ASX ANNOUNCEMENT **17 April 2014**
ASX Code: BDR

TUCANO MINERAL RESOURCE AND ORE RESERVE UPDATE

Beadell Resources Limited ("**Beadell**" or "the **Company**") is pleased to announce an annual Mineral Resource and Ore Reserve update as at 31 December 2013, produced in accordance with the 2012 Edition of the Australasian Code for Reporting of Mineral Resources and Ore Reserves (the JORC Code).

Tucano Mineral Resources total **111.0 Mt @ 1.39 g/t gold for 5.0 Moz.**

Tucano Ore Reserves total **36.1 Mt @ 1.44 g/t gold for 1.7 Moz** and include total open pit Ore Reserves of 29.3 Mt @ 1.58 g/t for 1.5 Moz and total stockpile Ore Reserves of 6.8 Mt @ 0.83 g/t gold for 0.2 Moz.

Tucano Mineral Resource

Mineral Resources produced in accordance with the 2012 edition of the Australasian Code for Reporting of Mineral Resources and Ore Reserves (the JORC Code) as at 31 December 2013 are presented in Table 1 below. Parameters used to formulate the resource estimate are presented in Appendix 1.

Tucano Mineral Resources total **111.0 Mt @ 1.39 g/t gold for 5.0 Moz**. Mineral resources are reported inclusive of ore reserves.

In 2013, the following new gold Mineral Resources were added;

Duckhead – Hangingwall Lode	0.58 million tonnes @ 3.8 g/t gold for 71,000 ounces
Duckhead – Wing Lode	0.22 million tonnes @ 1.61 g/t gold for 22,000 ounces
Tartaruga – Rio de Ouro	0.95 million tonnes @ 1.82 g/t gold for 56,000 ounces
Urucum East	0.50 million tonnes @ 1.54 g/t gold for 25,000 ounces

Mineral Resources have been depleted by the mining and processing of 3.56 Mt @ 1.73 g/t gold for 198,000 ounces in calendar year 2013.

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	Measured			Indicated			Inferred			Total		
	Tonnes ('000)	Grade g/t Au	Ounces ('000)	Tonnes ('000)	Grade g/t Au	Ounces ('000)	Tonnes ('000)	Grade g/t Au	Ounces ('000)	Tonnes ('000)	Grade g/t Au	Ounces ('000)
Urucum Oxide	983	1.4	44	3,584	1.13	130	12,737	0.69	284	17,304	0.83	459
Tap AB Oxide	2,580	2.03	168	3,725	1.61	193	3,481	0.91	102	9,786	1.47	463
Tap C Oxide	871	1.08	30	741	0.77	18	280	0.78	7	1,892	0.91	56
Tap D Oxide	0	0	0	917	0.97	29	196	1.37	9	1,114	1.04	37
Duckhead Oxide	27	27.01	23	174	5.92	33	47	1.59	2	248	7.37	59
Total Oxide	4,461	1.85	265	9,141	1.37	403	16,741	0.75	404	30,344	1.1	1,074
Urucum Primary	1,005	2.15	70	24,348	1.76	1,382	19,125	1.39	855	44,478	1.61	2,306
Tap AB Primary	1,188	1.65	63	6,029	1.55	300	9,133	1.6	470	16,350	1.59	833
Tap C Primary	251	1.35	11	2,024	1.3	85	1,269	0.98	40	3,544	1.19	135
Tap D Primary	0	0	0	698	0.99	22	772	1.19	29	1,470	1.09	52
Duckhead Primary	1	1.41	0	175	2.74	15	370	1.53	18	546	1.92	34
Total Primary	2,444	1.83	144	33,274	1.69	1,804	30,669	1.43	1,412	66,388	1.57	3,360
Urucum Total	1,988	1.78	114	27,932	1.68	1,512	31,862	1.11	1,139	61,782	1.39	2,765
Tap AB Total	3,768	1.91	231	9,754	1.57	493	12,614	1.41	572	26,136	1.54	1,296
Tap C Total	1,122	1.14	41	2,765	1.16	103	1,549	0.94	47	5,436	1.09	191
Tap D Total	0	0	0	1,615	0.98	51	968	1.22	38	2,583	1.07	89
Duckhead Total	28	26.4	23	349	4.33	48	417	1.54	20	794	3.62	93
Total Oxide and Primary	6,906	1.84	409	42,415	1.62	2,207	47,410	1.19	1,816	96,731	1.43	4,434
Total Stockpiles	7,852	0.78	196	0	0	0	0	0	0	7,852	0.78	196
Tartaruga	0	0	0	0	0	0	6,451	1.63	337	6,452	1.63	337
Total	**14,758**	**1.28**	**605**	**42,415**	**1.62**	**2,207**	**53,861**	**1.24**	**2,153**	**111,035**	**1.39**	**4,967**

Table 1. Beadell Mineral Resource as at 31 December 2013

Mineral resources were calculated using Ordinary Kriging (OK) methodology. The resources have been reported using a 0.4 g/t lower cut off for Urucum, Tap AB and Tap C. Duckhead is reported at a 1.0 g/t gold lower cut off and Rio de Ouro at 0.5 g/t lower cut off. Top cuts vary between lodes and deposits, according to the statistical distributions of the grades. The resources have been divided into oxide and primary domains. For the purposes of reporting, the transitional material has been included as oxide. Urucum East Mineral Resource has been included into the Urucum Mineral Resources.

