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# ADDITIONAL INFORMATION FOR JAMBREIRO REVISED DEVELOPMENT PLAN

On 20 December 2013, Centaurus Metals Ltd (ASX Code: **CTM**) released an announcement outlining the revised development plan for its flagship **Jambreiro Iron Ore Project** in south-east Brazil, based on the commencement of production at 1Mtpa with the ability to subsequently increase to 2-3Mtpa.

Further to that announcement, the Company provides the following additional information regarding the material assumptions underpinning the revised production target and forecast financial information.

This information is included in Appendix A below.

**-ENDS-**

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**Competent Person's Statement**

*The information in this report that relates to Exploration Results and Mineral Resources is based on information compiled by Roger Fitzhardinge, a Competent Person who is a Member of the Australasia Institute of Mining and Metallurgy and Volodymyr Myadzel, a Competent Person who is a Member of Australian Institute of Geoscientists. Roger Fitzhardinge is a permanent employee of Centaurus Metals Limited and Volodymyr Myadzel is the Senior Resource Geologist of BNA Consultoria e Sistemas Limited, independent resource consultants engaged by Centaurus Metals.*

*Roger Fitzhardinge and Volodymyr Myadzel have sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Roger Fitzhardinge and Volodymyr Myadzel consent to the inclusion in the report of the matters based on their information in the form and context in which it appears.*

*The information in this report that relates to Ore Reserves is based on information compiled by Beck Nader, a Competent Person who is a professional Mining Engineer and a Member of Australian Institute of Geoscientists. Beck Nader is the Managing Director of BNA Consultoria e Sistemas Ltda and is a consultant to Centaurus.*

*Beck Nader has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Beck Nader consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.*

## APPENDIX A – Material Assumptions for Jambreiro Iron Ore Project

### Production Target

The revised proposed 1Mtpa operation for the Jambreiro Project is based on the JORC 2004 Proven and Probable Ore Reserve estimate[1] of 48.5Mt at an average grade of 28.1% Fe. The Ore Reserve estimate was completed as part of the Bankable Feasibility Study (BFS) for Jambreiro that was announced to the market on 5 November 2012.

A summary of the Ore Reserve estimate is provided in Table 1 below:

**Table 1 – Friable Ore Reserves Estimate, November 2012**

| Friable Ore Reserve Classification | Mt | Fe% | $SiO_2$% | $Al_2O_3$% | P% | LOI % |
|---|---|---|---|---|---|---|
| Proven | 35.4 | 28.5 | 49.6 | 4.3 | 0.04 | 1.7 |
| Probable | 13.1 | 27.2 | 49.0 | 5.3 | 0.04 | 2.4 |
| **Total** | **48.5** | **28.1** | **49.4** | **4.6** | **0.04** | **1.9** |

The Friable Ore Reserve has been based upon a JORC 2004 Mineral Resource estimate[2] of 125.2Mt (Measured, Indicated and Inferred) at an average grade of 26.7% Fe. The Mineral Resource estimate includes both Friable and Compact material. In establishing the Friable Ore Reserve, only the Measured and Indicated components of the Friable Resource estimate (53.7Mt at 28.4% Fe) were considered.

Subsequent to the completion of the BFS, the Company announced an updated JORC 2004 Mineral Resource estimate[3] of 128.0Mt (Measured, Indicated and Inferred) at an average grade of 27.2% Fe. A summary of the updated Mineral Resource estimate is provided in Table 2 below:

**Table 2 – Mineral Resource Estimate, July 2013**

| Mineral Resource Classification | Mt | Fe% | $SiO_2$% | $Al_2O_3$% | P% | LOI % |
|---|---|---|---|---|---|---|
| Measured | 45.7 | 28.7 | 50.7 | 4.1 | 0.04 | 1.6 |
| Indicated | 38.2 | 27.0 | 51.0 | 3.9 | 0.05 | 1.7 |
| Inferred | 44.1 | 25.9 | 52.0 | 4.0 | 0.05 | 1.4 |
| **Total** | **128.0** | **27.2** | **51.2** | **4.0** | **0.05** | **1.5** |

[1] Refer to ASX Announcement on 5 November 2012 for full details of the Ore Reserve estimation. Given the conservatism built into the pit optimisation parameters used for the current Ore Reserve estimate, the Company is confident that the new operational costs will not result in a material change to the Reserve estimate. As a result of the change in production strategy, the Company intends to complete an updated Ore Reserve estimate during Q1 2014.

