

# Borborema Gold Project – 1.61Moz Maiden Ore Reserve

## Highlights

- Proven and Probable Ore Reserves of 1.61Moz of mineable gold from 42.4Mt @ 1.18g/t (0.4 & 0.5g/t cut-offs for oxide & fresh)
- Maiden Ore Reserve can support +10 year mine life, averaging 150,000oz gold pa.
- Bankable Feasibility Study for 4Mtpa plant nearing completion.
- 87% of Measured and Indicated Resources converted into Proven and Probable Reserves.

Two years of resource and reserve drilling has led Crusader Resources Limited (ASX:CAS) to declare a maiden Ore Reserve of 1.61 million ounces at its 100% owned Borborema gold project in Brazil.

Borborema's estimated Proven and Probable Ore Reserves of 42.4Mt @ 1.18g/t for 1.61 Moz of gold (using a 0.4g/t cutoff for oxides and 0.5g/t cutoff for fresh material) will form an integral part of the Bankable Feasibility Study (BFS) due shortly for completion. The BFS will detail costs and benefits of a 4Mtpa gold mine with projected average production of 150,000 ozpa (years 2-10).

Crusader Managing Director, Rob Smakman said today, *"Borborema has demonstrated its potential to be a company maker. In just over two years, Borborema has generated a conservative Ore Reserve of 1.6 million ounces of gold, exceeding our internal expectations. We are close to completing the BFS and have moved a major step closer to becoming a substantial gold producer."*

*Importantly, the Borborema mineralised system remains open in all directions with drilling continuing to target adjacent and nearby gold prospects. These priority drill targets have the potential to significantly enlarge the overall Borborema gold project.*

## Australian Securities Exchange Information

### ASX Code: CAS

- Ordinary Shares **126,616,040**
- Options **4,460,000**  
(exercise prices: \$0.44 to \$1.30)
- Market Capitalisation **\$56M**
- Treasury **\$8.4M** (30 September 2012)
- Share price **\$0.445**  
(12 month closing range: \$0.35 to \$1.30)

## Board of Directors

Non-Executive Chairman  
**David Archer**

Managing Director  
**Rob Smakman**

Executive Director  
**Paul Stephen**

Non-Executive Directors  
**Justin Evans**  
**David Netherway**

## CAS Investment Opportunity in Brazilian Projects

- Underexplored and high potential portfolio
- In-country experienced management (inc. MD, COO and Exploration Manager)
- Extensive network into new opportunities

*After purchasing Borborema two years ago, we now have a 2.4 million ounce Mineral Resource and Ore Reserves of 1.61 million ounces. The depreciation of the Brazilian currency over the last year has also enhanced the country's already attractive economics for a mine development like Borborema."*

**Table 1  
Borborema Gold Project  
Maiden Ore Reserve**

Category		Tonnes (Mt)	Grade (Au g/t)	Mineable Gold (koz)
Proven	Oxide	0.65	0.80	17
	Fresh	7.26	1.25	292
Probable	Oxide	1.68	0.70	38
	Fresh	32.82	1.20	1,260
<b>Total</b>		<b>42.41</b>	<b>1.18</b>	<b>1,610 (1.61 Moz)</b>

Table 1: Ore Reserve estimate for the Borborema Gold Project. Reported at a 0.4 g/t cut-off for oxide and 0.5g/t cut-off for fresh material. The cut-off grades have been based on the latest throughput costs, gold price of US\$1350/oz, metallurgical recovery of 95% and then rounded up. Note, appropriate rounding has been applied, subtotals may not equal total figures.

The Ore Reserve is reported in accordance with the JORC code and has been prepared independently by Kirk Mining Consultants (KMC) and Auralia Mining Consulting. Linton Kirk, principal of KMC, is the Competent Person qualified to report the Ore Reserve.

The Ore Reserve is based upon the Mineral Resource estimate for Borborema released in July 2012 (to view [please click here](#)). Pit design and mine planning has been completed using information and modifying factors which are summarised below and detailed in Appendix 1.

Internal or adjacent waste included within the Mineral Resource model is deemed sufficient to account for dilution and a 2 % reduction in the contained quantity of the Mineral Resources within the pit design has been allowed for ore loss during mining. A mineral processing recovery of 95 % gold (rounded down) has been based on metallurgical test work results. There is no site processing infrastructure in place nor has government approval been obtained for the project but there are reasonable expectations of such approvals being obtained.

The main inputs into the estimate of Ore Reserves include:

- 98% ore mining recovery
- Dilution allowed for in the MIK Resource model
- Extensive bulk density measurements completed by Crusader
- Metallurgical parameters from all testwork completed to date
- Milling rate of 4Mtpa
- Geotechnical parameters as defined for the BFS
- All operating costs as previously reported for pit optimisation work. BFS operating costs are not yet finalised

The pit design was based on Whittle pit optimisation and the highest average discounted cash flow shell, using a gold price of US\$1,350/oz.

The results of the pit design and mine scheduling indicate a +10 year mine life and gold production in years 2-10 of 150,000oz pa. The total of 42.4 Mt of ore reflects an 87% conversion of the Measured and Indicated Mineral Resources estimated in June 2012 and 97% of the Measured and Indicated categories in the optimised open pit. There are 0.6Mt @ 1.28g/t for 0.024Koz of Inferred Resources which are within the designed open pit that have not been included in the current statement of Ore Reserves.

