BCM EXPANDS EMA PROJECT EXPLORATION AND DEVELOPMENT PROGRAM ON MULTIPLE WORK FRONTS

Highlights

- 2024 exploration program commences at Ema:
    - Four exploration auger rigs have commenced operating within the Ema central high-grade zone, over a 12-week program
    - Infill drilling to collect geochemical and hydrogeological information to support advanced development and economic studies through feasibility
    - Updated Mineral Resource Estimation due in Q4 2024
- ANSTO additional metallurgical testing is continuing with next stage of results imminent
- Company reviewing low CAPEX low RISK option project establishment, to be evaluated during the scoping study
- Quotes have been received from several engineering firms to commence and manage the scoping study level of assessment which will be completed during 2024
- Environmental baseline data collection to re-commence in July with a view to submitting an application for a Preliminary Licence in Q1 2025
- The Company is engaging with multiple parties interested in transacting in offtake arrangements.

Andrew Reid, Managing Director, commented:

"Don't let the relatively lower head grade mislead you, we have defined mineralisation that has a high composition of NdPr[1] and keeps on delivering strong metallurgical results, producing remarkable recoveries of MREO averaging 68%[2] utilising extremely low concentrations of reagents.

We are now in the fortunate position of having to evaluate several low CAPEX entry start-up processing routes which will guide us through the scoping study period and ultimately define the process flowsheet, which is currently being performed at ANSTO.

The Ema project, which has similar physical characteristics to the large Chinese ionic clay deposits is shaping up to be a low CAPEX low OPEX low RISK project that is unique outside of China, producing a product which is ready to go into any rare earth separation plant anywhere in the world.

We look forward to advancing the project over the coming months and presenting results to the market ".

Brazilian Critical Minerals Limited (**ASX: BCM**) ("**BCM**" or the "**Company**") is pleased to provide an update on work programs scheduled for the 2nd half of 2024 with respect to the Ema Rare Earths Project which hosts an Inferred Mineral Resource[1] of 1.02Bt @ 793ppm TREO.

BCM is embarking on an aggressive multi-pronged approach to the Ema project development over the remaining portion of 2024. This work includes the commencement of a major infill auger drilling program to upgrade the high-grade portion of the maiden Ema Inferred Mineral Resource Estimate (MRE) to an Indicated JORC category (Figure 1).

Resource Drilling

BCM has embarked on a 240-hole auger drilling program which will be completed over the next 12 weeks. The primary aim of the drilling is to convert sufficient tonnage of material from the JORC inferred category to indicated which will support the initial mining/treatment operations currently being considered. An updated MRE will also be re-calculated during Q4 2024.

Drilling is planned to intersect the less weathered saprolite zone where the bulk of the high-grade ionic mineralisation has been identified (10-20m below surface) before intercepting the fresh basement rhyolite 20-30 metres below surface.