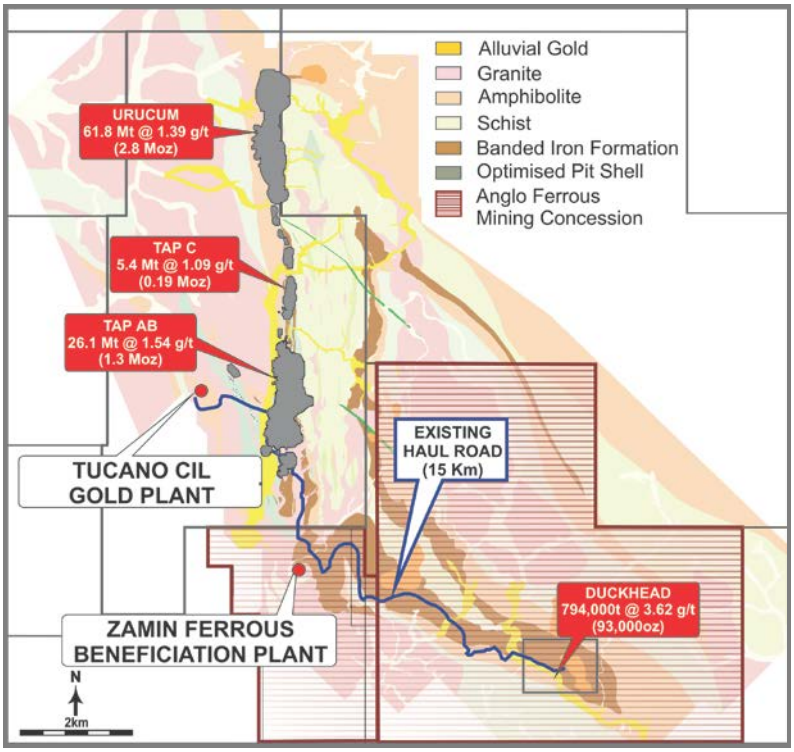

Figure 1. Tucano Deposit Locations

Tucano Ore Reserve

Ore Reserves produced in accordance with the 2012 edition of the Australasian Code for Reporting of Mineral Resources and Ore Reserves (the JORC Code) as at 31 December 2013 are presented in Table 2 below. Parameters used to formulate the reserve estimate are presented in Appendix 1.

Tucano Ore Reserves total **36.1 Mt @ 1.44 g/t gold for 1.7 Moz** and include total open pit Ore Reserves of 29.3 Mt @ 1.58 g/t for 1.5 Moz and total stockpile Ore Reserves of 6.8 Mt @ 0.83 g/t gold for 0.2 Moz.

Ore Reserves have been depleted by the mining and processing of 3.56 Mt @ 1.73 g/t gold for 198,000 ounces in calendar year 2013.

	Proved Reserve			Probable Reserve			Total Mineral Inventory			Cut off g/t
	Tonnes ('000)	Grade g/t Au	Ounces ('000)	Tonnes ('000)	Grade g/t Au	Ounces ('000)	Tonnes ('000)	Grade g/t Au	Ounces ('000)	
Urucum Oxide	873	1.38	39	2,949	1.08	102	3,822	1.15	141	0.57
Tap AB Oxide	2,262	1.97	143	2,885	1.54	143	5,147	1.73	287	0.55
Tap C Oxide	502	1.22	20	140	1.12	5	642	1.20	25	0.57
Duckhead Oxide	29	23.28	22	136	5.89	26	165	8.93	47	1.00
Total Oxide	3,666	1.90	224	6,110	1.41	276	9,776	1.59	500	
Urucum Primary	908	2.03	59	14,329	1.57	724	15,237	1.60	783	0.65
Tap AB Primary	973	1.58	49	2,984	1.44	138	3,956	1.47	187	0.61
Tap C Primary	106	1.66	6	87	1.38	4	192	1.53	9	0.66
Duckhead Primary	1	1.28	0	104	2.52	8	105	2.51	8	1.00
Total Primary	1,988	1.79	114	17,504	1.55	874	19,490	1.58	987	
Urucum Total	1,781	1.71	98	17,278	1.49	826	19,059	1.51	924	0.62
Tap AB Total	3,234	1.86	193	5,869	1.49	281	9,103	1.62	474	0.57
Tap C Total	608	1.30	26	227	1.22	9	834	1.28	34	0.58
Duckhead Total	30	22.74	22	240	4.43	34	270	6.43	55	1.00
Total Oxide and Primary	5,653	1.86	339	23,614	1.51	1,150	29,266	1.58	1,487	
Stockpile	1,625	0.82	43	0	0	0	1,625	0.82	43	
Spent Ore Stockpile	5,167	0.83	138	0	0	0	5,167	0.83	138	
Total Stockpiles	6,792	0.83	181	0	0	0	6,792	0.83	181	
Total	**12,445**	**1.30**	**520**	**23,614**	**1.51**	**1,150**	**36,058**	**1.44**	**1,668**	

Table 2. Beadell Ore Reserves as at 31 December 2013

Competency Statement

The information in this report relating to Open Pit Ore Reserves is based on information compiled by Mr Mark Jewell who is a member of the Australasian Institute of Mining and Metallurgy and who has sufficient experience which is relevant to the styles of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Jewell is a consultant to the Beadell Group and consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

The information in this report relating to Mineral Resources is based on information compiled by Mr Paul Tan who is a member of the Australasian Institute of Mining and Metallurgy and has sufficient exploration experience which is relevant to the various styles of mineralisation under consideration to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Tan is a full time employee of the Beadell Group and consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

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APPENDIX 1

JORC Code, 2012 Edition – Table 1 report template

Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	• *Nature and quality of sampling (eg 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.* • *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.*	The deposits were drilled with Reverse Circulation (RC), Diamond Drill Holes (DD) and Auger Holes (AUG). Beadell drill hole collar locations were picked up by site-based authorized surveyors using a Total Station Leica 407. Downhole surveying was measured by the drilling contractors using a Maxibore II Downhole Survey Instrument for DD holes. Shallow RC holes were picked up at the rig's rod string using Total Station, 13 deeper RC holes were re-entered at Duckhead using a diamond rig and downhole surveyed using Maxibore II. Maxibore II surveys were completed every 3m down the drillhole. In late 2013, the survey tool was changed to a Reflex Gyro instrument for use in the RC drill string. Samples were sent to SGS Geosol in Belo Horizonte for analysis. Certified standards were inserted every 20th sample by Beadell to assess the accuracy and methodology of the laboratory. Field duplicates were inserted every 20th sample of diamond core to assess the repeatability and variability of the gold mineralisation. Beadell laboratory duplicates were also completed approximately every 20th sample to assess the repeatability of the result using ACME Laboratories. A blank standard was inserted at the start of every batch of approximately 150 samples. In addition the contract labs SGS Geosol and ACME also carried out their own internal standards and lab duplicates for each lot. Results of the QAQC sampling were assessed on a batch by batch basis and were considered acceptable. 1m RC samples were obtained by an adjustable cone splitter attached to the base of the cyclone (1.5kg – 6.0kg) and were utilised for both lithology logging and assaying. Diamond core was used for structural, geotechnical and density measurements as well as lithology logging and assaying. HQ diameter diamond coring has been used through the less competent, near surface oxide material and later changed to NQ with the commencement of more competent oxide or fresh rock.

