CETEM AMMONIUM SULPHATE LEACH
IONIC ADSORBED CLAY REE TEST

Brazilian Critical Minerals Limited (ASX: BCM) ("BCM" or the "Company") is pleased to announce highly encouraging results from ammonium sulphate leach and carbonate precipitation test work conducted at the Brazilian Government Mineral Research Institute, CETEM. The tests, on a composite sample from a selected 7m interval (12-19m downhole, appendix 3) from drill hole EMD 017[1] were designed to evaluate the effect of varying operational parameters such as solid/liquid ratio, ammonium sulphate and NaCl concentrations, and subsequently to recover the REE´s in the form of carbonates.

Highlights

- **20% reduction in ammoniam sulphate dosage rate to 1.6% compared to previous SGS leach results**
- **Results confirm REE's at the EMA prospect are ionic and can be recovered at low acid dosage rates**
- **High purity REE carbonate concentrate**
- **REE recoveries of virtually 100% in carbonate concentrate**

A series of ammonium sulphate/NaCl leach tests was conducted on individual 250g samples crushed after homogenisation to -0.85mm, varying the liquid/solid ratio and the ammonium sulphate ((NH4)2SO4) and NaCl dosages. pH was maintained constant at 4, as were other parameters such as temperature (25deg. C) and agitation conditions (1000rpm for 30 minutes).

Variations in liquid/solid ratio, from 2 to 4, and NaCl dosage from 1 to 3% showed a negligible effect on REE recoveries. A significant increase in recoveries with increasing ammonium sulphate dosages was observed up to a dosage of 16kg/t of sample, with no increase at higher dosage levels (see table 1 .

All assays were carried out by ICP-OES, with all values quoted as elemental REEs, not converted to the oxide form.

Table 1 - REEs and major elements recovered at varying ammonium sulphate dosages.

(NH4)2SO4 kg/t	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Y	Sc	Fe	Al	Si
Rock*	222	255	87	308	35	4	26	3	20	5	10	2	10	1	91	-	17484	96531	**326650**
SGS**	83	18	24	97	15	2	9	1	6	1	4	1	3	1	35	<0,24	<2	39	**<100**
0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	9.4	0.0	**11.5**
1	1.2	0.4	0.8	1.8	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.9	0	0.0	2.2	**16.1**
2	10.4	2.2	3.0	12.6	1.9	0.3	0.0	3.1	0.9	0.0	0.7	0.0	0.4	0.1	5.9	0	1.2	52.2	**17.9**
4	20.3	5.5	5.8	26.9	3.9	0.5	0.0	3.5	1.4	0.2	1.2	0.0	0.8	0.1	10.1	0	9.4	15.8	**21.2**
8	53.1	14.3	16.3	67.0	9.1	1.2	4.4	3.6	3.0	0.7	3.2	0.0	2.0	0.3	25.8	0	9.3	47.7	**23.4**
16	**82.5**	**23.1**	**24.3**	**110.5**	**15.1**	**1.8**	**8.2**	**5.4**	**4.9**	**1.3**	**4.9**	**0.0**	**3.6**	**0.4**	**39.1**	**0**	**9.3**	**75.6**	**21.7**

* Untreated sample

** SGS 2% ammonium sulphate leach (without NaCl)

Following filtration, the solutions were treated with sodium carbonate at pH 8 to precipitate the REE´s in the form of carbonates. The resulting concentrate showed a high degree of purity, comprising 98-99% REE carbonates and aluminium hydroxide. Assaying of the solution after filtering showed that recovery of REE´s was virtually complete, with solution assays generally below detection limit.

These results clearly show the applicability of ammonium sulphate leaching at relatively low dosages and subsequent REE carbonate precipitation to the Ema mineralisation style. A full suite of metallurgical tests on a representative Ema sample is currently being planned at the ANSTO laboratory in Sydney.

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

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About Brazilian Critical Minerals Ltd

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 BBX 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. BBX's key assets are the Três Estados and Ema gold-PGM projects and the iREE 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 iREE 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.

