

## 17 October 2012

# SEPTEMBER 2012 QUARTERLY ACTIVITIES REPORT

## HIGHLIGHTS









## JAMBREIRO IRON ORE PROJECT

## • Bankable Feasibility Study

- Geotechnical, pit optimisation and mine scheduling studies concluded
- In-Pit friable Resource of 48.5Mt @ 28.1% Fe defined
- Process flowsheet design locked down with the inclusion of a Jig into the processing circuit
- Capex and Opex estimation well advanced
- Discussions underway with potential off-take partners
- Pilot Plant Testwork
  - High-grade product (66.0% Fe) with low impurity levels (0.01%P and 0.8% Al<sub>2</sub>O<sub>3</sub>) produced from pilot plant
  - New process flowsheet delivers product with enhanced physical properties

## **G100 IRON ORE PROJECT**

## **o** Jambreiro Exploration Upside

- Initial mapping and detailed ground magnetic survey completed
- Large magnetic anomaly, extending over a 30km strike length and located just 15km from Jambreiro, identified in a similar geological setting – drilling to commence Q4 2012

## SERRA DA LONTRA IRON ORE PROJECT

## • Drilling Program Completed

## CORPORATE

## • A\$26.2M Share Placement

- Liberty Metals & Mining Holdings LLC participates in placement by investing A\$11M for a 12.77% interest.
- Atlas Iron continues to provide strong support with a further investment of A\$5.2M to maintain its 19.6% interest

## • Cash Reserves of \$28.7M at Quarter End

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# DOMESTIC IRON & STEEL BUSINESS IN BRAZIL

During the September Quarter, Centaurus continued to progress the development of its Domestic Iron & Steel Business in the "Iron Quadrangle" region of south-eastern Brazil with its initial focus on development of the flagship Jambreiro Iron Ore Project (Figure 1), which is targeted to commence production at a rate of 2Mtpa by the end of 2013.



Figure 1: Location of Jambreiro Iron Ore Project

## JAMBREIRO IRON ORE PROJECT

During the Quarter, the main focus of work on the Jambreiro Project was the completion of the pit optimisations and mine sequencing, pilot plant testwork and the ongoing progress of the Bankable Feasibility Study (BFS) which is due for completion at the end of October 2012.

## **Pilot Plant Testwork**

The Company received positive results from a key program of pilot plant beneficiation testwork which confirmed the ability to produce a **premium grade (66.0% Fe) iron product** from the Jambreiro Project.

The extensive testwork program, which was conducted on the friable itabirite iron ore that underpins the Project, demonstrated the ability to deliver a high-grade sinter feed-blend product with low impurities (4.1% silica, 0.8% Al<sub>2</sub>O<sub>3</sub>, 0.01% phosphorus) at an improved mass recovery of 39.4%.

The key batches of the testwork program generated approximately 9 dry tonnes of finished product which was prepared for distribution to domestic steel producers in Brazil to assist in securing potential off-take arrangements. Some of this product will also be used to undertake independent sinter testwork.

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Importantly, the testwork also revealed opportunities to enhance both capital and operating costs for the Jambreiro Project by introducing slight changes to the design of the flowsheet in response to the testwork results. These will be incorporated in the Bankable Feasibility Study before its scheduled completion at the end of October 2012.

The pilot plant test run successfully introduced a jig beneficiation step, for the +1.00 mm feed component, into the front end of the previously reported magnetic separator-only beneficiation circuit. This achieved concentrate grade, direct to final product, without the need for grinding of this component of the run-of-mine ore (Figure 2).

The benefits to be received from the introduction of this jig step will be enhanced physical properties in the overall sinter feed-blend product and also a reduction in the percentage of ore requiring grinding.

The introduction of the jig and the enhancements made in the magnetic separation cleaner stage of the processing facility has had a positive impact on the mass recovery of the Jambreiro ore in the circuit while maintaining the high grade, low impurity product for sale into the domestic market. As can be seen in Figures 2 and 3 below, a premium grade jig and cleaner concentrate was achieved out of the pilot plant with very low levels of other impurities.

The tail from the cleaner concentrate was nearly all silica and the white colour of the material, as shown in Figure 4, is evidence that virtually no iron units were lost to tailings in this process.



Figures 2, 3 & 4: (Left to Right) Jig Concentrate, WHIMS Cleaner Concentrate, Tails from WHIMS Cleaner Process

The final process flowsheet to be costed as part of the Bankable Feasibility Study on the Jambreiro Project is shown in Figure 5 below.

The specific enhancement of physical properties of the sinter feed-blend concentrate will be the significant increase in the -5mm +1mm coarse particle component, without increasing the already attractive low percentage of undesirable ultra-fine component. The low ultra-fine component in the final product, combined with high iron content, offers customers the opportunity to significantly upgrade the overall sinter quality, productivity and to lower their cost per Fe unit into their blast furnaces by using Jambreiro concentrates in combination with other less expensive ores in their blend.

The reduced grinding requirement is likely to lead to a reduced mill size and power draw for the operation by reducing the power consumption in the more expensive flowsheet step of grinding. These operational benefits should flow into lower capital and operating costs for processing the ore.

