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Borborema Optimisation Study Delivers Outstanding Results

Crusader Resources (ASX:CAS) ("Crusader") is pleased to announce the updated results of the ongoing technical and financial optimisation of its 100% owned Borborema Gold Project located in the state of Rio Grande do Norte in North Eastern Brazil.

Highlights:

- Net present value of US$117.8M, discounted at 8%.
- Internal rate of return of 31%, based on a gold price of US$1300/oz.
- Gold production over ten years of 701koz with expected annual average production of ~70koz.
- Cash cost of production estimated at US$724/oz with all in sustaining cost of US$908/oz.
- Pre-production capital expenditure for contract mining scenario, a planned 2Mtpa capacity CIL plant and associated infrastructure projected to be US$93.4M.

Commenting on the results of the updated economics for the Borborema Gold Project, Crusader Managing Director Marcus Engelbrecht said:

"The technical and financial review of our Borborema Gold Project has demonstrated the robust economics of the project and the potential to develop and operate a long life gold mine. Our model supports development of an open pit mine with a low stripping ratio from surface and a conventional processing facility in a prospective and mine friendly district. Based on these results and subject to funding, we intend to finalise a bankable feasibility study of the project during the year. I look forward to updating you on progress."

The optimisation update is based on processing 2Mtpa of an initial 20Mt of ore for an initial 10 year period. The initial development exploits the upper lens of the Borborema deposit, approximately half of the current ore reserve of 42Mt @ 1.18g/t. The initial 20Mt of ore optimises the project at current gold prices, minimises waste movement, capital expenditure and operational risks and does not prevent the future development of the deeper reserves.

The Asset

The Borborema Gold Project in the Seridó area of the Borborema province in north-eastern Brazil is Crusader's key asset. It is 100% owned by Crusader and consists of three mining leases covering a total area of 29km² including freehold title over the main prospect area. Previously mined as a heap leach in the 1980's, Crusader has completed more than 95,000m of drilling on an orebody which is tabular and mineable as an open pit. Free milling ore with expected gold recoveries of 93%, the project is favoured by its location which has a dry climate and excellent infrastructure (roads, power, water and nearby sophisticated population centres). The Company benefits from a favourable taxation regime, significant existing infrastructure and on-site facilities and a critically important Environmental Licence (LP) which Crusader received in 2017. (Refer to ASX release of 28 April 2017).

A draft Feasibility Study (FS) on processing 4.2Mtpa was completed in 2012 by TetraTech Brazil but not released due to the falling gold price from April 2013. Crusader commissioned TetraTech Mining and Minerals (TetraTech) to review the project data and complete an optimised study for the initial development of Borborema. TetraTech has prepared an updated capital and operating cost estimate for the processing plant and infrastructure costs.

Ore Reserves

The information in this release that relates to the mineral resource and ore reserve estimates for the Borborema Gold Project were reported by Crusader in accordance with the 2012 edition of the JORC Code on 24 July 2017. The mineral resource and ore reserve estimates have not changed, some cost data referred to in the 24 July 2017 announcement has been revised:

- United States dollar inflation has been allowed for (6% increase from November 2012 to July 2017) for the foreign denominated portion of operating costs;
- Operating costs expected to be denominated in Brazilian Real (BRL) are now estimated to be 63%.

The project NPV at a 10% discount rate is positive for the draft BFS mining and milling rate of 4.2Mtpa. The changes above for the same reserve tonnes at a processing rate of 2Mtpa, a gold price of US$1210/oz and all other criteria as per the 24 July 2017 JORC Table 1 remaining the same, is cash flow positive.

The production targets and forecast financial information in this announcement are underpinned solely by the ore reserve estimate for the Borborema Gold Project.

Optimisation

The key features of the optimised 20Mt of ore project include:

- The projected throughput has reduced from 4.2Mtpa to 2Mtpa.
- Focusing initially on the upper lens of ore at a waste to ore strip ratio of approximately 4.1:1 (t:t) or approximately 50% of the ore reserve. The remaining ore reserve remains accessible for any future expansion.
- Restricting the initial project development to Company owned land where the sealed road at the south end of the project is no longer required to be moved.
- Switching to dry stacking of filtered tailings in waste rock dumps rather than deposition of wet tailings in a dedicated tailings dam.
- Utilising ‘grey water’ from a local town to supplement water from local catchment for the project’s industrial water supply.
- Using a mining contractor to conduct open pit mining. A contractor mark-up of 15% is assumed.
- Significantly reducing the capital cost.
- Materially enhancing project NPV at current gold prices.