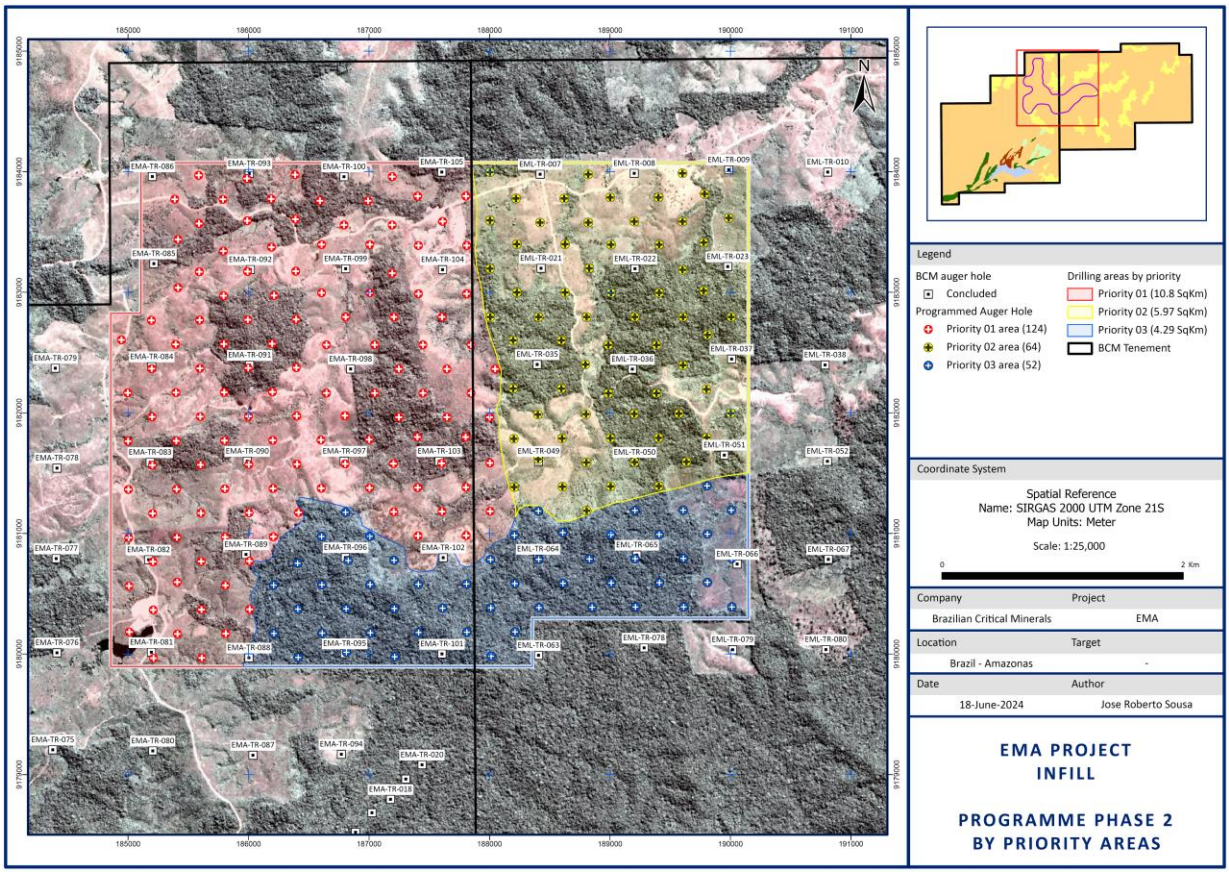

Figure 1. Satellite image showing previously drilled holes plus the new auger infill drilling program over the central high-grade portion of the MRE.

Scoping Study

On the back of a large, announced Mineral Resource Estimate[1] and very high rates of economic recovery, the Board has approved a formal Scoping Study on the technical and economic development of the Ema project which will examine the potential for a standalone low capital treatment/development pathway for the project.

To date, the Company has solicited and received several quotations from both Australian and Brazilian engineering houses with suitable rare earths experience to manage and expediate a scoping study level of assessment.

A final decision will be competed in the first half of July, with the study timeline expected to be completed during Q4 2024.

ANSTO - Metallurgical Testwork

The Company has completed several rounds of metallurgical bench scale testwork[2] (Figure 2) in both Brazil and Australia, the results of which have shown that the Ema project has some of the world's highest rates of rare earth recoveries for any ionic clay deposit anywhere in the world[2], averaging 68% MREO (Nd,Pr,Dy,Tb).

The Company has also embarked on column leaching tests, with early positive indications that a lower capital intensive project layout or setup might be possible. The results of this work are expected to be published over the coming weeks when completed, with an ultra-low capex option to be incorporated into the scoping study for assessment.

These results were possible because the physical rock characteristics (permeability) of the Ema clay material coupled with the rolling topography of the area and with the high-grade portions occurring consistently in the less weathered (saprolite) zone allow simple, easy and quick leaching of the rare earths elements using extremely low dosage rates of reagents.

