

# Crusader Announces Borborema Ore Reserve Update

## Highlights:

- **Borborema Ore Reserve now updated as at 31 December 2017**
- **No changes to the previously disclosed Mineral Resource estimate of 68.6Mt @ 1.10 g/t containing 2.43Moz of Au and Ore Reserve of 42.4Mt @ 1.18 g/t containing 1.61Moz of Au**
- **Update completes CPR process for dual listing on AIM**

Crusader Resources (ASX: CAS) is pleased to announce an update to the Borborema Ore Reserve in compliance with the 2012 version of the JORC code and using current economic inputs as at 31<sup>st</sup> December 2017. The Mineral Resource and Ore Reserve was previously reported in July of 2017.

This update fully supports the previously reported ore reserve using current economic inputs including commodity pricing, exchange rates and allowance for inflation as at December 2017. This update has been prepared in connection with the Dual Listing process as announced on 20 November 2017.

This revised Crusader Ore Reserve estimate represents a production plan comprising 4.0Mtpa for a period of approximately 11 years. As recently announced (on 8 February 2018), the Company is also currently pursuing an optimisation of this production plan. This optimisation exercise is dependent on work that has not yet been completed to a sufficient level of confidence to include in the estimation of Ore Reserves and is referenced as future work for the project, in this statement. The Ore Reserve Estimate demonstrates that the Borberema Gold Project is an economically mineable project when applying the stated Ore Reserve modifying factors (See attached JORC Table-1 Section 4). However, the Company intends to pursue the additional optimisation work in the near future to further enhance the technical and financial optimisation of Crusader's 100% owned Borborema Gold Project based on processing 2Mtpa of an initial 20Mt of ore for an initial 10-year period.

The reporting criteria for the updated Ore Reserve along with a revised Section 4 of the JORC Table 1, are included. For the summary of material information used to estimate the Mineral Resources, a table of historic drilling results and diagrams please refer to the ASX release dated 24 July 2017.

**Table 1. Borborema Gold Project Mineral Resource (JORC 2012 code)**

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

**Table 2. Borborema Gold Project Ore Reserve (JORC 2012 code)**

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 costs, gold price of US\$1301/oz. Note, appropriate rounding has been applied, subtotals may not equal total figures.

## BORBOREMA PROJECT BACKGROUND

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 29km<sup>2</sup> including freehold title over the main prospect area.

Previously mined as a heap leach in the 1980's, Crusader has completed sufficient work (including >95,000m of drilling) on an orebody which is tabular and mineable as an open pit. Free milling ore with expected gold recoveries >90%, the project is favoured by its location which has a dry climate and excellent infrastructure (roads, power, water and nearby professional population centres).

Borborema also benefits from a favourable taxation regime, existing on-site facilities and has received the important Environmental licence (LP), refer ASX release of 28 April 2017.

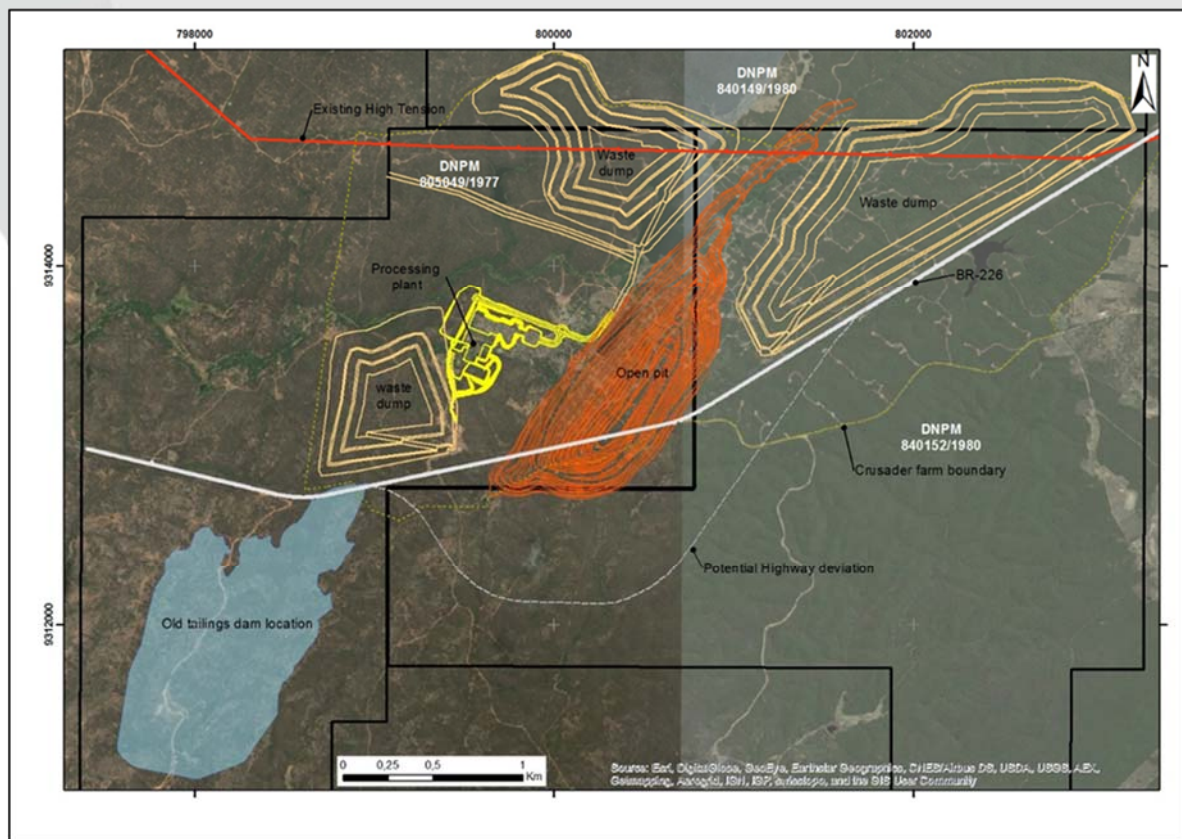
## SUMMARY OF ORE RESERVE ESTIMATE AND REPORTING CRITERIA

As per ASX Listing Rule 5.9 and the 2012 JORC reporting guidelines, a summary of the material information used to estimate the Ore Reserve is detailed below (for more detail please refer to Table 1, Section 4 appended).

### Material Assumptions and Outcomes from Prefeasibility Studies

The Project work completed since the November 2012 Ore Reserve includes internally generated reports and studies as well as the incomplete bankable feasibility study (BFS), which was suspended in 2013 when the falling gold price rendered the study financials obsolete. The 2013 draft BFS work was based on a processing rate of 4.2Mtpa. The Ore Reserve is considered to be defined by studies at a pre-feasibility level that includes application of modifying factors.

This Ore Reserve update is based on the end of December 2017 gold price, exchange rates, consumer price indices (for Brazil and the United States) and review of some capital and operating costs. Refer to Figure 1 which shows the general site layouts from the 2013 draft BFS.



