

**ASX Announcement** 

25 January 2017

# **BOORARA GOLD RESOURCE 232,000 OUNCES**

#### **HIGHLIGHTS**

- A newly estimated total Mineral Resource at the Boorara Gold Project of 5.95 Million Tonnes @ 1.2 g/t for 232,000 ounces of gold is based on a 0.4 g/t gold cut-off grade (previously used 0.3 g/t) with a maximum top cut grade applied of 24 g/t.
- The Mineral Resource Estimate ('MRE')at the Boorara Gold Project is a result of Macpherson Resources Ltd (MRP) drilling 182 holes for 16,974 metres and historical drilling of 937 holes for 74,498 metres.
- The MRE for Boorara has been determined using the hard wireframe boundary of 0.4 g/t for mineralisation envelopes that will be used for future mining studies.
- Approximately 90% of the total MRE is within 120 metres of the surface.
- The discovery of western contact mineralisation has potential to add significant tonnes to the current MRE and will underpin future organic growth of the Boorara deposit as we move toward a decision to mine. The location of the western contact zone can be seen on figure 1 in relation to the existing resource.
- Total of the MRE Measured and Indicated Resources is 4.65 Million Tonnes @ 1.2g/t for 179,000 ounces of gold.
- Geological knowledge of Boorara from trial pit exposure, diamond drilling 29 holes for 2,950 metres and recent structural/mapping work all bodes well for discovering more ounces and project development.



### **Boorara Gold Project**

#### Introduction

MacPhersons Resources Ltd (ASX:MRP) is pleased announce the MRE based on a 0.4 g/t cut-off grade that has recently been completed at the Boorara Gold Project, 15km east of Kalgoorlie. The objective of this new MRE for Boorara is to establish a solid resource base from which to undertake further mining studies.

The Boorara project is located on granted Mining Leases situated 1km south west of the Nimbus site where established offices are connected to the Kalgoorlie mains power supply and a production water supply has been established from the Stoneville borefield.

Gold mineralisation is predominantly hosted in the Boorara quartz dolerite. A structural study and geological mapping at the Boorara trial pit and surrounding Boorara area has confirmed the gold mineralisation at Boorara is hosted by quartz-dolerite and basalt in moderately NW-dipping quartz-carbonate-sulphide veinlet arrays with iron-carbonate alteration halos controlled by bounding shear zones and late cross faults similar to the 6 million ounce Mount Charlotte gold deposit part of the nearby Kalgoorlie Golden Mile.

Western contact mineralisation (sediments/dolerite/basalt) is a new exploration discovery that has potential to grow the existing Boorara resource. Further reverse circulation drilling and diamond drilling is being undertaken along the Western contact.

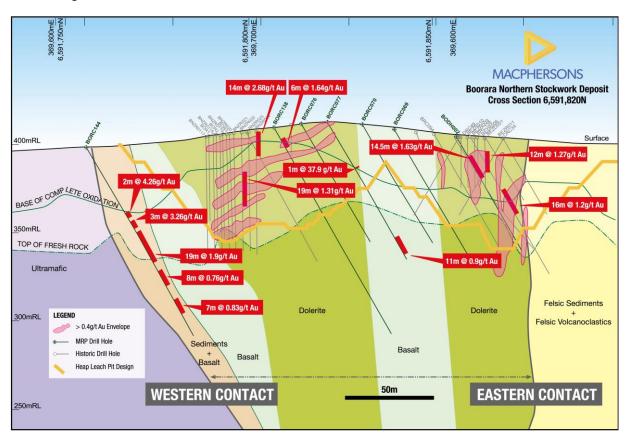


Figure 1: Typical Northern Stockwork deposit cross section 6591820N.



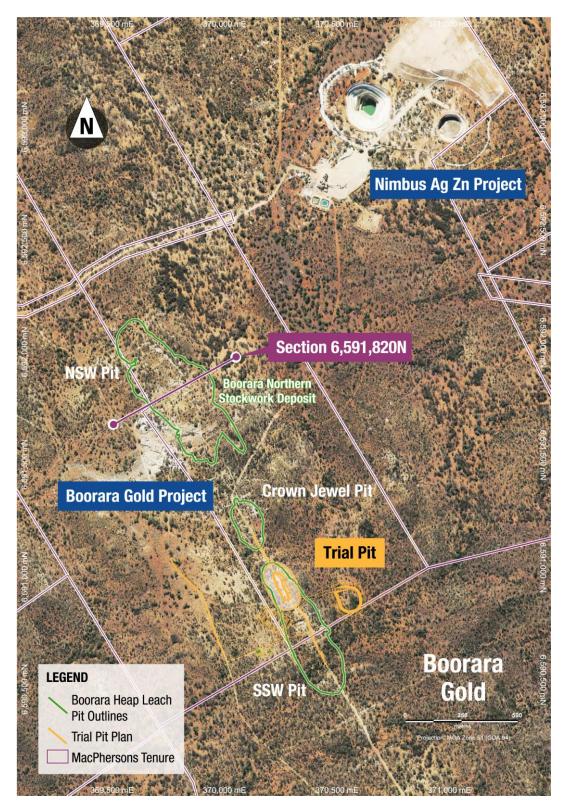


Figure 2: Boorara gold project location plan.



