16 May 2024

ARK MINES LTD.

Expert Metallurgical Review Supports Low-Cost Rare Earths Processing Strategy at Sandy Mitchell

Highlights

- **Expert consulting report commissioned by Ark Mines concludes that the placer deposit style of mineralogy at Sandy Mitchell is highly amenable to simple, low-cost beneficiation processes, such as gravity processing.**
- **Consulting report was commissioned by Harrier Project Management, a Queensland advisory firm, based on analysis by Met-Chem Consulting Pty Ltd.**
- **The report highlighted that beneficiation processes for placer deposits are significantly cheaper to construct than whole-ore flotation processes usually employed for hard rock rare earth element (REE) deposits, and are also significantly cheaper to operate.**
- **The report identified further inherent project advantages for downstream processing, including:**
  - **Rare earth mineral concentrate (REMC) from Sandy Mitchell will almost certainly be suitable for existing sulphuric acid baking refiners accepting third-party concentrate, based on the beneficiation test work by Mineral Technologies on initial exploration samples that returned high grade REMC of up to 51.9% total rare earth oxide (TREO).**
  - **The sulphuric acid baking process is by far the most widely used and understood process for treating refractory concentrates and is employed by Lynas, in both Malaysia and Kalgoorlie, as well as throughout China (e.g. Bayan Obo).**
- **Recommended forward works programme to further refine the geometallurgical model of the resource at Sandy Mitchell, with flexible processing options in line with staged development of the project.**
- **Report concluded that Sandy Mitchell benefits from several key advantages when compared with other types of REE deposits, including low operational expenditure (opex) and capital expenditure (capex) requirements, low environmental impact, earlier payback time and long-term development potential.**

Ark Mines Limited (ASX:AHK) (Ark, or 'the Company') is pleased to provide the following summary of an expert consulting report prepared by Met-Chem Consulting (Met-Chem) on behalf of Harrier Project Management, assessing the development advantages of the Company's wholly-owned Sandy Mitchell Rare Earth and Heavy Mineral Project (Sandy Mitchell) in North Queensland.

Executive Director, Ben Emery said: "We are pleased with the findings from this independent metallurgical review of Ark's fully owned Sandy Mitchell project, which are in alignment with our development strategy to extract rare earths concentrate through simple, low-cost beneficiation by gravity processing. In particular, the report highlights that, based on assay results to-date, the rare earth mineral concentrate from Sandy Mitchell is highly likely to be accepted by third-party refiners using the sulphuric acid baking process, which is the most widely used process globally for treating the monazite concentrates typically found in placer deposits."

"The report reaffirms our view that Ark is on the right track to develop Sandy Mitchell with a focus on low-cost downstream processing and a low environmental impact. The Company is now focused on a busy period of near-term news flow, commencing with a maiden Mineral Resource estimate which will be based on the Phase 1 drill programme. An updated MRE will then be announced incorporating all assay results from the Phase 2 drill program once they are received. Concurrently, metallurgical test work will remain ongoing to further refine our understanding of the nature of the deposit and assess the most beneficial downstream processing options. Further test work will support a planned prefeasibility study for Sandy Mitchell in the second half of 2024."

Comparative analysis of REE deposits

The report included an analysis and comparison of the three types of REE deposits that supply global production: placer deposits in mineral sands, hard rock deposits and ionic clay. In comparison to hard rock and ionic clay, the report summarised several advantages in placer deposits, including:

- Placer deposits often generate very high-grade rare earth mineral concentrate (REMC), typically ~50% rare earth oxide (REO) which characteristically contains monazite as the main RE host mineral. This is the main source of the 'light magnet' REs, praseodymium (Pr) and neodymium (Nd)
- They often (but not always) contain the mineral xenotime which contains significant quantities of the high-value 'heavy magnet' REs, terbium (Tb) and dysprosium (Dy).
- The deposit style of mineralogy is highly amenable to processing numerous products using standard beneficiation processes, such as gravity separation, magnetic separation and/or flotation.
- Due to the natural liberation, extensive comminution (i.e. crushing and grinding) is usually not required.
- The beneficiation processes used (gravity, magnetic and a small flotation circuit) are significantly cheaper to construct than the whole-ore flotation process usually employed in hard rock deposits.
- These beneficiation processes are also significantly cheaper to operate than hard rock flotation as they do not require elevating the slurry temperature and have the added environmental benefit of being able to be carried out with fully recyclable low-quality water.

