

ASX ANNOUNCEMENT / MEDIA RELEASE

ASX: ABU

19 August 2016

### *Old Pirate Updated Mineral Resource Estimate*

ABM Resources NL (“ABM” or the “Company”) advises that CSA Global Pty Ltd (CSA Global) have prepared an updated Mineral Resource estimate for the Company’s Old Pirate deposit.

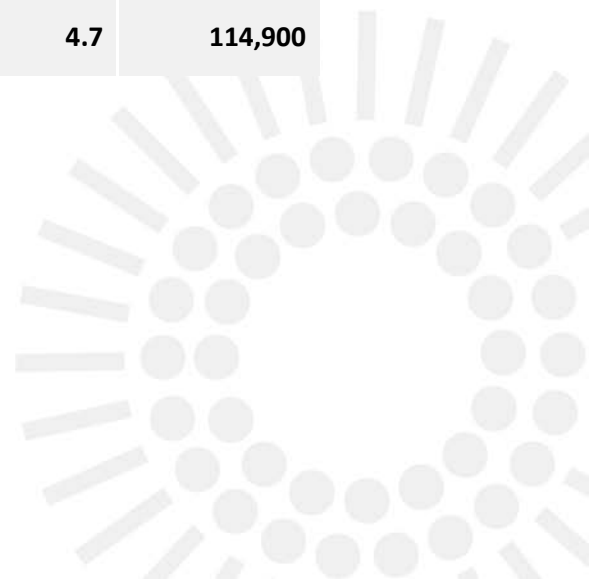
Between March 2015 and March 2016, ABM operated five small open pits at Old Pirate with a total of 155,357 tonnes of ore grading 5.9g/t mined and processed to produce 29,376 ounces of gold.

Following the completion of mining, CSA Global were engaged to prepare an independent estimate of remaining Mineral Resources at Old Pirate in accordance with the 2012 Edition of the JORC Code. CSA Global’s Mineral Resource estimate for Old Pirate is 760,000 tonnes at an average grade of 4.7g/t for 114,900 ounces of contained gold, classified as Indicated and Inferred, as detailed in Table 1 below.

**Table 1: Old Pirate Mineral Resource Estimate by Classification and Domain (Au > 1g/t)**

Domain	Classification	Tonnes	Grade (g/t)	Contained Ounces
Western Limb	Indicated	10,000	7.5	3,000
	Inferred	280,000	5.5	49,700
Central	Indicated	20,000	3.1	2,400
	Inferred	420,000	4.2	56,300
East	Indicated	5,000	7.6	500
	Inferred	10,000	4.9	1,600
Golden Hind	Indicated	5,000	3.5	500
	Inferred	5,000	4.1	900
Sub-Total	Indicated	40,000	4.6	6,500
	Inferred	720,000	4.7	108,500
<b>Total</b>	<b>Indicated + Inferred</b>	<b>760,000</b>	<b>4.7</b>	<b>114,900</b>

Note: Totals may vary due to rounding



The updated Mineral Resource estimate represents a significant reduction in both tonnage and grade compared to previous estimates, the most recent of which was produced in September 2014 (ASX 30 September 2014). Other than depletion due to mining, key changes in the resource estimate are:

- A reduction in the top-cut from 300g/t to 100g/t
- Adoption of a minimum horizontal width of 1.0m instead of 0.5m
- Interpolation of grade using ordinary kriging in place of inverse distance squared
- Limiting of input data to post 2010 RC and diamond drilling

The CSA Global resource model was extended into the voids of the four main open pits enabling a comparison of modelled tonnage and grade with reconciled mine production. This material is not included in the Mineral Resource estimate reported above. As shown in Table 2 below, the CSA Global model has lower tonnage, higher grade and contains approximately 7% less ounces of gold than actually produced. Mining dilution, ore loss, the mining of mineralisation not identified by exploration drilling and typical margins of error for a Mineral Resource estimate could explain these differences.

**Table 2: CSA Global modelled resource within the mined open pits (Au > 1g/t)**

Source	Tonnes	Grade (g/t)	Contained Ounces
CSA Mineral Resource Estimate	125,000	6.6	26,400
Mill Reconciled Mine Production <sup>1.</sup>	149,264	5.94	28,483

<sup>1.</sup> Excludes Old Glory

As previously advised, ABM now intends to assess all reasonable opportunities available to it for the realisation of value from the Old Pirate deposit and immediately surrounding tenure, which may include the potential farm-out or divestment of the properties.



Brett Lambert  
Chief Executive Officer

## **Geology and Geological Interpretation**

Old Pirate is a coarse gold system that is hosted within bedded parallel quartz veins located in two regional-scale, southerly plunging anticlines. Quartz veins ranging from 20cm to 6m in width host the gold mineralisation. Gold can be very coarse with grains up to 5 mm observed in hand-specimen. The mineralised quartz veins preferentially follow key shale horizons within the host turbidite package. The key shale horizons are generally thicker shales, with some up to 25 metres thick.