#### Mineral Resource Estimate

The MRE has been estimated at a 0.4 g/t lower cutoff grade for the Boorara Gold deposit as follows:

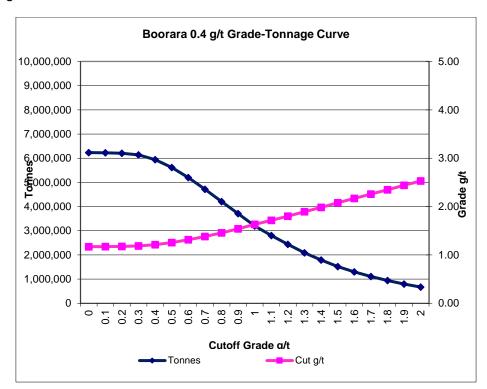
	Tonnes	Grade	Ounces
	MT	g/t	(k'000)
Measured Resource	1.74	1.10	62
Indicated Resource	2.91	1.20	117
Inferred Resource	1.3	1.30	52
Total Resource	5.95	1.20	232

The top cut off grade varies depending on geological domain with the maximum top cutoff grade of 24 g/t applied. The MRE will be subject to further infill and extensional drilling over the coming quarters with a view to updating it to be used as the basis for a future ore reserve.

The Other Material Information required by ASX Listing 5.8 are included in the page 6 of this announcement and the JORC Code, 2012 Edition Table disclosures are included at Appendix 1.

#### **Grade-Tonnage Distribution**

The grade-tonnage curve of the Boorara MRE is shown below:





The grade, tonnage and contained gold in the MRE at the above range of cut-off grades are shown in the table below:

Е	Boorara Gold Project Total Resource			
	at a Cut-off Grade Range			
Cut-off Grade	Tonnage	Grade	Contained Gold	
(g/t Au)	MT	(g/t Au)	Ounces	
0	6.2	1.17	235,000	
0.1	6.2	1.17	235,000	
0.2	6.2	1.18	234,000	
0.3	6.1	1.19	234,000	
0.4	5.9	1.21	232,000	
0.5	5.6	1.26	227,000	
0.6	5.2	1.31	219,000	
0.7	4.7	1.38	209,000	
0.8	4.2	1.46	197,000	
0.9	3.7	1.54	184,000	
1	3.2	1.63	168,000	
1.1	2.8	1.72	155,000	
1.2	2.4	1.8	141,000	
1.3	2.1	1.89	127,000	
1.4	1.8	1.98	114,000	
1.5	1.5	2.08	102,000	
1.6	1.3	2.17	91,000	
1.7	1.1	2.26	81,000	
1.8	0.9	2.35	71,000	
1.9	0.8	2.44	62,000	
2	0.7	2.53	55,000	



#### RESOURCES - OTHER MATERIAL INFORMATION SUMMARY

A summary of other material information pursuant to ASX Listing Rules 5.8 is provided below for the Boorara MRE. The Assessment and Reporting criteria in accordance with JORC Code 2012 is presented in Appendix 1 to this announcement.

### Geology and Geological Interpretation

The Boorara Gold Deposit is a typical quartz dolerite/basalt hosted sheeted veinlet system controlled by bounding shear zones or late stage cross faults.

Mineralisation occurs as:

- North west dipping sheeted and stockwork quartz-carbonate veins within quartz dolerite and basalt host rocks.
- 2. Steeply dipping zones along sheared geological contacts trending to the NNW

Gold mineralisation has associated pyrite and arsenopyrite with alteration halos of iron carbonate, sericite and bleaching.

Depth of weathering can vary from less than 10m around the Boorara Hill area to plus 50m in the Southern Stockworks area.

### Sampling and Sub-sampling

The Boorara Deposit has been drill tested over 40 years by Rotary Air Blast (RAB), Aircore, Reverse Circulation (RC) and Diamond Core methods. For resource estimation only samples from the latter two methods have been used.

RC samples are collected from the drill rig cyclone each metre and then sub sampled either by riffle splitter historically or more recently by cone splitter mounted beneath the drill rig cyclone. Both methods would produce a 3-4 kg sample for gold analysis.

Diamond core is either NQ or HQ sized and collected in core trays. Samples are collected by half cutting the core at various lengths based on geological parameters (to as small as 20cm) or at one metre intervals where there is consistent geology over wide intervals.

#### Sample Analysis Methods

All samples are analysed off-site by commercial laboratories based in Kalgoorlie or Perth.

All samples were analysed by a Fire Assay technique with sample preparation including crushing and pulverising with either a 30g or 50g sub-sample collected for firing and analysis. Other methods have been used and compared but to honour sample support the more consistent and widely used Fire Assay method was selected for estimation.

External agencies have completed audits on the historical (pre-MRP) assay datasets and quality control measures and no major issues were reported with sample or assay quality. MRP have routinely used Certified Reference Materials (standards) and blanks (made up from known un-mineralised materials) inserted into sample batches at regular intervals to monitor laboratory performance.



### **Estimation Methodology**

Estimation of gold was completed by Ordinary Kriging Method in Surpac V6.6 software into a block model with parent block sizes of 10m (North) by 5m (East) by 2.5m (vertical). Sub-blocking is used to 5m by 1.25m by 1.25m respectively. Sub-blocking is used to fill the wireframe as effectively as possible with gold grade inherited from the estimation of the parent blocks.

