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Jangada Mines plc

Positive Preliminary Economic Assessment for its Pitombeiras Vanadium Project

Jangada Mines plc ("Jangada" or "the Company"'), a natural resources company is pleased to announce the results of a Preliminary Economic Assessment ("PEA") on its 100%-owned Pitombeiras Vanadium Project ("Pitombeiras" or "the Project"), Ceará State, Brazil. The PEA was prepared by GE21 Consultoria Mineral ("GE21") and is compliant with National Instrument 43-101 ("NI 43-101"). It confirms that Pitombeiras has robust economics and excellent potential to become a profitable producer of Ferrovanadium concentrate (62%/65% Fe, plus V_2O_5 credit).

The PEA discussed herein, is based only on the initial resource estimate announced in August 2020 and at this stage of development, has focused only on evaluating a Direct Shipping Ore ("DSO") operation for the sale of a saleable magnetite concentrate containing a minimum of 62% Fe and additional credit from 25% contained V_2O_5 in furnace slags.

This PEA does not include the results of the current ongoing drilling programme nor additional beneficiation of the ore or recovery of Ti credits. The Company expects to release a further PEA in late Q2, 2021 that will incorporate those additional factors.

Highlights:

- Pitombeiras' PEA delivers very robust project economics:
    - US$106.5 million post-tax Net Present Value ("NPV8%");
    - 317.8% post-tax Internal Rate of Return ("IRR");
    - CAPEX totalling US$9.5m
    - Payback time – 3 months
- Further upside to economics expected to be delivered in arevised PEA including potential expanded mineral resources upon conclusion of ongoing drilling programme. Anticipated to be Q2, 2021;
- Results from ongoing new metallurgical tests through dry magnetic separation to provide the basis for product placement discussions with potential traders and off-takers;
- Simplicity of operations and processing route makes the project amenable to a fast-track approach to production and cash flow. First production anticipated for Q1, 2022;

The objective of this PEA was to demonstrate the very robust economics that the quality of the Pitombeiras ore could provide by benefiting from prevailing peak iron ore prices and additional vanadium credits. This PEA is based only on the existing resource estimation. Further upside is expected through the delineation of expanded total resources to be calculated upon conclusion of ongoing drilling

programme. Jangada has also started discussions with potential traders and smelters for the placement of its product post ongoing metallurgical results and product certificates.

The results of the PEA at current 5.5Mt of resources, as shown in the summary below, indicate an initial capital expenditure ("CAPEX") of US$9.5 million for a 1.1Mt ('million tonnes') per year operation to deliver a NPV of US$106.5 million post-tax and 317.8% IRR.

The Project can be developed with a small starter open pit operation utilising a contract mining fleet of hydraulic excavators, front-end loaders, 30 tonnes haul trucks, rotary drill rigs and ancillary equipment. The selected beneficiation process route is composed by crushing and screening, and dry magnetic concentration. Jangada anticipates first production can be achieved by Q1, 2022.

Brian McMaster, Executive Chairman of Jangada, said: *"We are very pleased with the results of Pitombeiras' PEA as it defines a project with very robust economics and remarkable potential for further growth, which we expect to demonstrate in the following months upon the conclusion of the current drilling programme and delivery of upgraded and expanded resources as we keep extending Pitombeiras North's orebody footprint. This PEA is effectively a simplified monetisation strategy and Management thought it was useful to inform the market that in its most basic form, the project looks extremely robust. Also, notice that total resources considered in the PEA are based on only two out of eight known targets selected based on ground magnetic survey. Besides the expected resource expansion, we are also working on completing the new metallurgical tests through dry magnetic separation, the results of which will provide the basis for starting constructive discussions with potential traders and off-takers.*

"We also see feasible opportunity to significantly reduce initial CAPEX, which along with increased resources and Life of Mine, will significantly impact an already robust Project NPV and IRR. In addition, we would like to highlight the simplicity of the operations and processing route, which makes the Project amenable to a fast-track approach to production and cash flow, very opportune at times when we see peak iron ore prices and recovering vanadium prospects. A revised PEA with the inclusion of the discussed upsides is expected to be delivered by end of Q2 2021."