Low-cost mining and processing of rare earths at the Sandy Mitchell placer deposit

The metallurgical review assessed the potential for the Sandy Mitchell deposit to make a high-grade rare earth mineral concentrate (REMC) through standard beneficiation techniques. The assessment was made with reference to the Mineral Technologies November 2023 analysis[1] of concentrate assay samples from Sandy Mitchell which returned REMC grades of up to 51.9% TREO.

The Mineral Technologies report indicated that the predominant REE host mineral at Sandy Mitchell is monazite, with only minor levels of xenotime present. The results are in line with the 2010 quantitative evaluation of minerals by scanning electron microscopy (QEMSCAN®) analysis carried out at Sandy Mitchell by the Japan Organization for Metals and Energy Security (JOGMEC).

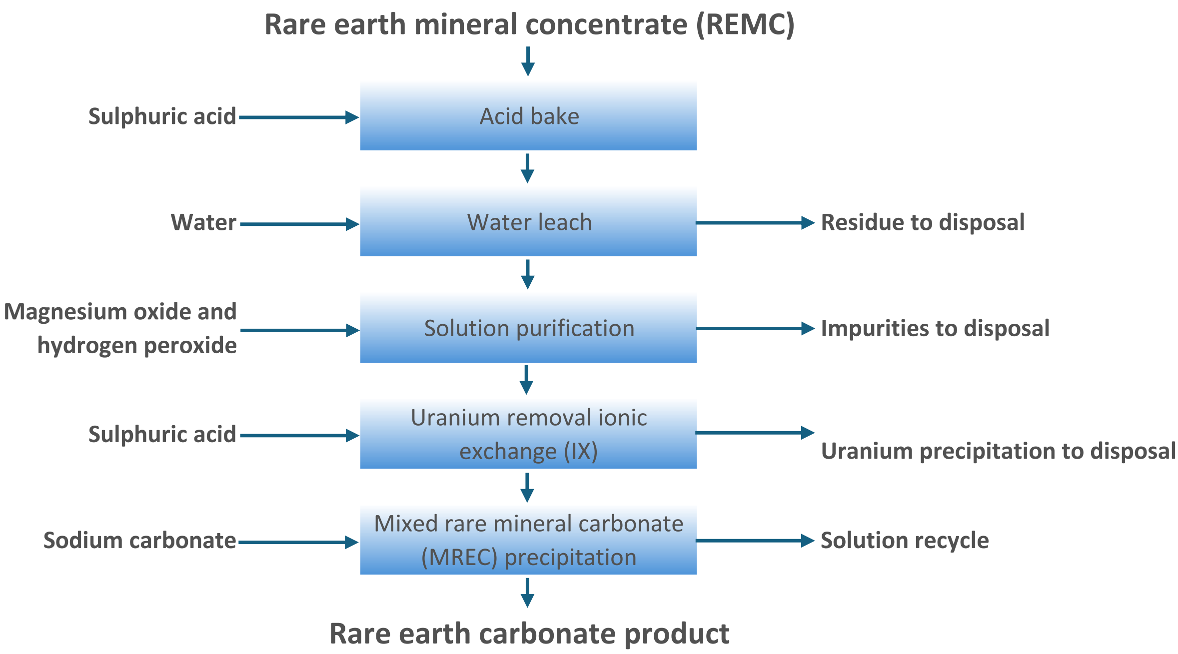
[1] Ark Mines Ltd. ASX announcement: *Beneficiation Test Work Produces a High-grade Rare Earth Concentrate at Sandy Mitchell*, 24 November 2023.