The estimation is constrained by wireframes constructed sectionally using a 0.4g/t Au grade cut-off as a hard boundary. These wireframes are also constrained by the dolerite contact generally although a small amount of mineralisation appears to exist in both the western ultramafic and eastern sediments. This is assumed to be a result of geological interpretation differences as these geological contacts can be obscure, particularly within the weathered horizon.

Statistical analysis using Probability Plots and/or Cumulatative Frequency Plots was used to determine if any need was required to reduce the influence of high grade outlier gold grades. This was completed for each sub-domain in the wireframe. High grade cuts were applied to the 1m composite samples extracted from these sub-domains and then both an uncut and a cut grade were estimated and reported.

Variography was completed on the more robust sub-domains where enough samples existed to give meaningful variogram models that were consistent with the geological knowledge of those sub-domains. These variogram models were applied to lesser adjacent or similar sub-domains that had sample populations that were too small to give acceptable results.

### **Tonnage factors**

Bulk densities were applied to Oxide, Transitional and Fresh and Ultramafic, Dolerite and sediment rock types respectively. Values were assumed based on 432 values derived from measurements taken from MRP core in 2013–2014. A variety of sample preparation methods have been used with determination being by a water immersion method.

### Resource Classification

Material has been classified as Measured Resource, Indicated Resource or Inferred Resource. Resource classification has been defined by sample spacing or number of samples within the lode, sample quality, geological confidence and data confidence.

Generally, Measured Resource is in areas of 20m by 20m spaced drilling or less with good geological continuity, Indicated Resource in areas of 40m by 40m spaced drilling or less with reasonable to good geological continuity and Inferred Resource being greater than 40m by 40m spaced drilling with fair to poor geological understanding.

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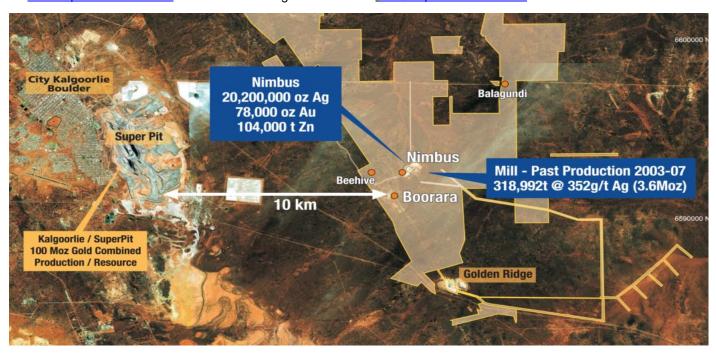


#### **About MacPhersons**

MacPhersons Resources Ltd (MRP) is a Western Australian resource company with a number of advanced gold, silver and zinc projects.

The company's long term objective is the development of its existing assets and unlocking the full potential of its 100% owned highly prospective Boorara/ and Nimbus projects.

For more information on MacPhersons Resources Limited and to subscribe for regular updates, please visit our website at: <a href="mailto:www.mrpresources.com.au">www.mrpresources.com.au</a> or contact our Kalgoorlie office on <a href="mailto:info@mrpresources.com.au">info@mrpresources.com.au</a> or - 08 9068 1300



#### **Competent Person's Statement**

The information is this report that relates to exploration results is based on information compiled by Andrew Pumphrey who is a Member of the Australian Institute of Geoscientists and is a Member of the Australasian Institute of Mining and Metallurgy. Andrew Pumphrey is a full time employee of Macphersons Resources Ltd and 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". Mr Pumphrey has given his consent to the inclusion in this report of the matters based on the information in the form and context in which it appears.

The information is this report that relates to mineral resources is based on information compiled by Mark Rigby who is a Member of the Australasian Institute of Mining and Metallurgy. Mark Rigby is an employee of Macphersons Resources Ltd and 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". Mr Rigby has given his consent to the inclusion in this report of the matters based on the information in the form and context in which it appears.



# **JORC Code, 2012 Edition – Table 1 Report**

## **Section 1 Sampling Techniques and Data**

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

CRITERIA	JORC CODE EXPLANATION	COMMENTARY
Sampling techniques	Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.	The Boorara Deposit was recently sampled using air reverse circulation (RC) drilling (RC 153 holes – 14203m) and diamond drilling (DD 29 holes for 2951m) drill holes on 20m spaced holes on 20m north and 40m north grid spacing that were angled -60° to 60°,240° & 150°.  The RC samples are collected from the drill rig cyclone in a green plastic bag in 1m intervals are laid out in rows of either 20 or 40 samples. A 2-4kg representative sample is split via the rig mounted cone splitter and placed on top of the green plastic for that metre interval.  Diamond drilling completed to industry standard using varying sampling lengths (0.3-1.2m) based on geological intervals.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	All sampling is undertaken using MacPhersons Resources sampling procedures and QAQC in line with industry best practise which includes standard and duplicate samples on average every 30 samples.  The RC drill rig provides a sample at the end of each metre of drilling. A 2-4 kg sample is collected from the drill rig via a cone splitter which is representative of that metre.  HQ or NQ diamond core was half cut to produce a 2-4 kg sample for analysis.
	Aspects of the determination of mineralisation that are Material to the Public Report.	Historic hole collars have been recovered where possible and surveyed by a licenced surveyor using a DGPS (0.01). Historic holes were down hole surveyed where possible for deviation by north seeking gyroscope method by local contactor ABIMS.
	In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 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 (e.g. submarine nodules) may warrant disclosure of detailed information.	The RC one metre sample intervals were collected with a 2-4 kg representative sample despatched to the laboratory for gold analysis.  The diamond half core sample intervals were typically a 2-4 kg representative sample dispatched to the laboratory for gold analysis.  All analysis was by 50g fire assay with AAS finish.



