ASX Announcement
Released 24th January 2025

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QUARTERLY ACTIVITIES REPORT

For the period ending 31st December 2024

Highlights

- ANSTO test work produces a high value bulk mixed rare earth carbonate (MREC) product from Ema ionic clay rare earth material
- Magnet rare earth elements (MREE's) comprised a very high 38% of final REO basket composition
- High TREO content in final MREC calculated at 55.3%, setting an industry benchmark for a basket price to be developed utilising magnesium sulfate
- MREC production utilised an environmentally friendly magnesium-based reagent stream, eliminating use of ammonium sulfate
- High purity (98%) low impurity (~2.0%) MREC, after only 30 minutes at target pH using magnesium oxide
- High MREE recoveries >99% in the MREC precipitation stage after 2 hours of mixing with at target pH using magnesium bicarbonate
- Mineralisation now confirmed to be widespread within central starter area over 21km^2
- Strongly elevated NdPr grades directly above the fresh bedrock contact are ideal for supporting the ISR mining approach
- Ben Donovan appointed as Non-Executive Director
- Scoping Study progressed substantially and on track for release during Q1 2025
- Logistics route involves trucking 130kms from Ema project to Prainha where regularly serviced 600t barges take cargo to Port of Chibatão, one of Latin America's largest private ports where Panamax sized vessels dock
- Environmental baseline assessment on track for completion during Q2 2025
- Cash and cash equivalents as of December 31st 2024 of A$1.68M

Quarterly business update overview: To watch an accompanying overview of the quarterly business update, and ask any questions, please visit the https://braziliancriticalminerals.com/link/NPwQ2e

Significant drilling results > 1,000ppm reported during the quarter include:

- 10m@**1,103ppm TREO** from 10m (EMA-TR-236), ending in **1,817ppm** TREO
- 9.7m@**1,081ppm TREO** from 2m (EMA-TR-229), ending in **1,398ppm** TREO
- 10m@**1,086ppm TREO** from 8m (EMA-TR-258), ending in **1,765ppm** TREO
- 9.6m@**1,149ppm TREO** from 5m (EMA-TR-245), ending in **837ppm** TREO
- 9.8m@**1,107ppm TREO** from 3m (EMA-TR-238), ending in **771ppm** TREO
- 9.3m@**1,347ppm TREO** from 4m (EMA-TR-196), ending in **891ppm** TREO

- 6m@**1,103ppm TREO** from 8m (EMA-TR-182), ending in **1,767ppm** TREO
- 8m@**1,026ppm TREO** from 2m (EMA-TR-192), ending in **1,418ppm** TREO
- 9m@**931ppm TREO** from 1m (EMA-TR-172), ending in **1,193ppm** TREO
- 9m@**725ppm TREO** from 3m (EMa-TR-186), ending in **1,180ppm** TREO

Brazilian Critical Minerals Limited (**ASX: BCM**) ("**BCM**" or the "**Company**") is pleased to provide details activities during the quarter ended 31 December2024 in the Apuí region of Brazil (Figure 1).

Figure 1. Location of the Ema Project, Brazil.

Safety

No accidents or incidents were reported during the quarter.

2024 Drilling Program

A total of 127 holes (47%) of the 270-hole drilling program returned assay results during the quarter. Results generally returned thick mineralised intercepts with the highest grades of NdPr being found directly above the fresh rock interface.

Drilling was completed on 300m centres within the high priority starter zone (red dashed line area Figure 2) which comprises approximately 24% of the previously announced **977Mt**[1] MRE area.

Results indicate a strong increase in magnetic rare earths (MREO's) grade towards the base of the weathering profile in the saprock portion of the profile with intervals generally 5-10m thick, considered ideal for in-situ leaching purposes.

The significant increase in the proportion of valuable heavy rare earth elements (HREEs) to over 31% of the MREO composition at the end of the holes underscores the economic potential of the lower saprolite zone, which is the key target area for the scoping study as the company endeavours to develop these areas which could be highly beneficial towards developing a low cost in-situ leach operation.

