

13 November 2019

Jangada Mines plc ('Jangada' or the 'Company')

**Logistic Study Identifies Export Routes for Pitombeiras Vanadium Project**

Jangada Mines plc, a natural resources company, is pleased to announce the positive conclusions from a logistic study commissioned by the Company to assess possible routes to market for the products extracted from its Pitombeiras Vanadium Project ('the Project') located in the state of Ceará, Brazil.

**Overview**

- Three potential routes for ore identified;
  - Two to Main Chinese Ports (MCP) - Fortaleza seaport as embarkation point being the most cost effective with estimated at US\$84.64/wet metric ton (wmt); and
  - One to the Brazil-based Companhia Siderurgica de Pecém (CSP) refinery with an estimated cost at US\$36.00/wmt.
- Study considered an estimated initial production of 300kt of V<sub>2</sub>O<sub>5</sub> concentrate increasing to 600kt of V<sub>2</sub>O<sub>5</sub> concentrate.
- The costs/wmt underlines the competitive nature of high-grade vanadium deposit.
- The study will form part of a Preliminary Economic Assessment ("PEA"), which the Company is currently in the process of preparing.

**Brian McMaster, Chairman of Jangada, said:** *"The logistic analysis has demonstrated that Pitombeiras is well located to reach overseas markets through both the Pecém and Fortaleza seaports in Ceará state, which are within the Ceará Free Trade Zone, an industrial free trade area for exporting companies' facilities. Importantly, they provide tax and exchange benefits, and simplified administrative procedures, which positively impact the product's selling margins and bring additional competitive advantages to Jangada."*

**Details**

C. Steinweg Handelsveem Latin America S.A. was commissioned by Jangada to prepare an initial analysis of the most favourable logistical routes for the vanadium product from the Pitombeiras Project on the basis of an estimated production of 300kt of V<sub>2</sub>O<sub>5</sub> concentrate in 2020, increasing to 600kt of V<sub>2</sub>O<sub>5</sub> concentrate in 2022. The objective of the initial analysis was to identify competitive logistic alternatives and provide indicative costs for the logistics Ex- Works ('EXW') from the Project to the ports of destination ('POD').

The analysis indicated three potential routes for the Pitombeiras ore, two of them considering the Main Chinese Ports ('MCP') as a final destination and the other the Brazil-based Companhia Siderurgica de Pecém ('CSP') refinery as a final destination.

The total indicative costs (ground and ocean costs) to transport the Pitombeiras ore from the Project to the MCP using the Fortaleza seaport have been estimated at US\$ 84.64/wet metric tonne (wmt). Using the Pecem seaport as an alternative route, the total indicative costs have been estimated at US\$ 90.02/wmt. The study demonstrated that the route using the Fortaleza seaport is the cheapest option, considering the MCP as a final destination.

In addition, the total indicative costs considering the CSP as a final destination have been estimated at US\$ 36.00/wmt, which only involves ground transportation using trucks.

The map and tables below illustrate the path and distance utilising federal highways from the Project to the major seaports in Ceará State, including Pecém and Fortaleza, as well as the option to transport the ore directly to CSP - located nearby to Pecém. CSP is a steel company owned by the South Korean companies Dongkuk Steel, Posco (NYSE: PKX) and Brazilian mining company Vale (NYSE: VALE).

Figure 1: Pitombeiras Project location in relation to main seaports at Ceará State.

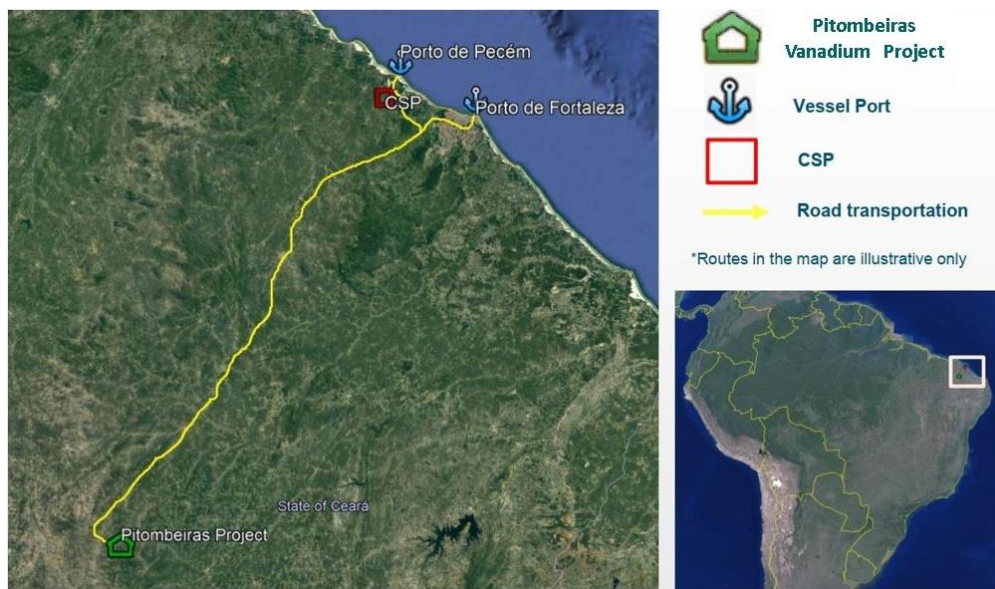


Table 1: Ground transportation distances considered in the initial analysis.

Route	Origin	Destination	Distance	Transport Mode
A	Pitombeiras Project	Pecém	352 km	Truck
B	Pitombeiras Project	Fortaleza	333 km	Truck

C	Pitombeiras Project	CSP	349 km	Truck
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Table 2: Three potential routes for the Pitombeiras vanadium ore.

Option	Potential Routes Pitombeiras Project	Truck Transport	Details
A	Pitombeiras Project → Pecém	Bulk	Truck to Pecém → Storage at the Port → Loading into Vessels → Ocean Transport to MCP
B	Pitombeiras Project → Fortaleza	Bulk	Truck to Fortaleza → Storage at the Port → Loading into Vessels → Ocean Transport to MCP
C	Pitombeiras Project → CSP	Bulk	Truck to Companhia Siderurgica de Pecém (CSP)

*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**

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