For the purpose of Mineral Resource estimation, Old Pirate has been split into several individual geological domains, each a part of the anticlinal structure, and each with its own geologic characteristics. The geology of each individual domain has been used to guide the resource estimation for that domain.

### **Drilling Techniques**

Drilling supporting the Mineral Resource was predominantly Reverse Circulation (RC) with a minor number of diamond drill holes. The Mineral Resource estimate is based on assay data from 799 reverse circulation and 16 diamond drill holes completed by ABM between 2010 and 2015. Assay data generated by previous operators and from other drilling methods were excluded. Grade control samples were used to constrain the geological interpretation but the sample assays were not used as part of the Mineral Resource estimate.

### **Sampling Techniques**

RC samples of 1 m length were split by a cone splitter into three portions. All ABM RC samples were taken using a 12.5:1 static cone splitter mounted under a polyurethane cyclone. One portion of ~4kg was sent to the lab for assay, where it was pulverised to produce a 30g or 50g charge for fire assay. One portion was used by geologists for logging, and one portion retained in case of future verification. Sample weights were monitored at the drill site by the responsible geologist to ensure adequate recovery. Upon receipt by the laboratory, samples were logged, weighed, and dried if wet. Samples were then crushed to 2mm (70% pass), then split using a riffle splitter, with 250g crushed to 75 µm (85% pass).

### **Sample Analysis Method**

50g charges from the pulp were fire assayed. Gold was assayed using Fire Assay (FA) with an Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP-AES) finish.

### **Estimation Methodology**

A block model with parent cells 1 m (easting) by 5 m (northing) by 10 m (RL) was constructed, and Au grades interpolated using Ordinary Kriging. Samples were top cut to 100 g/t and composited to 1 m sample lengths. Variograms were modelled, with a slight to moderate plunge modelled for each pit. A moderate sample support was used to quell the influence of the perceived high relative nugget effect, with a maximum of 24 samples used to estimate any one parent block. Density values of 2.3 t/m<sup>3</sup> (oxide), 2.5 t/m<sup>3</sup> (transitional) and 2.65 t/m<sup>3</sup> (primary) were assigned to the block model. The grade estimation models were depleted by mining voids, and validated prior to final reporting.

### **Cut-off grades**

Wireframe and geological modelling used a 0.5g/t cut-off for geological and grade continuity and block reporting uses a 1g/t cut-off which approximates the cut-off grade used during mining.

### **Mineral Resource Classification**

The Mineral Resource was classified as a combination of Indicated and Inferred. The geological evidence for mineralisation occurrence and continuity was observed in drill sample, and pit wall and floor exposure, with the pit exposure providing an assumed level of confidence (and therefore satisfying the Indicated classification) that the veins containing mineralisation would extend down dip, and along strike for up to 10 m below or beyond the open pit walls. Beyond this extent, grade location and continuity is implied, with a lower confidence, resulting in an Inferred classification. Drill sampling and analytical techniques associated with the RC and DD data are well documented by ABM, with QA/QC results sufficient to support an Indicated classification where the geological confidence also allows it.

### **Competent Persons Statement**

The information in this report that relates to Mineral Resources is based on information reviewed by Mr. David Williams, a Competent Person, who is a Member of the Australasian Institute of Mining and Metallurgy. David Williams is a full-time employee of CSA Global Pty Ltd, an independent consulting company. Mr. Williams has sufficient experience which is relevant to the style 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". David Williams consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

JORC Code, 2012 Edition – Table 1 Old Pirate gold deposit

Section 1 Sampling Techniques and Data

Criteria	JORC Code explanation	Commentary
<p><b>Sampling techniques</b></p>	<ul style="list-style-type: none"> <li>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.</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 (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.</li> </ul>	<ul style="list-style-type: none"> <li>Samples available for the Resource estimation for the Old Pirate Deposit were from previous pre-ABM (sourced from Newmont Asia Pacific) databases RAB, vacuum, RC, and diamond drilling, as well as ABM RC and diamond drilling, and ABM's 8100 tonne bulk sample. For pre-ABM RAB and vacuum drilling samples were 3m composites, for historic RC and diamond drilling 1m composites. Specific procedures for sampling of pre-ABM samples are not uniformly recorded and are excluded from resource estimation work. Pre-ABM work is approximately 10% of the total samples.</li> <li>For ABM RC drilling, 1m of drilling was split by a cone splitter into three portions. One portion of ~4kg was sent to the lab for assay, where it was pulverised to produce a 30g or 50g charge for fire assay. One portion was used by geologists for logging, and one portion retained in case of future verification.</li> <li>ABM diamond drilling was done largely for lithological and structural geology control. Areas of geologic interest were selected, and core drilled and was split with a masonry saw with half being sent to the lab where it was pulverised to produce a 50g charge for fire assay, the other half is retained on site. In certain cases the retained half of core was sent for selective assaying to confirm the initial results.</li> <li>For ABM's 8100 tonne bulk sample: benches were exposed with an excavator. Samples were taken across the width of the bench at intervals between 2.5 and 10m, depending on the complexity of local geology. Samples were taken of individual lithological units, with width varying depending on lithology. Minimum sample width was 10cm, maximum 5.9m. Sample was collected across the entire width of the lithological unit to ensure representativeness. All quartz veins were additionally sampled longitudinally at 2.5m intervals, with sample collected across the entire width and length of the interval. Samples averaged 3.5kg, and were sent to a prep facility where they were crushed and randomized. A master pulp of approximately 100g was then sent to the lab facility, where a 50g charge was fire assayed. One in twenty samples with an assay over 1.0g/t were re-assayed with LeachWell techniques.</li> <li>For grade control chip sampling during excavation of the open pits, all veins of mineable widths were sampled across the width and along the strike of the veins, using a maximum sample strike length of 2.5</li> </ul>