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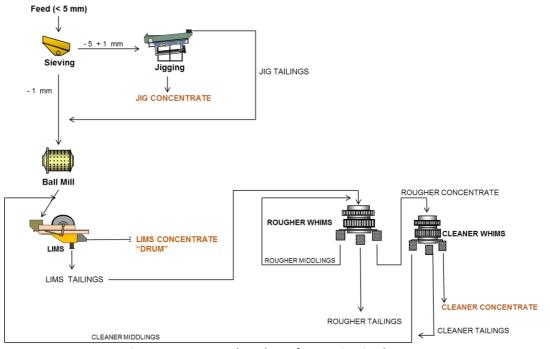


Figure 5: Process Flowsheet for costing in the BFS

A summary of the testwork results is provided in Table 1 below:

|                         | Metal Recovery<br>% | Mass Recovery<br>% | Fe % | SiO <sub>2</sub> % | Al <sub>2</sub> O <sub>3</sub> % | Р%   |  |  |  |
|-------------------------|---------------------|--------------------|------|--------------------|----------------------------------|------|--|--|--|
| ORE FEED                |                     |                    | 30.4 | 52.3               | 2.7                              | 0.02 |  |  |  |
| PILOT PLANT CONCENTRATE | 85.4                | 39.4               | 66.0 | 4.1                | 0.8                              | 0.01 |  |  |  |
|                         |                     |                    |      |                    |                                  |      |  |  |  |

The testwork results will be used to lock down the final process flowsheet for the Bankable Feasibility Study ('BFS') and allow the BFS team to complete the basic engineering work and facilitate the completion of the capital and operating cost estimates.

## **Bankable Feasibility Study**

During the Quarter, the Company continued to progress the Bankable Feasibility Study (BFS) on the Jambreiro Project. Work is progressing well with results from the open pit geotechnical, pit optimisation and mine sequencing work confirming the robustness of the orebody.

The Jambreiro Friable Project BFS has been underway since March and is due to be completed in October 2012.

## Pit Optimisation and Mine Sequencing

In June 2012, the Company announced an upgrade in the Jambreiro JORC Resource to 125.2Mt at an average grade of 26.7% Fe, including both Friable and Compact material (Appendix A). The recently completed pit optimisation and mine sequencing work, based on the Friable Measured and Indicated Resource of 53.7Mt grading 28.4% Fe, has estimated an **In-Pit Resource of 48.5Mt at an average grade of 28.1% Fe** (Appendix B), representing a 90% conversion rate for these Friable Resources.

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The final pit includes 46.2Mt of waste movement (excluding a pre-strip of 700,000 tonnes) for a life-ofmine material movement of 94.6Mt at an operational strip ratio of 0.95:1. Figure 6 below shows the strip ratio of the life of mine. The complete mine schedule is provided in Appendix C.

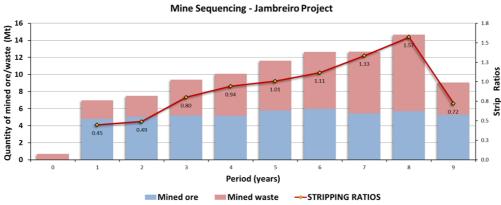


Figure 6: Life of Mine Material Movement and Strip Ratio

The pit optimisation and mine scheduling was completed using new geotechnical parameters as defined by the Company's consultants, WALM Engenharia (WALM). WALM and Centaurus supervised a comprehensive geotechnical drilling and laboratory testwork program that was completed in September. The result is a geo-mechanical classification of the rock mass and definition of the final slope conditions of the Jambreiro pits.

The final slope conditions range from 38° to 50° depending on rock mass classification. The geometry of the footwall ore contact often determines the final slope angle. These final slope angles are in line with other friable itabirite mines in the Iron Quadrangle region of south-eastern Brazil.

Pit optimisation studies for the Jambreiro Resource were undertaken by independent consultant BNA Micromine using the following parameters:

- operating costs updated from the Jambreiro Pre-Feasibility Study announced in November 2011 (Mine Operating Costs of A\$5.5/DMT of product and Plant Operating Costs of A\$9.8/DMT of product);
- latest pit slopes as recommended by WALM geotechnical consultants as part of the BFS;
- metallurgical Recoveries of 90% in line with Bench Scale and Pilot Plant results; and
- a conservative iron price of A\$26/DMT.

The iron ore price used in the final pit optimisation work provides the Company with confidence that, even at prices much lower than it expects to receive in the domestic market in Brazil, the Jambreiro Project can underpin a long-life, sustainable operation.

A summary of the In-Pit Resources is set out in Table 2 below with a full table of these Resources provided in Appendix B:

| In-Pit Resource Classification | Mt   | Fe%  | SiO <sub>2</sub> % | Al <sub>2</sub> O <sub>3</sub> % | <b>P%</b> |
|--------------------------------|------|------|--------------------|----------------------------------|-----------|
| Measured                       | 35.4 | 28.5 | 49.6               | 4.3                              | 0.04      |
| Indicated                      | 13.1 | 27.2 | 49.0               | 5.3                              | 0.04      |
| Total                          | 48.5 | 28.1 | 49.4               | 4.6                              | 0.04      |

#### Table 2: Jambreiro In-Pit Resource Classifications – September 2012

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## Capital and Operating Cost Estimation

With a number of trade-off studies and the design of the plant now complete, Contecmina are now working on the delivery of the final capital and operating costs. The Company hosted 14 contractor and supply companies on site at Jambreiro in early September to allow them to finalise their respective costings for the development of the Project.

Following the success of the introduction of the Jig into the Pilot Plant test circuit, the process route has been undergoing a series of optimisation procedures to facilitate a further increase in the coarser fraction of the high-grade sinter feed-blend product. The pilot plant work delivered 9 tonnes of high-grade sinter feed-blend product (+66% Fe) with low impurities.

The final capital and operating cost estimates will be delivered at the end of October as part of the delivery of the BFS.

### Product Marketing

The Company has recommenced discussions with a number of potential customers in respect to the high quality Jambreiro Product. The pilot plant product has been batched, and certified assays are now being provided to potential steel mill customers and other users.

Mills are showing great interest in the very attractive phosphorus and alumina levels, as well as the high iron content. They are commencing their detailed modelling evaluation of compatible and likely sinter blend combinations using Jambreiro concentrates before calling for actual samples, which are now available for physical testing and delivery to the customers as soon as they are ready to receive them.