Criteria	JORC Code explanation	Commentary
	• *Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g 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 (eg submarine nodules) may warrant disclosure of detailed information.*	The core has been predominantly been sampled at 1m intervals, with some sampling on geological intervals (0.6m – 1.4m). Density measurements were done for both oxide and fresh whole core with the oxide being weighed before and after drying to determine wet SG, dry SG and moisture content. At the mine exploration sample preparation facility, core samples are dried at 105C, crushed to -8mm then to -2mm and split to 0.9-1kg before being pulverised to 1mm. This sample is quartered cut to between 200-400g before being pulverised to 95% passing 105µm. The final pulp is quartered again to achieve a sample of 100 - 200g and is sent to SGS laboratories in Belo Horizonte for fire assay. At the same preparation facility RC 1m samples are dried at 140C, crushed to -2mm (if aggregated) and riffle split to 1kg. The 1 kg sample is then pulverised to 1mm and quarter cut to between 200 and 400g. This sample is then pulverised to 95% passing 105µm and quarter cut to a 100-200g sample to send to SGS. All lab duplicates samples of the same interval were sent to ACME laboratories for analysis as a lab check.
Drilling techniques	• *Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg 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).*	A 5.5'' diameter face sampling hammer was used for RC drilling. Diamond drilling in the resource area comprises HQ and NQ sized core. Core orientations were completed using a Reflex Act II RD/NQ orientation tool. Auger holes account for around 3% of the total drilling metres with holes ranging from 1- 15m (average 4.7m). A 3 person operated, motor driven auger with a cylindrical cutting tube is used to obtain a core sample of the colluvium material.
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.* • *Measures taken to maximise sample recovery and ensure*	Diamond core recovery was logged and recorded in the database, with no significant core loss issues occurring in the mineralised zones. The diamond drilling contract includes penalty rates for poor core recovery to encourage drillers to maximise sample recovery. Average core recovery is 99% for the mineralised zones. Coreyard staff measure and record the recovery of the core shortly after it is received. This information is later used to adjust the drill contractor payment invoice. Diamond core was reconstructed on racks for orientation and marking. Depths are checked and measured against those marked by the drilling contractors on core blocks.

Criteria	JORC Code explanation	Commentary
	representative nature of the samples.	RC samples were visually checked for recovery, moisture and contamination. The drilling contractor utilised a cyclone and cone splitter to provide uniform sample size. The cone splitter was cleaned at the end of every 3m rod and the cyclone cleaned at the completion of every hole.
	• *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.*	Sample recoveries for diamond and RC holes were high within the mineralised zones. No significant bias is expected.
Logging	• *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.*	Lithology, alteration, veining, mineralisation, structure (foliation, bedding etc), weathering, resistance (knife scratch test), recovery, RQD, density were all logged for the diamond core using Logchief software and saved in an SQL (Datashed) database. Whole core photographs were taken and all half-core was retained in a core yard for future reference. Lithology, alteration, veining, mineralisation and weathering were logged from the RC chips and stored in Datashed. Chips from selected holes were also placed in chip trays and stored in a designated building at site for future reference.
	• *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.*	All logging is qualitative except for density, recovery and RQD. All core photography has been completed shortly after being received at the core yard and always prior to cutting.
	• *The total length and percentage of the relevant intersections logged.*	All drillholes are logged in full.
Sub-sampling techniques and sample preparation	• *If core, whether cut or sawn and whether quarter, half or all core taken.*	All core was cut in half onsite (HQ & NQ) with a core saw or with a chisel in the case of clay/soft oxide. Half core samples for analysis were all collected from the same side. Where field duplicates are taken, the other half of the core is used as the duplicate sample. At the on-site sample preparation facility the half core sample is dried, crushed to -8mm, then to -2mm and split to approximately 1kg for pulverisation.
	• *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.*	The RC drilling utilised a cyclone and cone splitter to produce samples in the 1kg to 6kg range. Once collected the sample is dried, crushed to -2mm and split at the site sample preparation lab down to approximately 1kg prior to pulverisation.
	• *For all sample types, the nature, quality and appropriateness of the*	

Criteria	JORC Code explanation	Commentary
	sample preparation technique.	
	• *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.*	The 1 kg sample is then pulverised to 1mm and quarter cut to between 200 and 400g. This sample is then pulverised to 95% passing 105µm and quarter cut to a 100-200g sample to send to SGS.
	• *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.*	Beadell has inserted its own QAQC samples within every batch as follows; Certified standards and blanks were inserted at every 25th sample to assess the accuracy and methodology of the external laboratory (SGS), and field duplicates were inserted every 20th sample to assess the repeatability and variability of the gold mineralisation. At Duckhead field duplicates were taken for diamond core but not for RC. Laboratory duplicates (sample preparation split) were completed every 20th sample to assess repeatability of the result using ACME labs. In addition the contract labs SGS Geosol and ACME also carried out their own internal standards, lab duplicates for each lot. The results of the field duplicates show an acceptable level of repeatability of gold analysis.
	• *Whether sample sizes are appropriate to the grain size of the material being sampled.*	Wet oxide intervals were wrapped in plastic shortly after being received to preserve oxide sample moisture and integrity prior to density & moisture measurement. Sample sizes (1kg to 6kg) at are considered to be a sufficient size to accurately represent the gold mineralisation based on the mineralisation style, the width and continuity of the intersections and the sampling methodology. Field duplicates of diamond core have routinely been collected to ensure monitoring of the sub-sampling quality. Acceptable precision and accuracy is noted in the field duplicates albeit the majority of these were outside the very high grade zones.
Quality of assay data and laboratory tests	• *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.*	All gold assaying completed by external laboratories (SGS in Belo Horizonte and ACME laboratories) and using a 30g charge for fire assay analysis with an AAS finish. This technique is industry standard for gold and considered appropriate.
	• *For geophysical tools, spectrometers, handheld XRF instruments, etc,*	Geophysical tools not used.