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Criteria	JORC Code explanation	Commentary
		<p><i>m. The pit floor surface at vein exposure was cleared of dirt and other debris. A percussion hammer chipped the veins, with the sample chips collected by hand and into a uniquely numbered sample bag. Samples were sent to the Coyote laboratory where they were prepared for AAS analyses by a Pulverise and Leach (PAL) method using 200 g samples.</i></p>
<p><b>Drilling techniques</b></p>	<ul style="list-style-type: none"> <li>• <i>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).</i></li> </ul>	<ul style="list-style-type: none"> <li>• <i>Historic drilling was vacuum, RAB, RC, or diamond. Specifics of drilling techniques are unknown, except diamond drilling was NQ triple tube.</i></li> <li>• <i>ABM RC drilling was done with either a Schramm 685 or Atlas Copco RC rig. Both rigs had a depth capability of approximately 600m, using a 1000psi, 1350cfm Sullair compressor and auxiliary booster. Holes were 5 5/8" diameter.</i></li> </ul>

Criteria	JORC Code explanation	Commentary
<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>ABM diamond drilling was completed by Boart Longyear. The 4 diamond drill holes completed in 2011 were drilled using a dual-purpose KL-1500 diamond/RC drill rig with 6m barrel. The 8 diamond drill holes completed in 2012 were drilled using a late-model, top drive IDR Diamond coring rig, mounted on a MAN 8x8 truck. Near surface (i.e. weathered rock) HQ (hole diameter 96mm, core diameter 63.5mm) was drilled, with all remaining core drilled with NQ2 (hole diameter 75.7mm, core diameter 50.6mm).</li> <li>All ABM RC samples were taken using a 12.5:1 Sandvik static cone splitter mounted under a polyurethane cyclone. Samples were split into 3 aliquots, with one sent to the lab for assay, one stored and retained for QA/QC purposes, and one remaining at the drill site. Size of the sample was monitored at the drill site by the responsible geologist to ensure adequate recovery. Total sample weight was recorded for six ABM RC holes drilled in 2010 and 2011, and typically showed recoveries of over 90%.</li> <li>No relationship between sample recovery and grade is apparent.</li> <li>With recoveries over 90%, sample bias due to preferential loss/gain of fine/coarse material is unlikely.</li> <li>To increase recovery of diamond drill samples, core runs were limited to 3m, and as previously noted, larger diameters were used near surface. Drillers recorded the length of the run, and this was later reconciled in camp by the logging geologist, There were no significant missing diamond drill intervals.</li> </ul>
<b>Logging</b>	<ul style="list-style-type: none"> <li>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.</li> <li>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.</li> <li>The total length and percentage of the relevant intersections logged.</li> </ul>	<ul style="list-style-type: none"> <li>ABM RC samples were geologically logged at the drill rig by a geologist using a laptop with Maxwell Logchief data capture system. Data on lithology, weathering, alteration, ore mineral content and style of mineralisation, and quartz content and style of quartz were collected.</li> <li>Diamond drill samples were brought from the rig to camp, where they were logged by a geologist. Data on lithology, weathering, alteration, ore mineral content and style of mineralisation, quartz content, and style of quartz veining was recorded. Core was also structurally logged, with alpha and beta angles recorded for sedimentary structures, brittle and ductile deformation structures, and quartz veins.</li> <li>Exposed benches were mapped across the width of the pit, logged, and surveyed by geologists with differential GPS to cm-scale. Pit floor samples were taken to geological contacts and across pits at intervals of between 2.5 and 10m, depending on the complexity of local geology. Width, rock unit, weathering, grain size, colour, alteration, and mineralogy were recorded.</li> </ul>