The initial project layout as proposed in May 2016 is shown in Figure 1.

This update is based upon a review of previous studies, additional information provided by Crusader, and TetraTech's experience. No new engineering work has yet been completed. Where possible the capital and operating costs have been estimated using 2017 prices and otherwise the 2012 FS costs have been adjusted and updated to reflect the revised layout and reduced production capacity, taking into account the changes in the US Dollar to Brazilian Real exchange rates and inflation in both Brazil and the United States (to represent the imported cost components).

Crusader's financial model is based on the mine schedule produced by Axe Valley Consulting (Axe Valley). The schedule is fully costed with respect to mining capital and operating costs, and is based on Axe Valley's internal cost database as well as data received from Crusader's Brazil office. The mine plan on which this update is based proposes processing 2Mtpa of an initial 20Mt of ore for an initial 10 year period. The initial development exploits the upper lens of the Borborema deposit, approximately half of the current ore reserve of 42Mt @ 1.18g/t.

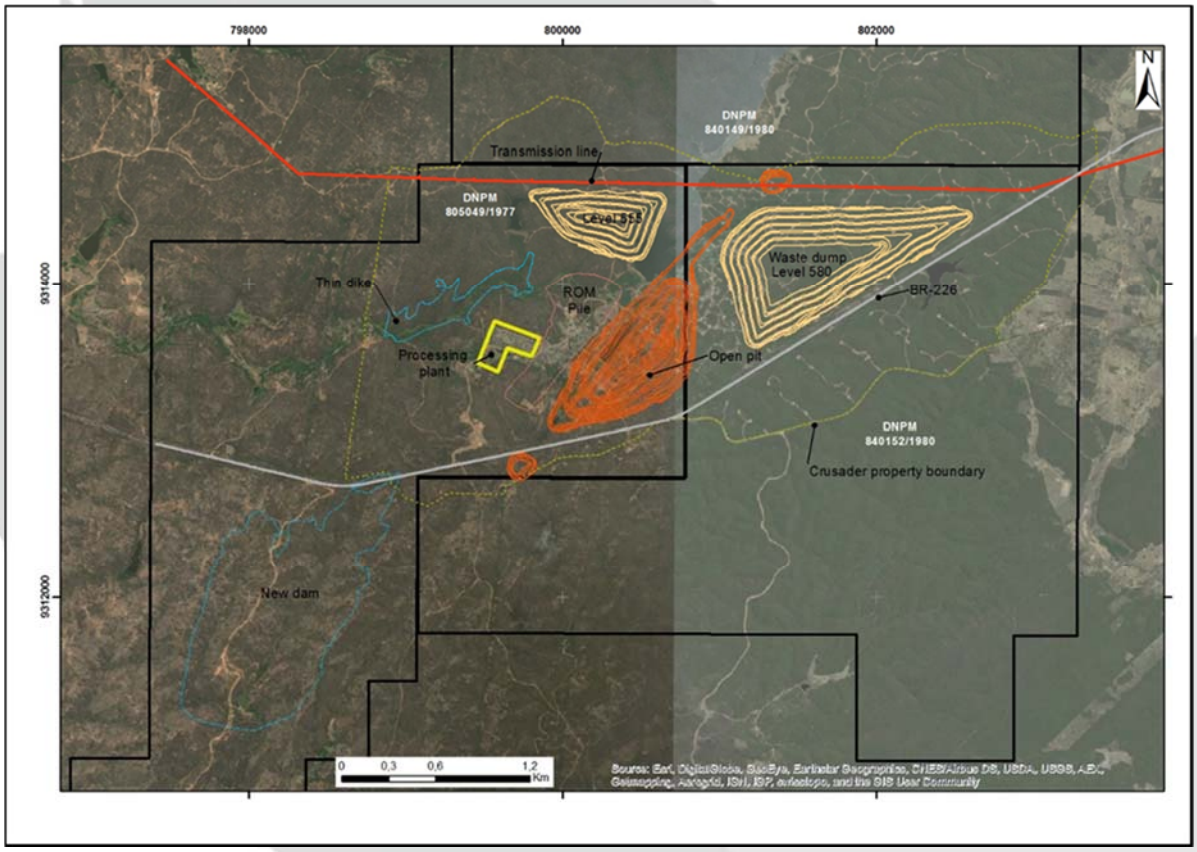

Figure 1: Borborema General Layout 2016

Currency Rates

Table 1 shows the currency rates used in the 2012 FS and the revised rates used for the 2017 capital and operating cost estimates.

