

# Quarterly Activities Report

## June 2016

### Highlights

#### Borborema Gold Project

- Internal optimisation into a 2Mtpa development for Stage 1 of the Borborema Gold Project completed
- Economics are positive and, as a result, further work towards a new Feasibility Study has begun
- Metallurgical samples (~6 tonnes) are being shipped to an independent lab in Australia for testwork to confirm the processing flowsheet and investigate various processing potential cost saving opportunities

#### Juruena Gold Project

- 6,000m resource-infill and expansion drilling program progressed during the quarter. As at the end of June, approximately 3,688m (33 holes) of the planned 6,000m program have been drilled
- Release of first round of results has been delayed due to various logistical issues (now resolved) and are now expected to be announced in early August

#### Posse Iron Ore Mine

- Profitability restored at Posse with increased sales volumes and improved margins
- Crusader received an award at the Minerios & Minerales Magazine's 18th Annual Awards of Excellence in the Mining-Metallurgical Industry in Brazil
- Award was for its social investment program in the communities of Posses, Palmital and Muniz which neighbour its producing Posse Iron Ore Mine

### Borborema Gold Project, Rio Grande do Norte, Brazil (100% Crusader)

#### Scoping Study

During the June Quarter, Crusader announced the completion of an internal optimisation review into a 2Mtpa development for Stage 1 of Crusader's 100% owned Borborema Gold Project, located in the northeast of Brazil. The previous draft Bankable Feasibility Study work was based on a throughput rate of 4.2Mtpa.

The review showed economics for the development were positive and, as a result, further work towards a new Feasibility Study has begun (including revising the existing Ore Reserve estimate).

This review was completed using factored costs from previously unfinished feasibility work (draft BFS), updated consumable prices, a lower US\$ gold price (\$1,150/oz) and a higher BRL:USD exchange rate (4:1).

Borborema has a Proven and Probable Ore Reserve of 42Mt @ 1.18g/t for 1.6Moz (please see Figure 1 below). This estimate was made in 2012 and includes the two main lenses of mineralisation. The optimisation of Borborema Stage 1 plans to exploit the upper lens only, which includes ore of approximately 20Mt at a strip ratio of approximately 3.5:1. This pit-size optimises the resource at current prices, minimises waste movement, reduces capital and operational costs and does not sterilise the future development of the deeper lens (Stage 2).

The Stage 1 project footprint has been adapted to respect the existing highway and powerlines - removing the requirement and cost to move. All direct project impacts (waste storage, pit, infrastructure etc.) have been restricted to Company owned land.

Dry stacking of tailings, following filtration, has now been proposed. This has the important additional benefits of removing the planned tailings dam, simplifying the overall operation and reducing capital costs with minimal impact on operational costs.

The updated project plan has been submitted to the relevant authorities in Brazil and the full licences are expected to be received shortly. Metallurgical and comminution samples (~6 tonnes) have been shipped to an independent lab in Australia for testwork to confirm the processing flowsheet and investigate various processing cost saving opportunities. Samples will be received in the third quarter of 2016, with results forming a vital part of the planned updated Feasibility Study into Stage 1.

<b>Borborema Gold Project</b>			
<b>Mineral Resource Estimate by Multiple Indicator Kriging (MIK)</b>			
<b>Category</b>	<b>Tonnes (Mt)</b>	<b>Grade (Au g/t)</b>	<b>Contained Gold (Moz)</b>
Measured	8.2	1.22	0.32
Indicated	42.8	1.12	1.55
<b>Total Measured + Indicated</b>	<b>51.0</b>	<b>1.14</b>	<b>1.87</b>
Inferred	17.6	1.00	0.57
<b>Total Mineral Resource*</b>	<b>68.6</b>	<b>1.10</b>	<b>2.43</b>

\*July 2012 Mineral Resource Summary Table, reported at a 0.5 g/t cut-off. Parent Block 25mE x 25mN x 5mRL. Selective Mining Unit 5mE x 6.25mN x 2.5mRL. Note, appropriate rounding has been applied, subtotals may not equal total figure.