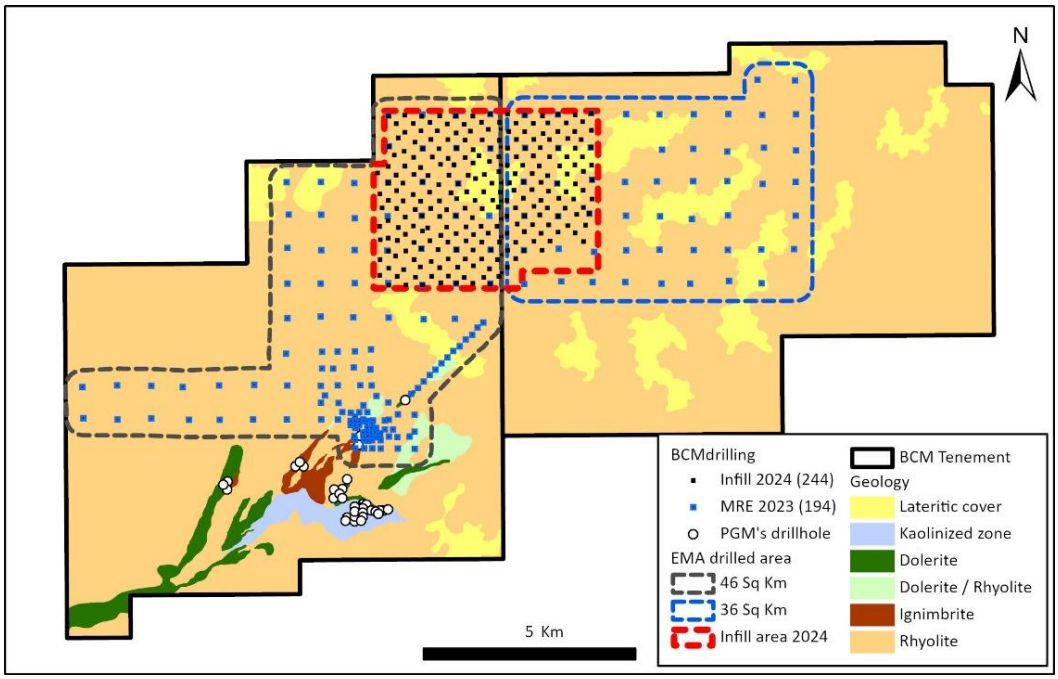

Figure 2 - Ema REE project – Mineral Resource covering 82 km2 with auger holes on 800m spacing and infill auger holes on 300m centres over 21 sq km.