[2] Refer to ASX Announcement on 19 June 2012 for full details of the Resource estimate.

[3] Refer to ASX Announcement on 29 July 2013 for full details of the Resource estimate. This Resource estimate has not been updated to comply with the JORC Code 2012 on the basis that the information has not materially changed since it was last reported.



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The November 2012 Ore Reserve estimate followed the completion of an extensive resource drilling program at Jambreiro, metallurgical testing including pilot plant testwork, pit design and mine scheduling and capital and operating cost estimations.

As a result of extensive metallurgical testwork, the Ore Reserve is scheduled to produce total concentrate production of 18Mt at 65% Fe. The open pit deposits will be mined using conventional excavator and truck mining methods.

The original BFS planned for an initial mine life of 9 years at a production rate of 2Mt per annum. The revised planned production rate of 1Mt per annum will extend the life of the friable Reserves to an initial 18-year project life.

The key assumptions used in determining the revised production rate are included in Table 3 below. The only change in these assumptions from the BFS is the reduction in the planned production rate.

**Table 3 – Key Production Rate Assumptions**

| Production Assumptions | |
|---|---|
| Ore Reserves | 48.5Mt |
| Grade | 28.1% Fe |
| Metal recovery per dry tonne | 90% |
| Reserve – Final Concentrate Product | 18Mt |
| Concentrate Product Grade | 65% Fe |
| Waste Movement | 46.8Mt |
| Total Material Movement (Including pre strip) | 95.3Mt |
| Waste to Ore Ratio (Life of Mine) | 0.97 to 1 |
| Production Rate of Concentrate | 1Mtpa |

The mine production schedule is set out in Table 4 below:

**Table 4 – Jambreiro Mine Production Schedule**

| Period (Year) | ROM Wet (Kt) | Fe% | $SiO_2$% | $Al_2O_3$% | P% | Mass Rec (%) | Product Dry (Kt) | Strip Ratio | Waste Wet (Kt) | Total Wet (Kt) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 – 5 | 12,519 | 29.3 | 48.8 | 4.5 | 0.03 | 38.8 | 4,854 | 0.55 | 7,523 | 20,042 |
| 6 – 10 | 13,537 | 28.4 | 49.6 | 4.7 | 0.03 | 37.6 | 5,094 | 0.94 | 12,685 | 26,222 |
| 11 – 15 | 14,265 | 27.3 | 49.5 | 4.5 | 0.04 | 36.2 | 5,174 | 1.29 | 18,393 | 32,658 |
| 16 - 18 | 8,134 | 27.2 | 49.9 | 4.7 | 0.05 | 36.1 | 2,940 | 1.00 | 8,283 | 16,417 |
| **Total** | **48,455** | **28.1** | **49.4** | **4.6** | **0.04** | **37.3** | **18,062** | **0.97** | **46,884** | **95,339** |

Mine Dilution 2%, Mine Recovery 98%



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**Processing**

Processing will comprise a conventional beneficiation circuit using jig separators, spiral concentrator units and magnetic separators to upgrade the run-of-mine (ROM) material to a 65% Fe concentrate product. As a result of the Jambreiro ore being highly friable and naturally liberated, the plant only requires limited comminution to break up the small amount of loosely agglomerated material. A low ball charge grinding mill is used to control product silica levels to suit various customer requirements.