Table 1: Currency Rates

Currency	Symbol	2012 FS	2017 Assumption
US Dollar	USD	1.0000	1.0000
Australian Dollar	AUD	0.9681	1.3045
Brazilian Real	BRL	2.0000	3.1963
Canadian Dollar	CAD	0.9884	1.2976
European Union Euro	EUR	0.7583	0.8866

Inflation

To adjust imported and domestic goods and services, the relative changes in the US and Brazilian CPI has been used, as shown in Table 2, to adjust cost data that has not been updated since 2012.

Table 2: Changes in Brazil – US CPI

Changes in CPI	2012 FS	2017 Assumption
US	100	107.0
Brazil	100	140.0

Source: www.inflation.eu/inflation-rates/historic-cpi-inflation

Although Brazil has seen some 40% inflation in the last 5 years, given the exchange rate changes, the cost of some Brazilian products and services have decreased in USD terms to approximately 85% of the 2012 value. Both fuel and power costs have also increased in Brazilian Real terms but decreased in USD terms.

Labour rates in Brazil decreased in USD terms between 2012 and 2017 on average to some 80% of the cost seen in 2012. This is likely to reduce the labour component of both the future construction costs and operating costs. Steel prices have fluctuated significantly during the last 5 years and reduced significantly by 2015, but the last few years have seen a significant rise in international steel prices, to prices comparable to 2012 prices in USD terms.

Process Plant and Infrastructure Capital Estimate

The process plant capital cost has been estimated by TetraTech by reviewing the size of the key primary equipment based on the 2Mtpa mass balance provided by Crusader. This flowsheet is based upon a scaled down version of the 2012 FS plant design. The required equipment includes:

- Primary jaw crusher
- Secondary cone crusher
- Tertiary cone crusher
- Screens (secondary & tertiary)
- Ball mill
- Mill thickener
- CIL/leach tanks and agitators
- Detox tanks and agitator
- Tails thickener
- Tails filter press

Crusader has received a "turnkey" proposal from GNA Corporation in Brazil for a complete crushing circuit with a capital cost significantly below the revised estimated cost. TetraTech has recommended that a detailed review of the design, equipment specification, scope of work and commercials of this turnkey proposal is completed to confirm the capital cost (including the expected corresponding reductions in civil, structural, piping and electrical costs). This assessment has been made on the basis of new equipment and the use of second hand equipment remains as another potential cost saving.

A key change in the project design is the reduction in the mining and plant capacity to 2Mtpa and the inclusion of dry stacking of the tailings within the mine waste dumps rather than conventional deposition of wet tailings in a tailings dam, which will both impact on the project infrastructure requirements. The dry stacking concept has allowed for a greater degree of water recycling within the plant which will reduce the make-up water requirements. This plus the lower processing rate has resulted in the change to industrial water supply of only using grey water from a local town, which requires the construction of a much shorter water supply pipeline than from a major reservoir, as previously required for the 4.2Mtpa case.

A summary of the capital cost estimate of the 2Mtpa processing plant and infrastructure cost is shown in Tables 3 and 4 respectively.

Table 3: Process Plant Capital Cost Estimate

Description	USD M
Crushing	4.6
Grinding	6.7
Carbon In Leach (CIL) Circuit	5.6
Tailings Disposal	2.9
Other Mechanical Equipment	5.6
Civils	7.7
Structural Steel	4.7
Piping, Valves & Ducting	8.2
Electrical & Instrumentation	9.4
Procurement and Installation Costs	10.1
Total Process Plant Capital Cost Estimate	**65.6**

Table 4: Infrastructure Capital Cost Estimate

Description	USD M
Plant Infrastructure	13.2
Plant Utilities	0.7
SE and Automation	5.8
Plant Support Facilities	3.0
Administrative Facilities	2.1
Total Infrastructure Capital Cost Estimate	**24.9**

In addition, Axe Valley consultants have estimated the capital costs associated with support of mining activities as show in Table 5:

Table 5: Mining Support Capital Cost Estimate

Description	USD M
Mine Workshop	2.0
Fuel Station	0.6
Explosives Magazine	0.3
Total Mining Support Capital Cost Estimate	**2.9**

Operating Cost Estimate

TetraTech has reviewed and partly updated the 2012 FS process operating cost to reflect current unit costs (electricity price, consumable costs, etc.). TetraTech estimates the process operating cost for a 2Mtpa operation as USD 11.02/t.