CRITERIA	JORC CODE EXPLANATION	COMMENTARY
Drilling techniques	Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).	The RC drilling was undertaken using a face sampling percussion hammer using 137mm drill bits.  The diamond drilling was undertaken using HQ3 or NQ3 (triple tube) and HQ3 or NQ3 (standard tube) techniques.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	Each metre of RC sample is checked and an estimate of sample recovery is made. For this program, greater than 80% of samples had a recovery of 70% or higher. Sample weights reported by laboratory can also give an indication or recoveries  DD core was measured and compared to drilled intervals, and recorded as a percentage recovery. Recovery in oxidised rock can be reasonable whereas recovery in fresh rock is excellent.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	Drillers experience is important. Steady drilling, good equipment, regular cleaning of cyclone and splitter, pausing the drilling at each metre to allow sample to pass through drill string and reducing sample loss.
		Using professional and competent DD drilling contractor minimises issues with sample recoveries through the use of appropriate drilling equipment techniques and drilling fluids suited to the particular ground conditions.
	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.	RC sample recoveries from the mineralised zones are generally high although some of the weathered material is lost in drilling (dust) and some natural voids do exist.  The DD sample recovery in the transitional and fresh rock zones is very high and no significant bias is expected. Recoveries in oxidised rock were lower.
		Although no exhaustive studies have been undertaken, no significant bias is expected, and any potential bias is not considered material at this stage of resource development.
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.	Each RC metre drilled underwent detailed logging through the entire hole with record kept of colour, lithology, degree of oxidation, alteration, veining and sulphide content.
		DD metres underwent detailed logging through the entire hole with record kept of colour, lithology, degree of oxidation, alteration, veining and sulphide content.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.	All logging is qualitative in nature and included records of lithology, oxidation state and colour with estimates of intensity of mineralisation, alteration and veining. Wet and dry photographs were completed on the core.
	The total length and percentage of the relevant intersections logged.	All drill holes were geologically logged in full (100%).



CRITERIA	JORC CODE EXPLANATION	COMMENTARY
Sub- sampling techniques	If core, whether cut or sawn and whether quarter, half or all core taken.	Core was half cut with a diamond saw with the same half always sampled and the other half retained in core trays.
and sample preparation		In some instances oxidised and non-competent clay zones are carefully split in half using sampling wedge and sampled as half core.
	If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.	All RC sub-samples are collected via a cone splitter system mounted on the drill rig. Virtually all samples are dry to moist in nature and pass through the cyclone – splitter system as required.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	All samples were analysed via a 50 gram fire assay.  Sample preparation and analysis were completed by ALS in Kalgoorlie. When received processed by code PREP-31 - logged in tracking system and bar code attached, wet samples dried through ovens, fine crushing to better than 70% passing 2mm, split sample using riffle splitter, split of up to 1000g pulverised to >85% sample passing 75um.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	The RC drill rig mounted cone splitter is adjusted to ensure that the 1m split sample weighs on average between 2-4kg. The cone splitter is cleaned using a air nozzle after every drill rod – 6m.
		All sampling equipment and sample bags are kept clean at all times.
		MacPhersons Resources sampling procedures and QAQC is used to maximise representivity of samples.
	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.	MRP has undertaken an analysis of the QAQC of the Boorara drilling which has included the use of certified reference materials (standards) and unmineralised samples (blanks). Some duplicate sampling has also been undertaken.
		Field duplicates on core, ie other than half of cut core, have not been routinely assayed.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	The sample sizes (0.5 kg to 3 kg) are considered appropriate for the style of mineralisation at Boorara.
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.	The nature, quality and appropriateness of the assaying and laboratory procedures are industry standard for Archaean mesothermal lode gold deposits. The fire assay technique will result in a total assay result.
	For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors	None of these tools are used
	applied and their derivation, etc.	