Criteria	JORC Code explanation	Commentary
<b>Sub-sampling techniques and sample preparation</b>	<ul style="list-style-type: none"> <li>If core, whether cut or sawn and whether quarter, half or all core taken.</li> <li>If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.</li> <li>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</li> <li>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</li> <li>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.</li> <li>Whether sample sizes are appropriate to the grain size of the material being sampled.</li> </ul>	<ul style="list-style-type: none"> <li>Additionally, natural outcropping and backhoe excavated veins are mapped for location, width and orientation and sampled at 1 metre intervals. The sample width depends on the width of the vein. In cases where the vein width is greater than 1 metre, multiple samples are collected across the vein.</li> <li>Diamond drill holes were geotechnically logged by a geologist from Peter O'Bryan &amp; Associates, with uniaxial compressive strength tests, and shear box tests done on selected representative samples. Testing was performed at the Western Australian School of Mines Geomechanics Laboratory.</li> <li>Core was sawn in half with a masonry saw, with half sent for assay, and half retained on site.</li> <li>RC samples were split with a 12.5:1 Sandvik static cone splitter mounted under a polyurethane cyclone.</li> <li>Field duplicates were taken approximately every 20-25 samples. A blank or standard was inserted approximately every 25-30 samples. For drill samples, blank material was supplied by the assaying laboratory; for the bulk sample river sand sourced in Alice Springs with an average Au assay of less than 0.01g/t was used. Fifteen certified standards acquired from GeoStats Pty. Ltd., with different gold grade and lithology were also used.</li> <li>Upon receipt by the laboratory samples were logged, weighed, and dried if wet. Samples were then crushed to 2mm (70% pass), then split using a riffle splitter, with 250g crushed to 75 µm (85% pass). 50g charges were then fire assayed.</li> <li>For the Bulk Sample, samples were collected across the entire width of the sample area, and length in the case of longitudinal samples, to ensure representativeness.</li> </ul>
<b>Quality of assay data and laboratory tests</b>	<ul style="list-style-type: none"> <li>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</li> <li>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.</li> <li>Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.</li> </ul>	<ul style="list-style-type: none"> <li>Historic drill results were fire assayed, but the specifics of used techniques are not known. Given the consistency with ABM's results, historic methods are considered to have been appropriate, and are considered equivalent to ABM's.</li> <li>Fire assay with a detection limit of 0.001g/t Au was used for initial drilling at Old Pirate. Once a high-grade system was recognized a method with 0.01g/t Au detection was used. Samples returning over 10.0g/t were re-assayed using ALS Fire Assay/AA25 ore-grade method. Samples over 100g/t were re-assayed using AA25 over limit dilution method.</li> <li>For the bulk sample, 1 in 20 samples over 1.00g/t was re-assayed using LeachWell method. LeachWell assay techniques were used in an effort to both quantify the nugget effect of the system, and as a</li> </ul>



Criteria	JORC Code explanation	Commentary
<p><b>Verification of sampling and assaying</b></p>	<ul style="list-style-type: none"> <li>• The verification of significant intersections by either independent or alternative company personnel.</li> <li>• The use of twinned holes.</li> <li>• Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</li> <li>• Discuss any adjustment to assay data.</li> </ul>	<p>check on Fire Assaying. The data shows that LeachWell returns 121% of Fire Assay for samples over 100g/t, and 91% of Fire Assay value for samples between 1.00 and 100g/t.</p> <ul style="list-style-type: none"> <li>• The quartz veins at Old Pirate have a statistical high nugget effect. It is estimated that 1 in 5 hand samples at Old Pirate contains visible gold (observed under x20 microscope / hand lens) and some gold grains have been observed up to 5mm across. Replicating assay results from individual samples is difficult and the laboratory has reported coarse particulate gold. Two samples from the same location can show dramatically different results. ABM has trialled various techniques including screen fire, multi sample fire assay and re-splits to gain a better estimator of grade in individual samples. Over the course of its exploration ABM has determined the fire assay with LeachWell check is an effective and appropriate method.</li> <li>• In addition to standards and blanks previously discussed, ALS conducted internal lab checks using standards, blanks. Standards and blanks returned within acceptable limits, and field duplicates showed good correlation.</li> </ul> <ul style="list-style-type: none"> <li>• Significant intersections were calculated independently by both a project geologist and database administrator.</li> <li>• ABM has used diamond drilling to twin two RC holes at Old Pirate and Golden Hind, and has found geology and assay to be consistent with variations acceptable within the context of the deposit.</li> <li>• For drilling data, ABM uses the Maxwell Data Schema (MDS) version 4.5.1. The interface to the MDS used is DataShed version 4.5 and SQL 2008 R2 (the MDS is compatible with SQL 2008-2012 – most recent industry versions used). This interface integrates with LogChief and QAQCReporter 2.2, as the primary choice of data capture and assay quality control software. DataShed is a system that captures data and metadata from various sources, storing the information to preserve the value of the data and increasing the value through integration with GIS systems. Security is set through both SQL and the DataShed configuration software. ABM has one sole Database Administrator and an external contractor with expertise in programming and SQL database administration. Access to the database by the geoscience staff is controlled through security groups where they can export and import data with the interface providing full audit trails. Assay data is provided in MaxGEO format from the laboratories and imported by the Database Administrator. The database assay management system records all metadata within the MDS and this interface provides full audit trails to meet industry</li> </ul>