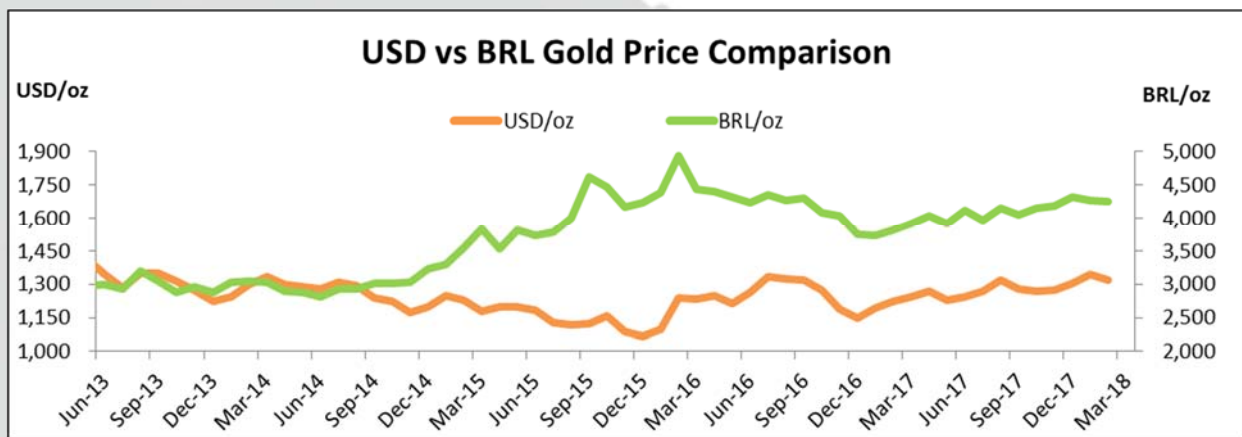
**Figure 1: Borborema General Layout – 2013 – Showing Ore Reserve Open Pit**

Since the July 2017 Ore Reserve announcement the Brazilian Real gold price has continued to increase at a faster rate than Brazilian domestic inflation, as measured by the Brazilian consumer price index (CPI), even after allowing for the fall in the United States dollar gold price over this period, refer Table 1 and Figure 2 below.

**Table 1. Key Financial Parameters Comparison**

Key Parameter	Reserves November 2012	July 2017	% change
Gold price USD	1350	1301	-4%
Exchange rate BRL:USD	2.0	3.3	65%
Gold price BRL	2700	4293	59%
Brazil CPI index	943 (September 2012)	1306 (December 2017)	38%
US CPI index	228.4 (September 2012)	246.4 (December 2017)	8%





**Figure 2: USD vs BRL Gold Price Comparison**

In other words, revenue has increased more than costs, which has been confirmed by 2015 and second half 2017 reviews of major input costs such as diesel, processing reagents and consumables and labour.

It has been estimated that approximately 63% of operating costs are denominated in BRL and hence the changes in the exchange rate since November 2012 are significant and positive for the Project.

Mining and processing material assumptions and further discussion on other Modifying Factors are discussed below. Social and environmental status is summarised in the ASX release of 28 April 2017 regarding receipt of the important environmental licence (LP).

The Project is technically achievable and economically viable. Additional technical work is underway and it is planned to update the previous study work to Feasibility Study level prior to assessing Project financing options.

#### **Classification Criteria**

Measured Resources have been converted to Proved Reserves. Indicated Resources have been converted to Probable Reserves after taking into account all Modifying Factors.

#### **Mining Method and other Mining Assumptions**

The open pit mining method is intimately linked to geology/grade control and planned drilling and blasting practices. The mining of the ore zone and adjacent waste is planned at a nominal 5m bench height using a face shovel or backhoe excavator with a front end loader as back up. This will allow mining selectivity provided that mining of the gently dipping ore zone is always from hanging wall to footwall.

Most of the waste will be mined on a nominal 10m bench height using face shovels with a front end loader as back-up.

Weathered or oxidised ore is a small proportion (less than 6%) of the total ore reserve. Grade or metallurgical variation is not significant and therefore no blending of crusher feed will be required. Where practical, lower grade ore (mining block grades less than 0.7g/t) will be preferentially stockpiled to maximise the mill feed grade.

The 2012 study is based on owner mining with specialist contractors employed for delivery of bulk explosives, maintenance of the mining equipment and for tyre services. Effectively all material mined is reasonably hard and competent and so must be blasted.

The final pit design was based on the highest average discounted cash flow pit shell using a discount factor of 5%.

#### **Processing Method and other Processing Assumptions**

The process flow sheet developed in 2012 for treating Borborema material is based on a Carbon in Leach (CIL) processing route and includes:

- a. Three-stage crushing.
- b. Ball milling
- c. Leaching in sodium cyanide.
- d. Cyanide destruction of leach tails.
- e. Tails storage was initially in a conventional storage dam but more recent work will mean filtration and dry stacking of tailings and co-disposal with mine waste. Water is reclaimed and recycled back to the process plant.
- f. Elution using a ZADRA circuit.
- g. Electrowinning.
- h. Carbon regeneration.
- i. Smelting to produce doré.

Results of the BFS metallurgical testwork and initial results from the more recent testwork indicates that Borborema ore is suited to SAG milling and requires lower than average energy demands, reducing capital cost as well as providing a simplified comminution circuit.

The metallurgical recoveries for gold and silver used in the draft BFS are 94% for gold and 55% for silver.

There are no deleterious elements associated with ore processing.

#### **Cut-off Grades**

Cut-off grades vary with material type (oxide, and fresh) due to varying mill throughput rates and varying processing costs. The basis for calculation of cut-off grade is:

$$\text{Cut off grade} = \frac{(\text{process} + \text{overhead cost}) \times (1 + \text{Mining Dilution}(\%))}{\text{Payable Gold Price} \times \text{Process Recovery} (\%)}$$

The calculated cut-off grades are 0.4g/t for oxide ore and 0.5g/t for fresh ore.

#### **Estimation Methodology**

Measured and Indicated Mineral Resources within the final pit design have been converted to Proved and Probable Ore Reserves.

Internal or adjacent waste included within the Mineral Resource MIK model is deemed sufficient to account for dilution and a 2 % reduction in the contained quantity of the Mineral Resources within the pit designs has been allowed for ore loss during mining. The Ore Reserves are therefore as delivered to the processing plant.

#### **Material Modifying Factors**

The Modifying Factors included consideration of mining, processing, metallurgical, infrastructure, economic, gold price, legal, environmental, social and governmental factors are detailed in sections above and in JORC Table 1, section 4 appended. The Project viability is most sensitive to gold price.

There is no reason to believe all remaining government approvals will not be received. Existing infrastructure is excellent and includes a sealed highway to and beside the project area and two existing 230kV power lines. Water is available from the nearby town of Currais Novos from where town waste water will be treated and pumped to site. Currais Novos is also a major source of future Project labour and accommodation.

Economic analysis included in the draft 2013 BFS was comprehensive and included a full allowance for all pre-production expenditure, taxes, sustaining capital and mine closure costs. Economic analysis since 2013 has continued to show a positive financial return, assisted by the BRL:USD exchange rate changes over this period as discussed above.

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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:

#### **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 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.

## JORC CODE, 2012 EDITION – TABLE 1 REPORT

### Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections)