CRITERIA	JORC CODE EXPLANATION	COMMENTARY
	Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been	Certified Reference Materials (standards) are purchased from an independent supplier of such materials. Blanks are made up from samples previously collected from other drill programs at Boorara –Nimbus that have analysed as less than detection Au values.
	established.	A standard sample followed by a blank sample are inserted every 30 <sup>th</sup> sample.
		Evaluation of the Macphersons submitted standards and blanks analysis results indicates that assaying is accurate and without significant drift.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	At least three different company personnel visually verified intersections in the collected drill chips. A representative sample of each metre is collected and stored for further verification if needed. Drill core or core photos are used to verify drill intersections in diamond core samples.
	The use of twinned holes.	The spatial location and assaying accuracy of historical drilling was confirmed with RC and DD twinned holes. The RC drilling spatial location was and assay accuracy was also twinned by MacPhersons DD holes.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Data collected in the form of spread sheets, for drill hole collars, surveys, lithology and assay.
		All geological and field data is entered into excel spreedsheets with lookup tables and fixed formatting (and protected from modification) thus only allowing data to be entered using the MacPhersons geological code system and sample protocol.
		Data is verified and validated by MRP geologists and stored in a Microsoft Access Database
		Data is emailed to a database administrator for validation and importation into a GEMS database and periodically into a SQL database using Datashed.
	Discuss any adjustment to assay data.	No adjustments are made to the primary assay data imported into the database.
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.	Initial hole collars surveyed by licenced surveyor DGPS (0.01m). RC drill line by surveyed back sight and foresight pegs. Dip was checked with clinometer on drill mast at set up on hole. RC holes are surveyed by down hole surveys at 30m intervals using single shot "Reflex Camera +/- 0.10 by drill contractor.
		Post drilling RC holes where possible are surveyed for deviation by gyroscope method by local contractor ABIMS Ltd.
		Final hole collar locations surveyed by licenced surveyor (Minecomp Pty Ltd) DGPS (0.01m).



CRITERIA	JORC CODE EXPLANATION	COMMENTARY
	Specification of the grid system used.	The grid system used is Geocentric Datum of Australia 1994 (GDA94).
	Quality and adequacy of topographic control.	Historical – Aerial photography used to produce digital surface topographic maps at 1:2500 1m contours.
		2011 - Fugro Spatial Solutions Pty Ltd detailed aerial photographic survey. Orthorectification and mosaicking performed using Inpho Digital Photogrammetric Systems. Expected accuracy of detail within 0.8mm at the ortho-image map scale.
		Topographic control is from an aerial photographic survey completed during 2012 with accuracy within 0.01m.
Data spacing and distribution	Data spacing for reporting of Exploration Results.	The majority of drilling at Boorara is close spaced down to 10m line x 5m hole, with the remainder 20m line x 10m hole and some more wide spaced at 40m line x 10m hole. Diamond core holes were all drilled in areas of the Measured Resource.
	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.	The data spacing and distribution is sufficient to demonstrate spatial and grade continuity of the mineralized domains to support the current MRE classifications as Measured, Indicated and Inferred according to JORC (2012 Edition) reporting criteria.
	Whether sample compositing has been applied.	No sample compositing has been applied in the field within the mineralised zones.
		There was one instance of a 2m sample being collected which was caused by human error when a sample bag was missed otherwise all other samples are collected from each one metre interval.
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.	Drill holes were orientated 060°/-60° or 240°/-60°. Which is considered to be perpendicular to the overall geological orientation. Various other orientations have been tried historically to try and capture the best orientation to drill various different structures and vein orientations.
	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.	It is not believed that drilling orientation has introduced a sampling bias.
Sample security	The measures taken to ensure sample security.	Chain of custody is managed by MRP. Field samples are delivered to the assay laboratory in Kalgoorlie by MRP personnel. Whilst in storage, they are kept in a locked yard. Tracking sheets have been set up online to track the progress of batches of samples through the laboratory.
419		Sample pulps and coarse rejects are stored at ALS for a period of time and then returned to MRP.



CRITERIA	JORC CODE EXPLANATION	COMMENTARY
Audits or reviews	The results of any audits or reviews of sampling techniques and data	CSA completed a review in early 2015 of the MRP sampling protocols as part of their Resource estimation work and were satisfied that the adequacy of sample preparation, sample security and analytical procedures support the Mineral Resource classification discussed and are of industry standard.  MRP have maintained those sampling protocols from that time.



# **JORC Code, 2012 Edition – Section 2 Report**

## **Section 2 Reporting of Exploration Results**

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

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 Boorara Project is located approximately 17km east-southeast of Kalgoorlie, 2km west of Nimbus and 6km north-northwest of Golden Ridge' The Boorara project is situated within mining leases M26/29, M26/277 and M26/318 accessed from the Kalgoorlie-Bulong Road via an unsealed haul road. The tenements are located within the Hampton Hill Pastoral Station.  Normal Western Australian state royalties apply. A third party royalty of \$1/t is payable to a maximum of \$1 million on M26/277. A third party royalty based on production milestones is payable on M26/29, M26/318 & M26/161 as below;  • 25,000 ounces gold production – 375 ounce royalty payable • 50,000 ounces gold production – 375 ounce royalty payable • 75,000 ounces gold production – 375 ounce royalty payable • 100,000 ounces gold production – 375 ounce royalty payable • 100,000 ounces gold production – 375 ounce royalty payable  Situated within the Boorara Project area are the reserves associated with the Boorara townsite. Proposed open pit operations will not impact on the reserves.  The location of waste dumps will be sited so as to avoid mineral resources, exploration targets and to work with other mining infrastructure associated with the Nimbus operations located within 2km of the proposed Boorara open pits.  MRP purchased the Nimbus property on 8th September 2011 from Kalgoorlie Ore Treatment Company Pty Ltd (KOTC). The tenements are held by KOTC, a wholly owned subsidiary of MacPhersons Resources Ltd.
	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.	The tenements are in good standing and no known impediments exist.