Criteria	JORC Code explanation	Commentary
		<p><i>best practice.</i></p> <ul style="list-style-type: none"> <li>• <i>Geologic bulk sample data was collected using an excel spreadsheet which is both reviewed by a geologist, and checked by an automated program before being imported into the database described above.</i></li> <li>• <i>No transformations are made in the database.</i></li> <li>• <i>Grade control assays from chip sampling were normalised to 1 m intervals. These results are stored separately to the drill hole database.</i></li> </ul>
<p><b>Location of data points</b></p>	<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>• <i>ABM hole collars were surveyed with differential GPS, providing sub-cm accuracy.</i></li> <li>• <i>ABM drill holes were surveyed every 30m with a Reflex EZ-Trac Single Shot Surveying camera. Diamond drill holes were additionally surveyed by ABIM Solutions of Kalgoorlie using a Stockholm Precision Tools north-seeking gyro and magnetic multi-shot tool. Approximately 20 ABM RC holes drilled in 2012 were also surveyed with a Keeper Rate Gyro continuous surveyor provided by Gyro Australia. Quartz trench sample start and end points are recorded with a handheld GPS using waypoint averaging and resurveyed with a differential GPS (&lt;5cm accuracy).</i></li> <li>• <i>An unmanned aerial drone flew reconnaissance over the property in June 2013, taking aerial photos providing a digital topographic model of the surface of the deposit to 30cm accuracy.</i></li> <li>• <i>The grid system used is MGA_GDA94, Zone 52.</i></li> </ul>
<p><b>Data spacing and distribution</b></p>	<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>• <i>Drill spacing is on at least 25m centres for the indicated resource portion of the resource.</i></li> <li>• <i>Quartz veins at surface were sampled at 1m intervals, and 1m widths where quartz veins are wider than 1m. Spacing of the bulk sample data varied depending on the complexity of local geology. Longitudinal samples were taken every 2.5m along quartz (ore) veins. Samples were taken across the width of exposed benches at spacing of between 2.5 and 10m. Sample length varied based on lithology, with individual lithological units being sampled wherever practicable, and varied between 10cm and 5.9m.</i></li> <li>• <i>Sample spacing is sufficient to provide geologic and grade continuity.</i></li> <li>• <i>No sample compositing has been applied.</i></li> </ul>
<p><b>Orientation of data in relation to geological</b></p>	<ul style="list-style-type: none"> <li>• <i>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</i></li> <li>• <i>If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a</i></li> </ul>	<ul style="list-style-type: none"> <li>• <i>The structure is a south-plunging anticline, with approximately stratiform and cross-cutting mineralisation. Drilling was to the east on the west side of the anticline, and to the east on the west side, so drilling is predominantly across structures and mineralisation, eliminating potential bias from drill direction, and gives unbiased</i></li> </ul>

Criteria	JORC Code explanation	Commentary
<b>structure</b>	<i>sampling bias, this should be assessed and reported if material.</i>	<p><i>sampling of possible structures to the extent they are known.</i></p> <ul style="list-style-type: none"> <li>Exposed and excavated ore veins were sampled across their entire width and at 1m intervals during the bulk sample and trench sampling programs.</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>At various stages, samples were transported by ABM personnel from the camp to the Granites mine or the Central Tanami mine where they were loaded onto a Toll Express truck, and taken to the secure preparation facility in Alice Springs. The preparation facilities use the laboratory's standard chain of custody procedure.</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>ABM has conducted several audits of ALS's Perth and Alice Springs laboratory facilities and found no faults.</li> <li>QA/QC review of laboratory results is ongoing as results are finalized. ABM has also conducted annual reviews at the end of every calendar year, and found no significant statistical outliers.</li> </ul>

## Section 2 Reporting of Exploration Results

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 Old Pirate gold deposit is located on Mineral Lease 29822 in the Northern Territory. The tenement is wholly owned by ABM, and subject to the 'Twin Bonanza Mining Agreement' agreement between ABM and the Traditional Owners via Central Land Council (CLC). The Mineral Lease was granted in April 2014 for a term of 25 years.</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 deposit was first recognised in outcropping veins in the late 1990s by North Flinders Mines. North Flinders, Normandy NFM and Newmont Asia Pacific all conducted exploratory work on the project with the last recorded drilling (prior to ABM) completed in 2005. Previous exploration work provided the foundation on which ABM based its exploration strategy.</li> </ul>
<b>Geology</b>	<ul style="list-style-type: none"> <li>Deposit type, geological setting and style of mineralisation.</li> </ul>	<ul style="list-style-type: none"> <li>Old Pirate is a coarse gold-bearing quartz-vein system hosted by a sequence of intercalated sandstone and shale horizons (turbidite sequence). Quartz veins ranging from 20cm to 6m in width host the gold mineralisation. The mineralised quartz veins preferentially follow key shale horizons within the turbidite package. The key shale horizons are generally thicker shales, with some up to 25 metres thick. Golden Hind is a vein of higher-grade gold discovered by ABM</li> </ul>