Competent Person Statement

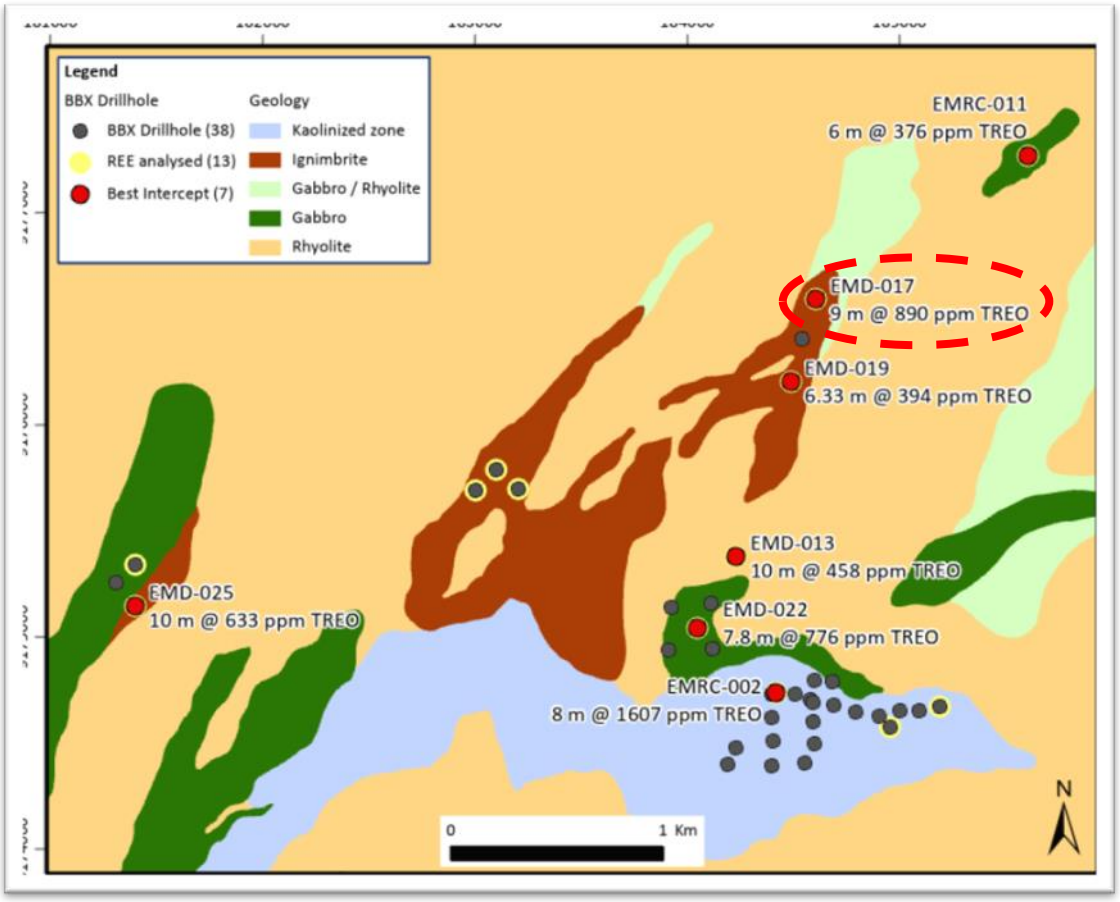
The information in this report that relates to exploration results is based on information compiled by Mr. Antonio de Castro, BSc (Hons), MAusIMM, CREA, who acts as BCM´s Senior Consulting Geologist through the consultancy firm, ADC Geologia Ltda. Mr. de Castro has sufficient experience which is relevant 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.

References

[1]BBX Minerals Limited (ASX:BBX) ASX Announcement "Ammonium Sulphate Test confirms presence of IAC REE" on 19.07.23**.**

Appendices

Appendix 1: Ema drill collar location



Appendix 2: Drillhole location for hole tested

Hole ID	East	North	RL (m)	Azimuth	DIP	Depth (m)	Tenement	Method
EMD-017	184607.00	9176595.00	154.00	0	-90	51.45	880.107/2008	DD

Appendix 3: SGS REE oxide assay of the results of desorbed REE oxide from each interval of hole EMD-017, announced 19 July 2023