Criteria	JORC Code explanation	Commentary
	the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.	
	• *Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.*	Beadell has inserted its own QAQC samples within every batch as follows; Certified standards and blanks were inserted at every 25th sample to assess the accuracy and methodology of the external laboratory (SGS Geosol), and field duplicates were inserted every 20th sample to assess the repeatability and variability of the gold mineralisation. At Duckhead field duplicates were taken for diamond core but not for RC. Laboratory duplicates (sample preparation split) were completed every 20th sample to assess repeatability of the result using ACME labs. In addition the contract labs SGS Geosol and ACME also carried out their own internal standards, lab duplicates for each lot. Each analysis batch (approx. 150 samples) is checked to ensure that the standards fall within the accepted levels of standard deviation. Where any standard assay exceeds 3 standard deviations or where more than one standard falls between 2 and 3 standard deviations, the entire batch is resubmitted for analysis.
Verification of sampling and assaying	• *The verification of significant intersections by either independent or alternative company personnel.*	The high grade intersections of core at Duckhead have been observed by various visiting geological consultants (eg Cube consulting). Very high grade intersections occur in highly weathered saprolite and no visible gold present.
	• *The use of twinned holes.*	No hole twinning was undertaken at Duckhead.
	• *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.*	All geological logging information is entered directly into Logchief and synchronised with the Datashed database. Other field data (eg sampling sheets, downhole surveys etc) are entered into excel spreadsheets formatted for Datashed importation. Lab assay reports are directly imported into Datashed along with all QAQC data and metadata. Data importation is done by Maxwell Geoservices staff under contract by Beadell Resources. All data loading procedures have been documented by Maxwell Geoservices.
		Data below the detection limit is defined with a negative value, eg

Criteria	JORC Code explanation	Commentary
	• *Discuss any adjustment to assay data.*	<0.01 = -0.01.
Location of data points	• *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.*	Beadell drillhole collar locations were picked up by site-based authorized surveyors using Total Station Leica 407, calibrated to a base station (expected accuracy of 20mm). Downhole surveying was measured by the drilling contractors using a Maxibore II Downhole Survey Instrument for DD holes. Shallow RC holes were picked up at the collar and 2 points on the rod string using Total Station, 13 deeper RC holes were re-entered using a Rede Diamond Rig and Downhole Surveyed using Maxibore II. Maxibore II surveys were completed every 3m down the drillhole.
	• *Specification of the grid system used.*	The grid system is SAD 69 Zone 22N.
	• *Quality and adequacy of topographic control.*	Beadell Brasil Ltda Survey Staff generated a digital terrain model (DTM) from Total Station surface pickups of the Duckhead deposit.
Data spacing and distribution	• *Data spacing for reporting of Exploration Results.*	The resources have been drilled up to 700 vertical metres below surface on a 40 m x 20 m drill pattern with infill drilling (ongoing) down to a 20 x 20 m pattern. In the main Tucano trend of Tap AB, Tap C and Urucum, holes are angled either either east or west to intersect the orebody.
	• *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.*	At Duckhead, the nominal drillhole spacing is 5m (NE) by 10m (NW) in both the Main Lode Area and Hangingwalll Lode Area. The data spacing and distribution is sufficient to demonstrate spatial and grade continuity of the mineralised domains to support the definition of Inferred, Indicated and Measured Mineral resources under the 2012 JORC code.
	• *Whether sample compositing has been applied.*	Drill hole samples have been composited to 2 m intervals for the resource calculation at Tap AB, Tap C and Urucum. At Duckhead, drillholes were composited to 1m.
Orientation of data in relation to geological structure	• *Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.*	The majority of drilling is orientated with a 60 degree dip, which is roughly perpendicular to both the strike and dip of the mineralisation; therefore ensuring intercepts are close to true-width. Sectional interpretation of 5m spaced holes on 10m spaced lines shows generally very uniform mineralised zones both along strike and down dip. The drill orientation is as close to normal to this body as

Criteria	JORC Code explanation	Commentary
	• *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.*	possible and therefore the drill hole to mineralisation is not considered to have introduced a sampling bias.
Sample security	• *The measures taken to ensure sample security.*	Samples are securely sealed and stored onsite, until delivery to Macapa via the company contracted driver, who then also delivers the samples directly to airlines cargo dispatch facility for delivery to Belo Horizonte. Sample submission forms are sent with the samples to the laboratory and the laboratory emails a confirmation that the samples have been received along with a job number for tracking purposes.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	A site visit was completed in 2012 (Cube Consulting) to review sampling procedures and grade control practices. This visit concluded the sampling to be at an industry standard, and of sufficient quality to carry out a Mineral Resource Estimation.

Section 2 Reporting of Exploration Results

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

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	• *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.* • *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.*	Tap AB, Tap C and Urucum lie in the 851.676/1992 mining concession centrally located within the northern state of Amapa, Brazil. The mining concession is owned by Beadell Brasil Ltda. The Duckhead prospect resides in tenement 852.730/1993. The registered holder of this tenement is Anglo Ferrous Amapá Mineração Ltda, however Beadell Brasil Ltda has mineral rights to extract gold resources under a Joint Operators Agreement with Anglo Ferrous Amapa Mineracao Ltda. Beadell Brasil Ltda operates the gold processing plant in mining concession 851.676/1992. . The Tap AB, Tap C, Urucum and Duckhead prospects are located on granted mining concessions which are regulated by normal Brazilian mining and environmental law.
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	Beadell Brasil Ltda acknowledges the previous operator MPBA for the discovery of the Duckhead deposit.