Criteria	JORC Code explanation	Commentary
		during 2012 approximately 600m to the south of Old Pirate.
<b>Drill hole Information</b>	<ul style="list-style-type: none"> <li>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: <ul style="list-style-type: none"> <li>easting and northing of the drill hole collar</li> <li>elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar</li> <li>dip and azimuth of the hole</li> <li>down hole length and interception depth</li> <li>hole length.</li> </ul> </li> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>Summaries of all material drill holes are available at the Company website, and within the Company's ASX releases.</li> </ul>
<b>Data aggregation methods</b>	<ul style="list-style-type: none"> <li>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.</li> <li>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.</li> <li>The assumptions used for any reporting of metal equivalent values should be clearly stated.</li> </ul>	<ul style="list-style-type: none"> <li>ABM does not use weighted averaging techniques or grade truncations for reporting of exploration results.</li> <li>ABM reports two significant intercept values; 0.5g/t Au and 1.0g/t Au. The 0.5g/t Au is an average of all continuous values greater than 0.5g/t Au, with no more than 2 continuous values below this cut-off. The 1.0g/t Au cut-off is an average of all continuous values greater than 1.0g/t Au, with no more than 1 continuous value below this cut-off.</li> </ul>
<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 (eg 'down hole length, true width not known').</li> </ul>	<ul style="list-style-type: none"> <li>From mapping and limited diamond drilling, beds and mineralisation appear to be steeply dipping (between 60 and 80 degrees). Drill holes are angled as shallowly as possible (typically 60 degrees, 50 where possible) to drill as close to perpendicular to mineralisation as possible.</li> <li>Intercepts reported are down hole length, true width is not known.</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>Maps and tables are located within the resource report or associated appendices, and released with all exploration results.</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>The Company reports all assays as they are finalized by the laboratory and compiled into geological context.</li> </ul>
<b>Other</b>	<ul style="list-style-type: none"> <li>Other exploration data, if meaningful and material, should be reported</li> </ul>	<ul style="list-style-type: none"> <li>The Company reports all other relevant exploration results.</li> </ul>

Criteria	JORC Code explanation	Commentary
<b>substantive exploration data</b>	<i>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.</i>	
<b>Further work</b>	<ul style="list-style-type: none"> <li><i>The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).</i></li> <li><i>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</i></li> </ul>	<ul style="list-style-type: none"> <li><i>ABM intends to assess commercial opportunities for the Old Pirate deposit before considering any further exploration or evaluation of the Mineral Resource.</i></li> </ul>

### Section 3 Estimation and Reporting of Mineral Resources

Criteria	JORC Code explanation	Commentary
<b>Database integrity</b>	<ul style="list-style-type: none"> <li><i>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.</i></li> <li><i>Data validation procedures used.</i></li> </ul>	<ul style="list-style-type: none"> <li><i>Data is entered directly into the data capture system in the field, and reviewed by a geologist before being imported to the main database.</i></li> <li><i>Logs cannot be finalised if key fields are missing, nor can codes not existing in the library be entered, ensuring continuity of data, and reducing data entry and transcription errors.</i></li> <li><i>Once in the main database, only the database administrators can edit or change data, and all changes are logged by the system.</i></li> </ul>
<b>Site visits</b>	<ul style="list-style-type: none"> <li><i>Comment on any site visits undertaken by the Competent Person and the outcome of those visits.</i></li> <li><i>If no site visits have been undertaken indicate why this is the case.</i></li> </ul>	<ul style="list-style-type: none"> <li><i>The Competent Person visited site between 23<sup>rd</sup> and 25<sup>th</sup> June 2016, several months after the cessation of mining activities. An ABM geologist accompanied the CP. Geological exposure within the open pits were examined, and sampling procedures demonstrated to the CP. All drill collars have been either destroyed by mining or rehabilitated, therefore could not be verified.</i></li> </ul>
<b>Geological interpretation</b>	<ul style="list-style-type: none"> <li><i>Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.</i></li> <li><i>Nature of the data used and of any assumptions made.</i></li> <li><i>The effect, if any, of alternative interpretations on Mineral Resource estimation.</i></li> <li><i>The use of geology in guiding and controlling Mineral Resource estimation.</i></li> <li><i>The factors affecting continuity both of grade and geology.</i></li> </ul>	<ul style="list-style-type: none"> <li><i>Old Pirate is a coarse gold system that is hosted within bedded parallel quartz veins located in two regional-scale, southerly plunging anticlines. Recent pit investigations and detailed mapping have helped gain further understanding of the constraints on the mineralisation within the Old Pirate system. For the purpose of resource estimation, Old Pirate has been split into several individual geological domains, each a part of the anticlinal structure, and each with its own geologic characteristics. The geology of each individual domain has been used to guide the resource estimation for that domain.</i></li> <li><i>The Western Limb mineralised zone is a continuous NNW-SSE</i></li> </ul>