Operational Highlights

- 1.1Mtpy production rate;
- Life of Mine ("LOM"): approx. 6 years based on initial resource;
- Total LOM Mineable Resources: 5.5Mt based on mineral resource estimate disclosed in August 2020;
- LOM average strip ratio: 0.64 t/t Waste/Ore;
- Processing by crushing and screening, and dry magnetic concentration, producing a marketable Ferrovanadium ("FeV") concentrate;
- Total LOM production of 2,590,000 tonnes of 62% Fe and 25% V_2O_5 contained in furnace slags

Financial Highlights

- US$106.5 million post-tax NPV (at a 8% discount rate);
- 317.8% post-tax IRR;
- US$136.3 million post-tax, undiscounted cash flow;
- US$271.3 million total gross revenue;
- Post-tax payback period of 3 months;
- US$9.5 million initial capital cost;
- US$1.98 per tonne mined average operating cost;
- US$4.62 per tonne processed average operating cost.

Note: The PEA is preliminary in nature. It includes inferred mineral resources, which are considered too speculative geologically to have the economic considerations applied to them that would enable their categorization as mineral reserves. There is no certainty that the PEA forecast will be realized. Mineral resources that are not mineral reserves do not have demonstrated economic viability.

Pitombeiras Project Upside Potential

- Upon the conclusion of ongoing additional bench and laboratory scale dry magnetic separation tests, the Company expects to increase its level of confidence on V_2O_5 recoveries, allowing Jangada to engage on the next level of constructive discussions with traders and off-takers.
- No TiO_2 ("titanium dioxide") potential credits have been considered in the economics of the PEA.
- The ongoing drilling programme at Pitombeiras has demonstrated that the vanadiferous titanomagnetite ("VTM") mineralisation at the Pitombeiras North target extends in both N-NE and N-NW directions and continues to be open along the strike **(Figure 1)**.
- The total resources considered in the PEA are based on two out of eight known targets selected based on ground magnetic survey **(Figure 2)**.
- The PEA will benefit with increased resource tonnage to be prepared upon conclusion of ongoing drilling programme.

Figure 1. Pitombeiras North Target Drilling Grid and Resource Area

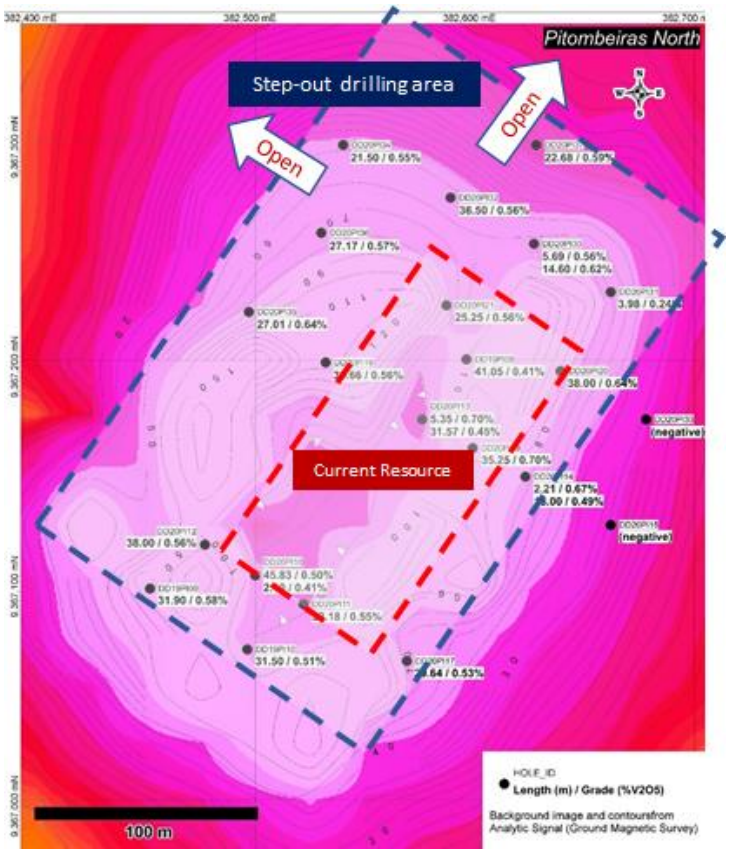
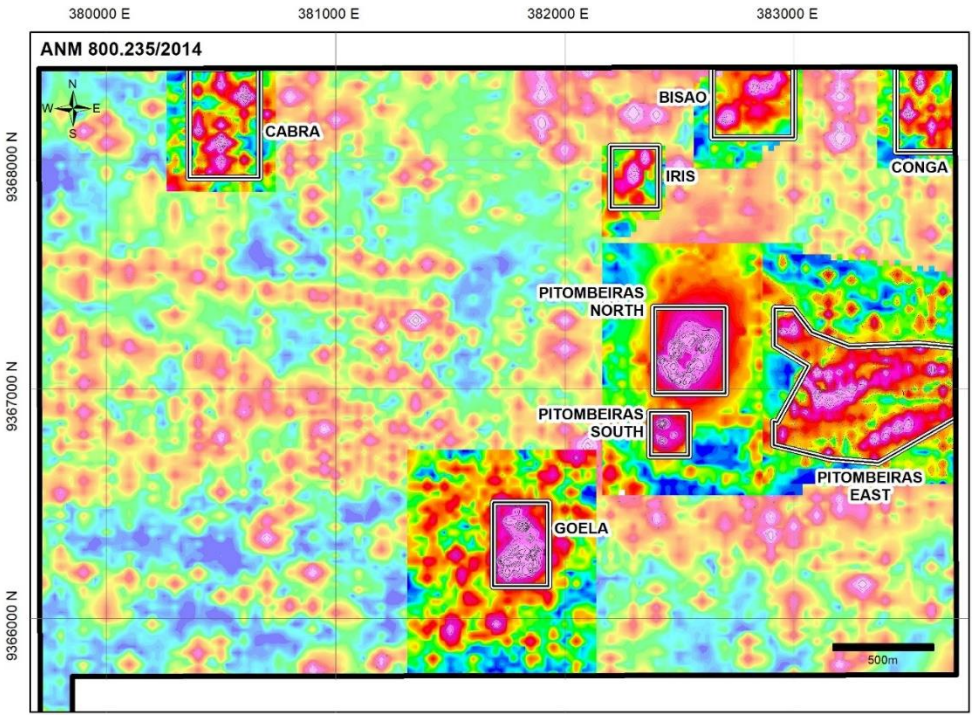


