTD.

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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.

Corporate Snapshot

AHK
ASX
Code

55,446,413
Shares on Issue

~$0.18
Share Price

5,267,317
Options on Issue

ca. $10.5M
Market Capitalisation

$1.6M
Cash as at 30 June 2024

Roger Jackson - Executive Chairman

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

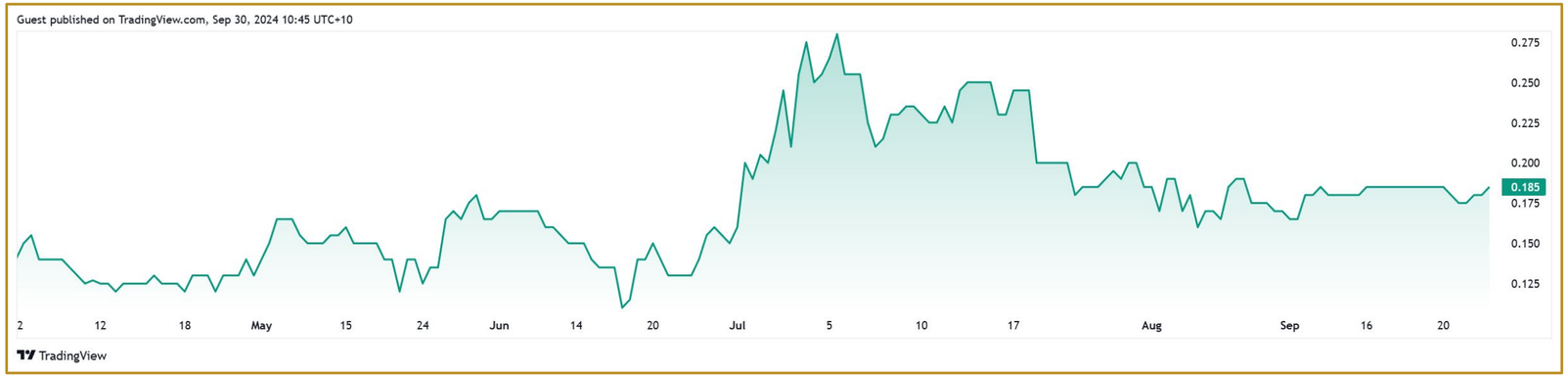
Benjamin Emery - Executive Director

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



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SANDY MITCHELL

THE ONLY INLAND SURFACE EXPRESSED PLACER DEPOSITS 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 PHOSPHATE

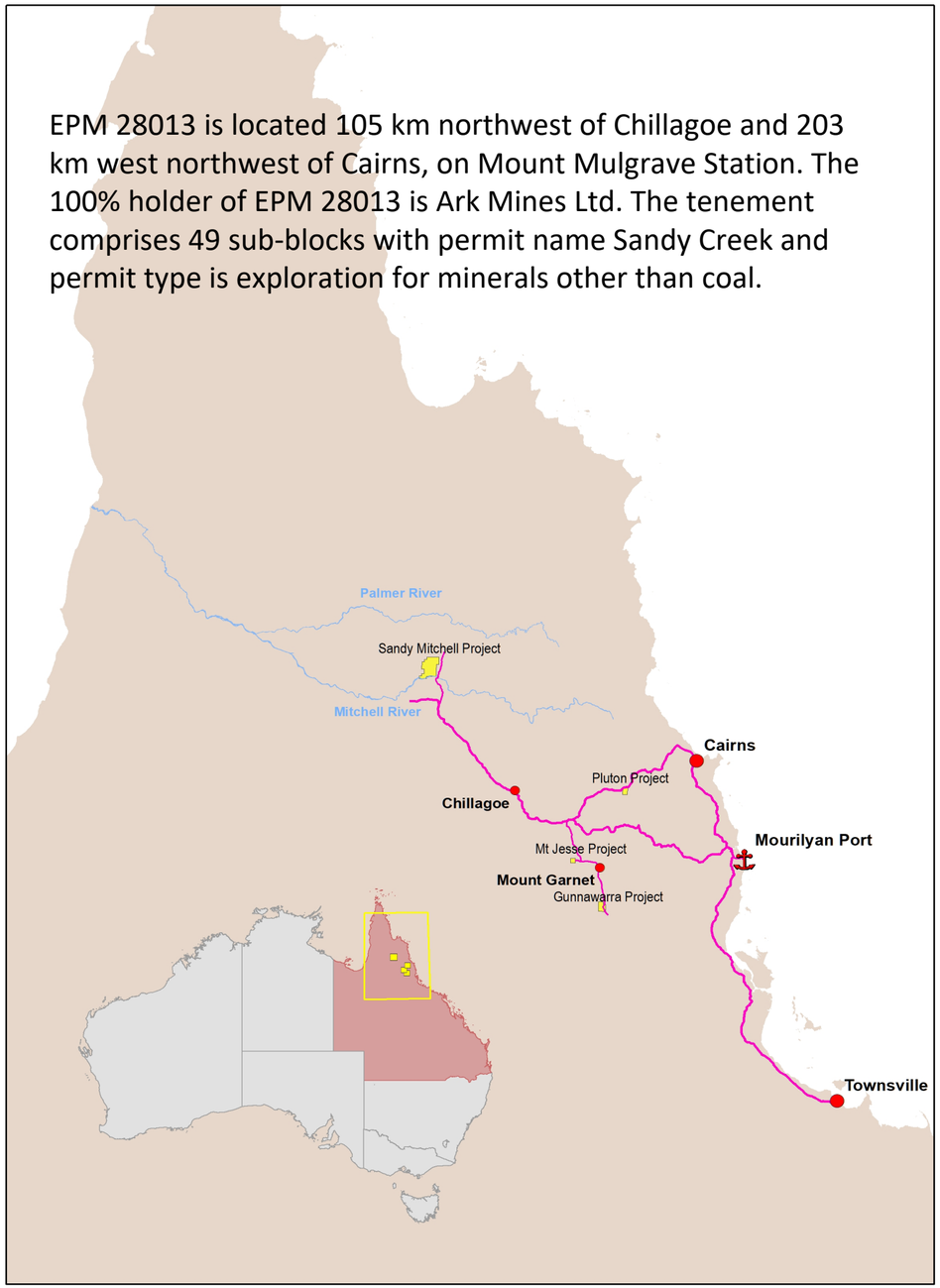
THE PROJECT HAS ACCESS TO QUALITY NEARBY INFRASTRUCTURE, FAVOURABLE REGULATORY REGIME, SAFE JURISDICTION, EASE OF PERMITTING – NORTH QUEENSLAND

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

EPM 28013 is located 105 km northwest of Chillagoe and 203 km west northwest of Cairns, on Mount Mulgrave Station. The 100% holder of EPM 28013 is Ark Mines Ltd. The tenement comprises 49 sub-blocks with permit name Sandy Creek and permit type is exploration for minerals other than coal.



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

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Robust Measured Mineral Resource Estimate (MRE) at Sandy Mitchell Rare Earth and Heavy Mineral Project

- 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 concentrate[1].