CRITERIA	JORC CODE EXPLANATION	COMMENTARY
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	Historic gold production at Boorara produced 30,673 oz's from the treatment of 54,731 tonnes of ore. This production was from underground mining at the Cataract shaft, East Lode shaft and the Crown Jewel shaft. Historic mine plans and sections show two orientations of mine stopes, one at 040°/25° NW and another at 315°/65°W.
		Dampier Mining Pty Ltd and Texas Gulf Australia Ltd in 1980 drilled 20 RC holes for 1038m and 10 diamond holes for 1695m.
		Western Reefs NL in 1985 undertook soil sampling on a 40m x 20m grid. They also completed 180 RAB holes for 9892m, 268 RC holes for 20,831m and 26 diamond holes for 2609m. Geological mapping was undertaken by Western Reefs including costean mapping and sampling. The Cataract shaft was refurbished and geologically mapped and surveyed. The Crown Jewel shaft was mapped and surveyed also.
		Windsor Resources in 1988 drilled 174 RC holes for 11274m.
		Newmont in 1990 drilled 338 RAB holes for 15446m, 39 RC holes for 4319m and 4 diamond holes for 718m. Geological mapping and soil sampling was also undertaken.
		Mt Monger Gold Project in 1993 drilled 116 RC holes for 6222m.
		Fimiston Mining NL in 1995 drilled 110 RC holes for 7257m and 1 diamond hole for 195m. The data relating to the Boorara gold deposits comprising the Southern Stockwork Zone, Northern Stockwork Zone, Cataract Area, East Lode and Digger Dam was reviewed. The database was updated to incorporate the drilling completed by Fimiston and cross sections and interpretations made. A global polygonal based resource estimate was made which estimated resources of 2.25 million tonnes @ 1.40g/t Au at a cut-off grade of 0.5g/t or 1.42 million tonnes @ 1.72 g/t Au at a cut off of 1.0 g/t to be estimated. Block modelling of this polygonal data was then completed which returned a total oxide resource of 1,293,000 tonnes @ 1.49 g/t, and a total fresh resource of 1,095,000 tonnes @ 1.86g/t.
		New Hampton Goldfields Ltd in 2001 undertook a resource estimate at Boorara which resulted in a JORC compliant undiluted mineral resource of 1,506,000t @ 1.85 g/t Au. Open pit design of the



CRITERIA	JORC CODE EXPLANATION	COMMENTARY
		Southern Stockwork, Cataract and the Northern Stockwork resulted in a Probable Reserve of 179,000t @ 3.0 g/t Au. The New Hampton Goldfields Ltd — Jubilee Gold Operations report, "Mineral Resource Estimate Report, Boorara M26/29 M26/318 and M26/161, June 2001 G Job" outlines the methodology and an explanation of the resource calculation.
		Polymetals (WA) Pty Ltd in 2006 estimated a NON JORC complaint total resource summary of 1,904,800t @1.38g/t Au using a cutoff grade of 0.5 g/t Au.
		Polymetals (WA) Pty Ltd in 2009 completed 18 RC holes for 1770m. From this program 126 samples with >1.0g/t Au were screen fire assayed, with another 34 duplicates taking the total samples assayed via screen fire assay to 160.
Geology	Deposit type, geological setting and style of mineralisation.	The Boorara Au deposit is an Archaean mesothermal Au deposit.
		The Boorara local geology consists of a sequence of ultramafic, mafic and felsic volcanic and volcaniclastic rocks, with interflow carbonaceous sediments found on the lithological boundaries. Dolerite intrusions are conformable within the sequence. The metamorphic grade of rocks at Boorara is lower greenschist facies. The alteration assemblage associated with better Au grades consists of quartz carbonate and sericite. Pyrite and arsenopyrite are associated with the better Au grades at Boorara.
		At Boorara gold mineralisation has been described by Verbeek (1987) to occur :
		<ul> <li>Near dolerite contacts associated with quartz stockwork or vein arrays. Pervasive carbonate-sericite alteration is present.</li> <li>Sulphides occur in the vein selvedge with proximal arsenopyrite and distal pyrite.</li> <li>Veins are usually less than 20 mm wide whilst the selvedge may be 1 to 4 times the width of the vein.</li> <li>Associated with quartz veins in shallow (20 to 45 degrees) north-dipping shear zones.</li> <li>Associated with steep (50 to 70 degrees)</li> </ul>
		east-dipping shear zones on dolerite contacts.



CRITERIA	JORC CODE EXPLANATION	COMMENTARY
		<ol> <li>Mineralisation envelopes at Boorara consist of three dominant orientations:</li> <li>NW trend of sub-vertical mineralisation which is typified by the East Lode workings, and interpreted SSW mineralisation, and interpreted as sub parallel to lithology contacts</li> <li>NW moderate NE dipping structure at Crown Jewel, sub parallel to lithology contacts</li> <li>NE striking, shallow to moderate NW dipping structures typified by Cataract workings. This orientation is interpreted to gradually change to a north strike, moderate West dip as the series progresses to the northern extent of the modelled area.</li> </ol>
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:  1. easting and northing of the drill hole collar 2. elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar 3. dip and azimuth of the hole 4. down hole length and interception depth 5. hole length.	Not applicable as there are no new exploration results reported as part of this statement.
	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.	Other relevant drill hole information can be found in Section 1-"Sampling techniques, "Drilling techniques" and "Drill sample recovery".
Data aggregation methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.	This release is in relation to a Mineral Resource Estimate, with no new exploration results being reported.
	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.	