As outlined above, monazite is typically associated with the 'light magnet' REEs, neodymium (Nd) and praseodymium (Pr).

The Harrier report also highlighted that the TREO grade of REMC at Sandy Mitchell, as outlined in the Mineral Technologies report, will almost certainly be acceptable to existing sulphuric acid baking refiners accepting third-party concentrate.

The sulphuric acid baking process is the most widely used process for treating refractory concentrates. It is deployed by Lynas Rare Earths Ltd at its processing operations in Malaysia and its cracking and leaching plant in Kalgoorlie, as well as REE processing facilities throughout China.

The Harrier report also notes that processing plants are under construction in Saskatchewan, Canada; and Utah, USA, while Lynas has commissioned plans for a new rare earths processing facility in Texas. The general stages of the sulphuric acid baking process are shown in the following flow sheet.



(Source: Harrier Project Management)

The Harrier report added that processing options for Sandy Mitchell allow for flexibility and staged development. Acid baking and caustic conversion are deemed suitable if the REMC composition is, as currently expected, of a high monazite content. However, if after further samples and analysis, the xenotime content is found to be high enough, then acid baking would be the preferred option in order to optimise high value terbium (Tb) and dysprosium (Dy) extraction.

Ongoing works plans

With respect to ongoing metallurgical test works at Sandy Mitchell, the Harrier report recommended the following forward works programme:

- Continue to build up a geometallurgical model of the resource through ongoing analysis of assay results. This should include continuing to make heavy mineral concentrates which can then be sent for X-ray powder diffraction (XRD) mineralogy to further define the ratio of the REE host minerals, monazite and xenotime.

- Once a likely mining plan is identified, make a run-of-mine (ROM) composite(s) for Mineral Technologies to develop and optimise the process to produce an REMC with a grade of at least 50% REO. These optimised parameters will feed into a Class 5 scoping study, as defined by the Association for the Advancement of Cost Engineering (AACE).
- Begin desktop batch test work on the REMC bulk sample produced (notionally at 20 kg minimum) to define parameters suitable for feeding into a scoping study. For this first study, a single process route can be assumed (most likely sulphuric acid baking). Alternative routes can be tested and compared during the prefeasibility study (PFS).

Conclusion
To conclude, Harrier reiterated that the Sandy Mitchell deposit has a number of advantages that are unique to placer deposits, largely due to the ease of accessibility to the mineral sands without the need to remove overburden, or perform any blasting or drilling.

This means that mining construction, development, production and maintenance costs are kept to a minimum as there is no need for the crushing and grinding associated with extracting hard rock deposits. Processing placer deposits also has the advantage of not requiring the very large amounts of water nor the high mining rates that are needed for efficient extraction from ionic clay (IC) deposits. This, in turn, translates to a more environmentally responsible mining footprint that is more readily rehabilitated.

Other advantages of the Sandy Mitchell project include:

- lower opex and capex due to simple mining and processing requirements
- low power demand
- high-grade REMC production
- highly sought after co-products
- easily accessible deposits, resulting in a low strip ratio
- shorter development time to get into production
- earlier payback on investments
- long-term production potential
- located in Queensland, an historically mining friendly state
- Australian standards of employment and strong regulatory environment.

A copy of the report can be found on the Ark Mines website.

This announcement has been approved by the Board of Ark Mines Ltd and has been released through Ben Jarvis, Six Degrees Investor Relations, +61 413 150 448.

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About Harrier Project Management

Harrier Project Management is an Australian company which was established to provide high level project management skills to support clients in resources sectors. Harrier brings capabilities, experience and wisdom gained from large-scale project executions across a diverse profile of countries, project types and industries. Senior staff work directly on projects providing detailed advice and effective management at a premium level of execution.