Criteria	JORC Code explanation	Commentary
Geology	• *Deposit type, geological setting and style of mineralisation.*	Gold mineralisation at Urucum, Tap C and Tap AB occurs over a 7 km strike length and is associated with the subparallel intersection of a north-south shear zone and a BIF (Banded Iron Formation) unit which also host significant quantities of friable iron ore. Mineralisation at Duckhead is controlled by the recently interpreted intersection of steep east-west striking shear zones with a banded iron formation lithological contact to form steeply west plunging high grade shoots. The texture and mineralogy along the shear zone indicates high-temperature hydrothermal alteration, particularly silicification and sulfidation, bearing auriferous pyrite. Deep weathering in a majority of the deposits, except that has been drill tested is heavily oxidised with high grade mineralisation extending right to the surface through a layer of colluvium several metres thick.
Drill hole Information	• *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:* o *easting and northing of the drill hole collar* o *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar* o *dip and azimuth of the hole* o *down hole length and interception depth* o *hole length.* • *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.*	N/A
Data aggregation methods	• *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.* • *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.* • *The assumptions used for any reporting of metal equivalent values should be clearly stated.*	N/A

Criteria	JORC Code explanation	Commentary
Relationship between mineralisation widths and intercept lengths	• *These relationships are particularly important in the reporting of Exploration Results.* • *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* • *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').*	N/A
Diagrams	• *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.*	N/A
Balanced reporting	• *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.*	N/A
Other substantive exploration data	• *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.*	N/A
Further work	• *The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).* • *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	All deposits remain open at depth. In particular at Duckhead numerous outlying intersections will require follow up drilling including further drilling towards the anomalous eastern fold hinge zone. Urucum Deeps drilling is also planned.

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
Database integrity	• *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.* • *Data validation procedures used.*	The database was checked against the original raw data with respect to drill collar locations and down-hole surveys, and final drill hole depths. All data with respect to sample intervals has been (overlaps and

Criteria	JORC Code explanation	Commentary
		duplicate records) have been verified. No issues were identified with the data.
Site visits	• *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.* • *If no site visits have been undertaken indicate why this is the case.*	Mr Tan is a member of The Australian Institute of Mining and Metallurgy and is a Competent Person who has visited this site on numerous occasions. In the opinion of the competent person, the drilling, sampling and mining practices used on site are of a high industry standard.
Geological interpretation	• *Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.* • *Nature of the data used and of any assumptions made.* • *The effect, if any, of alternative interpretations on Mineral Resource estimation.* • *The use of geology in guiding and controlling Mineral Resource estimation.* • *The factors affecting continuity both of grade and geology.*	At Duckhead detailed mapping of the lithological units and bounding major shears, fault splays and breccia zones shows a very close correlation to the 3D wireframe gold model in orientation, morphology and location. Interpreted wireframe mineralised contacts have been repeatedly investigated in the pits following ore markout and have also been rechecked with periodic earth-saw lines and check sampling. This check sampling has correlated well with the angled RC grade control grades. Digitising of the mineralized lodes at Tucano is done in combination with both grade and lithology to ensure the robustness of the geological interpretation.
Dimensions	• *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.*	Gold mineralisation at Urucum, Tap C and Tap AB occurs over a 7 km strike length and is associated with the subparallel intersection of a north-south shear zone and a BIF (Banded Iron Formation) unit which also host significant quantities of friable iron ore. Higher grades are associated with the more intensely hydrothermally altered rocks, particularly within the BIFunit. Deep oxidation has produced near-surface saprolitic mineral deposits overlying the primary sulphide mineralization. Additional oxide gold occurs in an overlying colluvium layer up to 10 metres thick. Primary mineralization consists of a series of sulphide-bearing lenses which strike north and north-northwest, and dip 60 to 80₀ east except for the western zone in Tap AB1 pit which dips shallowly 25-45° north west. Individual lenses achieve a thickness of between 5m and 33m. Sulphide content ranges from 5% to 10% and is mostly pyrrhotite and pyrite. The vast majority of the Duckhead resource occurs within the Duckhead Pit area. Two smaller much satellite deposits situated 500m west and 800m east of the Duckhead pit. The Duckhead pit deposit is 260m long with a known vertical extent of 180m from surface (open at depth) and widths ranging from 5 to 20m.

Criteria	JORC Code explanation	Commentary
		It comprises 3 principle lodes plunging steeply to the south west and an overlying blanket of colluvium mineralization. Duckhead model extents were 2500m in y direction, 2000m in the x direction and 550m in the z direction.
Estimation and modelling techniques	• *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.* • *The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.* • *The assumptions made regarding recovery of by-products.* • *Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation).* • *In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.* • *Any assumptions behind modelling of selective mining units.* • *Any assumptions about correlation between variables.* • *Description of how the geological interpretation was used to control the resource estimates.* • *Discussion of basis for using or not using grade cutting or capping.* • *The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.*	Tap AB, Tap C and Urucum models have been modelled separately in Isatis and imported into sub-blocked Datamine and Surpac models. Blocks of 2m x 5m x 1m (x,y,z) were defined and ordinary kriging was used to estimate block grades within individual lode wireframes at Tap AB and Urucum. Blocks 8 m x 20 m x 4 m were defined to estimate blocks using ordinary kriging outside the lode wireframes at Tap AB and Urucum and within the lode wireframes in Tap C. For Tap AB and Urucum, 3 neighbourhood searches were considered; 1st Neighbourhood represents 70-80% of the sill of the variogram. An octant search was employed with minimum number of 4 samples and a maximum number of 32 samples used. A minimum of 2 drill holes was used to estimate a block. A maximum search of 30x25x7.5m was employed. 2nd Neighbourhood represents 100% of the sill of the variogram. An octant search was employed with minimum number of 2 samples and a maximum number of 16 samples used. A minimum of 2 drill holes was used to estimate a block. A maximum search of 90x60x20m was employed. Restrictions on high grades were imposed within this neighbourhood. 3nd Neighbourhood An octant search was employed with minimum number of 1 sample and a maximum number of 4 samples used. A minimum of 2 drill holes was used to estimate a block. A maximum search of 540x240x80m was employed. Restrictions on high grades were imposed within this neighbourhood. At Duckhead, Ordinary Kriging was used to calculate the gold grade of the deposit using a 5m (x), 10m (y) and 2m (z) parent block size. Subblocking was undertaken to a minimum size of 0.625m (x), 2.5m (y) and 1.0m (z) to improve the resolution of the grade estimation against the lode contacts. The model was rotated 45 degrees anticlockwise to fit the overall strike of the gold mineralization. Estimation at Duckhead was done by Ordinary Kriging to the maximum range of the variogram (100% of sill) in a single pass neighbourhood search. An elipsoid search was used with a maximum