FROM (m)	4	6	8	10	12	14	16	17.5
TO (m)	6	8	10	12	14	16	17.5	19
La2O3 ppm	1.2	1.2	2.4	30.8	89.3	122.3	82.8	52.1
CeO2 ppm	12	13.8	17.1	36.4	25.4	15.8	28.5	15.9
Pr6O11 ppm	0.3	0.3	0.6	8.9	27.2	40.3	24.6	16
Nd2O3 ppm	1.4	1.4	1.4	32	101.7	151.9	92	63.1
Sm2O3 ppm	0.1	0.2	0.3	4.7	15.1	23.2	14.4	10
Eu2O3 ppm	0	0.1	0.1	0.9	3.2	5.5	3.6	2.4
Gd2O3 ppm	0.1	0.1	0.2	2.5	8.7	14.4	8.9	6.3
Tb4O7 ppm	0	0	0	0.3	1	1.7	1.1	0.8
Dy2O3 ppm	0.1	0.1	0.1	1.4	5.4	9.2	5.7	3.9
Ho2O3 ppm	0	0	0	0.3	1.1	1.9	1.2	0.8
Er2O3 ppm	0	0.1	0.1	0.8	3.2	5.5	3.6	2.4
Tm2O3 ppm	0	0	0	0.1	0.5	0.8	0.5	0.3
Yb2O3 ppm	0.2	0.2	0.2	0.8	3.1	5	3.4	2.3
Lu2O3 ppm	0	0	0	0.1	0.5	0.8	0.5	0.3
Y2O3 ppm	0.4	0.5	0.6	8.8	33.3	60.8	37.8	26.8
TREO ppm	16	18	23	129	**319**	**459**	**309**	**203**

Appendix 4

The following Table and Sections are provided to ensure compliance with JORC Code (2012 Edition).

JORC (2012) Table 1 – Section 1: Sampling Techniques and Data for the metallurgical test

Item	JORC code explanation	Comments
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 representativity 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	• Metallurgical results are for a 7kg composite sample from 12m to 19m of diamond drill hole EMD 017, from the diamond drilling completed during 2021, conducted at CETEM, Brazil. • Diamond core was half split and sampled at intervals, generally of 1m to 2m, with half core retained in BBX´s core storage facility and the other half sent to SGS for preparation. Sample representativity was ensured by close supervision of the drilling and sampling process by a BBX geologist or field technician. Core recoveries were logged and recorded in the database. To date overall recoveries for the diamond holes were >98% and there were no core loss issue or significant sample recovery problems. • The diamond drill samples were submitted to the SGS laboratory in Vespasiano, greater Belo Horizonte for crushing and pulverisation and subsequently freighted to the BBX´s laboratory in Catalão, Goiás. • The coarse rejects (75% < 3mm) of the DD stored at Catalão were shipped back to SGS in Vespasiano for the ammonium sulphate leach assay. • The homogenized coarse rejects from each interval, were used to make the composite, then homogenized to generate the composite air freighted to CETEM.

Item	JORC code explanation	Comments
	problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.	
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).	• The diamond drilling was conducted using an EDG S11 mobile rig supplied by Energold Ltd. Drilling diameter was all in NTW which is equivalent to NQ. Core was not oriented, and it was not directionally surveyed.
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.	• Diamond recovery was logged by the on-site geologist by carefully comparing the length of core recovered with the length of the drilling run, as part of the routine core logging process • Drilling was conducted slowly in the soil profile to maximize recovery and ensure sample representativity. The upper section of the hole was cased. • No relationship was perceived between sample recovery and assay results.
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.	• Detail geological logging of the DD drilling has been conducted by an experienced geologist to a high level of detail recording various qualitative parameters such as rock type, mineralogy, colour, texture and oxidation. • The DD core was geologically logged using predefined lithological, mineralogical, and physical characteristics (colour, weathering, fracture density and type, etc). Logging was predominantly qualitative in nature.

Item	JORC code explanation	Comments
	• The total length and percentage of the relevant intersections logged.	• 100% of the recovered intervals were geologically logged. • All diamond core has been photographed, prior to cutting, wet and dry. • Geological logging for the RC drilling has been completed by an experienced geologist to a high level of detail. • Logging is qualitative in nature.
Sub-Sampling Techniques and Sampling Procedures	• 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 representativity 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.	• Diamond core was half core sampled, at all times sampling the same side of the core, with the exception of the ¼ core submitted for whole rock analysis. • Sample preparation for the DD drilling was conducted at SGS Vespasiano (greater Belo Horizonte) comprising oven drying, crushing of entire sample to 75% < 3mm followed by rotary splitting and pulverisation of 250 to 300 grams at 95% minus 150# • The <3mm rejects and the 250-300 grams pulverised sample were returned to BBX for storage. • The composite sample was generated using the coarse rejects from each weighted sample interval.
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.	• The 75% < 3mm rejects for DD stored at Catalão were returned to SGS Vespasiano to assay for REE and other elements, as well as the different representative granulometric samples from the composite, generated at CETEM.