Criteria	JORC Code explanation	Commentary
<b>Sampling techniques</b>	<ul style="list-style-type: none"> <li>Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.</li> <li>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</li> <li>Aspects of the determination of mineralisation that are Material to the Public Report.</li> <li>In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30g charge for fire assay'). In other cases, more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.</li> </ul>	<ul style="list-style-type: none"> <li>Reverse Circulation (RC) drilling was sampled in one metre intervals. The majority of these samples were split immediately by a riffle splitter attached to the base of the cyclone, resulting in a large reference sample and a smaller sample (~3kg) for assaying. Samples from earlier RC drilling without the attached splitter were split down to ~3kg samples by Crusader field assistants in the core shed.</li> <li>Crusader-supervised diamond drilling (DD) was also sampled on a metre-basis. The diamond drill-core was split in half lengthways with a diamond core saw. Diamond core from drilling programmes by previous project owners was similarly sampled; however instead of sampling strictly metre by metre, the sample interval varied between 0.55m and 3m, depending on the interpreted geological contacts.</li> <li>All RC &amp; DD intervals were geologically logged by a suitably qualified geologist and mineralized intersects (gold-bearing zones) dispatched to Bureau Veritas (BV) and ALS Chemex laboratories in Belo Horizonte, Brazil for processing.</li> <li>Channel-samples were taken across the southern wall of the existing open-pit from previous workings. These channels were used to guide the 3D modelling for the resource estimation, but the results were not used in the resource calculation itself.</li> </ul>
<b>Drilling techniques</b>	<ul style="list-style-type: none"> <li>Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).</li> </ul>	<ul style="list-style-type: none"> <li>Both Reverse Circulation and Diamond Drilling were completed.</li> <li>RC drilling was undertaken with 5" and 5 ½" face sampling bits (resulting in a minimum drill-hole diameter of 5").</li> <li>Diamond drilling was predominately NQ core size, with HQ pre-collars where necessary due to broken or unconsolidated ground (generally only the first few metres of each drill-hole). Some intervals of some of the mineralised diamond drill-holes were oriented using at first the spear orientation method, and later with a Reflex ACTZ orientation tool.</li> </ul>
<b>Drill sample recovery</b>	<ul style="list-style-type: none"> <li>Method of recording and assessing core and chip sample recoveries and results assessed.</li> <li>Measures taken to maximise sample recovery and ensure representative nature of the samples.</li> <li>Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.</li> </ul>	<ul style="list-style-type: none"> <li>RC drilling recovery was recorded by visual estimation of recovered sample bags with both the primary one metre sample collected through the cyclone and the larger reference sample weighed and the weights recorded for each 1m interval. Recovery was generally of good quality.</li> <li>For DD recoveries, the sample recovery was measured and recorded for each core run, and down-hole depths were validated against core blocks and drillers sheets. Minor core loss was recorded in the weathered zones and occasionally in fault zones.</li> </ul>



Criteria	JORC Code explanation	Commentary
		<ul style="list-style-type: none"> <li>• Twin hole comparison of RC and DD drilling indicated that there is effectively no sample bias for gold assays.</li> <li>• There does not appear to be any relationship between sample recovery and grade.</li> </ul>
<b>Logging</b>	<ul style="list-style-type: none"> <li>• <i>Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.</i></li> <li>• <i>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.</i></li> <li>• <i>The total length and percentage of the relevant intersections logged.</i></li> </ul>	<ul style="list-style-type: none"> <li>• All drill-holes were geologically logged in full by Crusader geologists.</li> <li>• All data are initially captured on pre-formatted Excel tables and subsequently loaded into the project specific drill-hole database by the database administrator.</li> <li>• The logging and reporting of the percentage of sulphides and any visual gold on the preliminary logs is semi-quantitative. Previous logs and assays are used as a reference.</li> </ul> <p>All logs are checked and validated by an external geologist before loading into the database. Logging is of sufficient quality for current studies.</p>
<b>Sub-sampling techniques and sample preparation</b>	<ul style="list-style-type: none"> <li>• <i>If core, whether cut or sawn and whether quarter, half or all core taken.</i></li> <li>• <i>If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.</i></li> <li>• <i>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</i></li> <li>• <i>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</i></li> <li>• <i>Measures taken to ensure that the sampling is representative of the in-situ material collected, including for instance results for field duplicate/second-half sampling.</i></li> <li>• <i>Whether sample sizes are appropriate to the grain size of the material being sampled.</i></li> </ul>	<ul style="list-style-type: none"> <li>• RC samples were split using a riffle splitter into 1m samples. All primary samples and RC spoils were weighed and the results recorded. The vast majority of the samples were dry.</li> <li>• Duplicate samples were taken approximately 1:25 and were collected by re-splitting a second 3kg from the representative 1m interval sample reject.</li> <li>• QC measures include field duplicate samples, blanks (1:20) and certified standards (1:20) over and above the internal controls at the laboratories (ALS, ACME and BV).</li> <li>• All sampling was carefully supervised. Ticket books were used with pre-numbered tickets placed in the sample bag and double checked against the ticket stubs and field sample sheet to guard against sample mix ups.</li> <li>• All RC intervals were geologically logged and mineralized intersects dispatched to ALS Chemex in Belo Horizonte for sample preparation and subsequent assaying of pulps.</li> <li>• All samples were separately dried and crushed to 75% passing 2mm, split to 250g and then pulverized to 85% passing 75um.</li> <li>• ALS: gold by 50g fire assay with an AAS finish (Au-AA26): 0.01g/t Au lower detection limit and 100g/t Au upper detection limit.</li> <li>• Diamond drill-core samples were cut in half lengthwise using a manual core saw on-site. One half was to provide samples for assaying, whilst the other half remained in the core tray as a reference sample, or may have been later quartered for metallurgical samples.</li> <li>• Individual samples were accommodated and sealed in clearly labelled plastic bags (RC samples) and calico sample bags (DD samples) for transport.</li> <li>• Duplicate DD samples were inserted at the ALS Chemex laboratory in Belo Horizonte using a coarse crushed split of the specified sample interval. Coarse duplicates were inserted approximately 1:20 samples.</li> <li>• Sample size is appropriate for the material being tested.</li> </ul>



Criteria	JORC Code explanation	Commentary
<b>Quality of assay data and laboratory tests</b>	<ul style="list-style-type: none"> <li><i>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</i></li> <li><i>For geophysical tools, spectrometers, handheld XRF instruments, etc., the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.</i></li> <li><i>Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.</i></li> </ul>	<ul style="list-style-type: none"> <li>QC measures include field duplicate samples, blanks (1:20) and certified standards (1:20) over and above the internal controls at the laboratories (ALS, ACME and BV). Umpire lab checks (1:10) were also undertaken to confirm assay accuracy.</li> <li>Due to the systematic, robust and intensive nature of quality control procedures adopted, the authors are confident that the assay results are accurate and precise and that no bias has been introduced.</li> </ul>
<b>Verification of sampling and assaying</b>	<ul style="list-style-type: none"> <li><i>The verification of significant intersections by either independent or alternative company personnel.</i></li> <li><i>The use of twinned holes.</i></li> <li><i>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</i></li> <li><i>Discuss any adjustment to assay data.</i></li> </ul>	<ul style="list-style-type: none"> <li>An external geological consultant conducted site visits in 2011 and 2012 during the drilling programmes to observe all drilling and sampling procedures. All procedures were considered industry standard, well supervised and well carried out.</li> <li>Twinned holes were used to compare RC and DD drilling and indicated that there is effectively no sample bias in relation to gold assaying.</li> <li>All data are initially captured on pre-formatted Excel tables and subsequently loaded into the project specific drill-hole database by the database administrator. All original data are kept both on-site and by the 3<sup>rd</sup> party database administrator. Routine checks are performed regularly on the data. Procedures have been formalised in written copies in both Portuguese and English.</li> <li>Assay data are provided in digital format by the laboratory and imported directly into the project-specific database. Routine checks are made against the laboratory certificates.</li> </ul>
<b>Location of data points</b>	<ul style="list-style-type: none"> <li><i>Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.</i></li> <li><i>Specification of the grid system used.</i></li> <li><i>Quality and adequacy of topographic control.</i></li> </ul>	<ul style="list-style-type: none"> <li>Collar positions, existing mine workings and the topographical surface were surveyed using a total station and/or DGPS to within reported accuracy of 5cm with base stations from the established Federal Government's grid (IBGE). The surveys were undertaken and reported using South American Datum 1969 (SAD69), Universal Transverse Mercator Zone 24 South (UTMS24).</li> <li>To facilitate resource modelling and estimation work, the surveyed data was converted to a local coordinate system called the BLG (Borborema Local Grid) using a simple two-point transformation.</li> <li>All diamond drill holes were surveyed at 30m intervals down hole using a Peewee wellbore electronic single shot survey system.</li> <li>The topographic control is considered to be of high quality and adequate for current studies.</li> </ul>
<b>Data spacing and distribution</b>	<ul style="list-style-type: none"> <li><i>Data spacing for reporting of Exploration Results.</i></li> <li><i>Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.</i></li> <li><i>Whether sample compositing has been applied.</i></li> </ul>	<ul style="list-style-type: none"> <li>The Resource has been drilled to 300 vertical metres on a 50m x 50m drill pattern in the Central Zone and to lesser depths in the Southern and Northern Zones. Infill drilling was included in some of the shallower areas to 25m x 25m and 12.5m x 12.5m. The data spacing and distribution is considered appropriate for the Mineral Resource estimation procedures and classifications applied.</li> </ul>