After the 9 tonnes of product produced in the pilot plant was blended and batched for delivery, the final certified assay of the Jambreiro product was as follows:

|                                 | Fe % | SiO <sub>2</sub> % | Al <sub>2</sub> O <sub>3</sub> % | Р%    |
|---------------------------------|------|--------------------|----------------------------------|-------|
| Blended Pilot Plant Concentrate | 67.2 | 3.21               | 0.71                             | 0.015 |

Table 3: Final Certified Assay of the Jambreiro Concentrate

The proposed flowsheet for the Jambreiro Project allows the Company to reduce iron content and increase silica to facilitate the specific ore blending requirements of any customer.

### Environmental Approvals

The Jambreiro EIA/RIMA was lodged in March 2012 and the Company has been working closely with the State Environmental Agency, SUPRAM, to progress the approval of this report so that the Company can secure the grant of its preliminary Licence ('LP') by the end of October 2012. A positive public hearing was held in July 2012 and the Company remains confident that it will receive approval of the EIA/RIMA in October.

SUPRAM has received responses from the Company on a number of queries it raised following the public hearing. No further information is required by SUPRAM and the agency is progressing through the final stages of the LP approval process.

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## **G100 IRON ORE PROJECT**

## **Exploration**

Towards the end of the Quarter, the Company announced plans to commence exploration drilling during October at a new greenfields exploration target, the **G100 Project**, located 15km north of the Jambreiro Project.

The upcoming drilling, comprising an initial 2,500 metres of Reverse Circulation (RC) drilling, follows a recent mapping program and completion of a detailed ground magnetic survey in August. This survey has confirmed the strength and scale of the large regional aeromagnetic signature at the G100 Project, which is a conceptual iron formation target in the form of a closed fold located in a similar geological setting to Jambreiro (see Figure 7).

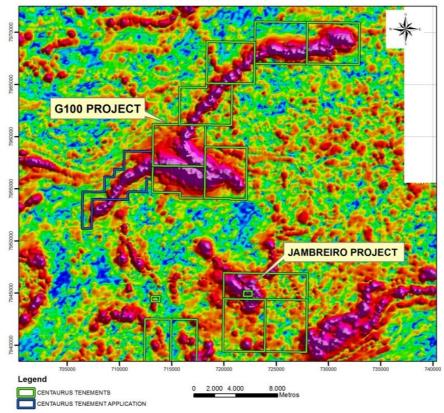


Figure 7: Regional Aeromagnetic map – CODEMIG, Analytical Signal

The regional aeromagnetic map clearly demonstrates the relative size of the G100 Project compared with the footprint of the Jambreiro Project. While the size and strength of the magnetic anomaly is impressive, drilling is now required to determine if sub-surface iron mineralisation is responsible for the strong magnetic signature of the Project.

The results of the recent ground magnetic survey are shown in Figure 8 below. The survey included 70km of survey lines covering an area of 30km<sup>2</sup> in the southern part of the tenement package. North-South survey lines were spaced 200 metres perpendicular to the strike of the fold hinge identified in the regional signature. Survey readings were taken every 10 metres.

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The resulting interpretation confirms the geometry of the regional aeromagnetic survey and provides the Company with high quality information to target its drilling program.

The overall strike length of the anomaly at the G100 Project is more than 30km with Centaurus' tenement package covering 98% of the magnetic signature.

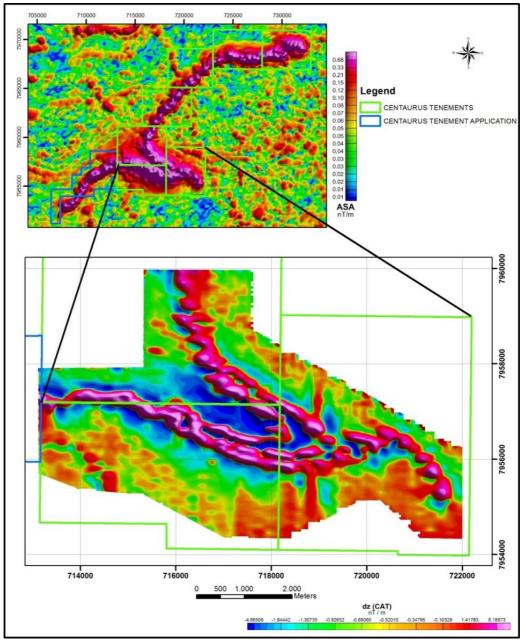


Figure 8: G100 Project Ground Magnetic Image

Extensive geological mapping over the G100 Project has so far not identified any significant outcrops of iron formation, although there are vast occurrences of soils with hematite (possibly martite) and magnetite occurrences that have been identified with the magnetic anomalies and the topographical highs of the project area. Because of the absence of outcrop, the exploration model for the G100 Project, at this stage, relies heavily on the magnetic signature and geo-morphological similarities to the Jambreiro Iron Ore Project.

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To put this in context, the south-eastern limb of the Tigre Deposit at Jambreiro was originally covered by thick vegetation with a 2-10 metre thick layer of organic soils overlaying the mineralisation – which, prior to clearing, was not identified in the mapping as an area of near-surface mineralisation.

It was only after clearing and completion of a ground magnetic survey that it became evident that there was mineralisation in this part of the Jambreiro Project area. Like the south-eastern limb of the Tigre Deposit, the G100 Project is predominantly covered by thick vegetation in many areas, which may account for the absence of iron mineralisation outcrop.

The geological setting of the G100 Project and the friable itabirite mineralisation at the Jambreiro Project are similar in that they are both located in the biotite gneisses, quartz-mica schists, amphibolites and metaultramafics of the Upper Formation of the Guanhães Group (Archean).

Work on Landowner Agreements and environmental licensing to access the G100 Project is progressing well. Agreements have been formalised with the landowners over the initial target areas and work continues with the neighbouring properties.

## **EXPORT IRON & STEEL BUSINESS IN BRAZIL**

During the Quarter, Centaurus continued to progress the development of its Export Iron & Steel Business in Brazil with its initial focus being on exploration activities at the Serra da Lontra Iron Ore Project.