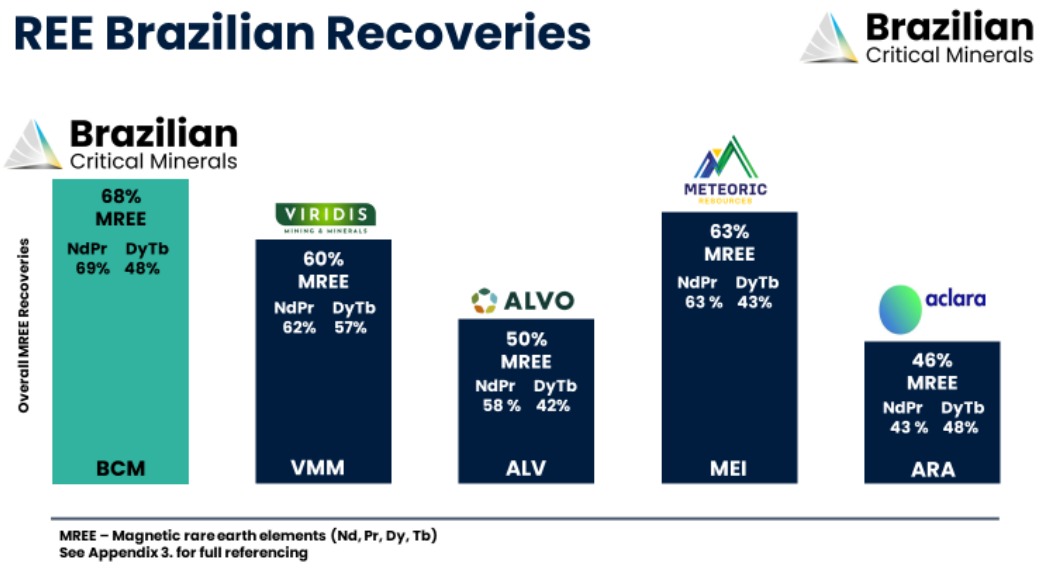

Figure 2. Rare earth recovery comparison of ionic clay hosted deposits currently defined within Brazil.

These kinds of attributes display a strong similarity with the world-class Zudong deposit in Jiangxi Province, South China. These characteristics suggest likely amenability to treatment by heap leaching or in-situ leaching, with significantly lower capital and operating cost structures compared to many potential projects.

Environmental Baseline Data Collection to Support Preliminary Licence Application

The Company is continuing baseline environmental data gathering at the Ema Project throughout the year covering both wet and dry seasons. Baseline environment data collection is being completed in partnership with a Brazilian environmental consultancy who is a specialist in providing services for Environmental Licensing in Brazil.

Reports on the field work will be completed by early 2025 and will inform the placement of Project infrastructure, the assessment of potential impacts, and the development of environmental mitigation measures including operating and closure aspects of the project which will all be incorporated into the Preliminary Licence application to the state environmental authority.

Corporate

The Company has been actively engaging with numerous multi-national parties with deep pedigrees in rare earth processing with a view to establishing offtake and/or other agreements.

The feedback on the Ema project to date and samples sent to these respective parties for their own analysis has been positive. The Company will continue to connect with all interested parties that are aligned with the Company strategy of establishing long-term relationships.

Next steps and upcoming news flow

- Metallurgical test work results from ANSTO – heap leach column and radioactive nuclei test results
- Investigate the technical and environmental requirements to mine/process Ema by heap leach and/or in-situ leaching processes
- Continue environmental studies for Preliminary Licence permit application
- Drilling results commencing August
- Commence Scoping Study in July

Enquiries

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COMPLIANCE STATEMENT

This announcement contains information on the Ema Project extracted from ASX market announcements dated 22 May 2024 released by the Company and reported in accordance with 2012 edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves" (2012 JORC Code). BCM is not aware of any new information or data that materially affects the information include in the original market announcement.

FORWARD LOOKING STATEMENTS

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About Brazilian Critical Minerals Ltd

Brazilian Critical Minerals Limited (BCM) is a unique mineral exploration and mineral processing technology company listed on the Australian Securities Exchange.