Criteria	JORC Code explanation	Commentary
		<ul style="list-style-type: none"> <li>No physical sample compositing has been undertaken.</li> </ul>
<b>Orientation of data in relation to geological structure</b>	<ul style="list-style-type: none"> <li>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</li> <li>If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.</li> </ul>	<ul style="list-style-type: none"> <li>Detailed mapping of the surface and the existing open-pit workings, combined with aeromagnetic survey data, characterised the Borborema deposit geology as a 30m to 60m wide shear zone displaying a penetrative NNE-trending fabric, dipping east at around 35 degrees within a sequence of banded arkosic metapelitic schists.</li> <li>Drill-holes were oriented to intersect the lithology/mineralisation at right angles or as close as possible to right angles, and as such no material sampling bias has been introduced.</li> </ul>
<b>Sample security</b>	<ul style="list-style-type: none"> <li>The measures taken to ensure sample security.</li> </ul>	<ul style="list-style-type: none"> <li>Samples were sealed (tied-off or taped closed in Calico or plastic bags) at the core shed on-site and placed in clearly marked Polyweave bags (approximately 10 per bag) that were also sealed immediately. The samples were stored securely on-site before being transported via a local courier company to the laboratories in Belo Horizonte, Brazil.</li> </ul>
<b>Audits or reviews</b>	<ul style="list-style-type: none"> <li>The results of any audits or reviews of sampling techniques and data.</li> </ul>	<ul style="list-style-type: none"> <li>Independent geological consultant and Competent Person Lauritz Barnes conducted site visits in September 2010, October 2011 and February 2012 during the drilling programmes to observe all drilling and sampling procedures. All procedures were considered industry standard, well conducted and supervised.</li> </ul>

## Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section)

Criteria	JORC Code explanation	Commentary
<b>Mineral tenement and land tenure status</b>	<ul style="list-style-type: none"> <li>Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.</li> <li>The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.</li> </ul>	<ul style="list-style-type: none"> <li>The known mineralisation and its immediate extensions are covered by three active mining concessions, Brazilian Mines Department (DNPM) nos. 840152/1980, 805049/1977 and 840149/1980. The total area of the leases is 2,907.2 hectares. In addition, a series of exploration licences cover potential extensions to the mineralisation along strike. The tenure is 100% owned by Crusader Resources Ltd through its 100% owned Brazilian subsidiary Cascar do Brasil Mineração Ltda. The Company is also the owner of the surface rights of the 750ha São Francisco farm which covers approximately 80% of the known mineralisation and an extensive area in the footwall and hanging wall of the mineralised trend. There are no known material issues with third parties, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.</li> <li>The Company is not aware of any impediments relating to the licenses or area.</li> </ul>
<b>Exploration done by other parties</b>	<ul style="list-style-type: none"> <li>Acknowledgment and appraisal of exploration by other parties.</li> </ul>	<ul style="list-style-type: none"> <li>The Borborema gold mineralisation was discovered by prospectors ("garimpeiros") in the 1920's and was subject to minor artisanal mining until 1977.</li> <li>The first relatively modern exploration work was</li> </ul>

Criteria	JORC Code explanation	Commentary
		<p>completed by Mineração Xapetuba Ltda. (Xapetuba) between 1981 and 1992, during which time 212 RC and 10 diamond drill-holes were completed. Xapetuba also operated a 150ktpa open-pit mine and heap-leach gold recovery plant until 1991, recovering ~100koz Au.</p> <ul style="list-style-type: none"> <li>• In 1992, Metais do Seridó Ltda. (Metasa) drilled a total of 15 diamond holes for 1,185m.</li> <li>• In 2007, Mineração Caraíba Ltda (Caraiba) took an option over the area and completed 75 diamond holes totalling 10,528.47m. Caraiba also performed preliminary metallurgical testwork, regional mapping and completed a non-JORC compliant resource estimate.</li> </ul>
<b>Geology</b>	<ul style="list-style-type: none"> <li>• <i>Deposit type, geological setting and style of mineralisation.</i></li> </ul>	<ul style="list-style-type: none"> <li>• The project area is situated in the Borborema Province within the domain of the Seridó Fold Belt in north-eastern Brazil. It is situated in the top of the Seridó Group stratigraphy (the Seridó Formation) within a sequence of banded arkosic metapelitic schists, subjected to upper-amphibolite facies regional metamorphism. Gold mineralisation is located within a NNE-trending structure which forms part of the northern segment of the Santa Mônica dextral shear zone. The shear zone displays a penetrative NNE-trending fabric, dipping east at around 35 degrees. In the project area the principal mineralised shear zone, termed the Morro Pelado shear is around 30m thick.</li> </ul>
<b>Drill hole Information</b>	<ul style="list-style-type: none"> <li>• <i>A summary of all information material to the understanding of the Exploration Results including a tabulation of the following information for all Material drill holes:</i> <ul style="list-style-type: none"> <li>○ <i>easting and northing of the drill hole collar</i></li> <li>○ <i>elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar</i></li> <li>○ <i>dip and azimuth of the hole</i></li> <li>○ <i>down hole length and interception depth</i></li> <li>○ <i>hole length.</i></li> </ul> </li> <li>• <i>If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.</i></li> </ul>	<ul style="list-style-type: none"> <li>• All drill-hole coordinates and orientations material to the Mineral Resource estimation have been previously reported, refer to ASX announcements between 23/12/2009 and 26/07/2012 [and are again provided in the appended table].</li> </ul>
<b>Data aggregation methods</b>	<ul style="list-style-type: none"> <li>• <i>In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.</i></li> <li>• <i>Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.</i></li> <li>• <i>The assumptions used for any reporting of metal equivalent values should be clearly stated.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Drilling results have been reported using weighted averages with a 0.5g/t Au lower cut-off grade and ≤1m internal waste (&lt;0.5g/t Au). Results have been rounded to 2 decimal places where necessary.</li> <li>• All samples were 1m intervals except for channel samples and the diamond drilling completed by previous owners, which were predominantly 1m intervals, but which varied between 0.55m and 3m, depending on the interpreted geological contacts.</li> <li>• No metal equivalent values have been reported.</li> </ul>