Execution teams work closely with end users to develop smart solutions to protect budgets and schedules by providing focused, agile, responsive and qualitative solutions. With extensive experience from many years on projects with large companies, the Harrier execution teams bring many benefits to smaller projects that require short-term and inexpensive solutions. Harrier provides management consulting services across multiple industries including mineral processing, materials handling, refining/smelting, transport and utilities.

About Ark Mines Limited

Ark Mines Ltd. is an ASX-listed Australian mineral exploration company focused on developing its fully owned projects located in the prolific Mount Garnet and Greenvale mineral fields of North Queensland which include the following.

The Sandy Mitchell Rare Earth and Heavy Mineral Project

- Ark is rapidly advancing the 147 km2 exploration permit for minerals (EPM) 28013 Sandy Mitchell tenement – an advanced rare earth project in with an additional 138 km2 of sub blocks under application.
- The deposit has very high historical TREO grades, with high-grade pan concentrates of all critical light rare earths, including dysprosium (Dy), terbium (Tb), holmium (Ho), erbium (Er), thulium (Tm) ytterbium (Yb), yttrium (Y), excluding only Lutetium (Lu).
- Up to 25% of the TREO is neodymium (Nd) and praseodymium (Pr), i.e. both light and heavy magnet metals.
- Rare earths at Sandy Mitchell are amenable to panning a concentrate.
- Planned low-cost, fast start-up, straightforward beneficiation by gravity processing.

Gunnawarra Nickel–Cobalt Project

- Fully-owned by Ark Mines.
- Comprising 11 sub-blocks covering 36 km2.
- Borders Australian Mines Limited Sconi Project which is the most advanced scandium (SC), cobalt (Co) and nickel (Ni) project in Australia.
- Potential synergies with local processing facilities as well as options for direct shipped ore (DSO) partnerships.

Mount Jesse Copper–Iron Project

- Project covers a tenure area of 12.4 km2 located ~25 km west of Mount Garnet.
- Centred on a copper-rich magnetite skarn associated with porphyry style mineralisation
- Three exposed historical iron formations.
- Potential for near-term production via toll treatment agreement as well as the potential for DSO.

Pluton Gold Project

- Located ~90 km southwest of Cairns, near Mareeba in Queensland and covering 18 km2.
- Prospective for gold and associated base metals, such as silver (Ag) copper (Cu) and molybdenum (Mo).
- The porphyry outcrop discovered during initial field inspection coincides with regional scale geophysical interpretation.

Reliance on historical data

All sample data reported in the body of this release and in Table 1 from the JORC Code, 2012 Edition in the Appendix is based on data compiled by the Competent Person from other sources and quoted in their original context. These sources have been referenced in the text and the original Competent Persons statements may be found with the relevant documents. Some of this information is publicly available but has not been reported in accordance with the provisions of the JORC Code. While every effort has been made to validate and check the data, these results should be considered in the context in which they appear and are subject to field verification by Ark Mines.

Competent Person's 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 (AusIMM) and a Fellow of the Australasian Institute of Geoscientists (FAIG). Mr Jackson is a shareholder and director of Ark Mines. 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 Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves published by the Joint Ore Reserves Committee (JORC) of The Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Minerals Council of Australia (the JORC Code, 2012 edition). Mr Jackson consents to the inclusion of this information in the form and context in which it appears in this report. Mr Jackson confirms that the 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 Ark Mines 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 the Company's 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.

ARK MINES LTD.

Appendix A: JORC Code, 2012 Edition: Table 1, Section 1 – Sampling Techniques and Data Report