## SERRA DA LONTRA IRON ORE PROJECT

## Exploration

During the Quarter the Company progressed the drilling and assessment of our **Serra da Lontra Iron Ore Project**, located 110km from the export port of Ilhéus in the State of Bahia, south-east Brazil (see Figure 9).

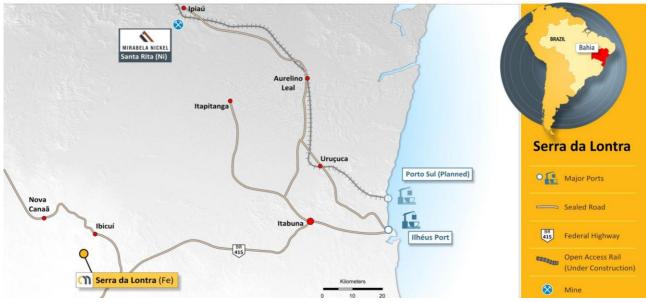


Figure 9: Location Map Showing Infrastructure in the Immediate Locality of Serra da Lontra

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Drilling at the Senna Prospect, the second of two prospect areas at Serra da Lontra, continued during the Quarter and highlights of drill results included the following **continuous intersections of siliceous itabirite** with several of these intersections falling within wider mineralised zones (*see Figure 10 below for drill hole location map and Appendices D & E for a full listing of new intersections from drilling at the Senna Prospect*):

- o **39.5 metres @ 38.1% Fe, 5.7% Al₂O₃ and 0.08% P** from 11.3m in Hole SDL-DD-12-0026
- $\circ~$  30.7 metres @ 37.8% Fe, 5.3%  $Al_2O_3$  and 0.08% P from surface in Hole SDL-DD-12-0028
- **21.3 metres @ 38.1% Fe, 6.2% Al**<sub>2</sub>**O**<sub>3</sub> and **0.08% P** from 8.2m in Hole SDL-DD-12-0025
- $\circ~$  17.0 metres @ 35.8% Fe, 9.7%  $Al_2O_3$  and 0.09% P from 9.0m in Hole SDL-RC-12-0041
- $\circ~$  8.0 metres @ 50.5% Fe, 0.6%  $Al_2O_3$  and 0.09% P from surface in Hole SDL-RC-12-0042

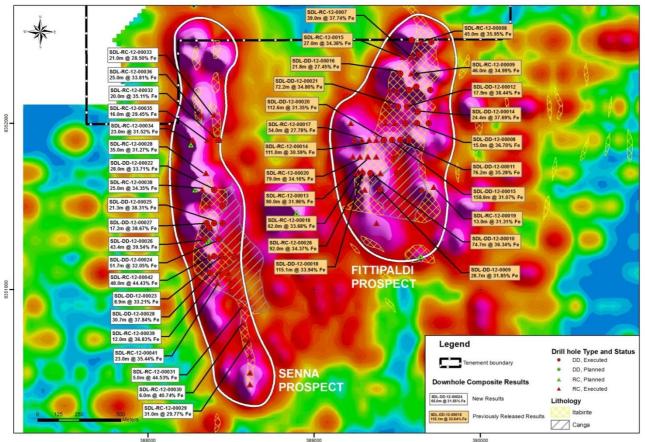


Figure 10: Serra da Lontra Iron Ore Project Map Analytical Signal Mag Image and Down Hole Composite Drill Results, August 2012

While significant intersections of siliceous itabirite have been encountered at the Senna Prospect, drilling has intersected more amphibolitic itabirite than originally anticipated, with some of the continuous intersections of amphibolitic itabirite including:

- $\circ$  40.0 metres @ 43.2% Fe, 1.8%  $Al_2O_3$  and 0.08% P from surface in Hole SDL-RC-12-0042
- **48.6 metres @ 32.3% Fe, 1.7% Al<sub>2</sub>O<sub>3</sub> and 0.07% P** from 35.4m in Hole SDL-DD-12-0024
- 21.1 metres @ 33.3% Fe, 1.9% Al<sub>2</sub>O<sub>3</sub> and 0.08% P from 98.7m in Hole SDL-DD-12-0022
- 20.0 metres @ 35.1% Fe, 0.7% Al<sub>2</sub>O<sub>3</sub> and 0.13% P from 23.0m in Hole SDL-RC-12-0032

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The siliceous itabirite outcrop of the Senna Prospect was originally mapped over 1.2km of strike, coincident with a significant ground magnetic anomaly. However, the recent drilling targeting the outcrop has confirmed that siliceous itabirite mineralisation continues sub-surface for approximately 400 metres of strike and to depths of up to 50 metres.

Below this, the dip of the mineralisation appears to steepen and is predominantly amphibolitic itabirite averaging 15-40 metres in width. Consequently, the Company's expectations for siliceous itabirite at this prospect area have been reduced.

In light of these results, the Company is of the view that any future resource estimate that only considers the siliceous itabirite for the Serra da Lontra Project will be unlikely to achieve the previously established Exploration Target<sup>1</sup> of 30 to 50 million tonnes grading 30 to 40% Fe, and that, to achieve the target, the Company will need to demonstrate that the amphibolitic itabirite can be beneficiated to a saleable product.

Based on this new information, the Company increased its efforts to understand the metallurgical response of the amphibolitic itabirite mineralisation. Comprehensive testwork on both the siliceous and amphibolitic itabirite is currently underway at the University of São Paulo with the objective of defining a suitable process route that will allow product to be achieved for both mineralisation types.

The slow progress of drilling at the Senna Prospect due to the combined effect of heavy seasonal rainfall and the local topography will result in the maiden JORC resource estimate for the Serra da Lontra Project now being delivered in October 2012.

While the maiden resource estimate is completed, the Company's geological team will commence exploring the Company's regional tenement holdings around Serra da Lontra in Bahia State and the recently acquired Curral Velho Project in Paraiba. Both projects have favourable logistics solutions, should Centaurus be able to define economic resources, and excellent potential to form part of Centaurus' planned export business.