Criteria	JORC Code explanation	Commentary
<b>Relationship between mineralisation widths and intercept lengths</b>	<ul style="list-style-type: none"> <li>These relationships are particularly important in the reporting of Exploration Results.</li> <li>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</li> <li>If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').</li> </ul>	<ul style="list-style-type: none"> <li>The drilling is at right angles (or as close as possible to) the orientation of the mineralisation as observed in the surface mapping and pit-wall mapping of the existing workings.</li> <li>All intercepts are reported as down-hole lengths, with the intention of being as perpendicular to mineralisation as practical.</li> </ul>
<b>Diagrams</b>	<ul style="list-style-type: none"> <li>Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported. These should include, but not be limited to, a plan view of drill hole collar locations and appropriate sectional views.</li> </ul>	<ul style="list-style-type: none"> <li>Plan maps of drill-hole collar locations and appropriate sectional views have been included in previous ASX announcements of the Exploration Results [and are again provided in Figures 1 to 4 of this report].</li> </ul>
<b>Balanced reporting</b>	<ul style="list-style-type: none"> <li>Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.</li> </ul>	<ul style="list-style-type: none"> <li>All sampled intervals have been reported individually in previous ASX announcements of the Exploration Results [and are again provided in the appended table].</li> </ul>
<b>Other substantive exploration data</b>	<ul style="list-style-type: none"> <li>Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.</li> </ul>	<ul style="list-style-type: none"> <li>Previous ASX announcements include: <ul style="list-style-type: none"> <li>geological observations (23/12/09; 15/03/10; 12/04/10; 28/04/10; 13/05/10; 25/08/10; 07/09/10; 18/11/10; 17/12/10; 03/02/11; 02/03/11; 01/04/11; 09/05/11; 15/06/11; 10/08/11; 03/11/11; 08/12/11; 12/01/12; 31/01/12; 08/02/12; 09/03/12; 21/03/12; 12/04/12; 06/06/12; 26/07/12)</li> <li>geophysical survey results (09/03/12);</li> <li>geochemical survey results (23/12/09; 07/09/10; 18/11/10; 02/03/11; 10/08/11; 09/03/12; 21/03/12);</li> <li>bulk samples – size and method of treatment (none);</li> <li>metallurgical test results (12/04/10; 25/08/10; 18/11/10);</li> <li>bulk density, groundwater, geotechnical and rock characteristics (23/12/09; 15/03/10; 28/04/10; 13/05/10; 25/08/10; 07/09/10; 18/11/10; 17/12/10; 03/02/11; 02/03/11; 01/04/11; 09/03/12; 21/03/12; 26/07/12);</li> <li>potential deleterious or contaminating substances (none).</li> </ul> </li> </ul>
<b>Further work</b>	<ul style="list-style-type: none"> <li>The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).</li> <li>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</li> </ul>	<ul style="list-style-type: none"> <li>No further exploration drilling is currently planned. Planned further work will include an additional metallurgical testwork program, currently underway. On receipt of these results, the economic viability of the project will be investigated via a Feasibility Study (FS).</li> </ul>



## Section 3 Estimation and Reporting of Mineral Resources

(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

Criteria	JORC Code explanation	Commentary
<b>Database integrity</b>	<ul style="list-style-type: none"> <li>Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.</li> <li>Data validation procedures used</li> </ul>	<ul style="list-style-type: none"> <li>The drill-hole data were compiled by CAS as Excel spreadsheets, and then imported into a relational SQL Server database using DataShed™ (industry standard drill-hole database management software) by the 3<sup>rd</sup> party database administrator Mitchell River Group (MRG).</li> <li>Maps, satellite imagery and other data were also supplied for use in GIS format (ArcGIS).</li> <li>The data were constantly audited and any discrepancies checked by CAS personnel before being updated in the database.</li> <li>Normal data validation checks were completed on import to the SQL database and when viewing in Leapfrog™ software and Geovia Surpac™ (industry standard resource modelling and estimation software).</li> <li>The database extract was supplied for use for resource estimation as a Microsoft Access database.</li> </ul>
<b>Site visits</b>	<ul style="list-style-type: none"> <li>Comment on any site visits undertaken by the Competent Person and the outcome of those visits.</li> </ul>	<ul style="list-style-type: none"> <li>Lauritz Barnes (Competent Person) initially visited the site in September 2010, followed by further visits in October 2011 and February 2012 as an independent geological consultant. Aidan Platel, Competent Person (Platel Consulting Pty Ltd) worked as Exploration Manager for CAS from August 2010 until February 2014 and was responsible for all aspects of work at the Borborema Project from early exploration through all infill drilling programmes and then subsequent feasibility study work. All drilling and sampling procedures were considered industry standard, well conducted and supervised.</li> </ul>
<b>Geological interpretation</b>	<ul style="list-style-type: none"> <li>Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.</li> <li>Nature of the data used and of any assumptions made.</li> <li>The effect, if any, of alternative interpretations on Mineral Resource estimation.</li> <li>The use of geology in guiding and controlling Mineral Resource estimation.</li> <li>The factors affecting continuity both of grade and geology.</li> </ul>	<ul style="list-style-type: none"> <li>The confidence in the geological interpretation is considered robust for the purposes of reporting a Measured, Indicated and Inferred Resources. Gold mineralisation is located within a sequence of banded arkosic metapelitic schists within a NNE-trending shear zone around 30m thick which displays a penetrative NNE-trending fabric, dipping east at around 35 degrees.</li> <li>The geological model consists of an oxidation surface and mineralisation constraints which were applied as estimation domains. No lithology constraints, alteration or structural model were constructed for the Mineral Resource estimation; however, these geological controls have been considered when generating the mineralisation constraints.</li> <li>The geological interpretation is supported by geological mapping, channel sampling and drill-hole logging, and mineralogical studies completed on all drilling programmes, plus geophysical survey data (aeromagnetic).</li> <li>The depth of oxidation is generally shallow with an average depth of approximately 10 to 15m.</li> </ul>

Criteria	JORC Code explanation	Commentary
		<ul style="list-style-type: none"> <li>No alternative interpretations have been considered at this stage.</li> <li>Logged sulphide-rich zones (Po, Py, ChPy) often correlate well with higher gold assay grades.</li> <li>The gold-mineralised shear zone is known to be continuous in strike length for over 3km, and forms part of a larger shear zone system. Main factors affecting continuity of grade appear to be structural orientation (both localised and on a project-scale).</li> </ul>
<b>Dimensions</b>	<ul style="list-style-type: none"> <li><i>The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.</i></li> </ul>	<ul style="list-style-type: none"> <li>The modelled mineralised zone has dimensions of 3,250m (surface trace striking 035) of varying thickness between 30m and 60m, and ranging between 150m and 500m RL (AMSL).</li> <li>For the statistics and subsequent grade estimation descriptions, the mineralised zone has been arbitrarily subdivided into the Southern (Zone 1), Central (Zone 2) and Northern (Zone 3) domains based on the 20,050mN and 21,300mN northings</li> </ul>
<b>Estimation and modelling techniques</b>	<ul style="list-style-type: none"> <li><i>The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.</i></li> <li><i>The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.</i></li> <li><i>The assumptions made regarding recovery of by-products.</i></li> <li><i>Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).</i></li> <li><i>In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.</i></li> <li><i>Any assumptions behind modelling of selective mining units.</i></li> <li><i>Any assumptions about correlation between variables.</i></li> <li><i>Description of how the geological interpretation was used to control the resource estimates.</i></li> <li><i>Discussion of basis for using or not using grade cutting or capping.</i></li> <li><i>The process of validation, the checking</i></li> </ul>	<ul style="list-style-type: none"> <li>Grade estimation using Multiple Indicator Kriging (MIK) was completed by Lauritz Barnes and Brett Gossage using a combination of Geovia Surpac™ and Maptek Vulcan™ software for gold (g/t Au).</li> <li>The mineralised zone has been drilled to 300 vertical metres on a 50m x 50m drill pattern in the Central Zone and to lesser depths in the Southern and Northern Zones. Infill drilling was included in some of the shallower areas to 25m x 25m and 12.5m x 12.5m.</li> <li>Drill-hole samples were flagged with wireframed domain codes. Sample data were composited for g/t Au over 2m, using a best fit method with a minimum of 50% of the required interval to make a composite.</li> <li>The grade estimate is constrained by a mineralisation zone defined using a nominal 0.1g/t Au envelope that captures the mineralised shear zone.</li> <li>Influences of extreme sample distribution outliers were analysed for potential top-cutting on a domain basis. Top-cuts were decided by using a combination of methods including grade histograms, log probability plots and statistical tools. Based on this statistical analysis of the data population, top-cuts for g/t Au were applied in the Southern Zone (10g/t Au) and Central Zone (40g/t Au), but no top-cuts were applied in the Northern Zone. Declustering of the composite data set was also completed using cell declustering and a cell size of 50m (E) x 60m (N) x 5m (RL).</li> <li>Detailed variography has been carried out on the gold composites and for selective indicator cut-offs that have been used in the MIK grade estimation. The grade variography is characterised by moderate to high nugget effects (approximately 60% of the total variogram variance) and ranges in excess of the drill-spacing to a maximum along-strike distance of 140m.</li> <li>Block model was constructed with parent blocks of 25m (E) by 25m (N) by 5m (RL) and sub-blocked to</li> </ul>