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	• *Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.* • *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.* • *Aspects of the determination of mineralisation that are Material to the Public Report.* • *In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.*	Ark Mines May to June 2023 Sandy Mitchell programme sampling techniques: • Samples are rock chips and accompanying bulk fines collected at 1 m intervals by air core drilling using 100 mm bit. • Each sample was passed through a riffle splitter with a ratio of 82.5:12.5 to yield a representative aliquot of approximately 1.5 kg collected in a prenumbered calico bag, and a remainder was retained in a numbered plastic bag, with recoveries volumetrically estimated with periodic checks by mass using a digital scale, compared against laboratory loose bulk density (LBD) measurements. • Historical works by SGS Minerals Services (SGS Oretest Job No: S0580, 2010 for JOGMEC) shows mineralisation to have a grainsize of <125 µm (i.e. very fine sand), therefore, the sample mass is adequate for representivity. • Sample for total digest assay was sent to North Australian Laboratories (NAL). • The sample for pan concentration was sub-sampled by spade channel through the remainder sample to a mass of approximately 1 kg per metre as determined by digital scales. These were then panned to a concentrate and the subsequent concentrates composited per hole. • Pan concentration composite samples were sent to IHC Mining Laboratory where samples were screened to <1 mm, heavy minerals were further separated by heavy liquid separation with yields weighed at each stage. • The final heavy mineral concentrate was subject to portable X-ray fluorescence (XRF) analysis for a limited indicative assay. • Samples for preliminary metallurgical testing were sent to Mineral Technologies and comprised the entire bulk metre remainder after riffle splitting the representative aliquot and removal of the 1 kg pan concentrate aliquot.
Drilling techniques	• *Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).*	Ark Mines May to June 2023 Sandy Mitchell programme: • Drill was by Comacchio track-mounted air core drill rig using 100 mm air core bit. • All holes were drilled vertically to refusal, or to 17.5 m, whichever occurred first.

Criteria	JORC Code explanation	Commentary
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.* • *Measures taken to maximise sample recovery and ensure representative nature of the samples.* • *Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.*	Ark Mines May to June 2023 Sandy Mitchell programme: • Recoveries were assessed by volumetric estimation by the metre based on total sample weights using a digital scale with comparison made via laboratory LBD measurements. • Each sample was passed through a cyclone with a gated chute to allow fines to fall out of the air stream. The chute was kept closed until the end of each metre had been drilled, then opened to collect the sample, and closed before drilling restarted. • No relationship between recovery and grade has yet been identified.
Logging	• *Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* • *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.* • *The total length and percentage of the relevant intersections logged.*	Ark Mines May to June 2023 Sandy Mitchell programme: • Each sample was logged by the site geology team for both qualitative and quantitative criteria by the metre for all drilling. • Drill logs for 100% of drilling are available with an overall length of 1488.3 m. • Logging is sufficient to support resource estimation, mining and metallurgical studies.
Sub-sampling techniques and sample preparation	• *If core, whether cut or sawn and whether quarter, half or all core taken.* • *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.* • *For all sample types, the nature, quality and appropriateness of the sample preparation technique.* • *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.* • *Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.* • *Whether sample sizes are appropriate to the grain size of the material being sampled.*	Ark Mines May to June 2023 Sandy Mitchell programme: • All samples were passed through the drill cyclone dry. • Sub-sampling for laboratory assay was by 87.5:12.5 riffle splitter: the bulk sample was passed evenly through the riffles with the assay aliquot collected in a prenumbered calico bag, and the reject collected in a numbered plastic bag. • Field duplicates were taken at 1 in 40 by 50:50 riffle splitter. • Historical works by SGS Minerals Services (SGS Oretest Job No: S0580, 2010 for JOGMEC) shows mineralisation to have a grainsize of <125 µm (i.e. very fine sand), therefore, the sample mass is representative. • The sample for pan concentration was sub-sampled by spade channel through the reject to a mass of approximately 1 kg per metre as determined by digital scales. • The sample for preliminary metallurgical testing was selected from the 11 m twinned hole SMDH 00014b and comprised the entire 87.5% bulk metre sample after riffle splitting to yield the representative sample and removal of the 1 kg pan concentrate aliquot.