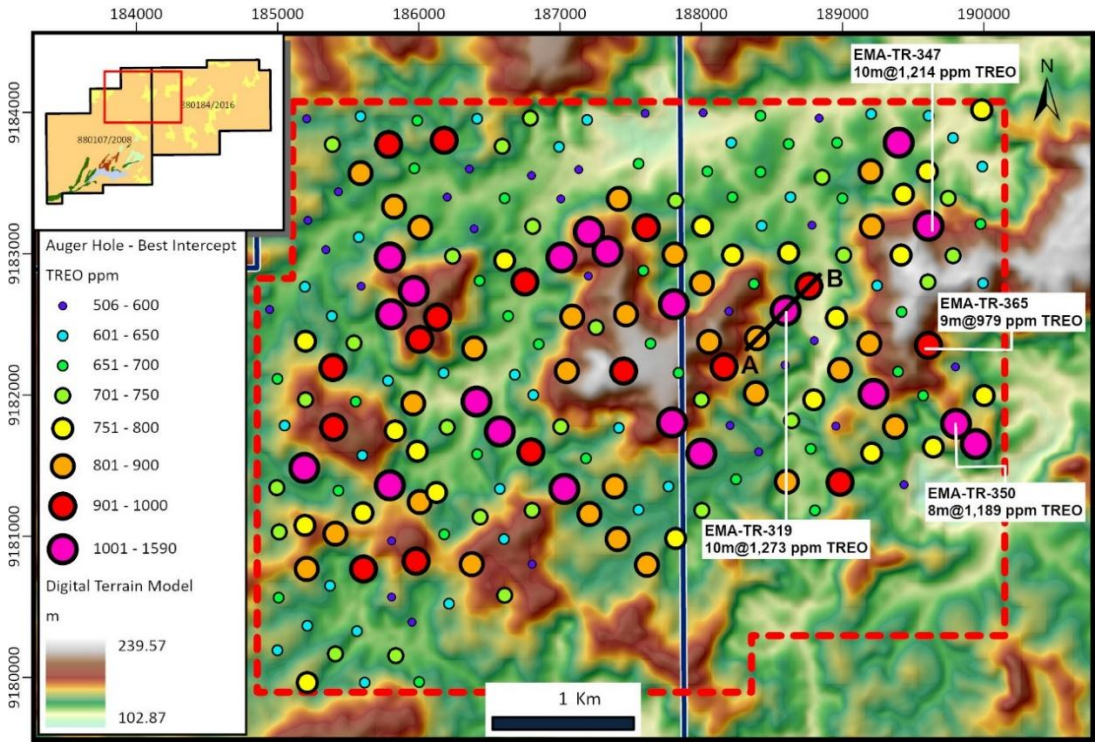

Figure 3 – Location map of the auger infill holes with assay results received to date, with cross section A-B.

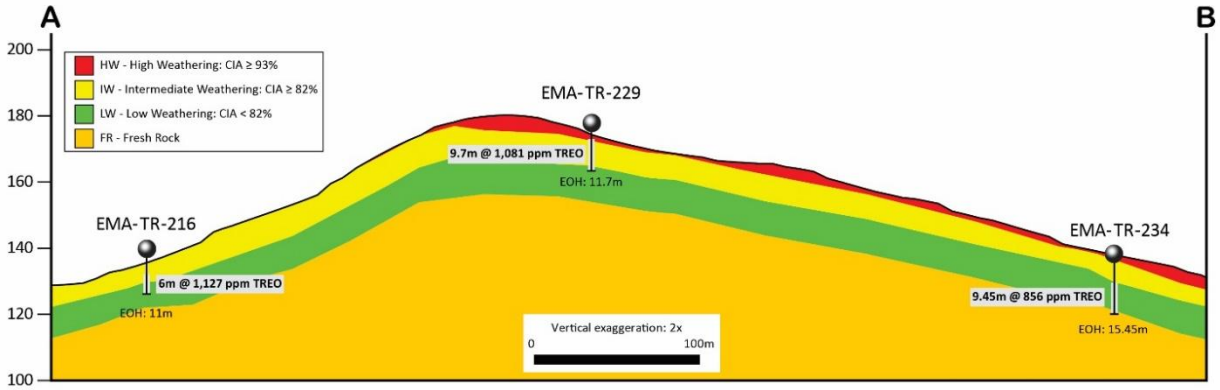

Figure 4 - Cross section A-B from holes EMA-TR-229, EMA-TR-216 and EMA-TR-234

Holes EMA-TR-229, 216 and 234 (Figure 5) are examples of the lower enrichment zone with the presence of high NdPr grades at the base of drilling in the lowest weathering zone. It is anticipated that this enrichment will be present in all holes in which the low weathering horizon has been intersected.