Its major exploration focus is Brazil, mainly in the southern Amazon, a region BCM believes is vastly underexplored with high potential for the discovery of world class gold-PGM, base metal and Ionic Adsorbed Clay (IAC) Rare Earth Element deposits. BCM's key assets are the Três Estados and Ema gold-PGM projects and the REE projects at Ema, Ema East and Apui. The company has 718km² of exploration tenements within the Colider Group and adjacent sediments, a prospective geological environment for gold, PGM, base metal and REE deposits.

BCM is also developing an environmentally friendly and sustainable beneficiation process to extract precious metals using a unique bio leach process. This leading-edge process, that extracts precious metals naturally, is being developed initially for the primary purpose of economically extracting Platinum Group metals from the Três Estados mineral deposit. It is expected that such technology will be transferable and relevant to many other PGM projects. BCM believes that this processing technology is critical in the environmentally timely PGM space and supports a societal need to move towards a carbon neutral economy.

EMA Project Summary

The Ema project is located in the State of Amazonas in Brazil (Figure 4). The discovery of rare earths in Ema was announced in May 2023, with its maiden MRE announced just one year later.

Figure 4. Location of the Ema project in Brazil

The Ema ionic REE project (Ema and Ema East leases) is unique amongst Brazilian REE projects in that it shares almost identical characteristics with the REE deposits developed over felsic volcanic rocks in southwest China, the world´s largest known ionic clay region.

The project comprises 189 km2 of felsic volcanic over which 194 auger holes totalling 2,749 metres have been completed to date (Figure 3), covering 82 km2 (<50% of available area).

Exploration drilling has been conducted with hand-held auger rigs to date, which offers the advantage of low-cost, rapid deployment and mobility. One key constraint of auger drilling is the depth limitation, with the deepest holes, generally containing the highest-grade results, drilled to ~20m, with all holes stopping upon encountering the fresh rhyolite rock.

Additionally, most of the exploration to date has been conducted across hill slopes, on widely spaced (800m) centres, with limited drilling in the valleys and foothills. Future planned drilling in these limited areas could potentially facilitate penetration into higher-grade zones at depth.

The entire enriched zone in Ema East is similar in grade and thickness to that at Ema, contained within the 10 metres of regolith sitting directly above the saprock/fresh rock interface, with a clear increase in grade with depth.

This enrichment at the base of the regolith profile highlights an opportunity to potentially target higher-grade mineralisation with a drilling method able to constantly penetrate this saprock zone. The current estimated “average grade” of the lower horizon within a 12km2 high grade zone is 1,048ppm TREO, based on a cut-off of 700ppm TREO combined with NdPr >100ppm.

The first pass leach ammonium sulphate (AMSUL) test results from standard assays at SGS confirm high recoveries of the four most important rare earth elements, neodymium, praseodymium, dysprosium and terbium with individual elements producing recoveries of up to 83%.

The recoveries received to date indicate that a significant proportion of the REE's are present as ionically adsorbed clays, confirming that Ema, which currently stretches over >80km2 has the potential to become one of the largest ionic clay hosted deposits defined outside China.

Ema Mineral Resource Estimate

An Inferred Mineral Resource Estimate (MRE) was prepared for the Ema REE project, constrained by different cut-off grades, by the consultancy group GE21 Consultoria Mineral Ltda (GE21) and reported in accordance with the JORC Code (2012) (table 1) and (figure 5).

Table 1. Ema REE Project 2024 Mineral Resource Estimate – by cut-off grade

JORC Category	cut-off ppm TREO	Tonnes Mt	TREO ppm	NdPr ppm	DyTb ppm	MREO ppm	MREO:TREO %
Inferred	0	1,340	694	163	15	178	26
Inferred	**500**	**1017**	**793**	**199**	**17**	**216**	**27**
Inferred	600	863	836	218	18	236	28
Inferred	700	685	885	237	20	257	29
Inferred	800	494	936	259	21	280	30
Inferred	900	331	977	278	22	300	31

References:

1 Brazilian Critical Minerals (ASX:BCM) Massive Maiden Mineral Resource for Ema Project 22.04.24

2 Brazilian Critical Minerals (ASX:BCM) World Class REE Recoveries at Ema Project on 13.03.24