## CORPORATE

## **Completion of Share Placement**

Towards the end of the Quarter, the Company completed a \$26.2 million equity raising to existing and new institutional investors by issuing 59.5 million shares at 44 cents per share.

The proceeds of the raising have put the Company in a strong position to continue to progress the development of its Brazilian iron ore projects, including completion of the Bankable Feasibility Study on the Jambreiro Project in south-east Brazil.

A number of new and existing institutional and strategic investors participated in the share placement with Boston-based Liberty Metals & Mining Holdings, LLC ("LMM") contributing A\$11 million for a 12.8 per cent stake and Australian iron ore producer Atlas Iron Limited (ASX: AGO) contributing A\$5.2 million to maintain a 19.6 per cent stake in the Company.

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<sup>&</sup>lt;sup>1</sup> Note: It is common practice for a company to comment on and discuss its exploration in terms of target size and type. The information above relating to the exploration target should not be misunderstood or misconstrued as an estimate of Mineral Resources or Ore Reserves. Hence the terms Resources have not been used in this context. The potential quantity and grade range is conceptual in nature, since there has been insufficient exploration to define a Mineral Resource. It is uncertain if further exploration will result in the determination of a Mineral Resource

### AUSTRALIAN SECURITIES EXCHANGE ANNOUNCEMENT



LMM is a subsidiary of Liberty Mutual Insurance, the third largest diversified property and casualty ("P&C") insurer in the US and the sixth largest P&C insurer worldwide. LMM holds a number of significant positions in junior resource companies with projects located across the world. Centaurus represents LMM's first investment in an ASX Listed Company.

Institutional and professional investor clients of Ord Minnett, as Lead Manager, and Bell Potter, as Co-Manager, also participated in the equity raising.

## **Cash Position**

At 30 September 2012, the Company held cash reserves of approximately A\$28.7 million.

## Shareholder Information

At 30 September 2012, the Company had 195,747,919 shares on issue with the Top 20 holding 60.23% of the total issued capital. Directors and Senior Management held 5.5% of the total issued capital.

Darren Gordon MANAGING DIRECTOR

#### **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 who is a Member of the Australasia Institute of Mining and Metallurgy and Volodymyr Myadzel 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 which is relevant to the style of mineralization and type of deposit under consideration and to the activity which they are undertaking to qualify as a Competent Person as defined in the 2004 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserve'. 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 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, which is relevant to the style of mineralization and type of deposit under consideration and to the activity, which he is undertaking to qualify as a Competent Person as defined in the 2004 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserve'. Beck Nader consents to the inclusion in the report of the matters based on their information in the form and context in which it appears.

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## Appendix A

| Prospect        | Material Type | Million Tonnes | Fe % | SiO2 % | Al2O3 % | Р%   | LOI % |
|-----------------|---------------|----------------|------|--------|---------|------|-------|
| Tigre           | Friable       | 40.1           | 28.2 | 51.7   | 4.4     | 0.04 | 1.7   |
|                 | Compact       | 41.2           | 25.6 | 51.8   | 3.8     | 0.06 | 1.0   |
|                 | TOTAL         | 81.3           | 26.9 | 51.7   | 4.1     | 0.05 | 1.3   |
| Cruzeiro        | Friable       | 10.0           | 28.8 | 47.3   | 4.2     | 0.05 | 2.0   |
|                 | Compact       | 12.2           | 25.8 | 37.3   | 3.1     | 0.06 | 1.4   |
|                 | TOTAL         | 22.2           | 27.1 | 41.8   | 3.6     | 0.05 | 1.7   |
| Galo            | Friable       | 10.2           | 26.7 | 49.8   | 6.7     | 0.04 | 2.8   |
|                 | Compact       | 4.2            | 26.0 | 50.4   | 7.0     | 0.05 | 1.1   |
|                 | TOTAL         | 14.4           | 26.5 | 50.0   | 6.8     | 0.04 | 2.3   |
| Coelho          | Friable       | 5.4            | 23.9 | 58.2   | 4.8     | 0.03 | 1.8   |
|                 | Compact       | 1.8            | 25.0 | 58.7   | 3.6     | 0.02 | 1.2   |
|                 | TOTAL         | 7.2            | 24.2 | 58.3   | 4.5     | 0.03 | 1.6   |
| Jambreiro Total | Friable       | 65.7           | 27.7 | 51.2   | 4.8     | 0.04 | 1.9   |
|                 | Compact       | 59.4           | 25.6 | 49.0   | 3.9     | 0.06 | 1.1   |
|                 | TOTAL         | 125.2          | 26.7 | 50.2   | 4.4     | 0.05 | 1.5   |

#### Jambreiro Iron Ore Project – June 2012 JORC Resource Estimate - By Prospect

20% Fe Cut-Off

#### Appendix **B**

#### Jambreiro Iron Ore Project – September 2012 JORC In-Pit Resource Estimate - By Prospect

| Prospect        | JORC Category | Million Tonnes | Fe % | SiO2 % | Al2O3 % | Р%   | LOI % |
|-----------------|---------------|----------------|------|--------|---------|------|-------|
| Tigre           | Measured      | 30.1           | 28.4 | 49.8   | 4.3     | 0.04 | 1.7   |
|                 | Indicated     | 3.8            | 26.1 | 52.0   | 4.4     | 0.04 | 1.9   |
|                 | TOTAL         | 33.9           | 28.1 | 50.1   | 4.3     | 0.04 | 1.7   |
| Cruzeiro        | Measured      | 5.3            | 28.8 | 48.2   | 4.2     | 0.04 | 2.0   |
|                 | Indicated     | 2.2            | 28.5 | 46.7   | 3.7     | 0.05 | 1.9   |
|                 | TOTAL         | 7.5            | 28.7 | 47.8   | 4.0     | 0.04 | 1.9   |
| Galo            | Measured      |                |      |        |         |      |       |
|                 | Indicated     | 7.0            | 27.3 | 48.0   | 6.2     | 0.04 | 2.8   |
|                 | TOTAL         | 7.0            | 27.3 | 48.0   | 6.2     | 0.04 | 2.8   |
| Jambreiro Total | Measured      | 35.4           | 28.5 | 49.6   | 4.3     | 0.04 | 1.7   |
|                 | Indicated     | 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   |