Criteria	JORC Code explanation	Commentary
	<i>process used, the comparison of model data to drill hole data, and use of reconciliation data if available.</i>	<p>5m (E) by 6.25m (N) by 2.5m (RL).</p> <ul style="list-style-type: none"> <li>Multiple indicator kriging (MIK) was used to estimate the block grades within the mineralisation envelope to represent a selective mining unit of 5m (E) by 6.25m (N) by 2.5m (RL).</li> <li>Search ellipse sizes were based primarily on a combination of the variography and the trends of the wireframed mineralised zones. Soft boundaries were applied between the subdivisions as no sharp mineralisation boundaries are apparent and hence hard boundaries were considered inappropriate.</li> <li>Three estimation passes were used. The first pass had a limit of 50m, the second pass 75m and the third pass 150m. The first two passes used a maximum of 32 composites, a minimum of 8 composites and a maximum per drill-hole of 6 composites, while the third pass used a maximum of 32 composites, a minimum of 5 composites and a maximum per drill-hole of 4 composites.</li> <li>Validation of the block model included a volumetric comparison of the resource wireframes to the block model volumes. Validation of the grade estimate included comparison of block model grades to the declustered input composite grades plus swath plot comparison by easting, northing and elevation. Visual comparisons of input composite grades vs. block model grades were also completed.</li> <li>Previous resource estimations for this deposit include: <ul style="list-style-type: none"> <li>November, 2010 (Coffey Mining): 15.4Mt @ 1.70g/t Au for 839koz Au by Ordinary Kriging (OK) using a 0.5g/t Au cut-off</li> <li>June, 2011 (Lauritz Barnes and Brett Gossage): 44.64Mt @ 1.30g/t Au for 1,863koz Au by Ordinary Kriging (OK) using a 0.5g/t Au cut-off</li> <li>December, 2011 (Lauritz Barnes and Brett Gossage): 67.68Mt @ 1.06g/t Au for 2,311koz Au by Ordinary Kriging (OK) using a 0.5g/t Au cut-off</li> </ul> </li> </ul>
<b>Moisture</b>	<ul style="list-style-type: none"> <li><i>Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content</i></li> </ul>	<ul style="list-style-type: none"> <li>Tonnes have been estimated on a dry basis.</li> </ul>
<b>Cut-off parameters</b>	<ul style="list-style-type: none"> <li><i>The basis of the adopted cut-off grade(s) or quality parameters applied.</i></li> </ul>	<ul style="list-style-type: none"> <li>Continuity of the mineralisation was analysed at different grade cut-offs between 0.1g/t Au and 1.0g/t Au. The 0.1g/t Au interpretation is focused on zone continuity and includes significant sub-grade material. Once above a cut-off of 0.2 to 0.3g/t Au, the zone starts to lose continuity and fragment. It was therefore decided that a 0.1g/t Au lower cut-off grade would be applied to the primary interpretation for use in a MIK model. In previous models, a second interpretation was undertaken at a nominal 0.3g/t Au lower cut-off for use in an OK estimation.</li> <li>The material from within the modelled oxide/transition zone has been included in the</li> </ul>

Criteria	JORC Code explanation	Commentary
		reported Mineral Resource estimate. Metallurgical test work to-date has indicated gold recoveries similar to that of the fresh material.
<b>Mining factors or assumptions</b>	<ul style="list-style-type: none"> <li>Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.</li> </ul>	<ul style="list-style-type: none"> <li>Based on the orientations, thicknesses and depths to which the gold mineralisation has been modelled, as well as the estimated gold grades, the potential mining method is considered to be open pit mining.</li> </ul>
<b>Metallurgical factors or assumptions</b>	<ul style="list-style-type: none"> <li>The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.</li> </ul>	<ul style="list-style-type: none"> <li>Extensive metallurgical test work was carried out by Belo Horizonte-based metallurgical laboratory Testwork Desenvolvimento, HDA in São Paulo (comminution tests) and ALS in Kamloops, BC, Canada (mineralogy) on a series of composite samples of RC drill chips and diamond drill core. Tests were carried out for oxide, transitional and fresh material.</li> <li>Large-diameter (PQ) diamond drill-holes were drilled in 2014 specifically for metallurgical test work samples. Ongoing metallurgical test work based on these samples is being managed by Metifex Pty Ltd and undertaken by ALS Metallurgy Pty Ltd Balcatta (Perth) Western Australia.</li> </ul>
<b>Environmental factors or assumptions</b>	<ul style="list-style-type: none"> <li>Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.</li> </ul>	<ul style="list-style-type: none"> <li>Appropriate environmental studies and sterilisation drilling have been completed to determine the location of any potential waste rock dump (WRD) and TSF facilities.</li> <li>The key Environmental licence (Licença Previa or 'LP') has recently been granted by the state Environmental authority- IDEMA. Crusader must now prepare and submit an environmental control plan, along with several other documents to apply for an Installation Licence (LI).</li> </ul>
<b>Bulk density</b>	<ul style="list-style-type: none"> <li>Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.</li> <li>The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc.), moisture and differences between rock and alteration zones within the deposit.</li> <li>Discuss assumptions for bulk density</li> </ul>	<ul style="list-style-type: none"> <li>A comprehensive bulk density dataset has been generated by Crusader using the Hydrostatic Weighing method.</li> <li>In total, 36,444 bulk density measurements are present for Borborema with 8,558 falling within the mineralised zone.</li> <li>Bulk density measurements have been acquired for the both the mineralised and waste domains allowing accurate tonnages to be determined for all material types. Samples from within the oxide zone have been analysed separately from the fresh rock.</li> </ul>



Criteria	JORC Code explanation	Commentary
	<i>estimates used in the evaluation process of the different materials.</i>	<ul style="list-style-type: none"> <li>Mean bulk densities were calculated at 2.65t/m<sup>3</sup> for oxide and 2.76t/m<sup>3</sup> for fresh rock. Any backfill material has been assigned an arbitrary bulk density of 1.4t/m<sup>3</sup>.</li> </ul>
<b>Classification</b>	<ul style="list-style-type: none"> <li><i>The basis for the classification of the Mineral Resources into varying confidence categories.</i></li> <li><i>Whether appropriate account has been taken of all relevant factors (i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).</i></li> <li><i>Whether the result appropriately reflects the Competent Person's view of the deposit.</i></li> </ul>	<ul style="list-style-type: none"> <li>The Mineral Resource has been classified on the basis of confidence in the geological model, continuity of mineralised zones, drilling density, confidence in the underlying database and the available bulk density information.</li> <li>All factors considered; the resource estimate has in part been assigned to the Measured, Indicated and Inferred Resources categories.</li> </ul>
<b>Audits or reviews</b>	<ul style="list-style-type: none"> <li><i>The results of any audits or reviews of Mineral Resource estimates.</i></li> </ul>	<ul style="list-style-type: none"> <li>Part of the due diligence process completed by Stratex included a review of the Mineral Resource estimate by CSA Global consultants. CSA has not identified any material issue with the Mineral Resource estimate.</li> <li>Bloy Resource Evaluation (South Africa) revised the resource estimation techniques between April and September, 2015. The aim was to remodel the deposit and try to increase the mean grade by using Uniform Conditioning to model mining selectivity rather than the original MIK. Bloy did not dispute the global tonnes and mean grade of the original MIK resource model. The result of the new model was to increase the mean grade slightly (9%) and reduce the tonnes (-17%) and metal content (-10%).</li> </ul>
<b>Discussion of relative accuracy/confidence</b>	<ul style="list-style-type: none"> <li><i>Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.</i></li> <li><i>The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.</i></li> <li><i>These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.</i></li> </ul>	<ul style="list-style-type: none"> <li>The relative accuracy of the Mineral Resource estimate is reflected in the reporting of the Mineral Resource as per the guidelines of the 2012 JORC Code.</li> <li>The statement relates to global estimates of tonnes and grade.</li> </ul>

## Section 4 Estimation and Reporting of Ore Reserves

(Criteria listed in section 1, and where relevant in sections 2 and 3, also apply to this section.)