Axe Valley estimates the mining operating cost as USD 1.98/t, with a 15% mining contractor mark-up added on top.

The TetraTech processing operating cost estimate is shown in Table 6 and is compared to the 2012 FS unit costs.

Table 6: Processing Operating Cost Estimate

Description	2012 BFS (USD/t)	2017 Optimisation Study (USD/t)
Power	2.99	2.42
Consumables & reagents	5.95	5.89
Filter Press and Tailings Handling	-	1.02
Plant supplies	0.43	0.53
Labour	0.60	1.01
Taxes	0.14	0.15
Total Processing Operating Cost Estimate	**10.10**	**11.02**

As previously advised, Crusader has recognised that there is a potential significant saving in mill power cost if mica can be removed from the ore at an earlier stage. As further investigation is required, the TetraTech assessment is based upon the previous FS test-work and mill power estimates, which have been confirmed. There is also potential for additional savings if local sources of some consumables can be identified.

Financial Summary

Key financial parameters for the mining contractor scenario are shown in Table 7.

Table 7: Financial Parameters

Description	
Post-Tax NPV$^{8\%}$ (USD M)	117.8
IRR (%)	31%
Up front capital costs (USD M)	93.4
Total Cash Costs (USD/oz)	737.0
All in sustaining cash costs (USD/oz)	907.6
Free cash flow life-of-mine (USD M)	242.8
Sustaining Capital life-of-mine (USD M)	13.1

Next Steps

The next steps towards project development subject to funding include:

- Re-commence metallurgical testwork
- Further review of the GNA crushing circuit proposal
- Further work on filtered tailings and co-disposal with pit waste
- Review of FS general and administration (G&A) costs, including manning levels
- Further work on mining operations, including fleet selection, contract mining options and explosives use
- Compilation of all aspects of the project into a revised Feasibility Study

Crusader looks forward to providing updates on the development of the Borborema Gold Project as further test work and assessment is completed.

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Borborema Gold Project: Mineral Resource and Ore Reserve estimates

Borborema Gold Project - Ore Reserve				
Category		Tonnes (Mt)	Grade (Au g/t)	Gold to Mill (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
Total		**42.41**	**1.18**	**1,610 (1.61 Moz)**

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$1210/oz. Note, appropriate rounding has been applied, subtotals may not equal total figures.

Borborema Gold Project Mineral Resource by Multiple Indicator Kriging (MIK)				
Category	Cut-off grade	Tonnes (Mt)	Grade (Au g/t)	Contained Gold (Moz)
Measured	0.40	9.8	1.09	0.34
	0.50	**8.2**	**1.22**	**0.32**
	0.60	6.8	1.35	0.30
Indicated	0.40	53.1	0.99	1.70
	0.50	**42.8**	**1.12**	**1.55**
	0.60	34.8	1.26	1.41
Total Measured + Indicated	0.40	62.9	1.01	2.04
	0.50	**51.0**	**1.14**	**1.87**
	0.60	41.7	1.27	1.70
Inferred	0.40	23.2	0.87	0.65
	0.50	**17.6**	**1.00**	**0.57**
	0.60	13.6	1.14	0.49
Total Mineral Resource	0.40	86.1	0.97	2.69
	0.50	**68.6**	**1.10**	**2.43**
	0.60	55.2	1.24	2.20

Mineral Resource table, reported at various cut-offs. 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 figures

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About Crusader

Crusader Resources Limited (ASX:CAS) is a minerals exploration and development 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 two key Gold Assets;

Borborema Gold Project

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 km2 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.

Juruena Gold Project

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. Historically there is a database of more than 30,000 meters of drilling and extensive geological data.

Competent Person Statements

Borborema mineral resource estimate

The information in this announcement that relates to the mineral resource estimate for the Borborema Project was first reported in accordance with ASX Listing Rule 5.8 on 24 July 2017. Crusader confirms that it is not aware of any new information or data that materially affects the information included in the announcement of 24 July 2017 and that all material assumptions and technical parameters underpinning the Mineral Resource estimate continue to apply and have not materially changed.

Borborema ore reserve estimate

The information in this announcement that relates to the Ore Reserve estimate for the Borborema Project was first reported in accordance with ASX Listing Rule 5.9 on 24 July 2017. Apart from information contained in this release Crusader confirms that it is not aware of any new information or data that materially affects the information included in the announcement of 24 July 2017.