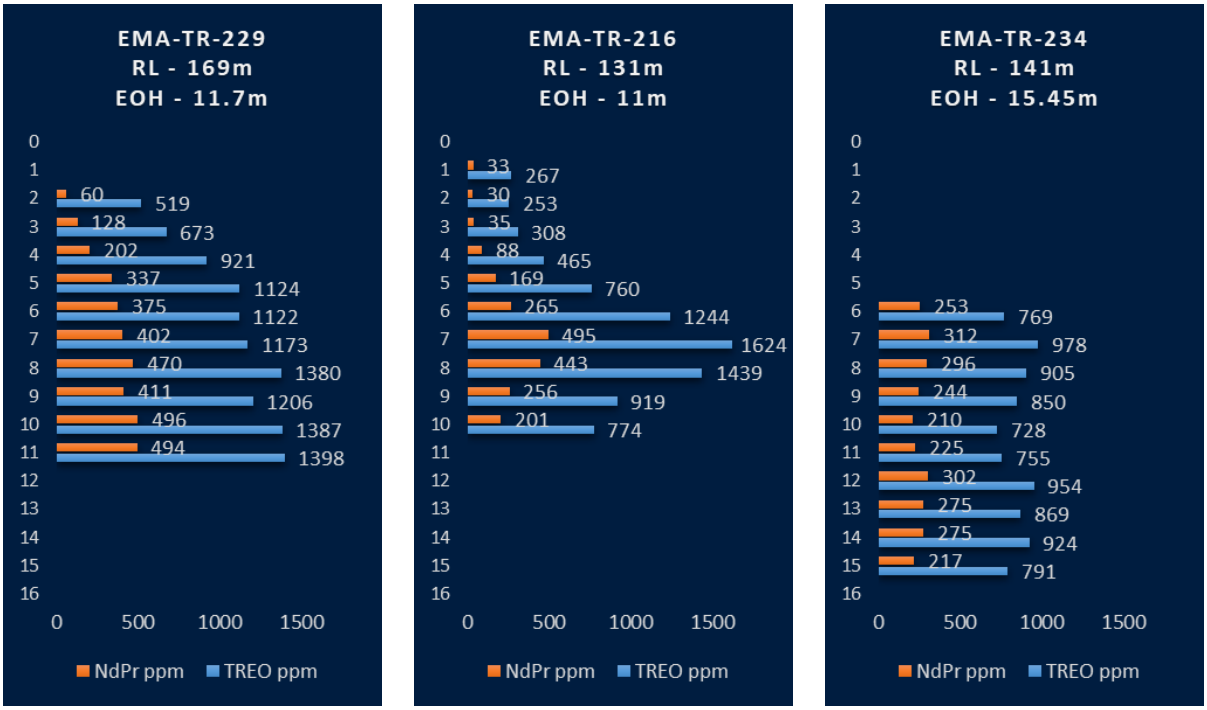

Figure 5 – Drill-hole profiles showing typical enrichment zone with high NdPr grades close to the fresh rock interface.

MREC Production

The Mixed Rare Earth Carbonate (MREC) produced from the test work contained 55.3% rare earth oxides (REO) and only ~2.0% impurities based on test work conducted using a 41kg sample from the Ema 2 master composite sample. Through the impurity removal and carbonate precipitation process steps, approximately 33.2 grams of high-quality MREC was generated, Figure 6.

Figure 6. Simple 4 step process flow sheet for ionic clay MREC production at Ema Project

This result highlights the efficiency of the magnesium sulfate process on the Ema material in producing a high-grade, low-impurity MREC product, which is critical for meeting industry standards and optimizing the economic viability of the project at the same time as generating outstanding revenue potential through the basket price calculation (Figure 7). The purity level of the MREC positions this product as highly competitive in the market, further validating the potential path taken to process the Ema material.

The composition of the magnet elements in the final MREC and recoveries achieved through the processing steps in testwork result in an exceptionally high basket price despite the significantly lower head grade of the tested samples relative to our peers, and when combined with a potentially low-cost mining and processing flow sheet, has the potential to place the project in a good position to tap into the rapidly growing demand. The table below compares the final MREC products of BCM, with our key Brazilian peers, Viridis Mining and Minerals Ltd (VMM), and Meteoric Resources NL (MEI).