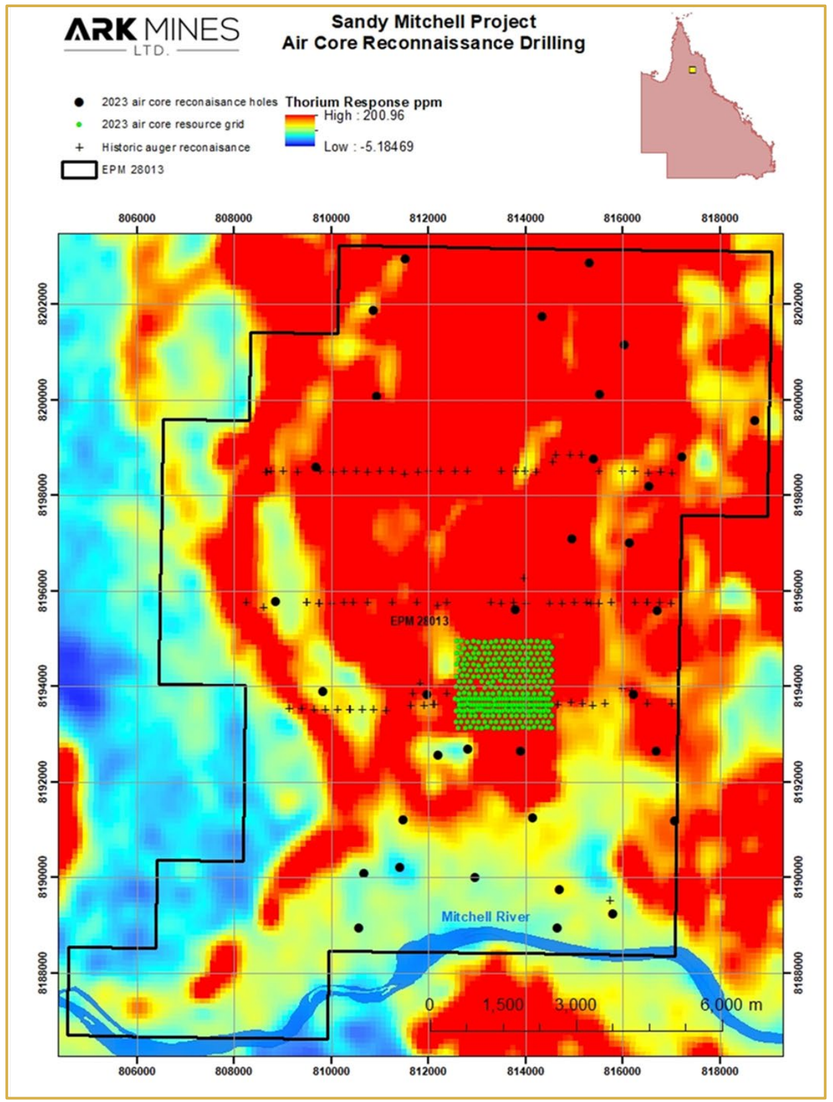
- The resource includes a basket of high value Heavy Minerals (HM), comprised of the following:
  - *Monazite 1,229 ppm*
  - *Xenotime 115.7 ppm*
  - *Zircon 663 ppm*
  - *Ti Minerals: Rutile 105 ppm, High Ti Leucoxene 304 ppm, low Ti Leucoxene 193 ppm, Altered Ilmenite 313.8 ppm and Ilmenite 340 ppm*

- 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 km^2 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*

EXPLORATION TARGET CONFIRMS WORLD-CLASS PLACER REE DEPOSIT



Stage 1 and 2 drilling on the radiometric anomaly.
The resource to date is less than 3% of the area drilled.
Black dots representing holes used in the Exploration Target.

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

- Exploration Target estimated for Sandy Mitchell: **1.3 billion tonnes to 1.5 billion tonnes @ 1250 to 1490 ppm Monazite Equivalent**[1]
- 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.

Correlated Area Range	Exploration Target	MzEq	Monazite	Xenotime	Zircon	Rutile	Ilmenite	TREO+Y+Sc	TREO	LREO	HREO	MagREO	CREO
	DMt	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*
From Grade		1,250	590	80	620	550	10,000	440	380	370	13	90	110
From 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		1,490	710	90	730	650	11,930	520	460	440	13	110	130
To 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

- The Exploration Target includes a basket of high value Heavy Minerals, comprised of the following:
  - ✓*Monazite from 781,000 tonnes to 1,119,000 tonnes, grading from 590 ppm to 710 ppm*
  - ✓*Zircon from 810,000 tonnes to 1,160,000 tonnes, grading from 620 ppm to 730 ppm*
  - ✓*Rutile from 721,000 tonnes to 1,032,000 tonnes, grading from 550 ppm to 650 ppm*
  - ✓*Xenotime from 103,000 tonnes to 148,000 tonnes, grading from 80 ppm to 90- ppm*
  - ✓*Ilmenite from 13,169,000 tonnes to 18,855,000 tonnes, grading from 10,000 ppm to 11,930 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 3rd June 2024