Key Results- Maiden Ore Reserve Based on a US\$1,350/oz Gold price	
Total pit volume (bcm)	116.2 million
Ore (tonnes)	42.4 million
Gold grade (g/t)	1.18
Mining recovery	98%
Mineable Gold	1.61Moz
Average processing recovery	95%
Recovered Gold	1.53Moz
Strip Ratio (t waste : t ore)	6.5

Scheduling of the ore has allowed for lower grade material (<0.7g/t) to be stockpiled and mostly be treated at the end of the mine life. This results in optimised cash flows and allows scheduling flexibility during cut-backs.

Recovered gold includes mining dilution and metallurgical recoveries of 95%.

Update on BFS

Significant progress has been made on the Borborema Bankable Feasibility Study (BFS), with several positive developments. The key change between the PFS and the BFS has been to increase the processing capacity to 4 Mtpa, which is capable of producing an average 150,000 oz/pa of gold. The BFS is nearing completion and several areas are under critical review.

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## About Crusader

Crusader Resources Limited (ASX:CAS) is a minerals exploration company listed on the Australian Securities Exchange. Its major focus is Brazil, a country Crusader believes is vastly underexplored with high potential for the discovery of world class mineral deposits.

Crusader's key asset is the 2.43 million ounce Borborema Gold Project in north eastern Brazil. The company has 4,100 km<sup>2</sup> of exploration tenements in the Seridó Belt, a highly prospective geological structure which hosts the Borborema Gold Project. This region is under explored and could provide Crusader with a pipeline of high growth, greenfields gold discoveries.

Crusader also owns the Posse Iron Project near Belo Horizonte which will produce high-quality iron ore for consumption in the Brazilian domestic iron industry. Production will commence once licences have been obtained from the mines and environment department.

## About Borborema

The Borborema gold project is in the Seridó area of the Borborema province in north-eastern Brazil.

It is 100% owned by Crusader Resources Ltd and consists of three mining leases covering a total area of 29 km<sup>2</sup> including freehold title to the property over the main prospect area.

The Borborema Gold Project benefits from existing on-site facilities and excellent infrastructure, such as buildings, grid power, water, sealed roads and is close to major cities and regional centres. The current JORC compliant Indicated and Inferred Mineral Resource estimate, using a 0.50 g/t cut-off grade, is 68 million tonnes at 1.06 g/t for 2.43 million ounces of gold. Drilling continues to define and expand the gold mineralisation, which remains open in all directions.

Crusader completed a Pre-Feasibility Study (PFS) in September 2011 into the economic and technical merits of the Borborema Gold Project. The PFS results revealed a robust investment case based on an open cut mine development of 3Mtpa.

A Bankable Feasibility Study is now underway and will consider a larger throughput of 4Mtpa.

## Disclaimer

The information in this report that relates to Exploration Results is based on information compiled or reviewed by Mr. Robert Smakman, who is a Fellow of The Australasian Institute of Mining and Metallurgy and is a full-time employee of the company. Mr. Smakman has sufficient experience in the type of deposits under consideration and the activities being undertaken to qualify as a Competent Person as defined in the December 2004 Edition of the Australasian Code for reporting of Exploration Results, Mineral Resources and Ore Reserves and consents to the inclusion in the report of the matters based on his information in the form and context in which it appears. Mr. Smakman accepts responsibility for the accuracy of the statements disclosed in this report.

The information in this report that relates to Mineral Resources is based on information compiled by Mr. Lauritz Barnes and Mr. Brett Gossage who are both Members of The Australasian Institute of Mining and Metallurgy. Messrs Barnes and Gossage are both independent consultants to Crusader Resources Limited. Both Messrs Barnes and Gossage have sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which is being undertaken 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 Reserves". Messrs Barnes and Gossage consent to the inclusion in the report of the matters based on the 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 Mr. Linton Kirk who is a Fellow of The Australasian Institute of Mining and Metallurgy. Mr. Kirk is an independent consultant to Crusader Resources Limited. Mr. Kirk has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which is being undertaken 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 Reserves". Mr. Kirk consents to the inclusion in the report of the matters based on the information in the form and context in which it appears.

## Appendix 1: Pit Optimisation and Modifying Parameters

Pit optimisation of the Borborema Gold Project was completed by Auralia Mining Consultants.

The optimisations were completed on the updated MIK block model containing all Mineral Resources categories using Whittle software. The MIK block model is a recoverable mining model which replicates the grade tonnage likely in mining, but an additional 2% ore loss has been allowed for mining operations. The main optimisation inputs are as per Appendix Table 2 below, as provided by Crusader and the BFS study team.

Appendix Table 2 Borborema BFS Pit Optimisation Inputs	
Gold price	US\$1,350/oz
Government royalty	1% revenue
Discount rate	5%
Mining recovery	98%
Overall Pit slopes	36 FW, 52 HW degrees
Milling rate	4Mtpa
Average processing recovery	95.0%
Average mining cost	US\$2.71/t mined
Average mill throughput cost	US\$14.68/t milled

The pit design parameters used are as per Appendix Table 3 below.

Appendix Table 3 Borborema BFS Pit Design Parameters	
Footwall batter angles (oxides/fresh)	50/55°
Hangingwall batter angles (oxides/fresh)	50/80°
Batter heights (oxides/fresh)	15/20m
Berm Widths (oxides/fresh)	5/8 or 10m
Ramp Width	24m
Maximum Pit Depth	290m