FINAL MREC		BCM		VMM[1]		MEI[1]	
Head Grade (ppm)		965		4,472		4,439	
Agent		Magnesium Sulfate		Ammonium Sulfate		Ammonium Sulfate	
Time		30 Minutes		30 Minutes		30 Minutes	
pH		4.5		4.5		4.5	
Molar		0.3		0.3		0.5	
Oxide	Price (01.11.24) USD/kg	%	Basket $	%	Basket $	%	Basket $
La2O3	$ 0.56	34.7	$ 0.19	44.5	$ 0.25	57.6	$ 0.32
CeO2	$ 1.01	8.9	$ 0.09	2.4	$ 0.02	1.4	$ 0.01
Pr6O11	$ 60.45	7.1	$ 4.31	8.3	$ 5.04	8.6	$ 5.17
Nd2O3	$ 60.45	29.1	$ 17.61	29.2	$ 17.62	22.0	$ 13.30
Sm2O3	$ 2.10	4.6	$ 0.10	3.2	$ 0.07	2.4	$ 0.05
Eu2O3	$ 27.35	0.5	$ 0.15	0.8	$ 0.23	0.6	$ 0.16
Gd2O3	$ 24.68	2.9	$ 0.71	2.1	$ 0.52	1.5	$ 0.37
Tb4O7	$ 839.95	0.3	$ 2.28	0.3	$ 2.18	0.2	$ 1.68
Dy2O3	$ 247.42	1.4	$ 3.39	1.2	$ 2.92	0.8	$ 1.98
Ho2O3	$ 72.54	0.2	$ 0.18	0.2	$ 0.15	0.1	$ 0.07
Er2O3	$ 42.60	0.7	$ 0.30	0.5	$ 0.20	0.3	$ 0.13
Tm2O3	$ 113.31	0.1	$ 0.11	0.1	$ 0.06	0.0	$ 0.01
Yb2O3	$ 14.06	0.6	$ 0.08	0.3	$ 0.04	0.1	$ 0.01
Lu2O3	$ 759.12	0.1	$ 0.64	0.0	$ 0.30	0.0	$ 0.08
Y2O3	$ 5.90	8.7	$ 0.51	6.9	$ 0.41	4.5	$ 0.27
Basket Price (TREO)		**$**	**30.66**	$	30.01	$	23.61
Basket Price (NdPrDyTb)		**$**	**27.59**	$	27.76	$	22.12
MREO %		37.9		38.9		31.6	
TREO %		100.0		100.0		100.0	

Figure 7. Basket Price calculation and comparison showing high value MREC product relative to Brazilian peers. Spot price assumptions https://giti.sg/markets/markets_files. 1 Viridis Mining and Minerals (ASX:VMM) ASX Announcement "Colossus Maiden Mixed Rare Earth Carbonate (MREC) Product 24.09.24

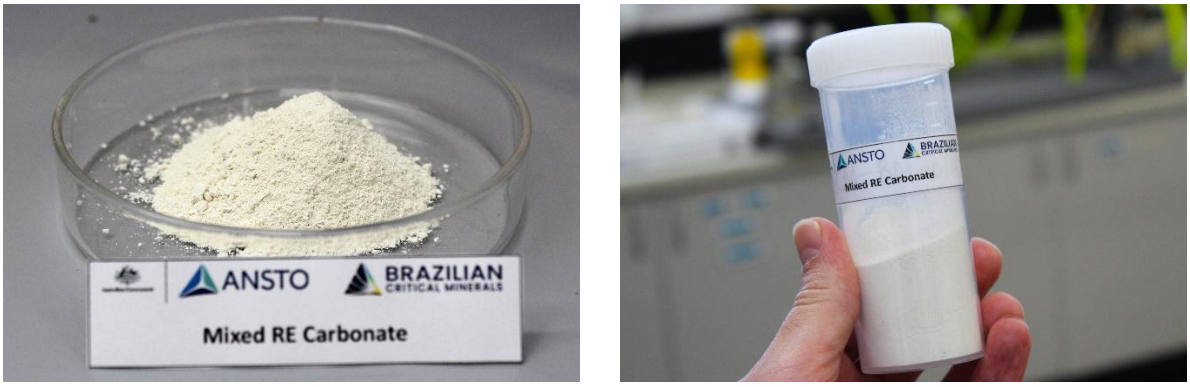

Figure 8. Final Mixed rare earth carbonate product, 33.2 grams, produced at the ANSTO facilities in Sydney.