Criteria	JORC Code explanation	Commentary
		search area of 125x30x10m. The software used to build the Duckhead Ordinary Kriged Model was Surpac. This block model estimate was compared to production until 31st Dec 2013. This showed a 94% metal reconciliation of the resource against the reconciled production to this date. All estimations at Tucano were constrained within the following tightly constrained wireframes defining gold mineralization using a 0.3g/t envelope. Due to the extreme grades at the Duckhead deposit, nested gold grade envelopes were used to constrain the estimation in the 3 principal lodes; Main Lode >60g/t, >2g/t and > 0.3g/t. Hangingwall Lode, >2g/t and > 0.3g/t Wing Lode >2g/t and > 0.3g/t An upper cut of 4000g/t was applied to grades within the >60g/t envelope. For Tap AB, Tap C and Urucum various top cuts were applied depending on the statistical distribution of gold within each lode or domain for each deposit. The top cut is a rounded value based on the tail of the Au log histogram and is generally around 98.5% of the grade distribution. Oxidation, colluvium and resistance surfaces were modelled for each deposit. Geological domains were wireframed.
Moisture	• *Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	All tonnages were calculated using dry density.
Cut-off parameters	• *The basis of the adopted cut-off grade(s) or quality parameters applied.*	At Duckhead the resource was calculated using a lower cut-off of 1g/t. Tap AB, Tap C, Tap D and Urucum resources are reported above a 0.4 g/t gold lower cut-off grade. Tartaruga is reported above a 0.5 g/t gold lower cut-off grade Marginal Ore Stockpiles with a lower cutoff of 0.3 g/t were included as

Criteria	JORC Code explanation	Commentary
		part of the mineral resources but not the ore reserves.
Mining factors or assumptions	• *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.*	Owing to the extremely high gold grades at Duckhead, it is normal practice to take an additional margin (10% dilution) of waste around the mineralization to avoid leaving ore on irregular contacts of the lode and ensure that recovery of the resource is as close to 100% as possible.
Metallurgical factors or assumptions	• *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.*	Metallurgical test work at Duckhead indicates recoveries of around 95% for oxide and 92% for sulphide ores for average grade of 5g/t. The metallurgy performance and recovery estimates used have been validated by actual mill production in 2013.
Environmental factors or assumptions	• *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.*	Both the mine and the processing facility have full environmental licensing in place. The Duckhead mine has been operational for 9 months and the Tucano Process facility for 15 months.
Bulk density	• *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.* • *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.* • *Discuss assumptions for bulk density estimates used in the evaluation*	Geological modelling at Tap AB, Tap C and Urucum were undertaken using nearest neighbour estimation within the block model using a 4m coded lithological composites. Lithology coding runs were done in order from oldest to youngest. Cross cutting, late stage pegmatite dykes were modelled in Leapfrog and used to overprint both the geological and gold grade model. The geological model was built by numerically coding lithologies in the database and building solid wireframes of each unit using implicit computer modeling in Surpac. Owing the friable nature of the oxide material and poor representation

Criteria	JORC Code explanation	Commentary
	process of the different materials.	of reliable dry oxide SG measurements, global averages were assigned based geological unit if the population of density measurements was deemed insufficient. In the case of friable banded iron (itabirite) and colluvium, a selection of bulk density test pits were used to establish dry density average for this material. Where bulk density sample information is sufficient (eg in the case of fresh rock), the block model densities have been estimated using nearest neighbour technique and constrained within lithological, hardness and oxidation domains. The following densities were established and assigned to their respective domains where insufficient point data was available; Colluvium 1.85t/m3, Quartz Biotite Schist 1.56t/m3 (oxide) and 2.79 (fresh), Banded Iron Formation 2.08t/m3 (oxide) and 3.3t/m3 (fresh), Carbonate & Hydrothermal Altered Zone 1.53 t/m3 (oxide) and 3.09 t/m3 (fresh).
Classification	• *The basis for the classification of the Mineral Resources into varying confidence categories.* • *Whether appropriate account has been taken of all relevant factors (ie 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).* • *Whether the result appropriately reflects the Competent Person's view of the deposit.*	Resource Classification method at Tap C was as follows; Measured; Samples inside a search radius of 25mx50mx10m. Minimum of 6 samples. Constraint of 2 consecutive empty samples within the 1st neighbourhood octant search (3 drill hole minimum). Indicated; Samples inside a search radius of 100x200mx10m. Minimum of 4 samples. Constraint of 4 consecutive empty samples within the 2nd neighbourhood octant search (2 drill hole minimum). Inferred; Search radius of 500x500x50m to populate remaining blocks within the lode wire. Minimum of 2 samples. Resource Classification method at Tap AB and Urucum was as follows; Measured; Blocks estimated by at least 2 drill holes in the 1st neighbourhood search and at the minimum number of samples needed to undertake kriging estimation. Indicated; Blocks estimated by at least 2 samples in the 2nd neighbourhood search. A maximum of 16 samples using an octant search and a minimum of 2 drill holes. Inferred; Remaining blocks within the wireframe not meeting the measured or indicated block classification.