Figure 2. Selected Targets Based on Ground Magnetic Survey



PEA

Project Location

The Pitombeiras Vanadium Project is located within the municipality of Tauá in Ceará State, Northeast Region of Brazil. The Project lies approximately 280km southwest of Fortaleza, the capital of Ceará State, Brazil. Primary ground access to the Project is through paved Federal Highway (BR-020), which connects Fortaleza town to Brasilia Federal District (the capital of Brazil). Departing southbound from Fortaleza, it takes about 4 hours to drive 290 km along the BR-020 highway. At this point, the access to the project is through a 5 km drive eastbound on unpaved gravel road until arrive the eastern boundary of the mineral property. Regular commercial flights are daily available to the International Airport of Fortaleza. The timing for the ground access departing from Fortaleza to the project area is about 4 ½ hours.

Geology

The local geology of the Project is characterised by the presence of mafic and ultramafic rocks (meta-basalts, meta-gabbros, serpentinites and talc schists) with local intercalations of meta-trondhjemites as part of the Troia Unit, and also by medium to coarse-grained granite-orthogneisses, with a calcic-alkaline affinity with pegmatite injections and meta-ultramafic lenses belonging to Pedra Branca Unit.

The Pitombeiras vanadium mineralisation is associated with a large airborne magnetic anomaly identified by Anglo American Platinum Exploration in 2013. The geological features indicate that the vanadium mineralisation on Pitombeiras can be correlated with the Vanadiferous Titanomagnetite (“VTM”) type deposits found throughout the world, which are the principal source of vanadium.

The main economic aspects for VTM deposits include (i) the ore grade, (ii) the concentrate grade and (iii) the mass recovery.

Mineral Resources

The initial Mineral Resource Estimate ("MRE") for Pitombeiras has been disclosed on Press Release dated August 19, 2020, which can be found via the following link:

https://www.rns-pdf.londonstockexchange.com/rns/4794W_1-2020-8-18.pdf

The MRE has been prepared in accordance with the Canadian Institute of Mining, Metallurgy and Petroleum ("CIM") Standards on Mineral Resources and Reserves: Definitions and Guidelines, May 10, 2014 (CIM, 2014), by Mauricio Prado, MSc. Geologist and Qualified Person, as defined by NI 43-101 guidelines, with effective date of 2 August 2020.

This initial MRE includes two exploration target areas, the Pitombeiras North and Goela targets, which are part of the eight ground magnetic priority anomalies identified with VTM signatures over a total area of 1,958 hectares.

A total of 24 diamond drill holes have been completed for a total of 1,705.95 metres, including 1,232.90 metres at the Pitombeiras North target and 301.95 metres at the Goela target. 20 drillholes intersected VTM mineralisation.