Impurity Removal (MREC)

The presence of impurities in REE-containing solutions has an enormous impact on not only the final REE products (MREC), but also on the efficiency of processing. Removal of impurities like aluminium and iron are vital as they can be detrimental to further downstream solvent extraction separation circuits.

Figure 9. Step 2 of impurity removal in the simple 4 step process flow sheet to produce an MREC.

A target pH was determined based on results of the Process Development Program, with freshly prepared ~20 wt% magnesium oxide slurry added to achieve the impurity removal target pH. A total residence time of 30 minutes at the target pH was maintained.

The testwork revealed that pH played a significant role in the selective removal of Fe impurities and resulted in the production of high-purity, industry-grade REEs. Through this method the precipitated solid primarily contained residual aluminium, silica, and magnesium, with minimal loss of REEs. The method achieved a high purity level of ~98% with the remaining ~2.0% containing elements listed below (Figure 5).

BCM (Impurities in MREC)		
Impurity	**Oxide**	**Value %**
Alumiumium	Al2O3	0.52
Calcium	CaO	0.05
Cobalt	CoO	<0.001
Copper	CuO	<0.001
Iron	Fe2O3	0.06
Potassium	K2O	0.05
Magnesium	MgO	0.52
Manganese	MnO	0.03
Sodium	Na2O	0.08
Nickel	NiO	0.24
Lead	PbO	0.01
Silica	SiO2	<0.2
Zinc	ZnO	0.07
Thorium	Th	<0.001
Uranium	U	0.01

Figure 10. Percentage of impurities carried through to final mixed rare earth carbonate. Impurities totalled ~2.0%.

2 Logistics Routes Identified

Company identified logistics route involving trucking 130kms from Ema project to Prainha where regularly serviced 600t barges take cargo to Port of Chibatão. Route involves direct barging to one of Latin America's largest private ports where Panamax sized vessels dock (Port of Chibatão) (Figure 11).

Inspections and discussions have confirmed the suitability of the Port of Prainha, 130kms by road from the Ema Project, then barging to the Port of Chibatão, with capacity to handle Panamax sized vessels. Several alternative routes to port have also been identified.

The transport review confirmed that the quality of the road access between the site and port was of a high standard and suitable for transporting bulk materials at the required rate all year round. The river access from the Port of Prainha to the Port of Chibatão (Figure 11) takes approximately 5-6 days and can carry cargos up to 600t, significantly more than the project´s requirements for construction and operating purposes.

Commercial discussions have been initiated, relating to a proposed solution for the storage and ship loading of the Mixed Rare Earth Carbonate (MREC) final product.

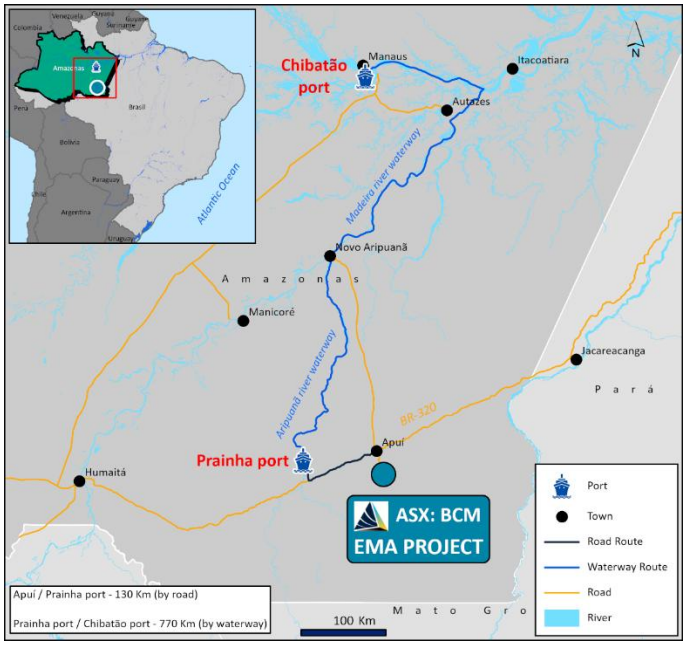

Figure 11. Logistics Route from Ema Project to Port of Chibatão.