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

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.

**Figure 1: Borborema Gold Project, JORC compliant (2012) Mineral Resources and Ore reserves.**

For more information, please refer to ASX announcement dated 16 May 2016.

## **Juruena Gold Project – Mato Grosso State, Brazil (100% Crusader)**

### **Diamond Drilling Campaign**

During the quarter ended June 2016, Crusader progressed with drilling at its wholly-owned Juruena project in Brazil with approximately 3,688m (33 holes) of the planned 6,000m program completed as at 30 June 2016 (see Figure 2 below).

Crusader had previously announced sample results for the first batch of holes from the Juruena drilling campaign would be available in mid-late June. Due to now resolved logistical issues which have delayed release, results are now due and the Company expects to release these results in early August.

The resource-infill and expansion program comprising a minimum of 50 holes for approximately 6,000m will be completed in the current quarter. The Company expects to convert a percentage of the current Inferred resources at Dona Maria and Querosene to the Indicated category as well as seek to expand the size of the overall gold resources at Juruena.

The drill program is initially targeting the Querosene and Dona Maria prospects, which are both open at depth and along strike. Also planned are initial holes at several new targets, including Tomate, Mauro and Mauro West.



**Figure 2: Images of ongoing diamond drilling campaign at Juruena project, Brazil.**

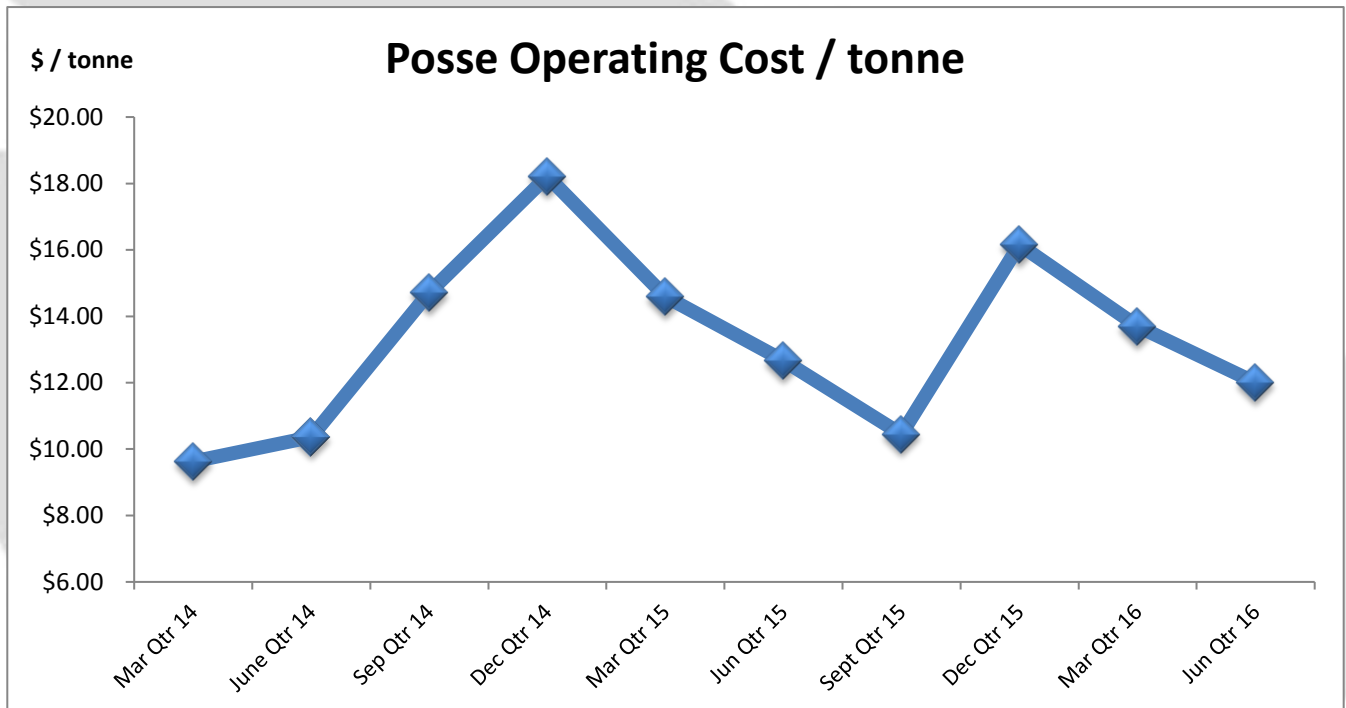
## **Posse Iron Ore Mine – Minas Gerais, Brazil (100% Crusader)**