**Capital Cost Estimate**

Pre-production capital costs using a combination of new and second-hand equipment have been based on definitive data collected during the BFS as well as recent price checks. The estimated capital cost is shown in Table 5 below:

**Table 5 – Jambreiro Project Capital Cost Schedule**

| Capital Equipment | Total (A$ M) |
|---|---|
| **DIRECT COSTS** | |
| Processing Plant | 32.1 |
| Site Infrastructure/Civil Works/Pre Strip/Commissioning | 6.5 |
| Tailings Management/Water Supply | 4.4 |
| **TOTAL DIRECT CAPEX** | **43.0** |
| **INDIRECT COSTS** | |
| Detailed Engineering/Project Management/Owner Costs | 5.4 |
| **CONTINGENCY** | **4.6** |
| **TOTAL CAPEX** | **53.0** |

As part of the Company's strategy to minimise upfront capital costs, non-essential costs for waste dump drainage, tailings dam raising and grid power will be deferred until the work is actually required in the Project design and at a time when the Project has established positive cash flows.

**Operating Cash Costs**

Operating costs have been based on definitive data collected during the BFS as well as recent price checks. A breakdown of the operating cash costs is provided in Table 6 below:

**Table 6 – Jambreiro Project Life of Mine Operating Cash Costs**

| Operating Costs | A$ per Tonne Product |
|---|---|
| Mining | 9.2 |
| Processing & Beneficiation | 8.6 |
| Administration | 2.2 |
| **SITE OPERATING CASH COST (C1)** | **20.0** |
| Royalties – Government and Landowner | 2.0 |
| **TOTAL OPERATING CASH COSTS (C1 + Royalties)** | **22.0** |



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The larger components of the operating costs comprise contract mining, diesel fuel, labour and power.

Royalty costs include a Federal Government (CFEM) Royalty of 4% and Landowner royalty of 1.65% based on the value of iron ore sales revenue, less certain allowable deductions for taxes charged in Brazil. Based on the likely date for commencement of production in Q1 2015, the Company has used royalty rates that it expects will be implemented as part of a new mining code currently being considered by the Brazilian Federal Government. Should the new code not eventuate in the timeframe contemplated, the current royalty rates of 2% (CFEM) and 1.85% (Landowner) will apply.

The financial modelling assumes that product will be sold FOB mine gate and, as such, road transport costs have not been included in operating costs. The road transport costs have, however, been extensively studied.

**Commodity Prices and Foreign Exchange Rates**

The Company has estimated an iron ore price curve over the life of the Project using a composite of broker consensus and analyst forecasts. The FOB mine gate price to be received for iron ore concentrate delivered into the Brazil domestic market is referenced against the international CFR China 62% Fe price, adjusted for grade and quality characteristics and less logistics cost charges back to the customer's location.

The FOB mine gate price curve ranges from a high of US$53/dmt to a low of US$31/dmt resulting in a Life of Mine (LOM) average price of US$38/dmt. This price curve generates total LOM revenue of A$752 million and EBITDA of A$350 million.

The foreign exchange assumptions are set out in Table 7 below:

**Table 7 – Foreign Exchange Rates**

| Foreign Exchange Rates | |
|---|---|
| 2014 Exchange Rate AUD to BRL | 2.05 |
| 2014 Exchange Rate AUD to USD | 0.89 |
| 2014 Exchange Rate USD to BRL | 2.30 |
| Average LOM Exchange Rate AUD to BRL | 2.00 |
| Average LOM Exchange Rate AUD to USD | 0.91 |
| Average LOM Exchange Rate USD to BRL | 2.20 |

**Timeline to Production**

All approvals have been received enabling the Company to commence construction. Recently, the three Mining Leases that make up the tenement package of the Jambreiro Project were granted.

Subject to finalisation of an appropriate funding package, development is planned to commence in early Q2 2014 with first production targeted for Q1 2015.



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