PHASE 1 GRAVITY BENEFICIATION DELIVERS EXCELLENT CONCENTRATE + RECOVERIES

CONCENTRATE ASSAYS RETURNED 52% TREO AND ESTIMATED RECOVERIES OF ~72% WITH >83% POTENTIALLY ACHIEVABLE

- 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 product [2].
- Direct cerium oxide (CeO_2) recovery from gravity feed to REM concentrate is estimated to be 71.7%, with indications that >83% may be achievable [2].
- Similar upgrade trends are observed for zirconium dioxide (ZrO_2)

[2]. Refer to AHK ASX Announcement 24th November 2023

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

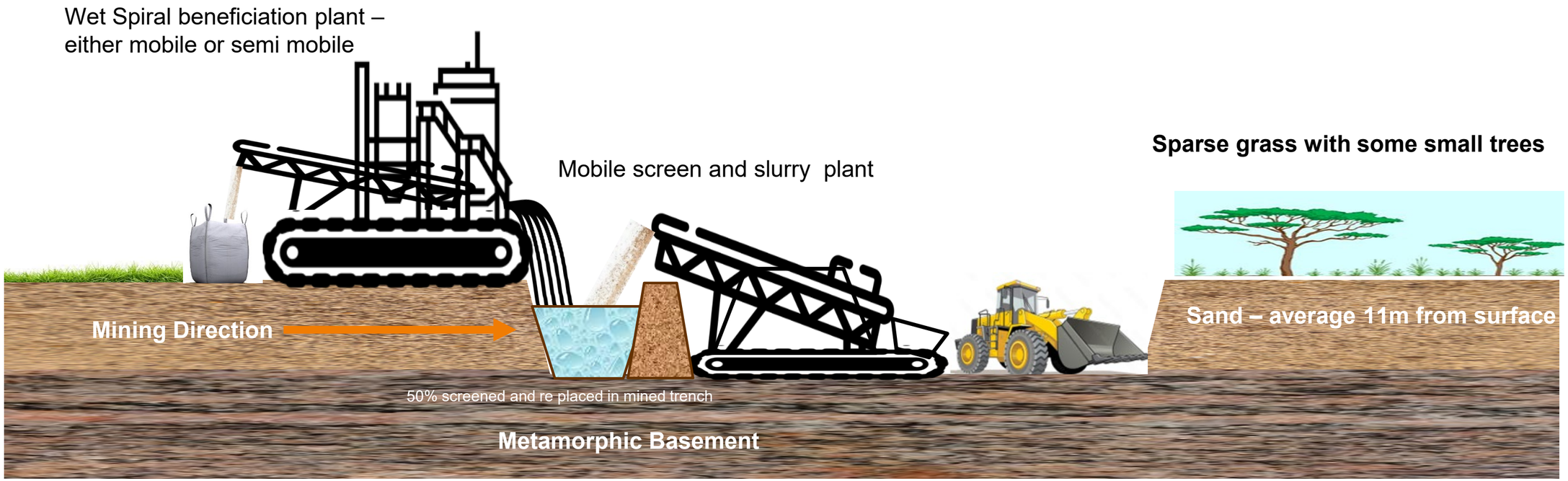
Monazite Product offtake with Currumbin Minerals

- Signed a MOU with Currumbin Minerals, which sets out a framework for the supply and delivery of Heavy Mineral Sands (HMS) from Sandy Mitchell for processing at CM's licenced treatment plant [1]
- 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 parties agreed to 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
- Several groups who are in the market for a high-quality Monazite concentrate, in Australia, Korea and the USA now assessing Sandy Mitchell

Currumbin Minerals' new state-of-the-art processing & separation plant

[1] Refer to AHK ASX Announcement 12th January 2024

CONTINUOUS REHABILITATION AND PRODUCTION OF A HIGH VALUE CONCENTRATE AT THE UNIQUE SANDY MITCHELL



LOW IMPACT MINING

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

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

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)
CAPEX	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
Exploration	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 aircore, 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**
Permitting	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
Processing	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

Multiple near-term value drivers

Drilling at Sandy Mitchell

Contact Information

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