Update on Scoping Study

BCM significantly advanced the Ema scoping study during the quarter and remains on track to deliver the final report in the March 2025 quarter.

Once the scoping study is complete, it will proceed directly to operations of the permeability field trials and commence a feasibility study targeting the end of 2025 for completion.

Update on Environmental Baseline Assessment

Environmental Baseline Data Collection continuation and expansion of the collection of certain environmental baseline data to support the Ema Environmental Impact Assessment which is being conducted by CERN has been focusing on:

- Basic Engineering: The basic construction and waste engineering, for the preparation of the environmental impact assessment
- In-depth analysis of potential environmental impacts due to the construction and operation of the production facility, particularly focusing on the construction of evaporation ponds.
- Mitigation Strategies: Development of comprehensive plans to mitigate any identified environmental and social impacts, including water management plans and habitat restoration initiatives.
- Stakeholder Engagement: Continued engagement with local communities and stakeholders to ensure transparency and address any concerns.

During the March quarter 2025 activities will be centred around field data collection during the wet season.

Permeability Field Trials 2025

As part of the feasibility study (FS) planned for 2025, additional field work is required to increase confidence and reduce risk associated with the application of the ISR mining method at Ema.

Previous field and laboratory testing, completed as part of the scoping study, indicated that flow of mining solution through the mineralised zone is expected to be viable at rates envisaged for the planned rate of production. The field work planned for 2025 is focused on in-situ testing in the mineralisation using water and/or a lixiviant to evaluate hydraulic conditions that can be used to assess mining solution flow between a series of test wells.

To date, all of the wells have been drilled, cased and cemented in ground (Figure 12) and water storage tanks purchased and mobilised to site.

The information collected through this process is expected to increase the overall confidence of the application of ISR and facilitate detailed mine planning as part of a FS. BCM engaged WSP Adelaide to facilitate the design and implementation of ISR field testing at Ema. WSP Brazil has now been engaged to oversee and operate the well system as it comes online during the latter stages of Q1.

WSP Adelaide specializes in technical evaluation and field operations regarding subsurface fluid flow and injection projects, with experience ranging from feasibility studies to operations. The firm has substantial experience in the ISR uranium mining industry and currently provides consulting services to several ISR projects.

BCM and WSP have designed an ISR field testing program specific to the unique geological characteristics of the Ema deposit.

Figure 12. Ema permeability field trial setup. White squares are the concreted collars of the drill holes which will be injected with water and/or lixiviant pumped from the blue storage tanks. Two separate test zones have been developed, one with shallow holes drilled to 5.7m depth (adjacent to car) and test zone 2 with both injection and extraction holes drilled to 10m depth adjacent to the 2 10,000 litre water storage tanks.

The testing program aims to provide hydrogeological testing within the central start zone covering the Indicated Mineral Resource estimated for the deposit.

Data acquired from the ISR field testing program will be utilised to create an integrated hydrogeological model, which will form the basis for ISR wellfield necessary for the FS and to support the EIA process.

Appointment of non-executive director

The company appointed Mr Ben Donovan as a Non-Executive Director. Mr Donovan currently acts as Company Secretary and has been appointed as an interim non-executive director as the Company commences a search to fulfil the non-executive director role. Mr Donovan is the principal of Argus Corporate Partners Pty Ltd which provides corporate advisory, IPO and consultancy services to companies. He is currently company secretary of several ASX listed and public unlisted companies and

has experience across resources, agritech, biotech, media and technology industries. Mr Donovan is a member of the Governance Institute of Australia and has extensive experience in listing rules compliance and corporate governance, having served as a Senior Adviser at the ASX in Perth for nearly 3 years, where he managed the listing of nearly 100 companies on the ASX.