Criteria	JORC Code explanation	Commentary

Quality of assay data and laboratory tests	• *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.*
	• *For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.*
	• *Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.*
		Ark Mines May to June 2023 Sandy Mitchell programme:
		• Metre samples were sent to NAL for total digest assay.
		• Samples were weighed then kiln dried and re-weighed.
		• 1 in 5 samples was tested for moisture content.
		• 1 in 3 samples was tested for dry loose bulk density.
		• Each sample was then pulverised in an Essa® LM-5 to 90% passing 75 µm with assay aliquot selected by laboratory splitter.
		• Al, Ca, Cr, Fe, Mg, P, S, and Ti were assayed by 4 acid digest with inductively coupled plasma optical emission spectroscopy (ICP-OES) finish.
		• Sc, Y, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu, Th, U, Zr, Hf, Nb, Ta, Si, Sr, Pb were assayed by sodium peroxide fusion in nickel crucibles with inductively coupled plasma mass spectroscopy (ICP-MS) finish.
		• Field duplicates were taken at 1 in 40 by 50:50 riffle split of the assay aliquot.
		• For total digest samples:
		  ◦ Laboratory repeats were requested at no less than 1 in 40 but carried out by the laboratory at 1 in 10.
		  ◦ Standard insertion was carried out by the laboratory at 1 in 12.
		  ◦ Assay of blank quartz flushes was requested at 1 in 40.
		• For pan concentrate samples:
		  ◦ Laboratory repeats were requested at no less than 1 in 40.
		  ◦ Standard insertion was requested of the laboratory at no less than 1 in 40.
		  ◦ Assay of blank quartz flushes was requested at 1 in 40.
		• The total radiometric count was measured on all assay samples using a pre-calibrated SAIC Exploranium® GR-110G handheld scintillometer, hired from Terra Search in Townsville.
		• Reading times were 10-second accumulations, which was the machine maximum, with 100 × 10-second background accumulations taken per day, per measuring station.
		• IHC Mining Laboratory procedures for pan concentrate composite samples was:
		  ◦ Creation of duplicates by split at a rate of 1 in 24.
		  ◦ Screen to <1 mm and weigh.
		  ◦ Heavy liquid separation (HLS) and weigh.
		  ◦ Pulverisation of the heavy mineral fines by extended grind.
		  ◦ Portable XRF analysis of the pulp.
		• Quality assurance (QA), quality control (QC) implemented is believed sufficient to establish accuracy and precision.
		• Mineral Technologies preliminary met' samples were processed at bench scale by:
		  ◦ 55.2 kg of individual samples were combined by rotary homogenisation then split to yield a representative aliquot of 38.3 kg for process testing.
		  ◦ The composite sample was screened to 2000 µm, 500 µm and wet screened at 20 µm with the 500 µm to 20 µm fraction then passed through two stages of gravity separation using Wilfley table (rougher stage).

Criteria	JORC Code explanation	Commentary

		• The Wilfley concentrate was passed through a bromoform heavy liquid separation flask (cleaner stage).
		• The HLS sinks were attrition cleaned for five minutes at a 65% wet weight density and deslimed, then passed through a Geoteknica FM3 froth flotation cell using starch depressant and sodium silicate surfactant.
		• Both sinks and floats were separately processed through a dry induced Reading magnetic separator.
		• This yielded four final streams of magnetic and non-magnetic floats (containing the bulk of REE) and magnetic and non-magnetic sinks, containing the bulk of zircon, as well as various tailings from each previous stage.
		• Percentages of material passing or rejecting at each stage were determined by mass.
		• The float magnetic fraction was further refined by semi-lift magnetic separator to determine feasibility of individual mineral species separation, but the yields of this process were not assayed due to volumetric limits from this round of processing.
		• Mineral Technologies sent samples of the tailings and product concentrates, excluding the slimes stage products, to Bureau Veritas in Brisbane for assay:
		  • Samples were dried and pulverised using tungsten carbide bowls in a vibrating pulveriser to 90% passing 75 µm with a BQF before each sample.
		  • Each sample was fused to a glass bead to determine Fe, Si, Al, Cr, Mg, Mn, P, U, Th, V, Nb, S, Ca, K, Ce, Sn, Ti, and Zr oxides by XRF.
		  • Loss on ignition (LOI) was determined by mass after heating to 105 degrees Celsius (°C), the drying temperature; and 1000 °C, the fusing temperature.
		  • Ce, Dy, Er, Eu, Gd, Ho, La, Lu, Nd, Pr, Sc, Sm, Tb, Tm, Y and Yb were determined by laser ablation of fused bead with ICP-MS finish.
		  • Standards were assayed at 1 in 3 to cover all elements in the suite for both assay methods.
		  • Laboratory repeats were carried out at 1 in 4.