Criteria	JORC Code explanation	Commentary
		<p>striking 600m long vein, which dips steeply between 72-88° to the west, located on the Western Limb of the most western anticline. Typically the vein occurs at the contact between a hanging wall shale (to the west), and a footwall sandstone. However, the vein locally transgresses and lies within the shale but remains parallel to bedding. The vein is 10-40cm thick, but pinches and swells at various points along its strike length. Stock work and splay veins with high-grade gold mineralisation are observed on the footwall of the vein.</p> <ul style="list-style-type: none"> <li>• The Central Domain is a domain of multiple veins (up to 6m width), containing wide zones of mineralisation. Central includes the Old Pirate western fold hinge area, southern extent of western limb, and the eastern limb of the western anticline as well as steep veins parallel to the axial plane of folds.</li> <li>• The East Side vein is a sporadically high grade, near continuous 300m long vein, located on the Eastern Limb of the Old Pirate eastern anticline. The vein varies in width, typically 10-70cm wide, strikes N-S, and dips 68-78° to the east. It frequently pinches and swells, and is offset locally by distances less than 1m; silicic and hematitic alteration of shale was observed where the vein narrows. Mineralisation often occurs where the vein bifurcates. At the southern end of the East Vein, the vein is folded into a 20degree south plunging 'M' fold with high-grade mineralisation (this area also known as Old Pirate South)</li> <li>• During the trial mining excavation of 2013, it became apparent that Golden Hind is hosted within a shear zone. Fine-grained gold occurs within a unit designated as the "black shale"; an interbedded sequence of iron-rich sheared sands and silts with quartz stringers. Competent, coarse-grained sandstone beds constrain the limits of the shear zone. Gold is found within the shale lenses, closely associated with thin (0.5 – 2cm) stringers of sheared, boudinaged quartz. Coarse gold is also evident within larger veins that are predominantly located in the hanging walls and foot walls of the system. These include two large (10-40cm width) mineral zones marking the eastern and western extent of the shear zone.</li> </ul>
<b>Dimensions</b>	<ul style="list-style-type: none"> <li>• 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.</li> </ul>	<ul style="list-style-type: none"> <li>• The deposit trend has a strike length of 1.8km and a width of 500m, with a maximum depth of 200 m below natural surface.</li> </ul>
<b>Estimation and modelling techniques</b>	<ul style="list-style-type: none"> <li>• 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</li> </ul>	<ul style="list-style-type: none"> <li>• As previously noted, the resource estimate has been divided into five domains for the purpose of resource estimation. The model was constructed with manual wireframing in MicroMine.</li> <li>• The wireframes were exported to dxf and imported into Datamine for</li> </ul>

Criteria	JORC Code explanation	Commentary
	<p><i>estimation method was chosen include a description of computer software and parameters used.</i></p> <ul style="list-style-type: none"> <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 (eg 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 process used, the comparison of model data to drill hole data, and use of reconciliation data if available.</i></li> </ul>	<p><i>grade interpolation and resource reporting.</i></p> <ul style="list-style-type: none"> <li>• <i>Datamine was used for block modelling, grade interpolation, Mineral Resource classification and reporting. GeoAccess Professional and Snowden Supervisor were used for geostatistical analyses. The Au domain interpretations were based upon a lower cut-off grade of 1 g/t Au.</i></li> <li>• <i>The Western Limb Mineral Resource model consists of 5 zones of Au mineralisation. The Old Pirate (Central) Mineral Resource model consists of 19 zones of Au mineralisation. The Old Pirate (East) Mineral Resource model consists of 5 zones of Au mineralisation. The Golden Hind Mineral Resource model consists of 3 zones of Au mineralisation.</i></li> <li>• <i>Three weathering domains (oxide, transitional and fresh) were interpreted for each model.</i></li> <li>• <i>Mineralisation domains were encapsulated by means of 3D models. Domains were extrapolated along strike or down plunge to half a section spacing or if a barren hole cut the plunge extension before this limit. Depth extent was carefully considered and reflected down dip continuity observed during mining activities.</i></li> <li>• <i>Only ABM derived drill hole data was considered for the Mineral Resource estimate. Drill data from earlier property owners was suppressed due to lack of QAQC documentation.</i></li> <li>• <i>Only RC and Diamond drill data was used to support the Mineral Resource. The grade control data set was statistically reviewed and was noted to consist of a separate statistical population to the RC and DD data.</i></li> <li>• <i>A top cut of 100 g/t Au was applied to drill hole samples prior to compositing.</i></li> <li>• <i>Samples were composited to 1 m intervals</i></li> <li>• <i>A block model with parent cell sizes 1 m x 5 m x 10 m (Easting, Northing, RL) was constructed, compared to typical drill spacing of 10 m N x 20 m RL within the open pit area. This block size was selected to best represent the Indicated Mineral Resources, rather than larger block sizes which would have better suited the Inferred volumes.</i></li> <li>• <i>Statistical analysis of the Au populations by mineralisation domain, weathering domain, hole type, and a combination of these, was conducted on both the non-composited and composited drill data. Variography was carried out on selected domains with the greatest data population. Normal score variograms were modelled, and the back transformed parameters used in grade interpolation algorithm. Variogram studies showed the mineralisation has a high nugget</i></li> </ul>