The Posse mine increased profitability during the quarter achieving a Gross Profit of \$197,000 (unaudited). Sales volume of lump products increased as average costs were reduced and margins increased. The contribution of NPO (coarse lump) to profitability continues to increase.

Crusader maintains an optimistic outlook for the second half of 2016 and anticipates the mine will operate profitably for the remainder of the year.

Over the quarter, average production costs declined to \$12.00/t compared to \$13.69/t for the March 2016 quarter (see Figure 3 below).





**Figure 3: Operating costs at Posse Iron Ore Mine, Brazil**

Operationally, the original office and laboratory locations have been moved to a location close to the mine gate. Figure 4 below shows the current mining below the old office and lab location, allowing access to lenses of high grade ore as well as expanding the pit floor.



**Figure 4: Mining operations at Posse Iron Ore Mine, Brazil (looking North).**

## **Lithium Joint Venture- including Manga Li, Sn, & In Project – Goias State, Brazil (50% Crusader)**

In February 2016, Crusader signed a Memorandum of Understanding with Lepidico Ltd (“Lepidico”) for the establishment of a 50:50 strategic joint venture company. Lepidico has subsequently been taken over by the ASX listed Platypus Minerals (ASX-PLP), an Australian exploration company that also owns the L-Max® and other processing technologies that were designed to extract lithium from Li-mica minerals such as zinnwaldite and lepidolite, and Li-phosphate minerals such as amblygonite.

Crusader and Platypus have signed a shareholders agreement and formed a JV company called Third Element Metals Pty Ltd. The JV will have the exclusive right to use the technologies in Brazil, with the strategy to develop and hold a portfolio of royalty interests from sub-licensing the technology, in addition to deploying it for Crusader’s Manga prospect.

The Manga Li Project (previously explored for tin and indium) is located in the NE of Goias state, Central Brazil. Crusader explored the ground for tin, indium and gold mineralisation in the region during 2007 and later mapped, soil sampled, rock chipped and drilled 15 reverse circulation holes.

Rock-chip programs conducted by Crusader were assayed for multi-elements and include some significant Li<sub>2</sub>O results. Li<sub>2</sub>O grades of up to 1.3% were returned, within a zinnwaldite-rich greisen zone, proximal to the anomalous tin and indium bearing greisen. This zone, and the area generally, will be the focus of Li-specific exploration by Third Element Metals.

Re-assaying of the historical drill chips were received and only low levels of Li<sub>2</sub>O were returned with values up to 0.4% Li<sub>2</sub>O, however the drilling was *not* completed to target the Li greisen zone. Follow-up work on the Li-rich Zinnwaldite greisen is being planned for the current quarter.

## **Social Investment**

During the June Quarter, Crusader received an award for its social investment program at the Minerios & Minerales Magazine’s 18th Annual Award of Excellence in the Mining and Metallurgical Industry in Brazil.

The award was for Crusader’s social investment program in the communities of Posses, Palmital and Muniz which neighbour its producing Posse Iron Ore Mine within Brazil’s world famous Iron Quadrilateral in Minas Gerais state.

Following the principle of ensuring broad participation and consultation, Crusader sponsored a training course for the community on the preparation of projects, presentation and final vote on the preferred project in a community meeting.