Verification of sampling and assaying	• *The verification of significant intersections by either independent or alternative company personnel.* • *The use of twinned holes.* • *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.* • *Discuss any adjustment to assay data.*	Ark Mines May to June 2023 Sandy Mitchell programme: • Significant intersections have not yet been determined. • Hole SMDH 00014b is twinned by SMDH 00014bt for QA/QC purposes. Further twinning is planned for second-stage drilling. • Data was entered into Microsoft excel then verified against hard copy data, followed by import into Datamine Studio RM for validation. • Primary data is stored as hard copy, electronic tables in CSV format and Datamine format. • Assay data yielding elemental concentrations for rare earth elements (REE) within the sample are converted to their stoichiometric oxides (REO) in a calculation performed using the conversion factors in the table below.

<table>
<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
<tr><td></td><td></td><td>

Rare earth oxide is the industry accepted form for reporting rare earths. The following calculations have been used for reporting:

TREO = La_2O_3 + CeO_2 + Pr_6O_{11} + Nd_2O_3 + Sm_2O_3 + Eu_2O_3 + Gd_2O_3 + Tb_4O_7 + Dy_2O_3 + Ho_2O_3 + Er_2O_3 + Tm_2O_3 + Yb_2O_3 + Lu_2O_3 + Y_2O_3.
CREO = Nd_2O_3 + Eu_2O_3 + Tb_4O_7 + Dy_2O_3 + Yb_2O_3
LREO = La_2O_3 + CeO_2 + Pr_6O_{11}.
HREO = Sm_2O_3 + Eu_2O_3 + Gd_2O_3 + Tb_4O_7 + Dy_2O_3 + Ho_2O_3 + Er_2O_3 + Tm_2O_3 + Yb_2O_3 + Lu_2O_3 + Y_2O_3.
ND/Pr = Nd_2O_3 + Pr_6O_{11}.
TREO – Ce = TREO – CeO_2.
%NdPr + NdPr/TREO.

<table>
<tr><th>Element name</th><th>Element oxide</th><th>Oxide factor</th></tr>
<tr><td>Cerium (Ce)</td><td>CeO_2</td><td>1.2284</td></tr>
<tr><td>Dysprosium (Dy)</td><td>Dy_2O_3</td><td>1.1477</td></tr>
<tr><td>Erbium (Er)</td><td>Er_2O_3</td><td>1.1435</td></tr>
<tr><td>Europium (Eu)</td><td>Eu_2O_3</td><td>1.1579</td></tr>
<tr><td>Gadolinium (Gd)</td><td>Gd_2O_3</td><td>1.1526</td></tr>
<tr><td>Holmium (Ho)</td><td>Ho_2O_3</td><td>1.1455</td></tr>
<tr><td>Lanthanum (La)</td><td>La_2O_3</td><td>1.1728</td></tr>
<tr><td>Lutetium (Lu)</td><td>Lu_2O_3</td><td>1.1371</td></tr>
<tr><td>Neodymium (Nd)</td><td>Nd_2O_3</td><td>1.1664</td></tr>
<tr><td>Praseodymium (Pr)</td><td>Pr_6O_{11}</td><td>1.2081</td></tr>
<tr><td>Scandium (Sc)</td><td>Sc_2O_3</td><td>1.5338</td></tr>
<tr><td>Samarium (Sm)</td><td>Sm_2O_3</td><td>1.1596</td></tr>
<tr><td>Terbium (Tb)</td><td>Tb_4O_7</td><td>1.1762</td></tr>
<tr><td>Thorium (Th)</td><td>ThO_2</td><td>1.1379</td></tr>
<tr><td>Thulium (Tm)</td><td>Tm_2O_3</td><td>1.1421</td></tr>
<tr><td>Uranium (U)</td><td>U_3O_8</td><td>1.1793</td></tr>
<tr><td>Yttrium (Y)</td><td>Y_2O_3</td><td>1.2699</td></tr>
<tr><td>Ytterbium (Yb)</td><td>Yb_2O_3</td><td>1.1387</td></tr>
</table>
</td></tr>
<tr><td>Location of data points</td><td>

Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.
Specification of the grid system used.
Quality and adequacy of topographic control.
</td><td>Ark Mines May to June 2023 Sandy Mitchell programme:

An initial collar survey by handheld GPS was conducted as a failsafe, with an expected accuracy of ±5000 mm in X and Y, and ±50000 mm in Z.
Full survey by Twine Surveys was subsequently carried out using real-time kinematic global positioning system (RTK GPS) with and accuracy of ±20 mm in X and Y, and ±200 mm in Z.
Twine Survey's professional RTK survey was implemented between drill collars and used to generate a digital terrain model for high-quality topographic control.
All survey data is recorded in Map Grid of Australia (MGA) 2020 zone 54 with the Australian Height Datum (AHD).
</td></tr>
<tr><td>Data spacing and distribution</td><td>

Data spacing for reporting of Exploration Results.
Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation
</td><td>Ark Mines May to June 2023 Sandy Mitchell programme:

Data spacing for the northern three lines of drilling is 60 m × 120 m.
Data spacing for the southern three lines is 120 m × 120 m.
No compositing has been applied to 1 m samples for total digest assay.
Pan concentrates were composited per drill hole.
A preliminary metallurgical sample was composited as
</td></tr>
</table>

Criteria	JORC Code explanation	Commentary
	procedure(s) and classifications applied. • *Whether sample compositing has been applied.*	discussed under *Laboratory tests* earlier in this table. • Representative metre samples for total digest assay were not composited, residual sub-metre hole ends were similarly assayed separately to preserve geometric representation.
Orientation of data in relation to geological structure	• *Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.* • *If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.*	Ark Mines May to June 2023 Sandy Mitchell programme: • Deposit type is fluvial channel placer with channels believed orientated north to north-east and mesoscale structure oriented sub-horizontal arcuate. The applied vertical sampling is the optimal orientation for the deposit type. • No bias by orientation or spatial relationships has been identified.
Sample security	• *The measures taken to ensure sample security.*	Ark Mines May to June 2023 Sandy Mitchell programme: • Samples were collected after logging and transported at the end of each day to the company locked storage in Chillagoe. • Samples were boxed in closed pumpkin crates, wrapped in plastic for shipping by courier to the laboratory in Pine Creek, Northern Territory (NT). • Samples for IHC Mining Laboratory and Mineral Technologies were similarly boxed, wrapped and couriered to the laboratories, but before shipping were stored on site at the Ark fenced bulk bag farm.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	Ark Mines May to June 2023 Sandy Mitchell programme: • Full audit of sampling techniques and data available to date was carried out by geological consultants, Empirical Earth Science. • EES noted that the composited concentrate samples results in assay representing diluted material with no internal separation possible. • EES noted that the hand-panning process of such fine material is prone to heavy mineral loss, with the possibility that concentrates underrepresent the total heavy mineral fraction. • ESS noted that the portable XRF technique used in initial concentrate assays is not suited to yield full REE data, but that the results can inform approximate proxy calculations for the full REE suite. • EES noted that none of these factors apply to the representative metre samples and total digest assays, which meet best practice. • EES noted that the preliminary metallurgy was of insufficient volume and source dispersion to represent the entire eventual resource, but was well suited to its stated purpose of proof of concept, testing recovery technique, and process to inform the next stage of bulk metallurgy.