Cut-off 20% Fe ; Mine Diluition - 2% ; Mine Recovery - 98%

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## Appendix C

#### Jambreiro Mine Production Schedule

| Year  | ROM Mt<br>(Wet) | Fe(%) | SiO2(%) | Al2O3(%) | P(%) | Mass Recovery | Product Mt<br>(Dry) | Strip Ratio | Waste Mt (Wet) | Total Movement<br>MT (Wet) |
|-------|-----------------|-------|---------|----------|------|---------------|---------------------|-------------|----------------|----------------------------|
| 0     |                 |       |         |          |      |               |                     |             | 0.7            | 0.7                        |
| 1     | 4.8             | 30.5  | 47.3    | 4.4      | 0.03 | 40.4          | 1.95                | 0.45        | 2.2            | 7.0                        |
| 2     | 5.0             | 28.8  | 49.4    | 4.7      | 0.04 | 38.0          | 1.91                | 0.49        | 2.5            | 7.5                        |
| 3     | 5.2             | 28.1  | 50.8    | 4.4      | 0.03 | 37.2          | 1.94                | 0.80        | 4.2            | 9.4                        |
| 4     | 5.2             | 28.5  | 49.0    | 5.2      | 0.03 | 37.8          | 1.96                | 0.94        | 4.9            | 10.1                       |
| 5     | 5.8             | 28.4  | 49.6    | 4.3      | 0.04 | 37.7          | 2.18                | 1.01        | 5.8            | 11.6                       |
| 6     | 6.0             | 27.7  | 49.2    | 4.3      | 0.04 | 36.7          | 2.19                | 1.11        | 6.7            | 12.6                       |
| 7     | 5.4             | 27.0  | 49.2    | 4.4      | 0.04 | 35.9          | 1.95                | 1.33        | 7.3            | 12.7                       |
| 8     | 5.7             | 27.1  | 50.5    | 4.9      | 0.04 | 36.0          | 2.06                | 1.57        | 9.0            | 14.7                       |
| 9     | 5.3             | 27.3  | 49.6    | 4.6      | 0.05 | 36.2          | 1.91                | 0.72        | 3.8            | 9.1                        |
| Total | 48.5            | 28.1  | 49.4    | 4.6      | 0.04 | 37.3          | 18.06               | 0.95        | 46.2           | 94.6                       |

Cut-off 20% Fe ; Mine Diluition - 2% ; Mine Recovery - 98%

## Appendix D

#### Serra da Lontra Iron Ore Project: New Diamond Drill Hole Results, August 2012

| Hole ID         | Final<br>Depth(m) | From (m)  | To (m)    | Downhole<br>width (m) | Rock Type                                    | Fe%   | SiO <sub>2</sub> % | Al <sub>2</sub> O <sub>3</sub> % | <b>P%</b> |
|-----------------|-------------------|-----------|-----------|-----------------------|--|-------|--------------------|----------------------------------|-----------|
|                 |                   |           |           |                       |  |       |                    |                                  |           |
| SDL-DD-12-00022 |                   | 65.17     | 72.15     | 6.98                  | Amphibiotic Itabirite                        | 34.89 | 43.96              | 0.81                             | 0.08      |
| SDL-DD-12-00022 |                   | 98.70     | 119.75    | 21.05                 | Amphibiotic Itabirite                        | 33.32 | 44.21              | 1.87                             | 0.08      |
| SDL-DD-12-00022 | 131.75            | Downhole  | composite | 28.03                 |  | 33.71 | 44.15              | 1.61                             | 0.08      |
|                 |                   |           |           |                       |  |       |                    |                                  |           |
| SDL-DD-12-00023 |                   | 34.00     | 42.92     | 8.92                  | Amphibiotic Itabirite                        | 33.21 | 41.86              | 4.95                             | 0.07      |
| SDL-DD-12-00023 | 125.91            | Downhole  | composite | 8.92                  |  | 33.21 | 41.86              | 4.95                             | 0.07      |
| SDL-DD-12-00024 |                   | 0.00      | 3.10      | 3.10                  | Amphibiotic Itabirite                        | 27.77 | 25.93              | 19.27                            | 0.06      |
| SDL-DD-12-00024 |                   | 35.43     | 84.00     | 48.57                 | Amphibiotic Itabirite                        | 32.32 | 45.91              | 1.66                             | 0.07      |
| SDL-DD-12-00024 | 122.32            |           | composite | 51.67                 | · · · · <b>·</b> · · · · · · · · · · · · · · | 32.05 | 44.71              | 2.72                             | 0.07      |
| 002 00 12 00024 |                   | Deminiore | Composito | 01101                 |  | 02.00 |                    |                                  | 0.01      |
| SDL-DD-12-00025 |                   | 8.20      | 29.50     | 21.30                 | Siliceous Itabirite                          | 38.31 | 34.29              | 6.18                             | 0.08      |
| SDL-DD-12-00025 | 80.00             | Downhole  | composite | 21.30                 |  | 38.31 | 34.29              | 6.18                             | 0.08      |
|                 |                   |           |           | -                     |  |       |                    |                                  |           |
| SDL-DD-12-00026 |                   | 0.00      | 3.90      | 3.90                  | Siliceous Itabirite                          | 53.77 | 13.04              | 1.50                             | 0.10      |
| SDL-DD-12-00026 |                   | 11.13     | 50.60     | 39.47                 | Siliceous Itabirite                          | 38.13 | 35.09              | 5.72                             | 0.08      |
| SDL-DD-12-00026 | 102.76            | Downhole  | composite | 43.37                 |  | 39.54 | 33.10              | 5.34                             | 0.08      |
|                 |                   |           |           |                       |  |       |                    |                                  |           |
| SDL-DD-12-00027 |                   | 0.00      | 8.80      | 8.80                  | Amphibiotic Itabirite                        | 39.13 | 19.94              | 13.90                            | 0.08      |
| SDL-DD-12-00027 |                   | 38.25     | 46.60     | 8.35                  | Amphibiotic Itabirite                        | 38.18 | 37.65              | 1.77                             | 0.08      |
| SDL-DD-12-00027 | 65.30             | Downhole  | composite | 17.15                 |  | 38.67 | 28.56              | 8.00                             | 0.08      |
|                 |                   |           |           |                       |  |       |                    |                                  |           |
| SDL-DD-12-00028 |                   | 0.00      | 30.71     | 30.71                 | Siliceous Itabirite                          | 37.84 | 35.33              | 5.26                             | 0.08      |
| SDL-DD-12-00028 | 56.00             | Downhole  | composite | 30.71                 |  | 37.84 | 35.33              | 5.26                             | 0.08      |
|                 |                   |           |           |                       |  |       |                    |                                  |           |