The project is to improve the road access to the communities and will be completed in cooperation with Caete Prefecture, sponsored by Crusader.

## **Health & Safety / OHS**

There were no accidents or incidents recorded at Posse, Juruena, Borborema or Manga projects during the quarter.

**ENDS**

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**About Crusader**

Crusader Resources Limited (ASX:CAS) is a minerals exploration and mining company listed on the Australian Securities Exchange. Its major focus is Brazil; a country Crusader believes is vastly underexplored and which offers high potential for the discovery of world class mineral deposits. Crusader has three key assets:

**Juruena Gold**

The Juruena Gold Project is located in the highly prospective Juruena-Alta Floresta Gold Belt, which stretches east-west for >400km and has historically produced more than 7Moz of gold from 40 known gold deposits.

The Juruena Project has been worked extensively by artisanal miners (garimpeiros) since the 1980s, producing ~500koz in that time. Historically there is a database of more than 30,000 meters of drilling and extensive geological data.

**Posse Iron Ore**

The Posse Iron Ore Mine is located 30km from Belo Horizonte, a city acknowledged as the mining capital of Brazil and the capital of Minas Gerais state. The project had an indicated and inferred Mineral Resource estimate of 36Mt @ 43.5% Fe when mining began in March 2013. Posse is currently selling DSO into the domestic market. With an experienced mining workforce amongst a population of over 2.5 million people, the infrastructure and access to the domestic steel market around the Posse Project is excellent.

**Borborema Gold**

The Borborema Gold Project is in the Seridó area of the Borborema province in north-eastern Brazil. It is 100% owned by Crusader and consists of three mining leases covering a total area of 29 km<sup>2</sup> including freehold title over the main prospect area.

The Borborema Gold Project benefits from a favourable taxation regime, 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 project's Ore Reserve includes 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).

The measured, indicated and inferred Mineral Resource Estimate of 2.43Moz @ 1.10g/t gold, remains open in all directions.

**Competent Person Statement**

The information in this report that relates to Juruena Gold Project exploration results, Posse Iron Ore Project exploration results and Borborema Gold Project exploration results released after 1 December 2013, is based on information compiled or reviewed by Mr. Robert Smakman who is a full time employee of the company and is a Fellow of the Australasian Institute of Mining and Metallurgy. The information in this report that relates to Mineral Resources at the Juruena Gold Project is based on information compiled or reviewed by Mr. Lauritz Barnes and Mr. Aidan Platel who are independent consultants to the company and Members of the Australasian Institute of Mining and Metallurgy. Each of Mr. Smakman, Mr. Barnes and Mr. Platel have sufficient experience that is relevant to the type of mineralisation and type of deposits under consideration 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. Mr. Smakman, Mr. Barnes and Mr. Platel consent to the inclusion in the report of the matters based on his information in the form and context in which it appears.

The information in this report that relates to:

- a) Borborema Gold Project and Posse Iron Ore Project Exploration Results released prior to 1 December 2013 is based on information compiled or reviewed by Mr. Robert Smakman who is a full time employee of the company;
- b) Borborema Gold Mineral Resources is based on information compiled by Mr. Lauritz Barnes and Mr. Brett Gossage, independent consultants to the company;
- c) Borborema Gold Ore Reserves is based on information compiled by Mr. Linton Kirk, independent consultant to the company;
- d) Posse Fe Mineral Resources is based on and accurately reflects, information compiled by Mr. Bernardo Viana who was a full time employee of Coffey Mining Pty Ltd,

and who are all Members of the Australasian Institute of Mining and Metallurgy (Rob Smakman and Linton Kirk being Fellows), and who all have sufficient experience that is relevant to the type of mineralisation 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 Reserves. Each of Mr. Smakman, Mr. Barnes, Mr. Kirk, Mr. Viana, and Mr. Brett Gossage 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 was prepared and disclosed under the JORC Code 2004. It has not been updated since to comply with JORC Code 2012 on the basis that the information has not materially changed since it was last reported.