<table>
<tr><th>Item</th><th>JORC code explanation</th><th>Comments</th></tr>
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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

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The ammonium sulphate leach assay technique used for REE was a 2% ammonium sulphate leach with ICPOES/MS reading (SGS code ICM655). This is a recognised industry standard analysis technique for ionic REE suite and associated elements amenable to be leached. Elements analysed at ppm levels:

<table>
<tr><td>Ag</td><td>Al</td><td>As</td><td>Au</td><td>B</td><td>Ba</td><td>Be</td><td>Bi</td></tr>
<tr><td>Ca</td><td>Cd</td><td>Ce</td><td>Co</td><td>Cr</td><td>Cs</td><td>Cu</td><td>Dy</td></tr>
<tr><td>Er</td><td>Eu</td><td>Fe</td><td>Ga</td><td>Gd</td><td>Ge</td><td>Hf</td><td>Hg</td></tr>
<tr><td>Ho</td><td>In</td><td>K</td><td>La</td><td>Li</td><td>Lu</td><td>Mg</td><td>Mn</td></tr>
<tr><td>Mo</td><td>Na</td><td>Nb</td><td>Ni</td><td>P</td><td>Pb</td><td>Pd</td><td>Pr</td></tr>
<tr><td>Pt</td><td>Rb</td><td>Re</td><td>S</td><td>Sb</td><td>Sc</td><td>Se</td><td>Si</td></tr>
<tr><td>Sm</td><td>Sn</td><td>Sr</td><td>Ta</td><td>Tb</td><td>Te</td><td>Th</td><td>Ti</td></tr>
<tr><td>Tm</td><td>U</td><td>V</td><td>W</td><td>Y</td><td>Yb</td><td>Zn</td><td>Zr</td></tr>
</table>
The sample, comprising dominantly clay minerals , was assayed without pulverization, 50 grams are mixed with 80 ml of 2% ammonium sulphate 2% during 20 minutes.
The pulp is filtered and the reject washed with distilled water.
An aliquot of the solution is extracted and diluted 25 times with HNO3 2%. The solution is analysed by ICP-MS.
The sample preparation and assay techniques used are industry standard and provide partial analysis; total analysis is achieved with the lithium metaborate fusion.

The SGS laboratory used for the RRE assays is ISO 9001 and 14001 and 17025 accredited.
Analytical Standards for REE

ITAK-705 was used as CRM material in the batches sent to SGS.
The assay results for the standards were consistent with the certified levels of accuracy and precision and no bias is evident.

Blanks

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</table>

Item	JORC code explanation	Comments
		The blanks used contain some REE, with critical elements Ce, Nd, Dy and Y present in small quantities. • Duplicates Duplicate samples were allocated separate sample numbers and submitted with the same analytical batch as the primary sample. Variability between duplicate results is considered acceptable and no sampling bias is evident. • Laboratory inserted standards, blanks and duplicates were analysed as per industry standard practise. There is no evidence of bias from these results. • All assays for the metallurgical results were carried out by ICP/OES at CETEM, with all values quoted as elemental REEs, not converted to the oxide form.
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.	• Apart from the routine QA/QC procedures by the company and the laboratory, there was no other independent or alternative verification of sampling and assaying procedures. • Analytical results for REE were supplied digitally, directly from SGS laboratory facility in Vespasiano to the BBX´s Exploration Manager in Rio de Janeiro. • The metallurgical report was sent directly to BBX´s Exploration Manager in Rio de Janeiro. • No twinned holes were used. • Geological data was logged into paper and transferred to Excel spreadsheets at end of the day and then transfer into the drill hole database. Microsoft Access is used for database storage and management and incorporates numerous data validation and data validation and integrity checks. All assay data is imported directly into the Microsoft Access database. • No adjustments were made to the data.