The Mineral Resource Estimation considers a cut-off grade of 0.25% V_2O_5, which resulted in estimated Indicated Resources of 1.47Mt at 0.50% V_2O_5 ("vanadium pentoxide"), 9.85 % TiO_2 ("titanium dioxide") and 49.78% of Fe_2O_3 ("ferric oxide") and Inferred resource of 4.23Mt at 0.51% V_2O_5, 10.17% TiO_2 and 50.64% of Fe_2O_3 **(Tables 1 and 2)**.

Table 1. Pitombeiras Project, 2 August 2020 MRE (0.25% V_2O_5 cut-off) – by VTM domain.

Resource Classification	Tonnes	Average Grade %			Metal Content t			Domain	Target Area
		V_2O_5	TiO_2	Fe_2O_3	V_2O_5	TiO_2	Fe_2O_3		
Indicated	705,508	0.62	11.65	58.38	4,339	82,172	411,842	VTM HG domain	Pitombeiras North
	766,406	0.39	8.19	41.87	2,958	62,754	320,868	VTM LG domain	
Inferred	1,684,841	0.60	11.57	57.45	10,163	194,883	967,924	VTM HG domain	
	1,841,845	0.41	8.39	42.57	7,589	154,544	784,015	VTM LG domain	
	705,986	0.56	11.49	55.48	3,941	81,104	391,682	VTM domain	Goela

Note (1) HG – High-grade

(2) LG – Low-grade

Table 2. Pitombeiras Project Total Initial Resources (0.25% V_2O_5 cut-off)

Resource Classification	Tonnes	Average Grade %			Metal Content t		
		V_2O_5	TiO_2	Fe_2O_3	V_2O_5	TiO_2	Fe_2O_3
Indicated	1,471,913	0.50	9.85	49.78	7,297	144,926	732,710
Inferred	4,232,672	0.51	10.17	50.64	21,693	430,531	2,143,621

Notes to accompany Mineral Resource table for the Pitombeiras Project:

- *The Mineral Resource is limited to within the tenement boundaries. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability. There has been insufficient exploration to define the Inferred Resources tabulated above as an Indicated or Measured Mineral Resource. There is no guarantee that any part of the mineral resources discussed herein will be converted into a mineral reserve in the future.*
- *The mineral resource estimate follows current CIM definitions and guidelines for mineral resources.*
- *Mineral Resources are reported using a cut-off grade of 0.25% V_2O_5 %, based on the following assumptions: Base case resource open pit shell with a 45º pit slope, metal price of US$10.00/lb V_2O_5, mining cost of US$2.78/t, processing cost of US$20.00/t, general and administrative (G&A) costs of US$1.00/t, product transport costs of US$2.00/t, metallurgical recovery of 80%, mining dilution of 10% and mining recovery of 95%.*
- *Mineral Resources have been reported on a dry tonnage basis. Discrepancies may occur due to rounding. Mineral Resources are reported with an effective date of August 2, 2020. The Qualified Person for the estimate, as defined by NI 43-101, was Mauricio Prado, MSc. Geo. MAIG*

Processing and Recovery

The selected process route is comprised by crushing and screening, and dry magnetic concentration to produce a magnetite concentrate with Fe and V_2O_5. Jangada is currently undertaking an additional geometallurgical campaign to further determine the ore variability in the defined processing route and confirm the recoveries simulated to the preparation of the PEA.

Initial metallurgical test work commissioned by Jangada has demonstrated that the vanadium bearing magnetite-rich rocks from Pitombeiras Project respond well to magnetic separation and produced magnetic fractions rich in vanadium and iron.

The mass recovery of the magnetic fractions from two samples were 59% and 62% with vanadium grades yielding 1.26% and 1.23% V_2O_5 plus 95.4% and 94.2 Fe_2O_3, respectively. The non-magnetic fraction returned enriched in titanium dioxide with 33.8% and 33.7% TiO_2.

The results also establish that the magnetic recoveries produce a low SiO_2 and low $Al2O_3$ product. Significant upgrades of the Fe and V_2O_5 content confirm that the magnetite is a Fe-V complex amenable to magnetic separation yielding a product of potentially economic grades. The Davis Tube tests carried

out presented high enrichment results for the wet magnetic separation, indicating favourability for the process with water.

A second metallurgical test showed an alternative route with a dry processing plant. Additional bench and laboratory scale dry magnetic separation tests are now ongoing to confirm the concentration on a dry route and define the best parameters for a following bulk scale dry low intensity magnetic separation.