Criteria	JORC Code explanation	Commentary
		<p>effect, implying that a large sample population would normally be required to interpolate a single block.</p> <ul style="list-style-type: none"> <li>Grade estimation was by Ordinary Kriging (OK) with Inverse Distance Squared (IDS) estimation concurrently run as a check estimate. A minimum of 10 and maximum of 24 composited (1 m) samples were used in any one block estimate for all models. A maximum of 4 composited samples per drill hole were used in any one block estimate. Grade interpolation was run within the individual mineralisation domains acting as hard boundaries.</li> <li>Density values were assigned to the block model based upon the weathering domains. Densities applied to the model are : Oxide 2.3 t/m<sup>3</sup>, transitional 2.5 t/m<sup>3</sup>, fresh 2.65 t/m<sup>3</sup></li> <li>The Mineral Resource tonnage and grade was checked against previously reported Mineral Resource (2014) and represents a material decrease in tonnes, grade and contained ounces. The current model reconciles favourably with mill production figures from the recent open pit mining.</li> <li>No selective mining units were assumed in this model.</li> <li>The grade model was validated by 1) creating slices of the block model and comparing grades to drill holes on the same slice; 2) swath plots comparing average block grades with average sample grades on nominated easting, northing and RL slices; and 3) mean grades per domain for estimated blocks and flagged drill hole samples.</li> </ul>
<b>Moisture</b>	<ul style="list-style-type: none"> <li>Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.</li> </ul>	<ul style="list-style-type: none"> <li>Tonnages are estimated on a dry basis.</li> </ul>
<b>Cut-off parameters</b>	<ul style="list-style-type: none"> <li>The basis of the adopted cut-off grade(s) or quality parameters applied.</li> </ul>	<ul style="list-style-type: none"> <li>Wireframe and geological modelling used a 0.5g/t cut-off for geological and grade continuity and block reporting uses a 1g/t cut-off and approximates a mining cut-off.</li> </ul>
<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>Domains were modelled to a minimum 1 m plan width.</li> </ul>
<b>Metallurgical</b>	<ul style="list-style-type: none"> <li>The basis for assumptions or predictions regarding metallurgical</li> </ul>	<ul style="list-style-type: none"> <li>During the 8100 tonne bulk sample undertaken in 2013, ABM realised</li> </ul>

Criteria	JORC Code explanation	Commentary
<b>factors or assumptions</b>	<i>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.</i>	<i>recovery of 86% using a gravity-only circuit. In September 2012, ABM announced metallurgical test work results from Consep Pty Ltd, and Gekko Systems, which showed recoveries of 97.3% and 88.4% of gold recovered using simple gravity methods. With the possible addition of a cyanide leaching circuit, this is expected to increase to high-ninety percent recovery. The company has previously tested Old Pirate ore through gravity/CIL/CIP test work and achieved recovery in this range.</i>
<b>Environmental factors or assumptions</b>	<ul style="list-style-type: none"> <li>• <i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>• <i>The mine site was rehabilitated in 2016 following cessation of mining activities. Waste dump profiles were profiled to a 15 degree slope, with waste material containing high quartz (and assumed high arsenic) encapsulated within the core of the dump.</i></li> <li>• <i>The Old Glory pit was backfilled to natural surface level. The four pits that overly the Old Pirate Mineral Resource have been bunded to prevent inadvertent access, but otherwise remain open and accessible.</i></li> <li>• <i>Ore was processed at Tanami Gold's processing plant at their Coyote mine site in Western Australia.</i></li> </ul>
<b>Bulk density</b>	<ul style="list-style-type: none"> <li>• <i>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.</i></li> <li>• <i>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.</i></li> <li>• <i>Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.</i></li> </ul>	<ul style="list-style-type: none"> <li>• <i>Samples for density analyses were collected from all pits from every 5 m bench. Samples were collected from the HW, FW and ore zones, with between 10 and 65 samples collected from each bench.</i></li> <li>• <i>The technique used to determine the specific gravity was the water immersion technique.</i></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 ( 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>• <i>The Mineral Resource is classified as Indicated and Inferred.</i></li> <li>• <i>The geological evidence for mineralisation occurrence and continuity was observed in drill sample, and pit wall and floor exposure, with the pit exposure providing an assumed level of confidence (and therefore satisfying the Indicated classification) that the veins containing mineralisation would extend down dip, and along strike for up to 10 m below or beyond the open pit walls. Beyond this extent, grade location and continuity is implied, with a lower confidence, resulting in an Inferred classification. Drill sampling and analytical techniques associated with the RC and DD data are well documented by ABM, with QA/QC results sufficient to support an Indicated classification</i></li> </ul>

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<b>Audits or reviews</b>	<ul style="list-style-type: none"> <li>The results of any audits or reviews of Mineral Resource estimates.</li> </ul>	<p>where the geological confidence also allows it.</p> <ul style="list-style-type: none"> <li>All relevant factors have been taken appropriately into account when determining the classification of a resource category. The result appropriately reflects the Competent Person's view of the deposit.</li> <li>The Mineral Resource estimate was peer reviewed by CSA Global, with ABM also reviewing the methodology. No formal audits have been undertaken.</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 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.</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>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>The Mineral Resource estimate is considered a global resource for both indicated and inferred resource estimations.</li> <li>Mine and mill production data were used to reconcile the volume of the Mineral Resource within the open pit surfaces.</li> </ul>