Investor Hub Launched

BCM initiated during the quarter and formally launched post quarter end Investor Hub. The Investor Hub is a direct-to-investor platform to better understand and engage with its shareholders. It is a dedicated platform for investors to learn more about BCM and our latest activities during this period of rapid growth for the company. In line with our commitment to deliver transparency to all investors, BCM will be regularly uploading new content to the hub, including videos accompanying select announcements, education material, interviews and corporate research.

- **Visit the Investor Hub here:** https://braziliancriticalminerals.com/
- **Sign up to the Investor Hub here:** https://braziliancriticalminerals.com/auth/signup

Corporate

For the purpose of Section 6 of the Appendix 5B, all payments made to related parties have been paid in relation to director fees.

References

[1]Brazilian Critical Minerals (ASX:BCM) – Updated Mineral Resource Estimate for Ema 14th January 2025

[2]Brazilian Critical Minerals (ASX:BCM) – High-Value Mixed Rare Earth Carbonate Produced For Ema 11th November 2024

This announcement has been authorised for release by the Board of Directors.

For more information:

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About Brazilian Critical Minerals Ltd

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

Its major exploration focus is Brazil, in the Apuí region, where BCM has discovered a world class Ionic Adsorbed Clay (IAC) Rare Earth Elements deposit. The Ema IAC project is contained within the 781 km² of exploration tenements within the Colider Group.

BCM has defined an indicated and inferred MRE of 977Mt of REE's with metallurgical recoveries averaging 68% MREO some of the highest for these types of deposits anywhere in the world.

The Company is currently converting this MRE from Inferred into the Indicated category with an extensive drill program which will inform the scoping study and economic analysis due for completion in Q1 2025.

JORC Category	cut-off ppm TREO	Tonnes Mt	TREO ppm	NdPr ppm	DyTb ppm	MREO ppm	MREO:TREO %
Indicated	500	135	763	174	16	190	25
Inferred	500	842	724	172	16	188	26
Total	**500**	**977**	**729**	**172**	**16**	**188**	**26**

Competent Person Statement

The information in this announcement that relates to exploration results is based on information compiled by Mr. Antonio de Castro, BSc (Hons), MAusIMM, CREA, who acts as BCM´s Senior Consulting Geologist through the consultancy firm, ADC Geologia Ltda, and who is a member of the Australasian Institute of Mining and Metallurgy. Mr. de Castro has sufficient experience which is relevant to the type of deposit under consideration and to the reporting of exploration results and analytical and metallurgical test work to qualify as a competent person as defined in the 2012 Edition of the Joint Ore Reserves Committee (JORC) "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr. Castro consents to the report being issued in the form and context in which it appears.

The Company confirms that it is not aware of any new information or data that materially affects the information included in the relevant market announcement and, in the case of mineral resource

estimate, that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed.

Additional Information required under Listing Rule 5.3.3

Tenements held at the end of the quarter	Area (Ha)	Percentage ownership
ANM Permit Number 880.107/08 Location Brazil (Ema)	9,839.91	100% Exploration Licence
ANM Permit 880.184/16 Location Brazil (Ema East)	9,034.00	100% Exploration Licence
ANM Permit Number 880.090.08 Location Brazil (Três Estados)	8,172.25	100% Exploration Licence
ANM Permit Number 880.025/2023 Location Brazil (Apuí iREE)	2,417.00	100% Exploration Licence
ANM Permit Number 880.026/2023 Location Brazil (Apuí iREE)	6,591.90	100% Exploration Licence
ANM Permit Number 880.027/2023 Location Brazil (Apuí iREE)	5,856.00	100% Exploration Licence
ANM Permit Number 880.259/2020 Location Brazil (Apuí iREE)	9,092.01	100% Exploration Licence
ANM Permit Number 880.149/2017 Location Brazil (Apuí iREE)	9,815.15	100% Exploration License
ANM Permit Number 880.076/2023 Location Brazil (Apuí ENE iREE)	8,475.30	100% Exploration application
ANM Permit Number 880.077/2023 Location Brazil (Apuí ENE iREE)	8,856.84	100% Exploration application