Product Selling price

The PEA assumes a price forecast based on a Platts 62 CFR China price of US$ 130/dmt, in addition to a premium credit of US$ 31.25/tonnes related to 25% V_2O_5 contained in slags, (base price of V_2O_5 - US$ 6.3/lb). Internal freight costs were estimated to be US$ 31.50/dmt and sea freight costs of US$ 25/dmt. Upon factoring logistic costs, final selling price has been estimated US$ 104.75/dmt by GE21 for the sake of economic analysis.

The premium credit of US$ 31.25/t relating to 25% of the V_2O_5 was calculated as follows:

- Base price of V_2O_5 - US$ 6.3/lb;
- % V_2O_5 in product: 0.9%
- 1.t of vanadiferous product = 9Kg V_2O_5 contained
- 9Kg V_2O_5 = 19.84 pounds of V_2O_5
- 19.84 pounds *US$ 6.3/pound = US$ 125.00
- 25% premium of V_2O_5 – Based on similar project = US$ 125.00*25% = US$ 31,25

Capital Costs

The estimated initial capital cost has been developed to include open pit mining, processing, infrastructure and working capital. The capital cost estimate includes a contingency of 10% over plant, mine and other.

Table 3. Total Capital Expenditures

	US$ Million
BENEFICIATION PLANT	
Sub-Total (Beneficiation Plant)	$4.30
MINE INFRASTRUCTURE	
Clearing, Grubbing and Access Roads	$0.20
Underdrain - Waste and Tailings Dumps	$0.30
Sub-Total (Mine Infrastructure)	$0.50
OTHER INFRASTRUCTURE	
Explosives Storage Facility	$0.10
Offices and Security	$0.40
Communication System	$0.10
Warehouse, Truck Shop	$1.20
Make-up Water System	$0.40

Sub-Total (Other Infrastructure)	$2.20
WORKING CAPITAL	
Working Capital	$1.90
Contingency (10% over plant, mine & other)	**$0.70**
TOTAL CAPEX	**$9.50**

Operating Cost

The Project Operational Expenditures (OPEX) includes costs for mine and plant operations and are based on actual mining projects in Brazil with similar operation where the roads, climate, infrastructure and topography, haulage distances, load/haul costs, production scale and other features are similar to those envisaged for the Project. The level of confidence is consistent with the current phase of the study.

The average operating mining costs were estimated for outsourced mine operations.

Table 4. Mine and Beneficiation Plant OPEX

MINE OPEX		
Contract Mining	1.20	**US$/t mined**
Contract Drilling & Blasting	0.78	
TOTAL	**1.98**	
PLANT OPEX		
Labour	0.54	**US$/t processed**
Ore Handling	0.08	
Consumables	1.24	
Maintenance	0.50	
Power	1.26	
Tailings handling	1.00	
TOTAL	**4.62**	

Qualified/Competent Person Review

The August 2nd, 2020 initial Mineral Resource Estimate of the Pitombeiras Vanadium Project is the responsibility of Mr. Mauricio Prado. MSc. Geo. MAIG, Qualified Person as defined by NI 43-101 guidelines, independent geological consultant contracted by Jangada Mines Plc. Mr. Prado is partner and principal consultant with BlueStone Geologia e Mineração Ltda., a Brazilian geology consulting company based on Rio de Janeiro, Brazil.

The PEA, entitled "Independent Technical Report – Preliminary Economic Assessment, Pitombeiras Project, Ceará State, Brazil", having an effective date of February 9th, 2021, was prepared on behalf of Jangada Mines Plc by Porfírio Cabaleiro Rodriguez, Bernardo Horta de Cerqueira Viana and Guilherme Gomides Ferreira.

This announcement contains inside information for the purposes of Article 7 of EU Regulation 596/2014. Upon the publication of this announcement, this inside information is now considered to be in the public domain.

****ENDS****

For further information please visit www.jangadamines.com or contact:

Jangada Mines plc	Brian McMaster (Chairman)	Tel: +44 (0) 20 7317 6629
Strand Hanson Limited (Nominated & Financial Adviser)	James Spinney Ritchie Balmer Jack Botros	Tel: +44 (0)20 7409 3494
Brandon Hill Capital (Broker)	Jonathan Evans Oliver Stansfield	Tel: +44 (0)20 3463 5000
St Brides Partners Ltd (Financial PR)	Isabel de Salis Beth Melluish	E: info@stbridespartners.co.uk