Intervals calculated using a 20% Fe cut-off grade with 3 metre minimum mining width All samples were analysed using an XRF fusion method with LOI at  $1000 \, ^{\circ}C$ 

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## Appendix E

### Serra da Lontra Iron Ore Project: New RC Drill Hole Results, August 2012

| Hole ID                            | Final<br>Depth(m) | From (m)  | To (m)             | Downhole<br>width (m) | Rock Type                                   | Fe%                   | SiO <sub>2</sub> % | Al <sub>2</sub> O <sub>3</sub> % | <b>P%</b>    |
|------------------------------------|-------------------|-----------|--------------------|-----------------------|---|-----------------------|--------------------|----------------------------------|--------------|
|                                    |                   | 0.00      | 0.00               | 2.00                  | 0-11  | 00.00                 | 40.55              | 00.00                            | 0.05         |
| SDL-RC-12-00028                    |                   | 0.00      | 3.00               | 3.00                  | Soil  | 20.93                 | 16.55              | 29.93                            | 0.05         |
| SDL-RC-12-00028                    |                   | 53.00     | 63.00              | 10.00                 | Amphibolitic Itabirite                      | 33.70                 | 44.46              | 1.80                             | 0.08         |
| SDL-RC-12-00028                    |                   | 84.00     | 93.00              | 9.00                  | Amphibolitic Itabirite                      | 29.99                 | 45.12              | 3.29                             | 0.07         |
| SDL-RC-12-00028                    | 447               | 95.00     | 108.00             | 13.00                 | Amphibolitic Itabirite                      | 32.69                 | 39.39              | 3.49                             | 0.08         |
| SDL-RC-12-00028                    | 117               | Downnoie  | composite          | 35.00                 |   | 31.27                 | 40.36              | 5.22                             | 0.07         |
| SDL-RC-12-00029                    |                   | 0.00      | 7.00               | 7.00                  | Siliceous Itabirite                         | 40.54                 | 30.24              | 6.01                             | 0.10         |
| SDL-RC-12-00029                    |                   | 7.00      | 13.00              | 6.00                  | Amphibolitic Itabirite                      | 26.75                 | 28.58              | 20.43                            | 0.08         |
| SDL-RC-12-00029                    |                   | 13.00     | 18.00              | 5.00                  | Siliceous Itabirite                         | 38.11                 | 21.25              | 13.04                            | 0.23         |
| SDL-RC-12-00029                    |                   | 18.00     | 22.00              | 4.00                  | Ferruginous Amphibolite                     | 22.66                 | 26.56              | 26.55                            | 0.12         |
| SDL-RC-12-00029                    |                   | 22.00     | 31.00              | 9.00                  | Amphibolitic Itabirite                      | 21.92                 | 19.21              | 9.47                             | 0.07         |
| SDL-RC-12-00029                    | 70                | Downhole  | composite          | 31.00                 |   | 29.77                 | 24.79              | 13.59                            | 0.11         |
| CDI DO 40 00000                    |                   | 0.00      | 0.00               | 0.00                  | Oiliseaus kabirita                          | 40.74                 | 04.00              | 0.07                             | 0.05         |
| SDL-RC-12-00030                    |                   | 0.00      | 6.00               | 6.00                  | Siliceous Itabirite                         | 40.74                 | 24.22              | 9.27                             | 0.05         |
| SDL-RC-12-00030                    | 66                | Downhole  | composite          | 6.00                  |   | 40.74                 | 24.22              | 9.27                             | 0.05         |
| SDL-RC-12-00031                    |                   | 0.00      | 5.00               | 5.00                  | Siliceous Itabirite                         | 44.53                 | 22.59              | 6.02                             | 0.08         |
| SDL-RC-12-00031                    | 40                | Downhole  | composite          | 5.00                  |   | 44.53                 | 22.59              | 6.02                             | 0.08         |
|                                    |                   |           |                    |                       |   |                       |                    |                                  |              |
| SDL-RC-12-00032                    |                   | 23.00     | 43.00              | 20.00                 | Amphibolitic Itabirite                      | 35.11                 | 16.81              | 0.69                             | 0.13         |
| SDL-RC-12-00032                    | 70                | Downhole  | composite          | 20.00                 |   | 35.11                 | 16.81              | 0.69                             | 0.13         |
| SDL-RC-12-00033                    |                   | 27.00     | 39.00              | 12.00                 | Amphibolitic Itabirite                      | 27.78                 | 32.54              | 14.99                            | 0.15         |
| SDL-RC-12-00033                    |                   | 45.00     | 49.00              | 4.00                  | Amphibolitic Itabirite                      | 27.84                 | 47.93              | 2.84                             | 0.08         |
| SDL-RC-12-00033                    |                   | 64.00     | 69.00              | 5.00                  | Amphibolitic Itabirite                      | 30.78                 | 44.68              | 0.08                             | 3.16         |
| SDL-RC-12-00033                    | 80                |           | composite          | 21.00                 |   | 28.50                 | 38.36              | 9.13                             | 0.85         |
|                                    |                   |           |                    |                       |   |                       |                    |                                  |              |
| SDL-RC-12-00034                    |                   | 0.00      | 4.00               | 4.00                  | Soil  | 37.02                 | 24.08              | 9.91                             | 0.08         |