Criteria	JORC Code explanation	Commentary
<b>Mineral Resource estimate for conversion to Ore Reserves</b>	<ul style="list-style-type: none"> <li>Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve.</li> <li>Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.</li> </ul>	<ul style="list-style-type: none"> <li>The Measured and Indicated Resources from Section 3 have been used as the basis for conversion to the Ore Reserve.</li> <li>The Mineral Resources are inclusive of the Ore Reserve.</li> </ul>
<b>Site visits</b>	<ul style="list-style-type: none"> <li>Comment on any site visits undertaken by the Competent Person and the outcome of those visits.</li> <li>If no site visits have been undertaken indicate why this is the case.</li> </ul>	<ul style="list-style-type: none"> <li>L Kirk visited site in May and September 2012. He also resided in Brazil from March 2010 to March 2011 plus had mining related visits to Brazil in February/March 2013, August 2014 and September 2015.</li> </ul>
<b>Study status</b>	<ul style="list-style-type: none"> <li>The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.</li> <li>The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.</li> </ul>	<ul style="list-style-type: none"> <li>All aspects of the Project are deemed to be at least to a Pre-feasibility Study level with several major components deemed to be Feasibility Study level.</li> <li>The Project is technically achievable and economically viable and all material Modifying Factors have been considered.</li> <li>Additional technical work is underway and it is planned to update the previous study work to Feasibility Study level prior to assessing Project financing options.</li> </ul>
<b>Cut-off parameters</b>	<ul style="list-style-type: none"> <li>The basis of the cut-off grade(s) or quality parameters applied.</li> </ul>	<ul style="list-style-type: none"> <li>Cut-off grades vary with material type (oxide, and fresh) due to varying mill throughput rates and varying processing costs. The basis for calculation of cut-off is:</li> <li> <math display="block">\text{Cut off grade} = \frac{(\text{process} + \text{overhead cost}) \times (1 + \text{Mining Dilution}(\%))}{\text{Payable Gold Price} \times \text{Process Recovery}(\%)}</math> </li> <li>The calculated cut-off grades are 0.4g/t for oxide ore and 0.5g/t for fresh ore.</li> </ul>
<b>Mining factors or assumptions</b>	<ul style="list-style-type: none"> <li>The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design).</li> <li>The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.</li> <li>The assumptions made regarding geotechnical parameters (eg pit slopes, stope sizes, etc), grade control and pre-production drilling.</li> <li>The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).</li> <li>The mining dilution factors used.</li> <li>The mining recovery factors used.</li> <li>Any minimum mining widths used.</li> <li>The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.</li> </ul>	<ul style="list-style-type: none"> <li>The Mineral Resource has been optimised using Whittle software followed by detailed final pit design. The Ore Reserve is the Measured and Indicated Resources within the pit designs, after allowing for ore loss.</li> <li>The mining method selected is open pit, selective mining of ore and adjacent waste on nominal 5m benches using a face shovel or backhoe excavator. Bulk waste will be mined on 10m benches. Pit ramps are designed at a 10% gradient and 23m wide, except for lower pit levels where the ramp is 18m wide.</li> <li>Geotechnical studies have been completed by BVP Engenharia. The resultant pit design parameters have been used for the pit designs and the overall pit slope angle was estimated for the preceding pit optimisations.</li> <li>Grade control will be based on additional RC drilling and pit mapping and an 8m along strike and 8m across strike pattern has been allowed for.</li> <li>Pit optimisation was carried out on the total Mineral Resource model. The quantity of Inferred Resources within the pit shell selected for the final pit design was only 1.4% of the contained Resources.</li> </ul>

	<ul style="list-style-type: none"> <li>The infrastructure requirements of the selected mining methods.</li> </ul>	<ul style="list-style-type: none"> <li>The MIK Resource model is a recoverable model and no additional mining dilution has been added.</li> <li>Mining recovery allows for a 2% ore loss.</li> <li>A minimum mining width at the pit base was 20m however the mineralization horizontal width is mostly greater than 20m.</li> <li>Inferred Resources within the pit design contains only 1.4% of total gold resources and has not been considered for Ore Reserve estimates.</li> <li>Infrastructure required for the open pit mining operations will comprise mining workshop, mining office, fuel and explosives storage.</li> </ul>
<b>Metallurgical factors or assumptions</b>	<ul style="list-style-type: none"> <li>The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.</li> <li>Whether the metallurgical process is well-tested technology or novel in nature.</li> <li>The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.</li> <li>Any assumptions or allowances made for deleterious elements.</li> <li>The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole.</li> <li>For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?</li> </ul>	<ul style="list-style-type: none"> <li>The metallurgical process proposed is conventional carbon-in-leach (CIL) gold extraction.</li> <li>All metallurgical processes proposed are all well-tested technology and appropriate for the styles of mineralisation.</li> <li>Extensive metallurgical testwork has been undertaken and included: <ul style="list-style-type: none"> <li>Preliminary Mineralogy.</li> <li>Column leach tests.</li> <li>Bottle roll tests.</li> <li>Flotation tests.</li> <li>Leach kinetic tests.</li> <li>Gravity concentration.</li> <li>Settling tests.</li> <li>Bond Work Index.</li> <li>Cyanide Neutralization.</li> <li>Grinding pilot plant study.</li> <li>Tailings filtration</li> </ul> </li> <li>Metallurgical domaining is into oxides, and fresh mineralization as defined in the Mineral Resource model.</li> <li>Gold recoveries are between 93 and 96% depending on the feed grade. Silver recovery after 24 hours is approximately 51%.</li> <li>No deleterious elements have been identified.</li> <li>Results of the testwork indicate that Borborema material may be suitable for grinding in Autogenous or Semi-Autogenous mills and there is unlikely to be a need for pebble crushing to be included. Despite these indications it was decided in 2012 that a Ball Mill circuit would be used due to less technical risk, although ongoing additional test work is reviewing this. A pilot scale grinding testing programme was established to obtain data that was used as a basis for performing grinding circuit simulations.</li> </ul>
<b>Environmental</b>	<ul style="list-style-type: none"> <li>The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.</li> </ul>	<ul style="list-style-type: none"> <li>The major studies incorporated by the Environmental Impact Study (EIA) and Environmental Impact Report (RIMA) included the following: <ul style="list-style-type: none"> <li>Physical environment assessment;</li> <li>Terrestrial fauna and flora inventory survey;</li> <li>Physical-chemical and bacteriological analyses of water;</li> <li>Aquatic fauna and flora inventory survey and assessment;</li> <li>Socioeconomic assessment;</li> <li>Analysis of environmental impacts, impact mitigation measures and environmental control programs; and</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>o Archeological inventory survey.</li> <li>• Geochemical testing has shown that the Borborema tailings and waste rock are geochemically inert. The results from static geochemical testing and on-site geochemical kinetic testing completed over a period of 2 years show no alkaline drainage risk and no ARD risk from the waste samples. Also, the kinetic cells have not exhibited metals leaching of significant concern.</li> <li>• Crusader has received the critical Pre-Licence (Licença Previa or 'LP') for its Borborema Gold Project from the Rio Grande do Norte State Government Environmental Department (IDEMA). This is approval of the EIA, based on the reduced project footprint for stage 1 of the project and dry stacked tailings.</li> <li>• Importantly, the state Ministério Público (Public Ministry) has positively reviewed the licence and endorsed the licence issue by IDEMA</li> </ul>
<b>Infrastructure</b>	<ul style="list-style-type: none"> <li>• <i>The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.</i></li> <li>• Infrastructure is excellent with a sealed highway beside the project area, two existing 230kV power lines, waste water is available from the nearby town of Currais Novos.</li> <li>• All the land area required for stage 1 of the project is owned by Crusader.</li> <li>• Currais Novos, population ~42,000, is located 30 km west of the project and provides a full range of commercial services, banking facilities, hotel accommodation, potential staff accommodation, schooling and basic medical and hospital facilities.</li> </ul>
<b>Costs</b>	<ul style="list-style-type: none"> <li>• <i>The derivation of, or assumptions made, regarding projected capital costs in the study.</i></li> <li>• <i>The methodology used to estimate operating costs.</i></li> <li>• <i>Allowances made for the content of deleterious elements.</i></li> <li>• <i>The source of exchange rates used in the study.</i></li> <li>• <i>Derivation of transportation charges.</i></li> <li>• <i>The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.</i></li> <li>• <i>The allowances made for royalties payable, both Government and private.</i></li> <li>• Capital costs were estimated by Tetra Tech and other feasibility study contributors in 2013 as part of the draft BFS for a 4.2Mtpa process plant. Capital costs included the mining fleet, mine pre-production costs, process facilities, site infrastructure, tailings dam, utilities and support facilities and a contingency and at that time totaled USD300M. Latest estimates for the capital cost are \$274M with the main reduction to the BFS being due to no longer requiring a tailings dam.</li> <li>• BFS operating costs for mining, treatment and G&amp;A were derived from first principles by Auralia Mining Consulting and Kirk Mining Consultants (mining), Tetra Tech (treatment and services) and Crusader (G&amp;A), with input in all areas from L&amp;M Assessoria.</li> <li>• In November 2012 the average mining cost was estimated at US\$2.71/t mined and the average mill throughput cost (processing plus G&amp;A) was US\$14.68t milled. The final BFS unit costs were a little less than these. Due to the net impact of exchange rates and domestic inflation. It is estimated that current mining and milling operating costs have not increased in US\$ terms since the November 2012 estimates.</li> <li>• As the revenue from gold sales is effectively received in US\$ exchange rates for the Brazilian Real and to a much lesser extent other currencies have been used at the prevailing public mid-rate when costs have been estimated.</li> <li>• Transportation and local freight costs have been provided by international and local suppliers as part</li> </ul>