Criteria	JORC Code explanation	Commentary
		At Duckhead, the mineral resource was classified using a combination of density of drill hole coverage and known performance of particular lodes from previous mining. Blocks within an average distance of 20m from informing drill holes were considered to be measured. Minor peripheral lode mineralization within the Duckhead pit was classed as inferred along with deeper parts of 2 of the principal lodes were drill coverage was poor.
Audits or reviews	• *The results of any audits or reviews of Mineral Resource estimates.*	For Tap AB and Urucum, swath plots were used for comparison of the kriged grade, sample mean grade, delcustered mean, nearest neighbourbood grade and resource classification. A check of the resource classification was done using swath plots of the slope of regression. In all cases a reasonable correlation of samples and model blocks was observed in the measured and indicated categories. Resources were validated by comparing the actual reconciled production from each pit compared resource estimate after dilution and mining recovery.
Discussion of relative accuracy/ confidence	• *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.* • *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.* • *These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.*	The approach for the estimation follows the same methodology used by Cube consulting for the maiden resource estimate for Duckhead. Hard domain grade envelopes of 0.3g/t and 2g/t to constrain both the compositing and grade estimation. Owing to improved drill definition of extreme grades in the lower half of the principal main lode, it was also possible to define a narrow >60g/t envelope as a continuous tabular body situated wholly within the >2g/t envelope. The rationale behind this was to limit the amount of sideways influence of these grades within the >2g/t envelope. An upper cut of 4,000g/t was selected to achieve an overall estimate Au grade of 180g/t for the >60g/t envelope. The mean of raw data within this envelope was 355g/t. Tap AB, Tap C, Urucum and Duckhead have all been partially mined and depleted in 2013. Reconciled production compared to reserve shows that the resource estimates are materially in line with mill reconciled production except for Duckhead which shows a highly positive reconciliation.

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
Mineral Resource estimate for conversion to Ore Reserves	• *Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve.* • *Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.*	The resources at Duckhead are reported above a 1.0g/t cut-off. This represents the current mining cutoff grade used by mining operations at Duckhead. The Tap C resources were reported above a cutoff model grade of 0.59g/t for oxide and 0.69g/t for sulphide, representing the undiluted reserve cutoff grade. Tap AB and Urucum were reported at cutoff grades coded into the model during the Whittle optimization. Ore Reserves are the material reported as a sub-set of the resource, that which can be extracted from the mine and processed with an economically acceptable outcome. Reported Mineral Resources are inclusive of Ore Reserves. In the case of Duckhead and Tap C, both estimates were based on a revised resource model. In the case of Tap AB and Urucum these reserves were based on the August 2012 reserve models depleted to the 31st December 2013 topography.
Site visits	• *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.* • *If no site visits have been undertaken indicate why this is the case.*	Mr Mark Jewell is a member of The Australian Institute of Mining and Metallurgy and is a Competent Person who has visited this site on numerous occasions. In the opinion of the competent person, the drilling, sampling and mining practices used on site are of a high industry standard.
Study status	• *The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.* • *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.*	At Tucano, the pit optimisations were based on Definitive Feasibility Study (DFS) geotechnical slope recommendations, which included allowances for the placement of haul roads and geotechnical berms. The Duckhead mine is within an existing mining operation where mining parameters, mining and processing costs and processing performance are well known.
Cut-off parameters	• *The basis of the cut-off grade(s) or quality parameters applied.*	For the purpose of the pit optimization, cut-off grades were calculated using the following formula;

Criteria	JORC Code explanation	Commentary
		Cut-off Grade Formula= Treatment Costs (Gold Price-Selling Cost)* (1-Royalty)*Recovery
Mining factors or assumptions	• *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).* • *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.* • *The assumptions made regarding geotechnical parameters (eg pit slopes, stope sizes, etc), grade control and pre-production drilling.* • *The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).* • *The mining dilution factors used.* • *The mining recovery factors used.* • *Any minimum mining widths used.* • *The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.* • *The infrastructure requirements of the selected mining methods.*	Except for Duckhead, no final pit designs were created for this Ore Reserve update. The pit shell inventories were factored to allow for a conversion of the pit shells to final pit designs. The conversion factors were guided by the April 2011 DFS study conversion factors, based on the comparison of the DFS final pit designs to the final pit shells, as well as taking into account the enlarged final pit shells for the September 2012 reserve work. The current reserve is based with the same pit shells as the August 2012 reserve estimate. Whittle pit optimisation software was used to generate the final pit designs. The geotechnical recommendations assume drained or partially drained slope conditions that include pit dewatering and depressurisation measures. These measures are considered technically possible considering the site conditions but have not yet been proven in the field. Measured and Indicated Resource material blocks were assigned revenue value to drive the pit optimisation shell. Inferred Resource material blocks were classified as waste for pit optimisation purposes. The mining model for Tap AB, C and Urucum used a 5% mining dilution and a 5% mining loss to generate the diluted gold grades. Duckhead used 10% dilution and 0% loss to generate the diluted gold grades. Iron ore revenue from mining of coincident iron ore has been factored into the open pit optimisation based on agreed compensation rates under the Joint Operating Agreement with Zamin (formerly Anglo Ferrous). Iron ore production and revenue from iron concentrate produced from gold ore has been estimated based on metallurgical testwork from each of the deposits and based on the revenue under the terms of the Iron Concentrate Agreement with Zamin (formerly Anglo Ferrous). The Proved and Probable Ore Reserve are based on the factored pit shell inventories as described above. Overall an ore tonnage factor of 94.6 % was used to convert the pit shell ore tonnage to the