CRITERIA	JORC CODE EXPLANATION	COMMENTARY
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results.	These drill holes are designed to drill perpendicular to the geological rock units at Boorara which gives MRP geologists a good understanding of mineralisation widths encountered.  The geometry of the western contact mineralisation is unknown until further drilling can be completed.
	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 (e.g. 'down hole length, true width not known').	The dominant mineralisation geometries seen at the Boorara gold project are;  1. Shear zone hosted mineralisation on the dolerite east contact which strikes 320° and is steeply dipping to the west.  2. Quartz vein hosted mineralisation that is orientated 040°/30°NW, 020°/35°NW  The true width of the ore at the Boorara gold resource is reasonably well known from the earlier deeper resource drilling, but at Boorara does not appear to be consistent in width due to the structural setting of the mineralisation. Greater than 90% of all drill holes would define both boundaries to mineralisation from which a true width can be reasonably determined.
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.  (NOTE: Any map, section, diagram, or other graphic or photo must be of high enough resolution to clearly be viewed, copied and read without distortion or loss of focus).	Please refer to the body of the announcement
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.	Not applicable as there are no new exploration results being released as part of this statement.
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.	The diamond holes were also utilised for bulk density measurements. Geotechical logging has been completed on all diamond holes.



CRITERIA	JORC CODE EXPLANATION	COMMENTARY
Further work	The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).	The western contact mineralisation will be tested with more RC drilling and a diamond hole.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	This release is in relation to a Mineral Resource Estimate, with no new exploration results being released.
	(NOTE: Any map, section, diagram, or other graphic or photo must be of high enough resolution to clearly be viewed, copied and read without distortion or loss of focus).	



# **JORC Code, 2012 Edition – Section 3 Report**

## **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.	The database was validated by reconciling all available previous hardcopy drill logs and assay results against the existing drill hole database at Boorara.  All geological and field data is entered into excel spreedsheets with lookup tables and fixed formatting (and protected from modification) thus only allowing data to be entered using the MacPhersons geological code system and sample protocol. Data is verified and validated by MRP geologists and stored in a Microsoft Access Database  Data is emailed to a database administrator for validation and importation into a GEMS database and periodically into a SQL database using Datashed.
	Data validation procedures used.	The database was viewed in 3D mining software and interval validated prior to commencing modelling. Database audits can be completed using similar software.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	Multiple site visits were undertaken by the modelling geologist, including reviewing MRP DDH core and supervising drill programs. Modelling was performed at Nimbus site. The Competent Person is MRP company staff and is based in Kalgoorlie.
	If no site visits have been undertaken indicate why this is the case.	A significant amount of time has been spent on site as per above comment.
Geological interpretation	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	There is reasonable confidence of the interpretation of the structurally controlled mesothermal mineralisation at Boorara.  Confidence in the 3D interpretation (Wireframing) varies within the different sections of the model dependent mostly upon drill density or by lack of appling or logging of goology. This upports into
		sampling or logging of geology. This uncertainty was used to inform the Resource Category classification.



CRITERIA	JORC CODE EXPLANATION	COMMENTARY
	Nature of the data used and of any assumptions made	The wireframing was completed using RC and DDH drilling and the gold assay and geology data for each drill hole. In some cases wireframes may be extended through low grade drill intercepts if geology is similar.
		It is assumed that historical logging is an accurate reflection of the geology intercepted. It is also assumed that no mineralisation occurs in the western ultramafic unit or the eastern sedimentary units and that mineralised intercepts that do occur in these units may be a result of logging differences between different geologists.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	Where alternative geological or mineralisation interpretations have been available, the more conservative option has been selected. Opportunity exists to further increase ore tonnage with alternative interpretations, however it would be preferable to further drill test these areas.
	The use of geology in guiding and controlling Mineral Resource estimation.	The interpretation is generally confined to lithological units (Boorara Dolerite) which is well mapped and modelled.
	The factors affecting continuity both of grade and geology.	The Stockwork zones at Boorara display complex short scale continuity, which has been modelled to include internal dilution. Other lodes displayed greater short-scale grade and geology continuity. Faulting with small scale off sets are noted in UG mapping, but impossible to model at deposit scale, and have been omitted from the model. These are assumed to have neutral effect on contained volume of mineralisation.
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.	1890m strike, 345m across dip at maximum point, and 220m max depth below surface. Most of the resource (98%) is within 120m of surface.