	<ul style="list-style-type: none"> <li>of the estimation of capital and operating costs and are well established for projects in Brazil.</li> <li>Off-site refining costs have been based on typical rates prevailing in Brazil and are within a small range for refining of bars of gold doré.</li> <li>The royalty paid to the Brazilian government will be 1.5% of gross revenue. There are no other royalties payable.</li> </ul>
<b>Revenue factors</b>	<ul style="list-style-type: none"> <li>The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.</li> <li>The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.</li> </ul> <ul style="list-style-type: none"> <li>Revenue is based on a US\$ gold price and the BRL:USD exchange rate at a specific time to derive the BRL gross revenue/oz. In November 2012, this was US\$1,350/oz and a BRL:USD rate of 2.0:1 or BRL2,700/oz. In December 2017 this was US\$1,301/oz and a BRL:USD rate of 3.3:1 or BRL4,293/oz.</li> <li>Revenue for 1,638.6 koz of silver at US\$30/oz has also been included in the 2013 BFS. The July 2017 silver price is US\$16/oz.</li> </ul>
<b>Market assessment</b>	<ul style="list-style-type: none"> <li>The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.</li> <li>A customer and competitor analysis along with the identification of likely market windows for the product.</li> <li>Price and volume forecasts and the basis for these forecasts.</li> <li>For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.</li> </ul> <ul style="list-style-type: none"> <li>The market for gold is well established and liquid and the price has varied in recent times from a high of around US\$1,800/oz in 2011-2012 to a low of around US\$1,070 in December 2015. The spot price of gold at the end of December 2017 was US\$1,301/oz.</li> <li>No formal market assessment or forecast for the gold price or silver price has been undertaken by Crusader.</li> </ul>
<b>Economic</b>	<ul style="list-style-type: none"> <li>The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.</li> <li>NPV ranges and sensitivity to variations in the significant assumptions and inputs.</li> </ul> <ul style="list-style-type: none"> <li>The main tool used for the analysis is an Excel-based discounted cash-flow model developed by L&amp;M, including full allowance for all taxes, sustaining capital and mine closure costs. Revenue, exchange rates and key cost inputs were as covered above. The discount rate used in the 2013 BFS was 5% but recent updates on a simpler financial model has used 10%.</li> <li>An NPV of US\$68M was estimated based on all key inputs adjusted for December 2017. The project is most sensitive to revenue (gold price, ore grade, BRL:USD exchange rate and processing recovery).</li> </ul>
<b>Social</b>	<ul style="list-style-type: none"> <li>The status of agreements with key stakeholders and matters leading to social licence to operate.</li> </ul> <ul style="list-style-type: none"> <li>Strong support for the project has been received from both the environmental agency, local municipal council, the State Government of Rio Grande do Norte and the local community, as demonstrated with the approval of the EIA. (refer ASX release 20 April 2017).</li> </ul>
<b>Other</b>	<ul style="list-style-type: none"> <li>To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:</li> <li>Any identified material naturally occurring risks.</li> <li>The status of material legal agreements and marketing arrangements.</li> <li>The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect</li> </ul> <ul style="list-style-type: none"> <li>No material naturally occurring risks have been identified.</li> <li>No material legal or marketing agreements are required to be entered into.</li> <li>With the key environmental licence now received, Crusader will work to fulfil the standard conditions of the LP, which have largely already been achieved. On submission of the required reports and subject to approval by IDEMA, an "Installation Licence" (Licença de Instalação or LI) will be issued. It is envisaged this will occur in 2018, after which project construction can commence.</li> </ul>

	<p>that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.</p>	<ul style="list-style-type: none"> <li>Once the dual listing on AIM has been completed and additional funds raised it is planned to complete the metallurgical test work and then fully update all study work to Feasibility Study level.</li> </ul>
<b>Classification</b>	<ul style="list-style-type: none"> <li>The basis for the classification of the Ore Reserves into varying confidence categories.</li> <li>Whether the result appropriately reflects the Competent Person's view of the deposit.</li> <li>The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).</li> </ul>	<ul style="list-style-type: none"> <li>Measured Resources have been converted to Proved Reserves. Indicated Resources have been converted to Probable Reserves.</li> <li>The estimated Ore Reserves are, in the opinion of the Competent Persons, appropriate for these deposits.</li> <li>No Measured Resources have been classified as Probable Reserves.</li> </ul>
<b>Audits or reviews</b>	<ul style="list-style-type: none"> <li>The results of any audits or reviews of Ore Reserve estimates.</li> </ul>	<ul style="list-style-type: none"> <li>No formal audit completed.</li> </ul>
<b>Discussion of relative accuracy/ confidence</b>	<ul style="list-style-type: none"> <li>Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.</li> <li>The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.</li> <li>Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage.</li> <li>It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.</li> </ul>	<ul style="list-style-type: none"> <li>As detailed above the Ore Reserve has been based on the draft 2013 feasibility study, subsequent work and an ongoing update to those studies. All aspects of the Project are currently at least to a Pre-Feasibility Study level of accuracy and confidence.</li> <li>The Modifying Factors included consideration of mining, processing, metallurgical, infrastructure, economic, gold price, legal, environmental, social and governmental factors as detailed in sections above. The Project viability is most susceptible to gold price.</li> <li>The previous production data of heap leach operations in the 1980's and 1990's is very limited and not relevant to the planned new project.</li> </ul>