Criteria	JORC Code explanation	Commentary
		Ore Reserve number. An overall metal tonnage factor of 94.8% was used to convert pit shell gold metal to the Ore Reserve number. The Duckhead mine is a satellite of an existing mining operation and as such, mining parameters and costs are well known and have been applied accordingly to the Duckhead reserve. The Duckhead mining method is conventional open pit with hydraulic excavators and trucks. Mining costs are based on actual costs for a similar pit within the existing operation. The majority of the ore reserve that lies within oxide material requires no blasting. Oxide ore zones are broad and dig cleanly. Fresh and transitional material requires drilling and blasting. The reporting of the ore reserves was done within the latest detailed pit design based on a Whittle optimized shell using the cost parameters detailed under “Costs” section. Geotech parameters have been derived from an independent consultant review. Knowledge of the material being mined in this location is extensive, within the existing operation. Minimum mining widths is 10m for 35 tonne payload all terrain trucks and 64 tonne excavators.
Metallurgical factors or assumptions	• *The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.* • *Whether the metallurgical process is well-tested technology or novel in nature.* • *The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.* • *Any assumptions or allowances made for deleterious elements.* • *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.* • *For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?*	The gold recoveries for this Ore Reserve were based on test work data trends for 80% passing sizes of approximately 115 microns for the initial 3.5 years and 100 microns thereafter. The Duckhead ore will be processed using conventional Carbon-in-leach methodology. The facility that will process the Duckhead ore has been operating for 15 months and a considerable quantity of Duckhead ore has previously been processed with no issues. Metallurgical test work for the Duckhead ore comprised leach characteristic and metal recovery with cyanide. Plus grind size relationship with recovery. The ores at the Tucano are free milling with very high metallurgical recoveries. The metallurgical recovery for the average grade of Duckhead ores are 95% and 92%, for oxide and sulphide ore, respectively.

Criteria	JORC Code explanation	Commentary
Environmental	• *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.*	The waste rock characteristics at Tucano have been evaluated via kinetic testing and indicated no adverse impacts. Tailings dams with a high percentage of sulphide material will remain in a saturated state post mining operations. The same rock as present at Duckhead was the subject of the above mentioned testing and no adverse conditions were the result of this study for these rock types. The Duckhead ores are predominantly oxide in nature. All statutory approvals are in place.
Infrastructure	• *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.*	Mining operations commenced at Duckhead in August 2013 with existing infrastructure and workforce in place to mine the deposit.
Costs	• *The derivation of, or assumptions made, regarding projected capital costs in the study.* • *The methodology used to estimate operating costs.* • *Allowances made for the content of deleterious elements.* • *The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co- products.* • *The source of exchange rates used in the study.* • *Derivation of transportation charges.* • *The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.* • *The allowances made for royalties payable, both Government and private.*	The processing costs and processing recoveries were provided by Ausenco via the DFS and allocated by material type for the pit optimisation purposes. The operating costs for the 3.5 Mt/y throughput, used for this Ore Reserve, were calculated based on the unit cost and methodology outlined in the Tucano Definitive Feasibility Study for the 3 Mt/y plant but adjusted as fixed and variable costs for the higher throughput. Mining costs For Tap AB, Tap C and Urucum were estimated for an owner operator scenario, guided by the April 2011 DFS study cost estimates. Capex for sustaining operations was estimated via the DFS process. No capital is required for the Duckhead satellite open pit. At Duckhead Operating cost assumptions are based on actual mining, processing and general & administration costs are derived from the main operation. There are no deleterious elements to be considered Duckhead is not a long life mine and metal price is closely linked to spot gold price. This approach was also used for exchange rates. Transport charges are contract values. Gold refining charges are contract values. Allowance for all applicable royalties have been included in Whittle

Criteria	JORC Code explanation	Commentary
		optimisations and financial evaluations
($Revenue factors	• *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.* • *The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.*	Base gold revenue for the pit optimisations excluding was US$1,200 per troy ounce gold. A 2% royalty charge was deducted from this base revenue as selling costs. A US$ 2 per troy ounce charge was used for refining charges.
Market assessment	• *The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.* • *A customer and competitor analysis along with the identification of likely market windows for the product.* • *Price and volume forecasts and the basis for these forecasts.* • *For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.*	N/A
Economic	• *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.* • *NPV ranges and sensitivity to variations in the significant assumptions and inputs.*	NPV analysis was not undertaken for the Duckhead deposit. Cashflow and simple payback analysis has been undertaken
Social	• *The status of agreements with key stakeholders and matters leading to social license to operate.*	In place.
Other	• *To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:* • *Any identified material naturally occurring risks.* • *The status of material legal agreements and marketing arrangements.* • *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 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*	All necessary legal and statutory approvals are in place for the Tucano operation and also that of the Duckhead deposit.

Criteria	JORC Code explanation	Commentary
	extraction of the reserve is contingent.	
Classification	• *The basis for the classification of the Ore Reserves into varying confidence categories.* • *Whether the result appropriately reflects the Competent Person's view of the deposit.* • *The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).*	Measured resources within the optimized shells that were flagged as ore in the whittle optimization model were classified as proved reserves. Indicated resources within the optimized shells that were flagged as ore in the whittle optimization model were classified as probable reserves.
Audits or reviews	• *The results of any audits or reviews of Ore Reserve estimates.*	No external audits of resources/reserves were undertaken.
Discussion of relative accuracy/ confidence	• *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.* • *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.* • *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.* • *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.*	Tap AB, Tap C, Urucum and Duckhead have all been partially mined and depleted in 2013. Reconciled production compared to reserve shows that the resource estimates are materially in line with mill reconciled production except for Duckhead which shows a highly positive reconciliation. At Duckhead operational performance of production to maiden reserve estimates to the 31st Dec 2013 show a positive reconciliation of the contained metal by +30%, largely due to increases in orebody size through infill grade control drilling when compared to the maiden reserve estimate. Applying the same production reconciliation to the new reserve estimate yields a difference of +6% in ounces indicating the estimate correlates well will with past production. Over the life of mine, Duckhead pit production has been confirmed through mine production to mill reconciliations.