CRITERIA		JORC CODE EXPLANATION	COMMENTARY
Estimation and modeling techniques	nd	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.	Estimation was via ordinary kriging on Surpac v6.6 following variogram modelling of the main domains in the deposit. The variogram parameters derived from the main lodes were applied to secondary domains of similar orientation, where low sample counts prevented meaningful variography. Maximum search distance was generally range of maximum sill, except where nugget effect was significant in which situation ranges exceeded the short ranges modelled in variogram. Minimum and maximum samples used were varied according to pass numbers, a technique used to estimate into low sample density areas.  There is some top-cutting of extreme high grades based on statistical analyses of various domains – sub domains
		The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	Numerous resource estimates have been undertaken at Boorara prior to this, most focused on high grade portions. The 3D models of these were reviewed, and improvements made in the July 2013 estimate with aim of constructing a model suitable for a bulk-mining scenario. Historic selective UG production records were considered inappropriate for reconciliation of a diluted Resource estimate.
		The assumptions made regarding recovery of by-products.	This estimate pre-dates the trial pit bulk sample completed in 2016 as this has not yet been reconciled.  No by-products were considered for this estimation. A preliminary multi-element analyses
			carried out on 2013 DDH samples did not identify any other by-product metals for the Boorara Gold project.
		Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation).	No deleterious elements were considered in this estimation. A preliminary multi-element analyses carried out on 2013 DDH samples did not identify any deleterious elements for the Boorara Gold project.
		In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	Block size of 10m Y 5m X 2.5m Z (metres), sub celling to 5m Y 1.25m X 1.25m Z with data density ranging from 10 x 10m spaced drill holes or less, to 40m x 20m spacing. Interpolation ranges varied from 40m to 100m
		Any assumptions behind modelling of selective mining units.	The model employs both bulked Stockwork domains with up to 4m internal dilution, and domains suitable for selective mining which have max of 2m internal dilution included in the mineralised envelope.



CRITERIA	JORC CODE EXPLANATION	COMMENTARY
	Any assumptions about correlation between variables.	No correlation between variables is required
	Description of how the geological interpretation was used to control the resource estimates.	Interpolation was constrained into 3D wireframes of interpreted mineralisation extents. The 3D wireframes were constructed from a combination of lithological contacts, quartz veining, oxidation, and assay information.
	Discussion of basis for using or not using grade cutting or capping.	The domain composite samples were reviewed for top cutting of outlier high grades using cumulative frequency distributions and probability plots. These cut off grades were then applied and both grades are estimated and reported.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	The interpolation results (block model) were validated by visually checking against drill holes assay grades in section and long section view, by reconciling interpolated grade against composite grade on 10m RL and 50m North bins, and by reconciliation of domain average composite grade to interpolated grade. As historic mine production relates to the period of 1890's to the 1940's no suitable mine reconciliation data was available.
Moisture	Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	Tonnes estimated on basis of dry tonnes. No moisture data is available.
Cut-off parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	The Mineral resource estimate is reported to above 0.4g/t Au.
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.	Assumption is that the bulk of the resource will be exploited by large scale open pit mining methods with a low grade cut off between 0.3 to 0.4 g/t. These lower cut offs are based on the operation providing large tonnes for a heap leach treatment option although the CIP treatment options is under consideration.



CRITERIA	JORC CODE EXPLANATION	COMMENTARY
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	Bottle roll in leachwell solutions have confirmed >90% digestion is common. This demonstrates the mineralisation is amenable to conventional CN leach digestion.  CIP metallurgical testwork has been undertaken on samples from the NSW, CJ and SSW heap leach pit design areas indicating 93% recoveries.  A 30,000t bulk sample from Boorara trail pit was processed through a CIP mill with recoveries of 94%. This milling of this ore experienced viscosity issues that resulted in a slower plant throughput of 115tph instead of the expected 140-150tph. It is expected that the use of appropriate viscosity modifiers will result in higher milling rates.  In the 1980's, a Vat Leach operation was carried out on a portion of the Boorara tailings dump. The remnants of this material ranges mainly from 0.2 – 0.4g/t (head grade of 17g/t), which also supports the leachability of the gold.
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.	Assumption of waste rock being of no environmental significance, based on local experience in numerous greenschist facies gold deposits which contain significant carbonate mineralogy as part of the mineralisation and wasterock. This carbonate content has been shown to be an effective buffer to mitigate any risk of acid mine drainage regardless of the extent of sulphur in the ore/wasterock.  The deposit is located within an established mining area of considerable historical disturbance, and therefore there would be no obvious constraints on further mining and extraction activities which will allow for remediation of legacy issues where overlapping occurs
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	Density is from determinations via the Archimedes method on full or 1/2 HQ core of 10-30cm in length.  Wax coatings on samples was used on porous rocks to prevent ingress of water during the
	adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.	Archimedes method.



CRITERIA	JORC CODE EXPLANATION	COMMENTARY
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	Density was assigned to the model based on geology and oxide, transition, and fresh rock basis, with separate mineralised and waste values. These were based on averages from within the 3D space in which the density determinations were made.
Classification	The basis for the classification of the Mineral Resources into varying confidence categories.	The model was classified based on a combination of geological confidence in interpretation which is itself a function of geological continuity, model robustness and drill density.
	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).	All relevant factors were taken into consideration.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The Resource categories accurately reflect the CPs view of their confidence in the deposit.
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	The initial audits and reviews have been carried out internally by highly experienced team of MRP staff geologists. Earlier similar resource estimations were audited by external geological consultants and all methodology and procedures undertaken by MRP were deemed acceptable.
Discussion of relative accuracy/ confidence	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.	This is a global estimate of Mineral Resources.
	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	Confidence level in the validity of this global resource estimation based on the data available is good based on auditing feedback from previous estimations using similar methodology as well as validation techniques used.  Mine reconciliation work from the trial pit will help with further resource estimation processes as will
	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.	structural geology studies currently being undertaken to determine if estimation orientations are appropriate or could be improved on.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	Historic production records indicate significantly higher grades than estimated at Boorara. However, this model is a bulk-mining style model with 0.4g/t Au 3D models which are not comparable to selective UG mining methods.