Item	JORC code explanation	Comments
		• All REE assay data received from the laboratory in element form is unadjusted for data entry.
Location of Data Points	• 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.	• The UTM WGS84 zone 21S grid datum is used for current reporting. The drill holes collar coordinates for the holes reported are currently controlled by hand-held GPS.
Data Spacing and Distribution	• 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 procedure(s) and classifications applied. • Whether sample compositing has been applied.	• Drilling in this target is typically with holes 200m to 800m apart, over the felsic volcanics mapped. • This announcement refers to metallurgical test work for ionic Rare Earth Elements, no representation of extensions, extrapolations or otherwise continuity of grade are made. • The DD samples are from intervals of 1.00m up to 4.00m, but nominal length of 2.00m; no compositing was applied.
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.	• The location and orientation of the DD drilling in the Ema project is appropriate given the strike and morphology of the mapped felsic and gabbro units. • Relevant REE mineralisation intersected is interpreted to be in a flat-lying weathered profile including cover soil, clay transition to saprolite and saprock. • Below the saprock are fresh rhyolites, ignimbrites and mafic rocks. • All drill holes are vertical which is appropriate for horizontal mineralised zones in the regolith profile.

Item	JORC code explanation	Comments
Sample security	• The measures taken to ensure sample security.	• The DD samples, in sealed plastic bags, were kept in a locked room until shipped to back to SGS for REE assays and subsequently to CETEM for the metallurgical test. The Company has no reason to believe that sample security poses a material risk to the integrity of the assay data.
Audit or Reviews	• The results of any audits or reviews of sampling techniques and data.	• The sampling techniques and data have been reviewed by the Competent Person and are found to be of industry standard.

JORC (2012) Table 1 - Section 2: Reporting of Exploration Results

Criteria	JORC code explanation	Commentary
Mineral Tenement and Land Tenure Status	• Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings. • The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	• The Ema lease is 100% owned by BBX with no issues in respect to native title interests, historical sites, wilderness or national park and environmental settings. • The company is not aware of any impediment to obtain a licence to operate in the area.
Exploration done by Other Parties	• Acknowledgment and appraisal of exploration by other parties.	• No exploration by other parties has been conducted in the region.
Geology	• Deposit type, geological setting and style of mineralisation.	• The REE mineralisation is contained within the tropical lateritic weathering profile developed on top of rhyolites, ignimbrites and mafic rocks potentially derived from the underlying rocks as described for the Chinese iREE deposits. • The REE mineralization is concentrated in the weathered profile where it has dissolved from the primary mineral form, such as monazite and xenotime, then adsorbed on to the neo-forming fine particles of aluminosilicates clays (e.g. kaolinite, illite, smectite). • This adsorbed REE is the target for extraction and production of REO.
Drill Hole Information	• A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:	• Drillhole locations and diagrams are presented in this announcement. • All drill-holes are vertical. The cores were not oriented and did not have a down-hole survey.

Criteria	JORC code explanation	Commentary
	• easting and northing of the drill hole collar • elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar • dip and azimuth of the hole • down hole length and interception depth • hole length. • If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	• Details are tabulated in the announcement.
Data aggregation methods	• In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated. • Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail. • The assumptions used for any reporting of metal equivalent values should be clearly stated.	• Aggregate intercepts were not reported in this announcement but initially were calculated for the REO (Rare Earth Oxides) based on a cut-off grade of 200ppm TREO (Total Rare Earth Oxides) minus Ce2O, with a maximum 2 meters for internal dilution. • Significant intervals were tabulated downhole for reporting. All individual samples were included in length-weighted averaging over the entire tabulated range. • No metal equivalent values have been reported.
Relationship between mineralization widths and	• These relationships are particularly important in the reporting of Exploration Results.	• Relevant mineralisation of REE was intercepted as reported with

Criteria	JORC code explanation	Commentary
intercepted lengths	• If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported. • If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').	thicknesses approximating true width due to the flat geometry.
Diagrams	• Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	• Drillhole locations and diagrams are presented in this announcement.
Balanced reporting	• Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	• Relevant results for ionic REE mineralisation is reported after test with ammonium sulphate leach, conducted at CETEM.
Other substantive exploration data	• Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	• No other significant exploration data has been acquired by the Company.
Further Work	• The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).	• Proceed with an MRE and select a representative sample for follow up metallurgical tests.

Criteria	JORC code explanation	Commentary
	• Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	