|                                    |                   | 4.00      | 16.00              | 12.00                 | Amphibolitic Itabirite                      | 32.38                 | 28.59              | 8.52                             | 0.06         |
| SDL-RC-12-00034                    |                   | 60.00     | 64.00              | 4.00                  | Amphibolitic Itabirite                      | 25.98                 | 45.30              | 0.07                             | 4.19         |
| SDL-RC-12-00034                    |                   | 68.00     | 71.00              | 3.00                  | Ferruginous Amphibolite                     | 28.14                 | 45.20              | 4.55                             | 0.08         |
| SDL-RC-12-00034                    | 98                | Downhole  | composite          | 23.00                 |   | 31.52                 | 32.88              | 6.77                             | 0.78         |
| SDL-RC-12-00035                    |                   | 0.00      | 9.00               | 9.00                  | Siliceous Itabirite                         | 28.99                 | 28.60              | 16.82                            | 0.08         |
| SDL-RC-12-00035                    |                   | 39.00     | 46.00              | 7.00                  | Ferruginous Amphibolite                     | 30.03                 | 47.86              | 3.06                             | 0.07         |
| SDL-RC-12-00035                    | 112               |           | composite          | 16.00                 | · · · · · · · · · · · · · · · · · · ·       | 29.45                 | 37.03              | 10.80                            | 0.08         |
|                                    |                   |           |                    |                       |   |                       |                    |                                  |              |
| SDL-RC-12-00036                    |                   | 49.00     | 61.00              | 12.00                 | Amphibolitic Itabirite                      | 31.90                 | 45.43              | 3.06                             | 0.07         |
| SDL-RC-12-00036                    |                   | 68.00     | 77.00              | 9.00                  | Amphibolitic Itabirite                      | 37.20                 | 45.21              | 0.71                             | 0.08         |
| SDL-RC-12-00036                    | 04                | 80.00     | 84.00              | 4.00                  | Amphibolitic Itabirite                      | 31.90                 | 46.25<br>45.48     | 1.61                             | 0.07         |
| SDL-RC-12-00036                    | 94                | Downnoie  | composite          | 25.00                 |   | 33.81                 | 45.48              | 1.98                             | 0.07         |
| SDL-RC-12-00037                    | 50                | Downhole  | composite          |                       | No Sig                                      | nificant Inf          | ersection          |                                  |              |
|                                    |                   | 0.00      | 00.00              | 00.00                 | A manufacture de la factoria de la factoria | 04 54                 | 07.00              | 40.04                            | 0.10         |
| SDL-RC-12-00038                    |                   | 0.00      | 22.00              | 22.00                 | Amphibolitic Itabirite                      | 34.51                 | 27.80              | 12.31                            | 0.10         |
| SDL-RC-12-00038<br>SDL-RC-12-00038 | 60                | 33.00     | 36.00<br>composite | 3.00<br>25.00         | Amphibolitic Itabirite                      | 33.19<br><b>34.35</b> | 44.80<br>29.84     | 2.13<br>11.09                    | 0.06<br>0.09 |
| 3DL-RC-12-00030                    | 00                | Dowiniole | composite          | 25.00                 |   | 34.33                 | 29.04              | 11.09                            | 0.09         |
| SDL-RC-12-00039                    |                   | 20.00     | 32.00              | 12.00                 | Amphibolitic Itabirite                      | 36.83                 | 36.01              | 5.78                             | 0.09         |
| SDL-RC-12-00039                    | 56                | Downhole  | composite          | 12.00                 |   | 36.83                 | 36.01              | 5.78                             | 0.09         |
| SDL-RC-12-00040                    | 60                | Downhole  | composite          |                       | No Sig                                      | nificant Int          | ersection          |                                  |              |
|                                    |                   | 0.00      | 0.00               | 0.00                  | 1.1.1                                       | 04.45                 | 00 70              | 40.00                            | 0.00         |
| SDL-RC-12-00041                    |                   | 0.00      | 6.00               | 6.00                  | Laterite                                    | 34.46                 | 20.78              | 13.62                            | 0.08         |
| SDL-RC-12-00041                    | 40                | 9.00      | 26.00              | 17.00                 | Siliceous Itabirite                         | 35.79                 | 31.59              | 9.73                             | 0.09         |
| SDL-RC-12-00041                    | 48                | Downhole  | composite          | 23.00                 |   | 35.44                 | 28.77              | 10.74                            | 0.09         |
| SDL-RC-12-00042                    |                   | 0.00      | 8.00               | 8.00                  | Siliceous Itabirite                         | 50.55                 | 23.87              | 0.58                             | 0.09         |
| SDL-RC-12-00042                    |                   | 8.00      | 48.00              | 40.00                 | Amphibolitic Itabirite                      | 43.20                 | 33.40              | 1.79                             | 0.08         |
| SDL-RC-12-00042                    | 58                |           | composite          | 48.00                 |   | 44.43                 | 31.81              | 1.59                             | 0.08         |
|                                    |                   |           |                    |                       |   |                       |                    |                                  |              |

Intervals calculated using a 20% Fe cut-off grade with 3 metre minimum mining width All samples were analysed using an XRF fusion method with LOI at 1000  $^{\circ}$ C

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